

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

74

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. 89417
KNOX County
Section 05-00500-19-GS / 50VB (Galesburg)
Route FAU 6800 (Us 150)
Project RRP-5025(061)
District 4 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

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. 89417
KNOX County
Section 05-00500-19-GS / 50VB (Galesburg)
Project RRP-5025(061)
Route FAU 6800 (Us 150)
District 4 Construction Funds**

Project consists of the construction of a grade separation structure to carry the BNSF Railroad over East Main Street, retaining walls, pavement reconstruction, curb and gutter, storm sewer, sanitary sewer, water main, highway lighting and traffic signals. Project is located in the City of Galesburg.

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)

STATE JOB # - C-94-116-06
 PPS NBR -

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 1
 RUN DATE - 06/29/16
 RUN TIME - 183023

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE		
KNOX	095	04	05-00500-19-GS/50VB GALESBURG	RRP-5025/061/000	FAU 6800		
ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
B2001116	T-CERCIS CAN TF 2	EACH	21.000				
B2004116	T-MALUS PF TF 2	EACH	20.000				
XX000300	CONCRETE STEPS	SQ FT	101.000				
XX001286	SPECIAL EXCAVATION	CU YD	29,604.000				
XX002090	STAIR SIDE RAILING	FOOT	30.000				
XX004242	ORNAMENTAL HANDRAIL	FOOT	160.000				
XX006653	FENCE (SPECIAL)	FOOT	446.000				
XX006898	STAMPED COLORED PCC	SQ FT	553.000				
XX007531	REL EX LTPOLE/NEW FDN	EACH	2.000				
XX007797	LUMINAIRE SPL	EACH	38.000				
XX008257	STAMP COL PCC SDWLK 5	SQ FT	5,067.000				
XX008892	MAN ADD DEPTH 4D	FOOT	9.250				
XX008954	P P CONC FASCIA BEAM	FOOT	446.000				
XX009058	TRACK MONITORING	L SUM	1.000				
X0323389	STORM SEW CONNECTION	EACH	2.000				

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 2
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
X0323760	SAN SEW SER 6 PVC CMP	EACH	1.000	=			
X0323898	CCTV DOME CAMERA	EACH	2.000	=			
X0323923	SUPPORT EQUIP & MAINT	L SUM	1.000	=			
X0324455	DRILL/SET SOLD P SOIL	CU FT	3,058.000	=			
X0324878	ADJ SAN SEW SERV LINE	EACH	6.000	=			
X0325751	DRIVE SOLDIER PILES	FOOT	175.000	=			
X0326654	ORNAM LIGHT UNIT COMP	EACH	23.000	=			
X0326671	CONC SURF COLOR TRMNT	SQ FT	60.000	=			
X0326812	CAT 5 ETHERNET CABLE	FOOT	500.000	=			
X0326864	BRICK SIDEWALK REM	SQ FT	1,457.000	=			
X0327131	DRAIN STRUCTURES N1	EACH	3.000	=			
X0327241	STL CAS P TR 24	FOOT	30.000	=			
X0327680	TRENCH DRAIN	FOOT	24.000	=			
X0327980	PAVMT MRKG REM WTR BL	SQ FT	1,377.000	=			
X0783300	P.S. ELECTRICAL WORK	L SUM	1.000	=			

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X0783500	P.S. MECHANICAL WORK	L SUM	1.000	=			
X2130010	EXPLOR TRENCH SPL	FOOT	50.000	=			
X4401198	HMA SURF REM VAR DP	SQ YD	1,942.000	=			
X5011100	FOUNDATION REM	EACH	1.000	=			
X5040050	PREC CONC SUBSTRUCT	L SUM	1.000	=			
X5860110	GRANULAR BACKFILL STR	CU YD	370.000	=			
X6022810	MAN SAN 4 DIA T1F CL	EACH	7.000	=			
X6026054	SAN MAN REMOVED	EACH	6.000	=			
X6026056	SAN MH ADJ NEW T1F CL	EACH	11.000	=			
X6060505	CONC CURB SPL	FOOT	207.000	=			
X6700410	ENGR FLD OFF A SPL	CAL MO	20.000	=			
X7010216	TRAF CONT & PROT SPL	L SUM	1.000	=			
X8110454	CON AT ST 1 SS	FOOT	30.000	=			
X8211000	UNDERPASS LUM (SP)	EACH	6.000	=			
X8211175	LUM LED HM 175W	EACH	4.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 4
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
X8250210	PHOTOCELL RELAY	EACH	1.000	=			
X8710024	FOCC62.5/125 MM12SM24	FOOT	3,500.000	X			
X8710050	FO ETN DROP REPEAT SW	EACH	2.000	X			
X8710071	FIB OPT FUSION SPLICE	EACH	18.000	X			
Z0007118	UNTREATED TIMBER LAG	SQ FT	829.000	X			
Z0007601	BLDG REMOV NO 1	L SUM	1.000	X			
Z0013302	SEGMENT CONC BLK WALL	SQ FT	4,212.000	X			
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000	X			
Z0015200	CURB STOPS 1 1/2	EACH	2.000	X			
Z0018800	DRAINAGE SYSTEM	L SUM	1.000	X			
Z0022800	FENCE REMOVAL	FOOT	99.000	X			
Z0026402	FUR SOLDIER PILES HP	FOOT	175.000	X			
Z0026404	FUR SOLDIER PILES WS	FOOT	505.000	X			
Z0046304	P UNDR FOR STRUCT 4	FOOT	1,108.000	X			
Z0047700	PUMPING STATION	L SUM	1.000	X			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 5
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
Z0048665	RR PROT LIABILITY INS	L SUM	1.000	=			
Z0048900	RR TRACK REMOV	FOOT	690.000	=			
Z0049801	R&D FRIABL ASB BLD 1	L SUM	1.000	=			
Z0049901	R&D NON-FR ASB BLD 1	L SUM	1.000	=			
Z0056648	SS 1 WAT MN 12	FOOT	127.500	=			
Z0056652	SS 1 WAT MN 18	FOOT	91.500	=			
Z0056668	SS 2 WAT MN 12	FOOT	60.500	=			
Z0056670	SS 2 WAT MN 18	FOOT	66.000	=			
Z0056900	SAN SEW 8	FOOT	403.000	=			
Z0057100	SAN SEW 12	FOOT	211.000	=			
Z0067900	STEEL CASINGS 24	FOOT	128.000	=			
Z0073002	TEMP SOIL RETEN SYSTM	SQ FT	2,170.000	=			
Z0076600	TRAINEES	HOUR	1,000.000	=	0.80		800.00
Z0076604	TRAINEES TPG	HOUR	1,000.000	=	15.00		15,000.00
20100110	TREE REMOV 6-15	UNIT	38.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 6
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
20100210	TREE REMOV OVER 15	UNIT	52.000	=			
20201200	REM & DISP UNS MATL	CU YD	1,000.000	=			
20700220	POROUS GRAN EMBANK	CU YD	1,000.000	=			
20800150	TRENCH BACKFILL	CU YD	1,818.000	=			
21001000	GEOTECH FAB F/GR STAB	SQ YD	11,291.000	=			
21101625	TOPSOIL F & P 6	SQ YD	26,074.000	=			
25000100	SEEDING CL 1	ACRE	3.250	=			
25000400	NITROGEN FERT NUTR	POUND	418.000	=			
25000500	PHOSPHORUS FERT NUTR	POUND	418.000	=			
25000600	POTASSIUM FERT NUTR	POUND	418.000	=			
25100115	MULCH METHOD 2	ACRE	3.250	=			
25200100	SODDING	SQ YD	9,102.000	=			
25200110	SODDING SALT TOLERANT	SQ YD	1,637.000	=			
25200200	SUPPLE WATERING	UNIT	161.000	=			
28000250	TEMP EROS CONTR SEED	POUND	539.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 7
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
28000305	TEMP DITCH CHECKS	FOOT	90.000	=			
28000400	PERIMETER EROS BAR	FOOT	1,340.000	=			
28000510	INLET FILTERS	EACH	45.000	=			
30300011	AGG SUBGRADE IMPROVE	TON	8,822.000	=			
35300200	PCC BSE CSE 7	SQ YD	77.000	=			
40200500	AGG SURF CSE A 6	SQ YD	392.000	=			
40201000	AGGREGATE-TEMP ACCESS	TON	500.000	=			
40600275	BIT MATLS PR CT	POUND	4,134.000	=			
40600285	P BIT MATLS PR CT	POUND	7,308.000	=			
40600837	P LEV BIND MM N70	TON	606.000	=			
40600982	HMA SURF REM BUTT JT	SQ YD	491.000	=			
40603100	HMA BC IL-19.0L N30	TON	333.000	=			
40603305	HMA SC "C" N30	TON	246.000	=			
40603540	P HMA SC "D" N70	TON	910.000	=			
42000201	PCC PVT 7 JOINTED	SQ YD	1,303.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 8
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
42000306	PCC PVT 8 1/4 JOINTD	SQ YD	8,362.000	=			
42001300	PROTECTIVE COAT	SQ YD	6,854.000	=			
42300200	PCC DRIVEWAY PAVT 6	SQ YD	105.000	=			
42300400	PCC DRIVEWAY PAVT 8	SQ YD	738.000	=			
42400100	PC CONC SIDEWALK 4	SQ FT	24,653.000	=			
42400300	PC CONC SIDEWALK 6	SQ FT	380.000	=			
42400410	PC CONC SIDEWALK 8	SQ FT	5,586.000	=			
42400800	DETECTABLE WARNINGS	SQ FT	191.000	=			
44000100	PAVEMENT REM	SQ YD	10,398.000	=			
44000200	DRIVE PAVEMENT REM	SQ YD	1,989.000	=			
44000300	CURB REM	FOOT	402.000	=			
44000500	COMB CURB GUTTER REM	FOOT	3,345.000	=			
44000600	SIDEWALK REM	SQ FT	13,150.000	=			
44201329	CL C PATCH T2 8	SQ YD	49.000	=			
44201333	CL C PATCH T3 8	SQ YD	35.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 9
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
44201335	CL C PATCH T4 8	SQ YD	178.000	=		
44201747	CL D PATCH T4 8	SQ YD	188.000	=		
50200100	STRUCTURE EXCAVATION	CU YD	5,768.000	=		
50300225	CONC STRUCT	CU YD	399.000	=		
50300285	FORM LINER TEX SURF	SQ FT	3,764.000	=		
50500105	F & E STRUCT STEEL	L SUM	1.000	=		
50500505	STUD SHEAR CONNECTORS	EACH	142.000	=		
50800205	REINF BARS, EPOXY CTD	POUND	22,550.000	=		
51100100	SLOPE WALL 4	SQ YD	580.000	=		
51202100	FUR STL PILE HP14X117	FOOT	12,543.000	=		
51202305	DRIVING PILES	FOOT	11,322.000	=		
51204100	TEST PILE ST HP14X117	EACH	4.000	=		
51500100	NAME PLATES	EACH	2.000	=		
52100560	ANCHOR BOLTS 2	EACH	180.000	=		
550A0050	STORM SEW CL A 1 12	FOOT	1,319.500	=		

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 10
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
550A0070	STORM SEW CL A 1 15	FOOT	233.000	=		
550A0340	STORM SEW CL A 2 12	FOOT	163.500	=		
550A0360	STORM SEW CL A 2 15	FOOT	77.500	=		
550A0380	STORM SEW CL A 2 18	FOOT	61.000	=		
550A0410	STORM SEW CL A 2 24	FOOT	16.500	=		
56100600	WATER MAIN 6	FOOT	300.000	=		
56100900	WATER MAIN 12	FOOT	1,110.000	=		
56103300	D I WATER MAIN 12	FOOT	565.000	=		
56103520	D I WATER MAIN 24	FOOT	988.000	=		
56104900	WATER VALVES 6	EACH	6.000	=		
56105200	WATER VALVES 12	EACH	4.000	=		
56108800	TAP VALVE & SLEEVE 6	EACH	2.000	=		
56200500	WATER SERV LINE 1 1/2	FOOT	200.000	=		
56400600	FIRE HYDRANTS	EACH	5.000	=		
58000100	MEMBRANE WATERPROOF	SQ FT	10,480.000	=		

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 11
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
58700300	CONCRETE SEALER	SQ FT	14,215.000	X	=		
59100100	GEOCOMPOSITE WALL DR	SQ YD	250.000	X	=		
59300100	CONTR LOW-STRENG MATL	CU YD	120.000	X	=		
60100915	PIPE DRAINS 6	FOOT	4.000	X	=		
60107600	PIPE UNDERDRAINS 4	FOOT	2,700.000	X	=		
60218400	MAN TA 4 DIA T1F CL	EACH	6.000	X	=		
60218500	MAN TA 4 DIA T3F&G	EACH	9.000	X	=		
60219300	MAN TA 4 DIA T11F&G	EACH	4.000	X	=		
60221100	MAN TA 5 DIA T1F CL	EACH	2.000	X	=		
60221200	MAN TA 5 DIA T3F&G	EACH	2.000	X	=		
60235700	INLETS TA T3F&G	EACH	4.000	X	=		
60236200	INLETS TA T8G	EACH	4.000	X	=		
60236800	INLETS TA T11F&G	EACH	7.000	X	=		
60240210	INLETS TB T1F OL	EACH	1.000	X	=		
60240220	INLETS TB T3F&G	EACH	12.000	X	=		

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 12
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
60240310	INLETS TB T11F&G	EACH	2.000	=		
60255800	MAN ADJ NEW T1F CL	EACH	1.000	=		
60500040	REMOV MANHOLES	EACH	11.000	=		
60500060	REMOV INLETS	EACH	12.000	=		
60600605	CONC CURB TB	FOOT	168.000	=		
60602800	CONC GUTTER TB	FOOT	160.000	=		
60603800	COMB CC&G TB6.12	FOOT	1,519.000	=		
60605000	COMB CC&G TB6.24	FOOT	2,526.000	=		
60611811	COMB CC&G TM MOD	FOOT	198.000	=		
64100115	SIGHT SCRIN (WF) TP 6	FOOT	132.000	=		
64300240	IMP ATTEN FRD NAR TL2	EACH	2.000	=		
66900105	UNDERGR STOR TANK REM	EACH	2.000	=		
66900200	NON SPL WASTE DISPOSL	CU YD	41,600.000	=		
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000	=		
66900530	SOIL DISPOSAL ANALY	EACH	15.000	=		

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 13
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
67100100	MOBILIZATION	L SUM	1.000	=			
70106800	CHANGEABLE MESSAGE SN	CAL MO	100.000	=			
70300150	SHRT TRM PAVT MK REM	SQ FT	1,571.000	=			
70300210	TEMP PVT MK LTR & SYM	SQ FT	62.000	=			
70300220	TEMP PVT MK LINE 4	FOOT	4,208.000	=			
70300280	TEMP PVT MK LINE 24	FOOT	60.000	=			
72000100	SIGN PANEL T1	SQ FT	46.250	=			
72000200	SIGN PANEL T2	SQ FT	80.000	=			
72900100	METAL POST TY A	FOOT	50.000	=			
72900200	METAL POST TY B	FOOT	126.500	=			
78009000	MOD URETH PM LTR-SYM	SQ FT	329.000	=			
78009004	MOD URETH PM LINE 4	FOOT	6,226.000	=			
78009006	MOD URETH PM LINE 6	FOOT	803.000	=			
78009008	MOD URETH PM LINE 8	FOOT	1,889.000	=			
78009012	MOD URETH PM LINE 12	FOOT	407.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 14
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
78009024	MOD URETH PM LINE 24	FOOT	191.000	=			
80400100	ELECT SERV INSTALL	EACH	2.000	=			
81028320	UNDRGRD C PVC 1	FOOT	924.000	=			
81028350	UNDRGRD C PVC 2	FOOT	7,263.000	=			
81028370	UNDRGRD C PVC 3	FOOT	79.000	=			
81028390	UNDRGRD C PVC 4	FOOT	331.000	=			
81100300	CON AT ST 1 GALVS	FOOT	319.000	=			
81300220	JUN BX SS AS 6X6X4	EACH	10.000	=			
81300530	JUN BX SS AS 12X10X6	EACH	2.000	=			
81300550	JUN BX SS AS 12X12X6	EACH	2.000	=			
81400700	HANDHOLE PCC	EACH	10.000	=			
81400720	DBL HANDHOLE PCC	EACH	1.000	=			
81702120	EC C XLP USE 1C 8	FOOT	8,358.000	=			
81702130	EC C XLP USE 1C 6	FOOT	8,717.000	=			
82500390	LT CONT BASM 240V100D	EACH	1.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 15
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
83600200	LIGHT POLE FDN 24D	FOOT	244.000	=			
84200600	REM LT U NO SALV	EACH	6.000	=			
84400105	RELOC EX LT UNIT	EACH	1.000	=			
85700200	FAC T4 CAB	EACH	1.000	=			
86200200	UNINTER POWER SUP STD	EACH	1.000	=			
87301225	ELCBL C SIGNAL 14 3C	FOOT	1,277.500	=			
87301245	ELCBL C SIGNAL 14 5C	FOOT	2,855.500	=			
87301515	ELCBL C LEAD 18 3PR	FOOT	484.000	=			
87301900	ELCBL C EGRDC 6 1C	FOOT	657.500	=			
87502440	TS POST GALVS 10	EACH	6.000	=			
87702910	STL COMB MAA&P 36	EACH	1.000	=			
87702930	STL COMB MAA&P 40	EACH	1.000	=			
87702950	STL COMB MAA&P 44	EACH	2.000	=			
87800100	CONC FDN TY A	FOOT	18.000	=			
87800150	CONC FDN TY C	FOOT	3.000	=			

FAU 6800
 05-00500-19-GS/50VB GALESBURG
 KNOX

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 89417

ECMS002 DTGECM03 ECMR003 PAGE 16
 RUN DATE - 06/29/16
 RUN TIME - 183023

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
87800415	CONC FDN TY E 36D	FOOT	50.000			=	
88040070	SH P LED 1F 3S BM	EACH	4.000			=	
88040090	SH P LED 1F 3S MAM	EACH	6.000			=	
88102717	PED SH LED 1F BM CDT	EACH	8.000			=	
88200510	TS BACKPLATE RET-REFL	EACH	10.000			=	
88500100	INDUCTIVE LOOP DETECT	EACH	2.000			=	
88600100	DET LOOP T1	FOOT	596.500			=	
88800100	PED PUSH-BUTTON	EACH	8.000			=	
89502375	REMOV EX TS EQUIP	EACH	1.000			=	
89502385	REMOV EX CONC FDN	EACH	3.000			=	
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.

RETURN WITH BID

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.

RETURN WITH BID

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.

RETURN WITH BID

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.

RETURN WITH BID

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.

RETURN WITH BID

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.

RETURN WITH BID

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.

RETURN WITH BID

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.

RETURN WITH BID

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. 89417
KNOX County
Section 05-00500-19-GS / 50VB (Galesburg)
Project RRP-5025(061)
Route FAU 6800 (Us 150)
District 4 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. 89417
KNOX County
Section 05-00500-19-GS / 50VB (Galesburg)
Project RRP-5025(061)
Route FAU 6800 (Us 150)
District 4 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 _____

(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW)

Attest _____
Signature _____
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.



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

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

Date _____

Date _____

Contact Person _____

Contact Person _____

Title _____

Title _____

Firm Name _____

Firm Name _____

Address _____

Address _____

City/State/Zip _____

City/State/Zip _____

Phone _____

Phone _____

Email Address _____

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. 89417
KNOX County
Section 05-00500-19-GS / 50VB (Galesburg)
Project RRP-5025(061)
Route FAU 6800 (Us 150)
District 4 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.

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.

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)



NOTICE TO BIDDERS

- 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. 89417
KNOX County
Section 05-00500-19-GS / 50VB (Galesburg)
Project RRP-5025(061)
Route FAU 6800 (Us 150)
District 4 Construction Funds**

Project consists of the construction of a grade separation structure to carry the BNSF Railroad over East Main Street, retaining walls, pavement reconstruction, curb and gutter, storm sewer, sanitary sewer, water main, highway lighting and traffic signals. Project is located in the City of Galesburg.

- 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

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:

RECURRING SPECIAL PROVISIONS

<u>CHECK SHEET #</u>		<u>PAGE NO.</u>
1	X Additional State Requirements for Federal-Aid Construction Contracts	1
2	X Subletting of Contracts (Federal-Aid Contracts)	4
3	X EEO	5
4	Specific EEO Responsibilities Non Federal-Aid Contracts	15
5	Required Provisions - State Contracts	20
6	Asbestos Bearing Pad Removal	26
7	Asbestos Waterproofing Membrane and Asbestos HMA Surface Removal	27
8	Temporary Stream Crossings and In-Stream Work Pads	28
9	Construction Layout Stakes Except for Bridges	29
10	X Construction Layout Stakes	32
11	Use of Geotextile Fabric for Railroad Crossing	35
12	Subsealing of Concrete Pavements	37
13	Hot-Mix Asphalt Surface Correction	41
14	Pavement and Shoulder Resurfacing	43
15	Patching with Hot-Mix Asphalt Overlay Removal	44
16	Polymer Concrete	45
17	PVC Pipeliner	47
18	Bicycle Racks	48
19	Temporary Portable Bridge Traffic Signals	50
20	X Work Zone Public Information Signs	52
21	X Nighttime Inspection of Roadway Lighting	53
22	English Substitution of Metric Bolts	54
23	Calcium Chloride Accelerator for Portland Cement Concrete	55
24	Quality Control of Concrete Mixtures at the Plant	56
25	X Quality Control/Quality Assurance of Concrete Mixtures	64
26	Digital Terrain Modeling for Earthwork Calculations	80
27	Pavement Marking Removal	82
28	Preventive Maintenance – Bituminous Surface Treatment	83
29	Preventive Maintenance – Cape Seal	89
30	Preventive Maintenance – Micro-Surfacing	104
31	Preventive Maintenance – Slurry Seal	115
32	Temporary Raised Pavement Markers	125
33	Restoring Bridge Approach Pavements Using High-Density Foam	126

CHECK SHEET
FOR
LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

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

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

<u>CHECK SHEET #</u>	<u>PAGE NO.</u>
LRS 1 Reserved	130
LRS 2 <input type="checkbox"/> Furnished Excavation	131
LRS 3 <input checked="" type="checkbox"/> Work Zone Traffic Control Surveillance	132
LRS 4 <input type="checkbox"/> Flaggers in Work Zones	133
LRS 5 <input type="checkbox"/> Contract Claims	134
LRS 6 <input type="checkbox"/> Bidding Requirements and Conditions for Contract Proposals	135
LRS 7 <input type="checkbox"/> Bidding Requirements and Conditions for Material Proposals	141
LRS 8 Reserved	147
LRS 9 <input type="checkbox"/> Bituminous Surface Treatments	148
LRS 10 Reserved	149
LRS 11 <input type="checkbox"/> Employment Practices	150
LRS 12 <input type="checkbox"/> Wages of Employees on Public Works	152
LRS 13 <input type="checkbox"/> Selection of Labor	154
LRS 14 <input type="checkbox"/> Paving Brick and Concrete Paver Pavements and Sidewalks	155
LRS 15 <input type="checkbox"/> Partial Payments	158
LRS 16 <input type="checkbox"/> Protests on Local Lettings	159
LRS 17 <input type="checkbox"/> Substance Abuse Prevention Program.....	160
LRS 18 <input type="checkbox"/> Multigrade Cold Mix Asphalt	161

INDEX OF SPECIAL PROVISIONS

ITEM	PAGE NO.
DESCRIPTION OF WORK	1
PRE-BID MEETING	1
EXISTING UNDERGROUND FACILITIES	1
NOTIFICATION OF UTILITIES PRIOR TO CONSTRUCTION	2
J.U.L.I.E. SYSTEM	2
WORKING DAYS	2
BRIDGE STRUCTURE CHANGE-OUT COORDINATION REQUIREMENTS	3
COOPERATION WITH UTILITY COMPANIES	4
STATUS OF UTILITIES TO BE ADJUSTED AND ABANDONED	4
RESPONSIBILITY FOR DAMAGE CLAIMS	4
TRACK MONITORING	5
TRAFFIC CONTROL PLAN / CONSTRUCTION STAGING	6
TRAFFIC CONTROL AND PROTECTION (SPECIAL)	9
NOTIFICATION OF ROAD CLOSURE	9
DETOUR ROUTING	10
CONSTRUCTION ACCESS	10
EMBANKMENT	10
PROOF ROLLING	11
SUBGRADE TREATMENT	11
ENVIRONMENTAL REVIEWS	11
BORROW AND FURNISHED EXCAVATION	12
EMBANKMENT (RESTRICTIONS)	13
SPECIAL EXCAVATION	13
AGGREGATE SUBGRADE IMPROVEMENT	14
STORM SEWER (WATER MAIN QUALITY PIPE)	14
NPDES PERMIT	14
PCC AUTOMATIC BATCHING EQUIPMENT	15
PCC QC/QA ELECTRONIC REPORTS SUBMITTAL	15

HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH	16
HOT-MIX ASPHALT SURFACE COURSE SURFACE TESTS.....	16
BRICK SIDEWALK REMOVAL.....	16
RELOCATE EXISTING LIGHTING UNIT	17
RELOCATE EXISTING LIGHT POLE ONTO NEW FOUNDATION.....	17
FOUNDATION REMOVAL	18
REMOVE EXISTING CONCRETE FOUNDATION.....	18
FENCE REMOVAL	18
SANITARY MANHOLES TO BE ADJUSTED WITH NEW TYPE 1 FRAME, CLOSED LID.....	19
SANITARY MANHOLES TO BE REMOVED.....	19
TRENCH DRAIN.....	19
SIMULATED LARGE STONE ASHLAR FORM LINER.....	19
FENCE (SPECIAL) AND ORNAMENTAL HANDRAIL	20
CONCRETE SURFACE COLOR TREATMENT.....	22
PRECAST PRESTRESSED CONCRETE FASCIA BEAM.....	24
PRECAST CONCRETE SUBSTRUCTURE.....	24
PROTECTION OF FRAMES AND LIDS OF UTILITY STRUCTURES	25
REMOVING INLETS/MANHOLES.....	25
PORTLAND CEMENT CONCRETE SIDEWALK.....	26
PORTLAND CEMENT CONCRETE DRIVEWAY.....	26
CONCRETE STEPS AND STAIR SIDE RAILING	26
CONCRETE CURB (SPECIAL).....	27
COMBINATION CONCRETE CURB AND GUTTER, TYPE M (MODIFIED).....	27
STAMPED COLORED PORTLAND CEMENT CONCRETE	27
STAMPED COLORED PORTLAND CEMENT CONCRETE SIDEWALK, 5"	28
STORM SEWER.....	29
PIPE UNDERDRAIN FOR STRUCTURES 4"	29
ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL).....	30
CONCRETE PAVEMENT AGGREGATE OPTIMIZATION	32
BUILDING DEMOLITION.....	32

RAILROAD FLAGGER33

REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL33

SIDEWALK REMOVAL.....33

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES34

RAILROAD TRACK REMOVAL.....38A

PRELIMINARY SITE INVESTIGATION (PSI) REPORT.....38A

ELECTRICAL SPECIAL PROVISIONS.....39

 ORNAMENTAL LIGHT UNIT, COMPLETE.....39

 LIGHTING CONTROLLER, BASE MOUNTED, 240 VOLT, 100 AMP (DUAL).....40

 UNDERPASS LUMINAIRE (SPECIAL).....40

 LUMINAIRE (SPECIAL)45

CCTV CAMERA INSTALLATION SPECIAL PROVISIONS46

 CONTRACT GUARANTEE.....46

 SYSTEM IMPLEMENTATION, EQUIPMENT INTEGRATION AND SUPPORT.....46

 LOCATION OF UNDERGROUND STATE MAINTAINED FACILITIES.....47

 CAT 5 ETHERNET CABLE.....47

 CLOSED-CIRCUIT TELEVISION DOME CAMERA48

 SUPPORT EQUIPMENT AND MAINTENANCE.....53

 FIBER OPTIC ETHERNET DROP AND REPEAT SWITCH54

 GROUNDING OF ITS STRUCTURES.....57

 FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F SM24F57

 FIBER OPTIC FUSION SPLICE.....63

 TERMINATION OF FIBER OPTIC CABLES WITH FUSION SPLICED ST CONNECTORS .66

TRAFFIC SIGNAL SPECIAL PROVISIONS.....68

 LOCATION OF UNDERGROUND STATE/CITY MAINTAINED ELECTRICAL FACILITIES68

 CONTRACT GUARANTEE.....68

 OPERATION OF EXISTING TRAFFIC SIGNALS.....69

 FULL-ACTUATED CONTROLLER AND TYPE IV CABINET69

 INDUCTIVE LOOP DETECTOR70

 TRAFFIC SIGNAL LED MODULE SPECIFICATIONS.....71

SIGNAL HEAD, LED	76
HANDHOLE, PORTLAND CEMENT CONCRETE	77
ELECTRIC CABLE IN CONDUIT, EQUIP. GROUNDING CONDUCTOR, NO. 6 1/C.....	77
TRAFFIC SIGNAL POST, GALVANIZED STEEL.....	78
PEDESTRIAN PUSH BUTTON.....	78
PED. SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	79
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	80
CONCRETE FOUNDATION, TYPE A	81
CONCRETE FOUNDATION, TYPE E, 36" DIAMETER	81
LUMINAIRE, LED, HORIZONTAL MOUNT, 175 WATT	82
PHOTOCELL RELAY.....	89
UTILITY RELOCATION SPECIFICATIONS	91
CONTROL OF THE WORK	91
WATER MAIN.....	91
STEEL CASING 24"	92
WATER VALVES	93
TAPPING VALVES AND SLEEVES	93
DUCTILE IRON FITTINGS.....	94
CONNECTIONS TO EXISTING WATER MAINS	95
CURB STOPS.....	95
FIRE HYDRANT	96
REMOVAL OF FIRE HYDRANTS	96
REMOVAL OF WATER VALVE AND BOX.....	97
SANITARY SEWER.....	97
BEDDING AND HAUNCHING MATERIALS.....	98
EXPLORATION TRENCH, SPECIAL	98
ADJUSTING SANITARY SEWER SERVICE LINE.....	98
SANITARY SEWER SERVICE, 6" PVC, COMPLETE	99
MANHOLES, SANITARY, ALL DIAMETERS	100
STEEL CASING PIPE IN TRENCH; 24 INCH.....	100A

PUMP STATION SPECIFICATIONS.....	101
DRAINAGE STRUCTURES (PUMP STATIONS).....	101
PUMP STATION ELECTRICAL WORK.....	102
PUMP STATION MECHANICAL WORK.....	111
PUMPING STATION.....	113
SITE SCREEN (WOODEN FENCE) TYPE P 6'.....	147
STORM SEWER CONNECTION.....	148
STORM WATER POLLUTION PREVENTION PLAN.....	149
ATTACHMENT A: PUMP STATION ELECTRICAL SPECIAL PROVISIONS.....	157
ATTACHMENT B: BUILDING DEMOLITION SPECIFICATIONS AND ASBESTOS SURVEY RESULTS.....	246
ATTACHMENT C: GEOTECHNICAL INVESTIGATION SOIL PARAMETERS.....	299
ATTACHMENT D: BNSF CONTRACT REQUIREMENTS.....	326
IDOT TRAINING PROGRAM Graduate.....	348

INDEX LOCAL ROADS AND STREETS SPECIAL PROVISIONS

<u>LR #</u>	<u>Pg #</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
LR SD12		<input type="checkbox"/> Slab Movement Detection Device	Nov. 11, 1984	Jan. 1, 2007
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	350	<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		<input 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			Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2014
80274	351	X	Aggregate Subgrade Improvement	April 1, 2012	April 1, 2016
80192			Automated Flagger Assistance Device	Jan. 1, 2008	
80173	354	X	Bituminous Materials Cost Adjustments	Nov. 2, 2006	July 1, 2015
80241			Bridge Demolition Debris	July 1, 2009	
50261	357	X	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			Butt Joints	July 1, 2016	
80360	372	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			Concrete Mix Design – Department Provided	Jan. 1, 2012	April 1, 2016
80261			Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
* 80029	374	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	July 2, 2016
80363	385	X	Engineer's Field Office	April 1, 2016	
80358	386	X	Equal Employment Opportunity	April 1, 2015	
80364	390	X	Errata for the 2016 Standard Specifications	April 1, 2016	
80229	394	X	Fuel Cost Adjustment	April 1, 2009	July 1, 2015
80304			Grooving for Recessed Pavement Markings	Nov. 1, 2012	Aug. 1, 2014
80246	398	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	400	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	401	X	Mast Arm Assembly and Pole	July 1, 2016	
80045			Material Transfer Device	June 15, 1999	Aug. 1, 2014
80342	402	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	404	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	405	X	Progress Payments	Nov. 2, 2013	April 1, 2016
34261			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157	406	X	Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306	408	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	418	X	Steel Cost Adjustment	April 2, 2004	July 1, 2015
80362			Steel Slag in Trench Backfill	Jan. 1, 2016	
80317			Surface Testing of Hot-Mix Asphalt Overlays	Jan. 1, 2013	April 1, 2016
80355	422	X	Temporary Concrete Barrier	Jan. 1, 2015	July 1, 2015
20338	424	X	Training Special Provisions	Oct. 15, 1975	
80318			Traversable Pipe Grate	Jan. 1, 2013	April 1, 2014
80288	427	X	Warm Mix Asphalt	Jan. 1, 2012	April 1, 2016
80302	429	X	Weekly DBE Trucking Reports	June 2, 2012	April 2, 2015
80289			Wet Reflective Thermoplastic Pavement Marking	Jan. 1, 2012	
80071	430	X	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

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET

Effective as of the: July 29, 2016 Letting

Pg #	√	File Name	Title	Effective	Revised
		GBSP 4	Polymer Modified Portland Cement Mortar	June 7, 1994	Apr 1, 2016
431	X	GBSP 12	Drainage System	June 10, 1994	Jun 24, 2015
		GBSP 13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Apr 1, 2016
		GBSP 14	Jack and Remove Existing Bearings	April 20, 1994	Jan 1, 2007
		GBSP 15	Three Sided Precast Concrete Structure	July 12, 1994	Dec 29, 2014
		GBSP 16	Jacking Existing Superstructure	Jan 11, 1993	Jan 1, 2007
		GBSP 17	Bonded Preformed Joint Seal	July 12, 1994	Jan 1, 2007
		GBSP 18	Modular Expansion Joint	May 19, 1994	Dec 29, 2014
		GBSP 21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	May 18, 2011
		GBSP 25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	Apr 22, 2016
		GBSP 26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	Apr 22, 2016
		GBSP 28	Deck Slab Repair	May 15, 1995	Oct 15, 2011
		GBSP 29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	Apr 1, 2016
		GBSP 30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Jun 24, 2015
		GBSP 31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	Apr 1, 2016
		GBSP 33	Pedestrian Truss Superstructure	Jan 13, 1998	Dec 29, 2014
		GBSP 34	Concrete Wearing Surface	June 23, 1994	Apr 1, 2016
		GBSP 35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct 15, 2011
		GBSP 45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
433	X	GBSP 51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
		GBSP 53	Structural Repair of Concrete	Mar 15, 2006	Apr 1, 2016
		GBSP 55	Erection of Curved Steel Structures	June 1, 2007	
		GBSP 56	Setting Piles in Rock	Nov 14, 1996	Apr 1, 2016
		GBSP 59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	Jan 3, 2014
		GBSP 60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Apr 22, 2016
		GBSP 61	Slipform Parapet	June 1, 2007	Apr 22, 2016
		GBSP 67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	Oct 5, 2015
		GBSP 71	Aggregate Column Ground Improvement	Jan 15, 2009	Oct 15, 2011
		GBSP 72	Bridge Deck Fly Ash or GGBF Slag Concrete Overlay	Jan 18, 2011	Jun 24, 2015
		GBSP 73	Cofferdams	Oct 15, 2011	
		GBSP 75	Bond Breaker for Prestressed Concrete Bulb-T Beams	April 19, 2012	
434	X	GBSP 76	Granular Backfill for Structures	April 19, 2012	Oct 30, 2012
436	X	GBSP 77	Weep Hole Drains for Abutments, Wingwalls, Retaining Walls And Culverts	April 19, 2012	Oct 22, 2013
		GBSP 78	Bridge Deck Construction	Oct 22, 2013	Apr 1, 2016
		GBSP 79	Bridge Deck Grooving (Longitudinal)	Dec 29, 2014	Apr 1, 2016
		GBSP 84	Precast, Prestressed Concrete Beams	Oct 5, 2015	
		GBSP 85	Micropiles	Apr 19, 1996	Oct 5, 2015
		GBSP 86	Drilled Shafts	Oct 5, 2015	Apr 1, 2016
		GBSP 87	Lightweight Cellular Concrete Fill	Nov 11, 2011	Apr 1, 2016
		GBSP 88	Corrugated Structural Plate Structures	Apr 22, 2016	

LIST ANY ADDITIONAL SPECIAL PROVISIONS BELOW

--	--

The following Guide Bridge Special Provisions have been incorporated into the 2016 Standard Specifications:

File Name	Title	Std Spec Location
GBSP32	Temporary Sheet Piling	522
GBSP38	Mechanically Stabilized Earth Retaining Walls	522
GBSP42	Drilled Soldier Pile Retaining Wall	522
GBSP43	Driven Soldier Pile Retaining Wall	522
GBSP44	Temporary Soil Retention System	522
GBSP46	Geotextile Retaining Walls	522
GBSP57	Temporary Mechanically Stabilized Earth Retaining Walls	522
GBSP62	Concrete Deck Beams	504
GBSP64	Segmental Concrete Block Wall	522
GBSP65	Precast Modular Retaining Wall	522
GBSP74	Permanent Steel Sheet Piling (LRFD)	522
GBSP80	Fabric Reinforced Elastomeric	1028

The following Guide Bridge Special Provisions have been discontinued or have been superseded:

File Name	Title	Disposition:
GBSP70	Braced Excavation	Use TSRS per Sec 522

**STATE OF ILLINOIS
KNOX COUNTY
CITY OF GALESBURG**

SPECIAL PROVISIONS

The following Special Provisions 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", the "Manual of Test Procedures For Materials" in effect on the date of invitation for bids, and the "Supplemental Specifications and Recurring Special Provisions" indicated on the Check Sheet included herein, and the "Recommended Standards for Water Works", (Ten State Standards), latest edition, which apply to and govern the construction of the East Main Street Underpass Improvements, Section 05-00500-19-GS, in Knox County, Illinois. In case of conflict with any part, or parts, of said Specifications, the said Special Provisions shall take precedence and shall govern.

DESCRIPTION OF WORK

This work consists of furnishing all labor, materials, and equipment necessary to construct the East Main Street Underpass. Improvements include construction of railroad bridge, retaining wall, pavement, curb and gutter, storm sewer systems, sanitary sewer construction, water main construction, street lighting systems, traffic signals, and all miscellaneous appurtenant items shown in the plans and as described in these Special Provisions.

PRE-BID MEETING

A mandatory Pre-Bid Meeting will be held on Thursday, July 7, 2016 at 1:30 PM in the City Hall Council Chambers at 55 W. Tompkins Street, Galesburg, IL 61401. Subcontractors are welcome to attend. As the coordination between the contractor, IDOT and BNSF will be complicated, this meeting will serve to discuss and clarify the requirements and responsibilities of all parties involved. In addition, clarification of all construction requirements can be discussed.

EXISTING UNDERGROUND FACILITIES

The City of Galesburg assumes no responsibility for the presence, specific size or location of underground distribution systems of the several public utility corporations. No responsibility for the protection of said underground systems will be assumed by the City. If such protection is found to be necessary for water mains, gas mains, steam mains, underground electrical distribution systems, underground telephone circuit systems or any other underground systems of non-municipal ownership, the cost of same, in whole or in part, is disclaimed of the City of Galesburg.

NOTIFICATION OF UTILITIES PRIOR TO CONSTRUCTION

All utility companies must be notified, in writing, by the Contractor at least one (1) week in advance prior to starting construction. All utility companies must be notified so that they may have personnel on the job site to assist in locating their utility lines and avoid damage to their utilities. A copy of the letter notifying the utility companies of the Contractor's intention to start work must be received by the City of Galesburg before construction will be permitted to start.

J.U.L.I.E. SYSTEM

The J.U.L.I.E. (Joint Utility Locating Information for Excavators) must be notified prior to starting construction so that the respective utilities may have adequate time to locate and mark their underground facilities. Phone: 1-800-892-0123. The following information may be requested by J.U.L.I.E.:

County Name: Knox
Township Name: Galesburg City Township
Section Numbers: Township 11 N, Range 1E, 4th P.M., Sections 11 and 14.

WORKING DAYS

All work required in the contract shall be completed within 180 working days. A construction progress schedule indicating project milestones shall be prepared and submitted according to Article 108.02 of the Standard Specifications. The Contractor shall strictly adhere to the schedule unless a request to modify the schedule is submitted in writing and approved by the Engineer.

For the portion of the work that will require track closure and Form B windows from BNSF Railway, the contractor shall assume that the maximum window duration to be granted by BNSF will be six (6) hours. BNSF has agreed to provide three (3) windows at six (6) hours per week for the work items that will require the track closures and Form B windows. The three (3) six hour windows per week will be for one track when driving piles on Main Track #1 and #3 and for two tracks when driving piles on Main Track #2. A Form B will be required for the other tracks where train traffic will continue. Any work to be performed on Main Track #2 (center track) must be done from the Main Track #3 (east track) side. The contractor shall ensure that all tracks are returned to service at the completion of each window. Work windows will not be granted between the last week in November and the first of January due to peak train traffic demands. For pile driving purposes, the maximum number of six (6) hour work windows will be limited to sixty (60). The contractor will be assessed damages for pile driving windows in excess of sixty (60). Liquidated damages will be assessed to the contractor due to train delay resulting from an overstay of the window. The delay costs range from \$500/train/hour to \$1,000/train/hour, with the measurement being number of hours the train is delayed, not necessarily the same amount of time as the overstay. Delay costs will be higher if AMTRAK is delayed. Working days may not be charged to the Contractor under

circumstances where the date for an agreed upon window is taken away by BNSF due to subdivision traffic if that item is the sole item of work on that day.

BRIDGE STRUCTURE CHANGE-OUT COORDINATION REQUIREMENTS

Extended track closure and Form B windows in excess of six hours will be allowed during the installation of proposed bridge superstructure and re-installation of the BNSF tracks. The general sequencing of the structure change-out is as follows:

- Track #1 Change-Out: Construction will require closure of Track #1 and a Form B on Track #2 for the removal of existing tracks, installation of proposed bridge, and re-installation of tracks. A 48-hour window for the closure and Form B will be required for this work.
- Track #2 and #3 Change-Out: Construction will require closure of Track #2 and #3 and Form B on Track #1 for the removal of existing tracks, installation of proposed bridge, and re-installation of tracks. A 64 hour window for the closures and Form B will be allowed. The Contractor shall complete and open Track #2 to train traffic within 48 hours of the beginning of the window. A Form B will be required for both Track #1 and Track #2 while construction of the Track #3 structure is continuing. Track #3 will be required to be completed and open to traffic with 64 hours of the beginning of the window.
- Contractors who demonstrate the ability to follow BNSF safety guidelines will be allowed to continue pile driving operations while freight trains pass as long as the BNSF employee feels the pile is secure. For Amtrak trains, the pile driving operation must be stopped.

The Contractor shall submit a schedule, staging plan, details and other required back-up for each 48 hour and 64 hour window of BNSF track shutdown for verification and approval by the engineer and BNSF. Submittal reviews by BNSF are expected to take four (4) weeks. If corrections to the schedule are required upon review, another four (4) week review period should be planned for by the Contractor. Schedules for the 48 hour and 64 hour windows must be broken down to 15 minute increments. Staging plans must include equipment placement and staging. In addition, the staging plan should include a discussion of contingency planning for crane break downs during the extended shut down window. Schedules and staging must be approved prior to the start of work for each track outage. All schedules must be in Critical Path Method (CPM) format and include manpower loading, float time, all work items to be executed by subcontractors, and all work items that are to be performed by entities not under direct control of the Contractor but required for work to proceed.

The contractor is required to comply with all BNSF safety requirements including any safety protection such as hand rails, walkways, and any other required safety devices.

Train delay costs for window overstay will be assessed to the contractor. The delay costs range from \$500/train/hour to \$1,000/train/hour, with the hour measurement being number of hours the train is delayed, not necessarily the same amount of time as the overstay. Delay costs will be higher if AMTRAK is delayed.

COOPERATION WITH UTILITY COMPANIES

It is understood and agreed that the Contractor has considered, in his bid, all the permanent and temporary utility appurtenances in their present or relocated positions and that no additional compensation will be allowed for any delays, inconvenience or damage sustained by him due to any interference from the said utility appurtenances or the operations of moving them.

All telephone, telegraph, cableway, gas, water, electrical and wire lines, within the limits of the proposed construction owned by various utility companies, are to be moved by the Owners of the particular utility involved at the Owner's expense.

STATUS OF UTILITIES TO BE ADJUSTED AND ABANDONED

All known existing utilities within the limits of the underpass roadway pavement will be relocated. The existing facilities will be removed and/or abandoned in place. The sanitary sewer (Galesburg Sanitary District) and the water main (City of Galesburg – Water Division) will be relocated as part of this project. Other utilities, including Ameren Electric, Ameren Gas, and Century Telephone, will be relocated by those companies and are not included in the project.

<u>Utility Company</u>	<u>Contact</u>	<u>Phone Number</u>
Ameren – IP	Julie Cone	309-345-5169
Comcast Communications		309-342-2161
City of Galesburg - Water	Richard Nelson	309-345-3649
Galesburg Sanitary District	Marshall Schrader	309-342-0131
Century Telephone	Darrell Schmidt	309-477-0255

RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor shall indemnify and hold harmless the CITY of GALESBURG, its officers and employees against all loss, damage or expense that it or they may sustain as a result of any suits, actions, or claims of any character brought on account of injury to or death of any person or persons, including all persons performing any work under this contract, which may arise in any way in connection with the work to be performed under this contract, including but not limited to, suits, actions or claims arising under "An Act Providing for the Protection and Safety of Persons In and About the Construction, Repairing, Alteration or Removal of Buildings, Bridges, Viaducts, and Other Structures, and to Provide For the Enforcement Thereof", approved June 3, 1907, (Ill. Rev. Stats., Ch. 48, Sec. 60, et seq.), as amended. The Contractor shall also indemnify and hold harmless the CITY of GALESBURG, its officers and employees from all suits, actions, or claims of any character brought because of any injuries or damages received or sustained by any person, persons or property, on account of, or in consequence of, any neglect by Contractor or a Subcontractor in safeguarding the work; or through use of

unacceptable materials in constructing the work; or because of any act or omission, neglect or misconduct of said Contractor; or because of any claim or amounts recovered for any infringements of patent, trademark or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act", or any other law, ordinance, order or decree, and so much of the money due the said Contractor under and by virtue of his contract as shall be considered necessary by the Department for such purposes, may be retained for the use of the ENGINEERING DIVISION; or, in case no money is due, his surety shall be held until such suits, actions or claims have been settled and suitable evidence to that effect furnished to the Department.

TRACK MONITORING

This work shall consist of the development and implementation of a track monitoring program to detect both horizontal and vertical movement of the railroad track and roadbed. The monitoring program shall be developed by the Contractor and submitted, for railroad review and approval, a minimum of 30 days in advance of start of work. The requirements of this provision are intended to represent minimum necessary precautionary measures and in no way relieve the Contractor of any responsibility and/or liability for movement or damages stemming from construction activities on this project.

1. For the installation of temporary soil retention systems, including but not limited to soldier piles and lagging, and interlocked steel sheeting on or adjacent to railroad's right-of-way, the contractor shall submit a detailed track monitoring program for railroad's approval prior to performing any work near railroad's right-of-way.
2. The program shall specify the survey locations, the distance between the location points, and frequency of monitoring before, during, and after construction. The railroad reserves the right to modify the survey locations and monitoring frequency as necessary during the project.
3. The survey data shall be collected in accordance with the approved frequency and immediately furnished to the Railroad Engineer for analysis.
4. If any movement has occurred as determined by the Railroad Engineer, the Department and the Railroad will be immediately notified. Railroad, at its sole discretion, shall have the right to immediately require all Contractor operations to be ceased and determine what corrective action is required. Any corrective action required by the Railroad or performed by the Railroad including the monitoring of corrective action of the Contractor will be at project expense.

This work shall be paid for at the contract lump sum price for TRACK MONITORING. Price shall be payment in full for all labor, material, and equipment necessary for the development and implementation of the track monitoring program.

TRAFFIC CONTROL PLAN / CONSTRUCTION STAGING

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

The governing factor in the execution and staging of work for this project is to provide the motoring public with the safest possible travel conditions through the construction work zone. Motorists shall be guided in a clear and positive manner while approaching and traversing construction work areas. The Contractor shall arrange his/her operations to keep the closing of lanes to a minimum. The Contractor will notify the Engineer in writing ten calendar days prior to any activities that will disrupt normal traffic flow including road closures, lane closures, or work directly adjacent traffic lanes. To ensure acceptable levels of operation, routine inspection of traffic control elements shall be performed. The Contractor will be required to inspect and initiate any needed maintenance to the traffic control devices in this contract. Construction equipment, materials, and debris shall be stored in such a manner as not to be vulnerable to vehicle impact and as directed by the Engineer.

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 normal traffic, and shall not park or stop except within designated work areas. Personal vehicles will not be permitted to park within the right-of-way, except in specified areas designated by the Engineer.

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices. Special attention shall be given to existing warning signs and guide signs during all construction operations. Warning signs and existing guide signs with arrows shall be kept consistent with the barricade placement at all times. The Contractor shall immediately remove, completely cover or turn from the motorist's view all signs that are inconsistent with lane assignment patterns.

No work shall commence on any stage of construction until all required traffic control is in place. At the completion of each stage of construction or whenever operations indicate that a relocation of a proposed or existing traffic control device is advisable, as determined by the Engineer, the Contractor will be required to remove, relocate, reinstall, and maintain the device as herein specified. All traffic control devices must remain in place until specific authorization for relocation or removal is received from the Engineer.

The placement of barricades and warning signs for the required lane closures shall be as specified herein and the applicable highway standards shall proceed in the direction of the flow of traffic. The removal of all signs and barricades shall begin at the end of the construction areas and proceed toward on-coming traffic.

At road closure locations where barricades are installed in a manner that will not allow the Contractor access to the project without relocation of one or more of the barricades, the arrangement of the barricades at the beginning of each work day may be changed, when approved by the Engineer, in a manner shown on Highway Standard 701901 for Road Closed to Through Traffic. At the end of each work day the barricades shall be returned to their in-line positions. This work will be considered included in the contract, and no extra compensation will be allowed.

Special attention is called to Articles 107.09, 107.14, 107.15, 107.16, and 107.20 of the Standard Specifications for Road and Bridge Construction, the following Highway Standards and Recurring Special Provisions relating to traffic control:

Standard Specifications:

- Section 701 – Work Zone Traffic Control and Protection
- Section 703 – Work Zone Pavement Marking
- Section 783 – Pavement Marking and Marker Removal
- Section 1106 – Work Zone Traffic Control Devices

Supplemental Specifications:

- Section 701 - Work Zone Traffic Control and Protection
- Section 1106 - Work Zone Traffic Control Devices

Highway Standards: 701001, 701006, 701101, 701106, 701301, 701311, 701427, 701501, 701602, 701606, 701701, 701801, 701901, and BLR 22-7

BDE Special Provisions:

- Traffic Control Deficiency Deduction

Traffic Control Standards shall be applied as directed by the Engineers.

The Contractor shall furnish the name of the individual in his direct employ who is responsible for the installation and maintenance of the traffic control for this project. This person shall be able to be contacted on a 24-hour per day basis to furnish and maintain traffic control in case of an emergency. The Contractor shall be responsible to communicate with impacted property owners when their driveway/entrance will be shut down for any period of time.

The staging of the improvements will allow for a full closure of Main Street during the project as defined in the plans and below. The Contractor will not be allowed to close Main Street prior to March 1, 2017. If the contractor can show an overall project schedule benefit would be attained by closing the road to vehicular traffic prior to March 1, 2017, the City and IDOT will consider the requested closure.

- In advance of a complete closure of East Main Street, the contractor will be allowed to close the outside lane of traffic in the eastbound and westbound directions in order to drive piles for the north and south piers. The lane closure shall be in accordance with IDOT Highway Standard 701606. The contractor shall locate the pile driving equipment

at locations such that the railroad crossing gates will still be operable for vehicular traffic on East Main Street.

- Pearl Street and Sumner Street reconstruction shall be staged to maintain access to all residences and business at all times during construction. The extension of Allens Avenue from Main Street to Pearl Street shall be completed prior to the closure of access to Pearl Street from Main Street. Main Street construction shall be done under a complete roadway closure.
- The Main Street and Chambers Street intersection shall remain operational to two-way traffic at all times during construction with the exception of the East Main Street leg which will be reconstructed as shown in the plans. Access shall be maintained at all times to all residences and businesses adjacent to the intersection. This may require the use of flaggers, steel plates, construction staging, etc. to maintain two-way traffic and access during construction. Traffic control devices shall not be used for staging and lane closures until work is ready to be completed within or adjacent to the intersection. Once work has begun at the intersection, it shall be completed in a timely manner. No work shall remain prior to any winter shutdowns.

Specific traffic control provisions have been added to the contract as commitments to the property owners. The commitments are for the property owners as noted below.

- **Property in the northwest quadrant of the Main Street and Chambers Street intersection:** Chambers Street (north of Main Street) will not be allowed to be closed at any time. There shall be no "Local Traffic Only" closures on Chambers Street. Through traffic will need to be accommodated at all times even if it is only one lane in one direction. One of the two southern driveways shall remain open and accessible at all times during construction. When the contractor removes a driveway, he/she shall have it back in service within 7 days. In addition, in order to facilitate traffic to this property, Main Street (west of Chambers Street) shall not be closed for more than three (3) days.
- **Property in the southwest quadrant of the Main Street and Chambers Street intersection:** Continuous access must be maintained to the US Post Office building. One lane minimum of ingress must be maintained at all times to the northerly entrance to this building off Chambers Street. The contractor will be fined \$10,000 per day if this entrance is completely closed. The Post Office shall be notified at least 48 hours in advance of work being done. The Contractor will be responsible for contacting the Postmaster in advance to discuss the construction schedule.
- **Property in the southeast quadrant of the Main Street and Chambers Street intersection:** Available parking (4 spaces minimum) must be maintained for Alfano's Pizza at all times during construction. During construction of the proposed entrance pavement at Station 103+71.40 right, ingress and egress must be maintained to the existing Alfano's parking lot. Upon completion of the proposed entrance pavement, portions of the completed entrance pavement and existing paved areas on Alfano's Pizza property should be made available for Alfano's business parking. In addition, the contractor shall set aside and delineate pavement areas necessary for Alfano's Pizza business traffic to access the parking spaces. Construction equipment will not be allowed in these areas. Safe paths shall be delineated through the temporary easement area as required to convey pedestrian traffic from the parking areas to the business entrance.
- **Property in the northeast quadrant of the Main Street and Chambers Street Intersection:** Access to Metropolitan Enterprises (515 E. Main Street) must be

maintained at all times. The proposed entrance off Chambers Street to the property must be constructed and operational prior to the closure of the existing entrances off Main Street.

- **Allens Avenue Intersection Construction:** A minimum of one (1) lane of southbound traffic on the south leg of the Allens Avenue / East Main Street intersection shall be maintained at all times during construction.
- **Maintenance to Properties located East of Railroad Tracks:** The contractor shall maintain access at all times to 723 E. Main Street (Glass Specialty Systems), 748 E. Main Street (Achievement Unlimited) and to 759 E. Main Street (apartment buildings located setback from Main Street).

TRAFFIC CONTROL AND PROTECTION (SPECIAL)

This work shall consist of furnishing, erecting, maintaining, and removing all signs and traffic control devices shown on the Traffic Control Plan Detour Signage sheets. All signs shall be erected prior to any roadway closures. The Contractor will be required to cover any conflicting signs when not in use.

For the construction of the Main Street Underpass, traffic will use the detour as shown on the Traffic Control Plan Detour Signage sheets.

All traffic control indicated on the detour plan sheets will be included in the cost of this pay item except for items such as changeable message signs, pavement marking removal, temporary pavement marking, and work zone pavement marking removal, which shall be paid for separately.

All warning signs shall be 36" x 36" fluorescent orange or as stated in the plans. The road closure limits may be adjusted as determined by the Engineer for work activities near the project limits. Access to existing entrances shall be provided at all times.

All traffic control and protection, except for additional flaggers, as described will be paid for at the contract lump sum unit price for TRAFFIC CONTROL AND PROTECTION (SPECIAL). Furthermore, Traffic Control Surveillance shall not be a separate item and will be incidental to this item.

NOTIFICATION OF ROAD CLOSURE

The contractor shall notify the Resident Engineer a minimum of 14 days prior to the actual road closure. The Resident Engineer will in turn notify the District 4 Bureau of Operations – Traffic Unit of the impending closure. This will allow time for the Resident Engineer to contact emergency services (police, fire, ambulance, etc.). Pedestrian Traffic will be maintained throughout the duration of construction activities.

The Contractor will not be allowed to close the road without the 14 day notice and failure to provide proper notice will delay the road closure. This notice of road closure is considered to be part of the Contractor's approved work schedule. Delays caused by

failure to provide the required notice shall not be considered justification for additional work days.

DETOUR ROUTING

East and Westbound vehicular traffic along East Main Street will be routed as shown in the Traffic Control Plan Detour Signage. East and Westbound large truck traffic will be routed as shown in the Traffic Control Plan Detour Signage.

CONSTRUCTION ACCESS

The Contractor shall present a plan of access that will be used during construction of said project by the Contractor or Subcontractor to the Engineer at the time of the Pre-Construction Meeting. The Engineer and Contractor shall both examine the plan noting any areas of concern before construction begins.

Upon completion of the project the Engineer shall examine the streets prior to approving final payment to the Contractor. Any areas that have been damaged, due to construction activity, shall be repaired by the Contractor to the satisfaction of the Engineer. When work is complete, the Contractor shall arrange, within a reasonable time period, to clean up and restore areas where equipment or material has been stored on the right-of-way or easement. This work shall be included in the cost of the contract.

The Engineer may restrict the movement of construction vehicles on the completed surface in order to prevent damage to these surfaces.

EMBANKMENT

Effective: July 1, 1990 Revised: November 1, 2007

Revise the third paragraph of Article 205.06 of the Standard Specifications to read:

All embankment shall be constructed with not more than 110% of optimum moisture content, determined according to AASHTO T 99 (Method C). The 110% of optimum moisture limit may be waived in free draining granular material when approved by the Engineer.

The Contractor may, at his option, add a drying agent to lower the moisture content as specified above. The drying agent must be approved by the Engineer prior to use. Extra compensation will not be allowed for the use of a drying agent but will be considered included in the cost of the various items of excavation.

PROOF ROLLING

Effective April 23, 2004 Revised January 1, 2007

This work shall consist of proof rolling the subgrade with a fully loaded tandem axle dump truck and driver at the direction of the Engineer. The truck shall travel the subgrade in all of the proposed lanes of traffic in the presence of the Engineer.

This work will not be paid for separately, but considered included in the various earthwork pay items.

SUBGRADE TREATMENT

Effective July 1, 1990 Revised April 25, 2008

Revise first sentence of first paragraph of Article 301.04 as follows:

“When compacted, the subgrade shall have a minimum dry density of 95 percent of the standard laboratory dry density and a minimum immediate bearing value (IBV) of 3.0.”

Delete the second paragraph (including subparagraphs a, b, and c) of Article 301.04 of the Standard Specifications and replace it with the following:

“In cut sections the contractor responsible for the rough grading shall obtain not less than 95% of the standard laboratory density and not more than 110% of the optimum moisture for the top 1' (300mm) of the subgrade.

The Contractor may, at his/her option, add a drying agent to lower the moisture content as specified. The drying agent must be approved by the Engineer prior to use. Additional compensation will not be allowed for the use of a drying agent, but will be considered as included in the cost of the various earthwork items.”

In the first sentence of the third paragraph delete “above steps have” and replace with “work has.”

ENVIRONMENTAL REVIEWS

Prior to use of any proposed borrow areas, use areas (temporary access roads, detours, run-arounds, etc.) and/or waste areas, the Contractor shall file the required environmental resource request surveys according to Section 107.22 of the Standard Specifications. These surveys are required in order for the Department to conduct cultural and biological resource surveys for the proposed site.

Prior to any waste materials being removed from the construction site, the required environmental resource surveys will need to be obtained and filed by the Contractor.

Excess waste products removed from the construction site shall be disposed of as required in Section 202.03 of the Standard Specifications.

Any protruding metal bars shall be removed prior to the disposal of broken concrete at approved disposal sites.

The required environmental recourse documentation shall include the following:

- BDE Form 2289 (Environmental Survey Request)
- A location map showing the size limits and location of the use area
- Signed Property Owner Agreement Form –D4 PIO100
- Color photographs depicting the use area
- Borrow Area Entry Agreement form – D4 PIO101

Please note that a minimum of two weeks shall be allowed for the District to obtain the required environmental clearances.

BORROW AND FURNISHED EXCAVATION

Effective march 7, 2000

Revised April 27, 2007

Add the following to the requirements of Article 204:

“Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both sides and top with a minimum of 3 feet of non-restricted soil not considered detrimental in terms of erosion potential or excess volume change. A restricted soil is defined as having any one of the following properties.”

- A grain size distribution with less than 35% passing the number 75um (#200) sieve.
- A plasticity index of less than 12.
- A liquid limit in excess of 50.

“All restricted and non-restricted embankment materials shall have the following minimum strengths for the indicated moistures.”

<u>Immediate Bearing Value</u>	<u>Shear Strength At 95% Density*</u>	<u>Moisture</u>
3.0	1000 PSF (50 Kpa)	120%
4.0	1300 PSF (62 Kpa)	110%

*Granular Soils $\phi=35^\circ$

EMBANKMENT (RESTRICTIONS)

Effective January 21, 2005

Revised August 3, 2007

Add the following to the requirements of Article 205.04:

Gravel, crushed stone or soils having less than 35% passing the number 200 sieve and other materials as allowed by Article 202.03 of the Standard Specifications are further restricted. These further restricted materials are also limited to the interior of the embankment and shall have a minimum cover of 3' (1 m) of non-restricted soil (see "Borrow and Furnished Excavation" Special Provision). Alternating layers of further materials may only be incorporated in to the embankment by using one of the following procedures:

The further restricted materials shall be placed in 4" lifts and disked with underlying lift material until a uniform and homogeneous material is formed having more than 35% passing the number 200 sieve.

Sand, gravel or crushed stone embankment when placed on the existing ground surface will be drained using a 10' (3 m) French drain consisting of nonwoven geotechnical fabric at the toe of the foreslope spaced 150' (46 m) apart. At locations requiring a French drain the 3' (1m) cohesive cap shall not be installed within the 10' by 10' riprap area. If the Engineer determines that the existing ground is granular free draining soil, the French drain may be deleted.

Sand, gravel or crushed stone embankment when placed on top of a cohesive embankment will be drained with a permanent 4" (100 mm) underdrain system. The underdrain system shall consist of a longitudinal underdrain on both sides of the embankment and traverse underdrains spaced at 250' (75 m) centers. The underdrain shall consist of a 2' (0.6 m) deep by 1' (0.3 m) wide trench, backfilled with FA4 sand and a 4" (100 mm) diameter underdrain. In addition, both sides of the embankment will have a 6" (150 mm) diameter pipe drain which will drain the underdrain system and outletted into a permanent drainage structure or outletted by a headwall at the toe of the embankment.

The above work will not be paid for separately but shall be included in the cost of Earth Excavation, Furnished excavation, or Borrow Excavation.

SPECIAL EXCAVATION

This work shall be in accordance with applicable portions of Section 202 of the Standard Specifications. This work shall consist of the excavation, transportation and disposal of excavated material.

The removal of earth and abandoned utility conduit/wires, including but not limited storm sewer, sanitary sewer, water main, gas, and cable are included in the cost of Special

Excavation pay item. The removal of the existing manholes and inlets will be paid for separately and not included in the cost of Special Excavation.

This work will be paid for at the contract unit price per cubic yard for SPECIAL EXCAVATION.

Multiple large concrete "blocks" exist along the west side of Sumner Street approximately 110 feet north of the East Main Street centerline. The contractor shall be responsible for the removal and disposal of these blocks. This work will not be paid for separately but shall be considered incidental to SPECIAL EXCAVATION.

AGGREGATE SUBGRADE IMPROVEMENT

This work shall be in accordance with the Bureau of Design and Environment (BDE) Special Provision for Aggregate Subgrade Improvement (80274) and as specified herein.

Aggregate Subgrade Improvement shall be placed in accordance with the limits shown on the plans. The Contractor will be allowed to place the aggregate up to six (6) inches outside of the limits of the PCC pavement in order to construct a solid pavement platform. Compensation will not be allowed for any additional aggregate that is placed outside of the six (6) inch limit.

STORM SEWER (WATER MAIN QUALITY PIPE)

The storm sewer shall be constructed to the lines and grades shown in the plans and according to applicable portions of Section 550 of the Standard Specifications and as specified herein.

Storm sewer pipes designated as "Water Main Quality Pipe" will require water main quality pipe due to the proximity to the existing water main. This pipe shall be Polyvinyl Chloride (PVC) conforming to AWWA C 900 or C 905. Pipe shall be rated at 160 pounds per square inch (psi). Elastomeric seals (gaskets) used for push-on joints shall comply with ASTM F 477, and shall be pressure rated in accordance with ASTM D 3139.

Basis of Payment: This work shall be paid for at the contract unit price per foot for STORM SEWER, (WATER MAIN QUALITY PIPE) of the type and size specified.

NPDES PERMIT

The Engineer will apply for and obtain a National Pollutant Discharge Elimination System Construction General Permit (NPDES CGP) prior to beginning construction.

The CGP has four main elements:
Notice of Intent (NOI)
Storm Water Pollution Prevention Plan (SWPPP)
Incident of Non-Compliance (ION)
Notice of Termination (NOT)

The Notice of Intent (NOI) serves as the application for the CGP. It is the contractor's responsibility to submit the NOI form and be in compliance with all NPDES requirements. A Notice of Intent must be post-marked at least thirty days prior to the commencement of any construction activity on site. The Erosion Control Plan sheets will convey the information required for a Storm Water Pollution Prevention Plan (i.e. drainage patterns, area of soil disturbance, location of storm water discharges, etc.). The Contractor shall be responsible for having these plan sheets available for viewing during business hours at the project site. An Incident of Non-Compliance must be completed and submitted to the IEPA if, at any time, an erosion or sediment control device fails.

PCC AUTOMATIC BATCHING EQUIPMENT

Effective: April 23, 2010

Portland cement concrete provided shall be produced from batch plants that conform to the requirements of Article 1103.03 (a) and (b) of the Standard Specifications for Road and Bridge Construction. Semi-automatic batching will not be allowed.

In addition, the batching plant shall be a computerized plant interfaced with a printer and shall print actual batch weights, added water, tempering water, mixing time, and amount of each additive per batch. At the discretion of the Engineer, archived electronic versions of batch proportions will be acceptable. Truck delivery tickets will still be required as per Article 1020.11 (a) (7).

PCC QC/QA ELECTRONIC REPORTS SUBMITTAL

Effective: April 26, 2013

Revised April 26, 2015

The Contractor's QC personnel shall be responsible for electronically submitting PRO and IND MI 654 Air, Slump, Quantity Reports, PRO MI 655 PCC Strength Reports, and MI 504 Field/Lab Gradations to the Department. The format for the electronic submittals will be the PCC QC/QA reporting program, which will be provided by the Department. Microsoft Office 2007 or newer is required for this program which must be provided by the Contractor.

HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH

This work shall consist of the partial variable depth removal of the existing pavement in preparation for placement of final overlay as shown in the plans. The pavement shall be removed in accordance with Section 440 of the Standard Specifications.

At locations noted on the drawings, the existing HMA surface shall be removed in variable depths in order to conform to the grading of the proposed surface. The existing surface shall be removed such that the final minimum thickness of the proposed pavement is 2 ¼ inches.

This work shall be paid for at the contract unit price per square yard for HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH.

HOT-MIX ASPHALT SURFACE COURSE SURFACE TESTS

Effective: November 1, 2003

Revised January 1, 2007

The Contractor shall provide a person to operate the straight edge in accordance with Article 406.11 of the Standard Specifications and communicate with City/IDOT personnel to minimize the surface course bumps. If surface course bumps cannot be removed at this time, IDOT personnel will record the locations and provide deductions as stated in Article 406.11.

BRICK SIDEWALK REMOVAL

The work shall be in accordance with the applicable portions of Section 440 of the Standard Specifications.

This work includes the careful removal of the existing brick sidewalk. This consists of removal of the existing brick wearing surface and the PCC base course (existing roadway only and if present). The brick wearing surface shall be removed separately from the base course. The bricks shall then be hauled separately to an off-site location for cleaning and palletizing. The Contractor shall properly dispose of waste materials produced by the cleaning process.

Bricks to be re-laid on this project may be stored at the job site provided proper security and traffic protection measures are taken. All bricks shall be temporarily palletized and shrink-wrapped, using standard-sized durable pallets (to be furnished by the Contractor.) Pallets shall not be stacked over three pallets high nor should there be more than eight layers of bricks per pallet, nor shall the total weight of the bricks exceed the pallet manufacturer's weight limits. Bricks to be re-laid may also be stored off-site at a location provided by the Contractor. Regardless of the storage location, the

Contractor shall be responsible for any brick broken due to carelessness or lost due to theft. These bricks shall be replaced by the Contractor at his/her expense. Upon return to the jobsite, the bricks will be inspected; all uncleaned or broken brick shall not be used. No full, partial, or broken bricks are to be disposed of unless approved by the Resident Engineer. Cleaned and palletized brick that are not re-laid as part of the improvements shall be transported to the City of Galesburg's brick storage areas at Gunther Construction A4 asphalt plant outside of Galesburg.

This work shall be paid for at the contract unit price per square foot for BRICK SIDEWALK REMOVAL.

RELOCATE EXISTING LIGHTING UNIT

This work shall be done in accordance with Section 844 of the Standard Specifications except as modified herein. Various cobra head street lights will be removed as part of the proposed improvements. The contractor shall be responsible for the relocation of one (1) cobra head lighting fixture to an existing utility pole at the location noted on the plans.

North Chambers Street: One cobra head light is proposed to be relocated to the existing Ameren pole located at approximate Sta 404+60, left. The existing location of the Ameren pole is in conflict with the proposed improvements. However, it is expected that Ameren will relocate the pole to the same general area to accommodate the proposed improvements. The amount of wire and conduit required to extend from the existing lighting circuit in the northwest quadrant of Main Street / Chambers Street intersection is assumed and will be paid for separately.

This work will be paid for at the contract unit price per each for RELOCATE EXISTING LIGHTING UNIT which shall include all labor and other materials necessary to complete the work as specified herein.

RELOCATE EXISTING LIGHT POLE ONTO NEW FOUNDATION

This work shall be done in accordance with Section 844 of the Standard Specifications except as modified herein. Any damage done to the light posts/poles during the relocation process shall be repaired to the satisfaction of the Engineer at the Contractor's expense. The existing foundation shall be removed according to Section 842 of the Standard Specifications. A new foundation (30" diameter and 6'-6" in depth) shall be poured in place at the locations noted on the plans according to Section 836 of the Standard Specifications and the applicable IDOT Standard Drawing. The bolt pattern shall be modified as necessary to match the bolt pattern of the existing light pole to be relocated. Conduit and wiring shall be removed and replaced in kind as required to connect the light to the existing system. The location of the new foundation shall be coordinated with the City of Galesburg.

This work will be paid for at the contract unit price per each for RELOCATE EXISTING LIGHT POLE ONTO NEW FOUNDATION which shall include all labor, foundation removal and placement, conduit, wiring and other materials necessary to complete the work as specified herein.

FOUNDATION REMOVAL

This work shall consist of the removal of an existing concrete foundation at the location noted in the plans.

A concrete foundation that once supported a large billboard sign exists at one location noted in the plans. The general horizontal dimensions of the foundation to be removed are 8 foot by 8 foot. The depth of the concrete foundation is 9 foot. The foundation exists in an area that will be excavated for construction of the roadway. Therefore, backfilling of the concrete foundation will not be necessary. The contractor shall be responsible to remove all pieces of the concrete foundation from the project site.

This work will be paid for at the contract unit price per each for FOUNDATION REMOVAL.

REMOVE EXISTING CONCRETE FOUNDATION

This work shall consist of the removal of existing concrete foundations at locations noted in the plans.

Existing concrete foundations exist at three locations noted in the plans. The contractor shall be responsible to completely remove the foundation to an elevation of not less than one (1) foot below the proposed elevation of subgrade or ground surface. Trench backfill shall be used to fill the hole resulting from the removal of the foundation.

This work will be paid for at the contract unit price per each for REMOVE EXISTING CONCRETE FOUNDATION.

FENCE REMOVAL

This work shall consist of the removal of existing fence at locations noted in the plans.

All components of the existing fence shall be removed to at least one (1) foot below the existing ground line, or as required for the construction of adjacent proposed improvements. If any holes are created by the removal of the fence, they shall be backfilled with suitable material approved by the Engineer. All debris resulting from this operation shall be removed from the project site.

This work will be paid for at the contract unit price per foot for FENCE REMOVAL.

SANITARY MANHOLES TO BE ADJUSTED WITH NEW TYPE 1 FRAME, CLOSED LID

This work shall consist of adjusting sanitary manholes with a new frame and lids/grates to the elevations as noted on the plans.

Precast concrete adjusting rings or cast-in-place concrete shall be constructed to adjust structure to the required elevation. The existing frame and lid shall be removed and replaced with a new Type 1, Frame and Closed Lid. For placing of castings adjacent to rigid pavement, the castings shall be placed in full mortar beds. Castings shall be set to the finished pavement elevation so no subsequent adjustment will be necessary.

This work shall be paid for at the contract unit price per each for SANITARY MANHOLES TO BE ADJUSTED WITH NEW TYPE 1 FRAME, CLOSED LID.

SANITARY MANHOLES TO BE REMOVED

This work shall consist of removing existing sanitary manholes.

This work will be done in general accordance with Section 605 of the Standard Specifications. At the City's discretion, the contractor shall salvage the existing frames and grates and deliver them to the City of Galesburg.

This work shall be paid for at the contract unit price per each for SANITARY MANHOLES TO BE REMOVED.

TRENCH DRAIN

This work shall consist of installing a trench drain at the locations specified in the plans. The trench drain shall be Neenah R-4996-A1, Type Q Grate, Bottom Outlet, or approved equal. This work will be paid for at the contract unit price per foot for TRENCH DRAIN.

SIMULATED LARGE STONE ASHLAR FORM LINER

Description of Work

This work shall consist of designing, developing, furnishing and installing form liners and forming concrete using reusable, high-strength urethane form liners to achieve the concrete treatment as shown in the drawings and special provisions. Form lined surfaces shall include the front face of soldier pile retaining wall. Work shall be performed in accordance with applicable portions of Sections 504 of the Standard Specifications and as specified herein.

Form Liner Pattern

The pattern shall simulate 6" to 60" random ashlar stone with a maximum 1 ½" to 2" relief.

The following form liner patterns provide the intended appearance:
Custom Rock International #1501-R2, St. Paul, MN (800-637-2447)
Milestones Incorporated MS-1002 or MS-4001, Hudson, WI (715-381-9660)

Other similar form liners may be used with the approval of the engineer.

Shop Drawings and Mockups

The Contractor shall submit plans for the form liner pattern along with an installation procedure for approval by the Engineer.

The Contractor shall construct a cast-in-place concrete mockup containing the form liner surface. The mockup shall be a minimum of 2 ft x 4 ft x 6 in and shall be located on the site as directed by the Engineer. The mockup shall include examples of the various conditions required for construction of the wall, such as liner joints, construction joints, and expansion joints. Additional mockups shall be prepared when the initial mockup is found to be unsatisfactory as determined by the Engineer. After approval of the mockup, construction may proceed using the mockup as a quality standard.

Method of Measurement

Form liner textured surfaces will be measured for payment in place and the area computed in square feet. Mockups will not be measured for payment.

Basis of Payment

Form liner textured surfaces will be paid for at the contract unit price per square feet for FORM LINER TEXTURED SURFACE.

FENCE (SPECIAL) AND ORNAMENTAL HANDRAIL

1. Description

This work shall consist of furnishing and installing FENCE (SPECIAL) and ORNAMENTAL HANDRAIL. The work includes but is not limited to coordination, submittals, materials, fabrication, finishing, transportation, installation, and all other miscellaneous elements required for complete provision of the railings. Work shall comply with section 509 of the Standard Specifications.

