

# **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](mailto: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](mailto:Timothy.Garman@illinois.gov).

## **STANDARD GUIDELINES FOR SUBMITTING 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)** – A copy of 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 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** – The last items in your bid should be the DBE Utilization Plan (SBE 2026), followed by the DBE Participation Statement (SBE 2025) and supporting paperwork. If you have documentation of a Good Faith Effort, it is to follow the SBE Forms.

**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

RETURN WITH BID

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Proposal Submitted By
Name
Address
City

Letting March 6, 2015

**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. 61A86  
COOK County  
Section 08-F3000-21-BT  
Route NORTH BRANCH TRAIL  
Project CMM-9003(099)  
District 1 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. 61A86  
COOK County  
Section 08-F3000-21-BT  
Project CMM-9003(099)  
Route NORTH BRANCH TRAIL  
District 1 Construction Funds**

**This project consists of the construction of a bike trail and the construction of two pedestrian structures, drainage improvement and new traffic signal installation on the North Branch Trail from Devon Avenue to Foster Avenue.**

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)

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COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
COOK	031	01	08-F3000-21-BT	CMM-9003/099/000	NORTH
					BRANCH
					TRAIL

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
A2001010	T-ACER RUBRUM 1-1/4	EACH	20.000	X	=		
A2002912	T-CELTIS OCCID 1-1/2	EACH	20.000	X	=		
A2006414	T-QUERCUS ALBA 1-3/4	EACH	25.000	X	=		
A2006510	T-QUERCUS BICOL 1-1/4	EACH	15.000	X	=		
A2006712	T-QUERCUS MACR 1-1/2	EACH	20.000	X	=		
A2007112	T-QUERCUS RUBRA 1-1/2	EACH	15.000	X	=		
A2007612	T-TAXODIUM DIS 1-1/2	EACH	15.000	X	=		
A2007814	T-TILIA AMER 1-3/4	EACH	20.000	X	=		
C2C01324	S-CLETHRA ALNIFOL 2'C	EACH	3.000	X	=		
LR355225	BASE CSE AGG	TON	213.000	X	=		
XX002182	STREET NAME SIGN MAM	EACH	3.000	X	=		
XX003663	PED SH 1F BM CNTDN T	EACH	4.000	X	=		
XX006822	TRAIL HEAD MAP	EACH	10.000	X	=		
XX007452	RELOCATE BOLLARDS	EACH	42.000	X	=		
XX007581	PANEL REPLACE SPL	EACH	4.000	X	=		

NORTH  
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ILLINOIS DEPARTMENT OF TRANSPORTATION  
SCHEDULE OF PRICES  
CONTRACT NUMBER - 61A86

ECMS002 DTGECM03 ECMR003 PAGE 2  
RUN DATE - 01/07/15  
RUN TIME - 183054

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
XX007609	GRASS PAVERS	SQ YD	638.000	X	=		
XX008713	ELCBL C SIGNAL 14 19C	FOOT	332.000	X	=		
XX008724	TR & BK FILL W SCREEN	FOOT	280.000	X	=		
XX008998	ELCBL C VIDEO 14 3C	FOOT	117.000	X	=		
X0321322	DROP GATE	EACH	1.000	X	=		
X0322508	PED TRUSS SUPERSTR	SQ FT	16,800.000	X	=		
X0322690	P S AB 10 3G 34' -6"	EACH	3.000	X	=		
X0324900	SERV CON TO CECO LINE	EACH	1.000	X	=		
X0325592	REM REPL STONE RIPRAP	CU YD	285.000	X	=		
X0325751	DRIVE SOLDIER PILES	FOOT	1,679.000	X	=		
X0326328	ST LT CABLE 1/C6 CHGO	FOOT	1,000.000	X	=		
X0326885	VIDEO DETECT SYS	EACH	1.000	X	=		
X0326968	JUN BOX POLE/POST MTD	EACH	6.000	X	=		
X0327018	DECORATIVE SIGN POST	EACH	1.000	X	=		
X0327285	DOWNSPOUT ADJUSTMENT	EACH	2.000	X	=		

NORTH  
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ILLINOIS DEPARTMENT OF TRANSPORTATION  
SCHEDULE OF PRICES  
CONTRACT NUMBER - 61A86

ECMS002 DTGECM03 ECMR003 PAGE 3  
RUN DATE - 01/07/15  
RUN TIME - 183054

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X0350810	BOLLARD REMOVAL	EACH	53.000 X	=	=	=	=
X0934900	MA STL MONOTUBE 26	EACH	3.000 X	=	=	=	=
X5030290	STAIN CONC STRUCTURES	SQ FT	2,340.000 X	=	=	=	=
X5121800	PERM STEEL SHT PILING	SQ FT	7,875.000 X	=	=	=	=
X6020084	MANHOLE SPECIAL	EACH	2.000 X	=	=	=	=
X6640304	CH LK FENCE REM & RE	FOOT	230.000 X	=	=	=	=
X8050095	SERV INSTALL SPL	EACH	1.000 X	=	=	=	=
X8140105	HANDHOLE SPL	EACH	1.000 X	=	=	=	=
X8780105	CONC FDN SPL	EACH	7.000 X	=	=	=	=
Z0004562	COMB C C&G REM & REPL	FOOT	371.000 X	=	=	=	=
Z0007116	TREATED TIMBER LAG	SQ FT	2,479.000 X	=	=	=	=
Z0013302	SEGMENT CONC BLK WALL	SQ FT	1,765.000 X	=	=	=	=
Z0022800	FENCE REMOVAL	FOOT	20.000 X	=	=	=	=
Z0026402	FUR SOLDIER PILES HP	FOOT	1,679.000 X	=	=	=	=
Z0033038	CONTR TRAF 16LB P CAB	EACH	1.000 X	=	=	=	=

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ILLINOIS DEPARTMENT OF TRANSPORTATION  
SCHEDULE OF PRICES  
CONTRACT NUMBER - 61A86

ECMS002 DTGECM03 ECMR003 PAGE 4  
RUN DATE - 01/07/15  
RUN TIME - 183054

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
Z0033050	COAXIAL CABLE IN CON	FOOT	117.000 X	=			
Z0034210	MECH ST EARTH RET WL	SQ FT	2,793.000 X	=			
Z0042300	PC CONC SIDEWALK CURB	FOOT	480.000 X	=			
Z0046304	P UNDR FOR STRUCT 4	FOOT	747.000 X	=			
Z0048665	RR PROT LIABILITY INS	L SUM	1.000 X	=			
Z0055800	RUSTIC RAIL FENCE	FOOT	579.000 X	=			
Z0056610	STORM SEW WM REQ 15	FOOT	20.000 X	=			
Z0069600	STREET LT STD RELOC	EACH	4.000 X	=			
Z0073002	TEMP SOIL RETEN SYSTM	SQ FT	1,857.000 X	=			
Z0076600	TRAINEES	HOUR	500.000 X	=	0.80	400.00	
Z0076604	TRAINEES TPG	HOUR	500.000 X	=	15.00	7,500.00	
20100110	TREE REMOV 6-15	UNIT	4,550.000 X	=			
20100210	TREE REMOV OVER 15	UNIT	3,037.000 X	=			
20101000	TEMPORARY FENCE	FOOT	3,325.000 X	=			
20101100	TREE TRUNK PROTECTION	EACH	30.000 X	=			

NORTH  
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ILLINOIS DEPARTMENT OF TRANSPORTATION  
SCHEDULE OF PRICES  
CONTRACT NUMBER - 61A86

ECMS002 DTGECM03 ECMR003 PAGE 5  
RUN DATE - 01/07/15  
RUN TIME - 183054

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
20101200	TREE ROOT PRUNING	EACH	34.000 X	=			
20101300	TREE PRUN 1-10	EACH	50.000 X	=			
20101350	TREE PRUN OVER 10	EACH	50.000 X	=			
20200100	EARTH EXCAVATION	CU YD	1,589.000 X	=			
20201200	REM & DISP UNS MATL	CU YD	10,112.000 X	=			
20400800	FURNISHED EXCAVATION	CU YD	8,658.000 X	=			
20700220	POROUS GRAN EMBANK	CU YD	106.000 X	=			
20800150	TRENCH BACKFILL	CU YD	75.000 X	=			
20900110	POROUS GRAN BACKFILL	CU YD	366.000 X	=			
21001000	GEOTECH FAB F/GR STAB	SQ YD	15,665.000 X	=			
21101625	TOPSOIL F & P 6	SQ YD	17,766.000 X	=			
25000115	SEEDING CL 1B	ACRE	1.400 X	=			
25000312	SEEDING CL 4A	ACRE	2.100 X	=			
25000400	NITROGEN FERT NUTR	POUND	129.000 X	=			
25000600	POTASSIUM FERT NUTR	POUND	129.000 X	=			

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08-F3000-21-BT  
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ILLINOIS DEPARTMENT OF TRANSPORTATION  
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ECMS002 DTGECM03 ECMR003 PAGE 6  
RUN DATE - 01/07/15  
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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
25100115	MULCH METHOD 2	ACRE	4.000	X	=		
25100630	EROSION CONTR BLANKET	SQ YD	10,281.000	X	=		
25200200	SUPPLE WATERING	UNIT	100.000	X	=		
28000250	TEMP EROS CONTR SEED	POUND	356.000	X	=		
28000305	TEMP DITCH CHECKS	FOOT	88.000	X	=		
28000315	AGG DITCH CHECKS	TON	29.000	X	=		
28000400	PERIMETER EROS BAR	FOOT	23,132.000	X	=		
28100103	STONE RIPRAP CL A2	SQ YD	30.000	X	=		
28100107	STONE RIPRAP CL A4	SQ YD	317.000	X	=		
28200200	FILTER FABRIC	SQ YD	657.000	X	=		
30300001	AGG SUBGRADE IMPROVE	CU YD	1,473.000	X	=		
35101600	AGG BASE CSE B 4	SQ YD	1,122.000	X	=		
35101800	AGG BASE CSE B 6	SQ YD	13,907.000	X	=		
40600275	BIT MATLS PR CT	POUND	31,290.000	X	=		
40603335	HMA SC "D" N50	TON	1,558.000	X	=		

NORTH  
08-F3000-21-BT  
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ILLINOIS DEPARTMENT OF TRANSPORTATION  
SCHEDULE OF PRICES  
CONTRACT NUMBER - 61A86

ECMS002 DTGECM03 ECMR003 PAGE 7  
RUN DATE - 01/07/15  
RUN TIME - 183054

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
42001300	PROTECTIVE COAT	SQ YD	1,210.000	X	=		
42400300	PC CONC SIDEWALK 6	SQ FT	9,892.000	X	=		
42400800	DETECTABLE WARNINGS	SQ FT	535.000	X	=		
44000100	PAVEMENT REM	SQ YD	220.000	X	=		
44000600	SIDEWALK REM	SQ FT	6,088.000	X	=		
50102400	CONC REM	CU YD	137.300	X	=		
50104650	SLOPE WALL REMOV	SQ YD	237.000	X	=		
50105220	PIPE CULVERT REMOV	FOOT	24.000	X	=		
50200100	STRUCTURE EXCAVATION	CU YD	1,648.000	X	=		
50200300	COFFERDAM EXCAVATION	CU YD	59.000	X	=		
50200450	REM/DISP UNS MATL-STR	CU YD	106.000	X	=		
50201101	COFFERDAM TYP 1 LOC 1	EACH	1.000	X	=		
50201102	COFFERDAM TYP 1 LOC 2	EACH	1.000	X	=		
50300225	CONC STRUCT	CU YD	464.700	X	=		
50500505	STUD SHEAR CONNECTORS	EACH	1,474.000	X	=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
50800205	REINF BARS, EPOXY CTD	POUND	65,927.000	X	=	=	=
50901720	BICYCLE RAILING	FOOT	284.000	X	=	=	=
50901760	PIPE HANDRAIL	FOOT	372.000	X	=	=	=
51100100	SLOPE WALL 4	SQ YD	358.000	X	=	=	=
51201600	FUR STL PILE HP12X53	FOOT	1,636.000	X	=	=	=
51201610	FUR STL PILE HP12X63	FOOT	204.000	X	=	=	=
51202305	DRIVING PILES	FOOT	1,840.000	X	=	=	=
51203600	TEST PILE ST HP12X53	EACH	7.000	X	=	=	=
51203610	TEST PILE ST HP12X63	EACH	2.000	X	=	=	=
51204650	PILE SHOES	EACH	61.000	X	=	=	=
52000110	PREF JT STRIP SEAL	FOOT	117.000	X	=	=	=
542A0217	P CUL CL A 1 12	FOOT	214.000	X	=	=	=
542A0220	P CUL CL A 1 15	FOOT	134.000	X	=	=	=
542A0223	P CUL CL A 1 18	FOOT	24.000	X	=	=	=
542A0235	P CUL CL A 1 30	FOOT	30.000	X	=	=	=



NORTH  
08-F3000-21-BT  
COOK

ILLINOIS DEPARTMENT OF TRANSPORTATION  
SCHEDULE OF PRICES  
CONTRACT NUMBER - 61A86

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RUN DATE - 01/07/15  
RUN TIME - 183054

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
542A5485	P CUL CL A 1 EQRS 30	FOOT	96.000	X	=		
54213657	PRC FLAR END SEC 12	EACH	22.000	X	=		
54213660	PRC FLAR END SEC 15	EACH	8.000	X	=		
54213663	PRC FLAR END SEC 18	EACH	2.000	X	=		
54213675	PRC FLAR END SEC 30	EACH	2.000	X	=		
54214515	PRC FL END S EQ RS 30	EACH	8.000	X	=		
55100700	STORM SEWER REM 15	FOOT	20.000	X	=		
58700300	CONCRETE SEALER	SQ FT	3,342.000	X	=		
59100100	GEOCOMPOSITE WALL DR	SQ YD	406.000	X	=		
59300100	CONTR LOW-STRENG MATL	CU YD	30.800	X	=		
60250200	CB ADJUST	EACH	1.000	X	=		
60253800	CB RECON NEW T8G	EACH	1.000	X	=		
60255500	MAN ADJUST	EACH	4.000	X	=		
60266600	VALVE BOX ADJ	EACH	1.000	X	=		
60602800	CONC GUTTER TB	FOOT	243.000	X	=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
63200310	GUARDRAIL REMOV	FOOT	25.000	X	=		
67000500	ENGR FIELD OFFICE B	CAL MD	12.000	X	=		
67100100	MOBILIZATION	L SUM	1.000	X	=		
70102620	TR CONT & PROT 701501	L SUM	1.000	X	=		
70102635	TR CONT & PROT 701701	L SUM	1.000	X	=		
70102640	TR CONT & PROT 701801	L SUM	1.000	X	=		
70103815	TR CONT SURVEILLANCE	CAL DA	60.000	X	=		
72000100	SIGN PANEL T1	SQ FT	297.000	X	=		
72400100	REMOV SIN PAN ASSY TA	EACH	1.000	X	=		
72400500	RELOC SIN PAN ASSY TA	EACH	8.000	X	=		
72400600	RELOC SIN PAN ASSY TB	EACH	2.000	X	=		
72900100	METAL POST TY A	FOOT	425.000	X	=		
72900200	METAL POST TY B	FOOT	392.000	X	=		
78000400	THPL PVT MK LINE 6	FOOT	1,703.000	X	=		
78000600	THPL PVT MK LINE 12	FOOT	1,529.000	X	=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
78000650	THPL PVT MK LINE 24	FOOT	163.000	X	=	=	=
78001100	PT PVT MK LTRS & SYMB	SQ FT	3,132.000	X	=	=	=
78001110	PAINT PVT MK LINE 4	FOOT	13,214.000	X	=	=	=
78001150	PAINT PVT MK LINE 12	FOOT	105.000	X	=	=	=
78300100	PAVT MARKING REMOVAL	SQ FT	382.000	X	=	=	=
81028370	UNDRGRD C PVC 3	FOOT	495.000	X	=	=	=
87301270	ELCBL C SIGNAL 14 10C	FOOT	253.000	X	=	=	=
87301800	ELCBL C SERV 4 2C	FOOT	64.000	X	=	=	=
87502690	TS POST A 15	EACH	3.000	X	=	=	=
88040070	SH P LED 1F 3S BM	EACH	3.000	X	=	=	=
88040090	SH P LED 1F 3S MAM	EACH	6.000	X	=	=	=
88800100	PED PUSH-BUTTON	EACH	2.000	X	=	=	=
89502385	REMOV EX CONC FDN	EACH	4.000	X	=	=	=

TOTAL \$

NOTE: \*\*\* PLEASE TURN PAGE FOR IMPORTANT NOTES \*\*\*

NORTH  
08-F3000-21-BT  
COOK

ILLINOIS DEPARTMENT OF TRANSPORTATION  
SCHEDULE OF PRICES  
CONTRACT NUMBER - 61A86

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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**

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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. 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: 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:  \_\_\_\_\_  
Signature of Individual or Authorized Representative Date

**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.**

\_\_\_\_\_  
Signature of Authorized Representative Date

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. 61A86  
COOK County  
Section 08-F3000-21-BT  
Project CMM-9003(099)  
Route NORTH BRANCH TRAIL  
District 1 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. 61A86  
COOK County  
Section 08-F3000-21-BT  
Project CMM-9003(099)  
Route NORTH BRANCH TRAIL  
District 1 Construction Funds**

PROPOSAL SIGNATURE SHEET

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

(IF AN INDIVIDUAL)

Firm Name \_\_\_\_\_  
Signature of Owner \_\_\_\_\_  
Business Address \_\_\_\_\_  
\_\_\_\_\_

(IF A CO-PARTNERSHIP)

Firm Name \_\_\_\_\_  
By \_\_\_\_\_  
Business Address \_\_\_\_\_  
Name and Address of All Members of the Firm:  
\_\_\_\_\_  
\_\_\_\_\_

(IF A CORPORATION)

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

(IF A JOINT VENTURE)

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

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



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

KNOW ALL PERSONS BY THESE PRESENTS, That We \_\_\_\_\_

as PRINCIPAL, and \_\_\_\_\_

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

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

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

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

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

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

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Company Name)

By \_\_\_\_\_  
(Signature and Title)

By \_\_\_\_\_  
(Signature of Attorney-in-Fact)

**Notary for PRINCIPAL**

**Notary for SURETY**

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

Signed and attested before me on \_\_\_\_\_ (date)

Signed and attested before me on \_\_\_\_\_ (date)

by \_\_\_\_\_  
(Name of Notary Public)

by \_\_\_\_\_  
(Name of Notary Public)

(Seal) \_\_\_\_\_  
(Signature of Notary Public)

(Seal) \_\_\_\_\_  
(Signature of Notary Public)

\_\_\_\_\_  
(Date Commission Expires)

\_\_\_\_\_  
(Date Commission Expires)



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

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Electronic Bid Bond ID #	Company/Bidder Name	Signature and Title
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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	<b>Local Let Projects</b> Submit forms to the Local Agency

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



**Illinois Department  
of Transportation**

**DBE Participation Statement**

Subcontractor Registration Number \_\_\_\_\_

Letting \_\_\_\_\_

**Participation Statement**

Item No. \_\_\_\_\_

(1) Instructions

Contract No. \_\_\_\_\_

This form must be completed for each disadvantaged business participating in the Utilization Plan. This form shall be submitted in accordance with the special provision and will be attached to the Utilization Plan form. If additional space is needed complete an additional form for the firm.

(2) Work:

**Please indicate:** J/V \_\_\_\_\_ Manufacturer \_\_\_\_\_ Supplier (60%) \_\_\_\_\_ Subcontractor \_\_\_\_\_ Trucking \_\_\_\_\_

Pay Item No.	Description	Quantity	Unit Price	Total
<b>Total</b>				

(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:

(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 1<sup>st</sup> 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 \_\_ 1<sup>st</sup> Tier \_\_ 2<sup>nd</sup> Tier

\_\_\_\_\_  
Signature for DBE Firm \_\_ 1<sup>st</sup> Tier \_\_ 2<sup>nd</sup> Tier

Title \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

Contact Person \_\_\_\_\_

Contact Person \_\_\_\_\_

Phone \_\_\_\_\_

Phone \_\_\_\_\_

Firm Name \_\_\_\_\_

Firm Name \_\_\_\_\_

Address \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

City/State/Zip \_\_\_\_\_

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. 61A86  
COOK County  
Section 08-F3000-21-BT  
Project CMM-9003(099)  
Route NORTH BRANCH TRAIL  
District 1 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 suspended 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. **The forms must be included with each bid.**

**C. Disclosure Form Instructions**

**Form A Instructions for Financial Information & Potential Conflicts of Interest**

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

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

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

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

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

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

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

## RETURN WITH SUBCONTRACT

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

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

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

**ILLINOIS DEPARTMENT  
OF TRANSPORTATION**

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

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

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

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

**DISCLOSURE OF FINANCIAL INFORMATION**

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

<b>FOR INDIVIDUAL (type or print information)</b>	
<b>NAME:</b>	_____
<b>ADDRESS</b>	_____
<b>Type of ownership/distributable income share:</b>	
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. 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: 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. March 6, 2015. 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. 61A86  
COOK County  
Section 08-F3000-21-BT  
Project CMM-9003(099)  
Route NORTH BRANCH TRAIL  
District 1 Construction Funds**

**This project consists of the construction of a bike trail and the construction of two pedestrian structures, drainage improvement and new traffic signal installation on the North Branch Trail from Devon Avenue to Foster Avenue.**

- 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,  
Acting Secretary

INDEX  
FOR  
SUPPLEMENTAL SPECIFICATIONS  
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2015

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-12) (Revised 1-1-15)

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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	214	<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>
80240		Above Grade Inlet Protection	July 1, 2009	Jan. 1, 2012
80099		Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2014
80274		Aggregate Subgrade Improvement	April 1, 2012	Jan. 1, 2013
80192		Automated Flagger Assistance Device	Jan. 1, 2008	
80173		Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2013
80241		Bridge Demolition Debris	July 1, 2009	
50261		Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50481		Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50491		Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50531		Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
* 80310		Coated Galvanized Steel Conduit	Jan. 1, 2013	Jan. 1, 2015
* 80341		Coilable Nonmetallic Conduit	Aug. 1, 2014	Jan. 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	April 1, 2014
80294		Concrete Box Culverts with Skews ≤ 30 Degrees Regardless of Design Fill and Skews > 30 Degrees with Design Fills > 5 Feet	April 1, 2012	April 1, 2014
80311		Concrete End Sections for Pipe Culverts	Jan. 1, 2013	
80334	215	X Concrete Gutter, Curb, Median, and Paved Ditch	April 1, 2014	Aug. 1, 2014
80277		Concrete Mix Design – Department Provided	Jan. 1, 2012	Jan. 1, 2014
80261	216	X Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
80335	219	X Contract Claims	April 1, 2014	
* 80029	220	X Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Jan. 2, 2015
80265	231	X Friction Aggregate	Jan. 1, 2011	Nov. 1, 2014
80229		Fuel Cost Adjustment	April 1, 2009	July 1, 2009
80329		Glare Screen	Jan. 1, 2014	
80304		Grooving for Recessed Pavement Markings	Nov. 1, 2012	Aug. 1, 2014
80246		Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	April 1, 2012
80322		Hot-Mix Asphalt – Mixture Design Composition and Volumetric Requirements	Nov. 1, 2013	Nov. 1, 2014
80323		Hot-Mix Asphalt – Mixture Design Verification and Production	Nov. 1, 2013	Nov. 1, 2014
80347		Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Jobsite Sampling	Nov. 1, 2014	
80348	235	X Hot-Mix Asphalt – Prime Coat	Nov. 1, 2014	
80315		Insertion Lining of Culverts	Jan. 1, 2013	Nov. 1, 2013
* 80351		Light Tower	Jan. 1, 2015	
80336		Longitudinal Joint and Crack Patching	April 1, 2014	
80324	240	X LRFD Pipe Culvert Burial Tables	Nov. 1, 2013	Nov. 1, 2014
80325	260	X LRFD Storm Sewer Burial Tables	Nov. 1, 2013	Nov. 1, 2014
80045		Material Transfer Device	June 15, 1999	Aug. 1, 2014
* 80342		Mechanical Side Tie Bar Inserter	Aug. 1, 2014	Jan. 1, 2015
80165		Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
80337		Paved Shoulder Removal	April 1, 2014	
80349		Pavement Marking Blackout Tape	Nov. 1, 2014	
80298		Pavement Marking Tape Type IV	April 1, 2012	
80254		Pavement Patching	Jan. 1, 2010	
* 80352	270	X Pavement Striping - Symbols	Jan. 1, 2015	
* 80353		Portland Cement Concrete Inlay or Overlay	Jan. 1, 2015	
80338		Portland Cement Concrete Partial Depth Hot-Mix Asphalt Patching	April 1, 2014	

<u>File Name</u>	<u>Pg.</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80343			Precast Concrete Handhole	Aug. 1, 2014	
80300			Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	
80328	271	X	Progress Payments	Nov. 2, 2013	
34261			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157	272	X	Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
* 80306			Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	Jan. 2, 2015
80350	274	X	Retroreflective Sheeting for Highway Signs	Nov. 1, 2014	
80327	276	X	Reinforcement Bars	Nov. 1, 2013	
80344			Rigid Metal Conduit	Aug. 1, 2014	
* 80354	278	X	Sidewalk, Corner, or Crosswalk Closure	Jan. 1, 2015	
80340			Speed Display Trailer	April 2, 2014	
80127			Steel Cost Adjustment	April 2, 2004	April 1, 2009
80317			Surface Testing of Hot-Mix Asphalt Overlays	Jan. 1, 2013	
* 80355			Temporary Concrete Barrier	Jan. 1, 2015	
80301	279	X	Tracking the Use of Pesticides	Aug. 1, 2012	
* 80356			Traffic Barrier Terminals Type 6 or 6B	Jan. 1, 2015	
20338	280	X	Training Special Provisions	Oct. 15, 1975	
80318			Traversable Pipe Grate	Jan. 1, 2013	April 1, 2014
80345			Underpass Luminaire	Aug. 1, 2014	
* 80357			Urban Half Road Closure with Mountable Median	Jan. 1, 2015	
80346			Waterway Obstruction Warning Luminaire	Aug. 1, 2014	
80288	283	X	Warm Mix Asphalt	Jan. 1, 2012	Nov. 1, 2014
80302	285	X	Weekly DBE Trucking Reports	June 2, 2012	
80289			Wet Reflective Thermoplastic Pavement Marking	Jan. 1, 2012	
80071	286	X	Working Days	Jan. 1, 2002	

The following special provisions are in the 2015 Supplemental Specifications and Recurring Special Provisions:

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80292	Coarse Aggregate in Bridge Approach Slabs/Footings	Articles 1004.01(b) and 1004.02(f)	April 1, 2012	April 1, 2013
80303	Granular Materials	Articles 1003.04, 1003.04(c), and 1004.05(c)	Nov. 1, 2012	
80330	Pavement Marking for Bike Symbol	Article 780.14	Jan. 1, 2014	
80331	Payrolls and Payroll Records	Recurring CS #1 and #5	Jan. 1, 2014	
80332	Portland Cement Concrete – Curing of Abutments and Piers	Article 1020.13	Jan. 1, 2014	
80326	Portland Cement Concrete Equipment	Article 1103.03(a)(5)	Nov. 1, 2013	
80281	Quality Control/Quality Assurance of Concrete Mixtures	Recurring CS #31	Jan. 1, 2012	Jan. 1, 2014
80283	Removal and Disposal of Regulated Substances	Articles 669.01, 669.08, 669.09, 669.14, and 669.16	Jan. 1, 2012	Nov. 2, 2012
80319	Removal and Disposal of Surplus Materials	Article 202.03	Nov. 2, 2012	
80307	Seeding	Article 250.07	Nov. 1, 2012	
80339	Stabilized Subbase	Article 312.06	April 1, 2014	
80333	Traffic Control Setup and Removal Freeway/Expressway	Articles 701.18(l) and 701.19(a)	Jan. 1, 2014	

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: November 21, 2014 Letting

Pg #	√	File Name	Title	Effective	Revised
		GBSP 4	Polymer Modified Portland Cement Mortar	June 7, 1994	July 26, 2013
		GBSP 12	Drainage System	June 10, 1994	Jan 1, 2007
		GBSP 13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Oct 30, 2012
		GBSP 14	Jack and Remove Existing Bearings	April 20, 1994	Jan 1, 2007
		GBSP 15	Three Sided Precast Concrete Structure	July 12, 1994	Oct 15, 2011
		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	April 18, 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	April 19, 2012
		GBSP 26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	April 30, 2010
		GBSP 28	Deck Slab Repair	May 15, 1995	Oct 15, 2011
		GBSP 29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	Oct 30, 2012
		GBSP 30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Jan 18, 2011
		GBSP 31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	Oct 30, 2012
		GBSP 32	Temporary Sheet Piling	Sept 2, 1994	Jan 31, 2012
287	X	GBSP 33	Pedestrian Truss Superstructure	Jan 13, 1998	April 18, 2014
		GBSP 34	Concrete Wearing Surface	June 23, 1994	Feb 6, 2013
		GBSP 35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct 15, 2011
290	X	GBSP 38	Mechanically Stabilized Earth Retaining Walls	Feb 3, 1999	Aug 29, 2014
		GBSP 42	Drilled Soldier Pile Retaining Wall	Sept 20, 2001	Jan 3, 2014
299	X	GBSP 43	Driven Soldier Pile Retaining Wall	Nov 13, 2002	Jan 3, 2014
303	X	GBSP 44	Temporary Soil Retention System	Dec 30, 2002	May 11, 2009
		GBSP 45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
		GBSP 46	Geotextile Retaining Walls	Sept 19, 2003	July 26, 2013
305	X	GBSP 51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
		GBSP 53	Structural Repair of Concrete	Mar 15, 2006	Aug 29, 2014
		GBSP 55	Erection of Curved Steel Structures	June 1, 2007	
		GBSP 56	Setting Piles in Rock	Nov 14, 1996	April 19, 2012
		GBSP 57	Temporary Mechanically Stabilized Earth Retaining Walls	Jan 6, 2003	Aug 29, 2014
		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	Mar 6, 2009
		GBSP 61	Slipform Parapet	June 1, 2007	Aug 17, 2012
		GBSP 62	Concrete Deck Beams	June 13, 2008	Oct 9, 2009
306	X	GBSP 64	Segmental Concrete Block Wall	Jan 7, 1999	Oct 30, 2012
		GBSP 65	Precast Modular Retaining Walls	Mar 19, 2001	Jan 3, 2014
		GBSP 67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	
		GBSP 70	Braced Excavation	Aug 9, 1995	May 18, 2011
		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	Oct 15, 2011
311	X	GBSP 73	Cofferdams	Oct 15, 2011	
313	X	GBSP 74	Permanent Steel Sheet Piling (LRFD)	Jan 31, 2012	Aug 17, 2012
		GBSP 75	Bond Breaker for Prestressed Concrete Bulb-T Beams	April 19, 2012	
		GBSP 76	Granular Backfill for Structures	April 19, 2012	Oct 30, 2012
		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	April 18, 2014
		GBSP 79	Reserved		
		GBSP 80	Fabric Reinforced Elastomeric	Aug 29, 2014	

LIST ANY ADDITIONAL SPECIAL PROVISIONS BELOW


The following Guide Bridge Special Provisions have been incorporated into the 2012 Standard Specifications:

File Name	Title	Std Spec Location
GBSP22	Cleaning and Painting New Metal Structures	506
GBSP36	Surface Preparation and Painting Req. for Weathering Steel	506
GBSP50	Removal of Existing Non-composite Bridge Decks	501
GBSP58	Mechanical Splicers	508
GBSP63	Demolition Plans for Removal of Existing Structures	501
GBSP68	Piling	512
GBSP69	Freeze-Thaw Aggregates for Concrete Superstructures Poured on Grade	1004

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

File Name	Title	Disposition:
GBSP37	Underwater Structure Excavation Protection	Replaced by GBSP73
GBSP11	Permanent Steel Sheet Piling	Replaced by GBSP74
GBSP47	High Performance Concrete Structures	Discontinued
GBSP52	Porous Granular Embankment (Special)	Replaced by GBSP76
GBSP66	Wave Equation Analysis of Piles	Discontinued

**STATE OF ILLINOIS**

**SPECIAL PROVISIONS**

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction" adopted January 1, 2012 (hereinafter referred to as the Standard Specifications); the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways" in effect on the date of invitation for bids; and the "Supplemental Specifications and Recurring Special Provisions" indicated on the check sheet provided herein, all of which apply to and govern the construction of

North Branch Bike Trail Extension  
Devon Ave. to Foster Ave.  
Section: 08-F3000-21-BT  
Project No.: CMM-9003(099)  
Job No.: C-91-047-09  
Contract No.: 61A86  
Cook County

In case of conflict with any part or parts of said documents, these Special Provisions shall take precedence and shall govern.

**LOCATION OF PROJECT**

The majority of this bike trail is located within Cook County Forest Preserve District property and within the Chicago City limits. The trail starts at the intersection of Devon Avenue and Caldwell Avenue, where it meets the current south end of the North Branch Bike Trail, and extends southeasterly to the intersection of Foster Avenue and Kostner Avenue. The total gross and net length of the improvement is 16,028.9 feet (3.04 miles).

**DESCRIPTION OF PROJECT**

The work consists of the construction of a 10 foot wide, asphalt bike trail with grass shoulders. Also included in this work are drainage improvements (pipe culverts with end sections), installation of two prefabricated truss bridges, slopewall modifications, a new traffic signal, grading, seeding, pavement marking, erosion control, tree removal, traffic control, along with all incidental and collateral work necessary to complete the project as shown on the plans and as described herein.

## **GEOTECHNICAL SOILS REPORT**

Geotechnical soils reports and other advanced planning documents were prepared for this project and are available for bidder's review by contacting the lead local agency's representative at telephone number 312-577-6479.

## **MISCELLANEOUS**

Contractor is responsible for securing any and all permits from the City of Chicago to perform work within the City right-of-way.

## **MAINTENANCE OF ROADWAYS**

Effective: September 30, 1985

Revised: November 1, 1996

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

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

## **TRAFFIC CONTROL PLAN**

Effective: September 30, 1985

Revised: January 1, 2007

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

Special attention is called to Article 107.09 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the District One Bureau of Traffic at least 72 hours in advance of beginning work.

## **STANDARDS:**

701006-05 Off Road Operation – 2-Lane, 2-Way – 15 feet to Edge of Pavement

- 701101-04 Off Road Moving Operation, 2-Lane, 2-Way – Day Only
- 701501-06 Urban Lane Closure, 2-Lane, 2-Way, Undivided
- 701606-09 Urban Lane Closure, Multilane, 2-Way With Mountable Median
- 701701-09 Urban Lane Closure, Multilane Intersection
- 701801-05 Sidewalk, corner or crosswalk closure
- 701901-04 Traffic Control Devices

**DETAILS:**

TC-10 – Traffic Control and Protection for Side Roads, Intersections and Driveways  
 TC 13 – Typical Pavement Markings

**SPECIAL PROVISIONS:**

Maintenance of Roadways  
 Public Convenience and Safety (Dist. 1)  
 Pavement Marking Removal (BDE Recurring SP CS #33)

**STATUS OF UTILITIES TO BE ADJUSTED**

Effective: January 30, 1987

Revised: January 24, 2013

Utilities companies involved in this project have provided the following estimated durations:

<u>Name of Utility</u>	<u>Type</u>	<u>Location</u>	<u>Estimated Duration of Time for the Completion of Relocation or Adjustments</u>
ComEd Joe Stacho Two Lincoln Center Oakbrook Terrace, IL 60181-4260 (630) 424-5704	Electric	South side of Devon, Caldwell, Lehigh and at Prescott, Edgebrook entrance and Cicero	No adjustments Required
Nicor Gas Connie Lane 1844 Ferry Road Naperville, IL 60563 (630) 388-2362	Gas	Southwest corner of Caldwell & Devon, at Louise, center of Forest Glen	No adjustments Required
Comcast Martha Gieras 688 N Industrial Drive Elmhurst, IL 60126 630) 388 2362	Cable TV	South side of Forest Glen	No adjustments Required



The above represents the best information available to the Department and is included for the convenience of the bidder. The applicable portions of Articles 105.07 and 107.31 of the Standard Specifications shall apply.

In accordance with 605 ILCS 5/9-113 of the Illinois Compiled Statutes, utility companies have 90 days to complete the relocation of their facilities after receipt of written notice from the Department. The 90-day written notice will be sent to the utility companies after the following occurs:

- 1) Proposed right of way is clear for contract award.
- 2) Final plans have been sent to and received by the utility company.
- 3) Utility permit is received by the Department and the Department is ready to issue said permit.
- 4) If a permit has not been submitted, a 15 day letter is sent to the utility company notifying them they have 15 days to provide their permit application. After allowing 15 days for submission of the permit the 90 day notice is sent to the utility company.
- 5) Any time within the 90 day relocation period the utility company may request a waiver for additional time to complete their relocation. The Department has 10 days to review and respond to a waiver request.

#### **PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION**

Unless otherwise noted on the Plans, the existing drainage facilities shall remain in use during the period of construction. Locations of existing drainage structures and sewers as shown on the Plans are approximate. Prior to commencing work, the Contractor, at his own expense, shall determine the exact locations of existing structures which are within the proposed construction site.

All drainage structures are to be kept free of any debris resulting from construction operations. All work and material necessary to prevent accumulation of debris in the drainage structures will be considered as incidental to the Contract. Any accumulation of debris in the drainage structures resulting from construction operations shall be removed at the Contractor's own expense and no extra compensation will be allowed.

Unless reconstruction or adjustment of an existing drainage structure is called for on the Plans, the proposed work shall meet the existing elevations of these structures. Should reconstruction or adjustment of a drainage structure be required by the Engineer in the field, the necessary work and payment shall be done in accordance with Section 603 and Article 104.02, respectively, of the "Standard Specifications," unless otherwise noted on the Plans or in the Special Provisions.

The Contractor shall take the necessary precautions when working near or above existing sewers in order to protect these pipes during construction from any damage resulting from his operations. All work and material necessary to replace existing sewers damaged because of noncompliance with this provision shall be as directed by

the Engineer in accordance with Section 550 of the "Standard Specifications" and at the Contractor's own expense, and no extra compensation will be allowed.

During construction, if the Contractor encounters or otherwise becomes aware of any sewers or underdrains within the R.O.W. or Forest Preserve property other than those shown on the Plans, he shall so inform the Engineer, who shall direct the work necessary to maintain the facilities in service and to protect them from damage during construction. Any sewers or underdrains to remain within the R.O.W. that are deemed necessary to be replaced by the Engineer shall be replaced or otherwise made to conform to the type requirements of Section 550 of the "Standard Specifications", and the work involved therein will be paid for as specified in Article 109.04 thereof.

#### **DISPOSAL OF SURPLUS MATERIAL**

The Contractor is prohibited from burning any material within or adjacent to the improvement. All excess or waste material shall be hauled away from the site of the improvement by the Contractor and deposited at locations provided by him.

No extra compensation will be allowed the Contractor for any expense incurred by complying with the requirements of this Special Provision, except for unknown Special Waste.

#### **REMOVAL OF MISCELLANEOUS ITEMS**

Regarding the removal and disposal of any existing fences, gates, signs (except traffic signs) concrete, brush or other miscellaneous items which may interfere with the proposed construction, and which are not paid for separately, the Contractor shall, with the approval of the Engineer, remove and dispose of these items outside the limits of the right-of-way at locations provided by the Contractor, and this work shall be considered as included in the cost of Earth Excavation.

Any existing features and appurtenances to remain which are damaged or removed by the Contractor shall be repaired or replaced by the Contractor at his expense.

#### **REMOVAL OF EXISTING PAVEMENT AND APPURTENANCES**

When portions of existing pavements or appurtenances are to remain in place, or adjacent existing pavements or appurtenances are to remain in place, the Contractor shall form a perpendicular straight joint by full-depth machine sawing at the ends and all edges of portions to be removed to prevent surface spalling when the existing pavement or appurtenance is removed. Any damage to the existing pavement or appurtenance to remain in place shall be repaired or removed and replaced by the Contractor at his/her own expense, as directed by the Engineer. This work will not be measured or paid for separately, but shall be considered included in the item being removed.

## **PIPE CULVERTS**

When installing pipe culverts and end sections all necessary grading to provide positive drainage to and from the culverts shall be considered included in the cost of this item. Restoration of the disturbed areas shall be paid for at the various line items for that work.

Trench backfill, properly compacted in accordance with the Standard Specifications shall be used as backfill where the pipe crosses the path.

## **BASE COURSE AGGREGATE**

Description: This work shall consist of providing and installing an aggregate base for turf block paving as indicated on the Plans and as specified herein. This work includes placing the aggregate base for provide a level surface for placement of the turf block paving.

General: Leveling material shall be a sand/soil mix, 30 percent topsoil and 70 percent clean, coarse concrete sand or gravel to a nominal six (6) inch depth. The condition of the subgrade shall be examined and any unsatisfactory conditions corrected. No work on frozen ground or wet, saturated or muddy subgrade will be permitted.

Leveling course materials shall be spread evenly over the entire area to be paved and screeded to a level that will provide a minimum 6-inch thickness. The screeded and leveled surface shall be placed on a filter fabric and protected from damage until covered with paver units.

Method of Measure and Payment: This work will be measured and paid for at the contract unit price per ton for BASE COURSE AGGREGATE which shall be payment in full for all materials, equipment, tools, labor, and accessories necessary to complete this item of work.

## **GRASS PAVERS**

Description: This work shall consist of providing and installing turf block paving as indicated on the Plans and as specified herein. This work includes supplying and placing interlocking turf block paving units as indicated on the Plans. Topsoil and seeding work will then be performed over the installed turf block in conformance with Article 250 of the Standard Specifications.

General: The Contractor shall submit manufacturer's product data, installation instructions, and two full size turf block samples for review. Reviewed and accepted samples will be returned to the Contractor and may be used in the work.

Turf block paving units shall be interlocking molded, lightweight, high strength, reinforced plastic paving blocks that permit natural turf to grow through unit voids. The paving units shall be as recommended by the manufacturer for support of AASHTO H20 vehicular traffic and shall meet or exceed manufacturer's field loading test requirements, without unit breakage or permanent deflection.

Turf block paving units shall be installed in accordance with the manufacturer's recommended installation details. Units shall be placed in a running bond pattern perpendicular to vehicular movement. Paving units shall be cut with motor driven saw equipment designed to cut plastic material with clean, sharp unchipped edges. Cut units as required to provide the pattern shown and to fit adjoining work neatly. Full units without cutting shall be used wherever possible. Where cutting is required, the largest size unit possible shall be used. The use of small pieces of pavers or large joint spaces shall be avoided. Gaps at the edge of the paved surface shall be filled with standard edge pieces or with paver units cut to fit. Only cut units with straight even cut surfaces shall be used. Installed turf block paver units shall be rolled with a standard lawn roller to their final level. After final rolling the surface shall be true to grade and shall not vary by more than ¼ inch when tested with a 10-foot straight-edge at any location on the surface. Voids surrounding the installed turf blocks shall be completely filled with topsoil and shall be sown with grass seed in conformance with the applicable sections of Article 250 of the Standard Specifications.

Method of Measure and Payment: This work will be measured and paid for at the contract unit price per square yard for GRASS PAVERS which shall be payment in full for all materials, equipment, tools, labor, and accessories necessary to complete this item of work.

## **DROP GATE**

General: This work shall consist of all materials, tools, equipment, labor and accessories necessary to construct the double-hinged post drop gates as shown in the plans and specifications.

Materials: All materials shall meet the following specifications:

Bollard post: ASTM A500, two (2) 6" x 2" x ¼" steel tubes

Bollard base plate: ASTM A36, 12" x 12" base plate

Pins: 8-18 Stainless Steel - ¾" x 8" hinge pins, ¾" x 5" lock pin

Hardware: Hinge bolts, flat washers and hex nuts to anchor base plate to concrete base and to secure posts to base plate.

Finish: Primer: All surfaces are primed with rust & corrosion resistant, zinc rich primer w/ 5,000 hour salt spray performance.

Finish: Standard finish, TGIC Polyester outdoor finish RAL1028 Yellow. TGIC Polyester powder definition; meets decorative and functional requirements for gloss retention, physical properties, chemical resistance and weatherability.

Construction Requirements: Install per manufacturer's recommendations and at locations specified on the plans, except as modified herein or on the plans.

Bollard posts will collapse to a 3 inch clearance allowing vehicle traffic to pass.

Bollard posts come together in upright position to 30" height and locks with stainless steel lock pin & padlock.

Padlock to be provided by the Engineer as coordinated with the Forest Preserve District of Cook County.

Lock pins shall be drilled to accommodate 5/16" diameter lock shackle ("Forest Preserve Special").

Material Disposal: The contractor shall be responsible for hauling off and legally disposing of all excess material and waste generated from construction of these improvements off-site. Cost is incidental to the contract.

Submittals: The drop gates must be approved by the project representative prior to installation. Submit manufacturer's literature, cut sheets, shop drawings, and mock-ups per section 01300 of the bid proposal and specifications manual.

Method of Measure and Payment: This work will be measured and paid for at the contract unit price per each DROP GATE which shall be payment in full for all materials, equipment, tools, labor, and accessories necessary to complete this item of work. The concrete foundation will not be measured and paid for separately, rather it shall be incidental to the contract lump sum price for each DROP GATE.

### **PROTECTION OF EXISTING TREES**

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

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

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

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

- a. Root prune 6-inches behind and parallel to the proposed edge of trench a neat, clean vertical cut to a minimum depth directed by the Engineer through all affected tree roots.
  - b. Root prune to a maximum width of 4-inches using a "Vermeer" wheel, or other similar machine. Trenching machines will not be permitted.
  - c. Exercise care not to cut any existing utilities.
  - d. If during construction it becomes necessary to expose tree roots which have not been precut, the Engineer shall be notified and the Contractor shall provide a clean, vertical cut at the proper root location, nearer the tree trunk, as necessary, by means of hand-digging and trimming with chain saw or hand saw. Ripping, shredding, shearing, chopping or tearing will not be permitted.
  - e. Top Pruning: When thirty percent (30%) or more of the root zone is pruned, an equivalent amount of the top vegetative growth or the plant material shall be pruned off within one (1) week following root pruning.
2. Whenever curb and gutter is removed for replacement, or excavation for removal of or construction of a structure is within the drip line/root zone of a tree, the Contractor shall:
- a. Root prune 6-inches behind the curbing so as to neatly cut the tree roots.
  - b. Depth of cut shall be 12 inches for curb removal and replacement and 24 inches for structural work. Any roots encountered at a greater depth shall be neatly saw cut at no additional cost.
  - c. Locations where earth saw cutting of tree roots is required will be marked in the field by the Engineer.
3. All root pruning work is to be performed through the services of a licensed arborist to be approved by the Engineer.

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

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

B. Temporary Fence:

1. The Contractor shall erect a temporary fence around all trees within the construction area to establish a "tree protection zone" before any work begins or any material is delivered to the jobsite. No work is to be performed (other than root pruning), materials stored or vehicles driven or parked within the "tree protection zone".
2. The exact location and establishment of the "tree protection zone" fence shall be approved by the Engineer prior to setting the fence.
3. The fence shall be erected on three sides of the tree at the drip-line of the tree or as determined by the Engineer.
4. All work within the "tree protection zone" shall have the Engineer's prior approval. All slopes and other areas not regarded should be avoided so that unnecessary damage is not done to the existing turf, tree root system ground cover.
5. The grade within the "tree protection zone" shall not be changed unless approved by the Engineer prior to making said changes or performing the work.

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

Temporary fence will be paid for at the contract unit price per foot for TEMPORARY FENCE, which price shall include furnishing, installing, maintaining, and removing.

C. Tree Limb Pruning:

1. The Contractor shall inspect the work site in advance and arrange with the Roadside Development Unit (847.705.4171) to have any tree limbs pruned that might be damaged by equipment operations at least one week prior to the start of construction. Any tree limbs that are broken by construction equipment after the initial pruning must be pruned correctly within 72 hours.
2. Top Pruning: When thirty percent (30%) or more of the root zone of a tree is pruned, an equivalent amount of the top vegetative growth or the plant material shall be pruned off within one (1) week following root pruning.

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

D. Removal of Driveway Pavement and Sidewalk:

1. In order to minimize the potential damage to the tree root system(s), the Contractor will not be allowed to operate any construction equipment or machinery within the "tree protection zone" located between the curb or edge of pavement and the right-of-way property line.
2. Sidewalk to be removed in the areas adjacent to the "tree protection zones" shall be removed with equipment operated from the street pavement. Removal equipment shall be Gradall (or similar method), or by hand or a combination of these methods. The method of removal shall be approved by the Engineer prior to commencing any work.
3. Any pavement or pavement related work that is removed shall be immediately disposed of from the area and shall not be stockpiled or stored within the parkway area under any circumstances.

E. Backfilling:

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

F. Damages:

1. In the event that a tree not scheduled for removal is injured such that potential irreparable damage may ensure, as determined by the Roadside Development Unit, the Contractor shall be required to remove the damage tree and replace it on a three to one (3:1) basis, at his own expense. The Roadside Development Unit will select replacement trees from the pay items already established in the contract.
2. The Contractor shall place extreme importance upon the protection and care of trees and shrubs which are to remain during all times of this improvement. It is of paramount importance that the trees and shrubs which are to remain are adequately protected by the Contractor and made safe from harm and potential damage from the operations and construction of this improvement. If the Contractor is found to be in violation of storage or operations within the "tree protection zone" or construction activities not approved by the Engineer, a penalty shall be levied against the Contractor with the monies being deducted from the contract. The amount of the penalty shall be two hundred fifty dollars (\$250.00) per occurrence per day.



**RUSTIC RAIL FENCE**

Timber Split Rail Fence shall consist of three parallel timber rails supported on wooden posts installed where shown on the plans or as directed by the Engineer.

All materials used in the work shall conform to the requirements for the class of material named. The Engineer reserves the right of approval of the manufacturer and type of split rail fence through shop drawing submittals in accordance with 105.04 of the Standard Specifications.

Specific reference is made to the following:

Lumber and Timber-----	Section 507
Wood Preservatives-----	Subsection 1007
Miscellaneous Metals-----	Subsection 1006

Sawed Posts shall be from one of the following species:

- Pacific Coast Douglas Fir
- Western Larch
- Eastern Hemlock
- Red (Norway) Pine
- White Pine
- Jack Pine
- Southern Yellow Pine
- Oak
- Ponderosa Pine

The fence shall conform to the dimensions shown on the plans. Posts shall be installed into the ground by direct burial. The fence shall consist of three rails, each 10' long and 3" diameter minimum, connected to the posts by means of 2" diameter hollowed out openings in the posts to insert the rails. The ends of the rails shall be tapered to fit into the post openings. The rails shall also be connected to the posts with galvanized gutter spikes. The dimensions are subject to the tolerances as approved by the Engineer. The posts need not be surfaced. Each post furnished shall be not less than three inches longer than the net length shown on the plans. All posts shall have a minimum stress grade rating of 1200f<sub>b</sub>.

Rails furnished for timber split rail fence shall be sawed rails and shall be from one of the following species:

- Pacific Coast Douglas Fir
- Southern Yellow Pine
- Western Larch
- Red (Norway) Pine
- White Pine
- Oak

Sawed rails shall be furnished treated unless otherwise required on the plans. Sawed rails shall be furnished unsurfaced on all four sides.

Preservative treatment shall be in accordance with Article 1007.12 for fence posts and wood guardrail lumber.

All bolts, nuts, gutter spikes, and miscellaneous hardware furnished for the work shall be in accordance with the design and dimensions shown on the plans. Bolts shall be threaded sufficiently to permit secure fastening and shall be supplied with the necessary washers.

Unless otherwise specified, all bolts, nuts, washers, gutter spikes, and other hardware shall be furnished galvanized.

All work shall be constructed in accordance with the approved shop drawing details. Holes for posts shall be dug at the required location and depth, and the bottom of the holes shall be compacted to provide a stable foundation. A tolerance of plus or minus three inches will be permitted in depth of post holes provided the length of the post is adequate to obtain the required elevation of the finished top. The posts shall be set plumb and with the front faces in a straight line or to conform to such curves as shown on the plans or as directed by the Engineer. The bridge end of the fence shall be placed at each end of the bridge to provide a transition between the fence and the bridge. The first section of fence shall then taper back to a minimum 2' clear offset from the edge of the path. The placed posts shall be backfilled with approved material placed in layers and compacted in such a manner as to avoid disturbing the position or alignment of the post.

After the post has been set, the finished elevation of the top and bottom rails shall be determined and the post cut off and trimmed as shown on the plans. The cut surfaces of treated posts shall be treated with two brush applications of the same type of preservative used in the original treatment. Holes shall be bored in the set posts to support the rails at the required elevation and grade. The rails shall be bolted to the posts, or fastened with gutter spikes, with round headed bolts, with the head at the rail face. The threaded ends of all bolts shall be burred. Where the bolt extends one inch or more through the nut, it shall be cut off at ½ inch from the nut before burring.

This work shall be paid for at the contract unit price per foot for RUSTIC RAIL FENCE, which price shall be full compensation for furnishing all materials, including posts, rails, bolts, preservative, and incidentals; for all excavation, erection, backfilling, and disposal of surplus materials; for preservative treating; and for all labor, tools, equipment, and incidentals necessary to construct the fence complete.

### **EROSION CONTROL BLANKET**

This Special Provision revises Section 251 of the Standard Specifications for Road and Bridge Construction to eliminate the use of Excelsior Blanket for Erosion Control Blanket. This work shall consist of furnishing, transporting, and placing 100 %

biodegradable erosion control blanket over seeded areas as detailed on the plans, according to Section 251 except as modified herein.

Delete Article 1081.10(a) Excelsior Blanket.

Delete the first paragraph of Article 1081.10 (b) Knitted Straw Mat and substitute the following:

Knitted Straw Mat. Knitted straw mat shall be a machine-produced mat of 100% clean, weed free agricultural straw. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the blanket. The blanket shall be covered on top and bottom sides with a 100% biodegradable woven natural organic fiber netting. No plastic netting will be allowed. The top netting shall consist of machine directional strands formed from two intertwined yarns with cross directional strands interwoven through the twisted machine stands to form an approximate 0.50 x 1.0 (1.27 x 2.54 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches (5-12.5cm) from the edge) as an overlap guide for adjacent mats.

Short-term photodegradable erosion control blanket will not be allowed.

Delete Article 1081.10(d) Wire Staples.

Add the following to Article 1081.10 (e) Wood Stakes:

Biodegradable plastic stakes will be allowed. The biodegradable plastic anchor shall be approximately 6 in (15.24 cm) in length. No metal wire stakes will be allowed.

### **DECORATIVE SIGN POST**

This work shall consist of installing a trail sign post, as shown in the plans at the locations shown in the plans. The Contractor shall pick up the posts from a facility provided by the Cook County Forest Preserve District.

The post will be measured for payment per each.

This work shall be paid for at the contract unit price per each for DECORATIVE SIGN POST.

### **TRAIL HEAD MAP PANEL REPLACEMENT (SPECIAL)**

Trail Head Sign Map Panels shall consist of 3.175mm (0.125") engineer-grade aluminum. Size shall be as shown on plans. Graphics shall be graphic applied in a

single sheet to both sides of the panel using materials and methods approved by the Engineer.

All product combinations shall be applied according to the manufacturer's recommendations. Both sides of aluminum panel shall receive graphic (each shall be similar to the sample in the detail, but each graphic will be unique).

All graphics and text shall be provided to the Contractor by the Forest Preserve District in a digital format. Color proofs shall be submitted for approval.

Trail Head Sign President Panels shall consist of 2mm (0.080") engineer-grade aluminum. Size shall be as shown on plans. Graphics shall be applied in a single sheet to both sides of the panel using materials and methods approved by the Engineer.

All product combinations shall be applied according to the manufacturer's recommendations. Both sides of aluminum panel shall receive graphic.

All graphics and text shall be provided to the Contractor by the Forest Preserve District in a digital format. Color proofs shall be submitted for approval.

Trail Head Sign Posts shall be Structural Lumber. Color samples of the manufacturer's standard color palette shall be submitted to the Landscape Architect for selection and approval. Size shall be as shown on plans. Posts shall be routed as shown on plans.

Trail Head Sign Extruded Aluminum Tee shall be 6063 T5 Aluminum in accordance with the details within the Contract Documents.

Trail Head Sign Hardware shall be in accordance with the details within the Contract Documents as well as the following:

- a) Aluminum Tee Extrusion shall be (600mm x 50mm x 50mm), (2' x 2" x 2") 6063 T5 Aluminum in accordance with the details within the Contract Documents.
- b) Button Head Pin-in-Head Torx Tamper Resistant Screw shall be 18-8 SS Torx Tamper-Resist Sheet Metal Screw Button Pin-In-Head, No. 10 Size, 40mm (1-1/2") length.
- c) Tamper-Resistant Torx Insert Bit shall be 25, 6mm (1/4") hex shank, 25mm (1") length.
- d) Standard Blind Rivots shall be aluminum standard blind rivet with steel mandrel dome, 6mm (1/4") dia., 16mm-19mm (0.626"-0.75") material thickness.
- e) Blind Rivot Flat Washer shall be blind rivet washer aluminum, round, for 6mm (1/4") rivet body dia., 12mm (1/2") OD.
- f) Manual Blind Rivet Tool shall be a premium heavy-duty blind rivet tool with 4 nosepieces, 2.4mm (3/32"), 3.2mm (1/8"), 4mm (5/32"), 4.8mm (3/16").

All graphics and proofs for all signs shall be returned and become the property of the Forest Preserve District at the completion of the project.

This item will also include installation of the signs at locations to be marked in the field by the Forest Preserve District Landscape Architect. The locations will be in close proximity to Forest Preserve District parking lots.

The signposts, foundations, panels, and hardware shall be fully and completely installed to form a complete unit.

Concrete Foundations shall be per Article 730.04 (b) in the Standard Specifications for Road and Bridge Construction", 2012 Edition and in accordance with the details within the Contract Documents.

#### Basis of Payment

This work shall be paid for at the contract unit price for Each for TRAIL HEAD MAP and for PANEL REPLACEMENT (SPECIAL) as shown on the plans, which price shall include all labor, equipment and materials necessary to complete the above described work.

#### FENCE REMOVAL

This item consists of the removal and disposal of existing fence at the locations shown in the plans in accordance with the applicable articles of Section 664 of the Standard Specifications. Such removals are required to create an opening in the fence for the purpose of installing the bike trail through the opening or to remove fence that has fallen into disrepair. Fence removal shall include the removal of posts and foundations in their entirety. All removed materials shall be disposed of by the Contractor, at his expense, outside the limits of the improvement. Holes or excavations resulting from the removal operation shall be backfilled with suitable material and compacted to the satisfaction of the Engineer.

All existing posts located within 3 feet of the proposed path edge shall be removed as well as at other locations shown on the plans. All fencing between the remaining posts nearest to the path shall be removed. New posts of the same material and dimensions as the existing shall be installed no closer than 3 feet from the edge of the proposed path. The new posts will then be utilized as end posts with the existing fencing attached to them appropriately.

At locations where fence fabric or rails shall remain, the Contractor shall cut the fabric or rails and connect it to new posts or existing posts to remain. In cutting the fence and re-connecting the fabric or rails to a new post, Contractor shall ensure that no cut ends of the fence will be exposed. Wire ties shall be used, if necessary to tie the fence to remain to the post that remains or the new post. No fence material shall extend beyond the posts which would create a hazard for path users. Connections between the existing fence, existing posts and new fence shall be made with the appropriate connections as approved by the Engineer.

FENCE REMOVAL shall be measured between new or existing posts that remain in place, and shall be paid for at the contract unit price per foot, measured as specified,

which payment shall constitute full compensation for removing and disposing of all existing fence materials, including foundations; backfilling and compacting the resulting holes or excavations; connecting existing fence and posts that remain; and furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified.

#### **PORTLAND CEMENT CONCRETE SIDEWALK CURB**

This work shall be performed according to the details shown on the highway standards, plans and the applicable sections of Section 424 and Section 606 of the Standard Specifications.

A barrier curb of variable height shall be installed on both sides of concrete curb ramps to the details and dimensions shown on the plans and the highways standards for CURB RAMPS FOR SIDEWALKS.

Basis of Payment: This work shall be paid for at the contract unit price per foot for PORTLAND CEMENT CONCRETE SIDEWALK CURB.

#### **COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT**

This work shall be performed according to the details shown on the plans and the applicable sections of Section 440 and Section 606 of the Standard Specifications.

All paved surfaces adjacent to the curbs and curb and gutters to be removed shall be saw cut to prevent damage to the pavement during removal operations. Any bituminous surface replacement needed to match existing grades shall be incidental to this item. A depressed curb and gutter shall be installed as shown on the details and shall conform to the dimensions of the existing curb and gutter.

Basis of Payment: This work shall be paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT.

#### **STORM SEWER ADJACENT TO OR CROSSING WATER MAIN**

Effective: February 1, 1996 Revised: March 31, 1998

This work consists of constructing storm sewer of the specified diameter adjacent to or crossing water main, at the locations shown on the plans, meeting the material and installation requirements of the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the applicable portions of Section 550 of the Standard Specifications.

Pipe materials shall meet the requirements of Sections 40 and 41-2.01 of the "Standard

Specifications for Water and Sewer Main Construction in Illinois", except PVC pipe will not be allowed. Ductile-Iron pipe shall meet the minimum requirements for Thickness Class 50.

Encasing of standard type storm sewer, in accordance with the details for "Water and Sewer Separation Requirements (Vertical Separation)", (DIV. V/STANDARD DRAWINGS) in the "Standard Specifications for Water and Sewer Main Construction in Illinois", may be used for storm sewers crossing water mains.

Basis of Payment: This work will be paid for in accordance with Article 550.09 of the Standard Specifications, except the pay item shall be STORM SEWER (WATER MAIN REQUIREMENTS), of the diameter specified, and shall include all materials, labor, equipment, concrete collars and encasing pipe with seals.

### **STAINING CONCRETE STRUCTURES**

#### **Description of Work:**

This work shall consist of the furnishing and installing of concrete staining on concrete structure surfaces as indicated on the contract drawings and as directed by the ENGINEER.

The work under this Section includes furnishing all labor, materials, tools, equipment and incidentals necessary to provide concrete staining.

#### **Products:**

Provide a penetrating stain color finish designed for exterior applications on concrete with field evidence of resistance to freeze/thaw, moisture alkali, acid and mildew, mold and fungus, discoloration, or degradation. The coloring agent shall be breathable, allowing moisture and vapor transmission. The product shall not alter the surface texture. Furnish evidence, to the satisfaction of the engineer, that the proposed product has been successfully used in a similar application.

Use the following colors from Federal Color Standard 595B for areas of concrete to be stained:

- A. Exterior stain color – 36300 (Aircraft Gray)

Submit test samples of the stain on concrete for acceptance to the Engineer before beginning applying staining on any of the structures. Provide a stained 2' x 2' test panel on a sample of concrete from the same source as the bridge for each of the above colors. This test sample will be reviewed by the Engineer and the final color selection may be adjusted before the Contractor orders stain.

The stains shall contain an integral silane or siloxane penetrating concrete sealer.

The following products or approved equal may be used to stain the concrete surface:

- A. Tri-Sheen Pigmented Stain
- B. XL 70 Bridge Cote with Silane by Texcote
- C. Custom Rock Stain, by CRI

Execution:

Preparation of Concrete Surfaces. Clean all concrete surfaces that are to be coated by water blasting with 3000 psi to ensure that the surface is free of all laitance, dirt, dust, grease, efflorescence, and any foreign material in order to accept the coating material according to product requirements. Sand blasting will not be permitted. Correct, at contractor's own expense, any surface problems resulting from the surface preparation methods.

Measurement for Payment:

Measurement: Concrete staining will be measured for payment in place and the area computed in square yards, except staining for Precast Platform on Structure and Precast Concrete Collision Protection System which will not be measured for payment.

Basis of Payment: Payment for the work covered under this section applicable to staining of concrete structure surfaces will be paid at the contract unit price per square foot for STAINING CONCRETE STRUCTURES.

**DOWNSPOUT ADJUSTMENT**

This work consists of partial removal of bridge drain downspouts at the locations shown on the plans in accordance with the applicable portions of Section 501 of the Standard Specifications.

Basis of Payment: This work will be paid for at the contract unit price per each for DOWNSPOUT ADJUSTMENT and shall include all materials, labor and equipment.

**REMOVE AND REPLACE STONE RIPRAP**

This work consists of removal and replacement of existing stone riprap at the locations shown on the plans in accordance with the applicable portions of Section 281 of the Standard Specifications. Existing riprap is to be stockpiled/stored on site upon removal as directed by the Engineer. Any material in surplus after placement as shown on the plans shall be disposed of according to Article 202.03.



Basis of Payment: This work will be paid for at the contract unit price per cubic yard for REMOVE AND REPLACE STONE RIPRAP and shall include all materials, labor, equipment and disposal.

### **BOLLARD REMOVAL**

This item consists of the removal and disposal of existing bollards at the locations shown in the plans. The bollards shall be removed in their entirety. All removed materials shall be disposed of by the Contractor, at his expense, outside the limits of the improvement. Holes or excavations resulting from the removal operation shall be backfilled with suitable material and compacted to the satisfaction of the Engineer.

BOLLARD REMOVAL shall be measured per each, and shall be paid for at the contract unit price per each, measured as specified, which payment shall constitute full compensation for removing and disposing of the bollards, including foundations; backfilling and compacting the resulting holes or excavations; and furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified.

