If you plan to submit a bid directly to the Department of Transportation

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 that 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.

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 124INT) 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.

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.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a "Request for Authorization to Bid/or Not For Bid Status"(BDE 124INT) 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 a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial.

ABOUT AUTHORIZATION TO BID: Firms that have not received an authorization form within a reasonable time of complete and correct original document submittal should contact the department as to status. This is critical in the week before the letting. These documents must be received three days before the letting date. 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 contractor'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 will be placed with the contract number. 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 server e-mails are an added courtesy the Department provides. It is suggested that bidders check IDOT's website at http://www.dot.il.gov/desenv/delett.html 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 D&Econtracts@dot.il.gov

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

WHAT MUST BE INCLUDED WHEN BIDS ARE SUBMITTED?: Bidders need not return the entire proposal when bids are submitted. That portion of the proposal that must be returned includes the following:

1. All documents from the Proposal Cover Sheet through the Proposal Bid Bond
2. Other special documentation and/or information that may be required by the contract special provisions

All proposal documents, including Proposal Guaranty Checks or Proposal Bid Bonds, should be stapled together to prevent loss when bids are processed by IDOT personnel.

ABOUT SUBMITTING BIDS: It is recommended that bidders deliver bids in person to insure they arrive at the proper location prior to the time specified for the receipt of bids. Any bid received at the place of letting after the time specified will not be accepted.

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	**Call**
Prequalification and/or Authorization to Bid	217/782-3413
Preparation and submittal of bids	217/782-7806
Mailing of plans and proposals	217/782-7806

ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS

Planholders should verify that they have received and incorporated any addendum and/or revision prior to submitting their bid. Failure by the bidder to include and addendum or revision could result in a bid being rejected as irregular.

RETURN WITH BID

60

Proposal Submitted By
Name
Address
City

Letting September 19, 2008

BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL
(See instructions inside front cover)

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.
(SEE INSTRUCTIONS ON THE INSIDE OF COVER)

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

Springfield, Illinois 62764

Contract No. 63024
DUPAGE County
Section 00-00114-00-PV (Naperville)
Routes FAU 2552 & FAP 369 (Washington St. & 75th St.)
Project M-BRM-7003(985)
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

Prepared by

Checked by F

(Printed by authority of the State of Illinois)

INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals issued by IDOT are potential bidding proposals. Each proposal contains all Certifications and Affidavits, a Proposal Signature Sheet and a Proposal Bid Bond required for Prime Contractors to submit a bid after written **Authorization to Bid** has been issued by IDOT's Central Bureau of Construction.

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. To request authorization, a potential bidder must complete and submit Part B of the Request for Authorization to Bid/or Not For Bid Status form (BDE 124 INT) and submit an original Affidavit of Availability (BC 57).

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a "Request for Proposal Forms and Plans" 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 a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial. If a contractor has requested to bid but has not received a **Proposal Denial and/or Authorization Form**, they should contact the Central Bureau of Construction in advance of the letting date.

WHAT MUST BE INCLUDED WHEN BIDS ARE SUBMITTED?: Bidders need not return the entire proposal when bids are submitted. That portion of the proposal that must be returned includes the following:

1. All documents from the Proposal Cover Sheet through the Proposal Bid Bond

2. Other special documentation and/or information that may be required by the contract special provisions

All proposal documents, including Proposal Guaranty Checks or Proposal Bid Bonds, should be stapled together to prevent loss when bids are processed by IDOT personnel.

ABOUT SUBMITTING BIDS: It is recommended that bidders deliver bids in person to insure they arrive at the proper location prior to the time specified for the receipt of bids. Any bid received at the place of letting after the time specified will not be accepted.

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	Call
Prequalification and/or Authorization to Bid	217/782-3413
Preparation and submittal of bids	217/782-7806
Mailing of CD-ROMS	217/782-7806

RETURN WITH BID

Illinois Department of Transportation

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. 63024
DUPAGE County
Section 00-00114-00-PV (Naperville)
Project M-BRM-7003(985)
Routes FAU 2552 & FAP 369 (Washington St. & 75th St.)
District 1 Construction Funds

Improvement consists of the widening and reconstruction of Washington Street and 75th Street, complete replacement of the existing 75th Street bridge over the West Branch of the DuPage River with a 3-span W 24 x 104 steel girder structure, 155'-7 1/2" long, construction of a precast pedestrian tunnel crossing under Washington Street, north of 75th Street and construction of the extension of the Dupage River Trail along the west bank of the west branch of the Dupage River. Project also includes traffic signals, lighting, storm sewer and six retaining walls, all located in Naperville.

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 shall govern performance and payments.

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, 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 proposal he/she waives all right to plead any misunderstanding regarding the same.

4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** The undersigned 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, 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:

Amount of Bid			Proposal Guaranty	Amount of Bid			Proposal Guaranty
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 proposals shall be made payable to the Treasurer, State of Illinois, when the state is awarding authority; the county treasurer, when a county is the awarding authority; or the city, village, or town treasurer, when a city, village, or town is the awarding authority.

If a combination bid is submitted, the proposal guaranties which accompany the individual 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 shall fail to execute a contract bond as required herein, it is hereby agreed that the amount of the proposal guaranty shall 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 shall become void or the proposal guaranty check shall 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 proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual proposal. If the guaranty check is placed in another proposal, state below where it may be found.

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

Item _____

Section No. _____

County _____

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

6. **COMBINATION BIDS.** The undersigned 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 proposal 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 shall 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. **CERTIFICATE OF AUTHORITY.** The undersigned bidder, if a business organized under the laws of another State, assures the Department that it will furnish a copy of its certificate of authority to do business in the State of Illinois with the return of the executed contract and bond. Failure to furnish the certificate within the time provided for execution of an awarded contract may be cause for cancellation of the award and forfeiture of the proposal guaranty to the State.

STATE JOB #- C-91-494-00
PPS NBR - 1-10485-0000

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 63024

RUN DATE - 08/21/08
RUN TIME - 204503

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
DUPAGE	043	01	00-00114-00-PV (NAPERVILLE)	M-BRM-7003/985/000	FAU 2552
					FAP 369

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
A2000118	T-ACERX FREM AB 3	EACH	37.000	X			=		
A2000324	T-ACER MIY MOR 3	EACH	18.000	X			=		
A2002474	T-BETUL NG HRT CL 10'	EACH	23.000	X			=		
A2002924	T-CELTIS OCCID 3	EACH	10.000	X			=		
A2004824	T-GLED TRI-I SK 3	EACH	9.000	X			=		
A2005024	T-GYMNOCLA DIO 3	EACH	3.000	X			=		
A2007120	T-QUERCUS RUBRA 2-1/2	EACH	14.000	X			=		
A2007624	T-TAXODIUM DIS 3	EACH	5.000	X			=		
A2007924	T-TILIA AMER RD 3	EACH	6.000	X			=		
A2008124	T-TILIA CORD GS 3	EACH	1.000	X			=		
A2018720	T-ULMUS CARP MO 2-1/2	EACH	28.000	X			=		
B2000120	T-ACER CAMP TF 2-1/2	EACH	10.000	X			=		
B2000668	T-AMELAN X GF SF 7'	EACH	5.000	X			=		
B2001166	T-CERCIS CAN CL 6'	EACH	8.000	X			=		
B2001466	T-CORNUS MAS SF 6'	EACH	6.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
B2003468	T-MALUS FLOR CL 7'	EACH	9.000	X			=		
B2005720	T-PYRUS C CH TF 2-1/2	EACH	10.000	X			=		
B2006320	T-SYRG RT IS TF 2-1/2	EACH	6.000	X			=		
C2C01536	S-CORNUS RACEMOSA 3'C	EACH	101.000	X			=		
C2C03424	S-HYDRA ARBOR AN 2'C	EACH	79.000	X			=		
C2C05018	S-POTEN FRUT GF 18C	EACH	65.000	X			=		
C2C05718	S-RHUS AROMA 18C	EACH	58.000	X			=		
C2C05818	S-RHUS AROMA GRO 18C	EACH	322.000	X			=		
C2C06318	S-RIBES ALP GM 18C	EACH	20.000	X			=		
C2000536	S-ARONIA MELAN 3'	EACH	30.000	X			=		
C2001636	S-CORNUS SERICEA 3'	EACH	56.000	X			=		
C2003536	S-HYDRA PANI GF 3'	EACH	51.000	X			=		
C2007218	S-ROSA KNOCKOUT 18	EACH	60.000	X			=		
C2008118	S-ROSA MEIPOTAL 18	EACH	64.000	X			=		
C2012460	S-VIBURN LENT 5'	EACH	19.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
C2012772	S-VIBURN PRUN 6′	EACH	5.000	X			=		
C2015302	S-J CHIN KLLY CMPT 5G	EACH	86.000	X			=		
D2C00718	E-JUNI CH S V 1-1/2′C	EACH	172.000	X			=		
D2001572	E-JUNIP VIRG 6′	EACH	20.000	X			=		
D2002188	E-PICEA PUNGENS 8′	EACH	5.000	X			=		
D2002784	E-PINUS NIGRA 7′	EACH	28.000	X			=		
K0030470	PEREN PL ORN GRASS TY	UNIT	44.000	X			=		
XX000372	TEMP AGGREGATE	TON	90.000	X			=		
XX000504	RESTORATION WORK	L SUM	1.000	X			=		
XX001051	WATER SERV LINE RECON	EACH	2.000	X			=		
XX001429	FORM LINER TEX SURF	SQ YD	2,259.000	X			=		
XX002007	AGG BICYCLE PATH	SQ YD	424.000	X			=		
XX003216	UD 3#6 #6G XLPUSE1.25	FOOT	13,122.000	X			=		
XX003308	TRENCH DRAIN	FOOT	14.000	X			=		
XX003435	PCC DRIVE REM & REPL	SQ YD	340.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX004238	BIT DR REM & PLACE	SQ YD	90.000	X			=		
XX004809	UNDR BRIDGE COND SYS	L SUM	1.000	X			=		
XX005049	POWER PEDESTALS	EACH	3.000	X			=		
XX005307	T-QUERCUS BICOL 3 B&B	EACH	6.000	X			=		
XX005480	D I WM 16 RJ	FOOT	132.000	X			=		
XX005581	VIDEO TAPE	UNIT	1.000	X			=		
XX005592	N PHASE 1 TRNSFRMR VA	EACH	7.000	X			=		
XX005593	N SWITCHGEAR VAULT	EACH	5.000	X			=		
XX005594	FA-2 ENCASEMENT	CU YD	725.000	X			=		
XX005595	TRENCH BACKFILL CA-6	CU YD	1,250.000	X			=		
XX005597	ROD AND MANDREL	FOOT	32,000.000	X			=		
XX005598	ADD GROUND ROD INSTL	EACH	20.000	X			=		
XX005600	COUNTERPOISE, UNPAVED	FOOT	1,100.000	X			=		
XX005601	COUNTERPOISE, PAVED	FOOT	200.000	X			=		
XX005602	HAND DIG 0'-5' PAV'T	CU YD	40.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX005603	HAND DIG 5'-20' PAV'T	CU YD	30.000	X			=		
XX005604	HAND DIG 0'-5' UNPAVD	CU YD	40.000	X			=		
XX005605	HAND DIG 5'-20' UNPAV	CU YD	30.000	X			=		
XX005606	MACH AID DIG 0-5 PAVE	CU YD	60.000	X			=		
XX005608	MAC AID DIG 0-5 UNPAV	CU YD	60.000	X			=		
XX005937	LED INT IL STNAME SGN	EACH	7.000	X			=		
XX005963	ANTI-GRAFFITI COATING	SQ FT	25,488.000	X			=		
XX005987	MACH AID DIG 5-20 PVT	CU YD	30.000	X			=		
XX005989	MACH AID DIG 5-20 UPA	CU YD	60.000	X			=		
XX006223	PERIMTR EROS BARR MOD	FT	2,620.000	X			=		
XX006257	REC REF PVT MARKER	EACH	875.000	X			=		
XX006444	MULCH SPL	ACRE	1.000	X			=		
XX006602	S-ARONIA MLAN IB 2.5'	EACH	84.000	X			=		
XX006629	S-RHUS TYPHINA CG 5G	EACH	45.000	X			=		
XX007053	CONDUIT RISER ASSEM 6	EACH	1.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX007054	HANDHOLE, DEH5	EACH	2.000	X			=		
XX007055	HANDHOLE, DEH6	EACH	1.000	X			=		
XX007138	2W 3 PVCDB 1 X 2	FOOT	970.000	X			=		
XX007140	2W 5 PVCDB 1 X 2	FOOT	20.000	X			=		
XX007141	2W 6 PVCDB 1 X 2	FOOT	90.000	X			=		
XX007343	MULCH SHRD HARDWOOD 4	SQ YD	2,420.000	X			=		
XX007593	MAN INSTALL TYPE A	EACH	8.000	X			=		
XX007594	MAN INSTALL TYPE G	EACH	8.000	X			=		
XX007595	MAN INSTALL TYPE E	EACH	1.000	X			=		
XX007596	CON T TRANS & TRANSP	EACH	4.000	X			=		
XX007597	1W 1-3 PVC DB 1X1	FOOT	80.000	X			=		
XX007598	10W 6-6 4-3 PVCDB 4X3	FOOT	60.000	X			=		
XX007599	10W 10-6 PVC DB 4X3	FOOT	340.000	X			=		
XX007600	12W 12-6 PVC DB 4X3	FOOT	175.000	X			=		
XX007601	14W 14-6 PVC DB 5X3	FOOT	220.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX007602	3W 3-6 PVC DB 1X3	FOOT	40.000	X			=		
XX007603	3W 3-3 PVC DB 1X3	FOOT	120.000	X			=		
XX007604	4W 4-3 PVC DB 2X2	FOOT	65.000	X			=		
XX007623	4W 4-6 PVC DB 2X2	FOOT	1,660.000	X			=		
XX007624	5W 5-6 PVC DB 2X3	FOOT	35.000	X			=		
XX007625	6W 6-6 PVC DB 2X3	FOOT	3,435.000	X			=		
XX007626	7W 7-6 PVC DB 3X3	FOOT	75.000	X			=		
XX007627	8W 6-6 2-3 PVCDB 3X3	FOOT	760.000	X			=		
XX007628	8W 8-6 PVC DB 3X3	FOOT	200.000	X			=		
XX007629	9W 9-6 PVC DB 3X3	FOOT	95.000	X			=		
XX007630	CON B&P CN 3 SPL	FOOT	115.000	X			=		
XX007631	CON B&P CN 2W 3 2X2SP	FOOT	100.000	X			=		
XX007632	CON B&P CN 4W 3 2X2SP	FOOT	280.000	X			=		
XX007633	CON B&P CN 3W 6 2X3SP	FOOT	70.000	X			=		
XX007634	CON B&P CN 4W 6 2X2SP	FOOT	70.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX007635	CON B&P CN 6W 6 2X3SP	FOOT	255.000	X			=		
XX007636	CON B&P CN 8W 6 3X3SP	FOOT	80.000	X			=		
XX007637	CON B&P CN 8W 6 3 3X3	FOOT	70.000	X			=		
XX007638	CONN EX HANDHOLE VALT	EACH	1.000	X			=		
XX007639	CONN EX SWTCHGEAR VAL	EACH	4.000	X			=		
XX007640	CONN EX TRNSFRMER VAL	EACH	9.000	X			=		
XX007641	E-JUNI CH FAR PJ 6'	EACH	8.000	X			=		
XX007642	GROUND ROD 3/4 X 10	EACH	3.000	X			=		
XX007643	LUM PED TUN 50W HPS	EACH	14.000	X			=		
XX007644	MAN DT 9 DIA T1F CL	EACH	1.000	X			=		
XX007645	SAN SEW DI 10 AUGERED	FOOT	260.000	X			=		
XX007646	SEED MES WET NAT GRAS	ACRE	1.000	X			=		
XX007647	S-HYDRA PAN TAR 2.5'	EACH	11.000	X			=		
XX007648	S-ITEA VIRG LH VS 2'	EACH	46.000	X			=		
XX007649	S-RHUS COP PF SS 2'	EACH	102.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX007650	S-RHUS TYPHINA TES 3'	EACH	94.000	X			=		
XX007651	S-SORBARIA UFS 2'	EACH	50.000	X			=		
XX007652	S-SYMPHO X CH H 1.5'	EACH	82.000	X			=		
XX007653	S-VIBURN OPUL ROSE 3'	EACH	44.000	X			=		
XX007654	STONE PILRS DIS STORE	EACH	7.000	X			=		
XX007655	STORM SEW BACK PREV	EACH	1.000	X			=		
XX007656	3-SIDED PCC STR 14X11	FOOT	153.000	X			=		
XX007657	TRAIL TREE ROOT BARR	FOOT	1,000.000	X			=		
XX007658	T-QUERCUS MACR 3	EACH	8.000	X			=		
XX007659	T-CELTIS OC CHILAND 3	EACH	6.000	X			=		
XX007660	T-ROBINIA PSEUD 2-1/2	EACH	11.000	X			=		
XX007661	T-TAXODI DIS SB 3	EACH	20.000	X			=		
XX007662	T-MALUS PF TF 3	EACH	34.000	X			=		
XX007663	T-SYRG PEK M TF 3	EACH	3.000	X			=		
XX007664	UD 3#2 #2G XLP USE 2	FOOT	155.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX172700	MAN TA 8 DIA T1F CL	EACH	10.000	X			=		
X0301407	PERENNIAL PLT-GAL POT	UNIT	25.000	X			=		
X0301576	COAXIAL CABLE IN CON	FOOT	155.000	X			=		
X0301892	MAN TA 8D T1FCL R-PLT	EACH	2.000	X			=		
X0320873	VIDEO VEH DETECTOR	EACH	1.000	X			=		
X0321598	MH TA 6D W/2 T1FCL RP	EACH	5.000	X			=		
X0322102	TEMP SIDEWALK RAMP	EACH	17.000	X			=		
X0322256	TEMP INFO SIGNING	SQ FT	2,344.000	X			=		
X0322671	STAB CONSTR ENTRANCE	SQ YD	240.000	X			=		
X0322923	SEGMENT CONC BLK WALL	SQ FT	617.000	X			=		
X0322925	ELCBL C TRACER 14 1C	FOOT	7,864.000	X			=		
X0323080	DRAINAGE SCUPPR DS-12	EACH	10.000	X			=		
X0323199	SAN SEW, DUCT IRN, 10	FOOT	560.000	X			=		
X0323330	PCC SUBSTRUCTURE	L SUM	1.000	X			=		
X0323426	SED CONT DR ST INL CL	EACH	2,422.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
X0323574	MAINTAIN LIGHTING SYS	CAL MO	8.000	X			=		
X0323830	DRAINAGE SCUPPR DS-11	EACH	4.000	X			=		
X0323973	SED CONT SILT FENCE	FOOT	12,116.000	X			=		
X0323988	TEMP SOIL RETEN SYSTM	SQ FT	2,230.000	X			=		
X0324007	OPTIM TRAF SIGNAL SYS	EACH	1.000	X			=		
X0324440	CONN TO EX W MAIN 8	EACH	2.000	X			=		
X0324455	DRILL/SET SOLD P SOIL	CU FT	13,379.000	X			=		
X0324456	DRILL/SET SOLD P ROCK	CU FT	6,629.000	X			=		
X0324788	GRANITE PAVERS	SQ FT	5,910.000	X			=		
X0324973	REM & REPL BIT SURF S	SQ FT	3,750.000	X			=		
X0324993	SEP JT W/SLEEP SLAB	FOOT	681.000	X			=		
X0325342	CONN TO EX W MAIN 16	EACH	2.000	X			=		
X0325737	TEMP TR SIGNAL TIMING	EACH	2.000	X			=		
X0329891	SILT CURTAIN	SQ YD	275.000	X			=		
X0712400	TEMP PAVEMENT	SQ YD	3,562.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
X4021000	TEMP ACCESS- PRIV ENT	EACH	3.000	X			=		
X4022000	TEMP ACCESS- COM ENT	EACH	4.000	X			=		
X4023000	TEMP ACCESS- ROAD	EACH	3.000	X			=		
X5020501	UNWAT STR EX PROT L1	EACH	1.000	X			=		
X5020502	UNWAT STR EX PROT L2	EACH	1.000	X			=		
X5020503	UNWAT STR EX PROT L3	EACH	1.000	X			=		
X5020504	UNWAT STR EX PROT L4	EACH	1.000	X			=		
X6022120	MAN DT 7 DIA T1F CL	EACH	1.000	X			=		
X6022130	MAN DT 8 DIA T1F CL	EACH	1.000	X			=		
X6060015	COMB CC&G TM4.24 VWGF	FOOT	131.000	X			=		
X6700410	ENGR FLD OFF A SPL	CAL MO	34.000	X			=		
X8050010	SERV INSTALL GRND MT	EACH	2.000	X			=		
X8120305	CON EMB STR 2 PVC S40	FOOT	1,931.000	X			=		
X8620020	UNINTER POWER SUPPLY	EACH	2.000	X			=		
X8710020	FOCC62.5/125 MM12SM12	FOOT	7,864.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
X8730027	ELCBL C GROUND 6 1C	FOOT	1,540.000	X			=		
X8730250	ELCBL C 20 3C TW SH	FOOT	2,182.000	X			=		
X8770100	S C MAA&P DMA 24 & 55	EACH	2.000	X			=		
Z0001050	AGG SUBGRADE 12	SQ YD	60,712.000	X			=		
Z0001900	ASB BEARING PAD REMOV	EACH	138.000	X			=		
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000	X			=		
Z0030240	IMP ATTN TEMP NRD TL2	EACH	8.000	X			=		
Z0030340	IMP ATTN REL NRD TL2	EACH	3.000	X			=		
Z0053700	RESET SURVEY MONUMENT	EACH	1.000	X			=		
Z0076600	TRAINEES	HOUR	4,000.000	X	0	.80	=	3,200	.00
20100110	TREE REMOV 6-15	UNIT	1,473.000	X			=		
20100210	TREE REMOV OVER 15	UNIT	1,295.000	X			=		
20101000	TEMPORARY FENCE	FOOT	7,235.000	X			=		
20101200	TREE ROOT PRUNING	EACH	40.000	X			=		
20200100	EARTH EXCAVATION	CU YD	39,935.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
20200200	ROCK EXCAVATION	CU YD	596.000	X			=		
20200410	EARTH EXCAVATION SPL	CU YD	1,220.000	X			=		
20201200	REM & DISP UNS MATL	CU YD	5,909.000	X			=		
20700400	POROUS GRAN EMB SPEC	CU YD	890.000	X			=		
20700420	POROUS GRAN EMB SUBGR	CU YD	3,903.000	X			=		
20800150	TRENCH BACKFILL	CU YD	7,026.000	X			=		
21001000	GEOTECH FAB F/GR STAB	SQ YD	11,709.000	X			=		
21101625	TOPSOIL F & P 6	SQ YD	26,120.000	X			=		
21101645	TOPSOIL F & P 12	SQ YD	15,703.000	X			=		
21101685	TOPSOIL F & P 24	SQ YD	10,200.000	X			=		
21101815	COMPOST F & P 4	SQ YD	550.000	X			=		
21300010	EXPLOR TRENCH SPL	FOOT	20.000	X			=		
25000210	SEEDING CL 2A	ACRE	7.000	X			=		
25000310	SEEDING CL 4	ACRE	2.000	X			=		
25000400	NITROGEN FERT NUTR	POUND	447.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
25000500	PHOSPHORUS FERT NUTR	POUND	447.000	X			=		
25000600	POTASSIUM FERT NUTR	POUND	447.000	X			=		
25000920	SEEDING CL 1A SPL	ACRE	1.000	X			=		
25100630	EROSION CONTR BLANKET	SQ YD	92,646.000	X			=		
25200100	SODDING	SQ YD	190.000	X			=		
25200200	SUPPLE WATERING	UNIT	2,112.000	X			=		
25200700	SODDING SPL	SQ YD	2,150.000	X			=		
28000250	TEMP EROS CONTR SEED	POUND	1,025.000	X			=		
28000300	TEMP DITCH CHECKS	EACH	65.000	X			=		
28000500	INLET & PIPE PROTECT	EACH	37.000	X			=		
28000510	INLET FILTERS	EACH	205.000	X			=		
28100105	STONE RIPRAP CL A3	SQ YD	1,914.000	X			=		
28100107	STONE RIPRAP CL A4	SQ YD	534.000	X			=		
28100109	STONE RIPRAP CL A5	SQ YD	1,137.000	X			=		
28101500	RIPRAP SPL	SQ YD	100.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
28200200	FILTER FABRIC	SQ YD	1,219.000	X			=		
31101700	SUB GRAN MAT B 9	SQ YD	2,397.000	X			=		
35300310	PCC BSE CSE 8 1/2	SQ YD	46,099.000	X			=		
35300500	PCC BSE CSE 10	SQ YD	2,883.000	X			=		
40600200	BIT MATLS PR CT	TON	48.000	X			=		
40600300	AGG PR CT	TON	242.000	X			=		
40600625	LEV BIND MM N50	TON	202.000	X			=		
40600895	CONSTRUC TEST STRIP	EACH	2.000	X			=		
40600982	HMA SURF REM BUTT JT	SQ YD	118.000	X			=		
40601005	HMA REPL OVER PATCH	TON	131.000	X			=		
40603085	HMA BC IL-19.0 N70	TON	207.000	X			=		
40603240	P HMA BC IL19.0 N90	TON	7,623.000	X			=		
40603310	HMA SC "C" N50	TON	202.000	X			=		
40603595	P HMA SC "F" N90	TON	5,929.000	X			=		
42001300	PROTECTIVE COAT	SQ YD	14,199.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
42001400	BR APPROACH PAVT SPL	SQ YD	955.000	X			=		
42300200	PCC DRIVEWAY PAVT 6	SQ YD	348.000	X			=		
42300400	PCC DRIVEWAY PAVT 8	SQ YD	296.000	X			=		
42400200	PC CONC SIDEWALK 5	SQ FT	39,583.000	X			=		
42400800	DETECTABLE WARNINGS	SQ FT	364.000	X			=		
44000100	PAVEMENT REM	SQ YD	34,784.000	X			=		
44000157	HMA SURF REM 2	SQ YD	10,809.000	X			=		
44000200	DRIVE PAVEMENT REM	SQ YD	2,117.000	X			=		
44000500	COMB CURB GUTTER REM	FOOT	16,710.000	X			=		
44000600	SIDEWALK REM	SQ FT	17,679.000	X			=		
44001700	COMB C C&G REM & REPL	FOOT	240.000	X			=		
44004250	PAVED SHLD REMOVAL	SQ YD	5,724.000	X			=		
44004610	SIDEWLK REM & REPL SP	SQ FT	1,920.000	X			=		
44201000	CL B PATCH T4 12	SQ YD	120.000	X			=		
44201359	CL C PATCH T4 10	SQ YD	606.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
44201796	CL D PATCH T4 12	SQ YD	80.000	X			=		
44300200	STRIP REF CR CON TR	FOOT	4,626.000	X			=		
48203021	HMA SHOULDERS 6	SQ YD	377.000	X			=		
50100200	REM EXIST STRUCT	L SUM	1.000	X			=		
50102400	CONC REM	CU YD	49.000	X			=		
50200100	STRUCTURE EXCAVATION	CU YD	5,700.000	X			=		
50200400	ROCK EXC STRUCT	CU YD	746.000	X			=		
50300225	CONC STRUCT	CU YD	2,501.000	X			=		
50300255	CONC SUP-STR	CU YD	710.000	X			=		
50300260	BR DECK GROOVING	SQ YD	1,919.000	X			=		
50300280	CONCRETE ENCASEMENT	CU YD	563.000	X			=		
50300300	PROTECTIVE COAT	SQ YD	4,439.000	X			=		
50500105	F & E STRUCT STEEL	L SUM	1.000	X			=		
50500505	STUD SHEAR CONNECTORS	EACH	16,912.000	X			=		
50700209	UNTREATED TIMBER LAG	SQ FT	12,418.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
50800105	REINFORCEMENT BARS	POUND	48,170.000	X			=		
50800205	REINF BARS, EPOXY CTD	POUND	443,020.000	X			=		
50800515	BAR SPLICERS	EACH	502.000	X			=		
50901725	BICYCLE RAILING SPL	FOOT	263.000	X			=		
50901755	PARAPET RAILING SPL	FOOT	2,965.000	X			=		
51202210	FUR SOLDIER PILES HP	FOOT	1,383.000	X			=		
51202230	FUR SOLDIER PILES WS	FOOT	2,567.000	X			=		
51500100	NAME PLATES	EACH	1.000	X			=		
51603000	DRILLED SHAFT IN SOIL	CU YD	90.000	X			=		
51604000	DRILLED SHAFT IN ROCK	CU YD	101.000	X			=		
52000110	PREF JT STRIP SEAL	FOOT	295.000	X			=		
52100010	ELAST BEARING ASSY T1	EACH	43.000	X			=		
52100020	ELAST BEARING ASSY T2	EACH	21.000	X			=		
52100520	ANCHOR BOLTS 1	EACH	128.000	X			=		
52100530	ANCHOR BOLTS 1 1/4	EACH	42.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
54010603	PCBC 6X3	FOOT	380.000	X			=		
542A0223	P CUL CL A 1 18	FOOT	113.000	X			=		
54207171	P CUL 1 RC-E EQRS 36	FOOT	88.000	X			=		
54207183	P CUL 1 RC-E EQRS 48	FOOT	330.000	X			=		
54213657	PRC FLAR END SEC 12	EACH	4.000	X			=		
54213663	PRC FLAR END SEC 18	EACH	10.000	X			=		
54213669	PRC FLAR END SEC 24	EACH	3.000	X			=		
54213681	PRC FLAR END SEC 36	EACH	2.000	X			=		
54213705	PRC FLAR END SEC 60	EACH	1.000	X			=		
54214521	PRC FL END S EQ RS 36	EACH	2.000	X			=		
54214533	PRC FL END S EQ RS 48	EACH	2.000	X			=		
54215424	CIP RC END SEC 24	EACH	1.000	X			=		
54215430	CIP RC END SEC 30	EACH	1.000	X			=		
54215448	CIP RC END SEC 48	EACH	1.000	X			=		
54244405	FL INLT BX MED 542546	EACH	18.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
550A0160	STORM SEW CL A 1 36	FOOT	177.000			X =		
550A0180	STORM SEW CL A 1 42	FOOT	267.000			X =		
550A0190	STORM SEW CL A 1 48	FOOT	32.000			X =		
550A0340	STORM SEW CL A 2 12	FOOT	6,922.000			X =		
550A0360	STORM SEW CL A 2 15	FOOT	680.000			X =		
550A0380	STORM SEW CL A 2 18	FOOT	1,567.000			X =		
550A0410	STORM SEW CL A 2 24	FOOT	1,850.000			X =		
550A0430	STORM SEW CL A 2 30	FOOT	1,243.000			X =		
550A0450	STORM SEW CL A 2 36	FOOT	1,150.000			X =		
550A0470	STORM SEW CL A 2 42	FOOT	455.000			X =		
550A0480	STORM SEW CL A 2 48	FOOT	293.000			X =		
550A0500	STORM SEW CL A 2 60	FOOT	592.000			X =		
550A0640	STORM SEW CL A 3 12	FOOT	36.000			X =		
550A0660	STORM SEW CL A 3 15	FOOT	311.000			X =		
550A0710	STORM SEW CL A 3 24	FOOT	141.000			X =		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
550A0750	STORM SEW CL A 3 36	FOOT	741.000	X			=		
550A0800	STORM SEW CL A 3 60	FOOT	20.000	X			=		
55035900	SS 2 RCEP S60 R38	FOOT	333.000	X			=		
55037000	SS 3 RCEP S60 R38	FOOT	103.000	X			=		
55100400	STORM SEWER REM 10	FOOT	335.000	X			=		
55100500	STORM SEWER REM 12	FOOT	1,352.000	X			=		
55100700	STORM SEWER REM 15	FOOT	1,420.000	X			=		
55100900	STORM SEWER REM 18	FOOT	132.000	X			=		
55101200	STORM SEWER REM 24	FOOT	322.000	X			=		
55101900	STORM SEWER REM 48	FOOT	42.000	X			=		
56103100	D I WATER MAIN 8	FOOT	660.000	X			=		
56105000	WATER VALVES 8	EACH	1.000	X			=		
56400500	FIRE HYDNTS TO BE REM	EACH	1.000	X			=		
56400600	FIRE HYDRANTS	EACH	1.000	X			=		
58000110	MEMBRANE WATERPRF SPL	SQ FT	5,715.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
58700200	BRIDGE SEAT SEALER	SQ FT	590.000	X			=		
58700300	CONCRETE SEALER	SQ FT	2,798.000	X			=		
59100100	GEOCOMPOSITE WALL DR	SQ YD	2,049.000	X			=		
59300100	CONTR LOW-STRENG MATL	CU YD	601.000	X			=		
60107700	PIPE UNDERDRAINS 6	FOOT	2,638.000	X			=		
60108200	PIPE UNDERDRAIN 6 SP	FOOT	132.000	X			=		
60109580	P UNDR FOR STRUCT 4	FOOT	1,890.000	X			=		
60201310	CB TA 4 DIA T20F&G	EACH	162.000	X			=		
60207605	CB TC T8G	EACH	1.000	X			=		
60208210	CB TC T20F&G	EACH	2.000	X			=		
60218400	MAN TA 4 DIA T1F CL	EACH	14.000	X			=		
60221100	MAN TA 5 DIA T1F CL	EACH	35.000	X			=		
60223800	MAN TA 6 DIA T1F CL	EACH	8.000	X			=		
60224446	MAN TA 7 DIA T1F CL	EACH	6.000	X			=		
60228110	MAN SAN 4 DIA T1F CL	EACH	4.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
60228300	DROP SAN MAN T1F CL	EACH	1.000	X			=		
60236200	INLETS TA T8G	EACH	5.000	X			=		
60248700	VV TA 4 DIA T1F CL	EACH	2.000	X			=		
60250200	CB ADJUST	EACH	4.000	X			=		
60255500	MAN ADJUST	EACH	4.000	X			=		
60260100	INLETS ADJUST	EACH	4.000	X			=		
60406100	FR & LIDS T1 CL	EACH	5.000	X			=		
60500040	REMOV MANHOLES	EACH	26.000	X			=		
60500050	REMOV CATCH BAS	EACH	23.000	X			=		
60500060	REMOV INLETS	EACH	19.000	X			=		
60600605	CONC CURB TB	FOOT	335.000	X			=		
60603800	COMB CC&G TB6.12	FOOT	3,023.000	X			=		
60604200	COMB CC&G TB6.12 SPL	FOOT	25.000	X			=		
60605000	COMB CC&G TB6.24	FOOT	18,519.000	X			=		
60605400	COMB CC&G TB6.24 SPL	FOOT	2,446.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
60608521	COMB CC&G TM2.24	FOOT	1,712.000	X			=		
60608600	COMB CC&G TM6.06	FOOT	52.000	X			=		
60618300	CONC MEDIAN SURF 4	SQ FT	5,919.000	X			=		
60623711	CONC MEDIAN	SQ FT	2,074.000	X			=		
63000000	SPBGR TY A	FOOT	125.000	X			=		
63000005	SPBGR TY B	FOOT	75.000	X			=		
63100045	TRAF BAR TERM T2	EACH	2.000	X			=		
63100085	TRAF BAR TERM T6	EACH	3.000	X			=		
63100167	TR BAR TRM T1 SPL TAN	EACH	5.000	X			=		
63200310	GUARDRAIL REMOV	FOOT	1,028.000	X			=		
63300705	RUB RAIL	FOOT	145.000	X			=		
67100100	MOBILIZATION	L SUM	1.000	X			=		
70101800	TRAF CONT & PROT SPL	L SUM	1.000	X			=		
70106800	CHANGEABLE MESSAGE SN	CAL MO	62.000	X			=		
70300100	SHORT-TERM PAVT MKING	FOOT	13,464.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
70300240	TEMP PVT MK LINE 6	FOOT	3,640.000	X			=		
70300520	PAVT MARK TAPE T3 4	FOOT	5,744.000	X			=		
70301000	WORK ZONE PAVT MK REM	SQ FT	63,856.000	X			=		
70400100	TEMP CONC BARRIER	FOOT	2,540.000	X			=		
70400200	REL TEMP CONC BARRIER	FOOT	1,100.000	X			=		
72000100	SIGN PANEL T1	SQ FT	469.000	X			=		
72000200	SIGN PANEL T2	SQ FT	124.000	X			=		
72400310	REMOV SIGN PANEL T1	SQ FT	651.000	X			=		
72400320	REMOV SIGN PANEL T2	SQ FT	44.000	X			=		
72400720	RELOC SIGN PANEL T2	SQ FT	30.000	X			=		
72800100	TELES STL SIN SUPPORT	FOOT	720.000	X			=		
73000100	WOOD SIN SUPPORT	FOOT	76.000	X			=		
73100100	BASE TEL STL SIN SUPP	EACH	7.000	X			=		
78000100	THPL PVT MK LTR & SYM	SQ FT	5,131.000	X			=		
78000200	THPL PVT MK LINE 4	FOOT	155,215.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
78000400	THPL PVT MK LINE 6	FOOT	16,794.000	X			=		
78000500	THPL PVT MK LINE 8	FOOT	5,221.000	X			=		
78000600	THPL PVT MK LINE 12	FOOT	6,641.000	X			=		
78000650	THPL PVT MK LINE 24	FOOT	1,807.000	X			=		
78003100	PREF PL PM TB LTR-SYM	SQ FT	199.000	X			=		
78003110	PREF PL PM TB LINE 4	FOOT	1,024.000	X			=		
78003130	PREF PL PM TB LINE 6	FOOT	775.000	X			=		
78100105	RAISED REF PVT MKR BR	EACH	69.000	X			=		
78200100	MONODIR PRIS BAR REFL	EACH	278.000	X			=		
78200410	GUARDRAIL MKR TYPE A	EACH	16.000	X			=		
78200420	GUARDRAIL MKR TYPE B	EACH	15.000	X			=		
78201000	TERMINAL MARKER - DA	EACH	5.000	X			=		
78300100	PAVT MARKING REMOVAL	SQ FT	14,448.000	X			=		
80400100	ELECT SERV INSTALL	EACH	3.000	X			=		
80400200	ELECT UTIL SERV CONN	L SUM	1.000	X	6,000	00	=	6,000	00

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
81000300	CON T 1 GALVS	FOOT	350.000	X			=		
81000600	CON T 2 GALVS	FOOT	3,670.000	X			=		
81000700	CON T 2 1/2 GALVS	FOOT	149.000	X			=		
81000800	CON T 3 GALVS	FOOT	16.000	X			=		
81000900	CON T 3 1/2 GALVS	FOOT	13.000	X			=		
81001000	CON T 4 GALVS	FOOT	180.000	X			=		
81001100	CON T 5 GALVS	FOOT	112.000	X			=		
81001200	CON T 6 GALVS	FOOT	10.000	X			=		
81018200	CON P 1 GALVS	FOOT	560.000	X			=		
81018500	CON P 2 GALVS	FOOT	500.000	X			=		
81018900	CON P 4 GALVS	FOOT	1,554.000	X			=		
81019000	CON P 5 GALVS	FOOT	155.000	X			=		
81019100	CON P 6 GALVS	FOOT	197.000	X			=		
81100100	CON AT ST 1/2 GALVS	FOOT	290.000	X			=		
81100300	CON AT ST 1 GALVS	FOOT	450.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
81300220	JUN BX SS AS 6X6X4	EACH	2.000	X			=		
81300550	JUN BX SS AS 12X12X6	EACH	5.000	X			=		
81302000	JUN BX CI AS 4X4X3	EACH	3.000	X			=		
81400100	HANDHOLE	EACH	34.000	X			=		
81400200	HD HANDHOLE	EACH	2.000	X			=		
81400300	DBL HANDHOLE	EACH	6.000	X			=		
81700315	EC C EPR RHW 3-1C 10	FOOT	745.000	X			=		
81900200	TR & BKFIL F ELECT WK	FOOT	15,482.000	X			=		
82102400	LUM SV HOR MT 400W	EACH	72.000	X			=		
82500505	LIGHT CONTROLLER SPL	EACH	3.000	X			=		
82500605	LT CONTROL PC RELAY	EACH	3.000	X			=		
83007400	LT P A 35MH 10MA	EACH	5.000	X			=		
83008400	LT P A 40MH 10MA	EACH	62.000	X			=		
83600200	LIGHT POLE FDN 24D	FOOT	1,065.000	X			=		
83600215	LIGHT POLE FDN 24D OS	FOOT	45.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
83800105	BKWY DEV TR B 11.5BC	EACH	73.000	X			=		
84200500	REM EX LT UNIT SALV	EACH	26.000	X			=		
84200700	LIGHTING FDN REMOV	EACH	26.000	X			=		
84400105	RELOC EX LT UNIT	EACH	13.000	X			=		
85700205	FAC T4 CAB SPL	EACH	1.000	X			=		
85700305	FAC T5 CAB SPL	EACH	1.000	X			=		
86000100	MASTER CONTROLLER	EACH	1.000	X			=		
86400100	TRANSCEIVER - FIB OPT	EACH	2.000	X			=		
87301215	ELCBL C SIGNAL 14 2C	FOOT	4,652.000	X			=		
87301225	ELCBL C SIGNAL 14 3C	FOOT	7,421.000	X			=		
87301245	ELCBL C SIGNAL 14 5C	FOOT	2,948.000	X			=		
87301255	ELCBL C SIGNAL 14 7C	FOOT	3,546.000	X			=		
87301305	ELCBL C LEAD 14 1PR	FOOT	11,415.000	X			=		
87301805	ELCBL C SERV 6 2C	FOOT	124.000	X			=		
87502440	TS POST GALVS 10	EACH	1.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
87502480	TS POST GALVS 14	EACH	1.000	X			=		
87502500	TS POST GALVS 16	EACH	3.000	X			=		
87700160	S MAA & P 24	EACH	1.000	X			=		
87700170	S MAA & P 26	EACH	1.000	X			=		
87700270	S MAA & P 46	EACH	1.000	X			=		
87700320	S MAA & P 55	EACH	1.000	X			=		
87702850	STL COMB MAA&P 24	EACH	1.000	X			=		
87702860	STL COMB MAA&P 26	EACH	1.000	X			=		
87702920	STL COMB MAA&P 38	EACH	1.000	X			=		
87703000	STL COMB MAA&P 55	EACH	1.000	X			=		
87800100	CONC FDN TY A	FOOT	20.000	X			=		
87800150	CONC FDN TY C	FOOT	8.000	X			=		
87800400	CONC FDN TY E 30D	FOOT	60.000	X			=		
87800415	CONC FDN TY E 36D	FOOT	90.000	X			=		
87900100	DRILL EX FOUNDATION	EACH	1.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
87900200	DRILL EX HANDHOLE	EACH	2.000	X			=		
88040070	SH P LED 1F 3S BM	EACH	1.000	X			=		
88040090	SH P LED 1F 3S MAM	EACH	24.000	X			=		
88040150	SH P LED 1F 5S BM	EACH	6.000	X			=		
88040160	SH P LED 1F 5S MAM	EACH	9.000	X			=		
88040260	SH P LED 2F 1-3 1-5BM	EACH	1.000	X			=		
88102810	PED SH P LED 1F BM	EACH	12.000	X			=		
88102850	PED SH P LED 3F BM	EACH	2.000	X			=		
88200100	TS BACKPLATE	EACH	26.000	X			=		
88500100	INDUCTIVE LOOP DETECT	EACH	30.000	X			=		
88600100	DET LOOP T1	FOOT	1,640.000	X			=		
88700200	LIGHT DETECTOR	EACH	7.000	X			=		
88700300	LIGHT DETECTOR AMP	EACH	2.000	X			=		
88800100	PED PUSH-BUTTON	EACH	18.000	X			=		
89000100	TEMP TR SIG INSTALL	EACH	1.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
89502375	REMOV EX TS EQUIP	EACH	2.000	X			=		
89502380	REMOV EX HANDHOLE	EACH	13.000	X			=		
89502385	REMOV EX CONC FDN	EACH	12.000	X			=		
							TOTAL $		

NOTE:

1. EACH PAY ITEM SHOULD HAVE A UNIT PRICE AND A TOTAL PRICE.

2. THE UNIT PRICE SHALL GOVERN IF NO TOTAL PRICE IS SHOWN OR IF THERE IS A DISCREPANCY BETWEEN THE PRODUCT OF THE UNIT PRICE MULTIPLIED BY THE QUANTITY.

3. IF A UNIT PRICE IS OMITTED, THE TOTAL PRICE WILL BE DIVIDED BY THE QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE.

4. A BID MAY BE DECLARED UNACCEPTABLE IF NEITHER A UNIT PRICE NOR A TOTAL PRICE IS SHOWN.

RETURN WITH BID

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

I. GENERAL

A. Article 50 of the Illinois Procurement Code establishes the duty of all State chief procurement officers, State purchasing officers, 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. By execution of the Proposal Signature Sheet, the bidder indicates that each of the mandated assurances has 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 termination of the contract and the suspension or debarment of the bidder.

II. ASSURANCES

A. 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. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous assurance, and the surety providing the performance bond shall be responsible for the completion of the contract.

B. Felons

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any state agency 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.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-10.

C. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

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 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 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 days after the officer, member, or employee takes office or is employed.

The current salary of the Governor is $171,000.00. Sixty percent of the salary is $102,600.00.

2. 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 and Executive Order Number 3 (1998). Information concerning the exemption process is available from the Department upon request.

D. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

(a) 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.

2. 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.

E. Inducements

1. The Illinois Procurement Code provides:

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 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 or who withholds a bid in consideration of the promise for the payment of money or other valuable thing is guilty of a Class 4 felony.

2. 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.

F. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

Section 50-30. Revolving door prohibition. Chief procurement officers, associate procurement officers, State purchasing officers, 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.

2. 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.

G. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

Section 50-40. Reporting anticompetitive practices. When, for any reason, any vendor, bidder, contractor, chief procurement officer, State purchasing officer, 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 chief procurement officer.

2. 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 is submitted.

H. Confidentiality

1. The Illinois Procurement Code provides:

Section 50-45. Confidentiality. Any chief procurement officer, State purchasing officer, 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.

2. 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

I. Insider Information

1. The Illinois Procurement Act provides:

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.

2. 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.

III. CERTIFICATIONS

A. 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. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous certification, and the surety providing the performance bond shall be responsible for completion of the contract.

B. Bribery

1. The Illinois Procurement Code provides:

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 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, 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 1961.

(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 shall contain a certification by the contractor that the contractor is not barred from being awarded a contract or subcontract under this Section. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

2. The bidder certifies that it is not barred from being awarded a contract under Section 50.5.

C. Educational Loan

1. Section 3 of the Educational Loan Default Act provides:

§ 3. No State agency shall contract with an individual for goods or services if that individual is in default, as defined in Section 2 of this Act, on an educational loan. Any contract used by any State agency shall include a statement certifying that the individual is not in default on an educational loan as provided in this Section.

2. 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.

D. Bid-Rigging/Bid Rotating

1. Section 33E-11 of the Criminal Code of 1961 provides:

§ 33E-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. The State and units of local government shall provide the appropriate forms for such certification.

(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.

A violation of Section 33E-4 would be represented by a conviction of the crime of bid-rotating which, in addition to Class 2 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 permanently barred 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.

2. 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.

E. International Anti-Boycott

1. Section 5 of the International Anti-Boycott Certification Act provides:

§ 5. State contracts. 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.

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

F. Drug Free Workplace

1. 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.

2. The bidder certifies that if awarded a contract in excess of $5,000 it will provide a drug free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance, including cannabis, is prohibited in the contractor’s workplace; specifying the actions that will be taken against employees for violations of such prohibition; and notifying the employee that, as a condition of employment on such contract, the employee shall abide by the terms of the statement, and notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

(b) Establishing a drug free awareness program to inform employees about the dangers of drug abuse in the workplace; the contractor’s policy of maintaining a drug free workplace; any available drug counseling, rehabilitation, and employee assistance programs; and the penalties that may be imposed upon employees for drug violations.

(c) Providing a copy of the statement required by subparagraph (1) to each employee engaged in the performance of the contract and to post the statement in a prominent place in the workplace.

(d) Notifying the Department within ten (10) days after receiving notice from an employee or otherwise receiving actual notice of the conviction of an employee for a violation of any criminal drug statute occurring in the workplace.

(e) Imposing or requiring, within 30 days after receiving notice from an employee of a conviction or actual notice of such a conviction, an appropriate personnel action, up to and including termination, or the satisfactory participation in a drug abuse assistance or rehabilitation program approved by a federal, state or local health, law enforcement or other appropriate agency.

(f) Assisting employees in selecting a course of action in the event drug counseling, treatment, and rehabilitation is required and indicating that a trained referral team is in place.

(g) Making a good faith effort to continue to maintain a drug free workplace through implementation of the actions and efforts stated in this certification.

G. Debt Delinquency

1. The Illinois Procurement Code provides:

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

The contractor or bidder certifies that it, or any affiliate, is not barred from being awarded a contract under 30 ILCS 500. Section 50-11 prohibits a person from entering into a contract with a State agency 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 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 contractor further acknowledges that the contracting State agency may declare the contract void if this certification is false or if the contractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

H. Sarbanes-Oxley Act of 2002

1. The Illinois Procurement Code, Section 50-60(c), provides:

The contractor 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 for a period of five years prior to the date of the bid or contract. The contractor acknowledges that the contracting agency shall declare the contract void if this certification is false.

I. Addenda

The contractor or bidder certifies that all relevant addenda have been incorporated in to this contract. Failure to do so may cause the bid to be declared unacceptable.

J. Section 42 of the Environmental Protection Act

The contractor certifies in accordance with 30 ILCS 500/50-12 that the bidder or contractor is not barred from being awarded a contract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency 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 contractor acknowledges that the contracting agency may declare the contract void if this certification is false.

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

In accordance with the provisions of Section 30-22 (6) of the Illinois Procurement 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.**

NA - FEDERAL

The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision 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.

L. Executive Order Number 1 (2007) Regarding Lobbying on Government Procurements

The bidder hereby warrants and certifies that they have complied and will comply with the requirements set forth in this Order. The requirements of this warrant and certification are a material part of the contract, and the contractor shall require this warrant and certification provision to be included in all approved subcontracts.

RETURN WITH BID

M. Disclosure of Business Operations in Iran

Public Act 95-0616 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, offer or, 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 Act.

Failure to make the disclosure required by the Act shall cause the bid, offer or proposal to be considered not responsive. The disclosure will be considered when evaluating the bid, offer, or proposal 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 the attached document.

TO BE RETURNED 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 Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous disclosure, 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 Illinois Procurement Code provides that all bids of more than $10,000 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.

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 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person 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 person 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 person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

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. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies. **The forms must be included with each bid or incorporated by reference.**

C. Disclosure Form Instructions

Form A: For bidders that have previously submitted the information requested in Form A

The Department has retained the Form A disclosures submitted by all bidders responding to these requirements for the April 24, 1998 or any subsequent letting conducted by the Department. The bidder has the option of submitting the information again or the bidder may check the following certification statement indicating that the information previously submitted by the bidder is, as of the date of submission, current and accurate. Before checking this certification, the bidder should carefully review its prior submissions to ensure the Certification is correct. If the Bidder checks the Certification, the Bidder should proceed to Form B instructions.

CERTIFICATION STATEMENT

I have determined that the Form A disclosure information previously submitted is current and accurate, and all forms are hereby incorporated by reference in this bid. Any necessary additional forms or amendments to previously submitted forms are attached to this bid.

_____
(Bidding Company)

☐ _____ _____
Signature of Authorized Representative Date

Form A: For bidders who have NOT previously submitted the information requested in Form A

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 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person 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 the second page of Form A must be signed and dated by a person 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 $102,600.00? YES ___ NO___
3. Does anyone in your organization receive more than $102,600.00 of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not 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 $102,600.00? YES ___ NO __

   (Note: Only one set of forms needs to be completed per person 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 a person that is authorized to execute contracts for your organization. **Photocopied or stamped signatures are not acceptable**. The person signing can be, but does not have to be, the person 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 on page 2 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

Form B: 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.

D. Bidders Submitting More Than One Bid

Bidders submitting multiple bids may submit one set of forms consisting of all required Form A disclosures and one Form B for use with all bids. Please indicate in the space provided below the bid item that contains the original disclosure forms and the bid items which incorporate the forms by reference.

- The bid submitted for letting item _____ contains the Form A disclosures or Certification Statement and the Form B disclosures. The following letting items incorporate the said forms by reference:

_____

_____

RETURN WITH BID/OFFER

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 the Section 50-35 of the Illinois Procurement 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 $10,000, 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.**

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 $102,600.00 (60% of the Governor's salary as of 7/1/07). **(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 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 $102,600.00, (60% of the Governor's salary as of 7/1/07) provide the name the State agency for which you are employed and your annual salary. _____
_____

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds $102,600.00, (60% of the Governor's salary as of 7/1/07) 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 the 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 $102,600.00, (60% of the Governor's salary as of 7/1/07) 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 2 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 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 $102,600.00, (60% of the Governor's salary as of 7/1/07) 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 $102,600.00, (60% of the salary of the Governor as of 7/1/07) are you entitled to receive (i) more than 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the 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 $102,600.00, (60% of the Governor's salary as of 7/1/07) 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 2 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 statues 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/OFFER

(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 __

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page.

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

NOT APPLICABLE STATEMENT

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

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Other Contracts & Procurement 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 the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of $10,000, and for all open-ended contracts.

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 the bottom of 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

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

The following requirements of the Illinois Department of Human Rights' Rules and Regulations 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 Section 7.2 of the Illinois Department of Human Rights' Rules and Regulations for Public Contracts adopted as amended on September 17, 1980. 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

Illinois Department of Transportation

Contract No. 63024
DUPAGE County
Section 00-00114-00-PV (Naperville)
Project M-BRM-7003(985)
Routes FAU 2552 & FAP 369 (Washington St. & 75th St.)
District 1 Construction Funds

PART I. IDENTIFICATION

Dept. Human Rights # _____ Duration of Project: _____

Name of Bidder: _____

PART II. WORKFORCE PROJECTION

A. The undersigned bidder has analyzed minority group and female populations, unemployment rates and availability of workers for the location in which this contract work is to be performed, and for the locations from which the bidder recruits employees, and hereby submits the following workforce projection including a projection for minority and female employee utilization in all job categories in the workforce to be allocated to this contract:

TABLE A

TOTAL Workforce Projection for Contract													TABLE B: CURRENT EMPLOYEES TO BE ASSIGNED TO CONTRACT			
			MINORITY EMPLOYEES						TRAINEES							
JOB CATEGORIES	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.		APPREN-TICES		ON THE JOB TRAINEES		TOTAL EMPLOYEES		MINORITY EMPLOYEES	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
OFFICIALS (MANAGERS)																
SUPERVISORS																
FOREMEN																
CLERICAL																
EQUIPMENT OPERATORS																
MECHANICS																
TRUCK DRIVERS																
IRONWORKERS																
CARPENTERS																
CEMENT MASONS																
ELECTRICIANS																
PIPEFITTERS, PLUMBERS																
PAINTERS																
LABORERS, SEMI-SKILLED																
LABORERS, UNSKILLED																
TOTAL																

TABLE C

TOTAL Training Projection for Contract								
EMPLOYEES IN TRAINING	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.	
	M	F	M	F	M	F	M	F
APPRENTICES								
ON THE JOB TRAINEES								

*Other minorities are defined as Asians (A) or Native Americans (N).
Please specify race of each employee shown in Other Minorities column.

FOR DEPARTMENT USE ONLY

BC 1256 (Rev. 12/11/08)

Note: See instructions on page 2

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 **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. 63024
DUPAGE County
Section 00-00114-00-PV (Naperville)
Project M-BRM-7003(985)
Routes FAU 2552 & FAP 369 (Washington St. & 75th St.)
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.

Firm Name _____

(IF AN INDIVIDUAL) Signature of Owner _____

Business Address _____

_____

Firm Name _____

By _____

(IF A CO-PARTNERSHIP) Business Address _____

_____
Name and Address of All Members of the Firm:

_____ _____

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A CORPORATION)

_____
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 _____

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A JOINT VENTURE)

_____
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.

Illinois Department of Transportation

Return with Bid

Division of Highways
Proposal Bid Bond
(Effective November 1, 1992)

Item No. _____

Letting Date _____

KNOW ALL MEN BY THESE PRESENTS, That We _____

_____

as PRINCIPAL, and _____

_____ as SURETY, are 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 Article 102.09 of the "Standard Specifications for Road and Bridge Construction" in effect on the date of 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, submit a DBE Utilization Plan that is accepted and approved by the Department; 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 make the required DBE submission or 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 and the said SURETY have caused this instrument to be signed by

their respective officers this _____ day of _____ A.D., _____ .

PRINCIPAL

_____ _____
(Company Name) (Company Name)

By: _____ By: _____
(Signature & Title) (Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

STATE OF ILLINOIS,

County of _____

I, _____ , a Notary Public in and for said County, do hereby certify that

_____ and _____
(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instrument as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____ A.D. _____

My commission expires _____ _____
Notary Public

In lieu of completing the above section of the Proposal Bid Form, the Principal may file an Electronic Bid Bond. By signing the proposal and marking the check box next to the Signature and Title line below, 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

PROPOSAL ENVELOPE

Illinois Department of Transportation

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. 63024
DUPAGE County
Section 00-00114-00-PV (Naperville)
Project M-BRM-7003(985)
Routes FAU 2552 & FAP 369 (Washington St. & 75th St.)
District 1 Construction Funds

Illinois Department of Transportation

Illinois Department of Transportation

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 at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 o'clock a.m., September 19, 2008. 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 the 10:00 a.m. cut off time.

2. **DESCRIPTION OF WORK**. The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

   Contract No. 63024
   DUPAGE County
   Section 00-00114-00-PV (Naperville)
   Project M-BRM-7003(985)
   Routes FAU 2552 & FAP 369 (Washington St. & 75th St.)
   District 1 Construction Funds

Improvement consists of the widening and reconstruction of Washington Street and 75th Street, complete replacement of the existing 75th Street bridge over the West Branch of the DuPage River with a 3-span W 24 x 104 steel girder structure, 155'-7 1/2" long, construction of a precast pedestrian tunnel crossing under Washington Street, north of 75th Street and construction of the extension of the Dupage River Trail along the west bank of the west branch of the Dupage River. Project also includes traffic signals, lighting, storm sewer and six retaining walls, all located in Naperville.