2. General

a. Performance Requirements

- i. Provide a comprehensive 10-year warranty on finish system for the fence and the handrail.

b. Submittals

- i. Mockup: Submit mockups consisting of a minimum 2 feet of complete Bridge Fence Railing and of a minimum 2 feet of complete Parapet Railing with the proposed finish system including galvanizing and finish coats. Submit the mockups for approval by

- the Engineer. Resubmit until approval is obtained. Do not fabricate railings until the mockups have been approved.
- ii. Product Data: Submit product data for each type of product indicated:
 1. Steel components: structural steel tubing, plates, splices
 2. Fasteners
 3. Finish Systems – Including factory and field applied systems.
 - iii. Material Certifications: Submit material certifications signed by manufacturers certifying that each of the following items complies with requirements:
 1. Steel
 2. Fasteners
 3. Finish Systems
 - iv. Shop Drawings: Detail fabrication and installation of fence and handrail, indicated plans, elevations, dimensions, shapes, cross sections and limits of each finish.
 1. Show fence and handrail layouts and indicate post and panel types, sizes, orientations and locations. Indicate critical adjacent rustication and joints.
 2. Indicate welded connections by AWS standard symbols. Detail loose and cast-in hardware, inserts, connections, and joints, including accessories.
 3. Indicate locations and details of anchorage devices to be embedded in other construction.
 - v. Test results, certified by an independent testing laboratory, from test required in section 3.a.v.

3. Materials

a. Finish

- i. All posts, railings, anchor devices, plates, and structural steel tubing shall be hot-dip galvanized after shop fabrication according to AASHTO M111. All bolts, nuts, washers, and anchor rods shall be galvanized according to AASHTO M232. Stainless Steel materials shall not be galvanized. Galvanizing shall be smooth and free of drops, spikes, inclusions, blobs, etc. and otherwise optimized to achieve a smooth finished surface.
- ii. Prior to finish coat, mechanically clean galvanized surfaces to smooth the surface and remove large deposits from the galvanizing process. Do not damage or remove the galvanizing material as to compromise the corrosion resistance of the system. Alternately, provide other approved method(s) to ensure smooth final finished surface.
- iii. Prior to finish coat, mechanically clean and roughen stainless steel elements with sandblast for optimal coating adhesion.
- iv. Finish all exposed surfaces of the fence with 2 coats of an electrostatic polyester, TGIC powder coating, colored black (Munsell Number N1), with high UV stability, impact, corrosion, heat

and humidity resistance. The combined total thickness of the two finish coats shall be a minimum of 6 mils.

- v. Finish system shall meet or exceed the following:
 - 1. ASTM B117 Salt Spray (fog) test – 1,000 hrs. The coated steel shall exhibit no visible evidence of rust.
 - 2. ASTM D3363 Hardness, ASTM D2793 Direct Impact, ASTM D822 Weatherability.
 - 3. ASTM D3363 Mechanical Adhesion Test
- vi. The exposed heads and nuts of all hot-dip galvanized anchor rods shall be spot painted with an approved paint system to match finish color. The surface to be painted shall first be cleaned with an approved solvent.
- vii. Any damage to the coatings will be repaired promptly in accordance with the manufacturer's recommendations or replaced with undamaged components. Repairs shall be subject to approval by the Engineer. Finish all damaged, cut or other surfaces not powder coated, subject to approval by the Engineer, with zinc-rich primer (if not already galvanized) & high performance finish coat, compatible with factory coating system, to match finish color.

4. Tolerance

Openings between pickets and between the railings and adjacent surfaces shall not exceed 6".

5. Method of Measurement

Fence (Special) and Ornamental Handrail, Special will be measured for payment in place in feet. The length measured will be the overall length along the top longitudinal railing member through all posts and gaps.

6. Basis of Payment

This item shall be paid for at the contract unit price per foot for FENCE (SPECIAL) and ORNAMENTAL HANDRAIL, which price shall include all material, hardware, installation, transportation, cleaning, and finishing.

CONCRETE SURFACE COLOR TREATMENT

Description: This work shall consist of furnishing all labor, materials, and equipment for the application of a concrete surface color treatment to the locations shown on the plans.

General: The concrete surface color treatment shall be a two-part, colored cementitious coating. This coating shall be opaque, high-strength, extremely UV-resistant and suitable to apply to vertical surfaces. BRICKFORM Cem-Coat is an approved

product for the Concrete Surface Color Treatment. Alternate products will be allowed but must meet this specification and be approved by the Engineer.

Construction Requirements: The preparation of the concrete surfaces and application of the concrete coating shall be done in such a manner as to not damage the concrete and according to the manufacturer's written instructions.

The color of the concrete coating should be black. Submit samples to the Engineer, for approval, on actual substrate to verify preliminary selections made under sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

Store the coating materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45°F to protect from freezing.

Prior to the application of the concrete coating, the surface shall be clean and free of laitance, dirt, films, paint, coatings, or other foreign matter. Surfaces are to be dry prior to application. The coating should only be applied after the concrete has fully cured, at least 28 days.

The contractor shall use the moisture vapor evaporation rate test per ASTM F1869 to ensure that the rate of moisture vapor emission from the concrete surface is not exceeding 5 pounds per 1000 square feet per 24 hours. The contractor shall also perform relative humidity tests per ASTM F2170 to ensure the humidity is below 75%.

The coating shall either be sponge, roll or brush applied to the concrete surfaces. If a second coat is required, the second coat shall be applied after two hours of the previous coat but within twenty four hours. Apply each coat according to the manufacturer's written instructions. Use equipment recommended in writing by the manufacturer for material and texture required, and apply the material at not less than manufacturer's recommended spreading rate.

Mix prepackaged ingredients together according to the manufacturer's written instructions. Mix together with mechanical mixer or by hand to required consistency. Mix proportions of the ingredients vary by manufacturer and application equipment type.

Apply coating only when temperature of surfaces to be coated and ambient air temperatures are between 55 and 80°F.

The concrete coating should be allowed to cure before the application of the concrete sealer. Clean spattered coating by washing, scraping, or other methods without damaging the concrete or coating.

Comply with the manufacturer's written instructions for recommendations on curing procedures.

Method of Measurement: This work will be measured for payment in units of square feet, at the locations specified.

Basis of Payment: This work will be paid for at the contract unit price per square foot for CONCRETE SURFACE COLOR TREATMENT. Price shall be payment in full for all labor, materials, and equipment necessary for the application of the coating and sealer.

PRECAST PRESTRESSED CONCRETE FASCIA BEAM

Description: This work shall consist of furnishing all labor, material, and equipment for the fabrication and erection of a precast prestressed concrete fascia beam including the curb on top of the fascia beam, and lettering on the east side center fascia beam.

General: Except as otherwise specified hereafter, the current Standard Specifications for Road and Bridge Construction, Section 504 – Precast Concrete Structures and Section 1042 – Precast Concrete Products, shall apply to all work under this section.

Construction Requirements: Fly Ash, Silicafume and/or slag cement and any other admixtures, approved by the Engineer, shall be in addition to the minimum cement content listed in the Standard Specifications for Road and Bridge Construction, Section 1020-Portland Cement Concrete, not in lieu of cement.

Lifting loops shall be provided by the fabricator. The type and locations shall be shown on the shop drawings for each member. The area around all lifting loops shall be recessed so that the loops can be removed to a depth of $\frac{3}{4}$ in. and grouted.

Method of Measurement: This work will be measured for payment by the foot. In determining the total length of beams to be paid for, the specified overall length of the individual beams will be used.

Basis of Payment: This work will be paid at the contract unit price per foot for PRECAST PRESTRESSED CONCRETE FASCIA BEAM. Price shall be payment in full for all labor, materials, and equipment for fabrication and erection of the precast prestressed concrete fascia beam.

PRECAST CONCRETE SUBSTRUCTURE

Description: This work shall consist of furnishing and installing the precast concrete substructure members shown on the plans (including abutment caps, pier caps, wingwalls and closure walls), including all bolts, miscellaneous steel noted and welding required for attachment.

General: Except as otherwise specified hereafter, the current Standard Specifications for Road and Bridge Construction, Section 504 – Precast Concrete Structures and Section 1042 – Precast Concrete Products, shall apply to all work under this section.

Construction Requirements: Fly Ash, Silcafume and/or slag cement and any other admixtures, approved by the Engineer, shall be in addition to the minimum cement content listed in the Standard Specifications for Road and Bridge Construction, Section 1020 – Portland Cement Concrete, not in lieu of cement.

Lifting loops or anchors shall be provided by the fabricator. The type and locations shall be shown on the shop drawings for each member. The area around all lifting loops shall be recessed so that the loops can be removed to a depth of ¾” and grouted. The recesses around lifting anchors shall be filled with cement grout to the top of surrounding concrete.

Basis of Payment: This work shall be paid for at the contract lump sum price for PRECAST CONCRETE SUBSTRUCTURE.

PROTECTION OF FRAMES AND LIDS OF UTILITY STRUCTURES

Effective March 6, 1991

Revised January 1, 2007

This work shall consist of protecting frames and lids of utility structures in the pavement after the adjacent hot-mix asphalt surface has been removed to the required depth by cold milling or by hand methods.

After the area has been swept clean and before the lane is opened to traffic, a hot bituminous mixture shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 4 feet around the entire surface of the casting. Cold mix or milled material will not be permitted. This mixture shall remain in place until the day surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary hot-mix asphalt mixture shall be removed and disposed of by the Contractor as specified in Article 202.03 of the Standard Specifications.

The temporary tapers and their removal shall be considered included in the contract unit price per square yard for HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH, and no additional compensation will be allowed.

REMOVING INLETS/MANHOLES

This work shall consist of removing existing manholes and inlets.

This work will be done in general conformance with Article 605 of the Standard Specifications. The Contractor shall salvage the existing frames and grates and deliver them to the City of Galesburg Street Department.

This work will be paid for at the contract unit price per each for REMOVING INLETS and REMOVING MANHOLES.

PORTLAND CEMENT CONCRETE SIDEWALK

This work shall consist of constructing portland cement concrete sidewalk and sidewalk accessibility ramps on a prepared subgrade.

All sidewalk will be constructed with a maximum cross slope of 2%. The subgrade shall be tamped and rolled until thoroughly compacted and to the correct grade. Additional earth or aggregate required to bring the subgrade up to the correct elevation shall be included in the pay item PORTLAND CEMENT CONCRETE SIDEWALK. For sidewalk adjacent to the back of curb, Contractor shall provide expansion material between the concrete. The joint between the back of curb and the sidewalk shall be filled with $\frac{3}{4}$ inch Preformed Expansion Joint Filler. At locations of curb ramps where vertical side walls are specified and indicated in the plan details, the construction of the side walls is included in the cost of the sidewalk pay item.

This work will be paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE SIDEWALK.

PORTLAND CEMENT CONCRETE DRIVEWAY

This work shall consist of constructing portland cement concrete driveway on a prepared subgrade.

The subgrade shall be tamped and rolled until thoroughly compacted and to the correct grade. Four (4) inches of AGGREGATE SUBGRADE IMPROVEMENT shall be placed under the driveway and compacted. Additional earth or aggregate required to bring the subgrade up to the correct elevation shall be included in the pay item PORTLAND CEMENT CONCRETE DRIVEWAY. For driveway adjacent to the back of curb, Contractor shall provide expansion material between the concrete. The joint between the back of curb and the driveway shall be filled with $\frac{3}{4}$ inch Preformed Expansion Joint Filler. Any Earth Excavation required to bring the driveway to plan grades shall be included in the cost of the aggregate base (AGGREGATE SUBGRADE IMPROVEMENT).

This work will be paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, of the thickness specified.

CONCRETE STEPS AND STAIR SIDE RAILING

This work shall consist of construction of concrete steps and railing at locations noted on the plans.

The existing sidewalk shall be saw cut at the limits of the concrete steps or sidewalk to be removed. All debris resulting from this operation shall be removed from the project site. Preformed Expansion Joint Filler will be placed at the saw cut location between the existing sidewalk and the proposed concrete steps or sidewalk. The concrete steps shall be constructed in accordance with the details noted on the plans. All reinforcement shall be epoxy coated and shall be included in the cost of the Concrete Steps.

Also included in the construction of the concrete steps is the installation of handrail. The handrail shall be installed in accordance with the details noted in the plans.

This work will be paid for at the contract unit price per square foot for CONCRETE STEPS and at the contract unit price per foot for STAIR SIDE RAILING. The price will include all materials, equipment and labor necessary to complete the work. The cost of the Toe Kick, when indicated, shall be included in the contract unit price per Foot for STAIR SIDE RAILING.

CONCRETE CURB (SPECIAL)

This work shall be in accordance with the applicable portions of Section 606 of the Standard Specifications and as detailed in the plans.

Basis of Payment: This work shall be paid for at the contract unit price per foot for CONCRETE CURB (SPECIAL) which shall be payment in full for all materials, labor, tools and equipment necessary to complete the work.

COMBINATION CONCRETE CURB AND GUTTER, TYPE M (MODIFIED)

This work shall be in accordance with the applicable portions of Section 606 of the Standard Specifications and as detailed in the plans.

Basis of Payment: This work shall be paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, TYPE M (MODIFIED) which shall be payment in full for all materials, labor, tools and equipment necessary to complete the work.

STAMPED COLORED PORTLAND CEMENT CONCRETE

This work shall consist of furnishing and installing a integrally colored portland cement concrete pavement with a stamped and accent colored surface, constructed on a prepared subbase as detailed herein for a thickness and at locations shown on the

plans. This work will be in accordance with Section 420 of the Standard Specifications for Road and Bridge Construction.

The coloring of the concrete shall generally be of red color to simulate the brick pavement and brick sidewalk color throughout the City. The proposed Integral Color and Accent-Colour Release agent to be used will be approved by the City.

Submittals

The Contractor shall submit a sample of the pattern for approval of the color and pattern prior to placing any materials.

Pattern

The pavement finish shall be as detailed in the plans. The proposed grooves in the pavement shall be formed by using latex mat pressed into wet concrete.

Execution

The Contractor will be required to prepare a minimum one (1) square yard full-scale mock-up sample. Actual job specific materials, colors, methods, and workmanship shall be provided by the Contractor. The accepted mock-up will be the standards by which remaining work will be evaluated for technical and aesthetic merit. The mock-up may be in a location of proposed installation where it may remain if approved by the Engineer.

METHOD OF MEASUREMENT:

This work will be measured for payment in place and the area computed in square yard.

BASIS OF PAYMENT:

This work will be paid for at the contract unit price per square feet for STAMPED COLORED PORTLAND CEMENT CONCRETE.

STAMPED COLORED PORTLAND CEMENT CONCRETE SIDEWALK, 5"

This work shall consist of furnishing and installing a integrally colored portland cement concrete sidewalk with a stamped and accent colored surface, constructed on a prepared subbase as detailed herein for a thickness and at locations shown on the plans. This work will be in accordance with Section 420 of the Standard Specifications for Road and Bridge Construction.

The coloring of the concrete shall generally be of red color to simulate the brick pavement and brick sidewalk color throughout the City. The proposed Integral Color and Accent-Colour Release agent to be used will be approved by the City.

Submittals

The Contractor shall submit a sample of the pattern for approval of the color and pattern prior to placing any materials.

Pattern

The sidewalk finish shall be as detailed in the plans. The proposed grooves in the sidewalk shall be formed by using latex mat pressed into wet concrete.

Execution

The Contractor will be required to prepare a minimum one (1) square yard full-scale mock-up sample. Actual job specific materials, colors, methods, and workmanship shall be provided by the Contractor. The accepted mock-up will be the standards by which remaining work will be evaluated for technical and aesthetic merit. The mock-up may be in a location of proposed installation where it may remain if approved by the Engineer.

METHOD OF MEASUREMENT:

This work will be measured for payment in place and the area computed in square feet.

BASIS OF PAYMENT:

This work will be paid for at the contract unit price per square foot for STAMPED COLORED PORTLAND CEMENT CONCRETE SIDEWALK, 5".

STORM SEWER

The storm sewer shall be constructed to the lines and grades shown in the plans and according to applicable portions of Section 550 of the Standard Specifications and as specified herein.

All storm sewer used on the project, with the exception of STORM SEWER (WATERMAIN REQUIREMENT) shall be a Reinforced Concrete Culvert Pipe (RCCP) in accordance with Article 1042 of the Standard Specifications.

Basis of Payment: This work shall be paid for at the contract unit price per foot for STORM SEWER, CLASS A, of the type and size specified.

PIPE UNDERDRAIN FOR STRUCTURES 4"

The pipe underdrain shall be constructed to the lines and grades shown in the plans and according to Section 601 of the Standard Specifications and as specified herein.

Segmental Concrete Block Wall will be constructed at locations shown on the plans. PIPE UNDERDRAIN FOR STRUCTURES 4" is required to be constructed at locations noted in the IDOT District 4 Highway Standard 660101-04 and will be paid for at the contract unit price per foot for PIPE UNDERDRAIN FOR STRUCTURES 4". The contractor will be responsible to construct a four inch pipe underdrain from the low point of the underdrain installed for the segmental block structure at locations noted on the

plans and convey this underdrain to the nearest storm sewer inlet or manhole. The contractor will be permitted to substitute a non-perforated pipe for this outlet pipe.

Basis of Payment: This work shall be paid for at the contract unit price per foot for PIPE UNDERDRAINS FOR STRUCTURES 4”.

ENGINEER’S FIELD OFFICE, TYPE A (SPECIAL)

This item shall consist of furnishing and maintaining an Engineer’s Field Office as specified in Article 670.01 of the Standard Specifications and herein.

The field office shall have a ceiling height of not less than seven (7) feet and a floor space of not less than 2000 square feet. The office shall be provided with sufficient heat, natural or artificial light and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

Adequate all weather parking space shall be available to accommodate a minimum of twenty (20) vehicles. Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office. Solid waste disposal consisting of ten waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service. Weekly garbage pickup service shall be provided.

The Contractor shall provide the following equipment and furniture meeting the approval of the Engineer.

- Eight desks with minimum working surface 6 foot by 4 foot each.
- Two desks with minimum working surface 3.5 foot by 2.5 foot with height adjustment of 23 inches to 30 inches for computer use.
- Ten non-folding office chairs on wheels with upholstered seats, arm rests and backs.
- Three 4-post drafting tables with minimum top size of 37.5 inches by 48 inches. The top shall be basswood or equivalent and capable of being tilted through an angle of 50 degrees. Three adjustable height drafting stools with upholstered seats and backs shall be provided.
- Three freestanding file cabinets with locks, legal size, four drawers, with an Underwriter’s Laboratories insulated file device 350 degrees one hour rating.
- Fifteen folding chairs or stackable chairs.
- One equipment cabinet with lock of minimum dimension of 44 inches by 24 inches by 30 inches deep. The walls shall be of steel with a 2 mm minimum thickness with concealed hinges and enclosed lock construction in such a manner as to prevent entry by force. The cabinet assembly shall be permanently attached to a structural element of the office in a manner to prevent theft of the entire cabinet.
- One office-style refrigerator with a minimum size of 16 cubic feet with a freezer unit.

- Four electric desk type tape printing calculators and four pocket scientific notation calculators with a 1000 hour battery life.
- Five telephones, including at least two cordless phones, and three telephone answering machines (or voice mail feature on 3 phone lines). One telephone shall have speaker phone capability. Six telephone lines shall be provided including one for the fax machine and two modems. Additional features on the three voice lines shall include caller ID and 3-way calling.
- One photocopier machine (including maintenance and operating supplies) capable of copying field books. Supply paper and trays for 8.5 inch by 11 inch, 8.5 inch by 14 inch, and 11 inch by 17 inch sizes. The copier shall be completed with automatic feed and sorter.
- One telecommunication fax machine, including maintenance and operating supplies. The fax machine shall use plain paper. One table for the fax machine.
- One electric water cooler dispenser.
- One first-aid cabinet fully equipped.
- Two dry-erase marker boards minimum size 28 inch by 40 inch with markers and erasers.
- Four bulletin boards minimum size 28 inch by 40 inch.
- One microwave oven
- One conference table or group of tables which can be arranged together to create a table that will seat at least 15 people.
- One storage cabinet minimum size 18 inches wide by 12 inches by 60 inches with four adjustable shelves.
- Bookshelves – A minimum of 12 inches deep and a minimum total available length of 100 foot.
- DSL or internet connection.

The office space shall be maintained and kept in a clean condition, and free of insects and rodents, at all times. The Contractor shall provide a janitorial and/or cleaning service a minimum of once a week. Windows should be cleaned as directed by the Engineer. Maintenance shall include, but not be limited to, paper towels, soap, toilet paper, and other necessary supplies. No additional compensation will be allowed for providing this service, but it shall be included in the item ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL).

An electronic security system that will respond to any breach of exterior doors and windows with an on-site alarm shall be provided. The Contractor shall be responsible for security of the field office building and is liable for damages incurred as a result of vandalism, theft, and other criminal activities. Broken windows shall be replaced at no additional cost.

The Contractor will be responsible for systems maintenance and repairs, which shall include the heating, cooling, sanitary, and water distribution systems and light bulb

replacements. Fire extinguishers meeting the local municipalities' requirements shall be provided. Window shades or blinds shall be provided for all windows, as directed by the Engineer. The Contractor shall be responsible for snow removal from parking areas and sidewalks surrounding the building. The Contractor shall pay the cost of any building or equipment inspections by the local municipality. The Contractor shall also pay all costs to comply with the maintenance type inspection findings. The Contractor shall provide one subscription to high speed or broad band internet service. The Engineer will install this service on his (or his consultant's) desktop computer for use in the field office.

Basis of Payment. The building, fully equipped as specified herein and accepted by the Engineer, will be paid for on a monthly basis until the building is released by the Engineer. The Contractor will be paid the contract bid price each month, provided the building is maintained, equipped, and utilities furnished. The building, fully equipped and maintained as specified herein, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL). This price shall include all utility costs and shall reflect the salvage value of the building, equipment and furniture which becomes the property of the Contractor after release by the Engineer, except that the Department will pay that portion of each monthly long distance telephone bill in excess of \$50.

The Contractor shall be responsible for the repair and maintenance of the field office. No extra payment will be made for systems maintenance, repairs or for damages incurred as a result of vandalism, theft or other criminal activities.

CONCRETE PAVEMENT AGGREGATE OPTIMIZATION

For the construction of concrete pavement placed adjacent to concrete superstructure, the Class PV concrete shall contain two or more coarse aggregate sizes blended in accordance with the first paragraph of Article 1004.02(d), or as otherwise approved by the Engineer. The combined sizes shall consist of CA-7 or CA-11 blended with CA-13, CA-14, or CA-16. The blended coarse aggregate gradation shall have a minimum of 45 percent and a maximum of 60 percent passing the ½ inch sieve.

Concrete Pavement Aggregate Optimization will not be paid for separately, but shall be considered as included in the unit cost of PORTLAND CEMENT CONCRETE PAVEMENT.

BUILDING DEMOLITION

The demolition of one (1) building will be required as part of this construction contract. The specifications for the tasks associated with this work, including building demolition, asbestos removal, and collection/disposal of waste materials, are noted in the stand alone Project Specifications for East Main Street Demolition. These specifications are located in Attachment A.

This work will be paid for at the contract unit cost per Lump Sum for BUILDING REMOVAL NO. 1, REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS BUILDING NO. 1 and REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS BUILDING NO. 1.

RAILROAD FLAGGER

This work will consist of providing a certified flagger for construction activities that are adjacent to BNSF Railway property.

The Contractor must give the BNSF Roadmaster a minimum of thirty (30) days advance notice when flagging services will be required. A railway flagger will be required when the Contractor's work activities are located over, under and/or within twenty-five (25) feet measured horizontally from centerline of the nearest track and when cranes or similar equipment positioned beyond 25-feet from the track centerline could foul the track in the event of tip over or other catastrophic occurrence.

All certified flagger work required shall be paid for according to Section 109.04 of the Standard Specifications for Road and Bridge Construction.

REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL

This work will consist of over-excavating soil that is determined unsuitable for the proposal construction and providing porous granular embankment backfill for the over-excavated areas.

For areas where it is determined that the soil is unsuitable, the Contractor shall over-excavated the soil to a suitable depth in general accordance with Article 202 of the Standard Specifications. Upon excavating to suitable soil, the Contractor shall place a Geotechnical Fabric suitable for ground stabilization and backfill with porous granular embankment. The fabric shall be in conformance to Article 210 of the Standard Specifications. The porous granular embankment shall be in conformance with Article 207 of the Standard Specifications.

A quantity for each item noted above is included in the contract documents and will be used to establish a unit price. This work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, per ton for POROUS GRANULAR EMBANKMENT, and per square yard for GEOTECHNICAL FABRIC FOR GROUND STABILIZATION.

SIDEWALK REMOVAL

This work shall consist of the complete removal of existing sidewalk at locations noted on the plan and in accordance to the applicable portions of Section 440 of the Standard Specifications and as specified herein.

A curb wall approximately 6" to 8" in height exists along the back of sidewalks that are proposed to be removed as part of the improvements.

- Along the south side of East Main Street generally between Sta 112+00.00 and Sta 115+00.
- Along the east and west side of Allens Avenue south of East Main Street.

The removal of the curb wall is included as part of the required sidewalk removal.

The removal of the curb wall shall not be paid for separately but shall be included at the contract unit price per square foot for SIDEWALK REMOVAL.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

This work shall be according to Article 669 of the Standard Specifications and as supplemented with this special provision.

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 Environmental Firm shall continuously monitor all soil excavation for worker protection and soil contamination. **Phase I Preliminary Engineering information is available through the District's Environmental Studies Unit.** Soil samples or analysis without the approval of the Engineer will be at no additional cost to the Department. The lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit whichever is less.

During the PSI, evidence of a potential Underground Storage Tank (UST) was observed at the following locations:

- Station 109+10 to Station 109+30 (US 150), 55 to 75 feet RT (GCR Tire Center, PESA site 2529-15, 642 E. Main Street).
- Station 105+85 to Station 106+05 (US 150), 25 to 50 feet LT (Vacant Building, PESA site 2529-27, 571 E. Main Street).

The Contractor shall manage any excavated soils and sediment within the following areas:

Site 2529-09 (Glass Specialty Systems)

- Station 111+00 to Station 111+80 (US 150), 65 to 135 feet LT (Glass Specialty Systems, PESA site 2529-09, 723 E. Main Street) - This material meets the criteria of Article 669.09(a)(2) and shall be managed in accordance with Article 669.09. COC sampling parameters: manganese.
- Station 111+00 to Station 111+80 (US 150), 0 to 65 feet LT (Glass Specialty Systems, PESA site 2529-09, 723 E. Main Street) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance with Article 669.09. COC sampling parameters: benzo(a)pyrene, lead, manganese.
- Station 111+80 to Station 112+70 (US 150), 0 to 80 LT (Glass Specialty Systems, PESA site 2529-09, 723 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COC sampling parameters: manganese.

Site 2529-12 (Main Street Pawn/MWS Sportsbikes)

- Station 111+35 to Station 112+05 (US 150), 0 to 90 feet RT (Main Street Pawn/MWS Sportsbikes, PESA site 2529-12, 712-714 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COC sampling parameters: VOCs, pH.

Site 2529-13 (Zigby's Antiques)

- Station 109+85 to Station 110+25 (US 150), 0 to 70 feet RT (Zigby's Antiques, PESA site 2529-13, 674 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COC sampling parameters: manganese, VOCs, pH.
- Station 110+25 to Station 111+35 (US 150), 0 to 70 feet RT (Zigby's Antiques, PESA site 2529-13, 674 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COC sampling parameters: iron, VOCs.
- Station 110+25 to Station 111+35 (US 150), 70 to 125 feet RT (Zigby's Antiques, PESA site 2529-13, 674 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COC sampling parameters: VOCs.

Site 2529-15 (GCR Tire Center)

- Station 108+40 to Station 109+25 (US 150), 130 to 195 feet RT (GCR Tire Center, PESA site 2529-15, 642 E. Main Street) - This material meets the criteria of Article 669.09(a)(4) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, lead, manganese.
- Station 108+85 to Station 109+85 (US 150), 0 to 70 feet RT (GCR Tire Center, PESA site 2529-15, 642 E. Main Street) - This material meets the criteria of

Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: lead, manganese, VOCs, pH.

- Station 109+25 to Station 110+10 (US 150), 70 to 235 feet RT (GCR Tire Center, PESA site 2529-15, 642 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)pyrene, benzo(b)fluoranthene, antimony, lead.

Site 2529-17 (Vacant Lot)

- Station 108+85 to Station 109+40 (US 150), 75 to 110 feet LT (Vacant Lot, PESA site 2529- 17, 600 block of E. Main Street) - This material meets the criteria of Article 669.09(a)(1) and shall be managed in accordance with Article 669.09. COCs sampling parameters: iron.

Site 2529-18 (Denton Gunther Companies)

- Station 108+40 to Station 108+85 (US 150), 0 to 70 feet RT (Denton Gunther Companies, PESA site 2529-18, 600 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzene, manganese, VOCs.

Site 2529-19 (Railroad Tracks)

- Station 106+50 to Station 107+50 (US 150), 0 to 65 feet RT (Railroad Tracks, PESA site 2529-19, 500 block of E. Main Street) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)pyrene.
- Station 107+30 to Station 108+20 (US 150), 0 to 75 feet LT (Railroad Tracks, PESA site 2529-19, 500 block of E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese.
- Station 107+50 to Station 108+40 (US 150), 0 to 70 feet RT (Railroad Tracks, PESA site 2529-19, 500 block of E. Main Street) - This material meets the criteria of Article 669.09(a)(2) and shall be managed in accordance with Article 669.09. COCs sampling parameters: arsenic.
- Station 108+20 to Station 108+85 (US 150), 0 to 75 feet LT (Railroad Tracks, PESA site 2529-19, 500 block of E. Main Street) - This material meets the criteria of Article 669.09(a)(2) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese.

Site 2529-23 (The Office/Then and Now Antiques)

- Station 106+70 to Station 107+30 (US 150), 0 to 75 feet LT (The Office/Then and Now Antiques, PESA site 2529-23, 583-587 E. Main Street) - This material meets the criteria of Article 669.09(a)(2) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese.
- Station 106+70 to Station 107+60 (US 150), 75 to 145 feet LT (The Office/Then and Now Antiques, PESA site 2529-23, 583-587 E. Main Street) - This material

meets the criteria of Article 669.09(a)(1) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese.

- Station 106+70 to Station 107+45 (US 150), 145 to 220 feet LT (The Office/Then and Now Antiques, PESA site 2529-23, 583-587 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, carbazole, arsenic, lead.

Site 2529-26 (Vacant Lot)

- Station 104+90 to Station 105+75 (US 150), 70 to 100 feet RT (Vacant Lot, PESA site 2529- 26, 566 E. Main Street) - This material meets the criteria of Article 669.09(a)(1) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese.
- Station 104+90 to Station 106+05 (US 150), 100 to 220 feet RT (Vacant Lot, PESA site 2529-26, 566 E. Main Street) - This material meets the criteria of Article 669.09(a)(1) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)anthracene, benzo(a)pyrene, lead.
- Station 105+10 to Station 106+00 (US 150), 0 to 70 feet RT (Vacant Lot, PESA site 2529- 26, 566 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: arsenic, manganese, VOCs.
- Station 106+00 to Station 106+50 (US 150), 0 to 70 feet RT (Vacant Lot, PESA site 2529- 26, 566 E. Main Street) - This material meets the criteria of Article 669.09(a)(1) and shall be managed in accordance with Article 669.09. COCs sampling parameters: arsenic, manganese.

Site 2529-27 (Vacant Building)

- Station 104+50 to Station 105+15 (US 150), 70 to 105 LT (Vacant Building, PESA site 2529- 27, 571 E. Main Street) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)pyrene.
- Station 104+50 to Station 105+15 (US 150), 0 to 70 LT (Vacant Building, PESA site 2529- 27, 571 E. Main Street) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)pyrene.
- Station 105+15 to Station 105+70 (US 150), 70 to 110 LT (Vacant Building, PESA site 2529- 27, 571 E. Main Street) - This material meets the criteria of Article 669.09(a)(2) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese.
- Station 105+70 to Station 106+25 (US 150), 70 to 120 LT (Vacant Building, PESA site 2529- 27, 571 E. Main Street) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)pyrene.

Site 2529-28 (Roggenkamp Tire Center)

- Station 104+05 to Station 104+55 (US 150), 0 to 75 feet RT (Roggenkamp Tire Center, PESA site 2529-28, 536 E. Main Street) - This material meets the criteria of Article 669.09(a)(1) and shall be managed in accordance with Article 669.09. COCs sampling parameters: lead.
- Station 104+05 to Station 104+90 (US 150), 180 to 220 feet RT (Roggenkamp Tire Center, PESA site 2529-28, 536 E. Main Street) - This material meets the criteria of Article 669.09(a)(2) and shall be managed in accordance with Article 669.09. COCs sampling parameters: arsenic.

Site 2529-29 (Metropolitan Auto Sales and Repair)

- Station 102+45 to Station 103+15 (US 150), 0 to 75 feet LT (Metropolitan Auto Sales and Repair, PESA site 2529-29, 515 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: arsenic, manganese, VOCs.
- Station 404+25 to Station 405+35 (Chambers Street), 0 to 40 feet RT (Metropolitan Auto Sales and Repair, PESA site 2529-29, 515 E. Main Street) – This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)pyrene.
- Station 103+15 to Station 103+75 (US 150), 0 to 55 feet LT (Metropolitan Auto Sales and Repair, PESA site 2529-29, 515 E. Main Street) - This material meets the criteria of Article 669.09(a)(3) and shall be managed in accordance with Article 669.09. COCs sampling parameters: benzo(a)pyrene.
- Station 103+75 to Station 104+20 (US 150), 0 to 55 feet LT (Metropolitan Auto Sales and Repair, PESA site 2529-29, 515 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese.

Site 2529-32 (Alfano's Pizza)

- Station 102+45 to Station 103+40 (US 150), 0 to 100 feet RT (Alfano's Pizza, PESA site 2529-32, 508 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: manganese, VOCs, pH.

Site 2529-34 (Bob's Automotive Service)

- Station 101+70 to Station 102+45 (US 150), 0 to 75 feet LT (Bob's Automotive Service, PESA site 2529-34, 12 N. Chambers Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: VOCs.

Site 2529-35 (U.S. Post Office)

- Station 101+45 to Station 102+45 (US 150), 0 to 95 feet RT (U.S. Post Office, PESA site 2529-35, 476 E. Main Street) - This material meets the criteria of Article 669.09(a)(5) and shall be managed in accordance with Article 669.09. COCs sampling parameters: ethylbenzene, total xylenes, manganese, VOCs.

RAILROAD TRACK REMOVAL

This work shall consist of the removal and disposal of the existing railroad tracks in advance of the bridge change out. BNSF will cut the rail in 40 foot sections to be removed. The contractor will be responsible to provide labor and equipment to remove the track panels from the ballast and dispose of as noted below:

- Tracks #1 and #2: The removed track panel (rail and ties) shall become the property of the contractor and shall be removed and disposed of off BNSF right-of-way.
- Track #3: The track panel (rail and ties) will be salvaged. The track panels shall be delivered to 535 Quincy Street, Cameron, Illinois 61423. BNSF will be able to assist with unloading of the track panels.

Basis of Payment: This work shall be paid for at the contract unit price per foot for RAILROAD TRACK REMOVAL which shall be payment in full for all labor, tools and equipment necessary to complete the work.

PRELIMINARY SITE INVESTIGATION (PSI) REPORT

An electronic copy of the Preliminary Site Investigation (PSI) Report is available for the contractor to review.

http://www.ci.galesburg.il.us/city_initiatives/city_construction/

Once you go to the link, the two documents are on the right hand side of the page under "Documents" labeled as follows:

"Final PSI Report for the East Main Street Underpass"

"Exhibits for PSI Report for the East Main Street Underpass"

ELECTRICAL SPECIAL PROVISIONS

ORNAMENTAL LIGHT UNIT, COMPLETE

This work shall consist of furnishing and installing a decorative lighting pole complete with luminaire and an arm and all hardware and accessories according to sections 821 and 830 of the Standard Specifications, as applicable, as shown on the plans, and as stated herein.

The pole shall be an aluminum pole with a nominal 35 foot height for fixture type F1 (30'-0" for fixture F3 and 32'-0" for fixture F5, behind the retaining walls) designed to accommodate one luminaire, and achieve a 33 foot luminaire mounting height above pavement with mast arm for at grade foundations. The luminaire shall be mounted to the pole with an 8 foot one piece decorative aluminum mast arm. The pole shall be a one piece tapered round shaft of aluminum and welded to a flat aluminum anchor base. The pole shall have a minimum 0.250" wall thickness. A flush sided cast aluminum ball type pole top cap shall be provided. The pole shall include a 4" x 8" handhole with ground lug (1/2"-13) and gasketed cover plate secured with stainless steel tamper resistant screws. The pole base shall have an 18-inch dia. one piece cast aluminum slip over base cover, with a 6-inch base extension. Unit shall be Sternberg #1-1527LED/FG/HS-B/CAS8/3035ARTS-EXT/BCC4//10ARC45T3-MDL03/1-GFI-IUC/1-BDBA/VD/BK or of equal specifications with prior approval of the City Engineer.

The base plate shall be arranged to accept four (4) one-inch diameter anchor bolts on a 11 1/2" bolt circle.

The pole shall include an extruded arm plate integrally welded to the top and shall be sized to accept an 8 foot luminaire decorative mast arm.

The luminaire mast arm shall be an 8 foot upsweep decorative scroll, aluminum arm assembly and conform to the requirements of 6063-T4 alloy and aged to T6 temper. The arm shall fit securely onto the pole at 90 degrees and shall be secured by four (4) 3/8-inch minimum stainless steel bolts, nuts, and lock washers or lock nuts. Arm shall be Sternberg #CAS8 Series, powder coat Black or of equal specifications with prior approval of the City Engineer.

Banner Arm shall be an 36" bolt on banner arm with end caps, model SBA as manufactured by Sternberg, powder coat Black or of equal specifications with prior approval of the City Engineer. Banner arm to be mounted to road side of pole.

Weatherproof Receptacle shall be a single duplex receptacle with small in-use wet location cover, 20A, 120V, NEMA 5-20R, weather resistant GFCI type, model GFI as manufactured by Sternberg, powder coat Black or of equal specifications with prior approval of the City Engineer.

The festoon receptacle shall be fused separately at the base of the pole.

The light pole shall be finished with a UV resistant coating of paint. Surface preparation shall be a chemical treatment process. The finish shall be oven baked. The color shall be powder coat Black.

Lamps shall be LED, 160 W. The LED optical assembly, consisting of LED packages, shall have a minimum Ingress Protection rating of 65 (IP65) as defined in the ANSI/IEC 60529 Standard. Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LEDs.

The optical assembly shall utilize high brightness, long life, minimum 70 color rendering index (CRI), (+/-300 K) LEDs binned according to ANSI C78.377. Lenses shall be UV-stabilized acrylic or glass. Provisions for house-side shielding should be specified along with means of attachment.

Lumen depreciation at 50,000 hours of operation shall not exceed 15% of initial lumen output at the specified LED drive current and an ambient temperature of 77 °F (25 °C).

The assembly shall have individual serial numbers or other means for Manufacturer tracking.

Warranty: All materials supplied shall be warranted by the manufacturer for one (1) year after delivery against faulty materials and workmanship. The paint finish on pole and accessories shall be warranted by the manufacturer for five (5) years after delivery against faulty materials and workmanship.

Basis of Payment. This work will be paid for at the contract unit price each for ORNAMENTAL LIGHT UNIT, COMPLETE.

LIGHTING CONTROLLER, BASE MOUNTED, 240 VOLT, 100 AMP (DUAL)

This work shall consist of furnishing and installing Lighting Cabinet and all hardware and accessories according to section 825 of the Standard Specifications, as applicable, as shown on the plans, and as stated herein.

Lighting controller shall include two (2) contactors, (2) main breakers and (2) Selector switches – one for lighting control and one for festoon receptacle control as shown on the plans.

Basis of Payment: This work will be paid for at the contract unit price each for LIGHTING CONTROLLER, BASE MOUNTED, 240 VOLT, 100 AMP (DUAL) of the enclosure and control type indicated.

UNDERPASS LUMINAIRE (SPECIAL)

This work shall consist of furnishing and installing Underpass Luminaire and all hardware and accessories according to section 821 of the Standard Specifications, as applicable, as shown on the plans, and as stated herein.

Luminaire light shall be a LED type and set for 240 VAC, 60 Hz. Luminaire shall be LED-106 watt with black powder coat finish. Luminaire shall have a cast aluminum housing with tool less access to driver and lamp compartment, tempered flat glass lens with louver, IP66 weatherproof rating, integral yoke, and stainless steel hardware. Luminaire shall be a Holophane TNLED-3-4K-1-AS-YOKE-DBKA-S series or GE Lighting EFN-A-3-E4-5-40-V-BLCK-F of equal specifications with prior approval of the City Engineer.

The luminaire shall be installed on a mounting arm with black powder coat finish attached to bridge pier.

The luminaire shall be assembled in the continental U.S.A. and shall be assembled by and manufactured by the same Manufacturer. Quick connect/disconnect plugs shall be supplied between the discrete electrical components within the luminaire such as the driver, surge protection device, and optical assembly for easy removal. The quick connect/disconnect plugs shall be operable without the use of tools and while wearing insulated gloves. The luminaire shall be in compliance with ANSI C136.37. LED light source(s) and driver(s) shall be Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU compliant.

The luminaire shall be listed for wet locations by a Nationally Recognized Testing Laboratory (NRTL) as defined by OSHA and shall be in compliance with UL 8750 and UL 1598. It shall be identified as such by the holographic UL tag/sticker on the inside of the luminaire. Hardware. All hardware shall be stainless steel. Captive screws are required on any component that requires maintenance after installation.

Optical Assembly: The LED optical assembly and consisting of LED packages. Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LEDs.

The optical assembly shall utilize high brightness, long life, minimum 70 color rendering index (CRI), 4,000 K color temperature (+/-300 K) LEDs binned according to ANSI C78.377. Lenses shall be UV-stabilized acrylic or glass. Provisions for house-side shielding should be specified along with means of attachment.

Lumen depreciation at 50,000 hours of operation shall not exceed 15% of initial lumen output at the specified LED drive current and an ambient temperature of 77 °F (25 °C).

The assembly shall have individual serial numbers or other means for Manufacturer tracking.

Photometric Performance:

Testing. Luminaires shall be tested according to IES LM-79. The laboratory performing this test shall hold accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) under NIST. Submitted reports shall have a backlight, uplight, and glare (BUG) rating according to IESNA TM-15 including a luminaire classification system graph with both the recorded lumen value and percent lumens by zone.

Lumen maintenance shall be measured for the LEDs according to LM-80, or when available for the luminaires according to LM-84. The LM-80 report shall be based on a minimum of 6,000 hours, yet 10,000 hour reports shall be provided for luminaires where those tests have been completed.

Thermal testing shall be provided according to UL 1598. The luminaire shall start and operate in the ambient temperature range specified. The maximum rated case temperature of the driver, LEDs, and other internal components shall not be exceeded when the luminaire is operated in the ambient temperature range specified.

Mechanical design of protruding external surfaces such as heat sink fins shall facilitate hose-down cleaning and discourage debris accumulation. Testing shall be submitted when available to show the maximum rated case temperature of the driver, LEDs, and other internal components are not exceeded when the luminaire is operated with the heat sink filled with debris.

Calculations. Complete point-by-point luminance and veiling luminance calculations as well as listings of all indicated averages and ratios as applicable shall be provided according to IES RP-8 recommendations. Lighting calculations shall be performed using AGI32 software with calculations performed to two decimal places (i.e. x.xx cd/m²). Calculation results shall demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Tables (see exhibit B). Scotopic or mesopic factors will not be allowed.

Lumen Maintenance Projection. The LEDs shall have long term lumen maintenance documented according to IESNA TM-21, or when available for the luminaires according to IESNA TM-28. The submitted calculations shall incorporate an in situ temperature measurement test (ISTMT) and LM-80 data with TM-21 inputs and reports according to the TM-21 calculator, or when available ISTMT and LM-84 data with TM-28 inputs and reports according to the TM-28 calculator. Ambient temperature shall be 77 °F (25 °C).

Driver: The driver for the luminaire shall be integral to the unit with a removable door. The removable door shall be secure when fastened in place and all individual components shall be secured upon the removable element. Each component shall be readily removable from the removable door or pad for replacement.

The driver shall be installed in a manner to keep it mechanically separated from the LED array heat sink.

Circuit Protection. Shall tolerate indefinitely open and short circuit output conditions without damage.

Input Voltage. Shall be suitable for operation over a range of 120 to 277 volts or 347 to 480 volts as required by the system operating voltage.

Operating Temperature. Operating ambient temperature range of 104 to 158 °F (40 to 70 °C).

Driver Life. Life time of 100,000 hours at 77 °F (25 °C) ambient.

Safety/UL. Listed under UL 1012.

Power Factor. Shall maintain a power factor of 0.9 or higher and total harmonic distortion of less than 20 %.

Driver efficiency. Minimum efficiency of 90% at maximum load and a minimum efficiency of 85% for the driver operating at 50% power with driver efficiency defined as output power divided by input power.

Electrical Interference. Shall meet the Electromagnetic Compatibility (EMC) requirements for Class A digital devices included in the FCC Rules and Regulations, Title 47, Part 15.

Thermal Fold Back. The driver shall reduce the current to the LED module if the driver is overheating due to abnormal conditions.

Leakage current. Compliance with safety standards according to IEC 61347-1.

Surge Protection Device: SPD shall be labeled as Type 4 in accordance to UL 1449 and be an integral part of the luminaire. It shall provide a minimum system protection level of 10 kV, 10 kA. To protect for a 10 kV, 10 kA surge the required clamping voltage of the external Metal Oxide Varistor (MOV) or other SPD shall be lower than 1 kV at 8 kA $\{(10 \text{ kV}-2 \text{ kV})/1 \text{ ohm}=8 \text{ kA}\}$.

The SPD shall comply with the following standards:

- 1) IEEE C62.41.1, IEEE Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits,
- 2) IEEE C62.41.2, IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits,
- 3) IEEE C62.45, IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits, and
- 4) ANSI C136.2, American National Standard for Roadway and Area Lighting Equipment – Luminaire Voltage Classification.

The SPD and performance parameters shall be posted at www.UL.com under Category Code: VZCA2.

Warranty: The entire luminaire and all of its component parts shall be covered by a 10 year warranty. Failure is when one or more of the following occur:

- 1) Negligible light output from more than 10 percent of the LED packages
- 2) moisture inside the optical assembly
- 3) driver that continues to operate at a reduced output
- 4) other failed conditions which do not meet specifications

The warranty period shall begin on the date of final acceptance of the lighting work as documented in the Resident Engineer's project notes.

Submittal Requirements: The Contractor shall submit, for approval, an electronic version of all associated luminaire IES files, AGi32 files and the TM-21 or TM-28 calculator spreadsheet with inputs and reports associated with the project luminaires. The Contractor shall also provide an electronic version of each of the following Manufacturer's product data for each type of luminaire.

- 1) Descriptive literature and catalogue cuts for luminaire, LED package, driver, and surge protection device.
- 2) LED drive current, total luminaire input wattage and total luminaire current at the system operating voltage or voltage range and ambient temperature of 77 °F (25 °C).
- 3) Luminaire efficacy expressed in lumens per watt (lpw) per luminaire.
- 4) Initial delivered lumens at the specified color temperature, drive current, and ambient temperature.
- 5) Computer photometric calculation reports as specified in Sections III and VI, and in the luminaire performance table (appendix B).
- 6) TM-15 BUG rating report, as specified in Section VI
- 7) Documentation of Manufacturers experience and certification that luminaires were assembled in the U.S.A. as specified in Section III.
- 8) Supporting documentation of compliance with ANSI standards as well as listing requirements as specified in Sections III, VI, VII and VIII
- 9) Supporting documentation of laboratory accreditations and certifications for specified testing as indicated in Section VI.
- 10) Thermal testing documents as specified in Section VI.
- 11) IES LM-79, LM-80 (or LM-84) and TM-21 (or TM-28) reports as specified in Section VI.
- 12) Salt spray (fog) test reports and certification as specified in Section IV.
- 13) Vibration characteristics test reports and certification as specified in Section IV.
- 14) IP test reports as specified in Sections V and VII.
- 15) Manufacturer written warranty as specified in Section IX.
- 16) Luminaire installation, maintenance, and washing instructions.

Basis of Payment. This work shall be paid for at the contract unit price each for UNDERPASS LUMINAIRE (SPECIAL) of the type indicated, which shall be payment in full for the luminaire complete. The luminaire complete includes branch circuit / extension wire as applicable, lamp, fuseholders, mounting hardware, fusing, and surge protectors.

LUMINAIRE (SPECIAL)

This work shall consist of furnishing and installing Sign Luminaire and all hardware and accessories according to sections 821, 813 and 811.03(c) (1) of the Standard Specifications, as applicable, as shown on the plans, and as stated herein

Luminaire light shall be a LED type and set for 240 VAC, 60 Hz. Luminaire shall be 8.5 watt per LF with black powder coat finish. Luminaire shall have a cast aluminum housing with tool less access to driver and lamp compartment, tempered flat glass lens with louver, IP67 weatherproof rating, integral yoke, and stainless steel hardware. Luminaire shall be a Lumen Pulse LOG-RO-240-48-40K-30X60-WAM12-BK-NO-ETE WITH LEADER CABLE-LOGILC UL ETE-25-BK series, TRAXON NANO LINEAR XB-36-4000K-30-48"-BK-ACXB CABLE or of equal specifications with prior approval of the City Engineer.

The luminaire shall be installed on a mounting arm with black powder coat finish attached to bridge beam. Provide junction box and liquid tight flexible nonmetallic conduit to serve each side continuous luminaire run. Provide jumper cables between 4 feet sections whenever an expansion joint is present.

The luminaire shall be fused separately at the junction box. Each junction box serving the continuous run shall be fused. Each 4ft section will be connected to the other by the manufacturers approved connection to create a continuous run.

The fuse holders for the light fixtures shall be double pole, waterproof with insulating boots. The fuse holders shall be a Bussmann Tron type HEX Series, of equal specifications with prior approval of the City Engineer, which has a connecting tab to prevent accidental switching of terminals upon connection.

The wiring of the luminaire shall be as follows, starting from the line side: any splices for other luminaires in the circuit; fuseholder; surge protector.

The surge protector shall conform to Article 1065.02 of the Standard Specifications.

Basis of Payment. This work shall be paid for at the contract unit price each for LUMINAIRE (SPECIAL) of the type indicated, which shall be payment in full for the luminaire complete. The luminaire complete includes branch circuit / extension wire as applicable, lamp, fuseholders, mounting hardware, fusing, and surge protectors.

CCTV CAMERA INSTALLATION SPECIAL PROVISIONS

CONTRACT GUARANTEE

The Contractor shall guarantee all electrical equipment, apparatus, materials, and workmanship provided under the contract for a period of six (6) months after the date of final inspection according to Article 801.14.

All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operations shall be delivered to the Engineer prior to the acceptance of the project, with the following warranties and guarantees:

1. The manufacturer's standard written warranty for each piece of electrical equipment or apparatus furnished under the contract.
2. The Contractor's written guarantee that, for a period of six (6) months after the date of final inspection of the project, all necessary repairs to or replacement of said warranted equipment, or apparatus shall be made by the Contractor at no cost to the Department.
3. The Contractor's written guarantee for satisfactory operation of all electrical systems furnished and constructed under the contract for a period of 6 months after final inspection of the project.

SYSTEM IMPLEMENTATION, EQUIPMENT INTEGRATION AND SUPPORT

The Contractor shall install the CCTV cameras at the locations indicated on the plans.

All furnished components shall be subject to a 30 day burn-in period. The system along with all of its components shall be fully and functionally operational before any acceptance testing will be initiated. After the system has been accepted by the Engineer, the system shall begin a thirty-day "burn-in" period immediately after the successful completion of the acceptance test. During the "burn-in" period, all components shall perform continuously, without any interruption of operation, for a period of thirty days. In the event that there are operational problems during the burn-in period, the burn-in period shall reset back to day one.

After the successful completion of the burn-in period, the system will have completed final acceptance.

The Department will program the cameras and integrate them into the existing District 4 ITS video subsystem. The contractor shall be responsible for installing the proposed CCTV cameras on the proposed mast arm structures and proposed lighting pole structures in accordance with the plans, specifications, and manufacturers recommended practices.

This work will not be paid for separately, but shall be included in the contract bid price.

LOCATION OF UNDERGROUND STATE MAINTAINED FACILITIES

The Contractor shall be responsible for locating all existing IDOT electrical facilities prior to performing any work at his/her own expense if required. The Contractor shall also be liable for any damage to facilities resulting from inaccurate locating. The Contractor may obtain, on request, plans of existing electrical facilities from the Department and the City of Galesburg.

The Contractor shall also be responsible for locating and providing protection for facilities during all phases of construction. If at any time, the facilities are damaged, the Contractor shall immediately notify the Department and make all necessary arrangements for repair to the satisfaction of the Engineer. This work shall be included in the contract bid price and no additional compensation will be allowed.

CAT 5 ETHERNET CABLE

This work shall be in accordance with Sections 873, 1076, and 1088 of the Standard Specifications except as modified herein.

This work shall consist of furnishing and installing an outdoor rated, shielded CAT5E cable in existing and proposed conduits, handholes, and poles.

The cable shall be rated for outdoor use and conform to the following specifications:

- Outdoor CMX Rated Jacket (climate/oil resistant jacket)
- UV Resistant Outer Jacket Material (PVC-UV, UV Stabilized)
- Outer Jacket Ripcord
- Designed For Outdoor Above- Ground or Conduit Duct applications
- Cat5E rated to 350MHz (suitable for 10/100 or even 1000mbps Gigabit Ethernet)
- Meets TIA/EIA 568b.2 Standard
- UTP, shielded Twist Pair
- 4 Pairs, 8 Conductors
- 24AWG, Solid Core Copper
- UL 444 ANSI TIA/EIA-568.2 ISO/IEC 11801
- RoHS Compliant
- Gel filled
- Shielded

The Contractor shall terminate each end of the cable with an IP66 rated RJ-45 connector or utilizing connector kits furnished with the CCTV dome camera. The Contractor shall terminate the cable assembly in an environmentally controlled area and test the cable and connectors prior to installing the cable in the field.

The Contractor shall inspect and test each cable assembly prior to assembly.

The Contractor shall submit catalog cut sheets to the Department for review prior to commencing work.

Basis of Payment: This work will be paid for at the contract unit price per foot for CAT 5 ETHERNET CABLE, which shall be payment in full for all labor, equipment, and materials required to provide and install the cable described above, complete.

CLOSED-CIRCUIT TELEVISION DOME CAMERA

Description. This work shall consist of furnishing and installing an integrated Closed-Circuit Television (CCTV) Dome Camera Assembly, camera brackets, and all other items required for installation and operation. This assembly shall contain all components identified in the Materials Section and shall be configured as indicated on the plan sheets.

Materials.

The CCTV camera shall be an Axis Model Q6042-E Dome Camera Assembly for integration into the existing ITS system.

The Contractor shall provide all materials required to install the proposed camera on the proposed combination mast arm assembly and proposed lighting pole structure at the locations shown on the plan sheets.

The Contractor shall submit catalog cut sheets to the Department for all items (mounting brackets, hardware, etc.) that will be utilized for review prior to commencing work.

The camera shall meet or exceed the following specifications:

Camera

Video:	60 Hz (NTSC), 50 Hz (PAL)
Image Sensor	¼" ExView HAD Progressive Scan CCD
Lens:	3.3 – 119 mm, F1.4 – 4.2, autofocus, automatic day/night, horizontal angle of view: 1.7° - 57.2°
Minimum Illumination:	Color: 0.5 lux at 30 IRE, B/W: 0.008 lux at 30 IRE
Shutter Time (NTSC):	1/30 000 s – 0.5 s, PAL: 1/30 000 s – 1.5 s
Pan/Tilt/Zoom:	E-flip, 256 preset positions

Pan: 360° endless, 0.05 – 450°/s
Tilt: 220°, 0.05 – 450°/s
Zoom: 36x optical zoom and 12x digital zoom, total 432x zoom
Guard tour
Control queue
On-screen directional indicator

Video

Video: H.264 (MPEG-4 Part 10/AVC), Motion JPEG

Resolutions: NTSC: 752x480 to 176x120, PAL: 736x576 to 176x144

Frame rate (H.264): Up to 30/25 (NTSC/PAL) fps in all resolutions

Frame rate (M-JPEG): Up to 30/25 (NTSC/PAL) fps in all resolutions

Video streaming: Multi-stream H.264 and Motion JPEG: 3 simultaneous, individually configured streams in max. resolution at 30/25 (NTSC/PAL) fps; more streams if identical or limited in frame rate/resolution; Controllable frame rate and bandwidth; VBR/CBR H.264

Image setting: Wide Dynamic Range (WDR), Electronic Image Stabilization (EIS), manual shutter time, compression, color, brightness, white balance, sharpness, exposure control, exposure zones, backlight compensation, fine tuning of behavior at low light, rotation, aspect ratio correction, Text and image overlay, 32 individual 3D privacy mask, image freeze on PTZ

Network

Security: Password protection, IP address filtering, HTTPS*
encryption, IEEE 802.1X* network access control, digest authentication, user access log, centralized certificate management

Protocols: IPv4/v6, HTTP, HTTPS*, QoS Layer 3 DiffServ, FTP, SMTP, Bonjour, UPnP, SNMPv1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS, SSH, NTCIP

System Integration

Application Programming: Open API for software integration, including VAPIX® from Axis

Interface: Communications available at www.axis.com

Intelligent video: Video motion detection, auto-tracking, active gatekeeper, AXIS camera application platform enabling installation of additional applications.

Alarm triggers: Video motion detection, Shock detection, Fan, Heater, Temperature, Manual trigger, Autotracking, Moving, PTZ preset, Edge storage events, AXIS Camera Application Platform

Alarm events: File upload: FTP, HTTP, network share and email
Notification: email, HTTP and TCP PTZ preset, Guard tour, Autotracking, Day/night mode, Video recording to edge storage, Preand post-alarm video buffering

Video buffer: 56 MB pre- and post-alarm

General

Casing: IP66-, NEMA 4Xand IK10-rated metal casing (aluminum), polycarbonate (PC) clear dome, sunshield (PC/ASA)

Processors and Memory: 512 MB RAM, 128 MB Flash

Power Camera: High Power over Ethernet, max. 60 W, Midspan (included):
AXIS
T8124 High Power over Ethernet, Midspan 1-port 100-240 V
AC,
max. 74 W

Connectors: RJ45 for 10BASE-T/100BASE-TX PoE RJ45 Push-pull Connector (IP66) included

Local storage: SD/SDHC/SDXC slot supporting memory card up to 64 GB (card not included); support for recording to network share (network-attached storage or file server)

Operating Conditions: With 30 W: -20 °C to 50 °C (-4 °F to 122 °F) With 60 W*: -50 °C to 50 °C (-58 °F to 122 °F)
Humidity 10-100% RH (condensing)
* Arctic Temperature Control enables camera start-up at

Temperatures as low as -50°C(-58°F)

Approvals: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 55024, EN 50121-4, IEC 62236-4, FCC Part 15 Subpart B Class A, ICES-003 Class A, VCCI Class A, C-tick AS/NZS CISPR 22 Class A, KCC KN22 Class A, KN24, IEC/EN/UL 60950-1, IEC/EN/UL 60950-22, IEC/EN 60529 IP66, NEMA 250 Type 4X, NEMA TS-2-2003 v 02.06, subsection 2.2.7, 2.2.8, 2.2.9; IEC 62262 IK10, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-78, IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-6, IEC 60068-2-27, IEC 60068-2-60, ISO 4892-2
Midspan: EN 60950-1, GS, UL, cUL, CE, FCC, VCCI, CB, KCC, UL-AR

Weight: 3.7 kg (8.2 lb.)

Included Accessories: AXIS T8124 High PoE Midspan 1-port, IP66-rated RJ-45 connector kit, clear and smoked dome cover, sunshield, Installation Guide, CD with User's Manual, recording software, installation and management tools, Windows decoder 1-user license

Video management

Software: AXIS Camera Companion (included), AXIS Camera Station and video management software from Axis' Application Development Partners (not included). For more information, see www.axis.com/products/video/software

Environmental Enclosure/Housing

The environmental enclosure shall be designed to physically protect the integrated camera from the outdoor environment and moisture via a sealed enclosure. If the option exists in the standard product line of the manufacturer, the assembly shall be supplied with an integral sun shield. The enclosure shall be fully water and weather resistant with a NEMA 4 rating or better.

The camera dome shall be constructed of distortion free acrylic or equivalent material that must not degrade from environmental conditions. The environmental housing shall include a camera-mounting bracket. In addition, the environmental housing shall include a heater, blower, and power surge protector. An integral fitting compatible with a standard 1-1/2 in (38.1 mm) NPT pipe, suitable for outdoor pendant mounting shall also be provided.

The enclosure shall be equipped with a heater controlled by a thermostat. The heater shall turn on when the temperature within the enclosure falls below 40° F (4.4°C). The heater shall turn off when the temperature exceeds 60°F (15.6°C). The heater will minimize internal fogging of the dome faceplate when the assembly is operated in cold weather.

In addition, a fan shall be provided as part of the enclosure. The fan will provide airflow to ensure effective heating and to minimize condensation.

The enclosure shall be equipped with a hermetically sealed, weatherproof connector, located near the top for external interface with power, video, and control feeds.

CCTV Dome Camera Mounting Supports

The Contractor shall furnish and install an Axis Pole Mount Bracket T91A67 (Part Number 5017-671) for camera installation on traffic signal mast arms and roadway lighting pole structures.

Mounting supports shall be configured as shown on the camera support detail plans and as approved by the Engineer. Mount shall be of aluminum construction with enamel or polyester powder coat finish. Braces, supports, and hardware shall be stainless steel. Wind load rating shall be designed for sustained gusts up to 90 mph (145 km/hr), with a 30% gust factor. Load rating shall be designed to support up to 75 lb (334 N). For roof or structural post/light pole mounting, mount shall have the ability to swivel inward for servicing. The mounting flange shall use standard 1-1/2 inch (38.1 mm) NPT pipe thread.

Connecting Cables and Power Supply

The Contractor shall provide outdoor rated, shielded CAT 5E cable. One cable shall be installed from the proposed traffic signal cabinet or proposed lighting controller cabinet to the proposed camera mounting location as shown on the plan sheets. Both cables shall be terminated with IP66-rated RJ-45 connectors. This cable will be paid for separately under the pay item for CAT 5 ETHERNET CABLE.

The High POE midspan camera power supply (included with camera) shall be installed in the proposed traffic signal cabinet or proposed lighting controller cabinet. The Contractor shall furnish and install one 15A power strip with integral surge protection in the proposed traffic signal cabinet and proposed lighting controller cabinet for camera power.

Power Strip

The cabinet power strip shall have a minimum of six outlets and integral surge suppression that meets or exceeds the following minimum specifications:

- Let Through Voltage: <85 Volts
- Operating Voltage: 120VAC, 50/60H
- UL Suppressed Voltage Rating: 330V
- Energy Rating: 320J
- Peak Current NM/CM: 13k Amps NM, 13k Amps CM
- EMI/RFI Noise Filtration: >25-60dB

The power strip shall be wired directly to the protected power terminals on the cabinet surge arrestor. The Contractor shall provide all materials required for installation.

This work shall be included in the contract bid price for the CCTV camera pay item.

Construction Requirements.

General

The Contractor shall prepare a shop drawing detailing the complete CCTV Dome Camera Assembly and installation of all components to be supplied for approval of the Engineer. Particular emphasis shall be given to the cabling and the interconnection of all of the components.

The Contractor shall install the CCTV dome camera assembly at the locations indicated in the Plans.

Programming and Testing

The Department will program and test each camera prior to installation. The Department will connect the proposed CCTV camera to the existing ITS network Ethernet switch and integrate the camera into the existing ITS video subsystem.

Method of Measurement. The closed circuit television dome camera bid item will be measured for payment by the actual number of CCTV dome camera assemblies furnished, installed, tested, and accepted.

Basis of Payment. Payment will be made at the contract unit price for each CLOSED CIRCUIT TELEVISION DOME CAMERA including all equipment, material, testing, documentation, and labor detailed in the contract documents for this bid item.

SUPPORT EQUIPMENT AND MAINTENANCE

The Contractor shall furnish the following equipment (MATERIAL ONLY) and deliver it to the Department:

There are no support requirements for this pay item.

- Genetec Camera Software License - Qty. 2

License Quantity: 2 additional cameras/channels (GNTC OM-E-1C 1 Camera Connection Omnicast Enterprise) for use with System ID: OMN-110407-503618

Basis of Payment: This work will be paid for at the contract unit price per lump sum for SUPPORT EQUIPMENT AND MAINTENANCE which price shall be payment in full for all labor, materials, and equipment required to provide the equipment specified above and deliver it to the Department.

FIBER OPTIC ETHERNET DROP AND REPEAT SWITCH

The Contractor shall furnish a fiber optic drop and repeat switch and install it (DIN rail mounted) inside the proposed traffic signal cabinet or proposed lighting controller cabinet. The Department will program the switch and connect the ITS components to the switch.

The Contractor shall install DIN rail inside the proposed traffic signal cabinet and proposed lighting controller cabinet to be used for equipment mounting.

The fiber optic drop and repeat switch shall meet or exceed the following minimum specifications:

Approved Models: Aaxeon Technologies Model LNX-1802G-SFP-T (18-Port (16-port 10/100T + 2 10/100/1000T SFP ports Industrial Ethernet Switch, Wide Operating Temperature) or approved equal.

Features:

- 16-Port 10/100TX + 2-Port 10/100/1000T/Mini-GBIC Combo
- Store-and-Forward Switching Architecture
- 7.2Gbps Back-Plane (Switching Fabric)
- 1 Mbits Memory Buffer
- 8K MAC Address Table
- Wide-Range Redundant Power Design
- Power Polarity Reserve Protect
- Provides EFT Protection 3000 VDC for Power Line
- Supports 6000 VDC Ethernet ESD Protection
- IP30 Rugged Aluminum Case Design
- 5-Year Warranty

Standard:

- IEEE 802.3 10BaseT Ethernet
- IEEE 802.3u 100BaseTX Fast Ethernet
- IEEE 802.ab 1000BaseT
- IEEE 802.z Gigabit Fiber

	<ul style="list-style-type: none"> • IEEE 802.3x Flow Control and Back-Pressure
Protocol:	<ul style="list-style-type: none"> • CSMA/CD
Switch Architecture:	<ul style="list-style-type: none"> • Back-Plane (Switching Fabric): 7.2Gbps • Packet Throughput Ability (Full-Duplex): 10.7Mpps @ 64bytes
Transfer Rate:	<ul style="list-style-type: none"> • 14,880pps for Ethernet Port • 148,800pps for Fast Ethernet Port • 1,488,000pps for Gigabit Fiber Ethernet Port
MAC Address:	<ul style="list-style-type: none"> • 8K MAC Address Table
Jumbo Frame:	<ul style="list-style-type: none"> • 9 Kbytes
Memory Buffer:	<ul style="list-style-type: none"> • 136 Kbits
LED:	<ul style="list-style-type: none"> • Unit: Power 1, Power 2, Fault • 10/100 TX: Link/Activity, Full Duplex/Collision • Gigabit Copper: Link/Activity, Speed • SFP: Link/Activity
Connector:	<ul style="list-style-type: none"> • 10/100T: 16 x RJ-45 • 10/100/1000T Mini-GBIC Combo: 2 x RJ-45 + 2 x 100/1000 SFP Sockets
Network Cable:	<ul style="list-style-type: none"> • 10BaseT: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) • 100BaseTX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m)
Power Supply:	<ul style="list-style-type: none"> • DC 12 ~ 48V, Redundant Power with Polarity Reverse Protect Function and Removable Terminal Block
Power Consumption:	<ul style="list-style-type: none"> • 9 Watts
Reverse Polarity Protection:	<ul style="list-style-type: none"> • Present
Overload Current Protection:	<ul style="list-style-type: none"> • Present
Mechanical:	<ul style="list-style-type: none"> • Casing: IP30 Metal Case • Dimension (W x H x D): 72 x 152 x 105 mm (2.83

- x 4.13 x 5.98 in.)
- Installation: DIN-Rail/Wall Mountable
- Weight:
 - Unit Weight: 2.2 lbs.
 - Shipping Weight: 3.3 lbs.
- Operation Temperature:
 - Wide Operating Temperature: -40° C to 80° C (-40° F to 176° F)
- Operation Humidity:
 - 5% to 95% (Non-condensing)
- Storage Temperature:
 - -40° C to 85° C
- EMI:
 - FCC Class A
 - CE EN6100-4-2/EN6100-4-3/EN6100-4-4/EN6100-4-5/EN6100-4-6
 - /EN6100-4-8/EN6100-4-11/EN6100-4-12/EN6100-6-2/EN6100-6-4
- Safety:
 - UL, cUL, CE EN60950-1
- Stability Testing:
 - Shock: IEC60068-2-27
 - Free Fall: IEC60068-2-32
 - Vibration: IEC60068-2-6
- Warranty:
 - 5-Year Warranty

The following items shall also be included with each switch:

- Power Supply – Qty. 1 (Aaxeon Model DR-45, 45 Watt, 12 Volt DC, Industrial Din-Rail Power Supply or Approved Equal)
- SFP Fiber Optic Module – Qty. 2 (Aaxeon SFP-S10-T, 1.25Gbps Ethernet SFP Transceiver, Single Mode 10KM / LC / 1310nm, -40°C~85°C)
- Fiber Optic Patch Cables – Qty. 1 (single mode fiber, 1 meter length, duplex, LC/ST connectors)

Basis of Payment: This work will be paid for at the contract unit price per each for FIBER OPTIC ETHERNET DROP AND REPEAT SWITCH which price shall be payment in full for all labor, materials, and equipment required to provide the fiber optic Ethernet drop and repeat switch and associated equipment described above.

GROUNDING OF ITS STRUCTURES

This work shall be in accordance with the applicable articles of Sections 807, 817 and 1066 of the Standard Specifications with the following modifications:

This work shall consist of furnishing and installing a grounding wire to connect all proposed traffic signal control cabinets, lighting controller cabinets, and camera poles in accordance with NEC requirements.

The proposed ground wire shall be an insulated #6 XLP green copper conductor. This wire shall be bonded to all items and their associated ground rods utilizing mechanical lugs and bolts. This wire may be made continuous by splicing in the adjacent handholes with compression lugs. Split bolts will not be allowed.

The grounding wire shall be bonded to the grounded conductor at the service disconnect per the NEC.

All clamps, hardware, and other materials required shall be included.

Basis of Payment: This work will not be paid for separately, but shall be included in the unit bid prices for their associated items.

FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F SM24F

This work shall be in accordance with Sections 801, 864, 871, and 1076 of the Standard Specifications except as modified herein.

The fiber optic cable shall be a loose tube outdoor rated and be a Hybrid type cable with 12 strands of 62.5/125 micrometer Multimode and 24 strands of 8/125 micrometer single mode fibers.

The Contractor shall terminate twelve multimode and twelve single mode fibers in each traffic signal cabinet or lighting controller cabinet with ST connectors. The Contractor shall intercept all fibers at the existing handhole at the southwest corner of the Cedar Street and Simmons Street Intersection. The remaining twelve single mode fibers shall be spliced continuous in all cabinets.

The Contractor shall fusion splice the new fiber to the existing fiber at the handhole near the Simmons Street and Cedar Street Intersection. The contractor shall furnish all labor, equipment, and materials needed to complete the work described above. The cost of this work shall be included in the bid price for this pay item.

Each cable shall be clearly labeled in each cabinet utilizing a durable computer generated label. The label shall contain information in regards to the location where the cable is going to or coming from.

Fibers shall be terminated as shown on the plan sheets. All terminated fibers shall be clearly labeled. All required equipment, including but not limited to fiber optic cables, connectors, splicing boots, cable trays, distribution enclosures, and hardware shall be included in this pay item.

Fibers not being used shall be labeled "spare", and fibers not attached to a distribution enclosure shall be capped and sealed.

All ancillary components, required to complete the fiber optic cable plant, including but not limited to, moisture and water sealants, cable caps, fan-out kits, weather-proof splice kits, boots, etc., shall be supplied under this pay item and will not be paid for separately.

The fiber optic cable shall be clearly marked in each handhole and cabinet with a brightly colored (orange or yellow) weather resistant label securely attached to the cable.

The Contractor shall provide and install a 12 Ga., stranded (THHN), insulated orange tracer cable in all conduits that contain fiber optic cable. This work shall be done at the same time the fiber optic cable is pulled. There will be no additional compensation for this work.

Materials. The single-mode, fiber optic cable shall incorporate a loose, buffer-tube design. The cable shall conform to the requirements of RUS 7 CFR1755.900 (PE-90) for a single sheathed, non-armored cable, and shall be new, unused and of current design and manufacture. The number of fibers in each cable shall be as specified on the plans. The cable shall be outdoor rated. The cable shall utilize water blocking gel or a dry block tape. Fiber cable installed indoors shall be appropriately rated in accordance with NEC and NFPA requirements.

Minimum Bending Radius.

The cable shall be capable of withstanding a minimum-bending radius of 20 times its outer diameter during installation and 10 times its outer diameter during operation without changing the characteristics of the optical fibers.

Environmental Requirements:

The cable shall meet all of specified requirements under the following conditions:

Shipping/storage temperature: -58°F to +158°F (-50°C to +70°C)

Installation temperature: -22°F to +158°F (-30°C to +70°C)

Operating temperature: -40°F to +158°F (-40°C to +70°C)

Relative humidity from 0% to 95%, non-condensing

Construction Requirements:

Experience Requirements.

Personnel involved in the installation, splicing and testing of the fiber optic cables shall meet the following requirements:

A minimum of three (3) years experience in the installation of fiber optic cables, including: splicing, terminating and testing multi mode and single mode fibers.

Install two systems where fiber optic cables are outdoors in conduit and where the systems have been in continuous satisfactory operation for at least two years. The Contractor shall submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the installed fiber optic systems.

One fiber optic cable system (which may be one of the two in the preceding paragraph), which the Contractor can arrange for demonstration to the Department representatives and the Engineer.

Installers shall be familiar with the cable manufacturer's recommended procedures for installing the cable. This shall include knowledge of splicing procedures for and equipment being used on this project and knowledge of all hardware such as breakout (furcation) kits and splice closures. The Contractor shall submit documented procedures to the Engineer for approval and to be used by Construction inspectors.

Personnel involved in testing shall have been trained by the manufacturer of the fiber optic cable test equipment to be used, in fiber optic cable testing procedures. Proof of this training shall be submitted to the Engineer for approval. In addition, the Contractor shall submit documentation of the testing procedures for approval by the Engineer.

Installation in Conduit.

During cable pulling operations, the Contractor shall ensure that the minimum bending of the cable is maintained during the unreeling and pulling operations. Entry guide chutes shall be used to guide the cable into the handhole conduit ports. Lubricating compound shall be used to minimize friction. Corner rollers (wheels), if used, shall not have radii less than the minimum installation-bending radius of the cable. A series array of smaller wheels can be used for accomplishing the bend if the cable manufacturers specifically approve the array.

The pulling tension shall be continuously measured and shall not be allowed to exceed the maximum tension specified by the manufacturer of the cable. Fuse links and breaks can be used to ensure that the cable tensile strength is not exceeded. The pulling system shall have an audible alarm that sounds whenever a pre-selected tension level

is reached. Tension levels shall be recorded continuously and shall be given to the Engineer upon request.

The cable shall be pulled into the conduit as a single component, absorbing the pulling force in all tension elements. The central strength member and Aramid yarn shall be attached directly to the pulling eye during cable pulling. "Basket grip" or "Chinese-finger type" attachments, which only attach to the cable's outer jacket, shall not be permitted. A breakaway swivel, rated at 95% of the cable manufacturer's approved maximum tensile loading, shall be used on all pulls. When simultaneously pulling fiber optic cable with other cables, separate grooved rollers shall be used for each cable.

Splicing Requirements:

Splices shall be made at locations shown on the Plans. Any other splices shall be permitted only with the approval of the Engineer.

Operation and Maintenance Documentation:

After the fiber optic cable plant has been installed, two (2) complete sets of Operation and Maintenance Documentation shall be provided. The documentation shall, as a minimum, include the following:

- Complete and accurate as-built diagrams showing the entire fiber optic cable plant including locations of all splices.
- Final copies of all approved test procedures.
- Complete performance data of the cable plant showing the losses at each terminal connector.
- Complete parts list including names of vendors.

Testing Requirements:

The Contractor shall submit detailed test procedures for approval by the Engineer. All fibers shall be tested bi-directionally at both 1310 nm and 1550 nm with both an Optical Time Domain Reflectometer (OTDR) and a power meter and optical source. For testing, intermediate breakout fibers may be concatenated and tested end-to-end. Any discrepancies between the measured results and these specifications will be resolved to the satisfaction of the Engineer.