### **RELOCATE BOLLARDS**

This item consists of the removal and relocation of existing bollards at the locations shown in the plans and as directed by the Engineer. The bollards shall be removed in their entirety, relocated to their new location, and installed. Holes or excavations resulting from the removal operation shall be backfilled with suitable material and compacted to the satisfaction of the Engineer.

BOLLARD REMOVAL shall be measured per each, and shall be paid for at the contract unit price per each, measured as specified, which payment shall constitute full compensation for removing and relocating of the bollards, including foundations; excavation to place the relocated bollards; backfilling and compacting the resulting holes or excavations; and furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified.

### **CHAIN LINK FENCE TO BE REMOVED AND RE-ERECTED**

Description: This work shall be performed in accordance with applicable portions of Section 664 of the Standard Specifications except as herein modified. The work will consist of removing, safeguarding and re-erecting the existing chain link fence at the locations shown on the plans.

General Requirements: The existing chain link fence shall be removed and re-erected in its original position as shown on the plans or as directed by the Engineer. The Contractor shall ensure that the re-erected fence is firmly in place to the satisfaction of the Engineer. Any new hardware, fasteners, fence posts, foundations and other

appurtenances necessary to re-erect the fence shall be included in the unit price for this item. Storage of the fence is not expected.

If sufficient hardware or posts, fabrics or any parts are not salvageable, the Contractor shall provide new necessary materials of a similar quality, style and color to the existing chain link fence, acceptable to the Engineer, at no additional cost to the Department. Samples of proposed replacement material are to be submitted for approval by the Engineer prior to ordering or installation.

Surplus or excess fence and fence material determined by the Engineer to not be necessary for the Contract shall become property of the Contractor and legally disposed of off-site.

Method of Measurement: Chain link fence to be removed and re-erected will be measured in feet, in place. Surplus or excess fence will not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per foot for CHAIN LINK FENCE TO BE REMOVED AND RE-ERECTED, which price shall be payment in full for all labor, tools, equipment and materials necessary to remove and re-erect the existing chain link fence as herein specified.

#### **EMBANKMENT I**

Effective: March 1, 2011

Revised: November 1, 2013

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

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

- a) The laboratory Standard Dry Density shall be a minimum of 90 lb/cu ft (1450 kg/cu m) when determined according to AASHTO T 99 (Method C).
- b) The organic content shall be less than ten percent determined according to AASHTO T 194 (Wet Combustion).
- c) Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 3 ft (900 mm) of soil not considered detrimental in terms of erosion potential or excess volume change.
  - 1) A grain size distribution with less than 35 percent passing the number 75 um (#200) sieve.
  - 2) A plasticity index (PI) of less than 12.

- 3) A liquid limit (LL) in excess of 50.
- d) Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present.
- e) The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications". Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

### CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

Stability. The requirement for embankment stability in Article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches (38 mm) per blow.

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

## **EMBANKMENT II**

Effective: March 1, 2011

Revised: November 1, 2013

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

Material. Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present. The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications". Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

### CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

Stability. The requirement for embankment stability in article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches (38 mm) per blow.

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

**TRENCH AND BACKFILL WITH SCREENINGS**

1. **DESCRIPTION.** This work will consist of excavating a trench for the installation of conduit and backfilling with limestone screenings as a portion of the total backfill of the trench, all as shown in Bureau of Electricity Standard Drawings No. 579 and No. 813. This work must meet all applicable requirements of Article 815 of the Standard Specifications.
2. **MATERIAL.** Underground Cable Marking Tape must meet the requirements of Section 1066.05 of the Standard Specifications. Backfill must meet the requirements of Section 1003.04 of the Standard Specifications.
3. **CONSTRUCTION REQUIREMENTS.** The trench must be deep enough to provide thirty inches (30") of cover over the conduit to be installed. The trench must not exceed twelve inches (12") in width unless approved by the Resident Engineer. The bottom of the trench must be tamped, and the trench inspected by the Resident Engineer before conduit is installed. All trenches must be backfilled as soon as possible after the installation of the conduit or cable. Any material excavated from the trenches, that in the opinion of the Resident Engineer is satisfactory backfill, may be used for backfill above the layer of screenings. The limestone screenings must be used to fill the bottom of the trench to a depth of one foot above the top of the conduit or duct encasement. Cinders, rocks, or other inappropriate materials will not be permitted to be used as backfilling material. Backfilling material, beginning with limestone screenings must be deposited in the trench in layers not to exceed six inches (6") in depth, and must be thoroughly compacted with a mechanical tamper before the next layer is deposited in the trench. All trenches for conduit must be backfilled as per this specification. Unsuitable material must be disposed of according to the requirements of Section 202.03 of the Standard Specifications. Underground cable marking tape must be installed twelve inches (12") below the finished grade for all conduit runs.
4. **METHOD OF MEASUREMENT.** This work will be measured in feet along the centerline of the trench. Trench and backfill will not be measured for payment for conduit which is installed by pushing or by directional boring. Where more than one (1) conduit is installed in a single trench, only one run will be measured for payment.
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price per lineal foot, measured with conduit in place, for TRENCH AND BACKFILL WITH SCREENINGS. Such price will include the cost of all excavation, furnishing and placing all backfill material, and disposal of all surplus excavated material. If sidewalk, driveway pavement or pavement must be removed and replaced, such work will be paid for separately.

**HANDHOLE (SPECIAL)**

1. **DESCRIPTION.** This item is for supplying and installing an electrical handhole 30" in diameter with a 24" frame and lid.
  
4. **MATERIAL.** The frame and lid must meet the requirements of Material Specification 1458. The handhole must meet the requirements of Material Specification 1528. A 24" frame and lid must also meet the requirements of Standard Drawing 872. A 30" frame and lid must also meet the requirements of Standard Drawings 874 and 10927. Bricks must meet the requirements of Article 1041 of the Standard Specifications. All other materials used must meet the appropriate material requirements of the Standard Specifications.
  
3. **METHOD OF CONSTRUCTION.** The handhole will be a precast concrete structure, complete with cast iron frame and cover, and conforming in detail with either Drawing Number 867, Drawing Number 866, or Drawing 871, except that the number of conduit openings must be as shown on the construction plans.

Each handhole must be installed at the location specified on the plans and at a location identified by the Resident Engineer. The area where the handhole is to be placed must be properly excavated to the approval of the resident engineer prior to the installation of each handhole. All disposable material must be properly disposed of per Section 202.03 of the Standard Specifications. Each handhole must be set or constructed on a foundation of loose stone not less than eight inches (8") deep. The 36" handhole for pavement installation must have a floor as shown in Drawing Number 871. The frame casting must be accurately set on a full bed of mortar to the finished elevation so that no subsequent adjustment will be necessary. It is desirable not to use a neck for the frame. However, if approved by the Resident Engineer, mortar and brick, or mortar and concrete rings, may be used to adjust to the proper grade. Adjustment rings, bricks, and frames must be set in a full mortar bed. Use of partial bricks will not be allowed. Bricks must be laid in full header courses only. Mortar must be mixed in a proportion of one (1) part of cement to three (3) parts sand by volume of dry materials. After entering laterals have been installed in place in the handhole, the openings in the wall must be plugged in an approved manner flush with the inner surface. If backfill is required, screenings must be used and properly compacted. Parkway must be restored to the proper grade. Pavement must be properly restored to the correct grade. Patching of the pavement must be done with high early strength concrete meeting the requirements of Articles 1001 and 1020 of the Standard Specifications. Sidewalks must be restored to the proper grade using a 5 inch thickness of concrete. The inside of the handhole must be clean of all debris.

4. **METHOD OF MEASUREMENT.** This item will be paid for at the contract unit price per each unit installed.
  
5. **BASIS OF PAYMENT.** The necessary excavation, backfilling and restoration of parkway and pavement must be made in accordance with the foregoing specifications, and the cost thereof shall be included in the unit price each for installing HANDHOLE (SPECIAL). No additional payment will be allowed for restoring

parkway, sidewalk, or pavement. Removal of sidewalk or pavement will be paid for separately under a different pay item.

MATERIAL SPECIFICATION	DRAWING		
1458	866	874	871
1528	867	872	10927

January 1, 2002

### MANHOLE, SPECIAL

1. **DESCRIPTION.** This item will consist of furnishing and installing an electrical manhole of the dimensions indicated with a 24" frame and lid.
2. **MATERIAL.** The concrete manhole must meet the applicable requirements of Material Specification 1528. The frame and lid must meet the requirements of Material Specification 1458. A 24" frame and lid must meet the requirements of Standard Drawing 872. A 30" frame and lid must meet the requirements of Standard Drawings 874 and 10927. Bricks must meet the requirements of Article 1041 of the Standard Specifications. All other materials used must meet the appropriate material requirements of the Standard Specifications.
3. **METHOD OF CONSTRUCTION.** The manhole will be a precast concrete structure, or, if conditions merit, a cast in place concrete structure, complete with cast iron frame and lid. A 3'X4'X4' manhole with a 24" frame and lid must conform to the requirements of Drawing 730. The number and size of conduit openings will be as shown on the construction plans.

Each manhole will be installed in paved sidewalk, earth parkway, or in pavement at the location specified on the construction plans or at a location as directed by the Resident Engineer.

The area where the manhole is to be placed must be properly excavated. All disposable material will be properly disposed of per Section 202.03 of the Standard Specifications. Each manhole must be set or constructed to conform with the appropriate City of Chicago drawings, except that the number and size of conduit openings will be in accordance with the construction plans. The frame casting must be accurately set on a full bed of mortar to the finished elevation so that no subsequent adjustment will be necessary. Mortar and brick, or mortar and concrete rings, may be used to adjust to the proper grade. Adjustment rings, bricks, and frames must be set in a full mortar bed. Use of partial bricks will not be allowed. Bricks must be laid in full header courses only. In no instance will the neck of the manhole exceed two (2) feet in height. Mortar will be mixed in a proportion of one (1) part cement to three (3) parts sand by volume of dry materials. After entering laterals have been installed in place in the manhole, the openings in the wall must be plugged in an approved manner flush with the inner surface. If backfill is required, screenings must be used and properly compacted. Parkway must



be restored to the proper grade. Pavement must be restored to the correct grade. Patching of the pavement must be done with high early strength concrete meeting the requirements of Articles 1001 and 1020 of the Standard Specifications. Sidewalks must be restored to the proper grade using a 5 inch thickness of concrete. The inside of the manhole must be clean of all debris.

Replacing Manhole with Manhole. When a present manhole is to be replaced with a new manhole, the manhole must be broken down and all debris removed. This will be paid for as a separate pay item. The present laterals and cables must be maintained during breakdown of a present handhole and construction of a new manhole. Present laterals must be cut back to terminate at a distance from the inner face of the new manhole wall, as directed by the Resident Engineer. The cost of cutting back the present laterals will be included in the cost of the new manhole. New laterals terminating in the manhole must be included in the cost of installing new lateral. The new manhole must be installed in accordance with the appropriate City of Chicago drawings. All other work associated with this replacement will be considered incidental to this pay item.

4. **METHOD OF MEASUREMENT.** This item will be measured per each unit installed.
5. **BASIS OF PAYMENT.** The unit price for installing manholes will include necessary excavation, backfilling and restoration of parkway and pavement in accordance with the foregoing specifications. No additional payment will be allowed for restoring parkway or the restoration of sidewalk or pavement. Removal of sidewalk or pavement will be covered by separate pay items. New conduit, if necessary, will also be paid for separately. The unit cost will be for complete installation for each unit for MANHOLE, SPECIAL.

MATERIAL SPECIFICATION	DRAWING
1458	730
1528	872

**UNDERGROUND CONDUIT, PVC, 3" DIA.**

1. **DESCRIPTION** - This work will consist of furnishing and installing a conduit lateral of the type and size specified.
2. **MATERIALS** - Galvanized rigid steel conduit must conform to the requirements of Material Specification 1462.

Polyvinylchloride (PVC) conduit must conform to the requirements of National Electrical Manufacturers Association Standard, Publication Number TC2 for EPC-40, or EPC-80. Conduit color will be determined by the Resident Engineer.

Coilable non-metallic conduit must be a high density polyethylene meeting the requirements of ASTM-D1248, Type III, Grade PE34, Category 5, Class C.. The duct must meet the requirements of Section 1088.01(c) of the Standard Specifications. The

average outside diameter of the 1.25 inch duct must be 1.66 inches, with a minimum wall thickness of .15 inches for the Schedule 40 conduit, and a wall thickness of .20 for the Schedule 80 conduit. Conduit color will be as determined by the Resident Engineer.

3. **CONSTRUCTION.**

**DEFINITION OF LATERALS** A lateral will mean a conduit raceway extending from one sub-surface location to another sub-surface location, and in every case intended to encase electric circuit cable under paved surfaces, or in unpaved parkway, street or alley, where specifically designated.

**LOCATIONS** - Laterals must be installed at the locations shown on the construction plans. Laterals must be installed in the shortest practicable line between points of termination, or under adverse conditions, as directed by the Resident Engineer. Laterals not shown on the drawing, but necessary to be installed, will be paid for at the unit price bid for laterals as additional units of construction.

**INSTALLATION REQUIREMENTS** - Galvanized rigid steel conduit may be installed in a trench, pushed underground, or attached to a structure. PVC conduit will normally be installed in a trench or attached to a structure. Coilable conduit will be installed in a trench. The Contractor must exercise care in installing the conduit to ensure that it is smooth, free from sharp bends or kinks, and has the minimum practicable number of bends. Crushed or deformed conduit will not be accepted. All conduit and fittings must have the burrs and rough places smoothed, and all conduit runs must be cleaned and swabbed before installation of electric cables. If cable is not to be installed immediately after cleaning of the conduit, a light weight pulling line such as 1/8" polyethylene line must be placed in the conduit and will remain in the conduit for future work. The excavation for pushing conduit must be located at least two feet (2') from the edge of pavement. All underground conduit must have a minimum cover of thirty inches (30") below grade. If conduit cannot be installed with a minimum cover of thirty inches (30"), the conduit must be encased in concrete for protection. The method of encasement and protection must be approved by the engineer. Concrete encasement will be paid for as a separate pay item.

When multiple laterals in a common trench are required, no more than three (3) three inch (3") or smaller conduit laterals can be laid on a single, horizontal level. Four or more conduit laterals must be installed on two (2) levels in accordance with instructions of the Resident Engineer.

Conduit laterals attached to a structure must be flush to the structure where possible. Clamps or hangers must be used at a maximum interval of five feet (5') to hold the conduit rigidly in place. Expansion couplings must be used at locations where the conduit crosses expansion joints in the structure.

Conduit laterals installed under vaulted walks must be securely attached to the retaining wall by means of galvanized clamps and clamp backs held in place by anchor bolts. Laterals will be fastened as close to the underside of the sidewalk as possible, and

securing clamps installed every five feet (5'). Laterals must be continuous through party walls.

Threaded fittings and bends of the same material as conduit must be furnished and installed as required. Threadless couplings may be used only for splicing existing conduit. All conduit splices, where required, will be considered incidental to this pay item.

4. **METHOD OF MEASUREMENT** The length measured will be the number of lineal feet of conduit installed and accepted, measured in place. Each conduit will be measured separately even if in a single trench. The length for measurement will be the distance horizontally between changes in the direction of the conduit plus the conduit vertically attached to structures.
5. **BASIS OF PAYMENT** - This work will be paid for at the contract unit price per lineal foot for UNDERGROUND CONDUIT, PVC, 3" DIA. of the type and size as specified, which price will be payment in full for furnishing and installing the conduit and fittings complete. Cleaning, swabbing, and p-lining of new conduit will be incidental to this pay item. Trench and backfill will be paid for separately. Concrete encasement, if required, will be paid for separately. No additional payment will be allowed for pushing under pavements or for jackholes for conduit laterals.

MATERIAL SPECIFICATIONS  
1462

DRAWINGS  
579 813

### **STREET LIGHT STANDARDS TO BE RELOCATED**

**Description** Work under this item shall be performed in accordance with Section 844 of IDOT's Standard Specifications for Road and Bridge Construction, Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. The Contractor shall coordinate with the City of Chicago Department of Transportation to schedule the relocation of the light standards and shall comply with the requirements of the City of Chicago.

**Basis of Payment.** This work will be paid for at the contract unit price each for STREET LIGHT STANDARDS TO BE RELOCATED, which price shall be payment in full for all labor and materials necessary to complete the work as described above.

### **REMOVE EXISTING CONCRETE FOUNDATION**

**Description** Work under this item shall be performed in accordance with Section 895 of IDOT's Standard Specifications for Road and Bridge Construction, Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. The work shall consist of removing a concrete foundation for a street light pole or a traffic signal pole completely if possible, or to a level three feet below the grade, disposing of the debris off-sight in an approved manner, backfilling the excavation with screenings or other approved backfill material, and

reconstructing the surface area. If the foundation is in a parkway, the parkway shall be properly restored with dirt to the existing level. If the foundation is in sidewalk, the sidewalk shall be restored under a different pay item and shall not be considered as part of this work.

Basis of Payment. This work will be paid for at the contract unit price each for REMOVE EXISTING CONCRETE FOUNDATION, which price shall be payment in full for all labor and materials necessary to complete the work as described above.

### CONCRETE FOUNDATIONS (SPECIAL)

DESCRIPTION. This item consists of installing foundations for traffic signal components of the following.

#### **CONCRETE FOUNDATION FOR BASE MOUNTED "SUPER P" CABINET**

1. DESCRIPTION. This item will be for all work necessary for installing a foundation for a AP@ cabinet, or a foundation for a "Super P" cabinet.
2. MATERIAL. Concrete will be Portland cement concrete, SI Class, meeting the requirements of Article 1020 of the Standard Specifications. Ground rods will meet the requirements of Material Specification 1465. Conduit will be PVC meeting the requirements of Material Specification 1533. Anchor rods will meet the applicable requirements of Material Specification 1467.
3. CONSTRUCTION. The Contractor will install a concrete foundation for a base mounted traffic signal controller cabinet, as shown on City of Chicago Drawing Number 888 for a "P" cabinet, or as shown on Drawing 888A for a "Super P" cabinet. Work under this item will be performed in accordance with Article 800 of the Standard Specifications.

The foundation will have a minimum depth of at least forty inches (40") below grade and must have large radius conduit elbows in quantity, size and type shown. The elbow ends above ground will be capped with standard conduit bushings. The ground rod will be installed adjacent to the foundation, and will be driven straight down with the top to be no higher than 30 inches below finished grade. The Contractor will furnish anchor bolts, hardware, conduit elbows, and all other material shown on the foundation construction drawing.

All excavation and restoration of parkway will be considered as part of this item. If the foundation is in sidewalk, an expansion joint will be required between the sidewalk and the foundation.

MATERIAL SPECIFICATION	DRAWING
1465	888
1467	888A
1533	

August 8, 2006

**CONCRETE FOUNDATION, 20" DIAMETER, 3/4" ANCHOR RODS**

1. **DESCRIPTION.** This foundation will be for structural support of a traffic signal post, or other pedestal mounted equipment. The foundation must be poured in place and must be 20" in diameter, with a 13" bolt circle, 3/4" diameter anchor rods, and must be 5 feet in depth.
2. **MATERIAL.** Concrete must be Portland cement concrete meeting the requirements of Article 1020 of the Standard Specifications for SI Class concrete. Anchor rods must meet the requirements of Material Specification 1467 and the ground rod must meet the requirements of Material Specification 1465. Conduit must be PVC meeting the requirements of Material Specification 1533.
3. **CONSTRUCTION.** Foundations must conform to Drawing Number 709. Top surface of these foundations will be at an elevation of two inches (2") above grade or as required by the Resident Engineer. Care must be taken to install a level foundation and to ensure adequate anchor rod projections for double-nut installation. The foundation top must be chamfered 3/4 of an inch. The foundation must be centered back from the face of the curb in accordance with dimensions shown on the construction plans. When the foundation is in a solid sidewalk area, the foundation must be installed level, with the height of the foundation as close to the height of the sidewalk as possible, or as directed by the Engineer. A proper expansion joint must be installed between the sidewalk and the foundation.

Foundation raceways must consist of large radius conduit elbow(s) in quantity, size and type specified on Drawing 709 or as indicated on the construction plans. Elbows, in excess of those shown on Drawing 709, will be paid for separately under an additional pay item. The elbow ends above ground must be capped with standard conduit bushings. The Contractor must furnish anchor rods, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation will be as noted on Drawing 709.

The anchor rods will be set by means of a metal template which must be submitted for approval before any foundation work is begun. The template must hold the rods vertical, and in proper position.

All excavation and restoration of parkway will be considered as part of this item. If the foundation is in sidewalk, an expansion joint will be required between the sidewalk and the foundation.

MATERIAL SPECIFICATION  
1465 1467 1533

DRAWING  
709 844 11825

August 8, 2006

### CONCRETE FOUNDATION, 24" X 9' WITH 1 ¼" A.R.

1. **DESCRIPTION.** The foundation will be a poured in place concrete structure used for structurally supporting street light poles or traffic signal poles.
2. **MATERIAL.** Concrete must be Portland cement concrete meeting the requirements of Article 1020 of the Standard Specifications for SI Class concrete. Reinforcement bars must meet the requirements of Section 1006.10 of the Standard Specifications. Anchor rods must meet the requirements of Material Specification 1467 and the ground rod must meet the requirements of Material Specification 1465. Conduit elbows must be PVC conduit meeting the requirements of Material Specification 1533.
3. **CONSTRUCTION.** Every foundation will be installed at the location designated and in the manner herein specified or in special cases as specifically directed. The contractor will locate foundations as per plan or as directed by the Resident Engineer. A hole must be augered for placement of the concrete form.

Item 151 is a foundation for a traffic pole which can accommodate a 16, 20, or 26 foot monotube arm (Standard Drawing 818). Item 152 is a foundation for a traffic pole which can accommodate a 30 foot monotube arm (Standard Drawing 816). Item 153 is a foundation for a traffic pole which can accommodate a 35, 40, or 44 foot monotube arm (Standard Drawing 817). Item 151A is a foundation for arterial street light pole; either steel or aluminum, conventional or davit (Standard Drawing 818). Item 151B is a foundation for the Chicago 2000 Gateway and Pedestrian ornamental light poles (Standard Drawing 953). Item 152A is a foundation for both the Extended Loop pole and the Loop pole (Standard Drawing 956). Item 180 is an offset foundation for an arterial street light pole (Standard Drawing 937). Item 181 is an offset foundation for a residential street light pole (Standard Drawing 937, with exception that pole base is 20" diameter with 1" anchors in a 10" bolt circle). Top surface of these foundations in parkway will be at an elevation of two inches (2") above grade or as required by the Engineer. Care must be taken to install a level foundation and to ensure adequate anchor rod projections for double-nut installation. The foundations must be centered back from the face of the curb in accordance with dimensions shown on the construction plans. Foundation raceways must consist of large radius conduit elbow(s) in quantity, size and type as specified on the corresponding standard drawing or in the construction plans. Any number of elbows in excess of the number shown on the standard drawing must be paid for under a separate pay item. The elbow ends above ground will be capped with standard conduit bushings. The Contractor must furnish anchor rods, a ground rod, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation will be as shown on the appropriate drawing. The foundation top must be chamfered 3/4 of an inch. When the foundation is installed in a sidewalk, the foundation must be installed level, with the height of the foundation as close to the height of the sidewalk as possible, or as directed by the Engineer. A proper expansion joint will be installed between the sidewalk and the foundation.

Anchor rods must be set in accordance with applicable construction plans so that when poles are mounted on the foundations, the street lighting mast arm will be properly oriented as indicated on the construction plans. The anchor rods will be set by means of a metal template which shall be submitted for approval before any foundation work is begun. The template must hold the rods vertical, and in proper position. Anchor rods must conform in all respects to the appropriate City drawing.

**METHOD OF MEASUREMENT.** These items will be measured per each foundation installed complete.

**BASIS OF PAYMENT.** Payment will be made for foundations installed in place, including elbows, in accordance with construction drawings, constructions plans and these specifications. All necessary excavation and restoration of pavement, sidewalk and fill to their original conditions will be included in the unit price. This work will be paid for at the contract unit price per each, as specified in the contract, for CONCRETE FOUNDATIONS (SPECIAL) of the diameter and size specified.

MATERIAL SPECIFICATION	DRAWING
1465	953 818 956
1467	806 837 830
1533	811 937 11825
	816 817 844

**POLE STEEL, ANCHOR BASE, 10" DIA., 3 GAUGE, 34'-6"**

1. **DESCRIPTION.** This item will consist of furnishing, installing, and setting plumb a steel anchor base pole to which equipment may be attached for the extension of the City street light and traffic signal systems.
2. **MATERIAL.** The material of the pole must meet the requirements of Material Specification 1447.
3. **INSTALLATION.** The pole must be installed on the concrete foundation designed for the particular pole usage as indicated on the plans or as directed by the Engineer. Double nut construction must be used as shown on Drawing 837. Double nut construction provides the proper ventilation, as well as providing a way to plumb the pole. Any exposed portions of anchor rods extending above the nuts which interfere with the installation of the bolt covers must be cut off to provide the necessary clearance. The excess must not be burned off. The pole must be set secure, properly orientated, and plumb using the nuts and washers provided with the anchor bolts. The bolt covers, handhole cover, and pole cap must be securely attached.

The contractor will utilize non-abrasive slinging materials and will otherwise exercise due care in erecting the pole and mast arm to minimize any possible damage to the finish. When necessary, the contractor will utilize, at his own expense, factory approved

touch-up materials and methods to restore the finish to like new appearance and durability.

4. **METHOD OF MEASUREMENT.** This item will be measured per each unit installed, complete with anchor bolt covers, pole cap, and handhole cover.
5. **BASIS OF PAYMENT.** This work will be paid for at the Contract unit price each for a POLE STEEL, ANCHOR BASE, 10" DIA., 3 GAUGE, 34'-6" which will be payment in full for furnishing and installing the pole complete in place. Light standard foundations, mast arms, and luminaires will not be included in this pay item but will be paid for separately.

MATERIAL SPECIFICATION  
1447

DRAWING  
837 827  
808 824

APRIL 12, 2001

**SERVICE INSTALLATION (SPECIAL)**

1. **DESCRIPTION.** This work will consist of furnishing and installing a service on a Commonwealth Edison Company wood pole for either a 120 volt traffic signal service installation, or for a 240 volt street lighting service installation per City of Chicago Drawing Number 11925.

The 100 ampere installation can be used for either a 120 volt or 240 volt service. The 200 ampere installation can be used only for the 240 volt service.

2. **SERVICE JUNCTION CABINET.** The cabinet must be cast from corrosion resistant metal, subject to approval. Its dimensions must not exceed eight (8) inches in width, eighteen (18) inches in height and nine (9) inches in depth, and it must be weather proof. It must contain a two (2) pole disconnecting device, such as Milbank Manufacturing Company 200 ampere size test block, Number 420, with bridge contacts and barrier strip, subject to approval. A suitable ground lug, subject to approval, to accommodate a 1/C #2, #1/0, or #2/0 AWG stranded copper conductor must be provided. The completed cabinet must be as shown on City of Chicago Drawings Numbered 11922 and 11925.

Cable Grip. A one and one quarter inch (1 1/4") cable grip fitting must be installed at top of cabinet to accommodate a 3/C #2, or #1/0 AWG service cable. Fitting must be Pyle National Company Number DB-131, or an approved equal.

Service Riser. A two (2) inch galvanized rigid steel conduit riser terminated at the bottom with a galvanized rigid steel, large radius, conduit elbow must be installed by the contractor on the Commonwealth Edison Company service pole as shown on City of Chicago Drawing Number 11925. The top of the riser must terminate in the service junction cabinet and the end of the elbow must connect to the horizontal conduit lateral leading to the control cabinet. Payment for the riser, elbow and attachments must be



included in the price bid for the complete Commonwealth Edison Company pole service junction unit

Cable. A sufficient length of three (3) conductor service entrance cable must be coiled at the top of the box in order to reach the Commonwealth Edison Company secondary wires for connection. The three (3) conductor service entrance cable must meet the requirements of Bureau of Electricity Specification Number 1457, or an approved equal, and must be #2 or 1/0 AWG. The black and red conductors must be connected to the disconnect device and the white conductor to the ground lug, for the 240 volt street lighting service installation.

The black conductor must be connected to the disconnect, and the white to the ground lug, for the 120 volt traffic signal service installation. The red conductor must be taped and coiled inside box for future use.

Cables in Service Riser. Cables must extend continuously from the load side of the disconnect device, down the riser and elbow, and in the conduit lateral to the pedestal mounted control cabinet. Payment for cables in riser and elbow must be included in the bid price for the Commonwealth Edison Company pole service installation, 120 volt (100A), or Commonwealth Edison Company pole service installation, 240 volt (100A or 200A).

3. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price EACH for SERVICE INSTALLATION (SPECIAL), which price must be payment in full for furnishing and installing the service equipment complete. Any charges by the utility company to provide electrical service to the service installation will be paid for by the contractor.

MATERIAL SPECIFICATION  
1457  
1462

DRAWING  
11922  
11925

### **SERVICE CONNECTION TO CECO LINE**

1. **DESCRIPTION.** This work will consist of providing a service connection from City cable to a Commonwealth Edison secondary cable. For an aerial service, this will be on a wood pole. For an underground service, this will be in a CECO manhole.
2. **INSTALLATION.** This work will consist of splicing or terminating City service cable to a Commonwealth Edison secondary cable, as directed by the Engineer. The contractor must obtain permission from Edison for the service at the required location. The contractor will inform Edison of the load required. Edison will make the connections, unless Edison gives the contractor permission to make the connections. Any costs associated with the connection will be borne by the contractor.
3. **METHOD OF MEASUREMENT.** The service connection will be counted as one unit, and will include all labor and material needed to make a successful service

connection.

4. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price for each SERVICE CONNECTION TO CECO LINE, which payment will be in full for providing all material and labor to make the necessary connections.

DRAWING  
11925

May 21, 2001

**SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED**

1. **DESCRIPTION.** This item will consist of furnishing and installing a traffic signal head or combination of heads on a street light pole, a traffic signal pole, or a traffic signal post as shown on the plans, as specified herein, or as directed by the Engineer. Specific installations and configurations are shown on Drawing Numbers 834 and 835, entitled "Standard Traffic Signal Mounting Details".

The type of installation will be as indicated on the plans. The number of signal faces, the number of signal sections in each signal face, any dual-indication sections, and the method of mounting will be as indicated in the plans and in the standard drawings.

**Each signal face must be pointed in the direction of the approaching traffic that it is to control and must be aimed to have maximum effectiveness for an approaching driver located at a distance from the stop line equal to the normal distance traversed while stopping.**

During construction and until the installation is placed in operation, all signal faces must be hooded. The hooding material must be securely fastened so it will not be disturbed by normal inclement weather or wind.

2. **MATERIAL.** The traffic signal must meet the requirements of Material Specification 1493 for LED signals. The mounting brackets must meet the requirements of Material Specification 1495.
3. **INSTALLATION.** The signals must be mounted using pole mounting brackets banded to the pole with two strips of 3/4" stainless steel banding single wrapped, one at the top and one at the bottom of the brackets, each secured with a stainless steel banding clip. The banding and clips will be coated with a baked-on black finish. The mounting configuration connecting the signals to the mounting bracket must consist polycarbonate brackets specifically made for mounting signal heads to the side of poles, to create the designated structure. When the signals are to be mounted on a square pole or flat surface, the bracket used will be bolted to the flat pole or surface using 3/8" drive studs where permissible or using a 3/8" studs in a tapped hole.

The bottom mounting bracket must be accurately located to cover an opening 1" in diameter, for cable entrance, drilled into the pole or standard at a calculated height to position the bottom signal face at a standard height of 10 feet, or a height indicated on the plans. The opening must be reamed or filed to remove all sharp edges or burrs which might damage cable during installation, or through vibration when the signals are in operation.

Cable. The Contractor must provide and install a length of 8/C #16 AWG, as per Specification 1475, flexible electrical cord, medium duty, of sufficient length to extend without strain or stress from the terminal strip in the "Green" section of the signal head to the terminal strip in the junction box mounted on the pole. The number of conductors in the cord, and the color coding of the conductors, must be sufficient to match the requirements of the signal head being installed, and must be connected in accordance with Specification 1493. Both ends of the cable length must be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned. The service cable from the signal heads must enter the pole through the bottom mounting bracket and enter the long sweep elbow to terminate by attachment to the terminal strip in the junction box in accordance with connector schematic, Bureau of Electricity Drawing Number 12268-A

4. **METHOD OF MEASUREMENT.** This work will be measured per each unit installed, complete.
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price for each SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED, which price will be payment in full for furnishing and installing the signal head complete, including all necessary wiring.

MATERIAL SPECIFICATION	DRAWING	
1475	834	12268a
1493	835	740
1495		741

April 16, 2001

**SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED**

1. **DESCRIPTION.** This item will consist of furnishing and installing a traffic signal head on a traffic signal monotube mast arm, as shown on the plans, as specified herein, or as directed by the Engineer. Specific installations and configurations are shown on Drawing 834 entitled "Standard Traffic Signal Mounting Details".

Each signal face must be pointed in the direction of the approaching traffic that it is to control and must be aimed to have maximum effectiveness for an approaching driver at a distance from the stop equal line to the normal distance traversed while stopping. The

optically programmed signal face must be programmed in accordance with the visibility requirements of the Traffic Engineer.

During construction, and until the installation is placed in operation, all signal faces must be hooded. The hooding material must be securely fastened so it will not be disturbed by normal inclement weather or wind.

2. **MATERIAL.** The traffic signal head construction must meet the requirements of Material Specification 1493 for LED traffic signals. The material for a programmed LED traffic signal head must meet the Material Specification 1543. The mast arm bracket must meet the requirements of Material Specification 1463. The cable must meet the requirements of Material Specification 1475.
3. **INSTALLATION.** The signal must be mounted on the mast arm at the position indicated on the drawing in the manner shown on Drawing 834. The bracket must be banded to the mast arm with the 5/8" banding as shown on Drawing Number 834. The banding and clips must have a baked-on black finish. The bracket must be located over a hole drilled into the mast arm for the installation of cable. The hole must be reamed or filed to remove any sharp edges or burrs which might damage cable during installation, or through vibration when the signals are in operation.

**Cable.** The contractor must provide and install a length of 8/C #16 flexible electrical cord, of sufficient length to extend without strain or stress from the terminal strip in the "Green" section of the signal head to the terminal strip in the junction box mounted on the pole. The number of conductors in the cord, and the color coding of the conductors, must be sufficient to match the requirements of the signal head being installed, and must be connected in accordance with Material Specification 1493 for LED traffic signals, or Material Specification 1543 for optically programmed LED traffic signals. Both ends of the cable length must be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned. The service cable from the signal heads must enter the traffic signal mast arm through the hole from the mounting bracket, whence it will continue and enter the pole through the hole for mast arm wiring, then extend downward through the pole to enter the long sweep elbow to terminate by attachment to the terminal strip in the junction box in accordance with the terminal strip connector schematic, Bureau of Electricity Drawing Number 12268-A.

The mast arm brackets must be painted gloss black or another color as indicated in the plans.

4. **METHOD OF MEASUREMENT.** This work will be measured per each signal unit installed, completely wired and operational.
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price each for SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED of the type specified which price will be payment in full for furnishing and installing the signal head, or the optically programmed signal head, complete.

MATERIAL SPECIFICATION

1463 1543  
1475  
1493

DRAWING

834  
12268A

August 16, 2006

**PEDESTRIAN SIGNAL HEAD, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN  
TIMER**

1. **DESCRIPTION.** This item will consist of furnishing and installing a pedestrian signal on a street light pole, a traffic signal pole or a traffic signal post as shown on the plans, as specified herein, or as directed by the Engineer. The signal may be installed as a single unit on a pole or in combination with other pedestrian signals or with traffic signals of various types and sizes. Specific installations and configurations are shown on Drawing Numbers 834 and 835 entitled "Standard Traffic Signal Mounting Details".

The method of mounting will be indicated on the plans, or as directed by the engineer. Each signal face must be pointed in the direction of the marked cross-walk area for the pedestrians it is intended to control.

2. **MATERIAL.** The pedestrian signal head material must be consistent with the requirements of Bureau of Electricity Material Specification 1494. The countdown pedestrian signal must meet the requirements of Material Specification 1545. All housing units must be made of polycarbonate. The light source must be LED. Mounting hardware must meet the requirements of Material Specification 1495. Cable must meet the requirements of Material Specification 1475.

3. **INSTALLATION.** The signal must be mounted using pole mounting brackets banded to the pole with two strips of 3/4" stainless steel banding, single wrapped, one at the top and one at the bottom of the bracket, each secured with a stainless steel banding clip. The banding and clips must have a baked-on black finish. The mounting configuration connecting the signals to the mounting bracket must consist of polycarbonate brackets specifically made for mounting signal heads to the side of poles, to create the designated structure.

The bottom mounting bracket must be accurately located to cover a hole 1" in diameter for the cable entrance drilled into the pole at a height calculated to position the bottom signal face at a standard height of 10 feet, or a height indicated on the plans. The hole must be reamed or filed to remove all sharp edges or burrs which might damage cable during installation, or through vibration when the signals are in operation.

When the pedestrian signal is attached below a traffic signal head, the separate opening for cable may be omitted to eliminate additional weakening of the pole and the pedestrian signal cord will be installed using the same opening as the traffic signal cord.

Cable. The Contractor must provide and install a length of 8/C #16 AWG flexible electric cord, of sufficient length to extend without strain or stress from the terminal strip in the signal head to the terminal strip in the junction box mounted on the pole. The number of conductors in the cord, and the color coding of the conductors, must be sufficient to match the requirements of the signal head being installed, and must be so connected in accordance with Material Specification 1494. Both ends of the cable must be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned. The service cord from the signal head must enter the pole through the bottom mounting bracket and enter the long sweep elbow to terminate by attachment to the terminal strip in accordance with the terminal strip connector schematic, Bureau of Electricity Drawing Number 12268-A.

During construction and until the installation is placed in operation, all signal faces must be hooded. The hooding material must be securely fastened so it will not be disturbed by inclement weather or wind

4. **METHOD OF MEASUREMENT.** This work will be measured per each signal unit installed, completely wired and operational.
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, 1 FACE, LED, BRACKET MOUNTED WITH COUNTDOWN TIMER, which price will be payment in full for furnishing and installing the signal head complete.

MATERIAL SPECIFICATION		DRAWING	
1494	1545		12268-A
1495		740	834
1475		741	835

**JUNCTION BOX, POLE OR POST MOUNTED**

1. **DESCRIPTION.** This item will consist of furnishing and installing a Junction Box on each traffic signal post, traffic signal pole, or street light pole on which a signal head is mounted, as shown on the plans, specified herein, or directed by the Engineer.
2. **MATERIAL.** The Junction Box must conform to the requirements of Material Specification Number 1407 and to Drawing Number 954. The box will contain a 20 conductor terminal strip, securely fastened to an aluminum channel. Two Number 10 stainless steel machine screws will be used to mount the channel to the junction box.
3. **INSTALLATION.** The junction box must be mounted to the side of the pole away from the roadway, or as directed by the Engineer. The center of the box must be located approximately fifty-eight inches (58") above the adjacent sidewalk. Two long sweep elbows must be attached to the box, one to the top and one to the bottom, unless otherwise directed by the Engineer. Each will be attached with four (4) #10-24x3/4" stainless steel screws. The lower long sweep elbow will be properly positioned over a

hole 1 1/2 inches in diameter drilled in the pole approximately 48" above the sidewalk, for the installation of cable. Another 1 1/2 inch hole must be drilled for the upper elbow. The holes must be reamed or filed to remove all sharp edges or burrs which might damage cable during installation, or through vibration when the signals are in operation. A stainless steel, banding bracket, Drawing Number 11984, must be attached to the center of the back of the box with a 5/16"-18 x 1" stainless steel machine screw. The entire unit must be banded to the pole with five (5) 3/4" stainless steel bands, one through the banding bracket and one each at the top and bottom of each elbow. The banding and clips must have a baked-on black finish.

4. **METHOD OF MEASUREMENT.** This work will be measured per each junction box unit installed, complete with elbow(s).
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price each for a JUNCTION BOX, POLE OR POST MOUNTED, which price will be payment in full for furnishing and installing the junction box complete with its component parts and appurtenances. Connection of cables and wires to the terminal strip will not be part of the cost of the junction box but will be considered part of the installation of the underground cable and the installation of signal heads.

MATERIAL SPECIFICATION  
1407

DRAWING  
954 834  
11984

April 3, 2009

#### **ITEM NO. 317 – PEDESTRIAN PUSH BUTTON**

1. **DESCRIPTION.** This item will consist of furnishing and installing a push button switch and housing on a traffic signal pedestal or pole, as shown on the plans, as specified herein, or as directed by the Engineer. Specific installation data is shown on Drawing Number 834 entitled "Standard Traffic Signal Mounting Details" and on Drawing Number 963 entitled "Pedestrian Push Button Post".
2. **MATERIAL.** The push button assembly must meet the requirements of Material Specification 1517.
3. **INSTALLATION.** The push button assembly must be banded on the pole or pedestal at the mounting height shown on Drawing Number 834 or Drawing Number 963 using 3/4" stainless steel banding, one band each at the top and the bottom of the unit. The unit must be mounted on the side of the pole nearest the cross walk which the signals control, the position being at approximately 90° from the face of curb. The push button must be located at a height of 42" above sidewalk grade. A hole 3/4" to 1" in diameter must be drilled in the pole at the proper height for the installation of cable. The hole must be reamed or filed to remove any sharp edges or burrs which might damage cable during installation or through vibration when the signals are in operation.

4. **METHOD OF MEASUREMENT.** This work will be measured per each unit installed. Wiring will be addressed by a separate item.
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price each for a PEDESTRIAN PUSH BUTTON which price will be payment in full for furnishing and installing the push button complete with its component parts and appurtenances.

MATERIAL SPECIFICATION  
1517

DRAWING  
834      963

March 5, 2008

**MAST ARM, STEEL, MONOTUBE, 26 FT.**

1. **DESCRIPTION.** This item will consist of furnishing and installing a steel, monotube, mast arm for the purpose of supporting traffic signals, and/or illuminated signs on an anchor base pole at the locations shown on the plans, or as specified or directed by the Commissioner. The length of the mast arm and the angular orientation of the arm relative to the centerline of the roadway will be as indicated on the plans.

A mast arm must be installed only on a 3 gauge pole, and the length of the mast arm will govern the minimum base diameter of the pole on which the arm is to be installed, in accordance with the following chart:

MAST ARM LENGTH (feet)	POLE BASE DIAMETER (inches)
16	10
20	10
26	10
30	11
35	12.5
40	12.5
44	12.5

2. **MATERIAL.** The mast arm must be 7 gauge steel meeting the requirements of Standard Drawing 870 and Material Specification 1454.
3. **INSTALLATION.** The mast arm must be mounted on the pole at the height specified on Drawing 834, or at a different height if specified on the plans, or as directed by the Engineer. A one inch (1") diameter opening for the installation of cable must be field drilled in the pole in line with the orientation of the mast arm. The hole must be reamed or filed to remove all sharp edges or burrs which might damage cable during installation, or through vibration when the signals are in operation. A neoprene grommet must be inserted into the finished hole prior to the installation of the cable.



Two holes must be field drilled in the pole at 180 degrees relative to the orientation of the pole for installation of locator shear pins, provided with the back plate, to prevent rotation of the mast arm. These holes must be drilled after the mast arm is in place in order that the position of the holes will match the location of the locator bushings attached to the back half of the clamp.

**All signals, signs, and electrical equipment must be attached in the correct relative position to the mast arm, with service cord in place, prepared to be installed on the pole, prior to the attachment of the mast arm to the pole. The installation of the cord in the pole must be coordinated with the attachment of the mast arm to the pole. The clamp bolts must be tightened securely so that there is no slippage of the mast arm either upward or downward to exert a vertical force on the shear pins. The end cap must be secured in place with the attachment screws provided.**

The mast arm must be delivered completely finished with a factory applied black powder coat per Material Specification 1454. The contractor must utilize non-abrasive slinging materials and must otherwise exercise due care in erecting the pole and mast arm to prevent any damage to the finish.

4. **METHOD OF MEASUREMENT.** This work will be measured per each monotube arm installed on a traffic pole.
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price for each MAST ARM, STEEL, MONOTUBE of the length indicated, and will be payment in full for furnishing and installing a steel mast arm in place, complete. Attachment of signals and signs will not be part of this pay item.

MATERIAL  
1454

DRAWING  
870  
834

August 18, 2006

**TRAFFIC SIGNAL POST, ALUMINUM 15 FT.**

1. **DESCRIPTION.** This item will consist of furnishing and installing an aluminum post, for supporting a traffic signal, upon a concrete foundation, at the location shown on the plans, as specified herein, or as directed by the Engineer. The post installation itself must be consistent in construction to the post shown on Drawing Number 526 for the installation of a post for a traffic signal.
2. **MATERIALS.** The material of the post must meet the requirements of Material Specification 1385 and of Standard Drawing Number 526.
3. **INSTALLATION.** The post and base must be mounted on the foundation so that the handhole faces away from the curb. The nuts on the foundation must be tightened to secure

the post to the foundation such that there is no space separating the post from the foundation. There must be no double nutting. The post must be plumb; the use of shims will not be permitted. The post cap must be secured by three 5/16-18 X3/4" hex head stainless steel set screws.

The height of the post will be as indicated on the plans. The post must not be painted.

4. **METHOD OF MEASUREMENT.** This work will be measured per each unit installed on a foundation, complete with bolt covers, handhole door, base casting, aluminum pipe, and post cap.
5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price each for a TRAFFIC SIGNAL POST, ALUMINUM 15 FT. which will be payment in full for furnishing and installing the post complete in place.

MATERIAL SPECIFICATION  
1385

DRAWING  
526

June 27, 2008

### **STREET LIGHTING CABLE, 1/C #6, CITY OF CHICAGO STANDARD**

1. **Description** This work shall consist of furnishing and installing electric cable as specified. The cable shall be rated at 600 volts, be EPR insulated, and shall have a HYPALON jacket. The cable will be installed in conduit underground.
2. **Material** The cable shall meet all requirements of Material Specification 1440 of the Bureau of Electricity, City of Chicago.
3. **Construction Method** All cables shall be installed with care to prevent damage to the cable. Any defects found in the cable shall be reported to the resident engineer. Damaged cable shall be replaced.

The cable shall be pulled into the conduit with a minimum of dragging on the ground or pavement. This shall be accomplished by means of reels mounted on jacks or other suitable devices located for unreeling cable directly into duct. Lubricants shall be used to facilitate installation if deemed necessary by the contractor.

Bends in the cable shall conform to the recommended minimum radius as outlined in the National Electric Code.

Cable passing through manholes shall be trained and racked around the sides of the manhole into a permanent position. If racks are non-existent or in poor condition, the contractor shall install racks. The material shall be approved by the resident engineer. Any material and labor involved in training and racking the cable shall be considered incidental to the cost of this pay item.

Where cable runs continue from manhole to manhole without tapping within a light pole, they shall be continuous without splices unless authorized by the resident engineer.

All wire or cable in the distribution panels and control cabinets shall be properly trained and have sufficient slack provided for any rearrangement of equipment or future additions. There shall be at least two feet of slack in a street light pole base or street light controller base. A handhole shall have at least five feet of slack and a manhole at least ten feet of slack.

4. Method of Measurement The length of cable furnished and installed will be measured as the length of conduit plus three feet for cable entering and leaving a light pole or street light control cabinet, plus any slack in manholes or handholes.
5. Basis of Payment This work shall be paid for at the contract unit price per lineal foot for STREET LIGHTING CABLE, 1/C NO. 6, CITY OF CHICAGO STANDARD of the size specified. Such price shall be payment in full for furnishing, installing, and testing the cable, and shall include all material, labor, and incidentals necessary to complete the work as per the contract plans.

MATERIAL  
1440

Item 249 Page 2  
September 9, 1998

### ELECTRIC CABLE IN CONDUIT

1. DESCRIPTION.

This work will consist of furnishing and installing electric cable for traffic signals of the type, size and number of conductors as specified on the plans. The cable will be rated 600 volts and comply with the following requirements.

2. TRAFFIC SIGNAL CABLE.

All cable must conform to the requirements of Material Specification number 1537, for Traffic Signal Cable.

3. INSTALLATION.

All cable must be installed in conduit, as indicated on the plans, with care to prevent damage to the insulation or cable. Suitable devices must be used in pulling the cable, and only approved lubricants should be used. All cables installed in conduit will be from the power source to the traffic signal controller cabinet, from the traffic controller cabinet to the traffic signal junction box, or from junction box to junction box. For

cable terminating in a traffic signal controller cabinet or traffic signal junction box the following procedures must be followed:

a. Controllers.

1. Remove thirty six inches (36") of neoprene jacket.
2. Wrap vinyl electrical tape on two inches (2") of the neoprene jacket and two inches (2") on the exposed conductors.
3. Remove one inch (1") of insulation and scrape copper conductor.
4. Train cables neatly along the base and back of cabinet.
5. Connect conductors to proper terminal lugs.

b. Traffic Signal Junction Box.

1. Remove twenty four inches (24") of neoprene jacket.
2. Wrap vinyl electrical tape on two inches (2") of neoprene jacket and two inches (2") on the exposed conductors.
3. Remove one inch (1") of insulation and scrape copper conductor.
4. Train cables neatly along the side and back of the box.
5. Connect all conductors to terminal strip.

4. CABLE SLACK.

The length of cable slack that must be provided will be in accordance with the following schedule:

<u>Location</u>	<u>Length of Slack Cable (feet)</u>
Base of Controller	7
Detector, Junction Box	1
Base of Traffic Signal Post or Traffic Signal Pole	4
City Handhole	6
City Manhole	12
Commonwealth Edison Manhole	25

Cable slack in manholes/handholes must be trained and racked in the holes. If racks are non-existent, racks must be provided, and considered incidental and a part of this pay item.

No cable splices will be allowed for traffic signal cable, with the exception of 7 conductor interconnect cable. These splices must be indicated on the plans.

5. **METHOD OF MEASUREMENT.**

The length of measurement must be the distance horizontally measured between changes in direction, and will include cable slack. All vertical cables will not be measured for payment.

6. **BASIS OF PAYMENT.**

This work will be paid for at the contract unit price per lineal foot for ELECTRIC CABLE IN CONDUIT of the type and size specified. This price will be payment in full for furnishing, installing, connecting, splicing, and testing of cable, and will include all labor, materials, equipment, tools, and incidentals necessary to complete the work, as specified herein, and as shown on the plans.

MATERIAL SPECIFICATION  
1537

September 1, 2006

**CONTROLLER, TRAFFIC, 16 LOAD BAY, P CABINET**

1. **DESCRIPTION.** This work will consist of furnishing and installing an Advanced Transportation Controller (ATC) with a battery powered back-up system and associated equipment in a cabinet onto a foundation and making all necessary connections.

2. **MATERIAL.** The material must meet the requirements of Material Specification 1560, "Advanced Transportation Controller and Cabinet with Universal Power Supply". The cabinet will be a super P cabinet 16 load bays. Each load bay must include a load switch. A battery powered universal power supply (UPS) system must be included. Communications interface equipment, if required, will be included under a separate item.

3. **PROCUREMENT.** The contractor must provide Request for Inspection of Material forms for traffic signal controllers and cabinets as requested for specific projects. The Bureau of Electricity will review and comment on the submitted material. The Bureau of Electricity will approve the purchase of the material from a supplier. Final material approval will be made in accordance with Bureau of Electricity specifications.

The Contractor must provide proof of purchase to the Resident Engineer within seven (7) days following approval by the Bureau of Electricity. Payment will be withheld in accordance with the terms and conditions of this contract, until such time that the Commissioner determines the requirements are met.

**The controllers and cabinets are to be delivered to the Bureau of Electricity within ninety (90) days of purchase. If the controllers and cabinets are not delivered, payment will be withheld until such time that the controllers and cabinets are delivered.**

The Bureau of Electricity will notify the Contractor when the material has been inspected and approved. If a railroad interconnect is involved, a representative from the Illinois Commerce Commission will also need to review and inspect the controller at the Bureau of Electricity's facilities. Within forty-eight (48) hours of notification, the Contractor will pick-up the controllers and cabinets from the Bureau. The controllers and cabinets will be stored at a facility, approved by the Commissioner, at the contractor's expense.

4. **INSTALLATION.** The controller will be programmed to provide the sequencing and timing of operation as shown on the plans. The controller must be enclosed in a housing and installed in a completely wired cabinet. The model and serial numbers of the controller must be affixed on the front of the controller housing and be readily visible.

The cabinet must be set onto a pad foundation designed specifically for the cabinet, and affixed with bolts provided with the foundation. Electric cables inside the cabinet must be neatly trained along the base and back of the cabinet. Each conductor used must be connected individually to the proper terminal, and the spare conductors must be insulated and bound into a neat bundle. Each cable must be marked with suitable identification and recorded on a copy of the plans for the intersection and submitted to the Engineer. Signal indications for each direction must be wired to a separate circuit whether or not the signal plans call for a split movement. The absolute zero for the time-base coordinator will be set in the field by City personnel after obtaining the appropriate City time-tone reference.

**When properly installed, all signals will be connected and controlled by the controller, and the sequencing and timing of the signals will be as set forth in the plans.**

All conduit entrances into the cabinet must be sealed with a pliable waterproof material to restrict moisture entrance into the cabinet.

Bureau of Electricity (BOE) and Office of Emergency Management and Communications (OEMC) personnel must be present during the cutover to the new control equipment. If a railroad interconnect is part of the signal project, a representative from the Illinois Commerce Commission must be invited to be present for the cutover.

5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price for each CONTROLLER, TRAFFIC, 16 LOAD BAY, P CABINET, which price will be payment in full for furnishing and installing the controller complete and operational, with all wiring and connections as specified.

JULY 5, 2009

ITEM 3782, 3782A

**STREET NAME SIGN MAST ARM MOUNT**

1. **DESCRIPTION.** This item will consist of furnishing, fabricating, and installing a street name sign on a traffic pole with a monotube arm as indicated on the plans, or as directed by the Engineer. The plans will indicate the location of the sign and the sign legend. The sign panel and associated hardware must meet the specifications of Section 720 - SIGN PANELS AND APPURTENANCES of the Illinois Department of Transportation's Standard Specifications for Road and Bridge Construction. The signs must meet the requirements as to size, mounting hardware, and mounting location per City of Chicago Department of Transportation standard drawings Pole and Mast Arm Mounted Street Name Signs and Monotube D3-2 Sign Installation Details.
2. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price per each for STREET NAME SIGN MAST ARM MOUNT, and must include all necessary hardware and labor to erect the sign.

**DRAWINGS**

Pole and Mast Arm Mounted Street Name Signs  
Monotube D3-2 Sign Installation Details

May 23, 2001

**VIDEO DETECTION SYSTEM**

**DESCRIPTION.** This item consists of furnishing and installing a traffic detection system at a signalized intersection consisting of the following components.

**VIDEO DETECTION CAMERA/MOUNT**

1. **DESCRIPTION.** This item will consist of furnishing and installing a traffic detection video camera onto a traffic signal pole, a traffic signal mast arm, or a luminaire mast arm. The camera will be part of a total detection system connected to the traffic controller.
2. **MATERIAL.** The video camera and mounting bracket must meet the requirements of Material Specification 1540.

3. **INSTALLATION.** The video camera must be mounted as indicated in the plans or as directed by the traffic engineer. If the camera is mounted to the side of the pole, a side pole mount must be used. If the camera is mounted to the top of a mast arm, a mast arm mount must be used. The camera must be affixed to the mount as per manufacturer's instructions. The mount must be attached to the pole or arm using two strips of 3/4" stainless steel banding single wrapped, each secured with a stainless steel banding clip. Alternate methods may be considered.  
If the camera is to be mounted to the side of a pole, a one inch diameter hole for cable must be drilled at the proper height and location. The hole must be smooth and free of any sharp edges so that cable will not be damaged. The camera mount must be positioned directly over the hole.

If the camera is to be mounted to the top of a mast arm, a one inch hole for cable entrance must be drilled in the bottom of the arm directly below where the camera is to be mounted. The hole must be drilled in the bottom of the arm to lessen the possibility of water intrusion. The hole must be free of any sharp edges so that cable will not be damaged.

The camera must be programmed, aimed and focused as per the manufacturer's instructions to meet the requirements of the plans and the traffic engineer for the area of detection required. This work is included in the cost of the Video Detection System, but cannot be accomplished until the entire video detection system is installed.

#### MATERIAL SPECIFICATION

1540

November 29, 2006

#### VIDEO CABLE HARNESS

1. **DESCRIPTION.** This work will consist of furnishing and installing a composite cable consisting of coaxial electric cable and an eight conductor power cable. The cable will be used as a link between a video detection camera and cable at the junction box on a traffic signal pole.
2. **MATERIAL.** The coaxial cable must be classified as RG 59/U. The conductor must be solid bare copper or solid bare copper coated steel. The insulation must be polyethylene or equivalent. The shield must be a bare copper braid. The jacket must be black polyvinylchloride or equivalent. The cable must be rated at 80° Centigrade, 75 ohms, and 30 Volts. One end must be equipped with a male BNC connector crimped to the cable. The power cable must meet the applicable requirements of Material Specification 1457. The power cable must have eight insulated copper conductors size #16 AWG in one jacket. Both cables must be terminated in a MIL-3102 16 pin male plug at the "camera" end. A female to female BNC connector must also be provided. The entire composite cable must be 60 feet in length from end to end.



3. **CONSTRUCTION METHOD.** The MIL plug must be connected to the matching plug in the camera housing. The cable must then run through the mast arm and pole to the junction box. At the junction box the power cable must be terminated at the terminal strip. The coaxial cable must be attached to the female to female connector at the junction box. All cable must be installed with care to prevent damage to the cable. Any defects found in the cable must be reported to the resident engineer. Damaged cable must be replaced at no cost to the City.

November 29, 2006

#### **VIDEO PROCESSOR CARD AND RACK**

1. **DESCRIPTION.** This item will consist of furnishing and installing a traffic detection video processor card into a two card rack, which will be shelf mounted in a traffic signal controller cabinet. This will be part of a complete video detection system. .
2. **MATERIAL.** The detector card and rack must meet the requirements of Material Specification 1556.
3. **INSTALLATION.** The detector card must be inserted into the two card rack which will be set on a shelf in the controller cabinet. All manufacturers' instructions must be followed for installation. All connections must be properly made. Power will be supplied from the cabinet. When the entire video detection system is installed, it must be demonstrated that the detector processor is operating satisfactorily.

MATERIAL SPECIFICATION  
1556

November 29, 2006

#### **INTERFACE PANEL, TWO CAMERA**

1. **DESCRIPTION.** This item will consist of furnishing and installing a camera interface panel in a traffic signal controller cabinet. This will be part of a complete video detection system. .
2. **MATERIAL.** The camera interface panel must meet the requirements of Material Specification 1557.
3. **INSTALLATION.** The panel must be mounted inside of a traffic controller cabinet on a side wall using stainless steel hardware. The panel must be set up for connection to coaxial cable and power feeds for two cameras. All manufacturers' instructions must be followed for installation.

MATERIAL SPECIFICATION  
1557

November 29, 2006

## VIDEO DETECTION POWER SUPPLY

1. **DESCRIPTION.** This item will consist of furnishing and installing a traffic detection video power supply in a traffic signal controller cabinet. The power supply will supply power for the detection processors.
2. **MATERIAL.** The power supply must meet the requirements of Material Specification 1556.
3. **INSTALLATION.** The power supply must be inserted into a shelf mounted rack in the controller cabinet. All manufacturers' instructions must be followed; all connections must be properly made. When the entire video detection system is installed, it must be demonstrated that the power supply is operating satisfactorily.

### MATERIAL SPECIFICATION 1556

November 29, 2006

## COAXIAL JUMPER CABLE

1. **DESCRIPTION.** This work will consist of furnishing and installing a coaxial electric cable as specified. The cable will be part of a complete video detection system. The cable will be installed between an interface panel in a traffic control cabinet to a vehicle detector card in the same cabinet.
2. **MATERIAL.** The coaxial cable must be classified as RG 59/U. The conductor must be solid bare copper or solid bare copper coated steel. The insulation must be polyethylene or equivalent. The shield must be a bare copper braid. The jacket must be black polyvinylchloride or equivalent. The cable must be rated at 80° Centigrade, 75 ohms, and service at 30 Volts. Each end must be equipped with a male BNC connector crimped to the cable. The cable must be six feet in length.
3. **CONSTRUCTION METHOD.** All cable must be installed with care to prevent damage to the cable. Any defects found in the cable must be reported to the resident engineer. Damaged cable must be replaced at no cost to the City.

**The cable will be terminated at one end in a traffic signal controller cabinet at the interface panel. The cable will be terminated at the other end to a detector card in the same cabinet.**

**METHOD OF MEASUREMENT.** The components of the Video Detection System will be measured as per each video detection system installed.

**BASIS OF PAYMENT.** This work will be paid for at the contract unit price per each for VIDEO DETECTION SYSTEM. Such price will be payment in full for furnishing, installing, a

complete system as described herein, and will include all material, labor, and incidentals necessary to complete the work and complete an operating and working video detection system as per the plans.

November 29, 2006

### COAXIAL CABLE IN CONDUIT

1. **DESCRIPTION.** This work will consist of furnishing and installing coaxial electric cable as specified. The cable will be installed in underground conduit and in traffic signal poles. The cable will be used for a video camera mounted on a light pole.
2. **MATERIAL.** The coaxial cable must be classified as RG 59/U. The conductor must be solid bare copper or solid bare copper coated steel. The insulation must be polyethylene or equivalent. The shield must be a bare copper braid. The jacket must be black polyvinylchloride or equivalent. The cable must be rated at 80° Centigrade and service at 30 Volts. Each end must be equipped with a male BNC connector crimped to the cable.
3. **CONSTRUCTION METHOD.** All cable must be installed with care to prevent damage to the cable. Any defects found in the cable must be reported to the resident engineer. Damaged cable must be replaced at no cost to the City.

The cable will be terminated at one end in a traffic signal controller cabinet at the interface panel. The cable will be terminated at the other end to female to female connector to be located in the junction box on the traffic signal pole. The cable will run in underground conduit, handholes, manholes, conduit risers, and traffic signal pole shafts.

The cable must be pulled with a minimum of friction. Lubricants will be used to facilitate installation if deemed necessary. Bends in the cable must conform to the recommended minimum radius as outlined in the National Electric Code. No splicing of the cable will be allowed.

Cable passing through manholes must be trained and racked around the sides of the manhole into a permanent position. If racks are non-existent or in poor condition, the contractor must install racks. The material must be approved by the resident engineer. Any material and labor involved in training and racking the cable will be considered incidental to the cost of this pay item.

Cable in a handhole will have at least five feet of slack and cable in a manhole will have at least ten feet of slack.

4. **METHOD OF MEASUREMENT.** The length of cable furnished and installed will be measured as the entire length of cable; measurements being taken both vertically and horizontally, plus any slack in manholes and/or handholes.

5. **BASIS OF PAYMENT.** This work will be paid for at the contract unit price per lineal foot for COAXIAL CABLE IN CONDUIT. Such price will be payment in full for furnishing, installing, terminating, and testing the cable, and will include all material, labor, and incidentals necessary to complete the work and complete an operating and working circuit as per the plans. The BNC connectors at each end of the cable will be included in the cost of Coaxial Electric Cable in Conduit.

November 29, 2006

**ELECTRIC CABLE IN CONDUIT , VIDEO NO. 14 3C**

1. **DESCRIPTION.** This work will consist of furnishing and installing electric cable as specified. The cable will be installed in underground conduit and in traffic signal poles. The cable will be used for power service to a video camera.
2. **MATERIAL.** The cable must meet the applicable requirements of Material Specification 1457 of the Bureau of Electricity, City of Chicago.
3. **CONSTRUCTION METHOD.** All cable must be installed with care to prevent damage to the cable. Any defects found in the cable must be reported to the resident engineer. Damaged cable must be replaced at no cost to the City.

The cable will be terminated at one end at the camera interface panel in a traffic signal controller cabinet. The cable will be terminated at the other end to a terminal strip in a junction box mounted on a traffic signal pole. The cable will run in underground conduit, handholes, manholes, and pole shafts.

The cable must be pulled with a minimum of friction. Lubricants will be used to facilitate installation if deemed necessary. Bends in the cable must conform to the recommended minimum radius as outlined in the National Electric Code. No splicing of the cable will be allowed.

Cable passing through manholes or handholes must be trained and racked around the sides of the manhole or handhole into a permanent position. If racks are non-existent or in poor condition, the contractor must install racks. The material must be approved by the resident engineer. Any material and labor involved in training and racking the cable will be considered incidental to the cost of this pay item.

Cable in a handhole will have at least five feet of slack and cable in a manhole will have at least ten feet of slack.

4. **METHOD OF MEASUREMENT.** The length of cable furnished and installed will be measured as the entire length of cable; measurements being taken both vertically and horizontally, plus any slack in manholes or handholes.

5. **BASIS OF PAYMENT**. This work will be paid for at the contract unit price per lineal foot for ELECTRIC CABLE IN CONDUIT, VIDEO NO. 14 3C. Such price will be payment in full for furnishing, installing, terminating, and testing the cable, and will include all material, labor, and incidentals necessary to complete the work and complete an operating and working circuit as per the plans.

MATERIAL  
1457

August 14, 2006

SPECIFICATION 1385

**DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED JULY 1, 2008**

PEDESTAL WITH BASE: ALUMINUM,  
FOR TRAFFIC SIGNALS

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SUBJECT

1. The specification states the requirements of an aluminum pedestal and base with handhole and door for supporting a traffic signal.