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

   (b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. **AWARD CRITERIA AND REJECTION OF BIDS**. This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Milton R. Sees, Secretary

BD 351 (Rev. 01/2003)

Contract 63024

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2008

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-07) (Revised 1-1-08)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

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

INDEX OF SPECIAL PROVISIONS

INDEX LOCAL ROADS AND STREETS SPECIAL PROVISIONS

LR #	Pg #		Special Provision Title	Effective	Revised
LR SD 12			Slab Movement Detection Device	Nov. 11, 1984	Jan. 1, 2007
LR SD 13			Required Cold Milled Surface Texture	Nov. 1, 1987	Jan. 1, 2007
LR 102			Protests on Local Lettings	Jan. 1, 2007	
LR 105	287	X	Cooperation with Utilities	Jan. 1, 1999	Jan. 1, 2007
LR 107-2			Railroad Protective Liability Insurance for Local Lettings	Mar. 1, 2005	Jan. 1, 2006
LR 107-3			Disadvantaged Business Enterprise Participation	Jan. 1, 2007	
LR 107-4	290	X	Insurance	Feb. 1, 2007	Aug. 1, 2007
LR 108			Combination Bids	Jan. 1, 1994	Mar. 1, 2005
LR 212			Shaping Roadway	Aug. 1, 1969	Jan. 1, 2002
LR 355-1			Asphalt Stabilized Base Course, Road Mix or Traveling Plant Mix	Oct. 1, 1973	Jan. 1, 2007
LR 355-2			Asphalt Stabilized Base Course, Plant Mix	Feb. 2, 1963	Jan. 1, 2007
LR 400-1			Bituminous Treated Earth Surface	Jan. 1, 2008	
LR 400-2			Bituminous Surface Mixture (Class B)	Jan. 1, 2008	
LR 400-3			Pavement Rehabilitation by the Heat-Scarify-Overlay Method	Jan. 1, 2008	
LR 402			Salt Stabilized Surface Course	Feb. 20, 1963	Jan. 1, 2007
LR 403-2			Bituminous Hot Mix Sand Seal Coat	Aug. 1, 1969	Jan. 1, 2007
LR 406			Filling HMA Core Holes with Non-shrink Grout	Jan. 1, 2008	
LR 420			PCC Pavement (Special)	May 12, 1964	Jan. 2, 2007
LR 442			Bituminous Patching Mixtures for Maintenance Use	Jan. 1, 2004	Jun. 1, 2007
LR 451			Crack Filling Bituminous Pavement with Fiber-Asphalt	Oct. 1, 1991	Jan. 1, 2007
LR 503-1			Furnishing Class SI Concrete	Oct. 1, 1973	Jan. 1, 2002
LR 503-2			Furnishing Class SI Concrete (Short Load)	Jan. 1, 1989	Jan. 1, 2002
LR 542			Pipe Culverts, Type _____ (Furnished)	Sep. 1, 1964	Jan. 1, 2007
LR 663			Calcium Chloride Applied	Jun. 1, 1958	Jan. 1, 2007
LR 702			Construction and Maintenance Signs	Jan. 1, 2004	Jun. 1, 2007
LR 1004			Coarse Aggregate for Bituminous Surface Treatment	Jan. 1, 2002	Jan. 1, 2007
LR 1013			Rock Salt (Sodium Chloride)	Aug. 1, 1969	Jan. 1, 2002
LR 1032-1			Penetrating Emulsions	Jan. 1, 2007	Feb. 1, 2007
LR 1032-2			Multigrade Cold Mix Asphal	Jan. 1, 2007	Feb. 1, 2007
LR 1102			Road Mix or Traveling Plan Mix Equipment	Jan. 1, 2007	

BDE SPECIAL PROVISIONS
For the August 1 and September 19, 2008 Lettings

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

File Name	Pg#		Special Provision Title	Effective	Revised
~~80099~~			~~Accessible Pedestrian Signals (APS)~~	~~April 1, 2003~~	~~Jan. 1, 2007~~
80186	291	X	Alkali-Silica Reaction for Cast-in-Place Concrete	Aug. 1, 2007	
80108	294	X	Asbestos Bearing Pad Removal	Nov. 1, 2003	
7254I			Asbestos Waterproofing Membrane and Asbestos Hot-Mix Asphalt Surface Removal	June 1, 1989	Jan. 2, 2007
80192			Automated Flagger Assistance Device	Jan. 1, 2008	
80173	295	X	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Jan. 2, 2007
5026I			Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	Jan. 1, 2007
5048I			Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	Jan. 1, 2007
5049I			Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	Jan. 1, 2007
5053I			Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	Jan. 1, 2007
80166	298	X	Cement	Jan. 1, 2007	Nov. 1, 2007
80198			Completion Date (via calendar days)	April 1, 2008	
80199			Completion Date (via calendar days) Plus Working Days	April 1, 2008	
80193			Concrete Barrier	Jan. 1, 2008	
80177			Digital Terrain Modeling for Earthwork Calculations	April 1, 2007	
80029	301	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Jan. 1, 2007
80178	309	X	Dowel Bars	April 1, 2007	Jan. 1, 2008
80167	310	X	Electrical Service Installation – Traffic Signals	Jan. 1, 2007	
* 80179			Engineer's Field Office Type A	April 1, 2007	Aug. 1, 2008
* 80205			Engineer's Field Office Type B	Aug. 1, 2008	
80175			Epoxy Pavement Markings	Jan. 1, 2007	
80189	311	X	Equipment Rental Rates	Aug. 2, 2007	Jan. 2, 2008
80180	313	X	Erosion and Sediment Control Deficiency Deduction	April 1, 2007	
80169			High Tension Cable Median Barrier	Jan. 1, 2007	
80194	314	X	HMA – Hauling on Partially Completed Full-Depth Pavement	Jan. 1, 2008	
80181	316	X	Hot-Mix Asphalt – Field Voids in the Mineral Aggregate	April 1, 2007	April 1, 2008
80201	318	X	Hot Mix Asphalt – Plant Test Frequency	April 1, 2008	
80202	320	X	Hot Mix Asphalt - Transportation	April 1, 2008	
80136			Hot-Mix Asphalt Mixture IL-4.75	Nov. 1, 2004	Jan. 1, 2008
80195			Hot-Mix Asphalt Mixture IL-9.5L	Jan. 1, 2008	
80109			Impact Attenuators	Nov. 1, 2003	Jan. 1, 2007
80110	321	X	Impact Attenuators, Temporary	Nov. 1, 2003	Jan. 1, 2007
80196	323	X	Mast Arm Assembly and Pole	Jan. 1, 2008	
80045			Material Transfer Device	June 15, 1999	Jan. 1, 2007
80165			Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2007
80082	325	X	Multilane Pavement Patching	Nov. 1, 2002	
80129	326	X	Notched Wedge Longitudinal Joint	July 1, 2004	Jan. 1, 2007
80182	328	X	Notification of Reduced Width	April 1, 2007	
80069	329	X	Organic Zinc-Rich Paint System	Nov. 1, 2001	Jan. 1, 2008
80022	333	X	Payments to Subcontractors	June 1, 2000	Jan. 1, 2006
80134	335	X	Plastic Blockouts for Guardrail	Nov. 1, 2004	Jan. 1, 2007
80119			Polyurea Pavement Marking	April 1, 2004	Jan. 1, 2007
80170	336	X	Portland Cement Concrete Plants	Jan. 1, 2007	
80171	338	X	Precast Handling Holes	Jan. 1, 2007	
80015	340	X	Public Convenience and Safety	Jan. 1, 2000	

File Name	Pg#		Special Provision Title	Effective	Revised
3426I			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157			Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80172			Reclaimed Asphalt Pavement (RAP)	Jan. 1, 2007	Aug. 1, 2007
80183	341	X	Reflective Sheeting on Channelizing Devices	April 1, 2007	
80151	342	X	Reinforcement Bars	Nov. 1, 2005	Jan. 2, 2008
* 80206	344	X	Reinforcement Bars – Storage and Protection	Aug. 1, 2008	
80164	345	X	Removal and Disposal of Regulated Substances	Aug. 1, 2006	Jan. 1, 2007
80184	346	X	Retroreflective Sheeting, Nonreflective Sheeting, and Translucent Overlay Film for Highway Signs	April 1, 2007	
80131	352	X	Seeding	July 1, 2004	Aug. 1, 2007
80152	354	X	Self-Consolidating Concrete for Cast-In-Place Construction	Nov. 1, 2005	Jan. 1, 2007
80132	359	X	Self-Consolidating Concrete for Precast Products	July 1, 2004	Jan. 1, 2007
80197	361	X	Silt Filter Fence	Jan. 1, 2008	
80127	362	X	Steel Cost Adjustment	April 2, 2004	April 1, 2007
80203	366	X	Steel Inserts and Brackets Cast into Concrete	April 1, 2008	
80153	367	X	Steel Plate Beam Guardrail	Nov. 1, 2005	Aug. 1, 2007
80191	368	X	Stone Gradation Testing	Nov. 1, 2007	
80143	369	X	Subcontractor Mobilization Payments	April 2, 2005	
80075	370	X	Surface Testing of Pavements	April 1, 2002	Jan. 1, 2007
80087	377	X	Temporary Erosion Control	Nov. 1, 2002	Jan. 1, 2008
80176	378	X	Thermoplastic Pavement Markings	Jan. 1, 2007	
80161	380	X	Traffic Signal Grounding	April 1, 2006	Jan. 1, 2007
20338	382	X	Training Special Provisions	Oct. 15, 1975	
80185			Type ZZ Retroreflective Sheeting, Nonreflective Sheeting, and Translucent Overlay Film for Highway Signs	April 1, 2007	
80162	385	X	Uninterruptable Power Supply (UPS)	April 1, 2006	Jan. 1, 2007
80149			Variable Spaced Tining	Aug. 1, 2005	Jan. 1, 2007
80163	391	X	Water Blaster with Vacuum Recovery	April 1, 2006	Jan. 1, 2007
80071			Working Days	Jan. 1, 2002	
80204			Woven Wire Fence	April 1, 2008	

The following special provisions have been **deleted** from use:

80187 Legal Requirements to be Observed

80190 Engineer's Field Office (Long Distance Bill) This special provision has been replaced by Engineer's Field Office Type A and Engineer's Field Office Type B.

The following special provisions are in the 2008 Supplemental Specifications and Recurring Special Provisions:

File Name	Special Provision Title	New Location	Effective	Revised
80168	Errata for the 2007 Standard Specifications	Supplemental	Jan. 1, 2007	Aug.1, 2007
80142	Hot-Mix Asphalt Equipment, Spreading and Finishing Machine	Article 1102.3	Jan. 1, 2005	Jan. 1, 2007
80148	Planting Woody Plants	Section 253	Jan. 1, 2006	
80160	Reflective Crack Control Treatment	Section 443, Article 1062.04	April 1, 2006	Jan. 1, 2007
80154	Turf Reinforcement Mat	Section 251	Nov. 1, 2005	Jan. 1, 2007

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2007 (hereinafter referred to as the Standard Specifications): the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAU Route 2552 (Washington Street) and 75th Street, Section No. 00-00114-00-PV, Project No. M-CMM-BRM-7003 (985) in DuPage County and in case of conflict with any or part or parts of said specifications, the said Special Provisions shall take precedence and shall govern.

FAU Route 2552 – Washington Street and 75th Street
Project #: M-CMM-BRM-7003 (985)
Section: No: 00—00114—00--PV
County: DuPage

Location of Project

The improvement of FAU Route 2552, Washington Street begins at Sta 427+95, approximately 2640 feet north of the centerline of 75th Street and extends in a southerly direction through the City of Naperville to Sta 468+25, approximately 1390 feet south of the centerline of 75th Street. The roadway improvement gross length is 4030 feet (0.76 miles). The improvement of 75th Street begins at Sta. 128+00, approximately 2143 feet west of the centerline of Washington Street and extends in an easterly direction to Sta.163+50, approximately 1407 feet east of the centerline of Washington Street. The roadway improvement gross length along 75th Street is 3550 feet (0.67 miles). The improvement of Hobson Street begins at Sta. 700+00 at the centerline of Washington Street, and extends in an easterly direction to Sta.702+24.28, approximately. The roadway improvement gross length along Hobson Street is 225 feet (0.04 miles).

The Washington Street electrical work starts approximately along Washington Street at Station 427+95.00, and ends at Station 468+25.00. The 75th Street electrical work starts approximately along 75th Street at Station 128+00.00, and ends at Station 165+06.00. The electrical work extends over the West Branch DuPage River in an easterly direction through the City of Naperville. The electrical work gross length is approximately 10,100 feet (1.90 miles)

Description of Project

The work includes the widening and reconstruction of Washington Street and 75th Street, complete replacement of the existing 75th Street Bridge over the West Branch of the DuPage River, construction of a pre-cast pedestrian tunnel crossing under Washington Street, north of 75th Street, and construction of the extension of the DuPage River Trail along the west bank of the West Branch of the DuPage River. The project includes the construction of six (6) retaining walls, two (2) traffic signal improvements, roadway lighting, tunnel and DuPage River trail lighting, drainage improvements and the installation of an electrical ductbank with manholes, handholes and pedestals. The drainage improvements include construction of storm sewer, a combination of open and closed drainage systems, and construction of control structures with restrictor outlets.

Maintenance of Roadways

Effective: September 30, 1985 Revised: November 1, 1996

Beginning on the date that the Contractor begins work on this project, he 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 this work will be provided by the Contractor as required by the Engineer.

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

Status of Utilities to be Adjusted
Effective: January 30, 1987 Revised: July 1, 1994

Utility companies involved in this project have provided the estimated dates:

Name of Utility	Type	Approximate Location	Estimated Dates for Start and completion of Relocation or Adjustments
City of Naperville, DPU- Water Contact: Joe Renn 630-305-5938	Water, 16-inch, 8 inch Adjust/relocate	N side of 75th Street in project limits/under river W side of Washington at Ped tunnel.	Work is included as a part of this contract.
City of Naperville, DPU-Wastewater	Sanitary Sewer 10-inch. Relocate	W. side of Washington St. at Pedestrian tunnel	Work is included as a part of this contract.
DuPage County Water Commission Contact: Ed Kazmierczak 630-834-0100	Water transmission line 30-inch	N side of 75th St in project limits and under river.	Relocation work by others at Pedestrian tunnel and bridge abutments. Scheduled for Sept to May only. Coordination between the Water Commission and its Contractor, the Resident Engineer and the Contractor is required.
AT&T Broadband Contact: John Evers 630-462-5838	Underground cable and duct bank/manholes	E side of Washington. Duct Bank.	AT&T has been notified and relocation is anticipated prior to construction. However, coordination between AT&T, the Resident Engineer and the Contractor may be required.
Wide Open West Contact: Tom Jebens 630-536-3153 Derrick Griffin 630-862-7092	Underground cable and duct bank/manholes	E side of Washington in Duct bank.	Anticipated relocation prior to construction. However, coordination between Wide Open West, the Resident Engineer and the Contractor may be required.
NICOR Contact:	Gas Pipeline 6-inch		Relocation work by others at Pedestrian tunnel. Coordination between NICOR, the Resident

Constance Lane 630-983-8676	2-inch		Engineer and the Contractor is required at the tunnel and at various storm sewer locations.
City of Naperville, DPU – Electric Contact: Rich Schlueter 630-420-6190	Underground cable and duct bank/manholes 138 kv Transmission Line	N and S of 75th St, underground, pole line south side, E and W of Washington St. South side of 75th Street, East and West of Washington Street	Relocation of electrical facilities throughout the project. Work is included as a part of this contract. Existing poles to remain, lines to remain energized, contractor must follow OSHA regulations
COMCAST Contact: Tony Delbaux 630-462-5838	Underground cable and duct bank/manholes	Aerial line along east curb line of Washington, on shared pole line.	Anticipated relocation prior to construction. However, coordination between COMCAST, the Resident Engineer and the Contractor may be required.
Com Ed Contact: Joe Stacho 630-424-5704	Underground cable and duct bank/manholes Aerial cable/poles	Aerial line along east side of Washington, south of 75th	Anticipated relocation prior to construction. However, coordination between ComEd, the Resident Engineer and the Contractor may be 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.

Overhead 138 kv Transmission Line

An existing overhead 138 kv Electrical Transmission line is located on the south side of 75th Street within the 75th Street right of way. This transmission line shall remain energized during

construction of all of the proposed improvements of Washington Street and 75th Street. The transmission line is owned and operated by the City of Naperville, Department of Public Utilities – Electric.

The Contractor shall follow all U.S. Department of Labor Occupational Safety & Health Administration (OSHA) regulations during construction of the project. Applicable regulations may be found at www.OSHA.gov. When working in the vicinity of the overhead transmission lines and the transmission towers, the contractor shall follow all OSHA regulations concerning work in the vicinity of Transmission lines, including, but not limited to, the following regulations:

Part 1926 Safety and Health Regulations for Construction

1926 Subpart N – Cranes, Derricks, Hoists, Elevators, and Conveyors
1926.550 – Cranes and Derricks

1926 Subpart V – Power Transmission and Distribution
1926.950 – General Requirements
1926.955 – Overhead Lines

No additional compensation will be allowed the Contractor for the above requirements.

Contractor Cooperation

The Contractor's attention is directed to the fact that other separate contracts may be under construction during the duration of this Contract and that the Contractor will be governed by Article 105.08 of the Standard Specifications.

The Contractor will coordinate proposed project start dates and sequence of construction with the Engineer and other Contractors to present an effective and timely schedule for successful completion of project.

No additional compensation will be allowed the Contractor for the above requirements, for any delays or inconvenience resulting from the activities of other contractors.

Coordination With Adjacent And/Or Overlapping Contracts

This Contract abuts and /or overlaps with other concurrent Contracts as listed below. Each Contract includes work items requiring close coordination between the Contractors regarding the sequence and timing for the execution of such work items.

SOUND WALL CONSTRUCTION

Location	Starting Date	Tentative Completion Date
75th Street – North and South side Olympus to Washington Sts. Washington Street – West side Tamarack St. to Bailey Road	September 2008*.	November 2009

SOUND WALL LANDSCAPING

Location	Starting Date	Tentative Completion Date
75th Street – North and South side Olympus to Washington Sts. Washington Street – West side Tamarack St. to Bailey Road	September 2010*	May 2011

* Starting dates are tentative and subject to change.

Supplemental to the requirements of the Standard Specifications Article 105.08 - Cooperation Between Contractors, the Contractors shall identify all such work items at the beginning of the Contract, and coordinate sequence and timing for their execution with the other Contractors through the Engineer. These work items shall be identified as separate line items in the Contractor's proposed Construction and Progress Schedule. Regarding any conflicts between Contractors' schedules, the City of Naperville will be consulted through the Engineer to determine a resolution. Additional compensation or extension of the Contract time will not be allowed for work and/or progress and/or lack of progress affected by lack of such coordination by the Contractor.

Traffic Control Coordination and Stage Shifts

All planning, scheduling and execution of the work for this Contract shall require close coordination between the Contractor and the abutting Contracts, as directed and approved by the Engineer.

In order to insure adequate, safe and continuous traffic control with the abutting Contract, **all** traffic control stage shifts shall be closely coordinated between all abutting Contracts, and shall be subject to the written approval of the Engineer. It is intended that all Contracts shall initiate necessary measures to insure safe transition between the stages of construction for each Contract interface such that traffic control will provide a seamless and continuous installation with no disruption of traffic.

The Contractor shall request the stage shift fourteen (14) days in advance from the Engineer. Should the Engineer determine that the stage shift is not favorable at the requested time, the Contractor shall comply and maintain the existing traffic stage until all Contracts can accommodate the stage shift simultaneously and safely. The Engineer shall be the sole judge in this regard and the Contractor shall not be entitled to additional compensation for costs resulting from any and all delays in stage shifts that may occur due to this coordination requirement.

Traffic Control Coordination and Stage Shifts will not be measured for payment separately, but shall be included in the cost of the traffic control and protection pay items.

Should the Contractor fail to comply with the directions of the Engineer or any of the restrictions and stipulations outlined above, the Engineer shall apply the "Traffic Control Deficiency Deduction" included in the Contract special provisions until full compliance by the Contractor is attained to the satisfaction of the Engineer.

Advanced Public Notification

Description; This work shall consist of furnishing, installing, maintaining, relocating for various stages of construction, and eventually removing the advanced signing.

General: The Contractor shall provide notice to the public a minimum of 7 days in advance of any work that requires the closure of lanes or ramps through the use of a changeable message sign or temporary information signing.

Basis of Payment: This work will be paid as CHANGEABLE MESSAGE SIGNS in calendar months or TEMPORARY INFORMATION SIGN in sq. ft.

Completion Date Plus Working Days
Effective: September 30, 1985
Revised: January 1, 2007
Modified: T Y Lin 02/08

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

"When a FINAL completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on, **May 30, 2011** except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within 10 working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the working days allowed for clean up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

(*The interim completion date for all lanes open to traffic, all sidewalks and trails open to traffic, all permanent traffic signals, lighting, pavement marking and signing installed and operational shall be August 16, 2010.)"

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

Failure to Complete the Work on Time
Effective: September 30, 1985
Revised: January 1, 2007
Modified: T Y Lin 02/08

Should the Contractor fail to complete the work on or before the FINAL and INTERIM completion dates as specified in the Special Provision for "Completion Date Plus Working Days", or within such extended time as may have been allowed by the Department, the Contractor shall be liable to the Department in the amount of **$2,550**, not as a penalty but as

liquidated damages, for each calendar day or a portion thereof of overrun in the contract time or such extended time as may have been allowed.

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

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

Restriction on Working Days After a Completion Date
Effective: January 21, 2003
Revised: January 1, 2007

Temporary daily lane closures will be allowed during the period governed by working days after a completion date.

All lane closure signs shall not be erected any earlier than one-half (1/2) hour before the starting hours listed above. Also, these signs should be taken down within one-half (1/2) hour after the closure is removed.

Failure to Open Traffic Lanes to Traffic:

Should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable and shall pay to the Department the amount of $2,550, not as a penalty but as liquidated and ascertained damages, for each and every 24 hour period, a portion thereof that a lane is blocked outside the allowable time limitations. The Department may deduct such damages from any monies due the Contractor. These damages shall apply during the period governed by working days after a completion date and any extensions of that contract time.

Work Zone Traffic Control (Lump Sum Payment)
Effective: February 1, 1996
Revised: January 1, 2007

Specific traffic control plan details and Special Provisions have been prepared for this Contract. This work shall include all labor, materials, transportation, handling and included work necessary to furnish, install, maintain and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

Method of Measurement:

All traffic control (except traffic control pavement marking) indicated on the traffic control plan details and specified in the Special Provisions will be measured for payment on a lump sum basis. Traffic control pavement markings will be measured per foot (meter).

Basis of Payment:
All traffic control and protection will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

SHORT TERM PAVEMENT MARKING, TEMPORARY PAVEMENT MARKING and PAVEMENT MARKING TAPE TYPE III will be paid for separately.

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

701101 - Off-Road Operations, Multilane, Less Than 4.5 m (15') Away, For Speeds ≥45MPH
701501 – Urban Lane Closure, 2L, 2W, Undivided
701601 – Urban Lane Closure, Multilane, 1W or 2W with Nontraversable Median
701606 – Urban Lane Closure, Multilane, 2W with Mountable Median
701701 – Urban Lane Closure, Multilane Intersection
701901 – Traffic Control Devices
704001 – Temporary Concrete Barrier

DETAILS

TC-10, Traffic Control and Protection for Side Roads, Intersections and Driveways
TC-11, Typical Application of Raised Reflective Pavement Markers (Snow Plow Resistant)
TC-13, District One Typical Pavement Markings
TC-14, Traffic Control and Protection at Turn Bays (To Remain Open to Traffic)
TC-16 Pavement Marking Letters and Symbols for Traffic Staging
TC-18 Signing For Flagging Operations At Work Zone Openings
TC-22, Arterial Road Information Sign
TC-26, Driveway Entrance Signing
Maintenance of Traffic Plans, Stages of Construction

SPECIAL PROVISIONS

Maintenance of Roadways
Advanced Public Notification
Completion Date Plus Working Days
Coordination with Adjacent and/or Overlapping Contracts
Failure To Complete the Work on Time
Restriction on Working Days After a Completion Date
Traffic Control for Work Zone Areas
Traffic Control Coordination and Stage Shifts
Temporary Information Signing
Work Zone Traffic Control (Lump Sum Payment)

Keeping The Roadway Open To Traffic

Whenever work is in progress on or adjacent to the roadways, the Contractor shall provide the necessary traffic control devices to warn the public and to delineate the work zone as required in these Special Provisions, the Standard Specifications, the State Standards and details included in the plans. All Contractor's personnel shall be limited to these barricaded work zones.

The Contractor shall request and gain approval from the City of Naperville Engineer (Peter Zibble, P.E. , 630-305-5992) twenty-four (24) hours in advance of all daily lane and shoulder closures and seventy-two (72) hours in advance of all permanent and weekend closures on all roadways. This advance notification is calculated based on workweek of Monday through Friday and shall not include weekends or Holidays.

Minimum lanes open during all phases of construction is one through lane in each direction and single left turn lane in each direction at the signalized intersections, except as noted below.

Lane Closure Restrictions

The following dates apply for lane closures and staged construction:

- **September 1, 2008 to February 28, 2009 and**
- **November 26, 2009 to February 28, 2010**

The Contractor must maintain a minimum of two (2) through lanes in each direction plus a single (1) left turn lane in each direction at the signalized intersections per an approved staging plan.

Temporary daily lane closures will be allowed during this time period.

Permanent 24-hour lane closures will be allowed in the case of an emergency to address the health and safety of the public, to perform utility service interruptions during non-peak hours, or as otherwise permitted by the Engineer.

Failure to Open Traffic Lanes to Traffic: During the time periods noted below, should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance

with the limitations specified above, the Contractor shall be liable and shall pay to the Department an amount of $2,550, not as a penalty but as liquidated and ascertained damages, for each and every 24 hour period or a portion thereof that a lane is blocked outside the allowable time limitations. The Department may deduct such damages from any monies due the Contractor. These damages shall apply during the period governed by the completion dates and any authorized extensions of that contract time.

- **March 1, 2009 to November 25, 2009 and**
- **March 1, 2010 to August 15, 2010**

The Contractor must maintain a minimum of one (1) lane in each direction and one (1) left turn lane in each direction at the signalized intersections per an approved staging plan.

- **August 16, 2010 to May 30, 2011.**

The Contractor must maintain all through lanes in each direction plus all turn lanes in each direction at the intersections, all sidewalks, all driveways and all trails.

Temporary daily lane closures will be allowed during this period.

Permanent 24-hour lane closures will be allowed in the case of an emergency to address the health and safety of the public, to perform utility service interruptions during non-peak hours, or as otherwise permitted by the Engineer.

Failure to Open Traffic Lanes to Traffic: During the time periods noted below, should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable and shall pay to the Department the amount noted:

August 16, 2010 to August 25, 2010 - $2,550
August 26, 2010 to contract completion - $5,100

not as a penalty but as liquidated and ascertained damages, for each and every 24 hour period or a portion thereof that a lane is blocked outside the allowable time limitations. The Department may deduct such damages from any monies due the Contractor. These damages shall apply during the period governed by the completion dates and any authorized extensions of that contract time.

All stage changes requiring the stopping and/or the pacing of traffic shall take place during the allowable hours and shall be approved by the Engineer.

All daily lane closures shall be removed during adverse weather conditions such as rain, snow, and/or fog and as determined by the Engineer.

All lane closure signs shall not be erected any earlier than one-half (1/2) hour before the starting hours listed above. Also, these signs should be taken down within one-half (1/2) hour after the closure is removed.

The Contractor will be required to cooperate with all other contractors when erecting lane closures. Lane closures on the same side of the pavement with a half (1/2) mile or less gap

between the end of one work zone and the start of taper of next work zone should be connected.

Private vehicles shall not be parked in the work zone. Contractor's equipment and/or vehicles shall not be parked on the shoulders or in the median during non-working hours. The parking of equipment and/or vehicles on City or County right-of-way will only be permitted at the locations approved by the Engineer.

TRAFFIC CONTROL FOR WORK ZONE AREAS
Effective: 9/14/95
Revised: 1/1/07

Work zone entry and exit openings shall be established daily by the Contractor with the approval of the Engineer. All vehicles including cars and pickup trucks shall exit the work zone at the exit openings. All trucks shall enter the work zone at the entry openings. These openings shall be signed in accordance with the details shown elsewhere in the plans and shall be under flagger control during working hours.

The Contractor shall plan his trucking operations into and out of the work zone as well as on to and off the roadways to maintain adequate merging distance. Merging distances to cross all lanes of traffic shall be no less than 1/2 mile. This distance is the length from where the trucks enter the roadway to where the trucks enter the work zone. It is also the length from where the trucks exit the work zone to where the trucks exit the roadway. The stopping of roadway traffic to allow trucks to change lanes and/or cross the roadway is prohibited.

Failure to comply with the above requirements will result in a Traffic Control Deficiency charge. The deficiency charge will be calculated as outlined in Article 105.03 of the Standard Specifications. The Contractor will be assessed this daily charge for each day a deficiency is documented by the Engineer.

Pre-Construction Video Log

In addition to requirements in Article 107.20 of the Standard Specifications, the Contractor shall prepare a photo/video log of all structures adjacent to the right-of-way within the project limits prior to the start of any construction work. The Contractor shall provide a copy to the Engineer. Also the Contractor shall prepare and furnish a photo/video log of the final conditions.

The cost to comply with this requirement will not be paid for separately, but shall be considered as included in the contract unit bid prices of the Contract, and no additional compensation will be allowed.

Contractor's Daily Work Schedule

Description:
The Contractor shall submit a daily work schedule to the Resident Engineer for the purpose of coordinating the Contractor's activities for the next working day. The daily schedule must be submitted by 3:00 pm the day before. This schedule is necessary for the Engineer to schedule inspection, testing and layout checking for the following day.

The schedule shall include the location and type of all work to be performed that day and all material deliveries. It shall identify all concrete pours, the concrete mix design numbers, and estimated number of cubic yards. The placement of bituminous materials shall be identified, including the mix design numbers, location and number of estimated tons to be placed. The Contractor shall identify all locations where survey verification is required and shall give sufficient advance notification to the Engineer so as not to cause delay.

Method of Measurement:
This coordination and schedule development work will not be measured for payment.

Basis of Payment:
Preparation and submittal of the Contractor's Daily Work Schedule shall not be paid for separately, but shall be included in the cost of the Contract items of work.

Progress Schedule

Description. This work shall consist of preparing, revising and updating a detailed progress scheduled based upon the Critical Path Method (CPM). This work shall also consist of performing time impact analysis of the progress schedule based upon the various revisions and updates as they occur.

Requirements. The software shall produce an electronic progress schedule for submission to the department that is 100% compatible with Primavera SureTrak 3.0 Project Manager, published by Primavera Systems, Inc.

Format. The electronic schedule format shall contain the following:

Project Name: (Optional).
Template: Construction.
Type: SureTrak: Native file format for stand-alone contracts.
Planning Unit: Days (calendar working).
Number/Version: Original or updated number.
Start Date: Not later than ten days after execution of the contract.
Must Finish Date: Completion date for completion date contracts.
Project Title: Contract number.
Company Name: Contractor's name.

Calendars.

Completion Date Contracts. The base calendar shall show the proposed working days of the week and the proposed number of work hours per day.

Working Days Contracts. The base calendar shall show the distribution of working days according to the following table:

MONTH	*WORKING DAYS*
JANUARY	12
FEBRUARY	12
MARCH	12
APRIL	18

MAY	18
JUNE	24
JULY	24
AUGUST	24
SEPTEMBER	24
OCTOBER	24
NOVEMBER	18
DECEMBER	12

The number of days shown above shall not be exceeded. The proposed number of hours to be worked per day shall also be shown.

Schedule Development. The detailed schedule shall incorporate the entire Contract time. The minimum number of activities shown on the schedule shall represent the work incorporating the pay items whose aggregate Contract value constitutes 80 percent of the total Contract value. These pay items shall be determined by starting with the pay item with the largest individual Contract value and adding subsequent pay item Contract values in descending order until 80 percent of the Contract value has been attained. Any additional activities required to maintain the continuity of the schedule logic shall also be shown.

The following shall be depicted in the schedule for each activity:

Activity Identification (ID) Numbers. The Contract shall utilize numerical designations to identify each activity. Numbering of activities shall be in increments of not less than ten digits.

A description of the work represented by the activity (maximum forty-five characters). The use of descriptions referring to a percentage of a multi-element item (i.e., construct deck 50%) shall not be used. Separate activities shall be included to represent different elements of multi-element items (i.e., forms, reinforcing, concrete, etc.). Multiple activities with the same work description shall include a location as part of the description.

Proposed activity duration shall be shown in whole days. The Contractor shall provide production rates to justify the activity duration. Schedule duration shall be contiguous and not interruptible.

The schedule shall indicate the sequence and interdependence of activities required for the prosecution of the work. The schedule logic shall not be violated.

Activities should be broken down such that each activity encompasses a single operation or tightly-integrated operations in a single, contiguous and continuous area of the project, with no activity exceeding $200,000 without the consent of the Engineer.

Total Float shall be calculated as finish float. The schedule shall be calculated using retained logic. The Contractor shall not sequester float by calendar manipulations or extended duration. Float is not for the exclusive use or benefit of either the Department or the Contractor.

Tabular Reports.

The following tabular reports will be required with each schedule submission:

Classic Gantt
Pert with Time Scale

The heading of each tabular report shall include, but not be limited to, the project name, Contract number, Contractor name, report date, data date, report title and page number.

Each of the tabular reports shall also contain the following minimum information for each activity.

Activity ID
Activity Description
Original Duration (calendar day/working day)
Remaining Duration (calendar day/working day)
Activity Description
Early Start Date
Late Start Date
Early Finish Date
Late Finish Date
Percent Complete
Total Float
Calendar ID
Work performed by DBE Subcontractors and Trainees shall be shown in the Gantt Report.

Reports shall be printed in color on 11 in. x 17 in. (minimum) size sheets. The Classic Gantt shall show all columns, bars, column headings at the top, time scale at the top and shall show relationships.

Submission Requirements. The initial schedule shall be submitted prior to starting work but no later than five calendar days after execution of the contract. Updated schedules shall be submitted according to Article 108.02 except that as a minimum, updated schedules will be required at the 25, 50, and 75 percent completion points of the contract.

Updating.

The Contractor shall not make any changes to the original duration, activity relationships, constraints, costs, add or delete activities, or alter the schedule's logic when updating the schedule.

The originally approved baseline CPM schedule will be designated as the "Target Schedule" and shall only be changed based on a Change Order that extends the Contract duration. All updates will be plotted against the "Target Schedule." If the Contractor believes any such changes result in an overall increase in the Contract time, the Contractor shall immediately submit a request for extension of time along with the changed progress schedule and a detailed justification for the time extension request in accordance with Article 108.08.

The updated information will include the original schedule detail and the following additional information:

Actual start dates
Actual finish dates
Activity percent completion

Remaining duration of activities in progress
Identified or highlighted critical activities

The Contractor shall submit scheduling documents in the same formats and number as indicated in this section.

The Engineer shall withhold progress payments if the Contractor does not submit scheduled updates as required.

Upon receipt of the CPM schedule update, the Engineer will review the schedule for conformance with the Contract Documents and degree of detail. The Engineer, within fourteen (14) Days after receipt of the Updated CPM Schedule and supporting documents, will approve or reject it with written comments. If the Updated CPM schedule is rejected, the Contractor shall submit a Revised Updated CPM Schedule within seven (7) Days after the date of rejection.

The updated progress schedule must accurately represent the Contract's current status.

Contractor Changes to the Schedule.

The Contractor shall comply with the following requirements regarding proposed changes to the approved baseline CPM schedule:

If the Contractor proposes to make any changes to the approved baseline CPM schedule, the Contractor shall notify the Engineer in writing, stating the reasons for the change, identifying each changed activity (including duration and interrelationships between activities) and provide a diskette of the proposed changed schedule. Every effort shall be made by the Contractor to retain the original Activity ID numbers.

The Engineer has the authority to approve or disapprove the proposed change to the baseline CPM schedule and will do so in writing within ten (10) Days after receipt of the Contractor's submission. If the Engineer approves the change to the baseline schedule, all subsequent monthly updates shall be plotted against the new "Target Schedule".

If the Engineer approves a portion of the change to the baseline CPM schedule, the Contractor shall submit a revised CPM schedule incorporating such change(s) within ten (10) Days after approval along with a written description of the change(s) to the schedule.

Recovery Schedule.

The Contractor shall maintain an adequate work force and the necessary materials, supplies and equipment to meet the current approved baseline CPM schedule. In the event that the Contractor, in the judgment of the Engineer, is failing to meet the approved CPM schedule including any Contract milestones, the Contractor shall submit a recovery schedule.

The recovery schedule shall set forth a plan to eliminate the schedule slippage (negative float). The plan must be specific to show the methods to achieve the recovery of time, i.e. increasing manpower, working overtime, weekend work, employing multiple shifts. All costs associated with implementing the recovery schedule shall be borne by the Contractor.

Upon receipt of the CPM recovery schedule, the Engineer will review the schedule for conformance with the Contract Documents and degree of detail. The Engineer will approve the schedule or reject it with written comments within fourteen (14) Days of receipt of the recovery schedule and supporting documents. If the detailed CPM recovery schedule is rejected, the Contractor shall submit a revised CPM recovery schedule within seven (7) Days of the date of rejection.

Revised Schedule.

The Engineer may direct the Contractor to revise the approved CPM schedule. Reasons for such direction may include, but are limited to, the following: (1) changes in the Work, (2) re-phasing of the Contract or any phase, (3) a change in the duration of the Contract or phase, and (4) acceleration of the Contract or phase.

The Engineer will direct the Contractor to provide a revised CPM schedule in writing.

The Contractor shall provide the revised CPM schedule within ten (10) Days of receipt of the Engineer's written direction.

The Engineer has the authority, in its sole discretion, to approve or reject the revised CPM schedule and will do so in writing within ten (10) Days after receipt of the Contractor's submission. If the Engineer approves the revised schedule, such schedule will be designated the new "Target Schedule".

The schedule shall be submitted in the Sorted by Activity Layout (SORT4). The activities on the schedule shall be plotted using early start, late start, early finish, late finish and total finish.

For every schedule submission, the Contractor shall submit to the Engineer, four Windows XP compatible compact disks of all schedule data. Included on the disks shall be all of the tabular and graphic reports, network diagrams and bar chart data. Two copies shall be submitted on CD/R disks and two copies shall be submitted on CDD/RW disks. In addition, four plots of the CD/R disks will be approved initial or revised progress schedule for the Contract. The approval will be documented by the Engineer on a corresponding plot of the schedule and returned to the Contractor.

Four copies of each schedule submission shall be printed in color on 11 in. x 17 in. (minimum) size sheets showing all columns, bars, column headings at the top, time scale at the top and showing relationships.

The schedule shall indicate the critical path to Contract completion. Only one controlling item shall be designated at any point in time on the schedule.

Acceptance or approval of any progress schedule by the Engineer shall not be construed to imply approval of any particular method of construction, sequence of construction, and any implied or stated rate of production. Acceptance will not act as a waiver of the obligation of the Contractor to complete the work in accordance with the contract proposal, plans and specifications, modify any rights or obligations of the Department as set forth in the Contract, nor imply any obligation of a third party. Acceptance shall not be construed to modify or amend the Contract or the time limit(s) therein. Acceptance shall not relieve the Contractor of the responsibility for the accuracy of any of the information included on the schedule. Failure of the Contractor to include in the schedule any element of work required for the performance of the

Contract, any sequence of work required by the Contract, or any known or anticipated condition affecting the work shall not excuse the Contractor from completing all work required within the time limit(s) specified in the Contract notwithstanding acceptance of the schedule by the Engineer.

Basis of Payment. This work will not be paid for separately, but shall be considered as included in the costs of the various items of work in the Contract.

Aggregate Bicycle Path

This work shall be performed in accordance with Article 402 of the Standard Specifications except as herein modified.

AGGREGATE BICYCLE PATH is to be used to relocate and reconstruct the walking/riding surface of the DuPage Regional Trail as depicted in the plans.

The material shall be Limestone Screenings. The gradation shall meet the following requirements:

SIEVE	SPEC. RANGE % PASSING
1"	100
3/8"	100
#4	94 - 100
#8	60 – 100
#16	39 – 75
#50	20 – 40
#100	10 – 30
#200	0 – 18

The Screenings shall be placed and compacted to a minimum of 6-inches in depth at all locations depicted in the plans and as directed by the engineer. The aggregate shall be constructed in lifts not more than 4 in. thick when compacted. The cost of any additional excavation of material necessary to achieve the 6-inch depth of limestone screenings shall be considered as included in the cost of AGGREGATE BICYCLE PATH

From time to time, the City of Naperville will require the limestone screenings to be regraded, reshaped, maintained and/or new material added to maintain the smooth riding characteristics of the path. The Contractor will be required to perform the repair and/or maintenance on the path within 24 hours of the request of the City. Any new material will be paid for at the contract unit price for AGGREGATE BICYCLE PATH The cost of the maintenance or regrading shall be considered as included in the cost of AGGREGATE BICYCLE PATH

Method of Measurement: AGGREGATE BICYCLE PATH will be measured in place and the area computed in square yards.

Basis of Payment: This work shall be paid for at the contract unit price, per square yard, for AGGREGATE BICYCLE PATH which price will include furnishing, placing and compacting.

AGGREGATE SUBGRADE, 12" (300 mm)
Effective: May 1, 1990
Revised: January 1, 2007

This work shall be done in accordance with the applicable portions of Section 207. The material shall conform to Article 1004.04 except as follows:

1. Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete will be permitted. Steel slag and other expansive materials as determined through testing by the Department will not be permitted.

Sieve Size	Percent Passing
6 in. (150 mm)	97 ± 3
4 in. (100 mm)	90 ± 10
2 in. (50 mm)	45 ± 25
No. 200 (75 µm)	5 ± 5

2. Gravel, Crushed Gravel, and Pit Run Gravel

Sieve Size	Percent Passing
6 in. (150 mm)	97 ± 3
4 in. (100 mm)	90 ± 10
2 in. (50 mm)	55 ± 25
No. 4 (4.75 mm)	30 ± 20
No. 200 (75 µm)	5 ± 5

3. Crushed Concrete with Bituminous Materials**

Sieve Size	Percent Passing
6 in. (150 mm)	97 ± 3
4 in. (100 mm)	90 ± 10
2 in. (50 mm)	45 ± 25
No. 4 (4.75 mm)	20 ± 20
No. 200 (75 µm)	5 ± 5

**The Bituminous material shall be separated and mechanically blended with the crushed concrete so that the bituminous material does not exceed 40% of the final products. The top size of the bituminous material in the final product shall be less than 4 inches (100 mm) and shall not contain more than 10.0% steel slag RAP or any material that is considered expansive by the Department.

The Aggregate subgrade shall be placed in two lifts consisting of a 9 inch (225 mm) and variable nominal thickness lower lift and a 3 inch (75 mm) nominal thickness top lift of capping aggregate having a gradation of CA 6. The CA 6 may be blended as follows. The bituminous materials shall be separated and mechanically blended with interlocking feeders with crushed concrete or natural aggregate, in a manner that the bituminous material does not exceed 40% of the final product. This process shall be approved by the engineer prior to start of production. The top side of the bituminous material in the final products shall be less than 1 ½ inches (37.5 mm) and shall not contain any material considered expansive by the department. Reclaimed

Asphalt Pavement (RAP) (having a maximum of 10% steel slag RAP) meeting the requirements of Article 1004.07 and having 100% passing the 3 inch (75 mm) sieve and well graded down through fines may also be used as capping aggregate. IDOT testing of the RAP material will be used in determining the percent of steel slag or Expansive Material. When the contract specifies that an aggregate subbase is to be placed on the Aggregate Subgrade, the 3 inches (75 mm) of capping aggregate will be eliminated. A vibratory roller meeting the requirements of Article 1101.01(g) shall be used to roll each lift of material to obtain the desired keying or interlock and necessary compaction. The Engineer will verify that adequate keying has been obtained.

When a recommended remedial treatment for unstable subgrades is included in the contract, the lower lift of Aggregate Subgrade may be placed simultaneously with the material for Porous Granular Embankment, Subgrade when the total thickness to be placed is 2 feet (600 mm) or less.

Method of Measurement.

Contract Quantities. Contract quantities shall be in accordance with Article 202.07.

Measured Quantities. Aggregate subgrade will be measured in place and the area computed in square yards (square meters).

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE, 12" (AGGREGATE SUBGRADE, 300 mm).

Aggregate Surface Course for Temporary Access
Effective: April 1, 2001
Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

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

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

(a) Private Entrance. The minimum width shall be 12 ft (3.6 m). The minimum compacted thickness shall be 6 in. (150 mm). The maximum grade shall be eight percent, except as required to match the existing grade.

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

(c) Road. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

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

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

Add the following to Article 402.12 of the Standard Specifications:

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

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

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

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

(a) Upon construction of the temporary access, sixty percent of the contract unit price per each, of the type constructed, will be paid.

(b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access."

Porous Granular Embankment, Subgrade
Effective: September 30, 1985
Revised: January 1, 2007

This work consists of furnishing, placing, and compacting porous granular material to the lines and grades shown on the plans or as directed by the Engineer in accordance with applicable portions of Section 207. The material shall be used as a bridging layer over soft, pumpy, loose soil and for placing under water and shall conform with Article 1004.04 except the gradation shall be as follows:

1. Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete

Sieve Size	Percent Passing
*6 in. (150 mm)	97 ± 3
*4 in. (100 mm)	90 ± 10
2 in. (50 mm)	45 ± 25

No. 200 (75 μm)	5 ± 5

2. Gravel, Crushed Gravel and Pit Run Gravel

Sieve Size	Percent Passing
*6 in. (150 mm)	97 ± 3
*4 in. (100 mm)	90 ± 10
2 in. (50 mm)	55 ± 25
No. 4 (4.75 mm)	30 ± 20
No. 200 (75 μm)	5 ± 5

*For undercut greater than18 inches (450 mm) the percent passing the 6 inch (150 mm) sieve may be 90 ± 10 and the 4 inch (100 mm) sieve requirements eliminated.

The porous granular material shall be placed in one lift when the total thickness to be placed is 2 feet (600 mm) or less or as directed by the Engineer. Each lift of the porous granular material shall be rolled with a vibratory roller meeting the requirements of Article 1101.01(g) to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

A 3 inch (75 mm) nominal thickness top lift of capping aggregate having a gradation of CA 6 will be required when Aggregate Subgrade is not specified in the contract and Porous Granular Embankment, Subgrade will be used under the pavement and shoulders. Capping aggregate will not be required when embankment meeting the requirements of Section 207 or granular subbase is placed on top of the porous granular material.

Construction equipment not necessary for the completion of the replacement material will not be allowed on the undercut areas until completion of the recommended thickness of the porous granular embankment subgrade.

Full depth subgrade undercut should occur at limits determined by the Engineer. A transition slope to the full depth of undercut shall be made outside of the undercut limits at a taper of 1 foot (300 mm) longitudinal per 1 inch (25 mm) depth below the proposed subgrade or bottom of the proposed aggregate subgrade when included in the contract.

Method of Measurement. This work will be measured for payment in accordance with Article 207.04. When specified on the contract, the theoretical elevation of the bottom of the aggregate subgrade shall be used to determine the upper limit of Porous Granular Embankment, Subgrade. The volume will be computed by the method of average end areas.

Basis of Payment. This work shall be paid for at the contract unit price per cubic yard (cubic meter) for POROUS GRANULAR EMBANKMENT, SUBGRADE which price shall include the capping aggregate, when required.

The Porous Granular Embankment, Subgrade shall be used as field conditions warrant at the time of construction. No adjustment in unit price will be allowed for an increase or decrease in quantities from the estimated quantities shown on the plans.

Backfilling Storm Sewer Under Roadway
Effective: September 30, 1985

Revised: July 2, 1994

For storm sewer constructed under the roadway, backfilling methods two and three authorized under the provisions of Article 550.07 shall not be allowed.

Hot Mix Asphalt Replacement Over Patches
Description: This work shall be done in accordance with Section 406 of the Standard Specifications except as herein modified.

Revise Article 406.06(e) of the Standard Specifications to read:

"A spreading and finishing machine is not required for HMA replacement over Patches."

Bituminous Prime Coat for Hot-mix Asphalt Pavement (Full Depth) (D-1)
Effective: May 1, 2007

Revise Article 407.06(b) of the Standard Specifications to read:

"A bituminous prime coat shall be applied between each lift of HMA according to Article 406.05(b) at a rate of 0.02 to 0.05 gal/sq yd (0.1 to 0.2 L/sq m), the exact rate to be determined by the Engineer."

Revise the second paragraph of Article 407.12 of the Standard Specifications to read:

"Prime Coat will be paid for at the contract unit price per gallon (liter) or per ton (metric ton) for BITUMINOUS MATERIALS (PRIME COAT)."

Combination Concrete Curb and Gutter, Type B6.12 (Special)
Combination Concrete Curb and Gutter, Type B6.24 (Special)
Combination Concrete Curb and Gutter, Type M4.24 (Variable Width Gutter Flag)

Description: This work shall be done in accordance with Section 606 of the Standard Specifications except as herein modified.

The work shall be completed as shown per the details on the Plans.

Engineer's Field Office Type A (Special)

Revise the first paragraph of Article 670.02 to read:

Engineer's Field Office Type A (Special). Type A (Special) field offices shall have a ceiling height of not less than 7ft. and a floor space of not less than 600 sq. ft. with a minimum of one separate office. The office shall also have a separate storage room capable of being locked for the storage of nuclear measuring devices. The office shall be provided with sufficient heat, natural and artificial light, and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

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

Solid waste disposal consisting of seven waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

Revise the fifth paragraph of Article 670.02 to read:

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

Add the following to Article 670.02:

A weekly cleaning service for the office shall be provided.

Revise subparagraph (a) of Article 670.02 to read:

(a) Four desks with minimum working surface 42 in. x 30 in. each and four non-folding chairs with upholstered seats and backs.

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

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

Revise subparagraph (d) of Article 670.02 to read:

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

Revise subparagraph (e) of Article 670.02 to read:

(a) Twenty folding chairs and 7 folding tables 8 feet long.

Revise subparagraph (h) of Article 670.02 to read:

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

Revise subparagraph (i) of Article 670.02 to read:

(i) Four telephones (2-line models), with touch tone, where available, two telephone answering machines, and five telephone lines including one line for the fax machine, and two lines for the exclusive use of the Engineer.

Revise subparagraph (j) of Article 670.02 to read:

(j) 1 dry process copy machine capable of reproducing prints up to 11 in. x 17 in. from nontransparent master sheets, as black or blue lines on white paper, including maintenance, reproduction paper, activating agent and power source.

Revise subparagraph (k) of Article 670.02 to read:

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

Revise subparagraph (l) of Article 670.02 to read:

(l) One electric water cooler dispenser including water service.

Add the following subparagraphs to Article 670.02:

(n) One 4 ft. x 6 ft. chalk board or dry erase board.

Basis of Payment: The building or buildings fully equipped, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE TYPE A (SPECIAL) and according to the applicable portions of Article 670.07.

Epoxy Coating on Reinforcement (District One)
Effective: January 1, 2007

For work outside the limits of bridge approach pavement, all references in the Highway Standards and Standard Specifications for reinforcement, dowel bars, tie bars and chair supports for pavement, shoulders, curb, gutter, combination curb and gutter and median shall be epoxy coated, unless otherwise noted on the plans.

Exploration Trench, Special

Description.
This work shall consist of constructing an exploration trench to locate an existing storm sewer as depicted on the plans.

General:
The trench shall be approximately 72 in. in depth (measured from the existing ground elevation) or deeper as necessary to locate the existing storm sewer.

Excess or unsuitable excavated materials shall be disposed of in accordance with Article 202.03.

TRENCH BACKFILL shall be used to backfill the trench.

Method of Measurement:
The exploration trench will be measured for payment in feet of actual trench constructed.

Basis of Payment:
This work will be paid for at the contract unit price per foot (meter) for EXPLORATION TRENCH, SPECIAL of the depth specified.

Fine Aggregate for Hot-Mix Asphalt (HMA) (District One)
Effective: May 1, 2007

Revise Article 1003.03 (c) to read:

"Gradation. The fine aggregate gradation for all HMA shall be FA1, FA 2, FA 20, or FA 21. When Reclaimed Asphalt Pavement (RAP) is incorporated in the HMA design, the use of FA 21 Gradation will not be permitted.

Hot Mix Asphalt-Density Testing of Longitudinal Joints (District One)
Effective: January 1, 2007
Revised: February 26, 2008

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). This work shall be according to Section 1030 of the Standard Specifications except as follows.

Definitions:

Density Test Location: The station location used for density testing.

Density Test Site: Individual test site where a single density value is determined.

Density Reading: A single, one minute nuclear density reading.

Density Value: The density determined at a given density test site from the average of two "density readings".

Quality Control / Quality Assurance (QC/QA)

1030.05(d) (3) add the following paragraphs:

Longitudinal joint density testing shall be performed at each random "density test location". Longitudinal joint testing shall be located at a distance equal to the lift thickness, or a minimum of two inches, from each pavement edge. For Example, on a four inch HMA lift the near edge of the nuclear gauge or core barrel shall be within four inches from the edge of pavement. The remaining 3 density test sites shall be equally spaced between the two edge readings. Documentation shall indicate whether the joint was confined or unconfined.

The joint density value shall be determined using either a nuclear gauge, two "density readings" shall be taken at the given density test site. The gauge shall be rotated 180 degrees between "density readings". If the two "density readings" are not within 1.5 lb./cu ft (23 kg/cu m) then one additional "density reading" shall be taken. Additional "density readings" taken at a given site shall not be allowed to replace the original "density readings" unless an error has occurred (i.e. the nuclear gauge was sitting on debris).

1030.05(d) (4) replace the density control limits table with the following:

Density Control Limits

Mixture Composition	Parameter	Individual Test2/	Minimum Joint Density Value
IL-9.5, IL-12.5	Ndesign > 90	92.0 – 96.0%	90.0 %
IL-9.5, IL-9.5, IL-12.5	Ndesign < 90	92.5 – 97.4%	90.0 %
IL-19.0, IL-25.0	Ndesign > 90	93.0 – 96.0%	90.0 %
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4%	90.0 %
All Other	Ndesign = 30	93.01/– 97.4%	90.0 %

1/ 92.0 % when placed as first lift on an unimproved subgrade.
2/ Density values" shall meet the "Individual Test" density control limits specified herein.

Granite Cobble Paving

Description: This item shall consist of furnishing and installing granite cobble decorative paving in the road median areas at the locations shown on the drawings. This work shall include all materials, labor and equipment necessary to install the cobble paving as shown on the drawings.

The granite cobbles shall be four (4") to six (6") inch diameter Wisconsin granite cobbles, generally rounded in shape and in a color range of pink to gray.

The filter fabric shall be Typar 3301 and stapled in place per manufacture specifications.

Measurement: This item will be measured at the contract unit price – per square foot of granite cobble paving installed compete in place including all labor and material necessary.

Payment: The work shall be paid for at the contract unit price per square foot for GRANITE PAVERS.

LED Internally Illuminated Street Name Sign

Description:
This work shall consist of furnishing a street name sign which is internally illuminated with light emitting diodes, and installing the sign on a traffic signal mast arm.

The sign shall be manufactured by Traffic Signs, Inc., (with a GELcore LED Light Engine) or Carmanah Technologies (Model R409), or approved equivalent.

The sign shall display the designated street name clearly and legibly in the daylight hours without being energized. When energized, the entire surface of the sign panel shall be evenly

illuminated, and the light transmission factor shall provide a letter to background brightness ratio adequate for nighttime legibility. The sign face/panels shall be 0.125-inch translucent, high-impact, UV resistant polycarbonate. All surfaces shall be free of blemishes in the plastics or coating that might impair the service or detract from the general appearance of the sign. The sign frame shall be painted black with a durable powder coated process.

Street name signs shall have double-sided message, with the following exception: At locations where one side of a particular sign will not be visible to vehicular traffic, such as a "T" intersection, that sign shall be single-sided. The street name/legend and border shall be as shown on the plans.

The font shall be Design Series D. Signs shall be laid out as shown in plans.

Both sides of each sign shall have legend and border made of 3M/Scotchlite Series 4090T translucent white diamond grade sheeting (DG_3T), overlaid by 3M/Scotchlite Series 1177 transparent green, electronically cuttable film, or approved equivalent.

The sign shall be mounted on the mast arm three feet to the right of the furthest right signal head, as viewed by the approaching traffic.

The Manufacturer/Vendor shall supply shop drawings of the fixtures, sign, sign message and mounting hardware for approval. All hardware used to install the sign shall be in accordance with the manufacturer's recommendations.

The Housing shall meet the requirements of Article 1084.01(a) of the Standard Specifications.

Light Emitting Diode (LED). The LED sign shall meet the requirements of Article 1084.01(c)(2) of the Standard Specifications. Additionally, the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI, C136.31-2001 standards.

The LED Light Engine shall not exceed the following maximum power values:

4-Foot Sign	68 W
6-Foot Sign	102 W
8-Foot Sign	136 W

Pole wiring shall be provided with the Illuminated street name sign. Included with the pole wiring shall be a surge protector and fusing located in the handhole. The illuminated street name sign shall be fused separately from any other luminaire that that may be mounted on the pole. Wiring shall be internal to the pole and mast arm and shall meet the requirements of Articles 821.03 and 1066.09 of the Standard Specifications. Fuseholders and Fuses shall meet the requirements of Articles 821.03 and 1065.01 of the Standard Specifications.

Method of Measurement: This work will be measured per each LED INTERNALLY ILLUMINATED STREET NAME SIGN.

Basis of Payment: This work will be paid for at the contract unit price each for furnishing and installing LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the size specified,

complete in place, including all related hardware, fuses, fuse holders, wiring, and connections required for proper operations

Pipe Underdrains 6" (Special)

Description: This work shall be done in accordance with Section 601 of the Standard Specifications except as herein modified.

Add the following to Article 601.02 of the Standard Specifications:

"Non Perforated pipe shall be used for the connection between the PIPE UNDERDRAIN, 6" and the outlet structure."

Manholes, Drop Type

Description:
This work consists of furnishing and constructing a drop manhole, of the specified diameter, at the locations shown on the plans, or as directed by the Engineer. This worked shall be performed in accordance with the applicable portions of Sections 502, 503, 550, 602 and 1043 of the Standard Specifications, the details in the plans and as herein specified.

Construction Requirements:
The structures shall be of pre-cast construction, in accordance with the details shown on the plans. The contract unit price of the structure shall include any pre-cast tee sections required. An alternate cast-in-place bottom slab is permitted.

Drop manholes shall be backfilled in accordance with Article 502.10 of the Standard Specifications.

Backfilling at all other drop manhole locations shall not be paid for separately, but shall be included in the contract unit price of the structure.

Pre-Cast Manhole Units and Lids
Prior to pre-casting any structural elements for construction of the drop manhole, the Contractor shall submit shop drawings and details of the elements for approval by the Engineer. The drawings and details shall be signed and sealed by a licensed Structural Engineer in the State of Illinois.

Alternate Cast-In-Place Bottom Slab
Prior to commencing drop manhole construction using an alternate cast-in-place bottom slab, the Contractor shall submit calculations and details of the slab to the Engineer for approval. The calculations and details shall be signed and sealed by a licensed Structural Engineer in the State of Illinois.

Method of Measurement: This work will be measured per each manhole complete.

Basis of Payment: This work will be paid for at the contract unit price per each for MANHOLES, DROP TYPE, TYPE 1 FRAME, CLOSED LID, of the diameter specified, which price shall be payment in full for all materials, labor, tools, equipment and incidentals necessary to complete the work as specified.

Manhole, Type A, 6'-Diameter, 2-Type 1 Frames, Closed Lids, Restrictor Plate
Manhole, Type A, 8'-Diameter, 2-Type 1 Frames, Closed Lids, Restrictor Plate
Manhole, Type A, 9'-Diameter, 2-Type 1 Frames, Closed Lids, Restrictor Plate

This work shall be performed in accordance with Section 602 of the Standard Specifications except as herein modified.

This manhole shall include installation of restrictor plates of the size and type as shown on the District details as well as any appurtenant items shown on the plans.

Steel Plate, Angles and Fasteners: This work shall be constructed in accordance with applicable sections of Section 505 of the Standard Specifications for Road and Bridge Construction, as per the details as shown on the Plans and as directed by the Engineer.

Prior to manufacture of the item, the Contractor shall provide shop drawings for approval showing the dimensions and details required to locate and install the assembly.

Steel angles, plate material and all fasteners shall be galvanized.

Manhole, Type A, 8'-Diameter, Type 1 Frame, Closed Lid

This work shall be performed in accordance with Section 602 of the Standard Specifications and the Standards shown on the plans.

Prior to manufacture of the item, the Contractor shall provide shop drawings for approval showing the dimensions and details.

Concrete Median
Description: This work shall be done in accordance with Section 606 of the Standard Specifications except as herein modified.

Concrete Median shall be installed per the details shown on the plans and the Standard Drawings.

Perimeter Erosion Barrier, Modified

Work under this item shall be performed in accordance with the applicable portions of Section 201 and 280 of the Standard Specifications and in accordance with the Standard details and special detail found on the plans, except as herein modified.

Description: This work must consist of constructing a temporary perimeter erosion barrier as shown on the plans or as directed by the Engineer through the use of silt filter fences in combination with temporary fencing. The use of hay or straw bales will not be allowed. The perimeter erosion control barrier is intended to be used to delineate and protect the public from hazardous areas and to serve as the silt fence.