The Contractor shall provide the date, time and location of any tests required by this specification to the Engineer at least 5 days before performing the test. Upon completion of the cable installation, splicing, and termination, the Contractor shall test all fibers for continuity, events above 0.1 dB, and total attenuation of the cable. The test procedure shall be as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter shall conduct the installation test. The Technician is directed to conduct the test using the standard operating procedures defined by the manufacturer of the test equipment. All fibers installed shall be tested in both directions.

The method of connectivity between the OTDR and the cable shall be a factory patch cord of a length equal to the "dead zone" of the OTDR. Optionally, the Technician can use a factory "fiber box" of 328 ft (100 m) minimum with no splices within the box. The tests shall be conducted at 1310 and 1550 nm for all fibers.

At the completion of the test, the Contractor shall provide two copies of documentation of the test results to the Project Engineer. The test documentation shall be bound and shall include the following:

Cable & Fiber Identification:

- Cable ID
- Cable Location - beginning and end point
- Fiber ID, including tube and fiber color
- Operator Name
- Date & Time
- Setup Parameters
- Wavelength
- Pulse width (OTDR)
- Refractory index (OTDR)
- Range (OTDR)
- Scale (OTDR)
- Setup Option chosen to pass OTDR "dead zone"

Test Results:

- A. OTDR Test
 - Total Fiber Trace
 - Splice Loss/Gain
 - Events > 0.10 dB
 - Measured Length (Cable Marking)
 - Total Length (OTDR)

Test results and traces shall also be provided electronically.

B. Optical Source/Power Meter

- Total Attenuation
- Attenuation (dB/km)

These results shall be provided in tabular form. The following shall be the criteria for the acceptance of the cable:

The test results shall show that the dB/km loss does not exceed +3% of the factory test or 1% of the cable's published production loss. However, no event shall exceed 0.10 dB. If any event is detected above 0.10 dB, the Contractor shall replace or repair the fiber including that event point.

The total dB loss of the cable, less events, shall not exceed the manufacturer's production specifications as follows: 0.5 dB/km at both 1310 and 1550 nm.

If the total loss exceeds these specifications, the Contractor shall replace or repair that cable run at the Contractor's expense, both labor and materials. Elevated attenuation due to exceeding the pulling tension during installation shall require the replacement of the cable run at the Contractor's expense, including labor and materials.

The Contractor shall label the destination of each trunk cable onto the cable in each handhole, vault or cable termination panel.

Splicing Requirements

Splices shall be made at locations shown on the Plans. Any other splices shall be permitted only with the approval of the Engineer.

All optical fibers shall be spliced as indicated on the Plans. If no information is provided, mainline splices will concatenate the fibers from the two cable segments, that is, the colors of the buffer tubes and fibers shall be the same across the splice. For splices that breakout the individual fibers, the fibers shall be spliced in accordance with the Plans.

Slack Storage of Fiber Optic Cables.

A part of this pay item, slack fiber shall be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber shall be stored underground in handholes and in the traffic controller cabinets.

The amount of slack cable listed in Article 873.03 shall be revised as follows:

<u>Location</u>	<u>Length of Slack Cable (Ft.)</u>
Handhole	10.0
Double Handhole	30.0
Communication Vault	30.0
Junction Box	8.0

Controller Cabinet	10.0
Equipment Cabinet	3.0

Basis of Payment: This work will be paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F SM24F and shall be payment in full for all labor, equipment, and materials required to provide, install, and test the fiber optic cable described above, complete.

FIBER OPTIC FUSION SPLICE

Description. The Contractor will splice optical fibers from different cable sheaths and protect them with a splice closure at the locations shown on the Plans. Fiber splicing consists of in-line fusion splices for all fibers described in the cable plan at the particular location.

Two types of splices are identified. A mainline splice includes selected fibers from each cable run as shown in the plan sheets. In a lateral splice, the buffer tubes in the mainline cable are dressed out and those fibers identified on the plans are accessed in and spliced to lateral cables.

Materials.

Splice Closures:

Splice closures shall be designed for use under the most severe conditions such as moisture, vibration, impact, cable stress and flex temperature extremes as demonstrated by successfully passing the factory test procedures and minimum specifications listed below:

Physical Requirements:

The closures shall provide ingress for up to four cables in a butt configuration.

The closure shall prevent the intrusion of water without the use of encapsulates.

The closure shall be capable of accommodating splice organizer trays that accept mechanical, or fusion splices. The splice closure shall have provisions for storing fiber splices in an orderly manner, mountings for splice organizer assemblies, and space for excess or un-spliced fiber. Splice organizers shall be re-enterable. The splice case shall be UL rated.

Closure re-entry and subsequent reassembly shall not require specialized tools or equipment. Further, these operations shall not require the use of additional parts.

The splice closure shall have provisions for controlling the bend radius of individual fibers to a minimum of 1.5 in (38 mm).

Factory Testing of Splice Closures:

Compression Test: The closure shall not deform more than 10% in its largest cross-sectional dimension when subjected to a uniformly distributed load of 1335 N at a temperature of 0°F and 100°F (-18°C and 38°C). The test shall be performed after stabilizing at the required temperature for a minimum of two hours. It shall consist of placing an assembled closure between two flat parallel surfaces, with the longest closure dimension parallel to the surfaces. The weight shall be placed on the upper surface for a minimum of 15 minutes. The measurement shall then be taken with weight in place.

Impact Test: The assembled closure shall be capable of withstanding an impact of 28 N-M at temperatures of 0°F and 100°F (-18°C and 38°C). The test shall be performed after stabilizing the closure at the required temperature for a minimum of 2 hours. The test fixture shall consist of 20 lb (9 kg) cylindrical steel impacting head with a 2 in (5 cm) spherical radius at the point where it contacts the closure. It shall be dropped from a height of 12 in (30 cm). The closure shall not exhibit any cracks or fractures to the housing that would preclude it from passing the water immersion test. There shall be no permanent deformation to the original diameter or characteristic vertical dimension by more than 5%.

Cable Gripping and Sealing Testing: The cable gripping and sealing hardware shall not cause an increase in fiber attenuation in excess of 0.05 dB/fiber @ 1550 nm when attached to the cables and the closure assembly. The test shall consist of measurements from six fibers, one from each buffer tube or channel, or randomly selected in the case of a single fiber bundle. The measurements shall be taken from the test fibers before and after assembly to determine the effects of the cable gripping and sealing hardware on the optical transmission of the fibers.

Vibration Test: The splice organizers shall securely hold the fiber splices and store the excess fiber. The fiber splice organizers and splice retaining hardware shall be tested per EIA Standard FOTP-II, Test Condition I. The individual fibers shall not show an increase in attenuation in excess of 0.1 dB/fiber.

Water Immersion Test: The closure shall be capable of preventing a 10 ft (3 m) water head from intruding into the splice compartment for a period of 7 days. Testing of the splice closure is to be accomplished by the placing of the closure into a pressure vessel and filling the vessel with tap water to cover the closure. Apply continuous pressure to the vessel to maintain a hydrostatic head equivalent to 10 ft (3 m) on the closure and cable. This process shall be continued for 30 days. Remove the closure and open to check for the presence of water. Any intrusion of water in the compartment containing the splices constitutes a failure.

Certification: It is the responsibility of the Contractor to insure that either the manufacturer, or an independent testing laboratory has performed all of the above tests, and the appropriate documentation has been submitted to the Department. Manufacturer certification is required for the model(s) of closure supplied. It is not necessary to subject each supplied closure to the actual tests described herein.

Construction Requirements.

The closure shall be installed according to the manufacturer's recommended guidelines. For all splices, the cables shall be fusion spliced.

The Contractor shall prepare the cables and fibers in accordance with the closure and cable manufacturers' installation practices. A copy of these practices shall be provided to the Engineer 21 days prior to splicing operations.

Using a fusion splicer, the Contractor shall optimize the alignment of the fibers and fuse them together. The Contractor shall recoat the fused fibers and install mechanical protection over them.

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each splice using an Optical Time Domain Reflectometer. This loss shall not exceed 0.1 dB.

The Contractor shall measure the end-to-end attenuation of each fiber optic link, from connector to connector, using an optical power meter and source. This loss shall be measured from both directions and shall not exceed 0.5 dB per installed kilometer of single mode cable. Measurements shall be made at both 1300 and 1550 nm for single mode cable. For multimode cable, power meter measurements shall be made at 850 and 1300 nm. The end-to-end attenuation shall not exceed 3.8 dB/installed kilometers at 850nm or 1.8 dB per installed kilometer at 1300nm for multimode fibers.

As directed by the Engineer, the Contractor at no additional cost to the Department shall replace any cable splice not satisfying the required objectives.

The Contractor shall secure the Splice Closure to the side of the splice facility using cable support brackets. All cables shall be properly dressed and secured to rails or racks within the handhole or traffic signal cabinet. No cables or enclosures will be permitted to lie on the floor of the splice facility. Cables that are spliced inside a building will be secured to the equipment racks or walls as appropriate and indicated on the Plans.

Basis of Payment. This work will be paid for at the contract unit price per each for FIBER OPTIC FUSION SPLICE and shall be payment in full for all labor, equipment, and materials required to complete the work.

TERMINATION OF FIBER OPTIC CABLES WITH FUSION SPLICED ST CONNECTORS

Description. The Contractor will terminate a multimode or single mode fiber by fusion splicing a factory-formed ST connector onto a field fiber at the locations shown on the Plans.

Materials. The Contractor shall be responsible for ensuring that the pre-formed ST connector fiber is compatible with the field fiber that it will be fusion splice to.

The splice shall be protected with a protection sleeve/enclosure that will secure both cables and prevent cable movement.

The fiber optic patch cords shall meet or exceed the following specifications:

- High-quality 125um fiber optics
- 900um tight buffer construction
- Aramid yarn individually protected
- Duplex construction
- Stress relief boots color coded (Tx/Rx)
- ST connectors with high-grade zirconia ferrule
- Insertion Loss < 0.2 dB @ 1310 / 1550 nm
- Return Loss < -58 dB @ 1310 / 1550 nm
- Compliant with ANSI/TIA/EIA 568-B.3
- TIA/EIA-604, FOCIS-2

The Contractor shall submit a shop drawing of all proposed components to the Engineer for approval prior to commencing construction.

Construction Requirements.

The Contractor shall prepare the cables and fibers in accordance with the cable manufacturers' installation practices. A copy of these practices shall be provided to the Engineer 21 days prior to splicing operations.

Using a fusion splicer, the Contractor shall optimize the alignment of the fibers and fuse them together. The Contractor shall recoat the fused fibers and install mechanical protection over them.

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each connector using an Optical Time Domain Reflectometer. This loss shall not exceed the loss of the fusion splice (0.1 dB) plus the loss of the connector (typically 0.75 dB).

As directed by the Engineer, the Contractor at no additional cost to the Department shall replace any cable splice and/or connector not satisfying the required objectives.

Basis of Payment. This work will not be paid for separately, but shall be included in the bid price for the fiber optic cable pay items.

TRAFFIC SIGNAL SPECIAL PROVISIONS

LOCATION OF UNDERGROUND STATE/CITY MAINTAINED ELECTRICAL FACILITIES

The Contractor shall be responsible for locating existing IDOT and City of Galesburg electrical facilities prior to performing any work at his/her own expense if required. The Contractor shall also be liable for any damage to IDOT facilities resulting from inaccurate locating.

The Contractor may obtain, on request, plans for the existing electrical facilities from the Department and city of Galesburg.

The Contractor shall also be responsible for locating and providing protection for IDOT facilities during all phases of construction. If at any time, the facilities are damaged, the Contractor shall immediately notify the Department and make all necessary arrangements for repair to the satisfaction of the Engineer. This work shall be included in the contract bid price.

CONTRACT GUARANTEE

The Contractor shall guarantee all electrical equipment, apparatus, materials, and workmanship provided under the contract for a period of six (6) months after the date of final inspection according to Article 801.14.

All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operations shall be delivered to the Engineer prior to the acceptance of the project, with the following warranties and guarantees:

1. The manufacturer's standard written warranty for each piece of electrical equipment or apparatus furnished under the contract.
2. The Contractor's written guarantee that, for a period of six (6) months after the date of final inspection of the project, all necessary repairs to or replacement of said warranted equipment, or apparatus shall be made by the Contractor at no cost to the Department.
3. The Contractor's written guarantee for satisfactory operation of all electrical systems furnished and constructed under the contract for a period of 6 months after final inspection of the project.

OPERATION OF EXISTING TRAFFIC SIGNALS

The existing traffic signals shall be completely removed, and the proposed signals shall be reconstructed as a part of the construction of the construction of East Main Street and the intersection of Chambers Street and East Main Street. The existing traffic signals shall remain in operation until such time that new signal is ready for operation. The Contractor shall furnish all labor, materials, and equipment required to keep the existing traffic signals operational for as long as is required; including, but not limited to, temporary traffic signal posts, temporary signal heads, and temporary wiring. The Contractor shall notify the City of Galesburg prior to changing the construction staging adjacent to and at the intersection. Any work changes affecting the traffic signal construction staging will not be paid for separately, but shall be included in the bid price for the project.

FULL-ACTUATED CONTROLLER AND TYPE IV CABINET

This work shall be in accordance with the applicable Articles of Sections 895, 1073, and 1074 of the Standard Specifications with the following modifications:

This item shall consist of providing equipment as required to accommodate the protected/permissive turn phases to FYA (flashing yellow arrow) operation and integrate four channels of vehicle detection.

- The Contractor shall furnish and install the following items:
 - TS-2 Type 2 controller with data key and FSK telemetry module – Qty. 1
 - Reno A & E malfunction management unit model MMU-1600G or EDI MMU-16LEip with graphical display and Ethernet port (pre-programmed by the manufacturer for FYA operation at the intersection) – Qty. 1
 - Two channel shelf mount detector amplifier with LCD display and built in diagnostic capabilities (furnished under separate pay item for INDUCTIVE LOOP DETECTOR)
 - Load switches, flash transfer relays, wiring harnesses, terminal strips, and all other equipment required to modify the cabinet to support FYA operation and integrate the proposed detector loops into the cabinet.
- The Contractor shall deliver all items that are removed from the controller cabinets to the City of Galesburg. The Contractor shall notify Justin McNaught at (309) 299-0534 a minimum of forty eight hours prior to delivery.
- The Contractor will be allowed to place the intersection into all-way red flash mode and all-way stop control between the hours of 8:30AM to 3:30PM to facilitate the controller cabinet modification. The Contractor shall furnish and

install a minimum of two stop signs per approach when the intersection is operating in all-red flash mode or all-way stop control. Stop signs shall be displayed in accordance with MUTCD requirements.

- The Contractor shall arrange for technical support from the controller cabinet manufacturer as needed for the modification. The controller cabinet vendor shall be on-site to assist with the first five intersection conversions.
- The cabinet sequencing shall conform to MUTCD requirements.
- At the conclusion of the cabinet modification prior to resuming normal signal operation, the Contractor shall test the modified cabinet by connecting a jumper to the cabinet field terminals to ensure that all conflicting signals will place the cabinet into conflict flash and to verify that the cabinet, controller, and malfunction management unit are operating correctly. The Contractor shall make arrangements with the local police agency to provide traffic control during the conflict test.

Basis of Payment: This work will be paid for at the contract unit price per each for FULL-ACTUATED CONTLLER AND TYPE IV CABINET which price shall be payment in full for all labor, materials, and equipment required to install and test the cabinet as described above.

INDUCTIVE LOOP DETECTOR

This work shall be in accordance with Sections 885 and 1079 of the Standard Specifications except as modified herein.

The detector amplifier shall be equipped with an LCD display that is capable of displaying the loop frequency and inductance and shall conform to the following specifications:

- Shelf mounted
- Custom LCD displays complete status and function settings of the detector.
- All functions are programmable from the front panel LCD "Menu" - no removing of detector to change function settings.
- LCD displays loop frequency, loop inductance, & -L/L% values.
- LCD displays the accumulated number of loop failure incidents since the detector was last reset - helps diagnose intermittent systems.
- LCD bar graph displays loop inductance change to verify ideal sensitivity level setting.
- Selectable "Continuous-CALL" and "Channel-Off" to aid system troubleshooting.
- 8 loop frequencies and 9 levels of sensitivity.
- 2 Selectable modes of operation: Presence or Pulse.
- 255 second CALL Delay and 25.5 second Extension timers.

- 999 second Max. Presence Timer. NEMA TS 2 Status Output.
- EOG (end of green) reset synchronization for Max. Presence timer.
- Super bright LEDS indicate vehicle detection or loop failure.
- Environmentally sealed push button switches to insure trouble-free service.
- Phase Green (Delay Override) input.

The detector amplifier shall be equipped with relay or solid state outputs to ensure that the detectors fail in a constant call mode.

The RENO A&E Model C-1200 Series and EDI Oracle Series are currently approved for use within the District.

Basis of Payment: This work shall be paid for at the contract unit price each for INDUCTIVE LOOP DETECTOR which price shall be payment in full for all labor, equipment, and materials required to supply and install the inductive loop detector described above, complete.

TRAFFIC SIGNAL LED MODULE SPECIFICATIONS

The material requirement shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The LED assemblies for the red, yellow, and green solid and arrow indications shall meet or exceed the following minimum specifications:

Solid Indication LED Module Specifications

<u>Compliance:</u>	Fully compliant with ITE VTCSH LED Circular Signal Supplement specifications dated and adopted June 27, 2005
<u>Compliance Verification:</u>	Intertek ETL verified compliance – Product must be listed on the “Directory of LED Modules Certified Products” list located on the ETL website at http://www.intertek.com/lighting/performance-testing/traffic-signals/
<u>Diameter:</u>	12” (300mm)
<u>Lens:</u>	UV stabilized scratch resistant polycarbonate, tinted red or yellow, clear for green, uniform non-pixelated illumination, Incandescent Appearance
<u>LEDS:</u>	Hi-Flux
<u>Operating Temperature Range:</u>	-40 to +74C (-40 to +165F)

<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V
<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	10.0 W (Red), 18.0W (Yellow), 12.5 W (Green)
<u>Nominal Wavelength:</u>	625-626 nm (Red), 589-590 nm (Yellow), 500-502 nm (Green)
<u>Minimum Maintained Intensity:</u>	365 Cd (Red), 910 Cd (Yellow), 475 Cd (Green)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	5 year replacement (materials, workmanship, and intensity)

Arrow Indication LED Module Specifications (Red, Yellow, Green)

<u>Compliance:</u>	Fully compliant with ITE VTCSH LED Vehicle Arrow Supplement specifications adopted July 1, 2007
<u>Compliance Verification:</u>	Intertek ETL verified compliance – Product must be listed on the “Directory of LED Modules Certified Products” list located on the ETL website at http://www.intertek.com/lighting/performance-testing/traffic-signals/
<u>Diameter:</u>	12” (300mm)
<u>Lens:</u>	Clear Frosted, UV stabilized scratch resistant polycarbonate, tinted red or yellow, clear for green, uniform non-pixelated illumination, incandescent appearance, omni-directional

<u>LEDS:</u>	Hi-flux LEDs
<u>Operating Temperature Range:</u>	-40 to +74C (-40 to +165F)
<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V
<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	5.0-7.0 W (Red), 6.0-12.5W (Yellow), 5.0-7.0 W (Green)
<u>Nominal Wavelength:</u>	625-628 nm (Red), 590 nm (Yellow), 500nm (Green)
<u>Minimum Maintained Intensity:</u>	56.8-58.4 Cd (Red), 141.6-146.0 Cd (Yellow), 73.9-76.0 Cd (Green)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	5 year replacement (materials, workmanship, and intensity)

Arrow Indication LED Module Specifications (Yellow/Green Dual Mode)

<u>Diameter:</u>	12" (300mm)
<u>LEDS:</u>	Interconnected to minimize the effect of single LED failures
<u>Lens:</u>	Clear UV stabilized scratch resistant polycarbonate, uniform non-pixelated illumination, incandescent appearance
<u>Operating Temperature Range:</u>	-40 to +74C (-40 to +165F)

<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V
<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	8.0-10.0 W (Yellow), 8.0-10.0 W (Green)
<u>Nominal Wavelength:</u>	590-592 nm (Yellow), 505-508 nm (Green)
<u>Minimum Maintained Intensity:</u>	141.6-146.0 Cd (Yellow), 73.9-76.0 Cd (Green)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	5 year replacement (materials, workmanship, and intensity)

12" Pedestrian LED Module Specifications (Man/Hand, Countdown Timer)

<u>Compliance:</u>	Fully compliant with ITE PTCSI Part-2 LED Pedestrian Traffic Signal Modules specification adopted August 4, 2010
<u>Compliance Verification:</u>	Intertek ETL verified compliance – Product must be listed on the “Directory of LED Modules Certified Products” list located on the ETL website at http://www.intertek.com/lighting/performance-testing/traffic-signals/
<u>Size:</u>	12” x 12”
<u>Configuration:</u>	Full Man/Full Hand Overlay Module, Countdown Timer Module
<u>Lens:</u>	Clear Frosted, UV stabilized scratch resistant polycarbonate, uniform non-pixelated illumination, incandescent appearance

<u>Operating Temperature Range:</u>	-40 to +74C (-40 to +165F)
<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V
<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	5.0-9.0 W (Man), 5.0-11.0W (Hand), 5.0-8.0 W (Timer)
<u>Minimum Maintained Intensity:</u>	1,400 Cd (Hand), 1,400 Cd (Timer), 2,200 Cd (Man)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	5 year replacement (materials, workmanship, and intensity)

16" Pedestrian LED Module Specifications (Man/Hand with Countdown Timer)

<u>Compliance:</u>	Fully compliant with ITE PTCSI Part-2 LED Pedestrian Traffic Signal Modules specification adopted August 4, 2010
<u>Compliance Verification:</u>	Intertek ETL verified compliance – Product must be listed on the "Directory of LED Modules Certified Products" list located on the ETL website at http://www.intertek.com/lighting/performance-testing/traffic-signals/
<u>Size:</u>	16" x 18"
<u>Configuration:</u>	Man/Hand Overlay with Countdown Timer
<u>Lens:</u>	UV stabilized scratch resistant polycarbonate, uniform non-pixelated illumination, incandescent appearance

<u>Operating Temperature Range:</u>	-40 to +74C (-40 to +165F)
<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V
<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	6.0-9.0 W (Man), 7.0-9.0W (Hand), 5.0-8.0 W (Timer)
<u>Minimum Maintained Intensity:</u>	1,400 Cd (Hand), 1,400 Cd (Timer), 2,200 Cd (Man)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	5 year replacement (materials, workmanship, and intensity)

SIGNAL HEAD, LED

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The traffic signal heads shall consist of 12" polycarbonate sections and shall be equipped with LED assemblies for all red bulb, yellow bulb, green bulb, red arrow, yellow arrow, and green arrow indications.

The traffic signal heads shall have a yellow finish with black doors and tunnel visors.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block.

The LED modules shall conform to the specifications listed under the section TRAFFIC SIGNAL LED MODULE SPECIFICATIONS.

Basis of Payment: This work will be paid for at the contract unit prices each for SIGNAL HEAD, LED of the type specified and shall be payment in full for all labor, materials, and

equipment required to provide and install the traffic signal heads described above, complete.

HANDHOLE, PORTLAND CEMENT CONCRETE

This work shall consist of furnishing the materials and constructing a handhole in accordance with the applicable Articles of Section 814 and 1088 of the Standard Specifications with the following modifications:

The lift ring for the cover shall consist of a solid closed ring of stainless steel at least 3/8 inch in diameter. The lift ring shall be attached to the cover by a loop of stainless steel at least 3/8 inch in diameter. The lift ring and loop shall be recessed in the cover.

The Contractor shall install heavy-duty, fully-galvanized hooks, with a minimum diameter of 1/2" in the proposed handhole. The Contractor shall submit this material to the Engineer prior to construction of the handholes.

The lid shall be marked with the legend "Traffic Signals".

Pre-cast handholes are not allowed.

All unsuitable materials shall be disposed of by the Contractor outside the job limits.

Basis of Payment: This work will be paid for at the contract unit price each for HANDHOLE, PORTLAND CEMENT CONCRETE which price shall be payment in full for all labor, materials, and equipment required to provide the handhole described above as well as any necessary excavating, backfilling, disposal of unsuitable materials, and furnishing all materials within the limits of the handhole.

ELECTRIC CABLE IN CONDUIT, EQUIP. GROUNDING CONDUCTOR, NO. 6 1/C

This work shall be in accordance with the applicable Articles of Sections 801, 806, 873, 1076, and 1088 of the Standard Specifications with the following modifications:

This work shall consist of furnishing and installing a grounding wire to bond all traffic signal handholes (lids and rings), mast arm assemblies, posts, light poles, cabinets and exposed metallic conduits.

The proposed ground wire shall be an insulated #6 XLP copper conductor with green insulation.

Basis of Payment: This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1/C which price shall be payment in full for all labor, materials, and equipment required to provide the grounding system described above.

TRAFFIC SIGNAL POST, GALVANIZED STEEL

This work shall be in accordance with Sections 878 and 1077 of the Standard Specifications except as modified herein.

The traffic signal post shall be attached to the foundation with four 3/4" x 18" galvanized anchor bolts. The post base shall be secured to the foundation using galvanized nuts and galvanized steel flat washers that have a minimum thickness of 1/4" and are trapezoidal in shape. The washers shall be sized so as to completely capture the mounting flanges of the traffic signal base. Round washers will not be acceptable.

Basis of Payment: This work will be paid for at the contract unit price each for TRAFFIC SIGNAL POST, GALVANIZED STEEL of the length specified which price shall be payment in full for all labor, material, and equipment required to furnish and install the traffic signal post and base described above.

PEDESTRIAN PUSH BUTTON

This work shall be in accordance with Sections 888 and 1074 of the Standard Specifications except as modified herein.

The Contractor shall install the proposed pedestrian pushbuttons and signs on the traffic signal mast arms and posts. The proposed pedestrian pushbuttons and signs shall be installed so that the arrow on the sign corresponds to the associated street crossing and crosswalk.

All pedestrian pushbuttons shall have a round case and be equipped with a 2" diameter mushroom head for easy access.

The following models are approved for use within District 4:

- ◆ Polara, BullDog with momentary LED Indicator with audible buzzer, Round, Yellow Housing, Model (BDLL2-B)
- ◆ Campbell 4EVR, with momentary LED Indicator with audible buzzer, Round, Yellow Housing

The pedestrian pushbutton installation shall include all crossing signs and hardware required to mount the pedestrian pushbutton. All hardware shall be of stainless steel construction. All bolts shall be 1/4" Hex Head and no self tapping/drilling screws will be allowed.

The following pedestrian pushbutton signs currently meet Department Specifications: Pelco, Models SF-1013-08, SF-1014-08 or approved equivalent.

Basis of Payment: This work shall be paid for at the contract unit price each for PEDESTRIAN PUSH BUTTON and shall be payment in full for all labor, equipment, and materials required to supply and install the pedestrian push buttons described above, complete.

PED. SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER

This work shall be in accordance with Section 881 and 1078 of the Standard Specifications except as modified herein.

The pedestrian signal head shall consist of a single 16" polycarbonate section and shall be equipped with an overlaid LED indication with countdown timer (Walking Person/Upraised Hand).

The traffic signal head shall have a yellow finish with black doors and tunnel visors.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block.

The LED signal face shall have international symbols (Upraised Hand - Color: Portland Orange, Walking Person - Color: Lunar White). Only filled indications will be allowed.

The LED assembly shall meet or exceed the following minimum specifications:

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications list below:

GELcore	Model PS7-CFF1-26A (Filled Walking Person/Upraised Hand Overlay, with Countdown Timer)
Dialight	Model 430-6479-001X (Filled Walking Person/Upraised Hand Overlay, with Countdown Timer)

The LED assembly must conform to the following minimum specifications:

Lens : 16" x 18", Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage White: 8W or less, Nominal Wattage Orange: 11W or less, Nominal Wattage Countdown: 6W

Luminous Intensity (min): Countdown = 1,400 cd/m², Hand = 1,400 cd/m², Person = 2,200 cd/m²

Product Warranty: 5 Year Replacement

Combination hand/person pedestrian signal modules shall incorporate separate power supplies for the hand and the person displays.

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

All LED Pedestrian Signal Modules shall be fully compliant to the ITE PTCSI Part-2: LED Pedestrian Traffic Signal Modules specifications adopted March 19, 2004 or the latest adopted version as listed on the ITE website at time of bid

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

Basis of Payment: This work will be paid for at the contract unit prices each for PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER and will be payment in full for all labor, equipment, and materials required to provide and install the pedestrian traffic signal heads equipped with LED indications described above, complete.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

This work shall be in accordance with Section 895 of the Standard Specifications except as modified herein.

The list of removal items shown below should represent an accurate listing of removal items along with other associated work; however, it is the Contractor's responsibility to verify all quantities prior to bidding. All traffic signal equipment at each intersection will be removed in full and no additional compensation will be granted.

The Contractor shall remove all wires pertaining to existing traffic signals and grounding, existing traffic signal heads, existing pedestrian signal heads, existing pedestrian push buttons, existing luminaries if present, existing mast arms and posts, existing concrete foundations for mast arms and posts, and existing controller foundations at the intersection of Chambers Street and East Main Street. In areas where existing foundations and hand holes are removed and existing sidewalk is not proposed for construction this pay item shall cover all work related to any sidewalk removal or replacement. This work shall be included in the bid price for this pay item. Additionally, it is the intent of the project to remove all existing handholes located within the limits of the proposed pavement and relocate, as necessary, those handholes to a location adjacent to the back of curb.

The Contractor shall deliver all removal items to the City of Galesburg to their desired location. The point of contact is Wayne Carl at (309) 345-3625.

The Contractor shall dispose of all other items off of the right-of-way and reflect the salvage value of this equipment in the unit bid price for this pay item.

Method of Measurement: All traffic signal equipment at each intersection listed (as shown above for each intersection) will be paid for as each (per intersection).

Basis of Payment: The above work will be paid for at the contract unit price each (per intersection) for REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT and shall be payment in full for removing, disposing of, and transporting the equipment described above, complete. No additional compensation will be allowed.

CONCRETE FOUNDATION, TYPE A

This work shall consist installing a Concrete Foundation, Type A in accordance with Section 878 of the Standard Specifications for Road and Bridge Construction and State Standard 878001-09 with no exceptions.

The proposed location of the Concrete Foundation, Type A may be moved in the field to avoid conflicts at the approval of the Engineer. If foundation is located in an area not within the removal limits shown on the plans, removal of the existing sidewalk or earth disturbance shall be completed in accordance with Section 895 of the Standard Specifications for Road and Bridge Construction and any applicable notes or Special Provisions provided in these construction documents.

Basis of Payment: This work will be paid for at the contract unit price per foot for CONCRETE FOUNDATION, TYPE A, which price shall be payment in full for all labor, material, and equipment necessary to perform the work described above.

CONCRETE FOUNDATION, TYPE E, 36" DIAMETER

This work shall consist installing a Concrete Foundation, Type E, 36" Diameter in accordance with Section 878 of the Standard Specifications for Road and Bridge Construction and State Standard 878001-09 with no exceptions.

The proposed location of the Concrete Foundation, Type E may be moved in the field to avoid conflicts at the approval of the Engineer. If foundation is located in an area not within the removal limits shown on the plans, removal of the existing sidewalk or earth disturbance shall be completed in accordance with Section 895 of the Standard Specifications for Road and Bridge Construction and any applicable notes or Special Provisions provided in these construction documents.

Basis of Payment: This work will be paid for at the contract unit price per foot for CONCRETE FOUNDATION, TYPE E, 36" DIAMETER or CONCRETE FOUNDATION,

TYPE E, 30" DIAMETER, which price shall be payment in full for all labor, material, and equipment necessary to perform the work described above.

LUMINAIRE, LED, HORIZONTAL MOUNT, 175 WATT

Description: This work consists of furnishing all materials, equipment, and labor necessary to install Light-Emitting Diode (LED) luminaires as shown on the plans, in accordance with the applicable requirements of Section 821 of the Standard Specifications for Road and Bridge Construction, and as specified herein.

General: The luminaire shall be assembled in the continental U.S.A. and shall be assembled by and manufactured by the same Manufacturer. Quick connect/disconnect plugs shall be supplied between the discrete electrical components within the luminaire such as the driver, surge protection device, and optical assembly for easy removal. The quick connect/disconnect plugs shall be operable without the use of tools and while wearing insulated gloves. The luminaire shall be in compliance with ANSI C136.37. LED light source(s) and driver(s) shall be Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU compliant.

Manufacturer Experience. The luminaire shall be designed to be incorporated into a lighting system with an expected 30-year lifetime. The luminaire Manufacturer shall have a minimum of 30 years' experience manufacturing High Intensity Discharge (HID) roadway luminaires and shall have a minimum of 5 years' experience manufacturing LED roadway luminaires. The Manufacturer shall have a minimum of 5,000 total LED roadway luminaires installed on a minimum of 30 separate installations, all within the continental U.S.A.

Housing: The housing shall be designed to ensure maximum heat dissipation and to prevent the accumulation of water, ice, dirt and debris. A passive cooling method with no moving or rotating parts shall be employed for heat management. The effective projected area of the luminaire shall not exceed 1.4 sq. ft. The total weight of the luminaire(s) and accessories shall not exceed 75 pounds. Wiring within the electrical enclosure shall be rated at 1000 V, 221 °F (105 °C) or higher (2014 Edition of the National Electrical Code change from 600 V to 1 KV).

Finish. Painted or finished luminaire surfaces exposed to the environment, shall exceed a rating of six according to ASTM D1654 after 1000 hours of ASTM B117 testing. The coating shall exhibit no greater than 30 % reduction of gloss according to ASTM D523, after 500 hours of ASTM G154 Cycle 6 QUV® accelerated weathering testing.

Attachment. The luminaire shall slip-fit on a mounting arm with a 2 in (5 cm) diameter tenon (2.375 in (6 cm) outer diameter), and shall have a barrier to limit the amount of insertion. The luminaire shall be provided with a leveling surface and shall be capable of being tilted ± 5 degrees from the axis of attachment in not more than 2.5 degree increments and rotated to any degree with respect to the supporting arm.

Receptacle. The luminaire shall include a fully prewired, 7-pin twist lock ANSI C136.41 compliant receptacle. Unused pins shall be connected as directed by the Manufacturer and as approved by the Engineer. A shorting cap shall be provided with the luminaire.

Vibration Characteristics. All luminaires shall pass ANSI C136.31 requirements. Roadway luminaires mounted on a bridge and high mast luminaires shall be rated for "3G" peak acceleration. Vibration testing shall be run using the same luminaire in all three axes.

Labels and Decals. All luminaires shall have ANSI C136.15 external labels and ANSI C136.22 internal labels.

The luminaire shall be listed for wet locations by a Nationally Recognized Testing Laboratory (NRTL) as defined by OSHA and shall be in compliance with UL 8750 and UL 1598. It shall be identified as such by the holographic UL tag/sticker on the inside of the luminaire.

Hardware. All hardware shall be stainless steel. Captive screws are required on any component that requires maintenance after installation.

Optical Assembly: The LED optical assembly, consisting of LED packages, shall have a minimum Ingress Protection rating of 66 (IP66) as defined in the ANSI/IEC 60529 Standard. Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LEDs.

The optical assembly shall utilize high brightness, long life, minimum 70 color rendering index (CRI), 4,000 K color temperature (+/-300 K) LEDs binned according to ANSI C78.377. Lenses shall be UV-stabilized acrylic or glass. Provisions for house-side shielding should be specified along with means of attachment.

Lumen depreciation at 50,000 hours of operation shall not exceed 15% of initial lumen output at the specified LED drive current and an ambient temperature of 77 °F (25 °C).

The assembly shall have individual serial numbers or other means for Manufacturer tracking.

Photometric Performance: The classification of LED luminaires shall be as follows:

VLW – Wattages \leq 100, minimum delivered lumens 5,000,
LW – Wattages 101 - 200, minimum delivered lumens 10,000,
MW – Wattages 201 - 300, minimum delivered lumens 20,000,
HW – Wattages 301 - 400, minimum delivered lumens 30,000,
VHW – Wattages \geq 401, minimum delivered lumens 40,000.

VLW= very low watt, LW = low watt, MW = medium watt, HW = high watt, and VHW = very high watt luminaire. Luminaires with lumens below the stated minimums will not be accepted.

Testing. Luminaires shall be tested according to IES LM-79. The laboratory performing this test shall hold accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) under NIST. Submitted reports shall have a backlight, upright, and glare (BUG) rating according to IESNA TM-15 including a luminaire classification system graph with both the recorded lumen value and percent lumens by zone.

Lumen maintenance shall be measured for the LEDs according to LM-80, or when available for the luminaires according to LM-84. The LM-80 report shall be based on a minimum of 6,000 hours, yet 10,000 hour reports shall be provided for luminaires where those tests have been completed.

Thermal testing shall be provided according to UL 1598. The luminaire shall start and operate in the ambient temperature range specified. The maximum rated case temperature of the driver, LEDs, and other internal components shall not be exceeded when the luminaire is operated in the ambient temperature range specified.

Mechanical design of protruding external surfaces such as heat sink fins shall facilitate hose-down cleaning and discourage debris accumulation. Testing shall be submitted when available to show the maximum rated case temperature of the driver, LEDs, and other internal components are not exceeded when the luminaire is operated with the heat sink filled with debris.

Calculations. Complete point-by-point luminance and veiling luminance calculations as well as listings of all indicated averages and ratios as applicable shall be provided according to IES RP-8 recommendations. Lighting calculations shall be performed using AGI32 software with calculations performed to two decimal places (i.e. x.xx cd/m²). Calculation results shall demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Tables (see exhibit B). Scotopic or mesopic factors will not be allowed.

Lumen Maintenance Projection. The LEDs shall have long term lumen maintenance documented according to IESNA TM-21, or when available for the luminaires according to IESNA TM-28. The submitted calculations shall incorporate an in situ temperature measurement test (ISTMT) and LM-80 data with TM-21 inputs and reports according to the TM-21 calculator, or when available ISTMT and LM-84 data with TM-28 inputs and reports according to the TM-28 calculator. Ambient temperature shall be 77 °F (25 °C).

Driver: The driver for the luminaire shall be integral to the unit. It shall be mounted in the rear of the luminaire on the inside of a removable door or on a removable mounting pad. The removable door or pad shall be secure when fastened in place and all individual components shall be secured upon the removable element. Each component shall be readily removable from the removable door or pad for replacement.

The driver shall be installed in a manner to keep it mechanically separated from the LED array heat sink.

Circuit Protection. Shall tolerate indefinitely open and short circuit output conditions without damage.

Ingress Protection. IP66 rating.

Input Voltage. Shall be suitable for operation over a range of 120 to 277 volts or 347 to 480 volts as required by the system operating voltage.

Operating Temperature. Operating ambient temperature range of 104 to 158 °F (40 to 70 °C).

Driver Life. Life time of 100,000 hours at 77 °F (25 °C) ambient.

Safety/UL. Listed under UL 1012.

Power Factor. Shall maintain a power factor of 0.9 or higher and total harmonic distortion of less than 20 %.

Driver efficiency. Minimum efficiency of 90% at maximum load and a minimum efficiency of 85% for the driver operating at 50% power with driver efficiency defined as output power divided by input power.

Electrical Interference. Shall meet the Electromagnetic Compatibility (EMC) requirements for Class A digital devices included in the FCC Rules and Regulations, Title 47, Part 15.

Thermal Fold Back. The driver shall reduce the current to the LED module if the driver is overheating due to abnormal conditions.

Dimming. 0-10 V dimming capability.

Leakage current. Compliance with safety standards according to IEC 61347-1.

Surge Protection Device: SPD shall be labeled as Type 4 in accordance to UL 1449 and be an integral part of the luminaire. It shall provide a minimum system protection level of 10 kV, 10 kA. To protect for a 10 kV, 10 kA surge the required clamping voltage of the external Metal Oxide Varistor (MOV) or other SPD shall be lower than 1 kV at 8 kA $\{(10 \text{ kV}-2 \text{ kV})/1 \text{ ohm}=8 \text{ kA}\}$.

The SPD shall comply with the following standards:

- 1) IEEE C62.41.1, IEEE Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits,
- 2) IEEE C62.41.2, IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits,
- 3) IEEE C62.45, IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits, and
- 4) ANSI C136.2, American National Standard for Roadway and Area Lighting Equipment – Luminaire Voltage Classification.

The SPD and performance parameters shall be posted at www.UL.com under Category Code: VZCA2.

Warranty: The entire luminaire and all of its component parts shall be covered by a 10 year warranty. Failure is when one or more of the following occur:

- 1) Negligible light output from more than 10 percent of the LED packages
- 2) moisture inside the optical assembly
- 3) driver that continues to operate at a reduced output
- 4) other failed conditions which do not meet specifications

The warranty period shall begin on the date of final acceptance of the lighting work as documented in the Resident Engineer's project notes.

Submittal Requirements: The Contractor shall submit, for approval, an electronic version of all associated luminaire IES files, AGI32 files and the TM-21 or TM-28 calculator spreadsheet with inputs and reports associated with the project luminaires. The Contractor shall also provide an electronic version of each of the following Manufacturer's product data for each type of luminaire.

- 1) Descriptive literature and catalogue cuts for luminaire, LED package, driver, and surge protection device.
- 2) LED drive current, total luminaire input wattage and total luminaire current at the system operating voltage or voltage range and ambient temperature of 77 °F (25 °C).
- 3) Luminaire efficacy expressed in lumens per watt (lpw) per luminaire.
- 4) Initial delivered lumens at the specified color temperature, drive current, and ambient temperature.
- 5) Computer photometric calculation reports as specified in Sections III and VI, and in the luminaire performance table (appendix B).
- 6) TM-15 BUG rating report, as specified in Section VI
- 7) Documentation of Manufacturers experience and certification that luminaires were assembled in the U.S.A. as specified in Section III.
- 8) Supporting documentation of compliance with ANSI standards as well as listing requirements as specified in Sections III, VI, VII and VIII

- 9) Supporting documentation of laboratory accreditations and certifications for specified testing as indicated in Section VI.
- 10) Thermal testing documents as specified in Section VI.
- 11) IES LM-79, LM-80 (or LM-84) and TM-21 (or TM-28) reports as specified in Section VI.
- 12) Salt spray (fog) test reports and certification as specified in Section IV.
- 13) Vibration characteristics test reports and certification as specified in Section IV.
- 14) IP test reports as specified in Sections V and VII.
- 15) Manufacturer written warranty as specified in Section IX.
- 16) Luminaire installation, maintenance, and washing instructions.

Luminaire Testing: When a contract has 30 or more luminaires of the same type, wattage and distribution, that luminaire shall be tested. The quantity of luminaires requiring testing shall be one luminaire for the first 30 plus one additional luminaire for each additional 50 luminaires of that type, wattage, and distribution. Testing is not required for temporary lighting luminaires. The Contractor shall coordinate the luminaire testing, propose a properly accredited laboratory and an independent witness, submit their qualifications for approval prior to any testing, and pay all associated costs including travel expenses for the independent witness. Delays caused by the luminaire testing process shall not be grounds for additional compensation or extension of time.

The independent witness shall be present when tests are performed by the luminaire manufacturer. A laboratory independent of the luminaire manufacturer, distributor, and Contractor may self-certify the test results, in which case the independent witness need not be present during the testing.

After all qualifications have been approved, the independent witness shall select from the project luminaires at the manufacturer's facility the luminaires for testing. In all cases, the selection of luminaires shall be a random selection from the entire completed lot of luminaires required for the contract. Selections from partial lots will not be allowed. The independent witness shall mark each sample luminaire's shipping carton with the IDOT contract number and a unique sample identifier.

At the time of random selection, the independent witness shall inspect the luminaire(s) for compliance with all physical, mechanical, and labeling requirements for luminaires according to Sections 821 and 1067 and as stated herein. If deficiencies are found during the physical inspection, the Contractor shall have all luminaires of that type, wattage, and distribution inspected for the identified deficiencies and shall correct the problem(s) where found. Random luminaire selection and physical inspection must then be repeated. When the physical inspection is successfully completed, the independent witness shall mark the project number and sample identifier on the interior housing and ballast of the luminaires and have them shipped to the laboratory.

The testing performed by the laboratory shall include photometric, colorimetric, and electrical testing. Colorimetric values shall be determined from total spectral radiant flux measurements using a spectroradiometer. Photometric testing shall be according to IES

recommendations and as a minimum, shall yield an isofootcandle chart, with max candela point and half candela trace indicated, an isocandela diagram, maximum plane and maximum cone plots of candela, a candlepower table (house and street side), a coefficient of utilization chart, a luminous flux distribution table, BUG rating report, and complete calculations based on specified requirements and test results. All testing shall cover the full spherical light output at a maximum of 5 degree intervals on both the vertical planes and the cones. Tests that “mirror” results from one hemisphere or quadrant to another are not acceptable.

The results for each photometric and colorimetric test performed shall be presented in a standard LM-79 report that includes the IDOT contract number, sample identifier, and the outputs listed above. The calculated results for each sample luminaire shall meet or exceed the contract specified levels in the luminaire performance table(s). The laboratory shall mark its test identification number on the interior of each sample luminaire.

Electrical testing shall be in accordance with LM-79.

The summary test report shall consist of a narrative documenting the test process, highlight any deficiencies and corrective actions, and clearly state which luminaires have met or exceeded all test requirements and may be released for delivery to the jobsite. Photographs shall also be used as applicable to document luminaire deficiencies and shall be included in the test report. The summary test report shall include the Luminaire Physical Inspection Checklist (see exhibit A), photometric and electrical test reports, and point-by-point photometric calculations performed in AGi32 sorted by luminaire type, wattage, and distribution. All test reports shall be certified by the independent test laboratory’s authorized representative or the independent witness, as applicable, by a dated signature on the first page of each report. The summary test reports shall be delivered to the Engineer and the Contractor as an electronic submittal. Hard copy reports shall be delivered to the Engineer for record retention.

Should any of the tested luminaires fail to satisfy the specifications and perform according to approved submittal information, all luminaires of that type, wattage, and distribution shall be deemed unacceptable and shall be replaced by alternate equipment meeting the specifications. The submittal and testing process shall then be repeated in its entirety. The Contractor may request in writing that unacceptable luminaires be corrected in lieu of replacement. The request shall identify the corrections to be made and upon approval of the request, the Contractor shall apply the corrections to the entire lot of unacceptable luminaires. Once the corrections are completed, the testing process shall be repeated, including selection of a new set of sample luminaires. The number of luminaires to be tested shall be the same quantity as originally tested.

The process of retesting corrected or replacement luminaires shall be repeated until luminaires for each type, wattage, and distribution are approved for the project. Corrections and re-testing shall not be grounds for additional compensation or

extension of time. No luminaires shall be shipped from the manufacturer to the jobsite until all luminaire testing is completed and approved in writing.

Submittal information shall include a statement of intent to provide the testing as well as a request for approval of the chosen independent witness laboratory. All summary test reports, written reports, and the qualifications of the independent witness and laboratory shall be submitted for approval to the Bureau of Design and Environment in Springfield.

Construction: Examine all luminaires delivered to the jobsite prior to installation to ensure all specification requirements and Shop Drawing comments have been incorporated by the Manufacturer. Deficient luminaires shall not be installed and the Engineer shall be notified immediately.

Luminaires shall be adjusted with the use of a level placed along the fixture housing or other means approved by the manufacturer to make sure they are installed with their optics set to deliver optimum designed light levels on the roadway. Any dirt or film on LEDs and/or the optical assembly shall be thoroughly removed using cleaning methods approved by the manufacturer.

Basis of Payment: This work will be paid for at the contract unit price per each for Luminaire, LED, Horizontal Mount, 175 Watt, which shall be payment in full for all labor, equipment and material necessary to perform the work specified herein.

PHOTOCELL RELAY

This item consists of furnishing and installing a photocell relay as shown in the plans or as directed by the Engineer. The photocell relay shall be mounted to the side of the traffic signal controller cabinet. This pay item includes the photocell, lighting controller, all cable, conduit, ground rod, and all hardware required to complete the installation.

The relay cabinet shall be of unpainted sheet aluminum (no cast aluminum cabinets allowed), approximately 18" x 12" x 8" (L x W x D) outside dimensions. It shall have a continuous hinged sheet aluminum door with standard police lock and key. The cabinet shall include hangers, plates, and other hardware necessary for mounting. All conduit connections shall be in the bottom and consist of slip joints with insulated bushings. The assembly shall be weatherproof.

The two pole contactor shall be capable of carrying and controlling at least 30 amperes at 240 volts, 60 cycles of lighting load. The 120 volt operating coil shall close the contacts when energized at 96 volts or more and hold them close until the voltage drops below 72 volts.

The photocell relay shall include one 30 Amp two-pole main breaker to facilitate power turn off at the cabinet, two 20 Amp branch two-pole breakers for the lighting circuits, and one 15 Amp one-pole control circuit breaker. The photocell relay shall be equipped with additional surge suppression for the control circuit (photocell, selector switch, and

contactor). The additional surge suppressor shall meet or exceed the following minimum specifications:

Peak Current (8x20us):	20,000 Amp
Occurrences:	20 times minimum @ peak current
Clamp Voltage:	340 volts @ 20kA (Tested with MAIN NEUTRAL strapped to ground)
Response Time:	voltage never exceeds 340 volts during surge
Series Inductance:	200uh
Continuous Service Current:	10 Amps Max (120 VAC, 60 Hz)
Temperature Range:	-40C to +85C

A three-position manual control switch shall be included with positions marked HAND, OFF, AUTO on an engraved plastic cover plate. It shall include a lightning surge protector or expulsion gaps designed to bypass lightning surges.

The equipment mounting panel shall be 1/4" Arboron Material and all power wiring shall be RHH/RHW 600V. The control circuit wiring shall be #12 MTW and all connector screws shall be painted white for neutral bus, green for ground bus. All control wiring shall be stranded and marked with brady markers.

The photocell shall be mounted on top of the lighting controller. The photocell shall have a hermetically sealed cadmium sulfide element arranged so that it can be adjusted to "turn on" at 1.5+ .5 foot-candles. "Turn-off" shall occur only after the light level has exceeded "turn-on" value by two or more foot-candles for not less than .10 seconds. The circuitry shall include surge protection, turn the lights on in case of failure, operate on any input voltage from 105 to 260 volts, and control 10 amperes at 120 volts. The case shall be weatherproof, made of glass or plastic and designed to plug into a locking type socket, NEMA 3-pin. The photocell shall be equipped with a time delay feature to prevent turn off.

The conduit shall enter the relay only at the bottom. Cable size shall be number 6.

Basis of Payment: This work will be paid for at the contract unit price each for PHOTOCCELL RELAY which price shall be payment in full for all labor, materials, and equipment required to furnish and install the photo control relay, mounting hardware, conduit, wiring, and photoelectric cell.

UTILITY RELOCATION SPECIFICATIONS

CONTROL OF THE WORK

The Standard Specifications for Water and Sewer Main Construction in Illinois shall govern the construction. Any subsequent reference to "Standard Specifications" in the "Utility Relocations Specifications" shall be meant to mean the Standard Specifications for Water and Sewer Main Construction in Illinois.

Contractor shall coordinate any potential disruptions in water and sewer service with the City of Galesburg and the Galesburg Sanitary District. The City or District shall be contacted at least 48 hours prior to connections being made.

Water services shall be installed after all mains have been placed into service.

Sanitary sewers shall be installed upgradient. Connections to the existing system shall be made under the supervision of the Galesburg Sanitary District. If sanitary services are disrupted during construction it is the contractors responsibility to maintain service until a permanent connection can be made or the service repaired.

WATER MAIN

This item of work shall comply with Sections 40 and 41 of the Standard Specifications.

This item of work shall consist of the furnishing and placement of the new 12-in. and 8-in. and 6-in water mains, as specified in the Plans.

Pipe Materials

≤12-in diameter shall conform to AWWA C-900, DR18 with a pressure rating of 150 PSI and push on joints.

Where noted on the plans, restrained joint pipe shall conform to AWWA C-905RJ, DR-18 with a pressure rating of 150 PSI.

All water main installed in steel or PVC casings shall be restrained joint pipe.

Water main bedding, haunching and initial backfill shall be FA-6. If trench conditions are wet and unstable, CA-7 shall be utilized for the bedding. If final backfill is CLSM, CA-7 shall be utilized for bedding and initial backfill. The bedding, haunching and initial backfill shall be included in the cost of the installation of the water main.

Water Main of the size, depth, location, and type specified shall be paid for at the contract unit price per lin. foot.

Testing

Pressure testing of water mains shall conform to Section 41-2.14B of the Standard Specifications. A minimum hydrostatic pressure of 100 psi shall be used if the hydrostatic pressure equal to 50 percent more than the operating pressure at the lowest elevation of the pipe section is less than 100 psi.

The pressure test period shall be 1 hour.

The leakage test period shall be 1 hour, and shall directly follow the pressure test. The allowable leakage rate shall be computed per Section 41-2.14C of the Standard Specifications.

Pressure testing and leakage testing of the water mains shall be included in the cost of the installation of the water main.

Disinfection

Disinfection shall be in conformance with Section 41-2.15 of the Standard Specifications. Satisfactory disinfection is demonstrated when two (2) consecutive samples, collected at least 24 hours apart, indicate no bacteriological contamination.

Disinfection of the water mains shall be included in the cost of the installation of the water main.

Tracer Wire

The Contractor shall furnish and install, along the entire route of the water transmission main, #12 AWG, THW single-conductor, copper locator wire with a 45 mil jacket. The wire shall be installed just above the crown of the pipe, shall be brought to the top outside of each valve box, and brought into the top of the valve box through a 3/8-in. drilled hole in the valve box. Any necessary splicing shall be made using a direct bury splice kit such as 3M Part No. 054007-09053, or equivalent. The tracer wire shall be tested for continuity prior to final acceptance by the Owner.

The cost of the locator wire, including installation and testing, shall be included in the cost of the installation of the water main.

STEEL CASING 24"

This item of work shall consist of the furnishing and installation of a steel casing at the location specified in the Plans in accordance with Section 23-3.02B of the Standard Specifications.

24-in steel casing shall have a minimum non-coated wall thickness of 0.375 inches.

The carrier pipe shall be center restrained by the use of casing spacers. The casing spacers shall be constructed of non-reactive material designed specifically for that purpose. The spacers shall be positioned within 6 in. from the end of the casing, on each side of joint in the carrier pipe, and at the midpoint of each pipe length. Spacers constructed of wood and steel banding are not acceptable.

The casing ends shall be sealed to the carrier pipe by the use of an APS Standard Model AC pull on casing end seal, or equivalent.

The casing spacers and casing end seals shall be considered included in the cost of the installation of the Steel Casing.

To install this casing, the Contractor will be required to bore under the railroad tracks shown on the Plans. The cost to bore under the railroad tracks for installation of this casing, including excavation of bore pit and receiving pit shall be considered included in the cost of the Steel Casing 24".

Steel signs shall be placed on both sides of the railroad right of way, along the casing alignment, stating "City of Galesburg Water Main."

Steel Casing, 24" shall be paid for at the contract unit price per foot of the size specified.

WATER VALVES

All valves and boxes must be approved by the City of Galesburg, Department of Public Works before installation. Valves shall be Resilient Wedge Gate Valves meeting ANSI/AWWA C509, such as American Flow Control or U.S. Pipe and Foundry. Bonnet bolts, studs, and nuts shall be Series 304 stainless steel. Valve bodies, bonnets, and gates shall be ductile iron per ASTM A536. Valves shall close in the clockwise direction. Stem seals shall be O-ring. Valve shall have a non-rising bronze stem per ANSI B 16.1.

All valves shall be restrained with retainer glands or a manufactured pipe restraint system approved by the Engineer.

All Valve Boxes shall have not less than a 5¼-in. shaft. Valve Boxes shall be Tyler Pipe two piece, screw type, #6850 series with the word "water" cast on lid, or an approved equal. The valve box and extensions necessary to reach the ground elevation shall be included in the unit price per each for the water valve of the size specified.

Water Valves shall be paid for at the contract unit price per each of the size specified.

TAPPING VALVES AND SLEEVES

Pressure connections to existing water mains shall conform to Section 46 of the Standard Specifications for Water and Sewer Main Construction in Illinois.

Tapping sleeve shall be 304L stainless steel and shall provide 360 degree coverage of the pipe being tapped. The sleeve shall have an integral flange meeting all applicable requirements of ANSI B16.1, class 125 and in accordance with MSS-SP60. A waffle 360 degree gasket with integral gap bridge shall provide the seal for the sleeve. Contractor shall uncover and determine the OD of the pipe being tapped prior to ordering the sleeve.

All tapping valves and boxes must be approved by the City of Galesburg, Department of Public Works before installation. Valves shall be Resilient Wedge Gate Valves with one mechanical joint end and one flanged end meeting ANSI/AWWA C509, such as American Flow Control, U.S. Pipe and Foundry, or Clow Valve Company. Bonnet bolts, studs, and nuts shall be Series 304 stainless steel. Valve bodies, bonnets, and gates shall be ductile iron per ASTM A536. Valves shall close in the clockwise direction. Stem seals shall be O-ring. Valve shall have a non-rising bronze stem per ANSI B 16.1.

All valves shall be restrained with retainer glands or a manufactured pipe restraint system approved by the Engineer.

All Valve Boxes shall have not less than a 5¼-in. shaft. Valve Boxes shall be Tyler Pipe two piece, screw type, #6850 series with the word "water" cast on lid, or an approved equal. The valve box and extensions necessary to reach the ground elevation shall be included in the unit price per each for the Valve and Box.

Tapping valve and sleeve size indicated shall refer to the size of tap being made, not the carrier pipe being tapped.

Tapping Valve and Sleeves shall be paid for at the contract unit price per each of the size specified.

DUCTILE IRON FITTINGS

All pressure main fittings shall be flanged ductile iron for above ground service and mechanical joint (M.J.) ductile iron for buried service, unless otherwise indicated on the Plans.

All fittings shall conform to ANSI A21.10 (AWWA C110), or ANSI A21.53 (AWWA C153), where possible. Minimum pressure rating shall be 350 psi. If shown or specified fittings are unavailable in the above standards, the manufacturer's standard may be used upon approval of the ENGINEER. All rubber gaskets shall conform to ANSI A21.11 (AWWA C111). All fittings shall have cement mortar lining and seal coat per ANSI A21.40 (AWWA C104).

All fittings shall be equipped with retainer glands in lieu of standard glands.

Fittings shall be restrained in conformance with Section 41-2.10.

The cost of the Ductile Iron Fittings, including installation and testing, shall be included in the cost of the installation of the water main.

CONNECTIONS TO EXISTING WATER MAINS

It will be the responsibility of the Contractor to determine the exact location of the existing water main in the field.

All tees required to connect mains, all reducers required to connect different-sized mains, and all fittings required to change direction either horizontally or vertically in order to achieve the proposed alignment shall be included in the cost of the water main being constructed.

Removal of existing water main that is necessary to connect the proposed water main and plugging the end of the existing water main, as shown on the Plans or as directed by the Engineer, shall be included in the cost of the water main being constructed.

Before making any connection to existing water mains, the Contractor shall have all necessary tools, materials, pipe, and fittings on hand and sufficient experienced workmen available to preclude an unnecessary delay in making the connection due to adverse conditions or mishap. The actual work of cutting into a main or removal of a fitting shall not be done until all measurements, necessary pipe assembly, and other specified provisions have been completed.

Temporary blocking capable of withstanding the service pressure shall be provided for all existing valves, fittings, and pipe that could be affected by the proposed connection.

This work will not be paid for separately, but shall be considered included in the cost of the construction of the water main.

CURB STOPS

All curb stops must be approved by the City of Galesburg, Department of Public Works and the Engineer before installation. Curb Stops shall meet the requirements of of Section 40-2.06C and Standard Drawing No. 17 of the Standard Specifications. Curb Stops shall be located, furnished and installed in accordance with the requirements of the Special Provisions and the plans.

Curb Stops shall be pad for at the contract unit price per each for CURB STOPS of the size specified which work shall include installation and all materials.

FIRE HYDRANT

This item of work shall comply with Section 45 of the Standard Specifications for Water and Sewer Main Construction in Illinois.

Hydrants shall conform to AWWA C-502, dry barrel. They shall be designed for a 500 psi hydrostatic test pressure and a 250 psi working pressure.

They shall include two (2) 2 ½" hose nozzles and one 4 ½" pumper nozzle. The threads shall conform to National Standard design.

Hydrants shall be provided with 2-piece breakaway barrels with fully revolving bonnets, removable and renewable valve sets. Hydrants shall be furnished with 304 stainless steel bolts and nuts between the barrel and the shoe. The hydrants shall be provided with six (6) inch pipe connections and 5 ¼ inch inside diameter valve openings.

Hydrant color shall match the currently installed existing hydrants in the owners system (yellow). The precise location and orientation of the hydrant shall be coordinated with the City of Galesburg Water Division. Generally, the pumper nozzle shall be placed facing the street and shall be located within 18" to 24" from the face of curb or back of sidewalk as applicable.

Set breakaway barrel 2 inches above finished grade. Set each hydrant on a large flat stone or concrete block and not less the ½ cubic Yard of coarse aggregate shall be provided at the base for drainage. Back or brace hydrants with concrete thrust block extending from the hydrant to the wall of excavation, and placed to permit the removal of the hydrant. All joints shall be restrained.

Lower barrel sections, flanges below grade shall be ductile iron only.

Allowable hydrant models are as follows:

- American Flow Control: Pacer Fire Hydrant (Model WB-67-250)
- Mueller Corp: Super Centurion (Model A423)
- Approved Equal

Hydrants shall be paid for at the contract price per each.

REMOVAL OF FIRE HYDRANTS

This item of work shall include the removal of existing fire hydrants. All removals shall be coordinated with the City of Galesburg to ensure isolation of the water mains. All hydrants shall be delivered to the City of Galesburg Water Department.

Removal of Fire Hydrants, as specified, shall be considered included in the cost of the construction of the water main.

REMOVAL OF WATER VALVE AND BOX

This item of work shall include the removal of existing valves and boxes. All removals shall be coordinated with the City of Galesburg to ensure isolation of the mains. All water valves and valve boxes shall be delivered to the City of Galesburg Water Department.

Removal of Water Valve and Box, as specified, shall be considered included in the cost of the construction of the water main.

SANITARY SEWER

This item of work shall comply with Sections 30 and 31 of the Standard Specifications for Water and Sewer Main Construction in Illinois and Section 550 of the Illinois Department of Transportation, "Standard Specifications for Road and Bridge Construction".

This item of work shall consist of the furnishing and placement of the new gravity sewer, as specified in the Plans.

All connections made between existing sewer and new sewer shall be made by use of a rubberized connection creating a water-tight seal. These connections shall be considered as included in the cost of the construction of the combined sewer. All pipe and fittings shall be gasketed.

Pipe Materials

Gravity sewers 15-in and smaller shall be PVC SDR 35 meeting ASTM D-3034.

Gravity sewers 18-in and larger shall be PVC SDR 26 meeting ASTM F-679.

Sanitary Sewer of the size and type specified shall be paid for at the contract unit price per foot.

Testing

The sanitary sewer shall be leakage tested and deflection tested in accordance with Section 31-1.12 and Section 31-1.13 of the "Standard Specifications for Water and Sewer Construction in Illinois, Current Edition. The cost of the required sanitary sewer testing will not be paid for separately but shall be considered incidental to the cost of the sanitary sewer.

BEDDING AND HAUNCHING MATERIALS

Foundation, Bedding, and Haunching Material shall meet the requirements of the Illinois Department of Transportation, "Standard Specifications for Road and Bridge Construction" for coarse aggregate or fine aggregate. The gradation shall be CA-6.

Bedding and Haunching Materials shall be considered included in the cost of the installation of the sewers.

EXPLORATION TRENCH, SPECIAL

This item of work shall consist of excavating for the purpose of locating existing underground sanitary sewer services, private mains and other appurtenant existing items.

The excavations shall be made at the locations shown on the plans, or as directed by the Engineer. The depth of exploration shall be a maximum of six feet.

Exploration trenches shall be constructed to find exact locations, depths, and diameters of existing sewer services for the following properties. The exploration trench location shall be coordinated with the Galesburg Sanitary District and shall occur generally within the existing ROW and/or at locations noted on the plans.

- 46 N. Pearl Street
- 58 N. Pearl Street
- 91 N. Pearl Street
- 723 E. Main Street
- 781 E. Main Street

Explorations shall be protected in accordance with applicable Federal, State, and local regulations, laws, and rules; but shall not be less than the standards and regulations established by OSHA in 29 CFR Part 1926. Backfill shall be placed within twenty-four (24) hours of the excavation. The excavation shall be backfilled with the same or similar materials as excavated.

Exploration Trench, Special shall be paid for at the contract unit price per foot.

ADJUSTING SANITARY SEWER SERVICE LINE

This item of work shall comply with Section 33 of the Standard Specifications for Water and Sewer Main Construction.

This work consists of the excavation and reconnection of active services. The Contractor shall notify the Engineer of all services encountered to determine which services are active. Service sewer connection sizes are not known at this time. The contractor will determine the sewer services sizes through exploration trenching. They

shall be verified in the field by the Engineer, and reconnection of the service to the sewer shall be the same diameter as the service sewer.

Sewer shall be constructed of Poly Vinyl Chloride (PVC) plastic pipe and fittings, six (6) inch SDR-35 meeting the requirements of ASTM D-3034 or four (4) inch SDR-26 meeting the requirements of ASTM D-3034. Joints shall meet the requirements of ASTM D-3212, except that no solvent-weld fittings shall be used in conjunction with 6" sewer service lines. Six (6) inch sewer pipe and fittings shall utilize only gasketed fittings meeting the manufacturer's recommendation. The service connection shall include installation of a service wye fitting, installation of service sewer, necessary service sewer backfill, and all necessary pipe fittings and connections to the service sewer to provide a water-tight reconnection.

Those services determined in the field by the Engineer as inactive shall be capped with concrete. This item of work shall be considered as included in the cost of the construction of the sewer.

Adjusting Sanitary Sewer Service Line will be paid at the contract unit price for each. The cost shall include labor, equipment and materials necessary to complete the work, including all necessary pipe, couplings, fittings, excavation and backfill.

SANITARY SEWER SERVICE, 6" PVC, COMPLETE

This work shall consist of relocating the six (6) inch schedule 40 PVC sewer service for 571 E. Main Street to connect to the existing sanitary sewer along Sumner Street as noted in the plans and in accordance with applicable portions of Section 30 of the Standard Specifications for Water and Sewer Main Construction in Illinois.

The general location of the existing service is noted in the plans and is based off detailed Galesburg Sanitary District field drawings. The existing service exits the building in an easterly orientation before turning south towards Main Street. The contractor shall field locate the point where the service begins to turn south which will be the location where the proposed service relocation will begin. A cleanout shall be installed at this location and the service will continue to extend to the east towards Sumner Street. A second cleanout shall be installed, approximately 100 feet from the initial cleanout. Connect to the existing factory wye connections in the 15" sanitary sewer by use of either appropriate water-tight fittings or by utilizing a rubber saddle and stainless steel bands at the location of the existing wye. Location of the existing factory wye connection will be provided by the Galesburg Sanitary District in the field. Trench backfill shall be at locations where the sewer service trench is within two (2) feet of the proposed edge of pavement, curb and gutter, or sidewalk.

This work shall be paid for at the contract unit price per each for SANITARY SEWER SERVICE, 6" PVC, COMPLETE which shall be payment in full for all materials, labor, tools and equipment necessary to complete this work, including all pipe, fittings, and trench backfill.

MANHOLES, SANITARY, ALL DIAMETERS

This item of work shall comply with Section 32 of the Standard Specifications for Water and Sewer Main Construction in Illinois and Section 602 of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction.

This work shall consist of the construction of a precast manhole, steps, casting, and connection of proposed and existing sewers to provide a water-tight manhole. The Neenah Foundary produces a sealed sanitary lid with the Galesburg Sanitary District name and logo. This frame and lid (*R-1713 Frame with Type B Self-Sealing Lid with Concealed Pickhole, Cast with Galesburg Sanitary District Name and Logo*) shall be used for all manholes. Material required for the connection of existing sewers shall be considered as included in the cost of the manhole. All pipe openings shall be required to be "A-Lok".

Testing

The proposed manholes shall be tested in accordance with Section 32-12 of the "Standard Specifications for Water and Sewer Construction in Illinois, Current Edition. The cost of the required manhole testing will not be paid for separately but shall be considered incidental to the cost of the sanitary manholes.

Manholes, Sanitary, 4'-Diameter, Type 1 Frame, Closed Lid, shall be paid for at the contract unit price per each.

Drop Manhole Connection shall be paid for at the contract unit price per each.

Manhole, Additional Depth, 4 Foot Diameter shall be paid for at the contract unit price per foot.

STEEL CASING PIPE IN TRENCH, 24 INCH

This item of work shall consist of the furnishing and installation of a steel casing at the location specified in the Plans in accordance with Section 23-3.02B of the Standard Specifications.

24-in steel casing shall have a minimum non-coated wall thickness of 0.375 inches.

The carrier pipe shall be center restrained by the use of casing spacers. The casing spacers shall be constructed of non-reactive material designed specifically for that purpose. The spacers shall be positioned within 6 in. from the end of the casing, on each side of joint in the carrier pipe, and at the midpoint of each pipe length. Spacers constructed of wood and steel banding are not acceptable.

The casing ends shall be sealed to the carrier pipe by the use of an APS Standard Model AC pull on casing end seal, or equivalent.

The casing spacers and casing end seals shall be considered included in the cost of the installation of the steel casing pipe.

This casing pipe shall be installed between the vertical pile locations of the structural retaining wall. The casing pipe will be placed on a prepared trench bottom to the satisfaction of the engineer to minimize settlement.

STEEL CASING PIPE IN TRENCH, 24" shall be paid for at the contract unit price per foot of the size specified.

PUMP STATION SPECIFICATIONS

DRAINAGE STRUCTURES (PUMP STATIONS)

Description: Drainage Structures shall be furnished and installed in accordance with Section 602 of the Standard Specifications with exceptions shown on the Plans and as specified herein.

There are three (3) Drainage Structures, No. 1. Each is identical with the exception of inverts, hatches and pipes entering and exiting them. They will be bid per each.

Drainage Structures, No. 1 shall be excavated using conventional excavation.

The Contractor shall submit a detailed excavation and installation plan to the Engineer for approval prior to commencing work. The plans shall be sealed by a professional engineer. The plans shall include proposed shoring, either permanent or temporary, and staging. This approval will not relieve the Contractor for responsibility for the safety of the excavation. The shoring shall be designed for earth loads and HS-20 live load for vehicle traffic.

Material removed from the excavation shall be disposed of in accordance with Section 202.03 of the Standard Specifications.

A 12-in. bedding of CA-7 aggregate shall be placed in the bottom of the excavation and leveled to form a flat base to set the Drainage Structures.

Drainage Structures shall be precast reinforced concrete manholes conforming to ASTM C-478. The structures shall be water-tight. The precast manhole shall have a minimum compressive strength of 4,000 psi at 28 days.

All penetrations through the walls of the drainage structure shall be sealed using an A-lok, Press Seal Gasket or other cast in place water tight gasket.

The drainage structure sections shall be a minimum of 4-ft tall with the exception of the final section. Each section shall be sealed with two (2) strips of butyl rubber sealant. Joints in the butyl rubber sealant shall be overlapped to prevent gaps.

The drainage structure shall be checked after the installation of each section to ensure a true vertical installation. If the alignment is off, the Contractor shall take corrective action to shim the structure back to level.

The exterior and the bottom of the base of the structures shall receive two coats of asphalt emulsion waterproofing in accordance with Section 503.18 of the Standard Specifications.

The drainage structures shall be backfilled with compacted FA-6.

After installation is complete, if there are water leaks at joints, the Contractor shall waterproof the leaks using drilled ports around the leak and a hydrophilic grout.

The top barrels of the Drainage Structures shall be flat. The precast lids shall be sealed to the top ring section with a double row of butyl mastic. The precast lids shall have a cast in place access frames and hatches per the plans. The frame and hatch design live load is AASHTO HS-20 truck load and alternate tandem loads.

Chamfered inverts shall be installed in the structures as shown on the plans. The invert shall be constructed of Class SI concrete conforming to Section 1020.04 of the Standard Specifications. The chamfer and sloped sidewalls in Drainage Structures, No. 1 Outlet Manhole and Pump Manhole shall be per the pump manufacturer's recommendations to provide sufficient space between the volute and the invert of the station. The sidewalls shall be sloped to direct debris to the pumps and promote self-cleaning of the structure invert.

General: This work includes all mobilization, excavation, temporary or permanent shoring/casing, labor, materials and equipment required to manufacture, furnish, and install the manhole, precast concrete, lid, access frame and hatch, FA-6, butyl rubber sealant, asphalt emulsion waterproofing, CA-7, concrete, removal and disposal of excess material and other incidental items as shown on the plans.

Basis of Payment: This work will be paid for at the contract unit price per each for DRAINAGE STRUCTURES of the numbers shown on the plans.

PUMP STATION ELECTRICAL WORK

General: The work to be included under this item shall be the furnishing, installing, and testing of all materials and electrical equipment necessary in order to provide a complete and operational electrical system at the Pump Station.

The Contractor shall furnish and install all materials necessary for a complete and operational installation of the electrical equipment. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of NFPA 70 – National Electrical Code (NEC), most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, FM Approval, ETL/Intertek Testing Services listing/verification (or other third party listing), and/or the manufacturer's warranty of a device will NOT be permitted.

The electrical work and equipment specified is based on equipment of the type and size as noted on the Plans and specified herein. Should the proposed pump motors (or any other proposed loads) exceed the ratings of the electrical equipment specified,

the General Contractor shall be solely responsible for furnishing any and all modifications necessary in order to provide a fully functional system to the satisfaction of the Engineer at no change to the contract cost. The Contractor shall also be required to submit for review, sufficient information determined by the Engineer to be necessary to review such alternates or modifications.

Per Illinois Environmental Protection Agency Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter II: Environmental Protection Agency Part 370: Illinois Recommended Standards for Sewage Works all electrical equipment installed in a sewage pump station wet well shall be suitable for Class I, Division 1, Group D hazardous location. In addition equipment located in a sewage wet well shall be suitable for use under corrosive conditions.

Per NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities, a storm water pumping station wet well (with no ventilation or ventilated at less than twelve (12) air changes per hour) is classified as a Class I, Division 2, Group D hazardous location.

Per the Illinois Department of Transportation Drainage Manual dated July 2011, Chapter 13 – Pump Stations, Section 13-204 Safety it notes *“All electrical equipment including motors should be explosion proof and should be located above the allowable high water elevation. Even submersible pump motors should be explosion proof because they may not always be submerged.”*

Based on the above requirements all electrical installations associated with the pumping station wet well shall be suitable for Class I, Division 1, Group D hazardous location and conform to the applicable sections of NFPA 70 National Electrical Code (NEC) Articles 500, 501, and 504 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location it shall be UL-listed, Factory Mutual-approved, or ETL/Intertek Testing Services listed/verified suitable for use in the respective classified hazardous location; (Class I, Division 1, Group D location for the pump station wet well).

All work, power outages, and/or shut down of existing systems shall be coordinated with the respective facility owner's representative. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety & Health Standards for electrical safety and lockout/tagout procedures, including, but not limited to, 29 CFR Section 1910.147 the control of hazardous energy (lockout/tagout).

Contractor shall keep a copy of the latest National Electrical Code in force on site at all times during construction for use as a reference.

Contractor and respective electrical contractor shall keep a set of construction plans and specifications with all addenda and copies of any applicable change orders on site at all times.

Electrical Equipment and Materials and the associated installation are specified in the following sections:

Section 16010 – Basic Electrical Requirements.

Section 16111 – Conduit and Raceway.

Section 16120 – Wire and Cable.

Section 16130 – Boxes

Section 16190 – Supporting Devices

Section 16195 – Electrical Identification

Section 16410 – Enclosed Circuit Breakers

Section 16421 – Utility Service Entrance

Section 16422 Temporary Power

Section 16450 – Grounding

Section 16460 – Dry Type Transformers

Section 16470 – Panelboards.

Section 16495 Automatic Transfer Switches

Section 16615 Surge Protective Devices

Section 16620 Standby Power Generation Systems

Submittals: Contractor shall provide shop drawings for all electrical equipment. Shop drawings shall clearly indicate proposed items, capacities, characteristics and details in conformance with the Plans and Specifications. The respective manufacturer shall certify capacities, dimensions, special features, etc. Shop Drawings for all items shall be prepared immediately upon award of Contract. The Contractor shall submit a minimum of four (4) copies to be retained by the Engineer plus the number of copies, for which the Contractor requires distribution. No materials shown thereon shall be ordered until Shop Drawings are reviewed and approved by the Engineer. When a submittal is marked "Revise and Resubmit," "Rejected," and/or "Submit Specified Item" do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication,

delivery, or other activity. Revise or prepare a new submittal in accordance with the notations, resubmit, and repeat if necessary to obtain a different action mark such as “No Exceptions Taken” or “Furnish as Corrected”. Contractor is responsible for compliance with the specified characteristics. Contractor’s responsibility for error and omissions in submittals is not relieved by the Engineer’s review of submittals. Accompany each submittal with a transmittal letter that includes the date, project title and number, Contractor’s name and address, the number of shop drawings, product data, and/or samples submitted, notification of any deviations from the Contract, and any other pertinent data. Shop drawing submittals shall include the following:

Date and revision dates.