GENERAL

2. (a) Specifications. The pedestal base shall conform to the requirements herein stated, to the specifications and methods of test of the American Society for Testing and Materials (ASTM), to the requirements of the Society of Protective Coatings (SSPC), and to the requirements of the American Welding Society (AWS), of which the most recently published revisions will govern.
- (b) Acceptance. Pedestal bases not conforming to this specification will not be accepted.
- (c) Drawing. The drawing mentioned herein is a drawing of the Department of Transportation, Division of Electrical Operations. It is an integral part of this specification cooperating to state the necessary requirements.
- (d) Workmanship. All pedestal bases must be free of casting flaws and must have neat, smooth exterior surfaces. All holes must be accurately located and drilled. The bottom surface of the base must be ground smooth.
- (e) Sample. One complete pedestal of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon receipt of a request from the Chief Procurement Officer.
- (f) Warranty. The manufacturer shall warrant the performance and construction of the traffic pedestal to meet the requirements of this specification and shall warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the

traffic pedestals have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

### DETAIL REQUIREMENTS

3. (a) Design. The pedestal base must conform to the design shown on Drawing Number 526. All bases must be of the same dimensions, and all doors must be interchangeable.
- (b) Base. The base must be cast of aluminum alloy 319 meeting the requirements of ASTM B26 with a minimum wall thickness of 9/32". The handhole opening must have a recessed lip along the entire length of both sides and the bottom such that with the door in place the exterior surface of the door is flush with the exterior surface of the base. The door must have the same curvature as the base. The door must be locked in place by means of two fingers located on its top edge which bear against the inside surface of the base, and a stainless steel Allen head locking screw which fastens to the base. The locking screw must be protected by a C-shaped drip edge protruding approximately 5/8" and concentrically encircling the screw head. The clearance between the inner surface of the drip edge and the outer surface of the screw head must be no greater than 1/8". The drip edge must encircle the screw head by a minimum of 300° with the opening in the drip edge centered at the bottom of the screw head. A continuous pipe stop must be integrally cast along the inside of the base 2.5" below the top edge.
- (c) Pedestal. The pedestal must be aluminum-alloy extruded round tube conforming to the requirements of ASTM B221, alloy 6063-T6. The aluminum pedestal must be flash anodized in accordance with Aluminum Association designation C22A21 or Alcoa designation 202-R1. Its outside diameter must be 5.563"; its wall thickness must be not less than 0.187", and its length must be as required to furnish the overall height specified in the order. The round tube must be inserted not less than two and one-half inches (2.5") into the base and welded with four (4) butt welds each not less than one (1) inch long on the inside and a continuous seam weld around the outside. Aluminum alloy pipe in lieu of aluminum alloy tube is acceptable.
- (d) The pedestal cap must be of the same cast aluminum as the base. The pedestal cap shall be essentially conical with a globe-shaped upper-end and having a minimum wall thickness throughout of not less than 1/4 inch. The cone portion must meet the skirted portion of the top in a smooth filet. The skirt must enclose the top 7/8" inches of the pedestal. Three stainless steel, or other similar approved material, set screws not less than 3/4 inches long must be equally spaced in tapped holes around the skirt and must hold the cap securely in place atop the pedestal. The set screw size must be 5/16 – 18 hex head.

- (e) Welding. The welds shall be made by the inert gas metal welding process. Filler wire shall conform to chemical composition requirements of AWS Alloy Number A5.10-69.

## PAINTING

- 4. (a) Facility. All surface preparation and painting shall be done indoors at a single facility specifically set up for painting purposes.
- (b) Surface preparation. Exterior surfaces must be prepared by solvent cleaning per SSPC – SP 1 (Surface Preparation Specification 1). The solvent used shall be recommended for aluminum surfaces. The solvent shall be used according to the manufacturer’s instructions to remove all oil, grease, dirt, and contaminants.
- (c) Primer Coat.
  - 1. Within one hour of surface preparation, surfaces must be primed using a primer specifically recommended for aluminum surfaces.
  - 2. Aluminum surface temperature must be at least 60° Fahrenheit and relative humidity must be less than 80% at time of primer application.
  - 3. A minimum wet thickness shall be applied to provide a 2mil dry thickness.
  - 4. The primer shall be dry for a period of 24 hours after which a second primer coat shall be applied. The second coat must also have a dry thickness of 2 mils.
- (d) Finish Coat.
  - 1. The primer must be dry for a period of 24 hours before a finish coat can be applied.
  - 2. The finish coat shall be a polyurethane enamel specifically recommended for use over a primed aluminum surface.
  - 3. Two coats of finish shall be applied. Each must have a dry thickness of 1.5 mils.
  - 4. Color will be gloss black unless otherwise specified. Paint samples shall be approved before painting can commence.
- (e) Alternate Coating Methods. Alternate coating methods, such as electrostatic powder coating, may be considered. However, no coating method will be accepted without the Commissioner’s or his representative’s approval.



- (f) Durability. The paint coating shall be capable of passing 1000 hours of salt spray exposure as per ASTM B117 in a 5% NaCl(by weight) solution at 95° Fahrenheit and 95% relative humidity without blistering. Before testing, a coated aluminum panel shall be scribed with an “X” down to bare metal.
- (g) Coating Measurement. Measurement of coating thickness shall be done in accordance with SSPC – Pa 2-73T, “Measurement of Dry Paint Thickness with Magnetic Gauges”.

#### PACKING

5. Each pedestal shall be individually wrapped to prevent damage to the paint surface. Each pedestal shall be suitably packed or blocked to prevent damage during shipment and handling.

SPECIFICATION 1407  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED APRIL 2, 2009

POLE MOUNTED CAST ALUMINUM JUNCTION BOX FOR TRAFFIC  
SIGNALS

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**SCOPE**

1. This specification states the requirements for pole mounted, cast aluminum junction boxes, with terminal strips, to be used for traffic signal multiple cable terminations.

**GENERAL**

2. (a) Specifications. The junction boxes shall conform in detail to the requirements herein stated, and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation Number, of which the most recently published revisions will govern. The terminal strip shall meet the applicable sections of NEMA ICS 4-2005, as well as the requirements herein stated.
- (b) Drawing. The drawing mentioned herein is a drawing of the Department of Transportation, Division of Electrical Operations, and will be interpreted as part of these specifications.
- (c) Acceptance. Junction boxes not conforming to this specification will not be accepted.
- (d) Sample. One complete junction box with terminal strip of the manufacture intended to be furnished shall be submitted within fifteen (15) business days after receipt of a request from the Chief Procurement Officer. The box must be delivered to the Division of Electrical Operations.
- (e) Workmanship. All junction boxes shall be free of casting flaws and must have neat, smooth exterior surfaces. All holes must be accurately located and drilled to ensure interchangeability of all components.

**DESIGN**

3. (a) Drawing. The junction box must conform in detail to the dimensions and requirements shown on Drawing Number 954.

- (b) Material. The body door and plate must be castings of non-heat treated aluminum silicon alloy conforming to ANSI alloy 443.0 of ASTM B26.

#### DETAIL REQUIREMENTS

4. (a) Assembly. Each junction box shall consist of the body, door with its gasket, two cast elbows with gaskets at either end of the box, terminal block mounting bracket, and terminal strip on channel mounted to bracket. All must be completely assembled, painted and ready for installation. A flat plate with gasket shall also be provided so that the City can use the junction box with only one elbow if desired.
- (b) Body. The body shall be cast as shown in Drawing Number 954. The top and bottom sides of the box where flat plates, or other fittings, will be attached, must be identically cast, machined flat, and drilled and tapped in accordance with dimensions shown. All fittings which fit on the top side must fit on the bottom side.
- (c) Door. The door shall be cast as shown in Drawing Number 954. The door must be hinged at the left with stainless steel hinge pins and must open not less than 180° to permit complete access to the interior of the junction box. Two stainless steel Allen head machine screws, undercut and held captive, shall hold the door closed and maintain positive pressure against a sponge neoprene gasket cemented in place completely around the door jamb. The door shall be finished and painted prior to cementing the gasket into its groove in the door.
- (d) Elbow sweep. Two elbows must be provided for cable entry and exit into the box. The elbows shall be cast of the same alloy as the box. The dimensions will be as indicated on Standard Drawing 954.
- (e) End Plate. A flat end plate shall be furnished with each body casting. The plate must be drilled to align with tapped holes in the body casting and have a flush match with the periphery of the top and bottom body casting pads. The plate must have a properly fitted gasket.
- (f) Gaskets. The gasketing between the body and the door shall be of sponge neoprene and must be cemented in place after painting of the door. A cork gasket, 1/8 inch thick, shall be used between the elbow or end plate and the body of the junction box on the top end and bottom end and held in place by four (4) stainless steel screws.
- (g) Mounting Bracket. A terminal block mounting bracket, as shown on Drawing Number 954, shall be furnished and installed in each junction box. The bracket must be cast from ANSI alloy 443.0 per ASTM B26.
- (h) Terminal Strip. The terminal strip will consist of modular blocks. Each block will consist of two terminals to handle one circuit. The strip will consist of

twenty blocks to handle twenty circuits. The terminal strip will be mounted to an aluminum channel. The channel will have pre-punched holes for mounting to the junction box. The channel will be mounted to the box with two #10 screws.

Each block housing shall be constructed of nylon, polypropylene, or another approved material of equal properties. The bottom of the block housing will be dovetailed to fit into the aluminum channel. Overall dimensions of each block will be approximately 1.2 inches wide by 1.5 inches high. Center-to-center spacing between contacts (blocks) must be at least .375 inches.

The terminals shall accommodate AWG wire sizes 8 to 22. The contact type will be tubular clamp, with electroplated tubular copper contact. The screw type will be a steel electroplated number 10-32, slotted pan head. The terminals will be rated at 30 amps and 600 volts.

Maximum service temperature for the terminal strip will be 150° Celsius. The flammability rating must meet UL 94V-0.

- (i) Hardware. The hinge pins and all screws required for assembly of this junction box must be of stainless steel.
- (j) Painting. The exterior surfaces of the junction box shall be properly cleaned and given one (1) coat of zinc chromate primer containing ten percent (10%) iron oxide and one (1) coat of enamel. The color of the enamel must be gloss black or as ordered. A color sample must be submitted and approved before manufacturing commences. The primer and enamel shall be of an approved grade and quality.
- (k) Packing. After the paint is completely dry, and the junction boxes have been assembled, they shall be suitably packed to prevent damage to painted surfaces during shipping and handling. All shipments must be fastened to, and shipped on, 48" x 48" hardwood, 4 way, non-returnable pallets. Total height must not exceed 64" and total weight must not exceed 2,000 pounds.

**SPECIFICATION 1447  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION**

CITY OF CHICAGO

**REVISED MARCH 20 , 2007**

POLE: ANCHOR BASE, 3 AND 7 GAUGE, TAPERED TUBULAR STEEL, WITH  
HANDHOLE ENTRY

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**SUBJECT**

1. This specification states the requirements for tapered, tubular, 3 gauge and 7 gauge steel anchor base poles with mast arm supports. They will support street light luminaires and/or traffic signal mast arms and will be served by underground cables.

**GENERAL**

2. (a) Specifications. The poles shall conform in detail to the requirements herein stated, and to the Specifications and Methods of Test of the American Society for Testing and Materials cited by ASTM Designation Number of which the most recently published revisions will govern.
- (b) Acceptance. Poles not conforming to this specification will not be accepted.
- (c) Bidders Drawings. Bidders shall submit with their bids detailed scale drawings of the mast showing actual dimensions, details, and welds. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must show every dimension necessary to show how all parts will fit each other and be properly held in assembly. These drawings must also be submitted in electronic format, preferably Microstation 95, if so requested by the City.
- (d) Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state necessary requirements.
- (e) Sample. If requested by the Chief Procurement Officer, one completely assembled anchor-base pole of the manufacture intended to be furnished, must be submitted for review within fifteen (15) business days of receiving the request.

- (g) Warranty. The manufacturer shall warrant the performance and construction of the light poles to meet the requirements of this Specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the light poles have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

### STANDARDS

3. (a) Assembly. Each anchor base pole shall consist of a steel mast with handhole entry, entry door with machine screws, grounding nut, mast base plate, top cap for mast, two (2) mast arm supports, bolt covers, and all necessary hardware required for complete assembly of these parts, ready for assembly, without special tools.
- (b) Interchangeability. Members of each pole type shall be mutually interchangeable for assembly, so that no reworking will be required to make any member fit properly in the place of any other similar member of any other similar pole.
- (c) Design. Each pole type shall conform in design and dimensions to the pertinent drawing(s) listed in Table "A".

### MASTS

4. (a) Mast Size. The outside diameters of the mast of each pole type shall be as listed in Table A. The mast must be tapered at 0.14 inches per foot.
- (b) Material. The mast must be fabricated from one length of No. 3, No. 7, or No. 11 Standard gauge steel meeting the material requirements of ASTM A606 for low alloy high strength coil steel, which, after fabrication, must possess an ultimate tensile strength of not less than 70,000 psi and a yield strength of not less than 60,000 psi, in accordance with ASTM A595, Grade C. Chemistry of the steel must be such as to insure resistance to atmospheric corrosion superior to that of ordinary copper bearing steel. Material certification is required. Manufacturer's steel meeting the specified physical and chemical requirements, and approved by the Commissioner, will be accepted.
- (c) Fabrication. The mast must be fabricated with not more than one (1) longitudinal weld. The weld shall be ground smooth so that it is virtually invisible. There shall be no lateral welds in the masts other than where the masts are welded to the steel bases. Each mast must be straight and centered on its longitudinal axis. Each mast must be formed on a mandrel and worked to form a round cross-section. The completed, unpainted masts shall have smooth external

surfaces free from protuberances, dents, cracks or other imperfections marring their appearance.

(d) Base. The mast base shall be a steel plate, of low alloy, high strength steel as noted in Par. 4 (b).

Plate Base. The base plate for each pole type shall be as listed in Table "A". It must be fabricated from the same ASTM A606 low alloy, high strength steel as is used for the mast. After fabrication the steel must meet the requirements of ASTM A588. The mast must be inserted into the base to a maximum depth which will still allow for an adequate weld to be made between the bottom of the mast and the plate. A circumferential weld must be made between the mast and the base at both the top and underside of the plate. Non-metallic removable bolt covers which completely cover the anchor bolts and nuts shall be provided. The covers must be attached with stainless steel screws coated with a non-seizing compound, or another type of non-seizing fastener, as approved by the Commissioner. The covers shall enclose the anchor bolts and be secured in an approved manner. The base shall be attached to the mast so that the bearing surface of the base is at right angles to the longitudinal axis of the mast. The vertical center line of the seam must be positioned so that no welds for the simplex attachments or the handhole opening will go through the seam.

Anchor Rod Openings. All anchor rod openings for each pole type shall have a width as listed in Table "A". Each opening must be sized to have a circumferential slot length equal to 15 degrees of the circumference.

(e) Mast Arm Support Plates. The mast arm support plates will be made of cast steel conforming to the requirements for Grade 65-35 cast steel of ASTM A27, or equivalent, subject to approval. They shall neatly fit the external surface of the mast. The upper mast arm support plate must have a hollow protuberance, the hole of which must be approximately equivalent to two (2) inches in diameter, extending into the interior of the pole providing a smooth surface for the lamp cables to rest upon. The mast arm support plates shall be designed so that they will carry the mast arm and hold it in the proper position for fastening the mast arm to the mast. The design of the mast arm support plates must be a two (2) bolt type as shown on Drawing No. 659.

(f) Provision for Ground. A 1/2-13 square nut must be welded to the inside of the mast on the handhole entry frame for a ground connection.

(g) Entry. A vertical doorframe carrying a removable door providing access to the interior of the mast must be welded into a close fitting opening centered approximately 15 inches above the bottom of the base. The doorframe must be formed and welded of steel with a cross section of two and one-quarter (2-1/4) inches wide by one-quarter (1/4) inch thick so as to adequately reinforce the opening of the mast. The internal horizontal clearance of the doorframe must be four and three-quarter (4-3/4) inches; its internal vertical clearance must be

seven (7) inches. Its upper and lower ends must be semi-circular meeting its straight sides tangentially. The radius of this opening must be two and three-eighths (2-3/8) inches. The vertical center line of the entry must be at a right angle clockwise from the vertical center line of the mast arm supports. The frame must have two welded tabs; one at the top and one at the bottom of the door frame. These tabs must be drilled and tapped to accept a 1/4-20 UNC screw. The top hole must be located 13/16 of an inch from the top of the opening. The bottom hole must be located 13/16 of an inch from the bottom of the opening. The 1/4-20 machine screws must be stainless steel with hex heads, meeting the requirements of ASTM A193. The screws shall be treated with a compound to prevent seizing. Other non-seizing types of screws and fasteners may be considered. An alternate method of attachment consisting of a removable hinge on the bottom with a screw connection at the top may be considered. (The above requirements apply to all pole masts except those with a 10 inch bolt circle. Poles with 10 inch bolt circles must have handhole openings of 3" by 5". All other requirements apply.)

(h) Door. The removable door must be formed of sheet steel approximately one-eighth (1/8) inch thick. It shall be flat or dished depending upon the pole type, and fit the doorframe closely so that it will stay in proper position even if its locking screws are slightly loosened. The door must be drilled top and bottom to accept the 1/4-20 hex head machine screws which will fasten the door to the doorframe. A half-circle piece of steel must be welded by the screw opening, to allow only a socket wrench to be used. All doors shall be interchangeable. An alternate method of attachment using an internal hinge at the bottom of the door with a screw at the top of the door will be considered. Any alternate method will be subject to approval by the Commissioner or his duly authorized representative.

(i) Locking Device. Any other door locking device, other than the one outlined above in (g) and (h), must be approved by the Commissioner or his duly authorized representative.

(j) Tag. To each pole must be attached immediately below the handhole, by mechanical means and not by adhesive, a stainless steel tag with a stamped or embossed legend which must include the pole outside diameter at the base, the overall length, and the gauge; i.e., 12.5" X 34'-6" X 3 gauge.

(k) Structural Requirements. The mast shall be manufactured in accordance with AASTHO's 1994 version of the "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals". The shaft and base assembly must be designed to meet AASTHO's 1994 criteria for 80 MPH wind loading with a 30% gust factor. The poles shall be designed appropriately for Chicago applications for both street lighting and traffic signal applications, including signal mast arms.

TOP



5. (a) Design. The mast top shall be essentially conical with a globe-shaped upper-end and having a minimum wall thickness throughout of not less than 1/4 inch. The cone portion must meet the skirted portion of the top in a smooth filet, the skirt must enclose the top 7/8" inches of the mast. Three stainless steel, or other similar approved material, set screws not less than 3/4 inches long must be equally spaced in tapped holes around the skirt and must hold the top securely in place atop the mast. The design of the top shall be similar to one shown on Drawing #11420A.
- (b) Material. The top must be aluminum alloy 356-F per ASTM B108. It shall have smooth surfaces, neat edges and corners and be free from fins, holes or other casting flaws. Non-metallic tops may be substituted if approved by the Commissioner.
- (c) Finish. Tops shall be painted as herein specified.

#### HARDWARE

6. All the hardware necessary to complete the assembly of the pole shall be furnished. All hardware will be as specified elsewhere in these specifications. Hardware not specified elsewhere must be stainless steel meeting the requirements of ASTM A193, or equal corrosion-resistant non-seizing metal, or a non-metallic material subject to approval by the Commissioner.

#### WELDING

7. (a) General. Every welded joint shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society as indicated on the drawings; however, each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode, and must describe the welding methods, he proposes to use in fabricating the pole.
- (b) Testing. Welds shall be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. Acceptance or rejection will be governed by the same conditions as in Section 9. If the magnetic inspection process is to be used, the dry method with the direct current must be employed. All transverse welds must be magnetized by the "prod" (Circular magnetization) method. Longitudinal welds may be magnetized by either circular or longitudinal magnetization.

#### PAINTING

8. (a) Oil and Grease Removal. All metal surfaces shall be washed with an alkaline detergent to remove any oils or grease.
- (b) Metal Cleaning. All exterior metal surfaces shall be cleaned by blasting with a combination of shot and grit to remove all dirt, mill scale, rust, corrosion,

oxides and foreign matter and provide a "near white" surface in accordance with SSPCS-SP10. Included in this process will be the interior base section of the mast to a minimum height of twelve (12) inches.

- (c) Chemical Pretreatment. The cleaned metal surfaces shall then be treated with a hot, pressurized iron phosphate wash and shall be dried by convection heat.
- (d) Primer Coat. All exterior surfaces are to be coated with Tnemec 90-97 corrosion-inhibiting zinc-rich aromatic urethane to a minimum dry film thickness of 2.5 mils (.0025"). The aromatic urethane is to consist of a zinc dust content not less than 83% by weight in dried film. The coating shall be airless-spray applied and moisture cured.
- (e) Finish Coat. All exterior surfaces are to be subsequently coated with Tnemec Endura-Shield II 1074 aliphatic acrylic polyurethane to a minimum dry film thickness of 3.0 mils (.003"). The coating shall be airless-spray applied and cured in a gas-fired convection oven by heating the steel substrate to between 150° Fahrenheit and 220° Fahrenheit.
- (f) Interior Coat. Interior surfaces are to be coated with red oxide rust inhibitive alkyd primer to a dry film thickness of 1.5 mils.
- (g) Durability. Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure as per ASTM B117 in a five percent (5%) NaCl (by weight) solution at 95°F and 95% relative humidity without blistering. Before test, the panel must be scribed with an "X" down to bare metal.
- (h) Coating Measurement. Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges," except that the lowest "single spot measurement" in an area of two square inches must be not less than 5.5 mils.
- (i) Color. Color must be gloss black unless otherwise noted in the order. A color sample must be submitted for approval prior to fabrication.
- (j) Alternate Methods. Alternate painting methods may be reviewed and tested on a case by case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified.

#### MAST TEST

- 9. (a) General. All completed masts shall be available for testing for maximum deflection and set. The masts shall meet the structural requirements of Section 4(k). Unless specifically authorized in writing, all tests shall be made at the works of the manufacturer. A record of every test must be made and a certified copy of the test record must be submitted to the Commissioner before the masts are shipped.

(b) Lot. Tests for welds, deflection and set of the mast and of the mast arm supports shall be made upon three (3) masts of the first fifty (50) in every order. An additional one (1) mast shall be tested for each additional fifty (50) masts in the order. The selection of masts for testing shall be random from the entire completed lot. If any of the masts in any lot fail to meet the test, an additional three (3) masts of the same lot must be tested. If any of these masts fail to meet the test requirements, the entire lot will be subject to rejection, except that the manufacturer may subject each mast in the lot to the test, and those which fulfill the requirement will be accepted. After testing, each base weld must be inspected by the magnetic particle method to determine that the welds have not been affected.

(c) Mast Requirements. With base rigidly anchored, a test load as indicated in Table A must be applied at a point approximately two feet (2'0") from the free end. The load must be applied at right angles to the center line of the mast and in the same vertical plane. The deflection must not be greater than that indicated in Table A. Within one (1) minute after the test load is released, measurement must be made of the set taken by the mast. This set must not be greater than that indicated in Table A. The deflection measurement device must be reset to zero and the test load must be reapplied. The deflection must not change from the deflection noted in the first test by more than  $\pm 5\%$ . No measurable set must be noted within one (1) minute after test load is released.

(e) Mast Arm Support (simplex) Requirements. With an appropriate mast arm firmly attached to the mast, a test load of 300 pounds must be applied to the mast arm as a side pull at a point seven (7) feet from the mast. After the test, the mast arm support welds on the mast must be tested by the magnetic particle method to determine that they have not been affected.

## PACKAGING

10. (a) General. The poles must be shipped in twelve (12) pole bundles. Each pole must be individually wrapped so that the pole can be bundled for shipping and unbundled for delivery to the City without damaging the pole or its finish.

(b) Bundles. The bundles shall consist of twelve (12) poles laid base to top to form an approximately rectangular cylinder. Materials such as lumber (2" x 4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled, shipped and stored without shifting of contents or breaking, subject to approval. Any bundles, in which either poles or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two (2) high without breaking, or shifting of the contents. Each bundle must be capable of being

lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading. Each pole wrapping must be clearly labeled indicating the pole size, i.e. 34'6", 7 GAUGE, STEEL POLE, 15" B.C.

(c) Hardware. The bolt covers and their attachment devices must be shipped with each bundle and packaged in twelve (12) sets of four (4) each. The package must be labeled and placed in a prominent position to facilitate accessibility, and must be attached to, or within, the bundle in such a manner as to assure safe delivery. Payment will be withheld for any bundle delivered without the accompanying hardware. Pole caps must be attached at the manufacturer's facilities, or be packed separately in a manner similar to the bolt covers, and the same payment conditions will prevail. Cracked, broken or chipped parts will be considered as an incomplete delivery as regards payment.

(d) Delivery. All poles will be delivered to the Division of Electrical Operation's storage yard at 4101 South Cicero Avenue in Chicago, or to another location within the City as indicated on the order. Light pole information shall include any recommendations of the manufacturer for storage.

**TABLE A**

POLE	GAUGE	BOLT CIRCLE	ANCHOR ROD	BASE P L A T E	TEST L O A D	M A X. D E F	M A X. S E T	D R A W I N G
7.67"x12.5"x34'6"	3	16.5"	1.5"	1.75"	3200#	22"	2.5"	827
6.17"x11"x34'6"	3	17.25"	1.25"	1.5"	2500#	26"	2.5"	824
5.17"x10.0"x34'6"	3	15.0"	1.25"	1.5"	2000#	30"	2.5"	808
5.17"x10.0"x34'6"	7	15.0"	1.25"	1.5"	1500#	30"	2.5"	808
3.95"x8.5"x32'6"	3	11.5"	1.25"	1.5"	1500#	33"	2.5"	763
3.95"x8.5"x32'6"	7	11.5"	1.0"	1.25"	1200#	33"	2.5"	762
3.87"x8.0"x29'6"	3	10.0"	1.0"	1.5"	1500#	28"	1.0"	657

3.87"x8.0"x2 9'6"	7	10.0"	1.0"	1.25"	1200#	28"	1.0"	656
4.15"x8.0"x2 7'6"	3	10.0"	1.0"	1.5"	1500#	23"	1.0"	655
4.15"x8.0"x2 7'6"	7	10.0"	1.0"	1.25	1200#	23"	1.0"	654
4.20"x7.0"x2 0'0"	3	10.0"	1.0"	1.0"	1500#	13"	1.0"	653
3.70"x6.5"x2 0'0"	11	10.0"	1.0"	1.0"	800#	14"	1.0"	652

**SPECIFICATION 1454  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED APRIL 20, 2007**

MAST ARM: TRAFFIC SIGNAL MONO-TUBE

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**SUBJECT**

1. This specification states the requirements for a tapered, tubular, 7 gauge steel mono-tube arm with mounting brackets. The arm will support traffic signals and signs.

**GENERAL**

2. (a) Specifications. The arms shall conform in detail to the requirements herein stated, and to the Specifications and Methods of Test of the American Society for Testing and Materials cited by ASTM Designation Number of which the most recently published revisions will govern.
- (b) Acceptance. Arms not conforming to this specification will not be accepted.
- (c) Bidders Drawings. Bidders must submit with their bids detailed scale drawings of the mast arm showing actual dimensions, details, and welds. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must show every dimension necessary to show how all parts will fit each other and be properly held in assembly. These drawings shall also be submitted in electronic format, preferably Microstation 95, if so requested by the City.
- (d) Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state necessary requirements.
- (e) Sample. If requested by the Chief Procurement Officer, one complete mast arm of the manufacture intended to be furnished must be submitted for review by the Commissioner within fifteen (15) business days of receiving such request.

(f) Warranty. The manufacturer shall warrant the performance and construction of the mast arms to meet the requirements of this specification and shall warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the mast arms have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

### STANDARDS

3. (a) Assembly. Each arm shall consist of a tubular tapered steel shaft, mounting brackets, an aluminum cap, and all mounting hardware.
- (b) Interchangeability. Members of each arm type must be mutually interchangeable for assembly, so that no reworking will be required to make any member fit properly in the place of any other similar member of any other similar arm.
- (c) Design. Each arm must meet the requirements as shown on Standard Drawing 870.

### ARMS

4. (a) Arm Size. The outside diameters of the arm of each size shall be as listed in Standard Drawing 870.
- (b) Material. The arm must be fabricated from one length of No. 7 Standard gauge steel meeting the requirements of ASTM A606 for low alloy high strength coil steel, which, after fabrication, must possess an ultimate tensile strength of not less than 70,000 psi and a yield strength of not less than 60,000 psi, in accordance with ASTM A595, Grade C. Chemistry of the steel shall be such as to insure resistance to atmospheric corrosion superior to that of ordinary copper bearing steel. Material certification is required. Manufacturer's steel meeting the specified physical and chemical requirements, and approved by the Commissioner, will be accepted.

- (c) Fabrication. The arm must be fabricated with not more than one (1) longitudinal weld. The weld must be ground smooth so that it is virtually invisible. There must be no lateral welds in the arms other than where the arms are welded to the steel clamp. Each arm must be straight and centered on its longitudinal axis. Each arm must be formed on a mandrel and worked to form a round cross-section. The completed, unpainted arms shall have smooth external surfaces free from protuberances, dents, cracks or other imperfections marring their appearance.
- (d) Clamp. The arm clamp must be of low alloy, high strength steel as noted in Section 4 (b). The clamp must be constructed as shown on Standard Drawing 870.
- (e) Structural Requirements. The mast arm must be manufactured in accordance with AASTHO's 1994 version of the Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. The arm assembly must be designed to meet AASTHO's 1994 criteria for 80 MPH wind loading with a 30% gust factor. The arms shall be designed appropriately for traffic signal applications within the City of Chicago.

#### CAP

5. (a) Design. The arm cap shall be essentially conical with a globe-shaped upper-end and having a minimum wall thickness throughout of not less than 5/32 inches. The cone portion must meet the skirted portion of the arm in a smooth fillet, the skirt must enclose the top 7/8" inches of the arm. Three stainless steel, or other similar approved material, set screws not less than 3/4 inches long must be equally spaced in tapped holes around the skirt and must hold the cap securely in place on the arm.
- (b) Material. The cap must be of aluminum alloy 356-F per ASTM B108. It shall have smooth surfaces, neat edges and corners and be free from fins, holes or other casting flaws.
- (c) Finish. Tops shall be painted as herein specified.

#### HARDWARE

6. All the hardware necessary to complete the assembly of the arm must be furnished. All hardware shall be stainless steel, or equal corrosion-resistant non-seizing metal, subject to approval.

#### WELDING

7. (a) General. Every welded joint shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society as indicated on the drawings; however, each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of



electrode, and must describe the welding methods, he proposes to use in fabricating the arm.

(b) Testing. All welds of the first three (3) arms of the first fifty (50) arms in every lot must be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. Acceptance or rejection must be governed by the same conditions as in Section 9. If the magnetic inspection process is used, the dry method with the direct current shall be employed. All transverse welds must be magnetized by the "prod" (circular magnetization) method. Longitudinal welds may be magnetized by either circular or longitudinal magnetization.

## PAINING

8. (a) Oil and Grease Removal. All metal surfaces must be washed with an alkaline detergent to remove any oils or grease.
- (b) Metal Cleaning. All exterior metal surfaces must be cleaned by blasting with a combination of shot and grit to remove all dirt, mill scale, rust, corrosion, oxides and foreign matter and provide a "near white" surface in accordance with SSPC-SP 10.
- (c) Chemical Pretreatment. The cleaned metal surfaces must then be treated with a hot, pressurized iron phosphate wash and must be dried by convection heat.
- (d) Primer Coat. All exterior surfaces are to be coated with Tnemec 90-97 corrosion-inhibiting zinc-rich aromatic urethane to a minimum dry film thickness of 2.5 mils (.0025"). The aromatic urethane is to consist of a zinc dust content not less than 83% by weight in dried film. The coating must be airless-spray applied and moisture cured.
- (e) Finish Coat. All exterior surfaces are to be subsequently coated with Tnemec Endura-Shield II 1074 aliphatic acrylic polyurethane to a minimum dry film thickness of 3.0 mils (.003"). The coating must be airless-spray applied and cured in an oven by heating the steel substrate to between 150° Fahrenheit and 220° Fahrenheit.
- (f) Interior Coat. Interior surfaces are to be coated with red oxide rust inhibitive alkyd primer to a dry film thickness of 1.5 mils.
- (g) Durability. Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure as per ASTM B117 in a five percent (5%) Na Cl (by weight) solution at 95°F and 95% relative humidity without blistering. Before test, the panel must be scribed with an "X" down to bare metal.

(h) Coating Measurement. Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges," except that the lowest "single spot measurement" in an area of two square inches must not be less than 5.5 mils.

(i) Color. Color must be gloss black unless noted otherwise in the order. A paint chip must be submitted for approval prior to fabrication.

(j) Alternate Methods. Alternate coating methods may be reviewed and tested on a case by case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified.

### ARM TEST

9. (a) General. All completed arms shall be available for testing for maximum deflection and set. Unless specifically authorized in writing, all tests must be made at the works of the manufacturer. A record of every test must be made and a certified copy of the test record must be submitted to the Engineer of Electricity before the arms are shipped.

(b) Lot. Tests for deflection and set must be made upon the first three (3) arms in the first fifty (50) arms in the lot. An additional one (1) arm must be tested for each additional fifty (50) arms. If any of the arms in any lot fail to meet the test, an additional three (3) arms of the same lot must be tested. If any of these arms fail to meet the test requirements, the entire lot will be subject to rejection, except that the manufacturer may subject each arm in the lot to the test, and those which fulfill the requirement will be accepted. After testing, each weld must be inspected by the magnetic particle method to determine that the welds have not been affected.

(c) Requirements. With arm rigidly anchored, a test load as indicated in the table in Standard Drawing 870 must be applied at a point approximately two feet (2'0") from the free end. The load must be applied at right angles to the center line of the arm and in the same vertical plane. The deflection must not be greater than that indicated. Within one (1) minute after the test load is released, measurement must be made of the set taken by the arm. The deflection measurement device must be reset to zero and the test load must be reapplied. The deflection must not change from the deflection noted in the first test by more than  $\pm 5\%$ . No measurable set must be noted within one (1) minute after test load is released.

### PACKAGING

10. (a) General. The arms shall be shipped in twelve (12) arm bundles. Each arm must be individually wrapped so that the arm can be bundled for shipping and unbundled for delivery to the job site without damaging the arm or its finish.

(b) Bundles. The bundles shall consist of twelve (12) arms laid base to top to form an approximately rectangular cylinder. Materials such as lumber (2" x 4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled, shipped and stored without shifting of contents or breaking, subject to approval. Any bundles, in which either arms or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two (2) high without breaking, or shifting of the contents. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading. Each arm wrapping must be clearly labeled indicating the mast size, i.e. 30' SIGNAL MAST ARM.

(c) Hardware. The hardware must be shipped with each bundle and packaged in twelve (12) sets of four (4) each. The package shall be placed in a prominent position to facilitate accessibility, and must be attached to, or within, the bundle in such a manner as to assure safe delivery. Payment will be withheld for any bundle delivered without the accompanying hardware. Arm caps must be attached at the manufacturer's facilities, or be packed separately in a manner similar to the other hardware, and the same payment conditions will prevail. Cracked, broken or chipped parts will be considered as an incomplete delivery as regards payment.

(d) Delivery. All mast arms will be delivered to the Division of Electrical Operations storage yard at 4101 South Cicero Avenue in Chicago, or to another location within the City as indicated on the order.

SPECIFICATION 1457

DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF STREETS AND SANITATION  
CITY OF CHICAGO  
REVISED AUGUST 3, 2006

CABLE: SERVICE ENTRANCE,  
THREE INSULATED CONDUCTORS IN ONE OVERALL JACKET,  
600 VOLT

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SUBJECT

1. This specification states the requirements for a three conductor (two power conductors and one neutral conductor) Ethylene Propylene Rubber (EPR) insulated, chlorosulfonated polyethylene (CSPE) or polyvinyl chloride (PVC) jacketed cable for installation on Commonwealth Edison service poles for the purpose of providing secondary power feeds from Commonwealth Edison to a City disconnect mounted on the pole for street lighting or traffic signal circuits.

GENERAL

2. (a) Specifications. The cable shall conform in detail to the requirements herein stated, and to the applicable portions of the specifications and methods of test of the following agencies:
- (1) ICEA Specification S-95-658
  - (2) IEEE Standard 383
  - (3) ASTM Standard E-662-79
  - (4) ASTM Standard D-470-81
  - (5) U.L. 44
  - (6) U.L. 854
- (b) Acceptance. Cable not conforming to this specification will not be accepted.
- (c) Sample. A three (3) foot sample of the cable intended to be provided under this contract must be submitted to the Engineer of Electricity within fifteen (15) business days after receipt of such a request from the Chief Procurement Officer.
- (d) Warranty. The manufacturer shall warranty the cable to be first class material throughout. If the cable is installed within one year of the date of shipment, the manufacturer must replace any cable failing during normal and proper use within two years of installation. The cable length to be replaced will be the entire unspliced length where the fault has been located. The Commissioner will be the sole judge in determining if a cable has failed and should be replaced. All

replacements under this warranty must be made free of charge F.O.B. delivery point of the original contract

### CABLE

3. (a) Construction. The cable must consist of three (3) conductors separately insulated and color coded. Suitable fillers must be used to produce essentially a round cross section in the completed cable. The insulated conductors must be cabled with a suitable left hand lay in conformance with the latest revision of ICEA S-95-658. A binder tape must be used over the cabled conductor assembly and a jacket applied overall.
- (b) Sealing. The ends of each length of cable shall be sealed against the entrance of moisture.
- (c) Marking. The color of the neutral conductor must be white; that of the phase conductors must be black and red, respectively. The jacket must be black.
- (d) Each conductor shall consist of a round copper wire with a tight fitting, free stripping, concentric layer of Ethylene Propylene insulation. The cable must be rated for continuous duty at 90°C operating temperature, wet or dry, 130°C emergency overload temperature and 250°C short circuit temperature.

### CONDUCTOR

4. (a) Material. The conductor shall either be soft or annealed round copper wire, tin coated.
- (b) Specifications. The conductor must meet the requirements of ASTM B3, and B8 for stranded Class B copper.
- (c) Size. The conductor size shall be as stated in the proposal or on the plans.

### INSULATION

5. (a) Type. The insulation must be Ethylene Propylene compound meeting the physical and electrical requirements specified herein.
- (b) Thickness. The insulation must be circular in cross-section, concentric to the conductor, and must have an average thickness not less than 30 mils (.030") for #14 AWG, 55 mils (.055") for #4 AWG, 65 mils (.065") for #2 AWG, 80 mils (.080") for #1/0 AWG, 80 mils (.080") for #2/0 AWG, and a spot thickness not less than ninety percent (90%) of the average thickness.
- (c) Initial Physical Requirements:

(1) Tensile Strength, min., psi.	1200
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(2) Elongation at Rupture, min. %      250

(d) Air Oven Exposure Test. After conditioning in an air oven at  $121 \pm 1^\circ\text{C}$  for 168 hours using methods of test described in ASTM-D 573:

(1) Tensile strength, min% of unaged value      75

(2) Elongation, min % of unaged value at rupture      75

(e) Mechanical Water Absorption:

(1) Gravimetric Method: After 168 hours in water at  $70 \pm 1^\circ\text{C}$ :

Water absorption, maximum  
(Mg. per sq. in)      5.0

(f) Cold Bend Test Requirements. The completed cable must pass the "Cold-Bend, Long-Time Voltage Test on Short Specimens" of ASTM D-470 except that the test temperature must be minus (-)  $25^\circ\text{C}$ .

(g) Electrical Requirements.

(1) Voltage Test. The completed cable must meet an A.C. and D.C. voltage test in accordance with ASTM- D-470 and D-2655.

(2) Insulation Resistance. The completed cable must have an insulation resistance constant of not less than 20,000 when tested in accordance with methods shown in ASTM D-470.

## JACKET

6. (a) Type. The jacket shall be either a chlorosulfonated polyethylene (CSPE) or a polyvinylchloride (PVC) compound meeting the physical and electrical requirements specified herein. CSPE must meet the environmental requirements of CFR Title 40, Part 261 for leachable lead content.

(b) Thickness. The jacket must be circular in cross-section, concentric with the insulation, must have an average thickness not less than 45 mils (.045") for #14 AWG, 80 mils (.080") for #2 and #4 AWG, and not less than 95 mils (.095") for #1/0 and #2/0 AWG, and a spot thickness not less than ninety percent (90%) of the average thickness.

(c) Initial Physical Requirements:

(1) Tensile strength minimum PSI..... 1800

(2) Elongation at rupture, minimum percent 300

- (d) Air Oven Exposure Test. After conditioning in an air oven at  $121 \pm 1^\circ\text{C}$  for 168 hours:
- (1) Tensile strength, minimum percent of unaged value 75
  - (2) Elongation at rupture, minimum percent of unaged value 60
- (e) Mechanical Water Absorbtion. After 168 hours at  $70 \pm 1^\circ\text{C}$ :
- (1) Milligrams per square inch, maximum 20

#### TESTING

7. (a) General. Tests shall be performed on insulation, jacket and completed cables in accordance with the applicable standards as listed in these specifications. Included in these tests will be a 70,000 BTU per hour flame test in accordance with IEEE 383. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by an engineer from the Division of Electrical operations, will apply. All tests shall be conducted on cable produced for this order.
- (b) Number of Tests. Insulation and jacket tests shall be conducted on samples taken every 5,000 feet or fraction thereof of each conductor size. In no case must less than two (2) samples be taken. Approximately five percent (5%) of the cable must be tested. Where the cable fails to conform to any of the tests specified herein, samples must be taken from each reel and must successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.
- (c) Test Reports. No cable may be shipped until certified copies of all factory tests have been reviewed and approved by the engineer.

#### PACKAGING

8. (a) Cable Marking. The cable must be identified by a permanently inscribed legend in white lettering as follows:
- 3/C - No. (conductor size)AWG-600V-90°C-EPR/CSPE or EPR/PVC-  
manufacturer's name- month/year of manufacture

The legend must be repeated at approximately eighteen (18) inch intervals on the outside surface of the cable parallel to the longitudinal axis of the conductor.

- (b) Reels. The completed cable shall be delivered on sound substantial, non-returnable reels. Both ends of each length of cable must be properly sealed against the entrance of moisture and other foreign matter by the use of clamp-on cable caps. The ends must be securely fastened so as not to become loose in transit. Before shipment, all reels must be wrapped with cardboard or other approved wrapping.

- (c) Footage. Each reel must contain 1,000 foot of cable for either #4 AWG or #2 AWG and 500 feet of cable for #1/0 AWG or #2/0 AWG. A tolerance limit of plus or minus ten percent ( $\pm 10\%$ ) shall be adhered to.
- (d) Reel Marking. A metal tag must be securely attached to each reel indicating the reel number, contract number, date of shipment, gross and tare weights, description of the cable and the total footage. Directions for unrolling the cable must be placed on the reel with an approved permanent marking material such as oil-based paint or a securely attached metal tag.

TABLE 1 - THREE CONDUCTOR SERVICE ENTRANCE CABLE

Size (AWG)	Overall Diameter (mils)	No. Of Strands	Test Volts (KV)	Footage per Reel	Insulation (mils)	Jacket (mils)
4	950	7	4.5	1000	55	80
2	1100	7	4.5	1000	65	80
1/0	1400	19	5.5	500	80	95
2/0	1800	19	5.5	500	80	95



SPECIFICATION 1458  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED JULY 10, 2006

**ELECTRICAL MANHOLE FRAMES AND COVERS**  
24 INCH AND 30 INCH DIAMETER

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**SCOPE**

1. This specification describes the requirements for both 24 inch and 30 inch round frames and covers. These frames and covers will be used for electrical manholes and handholes and will provide access to the interior of the manholes and handholes. The 24 inch frames and covers will be used in parkway and sidewalk areas. The 30 inch frames and covers will be used in streets and in driveways and will provide sufficient strength to withstand normal traffic conditions.

**GENERAL REQUIREMENTS**

2. (a) Conformance. The manhole frames and covers shall conform with every detail of the requirements herein stated and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation Number in which the most recently published revision will govern.
- (b) Acceptance. Frames and covers not conforming to this specification will not be accepted. The Commissioner of Transportation will have the final say as to whether or not the frames and covers meet specifications.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation, Division of Electrical Operations, and must be interpreted as part of these specifications.
- (d) Sample. Upon request, one complete manhole frame and cover of the manufacture intended to be furnished must be submitted within fifteen (15) business days after receipt of such a request from the Chief Procurement Officer. The samples must be delivered to the Division of Electrical Operations, 4101 South Cicero Avenue, Chicago, Illinois.
- (f) Warranty. The manufacturer shall warrant that the frames and covers meet the specifications and warrant the frames and covers for a period of one (1) year from the date of delivery against defects which may occur during that period

from normal and customary use. Any frame or cover which fails during this period must be replaced by the manufacturer at no cost to the City.

### DESIGN

3. (a) The frames and covers shall each conform in detail to the designs shown on Drawings 872, 874 and 10927.
  - (b) Each frame and cover shall weigh approximately as shown on the drawings.
  - (c) Machining. The bearing surfaces of both the cover and the frame shall be machine finished as indicated on the drawings.
  - (d) Workmanship. The frames and covers must be mutually interchangeable size for size, so that each lid will fit every frame neatly without jamming and with only such clearance as the drawings indicate. In addition, 24" & 30" covers must fit existing 24" & 30" frames, as shown on drawings 872, 874 and 10927. The castings shall be neat, true to pattern and free from cracks and casting flaws. No welding of defective castings will be permitted nor must the castings be painted.
  - (e) Material. The frames and covers must be made of Class 30 Cast Iron described in the specifications for Gray Iron Castings of ASTM A48. No plugging of defective castings will be permitted.

### TESTS

4. (a) Test bars of the metal used for the castings shall be made and tested for tensile and transverse strength in accordance with ASTM A48. The metal must be tested at the works of the manufacturer. The manufacturer must furnish a certified copy of all test data sheets to the City prior to delivery of the castings. Frames and covers shall each be considered a separate casting for determining the requirement of testing.

**SPECIFICATION**

1462

**DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED AUGUST 3, 2006**

**RIGID STEEL CONDUIT  
(HOT DIPPED GALVANIZED)**

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**SCOPE**

1. This specification describes rigid steel conduit, zinc coated. This specification also describes rigid steel conduit that is both zinc and PVC coated. The conduit will be used underground or on structure as a raceway for electrical cables.

**GENERAL REQUIREMENTS**

2. (a) Rigid steel conduit must be zinc coated by the hot-dip process. Conduit must be furnished in 10 foot lengths, threaded on each end and with one coupling attached to one end and a protective cap at the other end.
  - (b) The conduit shall be manufactured according to Underwriters Laboratories Standard U.L. - 6 and must meet ANSI Standard C 80.1 and the requirements of NEC Article 344. In addition, conduit must be recognized as an equipment grounding conductor as per NEC Article 250.118(2). There will be no exceptions to meeting these standards.
  - (c) Acceptance. Conduit not conforming to this specification will be rejected. The Commissioner will be the final judge in determining if the conduit meets the specification.
  - (d) Sample. If requested by the Chief Procurement Officer, a sample of conduit must be submitted to the Engineer of Electricity within fifteen (15) business days of receipt of such a request.
  - (e) Warranty. The manufacturer shall warrant the construction and performance of the conduit to meet the requirements of this specification and shall warrant all parts and components against defects due to design, workmanship, or material developing within a period of one (1) year after the conduit has been delivered.

### STEEL

3. Conduit shall be formed from steel suitable for use as an electrical raceway. It shall be structurally sound so that it will hang straight and true when supported by hangers in accordance with Chicago electrical code requirements and shall be capable of being field bent without deformation of the walls.

Conduit shall have a circular cross section sufficiently accurate to permit the cutting of threads in accordance with Table 2 and shall provide a uniform wall thickness throughout. All surfaces shall be smooth and free of injurious defects. The dimensions and weights of rigid steel conduit must be in accordance with Table 1.

### THREADING AND CHAMFERING

4. Each length of conduit, and each nipple, elbow and bend must be threaded on both ends, and each end must be chamfered to remove burrs and sharp edges.

The number of threads per inch, and the length of the threaded portion at each end of each length of conduit, nipple and elbow must be as indicated in Table 2. The perfect thread must be tapered for its entire length, and the taper must be 3/4 inch per foot.

### ZINC COATING

5. After all cutting, threading, and chamfering all conduit surfaces shall be thoroughly cleaned before application of zinc. The cleaning process shall leave the interior and exterior surfaces of the conduit in such a condition that the zinc will be firmly adherent and smooth.

The conduit must be hot dipped galvanized both inside and out to provide approximately two (2) ounces of zinc per square foot. This is equivalent to 3.4 mils of zinc coating. An additional interior coating to aid in the installation of wires is required.

### COUPLINGS

6. (a) The outside surface of couplings shall be protected by means of a zinc coating. The zinc content of the coating on the outside surface must be equivalent to a minimum thickness of 3.4 mils.
- (b) Couplings shall be so made that all threads will be covered when the coupling is pulled tight on standard conduit threads.

- (c) Both ends of the coupling must be chamfered to prevent damage to the starting threads.
- (d) The outside diameter, length and weight of coupling must be as indicated in Table 3.
- (e) Couplings must be straight tapped, except that the 2 1/2 inch and larger sizes may be taper-tapped.

**PVC COATED (WHEN SPECIFIED)**

7. (a) Only hot dipped galvanized conduit, couplings, and fittings may be polyvinylchloride (PVC) coated.
- (b) All conduit, couplings, and fittings must be cleaned before being coated.
  - (c) All conduit, couplings, and fittings must have a PVC coating applied to the exterior by dipping in liquid plastisol. The coating thickness must be a nominal 40 mils.
  - (d) All coated conduit, couplings, and fittings must conform to the requirements of NEMA Standard RN1- Section 3 , “External Coatings”. The latest revision will apply.

**PACKING AND IDENTIFICATION**

8. The pipe shall be delivered in bundles. Each length of conduit must be marked with the manufacturer's name or trademark. Securely attached to each bundle at two (2) locations on the bundle must be a weather resistant tag containing the following information:
- a. conduit size
  - b. footage of bundle
  - c. gross weight of bundle

Precaution will be taken by the contractor in handling during shipment or delivery of conduit, and any conduit found to be damaged will not be accepted.

**TEST AND INSPECTION**

9. Galvanized rigid conduit must be capable of being bent cold into a quarter of a circle around a mandrel, the radius of which is four times the nominal size of the conduit, without developing cracks at any portion and without opening the weld.

The protective coatings used on the outside and inside surfaces of rigid steel conduit must be sufficiently elastic to prevent their cracking or flaking off when a finished sample of 2 inch conduit is tested within one year after the time of manufacture, by bending it into a half of a circle around a mandrel, the radius of which is 3 1/2 inches.

Tests on sizes other than 1/2 inch may be conducted within one year after the time of manufacture. If such tests are conducted, the conduit must be bent into a quarter of a circle around a mandrel, the radius of which is six times the nominal size of the conduit.

One of the following three test methods shall be employed for measuring the thickness or extent of the external zinc coating on conduit:

- (a) Magnetic test.
- (b) Dropping test.
- (c) Preece test (Material which will withstand four 1-minute immersions will be considered as meeting requirements as follows; the zinc content of the coating on the outside surface must be equivalent to a minimum thickness of 3.4 mils).

All tests and inspections must be made at the place of manufacture prior to shipment unless otherwise specified, and shall be so conducted as not to interfere with normal manufacturing processes.

Each length of conduit shall be examined visually both on the outside and inside to determine if the product is free from slivers, burrs, scale or other similar injurious defects (or a combination thereof), and if coverage of the coating is complete.

If any samples of rigid steel conduit tested as prescribed in this specification should fail, two additional samples must be tested, both of which must comply with the requirements of the specification.

All pipe which may develop any defect under tests, or which may before testing or on delivery be found defective, or not in accordance with these specifications, must be removed by the Contractor at his own expense; and such pipe so removed by the Contractor must be replaced by him within ten (10) days of such rejection with other pipe which will conform to these specifications.

**TABLE 1**

**Design Dimension and Weights of Rigid Steel Conduit**

Nominal or Trade Size of Conduit	Inside Diameter	Outside Diameter	Wall Thickness	Length Without Coupling	Minimum Weight of Ten Unit Length w/coupl ings
(Inches)	(Inches) (Pounds)	(Inches)	(Inches)	(Feet/Inches)	
1/2	0.622	0.840	0.109	9-11 1/4	79.00
3/4	0.824	1.050	0.113	9-11 1/4	105.0
1	1.049	1.315	0.133	9-11	153.0
1 1/4	1.380	1.660	0.140	9-11	201.0
1 1/2	1.610	1.900	0.145	9-11	249.0
2	2.067	2.375	0.154	9-11	334.0
2 1/2	2.469	2.875	0.203	9-10 1/2	527.0
3	3.068	3.500	0.216	9-10 1/2	690.0
3 1/2	3.548	4.000	0.226	9-10 1/4	831.0
4	4.026	4.500	0.237	9-10 1/4	982.0

NOTE: The applicable tolerances are:

Length: + 1/4 inch (without coupling)

Outside diameter: + 1/64 inch or -1/32 inch for the 1 1/2 inch and smaller sizes,  
 ± 1 % for the 2 inch and larger sizes.

Wall thickness: - 12 1/2 %

**TABLE 2**

**Dimensions of Threads**

Nominal or Trade Size of Conduit (Inches)	ThreadsPitch per Inch	Diameter at end of Thread (Inches) Tapered 3/4 Inch per foot	Length of Thread (Inches)	
			Effective L2	Overall L4
1/2	14	0.7584	0.53	0.78
3/4	14	0.9677	0.55	0.79
1	11 1/2	1.2136	0.68	0.98
1 1/4	11 1/2	1.5571	0.71	1.01
1 1/2	11 1/2	1.7961	0.72	1.03
2	11 1/2	2.2690	0.76	1.06
2 1/2	8	2.7195	1.14	1.57
3	8	3.3406	1.20	1.63
3 1/2	8	3.8375	1.25	1.68
4	8	4.3344	1.30	1.73

NOTE: The applicable tolerances are:

Threaded Length (L4 Col 5): Plus or minus one thread

Pitch Diameter (Col 3): Plus or minus one turn is the maximum variation permitted from the gaging face of the working thread gages. This is equivalent to plus or minus one and one half turns from basic dimensions, since a variation of plus or minus one half turn from basic dimensions is permitted in working gages.



TABLE 3

**Designed Dimensions and Weights of Couplings**

Nominal or Trade Size of Conduit <u>(INCHES)</u>	Outside Minimum Diameter <u>(INCHES)</u>	Minimum Length <u>(INCHES)</u>	Weight <u>(POUNDS)</u>
1/2	1.010	1-9/16	0.115
3/4	1.250	1-5/8	0.170
1	1.525	2	0.300
1 1/4	1.869	2-1/16	0.370
1 1/2	2.155	2-1/16	0.515
2	2.650	2 1/8	0.671
2 1/2	3.250	3-1/8	1.675
3	3.870	3-1/4	2.085
3 1/2	4.500	3-3/8	2.400
4	4.875	3-1/2	2.839

**SPECIFICATION 1463  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED JUNE 22, 2001**

**TRAFFIC SIGNAL MOUNTING BRACKETS FOR  
MONOTUBE ARMS**

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**SUBJECT**

1. This specification states the requirements for mounting brackets which will be used to secure traffic signals and illuminated signs to steel monotube mast arms.

**GENERAL**

2. (a) Specifications. The mounting brackets shall conform in detail to the requirements herein stated and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation number of which the most recently published revision will govern.
  - (b) Acceptance. Mounting brackets not conforming to these specifications will not be accepted.
  - (c) Sample. If requested by the Chief Procurement Officer, one complete mounting bracket must be submitted within fifteen (15) business days upon receipt of such a request. It must be delivered to the Engineer of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.
  - (d) Experience. The manufacturer shall demonstrate a knowledge of past production of the brackets herein described, as demonstrated by a submittal list of comparable projects.
- (e) Warranty. Bracket must have a minimum three (3) year warranty. The warranty must cover the material and workmanship. Any structural flaws or inability to maintain alignment will be deemed a failure and result in the warranty being invoked. The manufacturer will supply a new bracket for each failed bracket, at no cost to the City.

## DESIGN

3. (a) General. The mounting bracket shall be designed such that no portion of the bracket is put into tension when it is attached to the mast arm with banding. The signal support tube will be attached to the bracket using compression type attachments. All materials must be corrosion resistant and designed to be structurally sound. The signal support tube will be a slotted aluminum pipe of sufficient length to hold either a 3, 4, or 5 section signal head, or an illuminated sign. The slot must have a neoprene gasket to protect the cable. There must also be top and bottom brackets that hold the signal head assembly at each end to the tube. The bottom bracket will also be used as a cable runway.
- (b) Hardware. All components of the mounting brackets must be held firmly in place with stainless steel hardware.
- (c) Adjustments. Bracket shall allow for mounting and adjustment of signal faces in any direction desired on a fixed mast arm. Adjustments shall be made using standard hand tools. Neither mounting nor adjusting the bracket should require the use of a torque wrench.
- (d) Signal Mounting. Mounting hardware shall be available for use with standard two, three and five signal head configurations; for use with optically programmed signal heads; and with signs.
- (e) Wiring. Bracket design shall allow for ease of installation of components and wiring. All wiring troughs and nipples must provide smooth, burr-free surfaces and adequate space for facile movement of nominal 2" diameter cable between the mast arm and the signal face.
- (f) Banding. Where banding is used to attach the mounting bracket to the mast arm, the banding must be 3/4" x 42" stainless steel.
- (g) Castings. Where castings are used for the brackets, they shall be smooth and free of defects.

## TESTING

4. (a) General. One Percent (1%) of the traffic signal mounting brackets in each order shall be tested for rigidity and structural integrity.
- (b) Re-testing. If any mounting bracket fails any portion of the test, an additional three percent (3%) of the brackets must be tested. If an additional bracket fails, the entire lot will be rejected.
- (c) Tests.

1. With five (5), twelve inch (12") signal head sections attached to the bracket, the assembly shall be mounted to a suitable and proper supporting structure.
2. Using a calibrated dynamometer, a one hundred pound force must be applied for sixty seconds at the center of the bracket in the horizontal plane. At the completion of the test, there must be no movement of the assembly or deterioration of the bracket or appurtenant hardware.
3. Using a calibrated dynamometer, a one hundred pound force must be applied to the top signal head section for sixty seconds in a direction which will pull the head away from the mounting post in the mounting post plane. During this time period, the mounting bracket castings must be struck ten times with an eight ounce flat head hammer at the point(s) which appear to be most vulnerable to stress. At the completion of the test, no movement of the assembly must have been observed and there must be no cracking of the castings or deterioration of the appurtenant hardware.
4. The above test must be repeated except that the force must be applied in a plane which is perpendicular to the mounting post plane.

SPECIFICATION 1465  
DIVISION OF ELECTRICAL OPERATIONS

DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED JULY 12, 2006

GROUND RODS

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SUBJECT

1. This specification states requirements for ground rods and clamps to be used for ground electrodes in street lighting, traffic signal, and miscellaneous electrical circuits.

GENERAL

2. (a) Ground rods must be copper clad, steel rods suitable for driving into the ground without deformation of the rod or scoring, separation or other deterioration of the copper cladding.

(b) Sample. If requested by the Chief Procurement Officer, the contractor must furnish one sample of the ground rod proposed to be furnished within fifteen (15) business days from receipt of such request. The sample ground rod must be delivered to the Engineer of Electricity, 2451 S. Ashland Avenue, Chicago, Illinois 60608.

(c) Warranty. The manufacturer shall warrant every ground rod against defects due to design, workmanship, or material developing within a period of one (1) year after the ground rod has been accepted. Any ground rod which fails during this period must be replaced by the contractor without expense to the City. The Commissioner of Transportation or his duly authorized representative will be the sole judge in determining which replacements are to be made.

(d) The Commissioner will be the sole judge in determining whether the submitted ground rods meet the requirements of this specification. Ground rods not accepted must be removed at the sole expense of the contractor.

#### DESIGN

3. (a) The ground rods and couplings must meet the latest requirements of ( National Electrical Manufacturer's Association) NEMA Standard GR-1, for copper bonded ground rod electrodes and couplings. The ground rods must also meet the requirements of (Underwriter's Laboratories) UL 467.

(b) Ground rods shall be made of steel core suitable for driving into the earth without deformation.

(c) A uniform covering of electrolytic copper, 10 mils in thickness, shall be metallically bonded to the steel core to provide a corrosion resistant, inseparable bond between the steel core and the copper overlay.

(d) The finished rod must be of uniform cross-section; straight, and free of nicks, cuts or protuberances.

(e) The rod must be pointed at one end and chamfered at the other.

(f) All ground rods must be three-quarter inches (3/4") in diameter. The length shall be as specified in the order or in the plans. The length and diameter of the rod and the manufacturer must be clearly and permanently marked near the top of the rod (chamfered end).

(g) All ground rods must have a ground clamp capable of accommodating a No. 6 AWG Copper Wire.

#### PACKING

4. (a) Ground rods must be packed in bundles with reinforced tape or plastic banding that will not damage the rods. Small bundles may then be bound in larger bundles held together with steel banding.

(b) Ground clamps must be packed in a suitable carton. The carton must be labeled to indicate the contents.

SPECIFICATION 1467  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
MAY 12, 1993

ROD: ANCHOR, STEEL, WITH HARDWARE

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SUBJECT

1. This specification states the requirements for steel anchor rods with hardware for street light pole foundations.

GENERAL

2. (a) Specifications. The anchor rods shall conform in detail to the requirements herein stated, and to the specifications of the American Society for Testing and Materials cited by ASTM Designation Number, of which the most recently published revision will govern.  
  
(b) Drawing. The drawings mentioned herein are issued by the Department of Transportation, Division of Electrical Operations, and are an integral part of this specification.

ANCHOR ROD

3. (a) Fabrication. Each anchor rod must be fabricated in conformity with City of Chicago drawings numbered 806, 811, 830 and 844.  
  
(b) Material. The rods must be fabricated from cold rolled carbon steel bar meeting the requirements of ASTM Specification A-36, except that the Specification must be modified to provide a minimum yield point of 55,000 psi (379 MPa).

- (c) Thread. The straight end of each rod must be threaded as shown on City of Chicago drawing for that size rod, and must be American Standard, National Coarse.

#### HARDWARE

- 4. Hardware furnished with the anchor rod shall be as shown on the applicable drawing. It must include two (2) hexagonal nuts, American Standard Regular, two (2) flat washers, type B, series W, and one (1) lock washer, steel, helical spring. The nuts must have a Class 2 or 3 fit.

#### FINISH

- 5. (a) Galvanizing. The threaded end of each rod must be hot dipped galvanized for the distance shown on the applicable drawing. The thickness of the galvanized coating must not be less than 0.0021 inches. Each hexagonal nut and washer must be galvanized to the minimum thickness required by ASTM A-153, Class C, or ASTM B-454, Class 50. After galvanization, each anchor rod and nut must have a mating fit equivalent to the American Standard Class 2 or 3 fit for nuts and bolts.
- (b) Rust Inhibitor. With the hardware in place on the end of the bolt, the galvanized portion of the bolt must be coated with heavy No-Ox-Id or equal rust inhibiting greasy compound.

#### TESTS

- 6. At the discretion of the Commissioner, anchor rods and hardware furnished under this specification will be subject to testing to determine compliance with the materials physical requirements.

#### INSPECTION

- 7. Final inspection must be made at point of delivery. Any anchor rods and hardware rejected must be removed by the Contractor at his sole expense.



**SPECIFICATION 1475  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED SEPTEMBER 26, 2006**

CORD: TRAFFIC SIGNAL, EIGHT CONDUCTOR NO. 16 AWG, 600 VOLT

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**SUBJECT**

1. This specification states the requirements for an eight (8) conductor number 16 AWG, electrical cable, to be installed in poles and conduit and used to electrically energize traffic signal faces at street intersections within the City of Chicago. The cable shall be flame retardant, have low acid gas content, good resistance to oil, moisture and mechanical abuse, and exhibit excellent heat aging and electrical characteristics.

**GENERAL**

2. (a) Specifications. The cable shall conform in detail to the requirements herein stated, and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation Number, the Underwriters Laboratories, Inc. Standard or Style number and any other recognized standardization groups specifications referred to by the appropriate designation, of which the most recently published revision will govern.
- (b) Acceptance. Cable not conforming to this specification will not be accepted.

- (c) Warranty. The manufacturer shall warrant the cable to be first class material throughout. In addition to any other claims against them, if the cable is installed within six months of date of shipment, the manufacturer must replace any cable failing during normal and proper use within two years of date of installation. All replacements under this warranty must be made free of charge F.O.B. delivery point of the original contract.
  
- (d) Sample. If requested by the Chief Procurement Officer, a three (3) foot sample of the cable intended to be provided under this specification must be submitted to the attention of the Engineer of Electricity within fifteen (15) business days after receipt of such request.

## CABLE

3. (a) Construction. This cable shall consist of stranded, coated, conductors each concentrically encased with a "free stripping," ethylene propylene rubber insulation. Suitable fillers shall be used to produce an essentially round cross-section. The insulated conductors and the fillers must be cabled with a suitable left-hand lay as close together as is consistent with forming a core of minimum diameter. A Mylar tape must be wrapped over the conductor assembly, and a jacket applied overall.
- (b) Outer Diameter. The maximum allowable outer diameter must be one-half (0.50) inch.
- (c) Sealing. Both ends of each length of cable must be thoroughly sealed to prevent the entrance of moisture or other foreign matter.