The Perimeter Erosion Barrier, Modified item must consist of furnishing and erecting a temporary fence and a silt fence at the locations shown on the plans, in accordance with the detail on the plans and as directed by the Engineer.

Temporary fence must be chain link fencing. The temporary fence must be a minimum of 1 m (4 ft) high with stakes or posts placed a maximum of 3 m (10 ft) apart. The silt filter fence shall be in accordance with Section 280 of the Standard Specifications. This item also includes the removal and disposal of the temporary fencing and posts when no longer required.

When the Engineer is notified or determines a deficiency exists, he/she will be the sole judge as to the perimeter erosion barrier deficiency. Perimeter Erosion Barrier, Modified deficiencies may include but are not limited to:

Perimeter Erosion Barrier, Modified not in place at the start of construction.
Perimeter Erosion Barrier, Modified fencing damaged or down.
Unauthorized removal of Perimeter Erosion Barrier, Modified fencing.

The Contractor must dispatch sufficient resources within 2 hours of notification to make needed corrections of deficiencies. If the Contractor fails to restore the required Perimeter Erosion Barrier within the time limits specified above, the Engineer will impose a monetary deduction for each incident. This time period will begin with the time of notification to the Contractor and end with the Resident Engineer's acceptance of the corrections. For this project, the monetary deduction will be $500 per occurrence. In addition, if the Contractor fails to respond, the Engineer may correct the deficiencies and the cost thereof will be deducted from monies due or which may become due the Contractor. This corrective action will in no way relieve the Contractor of his/her contractual requirements or responsibilities.

In the event that landscape or landscape elements outside of the Perimeter Erosion Barrier, Modified are damaged by the Contractor's operation or personnel, the Contractor shall be responsible for repair or remediation of the damage as determined by the Engineer, the appropriate Municipality, County or Township and/or the property owner. In the event that the damage to any trees are beyond repair and requires removal or trees was mistakenly removed by the Contractor, the trees shall be replaced on a unit size for unit size basis, with the minimum acceptable size replacement trees of 5 units or greater. The quality of the replacement tree must be equivalent to the standards of the Illinois Department of Transportation. The cost of this work will be the responsibility of the Contractor.

Method of Measurement: PERIMETER EROSION BARRIER, MODIFIED will be measured for payment in feet in place.

Basis of Payment: The work shall be paid for at the contract unit price per foot of PERIMETER EROSION BARRIER, MODIFIED. The contract unit prices shall include all labor, material, and equipment required to complete the work as shown on the plans, standard details, and as specified.

Recessed Reflective Pavement Marker

This work shall be done in accordance with Section 781 of the Standard Specifications except as herein modified.

Pavement surface removal for installation of Recessed reflective pavement markers shall be as shown per the detail on the plans and shall be done by means of a grinding machine.

Reflective markers shall be 3M series 190 or approved equal.

Basis of Payment: This work shall be paid for at the contract unit price, per each, for RECESSED REFLECTIVE PAVEMENT MARKER.

Reclaimed Asphalt Pavement for Non-Porous Embankment and Backfill
Effective: April 1, 2001
Revised: January 1, 2007

Add the following sentence to Article 1004.05 (a) of the Standard Specifications:

> "Reclaimed Asphalt Pavement (RAP) may be used as aggregate in Non-porous Granular Embankment and Backfill. The RAP material shall be reclaimed asphalt pavement material resulting from the cold milling or crushing of an existing hot-mix bituminous concrete pavement structure, including shoulders. RAP containing contaminants such as earth, brick, concrete, sheet asphalt, sand, or other materials identified by the Department will be unacceptable until the contaminants are thoroughly removed.

Add the following sentence to Article 1004.05 (c)(2) of the Standard Specifications:

> "One hundred percent of the RAP when used shall pass the 3 inch (75 mm) sieve. The RAP shall be well graded from coarse to fine. RAP that is gap-graded or single-sized will not be accepted."

Reclaimed Asphalt Pavement (RAP) (District One)

Effective: January 1, 2007
Revised: January 24, 2008

In Article 1030.02(g), delete the last sentence of the first paragraph in (Note 2).

Revise Section 1031 of the Standard Specifications to read:

"SECTION 1031. Reclaimed Asphalt Pavement

1031.01 Description. Reclaimed asphalt pavement (RAP) is reclaimed asphalt pavement resulting from cold milling or crushing of an existing dense graded hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.

1031.02 Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. Stockpiles shall be identified by signs indicating the type as listed below (i.e. "Homogeneous Surface").

Prior to milling, the Contractor shall request the District to provide verification of the quality of the RAP to clarify appropriate stockpile.

(a) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures and represent: 1) the same aggregate quality, but shall be at least C quality; 2) the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag); 3) similar gradation; and 4) similar asphalt binder content. If approved by the Engineer, combined single pass surface/binder millings may be considered "homogenous" with a quality rating dictated by the lowest coarse aggregate quality present in the mixture.

(b) Conglomerate 5/8. Conglomerate 5/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High 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 5/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 5/8 in. (16 mm) or smaller screen. Conglomerate 5/8 RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.

(c) Conglomerate 3/8. Conglomerate 3/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High 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 B quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate 3/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 3/8 in. (9.5 mm) or smaller screen. Conglomerate 3/8 RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.

(d) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from Class I, Superpave (High or Low ESAL), HMA (High or Low ESAL), or equivalent mixtures. 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.

(e) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

1031.03 Testing. When used in HMA, the RAP shall be sampled and tested either during or after 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).

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 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 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.

(a) Testing Conglomerate 3/8. In addition to the requirements above, conglomerate 3/8 RAP shall be tested for maximum theoretical specific gravity (G_{mm}) at a 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).

(b) Evaluation of Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation and, when applicable G_{mm}. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	Homogeneous / Conglomerate	Conglomerate "D" Quality
1 in. (25 mm)		± 5 %
1/2 in. (12.5 mm)	± 8 %	± 15 %
No. 4 (4.75 mm)	± 6 %	± 13 %
No. 8 (2.36 mm)	± 5 %	
No. 16 (1.18 mm)		± 15 %
No. 30 (600 µm)	± 5 %	
No. 200 (75 µm)	± 2.0 %	± 4.0 %
Asphalt Binder	± 0.4 % 1/	± 0.5 %
G_{mm}	± 0.02 2/	

1/ The tolerance for conglomerate 3/8 shall be ± 0.3 %.

2/ Applies only to conglomerate 3/8. When variation of the G_{mm} exceeds the ± 0.02 tolerance, a new conglomerate 3/8 stockpile shall be created which will also require an additional mix design.

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt binder content test results fall outside the appropriate tolerances, the RAP shall not be used in HMA unless the RAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the Illinois Test Procedure, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

1031.04 Quality Designation of Aggregate in RAP. The quality of the RAP shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

(a) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) surface mixtures are designated as containing Class B quality coarse aggregate.

(b) RAP from Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder and IL-9.5L surface mixtures are designated as Class D quality coarse aggregate.

(c) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.

(d) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

1031.05 Use of RAP in HMA. The use of RAP in HMA shall be as follows.

(a) Coarse Aggregate Size. The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.

(b) Steel Slag Stockpiles. RAP 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) surface mixtures only.

(c) Use in HMA Surface Mixtures (High and Low ESAL). RAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be either homogeneous or conglomerate 3/8, in which the coarse aggregate is Class B quality or better.

(d) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be homogeneous, conglomerate 5/8, or conglomerate 3/8, in which the coarse aggregate is Class C quality or better.

(e) Use in Shoulders and Subbase. RAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be homogeneous, conglomerate 5/8, conglomerate 3/8, or conglomerate DQ.

(f) The use of RAP shall be a contractor's option when constructing HMA in all contracts. When the contractor chooses the RAP option, the percentage of RAP shall not exceed the amounts indicated in the table for a given N Design.

Max RAP Percentage

HMA MIXTURES [1/, 3/]	MAXIMUM % RAP		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30	30	30	10
50	25	15	10
70	15 / 25 [2/]	10 / 15 [2/]	10

90	10	10	10
105	10	10	10

1/ For HMA Shoulder and Stabilized Sub-Base (HMA) N-30, the amount of RAP shall not exceed 50% of the mixture.

2/ Value of Max % RAP if 3/8 RAP is utilized.

3/ When RAP exceeds 20%, the high & low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25% RAP would require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-22).

1031.06 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP material meeting the above detailed requirements.

RAP designs shall be submitted for volumetric verification. If additional RAP stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original RAP stockpile and HMA mix design, and meets all of the requirements herein, the additional RAP stockpiles may be used in the original mix design at the percent previously verified.

1031.07 HMA Production. The coarse aggregate in all RAP used shall be equal to or less than the nominal maximum size requirement for the HMA mixture being produced.

To remove or reduce agglomerated material, a scalping screen, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP and either switch to the virgin aggregate design or submit a new RAP design. When producing mixtures containing conglomerate 3/8 RAP, a positive dust control system shall be utilized.

HMA plants utilizing RAP shall be capable of automatically recording and printing the following information.

(a) Dryer Drum Plants.

(1) Date, month, year, and time to the nearest minute for each print.

(2) HMA mix number assigned by the Department.

(3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

(4) Accumulated dry weight of RAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

(5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.

(6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.

(7) Residual asphalt binder in the RAP material as a percent of the total mix to the nearest 0.1 percent.

(8) Aggregate and RAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAP are printed in wet condition.)

(b) Batch Plants.

(1) Date, month, year, and time to the nearest minute for each print.

(2) HMA mix number assigned by the Department.

(3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).

(4) Mineral filler weight to the nearest pound (kilogram).

(5) RAP weight to the nearest pound (kilogram).

(6) Virgin asphalt binder weight to the nearest pound (kilogram).

(7) Residual asphalt binder in the RAP 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.

1031.08 RAP in Aggregate Surface Course and Aggregate Shoulders. The use of RAP 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 "Other". The testing requirements of Article 1031.03 shall not apply.

(b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5 mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single sized will not be accepted."

Resetting Survey Monuments

This work shall be performed in accordance with Section 667 and Section 668 of the Standard Specifications except as herein modified.

The existing DuPage County Permanent Survey Monument located on the southwest wingwall of the existing bridge shall be reset into the new wingwall. A new bronze disk with appropriate information shall be installed on the new wingwall.

All appropriate records for resetting the monument shall be legally filed by an Illinois Registered Land Surveyor in accordance with the requirements of DuPage County.

Basis of Payment: This work shall be paid for at the contract unit price, each, for RESETTING SURVEY MONUMENTS.

Rub Rail

Description: This work consists of installing a treated lumber Rub Rail to the back of Steel Plate Beam Guardrail at locations as shown in the plans, and as shown in the project details.

The rub rail shall be constructed of 2" x 8" treated lumber, and bolted to the guardrail posts with two (2) ¾" post bolts at each guardrail post.

Method of Measurement: This work shall be measured for payment in feet.

Basis of Payment: This work will be paid for at the Contract Unit price per foot for RUB RAIL, which shall include treated lumber, bolts, and nuts. STEEL PLATE BEAM GUARDRAIL shall be paid for separately.

Sediment Control, Drainage Structure Inlet Filter Cleaning

Description: This work shall consist of cleaning sediment out of a drainage structure inlet filter when directed by the Engineer. This cleaning work is to be periodically performed as directed by the Engineer, for the duration of the use of each drainage structure inlet filter assembly. The Engineer will be the sole judge of the need for cleaning, based on the rate that debris and silt is collected at each inlet filter location.

Cleaning of the inlet filter shall consist of inspecting, cleaning (includes removal and proper disposal of debris and silt that has accumulated in the filter fabric bag), by vactoring, removing and dumping or any other method approved by the Engineer.

Method of Measurement: Cleaning of the drainage structure inlet filter shall be measured for payment each time that the cleaning work is performed at each of the drainage structure inlet filter locations.

Basis of Payment: The work will be paid for at the contract unit price per each for SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING, which price shall include all costs for labor, materials, equipment, and incidentals necessary to perform the work.

SEDIMENT CONTROL, SILT FENCE

This Special Provision revises Section 280 and Section 1080 of the Standard Specifications for Road and Bridge Construction to eliminate the use of Perimeter Erosion Barrier and create two new items, one for Sediment Control, Silt Fence, and another for Sediment Control, Silt Fence Maintenance.

280.02 Materials. Revise Article 280.02 (f) to read:

"(f) Silt Fence Article 1080.02"

1080.02 Geotextile Fabric. Add the following to Article 1080.02:

"Sediment Control, Silt Fence fabric shall conform to the specifications of AASHTO M288-00 for Temporary Silt Fence, < 50% elongation, unsupported. This fabric shall be 90 cm (36 in) in width.

Certification. The manufacturer shall furnish a certification with each shipment of silt fence material, stating the amount of product furnished, and that the material complies with these requirements.

Sediment Control, Silt Fence support posts shall be of 5x5 cm (2x2 in) nominal hardwood, a minimum of 1.2 m (48 in) long."

280.03 Temporary Erosion Control Systems. Delete Article 280.04 (b) and replace with:

"(b) Sediment Control, Silt Fence. This silt fence shall consist of a continuous silt fence adjacent to an area of construction to intercept sheet flow of water borne silt and sediment, and prevent it from leaving the area of construction.

The silt fence shall be supported on hardwood posts spaced on a maximum of 2.4 m (8 ft) centers. The bottom of the fabric shall be installed in a backfilled and compacted trench a minimum of 150 mm (6 in) deep and securely attached to the hardwood post by a method approved by the Engineer. The minimum height above ground for all silt fence shall be 760 mm (30 in)."

280.05 Maintenance. Add the following to Article 280.05:

"Silt Fence Maintenance shall consist of maintaining silt fence that has fallen down or become ineffective as a result of natural forces. This work shall include the removal of sediment buildup from behind the silt fence when the sediment has reached a level of half the above ground height of the fence, or as directed by the Engineer.

Silt fence damaged by the Contractor's operations or negligence shall be repaired at the Contractor's expense, or as directed by the Engineer."

280.06 Method of Measurement. Revise Article 280.06 (c) to read:

"(c) Sediment Control, Silt Fence. This work will be measured for payment in meters (feet) in place and removed. Silt fence designated not to be removed, by either the plans or the Engineer, will be measured for payment by this item also.

Silt Fence Maintenance. This work will not be measured for payment."

280.07 Basis of Payment. Revise Article 280.07 (c) to read:

"(c) Sediment Control, Silt Fence. This work will be paid for at the contract unit price per meter (feet) for SEDIMENT CONTROL, SILT FENCE.

Seeding, Modified IDOT Blend, Mesic to Wet Native Grasses

Description: This item shall consist of furnishing and installing modified IDOT blend of Mesic to Wet Native Grass Seed at the locations shown on the drawings. This work shall include all materials, labor and equipment necessary to prepare the seed bed and placing the seed and other materials required in seeding operations as shown on the drawings.

Materials: The modified IDOT seed blend shall be as follows:

MODIFIED IDOT BLEND (Mesic to Wet Native Grasses)		
IDOT Class 4 - "Native Grass Mixture"		
30%	Annual Rye	25#
30%	Spring Oats	25#
18%	Perennial Ryegrass	15#
6%	Little Blue Stem	5#
6%	Side Oats Gamma	5#
5%	Big Blue Stem	4#
3%	Indian Grass	2#
1%	Prairie Switchgrass	1#
1%	Wild Rye	1#
		83# / A
IDOT Class 4B - (Wetland Grass & Sedges Only)		
10.72%	Wetland Grasses (below)	6#
		6# / A

Species	
Blue Joint Grass	12%
Sedge	6%
Awl-Fruited Sedge	6%
Sedge	6%
Sedge	6%
Needle Spike Rush	3%
Blunt Spike Rush	3%
Manna Grass	14%
Common Rush	6%
Slender Rush	6%
Rush	6%
Rice Cut Grass	10%
Hard-Stemmed Bulrush	3%
Dark Green Rush	3%
River Bulrush	3%
Softstem Bulrush	3%
Grass	4%

TOTAL 89# / A

Method of Measurement: This item will be measured at the contract unit price per acre of the modified IDOT seed blend installed complete in place including all labor and material necessary.

Basis of Payment: The work shall be paid for at the contract unit price per acre for SEEDING, (MODIFIED IDOT BLEND), MESIC TO WET NATIVE GRASSES.

Shredded Hardwood Bark Mulch, 4 Inch Depth

Description: This item shall consist of furnishing and installing additional shredded hardwood bark mulch in transitional planting bed areas not covered by standard IDOT specification for planting woody plants. This work shall include all materials, labor, and equipment necessary to complete mulching all planting beds to 4" depth.

Measurement: This item will be measured at the contract unit price – **per square yard** of bark mulch installed complete in place including all labor and materials necessary.

Payment: The work shall be paid for at the contract unit price per square yard for MULCH SHREDDED HARDWOOD, 4 INCH DEPTH.

Compost Placement 4"

Description: This item shall consist of furnishing and installing compost in planting bed areas. This work shall include all materials, labor, and equipment necessary to complete placement of 4" depth of compost and thoroughly incorporate it into the planting beds.

This work shall be done in accordance with Section 211 of the Standard Specifications except as herein modified.

Revise Article 211.02(b) of the Standard Specifications to read:

Compost shall consist of Composted Leaf Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluable salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free substances toxic to plantings.

Measurement: This item will be measured at the contract unit price – **per square yard** of compost placed and incorporated into the planting beds including all labor and materials necessary.

Payment: The work shall be paid for at the contract unit price per square yard for COMPOST FURNISH AND PLACE, 4".

Separation Joint With Sleeper Slab

Description: This work consists of constructing a Separation Joint and a Portland Cement Concrete Sleeper slab as shown on the plans and as per Section 420 of the Standard Specifications.

Joint filler shall consist of a sheet of 1-inch bituminous preformed fiber joint filler conforming to Article 1051.03 of the Standard Specifications.

The joint shall be sealed with a hot pour joint sealer conforming to Articles 1050.02 of the Standard Specifications.

A single layer of felt roofing paper shall service as a bond breaker.

Reinforcement bars shall conform to Article 1006.10 of the Standard Specifications.

The cost of the bond breaker, reinforcement bars, joint and joint filler shall be consider as included in the price of Separation Joint With Sleeper Slab.

Method of Measurement: This work will be measured in feet along the surface of the pavement joint under which the Separation Joint With Sleeper Slab has been placed.

Basis of Payment: This work will be paid for at the contract unit price, per foot, for SEPARATION JOINT WITH SLEEPER SLAB.

Sign Sheeting Material

The sign sheeting materials within this bid shall be:

3M Diamond Grade DG3 (4000 Series) Pressure Sensitive Adhesive, or approved equal.

3M Electronic Cuttable Film Series 1170, or approved equal.

3M Electronic Cuttable Sheeting Series 7720, or approved equal.

The 3M Diamond grade DG3 Sheeting shall conform to current ZZ Type Reflective Sheeting requirements in the BDE Special Provisions and ASTM Type XI.

All screened sign faces shall consist of pressure sensitive adhesive sign sheeting material.

Workmanship in the screening of the faces shall be of high quality, with no smears, splatter, or unevenness of ink. The screen face shall be centered on the sheeting with adequate edge beyond the border to cover the nominal metal blank size.

Basis of Payment:

Cost of this material shall be included in the Contract unit cost per square foot for SIGN PANEL, of the Type specified.

Silt Curtain

Description:
This work shall consist of furnishing, installing and removing a temporary silt curtain device to trap silt in existing streams during construction at the locations shown on the plans and as directed by the Engineer.

Materials:
Floatation boom: 8-inch diameter solid expanded polystyrene log type of approved equal with approximately 20lbs/ft. buoyancy. Polystyrene beads or chips shall not be used for floatation.

Fabric: The silt fabric shall have a minimum grab tensile strength of 180 lbs. Equivalent Opening Size (U.S. Standard Sieve) shall be 60to 170. Seams shall be heat sealed or sewn.

Main Load Line: 5/16-inch cable.

Ballast: 5/16-inch chain.

Installation:
The flotation boom shall be installed in such a manner as to prevent drift shoreward or downstream. The floatation log shall be securely attached to the fabric in both the horizontal and vertical direction.

The 5/16-inch cable shall be attached above the floatation members and extend the entire length of each section of silt screen. A 5/16 chain shall be sealed on the lower hem for ballast. Connectors shall join the main load line and ballast chain to carry all tensile pressure. The Fabric shall be joined for its entire height.

Anchorage's shall be installed on both shore and stream side to maximum stability. Shore anchors shall consist of a post with deadmen or approved equal. Stream anchors shall be of sufficient size, type and strength to stabilize the barrier beyond the construction area.

Anchors shall be buoyed to prevent the boom from being pulled under water. Danforth type anchors shall be used in sandy bottom and heavy kedge type or mushroom anchors on mud bottoms.

The contractor shall be responsible for maintenance of the boom throughout construction operations. Upon completion of the work, the contractor shall remove the boom in a manner that will prevent siltation of the river.

Method of Measurement: The silt curtain will be measured in square yards of material measured at the point of installation, the dimension being from the width of stream at the maximum high water level listed on the plans to the channel bottom elevation at the point of installation.

Basis of Payment: This work shall be paid for at the contract price, per square yard for SILT CURTAIN.

Stabilized Construction Entrance

Description:

This work consists of constructing a stabilized pad of coarse aggregate underlain with geotechnical fabric at the locations where construction traffic will be entering or leaving the work zone. Also included is the removal and satisfactory disposal of the stabilized construction entrance when no longer required. This work shall be performed in accordance with the applicable portions of Sections 202, 210, 1004 and 1080 of the Standard Specifications, the details shown on the accompanying sheets and as directed by the Engineer.

Materials:
Aggregate shall consist of coarse aggregate gradations CA-1, CA-2, CA-3, or CA-4 meeting the requirements of Article 1004.04. Aggregate thickness shall be a minimum of 6 inches.

Geotechnical fabric shall meet the requirements of Article 1080.02.

General:
Excess or unsuitable excavated materials shall be disposed of in accordance with Article 202.03.

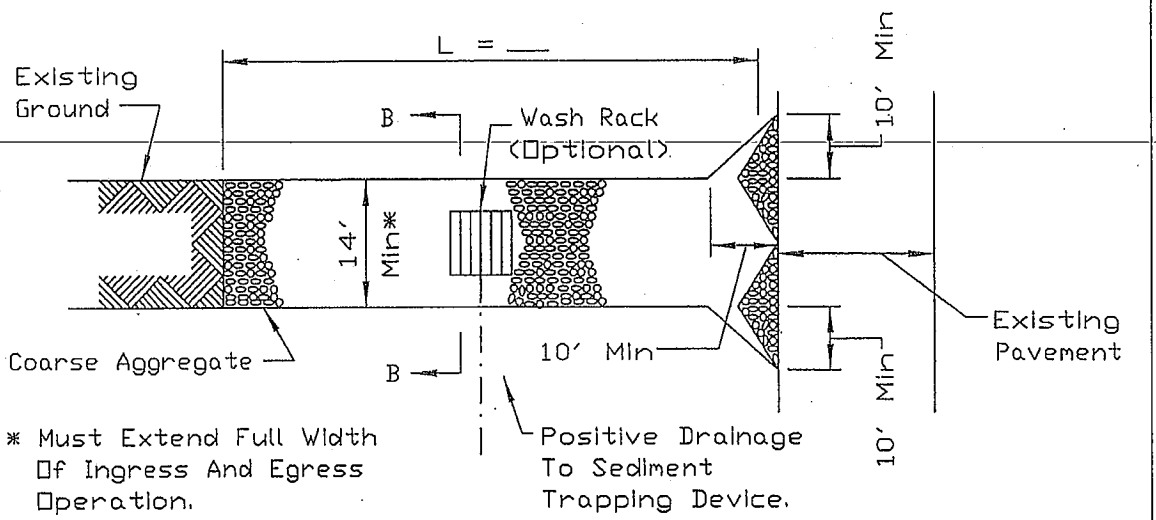
The coarse aggregate surface coarse shall be compacted to the satisfaction of the Engineer.

Restoration shall be paid for separately as FURNISHED EXCAVATION, TOPSOIL FURNISH AND PLACE, 4", SODDING, SALT TOLERANT, SEEDING CLASS 4A, NITROGEN FERTILIZER NUTRIENT, PHOSPHORUS FERTILIZER NUTRIENT, POTASSIUM FERTILIZER NUTRIENT and EROSION CONTROL BLANKET.

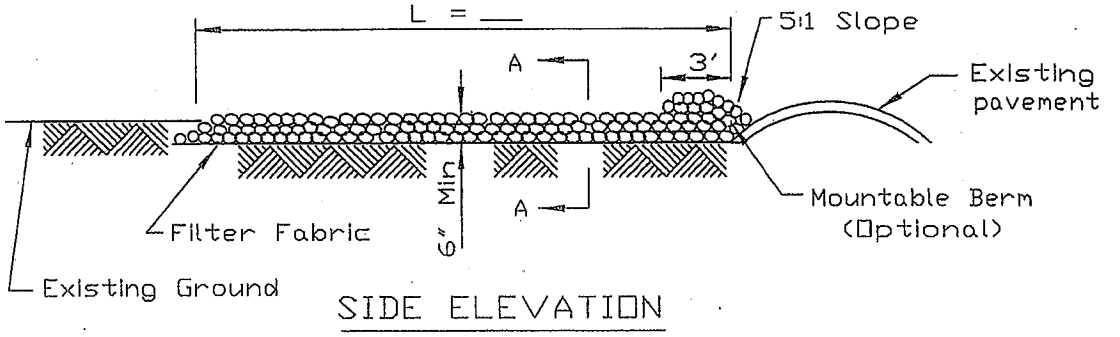
Method of Measurement:
The stabilized construction entrance will be measured in place and the area computed in square yards.

Basis of Payment:
This work will be paid for at the contract unit price per square yard for STABILIZED CONSTRUCTION ENTRANCE, which price shall be payment in full for all excavation, except excavation in rock; removal and disposal of excavated materials; geotechnical fabric; furnishing, placing, compacting, and disposing of coarse aggregate; and for all labor, tools and equipment necessary to construct the work as specified.

STABILIZED CONSTRUCTION ENTRANCE PLAN



PLAN VIEW



SIDE ELEVATION

~~NOTES:~~

~~1. Filter fabric shall meet the requirements of material specification 592-GEOTEXTILE, Table 1 or 2, Class I, II or IV and shall be placed over the cleared area prior to the placing of rock.~~

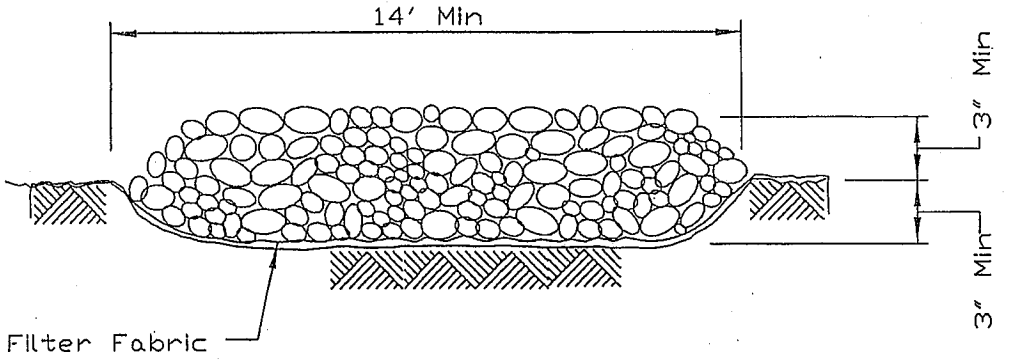
~~2. Rock or reclaimed concrete shall meet one of the following IDOT coarse aggregate gradation, CA-1, CA-2, CA-3 or CA-4 and be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.~~

~~3. Any drainage facilities required because of washing shall be constructed according to manufacturers specifications.~~

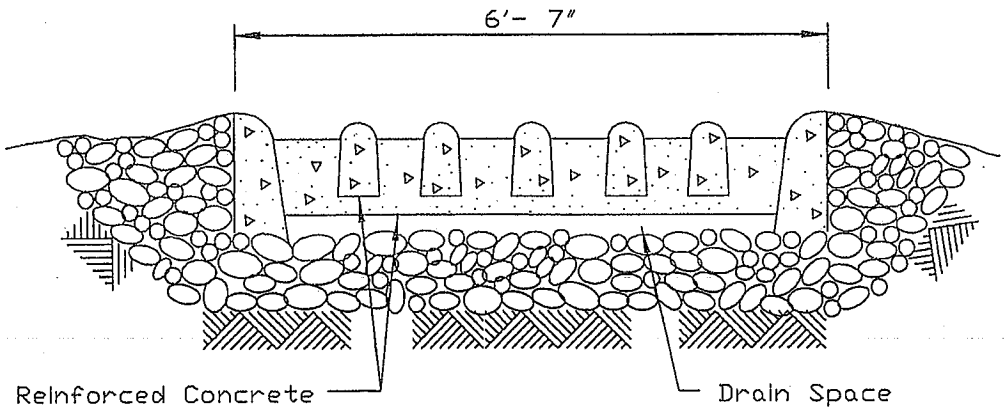
~~4. If wash racks are used they shall be installed according to the manufacturer's specifications.~~

REFERENCE		NRCS	STANDARD DWG. NO.
Project		Natural Resources Conservation Service	IL-630
Designed	Date		SHEET 1 OF 2
Checked	Date		DATE 8-18-94
Approved	Date		

STABILIZED CONSTRUCTION ENTRANCE PLAN



SECTION A-A



SECTION B-B

REFERENCE Project _____ Designed _____ Date _____ Checked _____ Date _____ Approved _____ Date _____	NRCS Natural Resources Conservation Service	STANDARD DWG. NO. IL-630 SHEET 2 OF 2 DATE 8-18-94

Stone Pillar Dismantle and Store

Description: This work shall consist of dismantling stone pillars by hand, and stacking the stone on palettes. Palettes with the stacked stone shall be left adjacent to the original stone pillar for removal by others.

Palettes shall be securely wrapped with plastic shrink wrap to prevent movement of stones during future transportation operations. The Forest Preserve District of DuPage County shall be given at least 48 hours advance notice prior to completion of the work and provided with an estimated number of pallets available for transport. The Forest Preserve contact is Kevin Horsfall who can be reached at 630-933-7243.

Method of Measurement: This work shall be measured for payment per each existing stone pillar to be dismantled.

Basis of Payment: The work will be paid for at the contract unit price per each for STONE PILLAR DISMANTLE AND STORE, which price shall include all costs for labor, materials, equipment, and incidentals necessary to perform the work.

Temperature Control for Concrete Placement (District One)
Effective: May 1, 2007

Delete the second and third sentences of the second paragraph of Article 1020.14(a) of the Standard Specifications.

Temporary Ditch Checks

Description: This Special Provision shall be in accordance with Section 280 of the Standard Specifications except as herein modified. Temporary ditch checks shall be constructed with the use of aggregate only. The gradation shall be either CA-1, CA-2, CA-3 or CA-4. The aggregate shall be placed in a manner to produce a reasonably homogeneous stable fill that contains no segregated pockets of large or small fragments or large unfilled spaces caused by bridging of the larger rock fragments.

Method of Measurement: This work shall be in accordance with Article 280.07 of the Standard Specifications.

Basis of Payment: This work shall be paid at the contract unit price per each for TEMPORARY DITCH CHECKS.

Temporary Concrete Barrier

Add the following paragraph to article 704.04 of the Standard Specifications: If the base of the temporary concrete barrier wall is 12 inches or less from the travel lane, then the wall shall also have a 6 inch wide temporary pavement marking yellow edgeline.

Temporary pavement marking at the base of the temporary concrete barrier wall will be measured and paid for as TEMPORARY PAVEMENT MARKING, 6".

Temporary Information Signing
Effective: November 13, 1996
Revised: January 2, 2007

Description.
This work shall consist of furnishing, installing, maintaining, relocating for various stages of construction and eventually removing temporary informational signs. Included in this item may be ground mount signs, skid mount signs, truss mount signs, bridge mount signs, and overlay sign panels which cover portions of existing signs.

Materials.
Materials shall be according to the following Articles of Section 1000 - Materials:

	Item	Article/Section
a.)	Sign Base (Notes 1 & 2)	1090
b.)	Sign Face (Note 3)	1091
c.)	Sign Legends	1092
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 4)	1090

Note 1. The Contractor may use 5/8 inch (16 mm) instead of 3/4 inch (19 mm) thick plywood.
Note 2. Type A sheeting can be used on the plywood base.
Note 3. All sign faces shall be Type A except all orange signs shall meet the requirements of Article 1106.01.
Note 4. The overlay panels shall be 0.08 inch (2 mm) thick.

GENERAL CONSTRUCTION REQUIRMENTS

Installation.
The sign sizes and legend sizes shall be verified by the Contractor prior to fabrication.

Signs which are placed along the roadway and/or within the construction zone shall be installed according to the requirements of Article 701.14 and Article 720.04. The signs shall be 7 ft (2.1 m) above the near edge of the pavement and shall be a minimum of 2 ft (600 mm) beyond the edge of the paved shoulder. A minimum of two (2) posts shall be used.

The attachment of temporary signs to existing sign structures or sign panels shall be approved by the Engineer. Any damage to the existing signs due to the Contractor's operations shall be repaired or signs replaced, as determined by the Engineer, at the Contractor's expense.

Signs which are placed on overhead bridge structures shall be fastened to the handrail with stainless steel bands. These signs shall rest on the concrete parapet where possible. The Contractor shall furnish mounting details for approval by the Engineer.

Method Of Measurement.
This work shall be measured for payment in square feet (square meters) edge to edge (horizontally and vertically).

All hardware, posts or skids, supports, bases for ground mounted signs, connections, which are required for mounting these signs will be included as part of this pay item.

Basis Of Payment.
This work shall be paid for at the contract unit price per square foot (square meter) for TEMPORARY INFORMATION SIGNING.

Temporary Pavement

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

The Contractor shall use either Portland cement concrete as outlined in Section 353 and 354 of the Standard Specifications or bituminous concrete according to Section 355, 356, 406 of the Standard Specifications, and the special provisions for Hot-Mix Asphalt Base Course/Widening and Hot-Mix Asphalt Mixtures. The Hot-Mix Asphalt mixtures to be used shall be specified in the plans. The thickness of the Temporary Pavement shall be as described in the plans. The Contractor shall have the option of constructing either material type if both Portland cement concrete and Hot-Mix Asphalt are shown in the plans.

Articles 355.10 and 406.21 of the Standard Specifications shall not apply.

The removal of the Temporary Pavement shall conform to Section 440 of the Standard Specifications.

Method of Measurement: Temporary pavement will be measured in place and the area computed in square yards)

Basis of Payment: This work will be paid for at the contract unit price per square yard for TEMPORARY PAVEMENT.

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

Temporary Sidewalk Ramp

This work shall be constructed in accordance with Section 408 of the Standard Specifications except as herein modified.

This work consists of the construction of temporary Hot Mix Asphalt accessible sidewalk ramps to accommodate pedestrians in the construction zone. The work includes any necessary excavation, butt joint removal, furnishing and installing hot mix asphalt material, furnishing PVC or other approved pipe, removal and proper disposal.

The ramps shall be a minimum of 2-inches depth of hot mix material except at end locations where the ramp tapers to meet existing pavement. Depth at the limit of the taper may be 1-inch.

All ramps shall meet the lines and dimensions for IDOT Standard 424001, latest version, Curb Ramps for Sidewalks, or as shown in the details on the plans.

The ends of the ramps must be flush with existing pavement or sidewalks. Any removals of sod, earth, aggregate, hot mix asphalt or other pavement material necessary to obtain flush connections shall be included in the cost of the TEMPORARY SIDEWALK RAMP.

The hot mix asphalt for this item is not expected to be placed for use by vehicular traffic. Mixture composition IL-9.5, Mix 'C' will be allowed. The contractor may substitute IDOT Class SI Portland Cement Concrete for the Hot-Mix Asphalt at no additional compensation.

Drainage of the existing curb line must be maintained after installation of the Temporary Sidewalk Ramps. A minimum 4-inch diameter pipe of PVC or approved equal pipe shall be placed in the flow line of the curb for the length of the ramp and the temporary ramp material placed adjacent. The use of any previously used pipe material must be approved and inspected by the Engineer in advance of placement. Damaged or broken pipe material will not be allowed.

Basis of Payment: This work shall be paid for at the contract unit price, per each, for TEMPORARY SIDEWALK RAMP, which price shall include all excavation, pavement removal, materials, installation and removal necessary to complete the temporary ramps per standards and as shown on the plans.

Traffic Control Sign Blanks

The base material shall be Type 1 flat sheet 0.080-inch thick anodized aluminum, complying with T601.01 of the Illinois Standard specifications for Traffic Control Items, and ASTM B209 Alloy 6061-T6 or 5052-H38. Blanks shall be provided with standard mounting holes complying with the FHWA Standard Highway Signs booklet.

Basis of Payment:

Cost of this material shall be included in the Lump Sum Contract cost for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

Trail Tree Root Barrier

Description: This item shall consist of furnishing and installing the tree root barrier at the locations shown on the drawings. This work shall include all materials, labor, and equipment necessary to field locate, trench, install fabric and backfill; and shall be as shown on the drawings.

The root barrier fabric shall be BioBarrier®, as manufactured by BBA Nonwovens, in a 19.5" width roll.

Method of Measurement: This item will be measured at the contract unit price per lineal foot of root barrier fabric installed complete in place including all labor and materials necessary.

Basis of Payment: The work shall be paid for at the contract unit price per foot for TRAIL TREE ROOT BARRIER.

Trench Drain

Description: This work shall consist of installing a cast iron Trench Drain fitting in cast in place concrete, in accordance with applicable sections of Article 609.

The Trench Drain shall be installed in a cast in place concrete structure, connecting pipe drains for structures. Forming and reinforcement will be constructed per the details on the plans and the cost will be included with associated items.

All pipe connections shall be watertight and all voids around the pipe drain entrances shall be sealed with mortar both outside and inside the trench drain.

Materials: The cast iron fitting for Trench Drain shall be in accordance with Articles 1004.14 and 1004.16 of the Standard Specifications and shall be Neenah R-4990-DX or approved equal.

Basis of Payment: This work shall be paid for at the contract unit price, per foot, for TRENCH DRAIN, of the size and material as specified and as shown on the plans.

Bridge Approach Pavement (Special)

Description: This work shall consist of the construction of Portland cement concrete bridge approach pavement to the length and width as indicated on the plans along with sidewalks, concrete median and parapets supported by approach pavement at locations as shown on the plans, in accordance with applicable portions of Section 420 of the Standard Specification, and as directed by the Engineer.

Also included will be the furnishing and placement of Type A aggregate base course as shown on the plans, in accordance with applicable portions of Section 351 of the Standard Specifications, and as directed by the Engineer.

Method of Measurement: BRIDGE APPROACH PAVEMENT (SPECIAL) will be measured for payment in place and the area computed in square yards. The length will be measured along the centerline of structure. The width will be as shown on the plans.

Basis of Payment: This work will be paid at the contract unit price per square yard for BRIDGE APPROACH PAVEMENT (SPECIAL).

The unit price for BRIDGE APPROACH PAVEMENT (SPECIAL) shall include tie bars, preformed joint seal, polyethylene bond breaker, granular sub-base, reinforcement bars, the concrete pad (including reinforcement and excavation), and all other items necessary to complete this item of work.

Anti-Graffiti Coating

Description: This item of work shall consist of the application of an Anti-Graffiti Coating to all exposed concrete faces. This work shall be as described herein and as directed by the Engineer.

General: The Contractor shall submit an Anti-Graffiti Coating application plan to the Engineer for approval prior to commencing the work.

Quality Assurance: Prepare a test wall surface with anti-graffiti coating to represent the standard of texture and workmanship for the work. Coat the surface as specified herein and in accordance with the manufacturer's specifications. Allow the coating to cure, apply graffiti as directed by the Engineer, and then remove the graffiti. The cleaned surface shall remain undamaged and shall display no graffiti "shadows" or "ghosts". Do not apply the anti-graffiti coating to the work, described herein, prior to the sample surface being approved by the Engineer. The anti-graffiti coating shall be colorless or shall not cause the concrete to deviate from its natural appearance.

Submittals: In addition to the application plan, the Contractor shall submit the following items to the Engineer for approval:

- Notarized Certificates of Compliance from the coating manufacturer for all coating products installed on the work.

- A list of all material used in the coating system, and all material safety data sheets.

- A notarized certificate confirming that the coating has performed satisfactorily for at least five years in work similar to that specified herein. The certificate shall provide clear concise details on projects with locations and contracts where coating has previously performed.

Products: Use base coat formulated by anti-graffiti coating manufacturer for use with finish coating selected. Base coat shall be clear or pigmented acrylic/urethane based material formulated for application over specified surfaces. Percent solids for the clear base coat shall be minimum of 24 percent. Apply at a rate to provide a minimum dry film thickness of 2.0 mils. Percent solids for the pigmented base coat shall be a minimum of 59 percent. Apply at a rate to provide a minimum dry film thickness of 4.0 mils.

Furnish finish coat as described below and apply over base coat to achieve an additional minimum 2.0 mil dry film thickness.

Provide thinners and dryers as required, and ten gallons of graffiti remover of the type recommended by the coating manufacturer for use by the Department.

Base Coat Application:

1. Apply the base sealer when the ambient temperature is between 7°C and 32°C, the surface temperature is between 10°C and 38°C, and the relative humidity is not greater than 70 percent.

2. Ensure that surface is thoroughly clean and dry before applying base sealer.

3. Mix base sealer according to manufacturer's specifications for 15 minutes prior to application.

4. Apply a base sealer by brush, roller or airless spray. Ensure that areas to be coated are adequately ventilated, and that operators are protected from exposure to fumes and chemicals. Comply with the base sealer manufacturer's recommendations.

Finish Coat Application:

1. Apply the anti-graffiti coats when the ambient temperature is between 7°C and 32°C, the surface temperature is between 10°C and 38°C, and the relative humidity is not greater than 70 percent.

2. Ensure that surface is thoroughly clean and dry before applying anti-graffiti coatings.

3. Apply anti-graffiti coatings by airless spray. Ensure that areas to be coated are adequately ventilated, and that operators are protected from exposure to fumes and chemicals. Comply with the anti-graffiti manufacturer's recommendations.

Curing: The curing times shown below are based on an ambient temperature of 24°C and shall be modified for variations in temperatures as recommended by the coating manufacturer.

Stage:	Cure Time Hours
After surface preparation and before applying Base Primer	24-48
After Base Primer and before first Finish Coating	24
After Finish Coating and before Graffiti Removal	24

Cleanup:

A. Clean drippings, runs and smudges from the Finished Work surface with an appropriate solvent as recommended by the coating manufacturer.

B. Allow 24-hour cure time prior to using Graffiti Remover to remove any graffiti applied to Finished Work.

C. Provide 1 gallon kit of each finish coat per every 10,000 square feet of surface covered for repairs of minor damage to coating surface.

Method of Measurement: This item of work will be measured for payment in square feet.

Basis of Payment: This item of work will be paid for at the contract unit price per square foot for ANTI-GRAFFITI COATING which price shall include all labor, materials, equipment, and incidentals required to perform the work as described herein and as directed by the Engineer.

Removal of Existing Structures

Description: This work shall consist of the removal of the existing bridge as shown on the plans, and the excavation between the existing and proposed abutments as specified herein, as shown on the plans, and as directed by the Engineer. All work shall conform to the applicable portions of Sections 202, 203 and 501 of the Standard Specifications.

The piers shall be removed to at least 1 foot below streambed elevation. The east abutment shall be removed to allow for the installation of the proposed riprap as indicated on the plans. The west abutment shall be removed to the limits shown on the plans in accordance with Article 501.05 of the Standard Specifications.

The excavation necessary between the existing and proposed abutments shall be included in the item of work governed by this special provision. The limits at the west

abutment shall be to the bottom of the proposed shared-use path pavement and subbase, along the proposed west abutment front face to the north end of the wingwall extension. The limits at the east abutment shall be as necessary to install the stone riprap as shown on the plans.

The excavation necessary for the construction of the proposed abutments shall in accordance with Section 502 and paid for according to Article 502.13 of the Standard Specifications.

Method of Measurement. This item of work will be measured for payment on a lump sum basis.

Basis of Payment. The work under this item will be paid for at the lump sum price for REMOVAL OF EXISTING STRUCTURES.

Membrane Waterproofing (Special)

Description: This work shall consist of placing a membrane waterproofing along the perimeter of the pedestrian underpass for its entire length. This work shall be in accordance to the applicable portions of Section 580 of the Standard Specifications and as herein modified. This waterproofing will be in addition to the sealing requirements placed at the joints between the precast segments as outlined in the Special Provision, THREE SIDED PRECAST CONCRETE STRUCTURE.

Quality Assurance:

Manufacturer: Obtain primary waterproofing materials of each type required from a single manufacturer, to greatest extent possible. Provide secondary materials only as recommended by manufacturer of primary materials.

Installer: Installer shall be a firm with not less than 3 years of successful experience in installation of waterproofing similar to requirements for this project and which is acceptable to manufacturer of primary waterproofing materials.

Submittals: Submit product data and general recommendations from waterproofing materials manufacturer, for types of waterproofing required. Include data substantiating that materials comply with requirements

Materials: Provide butyl rubber membrane sheet waterproofing material complying with the requirements of Article 1060.09 of the Standard Specifications. Other similar materials certified in writing to be equal -to-or-better than specified may be used if acceptable to the Engineer.

The adhesive used for securing the butyl rubber membrane, splicing cement and tape shall be in accordance with Article 1060.09 of the Standard Specifications. The protective cover over the butyl rubber membrane shall be of the options indicated in Article 580.05 and material shall be in accordance with Article 1060 of the Standard Specifications.

Construction Requirements: Prior to installation of waterproofing and associated work, meet at project site with installer of each component of associated work, inspection and testing agency representatives (if any), and installers of work requiring coordination with waterproofing work. Review material selections and procedures to be followed in performing work.

Proceed with waterproofing and associated work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.

On concrete, immediately before placement of waterproofing sheet, grind surface lightly as needed with terrazzo grinder or similar device, to ensure removal of projections, which might penetrate sheet. Clean concrete of any loose material. Apply bonding adhesive in accordance with the manufacturers requirements.

Comply with manufacturer's instructions for handling and installation of sheet waterproofing materials. Coordinate installation of waterproofing materials and associated work to provide complete system complying with combined recommendations of manufacturers and installers involved in work. Schedule installation to minimize period of exposure of sheet waterproofing materials.

Extend waterproofing sheet to provide complete membrane over area indicated to be waterproofed.

Install protection course of type indicated over completed membrane, complying with manufacturer's recommendations for both waterproofing sheet and protection course materials.

Institute required procedures for protection of completed membrane during installation of work over membrane and throughout remainder of construction period. Do not allow traffic of any type on unprotected membrane.

Method of Measurement: The waterproofing membrane system will be measured for payment in place by the square foot.

Basis of Payment: This work will be paid for at the contract unit price per square foot for MEMBRANE WATERPROOFING (SPECIAL).

Form Liner Textured Surface

Description: This item consists of all labor and materials required to provide a stone faced finish to cast-in-place concrete surfaces as specified on the plans and as contained in these Provisions, by the use of suitable form liners. The form liner used and the pattern shall be approved by the Engineer before commencing work.

All concrete shall be furnished and placed in accordance with the normal requirements of Section 503 of the Standard Specifications as applicable, except as hereinafter specified for surfaces requiring a stone faced finish.

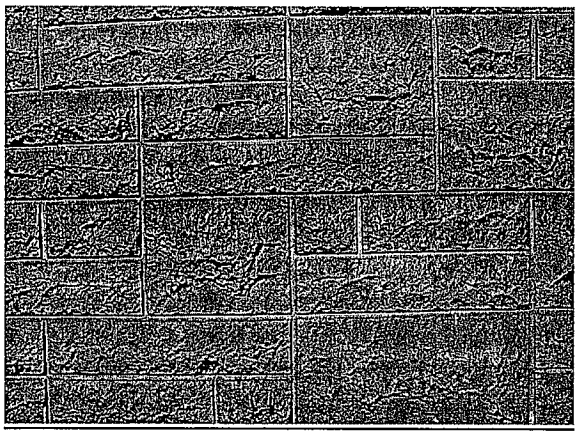
The Contractor shall take special care to maintain the specified clearance of reinforcement bars from the concrete surface of the finish. The nominal dimensions as shown on the plans should be taken as being the maximum indentation to be allowed. Form ties shall be of the "snap tie" type with sufficient break-back so the holes can be plugged.

In order to establish procedures to achieve a finish satisfactory to the Engineer, the Contractor shall submit to the Engineer for approval 2- 4 foot x 4 foot sample panels prior to casting the project member or unit. The sample panel shall be cast in a vertical position using the concrete mix and aggregate proposed for use in the work. One sample panel will be of a flat wall, the second will be on a radius to match one of the walls that is to receive the finish. Concreting operations and stripping of forms in preparation of the sample panels shall follow actual work procedures insofar as practical. In any event the approved panels shall be used as the control for the appearance of the finished work and work unsatisfactory to the Engineer shall be corrected or redone as required by the Engineer.

Method of Measurement: Texturing will be measured in place and the area computed in square yard. The dimensions used to compute the area of textured surface will be those dimensions dedicated on the Plan or directed by the Engineer, which outline Plan areas.

Basis of Payment: The work will be paid for at the contract unit price per square yard for FORM LINER TEXTURED SURFACE.

Formliners - Manufacturer: Spec Formliners, Inc. Pattern Number: 1523 Type: RE Ashlar Medium to large cut ashlar stone with maximum relief depth of 1 ½". Any modifications to the formliner type indicated must be approved by the City of Naperville in advance.



Spec Formliners, Inc. Pattern Number: 1523

Bonded Preformed Joint Seal

Description. This work shall consist of preparing the joint opening faces and furnishing and installing a bonded preformed joint seal with the necessary bonding epoxy into retaining wall expansion joints at locations as shown on the plans.

Materials. The material quality of bonded preformed joint seal shall be according to the physical requirements of Table 1 of AASHTO M 220 with the following exceptions: compression set shall not be over 40 percent when tested according to Method B (Modified) of ASTM D 395 after 70 hours at 212 °F (100 °C). The Compression-Deflection requirement will not apply to the bonded preformed joint seal.

The width of the preformed joint seal shall be selected as appropriate for the wall opening as shown on the plans.

The adhesive used to bond the joint sealer shall be supplied by the manufacturer of the bonded preformed joint seal and shall meet the following requirements:

The adhesive shall be epoxy base, dual component, which resists salt, diluted acids, alkalis, solvents, greases, oils, moisture, sunlight and weathering. Temperatures up to 200 °F (93 °C) shall not reduce bond strength. At 68 °F (20 °C), the bond strength shall be a minimum of 1000 psi (6.9 MPa) within 24 hours.

Pot Life; min.	40 minutes @ 68 °F (20 °C)
Tensile Strength; min.	4000 psi (28 MPa)
Solids Hardness; max.	5 mohs
Flash Point; min.	200 °F (93 °C)
Axial Compression; min.	8760 psi (60 MPa)
Complete Cure; max.	7 days @ 68 °F (20 °C)
Concrete Bond Strength; min.	4000 psi (28 MPa)
Steel Bond Strength; min.	4000 psi (28 MPa)

Any primers or cleaning solutions used on the faces of the joint or on the profile of the sides of the bonded preformed joint seal shall be supplied by the manufacturer of the bonded preformed joint seal. Any additional installation materials and adhesive for splicing joint sections, shall be as supplied by the manufacturer of the bonded preformed joint seal.

Construction Requirements:

Installation. The wall surfaces to receive the joint seal shall be prepared according to the manufacturers directions. The inside surface of the joint opening shall be free from dirt, water or any loose debris, which may be detrimental to effective joint sealing. The bonded preformed joint seal shall be wiped with a primer that promotes adhesion when recommended by the joint manufacturer. The epoxy adhesive shall then be applied, both to the inner walls of the joint, and to the exterior surfaces of the joint seal. Immediately after blow down, the primer and adhesive shall be applied in the amounts recommended by the joint manufacturer. Maximum application lengths of joints for a pound (kilogram) of epoxy shall be supplied by the joint seal manufacturer.

The joint seal with epoxy shall be inserted into the joint and held tightly against both sides of the joint until sufficient bond strength has been developed to resist the expected expansion forces.

Bonded preformed joint seals shall not be installed when temperatures below 50 °F (10 °C) are predicted within a 48 hour period.

Method of Measurement. The bonded preformed joint seal will not be measured for payment but shall be included in the unit price for Concrete Structures.

Three Sided Precast Concrete Structure
Effective: July 12, 1994
Revised: June 1, 2007

This work shall consist of furnishing and installing the three-sided precast concrete structure according to applicable portions of Sections 503 and 504 of the Standard Specifications. All three-sided precast concrete structures, precast headwalls, precast wingwalls and precast footings shall be produced according to the Department's latest Policy Memorandum "Quality Control/ Quality Assurance Program for Precast Products".

The three-sided concrete structure shall be designed according to the AASHTO specifications, shown on the structure plans, and shall include the effects of unyielding foundation conditions for the sequence of construction anticipated.

The Contractor shall be responsible for diverting the water from the construction area using a method meeting the approval of the Engineer. The cost of diverting the water shall be considered as included in the contract unit price bid for the three sided structure being constructed and no additional compensation will be allowed.

For structures over water, 3 in. (75mm) diameter drain openings, spaced at 8 ft (2.4 m) centers, 2 ft (600 mm) above the flow line shall be provided according to Article 503.11.

Except as follows, all joints between segments shall be sealed according to Article 540.06. When the minimum fill over the structure, between the edges of the shoulders, is less than or equal to 3 ft. (1 m), the sealing of the top joint shall be replaced by a grouted keyway or a previously approved mechanical connection between the segments. The grouted keyway or mechanical connection shall be used to connect a minimum length of 12 ft. (3.65 m) of exterior segments at each end of the structure. The keyway shall be cast in the top slab of the segments and grouted according to Article 504.06(e). If exterior mechanical connectors are used, there shall be a minimum of 4 mechanical connections per joint with a maximum spacing of 10 ft. (3 m). All plates, shapes, and hardware shall be galvanized or stainless steel.

Three sided precast concrete structures located in areas with a seismic acceleration coefficient A>0.09 shall satisfy the following requirements:

1) The structure shall be connected to the footing/pedestal 2 ft. (600 mm) from the outermost exterior edge of the structure at all four corners with a galvanized rigid mechanical connection subject to the approval of the Engineer. This connection shall be located on the interior face of the segment to allow for future inspection.

2) All top joints of exterior segments within a length of 12 ft. (3.65 m) at each end of the structure, regardless of the fill cover, shall be mechanically connected as previously described. The mechanical connection is subject to the approval of the Engineer.

Shop drawings for three sided precast concrete structures 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.

Prior approval by the Department for the structural feasibility and adequacy of proprietary systems will enhance the approval process of the final structure design but in no case shall relieve the Contractor of the design or QC/QA requirements stated herein. The following proprietary systems have been previously approved for the structural feasibility and adequacy only:

1) Hy-Span
2) Con Span
3) REDI-SPAN Bridge System
4) BEBO Arch System

The system chosen by the contractor shall provide a hydraulically equivalent waterway opening to that specified on the plans. Evidence of equivalency shall also be provided in writing to the Engineer for review and approval prior to ordering any materials.

When precast concrete substructure is specified, the Contractor may choose to substitute cast-in-place for precast headwalls, wingwalls and footings unless otherwise specified on the plans. No additional compensation for these substitutions will be allowed and the Contractor shall submit complete design calculations and shop drawings, prepared and sealed by an Illinois Licensed Structural Engineer, for approval by the Engineer.

When Cast-in-place concrete substructure is specified, the Contractor may choose to substitute precast for cast-in-place headwalls, wingwalls and footings unless otherwise specified on the plans. No additional compensation for these substitutions will be allowed and the Contractor/supplier shall submit complete design calculations and shop, drawings prepared and sealed by an Illinois Licensed Structural Engineer, for approval by the Engineer.

If a precast footing is used, it shall be built to the manufacturers specifications and the Contractor shall prepare a 6 in. (150 mm) thick layer of compacted granular material placed below the bottom of the footing. The porous granular material shall be gradation CA 7, CA 11, or CA 18 and shall be placed to extend at least 2 ft. (600 mm) beyond the limits of the precast footing. There shall be no additional compensation for the porous granular bedding material.

The excavation and backfill for three sided precast concrete structures shall be according to Section 502 of the Standard Specifications and any additional backfilling requirements based on the precast supplier's design. All construction inspection and

material certification necessary to verify these additional backfilling requirements in the field shall be the responsibility of the supplier. The three-sided precast concrete structure shall be placed according to applicable requirements of Article 542.04(d) of the Standard Specifications. When multi-spans are used a 3 in. (75 mm) minimum space shall be left between adjacent sections. After the precast units are in place and the backfill has been placed to midheight on each exterior side of the barrel, the space between adjacent units shall be filled with Class SI concrete. The Class SI concrete shall be according to Section 1020, except the maximum size of the aggregate shall be 3/8 in. (9.5 mm).

Method of Measurement. Three sided precast concrete structures will be measured in feet (meters). The overall length shall be measured from out to out of headwalls along the centerline of each span of the structure. Class SI concrete placed between adjacent spans, grouted keyways or mechanical connections between precast units, and mechanical connections between the precast units and the substructure will not be measured for payment.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for THREE SIDED PRECAST CONCRETE STRUCTURES of the size specified. Rock excavation will be paid for separately according to Article 502.13 of the Standard Specifications.

The cost of specified cast-in-place headwalls, wingwalls and footings will not be included in this item but will be paid for separately.

When precast footings, wingwalls and headwalls are specified, this work will be paid for at the lump sum price for PRECAST CONCRETE SUBSTRUCTURE.

Cleaning and Painting New Metal Structures
Effective Date: September 13, 1994
Revised Date: January 1, 2007

Description. The material and construction requirements that apply to cleaning and painting new structural steel shall be according to the applicable portion of Sections 506 of the Standard Specifications except as modified herein. The three coat paint system shall be the system as specified on the plans and as defined herein.

Materials. All materials to be used on an individual structure shall be produced by the same manufacturer. The Bureau of Materials and Physical Research has established a list of all products that have met preliminary requirements. Each batch of material must be tested and approved by that bureau before use.

The paint materials shall meet the requirements of the following articles of the Standard Specification:

Item	Article
(a) Inorganic Zinc-Rich Primer	1008.02
(b) Waterborne Acrylic	1008.04
(c) Aluminum Epoxy Mastic	1008.03

(d) Organic Zinc-Rich Primer (Note 1)
(e) Epoxy Intermediate (Note 1)
(f) Aliphatic Urethane (Note 1)

Note 1: These material requirements shall be according to the Special Provision for the Organic Zinc-Rich Paint System.

Submittals. At least 30 days prior to beginning field painting, the Contractor shall submit for the Engineer's review and acceptance, the following applicable plans, certifications and information for completing the field work. Field painting can not proceed until the submittals are accepted by the Engineer. Qualifications, certifications and QC plans for shop cleaning and painting shall be available for review by the QA Inspector.

a) Contractor/Personnel Qualifications. Except for miscellaneous steel items such as bearings, side retainers, expansion joint devices, and other items allowed by the Engineer, or unless stated otherwise in the contract, the shop painting Contractors shall be certified to perform the work as follows: the shop painting Contractor shall possess AISC Sophisticated Paint Endorsement or SSPC-QP3 certification. Evidence of current qualifications shall be provided.

   Personnel managing the shop and field Quality Control program(s) for this work shall possess a minimum classification as a National Association of Corrosion Engineers (NACE) Coating Inspector Technician, or shall provide evidence of successful inspection of 3 projects of similar or greater complexity and scope that have been completed in the last 2 years. Copies of the certification and/or experience shall be provided.

   The personnel performing the QC tests for this work shall be trained in coatings inspection and the use of the testing instruments. Documentation of training shall be provided.

b) Quality Control (QC) Program. The shop and field QC Programs shall identify the following; the instrumentation that will be used, a schedule of required measurements and observations, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings. The field program shall incorporate the IDOT Quality Control Daily Report form, as supplied by the Engineer.

c) Field Cleaning and Painting Inspection Access Plan. The inspection access plan for use by Contractor QC personnel for ongoing inspections and by the Engineer during Quality Assurance (QA) observations.

d) Surface Preparation/Painting Plan. The surface preparation/painting plan shall include the methods of surface preparation and type of equipment to be utilized for solvent cleaning, abrasive blast cleaning, washing, and power tool cleaning. The plan shall include the manufacturer's names of the materials that will be used, including Product Data Sheets and Material Safety Data Sheets (MSDS).