Project title and number(s).

Identification of product or material.

Certified outline and installation drawings.

Performance data and operating characteristics.

Arrangement drawings showing piping, controls and accessory equipment.

Wiring diagrams which identify factory wiring and field wiring.

Drawings on non-standard components and accessories.

Catalog data marked to indicate materials being furnished.

Operation and Maintenance/Instruction Manuals.

Specified standards, such as ASTM numbers, ANSI numbers, UL listing/standard, NEMA ratings, etc.

Identification of previously approved deviation(s) from Contract documents.

Contractor’s stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract documents.

Space for Prime Contractor’s approval stamp.

INSTALLATION AND TESTING OF PUMP CONTROL PANEL

Installation

Control panel shall be installed per manufacturer's recommendations as detailed on the Plans and as specified herein.

All conduit entries into the panel enclosure shall have water-tight threaded hubs, UL-listed for the use with the respective NEMA 4, 4X enclosure to maintain the NEMA 4, 4X rating of the panel enclosure.

Seal conduit openings in the panel enclosure with duct seal.

Conduits with intrinsically safe wiring, including level switch cables, shall terminate in the control panel at the intrinsically safe wiring section. Non- intrinsically safe wiring including, but not limited to, power feeder conductors, branch circuit conductors, and pump motor cables shall not enter the control panel at the intrinsically safe wiring section and shall maintain a minimum separation distance inside the control panel from the intrinsically safe conductors as required by NEC 504 and ANSI/ISA RP12.6.

Install explosion-proof conduit seal-off fittings as detailed on the Plans and in conformance with manufacturer's instructions. Contact the respective conduit seal-off manufacturer if assistance is required for direction of installing the packing fiber to form a dam and pouring the sealing compound.

Install level switches as detailed on the Plans and per manufacturer's directions and recommendations. Verify level elevations with Engineer and Pump Manufacturer's Service Representative and adjust as required. Secure slack level switch cable to cable hangers with corrosion resistant nylon cable ties. Connect equipment ground wires from individual level switches to the respective equipment ground bar in the pump control panel.

Terminate all equipment ground wires on the pump control panel equipment ground bar. Where pump motor cables include an equipment ground wire and an additional "ground check" wire both ground wires shall be terminated on the equipment ground wire. Where level switch cables include an equipment ground wire terminate the respective ground wire on the control panel equipment ground bar.

Testing

Contractor shall provide services of the pump control panel manufacturer's representative for the purpose of inspection, check-out, testing, start-up, instruction of user personnel, and any other required services to provide a complete and operational system. The Contractor shall be responsible for arranging and coordination tests with his suppliers, subcontractors, and/or equipment representatives. All tests shall be conducted in the presence of the Engineer. Contractor shall provide water as/if required to test pumps under load. Contractor shall furnish three (3) copies of test results to Engineer. Contractor shall also furnish three (3) copies of Operation and Maintenance Manuals, for operator personnel use, to the Engineer.

Start-up procedure and tests shall include, but not be limited to, the following, as well as other tests and requirements specified herein:

Conduct megger test on each motor, (see Motor Start Up Certification and Testing Report).

Inspect control panel for correct terminal connections and tightness, correct and tighten as required.

Check level switches and corresponding circuitry for proper operation.

Check oil in motors (where applicable).

Check for correct rotation of pump motors, correct as required.

Check for proper pump installation and operation.

Measure voltage at no load (pumps off) and at pumps running under load for each pump motor.

Measure current in each phase with motor running under load for each pump motor.

Verify proper operation of pump motor thermal sensors (where applicable).

Run the pumps in automatic and manual modes of operation. Verify proper operation of alternator.

Simulate alarm conditions and verify proper annunciation of each alarm on the automatic phone dialer system.

Verify a label is provided on the pump control panel with the name, address, phone number, and emergency phone number of the service representative.

Verify proper operation of all pilot lights and alarm lights.

Test receptacles for proper output power and proper operation.

Test pump station on utility power and confirm proper operation.

Simulate utility power outage and test pump station on engine generator power and confirm proper operation.

Instruct user personnel about the operation of the control panel and components; indicating items for routine maintenance check, operation modes, failure modes, alarm conditions, etc.

Conduct any additional tests as recommended or required by the manufacturer.

Correct any defects or deficiencies and retest after corrective and/or repair work has been performed to confirm proper operation of the system.

Measurement and Payment: This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order. The pump control panel shall be furnished by the respective pump manufacturer's representative and installed by the Electrical Contractor. The furnishing of the pump control panel and pump manufacturer representative's services shall not be included with this item and shall be included in the contract price for PUMPING STATION. The installation of the Pump Control Panel and all associated electrical work and coordination shall be included with this item.

MOTOR START UP CERTIFICATION AND TESTING REPORT

(One (1) form is to be provided for each motor, copy as required)

Page 1 of 2 pages

Hanson Professional Services,
Inc. 1525 South Sixth Street
Springfield, Illinois 62703
Phone (217) 788-2450

Project Location: _____ Project Name: _____
Client (End User): _____ Project Number: _____
Client Site Location: _____

Temperature (°F): _____

Humidity: _____

Time of Day: _____

Weather (if outdoors): _____

Motor Function/Designation/Location: _____

Motor Nameplate Data

1. Manufacturer's Name: _____
2. Motor Serial Number: _____
3. Manufacturer's type and frame designation _____
4. Horsepower _____
5. Time Rating (5, 15, 30, 60 minutes, or Continuous) _____
6. Maximum ambient temperature for which motor is designed _____
7. NEMA Insulation Class Designation _____
8. NEMA Torque Design Class _____
9. RPM at rated load _____
10. Frequency _____
11. Number of Phases _____
12. Rated Full-Load Amperes _____
13. Voltage _____
14. Code letter for Locked-Rotor KVA _____
15. Service Factor _____
16. Efficiency (NEMA Nominal) _____
17. Internal motor thermal protected (if required)? (Yes/No) _____

Page 2 of 2 pages

Motor Start-Up Certification and Testing Report (Continued)

Motor Start-Up & Commissioning Data

Insulation Resistance Test

Megohms measured to ground @ 500 VDC (60 Second continuous test)

Motor Lead T1 measured to Ground _____ Megohms
Motor Lead T2 measured to Ground _____ Megohms
Motor Lead T3 measured to Ground _____ Megohms T1-
T2-T3 (Tied) measured to Ground _____ Megohms

Voltage (at motor)

	Phase A-B	Phase B-C	Phase C-A
No-Load	_____	_____	_____
Full Load	_____	_____	_____

Motor Current (field measured data)

No Load
Phase A _____ Amps
Phase B _____ Amps
Phase C _____ Amps

Full Load
Phase A _____ Amps
Phase B _____ Amps
Phase C _____ Amps

DATA CERTIFIED BY:

Firm: _____

Name _____

Date: _____

PUMP STATION MECHANICAL WORK

Description: This work shall consist of the 24-in, 14-in, 12-in, and 8-in. ductile iron piping, fittings, valves, steel pipe supports, and the 2 in. Schedule 40 drain with check valve in the valve vaults and Drainage Structures, No. 1 Pump Manhole and Outflow Manhole.

Ductile Iron Piping

The ductile iron piping with flanged joints shall conform to ANSI/AWWA C115/A21.15. The pipe shall have a cement mortar lining with asphaltic coating inside and out conforming to ANSI/AWWA C104/A21.4. Gaskets shall be constructed of molded SBR rubber meeting ANSI/AWWA C111/A21.11. Fastening hardware shall be low carbon steel conforming to ASTM A307. Pipe pressure rating shall be 250 psi.

All pressure main fittings shall be flanged joint (FL.) ductile iron, unless otherwise indicated on the Plans. All fittings shall conform to ANSI A21.10 (AWWA C110), or ANSI A21.53 (AWWA C153), where possible. Fitting pressure rating shall be 250 psi. If shown or specified fittings are unavailable in the above standards, the manufacturer's standard may be used upon approval of the ENGINEER. All rubber gaskets shall conform to ANSI A21.11 (AWWA C111). All fittings shall have cement mortar lining and seal coat per ANSI A21.40 (AWWA C104).

Swing Check Valve

Swing check valves shall be flanged with a weighted lever arm and shall be the end product of one manufacturer. The swing check valves shall be installed per the valve manufacturer's instructions.

Swing check valves shall conform to ANSI/AWWA C508, Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) MMS-SP-71 and MMS-SP-80, and ASTM D- 1784.

The swing check valve shall utilize a thru-valve disc hinge shaft, with outside lever and weight. The valve shall be designed for either horizontal or vertical installation, as shown on the drawings. The valve shall provide a resilient material to metal seat, and a full waterway design, as defined in AWWA C508.

Swing check valve body shall be ASTM A126 Class B cast iron. The valve body shall be flanged and of one-piece construction and constructed in a globe pattern. The valve outlet flange shall be integrally cast with the valve body and shall be one nominal pipe size larger than the valve inlet flange. Valve body shall be full waterway type, designed to provide a net flow area not less than the nominal inlet pipe size area when swung open no more than 25 degrees. Valve shall have a replaceable bronze body seat. Body seat materials shall be cast bronze meeting AWWA C508.

Swing check valve shall provide full pipeline flow area with disc at 25 degrees open, and shall allow for 45 degrees total disc rotation. The disc shall be stopped in its full open position by a built-in stop in the valve body. The disc shall be constructed of cast or ductile iron with a minimum strength of 30,000 psi. The disc seat ring (resilient seal) shall be a rubber like material, and shall be selected by the manufacturer in accordance with potable water requirements, as given in AWWA C508. The disc attachment arm shall be constructed of ductile iron or steel with a minimum strength of 65,000 psi. The disc attachment arm shall be prevented from rotation on the disc hinge shaft by a machined keyway and stainless steel key.

The counterweight arm(s) shall be constructed of steel, and shall be secured to the disc hinge shaft by a stainless steel key. The counterweight shall be constructed of cast iron, and shall be secured in position on the counterweight lever by a stainless steel lock screw.

The swing check valve body assembly shall incorporate a circular flanged cover of the same construction as the valve body. The cover shall be of adequate size to permit field inspection, maintenance and replacement of all internal valve components. The valve seat, disc seal ring, and mating surface shall be field removable and replaceable without removing the valve from the pipeline.

The Contractor, in conjunction with the swing check valve manufacturer, shall make adjustments in the position of the lever weight to achieve optimum no-slam operation.

Plug Valves

Plug valves shall be flanged with gear operators and hand wheel, and shall be the end product of one manufacturer. The plug valves shall be installed per the valve manufacturer's instructions. Plug valves shall be of the non-lubricating, eccentric type and shall be designed for a working pressure of 150 psi. Valves shall provide tight shut-off at rated pressure.

The valve shall have a 100 percent port design. The valve body shall be cast iron ASTM A126 Class B with welded in overlay of 99 percent nickel allow content on all surfaces contacting the face of the plug. The valve plug shall be ductile iron ASTM A-536, Grade 65-45-12 with Buna N resilient seating surface to mate with the body seat.

The plug valves shall be furnished with permanently lubricated sleeve type bearings conforming to AWWA C517. Bearings shall be of sintered oil impregnated type 316 stainless steel ASTM A-743 Grade CF-8M or bronze ASTM B-127.

Valve shaft seals shall be of the "U" cup type, in accordance with AWWA C517. Seals shall be self-adjusting and re-packable without moving the bonnet from the valve.

Steel Pipe Supports

Steel pipe supports shall be utilized within the valve vault for the ductile iron fittings and valves. Pipe supports shall be bolted to the floor of the vault and shall be designed to

cradle the diameter of pipe they are supporting.

Valve Vault Drain

2-in. Polyvinyl Chloride (PVC) pipe shall be ASTM D2665 drain, waste, vent pipe. The drain shall be furnished and installed in accordance with Section 20 of the Standard Specifications for Water & Sewer Main Construction in Illinois, as shown on the Plans and as specified herein.

The backfill for the piping shall be controlled low strength material, mix 2 when in the vicinity of the Drainage Structures No. 1 Pump Manhole and Outflow Manhole and the valve vaults. The Contractor is responsible for any additional fittings required to plumb the drain from the valve vaults to the Drainage Structures.

The annular space around the pipe shall be sealed with non-shrink grout where it penetrates the walls of the valve vault and drainage structure.

The 2-in. check valve shall be a 2-in. ball check with integral unions to connect to the 2 in. drain pipe. The check valve shall be able to be installed in a vertical or horizontal position and still function.

General: This work includes all excavation, labor, materials and equipment required to furnish, and install ductile iron pipe both flanged and push on, fittings, valves, steel pipe supports, 2-in. Schedule 40 drain pipe, 2-in. check valves, pipe and rail supports, backfilling, accessories, testing, and other incidental items as shown on the plans.

Basis of Payment: This work will be paid for at the contract lump sum price for PUMP STATION MECHANICAL WORK.

PUMPING STATION

Pumping station consists of the pumping equipment and accessories and testing as well as the valve vaults.

The valve vaults shall be precast reinforced concrete conforming to ASTM C913. A sump pit shall be cast in the base of the valve vaults as shown on the plans. The Contractor shall submit plans and calculations for the valve vault that are signed and sealed by a licensed structural engineer in the State of Illinois prior to ordering or manufacturing the valve vault. The structure shall be designed for earth loads and HS-20 live load for vehicle traffic.

Once the vault is installed and piping in place, the space between the valve vault and the limits of excavation shall be backfilled with FA-6.

The lids of the valve vault shall be flat and shall be sealed to the top of the valve vault with a double row of butyl mastic. The lids shall have a rough opening cast into them to match the aluminum hatch to be installed when the sidewalk is poured. The aluminum

hatches shall be hinged with a flush locking mechanism and a 36-in. by 36-in. minimum clear opening. The top of the hatch shall be a minimum 1/4-in. aluminum diamond tread plate. The access frame and hatch shall be HS-20 load rated. Contractor shall coordinate hatch fabrication with the pump manufacturer.

Openings in the structure for pipes shall be sealed water-tight with a flexible resilient type gasket such as A-Lok, Inc., Press Seal, Kor-N-Seal or equal.

After installation is complete, if there are water leaks at joints, the Contractor shall waterproof the leaks using drilled ports around the leak and a hydrophilic grout.

Submersible Pumps and Accessories

Three (3) submersible wastewater pumps each with multiple vane non-clogging impellers. Each pump shall be equipped with a submersible electric motor connected for operation on respective electrical service with submersible cable (SUBCAB) suitable for submersible pump applications. The contractor shall provide sufficient cable for a continuous run from the pumps to the junction box with 8 ft of extra cable. The power cable shall meet NEC and ICEA standards for submersible pumps and have P-MSHA Approval. The pump shall be supplied with a discharge. Each pump shall be fitted with minimum 50-feet of stainless steel chain. The working load of the lifting system shall be 50% greater than the pump unit weight.

Submersible pumps and motors shall be designed specifically for raw wastewater use, including totally submerged operation during a portion of each pumping cycle and shall meet the requirements of National Electrical Code (NEC) for such units. Pump motor cords shall be designed for flexibility and serviceability under conditions of extra hard usage and shall meet the requirements of the NEC for flexible cords in sewage pumping stations. Ground fault interruption protection shall be used to de-energize the circuit in the event of any failure in the electrical integrity of the cable.

The Contractor shall furnish and install totally submersible electric operated stormwater pumps of the sizes, number, and capacities shown below. The motors shall be non-overloading at any point on the pump curve, from shut-off to zero head conditions, and shall be of the specified horsepower, operating at 480 volt, 3 phase. The pumps, discharge elbows, and associated mounting hardware shall be as manufactured by the pump manufacturer. Information associated with the equipment from Fairbanks Nijhuis was used as the basis for the design as specified herein and shown on the drawings. Equivalent pumps from other manufacturers meeting the performance specifications of this special provision shall be deemed "as-equal".

The services of a manufacturer's representative are required at the time of start-up.

Pump Design

The pumps shall be furnished as one complete pump system, all of the system components supplied by one manufacturer. The pumps shall be vertical, submersible,

solids handling type pump, each model of pump shall be designed to handle gritty sludge and raw stormwater, and shall be capable of passing spherical solids as follows:

Pump Size	Minimum Solids Handling Capacity	Allowable Pump Base Discharge Size
8"	4"	8"
14"	5.25"	14"

The design shall be such that the pump unit will be automatically connected to the discharge piping when lowered into place on its mating discharge connection, permanently installed in the manhole. The pump shall be easily removable for inspection or services, requiring no bolts, nuts, or other fastenings to be disconnected. For this purpose, there shall be no need for personnel to enter the manhole. It shall be fitted with a lifting hoop of adequate strength to permit raising and lowering the pump for inspection or removal. A stainless steel chain or cable shall be attached to this lifting hoop and extended to the top of the manhole. A stainless steel hook rack shall be installed just below the frame and access hatch in Drainage Structures, No. 1, Outflow Manhole and Pump Manhole and shall have at least three hooks per pump (min. 3 hooks in outflow manhole and 6 hooks in the pump manhole). The pump, with its appurtenances and cable, shall be capable of continuous submergence underwater without loss of water-tight integrity to a depth of 100-feet.

Pump Construction

All major parts, such as the stator casing, oil casing, sliding bracket, volute and impeller shall be gray iron. All exposed bolts and nuts shall be of stainless steel.

A wear ring system shall be installed to provide efficient sealing between the volute and impeller. The impeller shall be gray cast iron of non-clogging design coated with acrylic dispersion zinc phosphate primer, capable of handling solids, fibrous material, and other matter found in normal stormwater applications. The impeller shall be dynamically balanced. Static and dynamic balancing operations shall not deform or weaken it. The impeller shall be retained with a non-corroding bolt.

The pump shall be provided with a mechanical rotating shaft seal system running in an oil reservoir having separate lubricated seal faces. No seal damage shall result from operating the pumping unit out of its liquid environment. The seal system shall not rely upon the pumped media for lubrication. Provision for determining the condition of the lower seal unit without disassembly of the pump shall be provided.

Pump shall be a standard production pump with attached rail guides and discharge elbow. Rail guides shall be fastened to pump so that all lifting loads will come on the guide supports and not on the pump or motor housing. Guide mechanism on the pump shall be constructed of bronze, shall be non-sparking, and UL listed or Factory Mutual approved.

Installation of the pump unit to the discharge connection shall be the result of a simple linear downward motion of the pump unit guided by no less than two guide bars. No other motion of the pump unit, such as tilting or rotating, shall be required.

The discharge flange of each pump shall be designed to automatically seal with the discharge elbow when the pump is lowered into place and the pump is in operation. The seal shall be capable of remaining reliable for water-tightness in the environment into which it will be located. Discharge elbow shall have 125 lb. standard flanges. Gaskets shall conform to AWWA C111..

If a pump mounting base is furnished, these plates shall include adjustable guide rail supports and discharge elbow with flange to align the pumps with the flange. Plates and fitting shall be coated with tar base epoxy paint.

The motor cable entry water seal design shall be such that it precludes specified torque requirements to insure a water-tight and submersible seal. Pump motor cable shall be suitable for submersible pump applications and this shall be indicated by a code or legend permanently embossed on the cable. Cable sizing shall conform to NEC requirements for pump motors and shall be of adequate size for the respective pump motor. The cable shall be at least 75-feet in length.

All mating surfaces of major parts shall be machined and fitted with nitrile O-rings where water- tight sealing is required. No other sealing compounds shall be required nor used.

The 8-in pump shall have a low flow capacity of 1,325 GPM at a total head of 44-feet when operating at 1,200 RPM with a pump efficiency of 68% or greater and have a high flow capacity of 1,875 GPM at a total head of 36-feet when operating at 1,200 RPM with a pump efficiency of 72% or greater. Pump motor shall be a minimum of 25 horsepower. Pump and motor assembly shall be UL listed or Factory Mutual approved, explosion proof suitable for use in Class I, Division 1, Group D hazardous location. The 14-in pump shall have a low flow capacity of 5,500 GPM at a total head of 40-feet when operating at 1200 RPM with a pump efficiency of 71% or greater and have a high flow capacity of 6700 GPM at a total head of 31.5-feet when operating at 1,200 RPM with a pump efficiency of 72% or greater. Pump motor shall be a minimum of 100 horsepower. Pump and motor assembly shall be UL listed or Factory Mutual approved, explosion proof suitable for use in Class I, Division 1, Group D hazardous location.

Pump Assembly Configuration

Cooling System - Motors are cooled by the surrounding environment or pumped media. Pumps requiring jackets for recirculation of either pumped media or internally reticulated cooling fluid of any type are not acceptable

Cable Entry Seal - The cable leads are to allow the connection of a cable to the motor, to be accomplished in the field without soldering cable. All leads are to be sealed with a grommet and an epoxy compound system with strain relief to prevent

cable-wicking to conduit box location in the top of the motor. Leads are connected to a water-tight fully O-ringed terminal board with brass lugs.

Total grommets or other similar sealing systems are not acceptable. Motor shall be supplied with sufficient cable to run between the pump and the junction box plus an additional 8 ft of slack of multi-conductor type RHW or Re Neoprene power cable and control cable. Cable sizing shall conform to NEC specifications.

Separate terminal board, which is fully o-ringed and each terminal individually o-ringed, to form a water tight barrier.

Electric Motor

Motors shall be rated for Class I, Division I, Group D.

The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class F insulation. The stator-winding and lead shall be insulated with moisture-resistant Class F insulation for continuous duty in 40 C rise liquids. The motor shall be designed for continuous duty capable to minimum of ten (10) starts per hour. Motor shaft shall be 416 stainless steel: the rotor and shaft together is to be dynamically balance to meet NEMA vibration limits: all hardware to be stainless steel.

Thermal switches set to open at 311F shall be embedded in the stator end coils to monitor the temperature of each phase winding. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the control panel. The motor and the pump shall be produced by the same manufacturer.

The combined service factor shall be a minimum of 1.15. The motor shall have a voltage tolerance of plus or minus 10%. The motor shall be designed for operation up to 40°C (104°F) ambient and with a temperature rise not to exceed 80°C. A performance chart shall be provided showing curves for torque, current, power factor, input/output kW and efficiency. This chart shall also include data on starting and no-load characteristics.

The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The outer jacket of the cable shall be oil resistant chlorinated polyethylene rubber. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet or greater.

The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run-out. Pumps

shall be sized based on the total hydraulic capacity based on test data, reduction in the head range or chopped pump curves are not acceptable.

Bearings - The pump shaft shall rotate on two sets of bearings. Motor bearings shall be permanently grease lubricated. The lower bearing shall compensate for axial thrust and radial forces. The lower shaft bearing shall be locked on place to prevent shaft movement and to take thrust loads. Bearing shall be prelubricated at the factory.

Mechanical Seal - Each pump shall be provided with a tandem mechanical shaft seal system. The seals shall require neither maintenance nor adjustment nor depend on direction of rotation for sealing. The mechanical seals must be commercially available and manufactured by a major seal manufacturer. Seal shall be constructed of a polymeric body with SC/TC faces for the lower and carbon/ni-resist for the upper. Seal body shall be designed such it will not snap debris when in operation. The motor shall be able to operate unsubmerged up to 15 minutes without damage while pumping under load.

Seal lubricant shall be FDA Approved, nontoxic.

Pump Shaft - Pump and motor shaft shall be the same unit. The shaft shall be 416 stainless steel. The use of stainless steel sleeves will not be considered equal to stainless steel shafts.

Impeller - The impeller shall be one piece, single suction, enclosed two (2)-vane, radial flow design for the 8" pump and an enclosed three (3)-vane, radial flow design for the 14" pump, each with well-rounded leading vane edges and thick hydrofoil shape which prevents the accumulation of solids and stringy material through the impeller. It is to be dynamically balanced and secured to the shaft by means of a key and fastener. Wiper vanes are not allowed. The impeller waterways and clearance between the impeller periphery and volute cutwater shall be capable of passing a 5.25" spherical solid for the 14" pump and a 4" spherical solid for the 8" pump. There shall be provisions for adjustable shims behind the impeller to maintain clearance between the impeller and suction head wear rings. Semi open impellers or impellers without hard metal wear rings are not acceptable. Coated wear rings are not acceptable. Impeller shall be designed to be fully trimmable. Semi open type impellers or impellers that will not accept wear rings are not allowed.

The impeller shall be capable of handling solids, fibrous materials, heavy sludge and other matter normally found in storm water up to 3%.

Axial wear rings constructed of 416 stainless steel shall be provided for both impeller and volute. Wear rings shall be the axial design and fully adjustable. Radial type rings are not allowed.

Volute-Suction Cover - The pump volute shall be a single piece with smooth passages of sufficient size to pass any solids that may enter the impeller. Inlet and

discharge size shall be as specified. Spiral grooved suction volute insert plates that act as the impeller enclosing shroud and wear surface and that do not pass the listed solids clearances are specifically not acceptable.

The volute shall be provided with a replaceable hard metal Grit Shield, which shall be fully interchangeable with a standard wear ring. The Grit Shield shall be heat treated to provide a minimum Brinell hardness of 550-600. The Grit Shield shall be 25% chrome iron with casting components specifically designed to interrupt rotational patterns of pumped fluid and expel debris back to the flow stream. The Grit Shield shall ensure effective sealing between the impeller and volute housing. Non-hardened or elastomer or rubber coated metal or stainless steel wear rings are not acceptable.

The pump discharge shall be provided with an integrally cast flange. The seal between the pump discharge and discharge piping shall be watertight.

Guide/Bracket - Guide rails shall be provided by the general contractor on which the pump rides when being raised or lowered in the sump and mount on the discharge base/elbow. The rails shall align the pump with the discharge elbow as it is lowered into place. An upper rail guide shall be furnished to support and align the rails at the top of the sump. Intermediate guide bracket support shall be provided every 5-foot vertically and shall be coordinated through the pump manufacturer. The guide brackets shall also support the discharge pipe with both the pipe and guide rail supports affixed to the pump station walls.

Guide rails shall be provided on which the pump rides when being raised or lowered in the sump and mounted on the discharge base/elbow. The rails shall align the pump with the discharge elbow as it is lowered into place.

Guide bars shall be stainless steel and the diameter shall be as recommended by the pump manufacturer.

An upper rail guide shall be furnished to support and align the rails at the top of the sump.

The guide rail system shall be non-sparking and approved for use in Class 1, Division 1, Group D hazardous locations.

Discharge Base - A rigid discharge straight thru discharge/base to support the total weight of the pumping unit shall be provided. The base is to be bolted directly to the floor with the 90 degree 125lb. ANSI flange discharging horizontally.

Protection - All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. The thermal switches shall open at 311F, stop the motor and activate an alarm.

A leakage sensor shall be available to detect water below the upper seal and in the stator housing. Spare Parts (for each pump unit provided) - 2 sets of all gaskets.

The motor protection shall include corresponding relays in the control panel.

Mechanical seal set. Complete replacement bearing set. Any special tools required for pump disassembly.

Materials of Construction

Impeller	Cast Iron A48-CL30
Impeller Bolt	Steel SAE Bolt Steel GR-8
Impeller Nut	SAE Bolt Steel
Impeller Washer	A108 GR12L14
Volute	Cast Iron A48-CL30
Fronthead	Cast Iron A48-CL30
Impeller wearing ring	416 stainless steel (300-350BHN)
Volute wearing ring	416 stainless steel (300-350BHN)
Discharge Base Elbow	Cast Iron A48 CL-30
Impeller Key	Steel A108 GR1018
Guide Bracket	Brass B584 AL836
Volute Gasket	Tagboard F104
Bearing Shims	Steel A108 Commercial
Volute Handhole Cover	Cast Iron A48-CL30
Volute Handhole Cover Gasket	Tagboard F104
Upper Guide Bracket	Steel
Upper Guide Bracket Bushing	Rubber
Guide Mechanism	Bronze / non-sparking
Discharge Coupling	Non-Sparking
Lower Mechanical Seal	Silicon Carbide vs. Tungsten Carbide
Mechanical Seal	Carbon vs. Ni-Resist

Installation

The Contractor shall install the pump assemblies in the permanent locations as shown on the drawings and in accordance with the manufacturer's instructions.

Contractor shall install interconnecting electrical wiring, conduit, etc. between submersible pumps and control equipment so that when power and control wiring is brought to the control equipment, the submersible pump system will be a complete operational system.

Testing

The pump manufacturer shall perform the following inspections and tests on the pump before shipment from factory.

1. Impeller motor rating and electrical connections shall first be checked for

- compliance to the customer's purchase order.
2. A motor and cable insulation test for moisture content or insulation defects.
 3. Prior to submergence, the pump shall be run dry to establish correct rotation and mechanical integrity.
 4. The pump shall be run for 30 minutes submerged, a minimum of 6 ft under water.
 5. After operational test No. 4, the insulation test (No. 2) is to be performed again.
 6. Each pump shall be tested for flow versus head at the design conditions in accordance with the latest edition of the Hydraulic Institute Standards.

The owner shall be notified of the testing and given the opportunity to witness the testing.

A written report with certified flow versus head curves stating the foregoing items have been done shall be supplied with the pump at the time of shipment. The curves indicated shall include head, capacity, horsepower, efficiency and input KW.

Manufacturer shall be certified ISO 9001

Prior to system operation, all equipment shall be inspected for proper alignment, quiet operation, proper connection and satisfactory performance by means of a functional test.

Before final acceptance of the pumps specified herein, the Contractor shall submit five (5) copies of certified and properly identified performance curves which shall reflect the operating characteristics of each pump model and impeller combination being supplied. The curves shall indicate head, capacity, horsepower, efficiency and input KW.

Finishes

Shop - All pump assemblies supplied under this section shall receive finishes that are in accordance with the pump manufacturer's standard finish.

Field - All pump assemblies shall be touch-up painted with matching paint supplied by the pump manufacturer.

Manufacturer's Services

The Contractor shall include with his bid the services of the equipment manufacturer's field service technician for a period of one (1) trip for a period of two (2) 8-hour days at the site. This service shall be for the purpose of check-out, initial start-up, certification, and instruction of plant personnel. A written report covering the technician's findings and installation certification shall be submitted to the Engineer covering all inspections and outlining in detail any deficiencies noted.

General: This work includes all excavation, backfill, temporary shoring, labor, materials and equipment required to manufacture, furnish, and install the valve vault, lid, access frame and hatch, butyl rubber sealant, pumps, pump bases, rails, lift chain, cable and chain brackets, pump rail brackets, testing, and other incidental items as shown on

the plans.

Basis of Payment: This work will be paid for at the contract lump sum price for PUMPING STATION.

Triplex Pump Control Panel

The pump control manufacturer shall coordinate with the pump supplier to ensure compatibility between the two.

1. General

- a. The System Integrator (SI) will be responsible for furnishing and installing all material (except those items of material specifically stated herein to be furnished by Others), tools, equipment, labor, supervision, and any other incidental items or services necessary for a complete and operational installation of the control equipment as specified herein and as detailed on the Plans. The SI will also be responsible for complete installation and check-out of all systems, equipment, and accessories included herein. The SI shall have completed a minimum of 10 previous installations of similar size and scope to this project. The SI shall be located within 250 miles of the installation location and shall have a service department available for repair and maintenance of the system.
- b. The triplex pump control panel enclosure shall be strut support-mounted UL-listed, NEMA 4X stainless steel (316 stainless steel) rated for outdoor use, and pad lockable. Enclosure shall have 3-point latching mechanism and handle for easy release. Enclosure shall not have clasps around the door to maintain a NEMA 4 rating. Enclosure shall be manufactured by Hammond, Hoffman, Rittal, or approved equal and shall be sized to accommodate equipment furnished. The enclosure shall also provide for "dead-front" construction using hinged inner doors (swing out panel) to mount all operator devices. Bond all panels and panel doors to ground system. Hinges shall not be considered as an adequate grounding path. All hardware shall be corrosion resistant.
- c. The panel manufacturer shall be a current Underwriters Laboratories listed UL 508 industrial control panel builder and shall show its follow-up service procedure file number on submittals. The control panel manufacturers shall be regularly engaged in the manufacture of controls for the water/wastewater industry. All devices within the panel shall be UL-listed and/or recognized where applicable and shall be mounted and wired in accordance with the most current edition of UL 508 and the NEC. All conduit runs entering or leaving the pump

station wet well shall have explosion-proof conduit seals suitable for Class 1, Division 1, Group D environment. All conduits for intrinsically safe wiring shall enter the pump control panel enclosure at the intrinsically safe section of the panel. Non-intrinsically safe wiring including, but not limited to, power feeder conductors, branch circuit conductors, alarm circuits, and pump motor cables shall not enter the control panel at the intrinsically safe wiring section and shall maintain a minimum separation distance inside the control panel from the intrinsically safe conductors as required by NEC 504 and ANSI/ISA RP12.6.

- d. All conduit entries into the Pump Control Panel shall have water-tight threaded hubs, UL-listed for the respective NEMA 4X enclosure.
 - e. Include a label placed on the inside of the panel door with the name, address, phone number and emergency phone number of the service representative for the pumps and control panel.
 - f. Contractor shall furnish all equipment, labor, services, submittals, tools and work required to provide a complete and operational Triplex Pump Control Panel as shown on the Plans and specified herein.
 - g. The pump control panel enclosure shall be located as detailed on the Plans. Furnish and install stainless steel strut support Unistrut P1000SS or approved equal, and all mounting hardware. Include warning label on inner and outer door labeled "WARNING POTENTIAL ELECTRIC ARC FLASH HAZARD, DISCONNECT POWER SOURCES BEFORE SERVICING", or similar note conforming to the requirements of NEC 110.16 "Arc Flash Hazard Warning." Warning label shall also conform to ANSI Z535.4-2002 "Product Safety Signs and Labels."
 - h. The pump control panel will have multiple 480 VAC, 3 phase, 3-wire, 60 HZ, feeders (one for each pump motor) and 120 VAC, 1 phase, 2 wire, 60 HZ circuit for control power.
2. Control Description
- a. A microprocessor based pump controller shall be provided to monitor wet well level via remote sensor as specified hereinafter and provide Triplex pump down mode pump control. The pumps shall start and stop as required to maintain an acceptable level.
 - b. If the capacity of the jockey pump is less than the influent flow, the lead pump shall be called to start.
 - c. If the capacity of the lead pump and the jockey pump is greater than

the influent flow, the lead pump shall stop when the wet well level falls to the lead 1 pump stop setpoint.

- d. If the capacity of the jockey pump is greater than the influent flow, it shall stop when the level falls to the jockey pump stop setpoint. The lead and lag pumps shall alternate after each complete operating cycle if alternation is enabled.
- e. The pump control panel shall include the following described equipment in Paragraph 3 of this document (installed complete and operational), as well as that shown on the Plans and specified herein.
- f. The controller shall be a Healy-Ruff Micro V-Pac II-T or approved equal.

3. Components

- a. Power Distribution Blocks: Each power distribution terminal block shall be provided with a clear plexiglass cover. Terminal block shall be Square D Class 9080, or approved equal sized as required for the respective conductors. All terminal blocks shall be rated 600 volt with amperage ratings in conformance with NEC Table 310-16 using 75°C wire for the respective lug wire range.
- b. Secondary Surge Protector: AC surge protector shall be UL listed per UL 1449, third edition, suitable for 480 VAC, 3 phase, 3-wire plus ground system, with surge current rating of 40 kA per mode 8/20 μ s (20kV) wave, and status indication lights, Joslyn 1451-49 or approved equal.
- c. Circuit breakers: Circuit breakers for control circuits, and other 120/240 VAC branch circuits shall be thermal magnetic, molded case, 100-Amp frame minimum, 10,000 Amps symmetrical minimum, interrupting current rating at 120/240 VAC for one-pole and two-pole breakers. Circuit breakers for 480 VAC pump motor circuits shall be sized for the respective pump motors and have 35,000 Amps symmetrical, interrupting current rating (minimum) at 480 VAC for three-pole breakers. Breakers shall have "on", "off" and "tripped" positions and shall be UL-listed. Breakers shall be sized as required for the respective equipment in accordance with NEC and the respective equipment manufacturer's recommendation. Include breakers for the following equipment as a minimum.
 - i. Pump motor #1 branch breaker.
 - ii. Pump motor #2 branch breaker.
 - iii. Pump motor #3 branch breaker.
 - iv. Pump control panel control circuit.

- v. Accessories (GFCI receptacle, and heater)
 - vi. Alarm System
- d. Reduced Voltage Solid State Starter (RVSS):
- i. This specification describes the required performance, functional characteristics, fabrication details and installation of a microprocessor controlled low voltage Softstarter, used for stepless start and stop as well as protecting of standard AC squirrel cage induction motors.
 - ii. The softstarter shall be ABB Type PSE Series, Eaton Cutler-Hammer S 811 or pre-approved equal. The softstarter shall contain at least the features, functions and adjustments described below, in order to provide the motor and application with sufficient protection, and start and stop the motor in a precise and controlled manner.
 - iii. Operator Interface (Human Machine Interface –HMI). The starter shall be operated with a LCD display presenting all data and information using a language neutral icons and figures. All numbers shall be presented using four positions, seven segments. The use of binary, hexadecimal code, or any other code is not acceptable and currents and measurements shall be presented as either exact values or as a percentage of the maximum value. Adjustments shall be made by a digital four push button keypad. No binary coded dipo switches shall be used for programming or function selection. The HMI shall be possible to lock to prevent unauthorized changes to the programming. Data should always be presented with the actual value, and the unit of the data (i.e. V, A or %, etc.). Data entered and selections made to the Softstarter using the display and keypad should be stored in case of a power loss. LED Indicators using long life LEDs shall provide additional quick annunciation.
- e. Mode Select: Method of operation shall be by a three position maintained “Hand-Off-Auto” selector switch provided for each pump. Selector switch shall be water-tight/oil tight (NEMA 4/13) Allen Bradley 800T Series, Square D Class 9001, Type K, or Eaton Cutler-Hammer E22 or Cat. No. 10250 Series. Position commands are as follows:
- i. Hand – In this position, the applicable pump shall run without regard for the level sensing commands and will relay on operator discipline to run and stop.

- ii. Off – In this position, the applicable pump will not run under any circumstances.
 - iii. Auto – In this position, the pressure transducer, float switches and respective control relays shall control the applicable pump. The pressure transducer will sense the appropriate levels in the wet well and initiate start and stop commands to the pump through the associated control relays. Floats will act as a backup to the pressure transducer in the event the transducer and/or the PLC controller fails. The station will remain in float backup mode until the operator manually resets the PLC and there are no transducer or PLC faults/failures.
- f. Legend Plates: Legend plates shall be required for all starters, circuit breakers, pilot lights, control panels, and disconnects. Legend plates shall be provided to identify the equipment controlled and the function of each pushbutton, indicating light, pilot light, selector switch and device. Legend plates shall be weatherproof and abrasion resistant phenolic materials. Lettering shall be black on white background, unless otherwise noted.
- g. Condensation Heater: Provide a condensation strip type heater sized as required for the pump control panel enclosure to minimize moisture that may accumulate inside the enclosure. Heater shall be sized to maintain a minimum internal enclosure temperature of approximately 50°F for an outside design temperature of -15°F. Include integral thermostat and circulating fan for condensation heater. Circulating fan shall be 4 in. to 6 in. nominal diameter axial type fan with wire guards, 115 VAC, 60 Hz. Thermostat shall be line voltage thermostat, 120 VAC, 5-Amp minimum current rating, SPST, with adjustable control knob as manufactured by Honeywell, White-Rogers, Hammond, Hoffman, Rittal, or Chromalox.
- h. Convenience Duplex Receptacle: Provide a duplex receptacle with ground fault circuit interrupter. Receptacle shall be rated 120 VAC, 60 Hz, and 15 Amps with a trip threshold of 5 ± 1 milliamp. Receptacle shall be a UL Class A GFCI unit complying with and tested in accordance with UL Standard No. 943. GFCI shall be as manufactured by Leviton, Hubbell, Eagle, Arrow-Hart, Bryant, or Pass & Seymour.
- i. Pump Motor Thermal Trip: A thermal trip on the motor will cause immediate shutdown and activate the respective thermal trip condition alarm. Pump motor thermal trip shall be wired to provide manual reset and restarting of the pump motor in conformance with the recommendations of the respective submersible pump manufacturer's

representative. Provide interposing relays as required. Verify thermal trip requirements with the respective submersible pump manufacturer.

- j. Pump Motor Seal Leak Detection: The seal leak detection on the motor shall shut down the pump and activate the respective seal leak alarm as required/recommended by the respective submersible pump manufacturer's representative.
 - i. Provide interposing relays as required. Verify seal leak requirements with the respective submersible pump manufacturer.
- k. Motor Monitor Relays: Motor monitor relay shall be provided by the pump vendor or be a model approved by the pump vendor to ensure the pump warranty is maintained.
- l. Enclosure Light: Provide a 60-watt incandescent light fixture for the pump control panel enclosure with door activated switch. Light fixture shall be Hoffman Catalog Number A-LTDB1, or approved equal. Include lamps for respective fixture.
- m. Uninterruptable Power Supply UPS: The controller shall be provided with an uninterruptable power supply, DIN rail mountable with hard wired input/output connections. The UPS shall include integrated remote on/off and dry contact I/O communication cables. The UPS shall provide 120V AC and provide a minimum of 4 hours of backup power for the controller.
- n. Construction Standards
 - i. Wire Numbers – Each wire in the control panel shall be marked with a wire number that corresponds to the page and ladder rung of the schematic diagrams. A unique wire number shall be provided between component contacts and coils. Wire markers shall be Brady Thermal Transfer Self-Laminating Vinyl or equal by Grafoplast or Thomas & Betts.
 - ii. Color Coding – Wires shall also be color-coded as follows: 120 VAC Line = black; Neutral = white; Ground = green; Switched 120 VAC = red; DC current carrying conductor = blue, DC non-current carrying conductor = white with blue stripe, Foreign voltage = yellow, Intrinsically safe = light blue.
 - iii. Component Identification – Each component in the system shall be identified by a unique number that corresponds to its coil's page and ladder rung location on the schematic drawings.

- iv. Wire – AC control conductors shall be 600 volt and a minimum of 18 gauge. DC control conductors shall be a 300-volt and a minimum of 18 gauge. Control conductors shall be UL Type MTW rated for 105° C. Analog conductors shall be 22 gauge shielded twisted three conductor rated for 300 volts. Wire shall be Beldon 8771 or equal. Shields shall be grounded at the PLC or panel location. Power conductors shall be sized per UL and NEC standards and rated for 600 volts. Conductors shall be UL Type MTW, THHN or THWN rated for 90° C.
 - v. Control Terminals – All field control conductors shall be connected to terminal blocks. Terminals shall have machine marked wire numbers. Connection of field control conductors directly to control panel components will not be allowed. Terminal blocks shall be rated for 30 amps at 600 volts. They shall be screw terminal type capable of terminating No. 10 to 26 gauge wire. Terminal bridge bars shall be provided when it is necessary to bridge multiple like terminals together. Terminals and accessories shall be Phoenix Contact “Cipline” or equal by Allen Bradley or Weidemueller 21.
 - vi. Provide one (1) box (5 minimum quantity) of each type and size of fuse, upon completion of the job, for use as spares.
 - vii. A schematic diagram (showing wire color) shall be permanently fastened to the inside of the enclosure. An Installation and Service Manual shall also be included with each control panel. The control panel shall be U.L. listed as an assembly.
 - viii. Ground Bar. Provide ground bar mounted and bonded inside the panel enclosure.
 - ix. Wiring Duct. Provide wiring duct to route conduits as necessary for a neat and workable installation.
- o. Level Controller
- i. General
 - 1. The Lift Station Controller shall be an off-the-shelf, preprogrammed, dedicated to the application, microprocessor based controller capable of monitoring process variable inputs and automatically control up to three constant speed pumps. The system shall be compatible with the City’s existing Allen Bradley PLC control system (Micrologix 1400 with a PanelView Plus 6 touch screen). The HMI panel shall

be mounted on the front panel at eye level. Systems using a one of a kind, non-standardized, custom programming generic controller represent additional complexity and unproven operation and thus are not in conformance to the intent of these specifications and will not be acceptable.

2. Controller shall be configured for the number of pumps to be controlled at this lift station as per these specifications.
 3. The operator interface shall display the current level in feet and represent the level in bar graph form, which dynamically updates based on the level in the wet well.
 4. An active/dynamic graphical representation of each pump and its status shall be displayed on the same screen along with flow in gallons per minute. Pump graphic shall change state to indicate – “Off”, “Called”, “Running”, and “Failed/Out of Service”.
 5. Touching an active pump on the home screen takes you to the respective pump status screen.
 6. A trend screen showing, a minimum of, the last two (2) hours of wet well level fluctuations shall also be available.
 7. The operator interface shall have a display area not less than 4.5-in x 3.8-in. with 160 x 128 pixel resolution, Transflex touch screen graphic display viewable in direct sunlight.
 8. The operator interface shall be suitable for Type 12, 4 & 4X environment. Additionally, the display shall be manufactured from a UV resistant polyester substrate.
 9. To prevent the loss of data during an extended power outage, longer than 4 hours, the controller shall have a built in replaceable battery system to keep volatile memory active for approximately ten (10) years.
- ii. Inputs & Outputs: The controller shall come standard with herein specified inputs and outputs. The controller shall also have the ability to accommodate additional expansion I/O without the need to replace hardware or upgrade the controller.
 - iii. The controller shall be configured to monitor the following discrete input status signals:
 1. Pump 1, 2, 3 Running

2. Pump 1, 2, 3 HOA In Auto
 3. Pump 1, 2, 3 Seal Failure
 4. Pump 1, 2, 3 Overtemp
 5. Pump 1, 2, 3 Overload
 6. Backup Active
 7. High Level Float
 8. Low Level Float
 9. Control Power Failure
 10. Phase Failure
 11. Station Intrusion
 12. Flow Pulse
 13. Temp Alarm High/Low
 14. Generator Running
 15. Generator Not in Auto
 16. Generator Common Alarm
 17. Transfer Switch Not in Utility Position
- iv. The controller shall provide the following discrete output signals with programmable time delays:
1. Pump 1, 2, 3 Call
 2. Pump 1, 2, 3 Failure
 3. Common Alarm
 4. Alarm Horn
 5. Alarm Horn Silence
 6. Backup Reset
- v. The controller shall monitor the following (4-20 mA) process signals:
1. Wet Well Level
- vi. A two level security system shall be provided for operators (OPER) and supervisors (SUPER). Without being logged in, screens are view only.
- vii. OPER – Operator Access
1. Rights to edit set points and acknowledge alarms
- viii. SUPER – Supervisor Access
1. All privileges as the OPER
 2. Right to change the passwords of both SUPER and OPER users
 3. Right to set lifetime pump runtime and start totals
 4. Right to toggle communication ports between telemetry communications or local programming modes
 5. Right to set the controller time and date
 6. Right to access removable media system screen
 7. Shall be provided with factory default passwords

8. To prevent unauthorized controller adjustments, an adjustable 0-999 second delay shall be provided to automatically logoff the current user after the adjustable time period, and no operator screen navigation has been detected.
9. The controller shall be capable of operating pumps in an automatic or fixed mode. In automatic mode, a built in alternator shall be available to equalize motor starts, stops and run time. The alternator shall have the capability of being put into fixed sequence mode at any time. Alternation shall also have the capability to alternate cyclically or following an adjustable period of time.

p. Alternation

- i. Alternator shall have pump fail replace logic allowing a failed pump to be detected and the lag pump to be called into service without level increasing to lag start setpoint.
- ii. Auto Alternation Mode
 1. If the running signal input is not received within 60 seconds (adjustable) of the respective pump being called to start, a pump failure alarm shall be displayed in the alarm banner and the next pump in sequence shall be called to start.
- iii. Fixed Alternation Mode
 1. If the running signal input is not received within 60 seconds (adjustable) of the respective pump being called the respective pump shall continue to be called until the level in the wet well reaches the next level setpoint at which point the next pump in the sequence shall be called to start.

q. Setpoints

- i. The following system setpoints shall be provided: (* indicates an associated, user adjustable (0-999) seconds time delay shall also be provided to prevent momentary process fluctuations from impacting alarm or control.)

1. Wet Well Level High and Low Level Alarm * 19.25 ft High, 3.25 ft Low
2. Start Jockey 5.25 ft
3. Start Lead*, 7.25 ft
4. Stop Lead*, 3.25 ft
5. Stop Jockey 3.25 ft
6. Pump 1, 2, 3 Failure To Start Delay 20 sec
7. Pump 1, 2, 3 Seal Failure Delay 20 sec

8. Pump 1, 2, 3 Over Temp Delay 20 sec

r. Alarms

i. The controller shall monitor, display and log the following alarms:

1. High or Low Wet Well Level Alarm (Transducer)
2. Pump 1, 2, 3 Seal Failure
3. Pump 1, 2, 3 Over Temp
4. Pump 1, 2, 3 Overload
5. Pump 1, 2, 3 Failure (internal to controller, Call No Run)
6. Float Backup Active
7. Low Level Cutout (from floats)
8. High Level Alarm (from floats)
9. Control Power Failure
10. Phase Failure

s. Pump Status

i. The controller shall have Pump Status screens that provide the following information and control options:

1. Pump 1, 2, 3 Status (Off, Called, Running, & Failed)
2. Pump 1, 2, 3 Hard and Soft H-O-A Status
3. Pump 1, 2, 3 Seal Failure Status
4. Pump 1, 2, 3 Over Temp Status
5. Pump 1, 2, 3 Overload Status
6. Today: Pump 1, 2, 3 Runtime xx.x Hours
7. Today: Pump 1, 2, 3 Starts xxx
8. Yesterday: Pump 1, 2, 3 Runtime xx.x Hours
9. Yesterday: Pump 1, 2, 3 Starts xxx
10. Current (CRNT) Month (MNTH): Pump 1, 2, 3 Runtime xxx.x Hours
11. Current (CRNT) Month (MNTH): Pump 1, 2, 3 Starts xxx
12. Last Month (MNTH): Pump 1, 2, 3 Runtime xxx.x Hours
13. Last Month (MNTH): Pump 1, 2, 3 Starts xxx
14. Total: Pump 1, 2, 3 Runtime 999999.9 Hours
15. Total: Pump 1, 2, 3 Starts 999999

t. Navigation

i. A menu system shall be provided for the user with proper access to change setpoints, setup pump starts, stops, alarms, alarm delays and setup pump alternation. The following parameters shall be provided:

ii. Level and Level Delay Setpoints

- iii. Alternation – Auto or Fixed mode; Timed or Cyclical
 - iv. The operator shall have a choice of selecting automatic or a fixed sequence.
 - 1. Pump Failure – call, no run
 - 2. The user shall be able to enter pump failure time for each pump that is enabled. A failed pump will be replaced with the next available pump.
 - v. Seal Failure and Over Temp
 - 1. The user shall be able to enter seal failure and over temp time delays for each respective pump that is enabled.
 - vi. Miscellaneous Alarms
 - 1. The user shall be able to enter delays for communications failure, intrusion and high or low temperature.
 - 2. Transducer Range (wet well level)
 - vii. A field shall be provided to scale the transducer in feet to setup the vertical scale on the Home screen and an adjustable offset in feet, shall be provided to compensate for the transducer to be raised off the bottom.
- u. Volumetric Flow Calculation
- i. The controller shall provide station flow information based on high accuracy volumetric process calculations using wet well level excursions as sensed by wet well level transmitter in conjunction with verified pump operations. Systems that do not monitor/use actual pump run feedback in the calculation are deemed unreliable and will not be acceptable.
 - ii. The controller shall provide the following flow related information as a minimum:
 - 1. Station incoming flow rate (Average).
 - 2. Station Effluent Today's flow total.
 - 3. Station Effluent Yesterday's flow total
 - 4. Station Effluent Previous Month Flow Total
 - 5. Station Effluent Current Month Flow Total
- v. Historical Data Storage
- i. Controller shall log the pump run time data, alarms and analog data to the removable memory card.
- w. Submersible Level Sensor

i. General

1. A loop powered submersible level transmitter shall be provided to sense the wet well level. The wet well level transducer shall sense wet well level by measuring the hydrostatic head pressure associated with water levels above the base of the diaphragm. A linear and proportional, to hydrostatic head pressure, 4-20 mA signal shall be produced and input to the pump controller. The transducer shall be installed in accordance with manufacturer's instructions.
2. The pressure transducer shall be certified by FM, UL, and CSA for installation in a Class I, Division 1, Groups A, B, C, and D, Class II, Division 1, Groups E, F, and G, Class III, Division 1 hazardous location when connected to associated apparatus manufactured by PR Electronics, R.G. Stahl and others. The transducer shall be installed in accordance with manufacturer's instructions.
3. The pressure transducer wetted materials shall be 316 SS, Viton®, Polyurethane or Tefzel®.
4. Sensing diaphragm shall be 2.75 in. in diameter and include diaphragm protector allowing the unit to be placed on or near the bottom of the wet well without affecting pressure readings.
5. The transducer shall include circuitry that provides protection from overvoltage, reverse polarity and shorted output.
6. Transducer overall accuracy shall be 0.25 percent full scale or better with a resolution of .0001 percent over the entire range of the wet well.
7. The sensing element shall exhibit non measurable hysteresis, withstand overpressures to 200 percent of rated range without damage.

ii. Warranty

1. Transducer unit shall have a manufacturer's life time warranty that includes damage from electrical surges.

iii. Construction

1. The pressure transducer shall be mounted in the wet well and furnished with a minimum of 75 ft of cable.
2. The cable shall be 0.3 in. outside diameter Polyurethane or

Tefzel® material.

3. Cable shall have non stretch Kevlar reinforcement strands bundled within the wiring cable to provide additional cable strength. Cable strength shall allow up to 200 lbs of pulling strength.
 4. A sealed breather tube system shall extend from the top of the cable to the transducer assembly to provide barometric compensation to the transducer.
 5. Breather system will be sealed and maintenance free. Systems that use gaps in wire cable and or desiccant filters that require periodic replacement will not be considered.
- iv. Installation & Mounting
1. The transducer shall be suspension mounted in the wet well in an area of the wet well allowing full measurement of the wet well and in such a manner as to not be adversely affected by motor operation or incoming flow streams.
 - v. The transducer shall be mounted so that it is approximately 6 in. above the floor of the wet well.
 - vi. The transducer shall be furnished with a suspension mounting kit made out of stainless steel. It shall include a stabilization weight to maintain its position in the wet well.
- x. Cellular Based Communication System: Mission M800 RTU
- i. Furnish and install a factory wireless data cellular based communication system for the purpose of monitoring and controlling various equipment operations. The supplier of the communication system shall be responsible for coordination required to insure equipment compatibility. The communication system shall be provided complete, in place, as specified herein and needed for a complete, proper installation.
 - ii. The Contractor shall be responsible for coordinating the instrumentation equipment, communication equipment and other related equipment so that all elements are compatible and form a complete working system. Shop drawing submittals shall include sufficient information regarding component compatibility to demonstrate compliance with this requirement.
 - iii. Qualifications of Manufacturers Products used in the work of this

Section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of satisfactory production acceptable to the Engineer.

- iv. The submitting Company shall provide evidence of, and warrant compliance with, substantially all below listed requirements.
 - 1. The submitting Company shall have been in business providing remote facility monitoring and control services through the data side of the cellular system to the water distribution / wastewater collection industry or a substantially similar industry for at least six (6) years.
 - 2. The submitting Company shall be the actual manufacturer and operator, or a duly authorized and trained agent of the manufacturing company or a combination of both, who will actually provide, maintain, and warranty the proposed system.
 - 3. The Manufacturing Company of the field equipment shall also be the provider of all monitoring related services associated with the field equipment and all ongoing service agreements will be with the actual company providing the monitoring service, not a subcontractor or agent.
 - 4. The submitting company shall have a primary central monitoring and control center and a fully redundant, physically separate, backup-computer monitoring center. Either center shall have the capability of operating all the remote monitoring and control field RTU's.
 - 5. The submitting Company shall offer and provide 24 x 7, 365 technical support.
- v. System Components
 - 1. Microprocessor Based Field RTU
 - a. Data Cellular Radio
 - i. The Remote Terminal Unit (RTU) shall incorporate a radio that utilizes the data side of any cellular system to transmit the data and alarms monitored, as well as receive manual or automated control commands.
 - ii. Cellular radios from all cellular carriers shall be able to mount in the same mounting port on the motherboard and consequently be interchangeable in no more than 10 minutes.
 - b. The RTU shall be self-contained for mounting in the control

- panel.
- c. Microprocessor Feature Updates
 - i. Microprocessor features like data transmission rates shall be able to be adjusted through the cellular system without any site visits necessary.
 - d. RTU Inputs and Outputs
 - i. RTU shall have eight (8) digital inputs. These eight (8) inputs shall have end of line resistor supervision, or similar supervision, that can detect normal alarm trip inputs and detect input wiring disconnection/shorting as a distinctly different signal and report.
 - ii. RTU shall have an optional expansion board of an additional eight (8) digital inputs
 - iii. The digital inputs shall be user selectable as normally open (NO) or normally closed (NC).
 - iv. In M800 Models eight of the RTU digital inputs on main board shall be capable of being programmed to record and report pump run times in one minute increments or less as indicated by a relay opening and closing. If only two pumps are monitored then the unit shall also be capable of recording and reporting simultaneous pump run times.
 - v. RTU shall have built-in alarms for input wiring fault, AC failure, communication failure and low battery detection.
 - vi. RTU shall have two (2) analog inputs measuring four (4)-20mA or 1-5 VDC at 10 bit resolution with four (4) alarm thresholds per input.
 - vii. RTU shall have an optional expansion board of an additional four (4) analog inputs
 - viii. RTU shall have an optional expansion board of an additional eight (8) digital inputs
 - ix. RTU shall have an optional expansion board of an additional two (2) analog outputs.
 - x. RTU shall have an optional expansion board of two (2) pulse counter inputs
 - xi. RTU shall have an electronic key reader input to monitor on-site personnel. The RTU shall utilize an audible tone to verify key reading. Each key in the system shall provide unique identification of the key holder when they are on site vs. "someone" is on site.
 - xii. RTU shall have three (3) digital normally open or closed output relays rated 1/2 ampere@ 120VAC

- e. Status LED's on Motherboard
 - i. LED's above each digital input shall visually display the status of the digital input
 - ii. Radio signal strength shall be displayed by at least eight (8) LED's in 5db increments between -75db and -110db to facilitate accurate antenna placement
 - iii. Operational and diagnostic status of at least eight (8) criteria shall be displayed by individual LED's.
 - f. Power Requirements
 - i. The RTU shall be powered by 12 volts AC and have a built in battery backup capable of keeping the RTU powered for 30 hours in case of primary AC failure.
 - ii. Terminations inside the RTU enclosure shall be low voltage AC or DC (28 volts or less).
2. Communication Links
- a. Communication System
 - i. Wireless communication links shall be through the data side of the cellular system. The voice side of the cellular system and satellite based links are not acceptable.
 - b. Cellular Carriers
 - i. The submitting company shall have direct relationships with the cellular companies and shall not use third parties to affect data transport through the cellular companies.
 - ii. The RTU shall have an interchangeable data cellular radio that will communicate through third generation GPRS (ATT), CDMA (Verizon) or iDEN (Nextel) to maximize the likelihood of reliable communication.
 - iii. If a GPRS (ATT) radio is used, the submitting company shall have PTCRB approval from ATT to use the radio, contract and product acceptance with ATT. If an iDEN radio is used the submitting company shall be have certified partner status, contract and product acceptance with Sprint/Nextel.
 - iv. The Owner shall not have or have to purchase cellular data contracts direct with the carrier(s).
 - c. Security Protocols
 - i. All the cellular radios shall all make continuous, secure socket connections (SSL) from the radio, through the cellular system, to the submitting company's servers and web pages.

- ii. The RTU shall utilize a transmission scheme that encrypts the transmitted data utilizing a 128 bit encryption method that meets or exceeds the advanced encryption standard (AES). The 128 bit AES encryption shall be at all stages of data transfer and storage
 - iii. The cellular radios shall all have private IP addresses
 - iv. The submitting company shall have established multiple, private gateways through the cellular system, completely behind firewalls, with at least one of the cellular providers.
- d. Data Transmission Rates
- i. All alarms regardless of unit type shall be transmitted immediately upon occurrence; delays can be added by the Owner at the RTU or the supplier's website.
 - ii. The RTU shall continuously transmit all digital state changes on an as occurs basis; analog and pulse inputs will be transmitted at least once every two minutes on M800 models.
 - iii. The RTU shall have an effective, continuous, transfer rate of at least 19,200 baud.
- e. Communication Link Structure and Performance Criteria
- i. The communication link structure shall be a secure socket connection from the RTU through the cellular system to the supplier's servers, and it shall be a continuous connection, 24 x 7, 365.
 - ii. Receipt of all data sent from the RTU to the server center shall be acknowledged by the server center back to the RTU in real time for every data packet sent. Such structure is called end-to-end data acknowledgement.
 - iii. The secure socket connection shall be from the RTU through the cellular system direct to the system supplier; no third parties shall receive the data from the cellular carrier and then pass it to the system supplier.
 - iv. The above mentioned secure socket connection shall be monitored for end-to-end uptime with interruptions as small as 15 seconds being captured.
 - v. Both end-to-end uptime and the number of times the link was disconnected/reconnected shall be reported for each RTU continuously with daily summary statistics posted on the Owner's website.

All the end-to-end uptime history of each RTU shall be available on the Owner's web site from when it first powered up to the present. Weekly management summaries of each RTUs end-to-end uptime shall be automatically emailed to the Owner.

3. Centralized Server Centers: Hardware and Software Requirements

a. Server Center Physical Structure

- i. The server center housing shall have at least six (6) separate and redundant, on-site power generating facilities to backup the local utility power such that there can be stand-alone operation of the center for at least twenty-four (24) hours.

b. Server Center Redundancy Structure

- i. The server center shall house the manufacturers completely redundant and hot linked:
 - Servers
 - Interconnects
 - Databases
 - Power supplies
 - Inbound cellular connections
 - Outbound internet hubs and providers

c. Database Structure

- i. All data from the RTU's shall be held for access forever.
- ii. All databases shall be backed up and archived daily
- iii. The databases shall be capable of interfacing and transferring, on a continuous basis, all RTU data to an OPC compliant database for access by other OPC compliant HMI software packages.
 - Client side OPC software shall run as an executable or NT service.
 - Client side OPC software shall, on a user definable interval, establish a socket connection to static IP address(s) at providers' server center.
 - OPC software shall retrieve all changed OPC tag values and close the socket. OPC software shall be set up so as customers OPC computers firewalls may be programmed to only allow Internet traffic

to/from the designated service providers IP addresses and port numbers.

- OPC software shall allow for multiple customer OPC software packages to establish, concurrently, OPC connections so as to provide for redundant HMI database operation at customers locations.
- Owner's firewalls will not be programmed to accept socket connections.

d. System Security

- i. All data links shall be behind firewalls, 128 bit encrypted and never accessible, addressable or viewable via the general public Internet. Private IP's are required, pooled public IP's will not be accepted.

c. System Software

- i. The system software shall collect and display:
 - Alarms including individuals accepting alarms.
 - RTU electronic key reads with user names, time of read, and site name.
 - Pump running status.
 - Pump run times with historical graphs.
 - Individual pump flow estimates.
 - Automatic daily analysis of pump runtimes for abnormalities with automatic customer notification of such abnormalities.
 - Pump starts with hourly analysis of excess pump starts with automatic notifications of excess pump starts.
 - Minute-by-minute radio health checks with automatic notification of non-reporting or poorly reporting RTU's.
 - Scaled and labeled pulse totalizations and if rainfall gauges are used, inter-day rainfall graphs and run time verses rain fall based on either rain gauges installed as part of the system or as run time verses a reporting airport rain gauge.
 - Performing and displaying volumetric inflow/outflow calculations from RTU supplied data for each pump cycle as they occur. Such volumetric calculations will utilize real-time pump start/stop data with simultaneously gathered level transducer

data to perform the inflow/outflow and pump GPM calculations.

- Utilizing real-time data collection have the ability to based on digital input closure, open or close digital output relay on the same or another real-time unit (Intertie).

4. Alarm System Structure and Software

a. Alarm Delivery Formats

- i. Alarms shall be delivered in the following formats:
- ii. Phone (voice call), fax, pager (numeric or alphanumeric (short alpha or long alpha format), text message, email, or any combination of the above simultaneously.
- iii. Alarms shall be able to be acknowledged by phone, text message, two (2)-way pager, email or on the Owner web site.
- iv. Voice alarm acknowledgement shall be adjustable to be able to mimic the format of dialers.
- v. Alarms shall be called out on alarm and upon return to normal conditions.
- vi. Return to normal alarms can be adjusted to call the alarm callout group or a different callout group.

b. Alarm Callout Formats

- i. Alarm callout groups shall be able to be setup to automatically switch between callout groups at different hours of the day and/or different days of the week.
- ii. Alarm callout groups shall be able to have multiple teams within each group to easily facilitate rotation of teams of on-call personnel.

c. Alarm Message Formats

- i. All alarms shall have the alarm condition, time, alarm location and pump status at the time of the alarm in each message.
- ii. Alarm message format shall be adjustable to include just the above information when calling a phone where it is known who will answer the phone, or be adjustable to add an introductory message asking for a specific person when calling a phone where it is not known who will answer the phone (like a home phone).
- iii. Alarms shall be able to be delivered individually or be able to be grouped into one message so that multiple, simultaneous alarms (like AC Fail at multiple sites) can be delivered and acknowledged

- in one phone call.
- d. Alarm Dispatch Logs
 - i. Each alarm shall have a full log of each notification attempt of that alarm documenting the following:
 - ii. Date, time, and alarm condition
 - iii. If each notification attempt was a success or failure and the reason for each failure if an attempt was a failure (like line busy, call dropped, etc.)
 - iv. A recording of each voice notification attempt so the specific reason for a notification failure can be known.
 - v. Date, time, and name of person who acknowledged the alarm.
 - e. Voice Alarm Delivery Capacity
 - i. Manufacturer shall provide at least twenty (20) outbound lines to deliver voice alarms so as not delay delivery of current alarms.

5. Remote Data Access

- a. Remote Data Access Format
 - i. Data collected by the system shall be able to be remotely accessed by simple web browser. The system shall provide individual web pages for the User to access via any web browser.
 - ii. To access the web pages, the User shall have to enter a User Name and Password.
 - iii. The User can set up any of three levels of access to the web pages:
 - Read only...can see but cannot make any changes
 - Read/Write...can see and can make changes
 - Read/Write/Control...can see, make changes and effect control functions, also add or remove logins/ passwords.
 - iv. The vendor shall provide at least two separate web sites for the Owner. One shall be designed to be viewed on a traditional laptop or desktop computer. The other shall be designed to be viewed on a web enabled cell phone or PDA. This web site shall still have graphs showing trending of data, and shall be designed to minimize the data sent so as to minimize the page loading times and size of the data plans necessary to view the site on a web enabled cell phone or PDA.
 - v. The system supplier shall provide secure access

through a specified phone without the need for web access (Voice SCADA). This shall require login to system via numeric 5 digit code and must be set up in the system to an associated login for that site to a specific phone number to maintain site security.

- vi. In addition to the above web sites, the User will be provided at no additional charge with a customizable software interface that shall display real-time status and graphic trending of data collected by the M800 RTU.
 - vii. The software shall be downloadable from the Mission customer website.
 - viii. The software shall automatically update itself every time the User accesses the software.
 - ix. The software shall require NO programming to customize.
 - x. The software shall be the Mission Real Time Viewer.
- a. Remote Access Security
- i. In addition to the Username and Password structure described above, all access of the User web site shall be logged. Such logging data to include date, time and duration of access, User Name and Password of user to access the site and IP address of the accessing computer. The log shall be accessible through the User web site
- b. Automated Administrative Reports and Alerts
- i. The User web site shall produce and automatically deliver weekly reports which summarize alarms and responses, pump runtimes and flow estimates, weekly end-to-end uptime percentages of each RTU, and all electronic key uses at the RTU sites.
 - ii. The web site shall be capable of sending two (2) different categories of notifications, Alarms and Alerts. Alarms are for conditions that the User decides they want to be notified immediately about. Alerts are conditions that need attention, but are not so time sensitive that they cannot wait till the next morning.
 - The Alarms callout list and the Alert callout list shall be able to be separate and distinctly different.
 - iii. The User web site shall analyze daily pump run

times at compared to a moving 30 day average of the pumps most recent runtimes and automatically Alert the User that the pump runs are outside the normal runtime variation pattern.

- iv. The User web site shall analyze hourly pump runtimes and automatically compare it to two (2) User set thresholds. If the Alert threshold is exceeded, an Alert shall be sent the following morning. If the Alarm threshold is exceeded, an alarm shall be sent immediately.
- v. The User web site shall send an Alert the first morning that the units are in Communications fail even though Alarms have been sent at the time the RTUs went off-line. Such Alerts are a reminder to Management that they still have units that are off line.

6. RTU Locations

- a. The RTU shall be located at the Carpenter Street Pump Station and shall be furnished with an omnidirectional antenna at grade plus 8 ft. Provide a support pole and foundation for the antenna. The antenna shall be grounded to a driven ground rod.

7. Monitoring Points per RTU

- a. The inputs to be monitored are as follows:
 - i. Digital inputs

DI-1	Pump 1 Run
DI-2	Pump 2 Run
DI-3	Pump 3 Run
DI-4	Pump 1 Alarm
DI-5	Pump 2 Alarm
DI-6	Pump 3 Alarm
DI-7	Pump 1 Runtime
DI-8	Pump 2 Runtime
DI-9	Pump 3 Runtime
DI-7	Power Failure (utility)
DI-8	Generator Running (power failure)
DI-8	Wet Well High Level Alarm Backup

- ii. Analog inputs with four (4) hi/low threshold alarms

AI-1	Pressure Transducer
AI-2	Spare

iii. Relay Outputs

R-1 Spare
R-2 Spare
R-3 Spare

8. Other Materials

- a. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

9. Coordination

- a. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- b. Additional coordination with the supplier's information here.

10. Installation

- a. Install the work of this Section in strict accordance with the manufacturer's recommendations and shop drawings as approved by the Engineer.
- b. Upon completion of the installation, carefully inspect each component and verify that all items have been installed in their proper location, adequately anchored, and adjusted to achieve optimum operation. If required, the Contractor shall adjust the antenna placement or elevation to obtain consistent, stable operation of the system.
- c. Delineate timing of RTU installation and commissioning.

11. Service

- a. Demonstrate to the Owner's operation and maintenance personnel the proper methods for operating and maintaining the equipment, and the contents of the operation and maintenance manual required to be submitted under Article 1.03 in this Section.
- b. The Contractor shall furnish to the Owner, through the Engineer, a written report prepared by the instrumentation equipment manufacturer's field service technician certifying that:
 - i. The equipment has been properly installed in accordance with manufacturer's recommendations.
 - ii. The equipment check out and initial start-up activities have been completed in accordance with

manufacturer's recommendations and under the technician's supervision.

- iii. Antenna placement has been optimized.
- iv. The equipment is free from any undue stress imposed by connecting conduit or anchor bolts.
- v. The equipment operates satisfactorily and in compliance with the requirements of this Section.

General: This work includes all excavation, backfill, temporary shoring, labor, materials and equipment required to manufacture, furnish, and install the valve vault, lid, access frame and hatch, butyl rubber sealant, pumps, pump bases, rails, lift chain, cable and chain brackets, pump rail brackets, testing, and other incidental items as shown on the plans.

The pump station control panel and accessories, and wireless monitoring and control system shall be included in the cost of the Pumping Station. Connections to conduits and wiring external to the control panel shall be included in the cost of Pump Station Electrical Work.

Basis of Payment: This work will be paid for at the contract lump sum price for PUMPING STATION.

SITE SCREEN (WOODEN FENCE) TYPE P 6'

General: The work to be included under this item shall be the furnishing, installing, and testing of all materials necessary in order to provide a complete fence and gate around the generator and pump control site.

The fence shall conform to Section 641 of the Standard Specifications for Road and Bridge Construction with the following exceptions:

- The picket shall be 5 ½" wide.
- The proposed fence shall be a shadow box style fence.
- The vertical pickets shall overlap on each side. The pickets shall have a 3 ½" spacing on each side with the opposing side centered on the open space on the opposite side.
- Vertical posts shall be constructed of 2 3/8" galvanized steel posts. The post shall be 9 ft in length.
- The posts shall be embedded in concrete, 1 ft in diameter by 3 ft deep.
- The contractor shall use Class SI concrete for embedding the concrete posts.
- The galvanized steel posts shall be located on the inside of the fence.
- The fence shall be attached to the metal posts using a galvanized steel wood fence brackets

The fenced area shall also have a double gate with a total width of 10 ft, (5 on each side). The contractor shall construct the support frame for the gate out of galvanized steel tubing with the planks added for privacy. The gate shall have padlockable hardware and a gate stop to hold the gate in the open position. The cost of the gates shall be included in and measured as per foot of Site Screen (Wooden Fence) Type P 6'.

Basis of Payment: This work will be paid for at the contract unit price per foot for SITE SCREEN (WOODEN FENCE) TYPE P 6'.

STORM SEWER CONNECTION

This work shall consist of furnishing and installing 36-inch diameter ductile iron pipe. The Storm Sewer Connection shall be installed between each of the three Drainage Structures No. 1. The connections to each of the drainage structures shall be through a water tight connection cast into each of the structures.

This work includes the excavation, labor, materials and equipment required to furnish and install the 36-inch diameter ductile iron pipe and other incidental items as shown on the plans.

Basis of Payment: This work will be paid for at the contract unit price per EACH for STORM SEWER CONNECTION.



Route FAU 6800
Section 05-00500-19-GS
County Knox

Marked Rte. Main Street (US 150)
Project No. C-94-116-06
Contract No. 89417

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issued by the Illinois Environmental Protection Agency (IEPA) for storm water discharges from construction site activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Wayne Carl
Print Name
City Engineer
Title
City of Galesburg
Agency

Wayne S Carl
Signature
10/27/2015
Date

I. Site Description:

- A. Provide a description of the project location (include latitude and longitude): East Main Street from Chambers Street to Allens Avenue (40 deg - 57' N, 90 deg - 22' W)
B. Provide a description of the construction activity which is the subject of this plan: Improvements will include the construction of a new railroad bridge across Main Street. The construction will also include the reconstruction of East Main Street as an underpass beneath the proposed bridge. Appurtenant construction items include storm sewer, sanitary sewer relocation, water main relocation, lighting, and traffic signals.
C. Provide the estimated duration of this project: 20 Months
D. The total area of the construction site is estimated to be 10.5 acres. The total area of the site estimated to be disturbed by excavation, grading or other activities is 9.5 acres.
E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed: 0.70
F. List all soils found within project boundaries. Include map unit name, slope information, and erosivity: The type of surficial soil is Hulick Till. These deposits are silty glacial till intercalated with sand and gravel.
G. Provide an aerial extent of wetland acreage at the site: N/A
H. Provide a description of potentially erosive areas associated with this project: The proposed roadway will run under the proposed bridge. The proposed roadway will be depressed below the existing grade of the roadway by up to 22 feet. From the back edge of the roadway sidewalk, the slopes will be

laid back at 1:3.5 and 1:4 slopes in order to tie into existing ground. These slopes will be highly erosive until the grass can be stabilized. In addition, after pavement removal along Main Street, the roadway will be graded at a 5% maximum slope. This area will be subject to erosion during the construction process.

- I. The following is a description of soil disturbing activities by stages, their locations, and their erosive factors (e.g. steepness of slopes, length of slopes, etc):

Building Demolition: Located at various locations throughout the project. The land is fairly flat and the parcel property is small.

Pavement Removal: Located throughout the project. The pavement will be removed to allow for installation of new utilities and proposed roadway, retaining wall, and bridge. Approximately 1.8 acres of pavement will be removed, but not all at the same time.

Utility Relocation: Located at various locations throughout the project. This task will include removal of existing utility as required, and installation of proposed utility. This will occur after pavement removal, so the utility relocation task is not expected to disturb additional soil.

Retaining Wall and Bridge construction: The construction of these items will take place at various locations throughout the project.

- J. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) and locations where storm water is discharged to surface water including wetlands.

- K. Identify who owns the drainage system (municipality or agency) this project will drain into:

The storm sewer system is owned by the City of Galesburg.

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

City of Galesburg

- 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:

The direct outlet of the storm water will be to existing storm sewer located to the east of the project site. The ultimate receiving water is the Cedar Creek Channel, which is approximately 1,700 feet to the north of East Main Street (US 150).

- 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.

There are no areas denoted as protected sites. It can be assumed that all areas within Temporary Easement and Proposed ROW will be disturbed.