## MARKING

4. (a) Conductors. Identification must be provided by colors in accordance with I.M.S.A. Standards.
- (b) Jacket. The outer jacket must be marked as follows: "8/C 16 AWG 600V 90°C LSZH, name of manufacturer and date of manufacture. The height of letters must not be less than 1/8 inch in height and the message must repeat at approximately two (2) foot intervals. A sequential footage marking must be located on the opposite side of the jacket. All marking must be perfectly legible with permanent white ink.

## CONDUCTOR

5. (a) Material. Round, Soft or annealed, stranded copper wire in accordance with ASTM B-3 and B-8, and coated in accordance with ASTM B33 (tin coated), must be furnished.
- (b) Size. The stranded conductor must consist of stranded wires twisted with an appropriate lay to form a No. 16 AWG conductor with an approximate diameter of 0.048 inches.

## INSULATION

6. (a) Type. The insulation must be an easily strippable low smoke zero halogen (LSZH) thermosetting polyolefin compound or ethylene propylene rubber (EPR), or equal meeting or exceeding the requirements of ICEA S-95-658 and the additional requirements of this specification.
- (b) Rating. The insulation must be rated for continuous duty at 90°C in accordance with U.L. AWM Style 3400.

- (c) Thickness. The insulated conductor must be circular in cross-section, concentric to the conductor, with a nominal insulation thickness of 0.031 inches (2/64") and a minimum spot thickness of 90% of the nominal thickness.
- (d) Initial Physical Requirements:
- |                                  |       |
|----------------------------------|-------|
| 1. Tensile strength, min., PSI   | 1,600 |
| 2. Elongation at rupture, min. % | 250   |
- (e) Air Oven Exposure Test. After conditioning in an air oven at  $158 \pm 1^\circ\text{C}$  for 168 hours using methods of test described in ASTM-D 573:
- |  |     |
|--|-----|
| Tensile strength, minimum percent of unaged value . . . . .      | .85 |
| Elongation at rupture, minimum percent of unaged value . . . . . | .65 |
- (f) Mechanical Water Absorption:
1. Gravimetric Method. After 168 hours in water at  $70 \pm 1^\circ\text{C}$ :
- |   |      |
|---|------|
| Water absorption, maximum, milligrams per square inch . . . | .5.0 |
|---|------|
- (g) Cold Bend Test Requirements. The completed cable must pass the "Cold-Bend," Long-Time Voltage Test on Short Specimens of ASTM D-470 except that the test temperature must be minus (-)  $25^\circ\text{C}$ .
- (h) Electrical Requirements:
1. Voltage Test. The completed cable must meet an A.C. and D.C. voltage test in accordance with ASTM D-470 and D-2655.
2. Insulation Resistance. The completed cable must have an insulation resistance constant of not less than 20,000 when tested in accordance with methods shown in ASTM D-470.
- (i) Flexibility Tests. A sample length of insulated conductor must be formed in a loose coil, placed in a circulating air oven, and aged for 168 hours at  $158^\circ\text{C} \pm 1^\circ\text{C}$ . The sample must then be allowed to cool to room temperature for one (1) hour and tightly wrapped around a 3X metal mandrel. The sample must show no cracks and must pass the same voltage test specified for the "Cold-Bend Test."

**JACKET**

7. (a) Type. The jacket must be a thermosetting low smoke zero halogen (LSZH) polyolefin compound or chlorinated polyethylene (CPE), or equal meeting the physical and electrical requirements specified herein.
- (b) Rating. The jacket must be rated for continuous duty at  $90^\circ\text{C}$ .

- (c) Thickness. The jacket must be circular in cross-section, concentric with the insulation, must have an average thickness not less than 45 mils and a spot thickness not less than ninety percent (90%) of the average thickness.
- (d) Initial Physical Requirements:
- |    |  |      |
|----|--|------|
| 1. | Tensile strength minimum PSI           | 1800 |
| 2. | Elongation at rupture, minimum percent | 300  |
- (e) Air Oven Exposure Test. After conditioning in an air oven at  $121 \pm 1^\circ\text{C}$  for 168 hours for LSZH or  $136 \pm 1^\circ\text{C}$  for CPE:
- |    |   |    |
|----|---|----|
| 1. | Tensile strength, minimum percent of unused value       | 75 |
| 2. | Elongation at rupture, minimum percent of unaged valued | 55 |
- (f) Mechanical Water Absorption. After 168 hours at  $70 \pm 1^\circ\text{C}$ :
- |    |                                     |    |
|----|-------------------------------------|----|
| 1. | Milligrams per square inch, maximum | 20 |
|----|-------------------------------------|----|

## TESTING

8. (a) General. Tests shall be performed on insulation, jacket and completed cables in accordance with applicable standards as listed in this specification. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by the Engineer of Electricity will apply.

All tests must be conducted on cable produced for this order. Where cable insulation and/or jacket thickness preclude obtaining samples of sufficient size for testing, special arrangements must be made with the engineer to obtain samples of unprocessed materials directly from the extrusion feed bins which will be separately processed and prepared for tests.

- (b) Number of Tests. Insulation and jacket tests must be conducted on samples taken every 25,000 feet or fraction thereof of each conductor size. In no case must samples be taken closer than 15,000 feet apart.
- (c) Test Reports. No cable shall be shipped until certified copies of all factory tests have been reviewed and approved by the engineer.
- (d) Acceptance. Samples shall be taken from each reel and must successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.

#### PACKAGING

- 9. (a) Reels. The completed cord shall be delivered on sound, substantial reels. The ends of the cable must be securely fastened so that they will not become loose during shipment and handling.
- (b) Footage. The number of feet per reel must be five hundred (500) feet plus or minus ten percent ( $\pm 10\%$ ).
- (c) Marking. A metal tag, or an approved indelible marking material such as alkyl enamel paint, must be used to mark the reel. The marking information must include, but not be limited to, the following: reel number, contract number, a description of the cord, and the footage of that particular reel.

SPECIFICATION 1493  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED JANUARY 27, 2010

**TRAFFIC SIGNAL: VEHICULAR, TWELVE-INCH  
SINGLE FACE, SINGLE OR MULTIPLE-SECTION,  
POLYCARBONATE, LED OR INCANDESCENT**

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**1. GENERAL REQUIREMENTS**

1.1 This specification states the requirements for twelve-inch, single face, single and multiple-section, traffic signals with polycarbonate housings, using LED or incandescent light source, for use in the traffic control system of the City of Chicago. Units include red ball, yellow ball, green ball, red arrow, yellow arrow, and green arrow.

1.2 Sample and Certified Test Reports. One complete signal, fully assembled and wired, of the manufacture proposed to be furnished, must be submitted along with the required certified test reports, within fifteen (15) business days upon request of the Chief Procurement Officer. The sample must be delivered to the Engineer of Electricity, Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.

1.3 Standards. Equipment furnished under this specification shall meet the appropriate requirements of the following standards, as required within the body of this specification:

American Association of State Highway and Transportation Officials (AASHTO)  
American Society for Testing and Materials (ASTM)  
Institute of Transportation Engineers (ITE)  
National Electrical Manufacturers Association (NEMA)  
Underwriters Laboratories (UL)

1.4 Approval. Approval will mean approval in writing by the Commissioner or his duly authorized representative.

1.5 Warranty. The manufacturer shall warrant the signals to meet the requirements of this specification, and shall warrant all equipment, components, parts and appurtenances against defective design, material and workmanship for a period of three (3) years from date of acceptance. In addition, LED optical units must carry a seven (7) year warranty against failure or loss of color (chromaticity) and signal brightness (luminance) below minimum acceptable VTCSH standard levels from date of final acceptance for contract construction, or date of delivery on a specific order. In the event defects or failures occur in the LED units during the warranty period, the manufacturer must replace all

defective units, at no expense to the City. This warranty shall be evidenced by a letter or certificate of warranty submitted to the City at the time delivery is made. The LED warranty must cover all units delivered in an order or installed by contract, and must include unit serial numbers. The warranty must be signed and dated by an official of the manufacturer who is empowered by the manufacturer to enter into such a warranty.

1.6 Location. The supplier of the LED modules shall actively maintain an office, stocking warehouse, and technical support within a 100 mile radius of the City of Chicago.

2. **MATERIALS AND EQUIPMENT REQUIREMENTS**

2.1 The traffic signal heads shall conform to ITE Standard "Vehicle Traffic Control Signal Heads" (VTC SH), in which the most recently published revision will govern.

2.2 Housing. The housing of each section must be one piece, ultraviolet stabilized polycarbonate resin of the specified color, injection molded complete with integral top, bottom, and sides, having a minimum thickness of 0.1 inch.

(a) The polycarbonate shall meet or exceed the following tests:

TEST	REQUIRED	METHOD
Specific gravity	1.17 minimum	ASTM D 792
Vicat Softening temp	310-320° F	ASTM D 1525
Brittleness temp.	-200° F	ASTM D 746
Flammability	Self-extinguishing	ASTM D 635
Tensile strength, yield	8,500 PSI	ASTM D 638
Elongation at yield	5.5-8.5%	ASTM D 638
Shear strength, yield	5,500 PSI min.	ASTM D 732
Izod impact strength (notched, 1/8" thick)	12-16 ft-lbs/in.	ASTM D 256
Fatigue strength (at 2.5 mm cycles)	950 PSI min.	ASTM D 671

(b) Assembly. A traffic signal section shall be comprised of, but not limited to, the housing, hinged door, visor, optical unit and all necessary gaskets and hardware. The multi-section, single face, traffic signal shall be comprised of single face single sections assembled together, containing an internally mounted terminal block. Arrow indications must be shipped as single sections. The traffic signals shall be designed and constructed to permit sections to be assembled together, one above the other, forming a weatherproof and dust-tight unit.

(c) Individual sections shall be fastened together with a coupling washer assembly composed of two washers, three zinc plated bolts, nuts, and lock washers which lock the individual sections together. As an alternative, individual sections may be fastened together with four cadmium plated bolts, lock washers, and nuts. The hole in the coupling washer assembly must accommodate three 3/4 inch cables.



- (d) Height. The overall height of an assembled traffic signal must be fourteen (14) inches for a single-section signal, forty-two (42) inches for a three-section signal, and seventy (70) inches for a five-section, plus or minus one (1) inch.
- (e) Mounting. The traffic signal shall be designed for mounting with standard traffic signal brackets using 1-1/2 inch pipe size fittings.
- (f) Positioning Device. The top and bottom opening of each housing must have integral serrated bosses that will provide positive positioning of the signal head in five degree increments. A total of 72 teeth must be provided in the serrated bosses to allow the signal face to be rotated 360 degrees about its axis. The teeth shall be clean and well defined to provide positive positioning.
- (g) Hinges. The signal housing shall be sectional; one section for each optical unit. Each housing must have four integral hinge lugs, with stainless steel hinge pins (AISI 304 or equivalent), located on the left side for mounting the door. The hinge pins shall be straight and not protrude past the outside of the housing lugs. The housing must have two integral latching bolt lugs on the right side each with a stainless steel hinge pin to which a latching bolt (AISI 304 or equivalent), washer, and wing nut will be attached. The wing nuts must be captive. Each housing must be equipped with holes to be used for mounting backplates.
- (h) Door. The door shall be a one piece ultraviolet stabilized polycarbonate resin of the specified color, injection molded complete with a minimum thickness of 0.1 inch. Two (2) hinge lugs on the left side and two (2) sets of latch screw jaws centered on the right side, as viewed from the front of the signal, must be integrally cast with the housing door. The door must be hinged to the housing with two (2) stainless steel hinge pins, drive fitted. Two (2) stainless steel latch screws and wing nut and washer assemblies on the latch side of the housing body shall provide for opening and closing the door without the use of tools. The door must have eight (8) holes with threaded metal inserts for stainless steel machine screws to secure the visor(4 holes) and the lens(4 holes). The inside of the door must be grooved to accommodate a one piece, air-cored EPDM (ethylene propylene diene monomer) gasket to provide a weatherproof and dust proof seal when the door is closed. The inside of the door must have four equally spaced threaded metal inserts for the lens attachment. The outside of the door must have an integral rim completely encircling the lens opening to prevent leakage between the door and the lens. The rim must have four equally spaced tabs around the circumference with threaded metal inserts for the visor.
- (i) Visor. Each traffic signal shall have a visor for each signal indication (section). The visor shall be the tunnel type, nine and one-quarter inches (9-1/4") long, fabricated of ultraviolet stabilized polycarbonate resin of the specified color, injection molded. The visor shall fit tightly against the door and not permit any light leakage between the door and visor. All hardware necessary for, but not limited to, attachment of the visor must be of stainless steel. The visor must have four mounting lugs for attaching the visor to the door. Screws must go through the visor lugs into the metal inserts in the door to secure the visor.

2.3 The traffic signal heads shall be provided with incandescent or LED optical units as specified in the line item or Contract Plans.

#### 2.3.1 INCANDESCENT OPTICAL UNITS

- (a) Incandescent Optical Unit. The incandescent optical unit consists of the lens, reflector and lamp holder. The optical unit and visor shall be designed as a whole so as to eliminate the return of outside rays entering the unit from above the horizontal (known as sun phantom). The optical unit shall be designed and assembled so that no light can escape from one indication to another.
- (b) Lenses. The red, yellow and green polycarbonate lenses must be round with a nominal twelve (12) inch diameter and shall conform to all requirements set forth under the heading "Traffic Signal Lenses" in the ITE standard. The red, green or yellow arrow lenses must be round with a nominal twelve (12) inch diameter and the outside surface must be covered, except for the arrow, with a dull or dark grey opaque material of a thickness sufficient to totally hide the light from a 2000-lumen lamp placed behind it operating at rated voltage. The opaque material shall be hard and durable and shall be bonded such that it will not peel or flake when subject to the heat of a signal lamp or when the lens is washed. The shape and size of the arrow shall be of an approved design with a minimum stroke of fifteen-sixteenths (15/16) inch. The arrow shall appear uniformly illuminated when viewed from angles usually encountered in service, whatever may be the angular position of the lens in the signal section. The lens must be enclosed by an air-cored EPDM (ethylene propylene diene monomer) gasket providing a weather proof and dust proof seal between the lens, door, and reflector assembly. The gasketed lens must be secured to the housing door by four (4) stainless steel screws (AISI 304 or equivalent) and clamps equally spaced around the lens opening. The door must have threaded metal inserts to receive the screws.
- (c) Reflector. The reflector shall be fabricated of high-purity, clad-type aluminum sheet formed to a parabolic shape and cut to fit in a circular polycarbonate, hinged frame for rigid mounting within the housing. The circular rim of the reflector shall be mounted in such a way as to seal the internal optical system by being compressed against the lens gasket when the signal door is closed. The reflecting surface must be an "ALZAK" class SI specular finish having a minimum reflectivity of eighty-two (82) percent and a protective oxide coating of 7.5 milligrams per square inch, minimum. The reflectivity shall be determined with a Taylor-Baugartner Reflectometer, and the weight of the protective oxide coating by the method of test outlined in ASTM B 137. The reflecting surface must be tested for proper sealing by applying one (1) drop of a water solution (1 gram per 50 cc) of Anthraquinone Violet R at a room temperature. After five (5) minutes, the dye must be washed from the surface with running water. No stain must remain after the surface is lightly rubbed with a soft cloth wet with mild soap and water, and rinsed with water. The reflector must have an opening in the back to accommodate the lamp holder.

- (d) Lamp Holder. The lamp holder must have a heat, moisture and weatherproof molded phenolic housing designed to accommodate a standard 133 watt, 3 inch light center length, incandescent lamp. The lamp holder shall be so designed that it can be readily rotated and positively positioned to provide proper lamp filament orientation and focus. The inner brass shell, or ferrule, of the lamp holder must have a grip to prevent the lamp from working loose due to vibration. A gasket must be furnished at the junction of the lamp holder and the reflector.

### 2.3.2 LIGHT EMITTING DIODE (LED) OPTICAL UNITS

- (a) Light emitting diode (LED) optical units shall consist of an integral unit containing the following components: power leads, housing, integral lens, matrix of light emitting diodes (LEDs) emitting monochromatic light of desired signal color, and electronic and electrical components necessary to permit operation at nominal 120 volt, 60 hertz power.
- (b) The LED unit shall be of such dimensions as to permit mounting in any standard traffic signal housing, be interchangeable with incandescent optical units, and must include appropriate gasket for this purpose. Gasketing provided must provide a watertight seal meeting existing ITE standard for signal heads, and exclude the infiltration of moisture into either the signal housing or into the LED optical unit case.
- (c) The LED unit shall meet the applicable requirements of the ITE standards for Vehicle Traffic Control Signal Heads(VTCSH) Part 2: LED Vehicle Signal Modules, for color (chromaticity), signal brightness (luminance), and beam spread (luminance at various vertical and horizontal angles). Yellow LED modules shall meet the green module requirements for brightness.
- (d) Minimum brightness of LED signal units shall be in accordance with the luminous requirements in a standard testing procedure as defined by Section 4 of the VTCSH Part 2: LED Vehicle Signal Modules. During the required operating life of LED signal units, the luminance output of the units must not be less than 60 percent (.60) of the values specified in the standard.
- (e) Unit lenses must be twelve inches in diameter and be constructed of ultraviolet (UV) stabilized , impact resistant polycarbonate, acrylic or other approved material. Lenses shall be clear or tinted.
- (f) Units shall consist of LEDs uniformly distributed to present a homogeneous appearance on the face of the lens from a wide viewing angle.
- (g) LEDs shall be wired so that the loss of a single LED or a string of LEDs will not reduce the luminescence below the minimum requirement.
- (h) For purposes of this specification, failure of a single unit is defined as an occurrence where the luminescence of the signal measured in candela in standard test procedures is less than the required initial luminance or luminance at time points and conditions specified; or where minimum required brightness is

achieved, but two or more series strings of LEDs or in excess of twenty percent of 20% of LEDs are not operable.

- (i) Unit power supply shall be constant current regulated and filtered to provide instant on indications, and to prevent momentary signal outages or flicker. Units must be fully operable over a range of 90 volts to 130 volts at 60 hertz, plus or minus 3 hertz.
- (j) Surge protection: Each unit must be provided with integral surge protection to withstand transient of 600 volt, 100 microsecond rise and 1 millisecond pulse width. The surge protector shall provide full electrical and physical protection to all unit components.

- (k) Maximum permissible power consumption at ambient conditions (nominal 120 volts, 60 hertz, 70 degrees F.) must be 30 watts at a minimum 90 percent power factor. Power consumed must not vary by more than ten (10) percent from nominal power consumption over voltage range of 105 volts to 125 volts, and over permissible environmental ranges.
- (l) Units must be fully operable at temperature ranges of -40 degrees F. (-40 deg C) to +165 degrees F. (+74 deg C) at up to 100 percent relative humidity.
- (m) Units shall be clearly marked on the back surface of the unit in a permanent manner showing information required for warranty and long term performance. Information to be shown must include manufacturer name, date of manufacture, electric power requirements, signal model type including color and indication type, and signal serial number.
- (n) The LED unit shall be compatible with the traffic signal controller equipment currently in use by the City of Chicago, and meeting the City's latest specifications for traffic signal control equipment. In particular the LED unit shall be compatible with the NEMA TS-1 and later traffic signal load switches and conflict monitors.
- (o) Units shall meet applicable sections of Title 47, SubPart B, Section 15 of the Federal Communications Commission (FCC) rules as applies to electronic noise limitation and electromagnetic interference.
- (p) Total harmonic distortion (THD) induced into the voltage and current AC power line sine waves must not exceed 20 percent.
- (q) LED optical units must meet the requirements of VTCSH Part 2: LED Vehicle Signal Modules Section 6.3.1 for signal burn-in.

2.4 Wiring. Each lamp holder must be furnished with two (2) leads color coded as follows:

White	Common
Red	Red Lens Section
Yellow	Yellow Lens Section
Green	Green Lens Section
Green with Black Tracer	Green Arrow Lens Section
Yellow with Black Tracer	Yellow Arrow Lens Section
Red with Black Trace	Red Arrow Lens Section

The lead must be type TEW No. 18 AWG stranded copper wire with 2/64 inch thick, 600 volt, 105 degree centigrade rated, thermo-plastic insulation meeting MIL-W-76A specifications. The lead must connect to the terminal strip without being spliced. The ends of the lamp leads must be stripped of one-half inch (2") of insulation and tinned.

- 2.5 Terminal Strip. A dual-point, barrier-type terminal strip with a solid base and pressure plate type connectors shall be securely attached at both ends to the housing body inside the "Green" section of the signal head.
- 2.6 Cable. One, eleven foot (11') length of flexible electric cord, medium duty, type SO, No. 16 AWG stranded copper conductor, color coded, rubber insulated, neoprene jacketed, must be furnished with each signal head. The number of conductors must include neutral, ground, and one switch leg for each section. Both ends of each cable length must be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned.
- 2.7 Gaskets. Wherever necessary to make a completely dustproof, moistureproof and weatherproof assembly of the housing and optical system, approved type gaskets of neoprene or silicone rubber shall be provided.

### 3. TESTING AND DOCUMENTATION REQUIREMENTS

- 3.1 Documentation. The contractor shall provide certified manufacturing and testing documentation to demonstrate that the traffic signals being supplied meet or exceed the specification requirements. All LED Optical Units shall be tested by a nationally recognized testing laboratory (NRTL), such as Intertek (ETL), to demonstrate compliance with the latest ITE VTCSH specification. All LED units shall have the testing laboratory's label attached.
- 3.2 Inspection. The signals shall be subject to inspection at the discretion of the Commissioner. Final inspection shall be made at point of delivery. Any signal rejected shall be removed and disposed of by the contractor at his sole cost.

### 4. PACKING

- 4.1 Packing. Each traffic signal assembly shall be packed in a suitable carton so secured that the signal will not be damaged during shipment, handling or storage.
- 4.2 Marking. Each carton containing a traffic signal shall be clearly marked on the outside in letters not less than three-eighths (3/8) inch tall with the legend: "TRAFFIC SIGNAL, TWELVE-INCH, POLYCARBONATE@ or ATRAFFIC SIGNAL, TWELVE INCH, POLYCARBONATE, LED OPTICS@and the number of Sections as required, the color and indication types, the name of the manufacturer, the date of manufacture, the pertinent Contract Number and the appropriate City Commodity Code Number.

SPECIFICATION 1494  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED JANUARY 27, 2010

**PEDESTRIAN TRAFFIC SIGNAL, 16 INCH  
WITH SYMBOLIC LED WALK/DON'T WALK LENSES  
POLYCARBONATE HOUSING**

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**SCOPE**

1. This specification states the requirements for a single section pedestrian signal with light emitting diode (LED) symbolic messages on nominal sixteen inch by eighteen inch lenses and enclosed in a polycarbonate housing.

**GENERAL REQUIREMENTS**

2. (a) Sample and Certified Test Reports. One complete pedestrian signal, fully assembled and wired, of the manufacture proposed to be furnished, must be submitted along with the required certified test reports, within fifteen (15) business days upon request of the Chief Procurement Officer. The sample must be delivered to the Engineer of Electricity, Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (b) Standards. Equipment furnished under this specification shall meet the appropriate requirements of the following standards, as required within the body of this specification:

American Association of State Highway and Transportation Officials (AASHTO)  
American Society for Testing and Materials (ASTM)  
Institute of Transportation Engineers (ITE)  
National Electrical Manufacturers Association (NEMA)  
Underwriters Laboratories (UL)

- (c) Approval. Approval will mean approval in writing by the Commissioner or his duly authorized representative.
- (d) Warranty. The manufacturer shall warrant the signals to meet the requirements of this specification, and shall warrant all equipment, components, parts and appurtenances against defective design, material and workmanship for a period of three (3) years from date of acceptance. In addition, LED optical units must carry an additional warranty against failure or loss of color (chromaticity) and signal brightness (luminance) below minimum acceptable PTCSI standard levels for a period of seven (7) years from date of final acceptance for contract construction, or date of delivery on a specific order. In the event defects or failures in the LED units occur during the warranty period, the manufacturer must replace all defective units at no expense to the City. This warranty shall be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made. The warranty must cover all units delivered in an order or installed by contract, and must include unit serial numbers for all LED units. The warranty must be signed by an official of the manufacturer who is empowered by the manufacturer to enter into such an agreement.
- (e) Location. The supplier of the LED modules shall actively maintain an office, stocking warehouse, and technical support within a 100 mile radius of the City of Chicago.

### MATERIAL

- 3. (a) The pedestrian signal heads shall conform to ITE Standard "Pedestrian Traffic Control Signal Indications" (PTCSI), in which the most recently published revisions will govern.



- (b) Housing Design. The housing must be one piece, ultra violet stabilized polycarbonate resin of the specified color, injection molded complete with integral top, bottom, and sides, having a minimum thickness of 0.100 inches.
- (c) The polycarbonate formulation used must provide these physical properties in the housing (Tests may be performed on separately molded specimens).

<u>TEST</u>	<u>REQUIRED</u>	<u>METHOD</u>
Specific gravity	1.17 minimum	ASTM D 792
Vicat Softening temp	310-320° F	ASTM D 1525
Brittleness temp.	-200° F	ASTM D 746
Flammability	Self-extinguishing	ASTM D 635
Tensile strength, yield	8,500 PSI	ASTM D 638
Elongation at yield	5.5-8.5%	ASTM D 638
Shear strength, yield	5,500 PSI min.	ASTM D 732
Izod impact strength (notched, 1/8" thick)	12-16 ft-lbs/in.	ASTM D 256
Fatigue strength ( at 2.5 mm cycles)	950 PSI min.	ASTM D 671

**EQUIPMENT REQUIREMENTS**

4. (a) Positioning Device. The top and bottom opening of each housing must have integral serrated bosses that will provide positive positioning of the signal head in five degree increments to eliminate undesirable rotation or misalignment of the signal head between sections. A total of 72 teeth must be provided in the serrated bosses to allow the signal face to be rotated 360 degrees about its axis. The teeth shall be clean and sharp to provide positive positioning with the grooves of the mating section or framework. Each opening shall accommodate standard 1 2" pipe fittings and brackets.
- (b) Hinges. The housing must have four integral hinge lugs, with stainless steel hinge pins (AISI 304 or equivalent), located on the left side for mounting the door. The hinge pins must be straight and not protrude past the outside of the housing lugs. The housing must have two integral latching bolt lugs on the right side each with a stainless steel hinge pin to which a latching bolt (AISI 304 or equivalent), washer, and wing nut will be attached. The wing nuts must be captive.
- (c) Door. The door must be a one piece ultraviolet stabilized polycarbonate resin of the specified color, injection molded complete with a minimum thickness of 0.1 inch. Two (2) hinge lugs on the left side and two (2)sets of latch screw jaws centered on the right side, as viewed from the front of the signal, must be integrally cast with the housing door. The door must be hinged to the housing with two (2) stainless steel hinge pins, drive fitted. Two (2) stainless steel latch screws and wing nuts and washer assemblies on the latch side of the housing body shall provide for opening and closing the door without the use of tools. The door must have four (4) holes with threaded metal inserts for stainless steel machine screws to secure the lens.

The inside of the door must be grooved to accommodate a one piece, air-cored EPDM (ethylene propylene diene monomer) gasket to provide a weatherproof and dust proof seal when the door is closed. The inside of the door must have four equally spaced threaded metal inserts for the lens attachment. The outside of the door must have an integral rim completely encircling the lens opening to prevent leakage between the door and the lens. The rim must have equally spaced tabs around the circumference with threaded metal inserts for the visor attachment.

#### LED OPTICAL UNIT

5. (a) LED Optical Unit. Light emitting diode (LED) optical units shall consist of an integral unit containing the following components: power leads, housing, integral lens, matrix of light emitting diodes (LEDs) emitting monochromatic light of desired colors, and electronic and electrical components necessary to permit operation at nominal 120 volt, 60 hertz power. All units must form a neat compact unit within the housing body with no light leakage between the door and the housing body, and the signal indication and the visor.
- (b) The LED unit shall meet the applicable requirements of the VTCSH standards for color (chromaticity) and brightness (luminance). During the required operating life of LED signal units, the luminance output of the units must not be less than 60 percent (.60) of the values specified in the standard.
- (c) Unit power supply must be constant current regulated and filtered to provide instant on indications, and to prevent momentary signal outages or flicker.
- (d) Units must consist of LEDs uniformly distributed to present a homogeneous appearance on the face of the lens from a wide viewing angle.
- (e) LEDs shall be wired so that the loss of a single LED or a string of LEDs will not reduce the luminescence below the minimum requirement.
- (f) For purposes of this specification, failure of a single unit is defined as an occurrence where the luminescence of the signal measured in candela in standard test procedures is less than the required initial luminance or luminance at time points and conditions specified; or where minimum required brightness is achieved, but two or more series strings of LEDs or in excess of twenty percent of 20% of LEDs are not operable.
- (g) Units must be fully operable over a range of 90 volts to 130 volts at 60 hertz, plus or minus 3 hertz.
- (h) Surge protection. Each unit must be provided with integral surge protection to withstand transient of 600 volt, 100 microsecond rise and 1 millisecond pulse width. The surge protector shall provide full electrical and physical protection to all unit components.
- (i) Maximum permissible power consumption at ambient conditions (nominal 120 volts, 60 hertz, 70° F.) must be 18 watts at a minimum 90% power factor. Power consumed must

not vary by more than ten (10%) percent from nominal power consumption over voltage range of 105 volts to 125 volts, and over permissible environmental ranges.

- (j) Units must be fully operable at temperature ranges of -40° F. (-40° C) to +165° F. (+74° C) at up to 100% relative humidity
- (k) Units shall be clearly marked on the back surface of the unit in a permanent manner showing information required for warranty and long term performance. Information to be shown must include manufacturer name, date of manufacture, electric power requirements, signal model type, and signal serial number.
- (l) The LED unit shall be compatible with the traffic signal controller equipment currently in use by the City of Chicago, and meeting the City's latest specifications for traffic signal control equipment. In particular the LED unit must be compatible with the NEMA TS-1 and later traffic signal load switches and conflict monitors.
- (m) Units must meet applicable sections of Title 47, SubPart B, Section 15 of the Federal Communications Commission (FCC) rules as applies to electronic noise limitation and electromagnetic interference.
- (n) Total harmonic distortion (THD) induced into the voltage and current AC power line sine waves must not exceed 20 percent.
- (o) Burn-in. LED Optical units must be energized for a minimum 24 hour burn-in at 100% on-time duty cycle.

### SYMBOLIC MESSAGE

- 6. Symbols for "Walk" (Man) and "Don't Walk" (Hand) shall conform in style and color to those of the "Institute of Transportation Engineers" (I.T.E.). The messages shall be approximately 16 inches square and display the "Don't Walk" and "Walk" symbols. The symbols shall be applied in such a manner as to provide an opaque polycarbonate background and illuminated legends. The symbols must be not less than nine and one-half inches (9 1/2") tall with proportional width. The "Don't Walk" symbol must be Portland Orange, and the "Walk" symbol must be lunar white, conforming to the specifications of the PTCSI.

### LENS

- 7. The unit lenses shall be constructed of ultraviolet (UV) stabilized , impact resistant polycarbonate, acrylic or other approved material. Lenses must be anti-glare, smooth texture, and clear.

### WIRING

8. (a) Each lamp holder must have three (3) leads color coded as follows:

White - Common  
Red - "Don't Walk" Indication  
Green - "Walk" Indication

The leads must be TEW, number 18 AWG, stranded copper wire with 2/64 inch thick, 600 volt, 105 degree C, thermo-plastic insulation meeting MIL-W-76A specifications. The ends of the lamp leads must be stripped of one-half inch (2") of insulation and tinned. The leads must be splice-free and connected to one side of the terminal strip.

- (b) Terminal Strip. A four terminal, eight point, barrier type terminal strip with solid base and pressure plate type connectors shall be securely attached at each end to the housing body inside the walk section.

- (a) Cable. One eleven foot (11') length of flexible electric cord, medium duty, type SO, 3-conductor No. 16 AWG stranded copper, color coded, rubber insulated, neoprene jacketed, must be furnished with each two (2) section signal. Both ends of each cable length must be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned.

#### TESTING AND DOCUMENTATION REQUIREMENTS

9. (a) Documentation. The contractor shall provide certified manufacturing and testing documentation to demonstrate that the pedestrian signals being supplied meet or exceed the specification requirements. All LED Optical Units shall be tested by a nationally recognized testing laboratory (NRTL), such as Intertek (ETL), to demonstrate compliance with the latest ITE VTCSH specification. All LED units shall have the testing laboratory's label attached.

(b) Inspection. The signals shall be subject to inspection at the discretion of the Commissioner. Final inspection shall be made at point of delivery. Any signal rejected must be removed and disposed of by the contractor at his sole cost.

#### PACKING

10. (a) Each pedestrian signal assembly shall be packed in a suitable carton so secured that the signal will not be damaged during shipment, handling, or storage.
- (b) Marking. Each carton containing a pedestrian signal shall be clearly marked on the outside in letters not less than three-eighths inch (3/8") tall with the legend: "PEDESTRIAN SIGNAL, SIXTEEN-INCH, SYMBOLIC LED WALK-DON'T WALK," the appropriate City Commodity Code Number, the name of the manufacturer, the date of manufacture, and the pertinent contract number.

**SPECIFICATION 1495  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
MARCH 20, 2000**

**TRAFFIC SIGNAL MOUNTING BRACKET  
POLYCARBONATE, SIDE OF POLE**

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**SCOPE**

1. This specification states the requirements for polycarbonate brackets designed for mounting 12 inch traffic and pedestrian signal heads from the side of poles.

**GENERAL REQUIREMENTS**

2. (a) Sample and Certified Test Reports. One complete signal bracket of the manufacture proposed to be furnished, must be submitted along with the required certified test reports, within fifteen (15) business days upon request of the Chief Procurement Officer. The sample must be delivered to the Engineer of Electricity, Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (b) Standards. Equipment furnished under this specification must meet the appropriate requirements of the following standards, as required within the body of this specification:

American Association of State Highway and Transportation Officials (AASHTO)

American Society for Testing and Materials (ASTM)

Institute of Transportation Engineers (ITE)

National Electrical Manufacturers Association (NEMA)

- (c) Approval. Approval will mean approval in writing by the Commissioner or his/her duly authorized representative.
- (d) Warranty. The manufacturer shall warrant the signal bracket to meet the requirements of this specification, and shall warrant all equipment, components, parts and appurtenances against defective design, material and workmanship for a period of three (3) years from date of acceptance. In the event defects and failures become apparent during this period, the manufacturer must replace the defective brackets at no

expense to the City. This warranty must be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made.

**MATERIAL**

3. (a) The bracket must be one piece, ultra violet stabilized polycarbonate resin of the specified color, injection molded complete with integral top, bottom, and sides.

(b) The polycarbonate formulation used must provide these physical properties (Tests may be performed on separately molded specimens).

<u>TEST</u>	<u>REQUIRED</u>	<u>METHOD</u>
Specific gravity	1.17 minimum	ASTM D 792
Vicat Softening temp	310-320° F	ASTM D 1525
Brittleness temp.	-200° F	ASTM D 746
Flammability	Self-extinguishing	ASTM D 635
Tensile strength, yield	8,500 PSI	ASTM D 638
Elongation at yield	5.5-8.5%	ASTM D 638
Shear strength, yield	5,500 PSI min.	ASTM D 732
Izod impact strength (notched, 1/8" thick)	12-16 ft-lb/in.	ASTM D 256
Fatigue strength (at 2.5 mm cycles)	950 PSI min.	ASTM D 671

(c) Glass. The polycarbonate must be glass impregnated between 30% and 40% to increase strength.

**POSITIONING DEVICE**

4. The top and bottom opening of the bracket must have integral serrated bosses that will provide positive positioning of the signal head in five degree increments to eliminate undesirable rotation or misalignment of the signal head between sections. A total of 72 teeth must be provided in the serrated bosses to allow the signal head to be rotated 360 degrees about its axis. The teeth must be clean and sharp to provide positive positioning with the grooves of the signal head.

**HARDWARE**

5. The mounting brackets must be provided complete with one (1) polycarbonate shim, 1/4" thick, one (1) 1-1/2" chase nipple with rubber gasket, and one (1) pinnacle cap with rubber gasket.

**DIMENSIONS**

6. The bracket must have nominal dimensions of 12 inches long, by 6 inches high, by 3 inches wide, plus or minus 1/4 inch.

**WIRING SPACE**

7. The bracket must have an integral molded wireway with a minimum 1-1/2 inch diameter opening suitable for installation of multi-conductor cables.

#### **DESIGN STRENGTH**

8. The bracket must be designed to support a 12 inch, single face, five-section, polycarbonate signal head with a 100 mile-per-hour wind.

#### **TESTING AND DOCUMENTATION REQUIREMENTS**

9. (a) Documentation. The contractor must provide certified manufacturing and testing documentation to demonstrate that the brackets being supplied meet or exceed the specification requirements.
- (b) Inspection. The brackets will be subject to inspection at the discretion of the Commissioner. Final inspection must be made at point of delivery. Any bracket rejected must be removed and disposed of by the contractor at his sole cost.

#### **PACKING**

10. (a) Each bracket must be packed in a suitable carton so secured that the bracket will not be damaged during shipment, handling, or storage.
- (b) Marking. Each carton containing brackets must be clearly marked on the outside in letters not less than three-eighths inch (3/8") tall with the legend: "POLYCARBONATE SIGNAL BRACKET, SIDE OF POLE" the appropriate City Commodity Code Number, the name of the manufacturer, the date of manufacture, and the pertinent contract number.





3. (a) Assembly. Each pedestrian push button assembly must consist of a one piece aluminum casting incorporating a heavy duty push button switch, sign plaque with cast, raised, printed legend and integral banding brackets.
- (b) Design and Size. Each unit must appear as that shown on Standard Drawing 834. Each unit must be a permanent mold casting fabricated of aluminum alloy 356-TS6. The casting must be approximately 13 1/4" long with the extreme upper and lower segments molded to accept 3/4" banding. It must also be possible to bolt the assembly to a mounting surface using two holes that are in the center of the integral banding brackets. Directly below the upper integral banding bracket must be an integral sign plaque approximately 5" wide by 8" long. Cast into this plaque must be a raised printed legend taking up the full space of the plaque. This legend must read APUSH BUTTON - WAIT FOR WALK SIGNAL@ in letters at least one inch high. Directly below the plaque must be a cast switch housing. The housing must be of sufficient depth to accommodate the push button switch. In the center of the push button housing must be a threaded hole. The hole must be tapped for 5/8-11 UNC course thread. The push button switch must be screwed in from the rear of the housing. Directly below the push button housing must be the lower integral banding bracket. The rear of the casting must be open to facilitate wiring, inspection, and access to the switch. The extreme upper and lower segments in the rear must be curved to fit a round 10" to 12.5" pole at the appropriate height. The push button itself must be approximately two inches in diameter. The force to activate the switch must be no greater than 3.5 pounds. The entire push button assembly must operate between -35° Fahrenheit to +165° Fahrenheit. The push button unit must be equivalent to Alinco Model PBA-1000-2B.
- (c) Push Button Switch. The contacts must be normally open and must be closed when the push-button is pressed, restoring immediately to a normal open position when released. The switch must be rated at 35 amps at 12 volts d.c. or 20 amps at 24 volts d.c.. The switch contacts must be composed of 90% silver and 10% cadmium oxide to minimize arcing and pitting on the contact surfaces. The body of the switch must be of brass or other non-rusting material and must be approximately one inch in diameter. The upper body of the switch around the actuator must have a 5/8" threaded collar to allow mounting to the housing. The contacts must be entirely enclosed and insulated from the push-button housing.
- (d) Finish. The exterior finish of the housing must be powder coated with gloss black enamel. The background of the sign plaque must be painted a white enamel with black letters per MUTCD standards.

#### PACKAGING

4. (a) General. The push button housing and switch must be shipped fully assembled and ready for installation. Each assembly must be individually wrapped and boxed so that the assembly is not damaged in shipment.
- (b) Labeling. Each box must be labeled in 3/8 inch high letters PEDESTRIAN PUSH BUTTON. The City Commodity Code, contract number, manufacturer, and date of manufacture must be clearly labeled on the box.

**SPECIFICATION 1528  
BUREAU OF ELECTRICITY  
DEPARTMENT OF STREETS AND SANITATION  
CITY OF CHICAGO  
REVISED MAY 1, 2004**

**PRECAST CONCRETE STRUCTURES**

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**SUBJECT**

1. This specification covers the requirements for precast concrete structures to be used as Bureau of Electricity facilities. The structures will include manholes, handholes, and street light pole foundations.

**GENERAL**

2. (a) Specifications. The precast structures must conform in detail to the requirements herein stated and to the Specifications and Methods of test of the American Society for Testing and Materials cited by ASTM Designation Number of which the most recently published revision will govern.
- (b) Acceptance. Precast structures not conforming to this specification will not be accepted. The Commissioner of Streets and Sanitation or his representative will be the sole judge in determining if the precast structures meet this specification. The Commissioner's decision will be final.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Streets and Sanitation. They are integral parts of this specification cooperating to state necessary requirements.
- (d) Bidders Drawings. Bidders must submit with their bids detailed scale drawings of the precast structures showing actual dimensions and details. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must give every dimension necessary and show how the structure is assembled.
- (e) Sample. One complete precast structure of each item must be submitted within fifteen (15) business days upon request of the Chief Procurement Officer.

- (f) Warranty. The manufacturer must warrant the performance and construction of the precast structures to meet the requirements of this specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of one (1) year after the precast structures have been delivered. This will be interpreted particularly to mean structural failure of any element. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made. The Commissioner's decision will be final.

## DESIGN

3. (a) Material. Concrete must be Portland cement concrete, Class SI or PC, meeting current IDOT specifications. Pulling irons in manholes must meet or exceed the requirements of ASTM A36 steel. Pulling irons must be hot dipped galvanized. Steel reinforcing bars must meet or exceed the requirements of ASTM A615, Grade 60. Cable supports in manholes, including stanchions and racks, must be manufactured for that specific purpose. Stanchions must be non-metallic and must be capable of accommodating several different sizes of cable hooks at various elevations. A minimum of eight cable hooks, 4 inches in length, must be provided with each manhole, and should include any hardware necessary to affix the hooks to the racks. Cable hooks for handholes must be manufactured for that specific purpose. Cable hooks for handholes must be a minimum of 3 inches in length and 3 inches in depth. Anchor rods in foundations must meet the latest Bureau of Electricity Material Specification 1467. Conduit elbows in foundations must meet the latest Bureau of Electricity Material Specification 1462.

Foundations must include conduit elbows, anchor rods, washers, and nuts. Handholes must include cable hooks. Manholes must include cable racks, pulling irons, and cable hooks. Frames and covers, sump grates, clay tile, and ground rods are not included under this specification.

- (b) Dimensions. Each manhole, handhole, and foundation must be dimensioned as shown on the appropriate standard drawing. The 30 inch diameter handhole is Standard Drawing 867. The 36 inch diameter handhole for 24 inch frame and cover is Standard Drawing 866. The 36 inch diameter for 30 inch for frame and cover is Standard Drawing 871. The 3 foot by 4 foot by 4 foot manhole for a 24 inch diameter frame and cover is Standard Drawing 730. The 3 foot by 4 foot by 4 foot manhole for 30 inch frame and cover is Standard Drawing 729. The 4 foot by 6 foot by 6 foot manhole for 24 inch frame and cover is Standard Drawing 732. The four foot by 6 foot by 6 foot manhole for 30 inch frame and cover is Standard Drawing 733. The 5 foot 4 inch by 7 foot 4 inch manhole roof is Standard Drawing 733. The precast 5 foot foundation is Standard Drawing 565.
- (c) Construction. Each manhole and each handhole must have lifting anchors cast in the concrete to facilitate shipment and installation. If the manhole or handhole is

in more than one piece, instructions for assembly must be provided. Also, a sufficient amount of bonding agent must be provided. The bonding agent must be approved material.

#### DELIVERY

4. All manholes, handholes, and foundations will be delivered to the Bureau of Electricity storage yard at 4101 South Cicero Avenue in Chicago, or to another location within the City as indicated on the order. Any manhole, handhole, or foundation deemed to be defective by the Commissioner or his representative must be removed and replaced at no cost to the City. The Commissioner's decision will be final.

SPECIFICATION 1533  
BUREAU OF ELECTRICITY  
DEPARTMENT OF STREETS AND SANITATION  
CITY OF CHICAGO  
AUGUST 8, 2006

NON-METALLIC CONDUIT

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SCOPE

1. This specification states the requirements for both rigid and coilable non-metallic conduit. The conduit will be used for low voltage ( 600 volt rated cables) electrical street lighting and traffic control systems. It may also be used for fiber-optic communications cables. This conduit will be installed underground. Rigid non-metallic conduit may be installed on structure.

GENERAL

2. (a) Standards. The following standards are referenced herein.
- ASTM – American Society for Testing and Materials
  - NEC – National Electrical Code
  - NEMA – National Electrical Manufacturer’s Association
  - UL – Underwriter’s Laboratories
- (b) Warranty. The manufacturer must warrant the conduit against defective workmanship and material for a period of one year from date of installation or date of delivery. Any conduit that is found to be defective must be replaced without cost to the City.
- (c) Sample. If requested by the Chief Procurement Officer, a sample of the conduit intended to be furnished under this specification, must be submitted to the Engineer of Electricity within fifteen (15) business days upon receipt of such request.

MATERIAL

2. (a) Rigid non-metallic conduit will be made of polyvinyl chloride (PVC). All conduit and fittings must comply with ASTM D 1784 and with the applicable sections of NEMA TC2, UL standard 651, and NEC Article 347. Fittings must meet the standards of NEMA TC3 and TC6, as well as UL 514.
- (b) Coilable non-metallic conduit will be made of high density polyethylene (HDPE). All conduit must comply with ASTM D3485 ,ASTM D 1248, and NEMA TC7.

SIZES

3. (a) PVC and HDPE will come in two wall thicknesses; schedule 40 and schedule 80.
- (b) PVC will come in ten foot sections. HDPE will come on reels.

- (c) Nominal inside diameters ( in inches) for non-metallic conduits will include the following:  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2,  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$ , 4.

**PACKING**

4. Rigid conduit must be shipped in bundles. Coilable conduit must come on wooden reels. Both bundles and reels must be tagged to indicate the size and diameter of the conduit, the quantity in feet, the weight, and the manufacturer's name. The conduit itself must be marked to indicate the type and size, as well as the manufacturer.

SPECIFICATION 1537  
BUREAU OF ELECTRICITY  
DEPARTMENT OF STREETS AND SANITATION  
CITY OF CHICAGO  
SEPTEMBER 26, 2006

CABLE: TRAFFIC SIGNAL, MULTIPLE CONDUCTOR,

COPPER WIRE, 600 VOLT

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**SUBJECT**

1. This specification states the requirements for a multiple cable to be installed in underground conduits and used to distribute electrical energy to operate automatic traffic control equipment at street intersections within the City of Chicago. The cable will be used between the traffic controller cabinet and the junction boxes on the traffic signal poles.

**GENERAL**

2. (a) Specification. The cable must conform in detail to the requirements herein stated, and to the specifications and methods of test of the following:  
  
ASTM - American Society for Testing and Materials  
ICEA - Insulated Cable Engineers Association  
IEEE - Institute of Electrical and Electronic Engineers  
UL - Underwriters Laboratories
- (b) Acceptance. Cable not conforming to this specification will not be accepted.
- (c) Sample. If requested by the Chief Procurement Officer, a three (3) foot sample of the cable intended to be furnished under this specification must be submitted to the attention of the Engineer of Electricity within fifteen (15) business days of receipt of such request.
- (d) Warranty. The manufacturer must warrant the cable to be first class material throughout. In addition to any other claims against them, if the cable is installed within six months of date of shipment, the manufacturer must replace any cable failing during normal and proper use within two years of date of installation. All replacements under this warranty must be made free of charge F.O.B. delivery point of the original contract.

**CABLES**

3. (a) Construction. The cable must meet the requirements of ICEA standard S-95-658 and UL 44 for cable. The cable must consist of coated conductors each concentrically encased with a "free- stripping", ethylene propylene, insulation. In two-conductor

cables, the insulated and covered conductors must be parallel and not twisted, with suitable filler, as necessary, to produce a flat core of minimum practicable dimensions. In the larger count cables suitable fillers must be used to produce an essentially round cross-section. A Mylar tape must be wrapped over the conductor assembly, and a low smoke zero halogen polyolefin (LSZH) or chlorosulfonated polyethylene (CSPE) jacket applied overall.

- (b) Outer Diameter. The maximum allowable outer diameter for round cables must be as follows:

<u>No. Of Conductors</u> (inches)	<u>Outer Diameter</u>
Seven	0.49
Ten	0.69
Nineteen	0.90

- (c) Sealing. Both ends of each length of cable must be thoroughly sealed to prevent the entrance of moisture and other foreign matter.

COLOR CODE

4. Conductor identification must be provided by color synthetic-resin coverings, or an approved equal. Table A sets forth the color code for the various conductor arrangements.

CONDUCTOR

5. (a) Material. Round, soft or annealed, copper wire, meeting the requirements of ASTM B-3 and B-8, and coated in accordance with ASTM B33.
- (b) Size. Cables must be made up of conductor sizes as set forth in this specification. The Number 14 AWG will be solid. Number 4 AWG conductors will be stranded.

INSULATION

6. (a) Type. The insulation must be an ethylene propylene compound meeting the physical and electrical requirements herein specified when tested in accordance with ASTM D-470-81.
- (b) Thickness. The insulation must be circular in cross-section and have the following minimum thicknesses.

<u>Conductor</u>	<u>stranding</u>	<u>No. of</u>	<u>Insulation</u>	
	<u>Size. AWG</u>	<u>(No. Of Wires)</u>	<u>Conductors</u>	<u>Thickness (mils)</u>
#4	7	2	45	



#14	1	7	30
#14	1	10	30
#14	1	19	30

(c) Physical Properties. Initial Value.

<u>Tensile Strength</u>	<u>1200 psi minimum</u>
<u>Elongation at Rupture</u>	<u>250% minimum</u>

(d) Physical Properties. After Aging.

After 168 hours in air oven at 121° Centigrade:

<u>Tensile Strength</u>	<u>75% of initial value</u>
<u>Elongation</u>	<u>75% of initial value</u>

(e) Accelerated Water Absorption Characteristics. Test must be made in accordance with methods discussed ASTM D470.

Gravimetric Method. The insulation must not absorb more than five (5) milligrams of water per square inch of exposed surface area after immersion in distilled water at 70° Centigrade for a period of seven (7) days.

(f) Cold-Bend Test Requirements. The completed cable must pass the “Cold”B end, Long-Time Voltage Test on Short Specimens” of ASTM D470 except that the test temperature must be minus (-) 25° Centigrade.

(g) Electrical Requirements.

- (1) Voltage Test. The completed cable must meet an A.C. and D.C. voltage test in accordance with ASTM D470 and D2655.
- (2) Insulation Resistance. The completed cable must have an insulation resistance constant of not less than 20,000 when tested in accordance with methods shown in ASTM D470.

**CABLE TAPE**

7. The assembled and cabled conductor core must be wrapped with a one mil (0.001 inch) thick Mylar tape allowing a minimum of ten percent (10%) overlap.

**JACKET**

8. (a) Material. The jacket must be either a heavy duty low smoke zero halogen (LSZH) polyolefin or low lead chlorosulfonated polyethylene (CSPE) meeting the physical and

electrical requirements specified herein. CSPE must meet the requirements of CFR Title 40, Part 261 for leachable lead.

(b) Workmanship. The jacket must have a smooth exterior surface free from holes, cracks and splits, and must be tough, elastic, homogeneous in composition, and properly vulcanized.

(c) Thickness. Average thicknesses of the jacket must be not less than that given below. Minimum thickness must be not less than ninety percent (90%) of the average thickness.

- |     |                       |           |
|-----|-----------------------|-----------|
| (1) | Two-Conductor # 4 AWG | 5/64 inch |
| (2) | Seven-Conductor       | 3/64 inch |
| (3) | Ten-Conductor         | 4/64 inch |
| (4) | Nineteen-Conductor    | 4/64 inch |

(d) Initial Physical Requirements:

- |   |      |
|---|------|
| 1. Tensile strength minimum PSI           | 1800 |
| 2. Elongation at rupture, minimum percent | 300  |

(e) Air Oven Exposure Test. After conditioning in an air oven at  $121^{\circ} \pm 1^{\circ}\text{C}$  for 168 hours:

- |   |    |
|---|----|
| 1. Tensile strength minimum percent of unaged value       | 75 |
| 2. Elongation at rupture, minimum percent of unaged value | 65 |

(f) Mechanical Water Absorption. After 168 hours at  $70^{\circ} \pm 1^{\circ}\text{C}$ : one (1) milligram per square inch, maximum

(g) Cable Marking. Outer Jacket must be embossed or printed with the manufacturer's name, year of manufacture, insulation and jacket materials, conductor number, conductor size, at approximately 18" intervals. On the side opposite, the cable must be sequentially marked in one (1) foot increments.

**TESTING**

9. (a) General. Tests must be performed on insulation, jacket and completed cables in accordance with applicable standards as listed in these specifications. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by an engineer from the Bureau of Electricity, will apply.

(b) Number of Tests. Insulation and jacket tests must be conducted on samples taken every 25,000 feet or fraction thereof of each conductor size. In no case must samples be taken closer than 15,000 feet apart.

(c) Witness Tests. Where the quantity of cable on a single purchase order is 250,000 feet or more, all insulation and jacket tests must be witnessed by an engineer from the Bureau of Electricity, if so requested by the City. Included in these tests will be a 70,000 BTU per

hour flame tests in accordance with IEEE 383. Reels to be tested will selected a random. The contractor must include in his bid, the cost of travel, food and lodging for one (1) engineer. Travel for 150 miles or greater must utilize a major airline. Lodging accommodations must be equal to those provided at a Holiday Inn. The engineer must be given ten (10) working days notice of all travel arrangements.

- (d) Test Reports. No cable may be shipped until certified copies of all factory tests, including witness tests where applicable, have been reviewed and approved by the engineer.
- (e) Acceptance. Samples must be taken from each reel and must successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.

### PACKAGING

- 10. (a) Reels. The completed cable must be delivered on sound substantial, nonreturnable reels. Both ends of each length of cable must be properly sealed against the entrance of moisture and other foreign matter by the use of clamp-on cable caps, such as the Reliable Electric Company neoprene cable cap No. 1405, or equal. The ends must be securely fastened so as not to become loose in transit. Before shipment, complete 2 x 4 lagging must be applied to all reels.
- (b) Footage. Each reel must contain the length of cable as set forth below. A tolerance limit of plus or minus five percent ( $\pm 5\%$ ) must be adhered to.
  - (1) Two-Conductor 2000 feet
  - (2) Seven-Conductor 2000 feet
  - (3) Ten-Conductor 2000 feet
  - (4) Nineteen-Conductor 1000 feet
- (c) Marking. A metal tag must be securely attached to each reel indicating the reel number, contract number, date of shipment, gross and tare weights, the appropriate City commodity Code Number as set forth below, and a description of the cable. Also, each reel must have permanent marking on it indicating directions for unrolling the cable and the footage of cable contained in the reel. Indelible ink or other such material susceptible to washing off or fading will not be permitted; and approved permanent marking material such as paint or a securely attached metal tag is required.
- (d) Commodity Code Number.
  - (1) Two-conductor No. 4 AWG 31-4686-5826
  - (2) Seven-Conductor 31-4682-5620
  - (3) Ten-Conductor 31-4682-5630
  - (4) Nineteen-Conductor 31-4682-5645

**TABLE A COLOR CODE CONDUCTOR IDENTIFICATION**

Base Color	First Tracer	Second Tracer	2 (# 4)	7	10	19
White	Black	Red	--	--	--	14
White	Red	Green	--	--	--	14
Black	--	--	4	14	14	14
White	--	--	4	14	14	14
Red	--	--	--	14	14	14
Green	--	--	--	14	14	14
Orange	--	--	--	14	14	14
Blue	--	--	--	14	14	14
White	Black	--	--	14	--	--
Red	Black	--	--	--	14	14
Green	Black	--	--	--	14	14
Orange	Black	--	--	--	14	14
Blue	Black	--	--	--	14	--
Black	White	--	--	--	--	--
Red	White	--	--	--	--	14
Green	White	--	--	--	--	14
Blue	White	--	--	--	--	14
Orange	White	--	--	--	--	14
White	Red	--	--	--	--	--
Blue	Orange	--	--	--	--	14
Red	Blue	--	--	--	--	14
Green	Blue	--	--	--	--	14
Orange	Blue	--	--	--	--	14

BUREAU OF ELECTRICITY  
DEPARTMENT OF STREETS AND SANITATION  
CITY OF CHICAGO  
OCTOBER 30, 2006

VIDEO DETECTION CAMERA AND MOUNT

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SUBJECT

1. This specification states the requirements for a video camera to be used to detect vehicular traffic at a signalized intersection. The camera will be mounted to a traffic signal arm or a luminaire arm with a mounting bracket specifically manufactured for that purpose.

GENERAL

2. (a) Standards. The camera and enclosure must meet NEMA, MIL-STD-810E, and FCC Class B, Part 15 standards.
  - (b) Sample. One camera and mount of the manufacture proposed to be furnished must be submitted along with specification sheets within fifteen (15) business days upon request of the Chief Procurement Officer. The sample must be delivered to the Engineer of Electricity, Bureau of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.
  - (c) Warranty. The manufacturer must warrant the camera and mount to meet the requirements of this specification, and must warrant all components against defective design, material and workmanship for a period of five (5) years from date of acceptance. In the event that defects or failures occur during the warranty period, the manufacturer must repair and/or replace all defective materials at no expense to the City. This warranty must be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made. The warranty must cover all units delivered in an order. The warranty must be signed by an official of the manufacturer who is empowered by the manufacturer to enter into such an agreement.
  - (d) Compatibility. The camera must be compatible with the associated digital video detector processing equipment and traffic signal controller equipment used by the City of Chicago.

CAMERA REQUIREMENTS

3. (a) Power Lens.
  1. 1/3-inch format.
  2. Focal Length: 6-60mm.
  3. Iris range: f1.4-360

4. Focus range: 1.3m.
  5. Angle of view (wide angle): (h<sub>xv</sub>) 43.4° x 32.7°
  6. Angle of view (telephoto): (h<sub>xv</sub>) 4.5° x 3.5°
  7. Focus control: motor, 12VDC, < 70mA
  8. Zoom Control: motor, 12VDC, < 70 mA
- (b) Must be fully automatic to adjust for lighting conditions.
  - (c) Imager: interline transfer CCD, 1/3-inch image format.
  - (d) Active picture elements: 582 horizontal by 494 vertical.
  - (e) Horizontal resolution: 570 TVL
  - (f) Digital signal processing.
  - (g) Illumination at Imager: minimum of .018 lux.
  - (h) Electromagnetic interference: must meet FCC Class B, Part 15 requirements.
  - (i) Power: the camera will consume no more than 4 watts. The heater must consume no more than 11 watts.
  - (j) The camera will operate within the temperature range of -20° C. to +50° C.

#### **ENCLOSURE**

4.
  - (a) The camera must be housed in an extruded aluminum housing with a white epoxy powder coat.
  - (b) The window will be 3mm thick glass.
  - (c) Heater: a built-in thermostatically controlled heater will keep the window from fogging or from icing up.
  - (d) The enclosure must provide protection from the environment. The enclosure must meet military specification MIL-STD-810-E for salt air, and NEMA-6P, IP68 for dust.
  - (e) Sunshield: a sunshield will protect and shield the window, as well as provide a heat sink for the camera.
  - (f) The rear of the housing will have a cable connector. The plug will be a MIL-3102 for a 16 pin arrangement.
  - (g) Camera cradle: the camera housing will be attached to an extruded aluminum cradle. The cradle can be rotated 360°. The cradle will be tapped in the base for at least two (2) 1/4-20 mounting screws.

#### **ENCLOSURE MOUNTS**

5. (a) The mount will have a swivel head and tilt mechanism. The swivel will allow for full 360° rotation and the tilt will allow for 75° tilt both above and below the horizontal. Both the swivel and tilt will be locked in position with stainless steel bolts. The camera enclosure will be attached to the mount with a minimum of two (2) 1/4-20 stainless steel bolts. The mount will be attached to the arm or pole with two (2) lengths of stainless steel banding, or similar. The mounts will be constructed of aluminum, with a white epoxy powder coat. The mount must provide for cable. The construction must be structurally sound and be able to withstand the loads as indicated in ASSTHO's Structural Supports – 1994 edition.
- (b) The mast arm mount will have a two (2) inch diameter pipe welded to a contoured plate. The plate will be sized to accept banding. The swivel head will be welded to the top of the pipe. The length of the entire assembly will be approximately 10 inches.
- (c) The pole mount will have a two (2) inch pipe welded to a contoured plate. The plate will be sized to accommodate 2 lengths of steel banding. The other end of the pipe will have a 90° bend to which the swivel head will be welded. The entire length of the assembly will be approximately 15 inches.

#### PACKING

5. (a) Each camera and enclosure must be packed in a cardboard container so that the contents will not be damaged in shipping or handling. Instructions must be included in each container.
- (b) Each package must be clearly labeled as to the contents.

SPECIFICATION 1545  
DIVISION OF ELECTRICAL OPERATIONS  
DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO  
REVISED JANUARY 28, 2010

PEDESTRIAN COUNTDOWN TRAFFIC SIGNAL

LED, 16 INCH WITH SYMBOLIC WALK/DON'T WALK LENSES

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**SUBJECT**

1. This specification states the requirements for a single section pedestrian countdown signal with light emitting diode (LED) symbolic messages on nominal sixteen inch by eighteen inch lenses and enclosed in a polycarbonate housing.

**GENERAL REQUIREMENTS**

2. (a) Sample and Certified Test Reports. One complete pedestrian countdown signal, fully assembled and wired, of the manufacture proposed to be furnished, must be submitted along with the required certified test reports, within fifteen (15) business days upon request of the Chief Procurement Officer. The sample must be delivered to the Engineer of Electricity, Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (b) Standards. Equipment furnished under this specification shall meet the appropriate requirements of the following standards, as required within the body of this specification:  
  
American Association of State Highway and Transportation Officials (AASHTO)  
American Society for Testing and Materials (ASTM)  
Institute of Transportation Engineers (ITE)  
National Electrical Manufacturers Association (NEMA)  
Underwriters Laboratories (UL)
- (c) Approval. Approval will mean approval in writing by the Commissioner or his duly authorized representative.



- (d) Location. The supplier of the LED modules shall actively maintain an office, stocking warehouse, and technical support within a 100 mile radius of the City of Chicago.

**MATERIAL AND EQUIPMENT REQUIREMENTS**

3. (a) The pedestrian signal heads must conform to ITE Standard "Pedestrian Traffic Control Signal Indications" (PTCSI), in which the most recently published revision will govern.
- (b) Housing Design. The housing must be one piece, ultra violet stabilized polycarbonate resin of the specified color, injection molded complete with integral top, bottom, and sides, having a minimum thickness of 0.100 inches.

The polycarbonate formulation used must provide these physical properties in the housing (Tests may be performed on separately molded specimens).

<u>TEST</u>	<u>REQUIRED</u>	<u>METHOD</u>
Specific gravity	1.17 minimum	ASTM D 792
Vicat Softening temp	310-320° F	ASTM D 1525
Brittleness temp.	Below-200° F	ASTM D 746
Flammability Self-extinguishing		ASTM D 635
Tensile strength, yield	8,500 PSI	ASTM D 638
Elongation at yield	5.5-8.5%	ASTM D 638
Shear strength, yield	5,500 PSI min.	ASTM D 732
Izod impact strength (notched, 1/8" thick)	12-16 ft. lbs./in.	ASTM D 256
Fatigue strength (at 2.5 mm cycles)	950 PSI min.	ASTM D 671

- (c) Positioning Device. The top and bottom opening of each housing must have integral serrated bosses that will provide positive positioning of the signal head in five degree increments to eliminate undesirable rotation or misalignment of the signal head between sections. A total of 72 teeth must be provided in the serrated bosses to allow the signal face to be rotated 360 degrees about its axis. The teeth shall be clean and sharp to provide positive positioning with the grooves of the mating section or framework. Each opening must accommodate standard 1 2" pipe fittings and brackets.
- (d) Hinges. The housing must have four integral hinge lugs, with stainless steel hinge pins (AISI 304 or equivalent), located on the left side for mounting the door. The hinge pins must be straight and not protrude past the outside of the housing lugs. The housing must have two integral latching bolt lugs on the right side each with a stainless steel hinge pin to which a latching bolt (AISI 304 or equivalent), washer, and wing nut will be attached. The wing nuts must be captive.
- (e) Door. The door must be a one piece ultraviolet stabilized polycarbonate resin of the specified color, injection molded complete with a minimum thickness of 0.1 inch. Two (2) hinge lugs on the left side and two (2)sets of latch screw jaws centered on the right side, as viewed from the front of the signal, must be integrally cast with the housing door. The door must be hinged to the housing with two (2) stainless steel hinge pins, drive fitted. Two (2) stainless steel latch screws and wing nuts and washer assemblies on the latch side of the housing body must provide for opening and closing the door without the use of tools. The door must have four (4) holes with threaded metal inserts for stainless steel machine screws to secure the lens.