   A letter or written instructions from the coating manufacturer shall be included, indicating the required drying time for each coat at the minimum, normal, and

maximum application temperatures before the coating can be exposed to temperatures or moisture conditions that are outside of the published application parameters.

Field Quality Control (QC) Inspections. The Contractor shall perform first line, in process QC inspections of each phase of the work. The Contractor shall implement the submitted and accepted QC Program to insure that the work accomplished complies with these specifications. The Contractor shall use the IDOT Quality Control Daily Report form supplied by the Engineer to record the results of quality control tests. The completed reports shall be turned into the Engineer before work resumes the following day.

The Contractor shall have available at the shop or on the field site, all of the necessary inspection and testing equipment. The equipment shall be available for the Engineer's use when requested.

Field Quality Assurance (QA) Observations. The Engineer will conduct QA observations of any or all phases of the work. The Engineer's observations in no way relieve the Contractor of the responsibility to provide all necessary daily QC inspections of his/her own and to comply with all requirements of this Specification.

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

The Engineer will issue a Non-Conformance Report when cleaning and painting work is found to be in violation of the specification requirements, and is not corrected to bring it into compliance before proceeding with the next phase of work.

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

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

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

The Contractor shall provide artificial lighting in areas where natural light is inadequate, as determined by the Engineer, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 30 foot candles (325 LUX). Illumination for cleaning and painting, including the working platforms, access, and entryways shall be at least 20 foot candles (215 LUX).

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

The Contractor shall comply with the provisions of the Illinois Environmental Protection Act. Paint drips, spills, and overspray are not permitted to escape into the air or onto any other surfaces or surrounding property not intended to be painted. Containment shall be used to control paint drips, spills, and overspray, and shall be dropped and all equipment secured when sustained wind speeds of 40 mph (64 kph) or greater occur, unless the containment design necessitates action at lower wind speeds. The contractor shall evaluate project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a plan for containing or controlling paint debris (droplets, spills, overspray, etc.) to the Engineer for approval prior to starting the work. Approval shall not relieve the Contractor of their ultimate responsibility for controlling paint debris from escaping the work zone.

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

The surface temperature shall be at least 5°F (3°C) above the dew point during final surface preparation operations. The paint manufacturers' published literature shall be followed for specific temperature, dew point, and humidity restrictions during the application of each coat.

The Contractor shall monitor temperature, dew point, and humidity every 4 hours during surface preparation and coating application in the specific areas where the work is being performed. The frequency of monitoring shall increase if weather conditions are changing. The Engineer has the right to reject any work that was performed under unfavorable weather conditions. Rejected work shall be removed, recleaned, and repainted at the Contractor's expense.

Seasonal Restrictions on Field Cleaning and Painting. Field cleaning and painting work shall be accomplished between April 15 and October 31 unless authorized otherwise by the Engineer in writing.

Inorganic Zinc-rich/ Waterborne Acrylic Paint system: This system shall be for shop and field application of the coating system, shop application of the intermediate and top coats will not be allowed.

In the shop, all structural steel designated to be painted shall be given one coat of inorganic zinc rich primer. In the field, before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 1000 psi (7 MPa) and 5000 psi (34 MPa) and according to "Low Pressure Water Cleaning" of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3 and spot primed with aluminum epoxy mastic. The structural steel shall then receive one full intermediate coat and one full topcoat of waterborne acrylic paint.

a) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 40 mph (64 kph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.

b) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:
   Zinc Primer: 3 mils (75 microns) min., 6 mils (150 microns) max.
   Epoxy Mastic: 5 mils (125 microns) min., 7 mils (180 microns) max.
   Intermediate Coat: 2 mils (50 microns) min., 4 mils (100 microns) max.
   Topcoat: 2 mils (50 microns) min., 4 mils (100 microns) max.

   The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 7 and 14 mils (180 and 355 microns).

c) The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.

d) Damage to the paint system shall be spot cleaned using SSPC-SP3. The cleaned areas shall be spot painted with a penetrating sealer as recommended by the manufacturer, which shall overlap onto the existing topcoat. Then the aluminum epoxy mastic shall be spot applied not to go beyond the area painted with the sealer. The acrylic intermediate and topcoat shall be spot applied to the mastic with at least a 6 inch (150 mm) overlap onto the existing topcoat.

Organic Zinc-Rich/ Epoxy/ Urethane Paint System: This system shall be for full shop application of the coating system, all contact surfaces shall be masked off prior to application of the intermediate and top coats.

Additional Surface Preparation. In addition to the requirements of Section 3.2.9 of the AASHTO/AWS D1.5/D1.5:2002 Bridge Welding Code (breaking thermal cut corners of stress carrying members), rolled and thermal cut corners to be painted with organic zinc primer shall be broken if they are sharper than a 1/16 in. (1.5 mm) radius. Corners shall be broken by a single pass of a grinder or other suitable device at a 45 degree angle to

each adjoining surface prior to final blast cleaning, so the resulting corner approximates a 1/16 in. (1.5 mm) or larger radius after blasting. Surface anomalies (burrs, fins, deformations) shall also be treated to meet this criteria before priming.

In the shop, all structural steel designated to be painted shall be given one coat of organic zinc rich primer. Before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 1000 psi (7 MPa) and 5000 psi (34 MPa) and according to "Low Pressure Water Cleaning" of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3, and the structural steel shall then receive one full intermediate coat of epoxy and one full topcoat of aliphatic urethane.

(a) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 40 mph (64 kph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.

(b) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:
Organic Zinc-Rich Primer: 3 mils (75 microns) min., 5 mils (125 microns) max.
Aluminum Epoxy Mastic: 5 mils (125 microns) min., 7 mils (180 microns) max.
Epoxy Intermediate Coat: 3 mils (75 microns) min., 6 mils (150 microns) max.
Aliphatic Urethane Top Coat: 2.5 mils (65 microns) min., 4 mils (100 microns) max.

(c) The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 8.5 and 15 mils (215 and 375 microns).

(d) When specified on the plans or as requested by the Contractor, and approved by the Engineer, the epoxy intermediate and aliphatic urethane top coats shall be applied in the shop. All faying surfaces of field connections shall be masked off after priming and shall not receive the intermediate or top coats in the shop. The intermediate and top coats for field connections shall be applied, in the field, after erection of the structural steel is completed. The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.

(e) Erection and handling damage to the shop applied system shall be spot cleaned using SSPC-SP3. The surrounding coating at each repair location shall be feathered for a minimum distance of 1 1/2 in. (40 mm) to achieve a smooth transition between the prepared areas and the existing coating. The existing coating in the feathered area shall be roughened to insure proper adhesion of the repair coats. The areas cleaned to bare metal shall be spot painted with aluminum epoxy mastic. The intermediate and finish coat shall be spot applied to with at least a 6 inch (150 mm) overlap onto the existing finish coat.

Aluminum Epoxy Mastic/ Waterborne Acrylic Paint system: This system shall be for shop or field application of the entire coating system.

Before priming with aluminum epoxy mastic the steel the surfaces to be primed shall be prepared according to SSPC SP6 for Commercial Blast Cleaning. In the field, before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 1000 psi (7 MPa) and 5000 psi (34 MPa) and according to "Low Pressure Water Cleaning" of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3 and spot primed with aluminum epoxy mastic. The structural steel shall then receive one full intermediate coat of aluminum epoxy mastic and one full topcoat of waterborne acrylic paint.

d) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 40 mph (64 kph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.

e) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:
Epoxy Mastic Primer: 5 mils (125 microns) min., 7 mils (180 microns) max.
Epoxy Mastic Intermediate Coat: 5 mils (125 microns) min., 7 mils (180 microns) max.
Acrylic Topcoat: 2 mils (50 microns) min., 4 mils (100 microns) max.

The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 12 and 18 mils (300 and 460 microns).

f) The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.

d) Damage to the paint system shall be spot cleaned using SSPC-SP3. The cleaned areas shall be spot painted with a penetrating sealer as recommended by the manufacturer, which shall overlap onto the existing topcoat. Then the aluminum epoxy mastic shall be spot applied not to go beyond the area painted with the sealer. The acrylic topcoat shall be spot applied to the mastic with at least a 6 inch (150 mm) overlap onto the existing topcoat.

The paint manufacturer's product data sheets shall be available for QA review in the shop and submitted to the Engineer prior to start of field work and the requirements as outlined in the data sheets shall be followed.

Special Instructions.

Painting Date/System Code. At the completion of the work, the Contractor shall stencil in contrasting color paint the date of painting the bridge, the painting Contractors name, and the paint type code from the Structure Information and Procedure Manual for the

system used. The letters shall be capitals, not less than 2 in. (50 mm) and not more than 3 in. (75 mm) in height.

The stencil shall contain the following wording "PAINTED BY (insert the name of the painting Contractor)" and shall show the month and year in which the painting was completed, followed by "CODE S" for the Inorganic Zinc/ Acrylic System, "CODE X" for the Organic Zinc/ Epoxy/ Urethane System, "CODE AB" for the Organic Zinc/ Epoxy/ Urethane System (shop applied), and "CODE U" for the Aluminum Epoxy Mastic/ Acrylic System all stenciled on successive lines. This information shall be stenciled on the cover plate of a truss end post near the top of the railing, or on the outside face of an outside stringer near both ends of the bridge facing traffic, or at some equally visible surface designated by the Engineer.

Method of Measurement. Shop cleaning and painting new structures will not be measured for payment. Field cleaning and painting will not be measured for payment except when performed under a contract that contains a separate pay item for this work.

Basis of Payment. This work will be paid for according to Article 506.07.

Surface Preparation and Painting Requirements for Weathering Steel
Effective: November 21, 1997
Revised: February 2, 2007

Description. This work consists of surface preparation of structural steel on bridges built with AASHTO Grade 50W (AASHTO M270M Grade 345W) weathering steel. Also included is the protection and cleaning of the substructure.

Paint systems. When painting of the structural steel or portions thereof is specified on the plans, unless noted otherwise the Contractor shall have the option of using a shop and field applied paint system or a full shop applied system. Cleaning and painting shall be according to the Special Provision for "Cleaning and Painting New Metal Structures" except as modified herein.

a) Shop and Field Applied Paint System. When the primer is to be shop applied and the intermediate and top coats field applied the Inorganic Zinc Rich/ Acrylic/ Acrylic Paint System shall be used.

b) Shop Applied Paint System. When the primer, intermediate and top coats are all to be shop applied the Organic Zinc Rich/ Epoxy/ Urethane Paint System shall be used.

c) The galvanizing requirement of Article 506.04(j) of the Standard Specifications shall not apply to AASHTO M164 (M164M) Type 3 bolts.

d) All materials for the paint system used shall be supplied by the same paint manufacturer. The color of the finish coat supplied shall match the Federal Color Standard 595a 20045.

Construction Requirements:

Surface Preparation. All steel shall be cleaned of any surface contamination according to SSPC-SP1 (Solvent Cleaning) and then given a blast cleaning according to SSPC-SP6 (Commercial Blast Cleaning) except areas to be painted shall be given a blast cleaning according to SSPC-SP10 (Near-White Blast Cleaning).

Water Washing. After blasting and painting, all areas of the steel to remain unpainted shall be sprayed with a stream of potable water to ensure uniform weathering.

Protection and Cleaning of Substructure. The piers and abutments shall be protected during construction to prevent rust staining of the concrete. This can be accomplished by temporarily wrapping the piers and abutments with polyethylene covering. Any rust staining of the piers or abutments shall be cleaned to satisfaction of the Engineer after the bridge deck is complete.

Basis of Payment. Surface preparation of structural steel, protection and cleaning of the substructure and painting of structural steel when specified will be considered as included in the cost for fabrication and erection of structural steel and will not be paid for separately.

Underwater Structure Excavation Protection
Effective: April 1, 1995
Revised: January 1, 2007

Description. This work shall include all labor, materials, and equipment necessary for the protection of any excavations in water that may be needed for construction at the locations shown on the plans and as required by the Specifications. The protection may consist of diverting the water for the excavation by the uses of timbers, sheet piling, approved granular embankment material or other structural elements adequate to support the excavation and need not be watertight. All concrete placement below the waterline shall be tremied underwater into forms according to Article 503.08 of the Standard Specifications. Tremied concrete shall be placed to an elevation 1 ft. (300 mm) above the water level at the time of construction.

The Contractor's plan for the subject protection must be approved by the Engineer before excavation protection and construction may begin. Any system selected by the Contractor in which safe design and construction requires that loads and stresses be computed and the size and strength of parts determined by mathematical calculations based upon scientific principles and engineering data shall be prepared and sealed by an Illinois Licensed Structural Engineer. When the excavation protection is no longer required, it shall be removed unless otherwise specified by the Engineer. All materials removed will become the property of the Contractor.

Basis of Payment. Excavation protection for structures will be paid for at the contract unit price each, for UNDERWATER STRUCTURE EXCAVATION PROTECTION at the locations specified.

Drilled Soldier Pile Retaining Wall
Effective: September 20, 2001
Revised: February 2, 2007

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate and furnish the soldier piles, create and maintain the shaft excavations, set and brace the soldier piles into position and encase the soldier piles in concrete to the specified elevation. Also included in this work is the backfilling of the remainder of the shaft excavation with Controlled Low-Strength Material(CLSM), the furnishing and installation of the timber lagging, and the furnishing and installation of CLSM secant 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 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 (M270M Grade 250), unless otherwise designated on the plans.

(b) The soldier pile encasement concrete shall be Class DS according to Section 1020, except the mix design shall be as follows:
   (1) When the plans specify that soil and ground water sulfate contaminates exceed 500 parts per million, a Type V cement shall be required. The cement shall be increased 60 lb./cu. yd. (35 kg/cu m) if the concrete is to be placed under water.

   (2) If concrete is placed to displace drilling fluid or against temporary casing, the slump shall be 8 ± 1 in. (200 mm ± 25 mm) at point of placement.

(c) The Controlled Low-Strength Material (CLSM), used for backfilling shaft excavations above the soldier pile encasement concrete and for backfilling secant lagging excavations, to the existing ground surface, shall be according to Article 1019.

(d) Temporary casing shall be produced by electric seam, butt, or spiral welding to produce a smooth wall surface, fabricated from steel satisfying ASTM A252 Grade 2. The minimum wall thickness shall be as required to resist the anticipated installation and dewatering stresses, as determined by the Contractor, but in no case less than 1/4 in. (6 mm).

(e) Drilling slurry shall consist of a polymer or mineral base material. Mineral slurry shall have both a mineral grain size that will remain in suspension with sufficient viscosity and gel characteristics to transport excavated material to a suitable screening

system. The percentage and specific gravity of the material used to make the suspension shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement. For polymer slurry, the calcium hardness of the mixing water shall not exceed 100 mg/L.

(f) Timber Lagging. The minimum tabulated unit stress in bending (Fb), 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.

Equipment. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans. Concrete equipment shall be according to Article 1020.03.

Construction Requirements. The shaft excavation for each soldier pile shall extend to the tip elevation indicated on the plans for soldier piles terminating in soil or to the required embedment in rock when rock is indicated on the contract plans. The Contractor shall satisfy the following requirements:

(a) Drilling Methods. The soldier pile installation shall be according to 516.06(a),(b), or(c)
No shaft excavation shall be made adjacent to a soldier pile with encasement concrete that has a compressive strength less than 1500 psi (10.35 MPa), nor adjacent to secant lagging until the CLSM has reach sufficient strength to maintain it's position and shape unless otherwise approved by the Engineer. Materials removed or generated from the shaft excavations shall be disposed of by the Contractor according to Article 202.03. Excavation by blasting will not be permitted.

(b) Drilling Slurry. During construction, the level of the slurry shall be maintained at a height sufficient to prevent caving of the hole. In the event of a sudden or significant loss of slurry to the hole, the construction of that shaft shall be stopped and the shaft excavation backfilled or supported by temporary casing until a method to stop slurry loss, or an alternate construction procedure, has been developed and approved by the Engineer.

(c) Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be removed with normal earth drilling 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. Lost tools or equipment in the excavation, as a result of the Contractor's operation, shall not be defined as obstructions and shall be removed at the Contractor's expense.

(d) Top of Rock. The top of rock will be considered as the point where rock, defined as bedded deposits and conglomerate deposits exhibiting the physical characteristics and difficulty of rock removal as determined by the Engineer, is encountered which cannot be drilled with earth augers and/or underreaming tools configured to be effective in the soils indicated in the contract documents, and requires the use of

special rock augers, core barrels, air tools, blasting, or other methods of hand excavation.

(e) Design Modifications. If the top of rock elevation encountered is below that estimated on the plans, such that the soldier pile length above rock is increased by more than 10 percent, the Engineer shall be contacted to determine if any soldier pile design changes are required. In addition, if the type of soil or rock encountered is not similar to that shown in the subsurface exploration data, the Engineer shall be contacted to determine if revisions are necessary.

(f) 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. Cleaning and painting of all steel components, when specified, shall be as shown on the plans and accomplished according to the special provision for "Cleaning and Painting New Metal Structures". 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. The Contractor shall attach suitable bracing or support to maintain the position of the soldier pile within the shaft excavation such that the final location will satisfy the Construction Tolerances portion of this Special Provision. The bracing or supports shall remain in place until the concrete for encasement has reached a minimum compressive strength of 1500 psi (10.35 MPa).

When embedment in rock is indicated on the plans, modification to the length of a soldier pile may be required to satisfy the required embedment. The modification shall be made to the top of the soldier pile unless otherwise approved by the Engineer. When the top of rock encountered is above the estimated elevation indicated on the plans, the soldier piles shall be cut to the required length. If the top of rock encountered is below that estimated on the plans, the Contractor shall either furnish longer soldier piles or splice on additional length of soldier pile per Article 512.05(a) to satisfy the required embedment in rock. In order to avoid delays, the Contractor may have additional soldier pile sections fabricated as necessary to make the required adjustments. Additional soldier pile quantities, above those shown on the plans, shall not be furnished without prior written approval by the Engineer.

(g) Concrete Placement. Concrete work shall be performed according to Article 516.12 and as specified herein.
The soldier pile encasement concrete pour shall be made in a continuous manner from the bottom of the shaft excavation to the elevation indicated on the plans. Concrete shall be placed as soon as possible after the excavation is completed and the soldier pile is secured in the proper position. Uneven levels of concrete placed in front, behind, and on the sides of the soldier pile shall be minimized to avoid soldier pile movement, and to ensure complete encasement.
Following the soldier pile encasement concrete pour, the remaining portion of the shaft excavation shall be backfilled with CLSM according to Section 593. CLSM Secant lagging placement shall be placed as soon as practical after the shaft excavation is cleared.

(h) Construction Tolerances. The soldier piles shall be drilled and located within the excavation to satisfy the following tolerances:

(1) The center of the soldier pile shall be within 1 1/2 in. (38 mm) of plan station and 1/2 in. (13 mm) offset at the top of the shaft.

(2) The out of vertical plumbness of the soldier pile shall not exceed 0.83 percent.

(3) The top of the soldier pile shall be within ±1 in. (±25 mm) of the plan elevation.

(i) 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 (Fb) 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 in accordance with Article 1007.03.

(j) 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.

(k) 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 timber lagging with the pervious (fabric) side of the drain installed to face the timber. 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 timber lagging is installed. The wall drain shall be placed in sections and spliced, or kept on a continuous roll, so that as each timber is placed, the drain can be properly located as the excavation proceeds.

Method of Measurement. The furnishing 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 final as built shaft excavation bottom.

The drilling and setting of soldier piles in soil and rock, will be measured for payment and the volumes computed in cubic feet (cubic meters) for the shaft excavation required to set the soldier piles according to the plans and specifications, and accepted by the Engineer. These volumes shall be the theoretical volumes computed using the diameter(s) of the shaft(s) shown in the plans and the depth of the excavation in soil and/or rock as appropriate. The depth in soil will be defined as the difference in elevation between the ground surface at the time of concrete placement and the bottom of the shaft excavation or the top of rock (when present), whichever is encountered first. The depth in rock will be defined as the difference in elevation between the measured top of rock and the bottom of the shaft excavation.

Drilling and placing CLSM secant lagging shall be measured for payment in cubic feet (cubic meters) of the shaft excavation required to install the secant lagging as shown in the plans. This volume shall be the theoretical volume computed using the diameter(s) shown on the plans and the difference in elevation between the as built shaft excavation bottom and the ground surface at the time of the CLSM placement.

Timber 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 timbers, for each bay of timber 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) furnished to the job site. The cost of any field splices required due to changes in top of rock elevation shall be paid for according to Article 109.04.

The drilling and setting of soldier piles will be paid for at the contract unit price per cubic foot (cubic meter) for DRILLING AND SETTING SOLDIER PILES (IN SOIL) and DRILLING AND SETTING SOLDIER PILES (IN ROCK). The required shaft excavation, soldier pile encasement concrete and any CLSM backfill required around each soldier pile 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.

The secant lagging will be paid for at the contract unit price per cubic foot (cubic meter) for SECANT LAGGING. The required shaft excavation and CLSM backfill required to fill that excavation shall be included in this item.

Obstruction mitigation shall be paid for according to Article 109.04.

No additional compensation, other than noted above, will be allowed for removing and disposing of excavated materials, for furnishing and placing concrete, CLSM, bracing,

lining, temporary casings placed and removed or left in place, or for any excavation made or concrete placed outside of the plan diameter(s) of the shaft(s) specified.

Temporary Soil Retention System
Effective: December 30, 2002
Revised : January 1, 2007

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.

Any temporary soil retention system cut off, left in place, or 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 1, 2007

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 drain 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 15, 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.

MONITORING OF EXISTING FACILITIES

Description: This work shall consist of monitoring the existing community swimming pool on the northwest corner of the intersection of 75th and Washington. This monitoring will be necessary during rock excavation, drilling of soldier piles and the installation of temporary soil retention systems during the construction of Walls A, B, C and D, Pedestrian Underpass, and rock excavation activities for the proposed west abutment and nearby drainage facilities. Additional monitoring of facilities may be requested by the Engineer during construction.

The contractor shall utilize survey equipment, photographs and video taping methods to document the condition of the swimming pool prior to the start of construction. The contractor may establish vibration monitors in the vicinity of the swimming pool as necessary to monitor conditions. The contractor shall notify the City of Naperville prior to the start of construction to allow the City to coordinate with the owners to gain access for the installation of any monitoring devices and to document existing conditions. The Contractor shall also coordinate with the City for any special conditions prior to the start of construction.

The contractor shall survey the existing swimming pool weekly during the construction activities noted above or as directed by the Engineer or the City of Naperville. If during the course of construction significant additional deterioration of the pool is noted, beyond the initial survey results, the contractor shall stop the work in the area and develop corrective measures that may be required with the Engineer and the City of Naperville. Damage to the swimming pool as a result of construction activities will be corrected by the Contractor as determined by the Engineer and the City of Naperville. No additional compensation will be due the contractor for repairing the facilities.

Basis of Payment: The cost of this work shall be included in the cost of items ROCK EXCAVATION, ROCK EXCAVATION FOR STRUCTURES, DRILLING AND SETTING SOLDIER PILES (IN ROCK), TEMPORARY SOIL RETENTION SYSTEM.

POROUS GRANULAR EMBANKMENT (SPECIAL)

Effective: September 28, 2005
Revised: January 1, 2007

Description. This work shall consist of furnishing, and placing porous granular embankment (special) material as detailed on the plans, according to Section 207 except as modified herein.

Materials. The gradation of the porous granular material may be any of the following CA 8 thru CA 18, FA 1 thru FA 4, FA 7 thru FA 9, and FA 20 according to Articles 1003 and 1004.

Construction. The porous granular embankment (special) shall be installed according to Section 207, except that it shall be uncompacted.

Basis of Payment. This work will be paid for at the contract unit price per Cubic Yard (Cubic Meter) for POROUS GRANULAR EMBANKMENT (SPECIAL).

DEMOLITION PLANS FOR REMOVAL OF EXISTING STRUCTURES

Effective: September 5, 2007

Add to the beginning of Article 501.02 of the Standard Specifications.

"The Contractor shall submit a demolition plan to the Engineer for approval, detailing the proposed methods of demolition and the amount, location(s) and type(s) of equipment to be used. With the exception of removal of single box culverts, for work adjacent to or over an active roadway, railroad or navigable waterway, the demolition plan shall include an assessment of the structure's condition and an evaluation of the structure's strength and stability during demolition and shall be sealed by an Illinois Licensed Structural Engineer."

SEGMENTAL CONCRETE BLOCK WALL
Effective: January 7, 1999
Revised: July 9, 2008

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 granular backfill 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 granular backfill 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 granular backfill, 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 Granular Backfill: The select granular backfill material shall consist of either a coarse aggregate according to Article 1004.05(a), or a fine aggregate according to the first sentence of Article 1003.04(a). The aggregate used shall also meet the following:

Coarse Aggregate Gradation	CA 6 thru CA 16 (Article 1004.01(c))
Fine Aggregate Gradation	FA 1, FA 2, or FA 20 (Article 1003.01(c))
Coarse Aggregate Quality	Minimum Class C (Article 1004.01(b))
Fine Aggregate Quality	Minimum Class C (Article 1003.01(b))
Internal Friction Angle	34° minimum (AASHTO T 236 or T 296)
pH (if reinforcement is used)	4.5 to 9 (AASHTO T 289)

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 granular backfill 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. 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 granular backfill 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 granular backfill 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 granular backfill 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 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.

CITY OF NAPERVILLE
DEPARTMENT OF PUBLIC UTILTIES – SANITARY SEWER AND WATER
General Conditions and Standard Specifications

300 SANITARY SEWER CONSTRUCTION STANDARDS

301 GENERAL
The standards and requirements found in this article are for the materials and construction of sanitary sewers within the City of Naperville, Illinois.

301.1 SPECIFICATIONS
These specifications cover pipe for sanitary sewers and service connections, sewer fittings, manholes and all appurtenances normally used for sanitary sewer collection systems. Special considerations will be covered in the detailed plans and special provisions covering the proposed construction. Sanitary sewers shall be installed in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition, and applicable ordinances of the City of Naperville, except as modified herein.

301.2 REGULATIONS
Additional rules and regulations governing the construction of sanitary sewers in the City of Naperville are:

The Sewer Permit Ordinance

The Sewage and Wastewater Control Ordinance

The restrictions, policies, and instructions that may be adopted or issued by the City of Naperville

The Illinois Pollution Control Board Regulations

The Environmental Protection Act

301.3 START OF CONSTRUCTION
Sanitary sewer construction shall not start before acquiring an IEPA Construction permit number and an Illinois Pollution Control Board permit number, if applicable. All other relevant permits must also be obtained.

301.4 SANITARY SEWERS
All sanitary sewage of domestic and other water borne wastes shall be collected and conveyed in a sanitary sewer pipe system to a point of discharge into an existing sanitary sewer system, City of Naperville interceptor, or sewage treatment plant. No sanitary sewage shall be allowed to enter any storm sewer system or discharge onto the ground or into receiving streams without first being treated in accordance with city, county, state and federal regulations.

Lift stations with forcemains shall only be installed if allowed by Department of Public Utilities and shall be designed and constructed in accordance with IEPA Regulations. Equipment and materials shall be as approved by Department of Public Utilities.

302 PIPE MATERIALS:
All sanitary sewer pipe materials shall conform to the latest applicable ANSI, ASTM, AWWA, AASHTO, or other nationally accepted standards. Only the following sanitary sewer pipe and joint materials are approved for use in the City of Naperville, Illinois:

Class 50 ductile iron pipe conforming to ANSI/AWWA C151/A.21.51-02 (or latest edition) with joints conforming to ANSI/AWWA C111/A.21.11-00 (or latest edition). Ductile shall be encased in polyethylene encasement in accordance with ANSI/AWWA C105/A21.5-99 (or latest edition).

Polyvinyl chloride (PVC) pipe (6"-16") conforming to ASTM D2241-05 (or latest edition) (SDR 26 – sewer depth between 4-20 feet and SDR 21 for depths between 20-25 feet) with joints conforming to ASTM D3139-98 (2005) or latest edition.

Also acceptable in lieu of ASTM D2241-05 are C900 (SDR 18) for 12" diameter sewers and C905 (SDR 25) for 14" through 18" sewers,

Joints connecting dissimilar pipe materials shall be made with sewer clamp non-shear type couplings; Cascade CSS, Romac LSS, Fernco, Inc. Shear Ring, or approved equal. When available, a standard joint with a transition gasket may be used. The name of the manufacturer, class, and date of issue shall be clearly identified on all sections of pipe. The contractor shall also submit bills of lading, or other quality assurance documentation when requested by the City Engineer.

303 SEWER AND WATER MAIN SEPARATION

Sanitary sewers and services that are laid in the vicinity of pipe lines designated to carry potable water shall meet the conditions set forth in WATER DISTRIBUTION SYSTEM CONSTRUCTION STANDARDS.

304 CONSTRUCTION REQUIREMENTS:

304.1 DEPTH OF PIPE COVER

All pipe shall be laid to a minimum depth of 7 feet measured from the proposed ground surface to the top of the pipe, unless specifically allowed otherwise in special circumstances by the City Engineer. If allowed, sanitary sewer and services with ground cover less than 4 feet or more than 25 feet must be constructed of ductile iron class 50 pipe. PVC pipe installed for sewer depths between 20-25 feet shall have a SDR 21 rating. All sanitary sewers and services with less than 4 feet of cover shall have insulation.

304.2 PIPE BEDDING, HAUNCHING, AND INITIAL BACKFILL

Granular pipe bedding, haunching and initial backfill material or granular cradle shall be required on all sanitary sewers installed in the City of Naperville. Granular pipe bedding shall be a minimum of 4 inches in earth excavation and a minimum of 6 inches in rock excavation. The trench shall be backfilled with granular material to a minimum of 6 inches over the top of the pipe per Naperville Standard Detail SAN 5. Bedding, haunching, initial and final backfill material shall conform to IDOT gradation CA7 or CA-11.

304.3 SELECTED GRANULAR BACKFILL

The backfill for trenches and excavation made in existing or under proposed pavements where the inner edge of the trench is within 2 feet of the edge of the pavement, curb, gutter, curb and gutter, or sidewalk, shall be made with compacted selected granular material conforming to I.D.O.T. gradation CA-6. Selected granular backfill shall be placed in uniform layers not exceeding 6 inches (loose measure) and compacted with mechanical equipment to 95% of the standard proctor density in accordance with the applicable AASHTO or ASTM requirements.

304.4 HANDLING OF PIPE

Sanitary sewer pipe shall be handled in a manner that will prevent damage. Damaged or defective material on the job site shall be rejected and replaced to the satisfaction of the City Engineer. Methods of construction conducive to the damage of sewer pipe shall be corrected when called to the attention of the contractor. All pipe and fittings shall be examined by the contractor above grade before placement in the trench.

304.5 LAYING OF PIPE

Sanitary sewer pipe shall be laid true to line and grade as set forth in Section 31 paragraph 31-1.02 of the "Standard Specifications for Water and Sewer Main Construction in Illinois." Dirt and other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations.

Any pipe or fitting that has been installed with dirt or foreign material in it shall be cleaned and re-inspected. At times when pipe laying is not in progress, and at the end of each working day, the open end of the pipe shall be closed with a water tight plug to ensure absolute cleanliness inside the pipe. The City Engineer may request

mechanical cleaning (jet flushing) and/or televising if necessary to ensure clean, acceptable pipes, at the contractor's expense.

304.6 LAYING OF PIPE ON CURVES

The curvature of sanitary sewers is allowed for sewers 8 inches to 12 inches in diameter. Alignments must follow the general alignment of streets. Only a simple curve design is acceptable. The minimum allowable radius of curvature is 300 feet. Compression type pipe joints are required and manholes are required at the beginning and end of all curves. Maximum joint deflection shall not exceed the manufacturer's recommendations.

304.7 INSTALLING PIPE THROUGH CASINGS

This work shall be in conformance with Section 20-2.19 of the Standard Specifications for Water and Sewer Main Construction in Illinois, except as modified herein. Encasements for pipes under highways or railroads shall conform to the requirements of the City of Naperville, or the owner of the highway or railroad. Manufactured non-metallic or non-corrosive casing spacers, adjustable runners, or cradles shall be used to support the pipe in the casing and shall be installed per manufacturer's recommendations. A minimum of two supports shall be used per joint of pipe for lengths up to 12.5 feet, and a minimum of three supports shall be used per joint for lengths greater than 12.5 feet. The annular space shall be filled with pea gravel, low-strength grout, or cellular foam concrete and provisions shall be made so that no voids are left. Contractor shall make arrangements to have a City of Naperville representative witness the annular spacing filling operations.

Casing Pipe Material

The steel casing pipe shall be bituminous coated, a minimum of 30 mils thickness inside and out, and shall be of leak proof construction, capable of withstanding the anticipated loadings. The steel casing pipe shall have minimum yield strength of 35,000 psi and shall meet the requirements of A139/A139M-04 (or latest edition), Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field welding

Steel Casing Diameter	Minimum Wall Thickness (Inches)
20" and 22"	0.344
24"	0.375
28"	0.438
30"	0.469
32"	0.501
34" and 36"	0.532

305 SANITARY SEWER MANHOLES

Manholes for sanitary sewers shall have a minimum inside diameter of 48 inches and shall be constructed of precast concrete units in accordance with ASTM C478-05 (or latest edition) and Section 32 of the "Standard Specifications for Water and Sewer Main Construction in Illinois," and shall follow the City of Naperville sanitary sewer standards. Inverts of similar size pipe are to match other inverts. Where a smaller pipe intersects a larger pipe, the spring line or top of pipe of both pipes shall be at the same elevation, unless otherwise directed by the Director of Public Utilities. This is also to be done when tapping into an existing manhole.

305.1 MANHOLE LOCATION

Manholes shall be located at the junction of two sanitary sewer pipes or at any change in grade, alignment or size of pipe. The maximum spacing of manholes shall be 500 feet for sanitary sewers. Inspection manholes are required for all commercial and industrial connections.

305.2 CONSTRUCTION

Sanitary manholes shall be precast concrete constructed in accordance with ASTM C478-05 (or latest edition) and shall be water-tight. All visible leaks shall be sealed in a manner acceptable to the City Engineer. Inverts shall be made to conform accurately to the sewer grades with smooth, well rounded junctions and transitions satisfactory to the City Engineer. If the invert is to be poured in place, the sanitary sewer pipe shall be extended through the

manhole, the concrete poured and formed, and the pipe then sawed out through the manhole. The completed man-hole shall be rigid, true to dimensions and watertight. Lifting holes that extend through the wall of manhole shall not be allowed.

Pipe connections to manholes shall be made as follows:

A flexible pipe-to-manhole connector shall be used for the connection of the sanitary sewer to precast concrete manholes. The connector shall meet ASTM C923-02 and ASTM A167-99(2004), or latest edition, and be constructed of EPDM rubber with 304 or 316 series stainless steel connectors (KOR-N-SEAL by NPC, PSX by Press-Seal Gasket Corporation, or approved equal).

Where a connection is made to an existing manhole, the manhole shall be cored, and a flexible pipe-to-manhole connector installed. The existing manhole bench shall be reworked as required by City Engineer.

305.3 MANHOLE APPURTENANCES
The following items shall apply to all manhole structures:

Manholes shall be furnished with a self-sealing frame and solid cover (Neenah Foundry R-1772, East Jordan Iron Works 1022-Z3, or equal approved by the City Engineer) with the word "Sanitary" imprinted on the cover in raised letters (see Standard Detail SAN 3). All frames and lids shall meet or exceed AASHTO H-20 loading specifications. Frames shall be shop painted with asphaltic base paint.

Both the manhole frame and cover shall have machined horizontal and vertical bearing surfaces. Inverted manhole frames are not allowed.

Pick holes shall not create openings in the manhole cover.

Bolt-down frames and covers shall be Neenah Foundry R-1916-F, East Jordan Iron Works 1040 ZPT or equal approved by the City Engineer. Frames are to be bolted to cone and cover to frame using stainless steel anchor bolts. Bolt-down frames shall be used in areas subject to flooding and where indicated on the plans.

Manhole frames shall be adjusted to proper grade using composite material rings as approved by City Engineer. Bricks, rocks, shims, or concrete blocks are not be allowed. Tapered composite adjusting rings, as approved by City Engineer (we need a specification on this item), shall be required when frame will be with a roadway area. No dressing or tuckpointing mortar is allowed on rings, Final frame adjustment for manholes within the roadway area shall be in accordance with Sections 602 and 603 of Standard Specifications for Road and Bridge Construction, prepared by the Illinois Department of Transportation, latest edition.

All manhole frames and adjusting rings shall be securely sealed to the cone section or top barrel section of the manhole using resilient, flexible, non-hardening, preform-ed bituminous mastic material, Conseal 102 B or approved equal. The mastic shall be applied in such a manner that no surface water or ground water inflow can enter the manhole through gaps between the top barrel section or cone section and the first adjusting ring, between adjusting rings, or between the last adjusting ring and the manhole frame. Up to 12 inches of adjusting rings may be installed on a given manhole. No more than one 2-inch adjusting ring, and no more than two adjusting rings in total shall be used.

A continuous layer of non-hardening, preformed bituminous mastic material, Conseal 102B or approved equal, shall be applied to each manhole barrel cone and top section to provide a watertight seal.

Manhole steps on maximum 16 inch center shall be furnished with each manhole, securely anchored in place, true to vertical alignment, in accordance with the Naperville Standard Details. Steps shall be copolymer polypropylene reinforced with ½ inch A615/A615M-05a (or latest edition) Grade 60 steel reinforcement, meeting or exceeding ASTM C 478-05 (or latest edition) and OSHA standards.

Rubber boots/seals must be used where pipes enter manholes. The internal connection shall be dressed up with non-shrink hydraulic cement.

Hydraulic cement, mortar, and concrete must be of the strength and water-tightness quality as specified in the ASTM standards.

305.4 DROP ASSEMBLIES
Drop manhole assemblies shall be provided at the junction of sanitary sewers where the difference in grade is in excess of 2 feet. The drop assembly shall follow Naperville Standards with filleted inverts. If the difference between the inverts is less than 24", then pipe inverts shall match within the manhole wherever possible. Drops are to be made outside of the structure unless otherwise approved by the Naperville Department of Public Utilities.

305.5 INSPECTION OF MANHOLES
All manholes shall be thoroughly cleaned of dirt and debris and all visible leakage eliminated before final inspection and acceptance.

305.6 VACUUM TESTING OF SANITARY MANHOLES
All manholes shall be tested for leakage by vacuum testing. A vacuum of 10" Hg shall be place on the manhole and the time shall be measured for the vacuum to drop to 9" Hg. The vacuum shall not drop below 9" Hg for the following time periods for each size of manhole:

48-inch diameter - 60 seconds

60-inch diameter - 75 seconds

72-inch diameter - 90 seconds

84-inch diameter - 105 seconds

Any manholes that fail the test shall be sealed and re-tested until acceptable. The testing shall be done after backfilling. Leaks found shall be fixed externally unless approved by City Engineer. The manhole frame and adjusting rings shall be in place at finished grade prior to testing.

307 UTILITY IDENTIFICATION
A wood stake (4 inch by 4 inch by 6 foot) stake with not less than the top 2 feet painted green shall be installed next to each sanitary sewer manhole, clean-out, and at the end of each sewer stub (termination at the end of the line). The 4" x 4" x 6' stake shall be maintained in a plumb position until City acceptance of the utility structures.

When newly poured curbs are installed the contractor shall use a City approved stamp to indent the wet concrete with an "S" to identify the location of each sanitary manhole and sewer stub. The letter "S" shall be indented at the top of the curb one and one-half (1-1/2) inches to two (2) inches in height and width at a depth of three-eighths (3/8) inches.

In areas where new curbs are not present or if the developer and/or the contractor fail to indent the curbs as outlined above, the City will then require that identification symbols as approved by the City Engineer be cut into the curb.

308 PVC PIPE INSTALLATION SPECIFICATIONS

308.1 SCOPE
This specification includes requirements for trench excavation, pipe embedment, joining and installing pipe and accessories, and backfill placement. This specification is also appropriate for PVC pipe (6"-16") complying with ASTM D2241-05 and ASTM D3139-98 (2005) or latest edition Any proposed PVC pipe greater than 16" in size must be approved by City Engineer prior to use. PVC pipe cannot be used in Class V soils (i.e. organic silt, organic

clay and peat) as defined according to the Unified Soil Classification System in ASTM D2487-00 (or latest edition). Solvent cement joints will not be allowed in the City of Naperville.

308.2 PIPING MATERIALS

308.2.1 RESPONSIBILITY FOR MATERIALS
The contractor shall be responsible for the acceptability and storage of all materials furnished by him and shall assume responsibility for the replacement of all such material found damaged in shipping or on job site or defective in manufacture. This shall include the furnishing of all material and labor required for the replacement of installed material discovered to be defective prior to the final acceptance of the work.

308.2.2 STORAGE OF PIPING MATERIALS
The interior, as well as all sealing surfaces of all pipe, fittings, and other accessories shall be kept free from dirt and foreign matter. Store pipe bundles on flat surfaces with uniform support. Pipe stored outside and exposed to prolonged periods of sunlight should be covered with canvas or other opaque material. Clear plastic sheets shall not be used. Air circulation shall be provided under covering. Keep gaskets away from oil, grease, electric motors (which produce ozone), excessive heat and direct rays of the sun. Consult the manufacturer for specific storage recommendations.

308.2.3 HANDLING OF PIPING MATERIALS
Piping materials shall be unloaded, hauled and distributed at the site of the project by the contractor. Materials shall at all times be handled properly to prevent damage in accordance with manufacturer's recommendations. Pipe and fittings shall not be thrown, dropped, or dragged.

308.2.4 PIPE
Pipe shall be clearly marked as follows at intervals of 5' or less:

Manufacturer's name or trademark and code

Nominal pipe size

The PVC cell classification, for example 12454-B

The legend "Type IPS SDR-26 PVC 1120 Sewer Pipe"

This designation "Specification D-2241"

NOTE: PVC Pipe shall be SDR 26. For sewer depths between 20 and 25 feet, SDR 21 shall be provided. Higher SDR numbers will only be allowed with the approval of the City Engineer.

FITTINGS
All PVC fittings shall comply with ASTM F1970-05 (or latest edition) and fittings shall be clearly marked as follows:

Manufacturer's name or trademark

Nominal size

The material designation PVC or IPS (iron pipe size), and this designation "Specification D2241"

Fitting shall be molded for pipe sizes between 6" and 8" in diameter, and fabricated fittings for 10" to 16" in diameter. A minimum of 150 psi pressure class shall be provided.

NOTE: PVC Fittings shall be SDR 26. Higher SDR numbers will only be allowed with the approval of the City Engineer. The internal diameter of the fitting shall be able to pass the 5% deflection mandrel in accordance with Section 309.6.

308.3 TRENCH CONSTRUCTION

308.3.1 GENERAL
Trench construction for PVC pipe shall be in accordance with Section 304 of these specifications, and in accordance with Sections 20 and 31 of the Standard Specifications for Water and Sewer Main Construction in Illinois, except as modified herein.

308.3.2 WIDE TRENCH
Wide trenches are classified as trenches whose width at the top of the pipe is greater than 2 1/2 pipe diameters on each side of the pipe or a total of 6 pipe diameters. Although there is no width of trench beyond which the load on a flexible pipe exceeds the prism load, accepted installation practices usually dictate narrow trench construction. In isolated circumstances it may be more cost effective to use wide trench construction, i.e., in areas where narrow trench walls cannot be maintained. If trench width at the top of a small diameter pipe (4"-10" diameter) must exceed 6 pipe diameters, the embedment up to the pipe spring line should be compacted to a point approximately 2 1/2 pipe diameters from each side of the pipe. For large diameter PVC pipe (12"-48" diameter) installed in wide trenches, the embedment up to the pipe spring line should be compacted to a point at least one pipe diameter or 2 ft from side of the pipe, whichever is greater.

308.3.3 ROCK SUB-GRADE
Ledge rock, hard pan, cobbles, boulders or stones larger than 1 1/2 inches shall be removed from the trench bottom to permit a minimum bedding thickness of 6 inches.

308.3.4 BEDDING
Bedding, other than concrete embedment, shall consist of gravel, crushed gravel, or crushed stone 1/4"-1" in size. As a minimum, the material shall conform to the requirements of Article 1004.01 of the "Standard Specifications for Road and Bridge Construction", prepared by the Illinois Department of Transportation. The gradation shall conform to gradation CA-7 or CA-11 of the Standard Specifications. The pipe shall be laid so that it will be uniformly supported and the entire length of the pipe barrel will have full bearing. No blocking of any kind shall be used to adjust the pipe to grade except when used with embedment concrete. Bedding shall be required for all sewer construction, and shall be of a thickness equal to 1/4 of the outside diameter of the sewer pipe with a maximum thickness of eight inches, but shall not be less than four inches. Where unsuitable material is encountered at the grade established, all such unsuitable soil shall be removed under the pipe and for the width of the trench, and shall be replaced with well compacted bedding material. The size range and resulting high voids ratio of bedding material make it suitable for use to dewater trenches during pipe installation. This permeable characteristic dictates that its use be limited to locations where pipe support will not be lost by migration of fine grained natural material from the trench walls and bottom or migration of other materials into the bedding material. When such migration is possible, the material's minimum size range should be reduced to finer than 1/4 inch and the gradation properly designed to limit the size of the voids.

Bedding materials shall be placed to provide uniform and adequate longitudinal support under the pipe. Bell holes at each joint shall be provided to permit the joint to be assembled properly while maintaining uniform pipe support. When the joint has been made, the void under the bell will be filled with bedding or haunching material.

308.3.5 HAUNCHING
The most important factor affecting pipe performance and deflection is the haunching material and its density. Place and consolidate the material under the pipe haunch to provide adequate side support to the pipe while avoiding both vertical and lateral displacement of the pipe from proper alignment. The same coarse materials as used for initial backfill shall also be used for haunching. Place haunching up to the pipe spring line.

308.3.6 INITIAL BACKFILL

Initial backfill begins above the spring line of the pipe and extends to a point 6" above the top of the pipe and shall be CA-7 or CA-11 carefully placed so as to completely fill the space around the pipe, in 8" layers, loose measurements, and compacted to the satisfaction of the City Engineer.

308.4 LAYING AND JOINING PIPE AND FITTINGS

308.4.1 GENERAL
Laying and joining PVC pipe and fittings shall be in accordance with Section 31 of the Standard Specifications for Water and Sewer Main Construction in Illinois, except as modified herein.

308.4.2 CUTTING AND BEVELING PIPE
For shorter than standard pipe lengths, field cuts may be made with either hand or mechanical saws or plastic pipe cutters. Ends shall be cut square and perpendicular to the pipe axis. Spigots shall have burrs removed and ends smoothly beveled by a mechanical bevel or by hand with a rasp or file. Field spigots shall be stop-marked with felt tip marker or wax crayon for the proper length of assembly insertion. The angle and depth of field bevels and lengths to stop-marks shall be comparable to factory pipe spigots.

308.4.3 ASSEMBLY OF JOINTS
Assemble all joints in accordance with recommendations of the manufacturer. If a lubricant is required to facilitate assembly it shall have no detrimental effect on the gasket or on the pipe when subjected to prolonged exposure. Proper jointing may be verified by rotation of the spigot by hand or with a strap wrench. If unusual joining resistance is encountered or if the insertion mark does not reach the flush position, dissemble the joint, inspect for damage, re-clean the joint components and repeat the assembly steps. Note that fitting bells may permit less insertion depth than pipe bells (NOTE: When mechanical equipment is used to assemble joints, care should be taken to prevent over insertion.)

308.4.4 BRANCH FITTINGS
Fittings for service branches in new construction shall be molded for 6" and 8" pipe and fabricated for 10" to 16" diameter with all gasketed connections. Clay/plastic pipe connections must be watertight. The contractor will be permitted to use fittings which include factory molded saddles and tees with alignment rings, and factory molded wyes. When connecting to an existing sewer main by means other than an existing wye or tee, one of the following methods shall be used:

For PVC existing lines only, a sewer tap into the existing main shall be allowed. This would include a circular saw-cut of the sewer main by proper tools ("Shewer-Tap" machine or similar) and proper installation of hub-wye saddle or hub-tee saddle. Holes for wye saddles shall be laid out with a template and shall be de-burred and carefully beveled where required to provide a smooth hole shaped to conform to the fitting.

A typical connection would involve a PVC "T" fitting, another 1' (or more) extension of PVC pipe, depending on location of existing joint, the non-shear coupling and the existing clay or PVC pipe. With pipe cutter or appropriate equipment, neatly and accurately cut out desired length of pipe for insertion of proper fitting, using non-shear reinforced banded style repair coupling with 300 series stainless steel shear ring as manufactured Fernco, Inc. or Mission Rubber Company, Inc., or approved equal, connect the sewer pipes and maintain matching flowline elevations. All couplings shall bear the manufacturer's identifying mark and size.

The contractor shall provide details of direct connections to City interceptors greater than eighteen (18") inches in diameter and show construction procedure for protecting City structures.

All proposed bypass pumping of sanitary flow shall be approved by Department of Public Utilities prior to performing this work.

308.4.5 BUILDING SERVICES

When main line bedding, haunching, initial and final backfill must be disturbed to install fittings and service lines, the contractor is directly responsible to ensure that the bedding, haunching, initial and final backfill with appropriate compaction are restored properly to eliminate the possibility of deflection or movement causing future pipe failure.

308.4.6 PIPE CAPS AND PLUGS
All caps and plugs shall be braced, staked, anchored, wired or otherwise secured to the pipe to prevent leakage under the maximum anticipated thrust from internal abnormal operating conditions or test pressures from water or air.

309 PVC PIPE TESTING SPECIFICATIONS

309.1 GENERAL
All projects shall be tested upon completion of installation. The City Engineer will designate the locations of tests and extent of the system to be tested, and extent of recording test results. Equipment for performing tests and making measurements shall be furnished by the contractor. Sections of sewer which fail to pass the tests shall have defects located and repaired or replaced and be retested until within the specified allowance.

309.2 CLEANING
Prior to other tests all sewer lines shall be cleaned and inspected for major defects. Pre-cleaning by appropriately sized sewer cleaning ball or by high velocity jet or other method shall be performed. Any debris, grit, etc. shall be removed and shall not be allowed to enter the existing system.

309.3 VISUAL TEST
The City of Naperville may require that sewer lines be inspected visually to verify accuracy of alignment and freedom from debris and obstructions. The percentage of sewer lines inspected will be designated by the City Engineer. The full diameter of the pipe for straight alignments shall be visible when viewed between consecutive manholes. The method of test shall be either photography or closed circuit television, unless a specific method is required by the special provisions and approved by the City Engineer.

309.4 DEFLECTION TESTING
Unless specified otherwise, the maximum allowable pipe deflection (reduction in vertical inside diameter) shall be 5%. A mandrel test is required by the City of Naperville.

309.5 LEAKAGE TEST
Methods of test which are suitable for various conditions are low pressure air exfiltration or water exfiltration. Explicit instructions for the following methods of test will be supplied by the project design engineer. Plugs, caps, and branch connections must be secured against blow-off during leakage test.

309.6 MANDREL TESTING
All sewers constructed under permits issued by the City of Naperville shall be subject to inspection, testing and approval by the City to insure compliance with the applicable requirements. All testing shall be made, or caused to be made, by the Permittee or Co-Permittee at no cost to the City and in the presence of the City Representative.

309.6.1 TEST SECTIONS
The City Engineer shall randomly select portions of the project to be deflection tested. Such portions shall consist of the manhole intervals for the initial sewer construction up to 1,200 linear feet and not less than 20% of the remainder of the sewer project. The City of Naperville reserves the right to test more or less pipe if considered appropriate by the City Engineer.

309.6.2 ALLOWABLE DEFLECTION
The 5% deflection test for pipe sizes 6 inches to 18 inches in diameter is to be run using a nine-arm mandrel having a diameter equal to 95% of the inside diameter of the pipe as established in ASTM D-2241-96b. The following table of mandrel sizes was developed using the equations outlined in Section 31-1.11C of the Standard Specifications for Water and Sewer Main Construction in Illinois:

TABLE 1
REQUIRED MANDREL SIZE FOR SDR 26 PIPE
(ASTM D2241)

Nominal Pipe Size, Inches (mm)	Average Inside Diameter	Required Mandrel Size, Inches (mm)
6	6.08	5.68
8	7.92	7.38
10	9.87	9.23
12	11.71	10.98
14	12.86	12.02
16	14.70	13.65

309.6.3 TIME OF TESTING
The individual lines to be tested shall be tested no sooner than 30 days after they have been installed by the contractor. During the first year of implementation, additional testing may be performed by the City of Naperville.

309.6.4 SEQUENCE OF TESTING
Wherever possible and practical, the testing shall initiate at the downstream lines and proceed towards the upstream lines.

309.6.5 TESTING OF ENTIRE PROJECT
In the event that the deflection exceeds the 5% limit in 10% or more of the manhole intervals tested, the total sewer project shall be tested.

309.6.6 RETEST OF FAILED SECTIONS
Where deflection is found to be in excess of 5% of the base inside diameter, the contractor shall excavate to the point of excess deflection and carefully compact around the point where excess
deflection was found. The line shall then be retested for deflection. However, if the deflected pipe fails to return to the original size (inside diameter) after the initial testing, the affected segment shall be replaced.

309.7 AIR TESTING

309.7.1 AIR TESTING SAFETY
The contractor is required to follow OSHA rules for trench safety and confined space requirements.

309.7.2 PLUG RESTRAINT
All plugs shall be installed and braced in such a way that blowouts are prevented. Every plug shall be positively braced against the manhole walls, and no one shall be allowed in the manhole adjoining a line being tested so long as pressure is maintained in the line.

309.7.3 RELIEF VALVE
All pressurizing equipment used for low-pressure air testing shall include a regulator or relief valve set no higher than 9 psig to avoid over-pressurizing and displacing temporary or permanent plugs. As an added safety precaution pressure in the test section should be continuously monitored to make certain that it does not at any time exceed 9 psig.

309.7.4 PLUG DESIGN

Either mechanical or pneumatic plugs may be used. All plugs shall be designed to resist internal testing pressures without the aid of external bracing or blocking. However, the contractor shall internally restrain or externally brace the plugs to the manhole wall as an added safety precaution throughout the test.

309.7.5 SINGULAR CONTROL PANEL
To facilitate test verification by the City Engineer, all air used shall pass through a single, above ground control panel.

309.7.6 EQUIPMENT CONTROLS
The above ground air control equipment shall include a shut-off valve, pressure regulating valve, pressure relief valve, input pressure gauge, and a continuous monitoring pressure gauge having a pressure range from 0 to at least 10 psi). The continuous monitoring gauge shall be no less than 4 inches in diameter with minimum divisions of 0.10 psi and an accuracy of 0.04 psi.

309.7.7 SEPARATE HOSES
Two separate hoses shall be used to: (1) connect the control panel to the sealed line for inducing low-pressure air, and (2) a separate hose connection for constant monitoring of air pressure build-up in the line. This requirement greatly diminishes any chance for over-pressurizing the line.

309.7.8 PNEUMATIC PLUGS
If pneumatic plugs are utilized, a separate hose shall also be required to inflate the pneumatic plugs from the above ground control panel.

309.7.9 LINE PREPARATION - LATERALS, STUBS AND FITTINGS
During sewer construction, all service laterals, stubs, and fittings into the sewer test section shall be properly capped or plugged so as not to allow for air loss that could cause an erroneous air test result. It may be necessary and is always advisable to restrain gasketed caps, plugs, or short pipe lengths with bracing stakes, clamps and tie-rods, or wire harnesses over the pipe bells.

309.7.10 PLUG INSTALLATION AND TESTING
After a manhole to manhole reach of pipe has been back-filled to final grade and prepared for testing, the plugs shall be placed in the line at each manhole and secured.

It is advisable to seal test all plugs before use. Seal testing may be accomplished by laying one length of pipe on the ground and sealing it at both ends with the plugs to be checked. The sealed pipe should be pressurized to 9 psig). No persons shall be allowed in the alignment of the pipe during plug testing.

It is required to plug the upstream end of the line first to prevent any upstream water from collecting in the test line.

When plugs are being placed, the pipe adjacent to the manhole shall be visually inspected to detect any evidence of shear in the pipe due to differential settlement between the pipe and the manhole.

309.7.11 LINE PRESSURIZATION
Low pressure air shall be slowly introduced into the sealed line until the internal air pressure reaches 4.0 psig greater than the average back pressure of any ground water above the pipe, but not greater than 9.0 psig. If ground water is present, refer to 'Determination of Ground-Water Elevation and Air Pressure Adjustment'.

309.7.12 PRESSURE STABILIZATION
After a constant pressure of 4.0 psig (greater than the average ground water back pressure), is reached, the air supply shall be throttled to maintain that internal pressure for at least 4 minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall.

309.7.13 TIMING PRESSURE LOSS

When temperatures have been equalized and the pressure stabilized at 4.0 psig (greater than the average ground water back pressure), the air hose from the control panel to the air supply shall be shut off or disconnected. The continuous monitoring pressure gauge shall then be observed while the pressure is decreased to no less than 3.5 psig (greater than the average back pressure of any ground water over the pipe). At a reading of 3.5 psig, or any convenient observed pressure reading between 3.5 psig and 4.0 psig (greater than the average ground water back pressure), timing shall commence with a stop watch or other timing device that is at least 99.8% accurate.

309.7.14 DETERMINATION OF LINE ACCEPTANCE
If the time shown in Table 2, for the designated pipe size length (which includes main line sewers and laterals), is achieved before the air pressure drops 0.5 psig; the section undergoing test shall have passed and shall be presumed to be free of defects. The test may be discontinued once the prescribed time has elapsed even though the 0.5 psig drop has not occurred.

309.7.15 DETERMINATION OF LINE FAILURE
If the pressure drops 0.5 psig before the appropriate time shown in Table 3 has elapsed, the air loss rate shall be considered excessive and the section of pipe has failed the test.

309.7.16 LINE REPAIR OR REPLACEMENT
If the section fails to meet these requirements, the contractor shall determine at his own expense, the source or sources of leakage and he shall repair or replace all defective materials and/or workmanship to the satisfaction of the City Engineer. The extent and type of repair which may be allowed, as well as the results, shall be subject to the approval of the City Engineer. The completed pipe installation shall then be retested and required to meet the requirements of this test.

309.8 DETERMINATION OF GROUND WATER ELEVATION AND AIR PRESSURE ADJUSTMENT

309.8.1 APPLICABILITY
The requirements of this section shall only apply where ground water is known to exist or is anticipated above the sewer line to be tested.

309.8.2 AIR PRESSURE ADJUSTMENT
The air pressure correction, which must be added to the 3.5 psig normal testing starting pressure, shall be calculated by dividing the average vertical height, in feet of ground water above the invert of the sewer pipe to be tested, by 2.31. The result gives the air pressure correction in pounds per square inch to be added. (For example, if the average vertical height of ground water above the pipe invert is 2.8 feet the additional air pressure required would equal 2.8 divided by 2.31 or 1.2 psig. This would require a minimum starting pressure of 3.5 psig plus 1.2 psig or 4.7 psig. The allowable pressure drop of 0.5 psig and the timing in Table 2 are not affected and shall remain the same.

309.8.3 MAXIMUM TEST PRESSURE
In no case should one starting test pressure exceed 9.0 psig If the average vertical height of ground water above the pipe invert is more than 12.7 feet, the section so submerged may be tested using 9.0 psig as the starting test pressure.

309.8.4 SPECIFIED TIME TABLES
To facilitate the proper use of this required practice for air testing, the following table are provided. Table 2 contains specified minimum times required for a 0.5 psig pressure drop from a starting pressure of at least 3.5 psig greater than the average back pressure of any ground water above the pipe's invert.