- 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):

N/A

150

- 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 that 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 checked="" type="checkbox"/> Waste water from cleaning construction equipment |
| <input checked="" type="checkbox"/> Concrete Curing Compounds | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Solid Waste Debris | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Paints | <input type="checkbox"/> Other (specify) |
| <input 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 type="checkbox"/> Preservation of Mature Vegetation | <input checked="" 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 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 checked="" type="checkbox"/> Permanent Seeding | <input type="checkbox"/> Other (specify) |

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

Upon completion of work in the area, if that areas is to be left for a period of time in accordance with the IDOT Standard Specifications, the Temporary Seeding will be applied. After completion of final grading, the permanent seeding and mulch will be applied.

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

After completion of activities, the site will be inspected to verify the permanent erosion control (seeding) has taken.

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 structural practices will be used for this project:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Perimeter Erosion Barrier | <input type="checkbox"/> Rock Outlet Protection |
| <input checked="" 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 checked="" 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:

The above noted structural practices will be applied to prevent the runoff of sediment from the site. Perimeter Erosion Barrier will prevent sheet flow sedimentation from leaving the site. The Temporary Ditch Check and Storm Drain Inlet Protection will prevent more concentrated flows and sedimentation from leaving the site.

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

The above noted items will be left in place until the permanent erosion protection has taken.

D. Treatment Chemicals

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

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

N/A

E. Permanent 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 and 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:

All areas disturbed during the construction activities will be seeded and mulched in accordance with IDOT's Standard Specifications.

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:

There are no additional procedures or requirements approved by the local officials.

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 timeframe
 - 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
 - Timeframe 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 Fueling – Identify equipment fueling locations for this project and what BMPs will be used to ensure containment and spill prevention.
 - Vehicle and Equipment Cleaning and Maintenance – Identify where equipment cleaning and maintenance locations for this project and what BMPs will be used to ensure containment and spill prevention.
 - Dewatering Activities – Identify the controls which will be used during dewatering operations to ensure sediments will not leave the construction site.
 - Polymer Flocculants and Treatment Chemicals – Identify the use and dosage of treatment chemicals and provide the Resident Engineer with Material Safety Data Sheets. Describe procedures on how the chemicals will be used and identify who will be responsible for the use and application of these chemicals. The selected individual must be trained on the established procedures.
 - Additional measures indicated in the plan.

III. Maintenance:

When requested by the Contractor, the Resident Engineer will provide general maintenance guides 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 the Contractor's responsibility to attain maintenance guidelines for any manufactured BMPs which are to be installed and maintained per manufacture's specifications.

Temporary Ditch Checks will be maintained when the sediment has reached one-third the height of the ditch check. Perimeter Erosion Barrier will be maintained when the sediment has reached one-third the height of the barrier. Temporary Seeding will be applied to appropriate areas every seven (7) days until those areas are stabilized.

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 email at: epa.swnoncomp@illinois.gov, telephone or fax within twenty-four (24) hours of the incident. The Resident Engineer shall then complete and submit an "Incidence of Non-Compliance" (ION) report for the identified violation within five (5) days of the incident. The Resident Engineer shall use forms provided by IEPA and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of non-compliance shall be signed by a responsible authority in accordance with Part VI. G of the Permit ILR10.

The Incidence of Non-Compliance shall be mailed to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

Additional Inspections Required:

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.



Contractor Certification Statement

Prior to conducting any professional services at the site covered by this contract, the Contractor and every subcontractor must complete and return to the Resident Engineer the following certification. A separate certification must be submitted by each firm. Attach to this certification all items required by Section II.G of the Storm Water Pollution Prevention Plan (SWPPP) which will be handled by the Contractor/subcontractor completing this form.

Route FAU 6800 Marked Rte. Main Street (US 150)
Section 05-00500-19-GS Project No. C-94-116-06
County Knox Contract No. 89417

This certification statement is a part of SWPPP for the project described above, in accordance with the General NPDES Permit No. ILR10 issued by the Illinois Environmental Protection Agency.

I certify under penalty of law that I understand the terms of the Permit No. ILR 10 that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

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

Four horizontal lines for listing responsibilities.

ATTACHMENT A
PUMP STATION ELECTRICAL SPECIAL PROVISIONS

DIVISION 16 – ELECTRICAL
SECTION 16010- BASIC ELECTRICAL REQUIREMENTS

1. GENERAL

1.01 WORK INCLUDES

- A. Work included in this section is general in nature and applicable to electrical system work. Contractor is also directed to other sections of Division 16 – Electrical for additional related Specifications for items described in this section.
- B. Work included in this section shall apply to installation and testing of all materials and equipment necessary to completely install electrical system, as shown on Plans and described herein in these Specifications, or as may be necessary for a complete and operational electrical system.
- C. Plans pertaining to this installation indicate general location of circuit breaker panels, load centers, conduits, wiring, lighting, outlets, and other details necessary for installation of system. Contractor shall field verify existing site conditions.
- D. Electrical installation, as shown on Plans and as specified herein, is based upon available information, with regard to characteristics of building layout and associated equipment specified. In the event changes are necessary in order to accommodate mechanical equipment furnished, necessary revisions will be made with approval of Owner's Representative.
- E. Any minor changes in location of equipment, to include conduits, outlets, etc. from those shown on Plans, shall be made without extra charge if so directed by Owner's Representative. These changes shall be any changes in location that had new location been the bid-upon location would not have resulted in an increase in contract construction cost over that actually bid.
- F. The Contractor shall furnish and install all materials necessary for a complete and operational installation of the electrical equipment, as specified herein and as shown on the Plans. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of NFPA 70 - National Electrical Code (NEC), most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment and materials shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, ETL listing, FM approval, or other third party listing, and/or the manufacturer's warranty of a device will not be permitted.

- G. The electrical work and equipment specified is based on equipment of the type and size as noted on the Plans and specified herein. Should the proposed pump motors (or any other proposed loads) exceed the ratings of the electrical equipment specified, the General Contractor shall be solely responsible for furnishing any and all modifications necessary in order to provide a fully functional system to the satisfaction of the Engineer at no change to the contract cost. The Contractor shall also be required to submit for review, sufficient information determined by the Engineer to be necessary to review such alternates or modifications.

1.02 CODE REQUIREMENTS, LAWS, AND ORDINANCES

- A. In installation of this work, Contractor shall comply in every respect with requirements of NFPA 70- National Electrical Code, most current issue in force, and any state and local requirements, laws, and ordinances as may be applicable.
- B. If, in opinion of the Contractor, there is anything in Plans or Specifications that will not strictly comply with above laws, ordinances, and rules, the matter shall be referred to the attention of the Owner's Representative for a decision before proceeding with that part of the work. No changes on Plans or in Specifications shall be made without the full consent of Owner's Representative.
- C. Contractor shall obtain and pay for all licenses, permits, and inspections required by above laws, ordinances, and rules for entire electric wiring job called for in these Specifications and accompanying Plans.

2. PRODUCTS

2.01 Products shall be as specified in other sections and as detailed on the Plans.

3. EXECUTION

3.01 EQUIPMENT STORAGE

- A. All electrical equipment considered to be a part of this Contract, to include, but not be limited to, starters, transformers, lighting fixtures, etc., shall be stored before installation in a warm, dry, indoor area so as to protect the equipment from physical damage, freezing, dirt, and any other harmful effects. Equipment stored under tarpaulins or plastic covers will not be considered as meeting this requirement.
- B. The installation of electrical equipment shall not begin until the structure, if required, within which the equipment is to be permanently housed, is complete enough to provide protection from weather and vandalism (i.e., roof and doors installed).

- C. The Contractor will be responsible for ensuring conformance with these procedures.

3.02 DRAWINGS

- A. Drawings for electrical work are a part of electrical Plans to which will be added, during the period of construction, any other Detail Drawings as may be necessary in opinion of Owner's Representative, to show proper installation of various appliances or equipment with relation to project.
- B. The Drawings and Specifications are intended to be descriptive only, and any error or omissions of detail in either shall not relieve the Contractor from the obligations thereunder to install in correct detail any and all materials necessary for complete and operating electrical systems to the extent shown on the Drawings and described in this Specification.
- C. The Contractor shall, during the progress of the job, record any and all changes or deviations from the original Drawings and, at the completion of the project, shall deliver to the Engineer a marked-up set of "as-built" Drawings.

3.03 SHOP AND ERECTION DRAWINGS

- A. The Contractor shall prepare Shop Drawings for all parts of the electrical work. Before commencing any work or providing any material, the Contractor shall submit for approval of the Engineer all Drawings relating to the construction, arrangement or disposition of the equipment entering into the Contract, and show the complete equipment with manufacturer's Specifications of same.
- B. Shop Drawings of all distribution panels, power and lighting systems, fixtures, wire, cables, devices, etc. shall be submitted for approval, as well as complete details of all systems not shown in detail on the Drawings.
- C. Shop Drawings shall be fully descriptive of all the materials and equipment to be incorporated into this project. The Contractor shall carefully check all submitted Shop Drawings, making sure they are complete in all details and cover the specific items as hereinafter specified.
- D. In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities of shop drawings for his needs plus four copies to be retained by the Engineer, (5 copies minimum).
- E. No material or equipment shall be allowed at the site until Shop Drawings approved by the Engineer and/or Owner's Representative are received by the Owner's Representative at the site.
- F. The following information shall be clearly marked on each Shop Drawing, catalog cut, pamphlet, specification sheet, etc. submitted:

PROJECT TITLE:

BRANCH OF WORK: ELECTRICAL
NAME OF BUILDING OR LOCATION:
PAGE OF PLANS OR SPECS WITH WHICH EQUIPMENT
COMPLIES:
DATE:
SUBMITTED BY:

- G. The following electrical equipment and materials will require shop drawing submittals for this project.
1. Conduits and Ducts (all types used on the project)
 2. Wire and Cables (all types used on the project)
 3. Junction Boxes and Enclosures
 4. Enclosed Circuit Breakers
 5. Ground Rods
 6. Exothermic Weld Connections
 7. Ground Wire
 8. Transformers
 9. Panelboards and Circuit Breakers
 10. Automatic Transfer Switch
 11. Surge Protective Devices
 12. Engine Generator Set

3.04 CONTINUITY OF SERVICE

- A. Should it be required that the Contractor perform work in the facility which is in operation at the time the Contractor's work is to be performed, then the Contractor shall clear with the operating personnel of the facility and/or the Owner's Representative any power outages or equipment downtime that may occur as a result of the performance of his work.

3.05 EQUIPMENT MOUNTING

- A. Electrical Contractor shall be responsible for furnishing and setting all anchor bolts required to install Contractor's equipment.
- B. Where concrete mounting pads are required for equipment mounting. Electrical Contractor shall furnish all concrete and form work necessary to complete the installation.
- C. Where electrical equipment is located on damp or wet walls or locations as directed, it shall be "stand-off" mounted ½-in. from wall in a manner so that rear of equipment is freely exposed to surrounding air. Method of mounting shall be approved by Owner's Representative before equipment is mounted.

3.06 GENERAL ELECTRICAL

- A. The Contractor shall furnish and install all materials necessary for complete and operational installation of the vault equipment, as specified herein and as shown on

the Plans. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NFPA 70 – National Electrical Code (NEC) most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment and materials shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, FM approval, ETL listing (or other third party listing), and/or the manufacturer's warranty of a device will not be permitted.

- B. Per Illinois Environmental Protection Agency Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter II: Environmental Protection Agency Part 370: Illinois Recommended Standards for Sewage Works all electrical equipment installed in a sewage pump station wet well shall be suitable for Class I, Division 1, Group D hazardous location. In addition equipment located in a sewage wet well shall be suitable for use under corrosive conditions. All electrical installations associated with a sewage pump station shall conform to the applicable sections of NEC 500, 501, and 504 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location it shall be UL-listed, Factory Mutual- listed, or ETL-listed suitable for use in the respective classified hazardous location.
- C. Per NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities, a wastewater pumping station wet well (with no ventilation or ventilated at less than twelve (12) air changes per hour) is classified as a Class I, Division 1, Group D hazardous location. All electrical installations associated with the pumping station wet well shall conform to the applicable sections of NEC 500, 501, and 504 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location it shall be UL- listed, Factory Mutual-approved, or ETL-listed suitable for use in the respective classified hazardous location.
- D. Contractor shall comply with the applicable Galesburg, Illinois Code of Ordinances.
- E. Contractor shall keep a copy of the latest NEC in force on site at all times during construction for use as a reference.
- F. Contractor shall keep a copy of the Plans, Special Provision Specifications including any addenda, and copies of any change orders on site at all times during construction.
- G. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).

- H. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.
- I. All electrical equipment installed by the Contractor shall be properly labeled, and all cables must be tagged.
- J. All power and control cables shall be installed in conduit, wireways, pull boxes, junction boxes, or raceways. No exposed power or control wiring will be permitted.
- K. All electrical equipment installed by the Contractor shall be properly labeled.
- L. All changes to the electrical system shall be documented by the Contractor and provided to the Owner's Representative.
- M. Locate Existing Underground Utilities and Cables. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in the construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain, from the respective utility companies, detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner's Representative shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract. All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.**

END OF SECTION 16010

DIVISION 16 – ELECTRICAL
SECTION 16111 – CONDUIT AND RACEWAY

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. The work included in this section is the conduits, raceways and fittings required for a complete and operational electrical system. The work included in this section shall also include the construction of electrical handholes with lids complete, in accordance with this Specification and as detailed on the Construction Plans.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16120 – Wire and Cable.
- C. Section 16130 – Boxes
- D. Section 16450 – Grounding.
- E. DIVISION 800 ELECTRICAL, of the Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation.

1.03 REFERENCE TO STANDARDS

- A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.
- B. ANSI C80.3 – Electrical Metallic Tubing, Zinc Coated.
- C. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.
- D. ASTM D3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
- E. ASTM F2160 Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD)
- F. NEMA TC-2 – Electrical Plastic Tubing and Conduit.
- G. NEMA TC-3 – Fittings Rigid PVC Conduit and Tubing.
- H. NEMA TC-7 – Smooth-Wall Coilable Polyethylene Electrical Plastic Conduit.
- I. NFPA 70, National Electrical Code (NEC) (most current issue in force).
- J. UL Standard 1 – Flexible Metal Conduit.

- K. UL Standard 6 – Rigid Metal Conduit.
- L. UL Standard 360 – Liquid-Tight Flexible Steel Conduit.
- M. UL Standard 514B – Conduit, Tubing and Cable Fittings.
- N. UL Standard 651 – Schedule 40 and 80 Rigid PVC Conduit.
- O. UL Standard 651B – Standard for Continuous Length High-Density Polyethylene (HDPE) Conduit.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Threads of metal conduits shall be protected by plastic caps. Fittings shall be stored in boxes. All equipment shall be stored on pallets to prevent contact with earth and shall be covered with plastic sheeting to protect them from dirt and weather.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for each type of conduit or duct to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 2. Shop drawings shall include conduit and/or duct cut sheets with type, size, specifications, UL listing, manufacturer, and catalog or part number.
 3. Provide certification that steel conduits are manufactured in the United States of America and made with 100 percent domestic steel to comply with the Illinois **“Steel Products Procurement Act”**.
 4. For plastic duct to be installed by boring method, provide manufacturer’s literature confirming the respective duct is suitable for directional boring with the respective Shop Drawing submittal.
 5. Concrete mix design for concrete encased duct.

6. Precast concrete handholes and manholes must be on IDOT (Illinois Department of Transportation) List of Certified Precast Concrete Producers. Provide information on respective precast concrete producer for precast handholes and drawings for respective handholes.
7. Provide cut sheets with part number and specification for manhole frame and lid.

1.06 QUALIFICATIONS

- A. All material shall be purchased new from suppliers/manufacturers regularly engaged in the business of electrical conduit, ducts and fittings supply.

2. PRODUCTS

2.01 EQUIPMENT SPECIFICATION

- A. Galvanized Rigid Steel Conduit: Rigid Steel Conduit and fittings shall be hot-dipped, galvanized, UL-listed, and produced in accordance with UL Standard 6 – Rigid Metal Conduit and ANSI C80.1 – Rigid Steel Conduit, Zinc Coated. Couplings, connectors, and fittings for rigid steel conduit shall be threaded, galvanized steel or galvanized, malleable iron, specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4 – Fittings Rigid Metal Conduit and EMT and UL 514B – Conduit, Tubing, and Cable Fittings. Set screw type fittings are not acceptable. Steel used to manufacture conduits shall be 100 percent domestic steel. Contractor shall provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel.
- B. PVC-Coated, Galvanized, Rigid Steel Conduit: PVC-coated, galvanized, rigid steel conduit shall be manufactured by Robroy Industries, Inc., (Conduit Division, 1100 US Highway 271 South, Gilmer, Texas 75644, Phone 903-843-5591, Sales Department Fax: 903-843-2516) Plasti-Bond or approved equivalent. PVC coating shall be a minimum of 40 Mils permanently fused to hot dipped, galvanized, rigid steel conduit. An interior red polyurethane coating of 2 mils (.002 in.), shall be applied to the conduit and conduit couplings. Steel used to manufacture conduits shall be 100 percent domestic steel. Contractor shall provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel.
- C. Schedule 40 PVC and Schedule 80 PVC Conduit: Conduit shall be Schedule 40 PVC, 90°C, UL rated or approved equal. Material shall comply with NEMA Specification TC-2 (Conduit), TC-3 (Fittings-UL-514), and UL-651 (Standard for rigid nonmetallic conduit). The conduit and fittings shall carry a UL label (on each 10 foot length of conduit and stamped or molded on every fitting). Conduit and fittings shall be identified for type and manufacturer and shall be traceable to location of plant and date manufactured. The markings shall be legible and permanent. The conduit shall be made from polyvinyl chloride C-300 compound

which includes inert modifiers to improve weatherability, heat distortion. Clean rework material, generated by the manufacturer's own conduit production, may be used by the same manufacturer, provided the end products meet the requirements of this Specification. The conduit and fittings shall be homogeneous plastic material free from visible cracks, holes, or foreign inclusions. The conduit bore shall be smooth and free of blisters, nicks or other imperfections which could mar conductors or cables. Conduit, fittings and cement shall be produced by the same manufacturer to assure system integrity and shall be Carlon Plus 40, Plus 80 conduit, or approved equal.

- D. Liquid-Tight, Flexible Metal Conduit (Non-Explosion Proof): Liquid-tight, flexible metal conduit shall consist of polyvinyl jacket over flexible, hot-dip, galvanized steel tubing. The flexible conduit shall be completely sealed from liquids, dust, dirt, and fumes and be resistant to oil, gasoline, grease, and abrasion. Jacket shall also be sunlight-resistant. Liquid-tight, flexible metal conduit shall be UL-listed, suitable for use as a grounding conductor, and comply with Article 350 of the NEC. **Liquid-tight, flexible metal conduit and associated fittings shall be UL-listed to meet the requirements of NEC 350.6.** Where liquid-tight, flexible metal conduit is installed in a Class I, Division 2 classified hazardous location it shall also be listed suitable for use in Class I, Division 2 classified hazardous locations. Liquid tight flexible metal conduit shall not be installed in a Class I, Division 1 classified hazardous location except for use with intrinsically safe wiring. Liquid-tight, flexible metal conduit shall be Anaconda Sealtite Type UA, as manufactured by Anamet Electrical Inc., 1000 Broadway Avenue East, Mattoon, Illinois 61938-0039, (Phone: 217-234-8844), Liguatite Type LA as manufactured by Electri-Flex Company, 222 W. Central Ave., Roselle, Illinois 60172, (Phone: 630-529-2920 or 1-800-323-6174), or approved equal. **Do not install liquid-tight, flexible metal conduit that is not UL listed. Contractor shall confirm liquid-tight, flexible metal conduit bears the UL label prior to installation.**
- E. Square Duct/Wireway (Exterior Locations): Square duct shall be sized for the respective application and/or as detailed on the Plans. Wireways for exterior locations shall be NEMA 4X stainless steel with hinged cover as manufactured by Hoffman Enclosures Inc., or approved equal. All wireway lengths and accessories shall be Underwriter's Laboratories listed and labeled in conformance with UL 870 Standards for Wireways, Auxiliary Gutters, and Associated Fittings and conform to NEMA 4, 4X enclosure rating.
- F. Explosion-Proof Flexible Conduit: Explosion-proof flexible conduit shall be suitable for use in Class I, Division 1, Group D hazardous locations, and liquid-tight for wet locations. Conduit shall have an interior insulating liner to protect conductors from abrasion under vibrating conditions. Conduit shall provide a continuous electrical path. Explosion proof flexible conduit shall be Crouse-Hinds, O-Z/Gedney ECGJH, ECLK Series, Appleton EXGJH or EXLK Series Flexible Coupling, or equal.
- G. Explosion Proof Conduit Seals: Explosion-proof conduit seals shall be suitable for use in Class I, Division 1, Group D hazardous location. Explosion proof conduit seals shall be Crouse-Hinds EYS or EZS Series, Appleton EYS, ESU, or EY Series, O-Z/Gedney EYA, EY, EZS Series explosion-proof sealing fitting, or equal.

- H. Miscellaneous Fittings: Fittings shall be suitable for use with conduits and ducts supplied. All conduit bodies, fittings, and boxes installed in classified hazardous locations (Class I, Division 1 or 2, Group D) shall be UL-listed, FM listed, or ETL listed suitable for use in the respective classified hazardous location. Fittings shall be as manufactured by Appleton, Crouse-Hinds, Hubbell-Killark, O-Z/Gedney, or equal.
- I. Electrical Manholes: Electrical manholes shall be constructed in accordance with the details as shown on the Construction Plans.
- J. Fire Stopping Material
 - 1. Fire stopping materials shall consist of commercially manufactured products capable of passing ASTM E-814 (UL 1479) Standard Method of Fire Test for Through Penetration Fire Stops.
 - 2. Fire stopping materials shall maintain the rating of the wall, partition or floor opening that penetration is made. Comply with NEC 300.21.
 - 3. Fire stopping materials shall be U.L. classified.
 - 4. Acceptable Products:
 - a. 3M - Fire Barrier.
 - b. Thomas & Betts - Flame Safe.
 - c. Nelson Electric – Flameseal.

3. EXECUTION

3.01 INSPECTION

- A. All conduits shall be inspected for proper fit and finish, for out-of-round and for proper thickness. All burrs and flashing shall be removed. Conduit and fittings shall be clean and free of obstructions.

3.02 LOCATE EXISTING UTILITIES

- A. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in the construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain from the respective utility companies

detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner's Representative shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract.

- B. All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.** Also coordinate work with all aboveground utilities.
- C. Contractor shall locate and mark all existing cables within ten (10) feet of proposed excavating/trenching area. Any cables found interfering with proposed excavation or cable/trenching shall be hand dug and exposed. Any damaged cables shall be immediately repaired to the satisfaction of the respective utility and/or Owner's Representative at the Contractor's expense. The respective utility and Owner's Representative shall be notified immediately if any cables are damaged.
- D. Payment for locating and marking underground utilities and cables will not be paid for separately, but shall be considered incidental to the respective duct installation or respective item of work.

3.03 INSTALLATION

- A. Comply with IDOT Standard Specifications and the following.
- B. Exterior above grade exposed conduit located at the pump station shall be PVC coated rigid steel conduit. All conduits entering or leaving the pump station wet well shall be PVC coated rigid steel conduit.
- C. Exterior above grade exposed conduit located at the site for the electric service and standby engine generator shall be PVC coated galvanized rigid steel conduit.
- D. Exposed above grade conduits for grounding electrode conductors shall be Schedule 40 (minimum) PVC conduit.
- E. All below grade conduit shall be as detailed on the Plans and specified herein.
- F. All work shall be laid out with sleeves for openings through slabs, pump station or valve vault walls, etc. as required. If sleeves and inserts are not properly installed, the Contractor will be required to do all necessary cutting and patching to accommodate conduits.
- G. Conduit size and fill requirements shall comply with Chapter 9 and Annex C of the NEC. It should be noted these are minimum requirements and larger conduit sizes or smaller fill requirements shall be used whenever specified or detailed on the Drawings.

- H. Use liquid-tight, flexible metal conduit or flexible metal conduit for final connection to engine generator set, transformers, motors, and for equipment subject to movement, vibration, and/or noise transmission. For each conduit size up to 1-in. trade size, flexible conduit shall be minimum length of 12 in. and a maximum length of 36 in. and for conduit sizes above 1-in. trade size, flexible conduit shall be minimum length of 20 in. and maximum length of 48 in. Liquid-tight, flexible metal conduit and/or flexible metal conduit that is used for flexibility (including connections to engine generator set, motors, and transformers) shall require and external bonding jumper or internal equipment grounding conductor per NEC 350.60. **Do not install liquid-tight, flexible metal conduit that is not UL-listed. Confirm liquid-tight, flexible metal conduit bears the UL label prior to installation.** Do not install liquid-tight flexible metal conduit in a classified hazardous location unless it is approved and listed suitable for use in the respective classified hazardous location.
- I. Explosion-proof flexible conduit shall be provided as a connection between each motor junction box (or any other piece of equipment subject to movement or vibration) and the rigid conduit system where installed in a classified hazardous location.
- J. Ream conduits only after threads are cut. Cut joints square to butt solidly into couplings. Where necessary to join two pieces of conduit and it is impossible to use standard coupling, use three piece malleable iron conduit coupling. The use of running thread is prohibited. This applies to all rigid conduit installations, underground or otherwise.
- K. Make all joints in steel underground conduit watertight with approved joint compound. Temporarily plug conduit openings to exclude water, concrete or any foreign materials during construction. Clean conduit runs before pulling in conductors.
- L. Hickey bends will not be acceptable for conduits 1-in. and larger. Use manufactured elbows or bends fabricated with bending machine. Field bending of all PVC conduit shall be accomplished with the use of equipment approved by the conduit manufacturer. Open flame bending equipment will not be acceptable.
- M. A run of conduit between outlet and outlet, between fitting and fitting or between outlet and fitting shall not contain more than the equivalent of four 90 Degree bends, including bends immediately at an outlet or fitting.
- N. Where conduit enters a box or fitting provide a steel locknut and an insulated metallic bushing. Use this method to terminate conduit in panels, pull boxes, safety switches, etc. Conduit terminations in panel boards (circuit breaker panels or load centers) shall have grounding bushings with ground wire connections between the bushing and the ground bus.
- O. Do not run conduit below or adjacent to water piping, unless specifically detailed otherwise on the Plans.

- P. Run exposed conduits parallel with the respective walls or supporting structure and at right angles to respective building, not diagonally. Make bends and turns with corrosion resistant pull boxes or cast aluminum or hot-dipped galvanized malleable iron fittings and covers.
- Q. Conduit terminations shall include bushings to protect conductors from damage from conduit.
- R. Set screw type fittings are prohibited.
- S. Use only screws, bolts, washers, etc. fabricated from rust resisting metals for the supporting of boxes.
- T. The electrical handholes and manholes shall be constructed in accordance with the details as shown on the Construction Plans.

3.04 EXCAVATION FOR DUCT BANK

- A. The ground shall be excavated in open trenches to width, depth, and in direction necessary for proper installation of underground duct work and any manholes, handholes, etc. and connections as may be shown on the Plans. Trench widths shall be held to a minimum.
- B. Any necessary sheathing to prevent cave-ins, etc. shall be provided by and the responsibility of the respective Contractor installing the duct bank.
- C. Where muck of unstable ground is encountered in bottom of trench, it shall be excavated to a depth of at least 12 in. below the line of the duct or slab. Where bottom of trench is excavated below necessary elevation, it shall be brought to proper grade by use of sand or 3/8 in. gravel, well compacted.
- D. Where excavation for a respective portion of trench is in water or wet sand, Contractor shall install a pumping system to dewater the trench.
- E. Excavations shall be deeper than minimum wherever required in order that ducts or conduits may be installed so as to avoid new or existing piping, etc., as dictated by site conditions or directed by Owner's Representative.
- F. Should conduits or ducts pass under sidewalks, roads, curbs, parking lots, or other paved areas Contractor shall take up same in order to install conduits or ducts. All sidewalks, roads, curbs, parking lots, or other paved areas shall be replaced with material equal to that removed and shall be as approved by the Owner's Representative.
- G. The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground structures, utilities, and piping, both known and unknown, may be determined, and the Contractor shall be held responsible for the repair of such structures, utilities, and piping when broken or otherwise damaged by the Contractor.

3.05 UNDERGROUND CONDUIT INSTALLATION

- A. The proposed conduits and ducts shall be constructed at the locations and in accordance with the details shown on the Construction Plans. Ducts shall be installed 24 in. minimum below grade to the top of conduit. Ducts located in areas subject to farming shall be **42** in minimum below grade. Ducts located below roadways shall be **42** in minimum below grade. Where detailed on the Plans or where required to avoid obstructions, ducts shall be buried deeper. Where concrete-encased duct interfaces to directional-bored duct at a pavement crossing, the concrete encasement shall be installed up to the respective pavement edge. Where concrete-encased duct interfaces to an electrical handhole or manhole, the concrete encasement shall be installed up to the respective handhole or manhole. Provide bushings or bells at conduit terminations in electrical handholes or manholes.
- B. Perform excavation, trenching, backfilling and compaction in accordance with the applicable sections of DIVISION 800 ELECTRICAL, of the Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation.
- C. Underground ducts installed by directional-boring method shall be installed in a manner that will not damage any existing underground utilities, and shall not disturb or damage the respective pavement or roadway surface. Ducts shall be directional-bored at the locations shown on the Construction Plans. The ducts will be bored at a minimum depth of 24 in. below the bottom of the pavement it is being bored under. Ducts installed under paved areas and roadways shall extend a minimum of 10 ft beyond the respective pavement or roadway surface. A pull wire will be left in the conduit if it is to be left vacant. The ends of the conduit will be sealed with approved plugs.
- D. Conduit lines shall be laid with a minimum slope of 4 in. per 100-ft. Ells and offsets shall be made with factory ells or with field bends made in accordance with conduit manufacturer's recommendations. The minimum bend radius shall be 36 in. Otherwise, long sweep bends having a minimum radius of 25 ft shall be used for a change of direction of more than 5 degrees, either horizontally or vertically. Both curved and straight sections may be used to form long sweep bends as required.
- E. Conduits shall be kept clean of concrete, dirt, or foreign substances during storage and construction. After conduit installation, a standard flexible mandrel shall be used for cleaning followed by a brush with stiff bristles. Mandrel shall be at least 12 in. long and have a diameter $\frac{1}{4}$ -in. less than the inside diameter of the conduit being cleaned. All obstructions in conduits shall be removed prior to pulling wires or final acceptance. Conduits unable to pass mandrel shall be replaced. All unused conduits shall be capped.
- F. Trench widths shall be held to a minimum.

- G. Examine all available site utility information in regard to existing utility lines and locate and protect existing lines. Repair all existing utility lines that are damaged by this construction.
- H. All excavations shall be barricaded, lighted and protected during construction.
- I. Contractor shall obtain approval from Owner for proposed schedules of any description of vehicular or pedestrian traffic for the installation of this work.
- J. The Contractor will determine if there is a conflict between the installation of the proposed electrical ducts and any existing utilities. He will make all necessary adjustments in depth of installation to avoid any and all proposed underground improvements.”
- K. Contractor shall backfill all excavations, grade, mulch, and seed to restore. Any and all trenches and disturbed areas will be backfilled and restored to a smooth grade and seeded to the satisfaction of the Engineer. All trench settlement shall be corrected for a period of one year. Restoration, grading, and seeding of areas disturbed during the installation of the proposed ducts will be incidental to the respective pay item for which the duct is installed.

3.06 CONCRETE PAD PENETRATIONS AND SLEEVE INSTALLATION

- A. Provide sleeves for all electrical raceways, and wiring passing through concrete pads or other structures. Sleeves shall be of sufficient length to extend through the respective pad or structure. Interior diameter of sleeves shall provide 1/2 inch clearance all around conduit.

3.07 SPECIAL INSTALLATION

- A. Hazardous Locations
 - 1. Per Illinois Environmental Protection Agency Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter II: Environmental Protection Agency Part 370: Illinois Recommended Standards for Sewage Works all electrical equipment installed in a sewage pump station wet well shall be suitable for Class I, Division 1, Group D hazardous location. In addition equipment located in a sewage wet well shall be suitable for use under corrosive conditions. All electrical installations associated with a sewage pump station shall conform to the applicable sections of NEC 500, 501, and 504 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location it shall be UL-listed, Factory Mutual approved listed, or ETL/Intertek Testing Services listed/verified suitable for use in the respective classified hazardous location.
 - 2. Per NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities, a wastewater pumping station wet well (with no ventilation or ventilated at less than twelve (12) air changes per hour) is classified as a Class I, Division 1, Group D hazardous location. Per

NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities, a storm water pumping station wet well (with no ventilation or ventilated at less than twelve (12) air changes per hour) is classified as a Class I, Division 2, Group D hazardous location. All electrical installations associated with the respective pumping station wet well shall conform to the applicable sections of NEC 500, 501, and 504 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location it shall be UL-listed, Factory Mutual-approved, or ETL/Intertek Testing Services listed/verified suitable for use in the respective classified hazardous location.

3. Perform all work in classified hazardous locations as defined by the NEC in strict accordance with the NEC for the particular "Class", "Division", and "Group" of hazardous locations involved or indicated on the Drawings. Provide conduit and cable seals in accordance with the NEC.
4. All conduits installed in classified hazardous locations (including Class I, Division 1 or 2, Group D) shall be suitable for the respective location. All boxes and fittings installed in Class I, Division 1 locations shall be approved (FM Approved or UL-listed) suitable for Class I, Division 1 locations. All boxes and fittings installed in Class I, Division 2 locations shall conform to the requirements of NEC 501.10 (B)(4).
5. Per Article 501.15 (C) (6) of the 2014 NEC and UL Standard 886, the cross sectional area for conductors installed in a conduit seal off fitting shall not exceed 25 percent, unless the conduit seal off fitting has been specifically approved for a higher percentage of fill.
6. Install explosion-proof conduit sealing fittings in conformance with the respective manufacturer's instructions. Contact the respective seal off manufacturer if assistance is required for direction of installing packing fiber to form a dam and pouring the sealing compound.
7. Conduits to or from a sewage pump station wet well shall be PVC Coated Rigid Steel.
8. EMT is not suitable for use in classified hazardous locations and, therefore, shall not be installed in classified hazardous locations.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding,

coordination, and testing required to complete the installation of the pump station and to place it into proper working order.

- B. All conduits, ducts, elbows, fittings, raceways, handholes, and manholes will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed. All preparation, assembly, and installation of these materials; for all sawing and pavement removal; for all duct interface work to handholes/manholes including coring of handholes/manholes; for all excavation and backfilling with aggregate backfill, earth backfill, and concrete; for all interfaces, entries, and exits to buildings; and for all labor, coordination, equipment, tools, and incidentals necessary to complete this work shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.
- C. Payment for locating and marking underground utilities and cables will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.
- D. Payment for trenching, excavation, and backfill will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16111

**DIVISION 16 – ELECTRICAL
SECTION 16120 – WIRE AND CABLE**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. The work included in this section is the supply of wire and cable to provide a complete and operational electrical system.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16450 – Grounding.

1.03 REFERENCE TO STANDARDS

- A. ASTM Specification B3 – Standard Specification for Soft or Annealed Copper Wire.
- B. ASTM Specification B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
- C. Federal Specification A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation).
- D. IEEE 576 – IEEE Recommended Practice for Installation, Termination, and Testing of Insulated Power Cable as Used in Industrial and Commercial Applications.
- E. NFPA 70 – National Electrical Code (most current issue in force).
- F. NFPA 70E – Standard for Electrical Safety in the Workplace.
- G. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- H. UL Standard 44 – Thermoset-Insulated Wires and Cables.
- I. UL Standard 83 – Thermoplastic-Insulated Wires and Cables.
- J. UL Standard 854 – Service Entrance Cables.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Wire and cable shall be delivered on reels or coiled in boxes. Wire and cables shall be stored and handled to prevent damage to conductor and insulation.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for all cable types and sizes to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 2. Shop drawings shall include cable and/or conductor cut sheets with type, size, specifications, product data, UL listing, manufacturer, and catalog or part number.
 3. Where cable is required to have colored coded insulation, provide information on the color coding the respective conductors.

1.06 QUALIFICATIONS

- A. The wire and cable shall be manufactured and supplied by a company regularly engaged in the business of furnishing wire and cable. If required by the Engineer, the manufacturer shall submit a certification to a minimum experience of five years in the manufacture of wire and cable.

1.07 MAINTENANCE SERVICE (WARRANTY)

- A. Wire and cable shall be warranted to be free from defects in material and workmanship for a period of one year from date of substantial completion by the Owner.

2. PRODUCTS AND MATERIALS

2.01 GENERAL

- A. All cable shall be UL-listed as suitable for installed application.

2.02 BUILDING WIRE SPECIFICATION

- A. XHHW Wire. Cable shall comply with UL Standard 44, ICEA S-95-658/NEMA WC70 and Federal Specification A-A-59544. Conductors shall be Class B, stranded-annealed, uncoated copper per UL Standard 44. Insulation shall be rated for 600-Volts. Insulation shall be cross-linked polyethylene complying with the physical and electrical requirements of UL Standard 44 for Type XHHW-2. Cable shall be UL-listed and marked XHHW-2. .
- B. THWN Wire. Cable shall comply with Underwriters' Laboratories Standard UL-83 and Federal Specification A-A-59544. Conductor shall be soft annealed uncoated copper and shall comply with ASTM B3 and B8. Insulation shall be rated for 600V. Insulation shall be polyvinyl-chloride conforming to Underwriters' Laboratories requirements for Type THW. The outer covering shall be nylon conforming to Underwriters' Laboratories for type THHN or THWN. Cable shall be UL-listed and marked THWN-2. **Note where THWN wiring is referenced on the Plans it shall be THWN-2.**
- C. XLP-USE Wire. Cable shall comply with UL Standard 44, UL Standard 854, and Federal Specification A-A-59544. Conductor shall be concentric-strand, soft copper, conforming to ASTM B8 and Underwriters' Laboratories Standard UL44 for Rubber Insulated Wires. Insulation shall be rated for 600-Volt. Insulation shall be cross-linked polyethylene conforming to Underwriter's Laboratories Requirements for Type USE-2 insulation. Cable shall be UL-listed and marked USE-2.
- D. Joints and Splices
1. Make terminations, taps and splices with an indent type pressure connector with insulating cover for 8 AWG and smaller.
 - a. Acceptable Manufacturers:
 - (1) Buchanan,
 - (2) Burndy,
 - (3) Ideal, and
 - (4) Thomas & Betts.
 2. Instead of indent type connectors insulated spring compression connectors may be used for 10 AWG and smaller.
 - a. Acceptable Products:
 - (1) Buchanan,
 - (2) Ideal, Wing Nut,
 - (3) ITT Holub, Free Spring,
 - (4) T&B, Piggy, and
 - (5) 3M, Scotchlok.

3. Use mechanical compression or bolted type connector for 6 AWG or larger. Cover connector with insulating type of heat shrinkable insulation equivalent to 150% conductor insulation.

a. Acceptable Manufacturers:

- (1) AMP, Inc.,
- (2) Anderson,
- (3) Blackburn,
- (4) Burndy Corp.,
- (5) General Electric Co.,
- (6) Ideal Industries,
- (7) ITT Weaver,
- (8) O.Z./Gedney Co.,
- (9) T&B, and
- (10) 3M Co.

E. **COLOR CODING:** Color-code phase and neutral conductor insulation for No. 6 AWG or smaller. Provide colored marking tape for phase and neutral conductors for No. 4 AWG and larger. **Insulated ground conductors shall have green-colored insulation for all conductor sizes (AWG and/or KCMIL) to comply with NEC 250.119. Contractor shall arrange with his supplier to provide conductors with green colored insulation for all insulated ground wires regardless of conductor size (AWG and/or KCMIL). Neutral conductors shall have white-colored insulation for No. 6 AWG and smaller to meet the requirements of NEC 200.6.** Standard colors for power wiring and branch circuits shall be as follows:

	120/240 VAC, 1-Phase, 3-wire	208/120 VAC, 3-Phase, 4-wire	480/277 VAC, 3-Phase, 4-wire
Phase A	Black	Black	Brown
Phase B	Red	Red	Orange
Phase C	(Not applicable)	Blue	Yellow
Neutral	White	White	Gray
Ground	Green	Green	Green

F. **Intrinsically Safe Wiring:** Intrinsically safe wiring shall be identified in accordance with NEC (National Electrical Code) 504.80 "Identification". Color-code intrinsically safe wiring with light blue colored insulation in accordance with NEC 504.80 (C) "Color Coding".

G. Wire Pulling Lubricant

- 1. Pulling lubricant shall be a UL-listed, water-based, polymer solution. Lubricants containing waxes or soaps are not acceptable.
- 2. The lubricant shall be compatible with the cable insulation and shall not cause any premature deterioration of the insulating material.

3. Dried residue from lubricant shall not become tacky or gum-up. Cables shall remain pullable after lubricant has dried.
4. The lubricant shall be approved by the cable manufacturer for use with their cables.
5. Acceptable Manufacturers/Products:
 - a. American Colloid/Poly-X,
 - b. American Polywater/Polywater J,
 - c. ARNCO/Hydra-Lube,
 - d. Buchanan/Quick Slip,
 - e. Condux/Super-Lube, and
 - f. Ideal/Aqua-Gel.

3. EXECUTION

3.01 INSTALLATION OF BUILDING WIRE AND CABLE

- A. The Contractor shall install the specified cable at the approximate locations indicated on the Plans. Unless otherwise shown on the Plans, all cable required to cross under pavements shall be installed in concrete encased duct banks. Wherever possible, cable shall be run without splices, from connection to connection.
- B. The Contractor shall furnish and install all materials necessary for complete and operational installation, as specified herein, and as shown on the Plans. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NFPA 70 – National Electrical Code (NEC), most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, ETL listing (or other third party listing), and/or the manufacturer's warranty of a device will not be permitted.
- C. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).
- D. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

- E. All temporary installations shall comply with National Electrical Code Article 590 – “Temporary Installations”.
- F. Wire and cable shall be warranted to be free from defects in material and workmanship. Wire and cable shall be installed using accepted industry methods to prevent damage to conductors and insulation.
- G. Installation shall comply with all applicable sections of the NEC regarding conduit fill. Do not exceed conduit fill established by the NEC for number of conductors installed in a raceway.
- H. Splices will not be permitted in conduit bodies. All splices shall be made in outlet boxes or junction boxes provided for that purpose as detailed or required by need. Make all feeder cables continuous for origin to panel or equipment terminations without running splices in intermediate pull or boxes, unless specifically indicated on the Plans or approved in writing by the Owner’s Representative.
- I. All conduits shall be swabbed until all moisture and grit is removed before any wires are pulled. Do not pull any cable or wire in a raceway until conduit system is complete and internal raceway has been cleaned.
- J. Strain on cables shall not exceed manufacturer’s recommendations during pulling. Use pulling lubricant, compatible with insulation and covering that will not cause deterioration of insulation or jacket covers of cables or conductors. Use pulling lubricant shall be as recommended by wire manufacturer.
- K. Neatly train and lace wiring inside boxes, equipment and panelboards or load centers.
- L. Provide each cable or conductor in panels, junction or pull boxes with a permanent pressure-sensitive label with suitable numbers or letters for easy identification. Identify wires at each end and in junction boxes with circuit numbers.
- M. Provide wires and cables entering equipment or panels with enough slack to eliminate stretched, angular connection. Neatly arrange wiring, bundle and fan out to termination panels. Make minimum bending radius for conductors in accord with NEC.
- N. Support all conductors in vertical raceways in accordance with National Electrical Code.
- O. All cables installed by the Contractor shall be properly labeled and tagged at all points of access (junction structures, handholes, manholes, wireways, and junction boxes).
- P. Intrinsically safe wiring shall maintain separation from power and non-intrinsically safe wiring in accordance with NEC 504.30 “Separation of Intrinsically Safe Conductors”.

3.02 INSTALLATION IN DUCT BANKS OR CONDUITS

- A. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.
- B. The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.
- C. Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.
- D. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the Engineer of any blockage in the existing ducts.
- E. The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.
- F. The Contractor shall submit the recommended pulling tension values to the Engineer prior to any cable installation. If required by the Engineer, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the Engineer. Cable pull tensions shall be recorded by the Contractor and reviewed by the Engineer. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

- G. The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the Engineer, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.
- H. Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.
- I. Provide cable identification tags at points of access such as junction boxes, handholes, manholes, or other junction structures. Identification tags shall be waterproof and corrosion resistant.

3.03 LOCATING OF EXISTING UNDERGROUND UTILITIES AND CABLES.

- A. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient or complete. Neither the Owner nor the Engineer assumes any responsibility whatever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size and type of material of existing underground utilities indicated are representative of those to be encountered in the construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans and shall obtain from the respective utility companies detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Engineer shall also be immediately notified. Any such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract.
- B. Contact JULIE (Joint Utility Location Information for Excavation) for utility information, phone: 1-800-892-0123. Also coordinate work with all aboveground utilities.
- C. In areas where there is a congestion of buried cable or where the proposed cable crosses an existing cable, the Contractor shall be required to trench the proposed cable into place. When crossing existing circuits, the Contractor will be required to hand dig the trenches for the proposed cable. The hand digging of this cable will be considered incidental to the contract unit price of the proposed cable and no additional compensation will be allowed. In all other areas, the Contractor has the option to either trench or plow the proposed cable in unit duct

into place. The trenching or plowing of this cable will be considered incidental to the contract unit price of the proposed cable and no additional compensation will be allowed.

- D. The Contractor shall identify all existing underground utilities located within the area where the proposed cables are being installed, and will take all precautions to protect these utilities from damage. Care shall be taken so as not to damage any existing circuits. Any existing circuits damaged shall be immediately repaired to the satisfaction of the Engineer and/or the respective utility or owner where applicable. Any underground utility damaged will be repaired or replaced at the Contractor's own expense. Any repairs of existing cables will be considered incidental to the contract, and no additional compensation will be allowed.

3.04 TESTING

- A. Inspect wiring for physical damage and proper connection.
- B. Upon completion of cable and wire installation, but before termination to equipment, test each wire for grounds and short circuits. Replace or correct defective wiring.
- C. Verify proper phasing and correct or adjust connections, where applicable.
- D. Torque test conductor terminations to manufacturer's values.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. All wiring and cable will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16120

**DIVISION 16 – ELECTRICAL
SECTION 16130 – BOXES**

1. GENERAL

1.01 DESCRIPTION OF THE WORK

- A. The work included in this section is the supply and installation of all junction and pull boxes to provide a complete and operational electrical system.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16120 – Wire and Cable.
- D. Section 16450 – Grounding.

1.03 REFERENCE TO STANDARDS

- A. NEMA 4.
- B. NEMA 4X.
- C. NEMA 7.
- D. NFPA 70 – National Electrical Code (NEC) (most current issue in force).

1.04 DELIVERY, STORAGE AND HANDLING

- A. Boxes shall be stored away from contact with the earth and protected from the weather.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for junction and pull boxes to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 - 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished

promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.

2. Shop drawings shall include junction and pull boxes cut sheets with type, size, specifications, UL listing, manufacturer, and catalog or part number.

1.06 QUALIFICATIONS

- A. The junction and pull boxes shall be manufactured and supplied by a company regularly engaged in the business of furnishing junction and pull boxes. If required by the Engineer, the manufacturer shall submit a certification to a minimum experience of five years in the manufacture of junction and pull boxes.

1.07 MAINTENANCE SERVICE (WARRANTY)

- A. Junction and pull boxes shall be warranted to be free from defects in materials and workmanship for a period of one year from date of substantial completion by the Owner.

2. PRODUCTS AND MATERIALS

2.01 EQUIPMENT SPECIFICATION

- A. In interior conduit runs, located in dry, clean areas, boxes shall be constructed of 14 gauge sheet steel with either galvanized finish or two coats of approved enamel paint. Boxes shall have screw held access covers, or hinged covers. Boxes shall be of sizes noted on the Plans or shall be sized per the NEC Article 314 for the size and number of conduits, wires, and/or splices entering them. Boxes shall be UL listed.
- B. Exterior junction and pull boxes located in non-hazardous, non-classified areas shall be NEMA 4X stainless steel sized for conductors and splices per NEC Article 314. Boxes shall be U.L. listed. Boxes shall have hinged covers.
- C. Junction boxes located in classified hazardous locations (Class I, Division 1, or 2, Group D), shall be NEMA 7 (explosion proof) cast aluminum with threaded screw on covers and shall comply with applicable provisions of the NEC including but not limited to Articles 500 and 501. NEMA 7 junction boxes shall be UL listed or FM approved suitable for use in Class I, Division 1, Group D locations.
- D. Acceptable manufacturers:
 1. Appleton Electric Co.,
 2. Crouse-Hinds Co.,
 3. E-Box Inc.
 4. Hoffman Co.,
 5. Hubbell-Killark Electric Mfg. Co.,
 6. O.Z./Gedney Co.
 7. Saginaw Control & Engineering

8. Wiegmann
9. Or approved equal

3. EXECUTION

3.01 INSTALLATION

- A. All pull or junction boxes surface mounted in any interior damp location shall be "standoff" mounted ½-in. from the wall in a manner to promote air circulation completely around the box.
- B. Boxes required by code or need which are not detailed on the Plans shall be considered incidental to the proposal price and will not be paid for separately.
- C. The Contractor shall coordinate the installation of junction boxes with the general and mechanical work as required at the facility.
- D. Any damage to pull or junction boxes shall be immediately repaired or replaced to the satisfaction of the Owner's Representative.
- E. Protect all boxes from entry of foreign materials. Clean out metal shavings, scrap wire, dirt, and debris from each junction or pull box.
- F. Provide NEMA 4 hubs for all conduit entries into boxes or enclosures rated NEMA 4 or NEMA 4X to maintain the NEMA 4, 4X rating of the respective enclosure.
- G. Independently support all boxes. No parts of the weight or stress thereof shall be borne by the conduits termination therein.
- H. Avoid installations in classified hazardous locations. Where boxes are installed in a classified hazardous location they shall be UL listed or FM listed suitable for the respective classified hazardous location, and installed in conformance with the respective requirements of NEC for the respective location.
- I. All boxes shall be bonded to ground with a ground lug or screw and a ground wire.
- J. Plug all unused openings. Use threaded plugs for cast boxes.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding,

coordination, and testing required to complete the installation of the pump station and to place it into proper working order.

- B. All junction and pull boxes will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16130

**DIVISION 16 – ELECTRICAL
SECTION 16190 – SUPPORTING DEVICES**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. Conduit and equipment supports as required and specified herein.
- B. Anchors and Fasteners.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16130 – Boxes.
- D. Section 16470 – Panelboards.

1.03 REFERENCE TO STANDARDS

- A. NFPA 70 – National Electrical Code (NEC) (most current issue in force).
- B. NECA – National Electrical Contractors Association.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Stored conduit and equipment supports shall not be in contact with the earth, but shall be on pallets or other above-grade supports. Conduit and equipment supports shall be covered to minimize exposure to the weather.
- B. Anchors and fasteners shall be stored in their original containers in a clean, dry place. They shall not be exposed to weather

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 - 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished

promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.

2. Product Data: Provide manufacturer's catalog data for fastening systems and supports.
3. Manufacturer's Instructions: Include application conditions and limitations for use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage handling, protection, examination and installation of Product.

1.06 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

2. PRODUCTS

2.01 MANUFACTURERS

- A. Unistrut.
- B. B-Line.
- C. Approved Equivalent.

2.02 EQUIPMENT SPECIFICATION

- A. Strut-type stainless steel supports shall be provided to support all free standing equipment enclosures and other equipment enclosures as indicated on Plans.
- B. Strut supports for outdoor locations or areas that are damp, wet, or subject to corrosion shall be stainless steel P-1000SS as produced by Unistrut Corporation, 35660 Clinton Street, Wayne, Michigan 48184, phone: 1-800-521-7730, or approved equal. All hardware shall be corrosion resistant stainless steel.
- C. Strut support for equipment located in the wet well, valve vault, or other corrosive areas shall be stainless steel or reinforced fiberglass material as manufactured by Unistrut, B-Line, or approved equal.
- D. Strut supports for indoor locations in dry non-corrosive areas shall be steel with hot dipped galvanized finish, roll formed from 12 gauge (.105 U.S.S. Gage) cold rolled steel, galvanized material ASTM Des. A-446 Grade A. Material (cold rolled steel) shall be hot dipped galvanized coating conforming to ASTM Specification A-525, Des. G-90. Zinc coating shall form an excellent bond with steel surface so as not to be affected by subsequent forming operations. Supports shall be hot dipped galvanized steel strut, P-1000HG as produced by Unistrut Corporation,

35660 Clinton Street, Wayne, Michigan 48184, phone: 1-800-521-7730, or approved equal. All hardware shall be corrosion resistant stainless steel.

- E. Provide necessary hardware, such as floor flanges, etc., as required to install equipment.
- F. Provide materials, sizes and types of anchors, fasteners, and supports necessary to carry the loads of equipment and conduits. Consider weights of conduit when selecting products.
- G. Fasteners and anchors shall be corrosion resistant, stainless steel or cadmium plated. Where suitable, non metallic clamps and fasteners may be used.
- H. Cable hangers located in the pump station wet well and/or in electrical manholes shall be heavy duty nylon saddle rack with 3 in. throat opening Underground devices, Northbrook, IL, Cat. No. 3SR1 or 3SR2, or approved equal. Cable hangers shall be adequately sized to accommodate the respective cables. Secure cables to cable hangers with corrosion resistant cable ties.

3. EXECUTION

3.01 EXAMINATION

- A. Examine all supports and fasteners for straightness, rust and corrosion. Do not use any equipment that is not straight or is rusted or corroded.

3.02 PREPARATION

- A. All equipment shall be clean at time of installation. Remove all burs.

3.03 INSTALLATION

- A. Install products in conformance with manufacturer's instruction and as detailed on the Plans.
- B. Provide anchors, fasteners and supports in accordance with NECA Standard of Installation.
- C. Do not fasten supports to pipes, ducts, mechanical equipment or conduit.
- D. Do not use spring steel clips or clamps.
- E. Install surface mounted cabinets, enclosures and panelboards with a minimum of four anchors.
- F. Use spring-lock washers under all nuts.
- G. Provide zinc rich paint applied to field cuts of galvanized steel strut support to minimize the potential for corrosion per the respective strut support manufacturer's recommendation.

- H. Concrete work associated with support structures shall conform to Section 1020 PORTLAND CEMENT CONCRETE of the Standard Specifications for Road and Bridge Construction and as detailed on the Plans.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. All conduit and equipment supports, anchors, fasteners, and associated hardware will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16190

**DIVISION 16 – ELECTRICAL
SECTION 16195 – ELECTRICAL IDENTIFICATION**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section includes field-installed nameplates, labeling and identification methods for electrical equipment, components and wiring.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16120 – Wire and Cable.
- C. Section 16130 – Boxes
- D. Section 16410 – Enclosed Circuit Breakers
- E. Section 16470 – Panelboards
- F. Section 16495 – Automatic Transfer Switches
- G. Section 16620 Standby Power Generator Systems

1.03 REFERENCE TO STANDARD

- A. NFPA 70 – National Electrical Code (NEC) (most current issue in force).

1.04 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70 – National Electrical Code (NEC), most current issue in force.

2. PRODUCTS

2.01 EQUIPMENT SPECIFICATION

- A. Legend plates shall be provided for all equipment. Legend plates shall be provided to identify the equipment controlled, the power source, and the function of each device. Each individual circuit breaker, transfer switch, control panel, motor starter, safety switch, panelboard, load center shall be furnished with a phenolic engraved legend plate that identifies the respective device, the power source, and the respective voltage, phase, and wire. Furnish additional phenolic engraved legend plates as detailed on the Plans and/or where required by code. Legend plates shall be weatherproof and abrasion resistant phenolic/plastic engraved material and fastened with contact type permanent adhesive, screws, or rivets. Installation shall not break, crack, or deform the legend plate. Lettering

shall be 1/4-inch high. Equipment that is powered from a utility power source only (for example the main service disconnect) shall have black lettering on a white background. Equipment that is powered from an emergency/standby power source only (for example the generator breaker) shall have black lettering on a yellow background. Equipment that is normally powered from the utility and backed up by the generator (for example the auto transfer switch) shall have white lettering on a red background.

- B. Furnish and install weatherproof warning label for each meter socket, enclosed circuit breaker, disconnect switch, switchboard, panelboard, load center, motor control center, and control panel to warn persons of potential electric arc flash hazards, per the requirements of NEC 110.16 "Flash Protection". Labels shall also conform to ANSI Z535.4-2002 "American National Standard for Product Safety Signs and Labels". NEC 110.16 requires that switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing or maintenance while energized, shall be field marked to warn qualified persons of potential arc flash hazards. The markings shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment. This new requirement is intended to help reduce the occurrence of serious injury or death due to arcing faults to those working on or near energized electrical equipment. The warning labels are to indicate to a qualified worker who intends to open the equipment for analysis of work that a serious hazard exists and that the worker should follow appropriate work practices and wear appropriate personal protective equipment (PPE) for the specific hazard. Labels shall be as detailed on the Plans or shall include at least the following information: "Warning - Potential Arc-Flash Hazards exist while working on this energized equipment. Appropriate PPE Required."
- C. Provide legend plates for service equipment with the information on the maximum available fault current and the date the fault current calculation was performed to meet the requirements of NEC 110.24 "Available Fault Current".
- D. All power and control cables in handholes, manholes, and junction boxes shall be tagged to identify the respective cable. A minimum of two cable tags shall be provided on each cable in a manhole: one at the cable entrance and one at the cable exit. Cable tags shall be stamped brass tags or other weatherproof/waterproof corrosion resistant material.

3. EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive nameplates and markers.

3.02 INSTALLATION

- A. Secure nameplates to equipment using screws or adhesive.

- B. Nameplates shall be provided for all panelboards, load centers, disconnects, enclosed starters, control panels, emergency stop stations, etc.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. All nameplates, placards, labeling, and identification will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16195

**DIVISION 16 – ELECTRICAL
SECTION 16410 ENCLOSED CIRCUIT BREAKERS**

1. GENERAL

1.01 WORK INCLUDES

- A. Enclosed circuit breakers as detailed on the Plans and specified herein.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16120 – Wire and Cable.
- D. Section 16190 – Supporting Devices.
- E. Section 16195 – Electrical Identification.
- F. Section 16421 – Utility Service Entrance and Metering
- G. Section 16450 – Grounding and Bonding.

1.03 REFERENCE TO STANDARDS

- A. NFPA 70 – National Electrical Code (NEC) (most current issue in force).
- B. NFPA 70E – Standard for Electrical Safety in the Workplace.
- C. NEMA AB 1 – Molded Case Circuit Breakers, Molded Case Switches, and Circuit Breaker Enclosures.
- D. NEMA AB 3 – Molded-Case Circuit Breakers and Their Application
- E. NEMA AB 4 - Guidelines for Inspection and Preventative Maintenance of Molded-Case Circuit Breakers Used in Commercial and Industrial Applications.
- F. NEMA KS1 Enclosed and Miscellaneous Distribution Equipment Switches (600V Maximum)
- G. NEMA 1
- H. NEMA 4, 4X.
- I. NEMA 12
- J. NEMA 250 Enclosures for Electrical Equipment (1000 Volts Maximum)

- K. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- L. UL 50 – Cabinets and Boxes.
- M. UL Standard 489 – Molded Case Circuit Breakers.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Circuit breakers shall be stored in containers as delivered to job site, in a clean and dry location, protected from construction.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for safety switches and disconnects to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 2. Enclosure types and details.
 3. Current and voltage ratings.
 4. Short-circuit current ratings (interrupting and withstand, as appropriate).
 5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
 6. Provide catalog sheets and showing manufacturer, model number, voltage, circuit breaker size, Amperage ratings, number of poles, withstand and closing ratings, dimensions, and enclosure details.
 7. Coordinate with auto transfer switch withstand and closing ratings with the service entrance breaker/disconnect and the generator breaker/disconnect to maintain the “withstand and closing ratings” of the switch. Include this information with the submittal.

1.06 QUALIFICATIONS

- A. Circuit breakers shall be furnished by a manufacturer regularly engaged in the construction of circuit breakers, with at least ten years of experience in furnishing circuit breakers.

1.07 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70 – National Electrical Code.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.08 MAINTENANCE SERVICE (WARRANTY)

- A. Circuit breakers shall be warranted to be free from defects in material and workmanship for period of one year from date of substantial completion established by the Owner.

2. PRODUCTS

2.01 MANUFACTURERS

- A. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
- B. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
- C. Square D; a brand of Schneider Electric.
- D. Or approved equivalent manufacturer's circuit breaker that is compatible and rated suitable for the respective application.

2.02 ENCLOSED CIRCUIT BREAKERS

- A. General Requirements: Circuit breaker to be used with service applications shall be rated suitable for use as service entrance equipment, comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents. Circuit breaker Amp Interrupting Current (AIC) rating shall be greater than the available fault current.
- B. Coordinate selection of service breaker and generator breaker with the automatic transfer switch (ATS) to maintain the "withstand and closing ratings" of the ATS.
- C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

- D. Circuit breakers shall use standard frame sizes, trip ratings, and number of poles as detailed on the Plans and/or in accordance with the respective applications. Circuit breaker lugs shall be mechanical type, suitable for number, size, trip ratings, and conductor material.
- E. Circuit breaker enclosures shall meet the applicable sections of NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location. Circuit breaker enclosures located outdoors shall be rated NEMA 4X stainless steel, UL listed suitable for service entrance. Circuit breaker enclosures located in dry, non-corrosive, non-hazardous interior locations shall be rated NEMA 1 or NEMA 12. Circuit breaker enclosures shall be pad lockable in the "off" position.
- F. Include equipment ground bar kit with each circuit breaker.
- G. Include neutral bar kit where applicable with respective circuit breakers.

3. EXECUTION

3.01 INSTALLATION/APPLICATION

- A. Install circuit breaker enclosures plumb. Secure circuit breaker to building, structure, or equipment surface as shown. Where the surface is not adaptable for mounting, provide stainless steel strut support (Unistrut P-1000-SS, or approved equal) with corrosion resistant hardware to secure circuit breakers. All circuit breakers shall be supplied with appropriate mounting hardware and strut support in accordance with Section 16190 – Supporting Devices. Mounting hardware shall be corrosion resistant.
- B. Mount circuit breakers securely in accordance with the manufacturer's recommendations/instructions for the respective application. Installation of circuit breakers shall be in conformance with the manufacturer's requirements and as detailed on the Plans. Installations that void the third party certification, or void the manufacturer's warranty, will **NOT** be permitted.
- C. Secure circuit breaker to structure as shown on Plans. Provide stainless steel strut to secure electrical equipment. Mounting hardware shall be corrosion resistant stainless steel. Install equipment enclosures plumb.
- D. Inspect all circuit breakers for proper operation, tight and secure connections, and correctness. Adjust as necessary to assure proper operation.
- E. Nuts, bolts, and screws shall be tightened to manufacturer's specifications/requirements.
- F. Provide weatherproof, abrasion resistant, legend plates, for all circuit breakers, indicating the device being fed, the voltage and phase, and the origin of the respective feeder.

- G. All circuit breaker enclosures shall be bonded to ground with a ground lug or screw and a ground conductor.
- H. Do not use circuit breaker enclosures for a splice box or for a pull box. Do not route control wires or other circuit wiring through a circuit breaker enclosure. Where splices are required or other control circuit wires are installed in the respective conduit to a circuit breaker, provide a separate junction box to accommodate the splices and/or other circuit conductors.
- I. Field cut holes in circuit breaker enclosures to accommodate conduit entrances. Where circuit breaker enclosures are provided with concentric knockouts, and the respective conduit does not use the largest knockout, install a grounding bushing with ground wire connections between the bushing and the ground bus. Standard locknuts or bushings shall not be the sole means for bonding where a conduit enters an enclosure through a concentric or eccentric knockout.
- J. Provide grounding bushing with ground wire connections between the bushing and the ground bus for all conduits terminating in a service disconnect breaker enclosure.
- K. Provide NEMA 4 hubs for all conduit entries into circuit breaker enclosures that are rated NEMA 4, 4X to maintain NEMA 4, 4X rating.

3.02 TESTING

- A. Perform visual and mechanical inspection.
- B. Test all circuit breakers for proper operation and continuity on all poles when in the closed (on) position.
- C. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- D. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.

- B. All circuit breakers will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16410

**DIVISION 16 - ELECTRICAL
SECTION 16421 – UTILITY SERVICE ENTRANCE
AND METERING**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. The work included in this section is the supply and installation of electric service entrance from the utility transformer bank to the service entrance meter and disconnect. Included in this work shall be the utility transformation equipment to provide the service voltage and capacity for the facility. This section shall include all labor, coordination, equipment and materials necessary to provide a complete and operational electric service entrance.

1.02 REFERENCE TO STANDARDS

- A. NFPA 70 – National Electrical Code (most current issue in force).
- B. NFPA 70E – Standard for Electrical Safety in the Workplace.
- C. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- D. Contractor shall confirm the requirements and standards as specified by the respective serving electric utility company.

1.03 RELATED WORK

- A. 16010 – Basic Electrical Requirements.
- B. 16110 – Raceways.
- C. 16120 – Building Wire and Cable.
- D. 16410 – Enclosed Circuit Breakers.
- E. 16450 – Grounding.

2. PRODUCTS

2.01 GENERAL

- A. Products for the new electric service entrance shall be as detailed on the Plans and specified herein.

3. EXECUTION

3.01 GENERAL

- A. The Contractor shall coordinate the work with the serving electric utility company; Ameren, Attn. Ms. Julie Cone, Engineering Representative, 1824 Knox Highway 9, Galesburg, Illinois 61401, Phone (309) 345-5169, Cell Phone: (309) 368-6248, Email: Jcone2@ameren.com. Installation of the new service entrance shall be as detailed on the Plans, per the serving electric utility requirements, and as specified herein.
- B. The Contractor shall coordinate and obtain the required permit(s) for new electric service from the local city building/electrical inspector as applicable. The electrical inspector for the City of Galesburg is Mr. Robert Elsbury, Phone: (309) 345-3615.
- C. The Contractor shall coordinate new electric service work with the City of Galesburg.
- D. **The City of Galesburg and/or IDOT shall pay for all associated electric utility company charges required to provide electric service to the pump station. The Contractor is not responsible for electric utility company charges associated with the proposed electric service to the pump station.** The Contractor shall coordinate the new electric service with the serving electric utility company and the Owner's Representative. The service entrance shall include, but not be limited to, all service entrance equipment, labor, and materials, as detailed on the Plans and specified herein, in order to provide a complete and operational electrical system.
- E. The Contractor shall furnish and install all materials necessary for complete and operational installation, as specified herein, and as shown on the Plans. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NFPA 70 – National Electrical Code (NEC), most current issue in force, the serving electric utility company requirements, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, ETL/Intertek Testing Services listing/verification (or other third party

listing), and/or the manufacturer's warranty of a device will not be permitted.

- F. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures, including, but not limited to, 29 CFR Section 1910.147 The Control of Hazardous Energy (lockout/tagout).
- G. Contactor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

3.02 UTILITY

- A. Will provide and install a 480/277 VAC, 3 phase, 4 wire solidly grounded power sufficient to handle the connected loads for a 400 Amp service or as required for the respective equipment loads.
- B. Will install metering.
- C. Will make final connections to their utility transformer(s). The electric utility will make terminations on their utility transformers.
- D. Will retain the right to review and approve drawings prior to installation.

3.03 CONTRACTOR

- A. Shall coordinate work and verify requirements with the serving electric utility.
- B. Shall coordinate work with the Owner's Representative. This will include coordinating the electric service entrance work and billing arrangements with the serving electric utility company.
- C. Shall coordinate work and verify requirements with the City Electrical Inspector and applicable local codes.
- D. Shall provide the necessary equipment, conduit, interface, coordination, load data, etc. for utility service as required by the serving electric utility.
- E. Shall furnish and install a meter base, current transformer cabinet, and other metering equipment conforming to the serving electric utility company's requirements and as detailed on the Plans.
- F. Shall furnish and install conduit and fittings to interface to the respective service equipment and extend to the utility transformer.

- G. Shall furnish and install service conductors from the utility transformer to the metering equipment and service disconnect.
- H. Shall furnish and install a service disconnect as detailed on the Plans and as specified herein.
- I. Shall provide grounding as detailed on the Plans, specified herein and in conformance with the serving electric utility company requirements. The service entrance neutral shall be solidly grounded in the service disconnect enclosure.
- J. Shall provide additional work as required by the serving electric utility and as required to provide a complete and operational electric service entrance system.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. The supply and installation of electric service as required to complete the work as indicated on the Plans will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16421

**DIVISION 16 - ELECTRICAL
SECTION 16422 – TEMPORARY POWER**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. The work included in this section is the supply and installation of temporary electrical power as required to complete the work as indicated on the Plans and detailed herein.

1.02 REFERENCE TO STANDARDS

- A. NFPA 70 – National Electrical Code (most current issue in force).
- B. NFPA 70E – Standard for Electrical Safety in the Workplace.
- C. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- D. Contractor shall confirm the requirements and standards as specified by the respective serving electric utility company.

1.03 RELATED WORK

- A. 16010 – Basic Electrical Requirements.
- B. 16110 – Raceways.
- C. 16120 – Wire and Cable.
- D. 16450 – Grounding.
- E. 16470 – Panelboards

2. PRODUCTS

2.01 MATERIALS

- A. Materials may be new or used, but shall be adequate for the purposed used, shall not create unsafe conditions, nor violate specific codes. Comply with NFPA 70 - National Electrical Code (most current issue in force), and all applicable Federal, State, and local codes in force.

3. EXECUTION

3.01 TEMPORARY ELECTRICITY DURING CONSTRUCTION

- A. All temporary power connections shall be coordinated with the Owner's Representative, the Serving Electric Utility Company and the City Electrical Inspector. The serving electric utility company is Ameren, Attn. Ms. Julie Cone, Engineering Representative, 1824 Knox Highway 9, Galesburg, Illinois 61401, Phone (309) 345-5169, Cell Phone: (309) 368-6248, Email: Jcone2@ameren.com. The electrical inspector for the City of Galesburg is Mr. Robert Elsbury, Phone: (309) 345-3615. The Contractor shall make necessary arrangements to provide temporary electric service/power and lighting required during the entire construction period, including required fees and permits. Cost of such electricity used shall be borne by the Contractor.
- B. Temporary Wiring shall comply with NEC Article 590 Temporary Installations as well as the other applicable articles of NEC (most current issue in force).
- C. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative, prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures, including, but not limited to, 29 CFR Section 1910.147 The Control of Hazardous Energy (lockout/tagout).
- D. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.
- E. Electric services/power shall be of sufficient capacity and characteristics to supply proper voltage and current for various types of construction tools, motors, welding machines, lights, heating plant, air conditioning/ventilation system, pumps, and other equipment required. The Contractor shall provide all necessary temporary wiring, panelboards, load centers, outlets, switches, lamps, fuses, controls, and accessories. A sufficient number of electric outlets shall be provided in each work area or floor along with adequate lighting in all work areas, stairwells, and corridors.
- F. Materials used for temporary service shall not be used in permanent system unless the Resident Engineer/Resident Project Representative gives specific approval. Temporary electric service shall be so constructed and arranged as not to interfere with the progress of other trades. This system shall be erected and maintained strictly in accordance with all ordinances and requirements for temporary service pertaining thereto inclusive of OSHA and NEC.

- G. All 120 VAC, 15 Amp, 20 Amp, and 30 Amp receptacle circuits shall have ground fault circuit interrupter protection for personnel, in accordance with 2014 NEC 590.6. Ground fault circuit interrupter protection will automatically disconnect the circuit when leakage current of 4-6 milli-Amps is detected.
- H. Receptacles shall not be placed on the same branch circuit with temporary lighting.
- I. Any Contractor who has installed a temporary utility connection as herein specified, shall, prior to final acceptance, remove temporary connections and installations and leave premises restored to condition in which it was found or upgraded.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. The supply and installation of temporary electrical power as required to complete the work as indicated on the Plans will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END OF SECTION 16422

**DIVISION 16 – ELECTRICAL
SECTION 16450 – GROUNDING AND BONDING**

1. GENERAL

1.01 WORK INCLUDES

- A. The work in this section includes grounding of electrical systems and equipment and basic requirements for grounding for protection of personnel, life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other Sections of these Specifications. See grounding details on the Drawings and refer to other related work sections included with these Specifications for further details.
- B. Furnish and install grounding as detailed on the Plans and as specified herein.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16120 – Wire and Cable.
- D. Section 16130 – Boxes
- E. Section 16410 – Enclosed Circuit Breakers
- F. Section 16421 – Utility Service Entrance and Metering
- G. Section 16422 – Temporary Power
- H. Section 16460 - Dry Type Transformers
- I. Section 16470 – Panelboards
- J. Section 16495 – Automatic Transfer Switches
- K. Section 16620 – Standby Power Generator Systems
- L. Section 16615 – Surge Protector Devices.

1.03 REFERENCE TO STANDARDS

- A. NFPA 70 – National Electrical Code (NEC) (most current issue in force)

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Exothermic welds and hardware items shall not be shipped loose but shall be in boxes, labeled with material and equipment enclosed. Boxes shall be stored away from contact with earth and shall be protected from weather.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 2. Shop drawings shall include cut sheets for ground rods with type, size, specifications, product data, UL listing, manufacturer, and catalog or part number.
 3. Provide certification that ground rods are manufactured in the United States of America and produced from 100 percent domestic steel to comply with the Illinois **"Steel Products Procurement Act"**.
 4. Shop drawings shall include cut sheets for grounding conductors/ground wire with type, size, specifications, product data, UL listing, manufacturer, and catalog or part number.
 5. Shop drawings shall include cut sheets for grounding connectors (including exothermic weld type connectors) with type, size, specifications, product data, manufacturer, and catalog or part number.

1.06 MAINTENANCE SERVICE (WARRANTY)

- A. All equipment shall be warranted to be free from defects in material and workmanship for a period of one year form date of substantial completion established by the Owner.

2. PRODUCTS

2.01 EQUIPMENT SPECIFICATION

- A. All grounding products shall be UL listed and labeled and suitable for the respective application.
- B. Ground rods shall be UL listed, 3/4 in. diameter by 10 ft long copper-clad steel with 10 mil minimum copper coating. Where shown on the Plans or required to obtain a better grounding system, ground rods shall be coupled together to form 20 ft, 30 ft, or longer ground rods. Couplers shall be as recommended by the respective ground rod manufacturer. Steel used to manufacture ground rods shall be 100 percent domestic steel.
- C. Connections to equipment enclosure frames shall be with the respective manufacturer's grounding lugs or terminals or shall be with two-hole tongue long barrel compression lugs bolted with stainless steel bolts, nuts, and washers as detailed on the Plans.
- D. Connection of ground wire to ground rod shall be with exothermic weld type connections. Exothermic weld type connectors shall be Cadweld by Erico Products, Inc., Solon, Ohio, (Phone 1-800-248-9353), Thermoweld by Continental Industries, Inc., Tulsa, Oklahoma (Phone 918-663-1440) or Ultraweld by Harger, Grayslake, Illinois (Phone 1-800-842-7437), or approved equal. Where exothermic weld connections are used they shall be installed in conformance with the respective manufacturer's directions using proper molds suitable for each respective application.
- E. Pipe grounding clamps shall be as detailed on the Plans.
- F. Equipment ground wires shall be copper conductors sized as detailed on the Plans. Insulation shall be 600-Volt, same type as phase conductors, green in color.
- G. Grounding electrode conductors shall be bare stranded annealed copper, sized as detailed on the Plans.

3. EXECUTION

3.01 INSTALLATION

The Contractor shall furnish and install all grounding shown on the Plans and/or as may be necessary or required to make a complete grounding system as required by the latest National Electrical Code (NFPA 70) in force. The reliability of the grounding system is dependent on careful, proper installation and choice of materials. Improper preparation of surfaces to be joined to make an electrical path, loose joints or corrosion can introduce impedance that will seriously impair the ability of the ground path to protect personnel and equipment and to absorb transients that can cause noise in communications circuits. The following functions are particularly important to ensure a reliable ground system:

- A. All products associated with the grounding system shall be UL-listed and labeled.