The inside of the door must be grooved to accommodate a one piece, air-cored EPDM (ethylene propylene diene monomer) gasket to provide a weatherproof and dust proof seal when the door is closed. The inside of the door must have four equally spaced threaded metal inserts for the lens attachment. The outside of the door must have an integral rim completely encircling the lens opening to prevent leakage between the door and the lens. The rim must have equally spaced tabs around the circumference with threaded metal inserts a the visor attachment.

(f) Gaskets. Wherever necessary to make a completely dust-proof, moisture-proof and weatherproof assembly of the housing and optical system, approved type gaskets of neoprene or silicone rubber shall be provided.

## LED OPTICAL UNITS

4. (a) Light emitting diode (LED) optical unit must consist of an integral unit containing the following components: power leads, housing, integral lens, matrix of light emitting diodes (LEDs) emitting monochromatic light of desired colors, and electronic and electrical components necessary to permit operation at nominal 120 volt, 60 hertz power. All units shall form a neat compact unit within the housing body with no light leakage between the door and the housing body.
- (b) The LED unit shall meet the applicable requirements of ITE standards for color (chromaticity) and brightness (luminance). During the required operating life of LED signal units, the luminance output of the units must not be less than 60 percent (.60) of the values specified in the standard.
- (c) Unit power supply must be constant current regulated and filtered to provide instant on indications, and to prevent momentary signal outages or flicker.
- (d) Units shall consist of LEDs uniformly distributed to present a homogeneous appearance on the face of the lens from a wide viewing angle.
- (e) LEDs shall be wired so that the loss of a single LED or a string of LEDs will not reduce the luminescence below the minimum requirement.
- (f) For purposes of this specification, failure of a single unit is defined as an occurrence where the luminescence of the signal measured in candela in standard test procedures is less than the required initial luminance or luminance at time points and conditions specified; or where minimum required brightness is achieved, but two or more series strings of LEDs or in excess of twenty percent of 20% of LEDs are not operable.
- (g) Units must be fully operable over a range of 90 volts to 130 volts at 60 hertz, plus or minus 3 hertz.
- (h) Surge protection. Each unit must be provided with integral surge protection to withstand transient of 600 volt, 100 microsecond rise and 1 millisecond pulse width. The surge protector shall provide full electrical and physical protection to all unit components.
- (i) Maximum permissible power consumption at ambient conditions (nominal 120 volts, 60 hertz, 70 degrees F.) must be 18 watts at a minimum 90 percent power factor. Power consumed must not

vary by more than ten (10) percent from nominal power consumption over voltage range of 105 volts to 125 volts, and over permissible environmental ranges.

- (j) Units must be fully operable at temperature ranges of -40 degrees F. (-40 deg C) to +165 degrees F. (+74 deg C) at up to 100 percent relative humidity.
- (k) Units shall be clearly marked on the back surface of the unit in a permanent manner showing information required for warranty and long term performance. Information to be shown must include manufacturer name, date of manufacture, electric power requirements, signal model type, and signal serial number.
- (l) The LED unit shall be compatible with all traffic signal controller equipment currently in use by the City of Chicago, and meeting the City's latest specifications for traffic signal control equipment. In particular the LED unit shall be compatible with the NEMA TS-1 and later traffic signal load switches and conflict monitors.
- (m) Units shall meet applicable sections of Title 47, SubPart B, Section 15 of the Federal Communications Commission (FCC) rules as applies to electronic noise limitation and electromagnetic interference.
- (n) Total harmonic distortion (THD) induced into the voltage and current AC power line sine waves must not exceed 20 percent.
- (o) Burn-in. LED Optical units must be energized for a minimum 24 hour burn-in at 100% on-time duty cycle.

## DISPLAY

- 5. (a) The message area shall be approximately 16 inches square and display the double overlay "Don't Walk" and "Walk" symbols immediately adjacent to the countdown digits. The symbols shall be applied in such a manner as to provide an opaque polycarbonate background and illuminated legends.
- (b) Symbolic Messages. Symbols for "Walk" (Man) and "Don't Walk" (Hand) must conform in style and color to those of ITE. The symbols must be not less than nine and one-half inches (9 2") tall with proportional width. The "Don't Walk" symbol must be Portland Orange, and the "Walk" symbol must be of lunar white, conforming to the specifications of the ITE/PTCSI.
- (c) Countdown Digits. Countdown digits must be Portland Orange and not less 9" high with proportional width and shall be compliant with latest ITE standards.
- (d) Lens. The unit lenses must be constructed of ultraviolet (UV) stabilized, impact resistant polycarbonate, acrylic or other approved material. Lenses must be anti-glare, smooth texture, and clear.

## WIRING

6. (a) Wire Leads. Each lamp connector must be furnished with three (3) leads color coded as follows:

White - Common  
Red - "Don't Walk" Indication  
Green - "Walk" Indication

The leads must be TEW, number 18 AWG, stranded copper wire with 2/64 inch thick, 600 volt, 105 degree C, thermoplastic insulation meeting MIL-W-76A specifications. The ends of the lamp leads must be stripped of one-half inch (2") of insulation and tinned. The leads must be splice-free and connected to one side of the terminal strip.

- (b) Terminal Strip. A four terminal, eight point, barrier type terminal strip with solid base and pressure plate type connectors must be securely attached at each end to the housing body inside the walk section.
- (c) Cable. One eleven foot (11') length of flexible electric cord, medium duty, type SO, 3-conductor No. 16 AWG stranded copper, color coded, rubber insulated, neoprene jacketed, must be furnished with each pedestrian signal. Both ends of each cable length must be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned.

#### COUNTDOWN FUNCTIONALITY

7. (a) The countdown module shall be compatible with all traffic signal controller equipment currently in use by the City of Chicago, and meeting the City's latest specifications for traffic signal control equipment.
- (b) The countdown timer must have a micro-processor capable of recording its own time when connected to a traffic controller.
- (c) The countdown timer module must continuously monitor the traffic controller for any changes to the pedestrian phase time and re-program itself automatically as needed.
- (d) The countdown module must register the time for the walk and clearance intervals individually and must begin counting down at the beginning of the pedestrian change interval (flashing hand).
- (e) At the end of the pedestrian change interval, the module must display A0" and the blank out. The display must remain dark until the beginning of the next countdown.
- (f) In the event of a preemption sequence, the countdown module must skip the pre-empted clearance time and reach "0" at the end of the pedestrian change interval.
- (g) The countdown must remain synchronized with signal indications and always reach A0" at the end of the pedestrian change interval.
- (h) The countdown must not display an erroneous or conflicting time when subjected to defective load switches.

#### TESTING AND DOCUMENTATION REQUIREMENTS

8. (a) Documentation. The contractor shall provide certified manufacturing and testing documentation to demonstrate that the traffic signals being supplied meet or exceed the specification requirements. All LED Optical Units shall be tested by a nationally recognized testing laboratory (NRTL), such as Intertek (ETL), to demonstrate compliance with the latest ITE VTCSH specification. All LED units shall have the testing laboratory's label attached.
- (b) Inspection. The signals will be subject to inspection at the discretion of the Commissioner. Final inspection shall be made at point of delivery. Any signal rejected must be removed and disposed of by the contractor at his sole cost.
- (c) Warranty. The manufacturer shall warrant the signals to meet the requirements of this specification, and must warrant all equipment, components, parts and appurtenances against defective design, material and workmanship for a period of three (3) years from date of acceptance. In addition, LED optical units must carry a seven (7) year warranty against failure or loss of color (chromicity) and signal brightness (luminance) below minimum acceptable PTCSI standard levels from date of final acceptance for contract construction, or date of delivery on a specific order. In the event defects and failures occur in the LED units during the warranty period, the manufacturer must replace such units at no expense to the City. This warranty shall be evidenced by a letter or certificate of warranty submitted to the City at the time delivery is made. The LED warranty must cover all units delivered in an order or installed by contract, and must include unit serial numbers. The warranty must be signed and dated by an official of the manufacturer who is empowered by the manufacturer to enter into such a warranty.

## PACKAGING

9. (a) Packing. Each pedestrian signal assembly shall be packed in a suitable carton so secured that the signal will not be damaged during shipment, handling or storage.
- (b) Marking. Each carton containing a pedestrian signal shall be clearly marked on the outside in letters not less than three-eighths (3/8) inch tall with the legend: "PEDESTRIAN SIGNAL, COUNTDOWN, SIXTEEN-INCH, SYMBOLIC LED WALK-DON'T WALK@, the name of the manufacturer, the date of manufacture, the pertinent Contract Number and the appropriate City Commodity Code Number.

**SPECIFICATION 1556**  
**BUREAU OF ELECTRICITY**  
**DEPARTMENT OF STREETS AND SANITATION**  
**CITY OF CHICAGO**  
**OCTOBER 30, 2006**

VIDEO DETECTION PROCESSORS

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**SUBJECT**

1. This specification states the requirements for video detection processors to be used in conjunction with a video camera and traffic controllers used by the City of Chicago. The processors will process video information and convert this information into digital information for counting vehicles for the purpose of actuating traffic movements at an intersection.

**GENERAL**

2. (a) Standards. The processors must meet NEMA and FCC Class B, Part 15 standards.
- (b) Sample. One processor, power supply, and detector rack of the manufacture proposed to be furnished must be submitted along with specification sheets within fifteen (15) business days upon request of the Chief Procurement Officer. The samples must be delivered to the Engineer of Electricity, Bureau of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (c) Warranty. The manufacturer must warrant the processors, power supplies, and detector racks to meet the requirements of this specification, and must warrant all components against defective design, material and workmanship for a period of five (5) years from date of acceptance. In the event that defects or failures occur during the warranty period, the manufacturer must repair and/or replace all defective materials at no expense to the City. This warranty must be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made. The warranty must cover all units delivered in an order. The warranty must be signed by an official of the manufacturer who is empowered by the manufacturer to enter into such an agreement.
- (d) Compatibility. The equipment must be compatible with the associated camera equipment and traffic signal controller equipment used by the City of Chicago. Any equipment proposed that does not exactly meet these specifications may be considered, as long as it is demonstrated that the equipment is compatible and provides the functions required for proper operation of the traffic controller. The acceptance or rejection will be determined solely by the Commissioner of Streets and Sanitation or his duly authorized representative.

**PROCESSOR CARD**

3. (a) The video processor card must process video information from an EIA standard (NTSC monochrome) CCD camera.

- (c) Detection features must be compatible with City of Chicago specified traffic controllers.
- (d) Must have image processing algorithm to process video information into correct digital signals for correct detection processing by controller.
- (d) Bus interface: 44-pin standard detector card edge connector.
- (k) Power: Must operate between 10.8 VDC and 30 VDC.
- (l) The detector card must plug into a standard detector rack. The overall dimensions of the card are: 4.5" in height, 2.34" in width, and 6.875" in depth. The front of the card must have a handle for easy replacement.
- (m) Temperature: Must operate between -29° F. and +165° F.
- (n) Humidity: Must operate between 0% to 95% relative humidity.
- (o) LED display: on front of card – LEDs must indicate good video, no video, fail safe modes, and detector output states.
- (p) Connectors: There must be three connectors on the front of the card. A BNC coaxial connection (female) for video input. An RCA coaxial connection (female) for video output. An RJ-45 serial port for computer connection.

### **PROCESSOR CARD RACKS**

- 4. (a) All racks must be shelf mounted. Each rack must accept video processor cards, as specified herein. Each detector rack must meet NEMA standards and must be compatible with the standard City of Chicago traffic controller.
- (b) Racks must come in three sizes: a two detector card rack, a four detector card rack, and an eight detector card rack.

### **POWER SUPPLY**

- 5. (a) The power supply must be compatible with the NEMA standard detector card rack. The overall dimensions will be 4.5" in height, 2.25" in width, and 6.875" in depth.
- (b) The power supply must have a 120 volt AC input and provide regulated 24 volt DC output.
- (c) The power supply must be UL certified.
- (d) The front panel must have an indicator light and a fuse rated for 1.2 amps. The front panel must have a handle to facilitate maintenance.
- (e) Environmental:

- a. Temperature Range: -29° F. to +165° F.
- b. Humidity: 0 % to 95% relative humidity.

## PACKING

- 5. (a) All equipment must be packed in cardboard containers so that the contents will not be damaged in shipping or handling. Instructions must be included in each container.
  
- (b) Each package must be clearly labeled as to the contents.



**SPECIFICATION 1557**  
**BUREAU OF ELECTRICITY**  
**DEPARTMENT OF STREETS AND SANITATION**  
**CITY OF CHICAGO**  
**NOVEMBER 7, 2006**

VIDEO DETECTION  
CAMERA INTERFACE PANEL

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**SUBJECT**

1. This specification states the requirements for a panel that will provide electrical protection for video detection cameras and video detection equipment. The panel will provide an interface between the cameras and the video processors.

**GENERAL**

2. (a) Standards. The panel must meet any applicable NEMA and NEC standards.
  - (b) Sample. One panel of the manufacture proposed to be furnished must be submitted along with specification sheets within fifteen (15) business days upon request of the Chief Procurement Officer. The sample must be delivered to the Engineer of Electricity, Bureau of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.
  - (c) Warranty. The manufacturer must warrant the panel to meet the requirements of this specification, and must warrant all components against defective design, material and workmanship for a period of five (5) years from date of acceptance. In the event that defects or failures occur during the warranty period, the manufacturer must repair and/or replace all defective materials at no expense to the City. This warranty must be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made. The warranty must cover all units delivered in an order. The warranty must be signed by an official of the manufacturer who is empowered by the manufacturer to enter into such an agreement.
  - (d) Compatibility. The panel must be compatible with the associated digital video detector processing equipment and traffic signal controller equipment used by the City of Chicago.

**PANEL REQUIREMENTS**

3. (a) Physical: The panel will be composed of a non-conducting material approximately 12 inches by 8 inches in size. The panel will be made to be mounted to the channels of the interior of a City of Chicago traffic cabinet, using stainless steel hardware.

- (b) Power Supply Protection: Lightning protection and terminations for routing the traffic cabinet power to the cameras must be provided. The cabinet power must be routed through a surge protector, which feeds two (AC+ and AC-) 5 position terminal blocks.
- (c) Video Protection: Surge protection devices must be mounted to the panel. Surge protection must be provided for the video equipment as follows:
  - a. Peak current at 8x20us waveform: 10kA
  - b. Clamp voltage: 3
  - c. Response time: <1 ns
  - d. Attenuation: <0.1 db
  - e. Connectors: BNC
- (d) The panel must have a number of surge devices equal to the number of cameras required, up to a maximum of eight cameras to a panel. Power must be available for up to eight cameras.
- (e) Each panel must have a ground bus. \_

## PACKING

- 5. (a) Each panel must be packed in a cardboard container so that the contents will not be damaged in shipping or handling. Instructions must be included in each container.
- (b) Each package must be clearly labeled as to the contents.

**AGGREGATE SUBGRADE IMPROVEMENT (D-1)**

Effective: February 22, 2012

Revised: November 1, 2014

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
(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 or CS 02 but shall not exceed 40 percent of the total product. The top size of the Coarse 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 or CS 02 are used in lower lifts. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders.

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 CS 01 or CS 02 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 Reclaimed Asphalt Pavement (RAP) is used, it shall be crushed and screened where 100 percent is passing the 1 1/2 in. (37.5 mm) sieve and being well graded. RAP that has been fractionated to size will not be permitted for use in capping. Capping aggregate will not be required when the aggregate subgrade improvement is used as a cubic yard pay item for undercut applications. When RAP

is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders.

**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) 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.
- (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 thicknesses of 12 in. (300 mm) or greater shall be CS 01 or CS 02.

Grad No.	COARSE AGGREGATE SUBGRADE GRADATIONS				
	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	

Grad No.	COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)				
	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.

**COARSE AGGREGATE FOR BACKFILL, TRENCH BACKFILL AND BEDDING (D-1)**

Effective: November 1, 2011

Revised: November 1, 2013

This work shall be according to Section 1004.05 of the Standard Specifications except for the following:

Reclaimed Asphalt Pavement (RAP) maybe blended with gravel, crushed gravel, crushed stone crushed concrete, crushed slag, chats, crushed sand stone or wet bottom boiler slag. The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications". The RAP shall be uniformly graded and shall pass the 1.0 in. (25 mm) screen. When RAP is blended with any of the coarse aggregate listed above, the blending shall be done mechanically with calibrated feeders. The feeders shall have an accuracy of  $\pm 2.0$  percent of the actual quantity of material delivered. The final blended product shall not contain more than 40 percent by weight RAP.

The coarse aggregate listed above shall meet CA 6 and CA 10 gradations prior to being blended with the processed and uniformly graded RAP. Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

**HMA MIXTURE DESIGN REQUIREMENTS (D-1)**

Effective: January 1, 2013

Revised: November 1, 2014

**1) Design Composition and Volumetric Requirements**

Revise the last sentence of the first paragraph of Article 312.05 of the Standard Specifications to read:

"The minimum compacted thickness of each lift shall be according to Article 406.06(d)."

Delete the minimum compacted lift thickness table in Article 312.05 of the Standard Specifications.

Revise the second paragraph of Article 355.02 of the Standard Specifications to read:

"The mixture composition used shall be IL-19.0."

Revise Article 355.05(a) of the Standard Specifications to read:

"(a) The top lift thickness shall be 2 1/4 in. (60 mm) for mixture composition IL-19.0."

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

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

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

Revise the table in Article 406.06(d) of the Standard Specifications to read:

"MINIMUM COMPACTED LIFT THICKNESS	
Mixture Composition	Thickness, in. (mm)
IL-4.75	3/4 (19)
SMA-9.5, IL-9.5, IL-9.5L	1 1/2 (38)
SMA-12.5	2 (50)
IL-19.0, IL-19.0L	2 1/4 (57)"

Revise the ninth paragraph of Article 406.14 of the Standard Specifications to read:

"Test strip mixture will be evaluated at the contract unit price according to the following."

Revise Article 406.14(a) of the Standard Specifications to read:

"(a) If the HMA placed during the initial test strip is determined to be acceptable the mixture will be paid for at the contract unit price."

Revise Article 406.14(b) of the Standard Specifications to read:

"(b) If the HMA placed during the initial test strip (1) is determined to be unacceptable to remain in place by the Engineer, and (2) was not produced within 2.0 to 6.0 percent air voids or within the individual control limits of the JMF according to the Department's test results, the mixture will not be paid for and shall be removed at the Contractor's expense. An additional test strip shall be constructed and the mixture will be paid for in full, if produced within 2.0 to 6.0 percent air voids and within the individual control limits of the JMF."

Revise Article 406.14(c) of the Standard Specifications to read:

"(c) If the HMA placed during the initial test strip (1) is determined to be unacceptable to remain in place by the Engineer, and (2) was produced within 2.0 to 6.0 percent air voids and within the individual control limits of the JMF according to the Department's test results, the mixture shall be removed. Removal will be paid according to Article 109.04. This initial mixture will be paid for at the contract unit price. An additional test strip shall be constructed and the mixture will be paid for in full, if

produced within 2.0 to 6.0 percent air voids and within the individual control limits of the JMF.”

Delete Article 406.14(d) of the Standard Specifications.

Delete Article 406.14(e) of the Standard Specifications.

Delete the last sentence of Article 407.06(c) of the Standard Specifications.

Revise Note 2. of Article 442.02 of the Standard Specifications to read:

“Note 2. The mixture composition of the HMA used shall be IL-19.0 binder, designed with the same Ndesign as that specified for the mainline pavement.”

Delete the second paragraph of Article 482.02 of the Standard Specifications.

Revise the first sentence of the sixth paragraph of Article 482.05 of the Standard Specifications to read:

“When the mainline HMA binder and surface course mixture option is used on resurfacing projects, shoulder resurfacing widths of 6 ft (1.8 m) or less may be placed simultaneously with the adjacent traffic lane for both the binder and surface courses.”

Revise the second sentence of the fourth paragraph of Article 601.04 of the Standard Specifications to read:

“The top 5 in. (125 mm) of the trench shall be backfilled with an IL-19.0L Low ESAL mixture meeting the requirements of Section 1030 and compacted to a density of not less than 90 percent of the theoretical density.”

Revise the second sentence of the fifth paragraph of Article 601.04 of the Standard Specifications to read:

“The top 8 in. (200 mm) of the trench shall be backfilled with an IL-19.0L Low ESAL mixture meeting the requirements of Section 1030 and compacted to a density of not less than 90 percent of the theoretical density.”

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

“(c) Gradation. The fine aggregate gradation for all HMA shall be FA 1, FA 2, FA 20, FA 21, or FA 22. The fine aggregate gradation for SMA shall be FA/FM 20.

For mixture IL-4.75 and surface mixtures with an Ndesign = 90, at least 50 percent of the required fine aggregate fraction shall consist of either stone sand, slag sand, or steel slag meeting the FA 20 gradation.

For mixture IL-19.0, Ndesign = 90 the fine aggregate fraction shall consist of at least 67 percent manufactured sand meeting FA 20 or FA 22 gradation. For mixture IL-19.0, Ndesign = 50 or 70 the fine aggregate fraction shall consist of at least 50 percent

manufactured sand meeting FA 20 or FA 22 gradation. The manufactured sand shall be stone sand, slag sand, steel slag sand, or combinations thereof.

Gradation FA 1, FA 2, or FA 3 shall be used when required for prime coat aggregate application for HMA."

Delete the last sentence of the first paragraph of Article 1004.03(b) of the Standard Specifications.

Revise the table in Article 1004.03(c) of the Standard Specifications to read:

"Use	Size/Application	Gradation No.
Class A-1, 2, & 3	3/8 in. (10 mm) Seal	CA 16
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & 3	Cover	CA 14
HMA High ESAL	IL-19.0 IL-9.5	CA 11 <sup>1/</sup> CA 16, CA 13 <sup>3/</sup>
HMA Low ESAL	IL-19.0L IL-9.5L Stabilized Subbase or Shoulders	CA 11 <sup>1/</sup> CA 16
SMA <sup>2/</sup>	1/2 in. (12.5mm) Binder & Surface IL 9.5 Surface	CA13 <sup>3/</sup> , CA14 or CA16  CA16, CA 13 <sup>3/</sup>

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

2/ The coarse aggregates used shall be capable of being combined with stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation and mineral filler to meet the approved mix design and the mix requirements noted herein.

3/ CA 13 shall be 100 percent passing the 1/2 in. (12.5mm) sieve.

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

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

Revise the nomenclature table in Article 1030.01 of the Standard Specifications to read:

"High ESAL	IL-19.0 binder; IL-9.5 surface; IL-4.75; SMA-12.5, SMA-9.5
Low ESAL	IL-19.0L binder; IL-9.5L surface; Stabilized Subbase (HMA) <sup>1/</sup> ; HMA Shoulders <sup>2/</sup>



1/ Uses 19.0L binder mix.

2/ Uses 19.0L for lower lifts and 9.5L for surface lift.”

Revise Article 1030.02 of the Standard Specifications and Supplemental Specifications to read:

“**1030.02 Materials.** Materials shall be according to the following.

Item .....	Article/Section
(a) Coarse Aggregate .....	1004.03
(b) Fine Aggregate .....	1003.03
(c) RAP Material .....	1031
(d) Mineral Filler .....	1011
(e) Hydrated Lime .....	1012.01
(f) Slaked Quicklime (Note 1)	
(g) Performance Graded Asphalt Binder (Note 2) .....	1032
(h) Fibers (Note 3)	
(i) Warm Mix Asphalt (WMA) Technologies (Note 4)	

Note 1. Slaked quicklime shall be according to ASTM C 5.

Note 2. The asphalt binder shall be an SBS PG 76-28 when the SMA is used on a full-depth asphalt pavement and SBS PG 76-22 when used as an overlay, except where modified herein. The asphalt binder shall be an Elvaloy or SBS PG 76-22 for IL-4.75, except where modified herein. The elastic recovery shall be a minimum of 80.

Note 3. A stabilizing additive such as cellulose or mineral fiber shall be added to the SMA mixture according to Illinois Modified AASHTO M 325. The stabilizing additive shall meet the Fiber Quality Requirements listed in Illinois Modified AASHTO M 325. Prior to approval and use of fibers, the Contractor shall submit a notarized certification by the producer of these materials stating they meet these requirements. Reclaimed Asphalt Shingles (RAS) may be used in Stone Matrix Asphalt (SMA) mixtures designed with an SBA polymer modifier as a fiber additive if the mix design with RAS included meets AASHTO T305 requirements. The RAS shall be from a certified source that produces either Type I or Type 2. Material shall meet requirements noted herein and the actual dosage rate will be determined by the Engineer.

Note 4. Warm mix additives or foaming processes shall be selected from the current Bureau of Materials and Physical Research Approved List, “Warm Mix Asphalt Technologies”.

Revise Article 1030.04(a)(1) of the Standard Specifications and the Supplemental Specifications to read:

"(1) High ESAL Mixtures. The Job Mix Formula (JMF) shall fall within the following limits.

High ESAL, MIXTURE COMPOSITION (% PASSING) <sup>1/</sup>										
Sieve Size	IL-19.0 mm		SMA <sup>4/</sup> IL-12.5 mm		SMA <sup>4/</sup> IL-9.5 mm		IL-9.5 mm		IL-4.75 mm	
	min	max	min	max	min	max	min	max	min	max
1 1/2 in (37.5 mm)										
1 in. (25 mm)		100								
3/4 in. (19 mm)	90	100		100						
1/2 in. (12.5 mm)	75	89	80	100		100		100		100
3/8 in. (9.5 mm)				65	90	100	90	100		100
#4 (4.75 mm)	40	60	20	30	36	50	34	69	90	100
#8 (2.36 mm)	20	42	16	24 <sup>5/</sup>	16	32 <sup>5/</sup>	34 <sup>6/</sup>	52 <sup>2/</sup>	70	90
#16 (1.18 mm)	15	30					10	32	50	65
#30 (600 μm)			12	16	12	18				
#50 (300 μm)	6	15					4	15	15	30
#100 (150 μm)	4	9					3	10	10	18
#200 (75 μm)	3	6	7.0	9.0 <sup>3/</sup>	7.5	9.5 <sup>3/</sup>	4	6	7	9 <sup>3/</sup>
Ratio Dust/Asphalt Binder		1.0		1.5		1.5		1.0		1.0

- 1/ Based on percent of total aggregate weight.
- 2/ The mixture composition shall not exceed 44 percent passing the #8 (2.36 mm) sieve for surface courses with Ndesign = 90.
- 3/ Additional minus No. 200 (0.075 mm) material required by the mix design shall be mineral filler, unless otherwise approved by the Engineer.
- 4/ The maximum percent passing the #635 (20 μm) sieve shall be ≤ 3 percent.

- 5/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted above the percentage stated on the table.
- 6/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted below 34 percent.

Delete Article 1030.04(a)(3) of the Standard Specifications.

Delete Article 1030.04(a)(4) of the Standard Specifications.

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

“(1) High ESAL Mixtures. The target value for the air voids of the HMA shall be 4.0 percent and for IL-4.75 it shall be 3.5 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix, and shall conform to the following requirements.

VOLUMETRIC REQUIREMENTS High ESAL				
	Voids in the Mineral Aggregate (VMA), % minimum			Voids Filled with Asphalt Binder (VFA), %
N <sub>design</sub>	IL-19.0	IL-9.5	IL-4.75 <sup>1/</sup>	
50	13.5	15.0	18.5	65 – 78 <sup>2/</sup>
70			65 - 75	
90				

1/ Maximum Draindown for IL-4.75 shall be 0.3 percent

2/ VFA for IL-4.75 shall be 72-85 percent”

Revise the table in Article 1030.04(b)(2) of the Standard Specifications to read:

“VOLUMETRIC REQUIREMENTS Low ESAL				
Mixture Composition	Design Compactive Effort	Design Air Voids Target %	VMA (Voids in the Mineral Aggregate), % min.	VFA (Voids Filled with Asphalt Binder), %
IL-9.5L	N <sub>DES</sub> =30	4.0	15.0	65-78
IL-19.0L	N <sub>DES</sub> =30	4.0	13.5	N/A”

Replace Article 1030.04(b)(3) of the Standard Specifications with the following:

“(3) SMA Mixtures.

Volumetric Requirements SMA <sup>1/</sup>			
Ndesign	Design Air Voids Target %	Voids in the Mineral Aggregate (VMA), % min.	Voids Filled with Asphalt (VFA), %
80 <sup>4/</sup>	3.5	17.0 <sup>2/</sup>	75 - 83
		16.0 <sup>3/</sup>	

1/ Maximum draindown shall be 0.3 percent. The draindown shall be determined at the JMF asphalt binder content at the mixing temperature plus 30 °F.

2/ Applies when specific gravity of coarse aggregate is  $\geq 2.760$ .

3/ Applies when specific gravity of coarse aggregate is  $< 2.760$ .

4/ Blending of different types of aggregate will not be permitted. For surface course, the coarse aggregate can be crushed steel slag, crystalline crushed stone or crushed sandstone. For binder course, coarse aggregate shall be crushed stone (dolomite), crushed gravel, crystalline crushed stone, or crushed sandstone.

Delete Article 1030.04(b)(4) of the Standard Specifications.

Delete Article 1030.04(b)(5) from the Supplemental Specifications.

Delete last sentence of the second paragraph of Article 1102.01(a) (13) a.

Add to second paragraph in Article 1102.01 (a) (13) a.:

“As an option, collected bag-house dust may be used in lieu of manufactured mineral filler, provided; 1) there is enough available for the production of the SMA mix for the entire project and 2) a mix design was prepared with collected bag-house dust.”

Revise the table in Article 1030.05(d)(2)a. of the Standard Specifications to read:

"Parameter	Frequency of Tests High ESAL Mixture Low ESAL Mixture	Test Method See Manual of Test Procedures for Materials
Aggregate Gradation  % passing sieves: 1/2 in. (12.5 mm), No. 4 (4.75 mm), No. 8 (2.36 mm), No. 30 (600 μm) No. 200 (75 μm)	1 washed ignition oven test on the mix per half day of production  Note 3.	Illinois Procedure
Asphalt Binder Content by Ignition Oven  Note 1.	1 per half day of production	Illinois-Modified AASHTO T 308
VMA  Note 2.	Day's production ≥ 1200 tons:  1 per half day of production	Illinois-Modified AASHTO R 35

"Parameter	Frequency of Tests	Test Method See Manual of Test Procedures for Materials
	High ESAL Mixture Low ESAL Mixture	
Air Voids  Bulk Specific Gravity of Gyrotory Sample  Note 4.	Day's production $\geq$ 1200 tons:  1 per half day of production  Day's production < 1200 tons:  1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)	Illinois-Modified AASHTO T 312

"Parameter	Frequency of Tests High ESAL Mixture Low ESAL Mixture	Test Method See Manual of Test Procedures for Materials
Maximum Specific Gravity of Mixture	Day's production $\geq$ 1200 tons:  1 per half day of production	Illinois-Modified AASHTO T 209
	Day's production < 1200 tons:  1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)	

Note 1. The Engineer may waive the ignition oven requirement for asphalt binder content if the aggregates to be used are known to have ignition asphalt binder content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the asphalt binder content.

Note 2. The  $G_{sb}$  used in the voids in the mineral aggregate (VMA) calculation shall be the same average  $G_{sb}$  value listed in the mix design.

Note 3. The Engineer reserves the right to require additional hot bin gradations for batch plants if control problems are evident.

Note 4. The WMA compaction temperature for mixture volumetric testing shall be  $270 \pm 5$  °F ( $132 \pm 3$  °C) for quality control testing. The WMA compaction temperature for quality assurance testing will be  $270 \pm 5$  °F ( $132 \pm 3$  °C) if the mixture is not allowed to cool to room temperature. If the mixture is allowed to cool to room temperature, it shall be reheated to standard HMA compaction temperatures."

Revise the table in Article 1030.05(d)(2)b. of the Standard Specifications to read:

"Parameter	High ESAL Mixture Low ESAL Mixture
Ratio Dust/Asphalt Binder	0.6 to 1.2
Moisture	0.3 %"

Revise the Article 1030.05(d)(4) of the Supplemental Specifications to read:

"(4) Control Limits. Target values shall be determined by applying adjustment factors to the AJMF where applicable. The target values shall be plotted on the control charts within the following control limits.

"CONTROL LIMITS						
Parameter	High ESAL		SMA		IL-4.75	
	Individual Test	Moving Avg. of 4	Test	Moving Avg. of 4	Individual Test	Moving Avg. of 4
% Passing: <sup>1/</sup>						
1/2 in. (12.5 mm)	± 6 %	± 4 %	± 6 %	± 4 %		
3/8 in. (9.5mm)			± 4 %	± 3 %		
No. 4 (4.75 mm)	± 5 %	± 4 %	± 5 %	± 4 %		
No. 8 (2.36 mm)	± 5 %	± 3 %	± 4 %	± 2 %		
No. 16 (1.18 mm)			± 4 %	± 2 %	± 4 %	± 3 %
No. 30 (600 µm)	± 4 %	± 2.5 %	± 4 %	± 2.5 %		
Total Dust Content No. 200 (75 µm)	± 1.5 %	± 1.0 %			± 1.5 %	± 1.0 %
Asphalt Binder Content	± 0.3 %	± 0.2 %	± 0.2 %	± 0.1 %	± 0.3 %	± 0.2 %
Voids	± 1.2 %	± 1.0 %	± 1.2 %	± 1.0 %	± 1.2 %	± 1.0 %
VMA	-0.7 % <sup>2/</sup>	-0.5 % <sup>2/</sup>	-0.7 % <sup>2/</sup>	-0.5 % <sup>2/</sup>	-0.7 % <sup>2/</sup>	-0.5 % <sup>2/</sup>

1/ Based on washed ignition oven

2/ Allowable limit below minimum design VMA requirement

DENSITY CONTROL LIMITS		
Mixture Composition	Parameter	Individual Test
IL-4.75	Ndesign = 50	93.0 - 97.4 % <sup>1/</sup>
IL-9.5	Ndesign = 90	92.0 - 96.0 %
IL-9.5,IL-9.5L	Ndesign < 90	92.5 - 97.4 %
IL-19.0	Ndesign = 90	93.0 - 96.0 %
IL-19.0, IL-19.0L	Ndesign < 90	93.0 <sup>2/</sup> - 97.4 %
SMA	Ndesign = 80	93.5 - 97.4 %



- 1/ Density shall be determined by cores or by correlated, approved thin lift nuclear gauge.
- 2/ 92.0 % when placed as first lift on an unimproved subgrade.”

Revise the table in Article 1030.05(d)(5) of the Supplemental Specifications to read:

“CONTROL CHART REQUIREMENTS	High ESAL, Low ESAL, SMA & IL-4.75
Gradation <sup>1/3/</sup>	% Passing Sieves: 1/2 in. (12.5 mm) <sup>2/</sup> No. 4 (4.75 mm) No. 8 (2.36 mm) No. 30 (600 µm)
Total Dust Content <sup>1/</sup>	No. 200 (75 µm)
	Asphalt Binder Content
	Bulk Specific Gravity
	Maximum Specific Gravity of Mixture
	Voids
	Density
	VMA

- 1/ Based on washed ignition oven.
- 2/ Does not apply to IL-4.75.
- 3/ SMA also requires the 3/8 in. (9.5 mm) sieve.”

Delete Article 1030.05(d)(6)a.1.(b.) of the Standard Specifications.

Delete Article 1030.06(b) of the Standard Specifications.

Delete Article 1102.01(e) of the Standard Specifications.

**2) Design Verification and Production**

Description. The following states the requirements for Hamburg Wheel and Tensile Strength testing for High ESAL, IL-4.75, and Stone Matrix Asphalt (SMA) hot-mix asphalt (HMA) mixes during mix design verification and production.

Mix Design Testing. Add the following below the referenced AASHTO standards in Article 1030.04 of the Standard Specifications:

- AASHTO T 324      Hamburg Wheel Test
- AASHTO T 283      Tensile Strength Test

Add the following to Article 1030.04 of the Standard Specifications:

“(d) Verification Testing. High ESAL, IL-4.75, and SMA mix designs submitted for verification will be tested to ensure that the resulting mix designs will pass the required criteria for the Hamburg Wheel Test (IL mod AASHTO T-324) and the Tensile Strength Test (IL mod AASHTO T-283). The Department will perform a verification test on gyratory specimens compacted by the Contractor. If the mix fails the Department’s verification test, the Contractor shall make the necessary changes to the mix and resubmit compacted specimens to the Department for verification. If the mix fails again, the mix design will be rejected.

All new and renewal mix designs will be required to be tested, prior to submittal for Department verification and shall meet the following requirements:

(1)Hamburg Wheel Test criteria. The maximum allowable rut depth shall be 0.5 in. (12.5 mm). The minimum number of wheel passes at the 0.5 in. (12.5 mm) rut depth criteria shall be based on the high temperature binder grade of the mix as specified in the mix requirements table of the plans.

Illinois Modified AASHTO T 324 Requirements <sup>1/</sup>

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG 70 -XX (or higher)	20,000	12.5
PG 64 -XX (or lower)	10,000	12.5

1/ When produced at temperatures of 275 ± 5 °F (135 ± 3 °C) or less, loose Warm Mix Asphalt shall be oven aged at 270 ± 5 °F (132 ± 3 °C) for two hours prior to gyratory compaction of Hamburg Wheel specimens.

Note: For SMA Designs (N-80) the maximum rut depth is 6.0 mm at 20,000 repetitions.  
 For IL 4.75mm Designs (N-50) the maximum rut depth is 9.0mm at 15,000 repetitions.

(2) Tensile Strength Criteria. The minimum allowable conditioned tensile strength shall be 60 psi (415 kPa) for non-polymer modified performance graded (PG) asphalt binder and 80 psi (550 kPa) for polymer modified PG asphalt binder. The maximum allowable unconditioned tensile strength shall be 200 psi (1380 kPa).”

Production Testing. Revise Article 1030.06(a) of the Standard Specifications to read:

“(a) High ESAL, IL-4.75, WMA, and SMA Mixtures. For each contract, a 300 ton (275 metric tons) test strip, except for SMA mixtures it will be 400 ton (363 metric ton), will be required at the beginning of HMA production for each mixture with a quantity of 3000 tons (2750 metric tons) or more according to the Manual of Test Procedures for Materials “Hot Mix Asphalt Test Strip Procedures”.

Before start-up, target values shall be determined by applying gradation correction factors to the JMF when applicable. These correction factors shall be determined from previous experience. The target values, when approved by the Engineer, shall be used to control HMA production. Plant settings and control charts shall be set according to target values.

Before constructing the test strip, target values shall be determined by applying gradation correction factors to the JMF when applicable. After any JMF adjustment, the JMF shall become the Adjusted Job Mix Formula (AJMF). Upon completion of the first acceptable test strip, the JMF shall become the AJMF regardless of whether or not the JMF has been adjusted. If an adjustment/plant change is made, the Engineer may require a new test strip to be constructed. If the HMA placed during the initial test strip is determined to be unacceptable to remain in place by the Engineer, it shall be removed and replaced.

The limitations between the JMF and AJMF are as follows.

Parameter	Adjustment
1/2 in. (12.5 mm)	± 5.0 %
No. 4 (4.75 mm)	± 4.0 %
No. 8 (2.36 mm)	± 3.0 %
No. 30 (600 µm)	*
No. 200 (75 µm)	*
Asphalt Binder Content	± 0.3 %

\* In no case shall the target for the amount passing be greater than the JMF.

Any adjustments outside the above limitations will require a new mix design.

Mixture sampled to represent the test strip shall include additional material sufficient for the Department to conduct Hamburg Wheel testing according to Illinois Modified AASHTO T324 (approximately 60 lb (27 kg) total).

The Contractor shall immediately cease production upon notification by the Engineer of failing Hamburg Wheel test. All prior produced material may be paved out provided all other mixture criteria is being met. No additional mixture shall be produced until the Engineer receives passing Hamburg Wheel tests.

The Department may conduct additional Hamburg Wheel tests on production material as determined by the Engineer."

Revise the title of Article 1030.06(b) of the Standard Specifications to read:

"(b) Low ESAL Mixtures."

Add the following to Article 1030.06 of the Standard Specifications:

“(c) Hamburg Wheel Test. All HMA mixtures shall be sampled within the first 500 tons (450 metric tons) on the first day of production or during start up with a split reserved for the Department. The mix sample shall be tested according to the Illinois Modified AASHTO T 324 and shall meet the requirements specified herein. Mix production shall not exceed 1500 tons (1350 metric tons) or one day’s production, whichever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the plant produced mixture demonstrates conformance prior to start of mix production for a contract. The Department may conduct additional Hamburg Wheel Tests on production material as determined by the Engineer. If the mixture fails to meet the Hamburg Wheel criteria, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria”

The Contractor shall immediately cease production upon notification by the Engineer of failing Hamburg Wheel test. All prior produced material may be paved out provided all other mixture criteria are being met. No additional mixture shall be produced until the Engineer receives passing Hamburg Wheel tests.

Method of Measurement:

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

“The plan quantities of SMA mixtures shall be adjusted using the actual approved binder and surface Mix Design's  $G_{mb}$ .”

Basis of Payment.

Replace the seventh paragraph of Article 406.14 of the Standard Specifications with the following:

“For all mixes designed and verified under the Hamburg Wheel criteria, the cost of furnishing and introducing anti-stripping additives in the HMA will not be paid for separately, but shall be considered as included in the contract unit price of the HMA item involved.

No additional compensation will be awarded to the Contractor because of reduced production rates associated with the addition of the anti-stripping additive.”

## RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (D-1)

Effective: November 1, 2012

Revise: January 2, 2015

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 resulting from cold milling or crushing an existing hot-mix asphalt (HMA) pavement. RAP will be considered processed FRAP after completion of both crushing and screening to size. 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 90 percent passing the #4 (4.75 mm) sieve . RAS 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. Additional processed RAP (FRAP) shall be stockpiled in a separate working pile, as designated in the QC Plan, and only added to the sealed stockpile when test results for the working pile are complete and are found to meet tolerances specified herein for the original sealed FRAP stockpile. Stockpiles shall be sufficiently separated to prevent intermingling at the base. All stockpiles (including

unprocessed RAP and FRAP) shall be identified by signs indicating the type as listed below (i.e. "Non- Quality, FRAP #4 or Type 2 RAS", etc...).

- (1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent 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 processed prior to testing and sized into 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 in the coarse fraction shall pass the maximum sieve size specified for the mix the FRAP will be used in.
- (2) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, Superpave (High ESAL), or HMA (High ESAL). If approved by the Engineer, the aggregate from a maximum 3.0 inch single combined pass of surface/binder milling will be classified as B quality. All millings from this application will be processed into FRAP as described previously.
- (3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent 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 (FRAP) prior to testing. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (4) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from HMA shoulders, bituminous stabilized subbases or Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture. The coarse aggregate in this RAP may be crushed or round but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (5) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP or FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, plant cleanout 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 be sufficiently separated to prevent intermingling at the base. Each stockpile shall be signed indicating what type of RAS is present.

However, a RAS source may submit a written request to the Department for approval to blend mechanically a specified ratio of type 1 RAS with type 2 RAS. The source will not be permitted to change the ratio of the blend without the Department prior written approval. The Engineer's written approval will be required, to mechanically blend RAS with any fine aggregate produced under the AGCS, up to an equal weight of RAS, to improve workability. The fine aggregate shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The fine aggregate shall be one that is approved for use in the HMA mixture and 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.** FRAP and RAS testing shall be according to the following.

(a) FRAP Testing. When used in HMA, the FRAP shall be sampled and tested either during processing or after stockpiling. It shall also be sampled during HMA production.

(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) Incoming Material. For testing as incoming material, washed extraction samples shall be run at a minimum frequency of one sample per 2000 tons (1800 metric tons) or once per week, whichever comes first.

(3) 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.

Before extraction, each field sample of FRAP, shall be split to obtain two 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 shall be sampled and tested during stockpiling according to Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Sources". The Contractor shall also sample as incoming material at the HMA plant.

- (1) During Stockpiling. Washed extraction and testing for unacceptable materials shall be run 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 1000 tons (900 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a  $\leq 1000$  ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS shall be 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.
- (2) Incoming Material. For testing as incoming material at the HMA plant, washed extraction shall be run at the minimum frequency of one sample per 250 tons (227 metric tons). A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). The incoming material test results shall meet the tolerances specified herein.

The Contractor shall obtain and make available all test results from start of the initial stockpile sampled and tested at the shingle processing facility in accordance with the facility's QC Plan.

Before extraction, each field sample shall be split to obtain two 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 procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

**1031.04 Evaluation of Tests.** Evaluation of tests results shall be according to the following.

- (a) Evaluation of FRAP Test Results. All test results shall be compiled to include asphalt binder content, gradation and, when applicable (for slag),  $G_{mm}$ . A five test average of results from the original pile will be used in the mix designs. Individual extraction test results run thereafter, shall be compared to the average used for the mix design, and will be accepted if within the tolerances listed below.

Parameter	FRAP
No. 4 (4.75 mm)	$\pm 6 \%$
No. 8 (2.36 mm)	$\pm 5 \%$
No. 30 (600 $\mu\text{m}$ )	$\pm 5 \%$
No. 200 (75 $\mu\text{m}$ )	$\pm 2.0 \%$
Asphalt Binder	$\pm 0.3 \%$
$G_{mm}$	$\pm 0.03$ <sup>1/</sup>



- 1/ For stockpile with slag or steel slag present as determined in the current Manual of Test Procedures Appendix B 21, "Determination of Reclaimed Asphalt Pavement Aggregate Bulk Specific Gravity".

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the FRAP stockpile shall not be used in Hot-Mix Asphalt unless the FRAP representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

The Contractor shall maintain a representative moving average of five tests to be used for Hot-Mix Asphalt production.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the Illinois Test Procedure, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)" or Illinois Modified AASHTO T-164-11, Test Method A.

- (b) Evaluation of RAS 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. A five test average of results from the original pile will be used in the mix designs. Individual test results run thereafter, when compared to the average used for the mix design, 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)	± 2.5 %
Asphalt Binder Content	± 2.0 %

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the RAS shall not be used in Hot-Mix Asphalt unless the RAS representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

- (c) Quality Assurance by the Engineer. The Engineer may witness the sampling and splitting conduct assurance tests on split samples taken by the Contractor for quality control testing a minimum of once a month.

The overall testing frequency will be performed over the entire range of Contractor samples for asphalt binder content and gradation. The Engineer may select any or all split samples for assurance testing. The test results will be made available to the Contractor as soon as they become available.

The Engineer will notify the Contractor of observed deficiencies.

Differences between the Contractor's and the Engineer's split sample test results will be considered acceptable if within the following limits.

Test Parameter	Acceptable Limits of Precision	
	FRAP	RAS
% Passing: <sup>1/</sup>		
1 / 2 in.	5.0%	
No. 4	5.0%	
No. 8	3.0%	4.0%
No. 30	2.0%	3.0%
No. 200	2.2%	2.5%
Asphalt Binder Content	0.3%	1.0%
G <sub>mm</sub>	0.030	

1/ Based on washed extraction.

In the event comparisons are outside the above acceptable limits of precision, the Engineer will immediately investigate.

- (d) Acceptance by the Engineer. Acceptable of the material will be based on the validation of the Contractor's quality control by the assurance process.

**1031.05 Quality Designation of Aggregate in RAP and FRAP.**

- (a) RAP. The aggregate quality of the RAP for homogenous, conglomerate, and conglomerate "D" quality 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 Superpave/HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.
- (3) RAP from Class I, Superpave/HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
- (4) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D 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. Fractionated RAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5,000 tons (4,500 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 prequalified by the Department for the specified testing. The consultant 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 BMRP Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent will be applied for all HMA applications. The fine aggregate portion of the fractionated RAP shall not be used in any HMA mixtures that require a minimum of "B" quality aggregate or better, until the coarse aggregate fraction has been determined to be acceptable thru a MicroDeval Testing.

**1031.06 Use of FRAP and/or RAS in HMA.** The use of FRAP and/or RAS shall be a Contractor's option when constructing HMA in all contracts.

- (a) FRAP. The use of FRAP in HMA shall be as follows.

- (1) Coarse Aggregate Size (after extraction). The coarse aggregate in all FRAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
- (2) Steel Slag Stockpiles. FRAP stockpiles containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in HMA (High ESAL and Low ESAL) mixtures regardless of lift or mix type.
- (3) Use in HMA Surface Mixtures (High and Low ESAL). FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall have coarse aggregate that is Class B quality or better. FRAP shall be considered equivalent to limestone for frictional considerations unless produced/screened to minus 3/8 inch.
- (4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP in which the coarse aggregate is Class C quality or better.
- (5) Use in Shoulders and Subbase. FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, Restricted FRAP, conglomerate, or conglomerate DQ.

- (b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.
- (c) FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with FRAP in HMA mixtures up to a maximum of 5.0% by weight of the total mix.

When FRAP is used alone or FRAP is used in conjunction with RAS, the percent of virgin asphalt binder replacement (ABR) shall not exceed the amounts indicated in the table below for a given N Design.

Max Asphalt Binder Replacement for FRAP with RAS Combination

HMA Mixtures <sup>1/2/</sup>	Maximum % ABR		
	Binder/Leveling Binder	Surface	Polymer Modified <sup>3/</sup>
30L	50	40	10
50	40	35	10
70	40	30	10
90	40	30	10 <sup>4/</sup>
4.75 mm N-50			30
SMA N-80			20

- 1/ For HMA "All Other" (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.
- 2/ When the binder replacement exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement using a virgin asphalt binder grade of PG64-22 will be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 percent, the required virgin asphalt binder grade shall be PG64-28.
- 3/ When the ABR for SMA or IL-4.75 is 15 percent or less, the required virgin asphalt binder shall be SBS PG76-22 and the elastic recovery shall be a minimum of 80. When the ABR for SMA or IL-4.75 exceeds 15%, the virgin asphalt binder grade shall be SBS PG70-28 and the elastic recovery shall be a minimum of 80.
- 4/ For polymerized surface mix used for overlays, with up to 10 percent ABR, an SBS PG70-22 will be required. However if used in full depth HMA, an SBS PG70-28 will be required.

**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) FRAP and/or RAS. FRAP and /or RAS mix designs shall be submitted for verification. If additional FRAP or RAS stockpiles are tested and found to be within tolerance, as defined under "Evaluation of Tests" herein, and meet all requirements herein, the additional FRAP or RAS stockpiles may be used in the original 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 FRAP and/or RAS shall be as follows.

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 RAS and FRAP 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 during mix production, corrective actions fail to maintain FRAP, RAS or QC/QA test results within control tolerances or the requirements listed herein the Contractor shall cease production of the mixture containing FRAP or RAS and conduct an investigation that may require a new mix design.

- (a) 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  $\pm 0.5$  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.
- (b) HMA Plant Requirements. HMA plants utilizing 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 RAS and FRAP 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 RAS and FRAP material as a percent of the total mix to the nearest 0.1 percent.
  - h. Aggregate RAS and FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS and FRAP are printed in wet condition.)
  - i. When producing mixtures with FRAP and/or RAS, a positive dust control system shall be utilized.
  - j. Accumulated mixture tonnage.
  - k. Dust Removed (accumulated to the nearest 0.1 ton)
- (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).
  - f. RAS and FRAP weight to the nearest pound (kilogram).
  - g. Virgin asphalt binder weight to the nearest pound (kilogram).
  - h. Residual asphalt binder in the RAS and FRAP 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 Shoulders.** The use of

RAP or FRAP in aggregate surface course and aggregate shoulders 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 to construct aggregate surface course and aggregate shoulders shall be according to the current Bureau of Materials and Physical Research's 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. (37.5mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded, FRAP, or single sized will not be accepted for use as Aggregate Surface Course and Aggregate Shoulders."

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

Effective: June 26, 2006

Revised: January 1, 2013

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

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

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

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



meeting the requirements of AASHTO M 17 may be added, up to a maximum of four percent by weight of GTR to reduce sticking and caking of the GTR particles. When tested in accordance with Illinois modified AASHTO T 27, a 50 g sample of the GTR shall conform to the following gradation requirements:

Sieve Size	Percent Passing
No. 16 (1.18 mm)	100
No. 30 (600 μm)	95 ± 5
No. 50 (300 μm)	> 20

Add the following to the end of Note 1. of article 1030.03 of the Standard Specifications:

“A dedicated storage tank for the Ground Tire Rubber (GTR) modified asphalt binder shall be provided. This tank must be capable of providing continuous mechanical mixing throughout by continuous agitation and recirculation of the asphalt binder to provide a uniform mixture. The tank shall be heated and capable of maintaining the temperature of the asphalt binder at 300 °F to 350 °F (149 °C to 177 °C). The asphalt binder metering systems of dryer drum plants shall be calibrated with the actual GTR modified asphalt binder material with an accuracy of ± 0.40 percent.”

Revise 1030.02(c) of the Standard Specifications to read:

“(c) RAP Materials (Note 3) .....1031”

Add the following note to 1030.02 of the Standard Specifications:

Note 3. When using reclaimed asphalt pavement and/or reclaimed asphalt shingles, the maximum asphalt binder replacement percentage shall be according to the most recent special provision for recycled materials.

**HEAT OF HYDRATION CONTROL FOR CONCRETE STRUCTURES (D-1)**

Effective: November 1, 2013

Article 1020.15 shall not apply.

**PUBLIC CONVENIENCE AND SAFETY (DIST 1)**

Effective: May 1, 2012

Revised: July 15, 2012

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

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

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

"The Length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday After"

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

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

### **HOT MIX ASPHALT - QUANTITY CORRECTION (BMPR)**

Effective: October 1, 2014

Revised: October 2, 2014

Revise the fifth paragraph of Article 406.13(b) of the Standard Specifications to read as follows:

"HMA and Stone Matrix Asphalt (SMA) mixture in excess of 103 percent of the quantity shown on the plans or the plan quantity as specified by the Engineer will not be measured for payment. The "adjusted quantity to be placed" and the "adjusted pay quantity" for HMA and SMA mixtures will be calculated as follows.

Adjusted Quantity To Be Placed = C x quantity shown on the plans or the plan quantity as specified by the Engineer

where: C = English:  $C = \frac{G_{mb} \times 46.8}{U}$       Metric:  $C = \frac{G_{mb} \times 24.99}{U}$

and where:  $G_{mb}$  = average bulk specific gravity from approved mix design  
U = unit weight of HMA shown on the plans in lb/sq yd/in.  
(kg/sq m/25 mm), used to estimate plan quantity  
46.8 = English constant  
24.99 = metric constant

Adjusted Pay Quantity (not to exceed 103 percent of the quantity shown on the plans or the plan quantity as specified by the Engineer) = B x HMA tons actually placed

where:  $B = \frac{1}{C}$

If project circumstances warrant a new mix design, the above equations shall be used to calculate the adjusted plan quantity and adjusted pay quantity for each mix design using its respective average bulk specific gravity."

**IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION (TPG)**

Effective: August 1, 2012

Revised: February 1, 2014

In addition to the Contractor's equal employment opportunity affirmative action efforts undertaken as elsewhere required by this Contract, the Contractor is encouraged to participate in the incentive program to provide additional on-the-job training to certified graduates of IDOT funded pre-apprenticeship training programs outlined by this Special Provision.

It is the policy of IDOT to fund IDOT pre-apprenticeship training programs throughout Illinois to provide training and skill-improvement opportunities to assure the increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The intent of this IDOT Training Program Graduate (TPG) Special Provision is to place certified graduates of these IDOT funded pre-apprentice training programs on IDOT project sites when feasible, and provide the graduates with meaningful on-the-job training intended to lead to journey-level employment. IDOT and its sub-recipients, in carrying out the responsibilities of a state contract, shall determine which construction contracts shall include "Training Program Graduate Special Provisions." To benefit from the incentives to encourage the participation in the additional on-the-job training under this Training Program Graduate Special Provision, the Contractor shall make every reasonable effort to employ certified graduates of IDOT funded Pre-apprenticeship Training Programs to the extent such persons are available within a reasonable recruitment area.

Participation pursuant to IDOT's requirements by the Contractor or subcontractor in this Training Program Graduate (TPG) Special Provision entitles the Contractor or subcontractor to be reimbursed at \$15.00 per hour for training given a certified TPG on this contract. As approved by the Department, reimbursement will be made for training persons as specified herein. This reimbursement will be made even though the Contractor or subcontractor may receive additional training program funds from other sources for other trainees, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving other reimbursement. For purposes of this Special Provision the Contractor is not relieved of requirements under applicable federal law, the Illinois Prevailing Wage Act, and is not eligible for other training fund reimbursements in addition to the Training Program Graduate (TPG) Special Provision reimbursement.

No payment shall be made to the Contractor if the Contractor or subcontractor fails to provide the required training. It is normally expected that a TPG will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project through completion of the contract, so long as training opportunities exist in his work classification or until he has completed his training program. Should the TPG's employment end in advance of the completion of the contract, the Contractor shall promptly notify the designated IDOT staff member under this Special Provision that the TPG's involvement in the contract has ended and supply a written report of the reason for the end of the involvement, the hours completed by the TPG under the Contract and the number of hours for which the incentive payment provided under this Special Provision will be or has been claimed for the TPG.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting its performance under this Special Provision.

METHOD OF MEASUREMENT: The unit of measurement is in hours.

BASIS OF PAYMENT: This work will be paid for at the contract unit price of \$15.00 per hour for certified TRAINEES TRAINING PROGRAM GRADUATE. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

The Contractor shall provide training opportunities aimed at developing full journeyworker in the type of trade or job classification involved. The initial number of TPGs for which the incentive is available under this contract is 1. During the course of performance of the Contract the Contractor may seek approval from the Department for additional incentive eligible TPGs. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the TPGs are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this Special Provision. The Contractor shall also insure that this Training Program Graduate Special Provision is made applicable to such subcontract if the TPGs are to be trained by a subcontractor and that the incentive payment is passed on to each subcontractor.

For the Contractor to meet the obligations for participation in this TPG incentive program under this Special Provision, the Department has contracted with several entities to provide screening, tutoring and pre-training to individuals interested in working in the applicable construction classification and has certified those students who have successfully completed the program and are eligible to be TPGs. A designated IDOT staff member, the Director of the Office of Business and Workforce Diversity (OBWD), will be responsible for providing assistance and referrals to the Contractor for the applicable TPGs. For this contract, the Director of OBWD is designated as the responsible IDOT staff member to provide the assistance and referral services related to the placement for this Special Provision. For purposes of this Contract, contacting the Director of OBWD and interviewing each candidate he/she recommends constitutes reasonable recruitment.

Prior to commencing construction, the Contractor shall submit to the Department for approval the TPGs to be trained in each selected classification. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. No employee shall be employed as a TPG in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. Notwithstanding the on-the-job training purpose of this TPG Special Provision, some offsite training is permissible as long as the offsite training is an integral part of the work of the contract and does not comprise a significant part of the overall training.

Training and upgrading of TPGs of IDOT pre-apprentice training programs is intended to move said TPGs toward journeyman status and is the primary objective of this Training Program Graduate Special Provision. Accordingly, the Contractor shall make every effort to enroll TPGs by recruitment through the IDOT funded TPG programs to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance and entitled to the Training Program Graduate Special Provision \$15.00 an hour incentive.

The Contractor or subcontractor shall provide each TPG with a certificate showing the type and length of training satisfactorily completed.



Route North Branch Bike Trail Extension  
Section 08-F3000-21-BT  
County Cook

Marked Rte. \_\_\_\_\_  
Project No. CMM9003(099)  
Contract No. 61A86

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.

David Landeweer

Print Name

Senior Project Manager

Title

URS Corporation

Agency

Signature

12/12/14

Date

**I. Site Description:**

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

The proposed trail begins at the northwest corner of the intersection of N Caldwell Ave. and W Devon Ave. and continues generally southwest along the North Branch of the Chicago River and terminates on the north side of Foster Ave. at Kostner Ave.

Latitude = 41 deg 59 min 51 sec  
Longitude = -87 deg 46 min 04 sec

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

The project consists of the construction of a proposed bike path, approximately 3 miles long. The northern end of the trail will connect to the existing North Branch Trail and will extend to Foster Ave. The work includes installation of a 10 foot wide asphalt trail, two pedestrian bridges, installation of signs, landscaping and all the incidental and collateral work necessary to complete the project as shown on the plans and as described herein.

- C. Provide the estimated duration of this project:

The project is scheduled to begin May 2015 and last until December 2015

- D. The total area of the construction site is estimated to be 4.7 acres.

The total area of the site estimated to be disturbed by excavation, grading or other activities is 4.7 acres.

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

The weighted average runoff coefficient for the project site after construction is 0.50.

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

The soil types found at the project site include:

Ozaukee silt loam

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

0.23

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

The trail meanders through forested areas with occasional stretches within open meadow. The forest is somewhat degraded with the presence of buckthorn and other invasive species. Where located within close proximity to Thorn Creek, the trail is located on the upper slope consisting of the Thorn Creek bluff. Existing groundcover, due to the heavy invasive species vegetation is minimal. The proposed trail alignment meanders considerably between the few desirable tree species that are present. This area is generally flat when away from the North Branch of the Chicago River. Typical construction activities will expose the soils by removing the vegetative cover during construction but will not generate long term adverse erosive conditions. Construction activities will be staged to minimize erosive conditions during the work activities.

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):

The Contractor will first clear the trees and undergrowth within the work limits as shown on the plans. Once the area has been cleared, perimeter erosion fencing will be installed at the outside limits of the work area. Excavation and filling of the ground will then take place to the proposed grade of the trail. As part of the earthwork, cross trail culverts will be installed and ditches will be constructed parallel to the trail at scattered locations. Ditch checks and inlet protection will be installed at the locations shown on the plans immediately upon installation of this work. Stone rip rap will be installed at the inlets and outlets of the culverts to reduce erosion potential.

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:

Forest Preserve District of Cook County.

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

Metra  
City of Chicago  
Forest Preserve District of Cook County  
Illinois Department of Transportation

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:

Chicago River - North Branch

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.

Work will be limited only to width necessary to construct the proposed trail. Perimeter erosion fencing will be installed to limit intrusion beyond the required work area. The work area itself does not contain any specimen trees or nature preservers.

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

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

- Applicable Federal, Tribal, State or Local Programs
- Other

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

- a. The name(s) of the listed water body, and identification of all pollutants causing impairment:
- b. Provide a description of how erosion and sediment control practices will prevent a discharge of sediment resulting from a storm event equal to or greater than a twenty-five (25) year, twenty-four (24) hour rainfall event:
- c. Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:
- d. Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

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

- a. The name(s) of the listed water body:
- b. Provide a description of the erosion and sediment control strategy that will be incorporated into the site design that is consistent with the assumptions and requirements of the TMDL:
- c. If a specific numeric waste load allocation has been established that would apply to the project's discharges, provide a description of the necessary steps to meet that allocation:

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

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Soil Sediment            | <input type="checkbox"/> Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids) |
| <input checked="" type="checkbox"/> Concrete                 | <input type="checkbox"/> Antifreeze / Coolants  |
| <input type="checkbox"/> Concrete Truck Waste                | <input type="checkbox"/> Waste water from cleaning construction equipment               |
| <input 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 checked="" type="checkbox"/> Preservation of Mature Vegetation | <input checked="" type="checkbox"/> Erosion Control Blanket / Mulching |
| <input type="checkbox"/> Vegetated Buffer Strips                      | <input type="checkbox"/> Sodding                                       |
| <input checked="" type="checkbox"/> Protection of Trees               | <input checked="" type="checkbox"/> Geotextiles                        |
| <input checked="" type="checkbox"/> Temporary Erosion Control Seeding | <input type="checkbox"/> Other (specify)                               |
| <input type="checkbox"/> Temporary Turf (Seeding, Class 7)            | <input type="checkbox"/> Other (specify)                               |
| <input type="checkbox"/> Temporary Mulching                           | <input type="checkbox"/> Other (specify)                               |
| <input checked="" type="checkbox"/> Permanent Seeding                 | <input type="checkbox"/> Other (specify)                               |

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

All sediment and erosion control measures will be installed per IDOT standard Section 280 as specified in the IDOT Standard Specifications, Adopted January 1, 2012.

Sediment and erosion control devices will be functional before the project site is disturbed. All disturbed areas will be seeded as soon as practical after construction activities in that area have concluded. Temporary erosion control measures consist of perimeter erosion barriers, temporary seeding and erosion control blanket. Perimeter erosion barrier and erosion control blanket will be placed at locations as noted on plans. Permanent seeding Class 1B shall be placed after completion of the final grading and topsoil placement and Class 4A shall be used at ditch locations. All control measures will be kept operational and maintained continuously throughout the period of land disturbance until permanent sediment and erosion control measures are operational. Earth stockpiles shall be temporarily seeded if they are to remain unused for more than fourteen days.

Geotextiles will be used as deemed necessary by the Engineer.

The Contractor shall remove only those trees and shrubs so designated by the Engineer, or those which directly interfere with the safety or quality of construction practices. The Contractor shall exercise extreme care when working near existing trees and shrubs to avoid damaging those not scheduled for removal, and shall replace any damaged plants at his own expense.

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

All disturbed ground (except for the trail itself) will be spread with 6 inches of topsoil and seeded with either Class 1B or Class 4A seed. All temporary facilities will be removed upon completion of the project and a full growth of the seed.