TABLE 2

SPECIFIED TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

1 PPipe Dia. (in)	2 Min. Time min:sec	3 Length for Min. Time (ft)	4 Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)								
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	500 ft
4	1:53	597	0.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	0.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12	3:34
8	3:47	298	0.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42	6:20
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54	9:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50	14:15
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02	22:16
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51	32:03
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16	43:38
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17	56:59
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54	72:07
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07	89:02
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57	107:43
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23	128:12

SECTION 500 WATER DISTRIBUTION SYSTEM CONSTRUCTION STANDARDS

501 GENERAL

The standards and requirements found in this article are for materials and construction of water mains within the City of Naperville, Illinois. Specific references made herein for manufactured materials such as pipe, hydrants, valves and fittings refer to designations for American Water Works Association (AWWA) or to the American National Standards Institute (ANSI). Nothing herein shall constitute or imply an endorsement by the City of Naperville of any one material over another.

501.2 SPECIFICATIONS

These specifications cover pipe and fittings and items normally used for water distribution systems. Special considerations will be covered in the plans and special provisions. Water distribution systems shall be constructed in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, except as modified herein. In cases of conflict between standards, the more restrictive standard shall apply, as determined by the City Engineer.

501.3 START OF CONSTRUCTION

Water main construction shall not start before acquiring an IEPA Construction Permit, when applicable. All other relevant permits must also be obtained.

502 PIPE

502.1 DUCTILE IRON PIPE

Ductile Iron pipe shall conform to ANSI/AWWA C151/A21.5-02 (or latest edition). Class 52 minimum thickness designation. Casting, marking, testing, etc. shall be provided in accordance with applicable ANSI or AWWA standards.

502.2 LINING FOR PIPES AND FITTINGS

Cement lining shall be provided in accordance with ANSI/AWWA C104/A21.4-03 (or latest edition).

502.3 PIPE FITTINGS

All cast and ductile iron fittings shall conform to the latest ANSI/AWWA C110/A21.10-03 (or latest edition) for short body, cast and ductile iron fittings 3 inches to 48 inches in diameter. Ductile iron compact fittings 3 inches to 24 inches in diameter shall be in accordance with ANSI/AWWA C153/A21.53-00 (or latest edition).

502.4 CASING PIPES

Casing Pipe Material

The steel casing pipe shall be bituminous coated, a minimum of 30 mils thickness inside and out, and shall be of leak proof construction, capable of withstanding the anticipated loadings. The steel casing pipe shall have minimum yield strength of 35,000 psi and shall meet the requirements of A139/A139M-04 (or latest edition), Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field welding

Steel Casing Diameter	Minimum Wall Thickness (Inches)
20" and 22"	0.344
24"	0.375
28"	0.438
30"	0.469
32"	0.501
34" and 36"	0.532

503 PROTECTION OF WATER MAINS

503.1 GENERAL
Water mains and water service lines shall be protected from sanitary sewers, storm sewers, house sewer service connections and drains as follows (per IEPA Title 35, Subtitle F, Chapter II Section 653.119):

503.2 HORIZONTAL SEPARATION - WATER MAINS AND SEWERS
Water mains shall be located at least ten (10) feet horizontally, from any existing or proposed drain, storm sewer, sanitary sewer, combined sewer or sewer service connection.

a) Water mains may be located closer than ten (10) feet (clear separation) to a sewer line when:

   1) local conditions prevent a lateral separation of ten (10) feet; and

   2) the water main invert is at least 18 inches above the crown of the sewer; and

   3) The water main is either in a separate trench or in the same trench on an undisturbed earth shelf where the invert of the water main is eighteen (18) inches above the crown of the sanitary sewer located to one side of the sewer.

b) When it is impossible to meet the above conditions, the sewer shall be constructed of water main quality pipe (ductile iron pipe – minimum class 50).

503.3 VERTICAL SEPARATION WATER MAINS AND SEWERS

a) A water main shall be separated from a sewer so that its invert is a minimum of 18 inches above the crown of the drain or sewer whenever water mains cross storm sewers, sanitary sewers or sewer service connections. The vertical separation shall be maintained for that portion of the water main located within ten (10) feet (clear separation) horizontally of any sewer or drain crossed. A length of water main pipe shall be centered over the sewer to be crossed with joints equidistant from the sewer or drain.

b) Both the water main and sewer shall be constructed of water main quality pipe or the water main shall be sleeved with water main quality material and ends of casing sealed when:

   1) If it is impossible to obtain the proper vertical separation as described in item a) above; or

   2) The water main passes under a sewer or drain for a clear distance of ten (10) feet on either side of the water main and be pressure tested to ensure water-tightness. Spot lowering of water mains shall only be permitted in cases of direct conflict when spot raising is not possible. Where a storm sewer crosses over a water main, the storm sewer shall either be constructed of water main quality pipe or of reinforced concrete pipe with rubber gasket joints conforming to ASTM C 361 or C443.

c) A vertical separation of 18 inches between the invert of the sewer or drain and the crown of the water main shall be maintained where a water main crosses under a sewer. The sewer or drain lines shall be supported to prevent settling and breaking the water main, as shown on the plans or as approved by the City Engineer.

d) At crossings when the invert of the water main is not 18 inches above the crown of the storm sewer, and the sewer crosses the water main, the storm sewer can be constructed with reinforced concrete pipe using flexible gasket joints meeting ASTM C361-05e1 or ASTM C443-05a (or latest edition) instead of providing a casing pipe or constructing the storm sewer with water main equivalent pipe. If gasketed storm sewer piping is proposed, it shall be installed between adjacent storm structures. The drain or sewer shall be pressure tested to the maximum expected surcharge head, before backfilling, with no leakage allowed in area within ten feet of the water main.

e) The protection shall extend on each side of the crossing until the perpendicular distance from the water main to the sewer or drain line is at least ten (10) feet clear separation.

504 PIPE INSTALLATION FOR WATER MAINS

504.1 GENERAL
Pipe shall be installed in accordance with ANSI/AWWA Standard C600-99 (or latest edition), except as modified herein.

504.2 EXCAVATION AND BACKFILL
Excavation and backfill for water mains shall conform to the provisions of Section 20, 21 and 22 of the Standard Specifications for Water Sewer Main Construction in Illinois, latest edition, except as modified herein.

504.3 DEPTH OF PIPE COVER
Unless otherwise shown on the plans or indicated in the Special Provisions, all pipe shall be installed with a minimum of 5 feet of ground cover, measured from the proposed grade to the top of the pipe. In areas subject to subsequent excavation or fill, the mains shall be laid to the grades shown on the plans.

504.4 PIPE BEDDING
The trench shall have a flat bottom conforming to the grade to which the pipe is laid. The pipe shall be laid on sound aggregate bedding, no less than four (4) inches in depth, true to grade and shall have a firm bearing for the full length of pipe. Any part of the trench excavated below grade shall be corrected with trench backfill material and thoroughly compacted. Aggregate bedding shall conform to IDOT gradation CA-11 or CA-7.

504.5 DEWATERING OF TRENCH
Where water is encountered in the trench, the water shall be removed during pipe laying and jointing operations. Provisions shall be made to prevent floating of the pipe. Trench water shall not be allowed to enter the pipe at any time.

505 HANDLING OF PIPE

a) All types of pipe shall be handled in such a manner as will prevent damage to the pipe or coating. Damaged pipe and other accessories shall be rejected and replaced to the satisfaction of the City Engineer. The methods of handling shall be corrected to prevent further damage when called to the attention of the contractor.

b) The pipe and fittings shall be inspected by the contractor for defects while suspended above grade.

c) Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations and any pipe or fitting that has been installed with dirt or foreign material in it shall be thoroughly cleaned. At times when pipe laying is not in progress, and at the end of each working day, the open ends of the pipe shall be closed by a water tight plug to ensure absolute cleanliness inside the pipe. The plugs shall not be removed until the trench has been dewatered to the satisfaction of the City Engineer.

506 LAYING OF PIPE

506.1 LAYING OF PIPE ON CURVES

a) Long radius curves, either horizontal or vertical, may be laid with standard pipe by deflections at the joints.

b) Where field conditions require deflection of pipe not shown on the plans, the City Engineer must give prior approval of the methods to be used.

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

1) Ductile Iron Pipe Mechanical Joints: AWWA C600-99 (or latest edition)

2) Ductile Iron Pipe Push-On Joints: AWWA C600-99 (or latest edition)

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

506.2 JOINTS FOR DUCTILE IRON PIPE

Joints for ductile iron pipe shall consist of one of the two following types unless otherwise provided in the special provisions:

a) Mechanical Joints with **304 stainless steel T-bolts with anti-seize compound.**

b) Push-On Rubber Gasket Joints: AWWA C600-99 (or latest edition)

c) Gaskets for water main located within 100 feet of a vehicle fueling facility shall be Buna N or Fluorocarbon rubber.

506.3 JOINTING MECHANICAL JOINT PIPE

a) Jointing procedures shall be in accordance with AWWA C600-99 (or latest edition). The outside of the spigot and the inside of the bell shall be cleaned. Lubrication and additional cleaning shall be provided by brushing both the gasket and plain end with an approved pipe lubricant meeting the requirements of ANSI/AWWA C111/A21.11-00 (or latest edition) just prior to slipping gasket onto the plain end for joint assembly. The gland shall be placed on the plain end with the lip extension toward the plain end, followed by the gasket with the narrow edge of the gasket toward the plain end.

b) The pipe shall be inserted into the socket and the gasket shall be pressed firmly and evenly into the gasket recess. The joint shall be kept straight during assembly.

c) The gland shall be pushed toward the socket and centered around the pipe with the gland lip against the gasket. The bolts shall be inserted and the nuts hand tightened.

d) The bolts shall be tightened to the normal range of bolt torque as specified in AWWA C600-99 (or latest edition) 75-90 ft-lbs for pipes 4 inches to 24 inches while at all times maintaining approximately the same distance between the gland and the face of the flange at all points around the socket.

e) Nuts spaced 180 degrees shall be tightened alternately in order to produce an equal pressure on all parts of the gland.

506.4 JOINTING PUSH-ON JOINT PIPE

a) Jointing procedures shall be in accordance with AWWA C600-99 (or latest edition). The inside of the bell shall be thoroughly cleaned to remove all foreign matter from the joint. The circular rubber gasket shall be inserted in the gasket seat provided.

b) A thin film of approved gasket lubricant shall be applied to the inside surface of the gasket. Gasket lubricant shall be a solution of vegetable soap or other solution supplied by the pipe manufacturer and approved by the City Engineer. The lubricant shall be approved for use with potable water. The spigot end of the pipe shall be cleaned and entered into the rubber gasket in the bell, using care to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end to the seat of the bell. Care must be taken not to damage exterior coating or interior linings while forcing the joint. A timber header or other suitable means shall be used to push the pipe "home", to avoid damage to the pipe.

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

d) All pipe shall be furnished with a depth mark to assure that the spigot end is inserted to the full depth of the joint.

506.5 THRUST BLOCKING AND TIE RODS

Blocking to prevent movement of lines under pressure at bends, tees, caps, valves (including inside vaults) and hydrants shall be portland cement concrete, a minimum of 12" thick, placed between solid ground and the fittings (see standard detail WATER 6) and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs. The portland cement concrete shall meet or exceed a compressive strength of 3500 psi after 28 days.

All bends of 11-1/4 degrees or greater, and all tees, crosses and plugs shall be thrust protected to prevent movement of the lines under pressure as shown on the plans.

Where unstable soil and/or backfill conditions exist, it may be necessary to install thrust blocking at deflected sections as well as at fittings. If required by the City Engineer, deflection blocking shall be installed at a point approximately 1/5 (one-fifth) of the pipe length each side of the coupling. Couplings/sleeves shall be restrained with approved retainer glands.

Tie rods shall be 5/8" diameter (minimum) stainless steel, grade 304. Eyebolts shall be high strength, low alloy steel.

Where conditions prevent the use of concrete thrust blocks, tied joints or restrained joints of a type approved by the City Engineer shall be used.

506.6 RETAINER GLANDS

The contractor may elect to use mechanical joint wedge action retainer glands in lieu of tie-rods. Mechanical joint wedge action retainer glands, when required to restrain valves, fittings, hydrants, and pipe joints shall be:

a) MEGALUG 1100 Series as manufactured by EBAA IRON, INC., or

b) Uni-Flange Blockbuster 1400 Series from Ford Meter Box Co., or approved equal

For use on ductile iron pipe conforming to ANSI/AWWA C151/A21.51-02, nominal pipe sizes 3" through 48". Existing ductile iron systems requiring restraint shall be Series 1100SD (split MEGALUG) for mechanical joints. Restraint system for restraining push-on pipe bells shall be MEGALUG Series 1100HD, or FORD Series 1390. Installation shall be per manufacturers' recommended procedures, including length and/or number of joints to be restrained. Tied or restrained joints shall extend a minimum of two full pipe lengths back from the fitting.

Note: Thrust blocking shall be required behind fire hydrant assemblies in addition to the use of retainer glands and/or tie rods. The use of set screw type retainer glands shall not be permitted for use within the City of Naperville.

Use of approved retainer glands does not eliminate the need for thrust blocking at fittings and valves unless approved by the Department of Public Utilities after review of the appropriate supporting calculations.

506.7 INSTALLING PIPE THROUGH CASINGS

This work shall be in conformance with Section 20-2.19 of the Standard Specifications for Water and Sewer Main Construction in Illinois, except as modified herein. Encasements for pipes under highways or railroads shall conform to the requirements of the City of Naperville, or the owner of the highway or railroad. Manufactured non-metallic or non-corrosive casing spacers, adjustable runners, or cradles shall be used to support the pipe in the casing and shall be installed per manufacturer's recommendations. A minimum of two supports shall be used per joint of pipe for lengths up to 12.5 feet, and a minimum of three supports shall be used per joint for lengths greater than 12.5 feet. The annular space shall be filled with pea gravel, low-strength grout, or cellular foam concrete and provisions shall be made so that no voids are left. Contractor shall make arrangements to have a City of Naperville representative witness the annular spacing filling operations.

507 PRESSURE TESTING AND FLUSHING OF WATER MAINS

507.1 HYDROSTATIC TEST

a) The newly laid water mains or any valved sections of it shall be subjected to a hydrostatic pressure test of no less than one-hundred and fifty (150) pounds per square inch (psi) or 50% more than the operating pressure, whichever is greater. The test pressure shall not vary by more than $\pm$ 5 psi.

b) The duration of each pressure test shall be for a period of not less than four (4) hours.

c) The pressure test gauge shall be glycerin or oil filled, with a range of not more than 200 psi and increments not greater than 5 psi.

507.2 PROCEDURE FOR TEST

Testing shall be in accordance with provision of AWWA C-600-99 (or latest edition). Each valved section of pipe shall be slowly filled with water and flushed. The specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. Water used shall be metered. The pump to pipe connection and all necessary apparatus including gauges and meters shall be furnished by the contractor. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevation and afterwards turned off and capped. All joints showing visible leaks shall be repaired or replaced until they are free from leaks. Any cracked or defective pipes, fittings, valves, or hydrants discovered in consequence of this pressure test shall be removed and replaced by the contractor with sound material and the test shall be repeated until satisfactory to the City Engineer. In no instance shall "Bell Joint Clamps" be permitted to repair leaks at push-on Joints.

507.3 PERMISSIBLE LEAKAGE

a) Suitable means approved by the City Engineer shall be provided by the contractor for determining the quantity of water lost by leakage. The leakage test shall be conducted after satisfactory completion of the pressure test before being acceptable.

b) Allowable leakage shall not be greater than that indicated in Table 1.

c) Leakage is defined as the quantity of water to be supplied in the newly laid pipe or any valved section under test which is necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

d) Flanged pipe shall be watertight.

TABLE 1

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

Avg. Test Pressure PSI	2	3	4	6	8	10	12	14	16	18	20	24
150	**0.19**	**0.28**	**0.37**	**0.55**	**0.74**	**0.92**	**1.10**	**1.29**	**1.47**	**1.66**	**1.84**	**2.21**

508 DISINFECTION OF WATER MAINS

508.1 FLUSHING

a) Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a tap should be provided large enough to develop a velocity of at least 2.5 feet per second in the main. One two and one-half (2 1/2) inch diameter hydrant opening will, under normal pressure, provide this velocity in pipe sizes up to and including twelve (12) inches . See Table 2 for additional sizes.

b) All taps required by the contractor for chlorination or flushing purposes or for temporary or permanent release of air, shall be provided by him as part of the construction of water mains. When completed, the copper tubing shall be removed and the corporation stop placed at the "off" position. After testing, all corporation stops in valve vaults shall be brass-capped to protect threads.

TABLE 2

Required Orifice Sizes, In. to Flush Pipelines at 2.5 fps

PIPE SIZE In.	RESIDUAL PRESSURE, PSI				
	20	40	60	80	100
4	1.11	0.94	0.85	0.79	0.75
6	1.64	1.38	1.24	1.16	1.09
8	2.23	1.88	1.69	1.58	1.49
10	2.75	2.31	2.09	1.94	1.84
12	3.34	2.81	2.54	2.37	2.24
14)	3.86	3.25	2.94	2.73	2.58
16	4.31	3.63	3.28	3.05	2.88
18	4.98	4.19	3.78	3.52	3.33
20	5.53	4.65	4.20	3.91	3.70

NOTE: Standard hydrant nozzle sizes are 2.5 inch and 4.5 inch

509 DISINFECTION REQUIREMENTS

a) Before being placed into service, all new water mains and/or extensions to existing mains shall be chlorinated so that an initial chlorine residual of at least 50 ppm is present, and that a chlorine residual of not less than 25 ppm remains in the water after standing twenty-four (24) hours in the pipe.

b) For extensions and/or connections equal to or less than one pipe length (≤ 18 ft), the new pipe, fittings and valve(s) required for the connection/extension, may be spray or swab disinfected with a minimum 1 percent hypochlorite solution just prior to being installed.

c) Before a tapping sleeve is installed, the exterior of the main to be tapped shall be thoroughly cleaned and swabbed with a 1 percent hypochlorite solution, as well as the interior surface of the sleeve.

d) Fire service lines requiring disinfection shall have the permanent position indicating valve (OS&Y or approved equal) installed on the fire sprinkler riser prior to disinfection.

509.1 FORM OF APPLIED CHLORINE

Chlorine shall be applied by one of the methods which follow, subject to approval by the City Engineer.

a) Liquid Chlorine - A chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device or the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solutions of chlorine gas or the gas itself must provide means for preventing the back flow of water into the chlorine cylinder.

b) Chlorine-Bearing Compounds in Water - In certain instances, when the usage of chlorine gas is not practical, such as in congested or confined areas, upon approval of the City Engineer, a chlorine bearing compound of known chlorine content, prepared in solution form, may be substituted for chlorine gas.

509.2 POINT AND RATE OF APPLICATION

a) Point of application - The preferred point of application of the chlorinating agent is at the beginning of the pipeline extension or any valved section of it, and through a corporation stop inserted in the pipe. The water injector for delivering the chlorine-bearing water into the pipe should be supplied from a tap made on the pressure side of the gate valve controlling the flow into the pipe line extension. Alternate points of application may be used when approved or directed by the City Engineer.

b) Rate of Application - Water from the existing distribution system, or other approved source of supply shall be controlled to flow very slowly into the newly laid pipeline during the application of the chlorine. The rate of chlorine mixture flow shall be a constant feed and in such proportion to the rate of water entering the newly laid pipe that the dosage applied to the water will be at least fifty (50) parts per million unless otherwise directed by the City Engineer.

c) Retention Period - Treated water shall be retained in the pipe at least twenty-four (24) hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least twenty-five (25) parts per million.

d) Chlorinating Valves and Hydrants - After the process of chlorinating newly laid pipe, all valves internal to the isolated test section, or other appurtenances shall be operated while the pipeline is filled with the chlorinating agent and under normal operating pressure.

e) Preventing Reverse Flow - Valves shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the existing distribution system supplying the water. Backflow valves are required on chorine equipment piping.

510 FINAL FLUSHING AND TESTING

a) Dechlorination/neutralization may be required by the City Engineer. The environment into which the chlorinated water is to be discharged shall be inspected. If there is any possibility that the chlorinated discharge will cause environmental damage, then a neutralizing chemical shall be added to the discharge

water to thoroughly neutralize the chlorine residual remaining in the water (see AWWA C651-05, or latest edition, Appendix B).

b) Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its length shows, upon test, a residual not in excess of that carried in the source of supply.

c) After flushing, water samples collected on two (2) successive work days from the treated piping system, as directed by the City Engineer, shall show satisfactory bacteriological results. Water main shall not be flushed to obtain the second day sample. Bacteriological analysis must be performed by a laboratory approved by the Director of the Illinois Department of Public Health and the City Engineer. A minimum of two samples is required. The actual number of samples will be determined by the City Engineer.

d) Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the contractor until satisfactory results are obtained.

e) Naperville Department of Public Utilities must be notified at least 48 hours prior to flushing. New water mains, including pressure tap valves, connected to an existing water main, and existing water main valves shall only be operated by Naperville Department of Public Utilities personnel.

511 VALVES FOR WATER MAINS

511.1 DESCRIPTION

a) The valves shall be suitable for ordinary water works service, intended to be installed in a normal position on buried pipe lines or water distribution systems.

b) For fire lines to buildings, the permanent valve must be in place prior to disinfection and sampling.

c) The minimum requirements for all valves shall, in design, material and workmanship, conform to AWWA C509-01 or AWWA C515-01 (or latest editions). All materials used in the manufacture of water works valves shall conform to the AWWA standards designed for each material listed.

d) Valves shall be installed where shown on the approved engineering plans.

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

511.2 MATERIALS

a) Manufacture and Marking - The valves shall be standard pattern and shall have the name or mark of the manufacturer, size and working pressure plainly cast in raised letters on the valve body. Valves may be approved from one of the following manufacturers: American, Clow, Waterous or Kennedy.

b) Type and Mounting:

1) The valve bodies shall be cast or ductile iron, mounted with approved non-corrosive metals. All wearing surfaces shall be of approved non-corrosive material.

2) All valves shall be resilient wedge gate valves with non-rising stems with upper and lower thrust collars. Waterways shall be smooth and have no groove or depression where foreign material can lodge and prevent sealing. The stem shall be bronze or other approved non-corrosive metal. All valves

shall open by turning counterclockwise. Resilient wedge gate valves shall meet the standards of AWWA C509-01 or AWWA C515-01 (or latest edition).

3) All nuts and bolts shall be stainless steel.

c) End Connections - End connections of all valves shall be the mechanical joint type.

511.3 VALVE STEM SEALS
Unless otherwise designated in the special provisions, all valves shall be furnished with O-Ring Stem Seals. Number, size and design shall conform to the AWWA Standard for R/W valve O-Ring Stem Seals.

511.4 WRENCH NUTS
Wrench nuts shall be made of cast iron and shall be one and fifteen-sixteenths (1-15/16) inches square at the top, two (2) inches square at the base, one and three-fourths (1-3/4) inches high, unless otherwise designated in the Special Provisions. Nuts shall have a flanged base upon which shall be cast an arrow at least two (2) inches long showing the direction of the opening. The word "open" in one-half (1/2) inch or larger letters shall be cast on the nut to clearly indicate the direction of opening the valve. All operating nuts shall be accessible from above grade with use of an operating key.

511.5 TAPPING VALVES AND LINESTOP/TAPPING SLEEVES
A representative from the Department of Public Utilities must be present at all connections to existing water mains. New water main valves, including pressure tap valves, adjacent to an existing water main, and existing water main valves shall only be operated by the City of Naperville, Department of Public Utilities CEE/CM Division personnel with 48-hour notice (Monday-Friday). 630-420-4122. Connections to existing water mains shall be accomplished without interruption of service. Pressure tapping saddles/valves are to be provided at the point of connection to the existing system. Connections shall be made in accordance with Standard Details and in accordance with Section 46 of the Standard Specifications for Water and Sewer Main Construction in Illinois. The outside surface of the existing main and the inner face of the tapping sleeve shall be disinfected with a 1 % chlorine solution.

Tapping valves shall be furnished with flanged inlet and connections having a machined projection on the flanges to mate with a machined recess on the outlet flanges of the tapping sleeves and crosses. Tapping sleeve must be made of cast iron, ductile iron or heavy-duty stainless steel. Approved all stainless steel heavy-duty tapping sleeve are Cascade CST-EX, Ford FTSS, Romac Industries SST III, and Smith Blair Model 665. Tapping sleeves of stainless steel shall not be used for "size on size" installations nor on water mains larger than twelve (12) inches in size.

After the surface disinfection, the tapping saddle or sleeve shall be mounted to the main and tapping valve to form a pressure-tight connection. The installation shall be pressure tested at operating pressure plus 50 percent, to insure the integrity of the installation. This shall be a hydrostatic test, introduced through a port on the tapping machine, or through a tapped mechanical joint plug on the outlet side of the tapping valve. The tapping machine and the tapping valve and sleeve assembly shall be externally supported so that no additional weight is placed upon the main(s).

Where proposed connection to an existing main will take water customers out of service, a linestop will be required to avoid loss of service to utility customer. Contractor shall provide as-built location of buried linestop tapping sleeve upon completion of work.

Acceptable stainless steel line stop sleeves would be Severn Trent Premier line stop fitting of **all** stainless steel construction with drop-in bolt option and Smith Blair Model 685 **all** stainless steel line stop tapping sleeve with. All bolts, nuts, and washers and blind flanges to be 18-8 Type 304 Stainless. Stopple (completion) plug to be ductile iron.

1. General requirements for tapping or line stop sleeves:
    a. Sleeve to be pressure rated at 150 psi working pressure and 225 psi test pressure.
    b. Construction to be T-304, 18-8 stainless steel , 14 gauge minimum.

c. Gaskets to provide 360 degree pipe coverage in addition to a full circumference branch seal gasket.
d. A stainless steel test port and plug shall be provided and the sleeve installation shall be tested prior to cutting the existing pipe.
e. V-lugs shall be fabricated to the sleeve and drop-in stainless steel bolts, nuts and washers provided. Nuts shall be coated to prevent galling.

511.6 INSERTING VALVES

1. Double disk type insertion gate valve:

The materials, internal design, construction, workmanship, and manufacture's tests of inserting valves shall conform with AWWA Standard C-500-02 or the latest revision, as modified by the following:

a) The inserting valves shall be of a ductile iron body, bronze-mounted, non-rising stem, double non-revolving disc, parallel seat, and side wedging construction.

b) All grey-iron castings shall conform to the requirements of ASTM Specification A126 Class B (31,000 psi minimum tensile strength), or the latest revision.

c) Valve stems shall be cast, forged or rolled bonze, free form defects.

d) Valves shall have a mechanical joint bell end, one bell being larger then normal to accept the inserting sleeve. Bells shall contain elastomer gaskets permanently attached in a plane perpendicular to the centerline of the bore.

e) Valves shall be rated at 150 psig test with 80 psig working water pressure

f) No bypass will be required

g) Valves shall be furnished for and installed in a horizontal conduit with the valve stem plumb over the center line of the pipe.

h) Valves shall open to the left or counter-clockwise.

i) Valve stem seals shall consist of conventional stuffing boxes, or "O-ring type seals. Gland bolts and nuts shall be of the same quality bronze as the valve stems.

j) Inserting Sleeve- Each inserting valve shall be provided with a split sleeve of the stuffing box type. Said sleeve shall have a bell mechanical outlet outboard of the valve for sealing to the conduit.

k) The Contractor shall submit three copies of all drawings, furnished by the manufacture, fully and distinctly illustrating and describing the insert valve and sleeve proposed to be furnished.

l) Job Site Performance Tests – Prior to installation the valve shall be operated in the position that will assume in service and for the full length of gate travel in both directions to demonstrate the free and perfect functioning of all parts in the intended manner. Any defects of workmanship shall be corrected and test repeated until satisfactory performance is demonstrated.

m) Double disk insert gate valve to be U.S. Pipe, or approved equal.

2. Resilient type insertion gate valve shall be as manufactured by Occlude with material that meets and/or exceeds the AWWA C509-01 or AWWA C515-01 (or latest edition) valve specification.

511.7 HYDROSTATIC TEST PRESSURE AT FACTORY
Each valve shall be tested at the factory for performance and operation prior to painting and shall be subjected to the to the following hydrostatic pressure tests: each three (3) inch to twenty (20) inch R/W valve, shall be subjected to hydrostatic pressure test per AWWA C509-01 or AWWA C515-01 (or latest edition).

511.8 EPOXY COATINGS OF VALVES (AT FACTORY)
Painting at Factory - After the factory test and inspection, all ferrous parts of the valves except finished or bearing surfaces shall have a fusion bonded epoxy coating which complies with AWWA C550-05 (or latest edition).

511.9 INSTALLATION OF VALVES

a) All valves shall be inspected upon delivery in the field to insure proper working order before installation. They shall be set and jointed to the pipe in the manner as set forth in the AWWA Standards for the type of connection ends furnished.

b) All valves shall be provided with a standard valve chamber so arranged that no shock will be transmitted to the valve and the box or vault opening shall be centered over the operation nut, and the cast iron cover shall be set flush with the road bed or finished surface.

c) After installation all valves shall be subjected to the field pressure test for piping as outlined in of these specifications. Should any defects in materials or workmanship appear during these tests, the contractor shall correct such defects with the least possible delay and to the satisfaction of the City.

512 VALVE VAULTS AND BOXES FOR WATER MAINS AND WATER SERVICES

512.1 GENERAL

a) This section shall apply to the construction of standard or special valve vaults, cast iron valve boxes and curb boxes, all in accordance with the Naperville Standards.

b) Valve boxes/vaults must be free of debris, centered over operating nut and easily key-able.

c) Valve boxes and extensions must be cast iron only (no plastic).

d) Valve boxes/lids shall be Tyler, two-piece with drop lid, 6850 series (screw type, 5-1/4" shafts), or approved equal.

512.2 MATERIALS
Cover and Valve Box Castings - Castings with cast iron ring and cover and cast iron parts of valve boxes shall conform to the requirements of Standard Specifications for Gray Iron Castings, ASTM Designation A-48.

512.3 VAULT APPURTENANCES
The following items shall apply to all vault structures:

a) Vaults shall be furnished with a self-sealing frame and slotted cover (Heavy Duty Neenah Foundry R-1772, Heavy Duty East Jordan Iron Works 1022-Z3 or approved equal) with the word "WATER" imprinted on the cover in raised letters. Frames and lids shall meet or exceed AASHTO H-20 loading specifications. Frames shall be shop painted with asphaltic base paint.

b) Both the vault frame and cover shall have machined horizontal and vertical bearing surfaces.

c) Pick holes shall not create openings through the vault cover.

d) Vault frames shall be adjusted to proper grade utilizing reinforced precast concrete rings; brick or concrete blocks will not be allowed. Tapered composite adjusting rings, as approved by City Engineer, shall be required when frame will be with a roadway area. Final frame adjustment for vaults within the roadway area shall be in accordance with Sections 602 and 603 of Standard Specifications for Road and Bridge Construction, prepared by the Illinois Department of Transportation, latest edition.

e) Adjusting rings shall be securely sealed to the cone section or top barrel section of the vault using resilient, flexible, non-hardening preformed butyl mastic material (CONSEAL CS-102B or an equal approved by the City Engineer). This mastic shall be applied in such a manner that no surface water or ground water inflow can enter the vault through gaps between the top barrel section or cone section and the first adjusting ring, between adjusting rings, or between the last adjusting ring and the vault frame. Up to twelve inches (12") of adjusting rings may be installed on a given vault; however, no more than one (1) two inch (2") adjusting ring and no more than two (2) rings in total shall be used.

f) A butyl mastic material (CONSEAL CS-102B or equal approved by the City Engineer) shall be used to provide a watertight seal between vault barrel sections, cone to barrel section, and the cone section to frame and cover.

g) Seal tight valve vaults shall be pre-cast with a minimum diameter of forty-eight (48) inches. On vaults containing pressure connections, vaults shall be a minimum of sixty (60) inches with eccentric cones shall be installed so that the opening of the cone is placed as close to the centerline of the operation as possible.

h) Rubber boots/seals must be used where pipes enter manholes to provide a watertight connection where pipe enters. Elastomeric boot shall conform to ASTM C923-02 and ASTM A167-99(2004), or latest edition with stainless steel bands as manufactured by KOR-N-SEAL by NPC, PSX by Press-Seal Gasket Corporation or approved equal.

512.4 CAST IRON VALVE BOXES FOR GATE VALVES

Adjustable cast iron valve boxes shall be set to position during backfilling operations so they will be in a vertical alignment to the valve operating stem. The lower casting of the unit shall be installed first in such a manner as to be cushioned and to not rest directly upon the body of the R/W valve or upon the water main. The upper casting of the unit shall then be placed in proper alignment into such an elevation that its top will be at final grade. Backfilling around both units shall be placed and compacted to the satisfaction of the Engineer.

512.5 CURB BOXES

a) Curb boxes (B-Boxes) shall be arch type, one (1) inch (25 mm) I.D. box with rod for a one (1) inch curb stop, and a one and one-half (1-1/4) inch I.D. curb box for a one and one-half (1- 1/2) inch curb stop or larger with rod. One (1) inch curb boxes shall have a one (1) inch threaded brass pentagon plug with the word "WATER" in raised letters on the cap (1- 1/4 inch curb boxes shall have a 1-1/4 inch plug). Curb boxes shall be capable of extensions and installed to finished grade, and shall conform to the depth of bury of the service line as provided in the Naperville Standard Detail WATER 1. "Pigtails" on customer side of curb stop are not allowed.

b) Curb stops are to be compression type by Mueller, Ford or A.Y. McDonald.

513 FIRE HYDRANTS

513.1 GENERAL

These specifications are to be used in conjunction with the AWWA Standard C502-05 (or latest edition) for fire hydrants for ordinary water works service. Fire hydrants shall be installed at the locations shown on the approved engineering plans.

513.2 MATERIALS

a) All fire hydrants shall be 5-1/4" valve opening.

b) All materials used in the production of fire hydrants for ordinary service shall conform to the specifications designated for each material listed in AWWA Standard C502-05 (or latest edition).

c) The hydrant shall be Waterous Pacer WB-67 5-1/4" Mueller A-421 5-1/4" valve opening, or Clow F-2500 5-1/4" valve opening and of a pattern approved by the City Engineer. The seat must be of bronze to bronze. The name or mark of the manufacturer and size of the valve opening shall be plainly cast in raised letters and so placed on the hydrant barrel as to be visible after the hydrant has been installed.

d) Lugs, if required for harnessing the hydrant to the connection pipe from the main in the street, shall be provided on the bell of the elbow or on the hydrant bottom casting. A drawing of the lug construction shall be submitted for approval, on request of the City Engineer.

e) Hydrants shall be breakaway/traffic style. Breaking devices shall be at the breakaway flange which will allow the hydrant barrel to separate at this point with a minimum breakage of hydrant parts in case of damage. There shall also be provided at this point, a safety stem coupling on the operating stem that will shear at the time of impact. Unless otherwise specified, all hydrants shall be equipped with o-ring stem seals. The breakaway flange is to be just above the proposed ground level per manufacturer specifications.

f) Hydrant cap chains and chain hooks are not to be installed on hydrant. If any chains and chain hooks have been installed, they shall be removed prior to final acceptance.

513.3 HYDRANT DETAILS

a) The dimensions and details of hydrants and nozzles, unless otherwise noted, shall be as follows:

Hydrant 6" Connection:

Hydrant connection pipe size inside diameter	6 inches
Standpipe minimum inside diameter	6 inches
Length of hydrant from bottom of hydrant connection to breakaway flange	5 ½ ft. bury depth min.
Valve opening diameter	5 ¼ inches
Size of auxiliary gate valve	6 inches
Hose nozzles, number and size	Two 2 ½ inch & 4 ½ inch

Hydrant 6" Connection Thread Details:

Steamer Nozzles, number and size	National Standard Hose Thread
Diameter at root of thread	National Standard Hose Thread
Pattern of thread	National Standard Hose Thread
Total length of threaded male nipple	National Standard Hose Thread

b) All nozzles shall be fitted with cast iron threaded caps with operating nut of the same design and proportions as the hydrant stem nut. Caps shall be threaded to fit the corresponding nozzles and shall be fitted with suitable gaskets for positive water tightness under test pressures.

c) All nuts and bolts shall be stainless steel.

d) The operating nuts on hydrant stem and nozzle caps shall be the same for all sizes of hydrants. Dimensions shall be as follows:

1) Pattern of Nut: Pentagonal

2) Height: 1-1/16 inch

3) Size of Pentagon: 1.35 inch at bottom of nut 1.23 inch at top of nut measured from point to flat

e) The hydrant valve shall open by turning to the left (counterclockwise).

f) Fire hydrant should be bagged "NOT IN SERVICE" until all testing and disinfection has been completed and new water main section is service.

513.4 FACTORY HYDROSTATIC TEST
Before the hydrant is painted at the factory, it shall be subjected to a minimum hydrostatic test of 300 pounds per square inch with the hydrant valve in a closed position and again with the hydrant valve in an open position

513.5 PAINTING
All iron parts of the hydrant, both inside and outside shall be thoroughly cleaned and thereafter painted with one coat of paint of a durable composition, and two additional exterior coats of Tneme-Gloss Safety Orange (#E0119) per National fire code specifications (final coat shall be applied after installation).

513.6 CONSTRUCTION DETAILS
Hydrants shall be plumb and shall be set so that the center of the hydrant port is a minimum of eighteen (18) inches to a maximum of twenty-four (24) inches above the surrounding finished grade ensuring the breakaway flange at proper ground height. All hydrants shall be inspected in the field upon delivery to the job to ensure proper operation before installation. A minimum of 1/4 cubic yard of washed coarse stone shall be placed at and around the base of the hydrant to ensure proper drainage of the hydrant after use. The blocking of the hydrant shall consist of a wedge of portland cement concrete of not less than 1/4 cubic yard extending from the hydrant to undisturbed soil and shall be so placed to form a barrier adjacent to the hydrant base top to counteract the pressure of water exerted thereon. Care shall be taken to insure that weep holes are not covered by concrete. The hydrant shall be set on a concrete block to ensure a firm bearing for the hydrant base. The hydrant valve and tee shall be interconnected by stainless steel rods or approved retainer glands. Locking or restrained fittings may be substituted only after prior approval from the City Engineer. The resetting of existing hydrants and moving and reconnection of existing hydrants shall be handled in a manner similar to the new installation. Auxiliary valve shall be installed a minimum of eighteen (18) inches from the face of the hydrant. The contractor shall rotate and/or adjust the hydrants to the satisfaction of the department of Public Utilities. The hydrant settings shall follow the Naperville Standard Detail WATER 2.

514 PROTECTION AGAINST CORROSION

514.1 POLYETHYLENE ENCASEMENT
This covers material specifications and installation procedures for polyethylene encasement to the underground installations of gray, ductile and cast iron pipe and other related appurtenances or water main. Polyethylene encasement of all iron pipe shall be required unless a soils report submitted to the City by the Ductile Iron Pipe Research Association indicates that the soils in the area are not corrosive to iron pipe. Should corrosive soils be encountered during the installation of the pipe, then the pipe shall be encased in polyethylene wrap.

514.2 MATERIALS
The material used for the job shall be in accordance ANSI/AWWA C105/A21.5-99 (or latest edition).

514.3 THICKNESS

Polyethylene film shall have a minimum thickness of 0.008 inch (8 mils). The minus tolerance of thickness shall not exceed 10 percent (10%) of the nominal thickness.

514.4 TUBE SIZE OR SHEET WIDTH
Tube or sheet size for each pipe diameter shall be listed in Table 3.

Table 3
Minimum Polyethylene Width - Inch

Nominal Pipe Diameter inch	Flat Tube	Sheet
3	14	28
4	16	32
6	20	40
8	24	48
10	27	54
12	30	60
14	34	68
16	37	74
18	41	82
20	45	90
24	54	108

514.5 INSTALLATION GENERAL
Installation shall be in accordance with ANSI/AWWA C105/A21.5-99 (or latest edition). The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely air and water tight enclosure. Overlaps shall be secured by the use of approved adhesive tape, plastic string, or other material capable of holding the polyethylene encasement in place until backfilling operations are completed.

514.6 PIPE WRAPPING
The standard includes three different methods for the installation of polyethylene encasement on pipe. Methods A and B are for use with polyethylene tubes and method C for use with polyethylene sheets.

514.6.1 METHOD A
Cut polyethylene tube to a length approximately two (2) feet longer than that of the pipe section. Slip the tube around the pipe, centering it to provide a one (1) foot overlap on each adjacent pipe section, and bunching it accordion fashion length-wise until it clears the pipe ends.

Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation to the polyethylene tube.

After assembling the pipe joint, make the overlap of the polyethylene tube. Pull the bunched polyethylene from the preceding length of pipe, slip it over the end of the new length of pipe and secure in place. Then slip the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe.

Secure the overlap in place. Take up the slack width to make a snug, but not tight fit along the barrel of the pipe, securing the fold at quarter points.

Repair any rips, punctures, or other damage to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe and secured in place. Proceed with installation of the next section of pipe in the same manner.

514.6.2 METHOD B
Cut polyethylene tube to length approximately one (1) foot shorter than that of the pipe section. Slip the tube around the pipe, centering it to provide six (6) inches of bare pipe at each end. Make polyethylene snug, but not tight; secure ends as described elsewhere.

Before making up a Joint, slop a three (3) foot length of polyethylene tube over the end of the preceding pipe section, bunching it accordion fashion lengthwise. After completing the joint, pull the three (3) foot length of polyethylene over the joint, overlapping the polyethylene previously installed on each adjacent section of pipe by at least one (1) foot make snug and secure each end as described elsewhere.

Repair any rips, punctures, or other damage to the polyethylene. Proceed with installation of the next section of pipe in the same manner.

514.6.3 METHOD C
Cut polyethylene sheet to a length approximately two (2) feet longer than that of the pipe section. Center the cut length to provide a one (1) foot overlap on each adjacent pipe section, bunching it until it clears the pipe ends. Wrap the polyethylene around the pipe so that it circumventially overlaps the top quadrant of the pipe. Secure the cut edge of polyethylene sheet at intervals of approximately three (3) feet.

Lower the wrapped pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation of the polyethylene. After completing the joint, make the overlap as described above.

Repair any rips, punctures or other damage to the polyethylene. Proceed with installation of the next section in the same manner.

514.7 PIPE SHAPED APPURTENANCES WRAPPING
Cover bends, reducers, offsets, and other pipe-shaped appurtenances with polyethylene in the same manner as the pipe.

514.8 ODD SHAPED APPURTENANCES WRAPPING
When valves, tees, crosses, and other odd-shaped pieces cannot be wrapped practically in a tube, wrap with a flat sheet or split length of polyethylene tube by passing the sheet under the appurtenance and bringing It up around the body. Make seams by bringing the edges together, folding over twice, and taping down. Handle width and overlaps at joints as described above. Tape polyethylene securely in place at valve stem and other penetrations.

515 CONNECTION TO EXISTING WATER MAINS

515.1 CONNECTION TO EXISTING WATER MAINS
Connections to all City water mains must be by pressure tap or with the use of linestop(s) unless otherwise approved by the City Engineer, as shown on the approved engineering plans.

515.2 NOTIFICATION

a) When connecting to the end of an existing line, work must be coordinated with the Department of Public Utilities with 48 hours notice. Personnel from the Department of Public Utilities are the only ones who are to operate water main valves. When water is needed to chlorinate new lines from adjacent City mains which are in service, Department of Public Utilities personnel must be present to operate or witness the contractor operation of existing City valves.

b) When extending an existing line, the contractor must chlorinate and pressure test both new and valved section of existing lines in accordance with City standards.

516 UTILITY IDENTIFICATION

a) A wood 4"x4"x6' stake with not less than the top two (2) feet painted blue shall be installed next to each water vault, buffalo box, and valve box for protection of that appurtenance. The stake (4"x4"x6') shall be maintained in a plumb position.

b) When newly poured curbs are installed, the contractor shall use a city approved stamp to indent the wet concrete with a "W" to identify the location of each water vault, buffalo box, and valve box. The letter "W" will be indented at the top of the curb one and one-half (1-1/2) inch to two (2) inches in height and width and at a depth of three-eighths (3/8) inch

In areas where new curbs are not present or if the developer and/or the contractor fail to indent the curbs as outlined above, the City will then require that identification symbols as approved by the City Engineer be cut into the curb.

Project Specific Special Provisions

Ductile Iron Water Main, 8"
Ductile Iron Water Main, 16"Restrained Joint Type

Description: Work under this item shall be in accordance with Section 561 of the Standard Specifications and Section 500 of the City of Naperville Standard Specifications, except as herein modified:

Article 561.03 General

Add: This work includes:

1. Removing surface features (road surface, curbing, lawn, shrubs, trees, etc), excavating (including sawcutting) to neat lines, furnishing, and installing the pipe and fittings (mechanical joint), testing and chlorination, trench bedding materials, backfilling, removal of spoil, removal of ground water, and compacting.

2. Furnishing suitable methods of thrust restraint in accordance with Section 500 of the City of Naperville Standard Specifications and the City of Naperville Standard Details. Furnishing and installing polyethylene encasement in accordance with Section 500 of the City of Naperville Standard Specifications.

3. Sheeting, bracing, or methods required to make the trench safe, stable, and in compliance with all applicable safety requirements and/or codes.

4. The cost of performing pressure tests and disinfecting the water main shall also be included in this item, including taps for tests and plugs.

Article 561.04 Method of Measurement

Add: Furnishing and installing thrust blocks, polyethylene encasement, sheeting, bracing or other similar method, removing surface features, removal of spoil, and removal of ground water will not be measured separately, but are included in the measured length of DUCTILE IRON WATER MAIN, of the diameters and joint types specified.

Article 561.05 Basis of Payment

Revise to read:

Basis of Payment. This work will be paid for at the contract unit price per foot for WATER MAIN: of the diameter and type specified, which price shall include all pipe fittings, joint materials, the hydrostatic tests, disinfection of the water main and all excavation, except excavation in rock.

Trench backfill will be paid for as specified in Article 208.04.

Excavation in rock will be paid for as specified in IDOT Article 502.14 for Rock Excavation for Structures.

Water Valves, 8-inch

Description: Work under this item shall be in accordance with Section 561 of the Standard Specifications and Section 500 of the City of Naperville Standard Specifications, except as herein modified:

Water valves shall be resilient wedge type, furnished, installed and tested in accordance with the City of Naperville Standard Specifications.

Water valve vaults will be paid for separately.

Basis of Payment: This work shall be paid for at the contract unit price, each for WATER VALVES of the size indicated on the plans.

Fire Hydrants

Description: Work under this item shall be in accordance with Section 564 of the Standard Specifications and Section 500 of the City of Naperville Standard Specifications, except as herein modified:

Article 564.03 General

Add: This work includes the hydrant lead (for connection to the water main), shut-off valve, thrust restraint fittings, coarse aggregate backfill, offsets as needed for grade adjustment, polyethylene encasement, and painting and color coding.

Article 564.04 Basis of Payment

Delete: Basis of Payment as outlined in Article 564.04 of the Standard Specifications.

Add: This work will be paid for at the contract unit price per each for FIRE HYDRANTS or FIRE HYDRANT TO BE REMOVED.

Water Service Line Reconnection

Description: Work under this item shall be in accordance with Section 562 of the Standard Specifications and Section 500 of the City of Naperville Standard Specifications. The work shall include, but not be limited to, furnishing all labor, equipment, and material to disconnect and transfer an existing water service line from the water main to be abandoned to the new water main, as directed by the Engineer, and includes the following:

1. Removing surface features (road surface, curbing, lawn, shrubs, trees, etc), excavating (including sawcutting) to neat lines, furnishing and installing necessary service tap and fittings, polyethylene encasement, backfilling, removal of spoil, removal of ground water, and compacting.

2. Furnishing suitable methods of thrust restraint in accordance with Section 500 of the City of Naperville Standard Specifications and City of Naperville Standard Details. Furnishing and installing polyethylene encasement in accordance with Section 500 of the City of Naperville Standard Specifications.

3. Sheeting, bracing, or other methods required to make the trench safe, stable, and in compliance with all applicable safety requirements and/or codes.

4. Water service shut down time shall not exceed four (4) hours per service transfer. No service shall be shut down more than three (3) times during the course of the construction, unless directed by the Engineer. All shut-downs of services and water mains with service require advance notice and approval of the Engineer. Shut-downs may be limited to nights or weekends. No additional payment will be allowed for work required outside of normal working hours.

Method of Measurement: Service lengths shall be measured as the horizontal distance from the centerline of the new water main to the location at the point of disconnection of the existing water service. Work under this item will be measured per each reconnected water service.

Basis of Payment: This work will be paid for at the contract unit price per each for WATER SERVICE LINE RECONNECTION.

Connect to Existing Water Main

Description: This work shall consist of connecting new water mains to existing water mains with additional water main pipe and fittings of the required material and inside diameter.

Note: This excludes connections that are a result of an existing water main alignment adjustment. (See Special Provision for Adjust Existing Water Main under Storm Sewer)

Materials: Materials shall be as shown in the Plans and Special Provisions.

General: Installation methods shall conform to IDOT Section 561 and with the following requirements:

(a) Water Main Shutdown and Reopening. Procedures and schedules for shutting down and draining sections of existing water main (for connection or reconstruction purposes) and for opening the water main sections for use again shall be as required by the City of Naperville The Contractor is responsible for contacting the City and for making all necessary arrangements.
(b) Connect new water main to existing water main at locations indicated in the plans after the City of Naperville approves the new water main for use.
(c) Provide suitable restraint-type coupling when connecting to existing water main. Install per manufacturer's recommendations.

When the contract includes information concerning the number and locations of water mains to connected to existing water mains, such information represents the best knowledge of the Engineer and is included for the convenience of the bidder. It shall be the Contractor's responsibility to determine the exact locations of existing water mains and all such installations

in the field. The work shall conform to the Standard Specifications for Water and Sewer Main Construction in Illinois. No additional compensation will be allowed the Contractor due to any delays or inconvenience resulting from these requirements, nor on account of any special construction methods required in prosecuting the Contractors work.

Basis of Payment: This work will be paid for at the contract unit price each for CONNECT TO EXISTING WATER MAIN, which price shall include new water main pipe and all pipe fittings and joint materials; trench backfill; thrust blocking and all excavation, except excavation in rock.

Excavation in rock will be paid for as specified in IDOT Article 502.15 for Rock Excavation for Structures.

Trench backfill will be measured for payment as specified in Article 208.03.

Sanitary Sewer, Ductile Iron, 10"
Sanitary Sewer, Ductile Iron, 10" Diameter, Augured

Description: Work under this item shall be in accordance with Section 550 of the Standard Specifications and Section 300 of the City of Naperville Standard Specifications, except as herein modified:

Section 550

Add: This work includes:

Removing surface features (road surface, curbing, lawn, shrubs, trees, etc), excavating (including sawcutting) to neat lines, furnishing, and installing the pipe and fittings, trench bedding materials, testing, backfilling, removal of spoil, removal of ground water, and compacting.

Sheeting, bracing, or methods required to make the trench safe, stable, and in compliance with all applicable safety requirements and/or codes.

Article 550.09 Method of Measurement

Add: Furnishing sheeting, bracing or other similar method, removing surface features, removal of spoil, and removal of ground water will not be measured separately, but are included in the measured length of SANITARY SEWER, of the diameter specified.

This work shall be paid for at the contract unit price, per foot, for SANITARY SEWER, DUCTILE IRON, of the size and construction method indicated.

Manholes, Sanitary, 4'- Diameter, Type 1 Frame, Closed Lid.
Drop Sanitary Manholes with Type 1 Frame, Closed Lid

Description: Work under this item shall be in accordance with Section 550 of the Standard Specifications and Section 300 of the City of Naperville Standard Specifications, except as herein modified:

Sanitary Sewer Manholes shall meet the requirements of City of Naperville Standard Specifications including the use of self sealing frames and covers, special sealant between frame and manhole and the use of flexible connectors between pipe and manhole.

Basis of Payment: This work shall be paid for at the contract unit price, per each for MANHOLES, SANITARY or DROP SANITARY MANHOLES, of the size and frame and lid type indicated.

CITY OF NAPERVILLE
DEPARTMENT OF PUBLIC UTILTIES – ELECTRIC
General Conditions and Standard Specifications

ELECTRICAL CONSTRUCTION

GENERAL CONDITIONS

Description of the Work and General Items

This project includes the installation of approximately **45,085** lineal feet of 6" diameter Schedule 40 PVC conduit in concrete and FA-2 encased duct bank, **40** lineal feet of 5" diameter schedule 40 PVC conduit in concrete and FA-2 encased duct bank,**5420** lineal feet of 3" diameter schedule 40 PVC conduit in concrete and FA-2 encased duct bank, **3** Handholes, **1** Riser, **5** Switch Gear Vaults with covers, **7** Transformer Vaults with covers, **3** Pedestals, Horizontally Directionally Drilled conduit (HDD) **1100** lineal feet of 3" HDPE—**0.00** lineal feet of 5" HDPE and **2980** lineal feet 6" HDPE feet in any combination of 3",5"or 6" diameter HDPE coilable conduit. **17** Manholes, install all under-bridge conduit support system with **72** -6 inch ridged galvanized 10 foot long steel conduit , transition/ transposition area's with 6 inch ridged steel conduit, removals, all excavation and backfilling work, all parkway removal and installation work, all temporary work, clearing and grubbing, all potholing work , all road removal and restoration work, all field restoration, all traffic control , following all IEPA Regulations when working over a body of Water, all field documentation, measurements and field sketches, all " As Built's ", all field modifications to existing electric facilities, all miscellaneous items from 75th Street, just west of Clyde Drive on the West, to just west of Oxford Lane on the East and all the work on the 75th Street Bridge crossing the DuPage River and on Washington Street from Olympus Ave. on the North to just south of Bunting Lane to the South for a complete job. See City of Naperville Electric Drawings in the Plans and Details/Standard Drawings attached.

This project also includes the removal and installation of existing roadwork. This project also includes working around, above, under, and to the side of an existing energized distribution underground and overhead 12kv lines and a138kv transmission line. The underground and overhead lines conform to requirements of grade-B or grade C construction in heavy loading districts of the NESC with appurtenances.

The Contractor is to consider the streets, alleys, roads, drives and easement with in the City of Naperville's right-of-way owned by the City. However, there a numerous County and State Highways within in the city limits and additional permits may be required. This information is to be obtained from the County and State offices.

Provide restoration and all temporary facilities to maintain existing utility services. The transferring or relocation of existing facilities or support is considered incidental to the work and is included for a complete job.

The Contractor shall provide two (2) trained and qualified/certified 12 kv line electricians in confined space entry, tag in – tag out procedures and qualified to work on, near or around 12kV overhead or underground energized facilities. All employees shall be O.S.H.A trained in live line work, overhead or underground.

Materials in General

Materials supplied by the City of Naperville and installed by the Contractor are listed in this specification (See Pages. However, the under bridge conduit support system, switch gear vault lids and 6 inch steel ridged steel conduit with couplings and steel to schedule 40 PVC adapters, HDPE to schedule 40 PVC adapters, HDPE to ridged steel conduit adapters are to be furnished by the Contractor.

Materials supplied, installed and stored by the Contractor are those necessary to install the under-bridge conduit support system, and include, but are not limited to: 6" Rigid Galvanized steel conduit with steel-to-plastic threaded couplings (both ends); conduit hanger materials, welding supplies, fall protection materials, vault cover, and all other miscellaneous items required for a complete installation plus the plastic ties to secure the 3 inch conduit to the duct sections, plus 2inch diameter galvanized pipe for the sidewalk guy installation, .if required. The Contractor shall supply all materials not supplied by the City of Naperville but are required for a complete job. All material costs are included in pricing for each item bid.

The City of Naperville furnished materials will be loaded, transported and unloaded by the Contractor from the City warehouse at 1392 Aurora Av. to the job site. The Contractor will properly store and protect all materials on site. Any miscellaneous materials not supplied by the City, but necessary to complete the work as shown on the Plans, as directed by the Engineer or as specified herein will be supplied by the Contractor and are considered included in the cost of the various items of work. Materials issued by the City but not used in the course of the job shall be promptly returned to the City.

The Contractor will not be allowed inside the City storage area without being accompanied by warehouse personnel.

Material pick-up will only be allowed between Mondays – Friday from 7:00 A.M. to 3:00 P.M. No Saturday or Sunday pick-up will be allowed.

The warehouse is closed daily from 12:00 P.M. to 1:00 P.M. Between 7:00 A.M. and 8:00 A.M. Public utility crews will be loaded first. After they are loaded material will be released on a first come first serve basis.

Material will not be loaded on trucks, trailers or pick-ups without proper restraints to secure materials for public safety on the roadways. Warehouse will not supply straps or other restraints.

No additional cost to the Contractor will be allowed for failure to follow the limitations prescribed above which result in materials not being released from the warehouse. The Contractor shall verify, identify and tabulate and document all materials received. The Contractor shall carefully determine the appropriateness, quantity, and type of all materials supplied by the City of Naperville. No additional compensation will be allowed for installation of inappropriate materials, size, or type or make of materials supplied by the City of Naperville. The excuse that's what they gave me is not acceptable. The Contractor shall give the storeroom person a list of materials needed at the time of pick up. The Contractor is to provide the WF# 56270 at this time.

For additional types of material other than that which is issued for this project, contact SENIOR ENGINEER (Rich Schlueter) at (630) 420-6190 or Paul Michalowski (630) 305-5227. For general warehouse questions contact Terry Skala at (630) 420-4136.

Handling of Materials
Proper equipment, tools, materials, and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the prosecution of the various items of work. Pipe, fittings, wood poles, vaults, handholes, manholes and other accessories shall at all times be handled with care to avoid damage. In loading and unloading the Contractor will follow the recommendations of the manufacturer. Under no circumstances will they be dropped or rolled off the truck.

The Contractor will carefully examine, inventory all materials supplied by the City or a supplier, count and document all materials received immediately before accepting from the City or supplier. If any pipes or materials are found to be damaged, defective or are short in count, the Contractor will immediately notify the City and Engineer. All materials provided and later lost, misplaced or stolen or just plan not found shall be replaced by the Contractor at the Contractor's expense and no delay costs will be allowed.

All pipes, fittings, manholes, handholes, vaults, and other accessories shall be carefully lowered into the trench piece-by-piece in such manner as to prevent damage.

Clean the interior of conduit, hand holes, vaults, manholes and fittings before installing and keep clean until the completed items of work are ready for acceptance. Remove dirt, excavated materials or other foreign matter from all material prior to installing and maintain until accepted.

Energized Lines; General Requirements
The Contractor is advised energized overhead and underground lines are in the work area. They will remain energized for the duration of the project. Contractor will work around lines and any costs incurred by doing so are included in the cost of the various items of work. The Contractor personnel shall be trained to work around underground live cable or overhead live conductor per O.S.H.A regulations. The Contractor shall have on the job site two (2) 12kv line electricians and two (2) 138kv line electricians qualified by training and experience to perform work, in, near, over, or under overhead or underground cable for the duration of the project. Upon request the two electricians shall be able to provide all references and certification of the ability to perform 12 Kv electrician work or 138 kV electrician work. This includes all confined space training, CPR training and Tag in/ tag out procedures, clearance requirements and approach distances The Contractor is to request an outage 96 hours in advance of requiring the work to be started.

CITY OF NAPERVILLE
ELECTRICAL CONSTRUCTION
SPECIAL CONDITIONS

1. Definitions

Throughout the Standard Conditions the following definitions shall apply:

NDPW - Naperville Department of Public Works

NDPU - Naperville Department of Public Utilities

2. Easements and Permits

The City will make available all necessary rights-of-way in advance of construction; any exceptions will be so noted in the preconstruction meeting for the Contractor's information.

The Contractor shall be furnished with copies of all applicable easement agreements as executed by the City. It shall be the Contractor's responsibility to keep all materials and machinery within easements that have been provided as shown on the plans and liability rests with him for damage to any areas outside and inside of said easements. The Contractor is advised all work activities shall be restricted to the easements and the Contractor shall arrange any ingress or egress across the property. Written permission from the property owner is required and all claims shall be sole responsibility of the Contractor. The Contractor shall obtain a waiver from each property owner involved.