- B. All bolted or mechanical connections shall be coated with a corrosion preventative compound before joining, Sanchem Inc. "NO-OX-ID "A-Special" compound, or equal.
- C. Metallic surfaces to be joined shall be prepared by the removal of all non-conductive material, per **2014 National Electrical Code Article 250-12**. All copper bus bars must be cleaned prior to making connections to remove surface oxidation.
- D. Metallic raceway fittings shall be made up tight to provide a permanent low impedance path for all circuits. Metal conduit terminations in enclosures shall be bonded to the enclosure with UL-listed fittings suitable for grounding. Provide grounding bushings with bonding jumpers for all metal conduits entering service equipment (meter base, CT cabinet, main service breaker enclosure, etc.). Provide grounding bushings with bonding jumpers for all metal conduits entering an enclosure through concentric or eccentric knockouts that are punched or otherwise formed so as to impair the electrical connection to ground. Standard locknuts or bushings shall not be the sole means for bonding where a conduit enters an enclosure through a concentric or eccentric knockout.
- E. All motor frames, pump bases, electrical equipment enclosures, panel housings, conduits, boxes, etc. have a continuous copper wire ground connection and shall be positively bonded to the respective grounding system. Conduit connectors will not be considered as adequate grounding.
- F. Furnish and install ground fields, ground rings, and/or ground rods at all locations where shown on the Plans or specified herein. Ground rods for electrical installations shall be 3/4-in. diameter by 10-ft long, UL-listed, copper clad with 10-mil minimum copper coating. Top of ground rods shall be a minimum of 420140 in. below finish grade unless otherwise noted on the Plans. Ground rods shall be spaced as detailed on the Plans and in no case spaced less than one rod length apart. All connections to ground rods, ground fields, and/or ground rings shall be made with exothermic weld type connectors, Cadweld by Erico Products, Inc., Solon, Ohio, (Phone 1-800-248-9353), Thermoweld by Continental Industries, Inc., Tulsa, Oklahoma (Phone 918-663-1440) or Ultraweld by Harger, Grayslake, Illinois (Phone 1-800-842-7437), or approved equal. Exothermic weld connections shall be installed in conformance with the respective manufacturer's directions using molds as required for each respective application. Bolted connections will not be permitted at ground rods or at buried grounding electrode conductors. Grounding electrode conductors shall be bare copper sized as detailed on the Plans. In addition to the grounding work described herein and shown on the Plans, the Contractor shall test the made electrode ground rod/ground field/ground ring with an instrument specifically designed for testing ground field systems. If ground resistance exceeds **25 Ohms**, contact the Project Engineer for further direction. Copies of ground rod/ground field/ground ring test results shall be furnished to the Owner's Representative and/or the Project Engineer.
- G. All connections, located above grade, between the different types of grounding conductors shall be made using UL-listed double compression crimp type connectors or UL-listed bolted ground connectors. For ground connections to

enclosures, cases and frames of electrical equipment not supplied with ground lugs the Contractor shall drill required holes for mounting a bolted ground connector. All bolted ground connectors shall be Burndy, Thomas and Betts, or equal. Tighten connections to comply with tightening torques in UL Standard 486A to assure permanent and effective grounding.

- H. All metal equipment enclosures, conduits, cabinets, boxes, receptacles, motors, etc. shall be bonded to the respective grounding system.
- I. Provide all boxes for proposed outlets, switches, circuit breakers, etc. with grounding screws. Provide all control panel, panelboard, transfer switch, etc., enclosures with grounding bars with individual screws, lugs, clamps, etc., for each of the grounding conductors that enter their respective enclosures. Do not terminate more than one (1) ground wire in ground lug or terminal unless the respective lug or terminal is rated for multiple conductors.
- J. Each feeder circuit and/or branch circuit shall include an equipment ground wire. Metal raceway or conduit shall not meet this requirement. The equipment ground wire from equipment shall not be smaller than allowed by 2014 NEC Table 250-122 "Minimum Size Conductors or Grounding Raceway and Equipment." When conductors are adjusted in size to compensate for voltage drop, equipment-grounding conductors shall be adjusted proportionately according to circular mil area. All equipment ground wires shall be copper, either bare or insulated green in color. Where the equipment grounding conductors are insulated, they shall be identified by the color green, and shall be the same insulation type as the phase conductors.
- K. Equipment ground wires shall be identified with green colored insulation for all conductors AWG or KCMIL. Green tape will not meet this requirement.
- L. All utility transformer bank grounds shall be installed in accordance with the serving electric utility company's recommendation and in accordance with NEC.
- M. Bond the main electrical service neutral to ground at the main service disconnect. Bond the service neutral to ground at one location only per the NEC. A grounding connection shall not be made to any neutral circuit conductor on the load side of the service disconnecting means, except as permitted by 2014 NEC 250-24.
- N. The secondary neutral of all transformers (separately derived system transformers) shall be grounded in accordance with the NEC. The respective grounding electrode conductor shall be connected to the neutral point of the transformer between the transformer and the output disconnecting means. Size of the grounding electrode conductor shall be in accordance with 2014 NEC Article 250-66 and Table 250-66 unless shown larger on the Drawings. A bond shall be provided between the neutral and transformer case, or other metal that is part of the AC equipment grounding system, so as to complete a circuit for fault current to the transformer winding from the AC equipment grounding system. Size of the neutral bonding conductor shall be in accordance with 2014 NEC Article 250-102.

- O. All exterior metal conduit, where not electrically continuous because of manholes, handholes, non-metallic junction boxes, etc., shall be bonded to all other metal conduit in the respective duct run, and at each end, with a copper-bonding jumper sized in conformance with 2014 NEC 250-102. Where metal conduits terminate in an enclosure (such as a motor control center, switchboard, etc) where there is not electrical continuity with the conduit and the respective enclosure, provide a bonding jumper from the respective enclosure ground bus to the conduit sized per 2014 NEC 250-102.
- P. Install grounding electrode conductors, lightning protection down conductors and separate ground conductors in Schedule 40 or Schedule 80 PVC conduit or exposed where acceptable to local codes. Where grounding electrode conductors, lightning protection down conductors or individual ground conductors are run in PVC conduit, Do Not completely encircle conduit with ferrous and/or magnetic materials. Use non-metallic reinforced fiberglass strut support. Where metal conduit clamps are installed, use nylon bolts, nuts, washers and spacers to interrupt a complete metallic path from encircling the conduit. This is required to avoid girdling of ground conductors. Girdling of a ground conductor is the result of placing the conductor in a ring of magnetic material. This ring could be a metallic conduit, u-bolt or strut support pipe clamp, or other support hardware. The result of girdling ground conductors significantly increases the inductive impedance of the ground conductor. Inductive and capacitive impedance is a type of resistance that opposes the flow of alternating current. Any increase in the impedance of a ground conductor reduces its ability to effectively mitigate radio frequency noise in the ground system. The condition where a ground conductor is girdled during a lightning strike results in phenomena known as Surge Impedance Loading. Surge impedance loading is a result of voltage and current reaching 500,000 volts and 10,000 amps for a short duration. Girdling further increases the impedance at lightning frequencies of 100 kilohertz to 100 megahertz. At these power and frequency levels any increase in the impedance of the ground conductor must be controlled. During lightning discharge conditions a low inductive impedance path is more important than a low DC resistance path.
- Q. Buried or concealed ground systems: Shall be accepted by Owner's Representative before backfilling or covering.

3.02 TESTING

- A. Entire ground system shall be tested. Measure resistance to ground of system. Perform testing in accordance with test instrument manufacturer's recommendations using fall-of-potential method. Maximum grounding system resistance shall be 25 Ohms.
- B. Contractor shall test the made grounding electrode system (ground rods/ground ring/ground field/or other grounding electrodes) with an instrument specifically designed for testing grounding electrode systems. If ground resistance exceeds 25 Ohms, contact the Owner's Representative and/or the respective Project Engineer for further direction. Copies of grounding electrode system test results shall be furnished to the Owner's Representative and/or Project Engineer.

- C. Copies of data and test reports shall be furnished to Owner's Representative. Report data to include technician's name, date of test, site conditions, Testing equipment manufacture and model number, and certification of test results.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. All costs for furnishing all materials and for all preparation, assembly, and installation of these materials; for all excavation and backfilling; and for all labor, equipment, tools, and incidentals necessary to perform the grounding and bonding as detailed on the Plans and specified herein shall be considered incidental to the respective item of work for which the grounding and bonding is being installed, and no additional compensation will be allowed.

END OF SECTION 16450

DIVISION 16 – ELECTRICAL
SECTION 16460 – DRY TYPE TRANSFORMERS

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section includes the supply and installation of enclosed dry type transformers, and all required work to provide a complete and operational electrical system.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16120 – Wire and Cable.
- D. Section 16190 - Supporting Devices.
- E. Section 16195 – Electrical Identification.
- F. Section 16450 – Grounding.

1.03 REFERENCE TO STANDARDS

- A. IEEE C57.12.01 - Standard General Requirements for Dry-Type Distribution and Power Transformers including those with Solid Cast and/or Resin Encapsulated Windings.
- B. ANSI C57.12.50 - Requirements for Ventilated Dry-Type Distribution Transformers, 1 to 500 kVA, Single-Phase and 15 to 500 kVA, Three-Phase, with High Voltage 601 to 34,500 V, Low-Voltage 120 to 600 V.
- C. ANSI C57.110 - Recommended Practice for Establishing Transformer Capability when Supplying Non-Sinusoidal Load Currents.
- D. IEEE C57.94 - Recommended Practice for Installation, Application, Operation and Maintenance of Dry-Type General Purpose Distribution and Power Transformers.
- E. IEEE C57.96 - Guide for Loading Dry-Type Distribution and Power Transformers
- F. NEMA ST-20 - Dry-Type Transformers for General Application
- G. UL 1561 – Standard for Dry-Type General Purpose and Power Transformers
- H. NFPA 70 – National Electrical Code (most current issue in force).

- I. NFPA 70E – Standard for Electrical Safety in the Workplace.
- J. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- K. 2016 DOE (Department of Energy) Regulation regarding efficiency ratings for transformers.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Dry type transformers shall be stored indoors from time of delivery to job site, protected from weather and construction.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for panelboards to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 - 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 - 2. Submittals for panelboards shall include outline and support point dimensions, voltage, main bus ampacity, bus material, integrated short circuit ampere rating, circuit breaker arrangement and sizes and respective enclosure. Information on circuit breakers shall include manufacturer's catalog numbers, description with number of poles, voltage ratings, Amp trip ratings, Amp interrupting current ratings, and any special features (for example switched neutral, shunt trip, etc.). Submittals shall also include manufacturer's installation instructions; indicating application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting the product.

1.06 QUALITY ASSURANCE

- A. Dry-type transformers shall be manufactured and supplied by a company regularly engaged in the business of furnishing transformers. If required by the

Engineer, the manufacturer shall submit certification to a minimum of ten years experience in the manufacturer of transformers.

1.07 MAINTENANCE SERVICE (WARRANTY)

- A. Transformers shall be warranted to be free from defects, material and workmanship for a period of one year from date of substantial completion established by the Owner.

2. PRODUCTS

2.01 MANUFACTURERS

- A. Dry type transformers shall be manufactured by Square D, Acme Transformer, General Electric, Cutler Hammer, or approved equal.

2.02 EQUIPMENT

- A. Step-Down Transformer for Pump Station. Step-down transformer for use with the 120/240 VAC power feeder circuit for Panelboard "B" shall be rated 10 KVA, 480 VAC, 1-phase, primary, 120/240 VAC, 1-phase, 3-wire secondary, 60 Hz, with UL Class 180 degree C insulation system, and 115 degree maximum temperature rise. Windings shall be Copper or Aluminum. Transformers shall be suitable for indoor/outdoor installation with a NEMA 3R weatherproof enclosure. Transformers shall be UL-listed and shall include electrostatic shielding.

3. EXECUTION

3.01 EXAMINATION

- A. Dry type transformers shall be inspected for physical damage. Touch up paint matching transformer shall be used as needed.

3.02 INSTALLATION

- A. All electrical work shall comply with the requirements of NFPA 70 - National Electrical Code (NEC), most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, ETL/Intertek Testing Services listing/verification, FM approval, or other third party listing, and/or the manufacturer's warranty of a device will not be permitted.
- B. Contractor shall coordinate work and any power outages with the Owner's Representative and the Resident Engineer/Resident Project Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. Once shut down, the circuits shall be

labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).

- C. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.
- D. Install transformers in accordance with manufacturer's instructions.
- E. Set transformer plumb and level.
- F. Install transformers in accordance with the seismic requirements for the area in which the installation is located as well as manufacturer's recommendations.
- G. Use extreme care to eliminate noise and vibration.
- H. Provide liquid tight flexible metal conduit (2 feet minimum length) for connections to transformer case. Liquid-tight, flexible metal conduit and associated fittings shall be UL-listed to meet the requirements of NEC 350.6. Do not install liquid-tight, flexible metal conduit that is not UL listed. Contractor shall confirm liquid-tight, flexible metal conduit bears the UL label prior to installation. Make conduit connections to side panel(s) of transformer enclosure.
- I. Terminations on the electric utility transformer shall be done by the respective service electric utility.

3.03 GROUNDING OF TRANSFORMERS

- A. The secondary neutral of all transformers shall be grounded unless specifically shown otherwise. See Section 16450 Grounding.
- B. Size of neutral bonding conductor shall be in accordance with 2014 NEC 250.102 unless shown larger on drawings. Size of grounding electrode conductor shall be in accordance with 2014 NEC Article 250.66 and Table 250.66 unless shown larger on the drawings.
- C. The grounding electrode conductor from the transformer secondary shall be bonded and referenced to the respective grounding electrode system as detailed on the Plans.

3.04 TESTING

- A. Check for damage and tight connections prior to energizing transformer.
- B. Adjust primary taps so that secondary voltage is within 2% of rated voltage.

- C. Transformers shall be tested and calibrated per manufacturer's guidelines before energizing.
- D. Measure and record input primary voltage to transformer and output secondary voltage from transformer.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. Transformers will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END SECTION 16460

**DIVISION 16 – ELECTRICAL
SECTION 16470 – PANELBOARDS**

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section includes the supply and installation of panelboards, circuit breakers, and all required work to provide a complete and operational electrical system.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16120 – Wire and Cable.
- D. Section 16190 - Supporting Devices.
- E. Section 16195 – Electrical Identification.
- F. Section 16450 – Grounding.
- G. Section 16615 – Surge Protector Devices.

1.03 REFERENCE TO STANDARDS

- A. Federal Specification W-P-115b, Type I, Class I.
- B. Federal Specification W-G-375B (Circuit Breakers).
- C. NECA (National Electrical Contractors Association) “Standard of Installation”.
- D. NEMA AB 1 – Molded Case Circuit Breakers, Molded Case Switches, and Circuit Breaker Enclosures.
- E. NEMA ICS 2 – Industrial Control Devices, Controllers, and Assemblies.
- F. NEMA KS1 Enclosed and Miscellaneous Distribution Equipment Switches (600V Maximum)
- G. NEMA PB 1 – Panelboards.
- H. NEMA PB 1.1 – Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.
- I. NFPA 70 – National Electrical Code (most current issue in force).
- J. NFPA 70E – Standard for Electrical Safety in the Workplace.

- K. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- L. UL 50 – Cabinets and Boxes.
- M. UL Standard 67 – Panelboards.
- N. UL Standard 489 – Molded Case Circuit Breakers.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Panelboards shall be stored indoors in the original container as delivered to the jobsite, protected from weather and construction.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for panelboards to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:

1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
2. Submittals for panelboards shall include outline and support point dimensions, voltage, main bus ampacity, bus material, integrated short circuit ampere rating, circuit breaker arrangement and sizes and respective enclosure. Information on circuit breakers shall include manufacturer's catalog numbers, description with number of poles, voltage ratings, Amp trip ratings, Amp interrupting current ratings, and any special features (for example switched neutral, shunt trip, etc.). Submittals shall also include manufacturer's installation instructions; indicating application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting the product.

1.06 QUALITY ASSURANCE

- A. Panelboards shall be manufactured and supplied by a company regularly engaged in the business of furnishing panelboards. If required by the Engineer, the manufacturer shall submit certification to a minimum of ten years experience

in the manufacturer of panelboards. Panelboards shall be manufactured in the United States of America.

1.07 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

1.08 MAINTENANCE SERVICE (WARRANTY)

- A. Panelboards shall be warranted to be free from defects, material and workmanship for a period of one year from date of substantial completion by the Owner.

2. PRODUCTS

2.01 MANUFACTURERS

- A. Panelboards shall be as manufactured by Square D, Eaton Cutler-Hammer, or approved equal.

2.02 EQUIPMENT

- A. Main Distribution Panelboard "A". Main distribution panel shall be 400 Amp, 480/277 VAC, 3-phase, 4-wire with a 400 Amp, 3-pole main breaker (reverse feed main breaker is acceptable), copper bus braced for 35,000 Amperes symmetrical (minimum) at 480 VAC, 45 inches minimum of breaker mounting space, suitable for 400 Amp frame branch breakers, in a NEMA 3R and 12 enclosure UL-listed suitable for service entrance, Square D, I-line, Type HCP Series, or approved equal. All bussing shall be copper. Neutral bus shall be copper. Include separate copper equipment ground bars adequately sized for all ground wires and grounding electrode conductors to and from the panel. Main breaker and all branch and feeder breakers shall have an interrupting rating of 35,000 Amps minimum at 480 VAC and shall be constructed in accordance with NEMA AB1 and UL 489. Circuit breakers shall be equipped with individually insulated braced and protected connectors. The front faces of all circuit breakers shall be flush with each other. Large, permanent, individual circuit numbers shall be affixed to each breaker in a uniform position (or equip each breaker with a circuit card holder and neatly printed card identifying the circuit). Tripped indication shall be clearly shown by the breaker handle taking a position between ON and OFF. Provisions for additional breakers shall be such that no additional connectors will be required to add breakers. See Plans for details on size and quantity of branch and feeder breakers. Panel shall be UL-listed and bear the UL label. Provide legend plates as detailed on the Plans. Coordinate selection of two pole breakers with the manufacturer to confirm proper bus connections.
- B. 120/240 VAC Panelboards: Panelboard bus structure shall be copper. Bus and main lugs or main circuit breaker shall have voltage, current, and amp

interrupting current ratings as shown on the Plans. Such ratings shall be in accordance with UL Standard 67. Bus bar connections to the branch circuit breakers shall be the "distributed phase" or phase sequence type. All current carrying parts of copper bus structures shall be plated to prevent corrosion. Panelboards for service entrance applications shall be UL listed suitable for service entrance. All panelboards shall be Dead-Front Safety Type, equipped with thermal-magnetic molded case breakers, and solid neutral bus. Bussing shall be such that adjacent single pole breakers will be on different phases or polarities, and that two pole breakers can be installed at any location. Panelboard numbering shall be such that starting at the top, odd numbers shall be used in sequence down the left hand side and even numbers shall be used in sequence down the right hand side. Cabinets shall be fabricated of code gauge galvanized steel with gutters sized per National Electrical Code and shall be suitable for the respective location. Cabinets shall be finished with rust inhibiting primer and baked enamel. For outdoor installations (in non-hazardous areas) the enclosure shall be rated NEMA 3R (rain proof) and NEMA 12 (dust tight) with a hinged cover. For indoor installations (in non-hazardous areas) the enclosure shall be rated NEMA 1 or NEMA 12. Panelboard shall be provided with bolt-on circuit breakers of size, type, and ratings as detailed on the Plans. Contractor shall confirm and adjust circuit breaker amperage trip ratings as required for the respective equipment or device being fed, in accordance with the respective equipment manufacturer's recommendation and NEC. Breakers shall be 1 or 2 pole with an integral crossbar to assure simultaneous opening of all poles in multiple circuit breakers. Breakers supplying 120 VAC or 120/240 VAC circuits associated with the fuel facility equipment shall include a switched neutral feature. Breakers shall have an over-center, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have "ON," "OFF," and "TRIPPED" positions. Circuit breakers shall be UL-listed in accordance with UL Standard 489 and shall be rated 120/240 volts AC, 1-phase 3-wire. A circuit directory frame and card with a clear plastic cover shall be provided on door interior. Circuit directory shall be typed or neatly hand written indicating each branch circuit of the panel board. Revise directory to reflect circuiting changes as required. All panelboards shall be UL-listed and bear the UL label. Panelboards shall be furnished with a copper equipment ground bar(s) and a separate insulated copper neutral bus.

3. EXECUTION

3.01 EXAMINATION

- A. Panelboards shall be thoroughly inspected for physical damage, proper alignment, anchorage and grounding. The exterior finish shall be inspected for blemishes, nicks, and bare spots and touched up as required (where applicable) using touch-up paint provided. Inspection shall be made for proper installation and tightness of connections of all circuit breakers.

3.02 PREPARATION

- A. Test for shorts and high resistance grounds. Check for faulty operation of circuit breakers.

3.03 INSTALLATION

- A. All electrical work shall comply with the requirements of NFPA 70 - National Electrical Code (NEC), most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, ETL listing, FM approval, or other third party listing, and/or the manufacturer's warranty of a device will not be permitted.
- B. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).
- C. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.
- D. Install panelboards in accordance with NEMA PB1.1 per manufacturer's instructions and as detailed on the Plans. Install panelboards plumb. Provide filler plates for unused spaces in panelboards.
- E. Panelboards shall be installed such that the center of the grip of the operating handle of the upper most circuit breaker, shall not exceed 6 ft-6 in. from finished grade elevation or the working platform to comply with NEC 404.8(A). Panelboards shall not be installed in classified hazardous locations.
- F. Where surge arrestors are required to be furnished on panelboards install them in conformance with manufacturer's instructions for the surge arrestor and the panelboard. Maintain leads as short and as straight as possible. Locate the surge protector device on the same side of the panelboard as the circuit breaker that connects it to the panelboard. Install the circuit breaker for the surge protector device as close as possible to the panelboard main breaker or main lugs. For example for a top feed main breaker/main lugs type panelboard install the circuit breaker for the surge protector device in positions 1 and 3 or in circuit positions 2 and 4. For a bottom feed main breaker/main lugs type panelboard (42 circuit) install the circuit breaker for the surge protector device in positions 39 and 41 or in circuit positions 40 and 42.
- G. Install grounding bushings with ground wire connections between the bushing and the ground bus at all metal conduit terminations that enter or leave the panelboard through concentric knockouts. This does not apply to conduits sized to match the largest knockout.

- H. Furnish and install circuit directory indicating the respective equipment fed by each circuit breaker. Circuit directory shall be typed or neatly hand written and shall correctly identify each circuit in the panelboard. Revise directory to reflect circuiting changes as required.
- I. Provide legend plates for all panelboards to identify the area and/or equipment controlled by the panelboard. Legend plates shall be weatherproof and abrasion resistant phenolic material as specified in Section 16195. Letters shall be black on white background.

3.04 TESTING

- A. Panelboards shall be thoroughly tested after installation and connection to respective loads. Lighting panelboard phases shall be measured with all major items operating. Phase loads shall be within 20 percent of each other. Rearrange circuits if required maintaining proper phasing for multi-wire circuits.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. Panelboards will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END SECTION 16470

DIVISION 16 – ELECTRICAL
SECTION 16495 – AUTOMATIC TRANSFER SWITCHES

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section includes the supply and installation of electrically operated, mechanically held, automatic transfer switches, and all required work to provide a complete and operational electrical system, as detailed on the Plans and Specified herein.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16120 – Wire and Cable.
- D. Section 16190 - Supporting Devices.
- E. Section 16195 – Electrical Identification.
- F. Section 16450 – Grounding.
- G. Section 16620 –Standby Power Generator Systems

1.03 REFERENCE TO STANDARDS

- A. NEMA ICS 1 – General Standards for Industrial Control Devices, Controllers, and Assemblies.
- B. NEMA ICS 2 – Standards for Industrial Control Devices, Controllers, and Assemblies.
- C. NEMA ICS 6 – Enclosures for Industrial Controls and Systems.
- D. NFPA 70 – National Electrical Code (most current issue in force).
- E. NFPA 70E – Standard for Electrical Safety in the Workplace.
- F. NFPA 110 – Emergency and Standby Power Systems.
- G. UL 1008 – Standard for Safety Transfer Switch Equipment.
- H. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

1.04 DELIVERY, STORAGE AND HANDLING

- A. transfer switches shall be stored indoors from time of delivery to job site, protected from weather and construction.

1.05 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for panelboards to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 2. Provide catalog sheets and showing manufacturer, model number, voltage, switch size, Amperage ratings, number of poles, operating logic, withstand and closing ratings, dimensions, and enclosure details. Coordinate auto transfer switch withstand and closing ratings with the service entrance breaker/disconnect and the generator breaker/disconnect to maintain the withstand and closing ratings of the switch. Include this information with the submittal.
 3. Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product.
 4. Operation and Maintenance Data: Include instructions for operating equipment. Include instructions for operating equipment under emergency conditions when engine generator is running. List all factory settings of relays and provide relay setting and calibration instructions. Include routine preventative maintenance and lubrication schedule. List special tools, maintenance materials, and replacement parts.

1.06 QUALITY ASSURANCE

- A. Automatic transfer switches shall be manufactured and supplied by a company regularly engaged in the business of furnishing automatic transfer switches. If required by the Engineer, the manufacturer shall submit certification to a

minimum of ten years experience in the manufacturer of automatic transfer switches.

1.07 MAINTENANCE SERVICE (WARRANTY)

- A. Automatic transfer switches shall be warranted to be free from defects, material and workmanship for a period of one year from date of substantial completion by established by the Owner.

2. PRODUCTS

2.01 AUTOMATIC TRANSFER SWITCH

- A. Switch shall function to automatically transfer predetermined loads from the main service to the generator service in the event of a power failure and to retransfer these loads to normal source after restoration of power.
- B. The automatic transfer switch shall be a 400 Amp, 480/277 VAC, 3 Phase, 4-Wire, 3 Pole with solid neutral mechanically held and electrically operated by a single-solenoid mechanism energized from the source to which the load is to be transferred. The switch shall be rated for continuous duty and be inherently double throw. The switch shall be mechanically interlocked to insure only one (1) of two (2) possible positions - normal or emergency.
- C. All main contacts shall be the silver alloy wiping action type. They shall be protected by arcing contacts. The operating transfer time in either direction shall not exceed 1/6 of a second. All replaceable contacts, coils, springs and control elements shall be conveniently removable from the front of the transfer switch without major disassembly or disconnection of power conductors.
- D. The automatic transfer switch shall conform to the requirements of NEMA Standard ICS2 and Underwriters' Laboratories UL-1008 and shall be rated in amperes for total system transfer including control of motors, electric-discharge lamps, electric-heating and tungsten-filament lamp loads. Voltage and current ratings shall be as shown on the drawings. Transfer switches shall have withstand and closing rating of 42,000 RMS Sym. Amps., minimum per UL Standard 1008. Coordinate selection of the service entrance breaker/disconnect and the generator breaker/disconnect to maintain the withstand and closing ratings of the switch.
- E. Automatic transfer switch controls shall be microprocessor based.

2.02 PRODUCT OPTIONS AND FEATURES

- A. Voltage sensing for each phase of normal source. Pick-up voltage is adjustable from 85 percent to 100 percent nominal, and drop-out voltage is adjustable from 75 percent to 98 percent pick-up value. Factory set for pick-up at 90 percent and drop-out at 85 percent.

- B. Time-delay override of normal source voltage-sensing delays transfer and engine start signals. Adjustable zero (0) to six (6) seconds, and factory set at one (1) second.
- C. Voltage/Frequency Lockout Relay: Prevent premature transfer. Voltage pick-up is adjustable from 85 percent to 100 percent nominal. Factory set to pick-up at 90 percent. Pick-up frequency is adjustable from 90 percent to 100 percent nominal. Factory set to pick-up at 95 percent.
- D. Retransfer Time Delay: Adjustable from zero (0) to thirty (30) minutes and factory set at ten (10) minutes. Provides automatic defeat of the delay upon loss of voltage or sustained undervoltage of the emergency source, provided the normal supply has been restored.
- E. Bidirectional In-Phase Transfer System to control transfer operation between live sources. Shall provide variable transfer initiation which limits motor inrush current to magnitude or normal starting current ignoring unequal source voltages and wave shape distortion from solid state controlled loads. Operation shall be over a frequency difference range of ± 2 Hz. If voltage of the source carrying load drops below 70 percent, the in-phase function shall be automatically bypassed.
- F. Test Switch: Simulates normal source failure.
- G. Switch-Position Pilot Lights: Indicate source to which the load is connected.
- H. Source-Available Indicating Lights: Supervise sources via the transfer switch normal and emergency source-sensing circuits:
 - 1. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
 - 2. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."
- I. Unassigned Auxiliary Contacts: Two (2) normally open SPDT contacts for each switch positions: Rating: 10 amperes at 240 VAC.
- J. Transfer Override Switch: Overrides automatic retransfer control so the ATS will remain connected to the emergency power source regardless of the condition of the normal source. A pilot light indicates the override status.
- K. Engine Starting Contacts: One isolated normally closed and 1 isolated normally open. Contacts are gold flashed or gold plates and rated 10 amperes at 32-Volt direct current minimum.
- L. Engine Shut-Down Contacts: Instantaneous, to initiate shut-down sequence at engine-generator control panel after retransfer of the load to normal or preferred source. Provide manual engine disconnect switch.
- M. Provide network card compatible with remote monitoring requirements in Section 16620 Standby Power Generation Systems.

- N. Equipment ground bar adequately sized for all ground wires to and from the transfer switch.

2.03 ENCLOSURE

- A. Enclosure for automatic transfer switch shall be NEMA 4X stainless steel with hinged cover.

2.04 ACCEPTABLE PRODUCTS

- A. Automatic Switch Co. 7000 Series.
- B. Onan/Cummins Model OHPCD Power Command.
- C. Or approved equal.

3. EXECUTION

3.01 INSTALLATION

- A. All electrical work shall comply with the requirements of NFPA 70 - National Electrical Code (NEC), most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment and materials shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, ETL listing, FM approval, or other third party listing, and/or the manufacturer's warranty of a device will not be permitted.
- B. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).
- C. Contractor shall comply with the applicable requirements of NFPA 70E - Standard for Electrical Safety in the Workplace.
- D. Mount transfer switches in accordance with manufacturer's recommendations and as detailed on the Plans. Level and anchor unit.
- E. Match the type and number of cables and conductors to the control and communications requirements of the transfer switch used. Mounting hardware shall be corrosion resistant stainless steel.

- F. Tighten factory-made connections, including connectors, terminals, bus joints, mountings, and grounding. Tighten field-connected connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque tightening values. When manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A.
- G. Make equipment grounding connections for transfer switch unit as indicated and as required by the NEC.
- H. Provide NEMA 4 hubs for all conduit entries into boxes or enclosures rated NEMA 4 or NEMA 4X to maintain the NEMA 4, 4X rating of the respective enclosure.
- I. Equipment and Testing:
 - 1. The services of a qualified representative of the equipment supplier shall be provided to check the installation, perform start-up adjustments, and instruct maintenance personnel in the care and proper operation of the equipment.
 - 2. Contractor shall notify the Owner a minimum of seven (7) days prior to conducting test. The Owner must be present during testing to validate results.
 - 3. Instruct Owner personnel on the complete operation and maintenance of transfer switch. Provide minimum of one (1) two (2) hour session.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. Transfer switches will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END SECTION 16495

**DIVISION 16 – ELECTRICAL
SECTION 16615 – SURGE PROTECTOR DEVICES**

1. GENERAL

1.01 DESCRIPTION OF WORK:

- A. Furnish and install AC Surge Protectors as detailed on the Plans and as specified herein.

1.02 RELATED WORK

- A. Section 16111 – Conduit and Raceway.
- B. Section 16120 – Wire and Cable.
- C. Section 16470 – Panelboards.
- D. Section 16450 – Grounding.

1.03 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for all AC surge protectors/Transient Voltage Surge Suppressors to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 - 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 - 2. Provide Shop Drawings for all AC surge protectors/Transient Voltage Surge Suppressors to be installed on this project. Include specification sheets and cut sheets with manufacturer, model number, voltage rating, surge rating, and housing/enclosure rating.

1.04 STANDARDS

- A. NFPA 70 – National Electrical Code (most current issue in force)
- B. UL 1449, third edition, Surge Protective Devices.

- C. ANSI/IEEE C62.41, Recommended Practice on Surge Voltages in Low Voltage AC Power Circuits.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Surge protector devices shall be stored in the original containers as delivered to the job site. Surge protector devices shall be stored in warm, dry, indoor area to prevent contact with the earth and to protect them from the weather.

2. PRODUCTS

2.01 AC SURGE PROTECTORS

- A. AC power surge protectors shall be as detailed on the Plans, UL listed per UL 1449, and shall be manufactured in the United States of America.
- B. AC power surge protector for the pump control panel shall be as specified in the pump control panel requirements.

3. EXECUTION

3.01 INSTALLATION

- A. Install Surge Protector Devices (SPD) in conformance with the respective manufacturer's directions and recommendations. Contractor shall confirm all connections to the surge arrester (phases, neutral, and ground) are completed and secure. Connection leads to the surge arrester shall be sized per the respective manufacturer's recommendation, and as detailed herein and shall be maintained as short as possible, maximum 2 ft in length where possible, and laced together for mutual coupling. The conduit or conduit nipple connecting the SPD enclosure to the panel enclosure shall be sealed with duct seal or other nonflammable medium to prevent soot from entering the enclosure in the event of a SPD failure.
- B. Maintain leads as short and as straight as possible. Locate the surge protector device on the same side of the panelboard as the circuit breaker that connects it to the panelboard.
- C. Install the circuit breaker for the surge protector device as close as possible to the panelboard main breaker or main lugs. For example for a top feed main breaker/main lugs type panelboard install the circuit breaker for the surge protector device in positions 1 and 3 or in circuit positions 2 and 4. For a bottom feed main breaker/main lugs type panelboard (42 circuit) install the circuit breaker for the surge protector device in positions 39 and 41 or in circuit positions 40 and 42.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. All surge protectors will not be paid for separately, but shall be considered incidental to the respective item of work for which the surge protective devices are being installed, and no additional compensation will be allowed.

END OF 16615

DIVISION 16 – ELECTRICAL
SECTION 16620 - STANDBY POWER GENERATOR SYSTEMS

1. GENERAL

1.01 DESCRIPTION OF WORK

- A. This section consists of furnishing and installing a standby diesel engine generator system as detailed on the Plans and specified herein. The engine generator set shall be a legally required standby system as defined by National Electrical Code Article 701. The engine generator set shall be classified as a Class X (capable of providing 24 hours of continuous backup power without being refueled), Type 60 (power restoration within 60 seconds), Level 2 as defined by NFPA 110, Chapter 4. This item shall include all labor, equipment, fuel, lubricants, fluids, weatherproof housing, start battery, battery charger, muffler, sub-base fuel tank, fuel piping, concrete pad, wiring, raceways, grounding, materials, tools, utility coordination, operational instructions, labeling, startup and check out services, testing and all incidentals required to place the engine generator system, automatic transfer switch, and all associated accessories into proper working order as a completed unit to the satisfaction of the Owner and Engineer. Contractor shall also include three copies of instruction manuals, operation and maintenance manuals, and parts list bound in a durable plastic binder for the engine generator set and automatic transfer switch.

1.02 RELATED SECTIONS

- A. Section 16010 – Basic Electrical Requirements.
- B. Section 16111 – Conduit and Raceway.
- C. Section 16120 – Wire and Cable.
- D. Section 16195 – Electrical Identification.
- E. Section 16450 – Grounding.
- F. Section 16495 – Automatic Transfer Switches

1.03 REFERENCE TO STANDARDS

- A. NFPA 30 - Flammable and Combustible Liquids Code.
- B. NFPA 37 - Installation and Use of Stationary Combustion Engines and Gas Turbines.
- C. NFPA 70 - National Electrical Code (most current issue in force).
- D. NFPA 70E – Standard for Electrical Safety in the Workplace.

- E. NFPA 110 - Standard for Emergency and Standby Power Systems.
- F. UL 142 Standard for Safety- Steel Aboveground Tanks for Flammable and Combustible Liquids.
- G. UL 2200 Standard for Stationary Engine Generator Assemblies
- H. Title 41: Fire Protection, Chapter 1, Office of the State Fire Marshall, State of Illinois, Part 160 Storage, Transportation, Sale and Use of Gasoline and Volatile Oils: Rules and Regulations Relating to General Storage.
- I. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- J. Engine Exhaust Emissions: Comply with applicable state and local government requirements.
- K. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

1.04 SUBMITTALS

- A. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for panelboards to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** In the event that the Contractor provides hard copies of shop drawings he shall submit sufficient quantities to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus four (4) copies to be retained by the Project Engineer. Shop drawings shall include the following information:
 1. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
 2. Certified outline and installation drawings.
 3. Performance data and operating characteristics.
 4. Arrangement drawings showing piping, controls and accessory equipment.
 5. Drawings on non-standard components and accessories.
 6. Drawings on fuel system and fuel tank.
 7. Product data: Catalog data marked to indicate materials being furnished.
 8. Operating and Maintenance Data: Instructions Manuals, Maintenance and Operational Manuals. Provide three copies of bound manuals in durable plastic binders (8-1/2 in. x 11 in.). The manuals shall include manufacturer's maintenance and operating instructions and parts list and serial numbers for equipment.

1.05 QUALITY ASSURANCE

- A. Comply with specified ANSI, NEMA, NFPA, and UL requirements for engine generator set components and installation.

1.06 MAINTENANCE SERVICE (WARRANTY)

- A. Engine generator set shall be warranted to be free from defects, material and workmanship for a period of two years from date of substantial completion as established by the Owner.

2. PRODUCTS

2.01 STANDBY POWER ENGINE GENERATOR SET

- A. Generator shall be rated 250 KW/313 KVA minimum at 1,800 RPM, 60 Hz, 0.8 PF, and 80° C maximum temperature rise. **Unit shall be UL 2200 listed.** The generator output voltage shall be 480 Volt, 3 phase, 3 wire, 60 Hz. The generator shall be capable of delivering rated output (KVA) at rated frequency and power factor, at any voltage not more than five percent above or below rated voltage. The diesel engine-generator set shall be capable of single step load pick of 100 percent nameplate kW and power factor. Generator maximum allowable transient momentary voltage dip shall be 20 percent for the following loads applied in a single step.
 1. 25 HP, 480 VAC, 3 Phase, Submersible Pump Motor
 2. 10 KVA, 480 VAC, Single Phase to 120/240 VAC, Single Phase 3-wire Step-Down Transformer
 3. 100 HP, 480 VAC, 3 Phase, Submersible Pump Motor

Note where the actual equipment loads exceed the above loads, the engine generator set rating shall be adjusted to meet the demand loads for the actual equipment furnished and comply with the Specifications.

- B. Engine shall be diesel fueled, four cycle, water-cooled with integral mounted radiator, fan and water pump. Engine shall have six (6) cylinders and a minimum rating of 1.5 HP/KW at its operating speed of 1,800 rpm when corrected to the altitude and temperature conditions of the respective location. Intake and exhaust valves shall be heat resisting alloy steel. Exhaust valve seat inserts shall be provided. Full pressure lubrication shall be supplied by a positive displacement lube oil pump. The engine shall have air cleaners and fuel and oil filters with replaceable elements. Engine speed shall be governed by an electronic governor to maintain automatic isochronous frequency regulation. The engine governing system shall not utilize any exposed operating linkage. Remote 2-wire, starting shall be by a 12-Volt or 24-Volt solenoid shift, electric starter. **Engine shall comply with and be certified to U.S. EPA New Source Performance Standards, 40 CFR 60 Subpart III, Tier 3 exhaust emission levels for emergency standby rated engine generator.**

- C. The engine instrument panel shall contain an oil pressure gauge, coolant temperature gauge, and battery charger rate ammeter and service hour meter.
- D. The fuel system shall be integral with the engine. It shall consist of fuel filter, injection pumps, lines, and nozzles. The injection pumps shall obtain fuel from basin fuel tank. The injection pumps shall be driven from the camshaft and simultaneously controlled by a rack and pinion assembly that is hydraulically actuated by signals from the engine governor. The pumps shall be of a variable displacement type to alter the volume of fuel delivered to the spray nozzles according to load demand. The nozzles shall inject fuel directly into the cylinder in the optimum spray pattern for efficient combustion. A manual fuel priming pump shall facilitate priming and bleeding air from the system.
- E. Generating set shall contain a complete engine start-stop control which starts engine on closing contact and stops engine on opening contact. A cycle cranking system shall be provided to open the starting circuit if the engine is not started within the selected periods. System shall be set for three (3) cranking periods of fifteen (15) seconds each with fifteen (15) second rest period between cranking periods. All settings shall be adjustable. The engine controls shall also include provisions for remote starting. High engine temperature, low coolant temperature, high coolant temperature, low coolant level, low oil pressure, overcrank and overspeed shutdown with signal light and alarm terminals shall also be provided.
- F. Generator shall be four-pole, 2/3 pitch winding, revolving field design with temperature compensated solid-state voltage regulator and Permanent Magnet exciter system. No brushes shall be allowed. The stator shall be directly connected to the engine flywheel housing, and the rotor shall be driven through a semi-flexible driving flange to insure permanent alignment. The insulation system shall be Class H as defined by NEMA MG1-1.65. The alternator shall have a 80°C Temperature rise at full load for a standby system.
- G. Frequency regulation shall not exceed 0.25 percent from no load to rated load for any steady load. Voltage regulation shall be within plus or minus 0.5 percent of rated voltage, from no load to full rated load. The instantaneous voltage dip shall be less than 26 percent of rated voltage when full, three-phase, load and rated power factor is applied to alternator. Recovery to stable operation shall occur within two (2) seconds. Stable or steady state operation is defined as operation with terminal voltage remaining constant within plus or minus 1 percent of rated voltage. A rheostat shall provide a minimum of plus or minus 5 percent voltage adjustment from rated value. Temperature rise shall be within NEMA MG1-22.40, B5-4999 Part 32 and IEC 34-1.
- H. The generator shall include a 400 Amp, 3 pole, 480 VAC, main circuit breaker in a NEMA 1 enclosure with solid neutral ground bar. Circuit breaker enclosure shall include provisions for pad locking the circuit breaker in the "off" position. The generator breaker shall be selected to have an Amp Interrupting Current rating that exceeds the available fault current from the generator. The generator breaker shall be selected and coordinated with the respective automatic transfer switch to maintain the withstand and closing ratings of the respective transfer switch. The generator breaker must be on the transfer switch manufacturer's

approved list to maintain the switch withstand and closing ratings as detailed on the Plans and specified herein. Confirm generator breaker size with the respective engine generator manufacturer. Include legend plates labeled "GENERATOR BREAKER, 480 VAC, 3 PHASE, 3 WIRE".

- I. The generator control panel shall contain frequency meter; running time meter; voltage adjusting rheostat; AC voltmeter, with phase selector switch, and AC ammeter with phase selector switch.
- J. The engine jacket water cooling system shall be a closed circuit design with provision for filling, expansion, and de-aeration. The cooling pump shall be driven by the engine. The cooling system shall tolerate at least 25 PSI static head. Coolant recirculation shall begin when generator starts, coolant temperature shall be regulated by thermostat.
- K. Engine coolant heat shall be discharged to the atmosphere by means of a unit-mounted radiator.
- L. Jacket water heater(s) shall be provided to maintain coolant temperature of 90°F while the engine is idle. Heaters shall be powered at 120 VAC or 240 VAC, single phase, and include thermostatic controls. Hoses to and from the heater shall be industrial quality which exhibit long life in operational environments. Manual shutoff valves shall be incorporated to isolate the heater during servicing, including before and after heater and bleed/vent line.
- M. The engine and generator shall be assembled to a common base. The generator set base shall be designed and built to resist deflection, maintain alignment, and minimize resonant linear vibration. The base shall be of heavy duty steel construction with rolled "C" channel structural members reinforced to maintain engine and generator alignment during lifting, installing, and generator operation. Structural side members shall have sufficient bottom mounting holes to locate vibration isolators. Restricted motion steel spring isolators shall be installed between the generator set base and the mounting surface. The isolators shall bolt to the base, and have a waffled or ribbed pad on their bottom surface. The pads shall be resistant to heat and age, and impervious to oil, water, antifreeze, diesel fuel, and cleaning compounds. The base shall incorporate a battery tray with hold-down clamps within the rails.
- N. Provide muffler for unit. Muffler shall be "critical" type capable of attenuation of a minimum of 28 dB throughout the range of 60 through 8,000 hertz. Provide seamless stainless steel flexible exhaust tube and rain cap. Exhaust discharge shall be vertical.
- O. Batteries for starting and control shall be heavy duty SLI lead acid type with battery cables and connectors. Battery tray shall be located within the frame. Starting batteries shall be rated 12-Volt DC or 24 Volt DC with a minimum of 180 ampere-hour and 700 CCA. Sizing shall consider specific application requirements of engine oil viscosity, ambient starting temperature, control voltage, overcharging and vibration. Batteries shall be located as close to the starting motor as practical, away from spark sources, in a relatively cool ambient, and permit easy inspection and maintenance.

- P. Battery charger shall provide a rated output voltage of plus/minus 1 percent from no load to full load with A.C. variation of plus/minus 10 percent, minimum of 10 ampere output. Unit shall have automatic adjustable float and equalize ranges, overload protection, and automatic d.c. voltage regulation. Unit shall be solid state type employing silicone diode full wave rectifiers and shall have d.c. ammeter and voltmeter. Unit shall have fused input and output and shall be mounted on wall. Alarm circuits per NFPA 110, for low battery voltage, high battery voltage, and battery charger malfunction. Battery charger shall be located inside the engine generator set enclosure.
- Q. Provide a weather protective, level 2 quiet, tamperproof, enclosure. Enclosure shall be constructed of reinforced sheet steel, prime coated, and finish painted. Provide enclosure for engine, generator, control panel, engine safety control, start batteries, battery charger and accessories. Enclosure shall have sufficient louvered openings to allow entrance of outside air for engine and generator cooling at full load. Louvered openings shall be designed to exclude driving rain and snow. Provide properly arranged and sized hinged panels in the enclosure to allow convenient access to engine, generator, and control equipment for maintenance and operation. Provide lockable, hinged panels with spring latches to hold panels closed securely and not allow panels to vibrate. Brace housing internally to prevent excessive vibration when generator set is in operation. All exterior bolts shall be tamper-proof. Enclosure shall be rodent proofed. Provide a GFCI receptacle inside the enclosure for maintenance.
- R. Include an emergency stop red mushroom head type push button on the engine generator control panel and a second emergency stop station located remote from the engine generator set per the requirements of NFPA 37. Include all associated control and interface wiring and conduit. Remote emergency stop push button shall be front operated red mushroom knob, with "PUSH EMERGENCY STOP" printed on the knob, maintained contact push pull type with two (2) universal contact blocks (one (1) normally open and one (1) normally closed for each block), with contacts rated 10 Amps at 120 VAC and 125 VDC, Square D, Class 9001, SKR9RO5H2, or equal. Include extra deep push button enclosure rated NEMA 4X stainless steel for outdoor applications, Hoffman E-1PBGXSS or equal. Contractor shall verify push button enclosure is adequately sized for the respective operator and contact blocks. Verify quantity of contact blocks required as detailed on the plans or as recommended by the engine generator set manufacturer. Provide guard for emergency stop push button to prevent accidental activation, Square D Class 9001, Type K56YM, or similar type guard. Include weatherproof engraved phenolic legend plate with red background labeled:
- "ENGINE GENERATOR
EMERGENCY STOP
PUSH TO STOP
PULL TO RESET"
- S. The generator set shall be built, tested and shipped by one (1) manufacturer so there is one (1) source of supply and responsibility. The performance of the

generating set shall be certified by an independent testing laboratory as to the set's full power rating, stability and voltage and frequency regulation.

- T. Acceptable Manufacturers:
1. Cummins Power Generation, Inc.
 2. Caterpillar
 3. Or approved equal.

2.02 FUEL TANK

- A. Generator set shall be furnished with sub-base mounted fuel tank, minimum **500**-gallon capacity, dual wall corrosion resistant steel channel and sheet construction, with all welded seams. The tank shall be manufactured to UL 142 standards and shall be UL 142 listed and bear the UL label on tank.
- B. The tank shall be installed and anchored within a steel secondary containment basin having a minimum capacity of 100 percent that of the tank. The containment shall be protected against intrusion of debris, falling water. The containment shall be equipped with a leak detector that shall activate the "rupture" alarm described below. A drain with ball valve shall be supplied.
- C. Fuel tank shall include float and alarm bell with silence pushbutton to alert the operator when tank is full. Floats shall activate and deactivate the sounding of the bell. Set high level float at 90 percent full. Provide float switch for low and high level remote alarms.
- D. Tank accessories shall include liquid level fuel gage, pressure relief vents, foot/check valve and locking gas cap.
- E. Tank shall have a rupture basin float switch to activate remote alarm when liquid is sensed in tank containment basin.
- F. Provide flexible fuel lines and engine supply and return piping and shut off valves.
- G. Capacity: Fuel for twenty-four (24) hours' continuous operation at 100 percent rated power output. Adjust/increase tank capacity indicated in Item 2.02-A above, if required, to ensure the engine generator set will have a minimum fuel capacity of twenty-four (24) hours' continuous operation at 100 percent rated load.
- H. The fuel tank shall be painted in accordance with tank manufacturer recommendations.

2.03 CONCRETE

- A. Concrete for engine generator pad shall conform to Section 1020 PORTLAND CEMENT CONCRETE of the Standard Specifications for Road and Bridge Construction and as detailed on the Plans.
- B. Concrete for electrical work shall be composed of fine aggregate, coarse aggregate, portland cement, and water so proportioned and mixed as to produce a plastic, workable mixture. Fine aggregate shall be of hard, dense, durable, clean, and uncoated sand. The coarse aggregate shall be reasonably well graded from 3/16 to 1 in. The fine and coarse aggregates shall be free from injurious amounts of dirt, vegetable matter, soft fragments or other deleterious substances. Water shall be fresh, clean, and free from salts, alkali, organic matter, and other impurities. Concrete shall have a compressive strength of 3,500 psi at the age of twenty-eight (28) days. Slump shall not exceed 3 in. Retempering of concrete will not be permitted. Exposed, unformed concrete surfaces shall be given a smooth, wood float finish. Concrete shall be cured for a period of not less than seven (7) days, and concrete made with high early strength portland cement shall be repaired by patching honeycombed or otherwise defective areas with cement mortar as directed by the Architect/Engineer. Air entrain concrete exposed to weather using and air-entraining admixture conforming to ASTM C 260. Air content shall be between 4 and 6 percent.

2.04 FIRE EXTINGUISHERS

- A. Furnish and install two fire extinguishers to meet the requirements of Title 41: Fire Protection, Chapter 1, Office of the State Fire Marshall, State of Illinois, Part 160 Storage, Transportation, Sale and Use of Gasoline and Volatile Oils: Rules and Regulations Relating to General Storage, Section 160.400. Fire extinguishers shall be UL rating of at least 4A:60B:C, 10 pound dry chemical, Amerex Model B456 or approved equal.

3. EXECUTION

3.01 INSTALLATION

- A. All electrical work shall comply with the requirements of NFPA 70 - National Electrical Code (NEC), most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment and materials shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, ETL listing, FM approval, or other third party listing, and/or the manufacturer's warranty of a device will not be permitted.
- B. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910

Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).

- C. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.
- D. Contractor shall install unit to conform to manufacturers written installation requirements and in accord with NFPA 30, 37, 70, 110 and all applicable local codes.
- E. Contractor shall complete the Application for Non-Dispensing Aboveground Bulk Storage Tank Installation and submit to the Office of the Illinois State Fire Marshall, Technical Service Division, James R. Thompson Center, 100 West Randolph Street, Suite 4-600, Chicago, Illinois 60601, Phone: 312-814-8960.
- F. Base mounted fuel tank installation shall comply with the applicable requirements of Title 41: Fire Protection, Chapter 1, Office of the State Fire Marshall, State of Illinois, Part 160 Storage, Transportation, Sale and Use of Gasoline and Volatile Oils: Rules and Regulations Relating to General Storage. Maintain 10 feet minimum separation between the engine generator fuel tank and combustible materials.
- G. Base mounted fuel tank and fill supply piping shall be installed in accordance with manufacturer's written instructions and in accord with applicable referenced standards, code and ordinances.
- H. The engine exhaust system shall be installed to discharge combustion gases quickly and silently with minimum restriction. System including silencer shall be designed for minimum restriction and, in no case, shall back pressure exceed 27 in. H₂O. Provide heavy walled piping, Schedule 40, with radii of 90 bends at least 1-1/2 times the pipe diameter. Piping shall be installed with 9 in. minimum clearance from combustible material or incorporate appropriate insulation and shielding. Piping shall be supported and braced to prevent weight or thermal growth being transferred to the engine and flexible expansion fittings provided to accommodate thermal growth. Support dampers and springs shall be included where necessary to isolate vibration. Long runs of pipe shall be pitched away from the engine and water traps with drain installed at the lowest point. Exhaust stack shall be extended to avoid nuisance fumes and odors, and outlet cut at 45 to minimize noise. Engine exhaust piping shall be completely insulated.
- I. Generator set shall be shimmed and leveled and bolted to concrete base.
- J. Concrete work shall conform to the requirements of these specifications and as detailed on the Plans.
- K. All final conduit connections to the engine generator set shall be with UL listed liquid tight flexible metal conduit. Liquid-tight, flexible metal conduit and associated fittings shall be UL-listed to meet the requirements of NEC 350.6. Do not install liquid-tight, flexible metal conduit that is not UL listed. Contractor shall confirm liquid-tight, flexible metal conduit bears the UL label prior to installation.

- L. Provide start-up service as recommended by manufacturer, including but not limited to, fill coolant system with anti-freeze solution for freeze protection to - 20°F, all oil reservoirs filled, fuel system filled and checked.
- M. Demonstrate at site in presence of Owner full functional capability under manual and automatic modes of operation. Perform a full load test using building load and resistive load banks to provide 100 percent specified KW rating for a four (4) hour test period. Correct all defects that occur during load testing. Contractor shall notify the Owner a minimum of seven (7) days prior to conducting test:
 - 1. Test the operation of the unit at 100 percent full load rating for four (4) hours.
 - 2. After the first half-hour operation and at 100 percent full load, record the following: Voltage and amperage (3-phase), frequency, fuel pressure, oil pressure, water temperature, and exhaust gas temperature at engine exhaust outlet.
 - 3. Include cost of fuel for testing and fill engine generator fuel tank to normal full level upon completion of testing.
- N. Contractor shall fill the fuel tank and system with No. 2 diesel oil meeting manufacturer's recommendations as part of this contract.
- O. Clean interior and exterior of engine generator enclosure.
- P. Include the services of the manufacturer's representative to check final connections, inspect the installation, and supervise start-up and testing of the system.
- Q. Instruct Owner's personnel on the complete operation and maintenance of system:
 - 1. Instruction shall consist of minimum two (2), two (2) hour sessions.
 - 2. Contractor shall notify the Owner a minimum of seven (7) days prior to conducting instruction sessions.

4. PAYMENT

4.01 BASIS OF PAYMENT

- A. This work will be paid for at the contract lump sum price for PUMP STATION ELECTRICAL WORK which shall include all labor, equipment, materials, associated supports, hardware, concrete work, tools, operational instructions, utility service work, standby engine generator system work, grounding, coordination, and testing required to complete the installation of the pump station and to place it into proper working order.
- B. The engine generator set will not be paid for separately, but shall be considered incidental to the respective item of work for which it is necessary, and no additional compensation will be allowed.

END SECTION 16620

ATTACHMENT B
BUILDING DEMOLITION SPECIFICATIONS
AND
ASBESTOS SURVEY RESULTS

PROJECT SPECIFICATIONS
FOR
COMMERCIAL
BUILDING DEMOLITIONS
EAST MAIN STREET UNDERPASS
CITY OF GALESBURG
KNOX COUNTY

Prepared For:

CITY OF GALESBURG
Galesburg, Illinois

Prepared By:

HANSON PROFESSIONAL SERVICES INC.
7625 N. University Street
Suite 200
Peoria, Illinois 61614

January 2016

**PROJECT MANUAL
FOR
RESIDENTIAL AND COMMERCIAL
BUILDING DEMOLITIONS
EAST MAIN STREET UNDERPASS
GALESBURG, ILLINOIS**

TABLE OF CONTENTS

<u>DOCUMENT</u>	<u>TITLE</u>	<u>PAGES</u>
 <u>SECTION</u>		
<u>DIVISION 0 – BIDDING & CONTRACT REQUIREMENTS</u>		
00110	Definition of Abbreviations and Terms	00110-1-4
 <u>DIVISION 1 - GENERAL REQUIREMENTS</u>		
01010	Project Summary	01010-1-3
01060	Regulatory Requirements	01060-1-2
01300	Submittals	01300-1-3
01400	Quality Control	01400-1-2
01522	Protective Measures During Demolition	01522-1-4
01710	Final Cleaning	01710-1-2
01720	Project Record Documents	01720-1-2
 <u>DIVISION 2 - SITE WORK</u>		
02060	Building Demolition	02060-1-4
02080	Asbestos Removal	02080-1-3
02081	Hazardous Waste and Special Waste	02081-1-2
02218	Excavation and Rough Grading	02218-1-3
02220	Backfilling and Compaction	02220-1-4
02936	Seeding and Mulching	02936-1-2
 APPENDIX A – ASBESTOS SURVEY RESULTS		
APPENDIX B – HAZARDOUS WASTE SURVEY RESULTS		

BIDDING & CONTRACT REQUIREMENTS
DOCUMENT 00110 - DEFINITIONS OF
ABBREVIATIONS AND TERMS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDE

- A. All bidders.

1.02 RELATED REQUIREMENTS

- A. Specified elsewhere:
1. Division 1 - General Requirements.
 2. Division 2 - Site Work.

1.03 ABBREVIATIONS

- A. Whenever the following abbreviations are used in these Specifications or on the Project Drawings, they are to be construed the same as the respective expressions represented:

ACM – Asbestos-Containing Material
AISC - American Institute of Steel Construction
ANSI - American National Standards Institute
API - American Petroleum Institute
ASME - American Society of Mechanical Engineers
ASTM - American Society for Testing and Materials
AWS - American Welding Society
CFR - Code of Federal Regulations
CQC - Contractor Quality Control
IEMA – Illinois Emergency Management Agency
IEPA – Illinois Environmental Protection Agency
NBFU - National Board of Fire Underwriters
NBS - National Bureau of Standards
NEC - National Electric Code
NEMA - National Electric Manufacturer's Association
NFPA - National Fire Protection Association
OSFM – Office of the State Fire Marshal
OSHA - Occupational Safety and Health Administration
UL - Underwriters Laboratories
USEPA - United States Environmental Protection Agency

1.04 TERMS DEFINED

A. Wherever used in the Project Specifications or on the Project Drawings, the following terms have the meanings indicated (unless otherwise specified) which are applicable to both the singular and plural thereof:

1. Agreement: The written agreement between Owner and Contractor covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided herein.
2. Bid: The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
3. Bidder: Any individual, firm, partnership or corporation submitting a proposal for the work contemplated, acting directly or through a duly authorized representative.
4. Bonds: Bid, performance, and payment bonds and other instruments of security.
5. Calendar Day: Every day shown on the Gregorian calendar.
6. Change Order: The Contractor is obligated by the basic contract to proceed with the work outlined on a change order, showing the change in the Scope of Work.
7. Change in Scope: Unknown, unforeseen, or unlisted classes of work, not specified in the contracted work items.
8. Contract Documents: The Agreement, Addenda (which pertain to the Contract Documents), Contractor's Bid (including documentation accompanying the Bid and any Post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Special Conditions, the Specification and the Project Drawings as the same or more specifically identified in the Agreement, together with all amendments, modifications and supplements issued on or after the Effective Date of the Agreement.
9. Contractor: The person, firm, or corporation with whom Owner has entered into the Agreement.
10. Contract Time: The number of working days or calendar days allowed for completion of the Contract, including submittal of all required documents. The Contract Time includes authorized time extensions. In case a calendar date of completion is shown in the proposal in lieu of the number of working or calendar days, the Contract shall be completed on or before that date.
11. Effective Date of Agreement: The date indicated in the Agreement on which it becomes effective. But if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two (2) parties to sign and deliver.
12. Engineer: The person, firm, or corporation named as such in the Agreement or Specifications. The designated Engineer for this project is Hanson Professional Services Inc.
13. Negotiable: An item of work, designated as negotiable, for which Contractor and Owner will discuss, if required, for the purpose of coming to an agreement or arrangement. After discussion, and if agreement of terms is expressed by Owner, Contractor shall submit a proposal, including all costs, to Owner for all work and prices which have been agreed upon. Owner has the right to accept or reject any or all proposals. Owner may, if no agreement can be reached, procure completion of said negotiable work items using interested parties who are not associated with the Contract.
14. Notice of Award: The written notice by Owner to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, Owner will sign and deliver the Agreement.

15. Notice to Proceed: A written notice given by Owner to Contractor (with a copy to Engineer) fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform Contractor's obligations under the Contract Documents.
16. Owner: The public body or authority, corporation, association, firm, or person with whom Contractor has entered into the Agreement and for whom the Work is to be provided. City of Galesburg is the Owner for this Project.
17. Pay Item: A specifically described unit of work for which a price is provided in the Contract.
18. Project Drawings: All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by Contractor to illustrate material or equipment for some portion of the Work.
19. Responsible: The determination that the Contractor has the capacity to perform the Work, and the ability to comply with the Specifications and scheduled construction period, and the Contractor has the adequate financial resources (credit) to finance cost of the work until payment by the Owner is received.
20. Responsiveness: Providing information required from the Contractor for evaluation of the bid, an element essential to the promise of performance.
21. Shall: The word "shall" means "mandatory performance by the contracted party" to the task referred to and accompanying this word.
22. Subcontractor: An individual, firm, partnership, or corporation who assumes obligation for performing work or portions of work specified pay items.
23. Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, subterranean structures or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage transport, traffic or other control systems, or water.
24. Unit Price: A specified price for a specified measurable unit of work to be performed under agreement between Owner and Contractor.
25. Work: The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor, and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END DOCUMENT 00110

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01010 - PROJECT SUMMARY

The Contract Requirements and DIVISION 1 - GENERAL REQUIREMENTS are hereby made part of each division and section of the Project Specifications.

PART 1 - GENERAL

1.01 WORK INCLUDES

A. Work covered by the Contract Documents

<u>Pay Item</u>	<u>Work Covered</u>
1. Mobilization	Obtain all licenses and permits, pay all fees, attend all meetings, conduct project closeout activities including all submittals, submit all receipts, manifests, and documents for disposal of all waste materials and demolition debris, mobilization/demobilization, and other costs for work specified in Division 1.
2. Traffic Control and Protection	Maintain traffic control on roads adjacent to the demolition site including labor, materials, transportation, and incidental work necessary to furnish, install, maintain, and relocate traffic control devices and signs during periods where roads are obstructed by demolition activities in accordance with specifications in Section 01522 – Protective Measures During Demolition.
3. Building Demolition	<p>Demolition of five (5) commercial building identified as 583 E. Main Street, 587 E. Main Street, 600 E. Main Street, 674 E. Main Street and 712/714 E. Main Street. The footings and foundations for all structures will be entirely removed, including the basement as required.</p> <p>Demolition includes identification, disconnection and capping of all abandoned and active site utilities for the structures to be demolished. If the existing adjacent roadways are impacted during the disconnection of utilities, the Contractor shall be responsible to make permanent street repairs as noted in Section 02060. Removal and disposal of all building contents including equipment, furnishings, rubbish, piping, electrical components, etc. is considered to be part of demolition. Demolition also includes removal and disposal of attached and detached garages and sheds including building contents, paved parking areas, private sidewalks, signs</p>

including sign posts, trees, shrubs, and existing fence. Salvage and/or recycle of the various components are encouraged. Any commercial business sign shall be removed and included in the cost of the Building Removal pay item. The work shall include removal of sign and foundation.

Demolition will also include necessary excavation to remove foundations where removal of foundations includes removal of earth below final proposed grading. local cohesive material and/or CA-6 aggregate are to be used to backfill excavations up to the proposed grade. Backfill material shall be placed and contoured such that positive storm water drainage is maintained. The cost to provide, place, and compact the cohesive material and the CA-6 is to be included in the building demolition pay item.

4. Asbestos Removal Removal and disposal of asbestos containing materials identified in Appendix A. The price for this work is to include all necessary containers, transport, labels, manifests, and waste profile sheet(s).
5. Collection and Disposal of Waste Materials Collection and disposal of hazardous and special waste materials. Work will include collection and disposal of furnaces; electronics; fluorescent light bulbs; fluorescent ballasts; mercury switches (thermostats); tires; paint; stains; adhesive, oil, antifreeze; sealants; various cleaning products; and other chemicals. See Appendix B for a list of specific items observed in each of the structures to be demolished. The wastes will be collected separately for Owner inspection prior to appropriate disposal. The price for this work is to include all necessary containers, transport, labels, manifests, and waste acceptance certification.

1.02 WORK SEQUENCE

- A. The Contractor shall provide the Owner with a project schedule prior to initiating Work that reflects the major activities necessary to complete the project within the contract completion time.

Project-specific milestones to be addressed in the Contractor's project schedule should reflect the Scope of Work elements covered in the Contract Documents and listed in part 1.01.A. and/or of this section of the General Requirements.

1.03 DAILY WORK HOURS

- A. Work shall be conducted during regular business days (Monday through Friday).
- B. Work shall be conducted during routine working hours at the site (8:00 a.m. to 5:00 p.m.).
- C. All work performed during non-routine work hours shall be coordinated with the Owner.

1.04 CONTRACTORS USE OF PREMISES

- A. Confine operations at site to areas designated by Owner. Close coordination with Owner will be required throughout demolition.
- B. Do not unreasonably encumber site with materials or equipment.
- C. Assume full responsibility for protection and safekeeping of equipment and materials stored on the premises.
- D. Coordinate all uses of the site for work and storage with the Owner.
- E. The Contractor shall designate a Superintendent who will be available at the site at all times when Work is performed.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01010

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01060 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDE

- A. Contractor shall comply with all applicable relevant and appropriate Laws, Rules and Regulations governing the Work, and with all Federal, State and Local regulations and permit requirements pertaining to water, stormwater, air, soils, solid waste, ACM, and noise pollution during demolition operations.

1.02 RELATED REQUIREMENTS

- A. Specified elsewhere:
 - 1. Section 01010 - Project Summary.
 - 2. Section 01400 - Quality Control.
 - 3. Division 2 - Site Work.

1.03 DEFINITIONS & ABBREVIATIONS

- A. Definitions:
 - 1. Codes: Codes are rules, regulations or statutory requirements of government agencies or requirements developed by industry associations.
 - 2. Standards: Standards are requirements set by authorities, custom or general consent, and established as accepted criteria.

1.04 REGULATORY REQUIREMENTS

- A. Source and requirements:
 - 1. USEPA:
 - a. 1976 Resource Conservation and Recovery Act (RCRA) as amended in 1980 and 1984:
 - 1) Subtitle C - Hazardous Waste Regulations (40 Code of Federal Regulations Parts 260-279).
 - b. Clean Water Act.
 - c. 40 Code of Federal Regulations, Part 61, Subpart M (NESHAP).
 - d. 40 Code of Federal Regulations, Part 763.
 - e. 49 Code of Federal Regulations, Parts 171-180.

2. Illinois Environmental Protection Agency:
 - a. Environmental Protection Act.
 - b. 77 Illinois Administrative Code, Part 855.
- B. All other applicable Codes and Regulations governing the management of hazardous and special wastes.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 APPLICATION

A. The Contractor Responsibilities:

1. Obtain all required permits, if any, at their own expense.
2. Provide all necessary containers, vehicles, equipment, labels, and manifests at their own expense.
3. Report spills of waste immediately to the Owner, and implement immediate containment and cleanup action as necessary.
4. Inform the receiving waste facilities and secure the proper waste acceptance certification, and maintain a record documenting the hazardous and non-hazardous determination.
5. Comply with the State manifest system. The Owner will sign as a generator for all special and hazardous wastes.
6. Ensure that hazardous waste shipments are transported by a licensed hazardous waste hauler. The transporter must sign the appropriate portions of the manifest.
7. Ensure that the facilities accepting the waste for disposal or treatment have an EPA or State permit.

END OF SECTION 01060

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDES

A. Submittal Procedures:

1. Construction progress schedules.
2. Demolition Plan.
3. Project Record Documents.
4. Applications for Payment.

1.02 RELATED REQUIREMENTS

A. Specified elsewhere:

1. Section 01400 - Quality Control.
2. Section 01720 - Project Record Documents.
3. Section 02060 - Building Demolition.
4. Section 02080 - Asbestos Removal.
5. Section 02081 - Hazardous Waste and Special Waste.
6. Section 02220 - Backfilling and Compaction.

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Owner accepted form.
- B. Sequentially number the transmittal forms. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to Owner at 55 W. Tompkins, Galesburg, IL 61401. Coordinate submission of related items.
- F. For each submittal for review, allow fifteen (15) days excluding delivery time to and from the Owner.

- G. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- H. Provide space for Contractor and Owner review stamps.
- I. When revised for resubmission, identify all changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- K. Submittals not requested will not be recognized or processed.

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in duplicate within five (5) days after date of Owner-Contractor Agreement.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

1.05 PROJECT RECORD DOCUMENTS

- A. During the course of the project, the Contractor will submit to the Owner the following Project Record Documents:
 - 1. Records showing final destinations or disposal of all hazardous and non-hazardous waste materials, ACM, and demolition debris removed from the commercial properties.
 - 2. Records of all waste hauling operations.
 - 3. Waste acceptance certifications.
 - 4. Records, documents, receipts, etc. verifying disposal method of all waste materials.
 - 5. Copies of all permits (state and local).
- B. Prior to beginning asbestos work, the Contractor will submit to the Owner the following documents:
 - 1. Copy of Asbestos Professional License issued by the Illinois Department of Public Health for the individual designated as the Competent Person.
 - 2. Copy of Asbestos Worker License issued by the Illinois Department of Public Health for all Workers engaged in asbestos work.
 - 3. Copy of medical surveillance records for all workers engaged in asbestos work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01300

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Testing:

1. Contractor will cooperate with the Owner to provide samples and access to the demolition site.
2. Inspection and sampling requirements are left to the discretion of the Owner.

1.02 RELATED REQUIREMENTS

A. Specified elsewhere:

1. Division 2 - Site Work.

1.03 CONTRACTOR'S RESPONSIBILITIES - TESTING SERVICES

- A. When field testing is required in individual sections of the Specifications, Contractor shall cooperate with Owner and provide access to the Work.
- B. Provide samples of the materials to be used for preliminary evaluation to the Owner prior to placement.
- C. Furnish verification of compliance with contract requirements for materials and equipment.
- D. Furnish casual labor and facilities:
 1. To provide access to work to be tested.
 2. To obtain and handle samples at site.
 3. To facilitate inspections and tests.
 4. For Owner's exclusive use for storage of test samples.
- E. Notify Owner sufficiently in advance of operations to allow for assignment of test personnel and scheduling of tests and to eliminate delays in the progress of the Work.
- F. Correct work which is defective or which fails to conform to the Contract Documents in accordance with the General Conditions. Corrective work shall not delay the project schedule or the work of other contractors.
- G. Pay all costs of retesting when test results indicate non-compliance with contract requirements.

H. Patch all surfaces and areas disturbed by testing operations.

1.04 CONTRACTOR'S RESPONSIBILITIES – OWNER ACCESS

A. Provide Owner with safe access to various areas of the commercial properties where demolition and/or asbestos abatement activities are underway as requested.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01400

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01522 - PROTECTIVE MEASURES
DURING DEMOLITION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDE

A. Contractor:

1. Provide and maintain suitable barriers to prevent access of unauthorized personnel into work areas.
2. Provide fire protection and prevention measures in work areas.
3. Institute accident prevention procedures.
4. Maintain haul routes and equipment parking areas.
5. Responsibilities:
 - a. Assume full responsibility for complying with all rules and regulations of all Federal, State and Municipal authorities having jurisdiction, including those of the U.S. Environmental Protection Agency, the Occupational Safety and Health Administration, the Illinois Environmental Protection Agency, the Office of the State Fire Marshal, the Galesburg Fire Department, and the City of Galesburg.
 - b. The requirements outlined hereinafter are to be considered as minimal, and where the requirements of any of the above authorities having jurisdiction conflict with the requirements of this section, the maximum condition shall prevail.
 - c. Any items damaged due to failure to comply with these requirements shall be corrected or replaced to the satisfaction of the Owner without cost to the Owner.
 - d. Assume full responsibility for enforcing compliance with any protective measures indicated in specific sections of the Work.

1.02 RELATED REQUIREMENTS

A. Specified elsewhere:

1. Division 2 - Site Work.

PART 2 - PRODUCTS

2.01 TEMPORARY FENCING

- A. The Contractor shall supply temporary fencing around the demolition.
- B. Materials may be new or used, suitable for purpose.
- C. Materials shall be approved by the Owner.

2.02 BARRICADES

- A. Necessary barricades, cones, drums, and lights for the warning and protection of traffic, as required by Sections 107 and 701 through 703 of the Standard Specifications for Road and Bridge Construction.

2.03 SIGNS

- A. "Road Construction Ahead" signs (W20-1(0)-48).
- B. Sign posts must 100 x 100 mm (4 in. x 4 in.) wood posts according to Article 1007.05 of the Standard Specifications. The use of metal posts will not be permitted.

PART 3 - EXECUTION

3.01 FENCING

- A. Barricades with warning flashers (for night use) and signs (for day use) and fencing shall be installed around all demolition areas.
- B. A securely erected "snow fence" shall be provided around all demolition areas during non-working hours. The fence is to be no closer than 10 ft to the limits of any demolition area.

3.02 BARRICADES

- A. The Contractor shall coordinate the items of work in order to keep hazards and traffic inconveniences to a minimum. During demolition at least one (1) lane shall remain open to traffic at all times.
- B. The Contractor shall erect and maintain all necessary barricades, cones, drums, and lights for the warning and protection of traffic, as required by Sections 107 and 701 through 703 of the Standard Specifications of Road and Bridge Construction.
- C. The Contractor shall erect and maintain "Road Construction Ahead" signs (W20-1(0)-48) at both ends of the project and the affected side road.

3.03 FIRE PROTECTION

- A. Contractor shall take all precautions to eliminate possible fire or explosion hazards at the site, including, but not limited to, enforcing the following requirements:
 - 1. Any waste oil shall be stored, handled, and maintained in accordance with the most recent edition of the Uniform Fire Code and publications developed by the American Petroleum Institute and the National Fire Protection Association, and local, state, or federal regulations, whichever supersedes.

2. All combustible material shall be removed from the site storage areas on a daily basis, including oil rags, empty solvent or paint containers, etc.
 3. All tarpaulins and other covers for stored materials shall be flameproof.
 4. Solvents, paints, thinners, coatings, and other highly flammable materials shall be stored only in well-ventilated areas, and all mixing and preparation shall be restricted to such areas. All such materials shall be handled in accordance with safe practices and the requirements of authorities having jurisdiction.
 5. Containers containing flammable or combustible materials shall remain capped or closed at all times, unless in immediate use.
 6. No open fires on the site.
 7. Avoid storage of large quantities of flammable or combustible materials at the site.
 8. Gasoline may not be stored in any single quantity greater than 5 gallons on the site during any stage of construction.
- B. Provide and maintain at least one (1) fire extinguisher station on the site in a designated location within the Contract Limits. Additional fire extinguishers shall be furnished in each enclosed area used for storage. Each fire extinguisher station shall be located so as to be easily accessible while providing minimum interferences with operations, and shall contain one (1) standard UL listed, 10 pound, BC rated carbon-dioxide unit. Contractor shall check units frequently to maintain them in operable condition.
- C. Welding and flame cutting will be allowed only upon authority of the Owner. All such equipment, when used, shall be kept in a safe and functional condition and be of a type which will minimize hazards. Great care must be exercised in the use of the tools near adjacent properties.

3.04 ACCIDENT PREVENTION AND PROCEDURES

- A. Site Safety will be the Contractor's responsibility:
1. Safety responsibility will include supply and use of approved ventilation equipment, personal protection equipment, fire extinguishers, combustible gas/oxygen indicators, storage of hazardous materials, and other safety equipment required to complete the Work.
 2. All safety equipment will be stored in designated storage areas, and will be maintained in proper working order.
- B. Buried and aboveground utility location, identification, and marking are the sole responsibility of the Contractor. Utility locations must be cleared by the utility companies and the Owner. Rerouting, disconnection, protection, etc. of any utilities must be coordinated between the Contractor, utility company, and Owner. Site safety, including the avoidance of hazards associated with buried and aboveground utilities, remains the sole responsibility of the Contractor.
- C. Promptly report in writing to the Owner all accidents which cause death, personal injury, or property damages, arising out of or in connection with the performance of the Work, whether on or adjacent to the site. Where death, serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner.
- D. If any claim is made by anyone against the Contractor or any subcontractor on account of any accident, promptly report the facts in writing to the Owner, giving full details of the claim.

3.05 HAUL ROUTES AND EQUIPMENT PARKING AREAS

- A. The Contractor will use only the haul routes and equipment parking areas designated during the preconstruction meeting. Contractor's personnel and equipment shall remain inside the designated routes and areas. The Contractor will restore haul routes and equipment parking areas upon completion of the project.

END OF SECTION 01522

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01710 - FINAL CLEANING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDE

- A. The work in this section is required of the Contractor and all subcontractors unless otherwise specified:
1. Maintain premises and adjacent properties free of waste, debris and rubbish caused by project operations.
 2. Maintain pavements and sidewalks on premises, adjacent properties, and public roads free from mud and soil accumulations caused by project operations.
 3. Upon project completion, or at such other times as directed by the Owner, remove all waste, debris, rubbish, tools, equipment, machinery and surplus materials. Clean all exposed surfaces; leave work area clean and ready for occupancy.