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 type="checkbox"/> Temporary Ditch Check                   | <input checked="" 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 checked="" type="checkbox"/> Retaining Walls |
| <input type="checkbox"/> Temporary Sediment Basin                | <input type="checkbox"/> Slope Walls                |
| <input type="checkbox"/> Temporary Stream Crossing               | <input type="checkbox"/> Concrete Revetment Mats    |
| <input type="checkbox"/> Stabilized Construction Exits           | <input type="checkbox"/> Level Spreaders            |
| <input type="checkbox"/> Turf Reinforcement Mats                 | <input type="checkbox"/> Other (specify)            |
| <input type="checkbox"/> Permanent Check Dams                    | <input type="checkbox"/> Other (specify)            |
| <input type="checkbox"/> Permanent Sediment Basin                | <input type="checkbox"/> Other (specify)            |
| <input type="checkbox"/> Aggregate Ditch                         | <input type="checkbox"/> Other (specify)            |
| <input type="checkbox"/> Paved Ditch                             | <input type="checkbox"/> Other (specify)            |

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

Temporary Perimeter Erosion Barrier will be placed at all locations where runoff exits the project site in an effort to prevent or control the erosion and sedimentation from leaving the project site. Pipe protection will be used at entrances of culverts in an effort to prevent sediment from depositing in the culvert and continuing downstream. Permanent rip rap will be placed at the entrance and exit of the culverts to slow the runoff and allow sediment to settle out.

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

Rip rap and the filter fabric will remain in place at the inlet and outlets of all cross trail culverts.

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.

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.

- 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:

Since the project consists of a bike trail, no pollutants will be present as a result of the use of the trail. Rip rap will be present at the inlets and outlets of all cross trail culverts to dissipate the velocity of the runoff in the ditches and culverts.

- F. **Approved State or Local Laws:** The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under the Permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

The project has been designed and approved through the Illinois Department of Transportation due to the use of Federal Funds on this project. No other local procedures or requirements are required.

- 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.

Soil erosion and sediment control features shall be constructed prior to the commencement of upland disturbance.

Temporary soil stabilization shall be applied to disturbed areas within 14 calendar days of the end of active hydrologic disturbance. Permanent stabilization shall be done within 14 days after completion of final grading of the soil.

All temporary erosion and sediment control measures shall be removed within 30 days after final stabilization is achieved or after the temporary measures are no longer needed. Trapped sediment and other disturbed soil areas shall be permanently stabilized.

All temporary and permanent erosion control measures must be maintained and repaired as needed. The Contractor will be responsible for inspection and repair during construction.

The erosion control measures shown on the plans are the minimum requirements. Additional measures may be required, as directed by the Engineer or governing agency.

The Contractor shall install all erosion control prior to the start of the earth work.

If a stockpile is to remain in place for more than three days, erosion control measures shall be provided.

Perimeter Erosion Barriers will be routinely cleaned of debris and any worn or inefficient segments will be replaced throughout the project duration.

**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](mailto: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.





REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
231 SOUTH LA SALLE STREET  
CHICAGO, ILLINOIS 60604-1437

July 18, 2014

Technical Services Division  
Regulatory Branch  
LRC-2013-00342

**SUBJECT:** Authorization for the North Branch Trail Extension along the North Branch of the Chicago River from Devon Avenue Southeast to Foster Avenue in Chicago, Cook County, Illinois

Pam Sielski  
Cook County Forest Preserve District  
536 North Harlem Avenue  
River Forest, Illinois 60305

Dear Ms. Sielski:

The U.S. Army Corps of Engineers, Chicago District, has completed its review of your notification for authorization under the Regional Permit Program (RPP), submitted on your behalf by Huff & Huff, Inc. This office has verified that your proposed activity complies with the terms and conditions of Regional Permit RP2 (Recreational Activities) and the overall RPP under Category I of the Regional Permit Program. The activity may be performed without further authorization from this office provided the activity is conducted in compliance with the terms and conditions of the RPP.

This verification expires three (3) years from the date of this letter and covers only your activity as described in your notification and as shown on the plans entitled "North Branch Trail Extension" dated May 3, 2013, prepared by URS. Caution must be taken to prevent construction materials and activities from impacting waters of the United States beyond the scope of this authorization. If you anticipate changing the design or location of the activity, you should contact this office to determine the need for further authorization.

This office is in receipt of a letter from the Sauk Trail Wetland Mitigation Bank confirming your purchase of 0.231 acres of certified mitigation credits.

This authorization is contingent upon implementing and maintaining soil erosion and sediment controls in a serviceable condition throughout the duration of the project. You shall comply with the North Cook County Soil and Water Conservation District's (SWCD) written and verbal recommendations regarding the soil erosion and sediment control (SESC) plan and the installation and maintenance requirements of the SESC practices on-site. You shall notify this office and the SWCD of any changes or modifications to the approved plan set. Please be aware that field conditions during project construction may require the implementation of additional SESC measures for further protection of aquatic resources. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable.

You shall complete the following requirements:

1. You shall schedule a preconstruction meeting with SWCD to discuss the SESC plan and the installation and maintenance requirements of the SESC practices on the site.
2. You shall notify the SWCD of any changes or modifications to the approved plan set. Field conditions during project construction may require the implementation of additional SESC measures. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable.

This verification does not obviate the need to obtain all other required Federal, state, or local approvals before starting work. Please note that Section 401 Water Quality Certification has been issued by IEPA for this RP. Enclosed are the IEPA Section 401 Water Quality Certification conditions. If you have any questions regarding Section 401 certification, please contact Mr. Dan Heacock at IEPA Division of Water Pollution Control, Permit Section #15, by telephone at (217) 782-3362.

Once you have completed the authorized activity, please sign and return the enclosed compliance certification. If you have any questions, please contact Stasi Brown of my staff by telephone at 312-846-5544, or email at [Stasi.F.Brown@usace.army.mil](mailto:Stasi.F.Brown@usace.army.mil).

Sincerely,

Digitally signed by  
CHERNICH.KATHLEEN.G.12303  
65616  
Date: 2014.07.23 12:32:25  
-05'00'

Kathleen G. Chernich  
Chief, East Section  
Regulatory Branch

Enclosures

Copy Furnished:

Cook County Building and Zoning (Donald Wlodarski)  
Huff & Huff, Inc. (Lailah Reich)





PERMIT COMPLIANCE  
CERTIFICATION

Permit Number: LRC-2013-00342  
Permittee: Pam Sielski  
Cook County Forest Preserve District  
Date: July 18, 2014

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of said permit and if applicable, compensatory wetland mitigation was completed in accordance with the approved mitigation plan.<sup>1</sup>

\_\_\_\_\_  
PERMITTEE

\_\_\_\_\_  
DATE

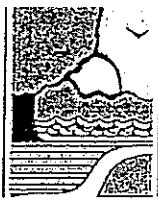
Upon completion of the activity authorized by this permit and any mitigation required by the permit, this certification must be signed and returned to the following address:

U.S. Army Corps of Engineers  
Chicago District, Regulatory Branch  
231 South LaSalle Street, Suite 1500  
Chicago, Illinois 60604-1437

Please note that your permitted activity is subject to compliance inspections by Corps of Engineers representatives. If you fail to comply with this permit, you may be subject to permit suspension, modification, or revocation.

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<sup>1</sup> If compensatory mitigation was required as part of your authorization, you are certifying that the mitigation area has been graded and planted in accordance with the approved plan. You are acknowledging that the maintenance and monitoring period will begin after a site inspection by a Corps of Engineers representative or after thirty days of the Corps' receipt of this certification. You agree to comply with all permit terms and conditions, including additional reporting requirements, for the duration of the maintenance and monitoring period.



# Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271  
<http://dnr.state.il.us>

Pat Quinn, Governor  
Marc Miller, Director

Office of Water Resources • 2050 West Stearns Road • Bartlett, Illinois 60103

October 5, 2012

SUBJECT: Permit No. NE2012060  
North Branch Trail Extension  
North Branch of the Chicago River  
Cook County, Application No. 2011107

Pamela Sielski  
Forest Preserve District of Cook County  
536 N. Harlem Avenue  
River Forest, Illinois 60305

Dear Ms. Sielski:

Enclosed is Illinois Department of Natural Resources, Office of Water Resources Permit No. NE2012060 authorizing the subject project. This permit does not supersede any other federal, state or local authorizations that may be required for the project.

Please be advised that the Illinois Department of Natural Resources, Office of Realty and Environmental Planning (OREP) participates in the regulatory programs of the U.S. Army, Corps of Engineers (USACE) and may review this project if a USACE Section 10 or 404 permit is required. Issuance of a permit by the Office of Water Resources does not preclude OREP's provision of comments and/or recommendations, primarily related to biological effects of the proposed action, to the USACE and other federal agencies concerning your project.

If any changes of the permitted work are found necessary, revised plans should be submitted promptly to this office for review and approval. Also, this permit expires on the date indicated in Condition (13). If unable to complete the work by that date, the permittee may make a written request for a time extension.

Please contact me at 847/608-3100, ext. 32025 if you have any questions.

Sincerely,

Gary W. Jerab, P.E., Chief  
Northeastern Illinois Regulatory Programs Section

GJ:crw  
Enclosure

cc: Chicago District, U.S. Army Corps of Engineers  
David Landeweer, URS Corporation  
City of Chicago Dept. of Environment  
City of Chicago Dept. of Transportation



PERMIT NO. NE2012060  
DATE: October 5, 2012

**State of Illinois**  
**Department of Natural Resources, Office of Water Resources**

Permission is hereby granted to:

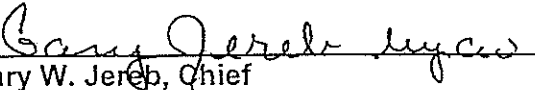
Forest Preserve District of Cook County  
536 N. Harlem Avenue  
River Forest, Illinois 60305

to construct a bicycle trail, including a new bridge and underpasses at the Edens Expressway and Cicero Avenue, within the floodway of the North Branch of the Chicago River in Sections 3, 4, 9 and 10, Township 40 North, Range 13 East of the Third Principal Meridian in Cook County,

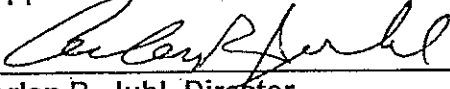
in accordance with an application dated July 14, 2011, and the plans and specifications entitled:

VICINITY MAP, NORTH BRANCH TRAIL EXTENSION, EXHIBIT 1, UNDATED, NORTH BRANCH TRAIL EXTENSION, EXHIBITS 7-1 TO 7-12, UNDATED, GENERAL PLAN & ELEVATION, NORTH BRANCH TRAIL OVER THE NORTH BRANCH OF THE CHICAGO RIVER, EXHIBIT 4, DATED MAY 20, 2011, CROSS SECTION @ CENTER OF EDENS EXPRESSWAY, STA. 114+25.00, EXHIBIT 8, DATED MAY 20, 2011, CROSS SECTION @ CENTER OF CICERO AVENUE, STA. 116+72.45, EXHIBIT 9, DATED MAY 20, 2011, ALL SHEETS RECEIVED MARCH 12, 2012..

Examined and Recommended:

  
Gary W. Jereb, Chief  
Northeastern IL Regulatory  
Programs Section

Approval Recommended:

  
Arlan R. Juhl, Director  
Office of Water Resources

Approved:

  
Marc Miller, Director  
Department of Natural Resources

This PERMIT is subject to the terms and special conditions contained herein.

THIS PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS:

- 1) This permit is granted in accordance with the Rivers, Lakes and Streams Act "615 ILCS 5."
- 2) This permit does not convey title to the permittee or recognize title of the permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the activity or any part thereof will be located, or otherwise grant to the permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.
- 3) This permit does not release the permittee from liability for damage to persons or property resulting from the work covered by this permit, and does not authorize any injury to private property or invasion of private rights.
- 4) This permit does not relieve the permittee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted activity; and if the permittee is required by law to obtain approvals from any federal or state agency to do the work, this permit is not effective until the federal and state approvals are obtained.
- 5) The permittee shall, at the permittee's own expense, remove all temporary piling, cofferdams, false work, and material incidental to the construction of the project. If the permittee fails to remove such structures or materials, the Department may have removal made at the expense of the permittee.
- 6) In public waters, if future need for public navigation or other public interest by the state or federal government necessitates changes in any part of the structure or structures, such changes shall be made by and at the expense of the permittee or the permittee's successors as required by the Department or other properly constituted agency, within sixty (60) days from receipt of written notice of the necessity from the Department or other agency, unless a longer period of time is specifically authorized.
- 7) The execution and details of the work authorized shall be subject to the review and approval of the Department. Department personnel shall have the right of access to accomplish this purpose.
- 8) Starting work on the activity authorized will be considered full acceptance by the permittee of the terms and conditions of the permit.
- 9) The Department in issuing this permit has relied upon the statements and representations made by the permittee; if any substantive statement or representation made by the permittee is found to be false, this permit will be revoked; and when revoked, all rights of the permittee under the permit are voided.
- 10) In public waters, the permittee and the permittee's successors shall make no claim whatsoever to any interest in any accretions caused by the activity.
- 11) In issuing this permit, the Department does not ensure the adequacy of the design or structural strength of the structure or improvement.
- 12) Noncompliance with the conditions of this permit will be considered grounds for revocation.
- 13) If the construction activity permitted is not completed on or before December 31, 2015 this permit shall cease and be null and void.

## PEDESTRIAN AND BIKE PATH EASEMENT AGREEMENT

**THIS AGREEMENT** is entered into by and between the Commuter Rail Division of the Regional Transportation Authority, a division of an Illinois municipal corporation ("**Metra**"), and The Forest Preserve District of Cook County, Illinois ("**Grantee**"). Metra and Grantee are hereinafter sometimes individually referred to as a "Party" and jointly referred to as the "Parties."

**NOW, THEREFORE**, for and in consideration of the covenants and agreements hereinafter stated, Metra hereby grants to Grantee an easement ("**Easement**") to construct and install along that portion of Metra's owned or controlled right of way and tracks (or track, as the case may be) located over Metra's tracks near MP 11.0, between Devon and Foster Avenues on Metra's Milwaukee North Line identified as a portion of PIN 13-04-500-002, delineated on the plat attached to and made a part of this Agreement as **Exhibit "A"** ("**Premises**"), a grade separated pedestrian and bike path bridge structure, spanning the Metra owned or controlled right of way and tracks ("**Pathway**"); and thereafter to maintain, repair, replace, and operate the same during the continuance of this Easement.

This Easement is granted upon the following express conditions, terms and covenants to be observed, kept, and performed by Grantee:

1. As one of the considerations for this Easement, Grantee agrees to pay to Metra the sum of \$1.00 receipt of which is hereby acknowledged.
2. Said Pathway shall be constructed in accordance with the specifications and notes set forth on Exhibit "A." The construction and installation of said Pathway, including but not limited to the grading of the Premises and the time and manner of doing all of the work or of any maintenance, repairs, or replacements upon the Premises, shall be as directed by Metra's authorized representatives. Prior to commencement of the public's use of the Pathway, Grantee shall construct a fence sufficient to prevent the public from entering onto the Property and separating the Pathway from any track areas on Metra's right of way and shall also provide gates, to be locked with Metra controlled locks, at locations required by Metra to allow Metra access to its facilities on the Premises or the Property. Additionally, if at any future time Metra determines that additional fencing or gates, with Metra controlled locks, are required, Grantee shall provide such fencing and/or gates at the locations specified by Metra (within 50 feet of the Pathway). Grantee and/or its contractors agree to construct and install and at all times maintain, repair, replace, and operate the Pathway so as to protect any and all improvements now or hereinafter located on the Premises or the Property. All of said work shall be done at Grantee's sole cost and expense, in a good and workmanlike manner, and in accordance with the requirements of the plans, specifications, and profiles to be prepared by Grantee and submitted for approval to Metra's authorized representative(s), and until such approval is given, said work shall not be commenced by Grantee and/or its contractors.
3. Upon completion of the initial construction and installation of the Pathway, and upon completion of any subsequent maintenance, repair, replacement, or operation of the Pathway following its construction and installation, Grantee, at its own cost and expense, shall have removed any debris and restore, or cause to be restored to the reasonable satisfaction of Metra, any affected portion of Metra's property adjacent to the Premises as nearly as may be, to the same or better condition than that which existed immediately prior to commencement of such activities by Grantee. In the event Grantee fails to cause the Property to be restored to the reasonable satisfaction of Metra as provided for herein, Metra shall, after providing Grantee with 60 days written notice of failure to comply, have the right to restore the Property and Grantee shall reimburse Metra

for all reasonable costs and expenses incurred by Metra in its performance of the obligations imposed upon Grantee hereunder.

4. Metra shall permit Grantee reasonable right of access to the Premises for the purpose of constructing, installing, maintaining, repairing, replacing, and operating said Pathway.

5. Any rights to the Premises not specifically granted to Grantee herein are reserved to Metra and its successors and/or assigns. The Pathway shall be constructed, installed, maintained, repaired, replaced and operated in a manner so as not to interfere with efficient rail operations or any other business operations or activities being conducted by Metra or Metra's tenants or permittees on the Premises and so as not to prevent or unreasonably interfere with use and enjoyment of the Premises by Metra, its employees, agents or permittees for the purpose(s) to which the Premises is now, or may hereafter be, committed by Metra. Metra shall have the right to retain the existing tracks and other improvements at the location of this Pathway on or adjacent to the Premises and also shall have the right at any and all times in the future to construct, maintain and operate over, under, across or parallel to said Pathway such additional track or tracks as it may from time to time elect. Nothing shall be done or caused to be done by Grantee that will in any manner impair the usefulness or safety of the tracks and other improvements of Metra, or such track or tracks and other improvements as Metra may in the future construct or cause to be constructed over, under, across, or parallel to said Pathway. This Easement is expressly subject to the rights of third parties to maintain utility and other improvements permitted by Metra on the Premises and the Property. Metra reserves the exclusive right to grant future easements over, under, across or parallel to the said Pathway.

6. Grantee agrees that it will bear and pay the entire cost of constructing, installing, maintaining, repairing, replacing and operating said Pathway.

7. Prior to entering upon the Premises, Grantee agrees to furnish insurance in form and in such amounts as required by Metra's Risk Management Department, (312) 322-7073, and shall deliver to Metra's Risk Management Department certificates of insurance or self-insurance and such other documentation acceptable to Metra's Risk Management Department evidencing the acquisition of the required insurance as delineated on **Exhibit "B"** attached to and made a part of this Agreement. The insurance or self-insurance hereinabove specified shall be in full force and effect through all periods of construction, installation, maintenance, repair, replacement, and operation of said Pathway.

8. Prior to entering onto the Property and/or Premises, Grantee shall require its contractor(s) and/or those persons authorized by or acting on behalf of the Grantee for the purpose of constructing, installing, repairing, replacing, maintaining, and/or operating said Pathway, to execute and deliver to Metra, a Right of Entry Agreement to be in effect during all periods of constructing, installing, maintaining, repairing, replacing, and/or operating said Pathway on the Premises. A Right of Entry Application, to be filled out and returned to Metra by each of Grantee's contractors, is available at the following website, <http://www.metra.com/Engineering/>, or by contacting Metra's Right of Way Administrator at (312) 322-8016, a current of the Right of Entry Application is attached to and made part of this Agreement as **Exhibit "C."**

9. Grantee shall not place, keep, store, or otherwise permit to be placed, kept or stored on the Premises or the Property any equipment or materials except during such time as Grantee's employees, agents or contractors are physically present and conducting activities permitted under the terms of this Easement. Grantee agrees that it shall not operate or cause to be operated any motorized vehicle of any kind on the Premises, on any track or on the Property without prior authorization from Metra's authorized representative; provided, however, that Grantee shall not be prohibited from operating Grantee's vehicles and equipment on any public crossing of Metra's tracks and rights of way. If deemed necessary by Metra, a flagman will be

provided by Metra, the cost of such services to be paid by Grantee.

10. Grantee agrees that it will, within sixty (60) days of receipt of a statement showing the amount thereof, pay all costs of any and all work performed upon the right of way and tracks of Metra which shall be made necessary by the construction, installation, maintenance, repair, replacement, or operation thereon of said Pathway.

11. Grantee shall give to Metra reasonable advance written notice of the time when Grantee and/or its contractors will commence any construction, installation, maintenance, replacement, or repair of said Pathway in order that Metra may, if it so desires, have its representative(s) present for the purpose of directing said work so that the same may be done in a manner satisfactory to Metra.

12. Grantee agrees that before and during the construction, installation, repair, replacement, or operation of said Pathway, Metra shall have the right to provide such safe and temporary structures as it may deem necessary for safely caring for and preserving its tracks, buildings, or other improvements and Grantee agrees to pay to Metra the entire cost of putting in or removing such temporary structures and of restoring the Premises and Property as near as may be to the same condition that existed before the commencement of said work.

13. Grantee agrees that should the construction, installation, maintenance, repair, replacement, operation, or presence of the Pathway necessitate any change or alteration in the location or arrangement of any improvements located on the Premises or the Property, the cost of such change or alteration shall be paid by Grantee within sixty (60) days of presentation of a bill by Metra. The parties shall meet and confer before Grantee performs any work on the Pathway and agree as to which, if any, "improvements" need to be changed or altered. Grantee's obligation to pay for any change or alteration caused by the Pathway shall cease upon completion of construction of the Pathway. Grantee further agrees that for a period of five (5) years after execution of this Easement, Metra shall desire to change the location or grade of its track or tracks or shall desire to use or allow third party railroads to use its right of way at a point of crossing or at any point along a parallel course with the Pathway for any purpose whatsoever, including but not limited to track installations by Metra or third parties, Grantee, at its own cost and expense, shall alter, relocate or make all reasonable changes to the Pathway as agreed to by the Parties. If Grantee fails, neglects, or refuses to relocate or make such plans to change the Pathway, as agreed to by the Parties, Metra may, after providing ninety (90) days written notice to Grantee, make or cause to be made such relocation or change(s) at the reasonable expense of Grantee.

14. Grantee and/or its contractors shall at all times construct, install, maintain, repair, replace, and operate said Pathway in a secure, safe, and sanitary condition and in accordance with all applicable laws, ordinances, rules, and regulations. Grantee shall take all reasonable safety precautions to adequately secure the Premises, warn of risks and ensure the safety of the public during periods of construction, installation, maintenance, repair, replacement, and operation of the Pathway. If the manner of constructing, installing, maintaining, repairing, replacing, or operating said Pathway shall at any time be in violation of any applicable law, rule, regulation, or ordinance, then Grantee, at no cost or expense to Metra and upon receipt of appropriate notice from a governmental agency having enforcement jurisdiction over the Premises, shall make such changes or repairs as shall be necessary. Failure or refusal of Grantee to make the required changes or repairs within the time prescribed by said agency shall terminate this Easement, provided that it shall not terminate as long as Grantee, in good faith and by pursuit of appropriate legal or equitable remedies, enjoins, defends against, appeals from, or pursues other lawful measures to avoid the enforcement of said laws, ordinances, rules, or regulations.

15. To the fullest extent permitted by law, the Grantee hereby assumes and agrees to release, acquit, and waive any rights which Grantee may have against and forever discharge Metra, the Regional Transportation Authority ("RTA") and the Northeast Illinois Regional Commuter Railroad Corporation ("NIRCRC"), their respective directors, administrators, officers, employees, agents, successors, assigns, and all other persons, firms, and corporations acting on their behalf or with their authority, from and against any and all claims, demands, or liabilities imposed upon them by law or otherwise of every kind, nature, and character on account of personal injuries, including death at any time resulting therefrom, and on account of damage to or destruction of property, arising out of or in any way relating to or occurring in connection with the rights granted or activities permitted under the terms and provisions of this Agreement, or which may occur to or be incurred by the Grantee, its employees, officers, agents, and all other persons acting on the Grantee's behalf while on the Premises, except to the extent such injuries or damages are caused by the negligence or willful misconduct of Metra, the RTA, or the NIRCRC. Notwithstanding anything in this Agreement to the contrary, the releases and waivers contained in this paragraph shall survive termination of this Agreement.

16. To the fullest extent permitted by law, the Grantee agrees to indemnify, defend, and hold harmless Metra, the RTA, and the NIRCRC, their respective directors, administrators, officers, agents, employees, successors, assigns, and all other persons, firms, and corporations acting on their behalf or with their authority, from and against any and all injuries, liabilities, losses, damages, costs, payments, and expenses of every kind and nature (including, without limitation, court costs and attorneys' fees) for claims, demands, actions, suits, proceedings, judgments or settlements: (a) arising out of or in any way relating to or occurring in connection with: (i) the rights granted or activities permitted under the terms and provisions of this Agreement; (ii) the condition of the Premises; or (iii) the failure to investigate claims, or (b) which may occur to or be incurred, by the Grantee, its employees, officers, agents, and all other persons acting on its behalf while on the Premises except to the extent such injuries, liabilities, losses, damages, costs, payments, or expenses are caused by the negligence or willful misconduct of Metra, the RTA, or the NIRCRC. Metra agrees to notify the Grantee in writing within a reasonable time of any claim of which it becomes aware which may fall within this indemnity provision. The Grantee further agrees to defend Metra, the RTA, the NIRCRC, their respective directors, administrators, officers, agents, and employees against any claims, suits, actions, or proceedings filed against any of them with respect to the subject matter of this indemnity provision provided, however, that Metra, the RTA and the NIRCRC, may elect to participate in the defense thereof at their own expense or may, at their own expense, employ attorneys of their own selection to appear and defend the same on behalf of Metra, the RTA, the NIRCRC, and their respective directors, administrators, officers, agents, or employees. The Grantee shall not enter into any compromise or settlement of any such claims, suits, actions, or proceedings without the consent of Metra, the RTA, and the NIRCRC, which consent shall not be unreasonably withheld. Notwithstanding anything to the contrary contained in this Agreement, the indemnities contained in this paragraph shall survive termination of this Agreement and the indemnification and hold harmless provisions set forth in this Agreement shall not be construed as an indemnification or hold harmless against and from the negligence or willful misconduct of Metra, the RTA, or the NIRCRC with respect to any construction work performed by the Grantee or those performing on behalf of or with the Grantee in violation of the Illinois Construction Contract Indemnification for Negligence Act.

17. This Easement may be terminated by Metra effective after sixty (60) days upon written notice to Grantee if the Premises, or any portion thereof, are needed for any reasonable Metra or railroad purposes as determined by a mutually agreed upon third-party or Grantee ceases to operate or maintain the Pathway or violates any of the terms, conditions, or provisions set forth in this Easement. In case of termination, Grantee shall remove from the Premises said Pathway and shall restore said Premises to the same or better condition than that which existed prior to the construction and installation of said Pathway.



18. This Easement and all of the terms, conditions, rights, and obligations herein contained shall inure to and be binding upon the Parties, their respective legal representatives, lessees, permittees, successors, and/or assigns whether hereinabove so stated or not; but it is distinctly agreed that Grantee shall not assign its rights under this Easement without first having received the prior written consent of Metra.

19. Unless agreed to by the Parties, all payments required to be made by Grantee to Metra under the terms, conditions, or provisions of this Easement shall be made within sixty (60) days of Grantee's receipt of any demand or invoice from Metra evidencing the amount of the indebtedness due.

20. All notices, demands, and elections required or permitted to be given or made by either Party upon the other under the terms of this Easement or any statute shall be in writing. Such communications shall be deemed to have been sufficiently served if sent by certified or registered mail, return receipt requested, with proper postage prepaid, facsimile transmission, or hand delivered to the respective addresses shown below or to such other party or address as either Party may from time to time furnish to the other in writing. Such notices, demands, elections, and other instruments shall be considered delivered to recipient on the second business day after deposit in the U.S. Mail, on the day of successful transmission if sent by facsimile transmission or on the day of delivery if hand delivered.

(a) Notices to Metra shall be sent to:

Commuter Rail Division  
547 W. Jackson Boulevard  
Chicago, Illinois 60661  
Attn: Director, Real Estate & Contract Management Phone:  
(312) 322-8006 Fax: (312) 322-7098

(b) Notices to Grantee shall be sent to:

Forest Preserve District of Cook County  
536 North Harlem Avenue River Forest, IL 60305  
Attn: Mr. Arnold Randall, General Superintendent  
Phone: (708) 771-1511

21. This Agreement shall be governed by the internal laws of the State of Illinois. If any provision of this Agreement, or any paragraph, sentence, clause, phrase, or word or the application thereof is held invalid, the remainder of this Agreement shall be construed as if such invalid part were never included and this Agreement shall be and remain valid and enforceable to the fullest extent permitted by law provided that the Agreement, in its entirety as so reconstituted, does not represent a material change to the rights or obligations of either of the Parties. No waiver of any obligation or default of Grantee shall be implied from omission by Metra to take any action on account of such obligation or default and no express waiver shall affect any obligation or default other than the obligation or default specified in the express waiver and then only for the time and to the extent therein stated. Whenever the context requires or permits, the singular shall include the plural, the plural shall include the singular, and the masculine, feminine, and neuter shall be freely interchangeable. In the event the time for performance hereunder falls on a Saturday, Sunday, or holiday, the actual time for performance shall be the next business day. This Easement constitutes the entire agreement between the Parties with respect to the subject matter hereof.

FOREST PRESERVE DISTRICT  
OF COOK COUNTY:

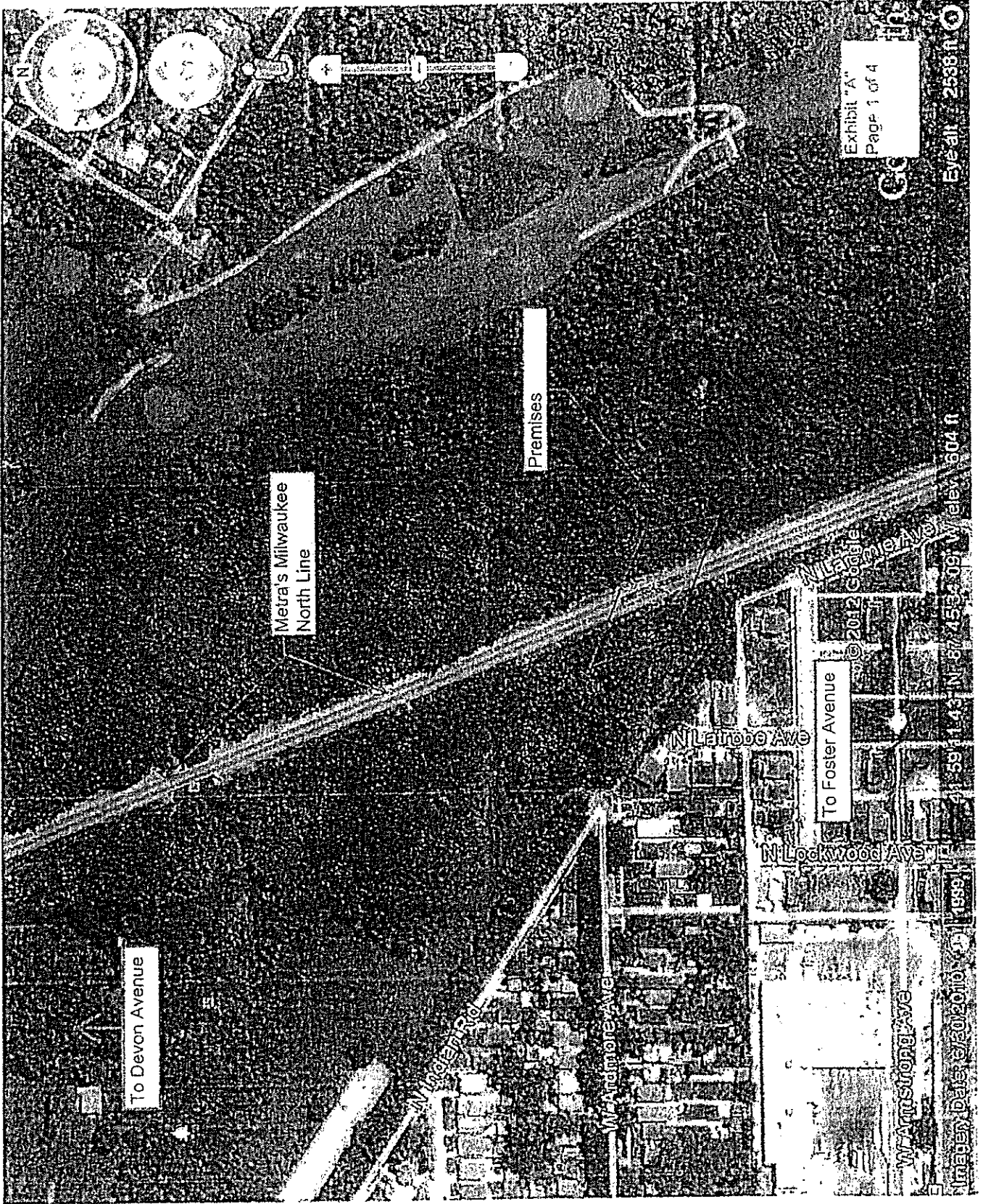
By: Toni Preckwinkle  
Toni Preckwinkle  
President

By: Matthew DeLeon  
Matthew DeLeon  
Board Secretary

COMMUTER RAIL DIVISION OF THE  
REGIONAL TRANSPORTATION  
AUTHORITY:

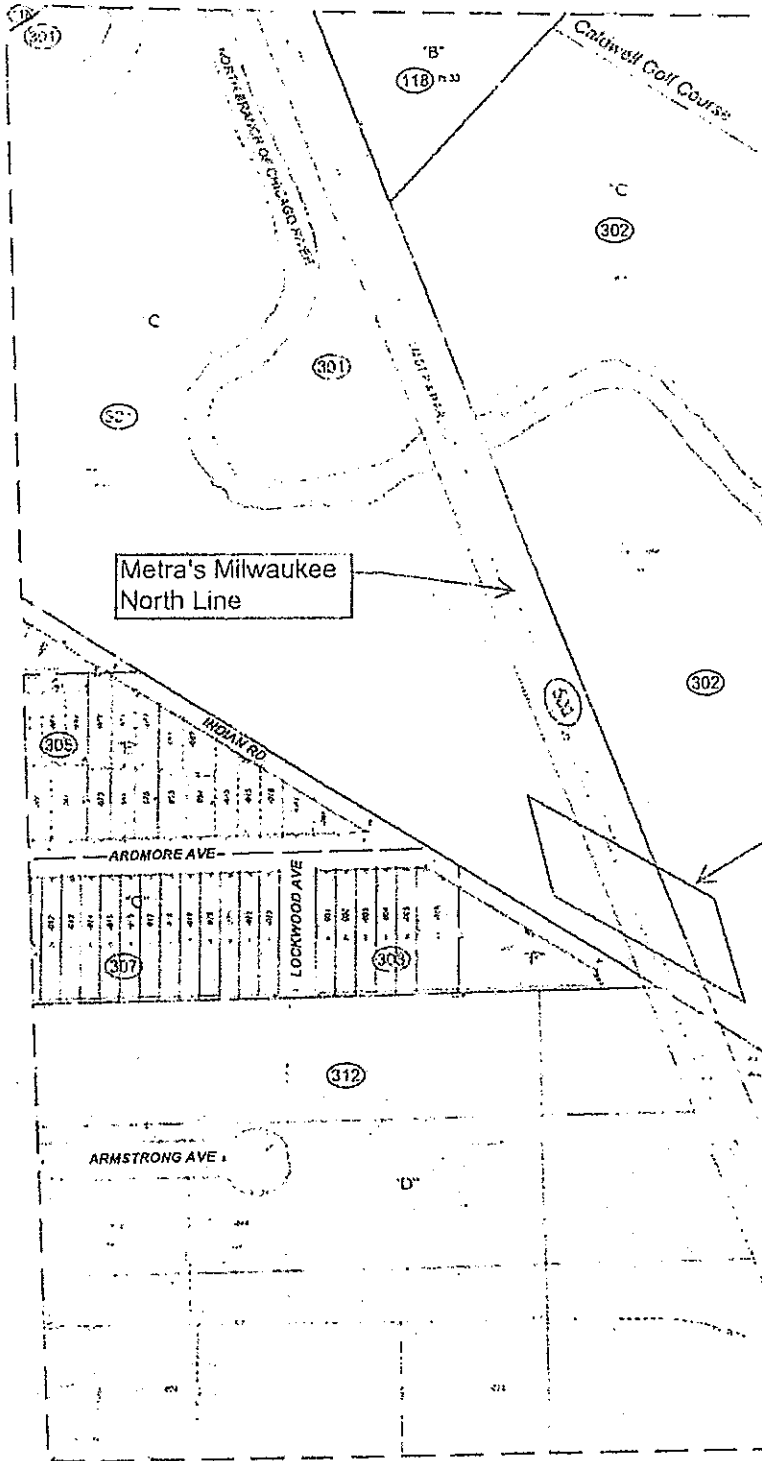
By: \_\_\_\_\_  
Donald A. Orseno  
Executive Director/CEO

# EXHIBIT A



E 1/2 SW 1/4 SEC 4-40-13  
JEFFERSON

40-13 4F  
13-4

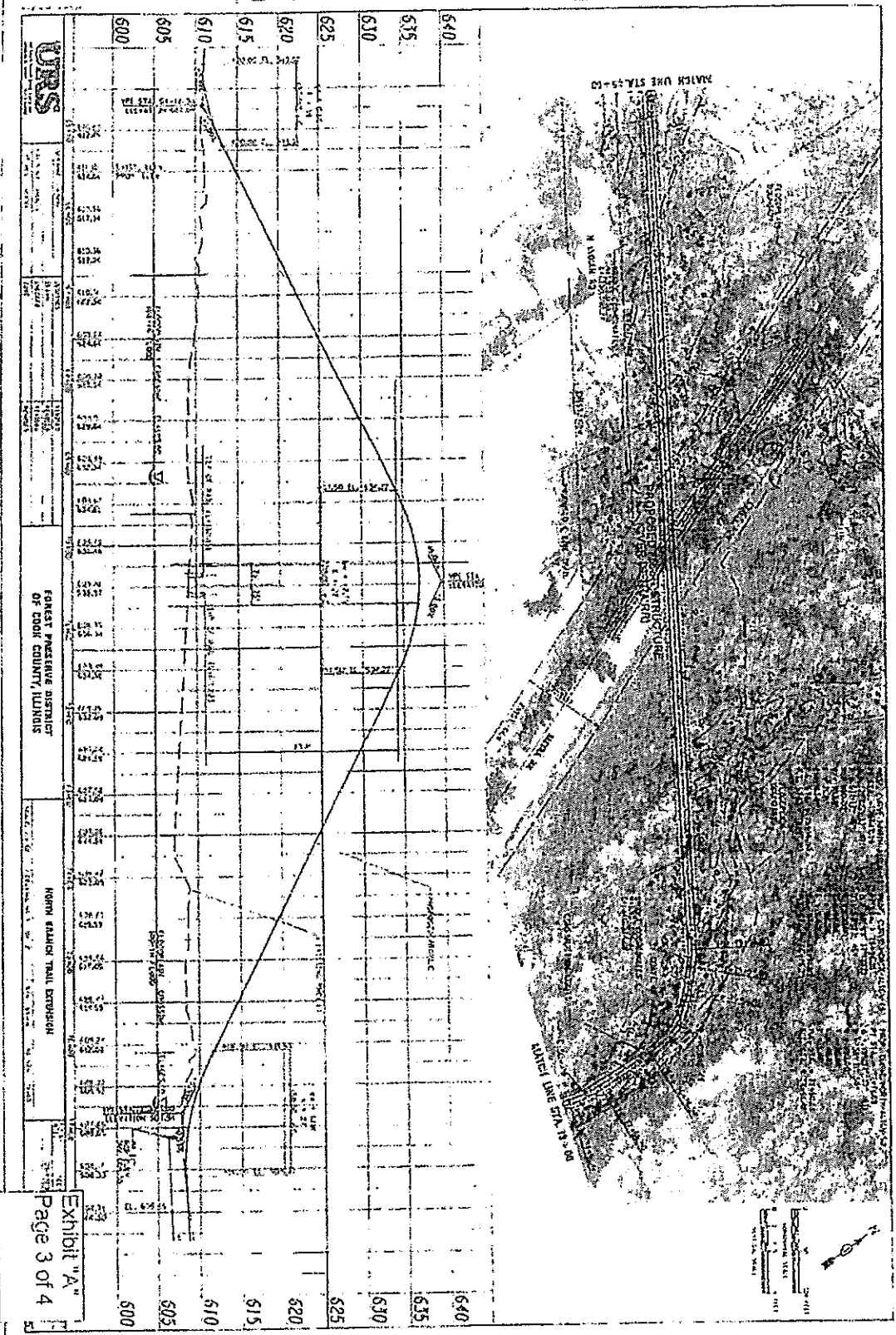


"A"  
 CALCULATED BY STANLEY J. ROZDOLSKI  
 "B"  
 (ENCLOSURE with plat of Case 3, 1, & 4 in Chicago District  
 for "A")  
 "C"  
 ASSASSINATED BY WILLIAM C. CALDWELL (1870-1912)  
 "D"  
 EVIDENCED BY WILLIAM C. CALDWELL (1870-1912)  
 "E"  
 BUTLER'S RESOLUTION (1870-1912)  
 "F"  
 BUTLER'S RESOLUTION (1870-1912)  
 "G"  
 BUTLER'S RESOLUTION (1870-1912)

Portion of PIN:  
13-04-500-002-0000

Proposed  
Pedestrian Bridge  
Location

Exhibit "A"  
Page 2 of 4



**URS**

URS CORPORATION  
 200 WEST Wacker Drive  
 Chicago, IL 60601  
 Phone: (312) 464-1000  
 Fax: (312) 464-1001  
 Website: www.urscorp.com

FOREST PAVEMENT DISTRICT  
 OF COOK COUNTY, ILLINOIS

HORN BLVD TRAIL EXTENSION

DATE: 11/11/11  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]

Exhibit "A"  
 Page 3 of 4

# EXHIBIT B



Legal Department  
69 West Washington, Suite 2010  
Chicago IL 60602  
312.603.0020

TONI PRECKWINKLE,  
PRESIDENT

BOARD OF  
COMMISSIONERS

- Jerry Butler
- Earlean Collins
- John P. Daley
- John A. Fritchey
- Bridget Gainer
- Jesus G. Garcia
- Elizabeth "Liz" Doody Gorman
- Gregg Goslin
- Stanley Moore
- Joan P. Murphy
- Edwin Reyes
- Timothy O. Schneider
- Peter N. Silvestri
- Deborah Sims
- Robert Steele
- Larry Suffredin
- Jeffrey R. Tobolski

July 10, 2014

Metra  
547 West Jackson  
Chicago IL 60661

RE: Certificate of Insurance

To Whom It May Concern:

The Forest Preserve District of Cook County ("District") is a self-insured governmental organization and does not at this time purchase commercial insurance or participate in any pool. The District retains our losses for all coverages.

The District's program of self-insurance includes Workers' Compensation, General Liability and Automobile Liability. Therefore, the District will be self-insuring all of its obligations.

I hope this meets your needs and addresses all of your concerns. If you have any questions, please contact me at 312/603-0020.

Very truly yours,

Dennis White  
Chief Attorney

DAW:mhd



# EXHIBIT C



Exhibit C

**Application for Right of Entry**

(Attach any pertinent Plans or approval correspondence when returning this Application)

Date:  Company Name   
(Legal name of party to occupy Metra Property)

Company Address:

Contact Person/Title:

Telephone:  E-Mail:

Metra District:  Milwaukee West  
 Milwaukee North  
 Rock Island  
 South West Service  
 Electric

Location:   
(Distance from nearest street or railroad mile post)

Purpose: (This must be detailed & complete; if applicable, attach engineering plans & details to support)  
Note: Describe only the portion of the project related to this request to enter Metra property

Does work on Metra property include.

- Soil Borings – to what depth:
- Excavation – to what depth:
- Construction
- Demolition: Describe
- Bridge Inspection
- Bridge Repair
- Other (explain)

Will equipment will be used on Metra property?

(If yes, explain)

Does access to property require crossing Metra tracks?

(If yes, how/where)  At public crossing

Other  
(Explain)

Will equipment overhang Metra track or property at any time?

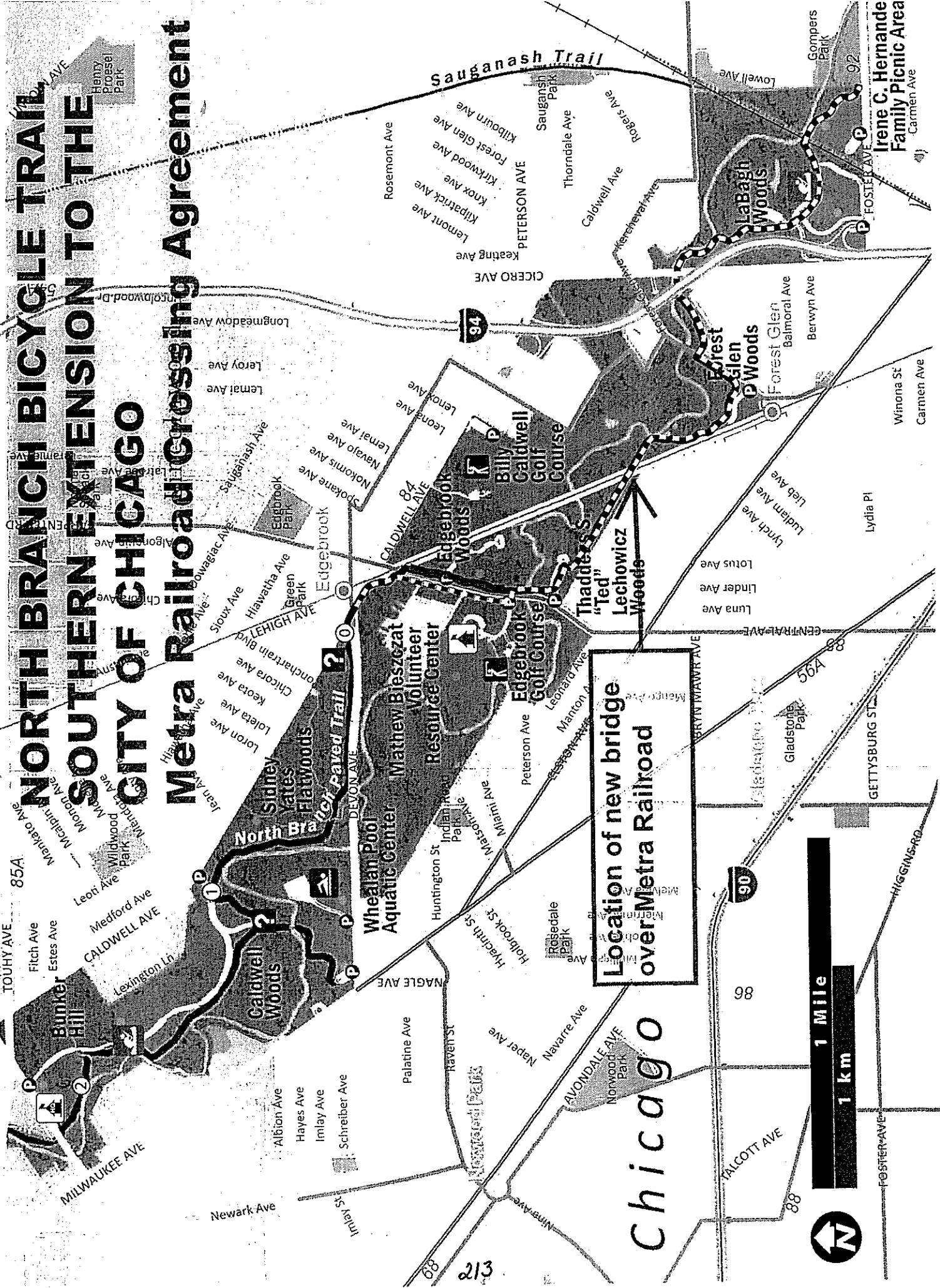
(If yes, explain)

Expected length of time needed on Metra property:

List all sub-contractors, if applicable, needing access to Metra property in conjunction with this project:

Submit Right of Entry Application to:  
Mr. Daniel A. Kneita, Associate Contract Administrator  
Contracts & Energy Management  
547 W Jackson Boulevard  
Chicago, IL 60661-5717  
Office: (312) 322-8016  
E-Mail: [dkneita@metrarr.com](mailto:dkneita@metrarr.com)

# NORTH BRANCH BICYCLE TRAIL SOUTH OF CHICAGO Metra Railroad Crossing Agreement



Location of new bridge  
over Metra Railroad

1 Mile  
1 km



Chicago

MILWAUKEE AVE

85A

88

88

88

88

88

CALDWELL AVE

LEHIGH AVE

LEHIGH AVE

LEHIGH AVE

LEHIGH AVE

LEHIGH AVE

Newark Ave

Albion Ave

Hayes Ave

Imlay Ave

Schreiber Ave

Palatine Ave

Raven St

Holbrook St

Holbrook St

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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:

Forest Preserve District of Cook County

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The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

**CONCRETE GUTTER, CURB, MEDIAN, AND PAVED DITCH (BDE)**

Effective: April 1, 2014

Revised: August 1, 2014

Add the following to Article 606.02 of the Standard Specifications:

“(i) Polyurethane Joint Sealant ..... 1050.04”

Revise the fifth paragraph of Article 606.07 of the Standard Specifications to read:

“Transverse contraction and longitudinal construction joints shall be sealed according to Article 420.12, except transverse joints in concrete curb and gutter shall be sealed with polysulfide or polyurethane joint sealant.”

Add the following to Section 1050 of the Standard Specifications:

“**1050.04 Polyurethane Joint Sealant.** The joint sealant shall be a polyurethane sealant, Type S, Grade NS, Class 25 or better, Use T (T<sub>1</sub> or T<sub>2</sub>), according to ASTM C 920.”

80334

## CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

Revised: November 1, 2014

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term “equipment” refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment’s respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 <sup>1/</sup>	600-749	2002
	750 and up	2006
June 1, 2011 <sup>2/</sup>	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 <sup>2/</sup>	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<http://www.epa.gov/cleandiesel/verification/verif-list.htm>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>); or
- b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

#### **Diesel Retrofit Deficiency Deduction**

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.



Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

80261

**CONTRACT CLAIMS (BDE)**

Effective: April 1, 2014

Revise the first paragraph of Article 109.09(a) of the Standard Specifications to read:

“(a) Submission of Claim. All claims filed by the Contractor shall be in writing and in sufficient detail to enable the Department to ascertain the basis and amount of the claim. As a minimum, the following information must accompany each claim submitted.”

Revise Article 109.09(e) of the Standard Specifications to read:

“(e) Procedure. The Department provides two administrative levels for claims review.

Level I Engineer of Construction

Level II Chief Engineer/Director of Highways or Designee

- (1) Level I. All claims shall first be submitted at Level I. Two copies each of the claim and supporting documentation shall be submitted simultaneously to the District and the Engineer of Construction. The Engineer of Construction, in consultation with the District, will consider all information submitted with the claim and render a decision on the claim within 90 days after receipt by the Engineer of Construction. Claims not conforming to this Article will be returned without consideration. The Engineer of Construction may schedule a claim presentation meeting if in the Engineer of Construction's judgment such a meeting would aid in resolution of the claim, otherwise a decision will be made based on the claim documentation submitted. If a Level I decision is not rendered within 90 days of receipt of the claim, or if the Contractor disputes the decision, an appeal to Level II may be made by the Contractor.
- (2) Level II. An appeal to Level II shall be made in writing to the Engineer of Construction within 45 days after the date of the Level I decision. Review of the claim at Level II shall be conducted as a full evaluation of the claim. A claim presentation meeting may be scheduled if the Chief Engineer/Director of Highways determines that such a meeting would aid in resolution of the claim, otherwise a decision will be made based on the claim documentation submitted. A Level II final decision will be rendered within 90 days of receipt of the written request for appeal.

Full compliance by the Contractor with the provisions specified in this Article is a contractual condition precedent to the Contractor's right to seek relief in the Court of Claims. The Director's written decision shall be the final administrative action of the Department. Unless the Contractor files a claim for adjudication by the Court of Claims within 60 days after the date of the written decision, the failure to file shall constitute a release and waiver of the claim.”

80335

## DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (DBE)

Effective: September 1, 2000

Revised: January 2, 2015

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 14.00 % 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 [www.dot.il.gov](http://www.dot.il.gov).

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement. The failure of the bidder to comply will render the bid not responsive.

- (a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.
- (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 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 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 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 performance 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 Section 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.
- (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 regular dealer or 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 Participation 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, 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). 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 listed DBE listed 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 1,200 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 contractor 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 Regional 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.

80029

**FRICION AGGREGATE (BDE)**

Effective: January 1, 2011  
Revised: November 1, 2014

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

- “(4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.
- a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).
  - b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase.”

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

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

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

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	<u>Allowed Alone or in Combination</u> <sup>5/</sup> : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete

Use	Mixture	Aggregates Allowed		
HMA Low ESAL	Stabilized Subbase or Shoulders	<u>Allowed Alone or in Combination</u> <sup>5/</sup> : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag <sup>1/</sup> Crushed Concrete		
HMA High ESAL Low ESAL	Binder IL-19.0 or IL-19.0L  SMA Binder	<u>Allowed Alone or in Combination</u> <sup>5/</sup> : Crushed Gravel Carbonate Crushed Stone <sup>2/</sup> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete <sup>3/</sup>		
HMA High ESAL Low ESAL	C Surface and Leveling Binder IL-9.5 or IL-9.5L  SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination</u> <sup>5/</sup> : Crushed Gravel Carbonate Crushed Stone <sup>2/</sup> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag <sup>4/</sup> Crushed Concrete <sup>3/</sup>		
HMA High ESAL	D Surface and Leveling Binder IL-9.5  SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination</u> <sup>5/</sup> : Crushed Gravel Carbonate Crushed Stone (other than Limestone) <sup>2/</sup> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag <sup>4/</sup> Crushed Concrete <sup>3/</sup>		
		<u>Other Combinations Allowed:</u>		
		<table border="1"> <tr> <td><i>Up to...</i></td> <td><i>With...</i></td> </tr> <tr> <td>25% Limestone</td> <td>Dolomite</td> </tr> </table>	<i>Up to...</i>	<i>With...</i>
<i>Up to...</i>	<i>With...</i>			
25% Limestone	Dolomite			

Use	Mixture	Aggregates Allowed	
		50% Limestone	Any Mixture D aggregate other than Dolomite
		75% Limestone	Crushed Slag (ACBF) or Crushed Sandstone
HMA High ESAL	E Surface IL-9.5  SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination</u> <sup>5f</sup> : Crushed Gravel Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete <sup>3f</sup>  No Limestone.	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		50% Dolomite <sup>2f</sup>	Any Mixture E aggregate
		75% Dolomite <sup>2f</sup>	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone
		75% Crushed Gravel or Crushed Concrete <sup>3f</sup>	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag
HMA High ESAL	F Surface IL-9.5  SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination</u> <sup>5f</sup> : Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag No Limestone.	
		<u>Other Combinations Allowed:</u>	



Use	Mixture	Aggregates Allowed	
		<i>Up to...</i>	<i>With...</i>
		50% Crushed Gravel, Crushed Concrete <sup>3/</sup> , or Dolomite <sup>2/</sup>	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as leveling binder.
- 5/ When combinations of aggregates are used, the blend percent measurements shall be by volume."

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**HOT MIX ASPHALT – PRIME COAT (BDE)**

Effective: November 1, 2014

Revise Note 1 of Article 406.02 of the Standard Specifications to read:

“Note 1. The bituminous material used for prime coat shall be one of the types listed in the following table.

When emulsified asphalts are used, any dilution with water shall be performed by the emulsion producer. The emulsified asphalt shall be thoroughly agitated within 24 hours of application and show no separation of water and emulsion.

Application	Bituminous Material Types
Prime Coat on Brick, Concrete, or HMA Bases	SS-1, SS-1h, SS-1hP, SS-1vh, RS-1, RS-2, CSS-1, CSS-1h, CSS-1hp, CRS-1, CRS-2, HFE-90, RC-70
Prime Coat on Aggregate Bases	MC-30, PEP”

Add the following to Article 406.03 of the Standard Specifications.

- “(i) Vacuum Sweeper ..... 1101.19
- “(j) Spray Paver ..... 1102.06”

Revise Article 406.05(b) of the Standard Specifications to read:

“(b) Prime Coat. The bituminous material shall be prepared according to Article 403.05 and applied according to Article 403.10. The use of RC-70 shall be limited to air temperatures less than 60 °F (15 °C).

(1) Brick, Concrete or HMA Bases. The base shall be cleaned of all dust, debris and any substance that will prevent the prime coat from adhering to the base. Cleaning shall be accomplished by sweeping to remove all large particles and air blasting to remove dust. As an alternative to air blasting, a vacuum sweeper may be used to accomplish the dust removal. The base shall be free of standing water at the time of application. The prime coat shall be applied uniformly and at a rate that will provide a residual asphalt rate on the prepared surface as specified in the following table.

Type of Surface to be Primed	Residual Asphalt Rate lb/sq ft (kg/sq m)
Milled HMA, Aged Non-Milled HMA, Milled Concrete, Non-Milled Concrete & Tined Concrete	0.05 (0.244)
Fog Coat between HMA Lifts, IL-4.75 & Brick	0.025 (0.122)

The bituminous material for the prime coat shall be placed one lane at a time. If a spray paver is not used, the primed lane shall remain closed until the prime coat is

fully cured and does not pickup under traffic. When placing prime coat through an intersection where it is not possible to keep the lane closed, the prime coat may be covered immediately following its application with fine aggregate mechanically spread at a uniform rate of 2 to 4 lb/sq yd (1 to 2 kg/sq m).

- (2) Aggregate Bases. The prime coat shall be applied uniformly and at a rate that will provide a residual asphalt rate on the prepared surface of 0.25 lb/sq ft  $\pm$  0.01 (1.21 kg/sq m  $\pm$ 0.05).

The prime coat shall be permitted to cure until the penetration has been approved by the Engineer, but at no time shall the curing period be less than 24 hours for MC-30 or four hours for PEP. Pools of prime occurring in the depressions shall be broomed or squeegeed over the surrounding surface the same day the prime coat is applied.

The base shall be primed 1/2 width at a time. The prime coat on the second half/width shall not be applied until the prime coat on the first half/width has cured so that it will not pickup under traffic.

The residual asphalt rate will be verified a minimum of once per type of surface to be primed as specified herein for which at least 2000 tons (1800 metric tons) of HMA will be placed. The test will be according to the "Determination of Residual Asphalt in Prime and Tack Coat Materials" test procedure.

Prime coat shall be fully cured prior to placement of HMA to prevent pickup by haul trucks or paving equipment. If pickup occurs, paving shall cease in order to provide additional cure time, and all areas where the pickup occurred shall be repaired.

If after five days, loss of prime coat is evident prior to covering with HMA, additional prime coat shall be placed as determined by the Engineer at no additional cost to the Department."

Revise the last sentence of the first paragraph of Article 406.13(b) of the Standard Specifications to read:

"Water added to emulsified asphalt, as allowed in Article 406.02, will not be included in the quantities measured for payment."

Revise the second paragraph of Article 406.13(b) of the Standard Specifications to read:

"Aggregate for covering prime coat will not be measured for payment."

Revise the first paragraph of Article 406.14 of the Standard Specifications to read:

**406.14 Basis of Payment.** Prime Coat will be paid for at the contract unit price per pound (kilogram) of residual asphalt applied for BITUMINOUS MATERIALS (PRIME COAT), or POLYMERIZED BITUMINOUS MATERIALS (PRIME COAT)."

Revise Article 407.02 of the Standard Specifications to read:

**“407.02 Materials.** Materials shall be according to Article 406.02, except as follows.

Item	Article/Section
(a) Packaged Rapid Hardening Mortar or Concrete .....	1018”

Revise Article 407.06(b) of the Standard Specifications to read:

“(b) A bituminous prime coat shall be applied between each lift of HMA according to Article 406.05(b).”

Delete the second paragraph of Article 407.12 of the Standard Specifications.

Revise the first paragraph of Article 408.04 of the Standard Specifications to read:

**“408.04 Method of Measurement.** Bituminous priming material will be measured for payment according to Article 406.13.”

Revise the first paragraph of Article 408.05 of the Standard Specifications to read:

**“408.05 Basis of Payment.** This work will be paid for at the contract unit price per pound (kilogram) of residual asphalt applied for BITUMINOUS MATERIALS (PRIME COAT) or POLYMERIZED BITUMINOUS MATERIALS (PRIME COAT) and at the contract unit price per ton (metric ton) for INCIDENTAL HOT-MIX ASPHALT SURFACING.”

Revise Article 1032.02 of the Standard Specifications to read:

**“1032.02 Measurement.** Asphalt binders, emulsified asphalts, rapid curing liquid asphalt, medium curing liquid asphalts, slow curing liquid asphalts, asphalt fillers, and road oils will be measured by weight.

A weight ticket for each truck load shall be furnished to the inspector. The truck shall be weighed at a location approved by the Engineer. The ticket shall show the weight of the empty truck (the truck being weighed each time before it is loaded), the weight of the loaded truck, and the net weight of the bituminous material.

When an emulsion or cutback is used for prime coat, the percentage of asphalt residue of the actual certified product shall be shown on the producer’s bill of lading or attached certificate of analysis. If the producer adds extra water to an emulsion at the request of the purchaser, the amount of water shall also be shown on the bill of lading.

Payment will not be made for bituminous materials in excess of 105 percent of the amount specified by the Engineer.”

Add the following to the table in Article 1032.04 of the Standard Specifications.

"SS-1vh	160-180	70-80
RS-1, CRS-1	75-130	25-55"

Add the following to Article 1032.06 of the Standard Specifications.

"(g) Non Tracking Emulsified Asphalt SS-1vh shall be according to the following.

Requirements for SS-1vh			
Test		SPEC	AASHTO Test Method
Saybolt Viscosity @ 25C,	SFS	20-200	T 72
Storage Stability, 24hr.,	%	1 max.	T 59
Residue by Evaporation,	%	50 min.	T 59
Sieve Test,	%	0.3 max.	T 59
Tests on Residue from Evaporation			
Penetration @25°C, 100g., 5 sec., dmm		20 max.	T 49
Softening Point,	°C	65 min.	T 53
Solubility,	%	97.5 min.	T 44
Orig. DSR @ 82°C,	kPa	1.00 min.	T 315"

Revise the last table in Article 1032.06(f)(2)d. of the Standard Specifications to read:

"Grade	Use
SS-1, SS-1h, RS-1, RS-2, CSS-1, CRS-1, CRS-2, CSS-1h, HFE-90, SS-1hP, CSS-1hP, SS-1vh	Prime or fog seal
PEP	Bituminous surface treatment prime
RS-2, HFE-90, HFE-150, HFE- 300, CRSP, HFP, CRS-2, HFRS-2	Bituminous surface treatment
CSS-1h Latex Modified	Microsurfacing"

Add the following to Article 1101 of the Standard Specifications.

**"1101.19 Vacuum Sweeper.** The vacuum sweeper shall have a minimum sweeping path of 52 in. (1.3 m) and a minimum blower rating of 20,000 cu ft per minute (566 cu m per minute)."

Add the following to Article 1102 of the Standard Specifications:

**"1102.06 Spray Paver.** The spreading and finishing machine shall be capable of spraying a rapid setting emulsion tack coat, paving a layer of HMA, and providing a smooth HMA mat in one pass. The HMA shall be spread over the tack coat in less than five seconds after the

application of the tack coat during normal paving speeds. No wheel or other part of the paving machine shall come into contact with the tack coat before the HMA is applied. In addition to meeting the requirements of Article 1102.03, the spray paver shall also meet the requirements of Article 1102.05 for the tank, heating system, pump, thermometer, tachometer or synchronizer, and calibration. The spray bar shall be equipped with properly sized and spaced nozzles to apply a uniform application of tack coat at the specified rate for the full width of the mat being placed.”

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## LRFD PIPE CULVERT BURIAL TABLES (BDE)

Effective: November 1, 2013

Revised: November 1, 2014

Revise Article 542.02 of the Standard Specifications to read as follows:

Item	Article/Section
(a) Galvanized Corrugated Steel Pipe .....	1006.01
(b) Galvanized Corrugated Steel Pipe Arch .....	1006.01
(c) Bituminous Coated Corrugated Steel Pipe .....	1006.01
(d) Bituminous Coated Corrugated Steel Pipe Arch .....	1006.01
(e) Reserved	
(f) Aluminized Steel Type 2 Corrugated Pipe .....	1006.01
(g) Aluminized Steel Type 2 Corrugated Pipe Arch .....	1006.01
(h) Precoated Galvanized Corrugated Steel Pipe .....	1006.01
(i) Precoated Galvanized Corrugated Steel Pipe Arch .....	1006.01
(j) Corrugated Aluminum Alloy Pipe .....	1006.03
(k) Corrugated Aluminum Alloy Pipe Arch .....	1006.03
(l) Extra Strength Clay Pipe .....	1040.02
(m) Concrete Sewer, Storm Drain, and Culvert Pipe .....	1042
(n) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe .....	1042
(o) Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.....	1042
(p) Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe .....	1042
(q) Polyvinyl Chloride (PVC) Pipe .....	1040.03
(r) Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior .....	1040.03
(s) Corrugated Polypropylene (CPP) pipe with smooth Interior .....	1040.07
(t) Corrugated Polyethylene (PE) Pipe with a Smooth Interior .....	1040.04
(u) Polyethylene (PE) Pipe with a Smooth Interior .....	1040.04
(v) Rubber Gaskets and Preformed Flexible Joint Sealants for Concrete Pipe .....	1056
(w) Mastic Joint Sealer for Pipe .....	1055
(x) External Sealing Band .....	1057
(y) Fine Aggregate (Note 1) .....	1003.04
(z) Coarse Aggregate (Note 2) .....	1004.05
(aa) Packaged Rapid Hardening Mortar or Concrete .....	1018
(bb) Nonshrink Grout .....	1024.02
(cc) Reinforcement Bars and Welded Wire Fabric .....	1006.10
(dd) Handling Hole Plugs .....	1042.16

Note 1. The fine aggregate shall be moist.

Note 2. The coarse aggregate shall be wet."