3. Materials

Materials indicated in these Specifications as supplied by the DPU--E shall be picked up by the Contractor at storage facilities as designated by the DPU—E and this picking up, sorting, hauling, loading, unloading, tracking, security, proper size equipment, labor, tools, storage off site, preparing damage claims, and replacing all materials found unacceptable to use after the contractor accepts material list and keeping an inventory of all materials picked up until completion of the project shall be considered incidental to the contract. Manhole and side walk splice box deliveries shall be coordinated by the Contractor by contacting the City's supplier directly and arranging for the timely delivery and placement on site of the manholes.

The Contractor shall break up the material requests into 5 orders. One order for each WF# and shall be responsible for picking up the proper material for each WF# and installing the material in the proper work area per WF#
The contractor shall invoice the work as per WF# is completed or partially completed in the field.
Each invoice for payment shall be per one WF# only.
The WF#'s are:
56270 THE BRIDGE EU12
59481 JOB #1 WASHINGTON STREET (75TH STREET TO OLYMPUS DR. EAST SIDE) EU73
59482 JOB#2 75TH STREET (WASHINGTON STREET TO OLYMPUS NORTH SIDE) EU73

59484 JOB#3 75TH STREET(WASHINGTON STREET TO CLYDE DR. SOUTH SIDE) EU73
59485 JOB#4 WASHINGTON STREET (75TH TO BAILEY RD. EAST SIDE) EU73

The contractor shall coordinate all the material with the work performed.

It is the Contractors responsibility to determine from the work specification and material List - that materials furnished by the City of Naperville are sufficient to complete the job. The Contractor shall maintain a tally of all materials picked up by WF number 56270 WF# NUMBER 54981, WF#NUMBER 59482, WF# NUMBER59484 AND WF# 59485 and continuously update the tally to show what has been installed and what is needed to complete EACH WF# NUMBER.

As the project progresses, the Tally shall be updated, recorded and be available for review.

The Contractor Shall notify the City of Naperville in writing, before the commencement of work, of any shortages of one or more types or quantities of materials required for a complete job. The Contractor shall be responsible to provide any shortages of materials in type or quantity furnished by the City of Naperville during the progress of the work. No claims for extra compensation will be considered for cost incurred because of lack of adequate materials. (See drawing 56270, ALL Sheets)

The Contractor shall cause to have prepared in written form, a list of all materials showing quantities, size, and types of materials the Contractor needs to complete the entire Project and present it to the Project Engineer two weeks after the Project is awarded and prior to the start of Work. Failure by the contractor to inventory the materials prior to start of work and inform the City in writing shall indicate to the City of Naperville all materials are correct in size, quantity and type to do all the work required for a complete installed project

The Contractor shall follow the following material pick up procedures;

A. Material from the warehouse shall be issued from the "Material Issue Desk" located inside the west service door marked "Water Meter Pickup".

B. Material shall be issued to the correct WF #.
WF # 56270, WF#54981, WF#54982, WF#54984 AND WF# 54985 shall be AVAILABLE AFTER the preconstruction meeting. The person picking up material shall have EACH WF #NUMBER IDENTIFIED so we can provide the correct materials to do the work. The person picking up the material shall sign the material ticket indicating materials picked up, condition, quantity and date. The ticket shall be given to the company engineer on the work site.

C. Material shall be released from the stockyard to the Contractor contacting the warehouse personnel at the "Material Issue Desk".

D. The Contractor shall be allowed inside the stockyard only when accompanied by warehouse personnel.

E. Material shall be loaded on trucks, trailers or pickups only with proper restraints to secure material for public safety on the roadways. Warehouse will not supply straps, blocking or other restraints.

F. Material pick-up - Monday through Friday, 7:00 a.m. to 3:00 p.m. Contractors will not be loaded on Saturdays, Sundays or Holidays.

G. The warehouse is closed daily from 12:00 p.m. to 1:00 p.m.

H. Between 7:00 a.m. and 8:00 a.m. City of Naperville crews will be loaded first. After they are loaded, it will be first come, first served.

J. For any discrepancies in type and quantity of materials to be received, please call the Project Engineer. The Project Engineer will be identified at the preconstruction meeting.

K. Please call Terry Skala at (630) 420-4136 for questions regarding all warehouse procedures.

4. Disposal of Surplus Material

The Contractor is prohibited from burning any material on or adjacent to the improvement. All excess, excavated, garbage or waste material shall be hauled away from the site of the improvement by the Contractor and deposited at legal dump site locations provided by the Contractor. Dump tickets are required and are to be given to the City. Surplus Materials are not to be stockpiled but removed off site daily.

No extra compensation will be allowed the Contractor for any expense incurred by complying with the requirements of this Special Condition.

5. Water for Construction Purposes

City water for construction purposes will be available to the Contractor at his cost according to the rates in effect at the time of usage. The Contractor will use water only from a location approved by the NDPU Water and Wastewater. If approved, the procedure for securing the City meter is:

The Contractor shall contact:

NDPU - Water and Wastewater
North Operating Center
(N.O.C.) (630) 305-5263
1200 W. Ogden Avenue
Naperville, Illinois 60563-2918

The Contractor shall submit to the NDPU a check payable to the City of Naperville for $150.00 as a deposit and sign out for three-quarter inch (3/4) water meter or $500.00 for a fire hydrant meter that will fit a 3" hose. Upon completion of the project, or whenever the water meter and water are no longer required, the Contractor shall return the meter in good condition to the same location. The balance of this deposit will be processed for repayment after the deduction of the money charged towards the number of gallons of water used.

6. Hauling Material Furnished by City

The Contractor shall furnish the necessary equipment and labor to load, unload, sort, document, tally, and haul to the contractor storage facility, and to the job site, all material furnished by the City. The Contractor shall bear the cost of such loading, unloading, and inventory, crating / boxing, counting, documentation, equipment, labor, materials, delivery, sorting, tabulating, identifying, hauling and preparing paper work.

7. Material – Responsibility

The Contractor shall check all electrical work related material (other than HMA and Concrete) received whether direct from the manufacturer or from the City at the time of its receipt. The Contractor or his representative shall sign a record of all such materials received by the Contractor, and the record so made shall determine the amount of material received by the Contractor from the City. The Contractor shall be solely responsible for all materials after the same have been received and signed for by the Contractor or his representative. Any such materials lost, stolen, or damaged shall be charged to the Contractor as hereinafter provided. Upon completion of the Contract or a segment thereof, when applicable, a representative of the Contractor and the City shall make a complete inventory of the Work and of all materials, which the Contractor has returned to the City.

Any shortage between the materials delivered to the Contractor and the inventory, plus any materials returned by the Contractor in a damaged condition shall be charged to the Contractor at cost plus twenty percent and shall be deducted from the amount due the Contractor.

The Contractor shall inspect the manholes, conduit and associated materials upon receipt and report all shortages or damage immediately

8. Inspection of Drawings and Specifications

The Contractor shall report to the City any error or errors he may find upon inspection of the Drawings and Specifications. The contractor shall mark up all changes on the drawings provided and note the action taken. Show dimensions and date

9. Repair on Damaged City of Naperville Facilities

The Contractor is advised the City of Naperville may not be able to immediately make emergency repairs on any City of Naperville facility damaged by the Contractor . Therefore, the Contractor may be required to make all repairs under the direction of the City of Naperville. The repair work is considered an emergency and a sufficient work force and equipment provided by the Contractor shall be dispatched immediately to correct the problem.

The Contractor shall replace, repair, adjust or modify all equipment and/or facilities damaged by the Contractor's construction activities at the Contractors cost and including all City of Naperville costs associated with the work.

The Contractor shall be directed to provide the necessary work force, labor, tools, transportation, materials, equipment and supervision to make the necessary repairs.

The Contractor shall have available at all times a licensed and knowledgeable work force to perform water, sanitary sewer, electrical facility or storm water under ground construction work to the City of Naperville standards.

The Contractor shall document all activities by taking pictures of the damaged area, keeping track of the personnel, equipment, time and materials and make restoration and landscaping of the area.

The Contractor shall Contact Pat Eyre 630-420-4122 of the City of Naperville's Water and Waste Water of the Naperville Department of Public Utilities to report all damage. At this time it will be determined what work group will repair the damage.

10. Facilities Provided on the Site by the Contractor.

The Contractor shall supply a sufficient number of ground resistance testers for testing grounds at each vault location. (AEMC testers). Testing equipment can be purchased by the Contractor from Mitchell Instrument Company Model # C43730, phone# 1-800-270-2690, and can be used for both the fall of potential method and clamp on method. The Contractor shall provide steel or wooden mandrel's of sufficient number and of all shapes and sizes to fit the conduit sizes on the project.

11. Right of Way

The Contractor shall notify the Engineer at least one week in advance of any work on, over, or across any other utility. The Contractor shall also notify said utility to arrange for such protection as may be required by said utility. Any delay resulting from lack of adequate notification shall be at the Contractor's expense.

In all cases the Contractor shall contact the owners and/or tenants before working, and before the Contractor uses ingress or egress on their property. The Contractor shall make written notification 72 hours in advance of work and obtain the owner's name, phone number and permission. This information is required to allow the Property owner time to adjust his/her schedule and provide input.

12. Insurance

City of Naperville, the Naperville Park District, and the DuPage County Department of Transportation shall be named as an additional independent insured on all insurance policies.

13. WARNING TO CONTRACTOR'S EMPLOYEES

The Contractor knows that the City is engaged in the business of transmitting electric power and shall warn his employees against the hazards incident to such operation. Neither the Contractor nor any of his employees or subcontractors' employees shall enter any part of the City's premises, other than the places where the work is being done, or touch, move, manipulate or tamper with any wires, gas pipes, fixtures, machines, appliances or equipment of the City without express permission from the Engineer. The Contractor shall so instruct all of his employees and subcontractors on the job.

14. Safety Precautions

Some of the construction along the route shall be done in close proximity to existing energized conductors as well as lower voltage distribution circuits now in operation, due caution shall be taken to prevent accidental contact with or damage to any part of these lines, or any other overhead conductors or underground utilities encountered along the right-of-way. It shall be the Contractor's responsibility to locate and identify all facilities by hand digging and /or machine aided digging as deemed necessary. The Contractor shall consider all electric lines overhead or underground Energized at all times.

15. Contractor's Employees

The Contractor shall employee only qualified people in the work of installing 12kv Electrical Distribution Systems with energized or deenergized facilities. The Contractor shall furnish journeymen line electricians, experienced and certified for the duration of the project. They shall be trained in all OSHA requirements for live line work, CPR, tag-out tag in procedures, confined Space entry, overhead or underground electrical work below 72 Kv, clearance requirements to energized facilities of all types, and be certified in the last 24 months. They shall be qualified per OSHA regulations. Each worker shall be identified as certified prior to working on the project. The employer/ Contractor shall produce the certificate upon request.

1 WAY- 3" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 3" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 3" PVC DUCT BANK - 1 HIGH BY 3 WIDE
4 WAY- 3" PVC DUCT BANK - 2 HIGH BY 2 WIDE

1 WAY- 5" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 5" PVC DUCT BANK - 1 HIGH BY 2 WIDE
4 WAY- 5" PVC DUCT BANK - 2 HIGH BY 2 WIDE

2 WAY- 6" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 6" PVC DUCT BANK - 1 HIGH BY 3 WIDE
4 WAY- 6" PVC DUCT BANK - 2 HIGH BY 2 WIDE
5 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
7 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
8 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
9 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
10 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE
12 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE
14 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE

6 WAY 2- 6"& 2-5"& 2-3" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY 2- 3"& 4-6" PVC DUCT BANK - 3 HIGH BY 2 WIDE
8 WAY 6- 6"& 2-3" PVC DUCT BANK - 3 HIGH BY 3 WIDE
4 WAY- 2-6" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
4 WAY- 2-5" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
10 WAY 6- 6"& 2-3"& 2-5" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 8- 6"& 2-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 6- 6"& 4-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
12 WAY 6- 6"& 2-3"& 4-5" PVC DUCT BANK - 5 HIGH BY 3 WIDE

Description: This work shall be performed in accordance with Section 810 of the IDOT Standard Specifications except as herein modified. This work shall consist of installing 3-inch, 5-inch, or 6-inch Schedule 40 PVC conduit assembled into duct bank systems of the type and size specified herein and as noted in the Plans.

The work includes but is not limited to assembly of duct banks in the above configurations, clearing and grubbing, transplanting bushes and shrubs, tree protection, removing the street base, saw cutting, root pruning, temporary work, potholing by hand or with vacuum truck or hand digging, removing all excavated materials and debris off site, excavation of the trench, shoring and bracing materials as required per OSHA, line and grade, loading and transporting the PVC conduit from the City of Naperville storage locations, installing conduit bedding, installing the PVC conduit, base spacers, intermediate spacers, connection to the existing or new manholes, connecting to existing conduit runs, and splice boxes, handholes, pedestals, and/or vaults, connect to PVC conduit or steel conduit (adapter connectors for steel to plastic, steel to HDPE or plastic to HDPE supplied and installed with 4 foot long concrete encasement around duct bank by the Contractor),

excavating to find existing conduit runs and connecting, de-watering of the trench, testing and protection. The trench shall be excavated to the neat lines, width and depth as shown as sections on the plans or as directed by the Engineer.
The conduit duct bank system shall be assembled in to 1-WAY (1High by 1 Wide), 2-WAY (1 High by 2 Wide), 4-WAY (2High by 2 Wide), 5-WAY (2 High by 3 Wide), and 6-WAY (3High by 2 Wide) 6-WAY (2High by 3 Wide),
7-WAY (2 High by 3 Wide), 8- WAY (3 High by 3 Wide), 9-WAY (3 High by 3 Wide), 10 –WAY (4High by 3 Wide), 12- WAY (5 High by 3 Wide), 13- WAY (5High by 3 Wide), 14-Way (5 High by 3 Wide) using 3-inch,5-inch or 6-inch Schedule 40 PVC or combinations of 3-inch,5-inch,or 6-inch PVC conduit material. See City of Naperville C30-1900 for details.

Materials supplied by the City will include 3-inch, 5-inch and 6-inch PVC Schedule 40 pipe, conduit, bends, steel bends, fittings, plugs, couplings, intermediate spacers, warning tape, pull rope or mule tape, #12 THHN copper wire , summer cement (slow curing), marker balls and plugs. Materials shall be loaded, transported and deposited by the contractor from City storage areas to the site. Materials supplied by the Contractor are Mandrels of various sizes, plastic ties to hold 3", 5", and 6 inch conduit in position and materials to hold duct from floating.

The 3-inch, 5-inch and 6-inch diameter heavy wall Schedule 40 PVC conduits (20 foot lengths) shall be installed in a prepared trench on a 2" level bed of fine aggregate meeting the gradation requirements of FA-2 or CA-6 to the lines and grades as shown on the Plans or as directed by the Engineer. The conduit route shall be laid out and adjusted to go over or under obstructions, conduit shall be measured, cut, aligned, straightened, adjusted, leveled, pieced together, conduit ends prepared for assembly, guided, secured, connected, assembled per the Plans, and installed on base and intermediate spacers at 5-foot spacing, so that a 2-inch separation is maintained between the conduits and 3 inches on the sides of the duct package. Additionally, conduits shall be placed so the joints are staggered where no couplings are in line with adjacent couplings. The 3-inch or 5-inch conduit is to be tied with plastic ties to the spacers.

During installation, conduit joints shall be cleaned with Stoddard solvent, methyl ethyl ketene, or acetone, liberally coated with solvent cement and promptly engaged with the previously installed conduit. The joint shall be turned 90 degrees to dispel air and evenly distribute the solvent cement over the contact surfaces being joined. Final assembly of the joint should not exceed 60 seconds. The Contractor shall open no more than 100-foot headway to allow for smooth grade changes of the conduit system to miss obstructions.

See contract drawings for City of Naperville standard details.

Upon the completion of the conduit assembly, the duct bank neat line shall be encased the full width of the trench from the invert of the bottom conduit to four (4) inches above the crown of the top conduit with FA-2, CA6, or concrete as specified by cross sections on the plans or as directed by the Engineer. The excavation shall then be backfilled in lifts with compacted, spoil excavation clean with no rocks, controlled low-strength materials (CLSM) or trench backfill (CA-6) as shown in the Plans, stated herein, or as directed by the Engineer. Backfilling will be paid for separately as EARTH EXCAVATION, (SPECIAL), CONTROLLED LOW-STRENGTH MATERIAL, FA-2 ENCASEMENT or TRENCH BACKFILL, CA-6.

During the backfilling of the duct bank system, a yellow warning tape shall be installed 1.0' above the crown of the top conduit. The warning tape shall be installed with the words "CAUTION,

DANGER ELECTRIC" facing up. In areas where the proposed PVC duct bank is to be placed in the street, the backfilling operations shall extend from the top of the encasement to 12 inches below existing pavement grade. In areas where the duct bank is not to be placed in the street, the backfilling operations shall extend from the top of the encasement to the sub-grade elevation to allow for 6-inches of black dirt and sod or 4-inch sidewalk with 6-inches of CA6 for final restoration of the trench area.

Contractor shall note that for ducts that are to be concrete encased, they should first be encased and cured a sufficient amount of time prior to the backfilling with aggregate or other backfill material.

EXCAVATIONS MAY NOT BE LEFT UNATTENDED. ALL EXCAVATIONS SHALL BE EITHER BACKFILLED AT THE END OF EACH DAYS WORK, OR COVERED WITH STEEL PLATES AND SECURED OF SUFFICIENT STRENGTH AND QUANTITY TO PROVIDE ACCESS TO ALL ROADWAYS AND/OR DRIVEWAYS AND OR PEDESTRIAN TRAFFIC.

The Contractor shall restore the Parkway, Public Right of Way, or easement area, where trenched for conduit/duct bank installation, to an elevation, grade, and slope equal to that at the time of commencement of the project. All disturbed turfed areas and grass areas shall receive a minimum of 6" of topsoil and salt tolerant sod or seeding as shown on the plans or as directed by the Engineer. Topsoil in agricultural and parkway areas shall be restored to the depth existing prior to excavation. Topsoil may be utilized from material the Contractor has stockpiled from this project or hauled on-site at the Contractor's option if deemed suitable by the City.

The duct bank Trench area enclosed by the neat lines and for 4 feet each side of the neat trench line and the over the length of the trench shall be restored by the Contractor, to be paid for separately as SODDING, SPECIAL and SEEDING, CLASS 1A (SPECIAL). Any restoration work necessary outside of the duct bank installation work area described above shall be restored by the Contractor at no additional cost.

Materials and methods for this item shall conform to the requirements of Section 211 and Article 1081.05 of the Standard Specifications. Surplus materials shall be disposed of at an approved legal site. The cost of disposal of surplus and excavated materials shall be incidental to the PVC Ducts.

The Contractor shall provide tree protection and root pruning per City specification and follow instructions on trees to be saved or removed or planted as shown on the plans.

If water is encountered, pumps of sufficient capacity to handle the flow shall be maintained at the site and shall be constantly attended operation on a 24-hour basis until their operation can be safely halted. When dewatering, the Contractor shall provide close observation and this requirement shall be maintained to detect any settlement, sagging or displacement of the embankment. Cost for dewatering is considered incidental to this item.

All PVC conduit used on the job shall conform to the following: DPU-E Code 285-100-00070 Six (6) inch, five (5) inch and three (3) inch Schedule 40 heavy wall PVC conduit, supplied in 20' lengths with one belled end. Conduit must comply with UL standards 651 and NEMA TC2-1990 and must be shown on each length of conduit. Carlon 49017, J-M Manufacturing Co. Inc. 40600, Cantex A52GA12, National 333706020 or DPU-E evaluated equivalent.

The Contractor is advised the conduit run is being installed in a curvilinear street and shall require more attention to laying out a conduit run in a continuous curve. The curves shall require more detail in installing bends and providing additional bracing of the conduit run and is incidental to the work. All initial line and grades by the City of Naperville are supplied once. Any and all returns are at the Contractor's cost.

The Contractor is required to work above, next to, or under energized circuits. The Circuits shall not be deenergized unless the Contractor makes a request to do so. The request will be reviewed and if the system requirement for energy is such that the line cannot be deenergized the Contractor shall work with the line energized and follow all OSHA regulations. The Contractor shall request all lines out of service 4 days in advance. Every day, once in the morning and once at night, while the line is out of service, the Contractor shall contact the control room of the City of Naperville or the City inspector on site to confirm the status of the line. The same person each day is to contact the control room and City Inspector. The Contractor shall provide a 24 hour cell phone number to be called in the event of an electrical line status change.

Should the Contractor exceed the specified trench width, and he exceeds the allowable volumes of encasement per lineal foot and neat lines of the duct bank, he shall consider any additional material, labor or equipment incidental. The City reserves the right to reject requests for over-excavation.

Each installed conduit shall be cleaned and tested by the contractor by pulling a mandrel of appropriate size through the duct. Mandrel sizing shall be in accordance with Section 31-1.11 of the Standard Specifications for Water and Sewer Main Construction in Illinois.

Method of Measurement: The installed PVC Duct Bank to the configuration as shown on the drawings and shall be measured for payment in place in feet to the neat lines in place along its center line in a straight line point to point from outside edge of manhole to outside edge of manhole, or outside edge of the hand hole to the outside edge of the handhold or from the outside edge of the switch gear to the edge of a pole or outside edge of a switch gear to outside edge of another switchgear, or to the PVC Duct Bank stub installed in casing or open trench.

Basis of Payment: This work shall be visually observed by the Engineer and shall be paid for at the contract unit price per foot, for PVC DUCT BANK of the number, size and configuration of conduit as specified on the drawings, preparing the trench, assembly of conduit into a package and installing in trench, , which price shall be considered payment in full for completing this work in place by the Open Cut Method to the neat lines and locations as specified in the drawings including; the excavation of the trench materials, connecting to new and existing duct, connecting to the new and existing manholes, pedestals, new and existing vaults, 2 inch bedding, layout work of duct bank for proper fit, alignment, line and grade, headway, level, final profile of trench, potholing, tree protection, root pruning assembly of the ducts into duct banks of various configurations, number of ducts, size of ducts, offsite material disposal, loading and transporting the PVC conduit from the City of Naperville storage locations, installing conduit bedding, installing the PVC conduit, installing 3", 5", 6" steel bends, connecting to HDPE conduit, connectors (material and labor to hook up to Steel- Plus concrete encasement) top, bottom and intermediate spacer, installing transpositions, and for all labor, tools, bedding materials, equipment and incidental items necessary to complete this work as specified. Conduit of id 6" I.D 5" ID, 3"ID of.

PVC Schedule 40 in 20' lengths and 3inch, 5 inch and 6inch steel or PVC bends shall be supplied by the City of Naperville.

Road restoration, sidewalk restoration, curb and gutter restoration, driveway restoration, bike path restoration, concrete pavement, Trench Backfill, CA-6, Concrete Encasement, FA-2 Encasement, Controlled Low-Strength Material, Earth Excavation (Special), and traffic control shall all be paid separately.

EARTH EXCAVATION (SPECIAL)

Description: This work shall be performed in accordance with Sections 201 and 657 of the IDOT Standard Specifications except as herein modified. This work shall consist of backfilling with approved materials taken from the excavation in unpaved areas. All material not used are to be disposed of off-site.

The backfill materials, spoil, shall be placed on top of the conduit encasement up to the 6-inch layer of topsoil and sod. Backfill shall be used to fill over, next to, around and over the duct bank. The backfill material, spoil, shall be compacted by method 1 as specified in Article 542.04 of the Standard Specification. Care shall be taken when compacting the backfill materials so as not to damage the concrete encased duct package.

The contractor is required to separate out all rocks, boulders and cobblestone, stones larger than 1", and all organic materials. No rock, cobbles, stone, broken concrete or organic materials are allowed for backfill and shall be disposed of off-site.

The contractor shall make all necessary arrangements for disposal areas for excess excavated materials to be disposed off site and shall pay all costs incidental to securing permission for their use and shall dispose of all surplus excavated material without cost to the City. Stockpiling of excavated materials on-site will not be allowed overnight. When excavated material is suitable as backfill, it shall be loaded directly onto trucks for removal from the Work site or sites. No excess excavated material shall be stored on any public property or right-of-way. Such material shall be disposed of at a properly licensed landfill or on such other private property as the contractor may determine, subject to the consent of the City thereof, and the approval of all relevant governmental agencies. Notification of all disposal areas must be given to the Engineer prior to start of work by Contractor.

The Contractor shall be responsible to maintain the area backfilled during the course of the project and for one year after completion. If after backfilling, the trench area starts to sink, shift, a depression occurs, area becomes uneven, area becomes sponge, area ponds, or becomes unstable for any reason, and in the event the backfilled area can not be made stable, the entire backfill area shall be removed and compacted with lifts of CA6. This work is all at the Contractors expense.

TYPICAL DUCT BANK SIZE TO BE BACKFILLED

1 WAY- 3" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 3" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 3" PVC DUCT BANK - 1 HIGH BY 3 WIDE

4 WAY- 3" PVC DUCT BANK - 2 HIGH BY 2 WIDE

1 WAY- 5" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 5" PVC DUCT BANK - 1 HIGH BY 2 WIDE
4 WAY- 5" PVC DUCT BANK - 2 HIGH BY 2 WIDE

2 WAY- 6" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 6" PVC DUCT BANK - 1 HIGH BY 3 WIDE
4 WAY- 6" PVC DUCT BANK - 2 HIGH BY 2 WIDE
5 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
7 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
8 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
9 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
10 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE
12 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE
14 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE

6 WAY 2- 6"& 2-5"& 2-3" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY 2- 3"& 4-6" PVC DUCT BANK - 3 HIGH BY 2 WIDE
8 WAY 6- 6"& 2-3" PVC DUCT BANK - 3 HIGH BY 3 WIDE
4 WAY- 2-6" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
4 WAY- 2-5" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
10 WAY 6- 6"& 2-3"& 2-5" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 8- 6"& 2-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 6- 6"& 4-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
12 WAY 6- 6"& 2-3"& 4-5" PVC DUCT BANK - 5 HIGH BY 3 WIDE

Contractor to see drawings for additional duct sections not shown above but included in the project.

Method of Measurement: Placing of backfill shall be visually observed by the Engineer and shall be measured in place in cubic yards, as compacted, based on the length and depth neat lines as shown on the plans and field documented and verified to the maximum trench width and depth as shown in the typical conduit section detail. The depth shall be measured every 20 feet in place from the top of the FA-2 or concrete encasement to the bottom of the 6inch thick layer of pulverized black dirt & sod interface above the trench. Additional backfill required due to trench greater than the specified neat lines shall be furnished and placed at the Contractor's expense. Bedding materials are considered incidental to the installation.

Basis of Payment: This work shall be paid for at the contract unit price, per cubic yard, for EARTH EXCAVATION (SPECIAL).

VIDEO TAPE

Description: This work shall consist of providing all labor and provide all materials to video tape the entire electrical construction area route including audio commentary of existing conditions. The

Contractor shall make a careful examination of the location, field traverse the entire route of the project, observe and note existing site conditions and nature of the proposed work, as well as the drawings and specifications, and all other Contract Documents in connection with the work and services to be performed under this Contract.

Furthermore, he shall make a thorough investigation of the potential interference's and difficulties he may encounter such as, underground utilities, trees, fences, gardens, shrubs, out buildings, landscaping, but not limited to, road conditions or boulders and debris along fence lines for the proper and complete execution of all work specified herein and/or shown or called for on the drawings.

The video shall be in color on VHS or DVD. Two (2) copies of each presentation shall be provided. All video's to be compatible with the City of Naperville playback system, legible, in color, clear and identified by date time and location and direction.

The Contractor shall video the entire Right of way and 40 feet on either side. The Contractor shall video all evergreens, trees and fences in their natural state and show length height and depth. The video shall pick up all land features, houses, driveways, curbs and gutters, fire hydrants, sidewalks, street markings, berms, landscaping etc. for a complete representation of what is within the work area as the Contractor walks the right of way The Length of the right of way is approximately 6 miles.

The Contractor shall provide all pictures with dates and times and direction and verbally document the locations. The Contractor shall provide a video and audio at the beginning of the project covering the entire project and a video when the project is completed.

Method of Measurement: This work will be measured by unit. A unit consists of each time the area is requested to be video taped. The Contractor shall provide at a minimum, one video taping session of the entire area before the work is started and one video taping session after the work is completed and is considered a unit.

Basis of Payment: This work shall be paid for at the contract unit price, per unit for VIDEO TAPE.

NEW SWITCH GEAR VAULT

Description: This work consists of installing a City furnished prefabricated fiber-crete switchgear vault with vault lid (vault lid is supplied by the contractor) as per the details and at the locations shown in the plans including excavation, restoration, backfilling, installing and furnishing a vault lid with grounds and testing grounds, Installing a vault extender, and installing 8-3inch conduit positions, 6-6inch conduit positions, and 4-5inch conduit positions, using steel conduit into the switchgear vaults, using 11,22,30,45 or 90 degree steel bends, or PVC bends male and female couplings, straight pieces of 3", 5", or 6 inch steel rigid conduit or PVC, with pieces of schedule 40 PVC conduit, fittings, assembly, cutting, couplings, and sealant. Estimated weight is 700 to 800 pounds.

The work includes but is not limited to installing a new switch gear vault at various locations with in the project and includes clearing and grubbing, transplanting bushes and shrubs, tree protection, removing the street base, removing all excavated materials and debris off site,

excavation of the for the vault, shoring and bracing materials as required per OSHA, line and grade, loading and transporting the vault from the City of Naperville storage locations, installing bedding, installing the PVC conduit, connections to the new switchgear vault , connect to PVC conduit or steel conduit (adapter connectors for steel to plastic, steel to HDPE or plastic to HDPE supplied and installed with 4 foot long concrete encasement around duct bank by the Contractor), excavating to find existing conduit runs, de-watering of the excavation, testing and protection. The vault excavation shall be excavated to the neat lines, width and depth as shown on the plans or as directed by the Engineer.

This work requires an excavation 12 foot square and 6 feet deep, removal of excavated materials off site and backfilling with CA6, hand digging around energized 7200 volt to ground primary cables, 600 volt secondary cables and 600 volt service and street light cables. This work includes excavation by hand digging and/or machine aided digging. This work includes the installation of sufficient number of 3inch, 5inch, 6inch 11, 22, 30, 45, and 90 degree bends with pieces of conduit to extend into the vaults with 4 inches of CA-6 backfill materials under the conduit and around the vault to a depth of 6 inches below grade and finish with 6 inches of black dirt and salt tolerant sod to final grade. In addition, installation of 3", 5", 6 inch, schedule 40 PVC, 3", 5", 6 inch steel straight pieces and steel bends or plastic bends to, under and into the switchgear vault, which includes hand digging three (3) trenches, 10 feet long, 4 feet wide and 6 feet deep each.

The conduits and bends entering the vault shall be positioned and held in place and are steel and installed 6 inches above the bottom of the vault and all conduit openings shall be plugged with bell fittings and pulling wire or #12 copper wires THHN installed to and thru the lid of the vault. The Contractor shall provide the following in and around the area and at the site, CA-6 backfill materials, black dirt, salt tolerant sod, grading, landscaping, stone/rock removal, tunneling, hand digging, install new fencing, removal of fencing, provide space for work area, sidewalk replacement, curb and gutter replacement, tree and brush protection and/or replacement, arborist services, and disposal of all removed materials off site. Hand digging is considered part of the work.

See contract drawings for City of Naperville standard details.

All new vault locations must be approved by the CITY OF NAPERVILLE before any work is started. Vaults may be adjusted to meet the concerns of the property Owners. All locations shall be identified in the field, dimensioned and recorded in the surveyor's field book records after the job is awarded to the Contractor. No claims for extra compensation will be considered for cost incurred because of delay due to a change, or the layout of the vault will not fit in the area shown on the drawings and a move is required, accessing the equipment, utility locates or obtaining approval for said change.

This work includes installing all conduits, cutting, placing and arranging conduits, couplings, bends, pumping, tunneling, leveling, cutting, shaving, drilling, saw cutting, and coping of switch gear vault to provide an entrance hole above the support flange to install steel conduit into the vault and associated work to install conduit within and into the electrical equipment at the locations shown. In addition the opening in the vault shall be secured by the Contractor by use of a vault lid purchased by the Contractor and installed over the opening and maintained by the Contractor from vandalism, use, and wear during the length of the project.

The Contractor is advised the vault measures 76" wide by 74" long. The 76" side is the door side. The door on the switch gears shall open to the east and west or as directed by the Engineer.

An outage to perform this work will be determined by the condition of the City of Naperville's electrical system at the time and may not be available in a specific time frame. This condition is normal and is considered incidental to the work. A 72 to 96-hour notice is required for each and every work location. Any delay in completing the work due to outage restrictions or lack of an outage is not a reason for additional compensation and will not be considered. The Contractor shall wait to obtain an outage or move to another task.

The Contractor shall provide tree protection and follow the specifications as shown on the plans for trees to be saved.

Basis of Payment: This work shall be paid for at the Contract price per each NEW SWITCHGEAR VAULT. A Vault installed shall include, furnishing and installing the lid, final cleaning out the vault, all labor, material, tools and equipment including excavation, dewatering, grounding, testing the grounds, a lid to cover the opening in vault, top soiling 6inch black dirt and salt tolerant sod around the perimeter of the vault and extending out from the vault edges 10 feet in all directions, concrete encasement of ducts, pulling and training mule tape or wire, fencing, landscaping, grading and leveling, disposal of surplus and excavated materials off site, bedding, CA6 backfill for the entire excavation, transportation and installation of materials to complete the work herein and as shown on the engineering drawings.

HANDHOLE, DEH5
HANDHOLE, DEH6
HANDHOLE, DEH8 - NOT USED

Description: This work shall consist of installing City furnished handhole vaults per the details and at the locations shown on the plans. Also included are grounds, test grounds, and 3 inch, 5inch and /or 6-inch steel conduit into the handholes, using 11, 22,30, 45, or 90 degree steel or PVC bends, straight pieces of 3", 5", or 6 inch steel rigid conduit or PVC with pieces of schedule 40 PVC conduit, fittings, couplings and sealant.

The work includes but is not limited to installing a new handhole at various locations with in the project and includes clearing and grubbing, transplanting bushes and shrubs, tree protection, removing the street base, removing all excavated materials and debris off site, excavation for the handhole, shoring and bracing materials as required per OSHA, line and grade, loading and transporting the vault from the City of Naperville storage locations, installing bedding, installing the PVC conduit, connections to the new handhole, connect to PVC conduit or steel conduit (adapter connectors for steel to plastic, steel to HDPE or plastic to HDPE supplied and installed with 4 foot long concrete encasement around duct bank by the Contractor), excavating to find existing conduit runs, de-watering of the excavation, testing and protection. The handhole excavation shall be excavated to the neat lines, width and depth as shown on the plans or as directed by the Engineer.

The Contractor is advised three types of handholes are available for installation: DEH5, (Wt. 830 lbs) DEH6 (Wt. 920 lbs.) and DEH8 (Wt. 1020 lbs.). The size of the excavation for a handhole for DEH5 is 8 feet long by 6 feet wide by 6 feet deep; for DEH6 is 10 foot long by 6 feet wide by 6 feet

deep, and for DEH8 is 12 feet long by 6 feet wide by 6 feet deep. See additional excavation size and FA-2 or CA6 backfill requirements on drawings.

This work includes the installation of sufficient number of 11, 22, 30, 45, and 90 degree 3", 5", or 6", bends with pieces of conduit to extend into the handholes with 4 inches of CA-6 backfill materials under the conduit and around the handhole to a depth of 6 inches below grade and finish with 6 inches of black dirt and sod to final grade.

In addition, installation of 3inch, 5inch and 6 inch, schedule 40 PVC, 3", 5", or 6 inch steel straight pieces and steel or plastic bends to the handhole, which includes hand digging three (3) trenches, 10 feet long, 4 feet wide and 6 feet deep each. The conduits and bends entering the hand hole shall be steel; installed 6 inches above the bottom of the vault and 6 inches into the vault, and all conduit openings shall be plugged and taped See Drawings and Specifications. The Contractor shall provide 3", 5", or 6" diameter holes in the handhole walls by drilling at 6 locations or as required. The Contractor shall provide in and around the area and at the site, CA-6 backfill materials, black dirt, sod, grading, landscaping, stone/rock removal, tunneling, hand digging, install new fencing, removal of fencing, provide space for work area, sidewalk removal and replacement, curb and gutter removal and replacement, tree and brush protection, and/or replacement and arborist services, and dispose of all removed materials off site. Hand digging is considered part of the work.

All new handhole locations must be approved by the CITY OF NAPERVILLE before any work is started. Handholes may be adjusted to meet the concerns of the property Owners. All locations shall be identified in the field, dimensioned and recorded in the surveyor's field book records after the job is awarded to the Contractor. No claims for extra compensation will be considered for cost incurred because of delay due to a change, utility locates, or the layout of the handhole will not fit in the area shown on the drawings and a move is required, accessing the equipment, accessing the equipment or obtaining approval for said change. This work includes installing all conduits, final cleaning out the hand hole, cutting, placing and arranging conduits, couplings, bends, bell fittings, conduit plugs, pumping, tunneling, leveling, and associated work to install conduit within and into the electrical equipment at the locations shown.

An outage to perform this work will be determined by the condition of the City of Naperville's electrical system at the time and may not be available in a specific time frame. This condition is normal and is considered incidental to the work. A 72 to 96 -hour notice is required for each and every work location. Any delay in completing the work due to outage restrictions or lack of an outage is not a reason for additional compensation and will not be considered. The Contractor shall wait to obtain an outage or move to another task.

The Contractor shall provide tree protection and follow the specifications as shown on the plans for trees to be protected and saved.

See contract drawings for City of Naperville standard details.

Basis of Payment: This work shall be paid for at the Contract price per each for HANDHOLE, of the type specified, installed which shall include all labor, tools, material and equipment including excavation, dewatering, topsoiling, concrete encasement of ducts, disposal of surplus materials, bedding, backfill the entire excavation with CA-6, transportation and installation of materials to

complete the work herein and as shown on the engineering drawings. Restoration is included in the pricing.

FA-2 ENCASEMENT

Description: This work shall consist of furnishing and installing FA-2 ENCASEMENT of the PVC Duct Bank system of the size and type specified herein or as noted on the Plans and shall include but not be limited to providing fine aggregate meeting the IDOT gradation of FA-2 and placing and compacting the aggregate in the trench.

FA-2 ENCASEMENT shall be used to fill under, between and 4 inches over the top duct of the duct bank system to the neat lines and full width of the trench in locations specified on the engineering drawings or as directed by the Engineer. Care shall be taken to completely encase the duct bank system with fine aggregate meeting the gradation requirements of FA-2 as specified in Article 1003.04 of the Standard Specifications in lifts no greater than 8". After the aggregate has been placed the aggregate shall be tamped with a mechanical plate to eliminate voids. Care shall be taken when compacting the aggregate to not damage the PVC conduit, or separate the joints or couplings.

The Contractor shall utilize Method I (mechanical compaction) as specified in Article 542.04, Backfilling, of the Standard Specifications. No additional compensation shall be made for jetting. FA-2 may be used as backfill material when directed to do so by the Engineer.

Method of Measurement: FA-2 ENCASEMENT shall be measured for payment in place. Placing FA-2 Encasement shall be visually observed by the City and measured for payment in place to the neat lines and full width specified as shown on the typical trench details from 2" below the invert of the bottom conduit to 4" above the crown of the top conduit less the area of the conduits or as directed by the Engineer. The table below indicates the allowable volume for payment, (cubic yards per lineal foot) for the various sizes of duct bank.

TYPICAL DUCT BANK SIZE	CUBIC YARDS OF FA-2 PER LINEAL FOOT (COMPACTED)
1 WAY- 3" PVC DUCT BANK - 1 HIGH BY 1 WIDE	0.02
2 WAY- 3" PVC DUCT BANK - 1 HIGH BY 2 WIDE	0.02
3 WAY- 3" PVC DUCT BANK - 1 HIGH BY 3 WIDE	0.02
4 WAY- 3" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.03
1 WAY- 5" PVC DUCT BANK - 1 HIGH BY 1 WIDE	0.03
2 WAY- 5" PVC DUCT BANK - 1 HIGH BY 2 WIDE	0.05
4 WAY- 5" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.08
2 WAY- 6" PVC DUCT BANK - 1 HIGH BY 2 WIDE	0.03
3 WAY- 6" PVC DUCT BANK - 1 HIGH BY 3 WIDE	0.06
4 WAY- 6" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.07
5 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE	0.12
6 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE	0.11
7 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.19
8 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.18

9 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.17
10 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.22
12 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.20
14 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE	0.23
6 WAY 2- 6"& 2-5"& 2-3" PVC DUCT BANK - 2 HIGH BY 3 WIDE	0.14
6 WAY 2- 3"& 4-6" PVC DUCT BANK - 3 HIGH BY 2 WIDE	0.11
8 WAY 6- 6"& 2-3" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.14
4 WAY- 2-6" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.08
4 WAY- 2-5" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.08
10 WAY 6- 6"& 2-3"& 2-5" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.24
10 WAY 8- 6"& 2-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.23
10 WAY 6- 6"& 4-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.25
12 WAY 6- 6"& 2-3"& 4-5" PVC DUCT BANK - 5 HIGH BY 3 WIDE	0.24

Contractor to see drawings for additional duct sections not shown above but included in the project.

No additional compensation will be allowed the Contractor should the trench width be exceeded or the Contractor exceed the allowable volumes of encasement material as noted above.

Basis of Payment: This item of work shall pay for at the contract unit price, per cubic yard placed, for FA-2 ENCASEMENT.

CONCRETE ENCASEMENT

Description: This work shall consist of furnishing and installing the Concrete Encasement of the PVC Duct Bank System of the size and type specified herein or as noted on the plans and shall include, but is not limited to, providing concrete as specified herein and placing and vibrating the concrete in the trench.

Concrete Encasement shall be used to fill under, between and over the duct bank system to the neat lines and full width of the trench in locations specified on the plans or as directed by the Engineer. When placing the concrete, care shall be taken to completely encase the duct bank system with the concrete meeting the mix design requirements as specified herein. After being placed, the concrete shall be vibrated by mechanical equipment to eliminate voids and ensure complete encasement of the conduits. Care shall be taken when vibrating the concrete as to not damage the PVC conduit, or separate the joints or couplings. The Duct Bank shall be held in place to prevent floating of the duct system.

The concrete shall be Class SI, as specified in Article 1020.04. The concrete shall have a slump of three (4) inches ± one (1) inch with a minimum compressive strength of 2000 psi at 28 days and an air entrainment between 5% and 8% by volume. The contractor may submit a mix design utilizing pea gravel (CA-14) for the Engineers approval.

Method of Measurement: Placing of the Concrete Encasement shall be visually observed by the City and measured for payment in place to the neat lines and full width specified as shown on the typical trench details from 3" below the invert of the bottom conduit to 4" above the crown of the

top conduit less the area of the conduits or as directed by the Engineer. The table below indicates the allowable volume for payment, (cubic yards per lineal foot) for the various sizes of duct bank.

TYPICAL DUCT BANK SIZE ENCASEMENT	CUBIC YARDS OFCONCRETE PER LINEAL FOOT (PLACED)
1 WAY- 3" PVC DUCT BANK - 1 HIGH BY 1 WIDE	0.02
2 WAY- 3" PVC DUCT BANK - 1 HIGH BY 2 WIDE	0.02
3 WAY- 3" PVC DUCT BANK - 1 HIGH BY 3 WIDE	0.02
4 WAY- 3" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.03
1 WAY- 5" PVC DUCT BANK - 1 HIGH BY 1 WIDE	0.03
2 WAY- 5" PVC DUCT BANK - 1 HIGH BY 2 WIDE	0.05
4 WAY- 5" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.08
2 WAY- 6" PVC DUCT BANK - 1 HIGH BY 2 WIDE	0.03
3 WAY- 6" PVC DUCT BANK - 1 HIGH BY 3 WIDE	0.06
4 WAY- 6" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.07
5 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE	0.12
6 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE	0.11
7 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.19
8 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.18
9 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.17
10 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.22
12 WAY- 6" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.20
14 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE	0.23
6 WAY 2- 6"& 2-5"& 2-3" PVC DUCT BANK - 2 HIGH BY 3 WIDE	0.14
6 WAY 2- 3"& 4-6" PVC DUCT BANK - 3 HIGH BY 2 WIDE	0.11
8 WAY 6- 6"& 2-3" PVC DUCT BANK - 3 HIGH BY 3 WIDE	0.14
4 WAY- 2-6" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.08
4 WAY- 2-5" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE	0.08
10 WAY 6- 6"& 2-3"& 2-5" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.24
10 WAY 8- 6"& 2-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.23
10 WAY 6- 6"& 4-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE	0.25
12 WAY 6- 6"& 2-3"& 4-5" PVC DUCT BANK - 5 HIGH BY 3 WIDE	0.24

Contractor to see drawings for additional duct sections not shown above but included in the project.

Concrete may be used as backfill material when directed to do so by the Engineer.

No additional compensation will be allowed the Contractor should trench width be exceeded or the Contractor exceeds the allowable volumes of encasement material as noted above.

Contractor shall anchor the duct to prohibit the ducts from floating when backfilling with concrete encasement.

Basis of Payment: This work will be paid for at the contract unit price per cubic yard placed for CONCRETE ENCASMENT, which shall be full compensation for all materials, labor, equipment and appurtenances necessary for a complete item.

TRENCH BACKFILL, CA-6

Description: This work shall consist of backfilling and compacting the duct bank with a coarse aggregate material through all pavement areas at the locations shown on the plans or as directed by the Engineer.

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

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

b. Quality: - The coarse aggregate shall be Class-C quality or better.

c. Gradation: - The course aggregate gradation shall be used as follows:

For the trench backfill in pavement areas - Gradation CA-6

i. Paved Areas: - As soon as the condition of the concrete will permit, the entire width of the trench shall be backfilled to the neat lines and with moist coarse aggregate meeting the gradation specified. The aggregate shall be placed longitudinally along the duct. The Contractor shall establish that the compressive strengths of the concrete is sufficient to bear the weight of men and equipment prior to commencing the backfilling operation. Aggregate material shall be placed in 8-inch layers, loose measurement and compacted to the satisfaction of the Engineer by ramming or tamping the tools approved by the Engineer.

The backfill shall continue to be placed and compacted as specified to the top of subgrade for future or proposed surfaces and/or shall be brought to a level even with the existing pavement to act as a temporary surface until the permanent surface can be restored. Removal of any stone to provide proper subbase elevation for temporary patches and permanent pavement will be incidental to this item. The backfill for trenches and excavation made in the subgrade of the existing or proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 4 feet of the edge of the existing or proposed pavement, curb, gutter, curb and gutter, or sidewalk, shall be made with trench backfill material, unless the excavated material meets the requirements of the course aggregate specified.

All backfill material up to a height of 12 inches above the conduit shall be carefully deposited in uniform layers not exceeding 8 inches thick (loose measure). The material in each layer shall be firmly compacted by ramming or tamping with tools approved by the Engineer in such a manner as not to disturb or injure the duct. The backfilling and compaction above this height shall be done by Method 1, as specified in Article 542.04 of the Standard Specifications.

At the end of the settling and drying period, the crusted top of the backfill material shall be scarified and, if necessary, sufficient backfill material added, as specified in Method 1, to complete the backfilling operations.

The method used for backfilling and compacting the backfill material shall produce 95% compaction (modified proctor). Should the contractor's methods not produce these results the Contractor will be required to alter or change the method being used so that the resultant backfill will be satisfactory to the Engineer. Should the Contractor be required to alter or change the method being used, no additional compensation will be allowed.

When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides firmly in place without caving or settlement. This bracing shall be removed as soon as practicable. Any depressions that may develop within the area involved in the construction operation due to settlement of the backfilling material shall be filled in a manner meeting the approval of the Engineer.

When the Contractor construct the trench with sloped sides or benches backfilling for the full width of the excavation shall be as herein before specified, except no additional compensation will be allowed for trench backfill material required outside the limits of the specified trench width.

ii. Non-Paved Areas: - When ducts are constructed outside the limits of pavements as described in Part A, aggregate backfill will not be required above the top of duct, contractor may use the originally excavated materials. Compaction of the excavated materials shall be by Method 1 as outlined in Article 542.04 of the Standard Specifications.

Aggregate backfill will still be required to fill any voids under a/or adjacent to the top of duct.

Trench backfill, CA-6, shall be furnished for backfilling to the full width of the trench to the neat lines in areas requiring aggregate backfill only. It will be measured in cubic yards in place, except that the quantity for which payment will be made shall not exceed the volume of the trench as computed by using the actual depth of the trench to the top of the concrete duct, the actual length as measured along the center of the concrete duct and by using a maximum trench width. Any trench backfill required in excess of the maximum quantity herein specified shall be furnished by the Contractor at the Contractor's expense. Actual trench excavation may vary due to depth, soil conditions and to meet OSHA and all other State, Federal and Local safety requirements. No additional compensation shall be made for this item, and such work shall be considered incidental to the pay item.

Method of Measurement: Placing of Trench backfill, CA-6, shall be visually observed by the Engineer and measured for payment in place to the neat lines as specified from the crown top of concrete to within 6" of final grade, to allow for sodding and 6" of black dirt or to within 12 inches of the finished pavement grade plus 6 inches of subbase to allow for the street pavement as shown on the details. The table below indicates the duct bank configurations for backfilling, for various sizes of duct banks or as directed by the Engineer.

TYPICAL DUCT BANK SIZE FOR BACK FILLING

1 WAY- 3" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 3" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 3" PVC DUCT BANK - 1 HIGH BY 3 WIDE
4 WAY- 3" PVC DUCT BANK - 2 HIGH BY 2 WIDE

1 WAY- 5" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 5" PVC DUCT BANK - 1 HIGH BY 2 WIDE
4 WAY- 5" PVC DUCT BANK - 2 HIGH BY 2 WIDE

2 WAY- 6" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 6" PVC DUCT BANK - 1 HIGH BY 3 WIDE
4 WAY- 6" PVC DUCT BANK - 2 HIGH BY 2 WIDE
5 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
7 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
8 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
9 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
13 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE
14 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE

6 WAY 2- 6"& 2-5"& 2-3" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY 2- 3"& 4-6" PVC DUCT BANK - 3 HIGH BY 2 WIDE
8 WAY 6- 6"& 2-3" PVC DUCT BANK - 3 HIGH BY 3 WIDE
4 WAY- 2-6" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
4 WAY- 2-5" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
10 WAY 6- 6"& 2-3"& 2-5" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 8- 6"& 2-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 6- 6"& 4-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
12 WAY 6- 6"& 2-3"& 4-5" PVC DUCT BANK - 5 HIGH BY 3 WIDE

Contractor to see construction drawings for additional duct sections that are not shown above but included in the project.

No compensation will be allowed for trench backfill required below the top of the concrete duct or for originally excavated material used to backfill in Non-Paved Areas.

Basis of Payment: This work shall be paid for at the contract unit price per cubic yard placed, for TRENCH BACKFILL, measure as specified, which price shall include payment for furnishing the coarse aggregate, excavation, backfilling and compacting, and incidental materials and collateral work to complete the work as specified.

CONTROLLED LOW – STRENGTH MATERIALS

Description: This work shall consist of furnishing, transporting, and placing Controlled Low Strength Material (CLSM), in accordance with Section 593 of the IDOT Standard Specifications except as herein modified.

When backfilling electrical ducts, the mix shall be distributed evenly on each side of the pipe culvert or conduit to prevent movement. To prevent uplift of the duct, the first layer shall stop at one-fourth the height of the duct. After settlement of the first layer, as determined by the Engineer, the second layer shall stop at one-half the height of the duct. After settlement of the second layer, as determined by the Engineer, the remainder of the trench shall be filled.

Method of Measurement: CLSM shall be measured for payment in place to the trench neat lines as specified from the crown top of concrete to within 6" of final grade, to allow for sodding and 6" of black dirt or to within 12 inches of the finished pavement grade plus 6 inches of sub base to allow for the street pavement as shown on the details. The table below indicates the duct bank configurations for backfilling for various sizes of duct banks or as directed by the Engineer. .

TYPICAL DUCT BANK SIZE
1 WAY- 3" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 3" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 3" PVC DUCT BANK - 1 HIGH BY 3 WIDE
4 WAY- 3" PVC DUCT BANK - 2 HIGH BY 2 WIDE

1 WAY- 5" PVC DUCT BANK - 1 HIGH BY 1 WIDE
2 WAY- 5" PVC DUCT BANK - 1 HIGH BY 2 WIDE
4 WAY- 5" PVC DUCT BANK - 2 HIGH BY 2 WIDE

2 WAY- 6" PVC DUCT BANK - 1 HIGH BY 2 WIDE
3 WAY- 6" PVC DUCT BANK - 1 HIGH BY 3 WIDE
4 WAY- 6" PVC DUCT BANK - 2 HIGH BY 2 WIDE
5 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
7 WAY- 6" PVC DUCT BANK - 2 HIGH BY 3 WIDE
8 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
9 WAY- 6" PVC DUCT BANK - 3 HIGH BY 3 WIDE
13 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE
14 WAY- 6" PVC DUCT BANK - 5 HIGH BY 3 WIDE

6 WAY 2- 6"& 2-5"& 2-3" PVC DUCT BANK - 2 HIGH BY 3 WIDE
6 WAY 2- 3"& 4-6" PVC DUCT BANK - 3 HIGH BY 2 WIDE
8 WAY 6- 6"& 2-3" PVC DUCT BANK - 3 HIGH BY 3 WIDE
4 WAY- 2-6" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
4 WAY- 2-5" & 2 -3" PVC DUCT BANK - 2 HIGH BY 2 WIDE
10 WAY 6- 6"& 2-3"& 2-5" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 8- 6"& 2-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
10 WAY 6- 6"& 4-3" PVC DUCT BANK - 4 HIGH BY 3 WIDE
12 WAY 6- 6"& 2-3"& 4-5" PVC DUCT BANK - 5 HIGH BY 3 WIDE

Contractor to see drawings for additional duct sections not shown above but included in the project.

Measurement for CLSM around manholes will not be measured separately but shall be considered included in the unit price of the manhole.

Basis of Payment: This work will be paid for at the contract unit price per cubic yard placed for CONTROLLED LOW-STRENGTH MATERIALS, and including all equipment, labor and incidentals required performing the work as specified.

COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT

Description: This work shall be performed in accordance with Sections 440 and 606 of the IDOT Standard Specifications except as here in modified. The work shall consist of the removal and replacement of concrete curb and gutters of various types and sizes at the locations shown on the plan, or as directed by the Engineer, the preparation of the subgrade and base and the placement of a Portland cement concrete curb of the types specified on the plans.

See contract plans for City of Naperville curb and gutter details.

Curb and curb and gutters of all types such as: mountable curb and gutter, type B6.12 barrier curb, 6" concrete curb type B or combination concrete curb and gutter, and depressed of all types are to be removed and replaced as indicated on the plans and marked by the Engineer in the field. Curb and gutter damaged by the Contractor which is not marked for removal shall be replaced at the Contractor's expense.

Method of Measurement: Combination Concrete Curb and Gutter Removal & Replacement will be measured for payment in place along the flow line of the curb and gutter in feet, which will be calculated by the field measurements. Measurement shall be considered full compensation for saw cutting, sealing, joint sealant, expansion joints, forms of all types, form materials, epoxy coated rebars, control joints, finishing, excavating, steel plating, removal and disposal of excavated materials, removal of trench backfill to match existing pavement and curb and gutter sections, concrete, placing of tack coat and bituminous surface course, temporary asphalt patches, line and grade, and any other labor, equipment, tools or materials necessary to complete this item to the satisfaction of the Engineer. All curb and gutters installed shall be useable as intended. All vandalism or damage of any kind shall be cause for replacement at Contractor's cost.

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 completed and placed, regardless of the various types shown on the plans which price shall include all required concrete, expansion joints, forms, barricades, reinforcement steels, disposal of materials, subgrade preparation, protection of the work, all materials, labor and equipment and appurtenances required for a complete item.

SIDEWALK REMOVAL AND REPLACEMENT (SPECIAL)

Description: This work shall be performed in accordance with Sections 424 and 440 of the IDOT Standard Specifications except as herein modified. This item shall consist of the removal of existing P.C.C. sidewalk at the locations shown on the plans, or as directed by the Engineer. This item shall also include the preparation of the sub grade and base, and the placement of a P.C.C. sidewalk of the width and thickness specified on the plans.

All sidewalks shall be replaced with 5-inch depth Portland Cement Concrete. Any adjustments to the sub grade (excavation or fill) shall be considered included in the price of the sidewalk. Any necessary fill material shall be compacted CA-6 material. Compaction requirements shall be per the Standard Specifications.

Sidewalk thickness increases to 6 inches when it is part of a residential driveway and 8 inches thick when it is part of a commercial driveway.

Sidewalk to be removed shall be as indicated on the plans and marked by the Engineer in the field. Panels damaged by the Contractor that are not marked for removal shall be replaced at the Contractor's expense.

Sidewalk installation shall be done only from April 15 to November 15. All sidewalks removed and/or not completed before November 15 are to be temporarily patched for winter service using Hot Mix Asphalt material or other approved hard surface material at no additional expense to the City and are to be maintained by the Contractor until the permanent sidewalk can be placed.

See contract drawings for City of Naperville standard sidewalk details.

Method of Measurement: Sidewalk Removal and Replacement (Special) will be measured for payment in place, and the area computed in square feet. Measurement shall be considered full compensation for saw cutting, expansion joints, form materials, finishing and tooling, handicapped ramps and coloring, excavating, steel plating, removal and disposal of excavated materials, removal and installation of trench backfill to prepare sidewalk to match existing sidewalk, concrete placing and finishing, 6 inches of black dirt and sod, placing of temporary cold patch and/or CA-6 for winter, use of steel plates across driveways, 2 coats of curing/sealing compound, line and grade, pressure washing of adjacent sidewalks to remove grease, stains or other materials necessary to complete this item to the satisfaction of the Engineer. All sidewalks installed shall be useable as intended. All vandalism or damage of any kind shall be cause for replacement at Contractor's cost.

Basis of Payment: This work shall be paid for at the contract unit price per square foot placed for SIDEWALK REMOVAL AND REPLACEMENT (SPECIAL), of the thickness specified, which price shall include all required expansion joints, special texturing, variable height edge treatments at sidewalk ramps, finishing, sealing of the concrete, expansion joints, coloring, disposal and sub grade preparation, protection of the work, all materials, labor, equipment and appurtenances required for a complete item.

PORTLAND CEMENT CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT

Description: This work shall be performed in accordance with Sections 423 and 440 of the IDOT Standard Specifications except as herein modified. The work includes removal of existing PCC driveway and the installation of PCC driveway sections at any required location.

Residential driveways are 6 inches thick minimum PCC concrete and commercial driveways are 8 inches thick PCC concrete minimum. Any adjustments to the sub grade (excavation or fill) shall be considered included in the price of the driveway. Any necessary fill material shall be compacted CA-6 material. Compaction requirements shall be per the Standard Specifications.

Driveway installation shall be done only from April 15 to November 15. All driveways removed and/or not completed before November 15 are to be temporarily patched for winter service using Hot Mix Asphalt material or other approved hard surface material at no additional expense to the City and are to be maintained by the Contractor until the permanent driveway can be placed.

Pavement fabric reinforcement shall be included with all driveway construction and shall be 6" X 6" six gauge steel mesh, which will be installed 3" above the compacted subbase stone. Contraction joints as necessary, (10' to 15' apart) shall be tooled into the newly placed concrete. Expansion joints shall be placed against existing pavements.

All exposed surfaces shall be cured with a sealant compound Super Rez Seal or equal, in two coats.

Provide full depth premolded joint filler 2" thick for expansion joints at walk junctions and intersections where walks about building or platforms. Extend joint fillers full width and depth of joint. Place top of joint filler flush with finished concrete surface. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together. Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.

See contract plans for City of Naperville typical driveway details.

Repair or replace broken defective work, as directed by Engineer. Protect pavement from damage until acceptance of work. Maintain driveway as clean as possible by removing surface stains and spillage of materials as they occur. Sweep concrete sidewalks and wash free of stains, discolorations, dirt and other foreign material prior to final inspection.