1.02 RELATED REQUIREMENTS

- A. Specified elsewhere:
1. Section 01010 - Project Summary.

1.03 SAFETY REQUIREMENTS

- A. Standards: Maintain project in accordance with the following safety and insurance standards:
1. Applicable Federal and State requirements.
 2. National Fire Protection Association (NFPA).
- B. Hazards Control:
1. Prevent accumulation of wastes which create hazardous conditions.
- C. Conduct cleaning and disposal operations to comply with applicable Federal and State anti-pollution laws:
1. Do not burn or bury rubbish and waste materials on project site.
 2. Do not dispose of wastes into streams, waterways, their tributaries or shorelines.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 DURING PROJECT

- A. Execute cleaning to ensure that grounds and adjacent properties are maintained free of waste, debris and rubbish. Maintain pavement and sidewalks free of mud and soil accumulations.
- B. Provide on-site containers for collection of waste materials, debris and rubbish as required, and properly dispose of same.

3.02 FINAL CLEANING

- A. Employ experienced workmen for final cleaning.
- B. Maintain finally cleaned areas until project, or designated portion thereof, is accepted by Owner.

END OF SECTION 01710

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Contractor submittals (as a minimum): On or before the date of final observation the Contractor will submit to Owner the following Project Record Documents, which the Contractor will have accumulated and retained during the course of the project:
1. Records showing final destinations or disposal of all hazardous and non-hazardous waste materials, ACM, demolition debris, and salvageable items removed from the site.
 2. Waste acceptance certifications.
 3. Records of all waste hauling operations.
 4. Records, documents, receipts, etc. verifying disposal method of all waste materials, demolition debris, and salvageable items.
 5. Copies of all permits (state and local).
 6. Photographed documentation of work in progress.
 7. Written Project Warranty (one (1) year).
 8. Contractor's daily work logs.
 9. Drawings showing actual locations of capped utilities, subsurface obstructions, and portions of the structure and foundations to remain, with actual dimensions from buildings and burial depth (related to building finish floor). Drawings to be 8.5" x 11" or 11" x 17" in size.
 10. Names, addresses, and phone numbers of subcontractors involved during demolition.

1.02 RELATED REQUIREMENTS

- A. Specified elsewhere:
1. Section 01010 - Project Summary.
 2. Section 01400 - Quality Control.
 3. Division 2 - Site Work.

1.03 RECORDING

- A. Label each document "PROJECT RECORD DOCUMENTS."
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Documents: Legibly mark to record actual construction:
1. Field changes of dimension and detail.

2. Changes made by change order.
3. Details not on original contract drawings.

E. Specifications and addenda: Legibly mark up each section to record:

1. Changes made by change order or field order.
2. Other matters not originally specified.

1.04 SUBMITTALS

A. At completion of project, deliver Project Record Documents to Owner.

B. Accompany submittal with transmittal letter, in duplicate, containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title of each record document.
5. Certification that each document as submitted is complete and accurate.
6. Signature of Contractor, or their authorized representative.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END SECTION 01720

DIVISION 2 - SITE WORK
SECTION 02060 - BUILDING DEMOLITION

PART 1 - GENERAL

1.01 PROJECT INCLUDES

- A. Demolition of one (1) commercial buildings identified as 642 E. Main Street. Removal and disposal of building contents and demolition debris.
- B. Removal and disposal of identified ACM as detailed in Appendix A– Asbestos Survey Results.
- C. Removal and disposal of hazardous and special waste materials as detailed in Appendix B – Hazardous Waste Survey Results.
- D. Demolition and removal of buildings and structures; the footings and foundations for all buildings will be entirely removed.
- E. Removal of existing site appurtenances, including but not limited to, sheds, garages, driveways, paved parking areas, private sidewalks, trees, shrubs, and existing fence.
- F. Removal and disposal of rubbish and debris resulting from own demolition operations.
- G. Provide protection for utilities that are to remain.
- H. Provide erosion control measures as required to prevent runoff of sediment from project site.
- I. Identification, disconnection, and capping of associated building and residential utilities.

1.02 RELATED REQUIREMENTS

- A. Specified elsewhere:
 - 1. Section 01300 - Submittals.
 - 2. Section 01522 - Protective Measures During Demolition.
 - 3. Section 01720 - Project Record Documents.
 - 4. Section 02080 - Asbestos Removal.
 - 5. Section 02081 - Hazardous Waste and Special Waste.
 - 6. Section 02218 - Excavation and Rough Grading.
 - 7. Section 02220 - Backfilling and Compaction.

1.03 APPLICABLE CODES AND PUBLICATIONS

- A. The Contractor shall comply with all codes and regulations including but not limited to the following:
 - I. The BOCA National Building Code 2006.

2. ANSI/ASSE A10.6 "Safety Requirements for Demolition Operations."
3. National Association of Demolition Contractors "Demolition Safety Manual."
4. OSHA Safety and Health Standards, 29 CFR 1926, Subpart T, "Demolition."

1.04 SUBMITTALS

- A. Demolition Plan: Indicate demolition and removal sequence and location of salvageable items; location of special and hazardous wastes; location and construction of fences, barricades, and temporary work. The Contractor shall submit a complete demolition plan to the Engineer detailing procedures and sequence for removing entire structures including all features necessary to remove structures in a safe and controlled manner to ensure stability of structures at any given time. The structures shall be able to support its self-weight, lateral loads, debris, and any other demolition related loads as parts of the structure are demolished and no longer contribute to capacity. Elements of the structure made unstable by the demolition process prior to their removal shall be braced until they can be removed. The demolition plan shall consist of the following: the demolition sequence for the entire contract; staging of demolition; equipment locations; any required temporary support shoring; and details and locations of shields or other protective measures in sufficient numbers to assure that people and property will not be endangered.

Engineered demolition shall be required if an operator is on a structure, or within the collapse envelope of the structure, to be demolished. The Contractor shall submit to the Engineer additional working drawings (including engineering calculations) for the proposed demolition plan if an operator is on the structure or within the collapse envelope of the structure. The demolition plan shall be prepared by a licensed Structural Engineer with a current license in the State of Illinois. The engineer who prepares and seals the demolition plan will be considered the Engineer of Record. The engineering calculations shall be adequate to demonstrate the stability of the structure during all stages of the removal operation if an operator is on the structure or within the collapse envelope of the structure.

- B. Records of waste hauling operations and disposal for ACM, hazardous wastes, non-hazardous wastes, demolition debris, and salvageable items.

1.05 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01720.
- B. Accurately record actual locations of capped utilities, subsurface obstructions, and portions of the structure and foundations to remain.

1.06 QUALIFICATIONS

- A. Demolition Firm: Company specializing in performing the Work of this Section.

1.07 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for demolition of structures, safety of adjacent structures, dust control, vibration control, runoff control and disposal.
- B. Obtain required permits from authorities in accordance with Section 01060.
- C. Notify affected utility companies before starting work and comply with their requirements.
- D. Closure or obstruction of roadways shall be condition in accordance with Section 01522 and approved by Owner in advance.
- E. Notify Owner and conform to applicable regulatory procedures when hazardous or contaminated materials discovered.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

- A. Fill Material: As specified in Section 02220.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Provide, erect, and maintain temporary barriers and security devices at locations indicated in accordance with Section 01522.
- B. Protect existing structures and utilities that are not to be demolished.
- C. Mark location of utilities that are not be demolished.

3.02 DEMOLITION REQUIREMENTS

- A. Contractor shall verify that ACM to be abated have in fact been removed prior to the onset of building demolition.
- B. Remove all hazardous and special waste materials from the buildings prior to the onset of demolition in accordance with Section 02081 – Hazardous Waste and Special Waste.
- C. Remove salvageable items for Contractor's reuse or sale prior to starting demolition activities.
- D. Disconnect and cap all utilities as directed by utility owner. Water and sewer services shall be disconnected and capped at the main. The Contractor shall be responsible for making permanent street repairs by matching the existing pavement structure or equivalent as approved by the

Engineer. Should the contractor encounter previously unknown utilities on the site he shall proceed in accordance with the Owner's direction.

- E. Utility services are to be uncovered at the back of the curb stop, the service line cut, and capped.
- F. Wet building area to be demolished with water to minimize dust. Provide hoses and water connections for this purpose.

3.03 DEMOLITION

- A. All structures are to be demolished in a safe and controlled manner.
- B. Remove concrete slabs on grade, basement walls and floors, foundation walls, and footings of buildings to be demolished. Basement walls and floors, foundations and footings will be entirely removed.
- C. Protect nearby buildings, structures and utilities throughout demolition activities.
- D. Rough grade and compact areas affected by demolition to maintain site drainage in accordance with Section 02220.

3.04 REMOVAL AND DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolished materials from site.
- B. Do not burn or bury materials on site. Leave site in clean condition.
- C. Demolition debris or waste shall either be disposed of in a licensed landfill, or recycled, reused, or otherwise disposed of as allowed by State or Federal solid waste disposal laws and regulations and solid waste determinations of the Illinois Environmental Protection Agency (IEPA) and approved by the Owner.
- D. The Contractor shall provide to the Owner a network of City streets that will be used during the project by the Contractor, his Subcontractors, or material suppliers. The Owner and Contractor shall both examine the roads and streets to be used during construction, noting any areas of concern before construction starts.
- E. It will be the responsibility of the Contractor to insure that his subcontractors utilize only the designated roadways in their project related haul movements. Unless otherwise permitted by the agency having jurisdiction over the designated roadway, the roadway shall be restricted to legal weight and size loads.

END OF SECTION 02060

DIVISION 2 - SITE WORK
SECTION 02080 - ASBESTOS REMOVAL

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. The Contractor shall furnish all labor, materials, equipment and services necessary for the proper execution of removal, disposal, and protection required for removal of Asbestos Containing Materials (ACM) identified in the properties to be demolished. Asbestos survey results for the properties are included in Appendix A.

1.02 RELATED REQUIREMENTS

- A. Specified elsewhere:
 - 1. 01010 - Project Summary.
 - 2. 01300 - Submittals.
 - 3. 01522 - Protective Measures During Demolition.

1.03 REFERENCED STANDARDS

- A. National Emission Standards for Hazardous Air Pollutants (NESHAPS) 40 CFR Part 61 Subpart M.
- B. OSHA Construction Standard 29 CFR 1926.1101.
- C. Asbestos Abatement Public and Private Schools and Commercial and Public Buildings in Illinois 77 IAC Part 855.
- D. Asbestos – Necessary and Practicable Safeguards 35 IAC 228.141.

1.04 DEFINITIONS

- B. Asbestos-Containing Building Materials (ACBM) means surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members.
- B. Category I Non-friable ACM means asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using Polarized Light Microscopy (PLM).
- C. Category II Non-friable ACM means any material, excluding Category I non-friable ACM, containing more than 1 percent asbestos as determined by PLM.
- D. Friable Asbestos Material means any material containing more than 1 percent asbestos as

determined by PLM that can be crumbled, pulverized, or reduced to powder by hand pressure.

- E. Regulated Asbestos-Containing Material (RACM) means friable asbestos material; Category I non-friable ACM that has become friable; Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading; Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act as the material in the course of demolition or renovation operations.

1.05 HANDLING OF ACM

- A. Asbestos-Containing Surfacing Material: Removal of asbestos-containing surfacing material is considered a Class I asbestos work operation.
- B. Asbestos-Containing Thermal System Insulation: Removal of thermal system insulation is considered a Class I asbestos work operation.
- C. Asbestos-Containing, Floor Sheeting: Removal of asbestos-containing floor sheeting is considered to be a Class I asbestos work operation.
- D. Asbestos-Containing Caulking: Asbestos-containing caulking around window panes and exterior windows is considered Category I non-friable material, Removal of the windows including all caulking is considered to be Class II asbestos work. The windows including all caulk must be removed separately from the building.

1.06 SUBMITTALS

- A. Copy of Asbestos Professional License issued by the Illinois Department of Public Health for the individual designated as the Competent Person.
- B. Copy of Asbestos Worker License issued by the Illinois Department of Public Health for all workers engaged in asbestos work.
- C. Copy of medical surveillance records for all workers engaged in asbestos work.
- D. Plan for Negative Pressure Enclosures to be used during asbestos abatement activities.
- E. Waste manifests and landfill receipts.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 GENERAL WORK PRACTICES FOR ASBESTOS ABATEMENT

- A. All Asbestos abatement activities shall be conducted in accordance with IDOT Special Provisions

for Building Demolition.

3.02 TRANSPORT AND DISPOSAL OF ASBESTOS

- A. All asbestos-containing waste generated in Project shall be collected and transported in a lined roll-off box with locking access. The asbestos-containing waste shall be disposed of at a landfill licensed to accept the waste that is approved by the Owner.

END OF SECTION 02080

DIVISION 2 – SITE WORK
SECTION 02081 – HAZARDOUS WASTE AND
SPECIAL WASTE

PART 1 - GENERAL

1.01 WORK INCLUDES

A. Collection, staging, and disposal of hazardous waste and special waste including, but not limited to:

- White goods (stoves and water heaters)
- Furnaces
- Electronics (televisions)
- Batteries (smoke detectors)
- Fluorescent ballasts (likely to contain PCBs)
- Fluorescent light bulbs
- Mercury switches (thermostats with mercury component)
- Tires
- Compressed gas (spray paint, aerosol Raid insect control)
- Paint, stain (5-gallon paint containers, 1-gallon paint containers, quart paint containers, quart oil stain)
- Adhesives
- Oil, Transmission Fluid (≤ 1 quart size containers of oil, 1-gallon antifreeze)
- Miscellaneous Cleaning Supplies (bleach, toilet bowl cleaner, etc.)

See Appendix B for a list of specific items observed in each of the structures to be demolished. Quantities presented in Appendix B are only approximations. The Contractor is responsible to identify and dispose of all materials remaining in structures at the bid price even if quantities are different than those presented.

B. Packaging, labeling, and preparing manifests for waste transport.

C. Transport and disposal of all hazardous waste and special waste.

1.02 RELATED REQUIREMENTS

A. Specified elsewhere:

1. Section 02060 - Building Demolition.
2. Section 02080 - Asbestos Removal.

1.03 HANDLING OF HAZARDOUS AND SPECIAL WASTES

A. Hazardous and special components shall be collected from the structures prior to demolition and staged in a secure area.

- B. Refrigerants shall be recovered from refrigeration and air conditioning units by a HVAC professional.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 HAZARDOUS WASTES

- A. Contractor shall collect and stage all hazardous wastes listed in paragraph 1.01A for Owner inspection.
- B. Contractor shall notify Owner of discovery of any other components that may be classified as hazardous waste (e.g., oil-containing electrical equipment, unknown chemicals, etc.).
- C. Prepare waste acceptance certification(s) for disposal.
- D. Package, label, and prepare manifest(s) for transport of the hazardous waste. (Owner will sign manifest as generator.)
- E. Transport and disposal of hazardous wastes shall be coordinated through Disposal Company approved by Owner.

3.02 SPECIAL WASTES

- A. Prepare waste acceptance certification(s) for disposal.
- B. Label and prepare manifest(s) for transport of waste if needed. (Owner will sign manifest as generator.)

1.03 SALVAGEABLE ITEMS

- A. Obtain a receipt to document sale of salvageable items.

END OF SECTION 02081

DIVISION 2 - SITE WORK
SECTION 02218 - EXCAVATION AND ROUGH
GRADING

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Strip 4 in. of existing topsoil and stockpile on-site.
- B. Excavate soils as required to remove building footings/floors, and utilities.
- C. Removal of existing site appurtenances, including but not limited to, sheds, garages, driveways, parking areas, sidewalks, trees, shrubs, and existing fence.
- D. Remove all abandoned and active underground and aboveground utility lines associated with the buildings to be demolished.
- E. Stockpile excavated soils on site.
- F. Protect portions of underground and aboveground utility lines which are to remain within excavated areas.
- G. Protect excavations.

1.02 RELATED WORK

- A. Specified elsewhere:
 - 1. Section 02220 - Backfilling and Compaction.

1.03 QUALITY ASSURANCE

- A. Perform all work in accordance with latest version of governing Codes and Regulations.

1.04 PROTECTION

- A. Protect trees, shrubs, lawns, areas to receive seeding and other features to remain.
- B. Protect bench marks, valves, piping, existing structures, retaining walls, fencing, roads, sidewalks, and paving which are designated to remain in place, against damage from equipment and vehicular or foot traffic.
- C. Protect excavations by shoring, bracing, sheet piling, underpinning, laying back slopes, or other methods, to prevent cave-ins or loose dirt from falling into excavations.

- D. Underpin adjacent structures which may be damaged by excavation work, including power poles and lighting.
- E. Promptly notify Owner immediately of unexpected conditions that may prohibit or delay progress of the Work. Discontinue work in area until Owner issues written notification to resume work. Confirm reception of notification in writing.
- F. Grade around excavation to prevent surface water runoff into excavated area.
- G. All material excavated and piled adjacent to the construction area shall be piled and maintained so that the toe of the slope is at least 2 ft from the edge of the excavation. All stockpiled material must be adequately contained so that the material is not washed or blown on adjacent paved and grassed areas or into water courses. Do not stockpile material where it will interfere with Owner's activities at the site.
- H. Excavated material not authorized for any on-site use by the Owner shall be removed from the project site by the Contractor and disposed of in a manner acceptable to Owner. This includes broken pavement, concrete chunks, asphaltic concrete, utility piping, conduits and other miscellaneous debris.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PREPARATION AND LAYOUT

- A. Establish extent of excavated area by area and elevation. Designate and identify data elevation.
- B. Set specified lines and levels.
- C. Maintain bench marks, monuments, and other reference points.

3.02 UTILITIES

- A. Buried and aboveground utility location, identification, and marking are the sole responsibility of the contractor. Rerouting, disconnection, protection, etc. of any utilities must be coordinated between the contractor, utility company, and owner. Site safety, including the avoidance of hazards associated with buried and aboveground utilities, remains the sole responsibility of the contractor.
- B. Notify utility companies to remove lines for which they are responsible.
- C. Maintain, reroute, or extend existing utility lines which pass through work area and are to remain in service.

- D. Protect utility services uncovered by excavation that are to remain in place.
- E. Remove abandoned utility service lines from site; cap, plug, or seal service lines that are to remain in place.
- F. Accurately locate and record abandoned and active utility lines rerouted or extended, on Project Record Documents in accordance with Section 01720.

3.03 EXCAVATION

- A. Stockpile excavated topsoil and subsoil for reuse.
- B. Excavate subsoil in accordance with lines and levels established for the Work.
- C. Where existing pavement/sidewalk interferes with excavation, saw cut and remove pavement/sidewalk and granular base materials from the site. The pavement/sidewalk shall be removed a minimum of 2 ft beyond the perimeter of the excavation in such a manner that 2 ft of stable well-compacted granular base material is exposed.
- D. Perform additional excavation only by Owner's written authorization.
- E. Trim excavations and keep free from loose or organic matter.
- F. Correct unauthorized excavation in accordance with Engineer's written directions.
- G. Excavations shall not interfere within normal 45 degree bearing splay of any remaining foundation.
- H. Owner shall establish limits for the excavated area.

3.04 SHORING AND EXCAVATION SAFETY

- A. The Contractor shall provide all materials, labor, and equipment necessary to shore the excavation to protect the work, existing property, utilities, pavement, etc., and to provide safe working conditions in the excavation. Safety provisions shall be consistent with OSHA and other applicable local, state or federal safety Codes or Regulations.
- B. Damages resulting from improper shoring or failure to shore shall be the sole responsibility of the Contractor.

END OF SECTION 02218

DIVISION 2 - SITE WORK
SECTION 02220 - BACKFILLING AND
COMPACTION

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Place and compact fills to rough grade elevations.
- B. Backfill in areas where impacted soils are identified will not proceed until directed by the Engineer.

1.02 RELATED WORK

- A. Specified elsewhere:
 - 1. 01010 - Project Summary.
 - 2. 01400 - Quality Control.
 - 3. 02060 - Building Demolition.
 - 4. 02218 - Excavation and Rough Grading.

1.03 SITE COMPACTION TESTING

- A. Testing of compacted fill materials will be performed by the Engineer and paid for by the Owner. Testing will be performed in manner to least encumber performance of work.
- B. When work, or portions of work, are completed, notify the Owner (at least twenty-four (24) hours in advance) to perform density tests. Do not proceed with additional portions of work until satisfactory results have been verified in writing.
- C. When, during progress of work, tests indicate that compacted materials do not meet specifications, remove defective work, replace and retest, as directed by Engineer. Contractor shall pay for all additional tests when initial tests show nonconformance work.
- D. Document that all compacted fills are tested before proceeding with placement of each lift of backfill and of surface materials.

1.04 PROTECTION

- A. Protect bench marks, existing structures, roads, sidewalks, and paving to remain in place against damage from equipment and vehicular or foot traffic.
- B. Notify Owner immediately of unexpected subsurface conditions and discontinue work in area until

Owner issues written notification to resume work. Confirm notification in writing.

1.05 SUBMITTALS

- A. A sample of the FA-2 proposed as backfill will be submitted to the Owner for approval prior to import to site.
- B. A sample of the CA-6 proposed as backfill will be submitted to the Owner for approval prior to import to the site.
- C. A sample of the cohesive material proposed as backfill will be submitted to the Owner for approval prior to import to the site.
- D. Cooperate with Owner in collection of samples of all backfill material for testing at least seventy-two (72) hours in advance of material placement.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

- A. FA-2.
- B. CA-6.
- C. Locally obtained cohesive material.

2.02 EQUIPMENT

- A. Equipment used for mechanical compaction of the embankment shall be approved by the Owner, and shall be capable of producing the compaction densities specified herein.

PART 3 - EXECUTION

3.01 PREPARATION & LAYOUT

- A. Establish extent of backfilled areas by area and elevation. Designate and identify data elevation.
- B. Set specified lines and levels.
- C. Maintain bench marks, monuments and other reference points.

3.02 UTILITIES

- A. Maintain existing utility lines to remain which pass through work area.

- B. Protect utility services during backfilling and compaction.

3.03 BACKFILLING AND COMPACTION

- A. Sand having a FA-2 gradation will be used for backfilling areas of limited access (i.e., trenches having a width of 3 ft or less). A sample of the FA-2 proposed as backfill will be submitted to the Owner for approval prior to import to the site.
- B. Local cohesive material, obtained and transported by the contractor, shall be used for backfilling excavated areas at various locations noted below. A sample of the cohesive material proposed as backfill will be submitted to the Owner for approval prior to import to the site.
 - a. Building No. 1 – 642 E. Main Street: Backfill excavated area to an elevation equivalent to the proposed grade with compacted local cohesive material.
- C. Mechanical Compaction: If the embankment or backfill depth is 3 ft or less, all lifts of material shall be compacted to 95 percent of the Standard Laboratory Density being the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D698). Embankment or backfill depths that are more than 3 ft shall be compacted to not less than 95 percent of the Standard Laboratory Density.
- D. Moisture Control: Prior to and during compaction operations the material in each layer shall have a moisture content of between a -2 percent and plus +3 percent greater than the optimum moisture content as determined by the Standard Proctor Compaction Test (ASTM D698). If the moisture content of embankment materials as placed is less than herein specified or required for compaction, then application of water for this purpose shall be done as required by sprinkling on the earth fill. The Contractor shall provide the necessary equipment with controls, devices or meters to accurately measure and apply water as required. If the moisture content of materials as placed is greater than that herein specified before compacting then the moisture content shall be reduced to within the limits specified above. The Contractor shall perform any or all work as may be necessary to aerate or otherwise dry the backfill materials to the required moisture content. No compacting shall be done until this has been accomplished.
- E. The general backfill shall be constructed in uniform layers not to exceed 8 in. in thickness, measured in the loose condition. Each layer of material shall extend for the entire length and width, be true to plan contours or guides and thoroughly compacted before the next layer is started. The backfill materials shall be leveled, and raked to break down oversized clods and to thoroughly mix the different soils or to obtain a uniform moisture content. The final contouring of the backfill material shall be performed to provide positive storm water site drainage.
- F. All areas of limited access shall be built in continuous horizontal layers not more than 4 in. in thickness, loose measurement, and each layer shall be thoroughly compacted with a mechanical hand tamper weighing not less than twenty (20) pounds and having a tamping face not larger than 6 in. by 6 in. No extra compensation will be paid for hand compaction, but it will be considered incidental to the item of work being accomplished.
- G. Testing: The compacted density of each fill layer will be tested as determined by the Owner before the next layer of fill is placed. If the density is below that specified, then that layer shall

receive additional compaction until the required density is achieved. The top of each layer of fill shall be lightly raked prior to the placement of the next layer of fill so as to assure a good bond between successive layers of fill. If the surface of a completed layer of fill becomes dry, then that surface shall be moistened and raked prior to the placement of the next layer of fill. The Contractor shall maintain the slopes in a manner satisfactory to the Engineer until the final completion and acceptance of all work under this contract.

END OF SECTION 02220

DIVISION 2 - SITE WORK
SECTION 02936 - SEEDING AND MULCHING

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Temporary seeding and mulching of disturbed areas resulting from the demolition activities.

1.02 RELATED REQUIREMENTS

- A. Specified elsewhere:
 - 1. Section 01300 - Submittals

1.03 REFERENCED STANDARDS

- A. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, adopted January 1, 2007 and Supplemental Specifications adopted January 1, 2011.

1.04 SPECIFICATIONS

- A. Work shall conform to the applicable requirements of Sections 250 and 251 of the IDOT Standard Specifications for Road and Bridge Construction and to the requirements hereinafter specified.
- B. Exceptions: All references in the IDOT specifications to methods of measurement and payment shall not apply.

1.05 WARRANTY

- A. Warranty for one (1) year plus one growing season from date of demolition completion shall be provided.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Temporary Erosion Control Seeding. Contractor shall provide Oats as the temporary seeding on the site. Seed shall be delivered to the job site in unopened, labeled bags. A certification from the supplier stating the weight (mass) and contents of the bag shall be printed on or attached to each bag along with a certification stating that the seed meets the requirements of Article

1081.04(c) of the IDOT Standard Specifications.

- B. Mulch material: Mulch material shall conform to Article 1081.06 of the IDOT Standard Specifications.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. Seeding should be completed in all erodible/bare areas to minimize the amount of exposed surface area. Seed bed preparation will not be required if the soil is in a loose condition. Light disking shall be done if the soil is hard packed or caked.
- B. Seed shall be applied by hand broadcasting to achieve a reasonably uniform coverage at a rate of 100/lb/acre. Seed shall be applied to all bare areas every seven days, regardless of weather conditions or progress of work. The Owner may require that critical locations be seeded immediately and the Contractor shall seed these areas within 48 hours of such a directive.
- C. Areas identified to be temporarily seeded and mulched by Method 1 on the Demolition Contract Site Plan Sheet must be completed when necessary.

3.02 MAINTENANCE OF COMPLETED WORK

- A. All areas seeded and mulched shall be maintained by the Contractor during the period between the completion of such work and final completion of the project and with acceptance of the Contractor's work by the Owner. The maintenance shall be such that the completed work, at time of acceptance, complies in all aspects with the requirements herein specified.
- B. The areas seeded will be required to germinate. If the seed does not germinate, the Contractor will be required to regrade and reseed at no additional cost to the Owner.

END OF SECTION 02936

APPENDIX A

ASBESTOS SURVEY RESULTS

TABLE K-1:
ASBESTOS INSPECTION RESULTS
 May, 2015 (Rev 1)

Client: City of Galesburg	Bldg. Address: 642 E. Main, Galesburg, IL (former Firestone Demo)	Inspector: Brad McKee, CIH			
Homogeneous Area / Sample ID	Description / Location	Probable Quantity	Asbestos Containing Material? (Y/N)	Lab Reported Asbestos Content	NF-I (Non-friable, Category I) NF-II (Non-friable, Category II) F - (Friable)
TPA-1	Air Cell Pipe Insulation, SE corner storage	~ 8 T.F.	Y	60% Chrysotile	F
MTA-1	Transite Sheet & debris, Attic	~ 3 SF	Y	20% Chrysotile	NF-II
MMA 1-3	Glazing Putty, steel windows, interior & exterior	~ 11 ea	Y	2% Chrysotile	NF-II
MFA 1-3	12x12 Floor Tile (light gray w/ white chips)	~1,025 SF	Y	2% Chrysotile	NF-I
MFC 1-3	9x9 Floor Tile (cream) & Mastic, center area	~360 SF	Y	2, 2% Chrysotile	NF-I
SPA 1-3	Hard Plaster, column & attic				
SPB 1-3	Cement Plaster, perimeter walls		N		
MFB 1-3	12x12 floor tile (black) & black mastic, customer service		N		
MCA 1-3	1x1 ceiling tile (fissure, spline), retail space		N		
MCB 1-3	16"x16" ceiling tile (smooth), Attic		N		
MMB 1-3	Tar paper layer, roofing below rubber membrane & foam		N		
Page 1 of 1	Inspected on 5/14/15				

NOTES - All estimated quantities must be field verified by Contractors prior to submitting bid and notifying Illinois EPA or IDPH. TBV means "To Be Verified" by Asbestos Contractors. It is the responsibility of Owner/Operators to follow all applicable Federal, State and Local asbestos regulations. Quantities do not include areas potentially affected by ACM debris or inaccessible locations. See also Laboratory results. For those samples analyzed by PLM that resulted in asbestos minerals in amounts of greater than zero percent (0%) "none detected" and less than or equal to ten percent (10%), it is recommended having representative samples of homogeneous areas analyzed by Transmission Electron Microscopy (TEM) methods. Furthermore, it is recommended by EPA and others that TEM analytical methods be utilized for Homogeneous Areas that contain organic binders (i.e., floor tiles, mastics, roofing, etc.) and were initially determined negative (none detected) by PLM methods for asbestos content.

issues may be applicable, when materials containing asbestos fibers in reported quantities of 1% or less are disturbed.

Potential Health, Liability and Regulatory



EMSL Analytical, Inc.

2001 East 52nd St., Indianapolis, IN 46205
Phone/Fax (317) 803-2997 / (317) 803-3047
<http://www.EMSL.com> indianapolislab@emsl.com

EMSL Order: 161508048
CustomerID: BLMC50
CustomerPO:
ProjectID:

Attn: **Brad Mckee** Phone: (309) 965-2934
McKee Environmental Inc. Fax:
430 Grimm Road Received: 05/15/15 9:20 AM
Congerville, IL 61729 Analysis Date: 5/21/2015
Collected:
Project: CoG: 642 E Main-Firestone DEMO

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MTA-1 161508048-0001		Gray Non-Fibrous Homogeneous		80% Non-fibrous (other)	20% Chrysotile
TPA-1 161508048-0002		Gray Fibrous Homogeneous	20% Cellulose	20% Non-fibrous (other)	60% Chrysotile
SPA 1-Plaster 161508048-0003		Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis					
SPA 1-Skim Coat 161508048-0003A		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
SPA 1-Base Coat 161508048-0003B		Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (other)	None Detected
SPA 2-Plaster 161508048-0004		Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis					
SPA 2-Skim Coat 161508048-0004A		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
SPA 3-Plaster 161508048-0005		Gray Non-Fibrous Homogeneous	<1% Cellulose	20% Quartz 80% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis					

Analyst(s)
Elisabeth Ames (12)
Jedda Moffett (29)

Richard L. Harding
Richard Harding, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262

Initial report from 05/21/2015 16:51:36



EMSL Analytical, Inc.

2001 East 52nd St., Indianapolis, IN 46205
Phone/Fax (317) 803-2997 / (317) 803-3047
<http://www.EMSL.com> indianapolislab@emsl.com

EMSL Order: 161508048
CustomerID: BLMC50
CustomerPO:
ProjectID:

Attn: **Brad Mckee**
McKee Environmental Inc.
430 Grimm Road

Congerville, IL 61729

Phone: (309) 965-2934
Fax:
Received: 05/15/15 9:20 AM
Analysis Date: 5/21/2015
Collected:

Project: CoG: 642 E Main-Firestone DEMO

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
SPA 3-Skim Coat 161508048-0005A		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
SPA 3-Base Coat 161508048-0005B		Gray Non-Fibrous Homogeneous	<1% Cellulose	20% Quartz 80% Non-fibrous (other)	None Detected
SPB 1 161508048-0006		Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis					
SPB 2 161508048-0007		Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis					
SPB 3 161508048-0008		Gray Non-Fibrous Homogeneous	<1% Cellulose	20% Quartz 80% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis					
MDA 1-Drywall 161508048-0009		Brown/White Fibrous Heterogeneous	20% Cellulose 2% Glass	70% Gypsum 8% Non-fibrous (other)	None Detected
MDA 1-Joint Compound 161508048-0009A		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
The sample group is not homogeneous					

Analyst(s)
Elisabeth Ames (12)
Jadda Moffett (29)

Richard L. Harding
Richard Harding, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-fragile organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%.
Samples analyzed by EMSL Analytical, Inc Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262

Initial report from 05/21/2015 16:51:36

291



EMSL Analytical, Inc.

2001 East 52nd St., Indianapolis, IN 46205
Phone/Fax (317) 803-2997 / (317) 803-3047
<http://www.EMSL.com> indianapolislab@emsl.com

EMSL Order: 161508048
CustomerID: BLMC50
CustomerPO:
ProjectID:

Attn: **Brad McKee**
McKee Environmental Inc.
430 Grimm Road

Congerville, IL 61729
Project: CoG: 642 E Main-Firestone DEMO

Phone: (309) 965-2934
Fax:
Received: 05/15/15 9:20 AM
Analysis Date: 5/21/2015
Collected:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MDA 2-Drywall 161508048-0010		Brown/White Fibrous Heterogeneous	20% Cellulose 2% Glass	70% Gypsum 8% Non-fibrous (other)	None Detected
MDA 2-Joint Compound 161508048-0010A		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
Inseparable paint / coating layer included in analysis The sample group is not homogeneous					
MDA 3-Drywall 161508048-0011		Brown/White Fibrous Heterogeneous	20% Cellulose 2% Glass	70% Gypsum 8% Non-fibrous (other)	None Detected
MDA 3-Joint Compound 161508048-0011A		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	<1% Chrysotile
Inseparable paint / coating layer included in analysis The sample group is not homogeneous					
MFA 1-Floor Tile 161508048-0012		Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MFA 1-Mastic 161508048-0012A		Black Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
MFA 2-Floor Tile 161508048-0013		Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)
Elisabeth Ames (12)
Jedda Moffett (29)

Richard L. Harding
Richard Harding, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-triable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%.
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262

Initial report from 05/21/2015 16:51:36

292



EMSL Analytical, Inc.

2001 East 52nd St., Indianapolis, IN 46205
Phone/Fax: (317) 803-2997 / (317) 803-3047
<http://www.EMSL.com> indianapolislab@emsl.com

EMSL Order: 161508048
CustomerID: BLMC50
CustomerPO:
ProjectID:

Attn: **Brad Mckee**
McKee Environmental Inc.
430 Grimm Road

Congerville, IL 61729
Project: CoG: 642 E Main-Firestone DEMO

Phone: (309) 965-2934
Fax:
Received: 05/15/15 9:20 AM
Analysis Date: 5/21/2015
Collected:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MFA 2-Mastic 161508048-0013A					Stop Positive (Not Analyzed)
MFA 3-Floor Tile 161508048-0014		Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MFA 3-Mastic 161508048-0014A					Stop Positive (Not Analyzed)
MFB 1-Floor Tile 161508048-0015		Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MFB 1-Mastic 161508048-0015A		Gray/Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MFB 2-Floor Tile 161508048-0016		Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MFB 2-Mastic 161508048-0016A		Gray/Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MFB 3-Floor Tile 161508048-0017		Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
MFB 3-Mastic 161508048-0017A		Gray/Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Elisabeth Ames (12)
Jadda Moffett (29)

Richard Harding, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%.
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262

Initial report from 05/21/2015 16:51:36



EMSL Analytical, Inc.

2001 East 52nd St., Indianapolis, IN 46205
Phone/Fax: (317) 803-2997 / (317) 803-3047
<http://www.EMSL.com> indianapolislab@emsl.com

EMSL Order: 161508048
CustomerID: BLMC50
CustomerPO:
ProjectID:

Attn: **Brad Mckee** Phone: (309) 965-2934
McKee Environmental Inc. Fax:
430 Grimm Road Received: 05/15/15 9:20 AM
Congerville, IL 61729 Analysis Date: 5/21/2015
Collected:
Project: CoG: 642 E Main-Firestone DEMO

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MFC 1-Floor Tile 161508048-0018		Gray/White Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
MFC 1-Mastic 161508048-0018A		Black Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
MFC 2 161508048-0019					Stop Positive (Not Analyzed)
MFC 3 161508048-0020					Stop Positive (Not Analyzed)
MMA 1 161508048-0021		Tan Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
MMA 2 161508048-0022			Inseparable paint / coating layer included in analysis		Stop Positive (Not Analyzed)
MMA 3 161508048-0023					Stop Positive (Not Analyzed)
MMB 1 161508048-0024		Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (other)	None Detected

Analyst(s)
Elisabeth Ames (12)
Jadda Moffett (29)

Richard K. Harding
Richard Harding, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%.
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262

Initial report from 05/21/2015 16:51:36

29A



EMSL Analytical, Inc.

2001 East 52nd St., Indianapolis, IN 46205
Phone/Fax: (317) 803-2997 / (317) 803-3047
<http://www.EMSL.com> indianapolislab@emsl.com

EMSL Order: 161506048
CustomerID: BLMC50
CustomerPO:
ProjectID:

Attn: **Brad Mckee**
McKee Environmental Inc.
430 Grimm Road

Congerville, IL 61729

Project: CoG: 642 E Main-Firestone DEMO

Phone: (309) 965-2934
Fax:
Received: 05/15/15 9:20 AM
Analysis Date: 5/21/2015
Collected:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MMB 2 161508048-0025		Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (other)	None Detected
MMB 3 161508048-0026		Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (other)	None Detected
MCA 1 161508048-0027		White Fibrous Homogeneous	98% Min. Wool	2% Non-fibrous (other)	None Detected
MCA 2 161508048-0028		White Fibrous Homogeneous	98% Min. Wool	2% Non-fibrous (other)	None Detected
MCA 3 161508048-0029		White Fibrous Homogeneous	98% Min. Wool	2% Non-fibrous (other)	None Detected
MCB 1 161508048-0030		Brown/White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (other)	None Detected
MCB 2 161508048-0031		Brown/White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (other)	None Detected
MCB 3 161508048-0032		Brown/White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (other)	None Detected

Analyst(s)

Elisabeth Ames (12)

Jadde Moffett (29)

Richard Harding, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%.
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262

Initial report from 05/21/2015 16:51:36

295



EMSL Analytical, Inc.

2001 East 52nd St., Indianapolis, IN 46205
Phone/Fax: (317) 803-2997 / (317) 803-3047
<http://www.EMSL.com> indianapolislab@emsl.com

EMSL Order: 161508048
CustomerID: BLMC50
CustomerPO:
ProjectID:

Attn: **Brad Mckee**
McKee Environmental Inc.
430 Grimm Road

Congerville, IL 61729

Project: CoG: 642 E Main-Firestone DEMO

Phone: (309) 965-2934
Fax:
Received: 05/15/15 9:20 AM
Analysis Date: 6/1/2015
Collected:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy. Quantitation using 400 Point Count Procedure

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
MDA 3-Joint Compound 161508048-0011A		White Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<0.25% Chrysotile

Analyst(s)
Ross Matlock (1)

Richard H. Harding
Richard Harding, Laboratory Manager
or other approved signatory

Disclaimer: Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. The limit of detection as stated in the method is 0.25%. EMSL Analytical Inc suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval of EMSL Analytical Inc. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States Government. EMSL Analytical Inc., bears no responsibility for sample collection activities, analytical method limitations, or the accuracy of results when requested to separate layered samples. EMSL Analytical Inc., liability is limited to the cost of sample analysis. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN

Initial report from 06/02/2015 08:31:20

296

APPENDIX B

HAZARDOUS WASTE SURVEY RESULTS

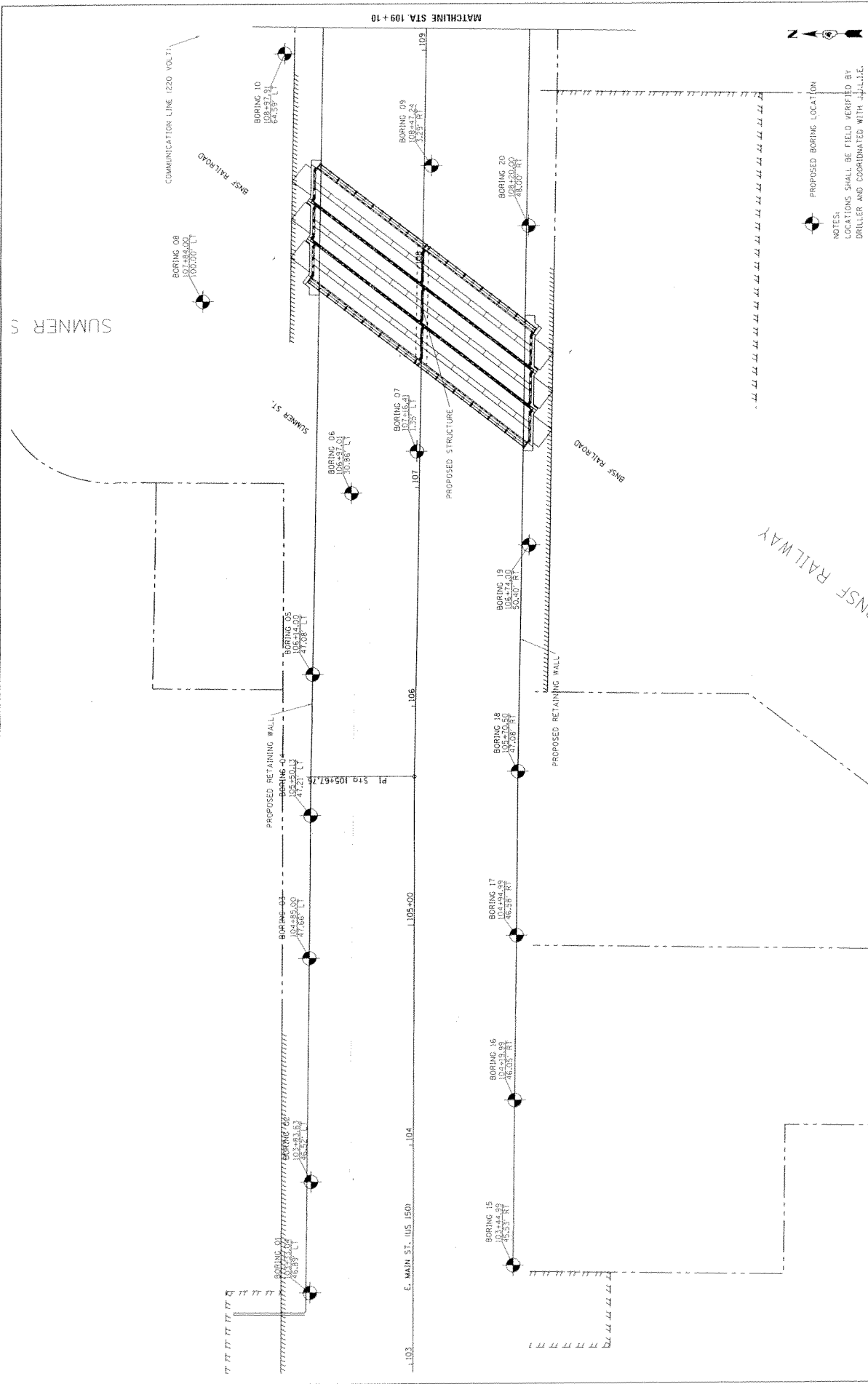
**HAZARDOUS AND SPECIAL WASTE SURVEY RESULTS
BUILDING DEMOLITION
642 EAST MAIN STREET
GALESBURG, ILLINOIS**

Note: Quantities presented below are only approximations. The Contractor is responsible to identify and dispose of all materials remaining in structures at the bid price even if quantities are different than those presented.

642 East Main Street

- 270 - 4' Fluorescent light bulbs
- 172 - 4' Fluorescent ballasts
- 3 - Mercury thermostats
- 1 - microwave
- 6 - tires
- 2 - computer routers
- 1 - drinking water fountain
- 1 - furnace
- 1 - 1 quart transmission fluid
- 1 - 13 ounce BF60 multi-purpose lubricant (aerosol)
- 1 - 12 ounce penetrating lubricant (aerosol)
- 1 - open 5 gallon bucket with oil (approximately 1 gallon of oil in bucket)
- 1 - 1 gallon paint
- 2 - 1 quart paint (1/2 full)
- 1 - 1 quart touch-up lacquer
- 1 - 18 ounce brake parts cleaner (aerosol)

ATTACHMENT C
GEOTECHNICAL INVESTIGATION SOIL PARAMETERS



	USER NAME: LUP DATE: 03/13/2013	DESIGNED: LUP DRAWN: LUP CHECKED: LUP DATE: 03/13/2013	REVISED: LUP REVISED: LUP REVISED: LUP REVISED: LUP
	PROJECT: EAST MAIN ST BORING LOCATION PLAN SHEET NO. 1 OF 3 SHEETS STA. 103+00 TO STA. 109+10 SCALE: 80:00		
COUNTY: KNOX SECTION: 05 00500-19-05 KNOX: P1000003		COUNTY SHEET NO.: 3 SHEET NO.: 1 PROJECT NO.: P1000003	

NOTES:
 LOCATIONS SHALL BE FIELD VERIFIED BY
 DRILLER AND COORDINATED WITH U.I.C.E.



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,

Latitude Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____
 Station _____

BORING NO. B-07
 Station 107+16
 Offset 1.4 ft Left
 Ground Surface Elev. 781.71 ft

DEPTH (ft)	BLOW COUNT (blows/6")	UCS (tsf)	MOIST (%)	Soil Description			
				Surface Water Elev. (ft)	Stream Bed Elev. (ft)	Groundwater Elev. (ft)	Notes
0				781.25			Stiff, Gray-Brown And Brown SILTY CLAY (continued)
1				780.92			
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



Illinois Department of Transportation

Division of Highways
Whitney & Associates

SOIL BORING LOG

Date 4/24/13

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,

Latitude , Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO.	DEPTH	BL	UC	MOIST	Surface Water Elev.	DEPTH	BL	UC	MOIST
Station	ft	(/6")	(tsf)	(%)	ft	ft	(/6")	(tsf)	(%)
BORING NO. <u>B-07</u>					Groundwater Elev.:				
Station <u>107+16</u>					First Encounter <u>757.7</u>	ft			
Offset <u>1.4 ft Left</u>					Upon Completion <u>770.8</u>	ft			
Ground Surface Elev. <u>781.71</u>	ft				After <u>-</u> Hrs. <u>-</u>	ft			
Stiff, Gray CLAY (Glacial Till) (continued)		6			Very Stiff, Gray CLAY LOAM (Glacial Till) (continued)		10		
		7	1.6	17			12	3.7	13
		8	B				17	B	
	738.21								
Hard, Gray CLAY (Glacial Till)									
	-45	8					-65	12	
DD = 121 PCF		9	4.3	14	DD = 120 PCF		21	2.7	15
		12	B				25	B	
	734.71								
Stiff, Gray CLAY (Glacial Till)									
	-50	7					-70	18	
		7	1.9	16			29		
		7	B		711.21		39		
	729.21				Very Dense, Gray, Fine- To Coarse-Grained SAND (Glacial Till at 77 - 79 Feet)				
Medium-Density, Gray, Fine-Grained SAND With Some Silt (3 Feet Blow In)									
	-55	5					-75	15	
		12	-	-				23	-
		14						29	-
	723.71								
Very Stiff, Gray CLAY LOAM (Glacial Till)									
	-60				702.71				
					Medium-Density, Gray, Fine-Grained SAND				
							-80		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl
 SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,
 COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. Station	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. _____ ft Stream Bed Elev. _____ ft Groundwater Elev.: First Encounter 753.2 ft ▼ Upon Completion _____ ft After _____ Hrs. _____ ft	D E P T H (ft)	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
BITUMINOUS CONCRETE (4.0") 777.87					Medium, Light Brown CLAY LOAM (continued)	2			
PORTLAND CEMENT CONCRETE (13.0") 777.12						2	0.6	21	
Medium, Light Brown And Gray SILTY CLAY DD = 91 PCF	2		0.7	29	Stiff, Gray-Brown CLAY LOAM GLACIAL TILL DD = 116 PCF	3	B		
	2		B			5			
	-5	2				▼-25	5		
		2	0.8	27			6	1.8	16
		3	B				8	B	
771.20					751.20				
Stiff, Brown SILTY CLAY DD = 96 PCF	2				Very Stiff, Gray CLAY LOAM GLACIAL TILL DD = 118 PCF	8			
	3	1.0	24			8	2.3	14	
	3	B				9	B		
	-10	3				-30	8		
		3	1.1	23			9	3.5	13
		3	B				12	B	
766.70									
Stiff, Brown And Gray-Brown CLAY DD = 93 PCF	3								
	4	1.4	27						
	4	B							
	-15	3				-35	7		
		4	1.8	26			9	3.4	14
		5	B				12	B	
761.20					740.70				
Medium, Light Brown CLAY LOAM DD = 98 PCF	2				Very Stiff, Gray CLAY GLACIAL TILL				
	2	0.5	22						
	3	B							
	-20					-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,

Latitude , Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO.	DEPTH	BLWS	UCS	MOIST	Surface Water Elev.	DEPTH	BLWS	UCS	MOIST
Station	(ft)	(/6")	(tsf)	(%)	ft	(ft)	(/6")	(tsf)	(%)
BORING NO. <u>B-08</u>					Stream Bed Elev. _____ ft				
Station <u>107+84</u>					Groundwater Elev.:				
Offset <u>100.0 ft Left</u>					First Encounter <u>753.2</u> ft ▼				
Ground Surface Elev. <u>778.20</u> ft					Upon Completion _____ ft				
					After _____ Hrs. _____ ft				
Dense, Gray, Medium- To Coarse-Grained SAND And Fine-Grained GRAVEL With Considerable Silty Clay (continued)	15				Very Dense, Gray, Medium- To Coarse-Grained SAND And Fine-Grained GRAVEL (continued)				
	20	-	-			21	-	-	
	21					57/6"			
695.20									
Stiff, Gray CLAY LOAM GLACIAL TILL					674.70				
					Hard, Gray CLAY SHALE				
DD = 117 PCF	-85	10			SEE ROCK CORE LOG FOR CONTINUATION OF BORING	-105			
		11	1.1	17			31	4.5	16
		13	B				97/4"	P	
					672.20				
					End of Boring				
690.70									
Very Stiff, Gray SILT									
	-90					-110			
		15							
		29	3.1	16					
		33	S						
686.20									
Stiff, Gray SILT									
	-95	10				-115			
DD = 114 PCF		15	1.2	19					
		23	B						
678.70									
	-100					-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



Route: FAP 6800 Structure No.: _____ (Exist.) _____ (Prop.) Date: 6/07/13 Page: 1 of 1

Section: 05-00500-19-GS Description: East Main Street Under BNSF Railroad

County: Knox Logged by: Krusemark

Boring No.: B-08 Coring Method: Rotary Core Diameter: 2.0 in

Station: 107+84 Barrel Type: NW
 Offset: 100' Barrel Size: 10'
 Latitude: _____ Top of Rock Elev.: 103.5 ft
 Longitude: _____ Begin Core Elev.: 105.0 ft

ELEV. (ft)	DEPTH (ft)	CORE No.	RECOV. (%)	R.Q.D. (%)	TIME (min/ft)	U.C.S. Qu (tsf)
	105					
						17.9
	110	1	70	36	4	
						4.6
	115					
						13.6
	120	2	86	69	4	
						9.3

Rock Type, Description and Observations

Hard, Gray CLAY SHALE

Hard, Dark Gray CLAY SHALE With Thin Seams Of Limestone

Hard, Gray SHALE

Hard, Dark Gray CLAY SHALE

Color pictures of the cores taken (Y/N): Attached Cores will be disposed of after: 10/01/2013
 Cores will be stored for examination at: 2406 West Nebraska Avenue - Peoria, Illinois

The U.C.S. Qu column represents the Unconfined Compressive Strength using ASTM D-2938 Page 28



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,
Latitude , Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. Station	D E P T H H	B L O W S	U C S Qu	M O I S T T	Surface Water Elev. _____ ft Stream Bed Elev. _____ ft Groundwater Elev.: First Encounter _____ 760.2 ft ▼ Upon Completion _____ 769.1 ft ▼ After _____ Hrs. _____ ft	D E P T H H	B L O W S	U C S Qu	M O I S T T
	(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)
BITUMINOUS CONCRETE (4.5")	780.83				Medium, Light Brown CLAY	2			
RED BRICK (8.5")	780.50				LOAM (continued)	3	0.7	25	
PORTLAND CEMENT CONCRETE (13.0")	779.79 779.54					3	B		
POSSIBLE RAILROAD TIES (17.0") DD = 91 PCF		2			Medium-Density, Gray-Brown, Fine- To Coarse-Grained SAND With Some Fine-Grained Gravel And Silt	9			18
CINDERS (20.0")		3	1.1	28		11	-		
Stiff, Light Brown And Gray SILTY CLAY	777.21					13			
Medium, Light Brown And Gray Mottled Dark Brown SILTY CLAY		2	0.7	29	Medium-Density, Light Brown, Fine- To Medium-Grained SAND With Considerable Silt	12			20
		3	B			13	-		
Stiff, Gray And Light Brown SILTY CLAY LOAM	774.71				Very Stiff, Gray CLAY LOAM (Glacial Till) DD = 118 PCF	7			15
		3	1.1	25		8	2.1		
		4	B		Very Stiff, Gray CLAY (Glacial Till)	8			
						8	2.7	16	
		3				10	B		
		4	1.2	24					
		5	B						
Medium, Brown SILTY CLAY	769.21	1							
		2	0.9	26					
		3	B						
		2	0.7	27	DD = 118 PCF	8			
		2	B			9	3.9	15	
		2				10	B		
Stiff, Light Brown And Gray SILTY CLAY	764.71								
		2							
		3	1.2	25					
		3	B						
Medium, Light Brown CLAY LOAM	762.21								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrator)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

308



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,

Latitude Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. Station

BORING NO. B-09
Station 108+47
Offset 3.3 ft Right
Ground Surface Elev. 781.21 ft

Table with columns: D E P T H (ft), B L O W S (/6"), U C S (tsf), M O I S T (%). Includes values like 7, 8, 9, 10, 12, 13, 2.1, 3.0, 18, 16.

Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion After Hrs.

Table with columns: D E P T H (ft), B L O W S (/6"), U C S (tsf), M O I S T (%). Includes values like 7, 10, 15, 3.3, 15, 10, 13, 14, 2.2, 15.

Main data table with soil descriptions and depth/properties. Includes entries like 'Very Stiff, Gray CLAY (Glacial Till)', 'Loose, Gray, Fine- To Medium-Grained SAND', 'Medium-Density, Gray, Fine-Grained SAND', 'Dense, Gray, Medium- To Coarse-Grained SAND With Some Fine-Grained Gravel And Silt', 'Very Stiff, Gray CLAY (Glacial Till)', 'Very Dense, Gray, Medium- To Coarse-Grained SAND And Fine-To Coarse-Grained GRAVEL With Considerable Silty Clay Loam'.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

309



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. Station	DEPTH H	BLOW S	UCS Qu	MOIST T	Surface Water Elev. Stream Bed Elev.	DEPTH H	BLOW S	UCS Qu	MOIST T
BORING NO. <u>B-09</u> Station <u>108+47</u> Offset <u>3.3 ft Right</u> Ground Surface Elev. <u>781.21</u> ft	(ft)	(/6")	(tsf)	(%)	ft	(ft)	(/6")	(tsf)	(%)
Very Dense, Gray, Medium- To Coarse-Grained SAND And Fine- To Coarse-Grained GRAVEL With Considerable Silty Clay Loam <i>(continued)</i>		43	-	13	Very Stiff, Gray SILT (<i>continued</i>)	6			
		68				9	2.6	20	
						10	B		
		697.21							
Stiff, Gray CLAY LOAM (Glacial Till) DD = 117 PCF	-85	7							
		10	1.9	16	Very Stiff, Gray NEAR CLAY SHALE DD = 115 PCF	676.11	8	2.9	17
			B			67/6"	B		
	694.21								
Dense, Gray, Fine- To Coarse-Grained SAND					Hard, Gray CLAY SHALE				
		18				673.21			
	-90	15	-	-		-110	103/4"	4.5	14
		22					P		
	688.21								
Very Stiff, Gray SILT DD = 111 PCF	-95	7			AUGER REFUSAL AT (-)117.0 FEET				
		8	2.2	22		-115	112/3"	4.5	13
		9	B				P		
	664.21				End of Boring				
	-100								
						-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,
Latitude , Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____
Station _____

BORING NO. B-10
Station 108+98
Offset 64.6 ft Left
Ground Surface Elev. 780.50 ft

DEPTH THS	B LO WS	U C S Qu	M O I S T
--------------	---------------	-------------------	-----------------------

Surface Water Elev. _____ ft
Stream Bed Elev. _____ ft

Groundwater Elev.:
First Encounter 753.5 ft ▼
Upon Completion 772.5 ft ▼
After 24 Hrs. 773.4 ft ▼

DEPTH THS	B LO WS	U C S Qu	M O I S T
--------------	---------------	-------------------	-----------------------

Soil Description	DEPTH (ft)	B	U	M	Soil Description	DEPTH (ft)	B	U	M
Dark Brown SILTY CLAY Organic Topsoil (16.0")	779.20				Stiff, Light Brown And Gray CLAY (continued)	3			
						4	1.1		25
						759.00	3	B	
Very Stiff, Light Brown, Gray And Gray-Brown SILTY CLAY (Possible Fill)		4			Very Stiff, Gray-Brown And Light Brown CLAY LOAM (Glacial Till)		6		
DD = 97 PCF		5	2.8	23	DD = 119 PCF		7	3.5	13
		5	B				9	B	
	-5	5				-25	8		
		6	3.4	22			10	3.8	13
		7	B				13	B	
	774.00								
Medium, Light Brown And Gray SILTY CLAY		2			Very Stiff, Gray CLAY (Glacial Till)		7		
DD = 93 PCF		3	0.8	26	DD = 116 PCF		11	2.3	16
		3	B				12	B	
	-10	2				-30	7		
		2	0.6	26	DD = 115 PCF		13	2.2	16
		2	B				15	B	
	768.50								
Stiff, Brown SILTY CLAY		3							
DD = 96 PCF		4	1.2	24					
		5	B						
		3					7		
	-15	3	1.3	23			9	2.5	15
		6	B				11	B	
	764.00								
Medium, Gray-Brown And Gray CLAY LOAM		3							
DD = 98 PCF		3	0.6	22					
		3	B						
	761.50								
Stiff, Light Brown And Gray CLAY									
	-20					-40			

311



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl
SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 11, TWP. 11N, RNG. 1E, 4th PM,
COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____
Station _____
BORING NO. B-10
Station 108+98
Offset 64.6 ft Left
Ground Surface Elev. 780.50 ft

DEPTH (ft)	BLOW S (ft/6")	UCS (tsf)	MOIST (%)	Surface Water Elev. (ft)	Stream Bed Elev. (ft)	DEPTH (ft)	BLOW S (ft/6")	UCS (tsf)	MOIST (%)
7						12			
12	2.4	15				17	3.3	15	
15	B					19	B		
737.00									
-45	12					-65	9		
	13	4.4	11				11	3.2	16
	14	B					14	B	
731.00									
-50	4					-70	15		
	6	-	17				21	-	12
	7						28		
728.00									
-55	8					-75	10		
	12	3.5	16				12	3.2	13
	14	B					15	B	
703.00									
-60						-80			

Very Stiff, Gray CLAY (Glacial Till)
(continued) DD = 116 PCF

Very Stiff, Gray CLAY (Glacial Till)
(Coarse-Grained Gravel and
Cobbles at 53.5 to 55 feet)
(continued) DD = 117 PCF

Hard, Gray-Brown CLAY LOAM
(Glacial Till)

Dense, Gray, Fine- To
Medium-Grained SAND With
Some Silty Clay Loam

Medium-Density, Gray, Fine- To
Medium-Grained SAND With
Some Silty Clay Loam

Very Stiff, Gray CLAY (Glacial Till)
(Coarse-Grained Gravel and
Cobbles at 53.5 to 55 feet)

Very Stiff, Gray CLAY LOAM
(Glacial Till)

Very Stiff, Gray CLAY (Glacial Till)



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 14, TWP. 11N, RNG. 1E, 4th PM,

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____ Station _____	D E P T H (ft)	B L O W S (/6")	U C S (tsf)	M O I S T (%)	Surface Water Elev. _____ ft Stream Bed Elev. _____ ft Groundwater Elev.: First Encounter _____ 758.1 ft Upon Completion _____ 771.2 ft After 24 Hrs. _____ 773.0 ft	D E P T H (ft)	B L O W S (/6")	U C S (tsf)	M O I S T (%)
------------------------------------	-----------------------------------	------------------------------------	--------------------------	----------------------------------	---	-----------------------------------	------------------------------------	--------------------------	----------------------------------

PORTLAND CEMENT CONCRETE (4.0") CINDERS (8.0") Medium, Dark Brown And Brown CLAY LOAM With Some Fine-Grained Gravel (Probable Fill) DD = 101 PCF Medium, Dark Brown SILTY CLAY Medium, Light Brown And Gray Mottled Dark Brown SILTY CLAY LOAM DD = 96 PCF Soft, Light Brown And Gray Mottled Dark Brown SILTY CLAY LOAM Medium, Gray-Brown And Brown SILTY CLAY DD = 97 PCF Stiff, Light Brown CLAY LOAM With Trace Of Fine-Grained Gravel DD = 108 PCF	780.73 780.39 777.56 774.06 771.56 769.06 764.56	- - - -5 - -10 - -15 -20	2 2 2 2 2 1 2 2 3 3 4 5	Qu B B B B B	23 26 28 26 25 20	Stiff, Light Brown CLAY LOAM With Trace Of Fine-Grained Gravel (continued) Medium, Light Brown SANDY CLAY LOAM Medium, Gray-Brown CLAY (Glacial Till) DD = 112 PCF Very Stiff, Gray CLAY (Glacial Till) DD = 120 PCF Stiff, Gray CLAY (Glacial Till) Very Stiff, Gray CLAY (Glacial Till) (Probable Sand Seam at 41 to 43 Feet)	3 5 6 759.06 756.56 -25 754.06 -30 747.56 -35 743.56 -40	1.3 B 0.7 P 0.9 B 2.8 B 2.6 B 1.9 B	21 19 18 16 16 17
---	--	--	--	---	--	--	---	--	--

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

314



SOIL BORING LOG

Date 4/22/13

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 14, TWP. 11N, RNG. 1E, 4th PM
 Latitude , Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____	D	B	U	M	Surface Water Elev. _____ ft	D	B	U	M
Station _____	E	L	C	O	Stream Bed Elev. _____ ft	E	L	C	O
BORING NO. <u>B-19</u>	P	O	S	S	Groundwater Elev.:	P	O	S	S
Station <u>106+74</u>	T	W	Q	T	First Encounter <u>758.1</u> ft ▼	H	S	Q	T
Offset <u>50.4 ft Right</u>	H	S	Qu	T	Upon Completion <u>771.2</u> ft ▼	(ft)	(/6")	(tsf)	(%)
Ground Surface Elev. <u>781.06</u> ft	(ft)	(/6")	(tsf)	(%)	After 24 Hrs. <u>773.0</u> ft ▼	(ft)	(/6")	(tsf)	(%)

Very Stiff, Gray CLAY (Glacial Till)	5	10	15	15	Hard, Gray CLAY (Glacial Till) (continued) DD = 120 PCF	10	12	15	4.1	14
(Probable Sand Seam at 41 to 43 Feet) (continued) DD = 122 PCF	7	11	2.4	B	718.06					
-45	10	12	3.8	15	Very Stiff, Gray CLAY LOAM (Glacial Till)	-65	12	16	2.7	15
	15	15	B		714.56		25	25	B	
733.56					Very Dense, Gray, Medium- To Coarse-Grained SAND And Coarse-Grained GRAVEL					
Hard, Gray CLAY (Glacial Till)	-50	8	12	4.2		-70	18	27	-	-
DD = 120 PCF	19	19	B	14	709.06		37	37	-	-
728.06					Medium-Density, Gray, Medium- To Coarse-Grained SAND And Fine-Grained GRAVEL With Considerable Silty Clay					
-55	10	12	3.0	15	-75	10	12	14	-	-
	14	14	B		723.06					
Very Stiff, Gray CLAY (Glacial Till)					Hard, Gray CLAY (Glacial Till)	702.56				
-80					Very Stiff, Gray CLAY (Glacial Till)	-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrator)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

315



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 14, TWP. 11N, RNG. 1E, 4th PM,
 Latitude , Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO. _____	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. _____ ft	D E P T H	B L O W S	U C S Qu	M O I S T
Station _____					Stream Bed Elev. _____ ft				
BORING NO. <u>B-20</u>					Groundwater Elev.:				
Station <u>108+20</u>					First Encounter <u>760.1</u> ft ▼				
Offset <u>48.0 ft Right</u>					Upon Completion <u>762.3</u> ft ▼				
Ground Surface Elev. <u>781.55</u> ft	(ft)	(/6")	(tsf)	(%)	After - Hrs. _____ ft	(ft)	(/6")	(tsf)	(%)

Very Stiff, Gray CLAY (Glacial Till) (continued)	6				Very Stiff, Gray CLAY (Glacial Till) (continued)	12			
	7	2.5	14			13	3.7	16	
	12	B				16	B		
----- 738.55 -----					----- 718.55 -----				
Hard, Dark Gray CLAY (Glacial Till) DD = 120 PCF	-45	10			Very Stiff, Gray CLAY LOAM (Glacial Till) DD = 120 PCF	-65	10		
	17	7.1	13			12	2.4	13	
	19	B				15	B		
----- 733.05 -----					----- 713.05 -----				
Loose, Gray, Fine-Grained SAND	-50	3			Very Dense, Gray, Fine- To Medium-Grained SAND With Some Fine-Grained Gravel And Silt	-70	22		11
	4	-	-			57	-		
	5								
----- 728.55 -----					----- 708.55 -----				
Medium-Density, Gray, Fine-Grained SAND With Some Silt	-65	8			Very Stiff, Gray CLAY LOAM (Glacial Till) DD = 120 PCF	-75	8		
	10	-	-			10	2.7	14	
	12					12	B		
----- 723.05 -----					----- 703.05 -----				
Very Stiff, Gray CLAY (Glacial Till)	-60					-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrator)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



SOIL BORING LOG

ROUTE FAP 6800 (US 150) DESCRIPTION East Main Street Under BNSF Railroad LOGGED BY T. Fehl

SECTION 05-00500-19-GS LOCATION Galesburg, SEC. 14, TWP. 11N, RNG. 1E, 4th PM,
Latitude , Longitude

COUNTY Knox DRILLING METHOD Hollow-Stem Auger HAMMER TYPE Automatic

STRUCT. NO.	DEPTH	BL	UCS	M	SOIL	Surface Water Elev.	DEPTH	BL	UCS	M
Station	ft	(/6")	(tsf)	(%)		ft	ft	(/6")	(tsf)	(%)
BORING NO. <u>B-20</u>						Groundwater Elev.:				
Station <u>108+20</u>						First Encounter <u>760.1</u>	ft			
Offset <u>48.0 ft Right</u>						Upon Completion <u>762.3</u>	ft			
Ground Surface Elev. <u>781.55</u>	ft					After <u>-</u> Hrs.	ft			
Very Stiff, Gray CLAY LOAM (Glacial Till) (continued)	12					Very Stiff, Gray SILT (continued)		8		
	15	3.0	13					10	2.8	19
	18	B						11	B	
	698.05									
Very Stiff, Gray CLAY LOAM With Seam of Fine- To Medium-Grained Sand (Glacial Till)	-85					Very Stiff, Gray, Near CLAY SHALE	-105			
		7						14		
		8	3.0	14		DD = 116 PCF		26	3.3	17
		20	P					33	B	
	693.05					Hard, Gray CLAY SHALE				
Dense, Gray, Fine- To Coarse-Grained SAND With Some Fine-Grained Gravel	-90						-110			
		14								
		16	-	-				97/6"	4.5	14
		17							P	
	687.55					AUGER REFUSAL AT (-)117.0 FEET				
Very Stiff, Gray SILT	-95						-115			
		6								
DD = 105 PCF		7	2.1	22				105/4"	4.5	13
		9	B						P	
						End of Boring				
	-100						-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Soil Properties for Boring B-07

STA. 107+16

Offset 1.4 ft Left

Water Table Elevation 770.8 FT

Depth (Ft)	Elevation (Ft)	Abbreviated Soil Description	Friction (#)	Cohesion tsf	Unit Weight (pcf)		Soil Modulus k (pcf)	50 % Strain e50 (pcf)	k _v	k _h	k _s
					T _{sat}	T _{dry}					
0.5	781.7 to 781.3	BITUMINOUS CONCRETE (5.5')									
0.8	781.3 to 780.9	RED BRICK (9.5')									
2.1	780.9 to 779.6	PORTLAND CEMENT CONCRETE (25.5')									
4.0	779.6 to 777.7	CLAY LOAM		1.15	122.0		1000.0	0.005	0.46	0.29	3.39
6.5	777.7 to 775.2	SILTY CLAY		0.70	120.0	152.4	500.0	0.007	0.55	0.38	2.66
9.0	775.2 to 772.7	SILTY CLAY		0.30	117.0	156.0	100.0	0.01	0.55	0.38	2.66
14.0	772.7 to 767.7	SILTY CLAY LOAM		0.50	120.0	146.8	100.0	0.01	0.50	0.33	3.00
17.0	767.7 to 764.7	SILTY CLAY		0.40	120.0	152.4	100.0	0.01	0.55	0.38	2.66
21.5	764.7 to 760.2	SILTY CLAY		0.65	119.0	150.0	500.0	0.007	0.55	0.38	2.66
24.0	760.2 to 757.7	CLAY LOAM		0.35	120.0		100.0	0.01	0.50	0.33	3.00
27.5	757.7 to 754.2	SANDY CLAY LOAM		0.45	118.0		100.0	0.01	0.50	0.33	3.00
38.0	754.2 to 743.7	CLAY		1.32	136.0		1000.0	0.005	0.55	0.38	2.66
43.5	743.7 to 738.2	CLAY		0.80	124.0		500.0	0.007	0.55	0.38	2.66
47.0	738.2 to 734.7	CLAY		2.15	138.0		2000.0	0.004	0.55	0.38	2.66
52.5	734.7 to 729.2	CLAY		0.95	124.0		500.0	0.007	0.55	0.38	2.66
58.0	729.2 to 723.7	SAND	34		115.0		60.0		0.44	0.28	3.54
70.5	723.7 to 711.2	CLAY LOAM		1.60	138.0		1000.0	0.005	0.50	0.33	3.00
79.0	711.2 to 702.7	SAND	35		120.0		60.0		0.43	0.27	3.69
82.0	702.7 to 699.7	SAND	34		117.0		60.0		0.44	0.28	3.54
84.0	699.7 to 697.7	CLAY LOAM							0.50	0.33	3.00
88.0	697.7 to 693.7	SAND	33		117.0		60.0		0.46	0.29	3.39
93.0	693.7 to 688.7	GLAY LOAM		2.25	122.0		2000.0	0.004	0.50	0.33	3.00
98.5	688.7 to 683.2	SILTY CLAY LOAM		1.35	128.0		1000.0	0.005	0.50	0.33	3.00
105.0	683.2 to 676.7	SILT		1.05	115.0		1000.0	0.005	0.46	0.29	3.39
117.0	676.7 to 664.7	GRAY SHALE		2.20	132.0		2000.0	0.004	0.41	0.26	3.85

Lateral pressure coefficients are based on :
 - friction angle between fill and wall = 0 degrees
 - angle of fill to the horizontal = 0 degrees
 - angle of back face of wall to the horizontal = 90 degrees

Soil Properties for Boring B-8
STA. 107+84
Offset 100.0 ft Left

Depth (ft)	Elevation (ft)		Abbreviated Soil Description	Friction (φ)	Cohesion (c)	Unit Weight (pcf)		Soil Modulus (k (pcf))	50 % e50 (pcf)	k _v	k _h	k _p
	to	to				γ _{sat}	γ _d					
0.3	778.2	to 777.9	BITUMINOUS CONCRETE (4")									
0.8	777.9	to 777.1	PORTLAND CEMENT CONCRETE (13")									
5.9	777.1	to 771.2	SILTY CLAY		0.38	112.0	116.5	100.0	0.01	0.55	0.38	2.66
4.5	771.2	to 766.7	SILTY CLAY		0.53	120.0		500.0	0.007	0.55	0.38	2.66
5.5	766.7	to 761.2	CLAY		0.80	124.0		500.0	0.007	0.55	0.38	2.66
4.5	761.2	to 756.7	CLAY LOAM		0.28	122.0		100.0	0.01	0.50	0.33	3.00
5.5	756.7	to 751.2	CLAY LOAM		0.85	122.0		500.0	0.007	0.50	0.33	3.00
10.5	751.2	to 740.7	CLAY LOAM		1.53	122.0		1000.0	0.005	0.50	0.33	3.00
5.5	740.7	to 735.2	CLAY		1.65	124.0		1000.0	0.005	0.55	0.38	2.66
5.0	735.2	to 730.2	CLAY		0.90	124.0		500.0	0.007	0.55	0.38	2.66
5.5	730.2	to 724.7	SAND	33		117.0		60.0		0.46	0.29	3.39
9.0	724.7	to 715.7	CLAY LOAM		1.28	122.0		1000.0	0.005	0.50	0.33	3.00
5.5	715.7	to 710.2	CLAY		1.60	124.0		1000.0	0.005	0.55	0.38	2.66
10.5	710.2	to 699.7	CLAY		2.38	124.0		2000.0	0.004	0.55	0.38	2.66
4.5	699.7	to 695.2	SAND AND GRAVEL	35		117.0		125.0		0.43	0.27	3.69
4.5	695.2	to 690.7	CLAY LOAM		0.55	122.0		500.0	0.007	0.50	0.33	3.00
4.5	690.7	to 686.2	SILT		1.55	115.0		1000.0	0.005	0.46	0.29	3.39
7.5	686.2	to 678.7	SILT		0.60	115.0		500.0	0.007	0.46	0.29	3.39
4.0	678.7	to 674.7	SAND AND GRAVEL	35		117.0		125.0		0.43	0.27	3.69
2.5	674.7	to 672.2	CLAY SHALE		2.25	124.0		2000.0	0.004			

Lateral pressure coefficients are based on :
 - friction angle between fill and wall = 0 degrees
 - angle of fill to the horizontal = 0 degrees
 - angle of back face of wall to the horizontal = 90 degrees

Soil Properties for Boring B-09

STA. 108+47

Offset 3.3 FT RIGHT

Water Table Elevation 769.1 FT

Depth (Ft)	Elevation (Ft)	Abbreviated Soil Description	Friction (lb)	Cohesion (psf)	Unit Weight (pcf)		Soil Modulus k (pcf)	50 % Strain e_{50} (pcf)	k_v	k_h	k_u
					γ_{sat}	γ_{dry}					
0.4	781.2 to 780.8	BITUMINOUS CONCRETE (4.5")									
1.2	780.8 to 780.5	RED BRICK (8.5")									
1.6	780.5 to 780.1	PORTLAND CEMENT CONCRETE (13.0")									
1.9	780.1 to 779.8	POSSIBLE RAILROAD TIES (17")									
2.2	779.8 to 779.5	CINDERS (20")									
4.5	779.5 to 777.2	SILTY CLAY		0.55	120.0	153.6	500.0	0.007	0.55	0.38	2.66
7.0	777.2 to 774.7	SILTY CLAY		0.35	120.0	154.8	100.0	0.01	0.55	0.38	2.66
12.5	774.7 to 769.2	SILTY CLAY LOAM		0.58	121.0	145.7	500.0	0.007	0.50	0.33	3.00
17.0	769.2 to 764.7	SILTY CLAY		0.40	118.0	151.8	100.0	0.01	0.55	0.38	2.66
19.5	764.7 to 762.2	SILTY CLAY		0.60	120.0	150.0	500.0	0.007	0.55	0.38	2.66
22.5	762.2 to 759.2	CLAY LOAM		0.35	122.0	152.5	100.0	0.01	0.50	0.33	3.00
25.0	759.2 to 756.7	SAND	34		117.0		60.0		0.44	0.28	3.54
27.5	756.7 to 754.2	SAND	35		117.0	140.4	60.0		0.43	0.27	3.69
29.5	754.2 to 752.2	CLAY LOAM		1.05	136.0		1000.0	0.005	0.50	0.33	3.00
49.5	752.2 to 732.2	CLAY		1.46	136.0		1000.0	0.005	0.55	0.38	2.66
53.5	732.2 to 728.2	SAND	28		115.0		20.0		0.53	0.36	2.77
58.0	728.2 to 723.7	SAND	32		116.0		20.0		0.47	0.31	3.25
63.5	723.7 to 718.2	CLAY		1.65	124.0		1000.0	0.005	0.55	0.38	2.66
74.0	718.2 to 707.7	CLAY LOAM		1.18	136.0		1000.0	0.005	0.50	0.33	3.00
78.5	707.7 to 703.2	SAND	35		120.0		60.0		0.43	0.27	3.69
84.5	703.2 to 697.2	SAND AND GRAVEL	35		120.0		60.0		0.43	0.27	3.69
87.5	697.2 to 688.2	CLAY LOAM		0.95	136.0		500.0	0.007	0.50	0.33	3.00
93.5	688.2 to 688.2	SAND	35		120.0		60.0		0.43	0.27	3.69
105.6	688.2 to 676.1	SILT		1.20	117.0	142.7	1000.0	0.005	0.46	0.29	3.39
108.5	676.1 to 673.2	NEAR CLAY		1.45	135.0		1000.0	0.005			
117.5	673.2 to 664.2	CLAY SHALE		2.25	124.0		2000.0	0.004			