Revise the table for permitted materials in Article 542.03 of the Standard Specifications as follows:

"Class	Materials
A	Rigid Pipes: Extra Strength Clay Pipe Concrete Sewer Storm Drain and Culvert Pipe, Class 3 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
C	Rigid Pipes: Extra Strength Clay Pipe Concrete Sewer Storm Drain and Culvert Pipe, Class 3 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe Flexible Pipes: Aluminized Steel Type 2 Corrugated Pipe Aluminized Steel Type 2 Corrugated Pipe Arch Precoated Galvanized Corrugated Steel Pipe Precoated Galvanized Corrugated Steel Pipe Arch Corrugated Aluminum Alloy Pipe Corrugated Aluminum Alloy Pipe Arch Polyvinyl Chloride (PVC) Pipe Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior Polyethylene (PE) Pipe with a Smooth Interior Corrugated Polypropylene (CPP) Pipe with Smooth Interior
D	Rigid Pipes: Extra Strength Clay Pipe Concrete Sewer Storm Drain and Culvert Pipe, Class 3 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe Flexible Pipes: Galvanized Corrugated Steel Pipe Galvanized Corrugated Steel Pipe Arch Bituminous Coated Corrugated Steel Pipe Bituminous Coated Corrugated Steel Pipe Arch Aluminized Steel Type 2 Corrugated Pipe Aluminized Steel Type 2 Corrugated Pipe Arch Precoated Galvanized Corrugated Steel Pipe Precoated Galvanized Corrugated Steel Pipe Arch Corrugated Aluminum Alloy Pipe Corrugated Aluminum Alloy Pipe Arch Polyvinyl Chloride (PVC) Pipe Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior Corrugated Polyethylene (PE) Pipe with a Smooth Interior Polyethylene (PE) Pipe with a Smooth Interior Corrugated Polypropylene (CPP) Pipe with Smooth Interior



Revise Articles 542.03(b) and (c) of the Standard Specifications to read:

“(b) Extra strength clay pipe will only be permitted for pipe culverts Type 1, for 10 in., 12 in., 42 in. and 48 in. (250 mm, 300 mm, 1050 mm and 1200 mm), Types 2, up to and including 48 in. (1200 mm), Type 3, up to and including 18 in. (450 mm), Type 4 up to and including 10 in. (250 mm), for all pipe classes.

(c) Concrete sewer, storm drain, and culvert pipe Class 3 will only be permitted for pipe culverts Type 1, up to and including 10 in (250 mm), Type 2, up to and including 30 in. (750 mm), Type 3, up to and including 15 in. (375 mm); Type 4, up to and including 10 in. (250 mm), for all pipe classes.”

Replace the pipe tables in Article 542.03 of the Standard Specifications with the following:

\*Table IA: Classes of Reinforced Concrete Pipe  
for the Respective Diameters of Pipe and Fill Heights over the Top of the Pipe

Nominal Diameter in.	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7
	Fill Height: 3' and less 1' min cover	Fill Height: Greater than 3' not exceeding 10'	Fill Height: Greater than 10' not exceeding 15'	Fill Height: Greater than 15' not exceeding 20'	Fill Height: Greater than 20' not exceeding 25'	Fill Height: Greater than 25' not exceeding 30'	Fill Height: Greater than 30' not exceeding 35'
12	IV	II	III	IV	IV	V	V
15	IV	II	III	IV	IV	V	V
18	IV	II	III	IV	IV	V	V
21	III	II	III	IV	IV	V	V
24	III	II	III	IV	IV	V	V
30	IV	II	III	IV	IV	V	V
36	III	II	III	IV	IV	V	V
42	II	II	III	IV	IV	V	V
48	II	II	III	IV	IV	V	V
54	II	II	III	IV	IV	V	V
60	II	II	III	IV	IV	V	V
66	II	II	III	IV	IV	V	V
72	II	II	III	IV	V	V	V
78	II	II	III	IV	2020	2370	2730
84	II	II	III	IV	2020	2380	2740
90	II	II	III	1680	2030	2390	2750
96	II	III	III	1690	2040	2400	2750
102	II	III	III	1700	2050	2410	2760
108	II	III	1360	1710	2060	2410	2770

Notes:  
A number indicates the D-Load for the diameter and depth of fill and that a special design is required.  
Design assumptions; Water filled pipe, Type 2 bedding and Class C Walls

Table IA: Classes of Reinforced Concrete Pipe  
for the Respective Diameters of Pipe and Fill Heights over the Top of the Pipe  
(Metric)

Nominal Diameter mm	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7
	Fill Height: 1 m and less 0.3 m min cover	Fill Height: Greater than 1 m not exceeding 3 m	Fill Height: Greater than 3 m not exceeding 4.5 m	Fill Height: Greater than 4.5 m not exceeding 6 m	Fill Height: Greater than 6 m not exceeding 7.5 m	Fill Height: Greater than 7.5 m not exceeding 9 m	Fill Height: Greater than 9 m not exceeding 10.5 m
300	IV	II	III	IV	IV	V	V
375	IV	II	III	IV	IV	V	V
450	IV	II	III	IV	IV	V	V
525	III	II	III	IV	IV	V	V
600	III	II	III	IV	IV	V	V
750	IV	II	III	IV	IV	V	V
900	III	II	III	IV	IV	V	V
1050	II	II	III	IV	IV	V	V
1200	II	II	III	IV	IV	V	V
1350	II	II	III	IV	IV	V	V
1500	II	II	III	IV	IV	V	V
1650	II	II	III	IV	IV	V	V
1800	II	II	III	IV	V	V	V
1950	II	II	III	IV	100	110	130
2100	II	II	III	IV	100	110	130
2250	II	II	III	80	100	110	130
2400	II	III	III	80	100	110	130
2550	II	III	III	80	100	120	130
2700	II	III	70	80	100	120	130

Notes:

A number indicates the D-Load for the diameter and depth of fill and that a special design is required.  
Design assumptions; Water filled pipe, Type 2 bedding and Class C Walls

TABLE 1B: THICKNESS OF CORRUGATED STEEL PIPE  
FOR THE RESPECTIVE DIAMETER OF PIPE AND FILL HEIGHTS OVER THE TOP OF THE PIPE FOR 2 2/3"x1/2", 3"x1" AND 5"x1" CORRUGATIONS

Nominal Diameter in.	Type 1			Type 2			Type 3			Type 4			Type 5			Type 6			Type 7		
	Fill Height:			Fill Height:			Fill Height:			Fill Height:			Fill Height:			Fill Height:			Fill Height:		
	3' and less 1' min. cover			Greater than 3' not exceeding 10'			Greater than 10' not exceeding 15'			Greater than 15' not exceeding 20'			Greater than 20' not exceeding 25'			Greater than 25' not exceeding 30'			Greater than 30' not exceeding 35'		
	2 2/3" x 1/2"	3"x1"	5"x1"	2 2/3" x 1/2"	3"x1"	5"x1"	2 2/3" x 1/2"	3"x1"	5"x1"	2 2/3" x 1/2"	3"x1"	5"x1"	2 2/3" x 1/2"	3"x1"	5"x1"	2 2/3" x 1/2"	3"x1"	5"x1"	2 2/3" x 1/2"	3"x1"	5"x1"
12	0.064			0.064			0.064			0.064			0.064			0.064			0.064		
15	0.064			0.064			0.064			0.064			0.064			0.064			0.064		
18	(0.079)			0.064			0.064			0.064			0.064			(0.079)			(0.079)		
21	(0.079)			0.064			0.064			0.064			(0.079)			(0.079)			(0.079)		
24	(0.079)			0.064			0.064			0.064			(0.079)			(0.079)			(0.079)		
30	(0.109E)			0.064			0.064			0.064			(0.079)			(0.109)			0.109		
36	(0.109E)			0.064			(0.079)			(0.079)			(0.109)			0.109			(0.138E)		
42	0.079			0.064			(0.079)			(0.079)			(0.109)			(0.109E)			(0.109E)		
48	0.109	(0.109)	0.109	(0.109)	0.079	0.079	(0.109)	0.079	(0.109)	0.109	(0.109)	0.109	(0.138)	(0.109)	0.109	(0.138E)	0.109	0.109	(0.138E)	0.109	(0.138)
54	0.109	(0.109)	0.109	(0.109)	0.079	0.079	0.109	(0.109)	0.109	0.109	(0.109)	0.109	(0.138)	0.109	0.109	(0.138E)	0.109	(0.138)	(0.138E)	0.138	0.138
60	0.109	0.109	0.109	0.109	0.079	(0.109)	0.109	(0.109)	0.109	0.109	(0.109)	0.109	(0.138)	0.109	0.109	(0.138E)	(0.138)	(0.138)	(0.138E)	(0.138E)	(0.138E)
66	(0.138)	0.109	0.109	0.109	0.079	(0.109)	0.109	(0.109)	0.109	0.109	0.109	(0.138)	0.109	(0.138)	(0.138E)	0.138	0.138	0.138E	(0.138E)	0.138E	
72	0.138	0.109	(0.138)	0.138	(0.109)	(0.109)	0.138	(0.109)	0.109	0.138	0.109	0.109	0.138	(0.138)	(0.138)	(0.168E)	(0.138E)	0.138E	(0.168E)	(0.138E)	0.138E
78	0.168	0.109	(0.138)	0.168	(0.109)	0.109	0.168	0.109	0.109	0.168	0.109	(0.138)	0.168	(0.138)	(0.138)	H0.168E	(0.138E)	0.138E	H0.168E	0.138E	(0.168E)
84	0.168	(0.138)	(0.138)	0.168	(0.109)	0.109	0.168	0.109	0.109	0.168	0.109	(0.138)	0.168	(0.138)	0.138	H0.168E	(0.138E)	0.138E	H0.168E	(0.168E)	(0.168E)
90		(0.138)	(0.138)		(0.109)	0.109		0.109	0.109		0.109	(0.138)	(0.138)		(0.138)	0.138		0.138E	(0.168E)		(0.168E)
96		(0.138)	(0.138)		(0.109)	0.109		0.109	0.109		0.109	(0.138)	(0.138)		(0.138)	0.138		(0.168E)	(0.168E)		(0.168E)
102		0.109Z	0.109Z		(0.109)	0.109		0.109	(0.138)		0.109	(0.138)	(0.138)		(0.138)	0.138		(0.168E)	(0.168E)		H0.138E
108		0.109Z	(0.138Z)		0.109	0.109		0.109	(0.138)		0.109	(0.138)	0.138		0.138	(0.168)		(0.168E)	(0.168E)		H0.138E
114		0.109Z	(0.138Z)		0.109	0.109		0.109	(0.138)		0.109	(0.138)	0.138		(0.168)	(0.168)		(0.168E)	0.168E		H0.138E
120		0.109Z	(0.138Z)		0.109	0.109		0.109	(0.138)	(0.138)		0.138	0.138		(0.168)	(0.168)		H0.138E	H0.168E		H0.168E
126		0.138Z	0.138Z		0.138	0.138		0.138	0.138		0.138	0.168	0.168		(0.168)	(0.168)		H0.138E	H0.168E		H0.168E
132		0.138Z	0.138Z		0.138	0.138		0.138	0.138		0.138	0.168	0.168		(0.168)	0.168		H0.138E	H0.168E		H0.168E
138		0.138Z	0.138Z		0.138	0.138		0.138	0.138		0.138	0.168	0.168		(0.168)	H0.168E		H0.168E	H0.168E		H0.168E
144		0.168Z	0.168Z		0.168	0.168		0.168	0.168		0.168	0.168	0.168		H0.168E	H0.168E		H0.168E	H0.168E		H0.168E

Notes:

- \* Aluminized Type 2 Steel or Precoated Galvanized Steel shall be required for diameters up to 42" according to Article 1006.01, 1 1/2" x 1/4" corrugations shall be used for diameters less than 12".
- Thicknesses are based on longitudinal riveted seam fabrication, values in "0" can be reduced by one gage thickness if helical seam fabrication is utilized.
- A thickness preceded by "H" indicates only helical seam fabrication is allowed.
- E Elongation according to Article 542.04(e)
- Z 1'-6" Minimum fill

TABLE 1B: THICKNESS OF CORRUGATED STEEL PIPE  
FOR THE RESPECTIVE DIAMETER OF PIPE AND FILL HEIGHTS OVER THE TOP OF THE PIPE FOR 68 mm x 13 mm, 75 mm x 25 mm AND 125 mm x 25 mm CORRUGATIONS  
(Metric)

Nominal Diameter mm	Type 1 Fill Height: 1 m and less 0.3 m min. cover			Type 2 Fill Height: Greater than 1 m not exceeding 3 m			Type 3 Fill Height: Greater than 3 m not exceeding 4.5 m			Type 4 Fill Height: Greater than 4.5 m not exceeding 6 m			Type 5 Fill Height: Greater than 6 m not exceeding 7.5 m			Type 6 Fill Height: Greater than 7.5 m not exceeding 9 m			Type 7 Fill Height: Greater than 9 m not exceeding 10.5 m			
	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	
	300	1.63			1.63			1.63			1.63			1.63			1.63			1.63		
375	1.63			1.63			1.63			1.63			1.63			1.63			1.63			
450	(2.01)			1.63			1.63			1.63			1.63			(2.01)			(2.01)			
525	(2.01)			1.63			1.63			1.63			(2.01)			(2.01)			(2.01)			
600	(2.01)			1.63			1.63			1.63			(2.01)			(2.01)			(2.01)			
750	(2.77E)			1.63			1.63			1.63			(2.01)			(2.01)			(2.77)			
900	(2.77E)			1.63			(2.01)			(2.01)			(2.77)			(2.77)			(3.51E)			
1050	2.01			1.63			(2.01)			(2.01)			(2.77)			(2.77)			(2.77E)			
1200	2.77	(2.77)	2.77	(2.77)	2.01	2.01	(2.77)	2.01	(2.77)	2.77	(2.77)	2.77	(3.51)	(2.77)	2.77	(3.51E)	2.77	2.77	(3.51E)	2.77	(3.51)	
1350	2.77	(2.77)	2.77	(2.77)	2.01	2.01	2.77	(2.77)	2.77	2.77	(2.77)	2.77	(3.51)	2.77	2.77	(3.51E)	2.77	(3.51)	(3.51)	(3.51E)	3.51	3.51
1500	2.77	2.77	2.77	2.77	2.01	(2.77)	2.77	(2.77)	2.77	2.77	(2.77)	2.77	(3.51)	2.77	2.77	(3.51E)	(3.51)	(3.51)	3.51E	(3.51E)	(3.51E)	(3.51E)
1650	(3.51)	2.77	2.77	2.77	2.01	(2.77)	2.77	(2.77)	2.77	2.77	2.77	(3.51)	2.77	(3.51)	(3.51E)	3.51	3.51	3.51E	(3.51E)	(3.51E)	3.51E	
1800	3.51	2.77	(3.51)	3.51	(2.77)	(2.77)	3.51	(2.77)	2.77	3.51	2.77	2.77	3.51	(3.51)	(3.51)	(4.27E)	(3.51E)	3.51E	(4.27E)	(3.51E)	3.51E	
1950	4.27	2.77	(3.51)	4.27	(2.77)	2.77	4.27	2.77	2.77	4.27	2.77	(3.51)	4.27	(3.51)	(3.51)	H 4.27E	(3.51E)	3.51E	H 4.27E	3.51E	(4.27E)	
2100	4.27	(3.51)	(3.51)	4.27	(2.77)	2.77	4.27	2.77	2.77	4.27	2.77	(3.51)	4.27	(3.51)	3.51	H 4.27E	(3.51E)	3.51E	H 4.27E	(4.27E)	(4.27E)	
2250		(3.51)	(3.51)		(2.77)	2.77		2.77	2.77		(3.51)	(3.51)		(3.51)	3.51		3.51E	(4.27E)		(4.27E)	(4.27E)	
2400		(3.51)	(3.51)		(2.77)	2.77		2.77	2.77		(3.51)	(3.51)		(3.51)	3.51		(4.27E)	(4.27E)		(4.27E)	(4.27E)	
2550		2.77Z	2.77Z		(2.77)	2.77		2.77	(3.51)		(3.51)	(3.51)		(3.51)	3.51		(4.27E)	(4.27E)		H 3.51E	H 4.27E	
2700		2.77Z	(3.51Z)		2.77	2.77		2.77	(3.51)		(3.51)	3.51		3.51	(4.27)		(4.27E)	(4.27E)		H 3.51E	H 4.27E	
2850		2.77Z	(3.51Z)		2.77	2.77		2.77	(3.51)		(3.51)	3.51		(4.27)	(4.27)		(4.27E)	4.27E		H 3.51E	H 4.27E	
3000		2.77Z	(3.51Z)		2.77	2.77		(3.51)	(3.51)		(3.51)	3.51		(4.27)	(4.27)		H 3.51E	H 4.27E		H 4.27E	H 4.27E	
3150		3.51Z	3.51Z		3.51	3.51		3.51	3.51		3.51	(4.27)		(4.27)	(4.27)		H 3.51E	H 4.27E		H 4.27E	H 4.27E	
3300		3.51Z	3.51Z		3.51	3.51		3.51	3.51		(4.27)	(4.27)		4.27	4.27		H 3.51E	H 4.27E		H 4.27E	H 4.27E	
3450		3.51Z	3.51Z		3.51	3.51		3.51	3.51		(4.27)	(4.27)		(4.27E)	H 4.27E		H 4.27E	H 4.27E		H 4.27E	H 4.27E	
3600		4.27Z	4.27Z		4.27	4.27		4.27	4.27		4.27	4.27		H 4.27E	H 4.27E		H 4.27E	H 4.27E		H 4.27E	H 4.27E	

Notes:

\* Aluminized Type 2 Steel or Precoated Galvanized Steel shall be required for diameters up to 1050 mm according to Article 1006.01, 38 mm x 6.5 mm corrugations shall be used for diameters less than 300 mm.

Thicknesses are based on longitudinal riveted seam fabrication, values in "0" can be reduced by one gage thickness if helical seam fabrication is utilized.

A thickness preceded by an "H" indicates only helical seam fabrication is allowed.

E Elongation according to Article 542.04(e)

Z 450 mm Minimum Fill

TABLE IC: THICKNESS OF CORRUGATED ALUMINUM ALLOY PIPE FOR THE RESPECTIVE DIAMETER OF PIPE AND FILL HEIGHTS OVER THE TOP OF THE PIPE FOR 2 2/3"x1/2" AND 3"x1" CORRUGATIONS														
Nominal Diameter in.	Type 1		Type 2		Type 3		Type 4		Type 5		Type 6		Type 7	
	Fill Height: 3' and less 1' min. cover		Fill Height: Greater than 3' not exceeding 10'		Fill Height: Greater than 10' not exceeding 15'		Fill Height: Greater than 15' not exceeding 20'		Fill Height: Greater than 20' not exceeding 25'		Fill Height: Greater than 25' not exceeding 30'		Fill Height: Greater than 30' not exceeding 35'	
	2 2/3"x1/2"	3"x1"	2 2/3"x1/2"	3"x1"	2 2/3"x1/2"	3"x1"	2 2/3"x1/2"	3"x1"	2 2/3"x1/2"	3"x1"	2 2/3"x1/2"	3"x1"	2 2/3"x1/2"	3"x1"
12	(0.075)		0.060		0.060		0.060		0.060		0.060		0.060	
15	(0.075)		0.060		0.060		0.060		0.060		0.060		0.060	(0.075)
18	(0.075)		0.060		0.060		0.060		0.060		0.060	(0.075)	H 0.060	
21	H 0.060E		0.060		0.060		0.060		(0.075)		H 0.060		H 0.060E	
24	(0.105E)		0.060		0.060		(0.075)		(0.105)		(0.105)		(0.105E)	
30	H 0.075E	H 0.060	0.075	H 0.060	0.075	H 0.060	(0.105)	H 0.060	(0.105)	H 0.060	H 0.075E	H 0.060	H 0.075E	H 0.060
36	(0.135E)	H 0.060E	0.075	H 0.060	(0.105)	H 0.060	(0.105)	H 0.060	(0.135)	H 0.060	H 0.075E	H 0.060	H 0.075E	H 0.060E
42	0.105E	(0.075)	0.105	0.060	0.105	0.060	0.105	0.060	0.105	(0.075)	0.105E	0.105	0.105E	(0.105E)
48	0.105E	(0.075)	0.105	0.060	0.105	0.060	0.105	(0.075)	0.105	(0.105)	0.105E	(0.105E)	0.105E	(0.135E)
54	0.105E	(0.105)	0.105	0.060	0.105	0.060	0.105	(0.075)	0.105	(0.105)	0.105E	(0.105E)	(0.135E)	(0.135E)
60	0.135E	(0.105)	0.135	0.060	0.135	(0.075)	0.135	(0.105)	0.135	(0.105)	0.135E	(0.135E)	(0.164E)	(0.135E)
66	0.164E	(0.105)	0.164	0.060	0.164	(0.075)	0.164	(0.105)	0.164	(0.135)	0.164E	(0.135E)	H 0.164E	(0.135E)
72	0.164E	(0.105)	0.164	0.060	0.164	(0.075)	0.164	(0.105)	0.164	(0.135)	H 0.164E	(0.135E)	H 0.164E	(0.164E)
78		(0.135)		0.075		(0.105)		(0.105)		(0.135)		(0.135E)		(0.164E)
84		(0.135)		0.105		0.105		(0.135)		(0.135)		(0.164E)		(0.164E)
90		(0.135)		0.105		0.105		(0.135)		(0.135)		(0.164E)		(0.164E)
96		(0.135)		0.105		0.105		(0.135)		(0.135)		(0.164E)		H 0.135E
102		0.135Z		0.135		0.135		0.135		(0.164)		(0.164E)		H 0.135E
108		0.135Z		0.135		0.135		0.135		(0.164)		(0.164E)		H 0.164E
114		0.164Z		0.164		0.164		0.164		0.164		H 0.164E		H 0.164E
120		0.164Z		0.164		0.164		0.164		0.164		H 0.164E		H 0.164E

Notes:

Thicknesses are based on longitudinal riveted seam fabrication, values in "( )" can be reduced by one gage thickness if helical seam fabrication is utilized.

A thickness preceded by an "H" indicates only helical seam fabrication is allowed.

E Elongation according to Article 542.04(e), the elongation requirement for Type 1 fill heights may be eliminated for fills above 1'-6"

Z 1'-6" Minimum fill

TABLE IC: THICKNESS OF CORRUGATED ALUMINUM ALLOY PIPE  
FOR THE RESPECTIVE DIAMETER OF PIPE AND FILL HEIGHTS OVER THE TOP OF THE PIPE  
FOR 68 mm x 13 mm AND 75 mm x 25 mm CORRUGATIONS  
(Metric)

Nominal Diameter: mm	Type 1		Type 2		Type 3		Type 4		Type 5		Type 6		Type 7	
	Fill Height:		Fill Height:		Fill Height:		Fill Height:		Fill Height:		Fill Height:		Fill Height:	
	1 m and less 0.3 m min. cover		Greater than 1 m not exceeding 3 m		Greater than 3 m not exceeding 4.5 m		Greater than 4.5 m not exceeding 6 m		Greater than 6 m not exceeding 7.5 m		Greater than 7.5 m not exceeding 9 m		Greater than 9 m not exceeding 10.5 m	
	68 x 13 mm	75 x 25 mm	68 x 13 mm	75 x 25 mm	68 x 13 mm	75 x 25 mm	68 x 13 mm	75 x 25 mm	68 x 13 mm	75 x 25 mm	68 x 13 mm	75 x 25 mm	68 x 13 mm	75 x 25 mm
300	(1.91)		1.52		1.52		1.52		1.52		1.52		1.52	
375	(1.91)		1.52		1.52		1.52		1.52		1.52		(1.91)	
450	(1.91)		1.52		1.52		1.52		1.52		(1.91)		H 1.52	
525	H 1.52E		1.52		1.52		1.52		(1.91)		H 1.52		H 1.52E	
600	(2.67E)		1.52		1.52		(1.91)		(2.67)		(2.67)		(2.67E)	
750	H 1.91E	H 1.52	1.91	H 1.52	1.91	H 1.52	(2.67)	H 1.52	(2.67)	H 1.52	H 1.91E	H 1.52	H 1.91E	H 1.52
900	(3.43E)	H 1.52E	1.91	H 1.52	(2.67)	H 1.52	(2.67)	H 1.52	(3.43)	H 1.52	H 1.91E	H 1.52	H 1.91E	H 1.52E
1050	2.67E	(1.91)	2.67	1.52	2.67	1.52	2.67	1.52	2.67	(1.91)	2.67E	2.67	2.67E	(2.67E)
1200	2.67E	(1.91)	2.67	1.52	2.67	1.52	2.67	(1.91)	2.67	(2.67)	2.67E	(2.67E)	2.67E	(3.43E)
1350	2.67E	(2.67)	2.67	1.52	2.67	1.52	2.67	(1.91)	2.67	(2.67)	2.67E	(2.67E)	(3.43E)	(3.43E)
1500	3.43E	(2.67)	3.43	1.52	3.43	(1.91)	3.43	(2.67)	3.43	(2.67)	3.43E	(3.43E)	(4.17E)	(3.43E)
1650	4.17E	(2.67)	4.17	1.52	4.17	(1.91)	4.17	(2.67)	4.17	(3.43)	4.17E	(3.43E)	H 4.17E	(3.43E)
1800	4.17E	(2.67)	4.17	1.52	4.17	(1.91)	4.17	(2.67)	4.17	(3.43)	H 4.17E	(3.43E)	H 4.17E	(4.17E)
1950		(3.43)		1.91		(2.67)		(2.67)		(3.43)		(3.43E)		(4.17E)
2100		(3.43)		2.67		2.67		(3.43)		(3.43)		(4.17E)		(4.17E)
2250		(3.43)		2.67		2.67		(3.43)		(3.43)		(4.17E)		(4.17E)
2400		(3.43)		2.67		2.67		(3.43)		(3.43)		(4.17E)		H 3.43E
2550		3.43Z		3.43		3.43		3.43		(4.17)		(4.17E)		H 3.43E
2700		3.43Z		3.43		3.43		3.43		(4.17)		(4.17E)		H 4.17E
2850		4.17Z		4.17		4.17		4.17		4.17		H 4.17E		H 4.17E
3000		4.17Z		4.17		4.17		4.17		4.17		H 4.17E		H 4.17E

Notes:

Thicknesses are based on longitudinal riveted seam fabrication, values in "( )" can be reduced by one gage thickness if helical seam fabrication is utilized.  
A thickness preceded by an "H" indicates only helical seam fabrication is allowed.

E Elongation according to Article 542.04(e), the elongation requirement for Type 1 fill heights may be eliminated for fills above 450 mm.

Z 450 mm Minimum fill

Table IIA: THICKNESS FOR CORRUGATED STEEL PIPE ARCHES AND CORRUGATED ALUMINUM ALLOY PIPE ARCHES FOR THE RESPECTIVE EQUIVALENT ROUND SIZE OF PIPE AND FILL HEIGHTS OVER THE TOP OF PIPE

Equivalent Round Size (in.)	Corrugated Steel & Aluminum Pipe Arch 2 2/3" x 1/2"		Corrugated Steel & Aluminum Pipe Arch 3" x 1"		Corrugated Steel Pipe Arch 5" x 1"		Min. Cover	Type 1 Fill Height: 3' and less						Type 2 Fill Height: Greater than 3' not exceeding 10'						Type 3 Fill Height: Greater than 10' not exceeding 15'											
	Span (in.)*	Rise (in.)	Span (in.)	Rise (in.)	Span (in.)	Rise (in.)		Steel & Aluminum	Steel			Aluminum			Steel			Aluminum			Steel			Aluminum							
									2 2/3" x 1/2"	3"x1"	5" x 1"	2 2/3" x 1/2"	3"x1"	5" x 1"	2 2/3" x 1/2"	3"x1"	5" x 1"	2 2/3" x 1/2"	3"x1"	5" x 1"	2 2/3" x 1/2"	3"x1"	5" x 1"	2 2/3" x 1/2"	3"x1"	5" x 1"	2 2/3" x 1/2"	3"x1"	5" x 1"		
	15	17	13						1'-6"	0.064				0.060			0.064				0.060				0.064				0.060		
18	21	15					1'-6"	0.064				0.060			0.064				0.060				0.064				0.060				
21	24	18					1'-6"	0.064				(0.075)			0.064				0.060				0.064				0.060				
24	28	20					1'-6"	(0.079)				(0.105)			0.064				0.075				0.064				0.075				
30	35	24					1'-6"	(0.079)				(0.105)			0.064				0.075			(0.079)				(0.105)					
35	42	29					1'-6"	(0.079)				0.105			0.064				0.105				0.064				0.105				
42	49	33					1'-6"	0.109				0.105			(0.109)				0.105			(0.109)				0.105					
48	57	38	53	41	53	41	1'-6"	0.109	(0.109)	(0.109)		0.135	0.060	0.109	0.079	0.079		0.135	0.060	0.109	0.079	(0.109)		0.135	0.060	0.109	0.079	(0.109)	0.135	0.060	
54	64	43	60	46	60	46	1'-6"	0.109	(0.109)	0.109		0.164	(0.075)	0.109	0.079	0.079		0.164	0.060	0.109	(0.109)	0.109		0.164	(0.075)	0.109	0.079	(0.109)	0.164	(0.075)	
60	71	47	66	51	66	51	1'-6"	0.138	(0.109)	0.109		0.164	(0.075)	0.138	0.079	(0.109)		0.164	0.060	0.138	(0.109)	0.109		0.164	(0.075)	0.109	0.079	(0.109)	0.164	(0.075)	
66	77	52	73	55	73	55	1'-6"	0.168	(0.109)	0.109			0.075	0.168	0.079	(0.109)			0.075	0.168	(0.109)	0.109			0.075	0.168	(0.109)	0.109	0.075	0.168	(0.109)
72	83	57	81	59	81	59	1'-6"	0.168	(0.109)	0.109			0.105	0.168	0.079	(0.109)			0.105	0.168	(0.109)	0.109			0.105	0.168	(0.109)	0.109	0.105	0.168	(0.109)
78			87	63	87	63	1'-6"		0.109	0.109			0.105		(0.109)	0.109			0.105		(0.109)	0.109			0.105		(0.109)	0.109	0.105	0.164	(0.109)
84			95	67	95	67	1'-6"		0.109	0.109			0.105		(0.109)	0.109			0.105		(0.109)	0.109			0.105		(0.109)	0.109	0.105	0.164	(0.109)
90			103	71	103	71	1'-6"		0.109	0.109			0.135		(0.109)	0.109			0.135		(0.109)	0.109			0.135		(0.109)	0.109	0.135	0.164	(0.109)
95			112	75	112	75	1'-6"		0.109	(0.138)			0.164		0.109	0.109			0.164		0.109	0.109			0.164		0.109	0.109	0.138	0.164	(0.138)
102			117	79	117	79	1'-6"		0.109	(0.138)			0.164		0.109	0.109			0.164		0.109	0.109			0.164		0.109	0.109	0.138	0.164	(0.138)
108			128	83	128	83	1'-6"		0.138	0.138				0.138	0.138					0.138	0.138				0.138	0.138		0.138	0.138		
114			137	87	137	87	1'-6"		0.138	0.138				0.138	0.138					0.138	0.138				0.138	0.138		0.138	0.138		
120			142	91	142	91	1'-6"		0.168	0.168				0.168	0.168					0.168	0.168				0.168	0.168		0.168	0.168		

Notes:  
 \* Aluminum Type 2 Steel or Precoated Galvanized Steel shall be required for steel spans up to 42" according to Article 1006.01.  
 Thicknesses are based on longitudinal riveted seam fabrication, values in "0" can be reduced by one gage thickness if helical seam fabrication is utilized.  
 The Type 1 corrugated steel or aluminum pipe arches shall be placed on soil having a minimum bearing capacity of 3 tons per square foot.  
 The Type 2 and 3 corrugated steel or aluminum pipe arches shall be placed on soil having a minimum bearing capacity of 2 tons per square foot.  
 This minimum bearing capacity will be determined by the Engineer in the field.



Table IIA: THICKNESS FOR CORRUGATED STEEL PIPE ARCHES AND CORRUGATED ALUMINUM ALLOY PIPE ARCHES FOR THE RESPECTIVE EQUIVALENT ROUND SIZE OF PIPE AND FILL HEIGHTS OVER THE TOP OF PIPE (Metric)

Equivalent Round Size (mm)	Corrugated Steel & Aluminum Pipe Arch 68 x 13 mm		Corrugated Steel & Aluminum Pipe Arch 75 x 25 mm		Corrugated Steel Pipe Arch 125 x 25 mm		Min. Cover	Type 1			Type 2			Type 3								
	Span (mm)*		Span (mm)		Span (mm)			Fill Height:			Fill Height:			Fill Height:								
	Rise (mm)		Rise (mm)		Rise (mm)			1 m and less			Greater than 1 m not exceeding 3 m			Greater than 3 m not exceeding 4.5 m								
	Steel & Aluminum		Steel & Aluminum		Steel & Aluminum			Steel			Aluminum			Steel			Aluminum					
	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm	125 x 25 mm	68 x 13 mm	75 x 25 mm			
375	430	330				0.5 m	1.63			1.52		1.63		1.52		1.63			1.52			
450	530	380				0.5 m	1.63			1.52		1.63		1.52		1.63			1.52			
525	610	460				0.5 m	1.63			(1.91)		1.63		1.52		1.63			1.52			
600	710	510				0.5 m	(2.01)			(2.67)		1.63		1.91		1.63			1.91			
750	870	630				0.5 m	(2.01)			(2.67)		1.63		1.91		(2.01)			(2.67)			
900	1060	740				0.5 m	(2.01)			2.67		1.63		2.67		1.63			2.67			
1050	1240	840				0.5 m	2.77			2.67		(2.77)		2.67		(2.77)			2.67			
1200	1440	970	1340	1050	1340	1050	0.5 m	2.77	(2.77)	(2.77)	3.43	1.52	2.77	2.01	2.01	3.43	1.52	2.77	2.01	(2.77)	3.43	1.52
1350	1620	1100	1520	1170	1520	1170	0.5 m	2.77	(2.77)	2.77	4.17	(1.91)	2.77	2.01	2.01	4.17	1.52	2.77	(2.77)	2.77	4.17	(1.91)
1500	1800	1200	1670	1300	1670	1300	0.5 m	3.51	(2.77)	2.77	4.17	(1.91)	3.51	2.01	(2.77)	4.17	1.52	3.51	(2.77)	2.77	4.17	(1.91)
1650	1950	1320	1850	1400	1850	1400	0.5 m	4.27	(2.77)	2.77		1.91	4.27	2.01	(2.77)		1.91	4.27	(2.77)	2.77		1.91
1800	2100	1450	2050	1500	2050	1500	0.5 m	4.27	(2.77)	2.77		2.67	4.27	2.01	(2.77)		2.67	4.27	(2.77)	2.77		2.67
1950			2200	1620	2200	1620	0.5 m		2.77	2.77		2.67		(2.77)	2.77		2.67		2.77	2.77		2.67
2100			2400	1720	2400	1720	0.5 m		2.77	2.77		2.67		(2.77)	2.77		2.67		2.77	2.77		2.67
2250			2600	1820	2600	1820	0.5 m		2.77	2.77		3.43		(2.77)	2.77		3.43		2.77	2.77		3.43
2400			2840	1920	2840	1920	0.5 m		2.77	(3.51)		4.17		2.77	2.77		4.17		2.77	(3.51)		4.17
2550			2970	2020	2970	2020	0.5 m		2.77	(3.51)		4.17		2.77	2.77		4.17		2.77	(3.51)		4.17
2700			3240	2120	3240	2120	0.5 m		3.51	3.51				3.51	3.51				3.51	3.51		
2850			3470	2220	3470	2220	0.5 m		3.51	3.51				3.51	3.51				3.51	3.51		
3000			3600	2320	3600	2320	0.5 m		4.27	4.27				4.27	4.27				4.27	4.27		

Notes:

- \* Aluminized Type 2 Steel or Precoated Galvanized Steel shall be required for steel spans up to 1060 mm according to Article 1006.01.
- Thicknesses are based on longitudinal riveted seam fabrication, values in "( )" can be reduced by one gage thickness if helical seam fabrication is utilized.
- The Type 1 corrugated steel or aluminum pipe arches shall be placed on soil having a minimum bearing capacity of 290 kN per square meter.
- The Type 2 and 3 corrugated steel or aluminum pipe arches shall be placed on soil having a minimum bearing capacity of 192 kN per square meter.
- This minimum bearing capacity will be determined by the Engineer in the field.

Table IIB: CLASSES OF REINFORCED CONCRETE ELLIPTICAL AND REINFORCED CONCRETE ARCH PIPE FOR THE RESPECTIVE EQUIVALENT ROUND SIZE OF PIPE AND FILL HEIGHTS OVER THE TOP OF PIPE

Equivalent Round Size (in.)	Reinforced Concrete Elliptical pipe (in.)		Reinforced Concrete Arch pipe (in.)		Minimum Cover RCCP HE & A	Type 1		Type 2		Type 3	
	Span	Rise	Span	Rise		Fill Height: 3' and less		Fill Height: Greater than 3' not exceeding 10'		Fill Height: Greater than 10' not exceeding 15'	
					HE	Arch	HE	Arch	HE	Arch	
15	23	14	18	11	1' -0"	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
18	23	14	22	13 1/2	1' -0"	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
21	30	19	26	15 1/2	1' -0"	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
24	30	19	28 1/2	18	1' -0"	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
27	34	22	36 1/4	22 1/2	1' -0"	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
30	38	24	36 1/4	22 1/2	1' -0"	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
36	45	29	43 3/4	26 5/8	1' -0"	HE-II	A-II	HE-III	A-III	HE-IV	A-IV
42	53	34	51 1/8	31 5/16	1' -0"	HE-I	A-II	HE-III	A-III	HE-IV	A-IV
48	60	38	58 1/2	36	1' -0"	HE-I	A-II	HE-III	A-III	1460	1450
54	68	43	65	40	1' -0"	HE-I	A-II	HE-III	A-III	1460	1460
60	76	48	73	45	1' -0"	HE-I	A-II	HE-III	A-III	1460	1470
66	83	53	88	54	1' -0"	HE-I	A-II	HE-III	A-III	1470	1480
72	91	58	88	54	1' -0"	HE-I	A-II	HE-III	A-III	1470	1480

Notes:

A number indicates the D-Load for the diameter and depth of fill and that a special design is required.  
 Design assumptions; Water filled pipe, AASHTO Type 2 installation per AASHTO LRFD Table 12.10.2.1-1

Table IIB: CLASSES OF REINFORCED CONCRETE ELLIPTICAL AND REINFORCED CONCRETE ARCH PIPE FOR THE RESPECTIVE EQUIVALENT ROUND SIZE OF PIPE AND FILL HEIGHTS OVER THE TOP OF PIPE (Metric)

Equivalent Round Size (mm)	Reinforced Concrete Elliptical pipe (mm)		Reinforced Concrete Arch pipe (mm)		Minimum Cover RCCP HE & A	Type 1 Fill Height: 1 m and less		Type 2 Fill Height: Greater than 1 m not exceeding 3 m		Type 3 Fill Height: Greater than 3 m not exceeding 4.5 m	
	Span	Rise	Span	Rise		HE	Arch	HE	Arch	HE	Arch
	375	584	356	457	279	0.3 m	HE-III	A-III	HE-III	A-III	HE-IV
450	584	356	559	343	0.3 m	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
525	762	483	660	394	0.3 m	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
600	762	483	724	457	0.3 m	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
686	864	559	921	572	0.3 m	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
750	965	610	921	572	0.3 m	HE-III	A-III	HE-III	A-III	HE-IV	A-IV
900	1143	737	1111	676	0.3 m	HE-II	A-II	HE-III	A-III	HE-IV	A-IV
1050	1346	864	1299	795	0.3 m	HE-I	A-II	HE-III	A-III	HE-IV	A-IV
1200	1524	965	1486	914	0.3 m	HE-I	A-II	HE-III	A-III	70	70
1350	1727	1092	1651	1016	0.3 m	HE-I	A-II	HE-III	A-III	70	70
1500	1930	1219	1854	1143	0.3 m	HE-I	A-II	HE-III	A-III	70	70
1676	2108	1346	2235	1372	0.3 m	HE-I	A-II	HE-III	A-III	70	70
1800	2311	1473	2235	1372	0.3 m	HE-I	A-II	HE-III	A-III	70	70

Notes:

A number indicates the D-Load for the diameter and depth of fill and that a special design is required.  
Design assumptions; Water filled pipe, AASHTO Type 2 installation per AASHTO LRFD Table 12.10.2.1-1

TABLE IIIA: PLASTIC PIPE PERMITTED  
FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE

Nominal Diameter (in.)	Type 1 Fill Height: 3' and less, with 1' min					Type 2 Fill Height: Greater than 3', not exceeding 10'					Type 3 Fill Height: Greater than 10', not exceeding 15'					Type 4 Fill Height: Greater than 15', not exceeding 20'			
	PVC	CPVC	PE	CPE	CPP	PVC	CPVC	PE	CPE	CPP	PVC	CPVC	PE	CPE	CPP	PVC	CPVC	PE	CPP
	10	X	X	X	X	NA	X	X	X	X	NA	X	X	X	X	NA	X	X	X
12	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	NA
15	X	X	NA	X	X	X	X	NA	X	X	X	X	NA	NA	X	X	X	NA	X
18	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	NA
21	X	X	NA	NA	NA	X	X	NA	NA	NA	X	X	NA	NA	NA	X	X	NA	NA
24	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA	NA	X	X	X	NA
30	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	NA
36	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA	X	X	X	NA
42	X	NA	X	X	NA	X	NA	X	NA	NA	X	NA	X	NA	NA	X	NA	X	NA
48	X	NA	X	X	X	X	NA	X	NA	NA	X	NA	X	NA	NA	X	NA	X	NA

Notes:

- PVC Polyvinyl Chloride (PVC) pipe with a smooth interior
- CPVC Corrugated Polyvinyl Chloride (CPVC) pipe with a smooth interior
- PE Polyethylene (PE) pipe with a smooth interior
- CPE Corrugated Polyethylene (PE) pipe with a smooth interior
- CPP Corrugated Polypropylene (CPP) pipe with a smooth interior
- X This material may be used for the given pipe diameter and fill height
- NA Not Available

TABLE IIIA: PLASTIC PIPE PERMITTED  
FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE  
(Metric)

Nominal Diameter (mm)	Type 1 Fill Height: 1 m and less, with 0.3 m min. cover					Type 2 Fill Height: Greater than 1 m, not exceeding 3 m					Type 3 Fill Height: Greater than 3 m, not exceeding 4.5 m					Type 4 Fill Height: Greater than 4.5 m, not exceeding 6 m			
	PVC	CPVC	PE	CPE	CPP	PVC	CPVC	PE	CPE	CPP	PVC	CPVC	PE	CPE	CPP	PVC	CPVC	PE	CPP
	250	X	X	X	X	NA	X	X	X	X	NA	X	X	X	X	NA	X	X	X
300	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	NA
375	X	X	NA	X	X	X	X	NA	X	X	X	X	NA	NA	X	X	X	NA	X
450	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	NA
525	X	X	NA	NA	NA	X	X	NA	NA	NA	X	X	NA	NA	NA	X	X	NA	NA
600	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA	NA	X	X	X	NA
750	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	NA
900	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA	X	X	X	NA
1000	X	NA	X	X	NA	X	NA	X	NA	NA	X	NA	X	NA	NA	X	NA	X	NA
1200	X	NA	X	X	X	X	NA	X	NA	NA	X	NA	X	NA	NA	X	NA	X	NA

Notes:

- PVC Polyvinyl Chloride (PVC) pipe with a smooth interior
- CPVC Corrugated Polyvinyl Chloride (CPVC) pipe with a smooth interior
- PE Polyethylene (PE) pipe with a smooth interior
- CPE Corrugated Polyethylene (PE) pipe with a smooth interior
- CPP Corrugated Polypropylene (CPP) pipe with a smooth interior
- X This material may be used for the given pipe diameter and fill height
- NA Not Available

TABLE IIIB: PLASTIC PIPE PERMITTED								
FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE								
Nominal Diameter (in.)	Type 5			Type 6			Type 7	
	Fill Height: Greater than 20', not exceeding 25'			Fill Height: Greater than 25', not exceeding 30'			Fill Height: Greater than 30', not exceeding 35'	
	PVC	CPVC		PVC	CPVC		CPVC	
10	X	X		X	X		X	
12	X	X		X	X		X	
15	X	X		X	X		X	
18	X	X		X	X		X	
21	X	X		X	X		X	
24	X	X		X	X		X	
30	X	X		X	X		X	
36	X	X		X	X		X	
42	X	NA		X	NA		NA	
48	X	NA		X	NA		NA	

Notes:

- PVC Polyvinyl Chloride (PVC) pipe with a smooth interior
- CPVC Corrugated Polyvinyl Chloride (CPVC) pipe with a smooth interior
- X This material may be used for the given pipe diameter and fill height
- NA Not Available

TABLE IIIB: PLASTIC PIPE PERMITTED  
FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE  
(metric)

Nominal Diameter (mm)	Type 5			Type 6			Type 7	
	Fill Height: Greater than 6 m, not exceeding 7.5 m			Fill Height: Greater than 7.5 m, not exceeding 9 m			Fill Height: Greater than 9 m, not exceeding 10.5 m	
	PVC	CPVC		PVC	CPVC		CPVC	
250	X	X		X	X		X	
300	X	X		X	X		X	
375	X	X		X	X		X	
450	X	X		X	X		X	
525	X	X		X	X		X	
600	X	X		X	X		X	
750	X	X		X	X		X	
900	X	X		X	X		X	
1000	X	NA		X	NA		NA	
1200	X	NA		X	NA		NA	

Notes:

- PVC Polyvinyl Chloride (PVC) pipe with a smooth interior
- CPVC Corrugated Polyvinyl Chloride (CPVC) pipe with a smooth interior
- PE Polyethylene (PE) pipe with a smooth interior
- X This material may be used for the given pipe diameter and fill height
- NA Not Available\*

Revise the first sentence of the first paragraph of Article 542.04(c) of the Standard Specifications to read:

“Compacted aggregate, at least 4 in. (100 mm) in depth below the pipe culvert, shall be placed the entire width of the trench and for the length of the pipe culvert, except compacted impervious material shall be used for the outer 3 ft (1 m) at each end of the pipe culvert.”

Revise the seventh paragraph of Article 542.04(d) of the Standard Specifications to read:

“PVC, PE and CPP pipes shall be joined according to the manufacturer’s specifications.”

Replace the third sentence of the first paragraph of Article 542.04(h) of the Standard Specifications with the following:

“The total cover required for various construction loadings shall be the responsibility of the Contractor.”

Delete “Table IV : Wheel Loads and Total Cover” in Article 542.04(h) of the Standard Specifications.

Revise the first and second paragraphs of Article 542.04(i) of the Standard Specifications to read:

“(i) Deflection Testing for Pipe Culverts. All PE, PVC and CPP pipe culverts shall be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted. The testing shall be performed in the presence of the Engineer.

For PVC, PE, and CPP pipe culverts with diameters 24 in. (600 mm) or smaller, a mandrel drag shall be used for deflection testing. For PVC, PE, and CPP pipe culverts with diameters over 24 in. (600 mm), deflection measurements other than by a mandrel shall be used.”

Revise Articles 542.04(i)(1) and (2) of the Standard Specifications to read:

“(1) For all PVC pipe: as defined using ASTM D 3034 methodology.

(2) For all PE and CPP pipe: the average inside diameter based on the minimum and maximum tolerances specified in the corresponding ASTM or AASHTO material specifications.”

Revise the second sentence of the second paragraph of Article 542.07 of the Standard Specifications to read:



"When a prefabricated end section is used, it shall be of the same material as the pipe culvert, except for polyethylene (PE), polyvinylchloride (PVC), and polypropylene (PP) pipes which shall have metal end sections."

Revise the first paragraph of Article 1040.03 of the Standard Specifications to read:

**"1040.03 Polyvinyl Chloride (PVC) Pipe.** Acceptance testing of PVC pipe and fittings shall be accomplished during the same construction season in which they are installed. The section properties shall be according to the manufacturer pre-submitted geometric properties on file with the Department. The manufacturer shall submit written certification that the material meets those properties. The pipe shall meet the following additional requirements."

Delete Articles 1040.03(e) and (f) of the Standard Specifications.

Revise Articles 1040.04(c) and (d) of the Standard Specifications to read:

"(c) PE Profile Wall Pipe for Insertion Lining. The pipe shall be according to ASTM F 894. When used for insertion lining of pipe culverts, the pipe liner shall have a minimum pipe stiffness of 46 psi (317 kPa) at five percent deflection for nominal inside diameters of 42 in. (1050 mm) or less. For nominal inside diameters of greater than 42 in. (1050 mm), the pipe liner shall have a minimum pipe stiffness of 32.5 psi (225 kPa) at five percent deflection. All sizes shall have wall construction that presents essentially smooth internal and external surfaces.

(d) PE Pipe with a Smooth Interior. The pipe shall be according to ASTM F 714 (DR 32.5) with a minimum cell classification of PE 335434 as defined in ASTM D 3350. The section properties shall be according to the manufacturer pre-submitted geometric properties on file with the Department. The manufacturer shall submit written certification that the material meets those properties and the resin used to manufacture the pipe meets or exceeds the minimum cell classification requirements."

Add the following to Section 1040 of the Standard Specifications:

**"1040.08 Polypropylene (PP) Pipe.** Storage and handling shall be according to the manufacturer's recommendations, except in no case shall the pipe be exposed to direct sunlight for more than six months. Acceptance testing of the pipe shall be accomplished during the same construction season in which it is installed. The section properties shall be according to the manufacturer pre-submitted geometric properties on file with the Department. The manufacturer shall submit written certification that the material meets those properties. The pipe shall meet the following additional requirements.

(a) Corrugated PP Pipe with a Smooth Interior. The pipe shall be according to AAHSTO M 330 (nominal size – 12 to 60 in. (300 to 1500 mm)). The pipe shall be Type S or D.

(b) Perforated Corrugated PP Pipe with A Smooth Interior. The pipe shall be according to AASHTO M 330 (nominal size – 12 to 60 in. (300 to 1500 mm)). The pipe shall be

Type SP. In addition, the top centerline of the pipe shall be marked so that it is readily visible from the top of the trench before backfilling, and the upper ends of the slot perforations shall be a minimum of ten degrees below the horizontal."

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**LRFD STORM SEWER BURIAL TABLES (BDE)**

Effective: November 1, 2013

Revised: November 1, 2014

Revise Article 550.02 of the Standard Specifications to read as follows:

"Item	Article Section
(a) Clay Sewer Pipe .....	1040.02
(b) Extra Strength Clay Pipe .....	1040.02
(c) Concrete Sewer, Storm Drain, and Culvert Pipe .....	1042
(d) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe .....	1042
(e) Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe (Note 1) .....	1042
(f) Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe (Note 1) .....	1042
(g) Polyvinyl Chloride (PVC) Pipe .....	1040.03
(h) Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior .....	1040.03
(i) Corrugated Polypropylene (CPP) Pipe with Smooth Interior .....	1040.07
(j) Rubber Gaskets and Preformed Flexible Joint Sealants for Concrete Pipe .....	1056
(k) Mastic Joint Sealer for Pipe .....	1055
(l) External Sealing Band .....	1057
(m) Fine Aggregate (Note 2) .....	1003.04
(n) Coarse Aggregate (Note 3) .....	1004.05
(o) Reinforcement Bars and Welded Wire Fabric .....	1006.10
(p) Handling Hole Plugs .....	1042.16
(q) Polyethylene (PE) Pipe with a Smooth Interior .....	1040.04
(r) Corrugated Polyethylene (PE) Pipe with a Smooth Interior .....	1040.04

Note 1. The class of elliptical and arch pipe used for various storm sewer sizes and heights of fill shall conform to the requirements for circular pipe.

Note 2. The fine aggregate shall be moist.

Note 3. The coarse aggregate shall be wet."

Revise the table for permitted materials in Article 550.03 of the Standard Specifications as follows:

"Class	Materials
A	Rigid Pipes: Clay Sewer Pipe Extra Strength Clay Pipe Concrete Sewer, Storm Drain, and Culvert Pipe Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
B	Rigid Pipes: Clay Sewer Pipe Extra Strength Clay Pipe Concrete Sewer, Storm Drain, and Culvert Pipe Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe Flexible Pipes: Polyvinyl Chloride (PVC) Pipe Corrugated Polyvinyl Chloride Pipe (PVC) with a Smooth Interior Polyethylene (PE) Pipe with a Smooth Interior Corrugated Polyethylene (PE) Pipe with a Smooth Interior Corrugated Polypropylene (CPP) Pipe with a Smooth Interior"

Replace the storm sewers tables in Article 550.03 of the Standard Specifications with the following:

STORM SEWERS KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETERS AND FILL HEIGHTS OVER THE TOP OF THE PIPE																
Nominal Diameter in.	Type 1 Fill Height: 3' and less With 1" minimum cover								Type 2 Fill Height: Greater than 3' not exceeding 10'							
	RCCP	CSP	ESCP	PVC	CPVC	PE	CPE	CPP	RCCP	CSP	ESCP	PVC	CPVC	PE	CPE	CPP
	10	NA	3	X	X	X	X	X	NA	NA	1	*X	X	X	X	X
12	IV	NA	X	X	X	X	X	X	II	1	*X	X	X	X	X	X
15	IV	NA	NA	X	X	NA	X	X	II	1	*X	X	X	NA	X	X
18	IV	NA	NA	X	X	X	X	X	II	2	X	X	X	X	X	X
21	III	NA	NA	X	X	NA	NA	NA	II	2	X	X	X	NA	NA	NA
24	III	NA	NA	X	X	X	X	X	II	2	X	X	X	X	X	X
27	III	NA	NA	NA	NA	NA	NA	NA	II	3	X	NA	NA	NA	NA	NA
30	IV	NA	NA	X	X	X	X	X	II	3	X	X	X	X	X	X
33	III	NA	NA	NA	NA	NA	NA	NA	II	NA	X	NA	NA	NA	NA	NA
36	III	NA	NA	X	X	X	X	X	II	NA	X	X	X	X	X	X
42	II	NA	X	X	NA	X	X	NA	II	NA	X	X	NA	X	NA	NA
48	II	NA	X	X	NA	X	X	X	II	NA	X	X	NA	X	NA	NA
54	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
60	II	NA	NA	NA	NA	NA	NA	X	II	NA	NA	NA	NA	NA	NA	X
66	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
72	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
78	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
84	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
90	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
96	II	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA
102	II	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA
108	II	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA

- RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
- CSP Concrete Sewer, Storm drain, and Culvert Pipe
- PVC Polyvinyl Chloride Pipe
- CPVC Corrugated Polyvinyl Chloride Pipe
- ESCP Extra Strength Clay Pipe
- PE Polyethylene Pipe with a Smooth Interior
- CPE Corrugated Polyethylene Pipe with a Smooth Interior
- CPP Corrugated Polypropylene pipe with a Smooth Interior
- X This material may be used for the given pipe diameter and fill height.
- NA This material is Not Acceptable for the given pipe diameter and fill height.
- \* May also use Standard Strength Clay Pipe

STORM SEWERS (Metric)																
KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED																
FOR A GIVEN PIPE DIAMETERS AND FILL HEIGHTS OVER THE TOP OF THE PIPE																
Nominal Diameter in.	Type 1								Type 2							
	Fill Height: 1 m and less With 300 mm minimum cover								Fill Height: Greater than 1 m not exceeding 3 m							
	RCCP	CSP	ESCP	PVC	CPVC	PE	CPE	CPP	RCCP	CSP	ESCP	PVC	CPVC	PE	CPE	CPP
250	NA	3	X	X	X	X	X	NA	NA	1	*X	X	X	X	X	NA
300	IV	NA	X	X	X	X	X	X	II	1	*X	X	X	X	X	X
375	IV	NA	NA	X	X	X	NA	X	II	1	*X	X	X	NA	X	X
450	IV	NA	NA	X	X	X	X	X	II	2	X	X	X	X	X	X
525	III	NA	NA	X	X	NA	NA	NA	II	2	X	X	X	NA	NA	NA
600	III	NA	NA	X	X	X	X	X	II	2	X	X	X	X	X	X
675	III	NA	NA	NA	NA	NA	NA	NA	II	3	X	NA	NA	NA	NA	NA
750	IV	NA	NA	X	X	X	X	X	II	3	X	X	X	X	X	X
825	III	NA	NA	NA	NA	NA	NA	NA	II	NA	X	NA	NA	NA	NA	NA
900	III	NA	NA	X	X	X	X	X	II	NA	X	X	X	X	X	X
1050	II	NA	X	X	NA	X	X	NA	II	NA	X	X	NA	X	NA	NA
1200	II	NA	X	X	NA	X	X	X	II	NA	X	X	NA	X	NA	NA
1350	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
1500	II	NA	NA	NA	NA	NA	NA	X	II	NA	NA	NA	NA	NA	NA	X
1650	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
1800	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
1950	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
2100	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
2250	II	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA
2400	II	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA
2550	II	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA
2700	II	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA

- RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
- CSP Concrete Sewer, Storm drain, and Culvert Pipe
- PVC Polyvinyl Chloride Pipe
- CPVC Corrugated Polyvinyl Chloride Pipe
- ESCP Extra Strength Clay Pipe
- PE Polyethylene Pipe with a Smooth Interior
- CPE Corrugated Polyethylene Pipe with a Smooth Interior
- CPP Corrugated Polypropylene pipe with a Smooth Interior
- X This material may be used for the given pipe diameter and fill height.
- NA This material is Not Acceptable for the given pipe diameter and fill height.
- May also use Standard Strength Clay Pipe

STORM SEWERS KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETERS AND FILL HEIGHTS OVER THE TOP OF THE PIPE																
Nominal Diameter in.	Type 3									Type 4						
	Fill Height: Greater than 10' not exceeding 15'									Fill Height: Greater than 15' not exceeding 20'						
	RCCP	CSP	ESCP	PVC	CPVC	PE	CPE	CPP	RCCP	CSP	ESCP	PVC	CPVC	PE	CPP	
10	NA	2	X	X	X	X	X	NA	NA	3	X	X	X	X	NA	
12	III	2	X	X	X	X	NA	X	IV	NA	NA	X	X	X	NA	
15	III	3	X	X	X	NA	NA	X	IV	NA	NA	X	X	NA	X	
18	III	NA	X	X	X	X	NA	X	IV	NA	NA	X	X	X	NA	
21	III	NA	NA	X	X	NA	NA	NA	IV	NA	NA	X	X	NA	NA	
24	III	NA	NA	X	X	X	NA	NA	IV	NA	NA	X	X	X	NA	
27	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
30	III	NA	NA	X	X	X	NA	X	IV	NA	NA	X	NA	X	NA	
33	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
36	III	NA	NA	X	X	X	NA	NA	IV	NA	NA	X	X	X	NA	
42	III	NA	NA	X	NA	X	NA	NA	IV	NA	NA	X	NA	X	NA	
48	III	NA	NA	X	NA	X	NA	NA	IV	NA	NA	X	NA	X	NA	
54	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
60	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
66	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
72	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
78	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
84	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA	
90	III	NA	NA	NA	NA	NA	NA	NA	1680	NA	NA	NA	NA	NA	NA	
96	III	NA	NA	NA	NA	NA	NA	NA	1690	NA	NA	NA	NA	NA	NA	
102	III	NA	NA	NA	NA	NA	NA	NA	1700	NA	NA	NA	NA	NA	NA	
108	1360	NA	NA	NA	NA	NA	NA	NA	1710	NA	NA	NA	NA	NA	NA	

- RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe  
CSP Concrete Sewer, Storm drain, and Culvert Pipe  
PVC Polyvinyl Chloride Pipe  
CPVC Corrugated Polyvinyl Chloride Pipe  
ESCP Extra Strength Clay Pipe  
PE Polyethylene Pipe with a Smooth Interior  
CPE Corrugated Polyethylene Pipe with a Smooth Interior  
CPP Corrugated Polypropylene pipe with a Smooth Interior  
X This material may be used for the given pipe diameter and fill height.  
NA This material is Not Acceptable for the given pipe diameter and fill height.  
\* May also use Standard Strength Clay Pipe  
Note RCCP with a number instead of a Roman numeral shall be furnished according to AASHTO M170 Section 6. This number represents the D-load to produce a 0.01 in crack.

**STORM SEWERS (metric)  
KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED  
FOR A GIVEN PIPE DIAMETERS AND FILL HEIGHTS OVER THE TOP OF THE PIPE**

Nominal Diameter in.	Type 3								Type 4						
	Fill Height: Greater than 3 m not exceeding 4.5 m								Fill Height: Greater than 4.5 m not exceeding 6 m						
	RCCP	CSP	ESCP	PVC	CPVC	PE	CPE	CPP	RCCP	CSP	ESCP	PVC	CPVC	PE	CPP
250	NA	2	X	X	X	X	X	NA	NA	3	X	X	X	X	NA
300	III	2	X	X	X	X	NA	X	IV	NA	NA	X	X	X	NA
375	III	3	X	X	X	NA	NA	X	IV	NA	NA	X	X	NA	X
450	III	NA	X	X	X	X	NA	X	IV	NA	NA	X	X	X	NA
525	III	NA	NA	X	X	NA	NA	NA	IV	NA	NA	X	X	NA	NA
600	III	NA	NA	X	X	NA	NA	NA	IV	NA	NA	X	X	X	NA
675	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
750	III	NA	NA	X	X	X	NA	X	IV	NA	NA	X	X	X	NA
825	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
900	III	NA	NA	X	X	X	NA	NA	IV	NA	NA	X	X	X	NA
1050	III	NA	NA	X	NA	X	NA	NA	IV	NA	NA	X	NA	X	NA
1200	III	NA	NA	X	NA	X	NA	NA	IV	NA	NA	X	NA	X	NA
1350	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
1500	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
1650	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
1800	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
1950	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
2100	III	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA	NA	NA
2250	III	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	NA	NA	NA	NA
2400	III	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	NA	NA	NA	NA
2550	III	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	NA	NA	NA	NA
2700	70	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	NA	NA	NA	NA

RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

CSP Concrete Sewer, Storm drain, and Culvert Pipe

PVC Polyvinyl Chloride Pipe

CPVC Corrugated Polyvinyl Chloride Pipe

ESCP Extra Strength Clay Pipe

PE Polyethylene Pipe with a Smooth Interior

CPE Corrugated Polyethylene Pipe with a Smooth Interior

CPP Corrugated Polypropylene pipe with a Smooth Interior

X This material may be used for the given pipe diameter and fill height.

NA This material is Not Acceptable for the given pipe diameter and fill height.

\* May also use Standard Strength Clay Pipe

Note RCCP with a number instead of a Roman numeral shall be furnished according to AASHTO M170 Section 6. This number represents the metric D-load to produce a 25.4 micro-meter crack.



STORM SEWERS								
KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED								
FOR A GIVEN PIPE DIAMETERS AND FILL HEIGHTS OVER THE TOP OF THE PIPE								
Nominal Diameter in.	Type 5			Type 6			Type 7	
	Fill Height: Greater than 20' not exceeding 25'			Fill Height: Greater than 25' not exceeding 30'			Fill Height: Greater than 30' not exceeding 35'	
	RCCP	PVC	CPVC	RCCP	PVC	CPVC	RCCP	CPVC
10	NA	X	X	NA	X	X	NA	X
12	IV	X	X	V	X	X	V	X
15	IV	X	X	V	X	X	V	X
18	IV	X	X	V	X	X	V	X
21	IV	X	X	V	X	X	V	X
24	IV	X	X	V	X	X	V	X
27	IV	NA	NA	V	NA	NA	V	NA
30	IV	X	X	V	X	X	V	X
33	IV	NA	NA	V	NA	NA	V	NA
36	IV	X	X	V	X	X	V	X
42	IV	X	NA	V	X	NA	V	NA
48	IV	X	NA	V	X	NA	V	NA
54	IV	NA	NA	V	NA	NA	V	NA
60	IV	NA	NA	V	NA	NA	V	NA
66	IV	NA	NA	V	NA	NA	V	NA
72	V	NA	NA	V	NA	NA	V	NA
78	2020	NA	NA	2370	NA	NA	2730	NA
84	2020	NA	NA	2380	NA	NA	2740	NA
90	2030	NA	NA	2390	NA	NA	2750	NA
96	2040	NA	NA	2400	NA	NA	2750	NA
102	2050	NA	NA	2410	NA	NA	2760	NA
108	2060	NA	NA	2410	NA	NA	2770	NA

RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

PVC Polyvinyl Chloride Pipe

CPVC Corrugated Polyvinyl Chloride Pipe

ESCP Extra Strength Clay Pipe

X This material may be used for the given pipe diameter and fill height.

NA This material is Not Acceptable for the given pipe diameter and fill height.

Note RCCP with a number instead of a Roman numeral shall be furnished according to AASHTO M170 Section 6. This number represents the D-load to produce a 0.01 in crack.