Method of Measurement: Portland Cement Concrete Driveway Removal and Replacement shall be measured for payment, in place complete, in square yards. Measurement shall considered full compensation for saw cutting, excavating, steel plating, removal and disposal of excavated materials, removal and installation of CA-6 backfill to prepare driveway to match existing sidewalk, pavement, and curb and gutter, concrete placing and finishing, form materials, sealants, expansion joints, wire mesh, 6 inches of black dirt and sod, placing of temporary cold patch and/or CA-6 for winter, use of steel plates across driveways, 2 coats of curing/sealing compound, line and grade, pressure washing of adjacent sidewalks to remove grease, stains or other materials necessary to complete this item to the satisfaction of the Engineer. All driveways installed shall be useable as intended. All vandalism or damage of any kind shall be cause for replacement at Contractor's cost.

Basis of Payment: The concrete driveway will be paid for at the contract unit price per square yard placed for PORTLAND CEMENT CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT, which price shall include the installation of concrete driveway sections at locations as shown on the drawings.

SODDING, SPECIAL

Description: This work shall be performed in accordance with Sections 211, 250 and 252 of the IDOT Standard Specifications except as herein modified. This work shall include the placement of topsoil, sod, fertilizing, sod, watering and supplemental watering of all disturbed areas along the proposed improvements at the location shown on the plan or as directed by the Engineer.

Materials shall be in accordance with Article 1081.03 of the Standard Specifications. Native Sod comparable to the local grasses shall be used. Sod grown in areas of high organic material such as peat shall not be used.

See contract plans, City of Naperville standard specifications, for additional information.

A minimum of 6 inches of topsoil shall be placed over all disturbed areas. All soil surfaces shall be moist when the sod is applied.

Fertilizer shall be applied at the following rates:

Nitrogen Fertilizer Nutrients	90 lbs/acre
Phosphorus Fertilizer Nutrients	54 lbs/acre
Potassium Fertilizer Nutrients	36 lbs/acre

Method of Measurement: Sodding, Special shall be measured per square yard placed. All turfed areas restored with sod within the limits of restoration will be eligible for payment. Areas beyond the public right-of-way or the easement areas shown that are disturbed by the Contractor's activities shall be restored to equal or better condition by the Contractor at the Contractor's expense. In no case shall the pay limits for restoration extend beyond 15' (feet) from the center of the proposed utility being constructed.

All vandalism or damage of any kind shall be cause for replacement at Contractor's cost.

Basis of Payment: Payment for sodding shall be made at the contract unit price bid per square yard placed for SODDING, SPECIAL.

SEEDING, CLASS 1A (SPECIAL)

Description: This work shall be performed in accordance with Sections 211 and 250 of the IDOT Standard Specifications except as herein modified. This work shall include the placement of topsoil, seeding and fertilizing of all disturbed areas are not specified to be sodded along the proposed improvements at the location shown on the plan or as directed by the Engineer.

Watering and supplemental watering of all disturbed areas along the proposed improvements at the location shown on the plan or as directed by the Engineer is included.

Seeding and fertilizing materials shall be in accordance with Section 250 of the Standard Specifications. Seed shall be Class 1A, Salt Tolerant Lawn Mixture.

See contract plans, City of Naperville standard specifications for additional information.

A minimum of 6 inches of topsoil shall be placed over all disturbed areas. All soil surfaces shall be moist when the sod is applied.

Fertilizer shall be applied at the following rates:

Nitrogen Fertilizer Nutrients	90 lbs/acre
Phosphorus Fertilizer Nutrients	54 lbs/acre
Potassium Fertilizer Nutrients	36 lbs/acre

Areas beyond the public right-of-way or the easement areas shown that are disturbed by the Contractor's activities shall be restored to equal or better condition by the Contractor at the Contractor's expense. In no case shall the pay limits for restoration extend beyond 30' (feet) from the center of the proposed utility being constructed.

All seeded areas shall be mowed four (4) times to a height of three (3) inches. The cut material shall not be wind rowed or left in a lumpy condition but evenly distributed. Areas beyond the limits shown on the restoration plan shall be restored to better or equal conditions at the Contractor's expense.

See contract plans, City of Naperville specifications, for additional information.

All vandalism or damage of any kind shall be cause for replacement at Contractor's cost.

Method of Measurement: Seeding, Class 1A (SPECIAL) will be measured in place in acres of level surface area seeded. Areas beyond the public right-of-way or the easement areas shown that are disturbed by the Contractor's activities shall be restored to equal or better condition by the Contractor at the Contractor's expense. In no case shall the pay limits for restoration extend beyond 15' (feet) from the center of the proposed utility being constructed.

Basis of Payment: Payment shall be made at the contract unit price per acre placed for SEEDING, CLASS 1A (SPECIAL). Payment shall be full compensation for all seed, fertilizer, watering, other materials, labor, equipment and incidentals to complete the item on the plan and as specified.

MULCH, SPECIAL

This work shall be performed in accordance with Section 251 of the IDOT Standard Specifications except as herein modified. This item of work shall include the mulching of seeded areas along the proposed improvements at the locations shown on the plan or as directed by the Engineer.

Materials and construction methods shall be in conformance with Section 251 of the Standard Specifications. Mulch shall be applied as hydraulic mulch as specified in Article 251.03 (c), Method

3 of the Standard Specifications. Mulch shall be applied to all seeded areas within 24 hours from the time seed has been applied.

See contract plans, City of Naperville standard specifications, for additional information.

All vandalism or damage of any kind shall be cause for replacement at Contractor's cost.

Method of Measurement: Mulch, Special will be measured in place in acres of surface area mulched.

Basis of Payment: Payment will be paid for at the contract unit price per acre for MULCH, SPECIAL which price shall include all materials, labor, and equipment for placing the mulch over seeded areas as specified.

RIPRAP, SPECIAL

Description: This work shall be in accordance with Section 281 of the IDOT Standard Specifications except as herein modified: This item shall consist of the removal of existing riprap and replacement with new riprap of the type and size at the location shown on the plans, or as directed by the Engineer.

See contract drawings, City of Naperville standard specification for additional details.

Proposed riprap shall be Gradation #3, 12" minimum thickness.

Method of Measurement: Riprap (Special) will be measured for payment in place of the final placement, and the area computed in square yards.

Basis of Payment: This work shall be paid for at the contract unit price per square yard for RIPRAP, SPECIAL of the type shown on the plans and specified herein, which price shall include all material, labor, equipment and appurtenances required for a complete item.

CONSTRUCTION LAYOUT

Description: This work shall be performed in accordance with Check Sheet #10 of the IDOT Supplemental Specifications and Recurring Special Provisions except as herein noted.

The Contractor will be required to furnish and place construction layout stakes for this project. The Contractor shall establish a referenced centerline of survey and establish benchmarks along the line of the improvement outside construction limits. Locating and referencing the centerline of survey consists of locating and referencing control points such as point of curvature, points right of way lines, property corners, or of tangent and sufficient points on tangent to provide a line of sight. Control points, center line and benchmarks set by the Contractor shall be identified in the field with documentation and submitted to the City of Naperville prior to proceeding with construction.

The Contractor shall provide competent field forces directed by a Professional Land Surveyor or Registered Professional Engineer, and shall set all additional stakes for this project, lines and any

other horizontal or vertical controls, including supplementary benchmarks, necessary to secure a correct layout of the work.

The Contractor shall be responsible for having the finished work substantially conform to the lines, grades, elevations and dimensions called for in the plans. Any inspection or checking of the Contractor's layout by the Engineer and the acceptance of all or any part of it shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades and elevations of the several parts of the work. The Contractor shall exercise care in the preservation of stakes and benchmarks, and shall have them reset at his expense when any are damaged, lost, displaced or removed.

See contract plans, City of Naperville specifications, for additional information.

All vandalism or damage of any kind shall be cause for replacement at Contractor's cost.

All conduit lengths shall be measured to the tenths of a foot. The Contractor is responsible for installing all duct sections and maintaining all construction activities inside the limits of the City of Naperville's right of way. For conduits located within roadways, the Contractor shall use the dedicated 66 and 80-foot or 100 foot road right of way. All lot line work shall use the recorded easements. These easements are shown on the easement maps provided; these maps are approximate locations of recorded easements taken from records in file. Records filed in the county shall resolve all discrepancies. The information shall be obtained and interpreted by the Surveyor for the Contractor and reviewed by the City of Naperville

The Contractor shall obtain and direct the services of a land surveying company to measure the installation of the duct bank by the open cut method or Horizontially Directionally Drilled method (HDD)and field document the installation of the open cut method or HDD method of conduit installation, including vaults, manholes handholes splice boxes and pedestals. The surveyor is required to establish the limits of the rights of way, limits of the easements, property lines, center of duct run, with labeled stakes every 50 feet as the route shown on drawings provided. Wooden stakes shall be driven at a minimum of 50-foot intervals and /or at a sufficient number of additional locations to allow the Contractor a construction line and grade to follow for installation of the conduit and stay within the limits of the right-of-way.

The surveyor shall record the location of the new duct as being installed and measure widths, depths and lengths of trenches, trench profiles, manholes, handholes, pedestals, transformer vaults, switch gear vaults, and splice boxes, with elevations and prepare profile of trench bottom with stationing, offsets angles and monitor the progress of the work to ensure the conduit duct bank stays within limits of the rights of way and the conduit run does not exceed 235 degrees of bends in 750 feet. All fences, monuments curb and gutter and obstructions shall be identified and recorded showing all measurements to the new duct and relative position on the right of way.

The surveyor shall measure on a straight line, point to point on a plan view. The surveyor shall measure, identify, and record all lengths, to the nearest tenth of an inch, of conduit installed from transformer vault to transformer vault, vault to pole, switch gear vault to transformer vault, new transformer vault to existing transformer, handhole vault to transformer vault, all road crossings and face of manhole to face of manhole, handhole to manhole and etc. All vaults, manholes splice boxes, and handholes shall be center and perimeter staked to allow the Contractor to install the

vault and/or handhole and /or manhole to allow the installation of the new conduit directly into the vault. All manholes are measured from face of manhole to face of manhole.

Method of Measurement :All excavations shall be dimensioned, identify what was installed provide grades and slopes, elevations top and bottom of excavation based on a bench mark, provide GPS coordinates, depth of digging, and excavation identified and tied into existing streets, monuments and home addresses.. Duct banks installed by the open cut method need a profile of the duct run showing all items crossed and land features. The duct bank installed by the HDD method need the report from the drillers rig filled out and all entry and exit pits identified and dimensioned as well as the push length measured on the surface of the ground. This Information is required for each excavation, and duct bank, which includes all pits, vaults, trenches and other excavations required to perform the work. A field book record including the information above plus showing, the day, dates and what type and quantity of work was performed shall be furnished to the City on completion of the work. This work is priced as a lump sum for the entire project for a complete job. In the event the work is divided between Contractors, this work shall be divided up to match the work being awarded.

The Contractor is advised to review the specification C30-1950 for additional survey requirements for surveying for Horizontal Directionally drilled method of installing conduit all requirements for surveying are to be included in this item.

Basis of Payment: This work will be paid for at a portion of the contract lump sum for CONSTRUCTION LAYOUT, based on the approximate portion of electrical work vs. general road and bridge construction. This work shall include the final As Built drawings, all materials, equipment and labor, services of a registered land surveyor and party chief, transportation, communications, measurements, tools, sketches, profiles, stationing, dimensions, cross sections, GPS coordinates, elevations , counts, bench marks, drawings that are dated and stamped, calculations with documentation, as required or needed to establish, maintain and correct, the lines and grades as described herein, as well as reestablishing lost or damaged control points and property corners. The surveyor shall be available for the duration of the project.

ROCK EXCAVATION

Description: This work shall be preformed in accordance with Section 202 of the IDOT Standard Specifications except as herein.

Rock excavation shall include all hard, solid rock ledges, bedded deposits and uncertified masses and all conglomerate deposits or any other material so firmly cemented that, in the opinion of the Engineer, it is not practical to excavate and remove same with a 225 net flywheel horsepower hydraulic backhoe or equal, except after continuous use of pneumatic tools or hammering. No soft or disintegrated rock which can be removed with a pick, grinding or jack hammer (40pounds): no loose, shaken or previously broken rock; and no rock which may fall into the excavation from outside the limits of excavation will be classified as rock excavation. Rock excavation shall also include all rock boulders necessary to be removed having a volume of three cubic yards or more.

When rock is encountered, it shall be stripped of earth and the Engineer notified and given proper time to measure the same before removal. Any rock that has been removed prior to measurement

by the Engineer will not be classified as rock excavation. To be classified as rock, the material shall meet a very high RDQ classification.

Payment will be made for rock excavation only within a line eighteen inches outside the concrete walls of the manhole or within the limits of a trench one foot wider than the width of duct bank, in case of trench excavation, and to a depth six inches below plan elevations for bottom of foundation or duct bank, or to the exact limits of rock cut contours or cross sections.

See contract plans, City of Naperville specifications, for additional information
See C30-1950 for HDD solid rock requirements, definition of rock as applied to HDD method, and payment requirements concerning solid rock.

The use of explosives will not be permitted with any type of rock excavation.

Basis of Payment: This work will be paid for at the contract unit price per cubic yard for ROCK EXCAVATION. This price shall be full compensation for furnishing all materials; for all preparation, excavation and disposal of rock; and for all labor, equipment, tools and incidentals necessary to complete the item. Dump tickets are required.

ADDITIONAL GROUND ROD INSTALLATION

Description: This work shall consist of installing additional 10 foot ground rod at each new installation. One (1) 10-foot ground rod shall be installed at each transformer vault or riser and four (4)-10 foot ground rods at each fuse, plug or switchgear vault, handhole, splice box, manhole and One (1)-10 foot ground rod at each riser pole or transformer vault. Install 50 feet of 4/0 7 stranded bare copper ground wire around the inside perimeter of each vault, handhole splice box,

See contract drawings, City of Naperville standard specifications for additional information.

The Contractor shall have tested each and every ground rod installed as per specification attached. The Contractor shall test all ground rods installed and the total system of rods and wire. The Contractor shall record data on forms supplied and give to the Resident Project Inspector Representative. The Contractor is advised the cost of the above work is included in the pricing for vaults; handholes splice boxes and riser installations for a complete job.

Basis of Payment: This work shall be paid for at the contract unit price, per each, for ADDITIONAL GROUND ROD INSTALLATION. This price shall be full compensation for installing and testing each additional 10 foot copper clad ground rod or each 10 foot stainless steel ground rod installed 12 inches below grade, including connecting to the existing grounding system with 10 feet of 4/0 copper 7 strand wire 12 inches below grade and testing the system as described above to 25 ohms with documentation, picking up grounding materials from the City storeroom, plus furnishing all minor materials, all preparation, cleaning, all dirt, waste, and gravel removal, pumping, disposal of all removed materials, rough grading, and for all labor, equipment, tools, consumables and incidentals necessary to complete the item.

CONDUIT RISER ASSEMBLY

Description: This work shall consist of installing conduit riser assemblies with grounds and testing grounds of the size and at the locations indicated on the plans. The Contractor shall install a riser (conduits to and up an existing or new pole or as directed by the Engineer).

All materials will be supplied by the City of Naperville except for straight steel conduit or schedule 80 PVC. The Contractor will be responsible to load and transport all materials supplied by the City as specified in the General Specifications, except for the schedule 80 PVC or ridged galvanized steel 10 foot lengths of conduit with couplings and adapters if shown on the drawings. The 10 foot straight schedule 80 PVC of 3inch, 5inch or 6 inch Diameter conduit with couplings shall be furnished and installed by the Contractor and included in the pricing for this item.

All risers installed shall pass the Rod and Mandrel procedure to be accepted by the City.

The Contractor shall perform the following to install the riser on the pole: hold, support, guy, drill pole holes, install brackets, align, cut ,assemble, and prefit conduits, position conduits, level conduits, attach and provide all temporary work, materials, tools, consumables and labor to brace and support the pole against leaning, turning, twisting, falling or otherwise becoming unstable. The use of a truck to hold the pole is not acceptable. All existing conductors on the poles shall remain and in service.

The Contractor will take all the required precautions when working in proximity to the poles (Contractor to follow NESC Codebook, Section 36 and O.S.H.A regulation for live line work and clearances), and shall assume the lines are energized at all times. All restoration is included. All concrete work is included

An outage to perform this work is determined by the condition of the City of Naperville's electrical system and may not be available in the required time frame. This condition is normal and is considered incidental to the work. A 96-hour notice is required for each and every work location. Any delay in completing the work due to outage restrictions or lack of an outage is not a reason for additional compensation and will not be considered.

The work includes two, 90 degree 3-inch steel bends or two 90 degree 6-inch steel bends or two 90 degree 5 inch steel bends at the base of a pole, and one 3-inch or 5-inch or 6-inch schedule 80 PVC riser section attached to the pole, install grounds and test, one conduit is sealed at ground line the other sealed at the 25 foot mark, 3-inch, 5-inch or 6-inch schedule 40 PVC attached to brackets to the pole and trained 25 feet up the pole as work to be completed at the locations and quantities required and as shown on the drawings.

This work includes the installation of sufficient number of 3inch, 5inch or 6inch, 45, and 90 degree bends with pieces of conduit to extend to the pole. The Contractor shall provide the following in and around the area and at the site, CA-6 backfill materials, black dirt, sod, grading, landscaping, stone/rock removal, tunneling, hand digging, install new fencing, removal of fencing, provide space for work area, sidewalk replacement, curb and gutter replacement, tree and brush protection, arborist services, and/or replacement and dispose of all removed materials off site. See drawing C30-1900 for riser requirements and is included in the pricing.

Hand digging is considered part of the work. This work includes the hand digging and/or machine aided digging to install 2-6inch 90 degree steel bends, plugs, couplings, grounds and 1-10 foot long pieces of conduit to extend out from the pole. In addition, installation includes hand digging a trench 10 feet long, 3 feet wide, and 6 feet deep. Dispose of all removed materials off site.

All riser locations must be approved by the City of Naperville before any work is started. All riser locations shall be identified in the field, dimensioned and recorded in the surveyor's field book records after the job is awarded to the Contractor. No claims for extra compensation will be considered for cost incurred because of delay due to a riser change, utility locates, or obtaining approval for said change.
See contract drawings for City of Naperville standard.

Method of Measurement: This work will be measured per each location where a Conduit Riser is installed.

Basis of Payment: This work shall be paid for at the contract unit price, per each for CONDUIT RISER ASSEMBLY, of the size indicated on the plans. This work includes: all conduits, fencing, bends, pumping, tunneling, tree and brush protection and /or replacement, hand digging, grounding, stone/rock removal, leveling, and associated work to install conduit to the riser pole at the existing locations Restoration is included in pricing.

TREE ROOT PRUNING

Description: This work shall be performed in accordance with Section 201 of the IDOT Standard Specifications except as herein modified. This work shall be completed for all trees encroaching upon the duct bank construction area. Any roots encountered shall be treated with this method as directed by the City. The Contractor shall hire a Registered Arborist and appurtenances necessary to perform tree and evergreen root pruning.

Root pruning using an approved mechanical root pruning saw, or lopper as directed by a Registered Arborist, shall be performed prior to digging where noted on the plans or as directed by the Engineer. Whenever roots of plant material are to remain exposed during construction, the damaged roots are to be removed by cutting them off cleanly. Pruning shall be done in the presence of the Engineer and/or Registered Arborist and in such a manner as to preserve the natural growth habit.

Any damage to the root zone, as determined by the Engineer and/or Arborist shall be compensated by pruning an equivalent amount of the top vegetative growth of the plant material within 1 week following root damage. Fertilizer nutrients shall be applied within 48 hours after root damage occurs. A fertilizer with a 1:1:1 ration shall be applied at the rate of 5 lbs. of nutrients per 1,000 sq. ft.

Application shall be accomplished by placing dry fertilizer in holes in the soil. Holes shall be 8 to 12 inches deep and spaced 2 feet apart in an area beginning 30 inches from the base of the plant. Holes can be punched with a punch bar, dug with a spade, drilled with an auger or any method approved by the engineer. Approximately 0.02 lb. of fertilizer nutrients shall be placed by in each hole [250 holes per 1,000 sq. ft.].

If the Engineer or Arborist determines that the hole method of fertilizer placement is not practical or desirable, an approved method of uniform surface application will be allowed.

In the case of inadequate rainfall, as determined by the Engineer, supplemental water shall be applied within 48 hours of any root damage. The water shall be applied at the rate of 2 gallons per sq. yd. of surface within the root zone of plant material having sustained damage to the root zone. Three subsequent weekly watering at 2 gallons per sq. yd. shall be applied if deemed necessary by the Engineer. Additional watering may be required.

See contract plans, City of Naperville specifications, for additional information

Method of Measurement: Measurement will be based on tree root pruning per each tree; this shall include fertilizer nutrients and supplemental watering. Trimming of roots exposed during excavation will not be measured for payment.

Basis of Payment: This work shall be paid for at the contract unit price for each TREE ROOT PRUNING including fertilizer nutrients, supplemental watering and top pruning necessary to maintain the vigor of the tree.

COUNTERPOISE, UNPAVED
COUNTERPOISE, PAVED

Description: The Contractor shall install counterpoise at a manhole, handhole or switchgear vault as directed by the Engineer or as shown on the drawings.

The counterpoise shall be installed at the locations in paved and unpaved areas as directed by the Engineer. The work consists of traffic control, excavating, backfilling protecting the work area, restoring pavement to the original condition or better, disposal of all excavated materials off site, picking up and delivering all material from the City of Naperville storeroom to the job site and installing the equipment.

The Contractor shall excavate a trench 18 inch min to 24 inches max deep and 6 inches wide for a minimum of 100 feet to a maximum of 250 feet, in a radial direction out from the equipment. A bare #4/0 stranded coated copper conductor shall be installed into the trench backfilled with CA-6 and compacted 6 inch lifts and connected 18 inches below ground to the ground rods previously installed The ground with the counterpoise connected and backfilled shall be tested and resistance measured by the Fall of Potential Method Or Clamp on Method.

A measured resistance of 25 ohms is the acceptable value. If the reading is above 25 ohms the Contractor shall contact the Engineer and another counterpoise may be installed tested and results evaluated.

See contract drawings, City of Naperville standard specifications, for additional information.

The Contractor is advised that if rock is uncovered or found by potholing to the bottom of a manhole excavation, counterpoise shall be installed with the duct bank.

The counterpoise shall be installed thru the manhole walls or duct entrance and consists of approximately 300 feet on each run. One end of each run shall installed in the manhole with each run having a 30 foot tail of 4/0 copper bare wire.
The both copper wire tails shall be left coiled in the manhole
The other ends of the coiled wire shall install for 250 feet on top of the duct bank and is continuous. Each run is separated by 2 feet, and installed from the manhole wall to a point 250 feet away, both in the same direction for a total of 500 feet of 4/0 copper bare wire. Each counterpoise shall left in the trench and backfilled with trench backfill or as directed by the Engineer.

The tails shall be attached by training 4/0 wire thru the manhole to the ground rods, the trench backfilled and grounds tested

.

When this situation arises the contractor shall be paid as if the counterpoise is installed in an unpaved area for each foot installed in the duct bank. The cost of training the wire thru the manhole, connecting, placing and attaching to the manhole walls, and grounding is included in the price for installing counterpoise in unpaved areas.

The disturbed area in unpaved areas shall be fully restored with 6 inches of black dirt and sod.

The disturbed area in paved areas shall be restored with 12 inches of BAM or 2 inches of asphalt and 10-inch thick concrete with 6-inch sub-base of CA-6 in both.

All grounding materials are supplied by the City of Naperville.

Method of Measurement: The work shall be measured per lineal foot of counterpoise placed connected and tested. .

Basis of Payment: The work shall be paid for at the contract unit price per foot of COUNTERPOISE installed which shall include all trenching, traffic control, installation of materials furnished by the City of Naperville and final restoration.

HAND DIGGING, 0 FT TO 5 FEET IN PAVEMENT
HAND DIGGING, 5 FT TO 20 FEET IN PAVEMENT
HAND DIGGING, 0 FT TO 5 FEET IN UNPAVED AREAS
HAND DIGGING, 5 FT TO 20 FEET IN UNPAVED AREAS

Description: The Contractor shall assemble the necessary equipment, traffic control, materials, customer contacts, and labor to perform an earth excavation to the length and width and to a 5 foot or 20 foot depth and meet all federal and local regulations by hand digging as directed by the Engineer.

The Contractor shall saw cut, remove and install and replace all existing vegetation, a 12 inch thick concrete or 12 inch thick Bam street base, sub-base, provide earth excavation, removal of sod and black dirt, clearing and grubbing, disposal of all materials off site and backfilling with trench backfill CA-6 street base or sod and 6inches of black dirt, provide a Julie, support foreign utilities, restore area to original or better condition by hand digging.

Method of Measurement: The hand digging excavation shall be measured to the straight neat lines required for payment in place and calculated in feet (Length times Width times Depth in cubic yard volume) by the field measurement of straight neat lines. Measurement shall be considered full compensation for saw cutting excavating, flag individuals, electronic sign boards, steel plates, traffic control, removal and disposal of excavated materials off site, street replacement, and installation and removal of landscaping, installation of all temporary work and patching, site preparation, site protection, storage, Julie locates, supporting foreign utilities, line and grade, maintaining elevation and all labor tools, equipment, materials, consumables, permits, and appurtenances to complete this item to the satisfaction of the Engineer. Sidewalk replacement, curb and gutter replacement are paid separately.

Basis of Payment: The work shall be paid for at the contract unit price per cubic yard, in place for HAND DIGGING in various areas, regardless of the various types and locations shown on the plans which will include all required PCC concrete, saw cutting, expansion joints, forms landscaping, material removal and disposal off site, traffic control, protection work, materials falling into excavation shall be removed and replaced but not included in measurement, backfill materials placed and compacted in 6 inch lifts, bituminous materials, tack coat, compaction of sub-base and place sub-base backfill CA-6 materials.

BITUMINOUS DRIVEWAY REMOVAL AND REPLACMENT

This work shall be performed in accordance with Section 406 of the IDOT Standard Specifications except as herein modified. The work will include the installation and removal of hot mix asphalt (bituminous) driveway sections at any required location, as shown on the plan or as directed by the Engineer.

See contract plans for City of Naperville for typical driveway details for residential. Substitute hot mix asphalt for concrete.

The Contractor shall remove all existing pavement materials including sub-base, wearing surface and aggregate and disposal of all existing pavement, gutter inlets, entrances combination curb and gutter, backfill materials in preparation of subsequent construction.

This work shall consist of a hot-mix asphalt driveway pavement on a prepared sub-base of 6 inches of compacted crushed stone (CA-6). Sub-grade preparation, crushed stone base and all related work for driveway pavement shall be included in the cost of the work. The asphalt shall be laid in 2 lifts as follows:

Single-family residential drives will be 2 inch thick Hot-Mix Asphalt Binder Course Course, IL-19.0, N70, 2 inch Hot-Mix Asphalt Surface Course, Mix "C", N50 with 6 inch sub-base.

Commercial drives will be 10 inch thick Hot-Mix Asphalt Binder Course Course, IL-19.0, N70, 2 inch Hot-Mix Asphalt Surface Course, Mix "C", N50 with 6 inch sub-base.

The edges of the new pavement that are to be adjacent to grassed parkway shall have a neat forty five (45) degree angle bevel compacted and tamped with mechanical means and hand tampers.

See contract plans, City of Naperville specifications, for additional information

Method of Measurement: This work shall be measured along the surface of the completed driveway, in square yards.

Basis of Payment: This item of work shall be paid at the unit contract price, per square yard, for BITUMINOUS DRIVEWAY REMOVAL AND REPLACEMENT of the specified thickness and materials noted above and as shown on the plans.

RESTORATION WORK

Description: This work shall consist of restoration work of the project site not otherwise covered by specific items. The Contractor shall provide landscaping and tree work performed by a registered certified landscaper. The Restoration work shall include all landscaping work including transplanting, temporary work, removing, installing, grading, re-grading, hauling, unloading, storing, placing, hand digging, clearing, grubbing, pruning, trimming, shaping, planting tree(s) and evergreen(s), removing, transplanting, and planting bushes, trees, and plants, root and/or bush pruning, raking, watering trees, gardens, flowers, bushes and evergreens; fences of all sizes, excavated materials shall be removed off-site, dog fences, security systems, alarms, sprinkler systems cable TV phone cables, black dirt, sod, re-sod, removing and reinstalling decorative stone and modular walls, cobbles, removing and reinstalling traffic signals and street light circuits, and any other landscape or surface features.

The Contractor shall make a careful examination of the location, field traverse the entire route of the project, observe and note existing site conditions and nature of the proposed work, as well as the drawings and specifications, and all other Contract Documents in connection with the work and services to be performed under this Contract.

Furthermore, he shall make a thorough investigation of potential interference and difficulties he may encounter such as, underground utilities, trees, fences, gardens, shrubs, out buildings, landscaping, but not limited to, road conditions or boulders and debris along fence lines for the proper and complete execution of all work specified herein and/or shown or called for on the drawings.

Lack of knowledge of existing conditions or foreseeable conditions that will create difficulties or encumbrances in the execution of the work shall not be acceptable as an excuse for any failure on the part of the Contractor to fulfill in every detail all of the requirements of the restoration. Furthermore, a lack of knowledge will not be accepted as basis for any claim whatsoever for additional or extra compensation.

The Contractor shall perform all labor plus furnish and install all materials to restore all of the City of Naperville's rights of way and easements to the original or better condition. The Contractor is advised the property owners shall be contacted and consulted on each and every area of landscaping to be performed by the Contractor. An agreement by the property owners as to be quality and quantity of the work is essential for acceptance of the restoration by the City of Naperville.

The Contractor is advised the property owner must be satisfied with all aspects of the restoration. The Contractor shall start all area's that have been disrupted, dug on, compacted, or other wise

used by the Contractor's activity. All restoration shall begin within three weeks after the initial entry onto the customers' property. The Contractor shall make every effort to finish each parcel of property in an orderly and continuous effort to the finish. Large lapses of time from starting to finish are not acceptable. The Contractor shall be requested to increase the work force at no cost to speed up the restoration process when the restoration process takes longer than 6 weeks at any location.

The work area shall be kept clean and good housekeeping is the rule of the day. The storing stock piling or leaving materials in the work area over night is not acceptable. The equipment shall be returned to the staging areas at the end of each day. All personal vehicles shall not be parked on any of the City of Naperville streets.

The Contractor shall install remove and transplant bushes, trees and other vegetation in areas that have been dug, excavated disrupted and damaged or worn by use. The cost of such activity shall be included in this item.

The Landscaping period is usually November 1 to April 1. The Contractor shall finish all landscaping started in the work year by November 1 of the year started or sooner.

The Contractor shall install only sod and 6 inches of black dirt when green areas, grass areas of all types, and/or dirt areas have been dug, excavated, disrupted, damaged or worn by use. All landscaping shall be furnished, installed, rolled, and supplied and applied with sufficient quantities of water and fertilizer to promote growth.

Warranty provisions shall be in accordance with the Standard Specifications for the specific restoration item installed.

See contract drawings for City of Naperville for additional information.

Method of Measurement: The Contractor shall provide a lump sum that is the total cost of all landscaping and restoration of the City of Naperville's rights of ways and easements, which is to be done and required but not covered under any another price item or is covered by a price item but not in the quantities necessary for a complete the job in place. This lump sum includes, but not limited to, all labor, transportation, materials, hauling, loading, unloading, placing, installing, removing, transferring, temporary work of all types, tools, plant materials of all types, disposal of all materials off-site.

Basis of Payment: This work will be paid for at the contract price, Lump Sum, for RESTORATION WORK and shall include all labor, materials, consumables, transportation equipment, permits, and incidentals required to perform the work for a complete job.

UNDER BRIDGE CONDUIT SYSTEM

Description: This work will consist of furnishing and installing two (2) under bridge conduit support systems, each consists of 6 INCH DUCTS HUNG UNDER THE BRIDGE as shown on the Plans or as directed by the Engineer. Work under this item will include, but are not limited to: furnishing and installing inserts; PVC and steel conduit; couplings; male and female adapters for steel conduit; concrete encasement for steel conduit; hanger assemblies; expansion joints; stainless

steel straps; angle braces, threaded rod, spacers, and all nuts, bolts, washers and connectors. Torque all bolts is required. Prefitting and adjusting all components of all materials prior to installation is required. The Contractor shall weld stainless steel strap and/or braces as required. Adjustable braces, stop joints, 5 degree coupling, require prefitting. All materials are to be inventoried and replaced by the contractor as required to complete the project.

The Contractor is advised that all bridge work is part of the Road work and requires coordination and scheduling by the electrical contractor to ensure the electrical work is done at the time requested and in the period needed by the road contractor and to the satisfaction of the City.

Materials: The Contractor will furnish, install, fabricate, form, assemble, and drill, trim. Grind, bore and chamfer holes as required, stainless steel weld bracing, adjust, align, modify, level and cut all materials as required for complete installation of conduit under the bridge. (1 conduit high, 6 conduits wide.) At two (2) locations in the bridge

All materials are furnished and installed by the Contractor. Condux Corporation manufactures all inserts and inserts nuts. (Ridged or swivel) The Condux Corporation of Mankato, Minnesota is the approved supplier of all bridge materials except 10 foot straight galvanized steel ridged conduits. Material substitutions will be allowed only with approval of the City of Naperville, DPU-E. All steel 6" rigid steel with couplings 10 feet long is supplied by the Contractor. Contractor shall supply all steel to schedule 40 PVC couplings. The Contractor shall furnish, install and assemble all steel conduit through the bridge abutment walls.

All PVC conduit and bends used on the job will conform to the following: DPU-E Code 285-100-00070 Six (6) inch Schedule 40 heavy wall PVC conduit, supplied in 10' lengths with one belled end. Conduit must comply with UL standards 651 and NEMA TC2-1990 and must be shown on each length of conduit. Carlen 4907, J-M Manufacturing Co. Inc. 40600, Cantex A52GA12, National 333706020 or DPU-E approved equal. All steel except for the inserts and all rods are 316 Stainless Steel. Contractor shall have certified welders to perform stainless steel welding on braces for the under bridge support. Certification shall be provided if requested by the City.

Construction Requirements: The conduit run will be supported by inserts installed by the Contractor in the quantities and locations shown on the Plans. The Contractor will install temperature expansion couplings as shown on the electrical portion of the contract plans.

The Contractor will be responsible for field verification of all frame member and diaphragm clearances prior to beginning installation. The Contractor will adjust conduit elevations and/or alignment to avoid any conflict. Under no circumstances may the bottom of the Duct Hanger Assemblies extend beneath Low Steel Elevation. Prior to installing, hangar assemblies will be pre-assembled to ensure all pieces fit and meet clearances. Any adjustments necessary or as directed by the Engineer will be done at no additional cost.

All 3/4 bolts will be torqued to 190 feet/pounds. All threaded rod ends will be preened, center punched or spot-welded to prevent nut removal. Cut rod even with nut and above low steel.

The Contractor will stagger all PVC joints under the bridge. Bends under the bridge deck will be Schedule 40 PVC (field bend by hot box or pre-molded).

The section weight per feet of hanger, schedule 40 PVC conduits, nuts, steel braces, spacers, threaded rods and tubing is 40 lbs/foot without cable, with cable it is 240 lbs/foot.

The Contractor will install all materials without entering, leaving or dropping any materials into the river. Fall protection will be provided by the Contractor and is considered included in the cost of this item.

Prior to acceptance, each conduit will be cleaned, swabbed with lubricant and tested by pulling a mandrel of appropriate size through the duct. Mandrel sizing will be in accordance with Section 31-1.11 of the Standard Specification for Water and Sewer Main Construction in Illinois. The Contractor will leave the 1/8" diameter nylon pulling rope or mule tape or #12 copper THHN wire in each of the conduits. The testing and pulling of the mandrel will be done in the presence of the Engineer. Any duct found to be defective or blocked must be cleaned or repaired and re-tested to the satisfaction of the Engineer at the Contractor's expense prior to acceptance.

Upon the completion of the conduit assembly, the length of steel conduit beyond the bridge abutments will be encased in concrete the full length plus 10 feet or as shown on the drawings, and width of the trench from three (3) inches below the bottom of the lowest conduit to seven (7) inches above the top conduit and three (3) inches from the side of the conduit. The above limits will be as modified in the Plans for proper clearance to the abutment and approach pavement. Under no circumstances may the concrete encasement of the duct bank impede or prohibit the proper motion of the bridge deck or the approach pavement. The concrete encasement will follow the applicable provisions for CONCRETE ENCASEMENT as specified elsewhere herein.

The Contractor shall guarantee all work and materials supplied and installed by the Contractor for one year from the completion date of the Contract. All materials installed shall be replaced with new material in the entirety if after one year the materials fail.

See contract drawings for City of Naperville standard.

Method of Measurement: This work shall be paid as a Lump Sum for two (2) locations in the bridge and that is the total cost of the entire UNDER BRIDGE CONDUIT SYSTEM as required for a complete job. This Lump Sum includes, but not limited to, all labor, tools, generation, transportation, materials, hauling, loading, unloading, placing, installing, removing, disposal of all materials off-site, a one year guarantee coordinating the work, down time to allow for decking work, curing time of concrete, scheduling conflicts, electrical system outages, traffic control, working over the DuPage River, and under energized 12 kv distribution lines and 138 kv transmission lines. .

Basis of Payment: This work will be paid for at the contract price of a lump sum for two (2) locations , for UNDER BRIDGE CONDUIT SYSTEM in place and shall include all labor, materials, consumables, scheduling and coordination, equipment, transportation and incidentals required to perform the work.

CONDUIT IN TRENCH, TRANSITION AND TRANSPOSING

Description: This work will consist of installing at each location in the Bridge approach area's concrete encased 6-6" diameter schedule 40 PVC, and 6 inch steel ridged galvanized steel pipe

with (steel bends) electric duct bank for a minimum 70 feet long transition and transposing length. See specification drawings for configurations.

The type and size specified herein is shown on the Plans at each location and as directed by the Engineer. The work under this item will include, but not be limited to, clearing and grubbing; excavation; furnishing, wood forming, wood framing, backfilling, aligning, supporting, cutting, prefitting, grading, aligning, adjusting, all temporary work, and leveling the conduit, positioning the conduit, and placing conduit in a trench bedding; conduit bending; use of a hot box for bends, connecting to steel conduit, installing conduit; top, bottom, and intermediate spacers and concrete encasement and backfilling.

The Contractor will transpose and transition the conduits at each locations in the Bridge per drawings (4 locations are required).

The Contractor shall transition the conduit run, a 6-Way (1 High by 6 Wide) conduit run on 10 inch spacing thru the abutment wall to a 6-Way (1 High by 6 Wide) conduit run on 8 inch spacing. See drawings for configurations. At each of the locations this work includes moving the conduits from left to right and from up to down using varying spacing requirements
The Contractor shall transpose the 6-Way conduit run from 1X6 (1 High by 6 Wide) to a 6 WAY conduit run 2X3(2 High by 3 Wide). See drawings for configurations. At each of the locations this work includes moving the conduits from left to right and from up to down using varying spacing requirements

The Contractor will use a hot box to form PVC bends or supply and install manufactured steel rigid pipe or bends or schedule 40 PVC.

NOTE: The Contractor will furnish all forms, form materials, spacers, concrete and plastic ties for the transition length. Spacers may be manufactured or made on the job site. All spacers are not to be made of organic materials. All spacers shall be approved prior to installation.
See contract drawings for City of Naperville standard.

Method of Measurement: This work shall be measured on a per location basis, each, and shall be the total cost of the entire work to perform the transition and transposition of the conduit as required for a complete job. This unit cost of each location includes, but not limited to, all labor, tools, generation, transportation, materials, hauling, loading, unloading, placing, installing, removing, disposal of all materials off-site, a one year guarantee, measuring, fitting, coordination of all trades, down time to allow for decking work, curing time of concrete, scheduling conflicts, electrical system outages, traffic control, working over the DuPage River, and under energized 12 kv distribution lines.

Basis of Payment: This work will be paid for at the contract price per each, for CONDUIT IN TRENCH, TRANSITION AND TRANSPOSING and shall include all labor, materials, equipment transportation, consumables, and incidentals required to perform the work for a complete job.

DRILL EXISTING FOUNDATION

Description: This work shall be performed in accordance with Section 879 of the IDOT Standard Specifications except as herein modified. The Contractor shall install and layout the work to install one (1) to two (2) -- 5 inch or 6inch steel galvanized rigid conduit attached to one to two 5 inch or

6inch flexible poly coiled or schedule 40 PVC conduit, using prefabricated 5-inch or 6inch steel bends or 5 inch or 6 inch straight steel straight pieces for entry into an existing reinforced concrete Transformer Vaults or Manhole walls by core drilling two —5 plus 1 inch diameter holes or 6 plus 1 inch diameter holes. The steel ridged galvanized pipe shall be trimmed, cut, aligned, couplings provided, threaded, adapters provided and custom fit into the transformer vault or manhole wall. All straight pieces of steel 5-inch or 6 inch conduit are furnished and installed by the contractor are to be supplied in 10 foot lengths and then custom cut and field threaded.

NOTE: The existing Manhole or Transformer Vault has existing 12Kv cables installed and the cables shall remain energized and is considered a confined space. The Contractor shall perform all work and provide and install protection per the N.E.S.C and O.S.H.A regulations. The typical concrete transformer vault is 6 foot deep, 6 foot wide and 6 feet long with an energized transformer on top of the foundation. The typical manhole is a type "A', "E", "G" or "X".

An outage to perform this work is determined by the conditions of the City of Naperville's electrical system and may not be available in the required time frame. This condition is normal and is considered incidental to the work. A 72-96 hour notice is required for each and every work location. Any delay in completing the work due to outage restrictions or lack of an outage is not a reason for additional compensation and will not be considered. In the event the Contractor can not arrange for an outage, the Contractor shall perform all work as if the cables are energized.

The transformer vaults or manholes are filled with water and debris and need to be pumped out and cleaned. The transformer vault or manhole is of a recast concrete design. The transformer vault is not furnished with a sump, but is open to the ground and covered with CA6. The manholes are below grade and covered with CA6, pavement or grass and dirt.

The cables in the manhole or transformer vault shall be protected from falling debris. This work requires hand digging around energized 7200 volt phase to ground (12,470 volt phase to phase) primary cables, 600 volt secondary cables and 600 volt service and street light cables and various other utilities. This work includes the installation of sufficient number of various degree steel bends with pieces of 5 inch, or 6 inch PVC conduit, couplings, arranging cutting, positioning, fusing and plugging ducts to extend by core drilling through the approximate existing 8 inch thick reinforced concrete wall.

Also included is digging a 6 foot wide by 6 foot long by 7 foot deep opening to provide access to allow equipment to core drill through the existing field installed manhole or transformer vault. Includes concrete encasing the 5 inch or 6inch conduit on the outside the vault for 2 feet, backfilling with CA-6 backfill materials under the conduit and to the bottom of the excavations made plus around the transformer vault or manhole to a depth of 6 inches below grade and finish with 6 inches of pulverized black dirt to final grade with sod. In addition, excavating around, under and next to existing 3 inch, 5 inch and 6 inch schedule 40 PVC with bends to the existing facilities is required which includes hand digging TWO (2) trenches, 10 feet long, 4 feet wide, 6 feet deep each to relocate cables in ducts for space to core drill. The conduits and bends entering the structures shall be installed with steel bends into the structures, through the foundation at a distance of 6 inches above the top the bottom of the transformer foundation or manhole wall or as directed by the engineer. . Each conduit openings shall be plugged and taped. The end of the 5 inch or 6 inch pipe in side the transformer vault or manhole shall have bell fitting attached then plugged and taped. The cored drill hole needs to be oversized to attach the bell fitting, The hole edges on the inside of the transformer vault or manhole wall shall be mudded in with concrete

sealed and made smooth and all existing and new debris pumped out or shoveled out and disposed of off site. Dispose of all removed materials off site.

All openings into the existing transformer vault and manhole locations must be approved by the City of Naperville before any work is started. Core locations may be adjusted to meet the concerns of the City of Naperville. All transformer and manhole locations shall be identified in the field, dimensioned and recorded in the surveyor's field book records after the job is awarded to the Contractor. The Contractor shall provide in and around the area and at the site CA-6 backfill materials, black dirt, sod, grading, landscaping, clearing and grubbing, stone/rock removal, tunneling, hand digging, install new fencing, removal of fencing, provide space for work area, sidewalk replacement, curb and gutter replacement, tree and brush protection, arborist services, and dispose of all removed materials off site. Hand digging is considered part of the work. No claims for extra compensation will be considered for cost incurred because of delay due to a change, due to layout, utility locates, lack of outage requirements, and obtaining access to the structures or obtaining approval for said change.

The Contractor shall schedule this work after normal business hours or at a time when service can be shut down. The Contractor shall provide an 8 hour period to allow for the curing work to be completed. The Business or residences may be out of service during this time and at the time when switching is necessary. The Contractor shall notify the City. Business locations and residents 3 weeks prior to the proposed work.

See contract drawings for City of Naperville.

Method of Measurement: This work will be measured per each transformer or manhole foundation location site, drilling 2--5inch or 2--6 inch cores with accessories as necessary at any one individual site for a complete job.

Basis of Payment: This work shall be paid for at the contract unit price, per each, at the size shown on the drawings or as directed by the Engineer for DRILL EXISTING FOUNDATION, which shall be payment in full for installing all conduits, bell fittings, seals, clearing and grubbing, cutting, placing and arranging conduits, steel bends, cleaning, pumping, custom fitting, providing and installing all straight pieces of 5-inch or 6-inch steel ridged galvanized conduit, tunneling, cutting holes in transformer vaults or manhole walls , leveling, placing concrete, layout work, backfilling, trench work, debris removal and disposal and associated work to install conduit within and into the electrical equipment at the existing locations.

CONNECTING TO EXISTING SWITCHGEAR VAULTS, TRANSFORMER VAULTS, METERING VAULTS, PEDESTIAL VAULTS, HANDHOLE VAULTS OR FUSE CANS

Description: This work shall consist of installing 1 to 4 6-inch schedule 40 PVC and 1 to 6 3-inch schedule 40 PVC and 1 to 4 5-inch schedule 40 PVC conduit attached to 1 to 4 6-inch and 1 to 6 3-inch and 1 to 4 5-inch flexible poly HDPE coiled conduit or attach to schedule 40 PVC conduit of various sizes, using prefabricated 3-inch, 5-inch and 6-inch steel bends or schedule 40 PVC entering the existing switchgear vaults, transformer vaults , metering vaults, pedestal vaults , handhole vaults, fuse and/or plug cans vaults.

The work includes but is not limited ,at various locations with in the project, includes clearing and grubbing, transplanting bushes and shrubs, tree protection, removing the street base, removing all excavated materials and debris off site, excavation, preparation of the excavation, shoring and bracing materials as required per OSHA, line and grade, loading and transporting the materials, from the City of Naperville storage locations, installing bedding, installing the PVC conduit, connections to the existing electrical facilities, connect to PVC conduit or steel conduit (adapter connectors for steel to plastic, steel to HDPE or plastic to HDPE supplied and installed with 4 foot long concrete encasement around duct bank by the Contractor), excavating to find existing conduit runs and other utilities, de-watering of the excavation, testing and protection. The excavation shall be excavated to the neat lines, width and depth as shown on the plans or as directed by the Engineer. At no time is HDPE conduit to be used to enter any electrical equipment Use only schedule 40 PVC in the equipment and steel conduit under the equipment

This work requires hand digging around energized 7200 volt to ground primary cables, 600 volt secondary cables and 600 volt service and street light cables. This work includes the installation of sufficient number of 3-inch, 5-inch and 6-inch 11, 22, 30, 45, and 90 degree bends with pieces of conduit to extend into the vaults with 4 inches of CA-6 backfill materials under the conduit and around the vault to a depth of 6 inches below grade and finished with 6 inches of black dirt and salt tolerant sod to final grade.

An outage to perform this work is determined by the conditions of the City of Naperville's electrical system and may not be available in the time frame that will meet your needs. This condition is normal and is considered incidental to the work. A 72-96 hour notice is required for each and every work location. Any delay in completing the work due to outage restrictions or lack of an outage is not a reason for additional compensation and will not be considered. The Contractor shall not perform any work without an outage.

In addition, the installation of 3-inch, 5-inch, and 6-inch, schedule 40 PVC, 3-inch, 5-inch and 6-inch steel straight pieces and steel bends to, under and into the vault, includes hand digging three (3) trenches, 10 feet long, 4 feet wide and 6 feet deep each. The conduits and bends entering the vault shall be steel and installed 6 inches above the bottom of the vault and all conduit openings shall be plugged. This work includes installation of couplings, arranging cutting, positioning, fitting, and plugging ducts to extend into the vaults and/or other vaults with 4-inches of CA-6 backfill materials under the conduit and around the vault to a depth of 6-inches below grade and finish with 6 inches of black dirt to final grade with sod.

The conduits and bends entering the structures shall be installed with steel bends into the structures, from under the structure foundation for a distance of 3 to 6 inches above the bottom of the structure, and 3 to 6 inches into the structure, and all conduit openings shall be plugged, vault cleaned out, and ducts plugged and taped. Dispose of all removed materials off site.

All openings into the existing vault locations must be approved by the City of Naperville before any work is started. Vaults may be adjusted to meet the concerns of the adjacent property owners. All vault locations shall be identified in the field, dimensioned and recorded in the surveyor's field book records after the job is awarded to the Contractor. The Contractor shall provide in and around the area and at the site CA-6 backfill materials, black dirt, sod, grading, landscaping, stone/rock removal, tunneling, hand digging, install new fencing, removal of fencing, provide space for work area, sidewalk replacement, curb and gutter replacement, tree and brush protection, arborist

services, and/or replacement and dispose of all removed materials off site. Hand digging is considered part of the work.

No claims for extra compensation will be considered for cost incurred because of delay due to a change, utility locates, obtaining access to the structures or obtaining approval for said change. This work includes: installing all conduits, cutting, placing and arranging conduits, steel bends, pumping, tunneling, cutting holes in vault, clearing and grubbing, cleaning out the bottom of all equipment worked in is required, adding CA6 as required, leveling, adjusting, aligning, and associated work to install conduit within and into the electrical equipment at the existing locations. All landscaping and restoration included.

See contract drawings for City of Naperville standard.

Method of Measurement: This work will be measured based on each location where a connection is made. One location may have multiple connections but will be considered as one location.

Basis of Payment: This work shall be paid for at the contract unit price, per each, for CONNECTING TO EXISTING SWITCHGEAR VAULTS, CONNECTING TO EXISTING TRANSFORMER VAULTS, CONNECTING TO EXISTING METERING VAULTS, CONNECTING TO EXISTING PEDESTAL VAULTS, CONNECTING TO EXISTING HANDHOLE VAULTS, and CONNECTING TO EXISTING FUSE CANS.

REMOVE AND REPLACE BITUMINOUS SURFACE, SPECIAL

Description: This work shall be performed in accordance with Section 311, 406 and 440 of the IDOT Standard Specifications except as herein modified. This item shall consists of removing and reinstalling an existing DuPage Trail (Bikepath) and includes saw cutting the existing Bikepath; the removal of the 4- inch existing hot mix asphalt (HMA) pavement full depth, removal of the approximate 9-inch existing aggregate base course, the installation of 4-inch thick HMA surface course, mix C, 9-inch thick Aggregate Base Course, Type B that matches the existing typical section of the existing path in conformance with provisions set forth in these documents, at locations where the proposed improvement crosses or parallels the Bike Path, as detailed in these plans or as directed by the Engineer.

Aggregate Base material shall meet the requirements of Section 351 of the Standard Specifications. The material shall be classified as Type B.

Hot-mix asphalt material used to complete this item of work shall conform to Section 406 of the Standard Specifications. The mix shall be Hot-Mix Asphalt Surface Course, Mix "C", N50.

At locations marked for replacement, (ie trench crossings) the Contractor shall saw cut all edges and all loose and unsound material shall be removed from the area by means of pneumatic, mechanical, or other tools as will be acceptable to the Engineer. The depth of removal shall be the depth of the existing aggregate base, and wearing surface (4-inch asphalt materials) and tack coat as required, and the full length and the width. The width is equal to the trench width damaged area plus 4 feet in both directions from the damaged area. Materials removed form the repair area shall be disposed of by the Contractor off the jobsite, unless otherwise directed by the Engineer. All sawcuts of the Bike Path are at 90 degrees. No skewed saw cuts shall be acceptable, without approval of the City of Naperville.

When electric trenches are installed parallel with the Bike path and also in the Bike Path, the Contractor shall saw cut the ends and all loose and unsound material shall be removed from the area by means of pneumatic, mechanical, or other tools as will be acceptable to the Engineer. The depth of removal shall be the depth of the existing aggregate base (9-inch) and wearing surface (4-inch asphalt materials) and tack coat as required, and the width is the entire 12 feet of width of bike path and length is equal to the trench length. This is the damaged area. The end of the damaged area is to saw cut, made flush, and tied into the existing bike path by overlapping into existing pavement by milling off 2 inches for 5 feet by 12 feet and reinstalling. No patching is allowed.

No portion of the bike path can be partially repaired. Total replacement is required. Materials removed form the repair area shall be disposed of site by the Contractor unless otherwise directed by the Engineer.

Rubber tired equipment is required to work on the top of or cross the Bike Path from the point of view of protecting the surface from being sliced and cut or gauged. . The load limit on the Bike path is not designed for HS-20 loading or any impact loads, or any motorized vehicles or motor bikes.

The Contractor travels the Bike Path at the Contractor's risk. The Contractor may take the precaution of installing matting of sufficient strength to support some equipment but design and application, and implementation is at the Contractor's risk.

Any portion of the Bike Path damaged by the Construction activities of the Contractor is the Contractor's responsibility. The Contractor has the responsibility to repair/replace the Bike Path using and one of the procedures shown above or at the Engineer's direction. The City has the final decision on acceptability of the repair/replacement.

During interim periods when the Bike Path is open to traffic but prior to final restoration, the Contractor shall provide a temporary path surface in the work zone using temporary limestone screenings, if applicable, feasible and at the direction of the Engineer. The cost furnishing and installing and maintenance repair of any temporary limestone screening will be paid as TEMPORARY AGGREGATE. The Contractor to maintain the signs, bridges, and temporary path during the duration of the project

Any openings shall be protected with Type I or Type II barricades with lighting for the period beginning immediately after removal is completed until the openings have been filled with bituminous mixture and all debris is cleared away, or with sufficient steel plating to allow traffic to pass.

Prior to placing hot-mix asphalt, all surfaces of the repair area shall be blown free of dust and loose aggregate particles with compressed air. A tack coat conforming to Section 406 of the Standard Specifications shall be applied to all surfaces of the repair area at a rate of 0.10 gallon of residual bitumen per square yard. The opening shall then be filled in lifts of surface course mixture and compacted by means of a self-propelled steel wheel roller to not less than 95 percent of the modified proctor density.

The finished surface of the final patch or installation shall be flush and level to the surrounding pavement surface.

The finished surface shall have all marking restored and match the existing markings in size, color and texture. The finished surface shall have all signage replaced like for like and in the original position, size, lettering and height and verbiage.

The finished surface shall not pond or hold water but shall be installed to be free of standing water. The finished surface shall be flat, level and follow the contours of the existing bike path, free of ripples, waves, gulley, and indentations, free of gaps, humps, ruts, or small pot holes.

Method of Measurement: The method of measurement for this item of work shall be in square feet, which will be calculated by the field-measured length and width of area paved. Measurement shall be considered full compensation for saw cutting, removal and disposal of excavated materials, all survey work to maintain the lines and grades of the Bike Path with calculations, stationing, benchmarks, maintaining the elevations of the bike path, field documentation with detailed sketches, removal and installation of aggregate base materials, removal and installation of all hot-mix asphalt materials, placing of tack coat, disposal of all temporary and waste materials off site, grading, leveling, reestablishing the contours, signage, marking and stripping and any other labor, equipment, temporary work, tools or materials necessary to complete this item to the satisfaction of the Engineer. The Contractor shall provide in the pricing a one year guarantee for the labor and materials and workmanship for the installation of the bike path.

Basis of Payment: This work shall be paid for at the contract unit price per square foot for REMOVE AND REPLACE BITUMINOUS SURFACE, SPECIAL, which shall be full compensation for all materials, labor, tools, equipment and appurtenant necessary for a complete job

CLASS B PATCHES
CLASS D PATCHES

Description: This work shall be performed in accordance with Section 442 of the IDOT Standard Specifications except as herein modified.

If the areas designated for patching are found to be composite pavement (hot mix asphalt over Portland Cement Concrete), the patch area shall be constructed to match the existing pavement section, using materials and method as per the appropriate areas of the Standard Specifications. Payment for the patching of composite pavement sections will be by CLASS B PATCHES per square yard of measured area.

All pavements removed and/or not completed before November 15 in pavements that are to remain open to traffic, will be allowed to be temporarily patched for winter service and maintained by the Contractor. All pavement removed and/or not completed may be temporarily patched by using a 10 inch thick high early concrete, (4500 PSI) a fast setting mix across the entire trench area. The concrete shall be placed evenly and level to the top of the existing pavement. The trench covered with counter sunk steel plates. The plates are counter sunk and left for 3 days. The plates are then removed on the fourth day. The patch is for winter service only and maintained by the Contractor during this period. All temporary patches shall be removed as soon as the asphalt plants are open in the spring and permanent repairs made.

Patches will be paid for only once, of the Class and Type of the final installation. Temporary patches used over winter periods will not be paid for.

Saw cutting of all patches shall be included in the cost of Class B or Class D Patches.

Any dowel bars and tie bars needed for Class B patches shall be included in the cost of Class B Patches.

TYPE "A" MANHOLE INSTALLATION
TYPE "E" MANHOLE INSTALLATION
TYPE "G" MANHOLE INSTALLATION
TYPE " X" MANHOLE INSTALLATION- NOT USED

Description: The Contractor shall install City furnished electrical manholes in a prepared excavation to the line and grades as shown on the drawings, or as directed by the Engineer. The Contractor shall be responsible for but not limited to preparing the excavation, adjusting manhole location after potholing, over dig, assembly, security of site, potholing, layout, As Builts, securing outages with 96 hour advance notice, all steel plates and fences and warning signs to secure site, all temporary work, clearing and grubbing, compacting backfill, removing trees and brush less than 6inches in diameter, shoring, planking, bracing, and walers, grounding and testing, report findings of ground test, Install 60 feet counterpoise if required into manhole, removing pavement and all surface materials, training mule tape or # 12 copper THHN wire thru manhole and attaching to frame of manhole, restoring surface materials, shoring, sheeting, removing all excavated materials and debris off site, excavation, preparation of the excavation, install shoring and bracing materials as required per OSHA, dewatering, installing a 6" Coarse Aggregate Gradation CA-6 for bedding, modifying the manhole to accept existing and proposed conduits and counterpoise, encasement of conduit in concrete, making final conduit connection, verifying Installing duct positioning and section required in manhole with drawings provided, installing the manhole to final grade, adjusting collar(s), and frame and cover temporarily, adjusting frames and colors to final elevation, cleaning out manholes to a broom finish, aligning, fitting and leveling to the line and grades, final elevation, as shown on the drawings, finishing area around manhole to rough grade, providing survey services and Arborist services, or as directed by the Engineer.

In those locations where manholes are shown on the plan or directed by the Engineer to be placed in paved areas, CLSM shall be used as backfill around the manhole up to the sub-grade. The cost for the CLSM around and over excavated areas of the manhole shall be considered incidental to the manhole. In unpaved areas CA-6 shall be used as backfill around the manhole to the bottom of the black dirt.

All manhole locations require the contractor to dig 2 two test pits (City shall observe the work and concur with the dig.) of a sufficient depth, length, and width in 2 directions by criss-crossing thus forming an x to ensure the proposed manhole location will fit and be free of all obstructions or of sufficient size to accommodate the Manhole. The cost of providing the test pits and associated safety measures are included in the pricing. This work shall be done prior to ordering the Manhole. In the event the location is not suitable the contractor shall restore area to original condition at no cost to the city However, the next 2 test pits at a manhole location shall be paid by the city by machine aided digging pricing.