Lateral pressure coefficients are based on :

- friction angle between fill and wall = 0 degrees
- angle of fill to the horizontal = 0 degrees
- angle of back face of wall to the horizontal = 90 degrees

Soil Properties for Boring B-10
STA. 108+98
Offset 64.6 ft Left
Water Table Elevation 772.5 FT

Depth (ft)	Elevation (ft)	Abbreviated Soil Description	Friction (lb)	Cohesion (lb)	Unit Weight (pcf)		Soil Modulus (k (pcf))	50 % Strain e_{50} (pcf)	k_v	k_h	k_p
					γ_{sat}	γ_{dry}					
2.5	780.5 to 779.2	SILTY CLAY			119		1000.0	0.005	0.55	0.38	2.66
7.7	779.2 to 774.0	SILTY CLAY		1.55	117	151.2	100.0	0.01	0.55	0.38	2.66
13.2	774.0 to 768.5	SILTY CLAY		0.35	119		500.0	0.007	0.55	0.38	2.66
17.7	768.5 to 764.0	SILTY CLAY		0.63	120		100.0	0.01	0.50	0.33	3.00
20.2	764.0 to 761.5	CLAY LOAM		0.30	124	155.0	500.0	0.007	0.55	0.38	2.66
22.7	761.5 to 759.0	CLAY		0.55	134		1000.0	0.005	0.50	0.33	3.00
28.2	759.0 to 753.5	CLAY LOAM		1.83	134		1000.0	0.005	0.55	0.38	2.66
44.7	753.5 to 737.0	CLAY		1.18	122		2000.0	0.004	0.50	0.33	3.00
50.7	737.0 to 731.0	CLAY LOAM		2.20	116		20.0		0.47	0.31	3.25
53.7	731.0 to 728.0	SAND	32		135		1000.0	0.005	0.55	0.38	2.66
68.2	728.0 to 713.5	CLAY		1.67	116		60.0		0.43	0.27	3.69
74.2	713.5 to 707.5	SAND	35		122		1000.0	0.005	0.50	0.33	3.00
78.7	707.5 to 703.0	CLAY LOAM		1.60	135		1000.0	0.005	0.55	0.38	2.66
89.2	703.0 to 692.5	CLAY		1.53	120		60.0		0.43	0.27	3.69
100.7	692.5 to 681.0	SAND	35		135		2000.0	0.004			
119.2	681.0 to 662.5	CLAY SHALE		2.28							

Lateral pressure coefficients are based on :
 - friction angle between fill and wall = 0 degrees
 - angle of fill to the horizontal = 0 degrees
 - angle of back face of wall to the horizontal = 90 degrees

Soil Properties for Boring B-19

STA. 106+74
Offset 50.4 ft Right

Water Table Elevation 771.2 FT

Depth (Ft)	Elevation (Ft)	Abbreviated Soil Description	Friction (ϕ)	Cohesion tsf	Unit Weight (pcf)		Soil Modulus k (pci)	50 % Strain e_{50} (pcf)	K_0	K_0	K_0
					γ_{sat}	γ_{dry}					
1.0	781.1 to 780.7	PORTLAND CEMENT CONCRETE (4")									
1.3	780.7 to 780.4	CINDERS (8")									
4.2	780.4 to 777.6	CLAY LOAM		0.45	124.0		100.0	0.01	0.55	0.38	2.66
7.7	777.6 to 774.1	SILTY CLAY		0.50	120.0	157.2	100.0	0.01	0.50	0.33	3.00
10.2	774.1 to 771.6	SILTY CLAY LOAM		0.30	120.0	151.2	100.0	0.01	0.50	0.33	3.00
12.7	771.6 to 769.1	SILTY CLAY LOAM		0.15	117.0	149.8	30.0	0.02	0.50	0.33	3.00
17.2	769.1 to 764.6	SILTY CLAY		0.48	122.0	150.6	100.0	0.01	0.55	0.38	2.66
22.7	764.6 to 759.1	CLAY LOAM		0.63	130.0		500.0	0.007	0.50	0.33	3.00
25.2	759.1 to 756.6	SANDY CLAY LOAM		0.35	115.0		100.0	0.01	0.50	0.33	3.00
27.7	756.6 to 754.1	CLAY		0.45	124.0		100.0	0.01	0.55	0.38	2.66
34.2	754.1 to 747.6	CLAY		1.35	132.0		1000.0	0.005	0.55	0.38	2.66
38.2	747.6 to 743.6	CLAY		0.95	139.0		500.0	0.007	0.55	0.38	2.66
48.2	743.6 to 733.6	CLAY		1.55	140.0		1000.0	0.005	0.55	0.38	2.66
53.7	733.6 to 728.1	CLAY		2.10	137.0		2000.0	0.004	0.55	0.38	2.66
58.7	728.1 to 723.1	CLAY		1.50	137.0		1000.0	0.005	0.55	0.38	2.66
63.7	723.1 to 718.1	CLAY		2.05	137.0		2000.0	0.004	0.55	0.38	2.66
67.2	718.1 to 714.6	CLAY LOAM		1.35	122.0		1000.0	0.005	0.50	0.33	3.00
72.7	714.6 to 709.1	SAND AND GRAVEL	35		120.0		60.0		0.43	0.27	3.69
79.2	709.1 to 702.6	SAND AND GRAVEL	34		117.0		60.0		0.44	0.28	3.54
83.7	702.6 to 698.1	CLAY		1.00	122.0		500.0	0.007	0.55	0.38	2.66
94.7	698.1 to 687.1	SILT		1.60	115.0	139.2	1000.0	0.005	0.46	0.29	3.39
102.7	687.1 to 679.1	SILT		0.68	115.0	143.8	500.0	0.007	0.46	0.29	3.39
103.7	679.1 to 678.1	SAND AND GRAVEL									
109.2	678.1 to 672.6	CLAY SHALE		1.25	124.0		1000.0	0.005			
118.7	672.6 to 663.1	CLAY SHALE		2.25	124.0		2000.0	0.004			

Lateral pressure coefficients are based on :
 - friction angle between fill and wall = 0 degrees
 - angle of fill to the horizontal = 0 degrees
 - angle of back face of wall to the horizontal = 90 degrees

Soil Properties for Boring B-20
STA. 108+20
Offset 48.0 ft Right
Water Table Elevation 762.3 FT

Depth (Ft)	Elevation (Ft)	Abbreviated Soil Description	Friction (lb)	Cohesion (lb)	Unit Weight (pcf)		Soil Modulus (k (pcf))	50 % Strain e_{50} (pcf)	k_v	k_h	k_p
					γ_{sat}	γ_{dry}					
0.7	781.6 to 781.1	PORTLAND CEMENT CONCRETE (6")									
1.7	781.1 to 780.1	SILTY CLAY (18")									
7.2	780.1 to 774.5	SILTY CLAY		0.73	116.0	155.4	500.0	0.007	0.55	0.38	2.66
9.7	774.5 to 772.1	SILTY CLAY		0.30	117.0	148.6	100.0	0.01	0.55	0.38	2.66
12.2	772.1 to 769.6	SILTY CLAY LOAM		0.55	117.0	148.3	500.0	0.007	0.50	0.33	3.00
16.7	769.6 to 765.1	SILTY CLAY		0.38	116.0	153.0	100.0	0.01	0.55	0.38	2.66
21.7	765.1 to 760.1	SILTY CLAY		0.60	119.0	150.6	500.0	0.007	0.55	0.38	2.66
27.2	760.1 to 754.6	SAND AND GRAVEL	32.5		117.0		20.0		0.46	0.30	3.32
29.7	754.6 to 752.1	CLAY LOAM		0.80	133.0		500.0	0.007	0.50	0.33	3.00
34.2	752.1 to 747.6	CLAY		1.10	124.0		1000.0	0.005	0.55	0.38	2.66
38.2	747.6 to 743.6	CLAY		2.05	133.0		2000.0	0.004	0.55	0.38	2.66
43.2	743.6 to 738.6	CLAY		1.25	124.0		1000.0	0.005	0.55	0.38	2.66
48.7	738.6 to 733.1	CLAY		3.55	136.0		2000.0	0.004	0.55	0.38	2.66
53.2	733.1 to 728.6	SAND	29		115.0		20.0		0.52	0.35	2.88
58.7	728.6 to 723.1	SAND	33		117.0		20.0		0.46	0.29	3.39
63.2	723.1 to 718.6	CLAY		1.85	124.0		1000.0	0.005	0.55	0.38	2.66
68.7	718.6 to 713.1	CLAY LOAM		1.20	136.0		1000.0	0.005	0.50	0.33	3.00
73.2	713.1 to 708.6	SAND	35		120.0		60.0		0.43	0.27	3.69
83.7	708.6 to 698.1	CLAY LOAM		1.43	137.0		1000.0	0.005	0.50	0.33	3.00
88.7	698.1 to 693.1	CLAY LOAM		1.50	122.0		1000.0	0.005	0.50	0.33	3.00
94.2	693.1 to 687.6	SAND	35		120.0		60.0		0.43	0.27	3.69
104.2	687.6 to 677.6	SILT		1.23	128.0	138.6	1000.0	0.005	0.46	0.29	3.39
107.2	677.6 to 674.6	CLAY SHALE		1.65	136.0		1000.0	0.005			
117.2	674.6 to 664.6	CLAY SHALE		2.25	136.0		2000.0	0.004			

Lateral pressure coefficients are based on :
 - friction angle between fill and wall = 0 degrees
 - angle of fill to the horizontal = 0 degrees
 - angle of back face of wall to the horizontal = 90 degrees

ATTACHMENT D
BNSF CONTRACT REQUIREMENTS



EXHIBIT "C"

CONTRACTOR REQUIREMENTS

1.01 General:

- **1.01.01** The Contractor must cooperate with **BNSF RAILWAY COMPANY**, hereinafter referred to as "**Railway**" where work is over or under on or adjacent to Railway property and/or right-of-way, hereafter referred to as "Railway Property", during _____ the _____ construction _____ of _____

_____.
- **1.01.02** The Contractor must execute and deliver to the Railway duplicate copies of the Exhibit "C-1" Agreement, in the form attached hereto, obligating the Contractor to provide and maintain in full force and effect the insurance called for under Section 3 of said Exhibit "C-1". Questions regarding procurement of the Railroad Protective Liability Insurance should be directed to Rosa Martinez at Marsh, USA, 214-303-8519.
- **1.01.03** The Contractor must plan, schedule and conduct all work activities so as not to interfere with the movement of any trains on Railway Property.
- **1.01.04** The Contractor's right to enter Railway's Property is subject to the absolute right of Railway to cause the Contractor's work on Railway's Property to cease if, in the opinion of Railway, Contractor's activities create a hazard to Railway's Property, employees, and/or operations. Railway will have the right to stop construction work on the Project if any of the following events take place: (i) Contractor (or any of its subcontractors) performs the Project work in a manner contrary to the plans and specifications approved by Railway; (ii) Contractor (or any of its subcontractors), in Railway's opinion, prosecutes the Project work in a manner which is hazardous to Railway property, facilities or the safe and expeditious movement of railroad traffic; (iii) the insurance described in the attached Exhibit C-1 is canceled during the course of the Project; or (iv) Contractor fails to pay Railway for the Temporary Construction License or the Easement. The work stoppage will continue until all necessary actions are taken by Contractor or its subcontractor to rectify the situation to the satisfaction of Railway's Division Engineer or until additional insurance has been delivered to and accepted by Railway. In the event of a breach of (i) this Agreement, (ii) the Temporary Construction License, or (iii) the Easement, Railway may immediately terminate the Temporary Construction License or the Easement. Any such work stoppage under this provision will not give rise to



any liability on the part of Railway. Railway's right to stop the work is in addition to any other rights Railway may have including, but not limited to, actions or suits for damages or lost profits. In the event that Railway desires to stop construction work on the Project, Railway agrees to immediately notify the following individual in writing:

- **1.01.05** The Contractor is responsible for determining and complying with all Federal, State and Local Governmental laws and regulations, including, but not limited to environmental laws and regulations (including but not limited to the Resource Conservation and Recovery Act, as amended; the Clean Water Act, the Oil Pollution Act, the Hazardous Materials Transportation Act, CERCLA), and health and safety laws and regulations. The Contractor hereby indemnifies, defends and holds harmless Railway for, from and against all fines or penalties imposed or assessed by Federal, State and Local Governmental Agencies against the Railway which arise out of Contractor's work under this Agreement.
- **1.01.06** The Contractor must notify (**Agency**) at _____ and Railway's Manager Public Projects, telephone number () _____ at least thirty (30) calendar days before commencing any work on Railway Property. Contractor's notification to Railway must refer to Railway's file _____.
- **1.01.07** For any bridge demolition and/or falsework above any tracks or any excavations located with any part of the excavations located within, whichever is greater, twenty-five (25) feet of the nearest track or intersecting a slope from the plane of the top of rail on a 2 horizontal to 1 vertical slope beginning at eleven (11) feet from centerline of the nearest track, both measured perpendicular to center line of track, the Contractor must furnish the Railway five sets of working drawings showing details of construction affecting Railway Property and tracks. The working drawing must include the proposed method of installation and removal of falsework, shoring or cribbing, not included in the contract plans and two sets of structural calculations of any falsework, shoring or cribbing. For all excavation and shoring submittal plans, the current "BNSF-UPRR Guidelines for Temporary Shoring" must be used for determining the design loading conditions to be used in shoring design, and all calculations and submittals must be in accordance with the current "BNSF-UPRR Guidelines for Temporary Shoring". All submittal drawings and calculations must be stamped by a registered professional engineer licensed to practice in the state the project is located. All calculations must take into consideration railway surcharge loading and must be designed to meet American Railway Engineering



and Maintenance-of-Way Association (previously known as American Railway Engineering Association) Coopers E-80 live loading standard. All drawings and calculations must be stamped by a registered professional engineer licensed to practice in the state the project is located. The Contractor must not begin work until notified by the Railway that plans have been approved. The Contractor will be required to use lifting devices such as, cranes and/or winches to place or to remove any falsework over Railway's tracks. In no case will the Contractor be relieved of responsibility for results obtained by the implementation of said approved plans.

- **1.01.08** Subject to the movement of Railway's trains, Railway will cooperate with the Contractor such that the work may be handled and performed in an efficient manner. The Contractor will have no claim whatsoever for any type of damages or for extra or additional compensation in the event his work is delayed by the Railway.

1.02 Contractor Safety Orientation

- **1.02.01** No employee of the Contractor, its subcontractors, agents or invitees may enter Railway Property without first having completed Railway's Engineering Contractor Safety Orientation, found on the web site www.contractororientation.com. The Contractor must ensure that each of its employees, subcontractors, agents or invitees completes Railway's Engineering Contractor Safety Orientation through internet sessions before any work is performed on the Project. Additionally, the Contractor must ensure that each and every one of its employees, subcontractors, agents or invitees possesses a card certifying completion of the Railway Contractor Safety Orientation before entering Railway Property. The Contractor is responsible for the cost of the Railway Contractor Safety Orientation. The Contractor must renew the Railway Contractor Safety Orientation annually. Further clarification can be found on the web site or from the Railway's Representative.

1.03 Railway Requirements

- **1.03.01** The Contractor must take protective measures as are necessary to keep railway facilities, including track ballast, free of sand, debris, and other foreign objects and materials resulting from his operations. Any damage to railway facilities resulting from Contractor's operations will be repaired or replaced by Railway and the cost of such repairs or replacement must be paid for by the Agency.
- **1.03.02** The Contractor must notify the Railway's Division Engineer _____ at (_____) _____ and provide blasting



plans to the Railway for review seven (7) calendar days prior to conducting any blasting operations adjacent to or on Railway's Property.

- **1.03.03** The Contractor must abide by the following temporary clearances during construction:
 - 15'-0" Horizontally from centerline of nearest track
 - 21'-6" Vertically above top of rail
 - 27'-0" Vertically above top of rail for electric wires carrying less than 750 volts
 - 28'-0" Vertically above top of rail for electric wires carrying 750 volts to 15,000 volts
 - 30'-0" Vertically above top of rail for electric wires carrying 15,000 volts to 20,000 volts
 - 34'-0" Vertically above top of rail for electric wires carrying more than 20,000 volts

- **1.03.04** Upon completion of construction, the following clearances shall be maintained:
 - 25' Horizontally from centerline of nearest track
 - 23' 6" Vertically above top of rail

- **1.03.05** Any infringement within State statutory clearances due to the Contractor's operations must be submitted to the Railway and to the **(Agency)** and must not be undertaken until approved in writing by the Railway, and until the **(Agency)** has obtained any necessary authorization from the State Regulatory Authority for the infringement. No extra compensation will be allowed in the event the Contractor's work is delayed pending Railway approval, and/or the State Regulatory Authority's approval.

- **1.03.06** In the case of impaired vertical clearance above top of rail, Railway will have the option of installing tell-tales or other protective devices Railway deems necessary for protection of Railway operations. The cost of tell-tales or protective devices will be borne by the Agency.

- **1.03.07** The details of construction affecting the Railway's Property and tracks not included in the contract plans must be submitted to the Railway by **(Agency)** for approval before work is undertaken and this work must not be undertaken until approved by the Railway.

- **1.03.08** At other than public road crossings, the Contractor must not move any equipment or materials across Railway's tracks until permission has been obtained from the Railway. The Contractor must obtain a "Temporary Construction Crossing Agreement" from the Railway prior to moving his equipment or materials across the



Railways tracks. The temporary crossing must be gated and locked at all times when not required for use by the Contractor. The temporary crossing for use of the Contractor will be constructed and, at the completion of the project, removed at the expense of the Contractor.

- **1.03.09** Discharge, release or spill on the Railway Property of any hazardous substances, oil, petroleum, constituents, pollutants, contaminants, or any hazardous waste is prohibited and Contractor must immediately notify the Railway's Resource Operations Center at 1(800) 832-5452, of any discharge, release or spills in excess of a reportable quantity. Contractor must not allow Railway Property to become a treatment, storage or transfer facility as those terms are defined in the Resource Conservation and Recovery Act or any state analogue.
- **1.03.10** The Contractor upon completion of the work covered by this contract, must promptly remove from the Railway's Property all of Contractor's tools, equipment, implements and other materials, whether brought upon said property by said Contractor or any Subcontractor, employee or agent of Contractor or of any Subcontractor, and must cause Railway's Property to be left in a condition acceptable to the Railway's representative.

1.04 Contractor Roadway Worker on Track Safety Program and Safety Action Plan:

- **1.04.01** Each Contractor that will perform work within 25 feet of the centerline of a track must develop and implement a Roadway Worker Protection/On Track Safety Program and work with Railway Project Representative to develop an on track safety strategy as described in the guidelines listed in the on track safety portion of the Safety Orientation. This Program must provide Roadway Worker protection/on track training for all employees of the Contractor, its subcontractors, agents or invitees. This training is reinforced at the job site through job safety briefings. Additionally, each Contractor must develop and implement the Safety Action Plan, as provided for on the web site www.contractororientation.com, which will be made available to Railway prior to commencement of any work on Railway Property. During the performance of work, the Contractor must audit its work activities. The Contractor must designate an on-site Project Supervisor who will serve as the contact person for the Railway and who will maintain a copy of the Safety Action Plan, safety audits, and Material Safety Datasheets (MSDS), at the job site.
- **1.04.02** Contractor shall have a background investigation performed on all of its employees, subcontractors and agents who will be performing any services for Railroad under this Agreement which are determined by Railroad in its sole discretion a) to be on Railroad's property, or b) that require access to Railroad Critical Infrastructure, Railroad Critical Information Systems, Railroad's Employees,



Hazardous Materials on Railroad's property or is being transported by or otherwise in the custody of Railroad, or Freight in Transit involving Railroad.

The required background screening shall at a minimum meet the rail industry background screening criteria defined by the e-RAILSAFE Program as outlined at <http://www.e-railsafe.com>, in addition to any other applicable regulatory requirements.

Contractor shall obtain written consent from all its employees, subcontractors or agents screened in compliance with the e-RAILSAFE Program to participate in the Program on their behalf and to release completed background information to Railroad's designee. Contractor shall be subject to periodic audit to ensure compliance.

Contractor subject to the e-RAILSAFE Program hereunder shall not permit any of its employees, subcontractors or agents to perform services hereunder who are not first approved under e-RAILSAFE Program standards. Railroad shall have the right to deny entry onto its premises or access as described in this section above to any of Contractor's employees, subcontractors or agents who do not display the authorized identification badge issued by a background screening service meeting the standards set forth in the e-RAILSAFE Program, or who in Railroad's opinion, which may not be unreasonable, may pose a threat to the safety or security of Railroad's operations, assets or personnel.

Contractors shall be responsible for ensuring that its employees, subcontractors and agents are United States citizens or legally working in the United States under a lawful and appropriate work VISA or other work authorization.

1.05 Railway Flagger Services:

- **1.05.01** The Contractor must give Railway's **Roadmaster (telephone _____)** a minimum of thirty (30) calendar days advance notice when flagging services will be required so that the Roadmaster can make appropriate arrangements (i.e., bulletin the flagger's position). If flagging services are scheduled in advance by the Contractor and it is subsequently determined by the parties hereto that such services are no longer necessary, the Contractor must give the Roadmaster five (5) working days advance notice so that appropriate arrangements can be made to abolish the position pursuant to union requirements.
- **1.05.02** Unless determined otherwise by Railway's Project Representative, Railway flagger will be required and furnished when Contractor's work activities are located over, under and/or within twenty-five (25) feet measured horizontally from

centerline of the nearest track and when cranes or similar equipment positioned beyond 25-feet from the track centerline could foul the track in the event of tip over or other catastrophic occurrence, but not limited thereto for the following conditions:

- **1.05.02a** When, upon inspection by Railway's Representative, other conditions warrant.
- **1.05.02b** When any excavation is performed below the bottom of tie elevation, if, in the opinion of Railway's representative, track or other Railway facilities may be subject to movement or settlement.
- **1.05.02c** When work in any way interferes with the safe operation of trains at timetable speeds.
- **1.05.02d** When any hazard is presented to Railway track, communications, signal, electrical, or other facilities either due to persons, material, equipment or blasting in the vicinity.
- **1.05.02e** Special permission must be obtained from the Railway before moving heavy or cumbersome objects or equipment which might result in making the track impassable.
- **1.05.03** Flagging services will be performed by qualified Railway flaggers.
 - **1.05.03a** Flagging crew generally consists of one employee. However, additional personnel may be required to protect Railway Property and operations, if deemed necessary by the Railways Representative.
 - **1.05.03b** Each time a flagger is called, the minimum period for billing will be the eight (8) hour basic day.
 - **1.05.03c** The cost of flagger services provided by the Railway will be borne by **(Agency)**. The estimated cost for one (1) flagger is approximately between \$800.00-\$1,600.00 for an eight (8) hour basic day with time and one-half or double time for overtime, rest days and holidays. The estimated cost for each flagger includes vacation allowance, paid holidays, Railway and unemployment insurance, public liability and property damage insurance, health and welfare benefits, vehicle, transportation, meals, lodging, radio, equipment, supervision and other costs incidental to performing flagging services. Negotiations for Railway labor or collective bargaining agreements and rate changes authorized by appropriate Federal authorities may increase actual or estimated flagging rates. **THE FLAGGING RATE IN EFFECT AT THE TIME OF PERFORMANCE BY THE CONTRACTOR HEREUNDER**



WILL BE USED TO CALCULATE THE ACTUAL COSTS OF FLAGGING PURSUANT TO THIS PARAGRAPH.

- **1.05.03d** The average train traffic on this route is 100 freight trains per 24-hour period at a timetable speed 60 MPH and 5 passenger trains at a timetable speed of 79 MPH.

1.06 Contractor General Safety Requirements

- **1.06.01** Work in the proximity of railway track(s) is potentially hazardous where movement of trains and equipment can occur at any time and in any direction. All work performed by contractors within 25 feet of any track must be in compliance with FRA Roadway Worker Protection Regulations.
- **1.06.02** Before beginning any task on Railway Property, a thorough job safety briefing must be conducted with all personnel involved with the task and repeated when the personnel or task changes. If the task is within 25 feet of any track, the job briefing must include the Railway's flagger, as applicable, and include the procedures the Contractor will use to protect its employees, subcontractors, agents or invitees from moving any equipment adjacent to or across any Railway track(s).
- **1.06.03** Workers must not work within 25 feet of the centerline of any track without an on track safety strategy approved by the Railway's Project Representative. When authority is provided, every contractor employee must know: (1) who the Railway flagger is, and how to contact the flagger, (2) limits of the authority, (3) the method of communication to stop and resume work, and (4) location of the designated places of safety. Persons or equipment entering flag/work limits that were not previously job briefed, must notify the flagger immediately, and be given a job briefing when working within 25 feet of the center line of track.
- **1.06.04** When Contractor employees are required to work on the Railway Property after normal working hours or on weekends, the Railway's representative in charge of the project must be notified. A minimum of two employees must be present at all times.
- **1.06.05** Any employees, agents or invitees of Contractor or its subcontractors under suspicion of being under the influence of drugs or alcohol, or in the possession of same, will be removed from the Railway's Property and subsequently released to the custody of a representative of Contractor management. Future access to the Railway's Property by that employee will be denied.
- **1.06.06** Any damage to Railway Property, or any hazard noticed on passing trains must be reported immediately to the Railway's representative in charge of the

project. Any vehicle or machine which may come in contact with track, signal equipment, or structure (bridge) and could result in a train derailment must be reported immediately to the Railway representative in charge of the project and to the Railway's Resource Operations Center at 1(800) 832-5452. Local emergency numbers are to be obtained from the Railway representative in charge of the project prior to the start of any work and must be posted at the job site.

- **1.06.07** For safety reasons, all persons are prohibited from having pocket knives, firearms or other deadly weapons in their possession while working on Railway's Property.
- **1.06.08** All personnel protective equipment (PPE) used on Railway Property must meet applicable OSHA and ANSI specifications. Current Railway personnel protective equipment requirements are listed on the web site, www.contractororientation.com, however, a partial list of the requirements include: a) safety glasses with permanently affixed side shields (no yellow lenses); b) hard hats; c) safety shoe with: hardened toes, above-the-ankle lace-up and a defined heel; and d) high visibility retro-reflective work wear. The Railway's representative in charge of the project is to be contacted regarding local specifications for meeting requirements relating to hi-visibility work wear. Hearing protection, fall protection, gloves, and respirators must be worn as required by State and Federal regulations. **(NOTE – Should there be a discrepancy between the information contained on the web site and the information in this paragraph, the web site will govern.)**
- **1.06.09 THE CONTRACTOR MUST NOT PILE OR STORE ANY MATERIALS, MACHINERY OR EQUIPMENT CLOSER THAN 25'-0" TO THE CENTER LINE OF THE NEAREST RAILWAY TRACK. MATERIALS, MACHINERY OR EQUIPMENT MUST NOT BE STORED OR LEFT WITHIN 250 FEET OF ANY HIGHWAY/RAIL AT-GRADE CROSSINGS OR TEMPORARY CONSTRUCTION CROSSING, WHERE STORAGE OF THE SAME WILL OBSTRUCT THE VIEW OF A TRAIN APPROACHING THE CROSSING. PRIOR TO BEGINNING WORK, THE CONTRACTOR MUST ESTABLISH A STORAGE AREA WITH CONCURRENCE OF THE RAILWAY'S REPRESENTATIVE.**
- **1.06.10** Machines or vehicles must not be left unattended with the engine running. Parked machines or equipment must be in gear with brakes set and if equipped with blade, pan or bucket, they must be lowered to the ground. All machinery and equipment left unattended on Railway's Property must be left inoperable and secured against movement. (See internet Engineering Contractor Safety Orientation program for more detailed specifications)
- **1.06.11** Workers must not create and leave any conditions at the work site that would interfere with water drainage. Any work performed over water must meet all



Federal, State and Local regulations.

- **1.06.12** All power line wires must be considered dangerous and of high voltage unless informed to the contrary by proper authority. For all power lines the minimum clearance between the lines and any part of the equipment or load must be; 200 KV or below - 15 feet; 200 to 350 KV - 20 feet; 350 to 500 KV - 25 feet; 500 to 750 KV - 35 feet; and 750 to 1000 KV - 45 feet. If capacity of the line is not known, a minimum clearance of 45 feet must be maintained. A person must be designated to observe clearance of the equipment and give a timely warning for all operations where it is difficult for an operator to maintain the desired clearance by visual means.

1.07 Excavation:

- **1.07.01** Before excavating, the Contractor must determine whether any underground pipe lines, electric wires, or cables, including fiber optic cable systems are present and located within the Project work area. The Contractor must determine whether excavation on Railway's Property could cause damage to buried cables resulting in delay to Railway traffic and disruption of service to users. Delays and disruptions to service may cause business interruptions involving loss of revenue and profits. Before commencing excavation, the Contractor must contact BNSF's Field Engineering Representative (_____). All underground and overhead wires will be considered HIGH VOLTAGE and dangerous until verified with the company having ownership of the line. **It is the Contractor's responsibility to notify any other companies that have underground utilities in the area and arrange for the location of all underground utilities before excavating.**
- **1.07.02** The Contractor must cease all work and notify the Railway immediately before continuing excavation in the area if obstructions are encountered which do not appear on drawings. If the obstruction is a utility and the owner of the utility can be identified, then the Contractor must also notify the owner immediately. If there is any doubt about the location of underground cables or lines of any kind, no work must be performed until the exact location has been determined. There will be no exceptions to these instructions.
- **1.07.03** All excavations must be conducted in compliance with applicable OSHA regulations and, regardless of depth, must be shored where there is any danger to tracks, structures or personnel.
- **1.07.04** Any excavations, holes or trenches on the Railway's Property must be covered, guarded and/or protected when not being worked on. When leaving work site areas at night and over weekends, the areas must be secured and left in a condition that will ensure that Railway employees and other personnel who may be



working or passing through the area are protected from all hazards. All excavations must be back filled as soon as possible.

1.08 Hazardous Waste, Substances and Material Reporting:

- **1.08.01** If Contractor discovers any hazardous waste, hazardous substance, petroleum or other deleterious material, including but not limited to any non-containerized commodity or material, on or adjacent to Railway's Property, in or near any surface water, swamp, wetlands or waterways, while performing any work under this Agreement, Contractor must immediately: (a) notify the Railway's Resource Operations Center at 1(800) 832-5452, of such discovery: (b) take safeguards necessary to protect its employees, subcontractors, agents and/or third parties: and (c) exercise due care with respect to the release, including the taking of any appropriate measure to minimize the impact of such release.

1.09 Personal Injury Reporting

- **1.09.01** The Railway is required to report certain injuries as a part of compliance with Federal Railroad Administration (FRA) reporting requirements. Any personal injury sustained by an employee of the Contractor, subcontractor or Contractor's invitees while on the Railway's Property must be reported immediately (by phone mail if unable to contact in person) to the Railway's representative in charge of the project. The Non-Employee Personal Injury Data Collection Form contained herein is to be completed and sent by Fax to the Railway at 1(817) 352-7595 and to the Railway's Project Representative no later than the close of shift on the date of the injury.



NON-EMPLOYEE PERSONAL INJURY DATA COLLECTION

(If injuries are in connection with rail equipment accident/incident, highway rail grade crossing accident or automobile accident, ensure that appropriate information is obtained, forms completed and that data entry personnel are aware that injuries relate to that specific event.)

Injured Person Type:

- Passenger on train (C) Non-employee (N)
(i.e., emp of another railroad, or, non-BNSF emp involved in vehicle accident, including company vehicles)
- Contractor/safety sensitive (F) Contractor/non-safety sensitive (G)
- Volunteer/safety sensitive (H) Volunteer/other non-safety sensitive (I)
- Non-trespasser (D) - to include highway users involved in highway rail grade crossing accidents who did not go around or through gates
- Trespasser (E) - to include highway users involved in highway rail grade crossing accidents who went around or through gates
- Non-trespasser (J) - Off railroad property

If train involved, Train ID:

Transmit attached information to Accident/Incident Reporting Center by:

Fax 1-817-352-7595

or by Phone 1-800-697-6736

or email to: Accident-Reporting.Center@BNSF.com

Officer Providing Information:

(Name)

(Employee No.)

(Phone #)

REPORT PREPARED TO COMPLY WITH FEDERAL ACCIDENT REPORTING REQUIREMENTS AND PROTECTED FROM DISCLOSURE PURSUANT TO 49 U.S.C. 20903 AND 83 U.S.C. 490



Error! Objects cannot be created from editing field codes.

EXHIBIT "C-1"

**Agreement Between
BNSF RAILWAY COMPANY
and the
CONTRACTOR**

Railway File: _____

Agency Project: _____

<%Contractor.LegalName%> [Insert contractor's legal name here](hereinafter called "Contractor"), has entered into an agreement (hereinafter called "Agreement") dated _____, 201_, with for the performance of certain work in connection with the following project: _____ Performance of such work will necessarily require Contractor to enter **BNSF RAILWAY COMPANY** (hereinafter called "Railway") right of way and property (hereinafter called "Railway Property"). The Agreement provides that no work will be commenced within Railway Property until the Contractor employed in connection with said work for (i) executes and delivers to Railway an Agreement in the form hereof, and (ii) provides insurance of the coverage and limits specified in such Agreement and Section 3 herein. If this Agreement is executed by a party who is not the Owner, General Partner, President or Vice President of Contractor, Contractor must furnish evidence to Railway certifying that the signatory is empowered to execute this Agreement on behalf of Contractor.

Accordingly, in consideration of Railway granting permission to Contractor to enter upon Railway Property and as an inducement for such entry, Contractor, effective on the date of the Agreement, has agreed and does hereby agree with Railway as follows:

1) RELEASE OF LIABILITY AND INDEMNITY

Contractor hereby waives, releases, indemnifies, defends and holds harmless Railway for all judgments, awards, claims, demands, and expenses (including attorneys' fees), for injury or death to all persons, including Railway's and Contractor's officers and employees, and for loss and damage to property belonging to any person, arising in any manner from Contractor's or any of Contractor's subcontractors' acts or omissions or any work performed on or about Railway's property or right-of-way. **THE LIABILITY ASSUMED BY CONTRACTOR WILL NOT BE AFFECTED BY THE FACT, IF IT IS A FACT, THAT THE DESTRUCTION, DAMAGE, DEATH, OR INJURY WAS OCCASIONED BY OR CONTRIBUTED TO BY THE NEGLIGENCE OF RAILWAY, ITS AGENTS, SERVANTS, EMPLOYEES OR OTHERWISE, EXCEPT TO THE EXTENT THAT SUCH CLAIMS ARE PROXIMATELY CAUSED BY THE INTENSIONAL MISCONDUCT OR GROSS NEGLIGENCE OF RAILWAY.**

THE INDEMNIFICATION OBLIGATION ASSUMED BY CONTRACTOR INCLUDES ANY CLAIMS, SUITS OR JUDGMENTS BROUGHT AGAINST RAILWAY UNDER THE FEDERAL EMPLOYEE'S LIABILITY ACT, INCLUDING CLAIMS FOR STRICT LIABILITY UNDER THE SAFETY APPLIANCE ACT OR THE LOCOMOTIVE INSPECTION ACT, WHENEVER SO CLAIMED.

Contractor further agrees, at its expense, in the name and on behalf of Railway, that it will adjust and settle all claims made against Railway, and will, at Railway's discretion, appear and defend any suits or actions of law or in equity brought against Railway on any claim or cause of action arising or growing out of or in any manner connected with any liability assumed by Contractor under this Agreement for which Railway is liable or is alleged to be liable. Railway will give notice to Contractor, in writing, of the receipt or dependency of such claims and thereupon Contractor must proceed to adjust and handle to a conclusion such claims, and in the event of a suit being brought against Railway, Railway may forward summons and complaint or other process in connection therewith to Contractor, and Contractor, at Railway's discretion, must defend, adjust, or settle such suits and protect, indemnify, and save harmless Railway from and against all damages, judgments, decrees, attorney's fees, costs, and expenses growing out of or resulting from or incident to any such claims or suits.

In addition to any other provision of this Agreement, in the event that all or any portion of this Article shall be deemed to be inapplicable for any reason, including without limitation as a result of a decision of an applicable court, legislative enactment or regulatory order, the parties agree that this Article shall be interpreted as requiring Contractor to indemnify Railway to the fullest extent permitted by applicable law. **THROUGH THIS AGREEMENT THE PARTIES EXPRESSLY INTEND FOR CONTRACTOR TO INDEMNIFY RAILWAY FOR RAILWAY'S ACTS OF NEGLIGENCE.**

It is mutually understood and agreed that the assumption of liabilities and indemnification provided for in this Agreement survive any termination of this Agreement.

2) TERM

This Agreement is effective from the date of the Agreement until (i) the completion of the project set forth herein, and (ii) full and complete payment to Railway of any and all sums or other amounts owing and due hereunder.

3) INSURANCE

Contractor shall, at its sole cost and expense, procure and maintain during the life of this Agreement the following insurance coverage:

- A. Commercial General Liability insurance. This insurance shall contain broad form contractual liability with a combined single limit of a minimum of \$5,000,000 each occurrence and an aggregate limit of at least \$10,000,000 but in no event less than the



amount otherwise carried by the Contractor. Coverage must be purchased on a post 2004 ISO occurrence form or equivalent and include coverage for, but not limit to the following:

- ◆ Bodily Injury and Property Damage
- ◆ Personal Injury and Advertising Injury
- ◆ Fire legal liability
- ◆ Products and completed operations

This policy shall also contain the following endorsements, which shall be indicated on the certificate of insurance:

- ◆ The definition of insured contract shall be amended to remove any exclusion or other limitation for any work being done within 50 feet of railroad property.
- ◆ Waiver of subrogation in favor of and acceptable to Railway.
- ◆ Additional insured endorsement in favor of and acceptable to Railway.
- ◆ Separation of insureds.
- ◆ The policy shall be primary and non-contributing with respect to any insurance carried by Railway.

It is agreed that the workers' compensation and employers' liability related exclusions in the Commercial General Liability insurance policy(s) required herein are intended to apply to employees of the policy holder and shall not apply to **Railway** employees.

No other endorsements limiting coverage as respects obligations under this Agreement may be included on the policy with regard to the work being performed under this agreement.

B. Business Automobile Insurance. This insurance shall contain a combined single limit of at least \$1,000,000 per occurrence, and include coverage for, but not limited to the following:

- ◆ Bodily injury and property damage
- ◆ Any and all vehicles owned, used or hired

The policy shall also contain the following endorsements or language, which shall be indicated on the certificate of insurance:

- ◆ Waiver of subrogation in favor of and acceptable to Railway.
- ◆ Additional insured endorsement in favor of and acceptable to Railway.
- ◆ Separation of insureds.
- ◆ The policy shall be primary and non-contributing with respect to any insurance carried by Railway.

C. Workers Compensation and Employers Liability insurance including coverage for, but not limited to:

- ◆ Contractor's statutory liability under the worker's compensation laws of the state(s) in which the work is to be performed. If optional under State law, the insurance must cover all employees anyway.
- ◆ Employers' Liability (Part B) with limits of at least \$500,000 each accident, \$500,000 by disease policy limit, \$500,000 by disease each employee.

This policy shall also contain the following endorsements or language, which shall be indicated on the certificate of insurance:

- ◆ Waiver of subrogation in favor of and acceptable to Railway.

D. Railroad Protective Liability insurance naming only the **Railway** as the Insured with coverage of at least \$5,000,000 per occurrence and \$10,000,000 in the aggregate. The policy Must be issued on a standard ISO form CG 00 35 12 04 and include the following:

- ◆ Endorsed to include the Pollution Exclusion Amendment
- ◆ Endorsed to include the Limited Seepage and Pollution Endorsement.
- ◆ Endorsed to remove any exclusion for punitive damages.
- ◆ No other endorsements restricting coverage may be added.
- ◆ The original policy must be provided to the **Railway** prior to performing any work or services under this Agreement
- ◆ Definition of "Physical Damage to Property" shall be endorsed to read: "means direct and accidental loss of or damage to all property owned by any named insured and all property in any named insured' care, custody, and control arising out of the acts or omissions of the contractor named on the Declarations.

In lieu of providing a Railroad Protective Liability Policy, Licensee may participate (if available) in Railway's Blanket Railroad Protective Liability Insurance Policy.

Other Requirements:

Where allowable by law, all policies (applying to coverage listed above) shall contain no exclusion for punitive damages.

Contractor agrees to waive its right of recovery against **Railway** for all claims and suits against **Railway**. In addition, its insurers, through the terms of the policy or policy endorsement, waive their right of subrogation against **Railway** for all claims and suits. Contractor further waives its right of recovery, and its insurers also waive their right of subrogation against **Railway** for loss of its owned or leased property or property under Contractor's care, custody or control.

Allocated Loss Expense shall be in addition to all policy limits for coverages referenced above.

Contractor is not allowed to self-insure without the prior written consent of **Railway**. If granted by **Railway**, any self-insured retention or other financial responsibility for claims shall be



covered directly by Contractor in lieu of insurance. Any and all **Railway** liabilities that would otherwise, in accordance with the provisions of this Agreement, be covered by Contractor's insurance will be covered as if Contractor elected not to include a deductible, self-insured retention or other financial responsibility for claims.

Prior to commencing services, Contractor shall furnish to **Railway** an acceptable certificate(s) of insurance from an authorized representative evidencing the required coverage(s), endorsements, and amendments. The certificate should be directed to the following address:

BNSF Railway Company
c/o CertFocus
P.O. Box 140528
Kansas City, MO 64114
Toll Free: 877-576-2378
Fax number: 817-840-7487
Email: BNSF@certfocus.com
www.certfocus.com

Contractor shall notify **Railway** in writing at least 30 days prior to any cancellation, non-renewal, substitution or material alteration.

Any insurance policy shall be written by a reputable insurance company acceptable to **Railway** or with a current Best's Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the service is to be provided.

If coverage is purchased on a "claims made" basis, Contractor hereby agrees to maintain coverage in force for a minimum of three years after expiration, cancellation or termination of this Agreement. Annually Contractor agrees to provide evidence of such coverage as required hereunder.

Contractor represents that this Agreement has been thoroughly reviewed by Contractor's insurance agent(s)/broker(s), who have been instructed by Contractor to procure the insurance coverage required by this Agreement.

Not more frequently than once every five years, **Railway** may reasonably modify the required insurance coverage to reflect then-current risk management practices in the railroad industry and underwriting practices in the insurance industry.

If any portion of the operation is to be subcontracted by Contractor, Contractor shall require that the subcontractor shall provide and maintain insurance coverage(s) as set forth herein, naming **Railway** as an additional insured, and shall require that the subcontractor shall release, defend and indemnify **Railway** to the same extent and under the same terms and conditions as Contractor is required to release, defend and indemnify **Railway** herein.



Failure to provide evidence as required by this section shall entitle, but not require, **Railway** to terminate this Agreement immediately. Acceptance of a certificate that does not comply with this section shall not operate as a waiver of Contractor's obligations hereunder.

The fact that insurance (including, without limitation, self-insurance) is obtained by Contractor shall not be deemed to release or diminish the liability of Contractor including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by **Railway** shall not be limited by the amount of the required insurance coverage.

In the event of a claim or lawsuit involving **Railway** arising out of this agreement, Contractor will make available any required policy covering such claim or lawsuit.

These insurance provisions are intended to be a separate and distinct obligation on the part of the Contractor. Therefore, these provisions shall be enforceable and Contractor shall be bound thereby regardless of whether or not indemnity provisions are determined to be enforceable in the jurisdiction in which the work covered hereunder is performed.

For purposes of this section, **Railway** shall mean "Burlington Northern Santa Fe LLC", "BNSF Railway Company" and the subsidiaries, successors, assigns and affiliates of each.

4) SALES AND OTHER TAXES

In the event applicable sales taxes of a state or political subdivision of a state of the United States are levied or assessed in connection with and directly related to any amounts invoiced by Contractor to Railway ("Sales Taxes"), Railway shall be responsible for paying only the Sales Taxes that Contractor separately states on the invoice or other billing documents provided to Railway; *provided, however*, that (i) nothing herein shall preclude Railway from claiming whatever Sales Tax exemptions are applicable to amounts Contractor bills Railway, (ii) Contractor shall be responsible for all sales, use, excise, consumption, services and other taxes which may accrue on all services, materials, equipment, supplies or fixtures that Contractor and its subcontractors use or consume in the performance of this Agreement, (iii) Contractor shall be responsible for Sales Taxes (together with any penalties, fines or interest thereon) that Contractor fails to separately state on the invoice or other billing documents provided to Railway or fails to collect at the time of payment by Railway of invoiced amounts (except where Railway claims a Sales Tax exemption), and (iv) Contractor shall be responsible for Sales Taxes (together with any penalties, fines or interest thereon) if Contractor fails to issue separate invoices for each state in which Contractor delivers goods, provides services or, if applicable, transfers intangible rights to Railway.

Upon request, Contractor shall provide Railway satisfactory evidence that all taxes (together with any penalties, fines or interest thereon) that Contractor is responsible to pay under this Agreement have been paid. If a written claim is made against Contractor for Sales Taxes with respect to which Railway may be liable for under this Agreement, Contractor shall promptly notify Railway of such claim and provide Railway copies of all correspondence received from the taxing authority. Railway shall have the right to contest, protest, or claim a refund, in Railway's own name, any Sales Taxes paid by Railway to Contractor or for which Railway

might otherwise be responsible for under this Agreement; provided, however, that if Railway is not permitted by law to contest any such Sales Tax in its own name, Contractor shall, if requested by Railway at Railway's sole cost and expense, contest in Contractor's own name the validity, applicability or amount of such Sales Tax and allow Railway to control and conduct such contest.

Railway retains the right to withhold from payments made under this Agreement amounts required to be withheld under tax laws of any jurisdiction. If Contractor is claiming a withholding exemption or a reduction in the withholding rate of any jurisdiction on any payments under this Agreement, before any payments are made (and in each succeeding period or year as required by law), Contractor agrees to furnish to Railway a properly completed exemption form prescribed by such jurisdiction. Contractor shall be responsible for any taxes, interest or penalties assessed against Railway with respect to withholding taxes that Railway does not withhold from payments to Contractor.

5) EXHIBIT "C" CONTRACTOR REQUIREMENTS

The Contractor must observe and comply with all provisions, obligations, requirements and limitations contained in the Agreement, and the Contractor Requirements set forth on Exhibit "C" attached to the Agreement and this Agreement, including, but not be limited to, payment of all costs incurred for any damages to Railway roadbed, tracks, and/or appurtenances thereto, resulting from use, occupancy, or presence of its employees, representatives, or agents or subcontractors on or about the construction site. Contractor shall execute a Temporary Construction Crossing Agreement or Private Crossing Agreement (<http://www.bnsf.com/communities/faqs/permits-real-estate/>), for any temporary crossing requested to aid in the construction of this Project, if approved by BNSF.

6) TRAIN DELAY

Contractor is responsible for and hereby indemnifies and holds harmless Railway (including its affiliated railway companies, and its tenants) for, from and against all damages arising from any unscheduled delay to a freight or passenger train which affects Railway's ability to fully utilize its equipment and to meet customer service and contract obligations. Contractor will be billed, as further provided below, for the economic losses arising from loss of use of equipment, contractual loss of incentive pay and bonuses and contractual penalties resulting from train delays, whether caused by Contractor, or subcontractors, or by the Railway performing work under this Agreement. Railway agrees that it will not perform any act to unnecessarily cause train delay.

For loss of use of equipment, Contractor will be billed the current freight train hour rate per train as determined from Railway's records. Any disruption to train traffic may cause delays to multiple trains at the same time for the same period.

Additionally, the parties acknowledge that passenger, U.S. mail trains and certain other grain, intermodal, coal and freight trains operate under incentive/penalty contracts between Railway



and its customer(s). Under these arrangements, if Railway does not meet its contract service commitments, Railway may suffer loss of performance or incentive pay and/or be subject to penalty payments. Contractor is responsible for any train performance and incentive penalties or other contractual economic losses actually incurred by Railway which are attributable to a train delay caused by Contractor or its subcontractors.

The contractual relationship between Railway and its customers is proprietary and confidential. In the event of a train delay covered by this Agreement, Railway will share information relevant to any train delay to the extent consistent with Railway confidentiality obligations. The rate then in effect at the time of performance by the Contractor hereunder will be used to calculate the actual costs of train delay pursuant to this agreement.

Contractor and its subcontractors must give Railway's representative (_____) _____ () weeks advance notice of the times and dates for proposed work windows. Railway and Contractor will establish mutually agreeable work windows for the project. Railway has the right at any time to revise or change the work windows due to train operations or service obligations. Railway will not be responsible for any additional costs or expenses resulting from a change in work windows. Additional costs or expenses resulting from a change in work windows shall be accounted for in Contractor's expenses for the project.

Contractor and subcontractors must plan, schedule, coordinate and conduct all Contractor's work so as to not cause any delays to any trains.



IN WITNESS WHEREOF, each of the parties hereto has caused this Agreement to be executed by its duly authorized officer the day and year first above written.

<%Contractor.LegalName%>

BNSF Railway Company

By: _____

By: _____

Printed Name: _____

Name: _____

Manager Public Projects

Title: _____

Accepted and effective this _____ day of 20__.

Contact Person: _____

Address: _____

City: _____

State: _____ Zip: _____

Fax: _____

Phone: _____

E-mail: _____

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's community college pre-apprenticeship 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 the IDOT funded Pre-apprenticeship Training Program 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 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 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 2. 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 Program 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 certification 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 Galesburg

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

AGGREGATE SUBGRADE IMPROVEMENT (BDE)

Effective: April 1, 2012
Revised: January 1, 2016

Add the following Section to the Standard Specifications:

“SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement.

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.06
(b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2, and 3)	1031

Note 1. Crushed RAP, from either full depth or single lift removal, may be mechanically blended with aggregate gradations CS 01, CS 02, and RR 01 but shall not exceed 40 percent of the total product. The top size of the RAP shall be less than 4 in. (100 mm) and well graded.

Note 2. RAP having 100 percent passing the 1 1/2 in. (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradations CS 01, CS 02, or RR 01 are used in lower lifts.

Note 3. The RAP used for aggregate subgrade improvement shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Pavement (RAP) for Aggregate Applications”.

303.03 Equipment. The vibratory machine shall be according to Article 1101.01, or as approved by the Engineer.

303.04 Soil Preparation. The stability of the soil shall be according to the Department's Subgrade Stability Manual for the aggregate thickness specified.

303.05 Placing Aggregate. The maximum nominal lift thickness of aggregate gradations CA 02, CA 06, or CA 10 shall be 12 in. (300 mm). The maximum nominal lift thickness of aggregate gradations CS 01, CS 02, and RR 01 shall be 24 in. (600 mm).

303.06 Capping Aggregate. The top surface of the aggregate subgrade shall consist of a minimum 3 in. (75 mm) of aggregate gradations CA 06 or CA 10. When the contract specifies that a granular subbase is to be placed on the aggregate subgrade improvement, the 3 in. (75 mm) of capping aggregate shall be the same gradation and may be placed with the underlying aggregate subgrade improvement material.

303.07 Compaction. All aggregate lifts shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.08 Finishing and Maintenance of Aggregate Subgrade Improvement. The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.09 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.10 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) or ton (metric ton) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified.”

Add the following to Section 1004 of the Standard Specifications:

“1004.06 Coarse Aggregate for Aggregate Subgrade Improvement. The aggregate shall be according to Article 1004.01 and the following.

- (a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete. In applications where greater than 24 in. (600 mm) of subgrade material is required, gravel may be used below the first 12 in (300 mm) of subgrade.
- (b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.
- (c) Gradation.
 - (1) The coarse aggregate gradation for total subgrade thickness less than or equal to 12 in. (300 mm) shall be CA 2, CA 6, CA 10, or CS 01.

The coarse aggregate gradation for total subgrade thickness more than 12 in. (300 mm) shall be CS 01, CS 02 or RR 01(see Article 1005.01(c)).

COARSE AGGREGATE SUBGRADE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)					
Grad No.	Sieve Size and Percent Passing				

	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

(2) The 3 in. (75 mm) capping aggregate shall be gradation CA 6 or CA 10.”

80274

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)

Effective: November 2, 2006

Revised: July 1, 2015

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The bidder shall indicate 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 fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments that are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, joint filling/sealing, or extra work paid for at a lump sum price or by force account.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$$

Where: CA = Cost Adjustment, \$.

BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, \$/ton (\$/metric ton).

BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, \$/ton (\$/metric ton).

%AC_V = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.

Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: $Q, \text{ tons} = A \times D \times (G_{mb} \times 46.8) / 2000$. For HMA mixtures measured in square meters: $Q, \text{ metric tons} = A \times D \times (G_{mb} \times 1) / 1000$. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: $Q, \text{ tons} = V \times 8.33 \text{ lb/gal} \times SG / 2000$

For bituminous materials measured in liters: $Q, \text{ metric tons} = V \times 1.0 \text{ kg/L} \times SG / 1000$

Where: A = Area of the HMA mixture, sq yd (sq m).

- D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).
SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(BPI_L - BPI_P) \div BPI_L\} \times 100$$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**OPTION FOR
BITUMINOUS MATERIALS COST ADJUSTMENTS**

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. 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?

Yes No

Signature: _____ **Date:** _____

80173

356

**BUILDING REMOVAL - CASE I (NON-FRIABLE AND FRIABLE ASBESTOS ABATEMENT)
(BDE)**

Effective: September 1, 1990

Revised: April 1, 2010

BUILDING REMOVAL: This work shall consist of the removal and disposal of One (1) building(s), together with all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

<u>Bldg. No.</u>	<u>Parcel No.</u>	<u>Location</u>	<u>Description</u>
1	99-14-103-003	642 E. Main Street	Commercial / Tire Center

Discontinuance of Utilities: The Contractor shall arrange for the discontinuance of all utility services and the removal of the metering devices that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

Signs: Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR
HIGHWAY CONSTRUCTION
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

All friable asbestos shall be removed from the building(s) prior to demolition. The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)", "Removal and Disposal of Friable Asbestos Building No. 1", and "Removal and Disposal of Non-Friable Asbestos Building No. 1" contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all asbestos, friable and non-friable, is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Three separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO. 1
2. REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. 1
3. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. 1

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of friable and non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provisions for "Removal and Disposal of Friable Asbestos, Building No. 1" and "Removal and Disposal of Non-Friable Asbestos, Building No. 1", and as outlined herein.

~~Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages _____ thru _____. Also refer to the Materials Description Table in Attachment C _____ for a brief description and location of the various materials. Also included is a Materials Quantities Table in Attachment C. This table states whether the ACM is friable or non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.~~

The work involved in the removal and disposal of friable asbestos, and non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on of example , to the Engineer for the disposal of all ACM wastes.

Appendix D

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of these permits shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least ten days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator
Illinois Environmental Protection Agency
Division of Air Pollution Control
P. O. Box 19276
Springfield, Illinois 62794-9276
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer, except where otherwise specified herein.
- B. Submittals that shall be made prior to start of work:
 1. Submittals required under Asbestos Abatement Experience.
 2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.
 3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.

4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.
5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).
6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.
7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.
8. Submit proof of written notification and compliance with Paragraph "Notifications".

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;
2. Submit daily copies of work site entry logbooks with information on worker and visitor access;
3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and
4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

- A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.
- B. The Contractor shall document current Workmen's Compensation Insurance coverage.
- C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

360

- A. Company Experience: Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.
- B. Personnel Experience:
 - 1. For Superintendent, the Contractor shall supply:
 - a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.
 - b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.
 - 2. For workers involved in the removal of friable and non-friable asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

ABATEMENT AIR MONITORING: The Contractor shall comply with the following:

- A. Personal Monitoring: All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the Contractor. Additional personal samples may be required by the Engineer at any time during the project.
- B. Contained Work Areas for Removal of Friable Asbestos: Area samples shall be collected for the department within the work area daily. A minimum of one sample shall be taken outside of the abatement area removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.
- C. Interior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable Transite and floor tile removal

operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

- D. Exterior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

The Contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

E. Air Monitoring Professional

1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the Contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".
2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. 1 : This work consists of the removal and disposal of all friable asbestos from the building(s) prior to demolition. The work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)" and as outlined herein.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. 1, as shown, which price shall include furnishing all labor, materials, equipment and services required to remove and dispose of the friable asbestos.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. 1 : The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.

2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. 1, as shown.

The cost for this work shall be determined as follows:

Option #1 - Actual cost of removal and disposal of non-friable asbestos.

Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

The cost of removing and disposing of the building(s), assuming all asbestos, friable and non-friable is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. 1".

Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NO. 1 be deleted.

EXAMPLE

Attached are Appendixes A - D. These appendixes are examples of the information to be included in the proposal and referred to on page 3 of the Special Provision.

Appendix A are the sketches of the building(s) noted on page 1 of the Special Provision. These sketches show the location of asbestos on each floor of the building(s).

Appendix B provides a "Material Description Table" also referred to on page 3 of the Special Provision.

Appendix C is a "Material Quantities Table" and is referred to on page 3 of the Special Provision.

Appendix D is a sample of a Shipping Manifest form referred to on page 3.

Appendix E is a sample of the building(s) identification needed on page 1.

APPENDIX B

MATERIAL DESCRIPTION TABLE

Material Description	% And Type Of Asbestos	Location, Description, Sample Number (If Applicable)
<u>I. Ike and Swannies Tap</u>		
Pipe Insulation	55% & 60% chrysotile	Typical of all insulated piping in Basement area and in wall on 1st Floor. Fair condition. Some debris present in Basement.
Freezer cork Mastic	10% chrysotile	Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Sample AX656.
Floor tile	10% chrysotile	First floor in west portion of building. Floor tile is located under carpet. Poor condition. Sample AX652.
<u>II. Peoria Hotel Building</u>		
Pipe Insulation	20% & 30% chrysotile	Typical of most insulated piping in Basement area. 1st Floor and 2nd Floor. Fair condition. Abundant debris present in Basement. Sample AX660 and Sample AX663.
HW Tank Insulation	55% chrysotile	Tank located in Mechanical Room on the Basement Floor. Tank insulation is in fair condition. ACM debris is throughout Mechanical Room. Sample AX664.
Freezer Cork Mastic	10% chrysotile	Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Same as Sample AX656.

Floor tile	10% chrysotile 12% chrysotile	First floor in the main hotel building. Floor tile is in poor condition. Sample AX561 and Sample AX662.
Transite Siding	25% chrysotile	Located on an out building in back of main hotel, 1st Floor. Debris on ground and in Basement area Sample AX666.

APPENDIX C

MATERIAL QUANTITIES TABLE

The following are approximate quantities of ACM to be removed from the building indicated. These material quantities do not indicate the cleaning required to remove asbestos debris and resulting contamination from the work areas.

I. Ike and Swanies Tap

<u>Material</u>	<u>Floor</u>	<u>Quantity Present</u>	<u>Friable</u>
Pipe Insulation	Basement	140 L.F.	Yes
Pipe Insulation	1st Floor	20 L.F.	Yes
Cork Mastic	Basement	900 S.F.	No
Floor Tile	1st Floor	1225 S.F.	No
Carpet	1st Floor	1225 S.F.	No

II. Peoria Hotel Building

<u>Material</u>	<u>Floor</u>	<u>Quantity Present</u>	<u>Friable</u>
Tank Insulation	Basement Mech RM	115 L.F.	Yes
Pipe Insulation	Basement Mech RM	335 L.F.	Yes
Pipe Insulation	Basement (remaining)	770 L.F.	Yes
Pipe Insulation	1st Floor	120 S.F.	Yes
Pipe Insulation	2nd Floor	40 S.F.	Yes
Cork Mastic	Basement	400 S.F.	No
Floor Tile	1st Floor	1300 S.F.	No
Linoleum	1st Floor	75 S.F.	No
Transite Siding	1st Floor	225 S.F.	No

APPENDIX D

SHIPPING MANIFEST
Generator

1. Work Site Name and Mailing Address		Owner's Name	Owner's Telephone No.
2. Operator's Name and Address			Operator's Telephone No
3. Waste Disposal Site (WDS) Name Mailing Address, and Physical Site Location			WDS Telephone No.
4. Name and Address of Responsible Agency			
5. Description of Materials			
6. Containers	No.	Type	
7. Total Quantity	M ³	(Yd ³)	
8. Special Handling Instructions and Additional Information			
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.			
Printed/Typed Name & Title		Signature	Month Day Year
Transporter			
10. Transporter 1 (Acknowledgement of Receipt of Materials)			
Printed/Typed Name & Title		Signature	Month Day Year
Address and Telephone No.			
11. Transporter 2 (Acknowledgement of Receipt of Materials)			
Printed/Typed Name & Title		Signature	Month Day Year
Address and Telephone No.			
Disposal Site			
12. Discrepancy Indication Space			
13. Waste Disposal Site Owner or Operator: Certification of Receipt of Asbestos Materials Covered By This Manifest Except As Noted in Item 12			
Printed/Typed Name & Title		Signature	Month Day Year

APPENDIX D

INSTRUCTIONS

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the Company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional Office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
 - Friable asbestos material
 - Nonfriable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
 - DM - Metal drums, barrels
 - DP - Plastic drums, barrels
 - BA - 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).
8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator shall read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator shall retain a copy of this form.

APPENDIX D

INSTRUCTIONS

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport.

NOTE: The transporter shall retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS shall note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.
13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS shall retain a completed copy of this form. The WDS shall also send a completed copy to the operator listed in Item 2.

APPENDIX E

Bldg. No.	Parcel No.	Location	Description
1	408D005	210-212 Franklin, Peoria	2 story 60'x40' brick & masonry, 50% basement 50% crawl space
2	408D010	203-211 Franklin, Peoria	Section 1: 1 story 30'x17'-4" brick & masonry slab Section 2: 2 story 36'x81' brick & masonry full basement Section 3: 3 story 50'x72' brick & masonry full basement Section 4: 2 story 134'x38' brick & masonry, partial basement

5026I

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

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

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

FUEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)

Effective: April 1, 2009

Revised: July 1, 2015

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate 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 fuel cost adjustments for all categories of work. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and extra work paid for by agreed unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Extra work paid for at a lump sum price or by force account will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

- (1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.
- (2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

- (4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.
- (5) Category E: Structures. Structure items having a cumulative bid price that exceeds \$250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units Category	Factor	Units
A - Earthwork	0.34	gal / cu yd
B – Subbase and Aggregate Base courses	0.62	gal / ton
C – HMA Bases, Pavements and Shoulders	1.05	gal / ton
D – PCC Bases, Pavements and Shoulders	2.53	gal / cu yd
E – Structures	8.00	gal / \$1000

Metric Units Category	Factor	Units
A - Earthwork	1.68	liters / cu m
B – Subbase and Aggregate Base courses	2.58	liters / metric ton
C – HMA Bases, Pavements and Shoulders	4.37	liters / metric ton
D – PCC Bases, Pavements and Shoulders	12.52	liters / cu m
E – Structures	30.28	liters / \$1000

(c) Quantity Conversion Factors.

Category	Conversion	Factor
B	sq yd to ton	0.057 ton / sq yd / in depth
	sq m to metric ton	0.00243 metric ton / sq m / mm depth
C	sq yd to ton	0.056 ton / sq yd / in depth
	sq m to metric ton	0.00239 m ton / sq m / mm depth
D	sq yd to cu yd	0.028 cu yd / sq yd / in depth
	sq m to cu m	0.001 cu m / sq m / mm depth

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$$CA = (FPI_P - FPI_L) \times FUF \times Q$$

Where: CA = Cost Adjustment, \$
FPI_P = Fuel Price Index, as published by the Department for the month the work is performed, \$/gal (\$/liter)
FPI_L = Fuel Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, \$/gal (\$/liter)
FUF = Fuel Usage Factor in the pay item(s) being adjusted
Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI_L and FPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(FPI_L - FPI_P) \div FPI_L\} \times 100$$

Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**OPTION FOR
FUEL 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 fuel cost adjustments in all categories. Failure to indicate "Yes" for any category of work at the time of bid will make that category of work exempt from fuel 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 categories of work?

- | | | |
|--|-----|--------------------------|
| Category A Earthwork. | Yes | <input type="checkbox"/> |
| Category B Subbases and Aggregate Base Courses | Yes | <input type="checkbox"/> |
| Category C HMA Bases, Pavements and Shoulders | Yes | <input type="checkbox"/> |
| Category D PCC Bases, Pavements and Shoulders | Yes | <input type="checkbox"/> |
| Category E Structures | Yes | <input type="checkbox"/> |

Signature: _____ **Date:** _____

80229

397

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Revised: April 1, 2012

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 ten feet 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%	91.0%
IL-9.5, IL-12.5	Ndesign ≥ 90	92.0 – 96.0%	90.0%
IL-9.5, IL-9.5L, IL-12.5	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0, IL-25.0	Ndesign ≥ 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4%	90.0%

SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%
All Other	Ndesign = 30	93.0 - 97.4%	90.0%”

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: January 1, 2015

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 an approved nonshrink grout or chemical adhesive providing a minimum pull-out strength as follows.

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

RAILROAD PROTECTIVE LIABILITY INSURANCE (5 and 10) (BDE)

Effective: January 1, 2006

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications, except the limits shall be a minimum of \$5,000,000 combined single limit per occurrence for bodily injury liability and property damage liability with an aggregate limit of \$10,000,000 over the life of the policy. A separate policy is required for each railroad unless otherwise noted.

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
BNSF RAILWAY COMPANY 2650 Lou Menk Drive Fort Worth, TX 76131-2830	8 @ 79 MPH	56 @ 79 MPH
DOT/AAR No.: 062981N RR Division: Chicago	RR Mile Post: RR Sub-Division:	162.16 Mendota
For Freight/Passenger Information Contact:	Brian Soyk	Phone: 630-692-6295
For Insurance Information Contact:	Rosa Martinez, Marsh Co.	Phone: 214-303-8519

DOT/AAR No.: RR Mile Post:
RR Division: RR Sub-Division:

For Freight/Passenger Information Contact: Phone:
For Insurance Information Contact: Phone:

Approval of Insurance. The original and one certified copy of each required policy shall be submitted to the following address for approval:

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

406

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 %		
	Binder/Leveling Binder	Surface	Polymer Modified ^{3/, 4/}
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

421

TEMPORARY CONCRETE BARRIER (BDE)

Effective: January 1, 2015

Revised: July 1, 2015

Revise Article 704.02 of the Standard Specifications to read:

704.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Precast Temporary Concrete Barrier	1042
(b) Reinforcement Bars	1006.10(a)
(c) Connecting Pins and Anchor Pins (Note 1)	
(d) Connecting Loop Bars (Note 2)	
(e) Packaged Rapid Hardening Mortar or Concrete	1018

Note 1. Connecting Pins and Anchor Pins shall be according to the requirements of ASTM F 1554 Grade 36 (Grade 250).

Note 2. Connecting loop bars shall be smooth bars according to the requirements of ASTM A 36 (A 36M)."

Revise Article 704.04 of the Standard Specifications to read:

704.04 Installation. The barriers shall be seated on bare, clean pavement or paved shoulder and connected together in a smooth, continuous line at the locations provided by the Engineer.

Except on bridge decks, or where alternate anchoring details are shown on the plans, the barrier unit at each end of an installation shall be anchored to the pavement or paved shoulder using six anchor pins and protected with an impact attenuator as shown on the plans. When pinning of additional barrier units within the installation is specified, three anchor pins shall be installed in the traffic side holes of the required barriers.

Where both pinned and unpinned barrier units are used in a continuous installation, a transition shall be provided between them. The transition from pinned to unpinned barrier shall consist of two anchor pins installed in the end holes on the traffic side of the first barrier beyond the pinned section and one anchor pin installed in the middle hole on the traffic side of the second barrier beyond the pinned section. The third barrier beyond the pinned section shall then be unpinned.

Barriers located on bridge decks shall be restrained as shown on the plans. Anchor pins shall not be installed through bridge decks, unless otherwise noted.

Barriers or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The barriers shall be removed when no longer required by the contract. After removal, all anchor holes in the pavement or paved shoulder shall be filled with a rapid hardening mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush."

Add the following after the first paragraph of Article 704.05 of the Standard Specifications:

"Anchor pins, except for the six anchor pins for the barrier unit at each end of an installation, will be measured for payment as each, per anchor pin installed."

Add the following after the second paragraph of Article 704.06 of the Standard Specifications:

"Anchor pins, except for the six anchor pins for the barrier unit at each end of an installation, will be paid for at the contract unit price per each for PINNING TEMPORARY CONCRETE BARRIER."

80355

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 **2**. 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

WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within 180 working days.

80071

DRAINAGE SYSTEM

Effective: June 10, 1994

Revised: June 24, 2015

Description. This work shall consist of furnishing and installing a bridge drainage system as shown on the plans, including all piping, fittings, support brackets, inserts, bolts, and splash blocks when specified.

Material. The pipe and fittings shall be reinforced fiberglass according to ASTM D 2996 RTRP with a 30,000 psi (207 MPa) minimum short-time rupture strength hoop tensile stress. The reinforced fiberglass shall also have an apparent stiffness factor at 5 percent deflection exceeding 200 cu in.-lbf/sq. in. (22.6 cu mm-kPa) and a minimum wall thickness of 0.10 in. (2.54 mm). The adhesive for joining pipe and fittings shall be as recommended by the manufacturer. All pipe supports and associated hardware shall be hot dip galvanized according to AASHTO M 232 (M 232M). The fiberglass pipe and fittings furnished shall be pigmented through out, or have a resin-rich pigmented exterior coat, specifically designed for overcoating fiberglass, as recommended by the manufacturer. The color shall be as specified by the Engineer. The resin in either case shall have an ultraviolet absorber designed to prevent ultraviolet degradation. The ultraviolet protection shall be designed to withstand a minimum of 2,500 hours of accelerated weathering when tested in conformance with the requirements in ASTM Designation: G 154. Lamps shall be UV-8 (313 nm wavelength). The resting cycle shall be 4 hours of ultraviolet exposure at 140°F (60°C), and then 4 hours of condensate exposure at 120°F (49°C). After testing, the surface of the pipe shall exhibit no fiber exposure, crazing, or checking, and only a slight chalking or color change. The supplier shall certify the material supplied meets or exceeds these requirements.

Design. The drainage system shall be designed as an open system with allowances for the differential expansion and contraction expected between the superstructure and the substructure to which the drainage system is attached.

Installation. All connections of pipes and fittings shown on the plans to facilitate future removal for maintenance cleanout or flushing shall be made with a threaded, gasketed coupler or a bolted gasketed flange system. Adhesive bonded joints will be permitted for runs of pipe between such connections. The end run connection shall feature a minimum nominal 6 in. (150 mm) female threaded fiberglass outlet. Straight runs may utilize a 45 degree reducing saddle bonded to the pipe. The female outlet shall be filled with a male threaded PVC plug.

Runs of pipe shall be supported at spacings not exceeding those recommended by the manufacturer of the pipe. Supports that have point contact or narrow supporting areas shall be avoided. Standard slings, clamps, clevis hangers and shoe supports designed for use with steel pipe may be used. A minimum strap width for hangers shall be 1 1/2 in. (40 mm) for all pipe under 12 in. (300 mm) in diameter and 2 in. (50 mm) for diameters 12 in. (300 mm) or greater. Straps shall have 120 degrees of contact with the pipe. Pipes supported on less than 120 degrees of contact shall have a split fiberglass pipe protective sleeve bonded in place with adhesive.

All reinforced fiberglass pipe, fittings, and expansion joints shall be handled and installed according to guidelines and procedures recommended by the manufacturer or supplier of the material.

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

PIPE UNDERDRAINS FOR STRUCTURES

Effective: May 17, 2000

Revised: January 22, 2010

Description. This work shall consist of furnishing and installing a pipe underdrain system as shown on the plans, as specified herein, and as directed by the Engineer.

Materials. Materials shall meet the requirements as set forth below:

The perforated pipe underdrain shall be according to Article 601.02 of the Standard Specifications. Outlet pipes or pipes connecting to a separate storm sewer system shall not be perforated.

The drainage aggregate shall be a combination of one or more of the following gradations, FA1, FA2, CA5, CA7, CA8, CA11, or CA13 thru 16, according to Sections 1003 and 1004 of the Standard Specifications.

The fabric surrounding the drainage aggregate shall be Geotechnical Fabric for French Drains according to Article 1080.05 of the Standard Specifications.

Construction Requirements. All work shall be according to the applicable requirements of Section 601 of the Standard Specifications except as modified below.

The pipe underdrains shall consist of a perforated pipe drain situated at the bottom of an area of drainage aggregate wrapped completely in geotechnical fabric and shall be installed to the lines and gradients as shown on the plans.

Method of Measurement. Pipe Underdrains for Structures shall be measured for payment in feet (meters), in place. Measurement shall be along the centerline of the pipe underdrains. All connectors, outlet pipes, elbows, and all other miscellaneous items shall be included in the measurement. Concrete headwalls shall be included in the cost of Pipe Underdrains for Structures, but shall not be included in the measurement for payment.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for PIPE UNDERDRAINS FOR STRUCTURES of the diameter specified. Furnishing and installation of the drainage aggregate, geotechnical fabric, forming holes in structural elements and any excavation required, will not be paid for separately, but shall be included in the cost of the pipe underdrains for structures.

GRANULAR BACKFILL FOR STRUCTURES

Effective: April 19, 2012

Revised: October 30, 2012

Revise Section 586 of the Standard Specifications to read:

SECTION 586. GRANULAR BACKFILL FOR STRUCTURES

586.01 Description. This work shall consist of furnishing, transporting and placing granular backfill for abutment structures.

586.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Fine Aggregate.....	1003.04
(b) Coarse Aggregates	1004.05

CONSTRUCTION REQUIREMENTS

586.03 General. This work shall be done according to Article 502.10 except as modified below. The backfill volume shall be backfilled, with granular material as specified in Article 586.02, to the required elevation as shown in the contract plans. The backfill volume shall be placed in convenient lifts for the full width to be backfilled. Unless otherwise specified in the contract plans, mechanical compaction will not be required. A deposit of gravel or crushed stone placed behind drain holes shall not be required. All drains not covered by geocomposite wall drains or other devices to prevent loss of backfill material shall be covered by sufficient filter fabric material meeting the requirements of Section 1080 and Section 282 with either 6 or 8 oz/sq yd (200 or 270 g/sq m) material allowed, with free edges overlapping the drain hole by at least 12 in. (300 mm) in all directions.

The granular backfill shall be brought to the finished grade as shown in the contract plans. When concrete is to be cast on top of the granular backfill, the Contractor, subject to approval of the Engineer, may prepare the top surface of the fill to receive the concrete as he/she deems necessary for satisfactory placement at no additional cost to the Department.

586.04 Method of Measurement. This work will be measured for payment as follows.

- (a) Contract Quantities. The requirements for the use of contract quantities shall conform to Article 202.07(a).
- (b) Measured Quantities. This work will be measured for payment in place and the volume computed in cubic yards (cubic meters). The volume will be determined by the method of average end areas behind the abutment.

586.05 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) for GRANULAR BACKFILL FOR STRUCTURES.

|

WEEP HOLE DRAINS FOR ABUTMENTS, WINGWALLS, RETAINING WALLS AND CULVERTS

Effective: April 19, 2012

Revised: October 22, 2013

Delete the last paragraphs of Articles 205.05 and 502.10 and replace with the following.

"If a geocomposite wall drain according to Section 591 is not specified, a prefabricated geocomposite strip drain according to Section 1040.07 shall be placed at the back of each drain hole. The strip drain shall be 24 inches (600 mm) wide and 48 inches (1.220 m) tall. The strip drain shall be centered over the drain hole with the bottom located 12 inches (300 mm) below the bottom of the drain hole. All form boards or other obstructions shall be removed from the drain holes before placing any geocomposite strip drain."

Revise the last sentence of the first paragraph of Article 503.11 to read as follows.

"Drain holes shall be covered to prevent the leakage of backfill material according to Article 502.10."

Revise the title of Article 1040.07 to Geocomposite Wall Drains and Strip Drains.

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.