STORM SEWERS (metric)								
KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED								
FOR A GIVEN PIPE DIAMETERS AND FILL HEIGHTS OVER THE TOP OF THE PIPE								
Nominal Diameter in.	Type 5			Type 6			Type 7	
	Fill Height: Greater than 20' not exceeding 25'			Fill Height: Greater than 25' not exceeding 30'			Fill Height: Greater than 30' not exceeding 35'	
	RCCP	PVC	CPVC	RCCP	PVC	CPVC	RCCP	CPVC
250	NA	X	X	NA	X	X	NA	X
300	IV	X	X	V	X	X	V	X
375	IV	X	X	V	X	X	V	X
450	IV	X	X	V	X	X	V	X
525	IV	X	X	V	X	X	V	X
600	IV	X	X	V	X	X	V	X
675	IV	NA	NA	V	NA	NA	V	NA
750	IV	X	X	V	X	X	V	X
825	IV	NA	NA	V	NA	NA	V	NA
900	IV	X	X	V	X	X	V	X
1050	IV	X	NA	V	X	NA	V	NA
1200	IV	X	NA	V	X	NA	V	NA
1350	IV	NA	NA	V	NA	NA	V	NA
1500	IV	NA	NA	V	NA	NA	V	NA
1650	IV	NA	NA	V	NA	NA	V	NA
1800	V	NA	NA	V	NA	NA	V	NA
1950	100	NA	NA	110	NA	NA	130	NA
2100	100	NA	NA	110	NA	NA	130	NA
2250	100	NA	NA	110	NA	NA	130	NA
2400	100	NA	NA	120	NA	NA	130	NA
2550	100	NA	NA	120	NA	NA	130	NA
2700	100	NA	NA	120	NA	NA	130	NA

RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

PVC Polyvinyl Chloride Pipe

CPVC Corrugated Polyvinyl Chloride Pipe

ESCP Extra Strength Clay Pipe

X This material may be used for the given pipe diameter and fill height.

NA This material is Not Acceptable for the given pipe diameter and fill height.

Note RCCP with a number instead of a Roman numeral shall be furnished according to AASHTO M170 Section 6. This number represents the metric D-load to produce a 25.4 micro-meter crack.

Revise the sixth paragraph of Article 550.06 of the Standard Specifications to read:

“PVC, PE and CPP pipes shall be joined according to the manufacturer’s specifications.”

Revise the first and second paragraphs of Article 550.08 of the Standard Specifications to read:

“**550.08 Deflection Testing for Storm Sewers.** All PVC, PE, and CPP storm sewers shall be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted. The testing shall be performed in the presence of the Engineer.

For PVC, PE, and CPP storm sewers with diameters 24 in. (600 mm) or smaller, a mandrel drag shall be used for deflection testing. For PVC, PE, and CPP storm sewers with diameters over 24 in. (600 mm), deflection measurements other than by a mandrel shall be used.”

Revise the fifth paragraph of Article 550.08 to read as follows.

“The outside diameter of the mandrel shall be 95 percent of the base inside diameter. For all PVC pipe the base inside diameter shall be defined using ASTM D 3034 methodology. For all PE and CPP pipe, the base inside diameter shall be defined as the average inside diameter based on the minimum and maximum tolerances specified in the corresponding ASTM or AASHTO material specifications.”

Revise the first paragraph of Article 1040.03 of the Standard Specifications to read:

“**1040.03 Polyvinyl Chloride (PVC) Pipe.** Acceptance testing of PVC pipe and fittings shall be accomplished during the same construction season in which they are installed. The section properties shall be according to the manufacturer pre-submitted geometric properties on file with the Department. The manufacturer shall submit written certification that the material meets those properties. The pipe shall meet the following additional requirements.”

Delete Articles 1040.03(e) and (f) of the Standard Specifications.

Revise Articles 1040.04(c) and (d) of the Standard Specifications to read:

“(c) PE Profile Wall Pipe for Insertion Lining. The pipe shall be according to ASTM F 894. When used for insertion lining of pipe culverts, the pipe liner shall have a minimum pipe stiffness of 46 psi (317 kPa) at five percent deflection for nominal inside diameters of 42 in. (1050 mm) or less. For nominal inside diameters of greater than 42 in. (1050 mm), the pipe liner shall have a minimum pipe stiffness of 32.5 psi (225 kPa) at five percent deflection. All sizes shall have wall construction that presents essentially smooth internal and external surfaces.

(d) PE Pipe with a Smooth Interior. The pipe shall be according to ASTM F 714 (DR 32.5) with a minimum cell classification of PE 335434 as defined in ASTM D 3350. The section properties shall be according to the manufacturer pre-submitted geometric properties on file with the Department. The manufacturer shall submit written

certification that the material meets those properties and the resin used to manufacture the pipe meets or exceeds the minimum cell classification requirements.”

Add the following to Section 1040 of the Standard Specifications:

**“1040.08 Polypropylene (PP) Pipe.** Storage and handling shall be according to the manufacturer’s recommendations, except in no case shall the pipe be exposed to direct sunlight for more than six months. Acceptance testing of the pipe shall be accomplished during the same construction season in which it is installed. The section properties shall be according to the manufacturer pre-submitted geometric properties on file with the Department. The manufacturer shall submit written certification that the material meets those properties. The pipe shall meet the following additional requirements.

- (a) Corrugated PP Pipe with a Smooth Interior. The pipe shall be according to AAHSTO M 330 (nominal size – 12 to 60 in. (300 to 1500 mm)). The pipe shall be Type S or D.
- (b) Perforated Corrugated PP Pipe with A Smooth Interior. The pipe shall be according to AASHTO M 330 (nominal size – 12 to 60 in. (300 to 1500 mm)). The pipe shall be Type SP. In addition, the top centerline of the pipe shall be marked so that it is readily visible from the top of the trench before backfilling, and the upper ends of the slot perforations shall be a minimum of ten degrees below the horizontal.”

80325

**PAVEMENT STRIPING - SYMBOLS (BDE)**

Effective: January 1, 2015

Revise the Symbol Table of Article 780.14 of the Supplemental Specifications to read:

**"SYMBOLS**

Symbol	Large Size sq ft (sq m)	Small Size sq ft (sq m)
Through Arrow	11.5 (1.07)	6.5 (0.60)
Left or Right Arrow	15.6 (1.47)	8.8 (0.82)
2 Arrow Combination Left (or Right) and Through	26.0 (2.42)	14.7 (1.37)
3 Arrow Combination Left, Right, and Through	38.4 (3.56)	20.9 (1.94)
Lane Drop Arrow	41.5 (3.86)	--
Wrong Way Arrow	24.3 (2.26)	--
Railroad "R" 6 ft (1.8 m)	3.6 (0.33)	--
Railroad "X" 20 ft (6.1 m)	54.0 (5.02)	--
International Symbol of Accessibility	3.1 (0.29)	--
Bike Symbol	4.7 (0.44)	--
Shared Lane Symbol	8.0 (0.74)	--"

80352

## 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.

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NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
METRA 547 West Jackson Blvd. Chicago, IL 60661	77 @ 79 MPH	5 @ 40 MPH
DOT/AAR No.: New Grade Separation RR Division: Milwaukee North	RR Mile Post: 11.00 RR Sub-Division:	
For Freight/Passenger Information Contact: Don Whistler For Insurance Information Contact: Marilyn Schlismann	Phone: 312-322-8016 Phone: 312-322-7093	

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DOT/AAR No.:  
RR Division:

RR Mile Post:  
RR Sub-Division:

For Freight/Passenger Information Contact:  
For Insurance Information Contact:

Phone:  
Phone:

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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

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



**RETROREFLECTIVE SHEETING FOR HIGHWAY SIGNS (BDE)**

Effective: November 1, 2014

Revise the first sentence of the first paragraph of Article 1091.03(a)(3) of the Standard Specifications to read:

“When tested according to ASTM E 810, with averaging, the sheeting shall have a minimum coefficient of retroreflection as show in the following tables.”

Replace the Tables for Type AA sheeting, Type AP sheeting, Type AZ sheeting and Type ZZ sheeting in Article 1091.03(a)(3) with the following.

Type AA Sheeting  
Minimum Coefficient of Retroreflection  
Candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type AA (Average of 0 and 90 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	FO
0.2	-4	800	600	120	80	40	200
0.2	+30	400	300	60	35	20	100
0.5	-4	200	150	30	20	10	75
0.5	+30	100	75	15	10	5	35

Type AA (45 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	Yellow	FO
0.2	-4	500	165
0.2	+30	115	40
0.5	-4	140	65
0.5	+30	60	30

Type AP Sheeting  
 Minimum Coefficient of Retroreflection  
 Candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type AP (Average of 0 and 90 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	Brown	FO
0.2	-4	500	380	75	55	35	25	150
0.2	+30	180	135	30	20	15	10	55
0.5	-4	300	225	50	30	20	15	90
0.5	+30	90	70	15	10	7.5	5	30

Type AZ Sheeting  
 Minimum Coefficient of Retroreflection  
 Candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type AZ (Average of 0 and 90 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	FYG	FY
0.2	-4	375	280	75	45	25	300	230
0.2	+30	235	170	40	25	15	190	150
0.5	-4	245	180	50	30	20	200	155
0.5	+30	135	100	25	15	10	100	75
1.0	-4	50	37.5	8.5	5	2	45	25
1.0	+30	22.5	20	5	3	1	25	12.5

Type ZZ Sheeting  
 Minimum Coefficient of Retroreflection  
 Candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type ZZ (Average of 0 and 90 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	FYG	FY	FO
0.2	-4	570	425	90	60	30	460	340	170
0.2	+30	190	140	35	20	10	150	110	65
0.5	-4	400	300	60	40	20	320	240	120
0.5	+30	130	95	20	15	7	100	80	45
1.0	-4	115	90	17	12	5	95	70	35
1.0	+30	45	35	7	5	2	35	25	15

80350

## REINFORCEMENT BARS (BDE)

Effective: November 1, 2013

Revise the first and second paragraphs of Article 508.05 of the Standard Specifications to read:

**“508.05 Placing and Securing.** All reinforcement bars shall be placed and tied securely at the locations and in the configuration shown on the plans prior to the placement of concrete. Manual welding of reinforcement may only be permitted on precast concrete products as indicated in the current Bureau of Materials and Physical Research Policy Memorandum “Quality Control / Quality Assurance Program for Precast Concrete Products”, and for precast prestressed concrete products as indicated in the Department’s current “Manual for Fabrication of Precast Prestressed Concrete Products”. Reinforcement bars shall not be placed by sticking or floating into place or immediately after placement of the concrete.

Bars shall be tied at all intersections, except where the center to center dimension is less than 1 ft (300 mm) in each direction, in which case alternate intersections shall be tied. Molded plastic clips may be used in lieu of wire to secure bar intersections, but shall not be permitted in horizontal bar mats subject to construction foot traffic or to secure longitudinal bar laps. Plastic clips shall adequately secure the reinforcement bars, and shall permit the concrete to flow through and fully encase the reinforcement. Plastic clips may be recycled plastic, and shall meet the approval of the Engineer. The number of ties as specified shall be doubled for lap splices at the stage construction line of concrete bridge decks when traffic is allowed on the first completed stage during the pouring of the second stage.”

Revise the fifth paragraph of Article 508.05 of the Standard Specifications to read:

“Supports for reinforcement in bridge decks shall be metal. For all other concrete construction the supports shall be metal or plastic. Metal bar supports shall be made of cold-drawn wire, or other approved material and shall be either epoxy coated, galvanized or plastic tipped. When the reinforcement bars are epoxy coated, the metal supports shall be epoxy coated. Plastic supports may be recycled plastic. Supports shall be provided in sufficient number and spaced to provide the required clearances. Supports shall adequately support the reinforcement bars, and shall permit the concrete to flow through and fully encase the reinforcement. The legs of supports shall be spaced to allow an opening that is a minimum 1.33 times the nominal maximum aggregate size used in the concrete. Nominal maximum aggregate size is defined as the largest sieve which retains any of the aggregate sample particles. All supports shall meet the approval of the Engineer.”

Revise the first sentence of the eighth paragraph of Article 508.05 of the Standard Specifications to read:

“Epoxy coated reinforcement bars shall be tied with plastic coated wire, epoxy coated wire, or molded plastic clips where allowed.”

Add the following sentence to the end of the first paragraph of Article 508.06(c) of the Standard Specifications:

“In addition, the total slip of the bars within the splice sleeve of the connector after loading in tension to 30 ksi (207 MPa) and relaxing to 3 ksi (20.7 MPa) shall not exceed 0.01 in. (254 microns).”

Revise Article 1042.03(d) of the Standard Specifications to read:

“(d) Reinforcement and Accessories: The concrete cover over all reinforcement shall be within  $\pm 1/4$  in. ( $\pm 6$  mm) of the specified cover.

Welded wire fabric shall be accurately bent and tied in place.

Miscellaneous accessories to be cast into the concrete or for forming holes and recesses shall be carefully located and rigidly held in place by bolts, clamps, or other effective means. If paper tubes are used for vertical dowel holes, or other vertical holes which require grouting, they shall be removed before transportation to the construction site.”

80327

**SIDEWALK, CORNER, OR CROSSWALK CLOSURE (BDE)**

Effective: January 1, 2015

Revise the first sentence of Article 1106.02(m) of the Supplemental Specifications to read:

“The top and bottom panels shall have alternating white and orange stripes sloping 45 degrees on both sides.”

80354

## **TRACKING THE USE OF PESTICIDES (BDE)**

Effective: August 1, 2012

Add the following paragraph after the first paragraph of Article 107.23 of the Standard Specifications:

“Within 48 hours of the application of pesticides, including but not limited to herbicides, insecticides, algaecides, and fungicides, the Contractor shall complete and return to the Engineer, Operations form “OPER 2720”.”

80301

**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 [ ]. 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: November 1, 2014

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.

"(13) Equipment for Warm Mix Technologies.

- a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of  $\pm 2$  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

The Contractor shall provide 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 on the jobsite; or used for the delivery and/or removal of equipment/material to and from the jobsite. The jobsite shall also include offsite locations, such as plant sites or storage sites, when those locations are used solely for this contract.

The report shall be submitted on the form provided by the Department within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur. The report shall be submitted to the Engineer and a copy shall be provided to the district EEO Officer.

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 90 working days.

80071

## PEDESTRIAN TRUSS SUPERSTRUCTURE

Effective: January 13, 1998

Revised: April 18, 2014

**Description:** This work shall consist of the design, fabrication, storage, delivery and erection of a welded steel, pedestrian truss superstructure. Also included in this work shall be the furnishing and installation of a deck, all bearings, anchors and/or retainers, railings, fencing and miscellaneous items as indicated on the plans.

### **Materials:**

Truss. Structural steel shall conform to the requirements of Section 1006 of the Standard Specifications, ASTM A847 for cold formed welded square and rectangular tubing, AASHTO M270 Grade 50W (M270M 345W) for atmospheric corrosion resistant structural steel, as applicable, unless otherwise shown on the plans or approved by the Engineer. All structural steel field connections shall be bolted with high strength bolts. High strength bolts for unpainted weathering steel shall conform to ASTM A325 (A325M) (Type 3). For painted structures, the high strength bolts shall be mechanically galvanized according to the requirements of Article 1006.08(a) of the Standard Specifications.

Deck. The deck type shall be as specified on the plans. The materials shall comply with the applicable portions of the materials section of the Standard Specifications.

When specified for use, the concrete deck and stay-in-place forms shall be non composite. Metal Forms shall have a minimum thickness of 0.0359 in. (912 microns) or 20 Gage and shall be galvanized per ASTM A653 (A653M) with a G165 (Z350) min. coating designation.

Railing. The railing shall consist of a smooth rub rail, a toe plate and misc. elements, all located on the inside face of the truss.

Bearings. The bearing shall be designed and furnished as detailed in the plans, in the absence of details, the bearings details shall be as specified by the bridge manufacturer.

When specified for use, elastomeric bearings shall be according to Article 1083 of the Standard Specifications. Teflon surfaces shall be per Article 1083.02(b) of the Standard Specification and shall be bonded to the bearing plate.

Suppliers. The manufacturer shall be a company specializing in the design and manufacture of pedestrian bridges. The manufacturer shall be certified by AISC according to Article 106.08(b) of the Standard Specifications. The manufacturer shall provide information, to the satisfaction of the Engineer, demonstrating it has successfully provided bridges of similar scope for a minimum of 10 projects. The submittals demonstrating experience shall include names, addresses and telephone numbers of the owners of the structures. This submittal shall be made at the time of the preconstruction conference.

Potential bridge suppliers include but are not limited to:

Contech Engineered Solutions, LLC  
 8301 State Hwy 29 North  
 Alexandria, Minnesota 56308  
 800-328-2047, FAX 320-852-7067

Excel Bridge Manufacturing Company  
 12001 Shoemaker Avenue  
 Santa Fe Springs, California 90670  
 800-548-0054, FAX 562-944-4025

Wheeler Consolidated  
 9330 James Avenue South  
 Bloomington, MN 55431  
 800-328-3986, FAX 952-929-2909

Cameron Bridge Works, LLC  
 1051 South Main St  
 Elmira, New York 14904  
 607-734-9456, FAX 607-733-4148

Anderson Bridges  
 111 Willow Street  
 Colfax, WI 54730  
 877-934-2800, FAX 715-962-2801

US Bridge  
 201 Wheeling Ave  
 Cambridge, OH 43725  
 888-872-7434, Fax 740-439-7349

**Design:** The superstructure shall conform to the clear span, clear width, and railing configuration shown on the contract plans. The design shall be according to the LRFD Guide Specifications for the Design of Pedestrian Bridges. The design loads shall be as specified by the Guide Specification except as follows:

Design Wind Loads ( $P_z$ ) for Pedestrian Trusses in Illinois		
Application	psf (kPa)	Applied to:
Circular Members	35 (1.68)	Projected vertical area of member
Flat Members	55 (2.63)	Projected vertical area of member
Signs	35 (1.68)	Projected vertical area of sign
Chain Link Fencing	10 (0.48)	Full projected area of fencing as if solid

The railings shall be designed per the appropriate Bridge Design Specifications for bicycle railings as shown on the plans. Smooth rub rails shall be attached to the bicycle railing and located at a bicycle handlebar height of 3.5 ft. (1.1 m) above the top of the deck.

Prior to beginning construction or fabrication, the Contractor shall submit design calculations and six sets of shop drawings for each pedestrian bridge to the Engineer for review and approval. In addition, for bridges with any span over 150 ft. (46 m), or over a State or Federal Route, or within the States Right-of-Way, a copy of the shop drawings will be reviewed and approved for structural adequacy, by the Bureau of Bridges and Structures prior to final approval of shop drawings. The shop drawings shall include all support reactions for each load type. The following certification shall be placed on the first sheet of the bridge shop plans adjacent to the seal and signature of the Structural Engineer:

"I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans and complies with the requirements of the Contract and the current 'Guide Specifications for Design of Pedestrian Bridges'."

The substructure is designed per the appropriate Bridge Design Specifications and based on the assumed truss loads, as shown on the plans. If the manufacturer's design exceeds those loads and/or the substructure needs to be adjusted to accommodate the truss superstructure chosen, then the Contractor shall submit the redesign to the Engineer for approval prior to ordering any material or starting construction. All design calculations, shop drawings and redesigned substructure drawings shall be sealed by a Structural Engineer licensed in the State of Illinois.

**Construction:** Truss erection procedures shall be according to the manufacturer's instructions. The deck shall be placed according to the applicable Sections of the Standard Specifications.

When weathering steel is used, all structural steel shall be prepared according to Article 506.07.

When painting is specified, all structural steel shall be cleaned and painted according to Section 506. The paint system and color of the finish coat shall be as specified in the plans.

**Method of Measurement:** The pedestrian truss superstructure will be measured in square feet (square meters) of completed and accepted bridge deck within the limits of the truss superstructure.

**Basis of Payment:** The pedestrian superstructure will be paid for at the contract unit price per square foot (square meter) for "PEDESTRIAN TRUSS SUPERSTRUCTURE."



## **MECHANICALLY STABILIZED EARTH RETAINING WALLS**

Effective: February 3, 1999

Revised: August 29, 2014

**Description.** This work shall consist of preparing the design, furnishing the materials, and constructing the mechanically stabilized earth (MSE) retaining wall to the lines, grades and dimensions shown in the contract plans and as directed by the Engineer.

**General.** The MSE wall consists of a concrete leveling pad, precast concrete face panels, a soil reinforcing system, select fill and concrete coping (when specified). The soil reinforcement shall have sufficient strength, quantity, and pullout resistance, beyond the failure surface within the select fill, as required by design. The material, fabrication, and construction shall comply with this Special Provision and the requirements specified by the supplier of the wall system selected by the Contractor for use on the project.

The MSE retaining wall shall be one of the following pre-approved wall systems:

**Company Name: Wall System**

Earth Tec International, LLC: EarthTrac HA

Sanders Pre-Cast Concrete Systems Company: Sanders MSE Wall

Shaw Technologies: Strengthened Soil

Sine Wall, LLC: Sine Wall

SSL Construction Products: MSE Plus

Vist-A-Wall Systems, LLC: Vist-A-Wall

Tensor Earth Technologies : ARES Wall

The Reinforced Earth Company: GeoMega System

The Reinforced Earth Company: Reinforced Earth

The Reinforced Earth Company: Retained Earth

Tricon Precast: Tricon Retained Soil

Tricon Precast: Tri-Web Retained Soil

Pre-approval of the wall system does not include material acceptance at the jobsite.

**Submittals.** The wall system supplier shall submit complete design calculations and shop drawings to the Engineer according to Article 1042.03(b) of the Standard Specifications no later than 90 days prior to beginning construction of the wall. No work or ordering of materials for the structure shall be done by the Contractor until the submittal has been approved in writing by the Engineer. All submittals shall be sealed by an Illinois Licensed Structural Engineer and shall include all details, dimensions, quantities and cross sections necessary to construct the wall and shall include, but not be limited to, the following items:

- (a) Plan, elevation and cross section sheet(s) for each wall showing the following:
  - (1) A plan view of the wall indicating the offsets from the construction centerline to the face of the wall at all changes in horizontal alignment. The plan view shall show the limits of soil reinforcement and stations where changes in length and/or size of

reinforcement occur. The centerline shall be shown for all drainage structures or pipes behind or passing through and/or under the wall.

- (2) An elevation view of the wall indicating the elevations of the top of the panels. These elevations shall be at or above the top of exposed panel line shown on the contract plans. This view shall show the elevations of the top of the leveling pads, all steps in the leveling pads and the finished grade line. Each panel type, the number, size and length of soil reinforcement connected to the panel shall be designated. The equivalent uniform applied service (unfactored) nominal bearing pressure shall be shown for each designed wall section.
  - (3) A listing of the summary of quantities shall be provided on the elevation sheet of each wall.
  - (4) Typical cross section(s) showing the limits of the reinforced select fill volume included within the wall system, soil reinforcement, embankment material placed behind the select fill, precast face panels, and their relationship to the right-of-way limits, excavation cut slopes, existing ground conditions and the finished grade line.
  - (5) All general notes required for constructing the wall.
- (b) All details for the concrete leveling pads, including the steps, shall be shown. The top of the leveling pad shall be located at or below the theoretical top of the leveling pad line shown on the contract plans. The theoretical top of leveling pad line shall be 3.5 ft. (1.1 m) below finished grade line at the front face of the wall, unless otherwise shown on the plans.
  - (c) Where concrete coping or barrier is specified, the panels shall extend up into the coping or barrier as shown in the plans. The top of the panels may be level or sloped to satisfy the top of exposed panel line shown on the contract plans. Cast-in-place concrete will not be an acceptable replacement for panel areas below the top of exposed panel line. As an alternative to cast in place coping, the Contractor may substitute a precast coping, the details of which must be included in the shop drawings and approved by the Engineer.
  - (d) All panel types shall be detailed. The details shall show all dimensions necessary to cast and construct each type of panel, all reinforcing steel in the panel, and the location of soil reinforcement connection devices embedded in the panels. These panel embed devices shall not be in contact with the panel reinforcement steel.
  - (e) All details of the wall panels and soil reinforcement placement around all appurtenances located behind, on top of, or passing through the soil reinforced wall volume such as parapets with anchorage slabs, coping, foundations, and utilities etc. shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular system shall also be submitted.

- (f) When specified on the contract plans, all details of architectural panel treatment, including color, texture and form liners shall be shown.
- (g) The details for the connection between concrete panels, embed devices, and soil reinforcement shall be shown.
- (h) When pile sleeves are specified, the pile sleeve material, shape, and wall thickness shall be submitted to the Engineer for approval. It shall have adequate strength to withstand the select fill pressures without collapse until after completion of the wall settlement. The annulus between the pile and the sleeve shall be as small as possible while still allowing it to be filled with loose dry sand after wall erection.

The initial submittal shall include three sets of shop drawings and one set of calculations. One set of drawings will be returned to the Contractor with any corrections indicated. After approval, the Contractor shall furnish the Engineer with ten (10) sets of corrected plan prints for distribution by the Department. No work or ordering of materials for the structure shall be done until the submittal has been approved by the Engineer.

**Materials.** The MSE walls shall conform to the supplier's standards as previously approved by the Department, and the following:

- (a) The soil reinforcing system, which includes the soil reinforcement, and all connection devices, shall be according to the following:
  - (1) Inextensible Soil Reinforcement. Steel reinforcement shall be according ASTM A 572 Grade 65 (450), ASTM A1064, ASTM A 1011 or ASTM A 463 Grade 50 (345). The steel reinforcement shall be either epoxy coated, aluminized Type 2, or galvanized. Epoxy coatings shall be according to Article 1006.10(a)(2), except the minimum thickness of epoxy coating shall be 18 mils (457 microns). No bend test will be required. Aluminized Type 2-100 shall be according to ASTM A 463. Galvanizing shall be according to AASHTO M 111 or ASTM A 653 with touch up of damage according to ASTM A 780.
  - (2) Extensible Soil Reinforcement. Geosynthetic reinforcement shall be monolithically fabricated from virgin high density polyethylene (HDPE) or high tenacity polyester (HTPET) resins having the following properties verified by mill certifications:

<u>Property for Geosynthetic Reinforcement</u>	<u>Value</u>	<u>Test</u>
Minimum Tensile Strength	**	ASTM D 6637

\*\* as specified in the approved design calculations and shown on the shop drawings.

<u>Property for HDPE</u>	<u>Value</u>	<u>Test</u>
Melt Flow Rate (g/cm)	0.060 – 0.150	ASTM D 1238, Procedure B
Density (g/cu m)	0.941 – 0.965	ASTM D 792
Carbon Black	2% (min)	ASTM D 4218

<u>Property for HTPET</u>	<u>Value</u>	<u>Test</u>
Carboxyl End Group (max) (mmol/kg)	<30	GRI-GG7
Molecular Weight (Mn)	>25,000	GRI-GG8

(3) Panel Embed/Connection Devices. Panel embeds and connection devices shall be according to the following.

a. Metallic panel embed/connection devices and connection hardware shall be galvanized according to AASHTO M 232 and shall be according to the following.

Mesh and Loop Embeds      ASTM A1064 or ASTM A 706 Grade 60 (420)

Tie Strip Embeds              AASHTO M 270/M 270M Grade 50 (345) or  
ASTM A 1011 HSLAS Grade 50 (345) Class 2

b. Non metallic panel embed/connection devices typically used with geosynthetic soil reinforcement shall be manufactured from virgin or recycled polyvinyl chloride having the following properties:

<u>Property for Polyvinyl Chloride</u>	<u>Value</u>	<u>Test</u>
Heat Deflection Temperature (°F)	155 - 164	ASTM D 1896
Notched IZOD 1/8 inch @ 73°F (ft-lb/in)	4 – 12	ASTM D 256
Coefficient of Linear Exp. (in/in/°F)	3.5 – 4.5	ASTM D 696
Hardness, Shore D	79	ASTM D 2240

<u>Property for Polypropylene</u>	<u>Value</u>	<u>Test</u>
Melt Flow Rate (g/cm)	0.060 – 0.150	ASTM D 1238, Procedure B
Density (g/cu m)	0.88 – 0.92	ASTM D 792

(b) The select fill, defined as the material placed in the reinforced volume behind the wall, shall be according to Sections 1003 and 1004 of the Standard Specifications and the following:

(1) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 6 thru CA 16 may be used. If an epoxy coated reinforcing is used, the coarse aggregate gradations shall be limited to CA 12 thru CA 16. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.

(2) Select Fill Quality. The coarse or fine aggregate shall have a maximum sodium sulfate (Na<sub>2</sub>SO<sub>4</sub>) loss of 15 percent according to Illinois Modified AASHTO T 104.

(3) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to Illinois Modified AASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T

236. If the vendor's design uses a friction angle higher than 34 degrees, as indicated on the approved shop drawings, this higher value shall be taken as the minimum required.

- (4) Select Fill and Steel Reinforcing. When steel reinforcing is used, the select fill shall meet the following requirements.
    - a. The pH shall be 5.0 to 10.0 according to Illinois Modified AASHTO T 289.
    - b. The resistivity according to Illinois Modified AASHTO T 288 shall be greater than 3000 ohm centimeters for epoxy coated and galvanized reinforcement, and 1500 ohm centimeters for Aluminized Type 2. However, the resistivity requirement is not applicable to CA 7, CA 8, CA 11, CA 13, CA 14, CA 15, and CA 16.
    - c. The chlorides shall be less than 100 parts per million according to Illinois Modified AASHTO T 291 or ASTM D 4327. For either test, the sample shall be prepared according to Illinois Modified AASHTO T 291.
    - d. The sulfates shall be less than 200 parts per million according to Illinois Modified AASHTO T 290 or ASTM D 4327. For either test, the sample shall be prepared according to Illinois Modified AASHTO T 290.
    - e. The organic content shall be a maximum 1.0 percent according to Illinois Modified AASHTO T 267.
  - (5) Select Fill and Geosynthetic Reinforcing. When geosynthetic reinforcing is used, the select fill pH shall be 4.5 to 9.0 according to Illinois Modified AASHTO T 289.
  - (6) Test Frequency. Prior to start of construction, the Contractor shall provide internal friction angle and pH test results, to show the select fill material meets the specification requirements. In addition, resistivity, chlorides, sulfates, and organic content test results will be required if steel reinforcing is used. The laboratory performing the Illinois Modified AASHTO T 288 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Resistivity Testing". All test results shall not be older than 12 months. In addition, a sample of select fill material will be obtained for testing and approval by the Department. Thereafter, the minimum frequency of sampling and testing by the department at the jobsite will be one per 40,000 tons (36,300 metric tons) of select fill material. Testing to verify the internal friction angle will be required when the wall design utilizes a minimum effective internal friction angle greater than 34 degrees, or when crushed coarse aggregate is not used.
- (c) The embankment material behind the select fill shall be according to Section 202 and/or Section 204. An embankment unit weight of 120 lbs/cubic foot (1921 kg/cubic meter) and an effective friction angle of 30 degrees shall be used in the wall system design, unless otherwise indicated on the plans.
  - (d) The geosynthetic filter material used across the panel joints shall be either a non-woven needle punch polyester or polypropylene or a woven monofilament polypropylene with a minimum width of 12 in. (300 mm) and a minimum non-sewn lap of 6 in. (150 mm) where necessary.

- (e) The bearing pads shall be rubber, neoprene, polyvinyl chloride, or polyethylene of the type and grade as recommended by the wall supplier.
- (f) All precast panels shall be manufactured with Class PC concrete according to Section 504, Article 1042.02, Article 1042.03, and the following requirements:
  - (1) The minimum panel thickness shall be 5 1/2 in. (140 mm).
  - (2) The minimum reinforcement bar cover shall be 1 1/2 in. (38 mm).
  - (3) The panels shall have a ship lap or tongue and groove system of overlapping joints between panels designed to conceal joints and bearing pads.
  - (4) The panel reinforcement shall be according to Article 1006.10(a)(2) or 1006.10(b)(1) except the welded wire fabric shall be epoxy coated according to ASTM A884.
  - (5) All dimensions shall be within 3/16 in. (5 mm).
  - (6) Angular distortion with regard to the height of the panel shall not exceed 0.2 inches in 5 ft (5 mm in 1.5 m).
  - (7) Surface defects on formed surfaces measured on a length of 5 ft. (1.5 m) shall not be more than 0.1 in. (2.5 mm).
  - (8) The panel embed/connection devices shall be cast into the facing panels with a tolerance not to exceed 1 in. (25 mm) from the locations specified on the approved shop drawings.

Unless specified otherwise, concrete surfaces exposed to view in the completed wall shall be finished according to Article 503.15(a). The back face of the panel shall be roughly screeded to eliminate open pockets of aggregate and surface distortions in excess of 1/4 in. (6 mm).

**Design Criteria.** The design shall be according to the AASHTO LRFD Design Specifications noted on the plans for Mechanically Stabilized Earth Walls except as modified herein. The wall supplier shall be responsible for all internal stability aspects of the wall design and shall supply the Department with computations for each designed wall section. The analyses of settlement, bearing capacity and overall slope stability will be the responsibility of the Department. The wall need not be designed for seismic unless noted on the plans.

External loads, such as those applied through structure foundations, from traffic or railroads, slope surcharge etc., shall be accounted for in the internal stability design. The presence of all appurtenances behind, in front of, mounted upon, or passing through the wall volume such as drainage structures, utilities, structure foundation elements or other items shall be accounted for in the internal stability design of the wall.

The design of the soil reinforcing system shall be according to the applicable design specifications for "Inextensible" steel or "Extensible" geosynthetic reinforcement criteria. The reduced section of the soil reinforcing system shall be sized to allowable stress levels at the end of a 75 year design life.

Steel soil reinforcing systems shall be protected by one of the following; epoxy coating, galvanizing or aluminizing. The design life for epoxy and aluminizing shall be assumed to be 16 years. The corrosion protection for the balance of the 75 year total design life shall be provided using a sacrificial steel thickness computed for all exposed surfaces.

Geosynthetic soil reinforcing systems shall be designed to account for the strength reduction due to long-term creep, chemical and biological degradation, as well as installation damage.

To prevent out of plane panel rotations, the soil reinforcement shall be connected to the standard panels in at least two different elevations, vertically spaced no more than 30 in. (760 mm) apart.

Typical design procedures and details, once accepted by the Department, shall be followed. All wall system changes shall be submitted in advance to the Department for approval.

For aesthetic considerations and differential settlement concerns, the panels shall be erected in such a pattern that the horizontal panel joint line is discontinuous at every other panel. This shall be accomplished by alternating standard height and half height panel placement along the leveling pad. Panels above the lowest level shall be standard size except as required to satisfy the top of exposed panel line shown on the contract plans.

At locations where the plans specify a change of panel alignment creating an included angle of 150 degrees or less, precast corner joint elements will be required. This element shall separate the adjacent panels by creating a vertical joint secured by means of separate soil reinforcement.

Isolation or slip joints, which are similar to corner joints in design and function, may be required to assist in differential settlements at locations indicated on the plans or as recommended by the wall supplier. Wall panels with areas greater than 30 sq. ft. (2.8 sq. m) may require additional slip joints to account for differential settlements. The maximum standard panel area shall not exceed 60 sq. ft. (5.6 sq. m).

**Construction.** The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include any costs related to this technical assistance in the unit price bid for this item.

The foundation soils supporting the structure shall be graded for a width equal to or exceeding the length of the soil reinforcement. Prior to wall construction, the foundation shall be compacted with a smooth wheel vibratory roller. Any foundation soils found to be unsuitable shall be removed and replaced, as directed by the Engineer, and shall be paid for separately according to Section 202.

When structure excavation is necessary, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the rear limits of the soil reinforcement to a vertical plane 2 ft. (600 mm) from the finished face of the wall. The depth shall be from the top of the original ground surface to the top of the leveling pad. The additional excavation necessary to place the concrete leveling pad will not be measured for payment but shall be included in this work.

The concrete leveling pads shall have a minimum thickness of 6 in. (150 mm) and shall be placed according to Section 503.

As select fill material is placed behind a panel, the panel shall be maintained in its proper inclined position according to the supplier specifications and as approved by the Engineer. Vertical tolerances and horizontal alignment tolerances shall not exceed 3/4 in. (19 mm) when measured along a 10 ft. (3 m) straight edge. The maximum allowable offset in any panel joint shall be 3/4 in. (19 mm). The overall vertical tolerance of the wall, (plumbness from top to bottom) shall not exceed 1/2 in. per 10 ft. (13 mm per 3 m) of wall height. The precast face panels shall be erected to insure that they are located within 1 in. (25 mm) from the contract plan offset at any location to insure proper wall location at the top of the wall. Failure to meet this tolerance may cause the Engineer to require the Contractor to disassemble and re-erect the affected portions of the wall. A 3/4 in. (19 mm) joint separation shall be provided between all adjacent face panels to prevent direct concrete to concrete contact. This gap shall be maintained by the use of bearing pads and/or alignment pins.

The back of all panel joints shall be covered by a geotextile filter material attached to the panels with a suitable adhesive. No adhesive will be allowed directly over the joints.

The select fill and embankment placement shall closely follow the erection of each lift of panels. At each soil reinforcement level, the fill material should be roughly leveled and compacted before placing and attaching the soil reinforcing system. The soil reinforcement and the maximum lift thickness shall be placed according to the supplier's recommended procedures except, the lifts for select fill shall not exceed 10 in. (255 mm) loose measurement or as approved by the Engineer. Embankment shall be constructed according to Section 205.

At the end of each day's operations, the Contractor shall shape the last level of select fill to permit runoff of rainwater away from the wall face. Select fill shall be compacted according to the project specifications for embankment except the minimum required compaction shall be 95 percent of maximum density as determined by Illinois Modified AASHTO T 99. Select fill compaction shall be accomplished without disturbance or distortion of soil reinforcing system and panels. Compaction in a strip 3 ft. (1 m) wide adjacent to the backside of the panels shall be achieved using a minimum of 3 passes of a light weight mechanical tamper, roller or vibratory system. The Engineer will perform one density test per 5000 cu yd (3800 cu m) and not less than one test per 2 ft (0.6 m) of lift.

**Method of Measurement.** Mechanically Stabilized Earth Retaining Wall will be measured for payment in square feet (square meters). The MSE retaining wall will be measured from the top



of exposed panel line to the theoretical top of leveling pad line for the length of the wall as shown on the contract plans.

**Basis of Payment.** This work, including placement of the select fill within the soil reinforced wall volume shown on the approved shop drawings, precast face panels, soil reinforcing system, concrete leveling pad and accessories will be paid for at the contract unit price per square foot (square meter) for MECHANICALLY STABILIZED EARTH RETAINING WALL.

Concrete coping when specified on the contract plans will be included for payment in this work. Other concrete appurtenances such as anchorage slabs, parapets, abutment caps, etc. will not be included in this work, but will be paid for as specified elsewhere in this contract, unless otherwise noted on the plans.

Excavation necessary to place the select fill for the MSE wall shall be paid for as STRUCTURE EXCAVATION and/or ROCK EXCAVATION FOR STRUCTURES as applicable, according to Section 502.

Fill placed within the foot print of the reinforced soil mass, above the top layer of soil reinforcement and below the bottom of the subgrade or top soil, shall be included in the cost of the MSE wall.

Embankment placed outside of the select fill volume will be measured and paid for according to Sections 202 and/or 204 as applicable.

## **DRIVEN SOLDIER PILE RETAINING WALL**

Effective: November 13, 2002

Revised: January 3, 2014

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate, furnish, and drive the soldier piles into position to the specified elevations. Also included in this work is the furnishing and installation of lagging. All work shall be according to the details shown on the plans and as directed by the Engineer.

The remainder of the retaining wall components, if any, as shown on the plans, such as concrete facing, shear studs, reinforcement bars, tie backs, hand rails, and various drainage items etc., are not included in this Special Provision but are paid for as specified elsewhere in this Contract.

Materials. The materials used for the soldier piles and lagging shall satisfy the following requirements:

- (a) The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270, Grade 36 (AASHTO M270M, Grade 250), unless otherwise designated on the plans.
- (b) The Controlled Low-Strength Material (CLSM), used for backfilling shaft excavations to the existing ground surface, shall be according to the Section 1019.
- (c) Timber Lagging. The minimum tabulated unit stress in bending ( $F_b$ ), used for the design of the timber lagging, shall be 1000 psi (6.9 MPa) unless otherwise specified on the plans. When treated timber lagging is specified on the plans, the method of treatment shall be according to Article 1007.12. All timber shall meet the inspection requirements of Article 1007.01.
- (d) Precast Concrete Lagging. Precast concrete lagging shall be according to Section 504 of the Standard Specifications, except as modified herein. Unless specified otherwise, precast concrete lagging surfaces exposed to view in the completed wall shall be finished according to Article 503.15. When specified on the plans, the exposed surface shall be finished with a concrete form liner approved by the Engineer. The back face of the panel shall be roughly screeded to eliminate open pockets of aggregate and surface distortions in excess of 1/4 in. Reinforcement for precast concrete lagging shall be epoxy coated. Lifting inserts shall have a total minimum design capacity based on yield strength of 4 times the dead load calculated for the width of lagging used. Fabric bearing pads, when specified on the plans, shall meet the requirements of Section 1082. Threaded inserts, or other accessories, cast into the precast concrete lagging shall be galvanized according to AASHTO M111 or M232 as applicable.

Construction Requirements. The Contractor shall satisfy the following requirements:

- (a) Soldier Pile Fabrication and Placement. The soldier pile is defined as the structural steel section(s) shown on the plans as well as any connecting plates used to join multiple sections. The types of soldier piles shall be defined as HP, W Sections, or Built-Up Sections. Cleaning and painting of all steel components, when specified, shall be as shown on the plans and accomplished according to Section 506. This work will not be paid for separately, but shall be considered included in the cost of Furnishing Soldier Piles of the type specified.

The soldier pile shall be shop fabricated such that no field welding is required. Piles shall be supplied and driven without splices unless approved by the Engineer. Soldier piles furnished with extra length shall be driven to the required tip elevation and cut to satisfy the top of pile elevation or driven past the required tip elevation to avoid cutting. Standard vibratory or impact hammers may be used to install the soldier piles. The Contractor shall use suitable bracing or pile leads to maintain the position of the soldier pile while driving such that the final location will satisfy the Construction Tolerances portion of this Special Provision. At the contractors option and at no extra cost to the department, the piles may be installed by setting them in predrilled excavations and backfilling with CLSM according to Section 593. The drilling methods used to maintain the shaft excavation side wall stability during the various phases of shaft excavation and concrete placement, must be appropriate for the site conditions encountered.

- (b) Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be penetrated with normal pile driving procedures, but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction.

- (c) Construction Tolerances. The soldier piles shall be installed to satisfy the following tolerances:

- (1) The center of the soldier pile shall be within 2 in. (50 mm) of plan location in any direction at the top of the pile.
- (2) The out of vertical plumbness of the soldier pile shall not exceed 1/8 in./ft. (10 mm/m).
- (3) The top of the soldier pile shall be within  $\pm 2$  in. ( $\pm 50$  mm) of the plan elevation.

- (d) Timber Lagging. Timber lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the timber lagging behind the flanges of the soldier piles shall be the minimum necessary to install the lagging. Any voids produced behind the lagging shall be filled with porous granular embankment at the Contractors expense. When the plans require the Contractor to design the timber lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading,

traffic surcharges and the lagging span length(s). The nominal thickness of the lagging selected shall not be less than 3 in. (75 mm) and shall satisfy the minimum tabulated unit stress in bending ( $F_b$ ) stated elsewhere in this Special Provision. The Contractor shall be responsible for the successful performance of the lagging system until the concrete facing is installed. When the nominal timber lagging thickness(s) and allowable stress are specified on the plans, the timber shall be rough cut or surfaced and according to Article 1007.03.

- (e) Precast Concrete Lagging. Precast concrete lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the precast lagging behind the flanges of the soldier piles shall be the minimum necessary to install the lagging. Any voids produced behind the lagging shall be filled with porous granular embankment at the Contractor's expense. When the plans require the Contractor to design the precast concrete lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading, traffic surcharges and the lagging span length(s). The Contractor shall be responsible for the successful performance of the lagging system until the permanent concrete facing, when specified on the plans, is installed.

The precast concrete lagging shall be reinforced with a minimum of 0.31 square inches/foot (655 Sq. mm/meter) of horizontal and vertical reinforcement per unit width of lagging with a minimum thickness of 3 in. (75 mm).

When precast concrete lagging is exposed to view in the completed wall, shop drawings for the lagging shall be submitted according to Article 1042.03(b) and Article 105.04 of the Standard Specifications. The supplier selected by the Contractor shall submit complete design calculations and shop drawings, prepared and sealed by an Illinois Licensed Structural Engineer, for approval by the Engineer.

- (f) Structure Excavation. When structure excavation is necessary to place a concrete facing, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the face of the soldier pile to a vertical plane 2 ft. (600 mm) from the finished face of the wall. The depth shall be from the top of the original ground surface to the bottom of the concrete facing. The additional excavation necessary to place the lagging whether through soil or CLSM shall be included in this work.
- (g) Geocomposite Wall Drain. When required by the plans, the geocomposite wall drain shall be installed and paid for according to Section 591 except that, in the case where a concrete facing is specified on the plans, the wall drain shall be installed on the concrete facing side of the lagging with the pervious (fabric) side of the drain installed to face the lagging. When a concrete facing is not specified on the plans, the pervious (fabric) side of the drain shall be installed to face the soil. In this case, the drain shall be installed in stages as the lagging is installed. The wall drain shall be placed in sections and spliced, or kept on a continuous roll, so that as each piece of lagging is placed, the drain can be properly located as the excavation proceeds.

Method of Measurement. The furnishing and driving of soldier piles will be measured for payment in feet (meters) along the centerline of the soldier pile for each of the types specified. The length shall be determined as the difference between the plan top of soldier pile and the required tip elevation.

Timber and precast lagging shall be measured for payment in square feet (square meters) of timber lagging installed to the limits as shown on the plans. The quantity shall be calculated using the minimum lagging length required on the plans multiplied by the as installed height of lagging, for each bay of lagging spanning between the soldier piles.

Basis of Payment. The furnishing of soldier piles will be paid for at the contract unit price per foot (meter) for FURNISHING SOLDIER PILES, of the type specified, for the total number of feet (meters) required by the plan design.

The driving of soldier piles will be paid for at the contract unit price per foot (meter) for DRIVING SOLDIER PILES. Any bracing, cutoffs, or splicing required will not be paid for separately but shall be included in this item.

The timber lagging will be paid for at the contract unit price per square foot (square meter) for UNTREATED TIMBER LAGGING, or TREATED TIMBER LAGGING as detailed on the plans. Precast concrete lagging will be paid for at the contract unit price per square foot (square meter) for PRECAST CONCRETE LAGGING as detailed on the plans.

Obstruction mitigation shall be paid for according to Article 109.04.

## TEMPORARY SOIL RETENTION SYSTEM

Effective: December 30, 2002

Revised : May 11, 2009

Description. This work shall consist of designing, furnishing, installing, adjusting for stage construction when required and subsequent removal of the temporary soil retention system according to the dimensions and details shown on the plans and in the approved design submittal.

General. The temporary soil retention system shall be designed by the Contractor as a minimum, to retain the exposed surface area specified in the plans or as directed by the Engineer.

The design calculations and details for the temporary soil retention system proposed by the Contractor shall be submitted to the Engineer for approval. The calculations shall be prepared and sealed by an Illinois Licensed Structural Engineer. This approval will not relieve the Contractor of responsibility for the safety of the excavation. Approval shall be contingent upon acceptance by all involved utilities and/or railroads.

Construction. The Contractor shall verify locations of all underground utilities before installing any of the soil retention system components or commencing any excavation. Any disturbance or damage to existing structures, utilities or other property, caused by the Contractor's operation, shall be repaired by the Contractor in a manner satisfactory to the Engineer at no additional cost to the Department. The soil retention system shall be installed according to the Contractor's approved design, or as directed by the Engineer, prior to commencing any related excavation. If unable to install the temporary soil retention system as specified in the approved design, the Contractor shall have the adequacy of the design re-evaluated. Any reevaluation shall be submitted to the Engineer for approval prior to commencing the excavation adjacent to the area in question. The Contractor shall not excavate below the maximum excavation line shown in the approved design without the prior permission of the Engineer. The temporary soil retention system shall remain in place until the Engineer determines it is no longer required.

The temporary soil retention system shall be removed and disposed of by the Contractor when directed by the Engineer. When allowed, the Contractor may elect to cut off a portion of the temporary soil retention system leaving the remainder in place. The remaining temporary soil retention system shall be removed to a depth which will not interfere with the new construction, and as a minimum, to a depth of 12 in. (300 mm) below the finished grade, or as directed by the Engineer. Removed system components shall become the property of the Contractor.

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

Method of Measurement. The temporary soil retention system furnished and installed according to the Contractor's approved design or as directed by the Engineer will be measured for payment in place, in square feet (square meters). The area measured shall be the vertical exposed surface area envelope of the excavation supported by temporary soil retention system. Portions of the temporary soil retention system left in place for reuse in later stages of construction shall only be measured for payment once.

Any temporary soil retention system installed beyond those dimensions shown on the contract plans or the approved contractor's design without the written permission of the Engineer, shall not be measured for payment but shall be done at the contractor's own expense.

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

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

Obstruction mitigation shall be paid for according to Article 109.04 of the Standard Specifications.

## **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.



## **SEGMENTAL CONCRETE BLOCK WALL**

Effective: January 7, 1999

Revised: October 30, 2012

**Description.** This work shall consist of furnishing the design computations, shop plans, materials, equipment and labor to construct a Segmental Concrete Block Retaining Wall to the limits shown on the plans.

**General.** The wall shall consist of a leveling pad, precast concrete blocks (either dry-cast or wet cast), select fill and, if required by the design, soil reinforcement. The wall shall be designed and constructed according to the lines, grades, and dimensions shown on the contract plans and approved shop plans.

**Submittals.** The wall supplier shall submit design computations and shop plans to the Engineer according to Article 1042.03(b) of the Standard Specifications. No work or ordering of materials for the structure shall be done by the Contractor until the submittal has been approved in writing by the Engineer. The shop plans shall be sealed by an Illinois Licensed Structural Engineer and shall include all details, dimensions, quantities, and cross sections necessary to construct the wall and shall include, but not be limited to, the following items:

- (a) Plan, elevation, and cross section sheet(s) for each wall showing the following:
  - (1) A plan view of the wall indicating the offsets from the construction centerline to the first course of blocks at all changes in horizontal alignment. These shall be calculated using the offsets to the front face of the block shown on the contract plans and the suppliers proposed wall batter. The plan view shall indicate bottom (and top course of block when battered), the excavation and select fill limits as well as any soil reinforcing required by the design. The centerline of any drainage structure or pipe behind or passing through/under the wall shall also be shown.
  - (2) An elevation view of the wall, indicating the elevation and all steps in the top course of blocks along the length of the wall. The top of these blocks shall be at or above the theoretical top of block line shown on the contract plans. This view shall also show the steps and proposed top of leveling pad elevations as well as the finished grade line at the wall face specified on the contract plans. These leveling pad elevations shall be located at or below the theoretical top of leveling line shown on the contract plans. The location, size, and length of any soil reinforcing connected to the blocks shall be indicated.
  - (3) Typical cross section(s) showing the limits of the select fill, soil reinforcement if used in the design. The right-of-way limits shall be indicated as well as the proposed excavation, cut slopes, and the elevation relationship between existing ground conditions and proposed grades.
  - (4) All general notes required for constructing the wall.

- (b) All details for the leveling pads, including the steps, shall be shown. The theoretical top of the leveling pad shall either be below the anticipated frost depth or 1.5 ft. (450 mm) below the finished grade line at the wall face, whichever is greater; unless otherwise shown on the plans. The minimum leveling pad thickness shall be 6 in. (152 mm)
- (c) Cap blocks shall be used to cover the top of the standard block units. The top course of blocks and cap blocks shall be stepped to satisfy the top of block line shown on the contract plans.
- (d) All details of the block and/or soil reinforcement placement around all appurtenances located behind, on top of, or passing through the wall shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular design arrangement shall also be submitted.
- (e) All details of the blocks, including color and texture shall be shown. The exterior face shall preferably be straight, textured with a "split rock face" pattern, and dark gray in color unless otherwise stated on the plans.
- (f) All block types (standard, cap, corner, and radius turning blocks) shall be detailed showing all dimensions.
- (g) All blocks shall have alignment/connection devices such as shear keys, leading/trailing lips, or pins. The details for the connection devices between adjacent blocks and the block to soil reinforcement shall be shown. The block set back or face batter shall be limited to 20 degrees from vertical, unless otherwise shown by the plans.

**Materials.** The materials shall meet the following requirements:

- (a) Dry-Cast Concrete Block: Dry-cast concrete block proposed for use shall be pre-cast and produced according Article 1042.02 and the requirements of ASTM C1372 except as follows:
  1. Fly ash shall be according to Articles 1010.01 and 1010.02(b).
  2. Ground granulated blast-furnace slag shall be according to Articles 1010.01 and 1010.05.
  3. Aggregate shall be according to Articles 1003.02 and 1004.02, with the exception of gradation.
  4. Water shall be according to Section 1002.
  5. Testing for freeze-thaw durability will not be required. However, unsatisfactory field performance as determined by the Department will be cause to prohibit the use of the block on Department projects.

- (b) Wet-cast Concrete Block: Wet-cast concrete block proposed for use shall be pre-cast and produced according to Section 1020 and Article 1042.02. The concrete shall be Class PC with a minimum compressive strength of at least 3000 psi (31 MPa) at 28 days.
- (c) Select fill: The select fill, defined as the material placed in the reinforced volume behind the wall, shall be according to Sections 1003 and 1004 of the Standard Specifications and the following:
- (1) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 6 thru CA 16 may be used. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.
  - (2) Select Fill Quality. The coarse or fine aggregate shall have a maximum sodium sulfate ( $\text{Na}_2\text{SO}_4$ ) loss of 15 percent according to Illinois Modified AASHTO T 104.
  - (3) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to Illinois Modified AASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236. If the vendor's design uses a friction angle higher than 34 degrees, as indicated on the approved shop drawings, this higher value shall be taken as the minimum required.
  - (4) Select Fill and Geosynthetic Reinforcing. When geosynthetic reinforcing is used, the select fill pH shall be 4.5 to 9.0 according to Illinois Modified AASHTO T 289.
  - (5) Test Frequency. Prior to start of construction, the Contractor shall provide internal friction angle and pH test results to show the select fill material meets the specification requirements. However, the pH will be required only when geosynthetic reinforcing is used. All test results shall not be older than 12 months. In addition, a sample of select fill material will be obtained for testing and approval by the Department. Thereafter, the minimum frequency of sampling and testing at the jobsite will be one per 40,000 tons (36,300 metric tons) of select fill material. Testing to verify the internal friction angle will only be required when the wall design utilizes a minimum effective internal friction angle greater than 34 degrees, or when crushed coarse aggregate is not used.

When a fine aggregate is selected, the rear of all block joints shall be covered by a non-woven needle punch geotextile filter material according to Article 1080.05 of the Standard Specifications and shall have a minimum permeability according to ASTM D4491 of 0.008 cm/sec. All fabric overlaps shall be 6 in. (150 mm) and non-sewn. As an alternative to the geotextile, a coarse aggregate shall be placed against the back face of the blocks to create a minimum 12 in. (300 mm) wide continuous gradation filter to prevent the select fill material from passing through the block joints.

- (d) Leveling pad: The material shall be either Class SI concrete according to Article 1020.04 or compacted coarse aggregate according to Articles 1004.04, (a) and (b). The compacted coarse aggregate gradation shall be CA 6 or CA 10.

(e) Soil Reinforcement: If soil reinforcement is required by the approved design, the Contractor shall submit a manufacturer's certification for the soil reinforcement properties which equals or exceeds those required in the design computations. The soil reinforcement shall be manufactured from high density polyethylene (HDPE) uniaxial or polypropylene biaxial resins or high tenacity polyester fibers with a PVC coating, stored between -20 and 140° F (-29 and 60° C). The following standards shall be used in determining and demonstrating the soil reinforcement capacities:

ASTM D638 Test Method for Tensile Properties of Plastic  
ASTM D1248 Specification for Polyethylene Plastics Molding and Extrusion Materials  
ASTM D4218 Test Method for Carbon Black Content in Polyethylene Compounds  
ASTM D5262 Test Method for Evaluating the Unconfined Tension Creep Behavior of Geosynthetics  
GG1-Standard Test Method for Geogrid Rib Tensile Strength  
GG2-Standard Test Method for Geogrid Junction Strength  
GG4-Standard Practice for Determination of the Long Term Design Strength of Geogrid  
GG5-Standard Practice for Evaluating Geogrid Pullout Behavior

**Design Criteria.** The design shall be according to AASHTO Specifications and commentaries for Earth Retaining Walls or FHWA Publication No. HI-95-038, SA-96-071 and SA-96-072. The wall supplier shall be responsible for all internal stability aspects of the wall design.

Internal stability design shall insure that adequate factors of safety against overturning and sliding are present at each level of block. If required by design, soil reinforcement shall be utilized and the loading at the block/soil reinforcement connection as well as the failure surface must be indicated. The calculations to determine the allowable load of the soil reinforcement and the factor of safety against pullout shall also be included. The analysis of settlement, bearing capacity, and overall slope stability are the responsibility of the Department.

External loads such as those applied through structure foundations, from traffic or railroads, slope surcharge etc., shall be accounted for in the internal stability design. The presence of all appurtenances behind, in front of, mounted upon, or passing through the wall volume such as drainage structures, utilities, structure foundation elements, or other items shall be accounted for in the internal stability design of the wall.

**Construction Requirements.** The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include all costs related to this technical assistance in the unit price bid for this item.

The foundation material for the leveling pad and select fill volume shall be graded to the design elevation and compacted according to Article 205.05, except the minimum required compaction shall be 95 percent of the standard laboratory density. The Engineer will perform one density test per 1500 ft (450 m) of the entire length of foundation material through both cut and fill areas. Any foundation soils found to be unsuitable shall be removed and replaced as directed by the Engineer and shall be paid for according to Article 109.04.

The select fill lift placement shall closely follow the erection of each course of blocks. All aggregate shall be swept from the top of the block prior to placing the next block lift. If soil reinforcement is used, the select fill material shall be leveled and compacted before placing and attaching the soil reinforcement to the blocks. The soil reinforcement shall be pulled taut, staked in place, and select fill placed from the rear face of the blocks outward. The lift thickness shall be the lesser of 10 in. (255 mm) loose measurement or the proposed block height.

The select fill shall be compacted according to Article 205.05, except the minimum required compaction shall be 95 percent of the standard laboratory density. Compaction shall be achieved using a minimum of 3 passes of a lightweight mechanical tamper, roller, or vibratory system. The Engineer will perform one density test per 5000 cu yd (3800 cu m) and not less than one test per 2 ft (0.6m) of lift. The top 12 in. (300 mm) of backfill shall be a cohesive, impervious material capable of supporting vegetation, unless other details are specified on the plans.

The blocks shall be maintained in position as successive lifts are compacted along the rear face of the block. Vertical, horizontal, and rotational alignment tolerances shall not exceed 0.5 in. (12 mm) when measured along a 10 ft. (3 m) straight edge.

**Method of Measurement.** Segmental Concrete Block Wall will be measured by the square foot (square meter) of wall face from the top of block line to the theoretical top of the leveling pad for the length of the wall in a vertical plane, as shown on the contract plans.

**Basis of Payment.** This work will be paid for at the contract unit price per square foot (square meter) for SEGMENTAL CONCRETE BLOCK WALL.

## COFFERDAMS

Effective: October 15, 2011

Replace Article 502.06 with the following.

**502.06 Cofferdams.** A Cofferdam shall be defined as a temporary structure, consisting of engineered components, designed to isolate the work area from water to enable construction under dry conditions based on either the Estimated Water Surface Elevation (EWSE) or Cofferdam Design Water Elevation (CDWE) shown on the contract plans as specified below. When cofferdams are not specified in the contract documents and conditions are encountered where the excavation for the structure cannot be kept free of water for prosecuting the work by pumping and/or diverting water, the Contractor, with the written permission of the Engineer, will be permitted to construct a cofferdam.

The Contractor shall submit a cofferdam plan for each cofferdam to the Engineer for approval prior to the start of construction. Cofferdams shall not be installed or removed without the Engineer's approval. Work shall not be performed in flowing water except for the installation and removal of the cofferdam. The cofferdam plan shall address the following:

- (a) Cofferdam (Type 1). The Contractor shall submit a cofferdam plan which addresses the proposed methods of construction and removal; the construction sequence including staging; dewatering methods; erosion and sediment control measures; disposal of excavated material; effluent water control measures; backfilling; and the best management practices to prevent reintroduction of excavated material into the aquatic environment. The design and method of construction shall provide, within the measurement limits specified in Article 502.12, necessary clearance for forms, inspection of exterior of the forms, pumping, and protection of fresh concrete from water. For Type 1 cofferdams, it is anticipated the design will be based on the EWSE shown on the contract plans. The Contractor shall assume all liability, financial or otherwise for a Type 1 cofferdam designed for an elevation lower than the EWSE.
- (b) Cofferdam (Type 2). In addition to the requirements of Article 502.06(a), the Contractor's submittal shall include detailed drawings and design calculations, prepared and sealed by an Illinois Licensed Structural Engineer. For Type 2 cofferdams it is anticipated the design will be based on the CDWE shown on the contract plans. The Contractor shall assume all liability, financial or otherwise for a Type 2 cofferdam designed for an elevation lower than the CDWE.
- (c) Seal Coat. The seal coat concrete, when shown on the plans, is based on design assumptions in order to establish an estimated quantity. When seal coat is indeed utilized, it shall be considered an integral part of the overall cofferdam system and, therefore, its design shall be included in the overall cofferdam design submittal. If a seal coat was not specified but determined to be necessary, it shall be added to the contract by written permission of the Engineer. The seal coat concrete shall be constructed according to Article

503.14. After the excavation within the cofferdam has been completed and the piles have been driven (if applicable), and prior to placing the seal coat, the elevation of the bottom of the proposed seal coat shall be verified by soundings. The equipment and methods used to conduct the soundings shall meet the approval of the Engineer. Any material within the cofferdam above the approved bottom of the seal coat elevation shall be removed.

No component of the cofferdam shall extend into the substructure concrete or remain in place without written permission of the Engineer. Removal shall be according to the previously approved procedure. Unless otherwise approved in writing by the Engineer, all components of the cofferdam shall be removed.

Revise the first paragraph of 502.12(b) to read as follows.

(b) Measured Quantities. Structure excavation, when specified, will be measured for payment in its original position and the volume computed in cubic yards (cubic meters). Horizontal dimensions will not extend beyond vertical planes 2 ft (600 mm) outside of the edges of footings of bridges, walls, and corrugated steel plate arches. The vertical dimension for structure excavation will be the average depth from the surface of the material to be excavated to the bottom of the footing as shown on the plans or ordered in writing by the Engineer. The volume of any unstable and/or unsuitable material removed within the structure excavation will be measured for payment in cubic yards (cubic meters).

Revise the last paragraph of 502.12(b) to read as follows.

Cofferdam excavation will be measured for payment in cubic yards (cubic meters) in its original position within the cofferdam. Unless otherwise shown on the plans, the horizontal dimensions used in computing the volume will not extend beyond vertical planes 2 ft (600 mm) outside of the edges of the substructure footings or 4 ft (1.2 m) outside of the faces of the substructure stem wall, whichever is greater. The vertical dimensions will be the average depth from the surface of the material to be excavated to the elevation shown on the plans for bottom of the footing, stem wall, or seal coat, or as otherwise determined by the Engineer as the bottom of the excavation.

Revise the first sentence of the sixth paragraph of 502.13 to read as follows.

Cofferdams, when specified, will be paid for at the contract unit price per each for COFFERDAM (TYPE 1) or COFFERDAM (TYPE 2), at the locations specified.

## **PERMANENT STEEL SHEET PILING (LRFD)**

Effective: January 31, 2012

Revised: August 17, 2012

Description. This work shall consist of furnishing and installing the permanent sheet piling to the limits and tolerances shown on the plans according to Section 512 of the Standard Specifications.

Material. The sheet piling shall be made of steel and shall be new material. Unless otherwise specified the sheeting shall have a minimum yield strength of 50 ksi (345 MPa) according to ASTM A 572. The sheeting shall be identifiable and free of bends and other structural defects. The Contractor shall furnish a copy of the published sheet pile section properties to the Engineer for verification purposes. The Engineer's approval will be required prior to driving any sheeting. All driven sheeting not approved by the Engineer shall be removed at the Contractor's expense.

The Contractor shall furnish a sheet pile section, to be used for each wall section, with a published section modulus equal to or larger than that specified on the plans.

The selection of the sheet pile section shall not relieve the Contractor of the responsibility to satisfy all details including minimum clearances, cover, reinforcement, shear stud locations, interlocking, and field cutting. Any modifications of the plans to accommodate the Contractor's selection shall be paid for by the Contractor and subject to the approval of the Engineer.

Construction. The Contractor shall verify locations of all underground utilities before driving any sheet piling. Any disturbance or damage to existing structures, utilities or other property, caused by the Contractor's operation, shall be repaired by the Contractor in a manner satisfactory to the Engineer at no additional cost to the Department. The Contractor shall be responsible for determining the appropriate equipment necessary to drive the sheeting to the tip elevation(s) specified on the plans or according to the Contractor's approved design. The sheet piling shall be driven, as a minimum, to the tip elevation(s) specified, prior to commencing any related construction. If unable to reach the minimum tip elevation, the adequacy of the sheet piling design will require re-evaluation by the Department prior to allowing construction adjacent to the sheet piling in question.

Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be driven through with normal driving procedures, but requires special equipment to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to break up, push aside, or remove the obstruction.

Method of Measurement. This work will be measured in place in square feet (square meters). Sheet piling associated with other work in this contract or for permanent sheet piling that is cut off or driven beyond those dimensions shown on the plans will not be measured for payment.

Obstruction mitigation shall be paid for according to Article 109.04.



Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for PERMANENT STEEL SHEET PILING at the location shown on the plans.

## 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.

**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.