The Contractor shall be responsible for scheduling delivery time and location with the City's supplier, and all equipment and labor associated with unloading the pre-cast concrete manhole sections. The manholes will come in two (2) sections (top and bottom) with openings provided to accommodate the 6" diameter PVC conduit as shown in the Detail Drawings at the end of this Section. Contractor shall lift manhole sections with slings only. Lifting from pulling irons will not be allowed. The Contractor shall verify all dimensions and condition of the manhole supplied. All discrepancies shall be reported to the Engineer prior to installation.

The Contractor shall be responsible for installing up to (10) ten concrete adjusting collars and two (2) cast iron frame and cover, which are to be supplied with each manhole. The City will supply the adjusting collars, cast iron frames and covers and butyl mastic. It shall be the responsibility of the Contractor to load and transport the cast iron frames and covers and adjusting collars to the site from the City of Naperville storage yard.

The Contractor shall install a complete grounding system and test grounds for each manhole installed and / or as shown on drawings. See drawing for dimensions and weights

Manholes may be buoyant without backfill and overburden. The Contractor shall adequately ballast the manhole to prevent uplifting prior to the backfilling of the excavation.

If water is encountered, pumps of sufficient capacity shall furnished and be maintained to handle the flow at the site and shall be in constantly attended operation on a 24-hour basis until their operation can be safely halted. When dewatering, close observation shall be maintained to detect any settlement (Contractor to making settlement readings) or displacement of the embankment, surrounding area or pavement. Providing additional bracing, supporting and manpower to complete the job is incidental to the work.

This work shall be measured and paid for at the contract unit price per each for MANHOLE INSTALLATION, of the type specified in place, with the installation of 1 to 10 adjusting rings as required plus 2 sets of frame and lid as indicated, which payment will be full compensation for all excavation, and Manhole Installation, disposal of materials off-site, dewatering, installing complete with concrete tops, frames and covers, grounds and testing, adjusting rings, sumps with grates, grounding system, bedding, CLSM backfill, CA-6 backfill, fittings, materials, tools, labor, equipment and incidentals necessary to complete this work as specified for a complete job.

See contract drawings for City of Naperville standard.

Method of Measurement: This work will be measured per each location where a Manhole is installed.

Basis of Payment: This work shall be paid for at the contract unit price, per each for MANHOLE INSTALLATION, of the type indicated on the plans. This work includes: all conduits, fencing, bends, pumping, tunneling, tree and brush protection and /or replacement, hand digging, stone/rock removal, leveling, adjusting frame and covers, cleaning inside of manhole to broom finish, and associated work to install the MANHOLE at the locations shown on the drawings. .

NEW PHASE I TRANSFORMER VAULTS

Description: The Contractor shall install City furnished electrical transformer vaults with vault extender in a prepared excavation to the line and grades as shown on the drawings, or as directed by the Engineer. The Contractor shall be responsible for but not limited to preparing the excavation, adjusting the transformer vault location after potholing, over dig, security of site, potholing, layout, As Builts, securing outages with 96 hour advance notice, all steel plates and fences and warning signs to secure site, all temporary work, compacting backfill, removing trees and brush less than 6inches in diameter, shoring, planking and walers, grounding and testing, clearing and grubbing, report findings of ground test, removing pavement and all surface materials, training detectable mule tape or # 12 copper THHN wire thru transformer vault manhole and attaching to frame of vault lid, restoring surface materials, shoring, sheeting, dewatering, installing a 6" Coarse Aggregate Gradation CA-6 for bedding, modifying the vault to accept existing and proposed conduits, encasement of conduit in concrete, making final conduit connection, verifying Installing duct positioning and section required in transformer vault with drawings provided, installing the transformer vault to final grade, adjusting vault and provide cover temporarily, cleaning out vaults, aligning, fitting and leveling to the line and grades, final elevation, as shown on the drawings, finishing area around vault to rough grade, providing survey services and Arborist services, digging test pits of sufficient number and size to ensure the vault will fit in location, or as directed by the Engineer.

The Contractor shall be furnished by the city and installed by the contractor a prefabricated Comcast fibercrete transformer vault with grounding, (See standard for single phase vault C30-0011 and M30-1440 AND M30-1444) or a precast concrete transformer vault with grounding, Utility Concrete Products Transformer concrete Vault, (See standard for three phase Vault and M30-1350 and C30-0012) at the locations as shown on the drawings or as directed by the Engineer. The Contractor shall be responsible for but not limited to preparing the excavation , shoring, sheeting, dewatering, and installation of bedding materials, installation of 2 to 8 -3 or 5 inch schedule 40 PVC conduit attached to 2 to 8 -3 or 5 inch flexible poly coiled conduit with schedule 40 PVC bends to the new vault location.

The contractor shall install 1-3inch schedule 40 PVC with bends and plugs from the new transformer to the existing transformer with bends and plugs and as directed by the Engineer. A 10 to 15 feet distance is required (future pedestal location). Hand digging is part of the work and is included in this item.

The Contractor is responsible for scheduling the pickup of all materials with the City of Naperville's storage facility. The contractor to provide all equipment and labor to load and unload material at the yard and at the job site, The Contractor to keep a tally of all materials picked up and condition of the materials supplied. All materials shall be measured and dimensions verified prior to installation by the Contractor. All discrepancies are to be reported immediately.

The work includes hand digging three (3) 10 feet long, 3 feet wide and 4 to 6 feet deep trenches. The conduits and bends entering the vault shall be installed with schedule 40 PVC conduit and plugged or use a bevel coupling into the vault, 6 inches above the bottom of the vault and all conduit openings shall be plugged and taped The Contractor shall verify each vault location by checking transformer location numbers on plans versus the markings on the transformer in the field. The marking shall match, if not notify the Engineer. See Drawing and Specification.
All vault locations must be approved by the City of Naperville before any work is started.

Vaults may be adjusted to meet the concerns of the property Owners. All vaults must be identified in the field with stakes, dimensioned and recorded in the surveyor's field book records and a copy furnished to the City of Naperville. No claims for extra compensation will be considered for cost incurred because of delay due to changing the location of vaults, time lost to re-dig because the vault location will not fit at the first location or cost due to outage restrictions or obtaining approval for said vaults. This work includes: potholing, removal of, maintaining of and planting of shrubs, bushes, flowers fences, gates, rock gardens and replanting and restoring, removing sod and dirt and restoring with 6inches thick of black dirt and sod and grading.

The Contractor shall prepare all conduits by cutting, measuring, prefitting placing and arranging conduits,

The Contractor shall provide temporary fencing, installation of bends, pumping, tunneling, tree and brush protection and /or replacement, hand digging, stone /rock removal, leveling, and associated work to install conduit within and into the new vault and leveling transformer to grade and elevation.

This work requires hand digging around energized 7200 volt to ground primary cables, 600-volt secondary cables, service cables, and 600-volt service, street light cables, cable TV and phone lines. This work includes the installation of sufficient number of 30, 45, and 90 degree bends with pieces of conduit to extend into the new vault with 4 inches of compacted CA6 backfill materials under the conduit, vault and around the vault and conduit to a depth of 6 inches below grade and finish with 6 inches of black dirt and sod or landscaping to final grade.

The Contractor shall not install HDPE conduit under the vault for any reason—the weight of the vault will make HDPE oval after a couple of years. The Contractor shall hand dig a distance of 30 feet at each vault location to provide sufficient slack in the TV cable and/or telephone cable to allow for the installation of the vault and reposition to the original location after the vault is installed. Dispose of all removed materials off site.

The contractor shall provide and maintain a rigid cover over transformer vault. The cover shall support 400 lbs and permanently fastened to last for 4 years. This cover shall be maintained by the Contractor for duration of the project. If wood is used it shall be replaced when it starts to shrink and the corners come up at no cost. This cover is to be removed for the cable installation by others.

An outage to perform this work is determined by the condition of the City of Naperville's electrical system and may not be available in the time frame that will meet your needs. This condition is normal and is considered incidental to the work. A 96-hour notice is required for each and every work location. Any delay in completing the work due to outage restrictions or lack of an outage is not a reason for additional compensation and will not be considered.

The size of the excavation for the vault is 5 feet long by 5 feet wide by 5 feet deep. The Contractor is advised the top of the vault may extend above the ground line more than 6-inches if a condition occurs were the area around the vault is low, water is standing or adjusted to provide space for the existing cable. The Contractor shall prepare an area for grading for 3 feet around the vault and shall grade with additional 4 inches black dirt and sod and to within 4-inches of the top of the vault.

The Contractor shall install each transformer vault as described above and shown on drawings with grounding and testing for a complete job. The Contractor shall provide a hole by cutting a slot in two places of the transformer vault. (Slot dimensions are 4inches wide and 12 inches long and ½ inch thick fibercrete) This work includes installing several pieces split 3inch duct, split by the Contractor, to cover existing cable for 12 feet over 1/0 cables in bottom of vault and backfilling with CA6. The surveyor shall record the digging depth, provide level and grade check for drainage, and adjust vault upward to keep dry, provide location by address and location of vault by GPS triangulation. All measurements are performed by the contractor's surveyor.

The Contractor shall install the new vault within 10 feet of the existing transformer, if applicable.

See contract drawings for City of Naperville standard.

Method of Measurement: This work will be measured per each location where a transformer vault is installed.

Basis of Payment: This work shall be paid for at the contract unit price, per each for NEW PHASE I TRANSFORMER VAULT assembly, of the size indicated on the plans. This work includes: all conduits, fencing, bends, pumping, tunneling, tree and brush protection and /or replacement, hand digging, stone/rock removal, leveling, backfilling, grading, final elevation and associated work to install Vault at the locations shown on the plans.

POWER PEDESTALS

Description: The Contractor shall install a city furnished prefabricated Nordic Pedestal with grounding, in a prepared excavation to the lines and grades as shown on the drawings or as directed by the Engineer(See standard C30-2010). The Contractor shall be responsible for but not limited to preparing the excavation, the installation of 2 or 3-3 inch schedule 40 PVC conduit attached to 2 or 3 inch flexible poly coiled conduit with schedule 40 PVC bends to the new Pedestal vault location.

The work includes hand digging three (3) 10 feet long, 3 feet wide and 4 to 6 feet deep trenches. The conduits and bends entering the Pedestal shall be installed with schedule 40 PVC conduits and plugged or use a bevel coupling into the Pedestal, 6 inches above the bottom of the Pedestal and all conduit openings shall be plugged and taped.

The Contractor shall verify each pedestal location by checking pedestal location numbers on plans versus the markings on the pedestal the field. For new locations, pedestals to be located as close to what is required on the drawings The marking shall match, if not notify the Engineer. See Drawing and Specification. . All pedestal locations must be approved by the City of Naperville before any work is started. Pedestals may be adjusted to meet the concerns of the property Owners. All pedestals must be identified in the field with stakes, dimensioned and recorded in the surveyor's field book records and a copy furnished to the City of Naperville. No claims for extra compensation will be considered for cost incurred because of delay due to changing the location of the pedestal, outage restrictions or obtaining approval for said pedestal.

The work includes: potholing, removal of, maintaining of and planting of shrubs, bushes, flowers fences, gates, rock gardens and replanting and restoring, removing sod and dirt and restoring with

6inches thick of black dirt and sod and grading. The Contractor shall prepare all conduits, by cutting, placing and arranging conduits, temporary fencing, bends, pumping, tunneling, tree and brush protection and /or replacement, hand digging, stone /rock removal, leveling, and associated work to install conduit within and into the new pedestal and leveling the pedestal and installing to final grade. .

This work requires hand digging around energized 7200 volt to ground primary cables, 600-volt secondary cables, service cables, and 600-volt service, street light cables, cable TV and phone lines. This work includes the installation of sufficient number of 30, 45, and 90 degree bends with pieces of conduit to extend into the new pedestal with 4 inches of CA6 backfill materials under the conduit, pedestal and around the pedestal and conduit to a depth of 6 inches below grade and finish with 6 inches of black dirt and sod or landscaping to final grade.

The Contractor shall not install HDPE conduit under the pedestal for any reason. The Contractor shall hand dig a distance of 15 feet at each pedestal location to provide sufficient slack in the TV cable and/or telephone cable to allow for the installation of the Pedestal and reposition to the original location after the pedestal is installed. Dispose of all removed materials off site.

An outage to perform this work is determined by the condition of the City of Naperville's electrical system and may not be available in the time frame that will meet your needs. This condition is normal and is considered incidental to the work. A 96-hour notice is required for each and every work location. Any delay in completing the work due to outage restrictions or lack of an outage is not a reason for additional compensation and will not be considered.

The size of the excavation for the pedestal is 3 feet long by 3 feet wide by 4 feet deep. The Contractor is advised the top of the Pedestal may extend above the ground line more to allow for a condition if it occurs were the area around the pedestal is low, water is standing or adjusted to provide space for the existing cable

The Contractor shall prepare an area for grading for 3 feet around the pedestal and shall grade with additional 4 inches black dirt and sod and to within 4-inches of grade The Contractor shall install each pedestal as described above and shown on drawings. The contractor's work includes installing several pieces split 3inch duct, split by the Contractor, to cover existing cable for 12 feet over 1/0 cables in bottom of pedestal and backfilling with CA6. The surveyor shall record the digging depth, provide level and grade check for drainage, and adjust pedestal upward to keep dry, provide location by address and location of pedestal vaults by GPS triangulation. All measurements are by the surveyor.

See contract drawings for City of Naperville standard.

Method of Measurement: This work will be measured per each location where a Pedestal Unit is installed.

Basis of Payment: This work shall be paid for at the contract unit price, per each for POWER PEDESTAL assembly, of the size indicated on the plans. This work includes: all conduits, fencing, bends, pumping, tunneling, tree and brush protection and /or replacement, hand digging, stone/rock removal, leveling, and associated work to install the pedestal unit at the locations shown on the drawings.

CONDUIT, BORED AND PULLED, COILABLE, NON-METALLIC CONDUIT, SPECIAL

Description: This work shall be done in accordance with Section 810 of the IDOT Standard Specifications except as herein modified. The work shall consist of installing City of Naperville furnished HDPE coilable non-,metallic conduit using Horizontal Directional Boring methods and field assembled into one (1) duct, two (2) duct, three (3) duct, four (4) duct, six (6) duct or eight (8) duct formations/ combinations of various size conduits as shown on the drawings or as directed by the Engineer. See DPU_E specification C30-1950 for construction installation instructions, specifications and drawings.

The Contractor shall be furnished solid coil able HDPE 6 inch 13.5 SDR conduit of 500 feet on 10-foot diameter steel non-returnable reels, or solid coil able HDPE 5 inch 13.5 SDR conduit of 500 feet on 10-foot diameter steel non-returnable reels or solid coil able HDPE 3 inch 13.5 SDR conduit of 1500 feet on 15-foot diameter steel non-returnable reels All conduit is shipped on steel reels. All HDPE conduits are assembled into duct sections and installed by the HDD method by the contractor. The contractor shall install and furnish couplings, fused connections, steel or PVC to HDPE connections, and tools to perform the fusion process for a complete job. The Contractor shall provide boring machines for the Horizontal Directional Boring method to fit on the Right of Way provided by the city.

The contractor shall install all HDPE conduits per city Specification C-30-1950.

The inside duct diameter size is approximately 3 inches, 5 inches or 6 inches plus or minus 10% ten percent . All duct sections shall be field assembled, cut, positioned, leveled, reamed, fillers inserted, aligned, electro-fused, connected and are to be pulled in at the same time with warning tape and are continuous. The Contractor is advised in a 3, 4 or 6 duct package that 2 Pulls are required or more. The ducts are to be joined together, glued where applicable, electro- fused, and installed with the total degree of bends (vertical and horizontal) not to exceed 235 degrees in 750 feet The smallest bore length is 20 feet and the longest bore length is 750 feet consisting of 2,3,4 or 6 duct of 3inch, 5inch or 6inch HDPE conduit of various configurations and combinations.

The contractor shall record all information as required on the forms provided in Specification C30-1950, with special interest to the duct pulling tensions, torques and depths as installed.
All 11, 22, 30, 45 and 90 degree steel bends or schedule 40 PVC bends shall be installed by the machine aided trenching method/or hand dug using prefabricated manufactured type steel bends. The use of 3-inch, 5-inch, 6-inch steel bends shall be required at all angles in the line and as directed by the Engineer.

The steel or plastic ducts and the area around the ducts (sometimes called turning pits) where bends are installed shall be supported by Redi-mix 2000 pound concrete delivered to the location to provide sufficient strength to withstand a pull of 10,000 lbs and remain serviceable Please see the specifications for the number of 3-inch, 5-inch, or 6-inch steel bends or PVC bends and duct lengths to be installed.

The Contractor shall install 3-inch, 5-inch, or 6-inch HDPE conduit under and along all street rights of way, easements or road crossings in the number, lengths and locations shown on the drawings. All splice pits, turning pits and staging areas to make connections of the conduit is included in the work. All conduit staging areas, turning pits and splice pits shall be approved by the City of

Naperville before any work is started. All conduit staging area's turning pits or splice pits shall be identified in the field with stakes, dimensioned and recorded in the surveyor's field book records after the job is awarded to the Contractor.

The Contractor shall not at any time leave the work area with conduit protruding above the surface of the ground. At equipment location sites, turning pits access pits, or splice pits the Contractor shall dig a ditch of sufficient size to push the conduit below the ground surface by sealing and make secure surface for later connection. The Contractor shall backfill and level area immediately, and remove fill later to make all connections.

No claims for extra compensation will be considered for cost incurred because of delay due to changing the location of a staging area, splice pit location, turning pit location, or obtaining approval for said work area or opening the equipment for inspection or installation. The Contractor shall minimize the inconvenience to the public when picking and staging the work.

The Contractor shall provide CA-6 backfill materials, black dirt, sod, grading, landscaping, stone/rock removal, tunneling, hand digging, install new fencing, removal of fencing, sidewalk replacement, curb and gutter replacement, tree and brush protection, arborist services, and/or replacement and dispose of all removed materials off site. The removal of spoils off the site is a major concern and the excavated materials as well as spilled drilling fluids shall be removed in the same day as the dig or the next day at the latest The Contractor shall not block pedestrian traffic or create a line of site problem with their equipment to the general public and this equipment shall be moved at the request of the City of Naperville at no cost. Hand digging is considered part of the work.

See contract drawings for City of Naperville standard sidewalk details.

Method of Measurement: The installed HDPE Duct Bank shall be measured for payment in place in feet to the neat lines in place along its center line in a straight line point to point from outside edge of Entry pit to outside edge of Exit pit or to the HDPE Duct Bank stub installed in a casing or closed trench.

Basis of Payment: This work shall be paid for at the contract unit price, per foot, for CONDUIT, BORED AND PULLED, COILABLE NONMETALLIC CONDUIT, SPECIAL of the size and configuration as specified which price shall be considered payment in full for completing this work in place by the Horizontal Directional Drilling Method (HDD).

The work is to install the HDPE duct bank to the depth and lengths and at the locations as specified in the drawings. (See C30 -1950 for HDD installation requirements.)
The work includes the excavation of the entry pit, exit pits turning pits, potholing or mechanical excavation , staging areas, trench materials, rough grading, correcting ova led pipe, connecting to new and existing duct, connecting to the new and existing manholes, pedestals, new and existing vaults, layout work of the HDPE duct bank for proper fit, alignment, line and grade, level, final profile of trench, potholing, tree protection, root pruning assembly of the HDPE ducts into HDPE duct banks of various configurations, number of ducts, size of ducts, offsite material disposal, loading and transporting the HDPE conduit from the City of Naperville storage locations, installing fusion couplings, conduit straightening, bedding, installing the HDPE conduit, installing 3", 5", 6" steel bends, connecting to HDPE conduit, connectors (material and labor to hook up to Steel-Plus concrete encasement as required,) installing transpositions, and for all labor, tools, bedding

materials, backfill materials, equipment and incidental items necessary to complete this work as specified. Conduit nominal id 6" I.D 5" ID, 3"ID of. HDPE in coilable lengths, plus 3inch, 5 inch and 6inch steel bends all supplied by the City of Naperville.

Road restoration, sidewalk restoration, curb and gutter restoration, driveway restoration, bike path restoration, concrete pavement, seeding, sodding, and traffic control shall all be paid separately.

TREE AND EVERGREEN REMOVAL, 6"to 15"

Description: This work shall be done in accordance with Section 201 of the IDOT Standard Specifications, except as herein modified. This work shall consist of the cutting, grubbing, removal and disposal of trees or evergreens at the locations shown on the plans or specified by the Engineer. No trees or evergreens shall be removed without the approval of the City of Naperville and the Engineer. Tree removal methods shall be in conformance with Article 201.04 of the Standard Specifications.

Clearing and grubbing will not be paid for separately but shall be considered as included in the utility installation required in the contract.

Contractor is advised tree removal is included in the unit pricing per foot for installing conduit by the directional boring method.

See contract drawings for City of Naperville standard.

Basis of Payment: This work shall be paid for as TREE REMOVAL, (6 TO 15 UNITS DIAMETER).

ROD AND MANDREL

Description: The Contractor shall rod, mandrel and lubricate and swab all ducts installed. The Contractor shall purchase, fabricate and furnish a 6 inch long by different diameter mandrel for each size of conduit namely; 3, 5, and 6-inch conduit, made of wood or steel, with a pulling eye on each end. The diameter of each mandrel is usually ¼ smaller than the inside diameter of the conduit being rodded and mandreled. The mandrel shall be approved by the City of Naperville. The Contractor shall use Contractor furnished mandrels to mandrel the ducts. The Company shall observe the mandrel installation.

This work includes installing nylon pulling rope or Mule tape or #12 THHN copper wires thru all the conduits Rodded and Mandreled. The Contractor shall install conduit plug and sealing mechanism by providing a hole large enough to pass the rope or tape or THHN #12 wire through. The nylon rope or mule tape or #12 copper wires shall be secured to prevent accidental removal by others. The City of Naperville shall determine which type of identification wire to install in each conduit after rod and mandrelling is completed.

The Contractor is required to install all conduit ends with seals and plugs as permanent and provide additional protection if the Contractor deems it necessary to last for a 5 year service life.

A nylon pulling rope 1/8th inch in diameter or mule tape or #12 THHN copper wires, furnished by the City of Naperville, shall be pulled through the ducts and left secured to the top of the Vault, handhole, manhole, or pedestal or structure after Rod and Mandrelling is completed. . A 12 inch tail will extend outside the enclosure to allow the locator to put a tone on the wire. The Contractor may choose to use this nylon pulling rope at his own risk with out fault of the City of Naperville to mandrel the ducts. The conduit ends shall be sealed, capped and plugged on both ends, and a tail left through the sealed ends of the conduit for others to pull cable at a latter date. The drawings shall be marked and noted that all ducts have been mandreled. The report is signed by both the City of Naperville and Contractor to verify all ducts are clear and sealed for future use. Any ducts found unclear within one year after installation will be dug up by the Contractor and cleared at no cost to the City of Naperville. However, if the blockage can be determined by the Contractor by excavating in the questioned area where the conduit is blocked and it is determined that the blockage was definitely caused by some unknown party then the cost of repairing the conduit and excavating shall be borne by the City of Naperville, but if after excavating it is not clear as to who or what caused the blockage or there is some doubt that the blockage was not caused by another party then the Contractor shall repair the conduit, close up the excavation and landscape at the Contractors cost. The City of Naperville shall make the final decision.

Method of Measurement: Each conduit of any size or type, rod and mandreled with rope or mule tape or #12 wire, is to be identified by electrical facility Identification number and is to be measured in plan view from manhole to manhole, manhole to switchgear, switchgear to switchgear, etc per linear foot of each conduit rod and mandreled with rope, mule tape or #12 wire and recorded and dated in the surveyors record book. This work shall include all labor, materials, consumables, equipment transportation and incidentals required to perform the work for a complete job. All work shall be performed in the presence of a City of Naperville inspector.

Basis of Payment : Rod and Mandrel, with rope or mule tape or #12 wire, which will be paid for at the contract unit prices per linear foot, for ROD AND MANDREL, with rope or mule tape or #12 wire in place . The contractor shall Rod and Mandrel each 3 inch conduit, 5 inch conduit and /or 6 inch conduit installed and install in each conduit rope, mule tape or #12 wire, for the entire project which shall be full compensation for all materials, labor, equipment, consumables, traffic control, cleaning out of facilities worked in , and appurtenances necessary to complete the work.

Temporary Aggregate

Description: This work shall be performed in accordance with Article 402 of the Standard Specifications except as herein modified.

Temporary Aggregate is to be used to restore the walking/riding surface of the DuPage River Trail within the construction areas or trench locations or excavations in parkway areas.

The material shall be Limestone Screenings.

The Temporary Aggregate shall be placed and compacted to a minimum of 2-inches in depth at all trench crossing locations and at any areas where the hot mix asphalt surface of the path has been removed for construction purposes. The cost of any additional excavation of material necessary to achieve the 2-inch depth of limestone screenings shall be considered as included in the cost of TEMPORARY AGGREGATE.

From time to time, the City of Naperville will require the limestone screenings to be regarded, reshaped, maintained and/or new material added to maintain the smooth riding characteristics of the path. The Contractor will be required to perform the repair and/or maintenance on the path within 24 hours of the request of the City. Any new material will be paid for at the contract unit price for TEMPORARY AGGREGATE. The cost of the maintenance or regarding shall be considered as included in the cost of TEMPORARY AGGREGATE.

Basis of Payment: This work shall be paid for at the contract unit price, per ton, for TEMPORARY AGGREGATE.

MACHINE AIDED DIGGING, 0 FT TO 5 FEET IN PAVEMENT
MACHINE AIDED DIGGING, 5 FT TO 20 FEET IN PAVEMENT
MACHINE AIDED DIGGING, 0 FT TO 5 FEET IN UNPAVED AREAS
MACHINE AIDED DIGGING, 5 FT TO 20 FEET IN UNPAVED AREAS

Description: The Contractor shall assemble the necessary equipment, bracing and shoring materials , labor, consumables, pumps, traffic control, materials, customer contacts, and labor to perform an earth excavation to the length and width and to a 5 foot or 20 foot depth and meet all federal and local regulations by machine aided digging as directed by the Engineer. The excavation shall be of sufficient size to allow 2 work force individuals to perform job duties per OSHA regulations. .

The Contractor shall saw cut, remove all existing vegetation and replace, clearing and grubbing, remove a 12 inch thick concrete or 12 inch thick Bam street base, asphalt wearing surface, tack coat, stripping, sub-base, earth excavation, removal of sod and black dirt, disposal of all materials off site and backfilling with trench backfill, street base or sod and black dirt provide a Julie, remove excavated materials off site for disposal, and backfill with clean spoils or CA6, support foreign utilities, restore area to original or better condition. CA6 to be paid separately. Solid rock removal to be paid separately. Curb and gutter to be paid separately. Sidewalk to be paid separately.

Method of Measurement: the machine aided digging excavation (A RUBBER MOUNTED COMBINATION OR BACK HOE IS required) shall be measured to the neat lines required for payment in place and calculated in feet (Length times Width times Depth in cubic yard volume) by the field measurement of neat lines. Measurement shall be considered full compensation for saw cutting, excavating, backfilling, clearing and grubbing, site protection, supporting other utilities, site preparation, shoring and bracing, pumping, storage, dewatering with hoses and pumps, steel plates, all temporary work, traffic control, flagman, removal and disposal of excavated materials off site, street removal and installation removal of landscaping and installation of landscaping, Julie locates supporting foreign utilities, line and grade, maintaining elevation and all labor tools equipment, materials, permits, and appurtenances to complete this item to the satisfaction of the Engineer. REMOVE ALL EXCAVATED MATERIAL OFF SITE AND PROVIDE DUMP TICKETS.

Basis of Payment: The work shall be paid for at the contract unit price of cubic yard for MACHINE AIDED DIGGING of the depth and area type noted on the plans, regardless of the various types and locations shown on the plans which will include all required PCC concrete, saw cutting, expansion joints, forms landscaping, material removal and disposal off site, traffic control, site protection work, materials falling into excavation shall be removed and replaced but not included in

measurement, backfill materials placed and compacted in 6 inch lifts, bituminous materials, concrete materials , dowel bars, finishing, weather protection, tack coat, compaction of sub-base and place sub-base backfill CA-6 materials all temporary work, steel plates, sub grade preparation with all materials labor and equipment and appurtenances required for a complete item.

TREE PROTECTION AND PRACTICES FOR SAVING TREES

This work shall consist of the Contractor furnishing, materials labor and equipment to maintain trees and evergreens of various species and trunk diameters.

Tree protection shall be accomplished by the erection of a Temporary Fence a minimum of 15-feet on each side of the tree, centered about the trunk. The fence shall be paid for as TEMPORARY FENCE.

The Contractor's Arborist shall carefully examine the proposed tree to be protected and develop a plan to save, protect and maintain trees during the duration of the project. The Contractor shall identify the species of tree or evergreen to be protected or saved.

Prior to protecting trees, examine the area for overhead obstructions, area constraints and tree location as with respect to installing fencing.

The Contractor shall identify if the existing tree species, or the area or some portion thereof, is diseased. The Contractor shall determine if the tree or evergreen is a safety concern prior to performing any work and determine if the protecting should proceed. Contractor shall undertake any pruning required to remove poorly- positioned or damaged limbs from the existing trees in the area to allow the protection and saving of the trees. If in the Opinion of the Arborist the tree or evergreen is not able to be protected or saved in place then the tree shall be removed, paid for by separate item.

Contractor shall examine the tree's habitat requirements. For example: wind protection: time of year, soil pH, sunlight, and drainage and moisture requirements. The protection scheme for the tree or evergreen shall not interfere with any growth requirements of the trees or evergreens.

The Contractor shall get approval for tree protection from the City of Naperville prior to protecting or saving method is started.

The Contractor shall maintain all activities within the easements or public ways any and all other means to perform the work is at the Contractors expense and shall obtain written permission from all land Owners to use their property.

The Contractor under the direction of an Arborist shall prepare the site for the tree protecting and saving, Julie area, remove excavated materials and waste off site, furnish materials for protecting and saving, add black pulverized dirt, grade, trim, spray , fertilize, water, trim, add mulch, stake and support as necessary, provide drainage.

See contract drawings for City of Naperville standard.

Basis of Payment: This work shall not be paid for separately but shall be considered as included with the cost of electrical work.

ELECTRIC DUCT BANK MATERIALS SUPPLIED BY THE CITY OF NAPERVILLE

Item Description	Part No.	HTE Code	Qty.	Unit
Transformer Vault Single Phase Fiber	284-101-00020	DEVTC	7	Each
Transformer Vault Extender	284-100-00120	DEVTE	3	Each
Transformer Vault 3 Phase Concrete (UCP)	28410200120	DEVT 1000C	n/a	Each
Manhole Type "A" PRECAST UCP	284-103-00140	DEMA	8	Each
Manhole Type "E" PRECAST UCP	284-103-00160	DEME	1	Each
Manhole Type "G" PRECAST UCP	284-103-00170	DEMG	8	Each
Manhole Type "X" PRECAST UCP		DEMX	n/a	Each
Vault, Switchgear, 74"x76" Fibercrete	284-101-00010	DEVA	5	Each
Transformer Vault Three Phase Concrete	284-102-00110	DEVT1500C	n/a	Each
Pedestal Wide Base up right	284-105-00010	UPA	3	Each
Conduit 3" Dia Schedule 40 PVC Pipe	285-100-00040	D3C	5420	Feet
Conduit 6" Dia Schedule 40 PVC Pipe	285-100-00070	D6C	45085	Feet
Conduit 5" Dia Schedule 40 PVC Pipe	285-100-00060	D5C	40	Feet
Elbow 6" Steel 48" Radius, 90°	285-101-00210	D6B90S	58	Each
Elbow 6" Steel 48" Radius, 45°	285-101-00200	D6B45S	46	Each
Elbow 6" Steel 48" Radius, 22°	285-101-00188	D6B22S	112	Each
Elbow 6" Steel 48" Radius, 30	285-101-00190	D6B30S	72	Each
Elbow 6" Steel 48" Radius, 11°	285-101-00186	D6B11S	92	Each
Elbow 5" Steel 36" Radius, 90°	285-101-00100	D5B90S	n/a	Each
Elbow 5" Steel 36" Radius, 30°	285-101-00080	D5B30S	4	Each
Elbow 3" Sch. 40 PVC 36" Radius, 90°	285-100-00040	D3B90P	39	Each
Coupling Sleeve 6" PVC Long Line	285-102-00130	D6V	92	Each
Coupling 6" Long Line Schedule 40 PVC	285-102-00140	D6L	380	Each
Coupling 6" Schedule 40 PVC 5°	285-102-00150	D6L5	86	Each
Coupling Sleeve 5" PVC Long Line	285-102-00070	D5V	n/a	Each
Coupling 5" Long Line Schedule 40 PVC	285-102-00080	D5L	n/a	Each
Coupling 5" Schedule 40 PVC 5°	285-102-00120	D5L5	n/a	Each
Coupling Sleeve 3" PVC Long Line	285-102-00030	D3V	18	Each
Coupling 3" Long Line Schedule 40 PVC	285-102-00065	D3L	39	Each
Coupling 3" Schedule 40 PVC 5°	285-102-00040	D3L5	22	Each
Bell Fitting PVC 6" Schedule 40	285-103-00040	D6F	32	Each
Bell Fitting PVC 5" Schedule 40	285-103-00080	D5F	4	Each
Bell Fitting PVC 3" Schedule 40	285-103-00040	D3F	81	Each
Plug, PVC 6" with Pull Tab	285-103-00030	D6P	66	Each
Plug, PVC 5" with Pull Tab	285-103-00070	D5P	8	Each
Plug, PVC 3" with Pull Tab	285-103-00030	D3P	85	Each
Cement PVC Quarts with Brush 24hr Dry Summer	285-199-00090	DMG	96	Each

Spacer, Base PVC, 6"	285-199-00170	D6R	4282	Each
Spacer, Intermediate PVC 6"	285-199-00180	D6R1	8348	Each
Handhole 4'x8' (Fibercrete)/1000	284-104-00030	DEH8	n/a	Each
Handhole 4'x6' (Fibercrete)/4/0	284-104-00020	DEH6	1	Each

Handhole 3'x5' (Fibercrete)/1/0	284-104-00010	DEH5	2	Each
Stud Driving for End of Ground Rod	283 156 00050	UGDRS	15	Each
Strap 6" Conduit (Riser)	285 199 00050	DRC6	2	Each
Strap. EMT ½"	285-199-00200	DEMG	n/a	Each
Conduit, Sch 80 PVC 6"	285 100 00075	DRC6	n/a	Each
Bracket, Pole 3"	285 199 00005	DRC6	1	Each
Chanel, 12"	285 199 00070	DRC6	1	Each
Marker Power Ball Red	284-199-00250	n/a	5	Each
Grounding #2 solid Copper (500 ft / reel)	280-107-00020	UGMH	100	Feet
Grounding 4/0 Stranded Bare Copper/19 strand (500 ft / reel)	280-107-00070	UGMH	3400	Feet
Grounding Rod Copper Clad 5/8"X10'	283-156-00010	UGMH	30	Each
5 Ft ground Rod Copper Clad 5/8" (manholes)	283-156-00030	UGMH	72	Each
Ground Rod Coupling Bronze 5/8" rod	283-156-00040	UGMH	36	Each
Clamp, Cable to Flat Ground	284-199-00184		n/a	Each
Tape Caution Cable (10 Foot Lengths)	284-199-00270	DOT	1800	Each
Elbow PVC 30 Deg 3"	285-101-00025	D3B30P	85	Each
Elbow PVC 45 Deg 3"	285-101-00030	D3B45P	4	Each
Extender Air Switch Vault Fiber	284-101-00100	DEVAE	3	Each
Ground Rod Copper Clad 5/8"	283-156-00010	UGT1	n/a	Each
Copper Bare #4 7 Strand (500 ft /reel)	280-107-00050	UGT3	500	FT
Mule Tape 1250 # (3000Ft on a reel)	450-024-00010		6	Reel
#12 THHN Copper Wire	280-113-00044	TEDOTW	6000	FT
Lag Shield Lead Short	284-199-00460	n/a	n/a	Each
Lag Screw SS	284-199-00470	n/a	n/a	Each
Connector Wedge #4 str to 5/8 Rod	286-100-00320	UGMH	59	Each
Shell Wedge Amp (White)	286-101-00010	UGMH	n/a	Each
Shell Wedge Amp (Blue)	286-101-00010	UGMH	n/a	Each
Break – Away #4 str to #4 str.	286-199-00010	UGMH	n/a	Each
Break Away for Grounding	286-199-00220	UGS	n/a	Each
Frame and Cover for Manholes type "B"	284-103-00050	DEML	39	Each
12" Ring for Manhole	284-103-00100	DEMR	6	Each
6" Ring for Manhole	284-103-00090	DEMR6	6	Each
2" Ring for Manhole	284-103-00070	DEMR2	6	Each
Butyl Mastic	892-370-00004		52	Roll

Duct Polyethylene 3" coilable on a reel	285-100-00030		1100	Feet
Duct Polyethylene 6" coilable on a reel	285-100-00072		2980	Feet
Bracket Pole 3" stand off	285-199-00005	DRC	1	Each
Strap, 6" conduit with bolts washers	285-199-00005	DRC	2	Each
Channel 24" 4 way T- Slot	285-199-00080	DRC	1	Each
Connector Wedge cu 4/4 to 4/0	286-100-00260	UGMH	38	Each

GENERAL ELECTRICAL REQUIREMENTS (LIGHTING)

Effective: January 1, 2007

Add the following to Article 801 of the Standard Specifications:

"Maintenance transfer and Preconstruction Inspection:

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance transfer and preconstruction site inspection, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting and/or traffic control systems which may be affected by the work. The request for the maintenance transfer and preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

Establish the procedures for formal transfer of maintenance responsibility required for the construction period.

Establish the approximate location and operating condition of lighting and/or traffic control systems which may be affected by the work

Marking of Existing Cable Systems. The party responsible for maintenance of any existing lighting and/or traffic control systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the State. A project may involve multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 304.8 mm (one (1) foot) to either side.. The request for the cable locations and marking shall be made at the same time the request for the maintenance transfer and preconstruction inspection is made. The Contractor shall exercise extreme caution where existing buried cable runs are involved. The markings of existing systems are made strictly for assistance to the Contractor and this does not relieve the Contractor of responsibility for the repair or replacement of any cable run damaged in the course of his work, as specified elsewhere herein. Note that the contractor shall be entitled to only one request for location marking of existing systems and that multiple requests may only be honored at the contractor's expense. No locates will be made after maintenance is transferred, unless it is at the contractor's expense.

Condition of Existing Systems. The Contractor shall conduct an inventory of all existing electrical system equipment within the project limits, which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. Megger and load readings shall be taken for all

existing circuits which will remain in place or be modified. If a circuit is to be taken out in its entirety, then readings do not have to be taken. The inventory and test data shall be reviewed with and approved by the Engineer and a record of the inventory shall be submitted to the Engineer for the record. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition."

Revise the 6th paragraph of Article 801.05(a) of the Standard Specifications to read:

"Resubmittals. All submitted items reviewed and marked 'APPROVED AS NOTED', or 'DISAPPROVED' are to be resubmitted in their entirety with a disposition of previous comments to verify contract compliance at no additional cost to the state unless otherwise indicated within the submittal comments."

Revise Article 801.11(a) of the Standard Specifications to read:

"Lighting Operation and Maintenance Responsibility. The scope of work shall include the assumption of responsibility for the continuing operation and maintenance the of existing, proposed, temporary, sign and navigation lighting, or other lighting systems and all appurtenances affected by the work as specified elsewhere herein. Maintenance of lighting systems will be paid for separately"

Add the following to Section 801.11(a) of the Standard Specifications:

"Energy and Demand Charges. The payment of basic energy and demand charges by the electric utility for existing lighting which remains in service will continue as a responsibility of the Owner, unless otherwise indicated. Unless otherwise indicated or required by the Engineer duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously at the Owner's expense and lighting systems shall not be kept in operation during long daytime periods at the Owner's expense. Upon written authorization from the Engineer to place a proposed new lighting system in service, whether the system has passed final acceptance or not, (such as to allow temporary lighting to be removed), the Owner will accept responsibility for energy and demand charges for such lighting, effective the date of authorization. All other energy and demand payments to the utility shall be the responsibility of the Contractor until final acceptance."

Add the following to Section 801 of the Standard Specifications:

"Lighting Cable Identification. Each wire installed shall be identified with its complete circuit number at each termination, splice, junction box or other location where the wire is accessible."

"Lighting Cable Fuse Installation. Standard fuse holders shall be used on non-frangible (non-breakaway) light pole installations and quick-disconnect fuse holders shall be used on frangible (breakaway) light pole installations. Wires shall be carefully stripped only as far as needed for connection to the device. Over-stripping shall be avoided. An oxide inhibiting lubricant shall be applied to the wire for minimum connection resistance before the terminals are crimped-on. Crimping shall be performed in accordance with the fuse holder manufacturer's recommendations. The exposed metal connecting portion of the assembly shall be taped with two half-lapped wraps of electrical tape and then covered by the specified insulating boot. The fuse holder shall be installed such that the fuse side is connected to the pole wire (load side) and the receptacle side of the holder is connected to the line side."

Revise the 2nd and 3rd sentences of the second paragraph of Article 801.02 of the Standard Specifications to read:

"Unless otherwise indicated, materials and equipment shall bear the UL label, or an approved equivalent, whenever such labeling is available for the type of material or equipment being furnished."

ELECTRIC UTILITY SERVICE CONNECTION

Effective~ January 1, 2002

Description. This item shall consist of payment for work performed by the Electric Utility Company in providing or modifying electric service as indicated. THIS MAY INVOLVE WORK AT MORE THAN ONE ELECTRIC SERVICE.

CONSTRUCTION REQUIREMENTS

General. It shall be the Contractor's responsibility to contact the utility. The Contractor shall coordinate his work fully with the electric utility both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement.

The Contractor should make particular note of the need for the earliest attention to arrangements with the utility for service. In the event of delay by the utility, no extension of time will be considered applicable for the delay unless the Contractor can produce written evidence of a request for electric service within 30 days of execution of the Contract.

Method Of Payment. The Contractor will be reimbursed to the exact amount of money as billed by the Electric Utility Company for its services. Work provided by the Contractor for electric service will be paid separately as described under ELECTRIC SERVICE INSTALLATION. No extra compensation shall be paid to the Contractor for any incidental materials and labor required to fulfill the requirements as shown on the plans and specified herein.

For bidding purposes, this item shall be estimated as $6,000.00.

Basis Of Payment. This work will be paid for at the contract lump sum price for **ELECTRIC UTILITY SERVICE CONNECTION** which shall be reimbursement in full for electric utility service charges.

GROUND ROD

Effective: January 1, 2007

Description. This item shall consist of furnishing, installing and connecting ground rods for the grounding of service neutral conductors and for supplementing the equipment grounding system via connection at poles or other equipment throughout the system. All materials and work shall be in accordance with Article 250 of the NEC.

Materials. Materials shall be according to the following Articles of Section 1000 - Materials

Item	Article/Section
(a) Grounding Electrodes	1087.01(b)
(b) Grounding Electrode Conductors	1087.01(a)
(c) Access Well	1087.01(c)

CONSTRUCTION REQUIREMENTS

General. All connections to ground rods, structural steel or fencing shall be made with exothermic welds. Where such connections are made to insulated conductors, the connection shall be wrapped with at least 4 layers of electrical tape extended 152.4 mm (six inches) onto the conductor insulation.

Ground rods shall be driven so that the tops of the rod are 609.6 mm (24 inches) below finished grade. Where indicated, ground wells shall be included to permit access to the rod connections.

Where indicated, ground rods shall be installed through concrete foundations.

Where ground conditions, such as rock, preclude the installation of the ground rod, the ground rod may be deleted with the approval of the Engineer.

Where a ground field of "made" electrodes is provided, such as at control cabinets, the exact locations of the rods shall be documented by dimensioned drawings as part of the Record Drawings.

Ground rod connection shall be made by exothermic welds. Ground wire for connection to foundation steel or as otherwise indicated shall be stranded uncoated bare copper in accordance the applicable requirements of ASTM Designation B-3 and ASTM Designation B-8 and shall be included in this item. Unless otherwise indicated, the wire shall not be less than No. 2 AWG.

Where connections are made to epoxy coated reinforcing steel, the epoxy coating shall be sufficiently removed to facilitate the exothermic weld.

Method Of Measurement. Ground rods shall be counted, each. Ground wires and connection of ground rods at poles shall be included in this pay item.

Basis Of Payment. This item shall be paid at the contract unit price each for **GROUND ROD**, of the diameter and length indicated which shall be payment in full for the material and work described herein.

ELECTRIC CABLE IN CONDUIT, GROUNDING

Description. This item shall consist of furnishing, installing in conduit and connecting grounding conductors. All materials and work shall be in accordance with Article 250 of the NEC.

Materials. Materials shall be according to the following Articles of Section 1000 - Materials

Item	Article/Section
(b) Grounding Electrode Conductors	1087.01(a)

Electric Cable in Conduit, Grounding, shall be insulated with green XLP insulation rated not less than 600 V AC. Conductors larger than 2 AWG may have black insulation with green marking tape, 3M Scotch 35 or approved equal, applied in 5 or more circular wraps at each termination such that it is readily visible outside of the splices and entries to conduit.

CONSTRUCTION REQUIREMENTS

Installation. Installation shall conform to Article 817.03 of the standard specifications.

Method Of Measurement. Installation shall conform to Article 817.04 of the standard specifications.

Basis Of Payment. Installation shall conform to Article 817.05 of the standard specifications.

DIRECTIONAL BORING

It shall be the Contractor's option to install electrical lighting system conduit using an electronically guided and controlled boring machine to installed underground conduit in lieu of open trenching. The availability of the directional boring option under this contract does not constitute any indication on the part of the Department that any or all of underground conduit installation work included in this contract is suitable for installation by directional boring. It shall be the Contractor's responsibility to ensure that the directional boring method of underground of underground conduit installation is an appropriate means and method for such installation where the Contractor may choose to use it.

Materials
The materials used for the conduit or unit duct shall comply with the materials specifications contained elsewhere in these special provisions and the *Standard Specifications.*

Installation
The conduit or unit duct shall be installed using methods in full compliance with these special provisions and the *Standard Specifications* and the written instructions of the directional boring machine manufacturer. Knowledge of the location of underground utilities and structures is a prerequisite to performing directional boring; by performing any directional boring the Contractor confirms that they have acquired such knowledge and shall be able to perform directional boring without impacting the underground utilities and structures.

Method of Measurement
Conduit or unit duct installed by directional boring shall be measured as the equivalent length of conduit or installed by conventional methods of trench and backfill for electrical work with conduit in trench or pushed conduit, as shown on the plans.

Basis of Payment
This work will be paid for under the separate pushed conduit pay item, or the combined trench and backfill for electrical work and conduit in trench and conductors pay items as shown on the plans and included in the contract pay items.

LIGHTING CONTROLLER, SPECIAL

Description

This work shall consist of providing a ground-mounted lighting controller with City of Naperville Public Utilities – Electric approved service entrance, main circuit breaker, photocell-controlled lighting contactor, and load circuit breakers for each load circuit.

Materials

The materials used to construct the lighting controller, special shall conform to those specified in Article 1020 and Article 1068.01 of the *Standard Specifications,* as amended by Section 616 of the Naperville Standard Specification, which follows this special provision.

Installation

The Contractor shall construct a concrete foundation as shown in the plans. The electrical service to the lighting controller shall not enter the lighting controller through the controller foundation but through a separate rigid galvanized steel conduit. A minimum of four load circuit conduit sleeves shall be installed in the foundation, along with a separate sleeve for the grounding electrode conductor. This foundation shall be included in the lighting controller and not paid for separately. A concrete service pad shall be constructed on the door side of the controller if it is not adjacent to a sidewalk or other paved surface. The service pad shall be not less than 3 foot square and 5 inches thick. The side facing the controller shall not be less than the width of the controller foundation. The service pad shall be included the cost of the lighting controller and not paid for separately.

The lighting controller shall be grounded through a single ground rod, paid for separately, to which a grounding electrode conductor of not less than 6 AWG bare stranded copper cable shall be exothermically welded. The grounding electrode conductor shall be included in the lighting controller, special, and not paid for separately. The ground rod shall be driven not less than 12 inches below adjacent grade, and not embedded in the lighting controller foundation.

The lighting controller shall be installed in accordance with Article 825.03 of the standard specifications.

Method of Measurement

This work will be measured per each LIGHTING CONTROLLER, SPECIAL provided and proven to be operating properly as part of an operational lighting system. The photocell and electrical cable between the photocell and the lighting controller shall be measured and paid for separately.

Basis of Payment

This work will be paid for at the contract unit price per each for LIGHTING CONTROLLER, SPECIAL.

LIGHTING CONTROLLER PHOTOCELL RELAY

Description

This work shall consist of providing a photocell relay and pole-top socket for mounting on the top of a light pole adjacent to the lighting controller, special as described herein.

Materials

The photocell shall conform to Article 1068.01(e)(2) of the *Standard Specifications.* The socket shall be contained in a mounting cap made of the same material as the light pole on which it is to be installed and shall mount to the pole top in lieu of the pole top cap.

Installation

The Contractor shall install the photocell and pole top socket on the top of the light pole closest to the lighting controller or as directed by the engineer. The photocell shall be aimed to geographic north or as required to obtain consistent dusk-to-dawn operation of the controlled lighting system. The Contractor shall re-aim the photocell as often as required to obtain such consistent operation.

Method of Measurement

This work will be measured per each location where a LIGHTING CONTROLLER PHOTOCELL RELAY is provided and proven to be properly aimed on an operational lighting system. The electrical cable between the photocell and the lighting controller shall be measured and paid for separately.

Basis of Payment

This work will be paid for at the contract unit price per each of LIGHTING CONTROLLER PHOTOCELL RELAY. This includes all labor, materials, tools, and equipment to perform the work identified herein.

LUMINAIRE
Effective: January 1, 2007

Add the following to first paragraph of Article 1067(c) of the Standard Specifications:

"The reflector shall not be altered by paint or other opaque coatings which would cover or coat the reflecting surface. Control of the light distribution by any method other than the reflecting material and the aforementioned clear protective coating that will alter the reflective properties of the reflecting surface is unacceptable"

Add the following to Article 1067(e) of the Standard Specifications:

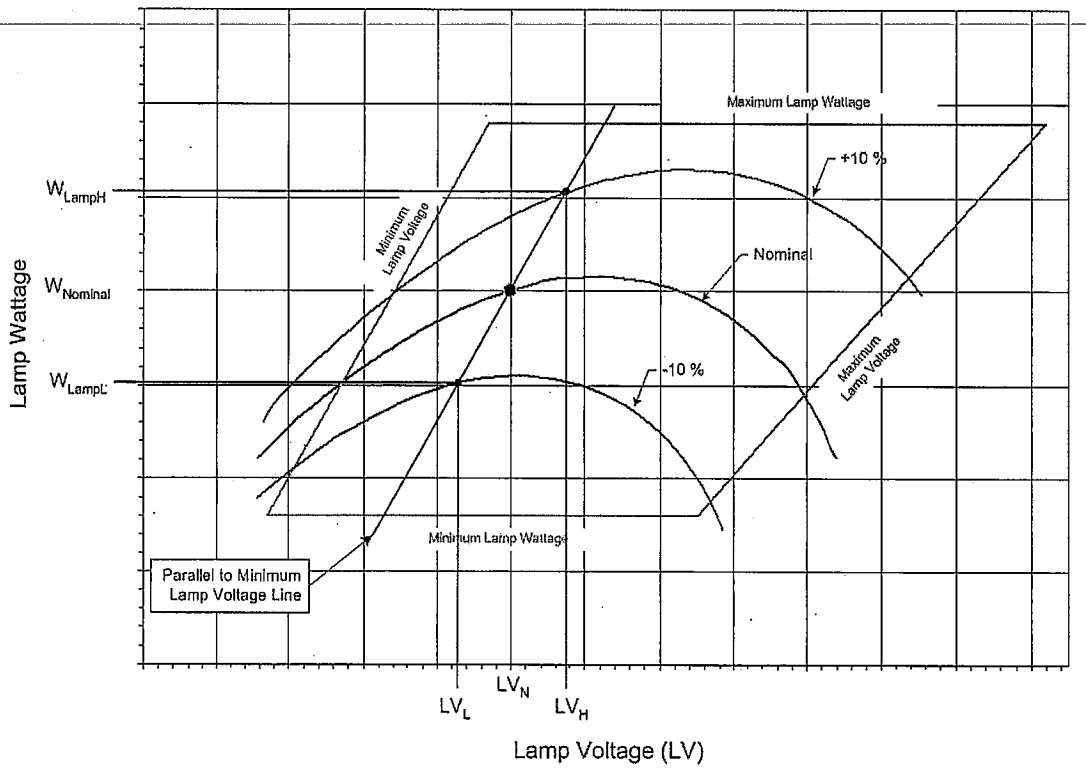
"The ballast shall be a High Pressure Sodium, high power factor, constant wattage auto-regulator, lead type (CWA) for operation on a nominal 240 volt system."

Revise Article 1067(e)(1) of the Standard Specifications to read:

"The high pressure sodium, auto-regulator, lead type (CWA) ballast shall be designed to ANSI Standards and shall be designed and rated for operation on a nominal 240 volt system. The ballast shall provide positive lamp ignition at the input voltage of 216 volts. It shall operate the lamp over a range of input voltages from 216 to 264 volts without damage to the ballast. It shall provide lamp operation within lamp specifications for rated lamp life at input design voltage range. Operating characteristics shall produce output regulation not exceeding the following values:

Nominal Ballast Wattage	Maximum Ballast Regulation
750	25%
400	26%
310	26%
250	26%
150	24%
70	18%

For this measure, regulation shall be defined as the ratio of the lamp watt difference between the upper and lower operating curves to the nominal lamp watts; with the lamp watt difference taken within the ANSI trapezoid at the nominal lamp operating voltage point parallel to the minimum lamp volt line:



$$\text{Ballast Regulation} = \frac{W_{LampH} - W_{LampL}}{W_{LampN}} \times 100$$

where:
W_{LampH} = lamp watts at +10% line voltage when Lamp voltage = LV_H
W_{LampL} = lamp watts at - 10% line voltage when lamp voltage = LV_L
W_{lampN} = lamp watts at nominal lamp operating voltage = LV_N

Wattage	Nominal Lamp Voltage, LV_N	LV_L	LV_H
750	120v	115v	125v
400	100v	95v	105v
310	100v	95v	105v
250	100v	95v	105v
150	55v	50v	60v
70	52v	47v	57v

Ballast losses, based on cold bench tests, shall not exceed the following values:

Nominal Ballast Wattage	Maximum Ballast Losses
750	14.0%
400	17.0%
310	19.0%
250	19.0%
150	26.0%
70	34.0%

Ballast losses shall be calculated based on input watts and lamp watts at nominal system voltage as indicated in the following equation:

$$\text{Ballast Losses} = \frac{W_{Line} - W_{Lamp}}{W_{Lamp}} \times 100$$

where:
W_{line} = line watts at nominal system voltage
W_{lamp} = lamp watts at nominal system voltage

Ballast output to lamp. At nominal system voltage and nominal lamp voltage, the ballast shall deliver lamp wattage with the variation specified in the following table. Example: *For a 400w luminaire, the ballast shall deliver 400 watts ±2.5% at a lamp voltage of 100v for the nominal system voltage of 240v which is the range of 390w to 410w.*

Nominal Ballast Wattage	Output to lamp variation
750	± 2.0%
400	± 2.5%
310	± 2.5%
250	± 4.0%
150	± 4.0%
70	± 4.0%

Ballast output over lamp life. Over the life of the lamp the ballast shall produce average output wattage of the nominal lamp rating as specified in the following table. Lamp wattage readings shall be taken at 5-volt increments throughout the ballast trapezoid. Reading shall begin at the lamp voltage (L_V) specified in the table and continue at 5 volt increments until the right side of the trapezoid is reached. The lamp wattage values shall then be averaged and shall be within the specified value of the nominal ballast rating. Submittal documents shall include a tabulation of the lamp wattage vs. lamp voltage readings. Example: *For a 400w luminaire, the averaged lamp wattage reading shall not exceed the range of ±3% which is 388 to 412 watts*"

Nominal Ballast Wattage	LV Readings begin at	Maximum Wattage Variation
750	110v	± 3%
400	90v	± 3%
310	90v	± 3%
250	90v	± 4%
150	50v	± 4%
70	45v	± 5%

Add the following to Article 1067(f) of the Standard Specifications:

"Independent Testing. Independent testing of luminaires shall be required whenever the quantity of luminaires of a given wattage and distribution, as indicated on the plans, is 50 or more. For each luminaire type to be so tested, one luminaire plus one luminaire for each 50 luminaires shall be tested. Example: *A plan quantity of 75 luminaires would dictate that 2 to be tested; 135 luminaires would dictate that three be tested.*" If the luminaire performance table is missing from the contract documents, the luminaire(s) shall be tested and the test results shall be evaluated against the manufacturer's published data. The test luminaire(s) results shall be equal to or better than the published data. If the test results indicated performance not meeting the published data, the test luminaire will be designated as failed and corrective action as described herein shall be performed.

The Contractor shall be responsible for all costs associated with the specified testing, including but not limited to shipping, travel and lodging costs as well as the costs of the tests themselves, all as part of the bid unit price for this item. Travel, lodging and other associated costs for travel by the Engineer shall be direct-billed to or shall be pre-paid by the Contractor, requiring no direct reimbursement to the Engineer or the independent witness, as applicable"

The Contractor shall select one of the following options for the required testing with the Engineer's approval:

a. Engineer Factory Selection for Independent Lab: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. The Contractor shall propose an independent test laboratory for approval by the Engineer. The selected luminaires shall be marked by the Engineer and shipped to the independent laboratory for tests.

b. Engineer Witness of Independent Lab Test: The Contractor may select this option if the independent testing laboratory is within the state of Illinois. The Engineer shall select, from the project luminaires at the

manufacturer's facility or at the Contractor's storage facility, luminaires for testing by the independent laboratory.

c. Independent Witness of Manufacturer Testing: The independent witness shall select from the project luminaires at the manufacturers facility or at the Contractor's storage facility, the luminaires for testing. The Contractor shall propose a qualified independent agent, familiar with the luminaire requirements and test procedures, for approval by the Engineer, to witness the required tests as performed by the luminaire manufacturer.

The independent witness shall as a minimum meet the following requirements:

- Have been involved with roadway lighting design for at least 15 years.
- Not have been the employee of a luminaire or ballast manufacturer within the last 5 years.
- Not associated in any way (plan preparation, construction or supply) with the particular project being tested.
- Be a member of IESNA in good standing.
- Provide a list of professional references.

This list is not an all inclusive list and the Engineer will make the final determination as to the acceptability of the proposed independent witness.

d. Engineer Factory Selection and Witness of Manufacturer Testing: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. At the Manufacturer's facility, the Engineer shall select the luminaires to be tested and shall be present during the testing process. The Contractor shall schedule travel by the Engineer to and from the Manufacturer's laboratory to witness the performance of the required tests."

Add the following to Article 1067.02(a)(1) of the Standard Specifications:

"The beam of maximum candlepower for luminaires specified or shown to have a 'medium' distribution shall be at 70 degrees from the horizontal ± 2.5 degrees. Submittal information shall identify the angle."

Revise Article 1067.06(a)(1) of the Standard Specifications to read:

"The lamps shall be of the clear type and shall have a color of 1900° to 2200° Kelvin."

Revise Article 1067.06(a)(4) of the Standard Specifications to read:

Lamp Wattage	Initial Lumens	Mean Lumens	Rated Life (Hours)	Lamp Voltage
50	4,000	3,600	24,000	52
70	6,300	5,450	24,000	52
100	9,400	8,000	24,000	55
150	15,800	13,800	24,000	55
200	21,400	19,260	24,000	100
250	27,000	24,300	24,000	100
310	37,000	33,300	24,000	100
400	50,000	45,000	24,000	100
750	105,000	94,500	24,000	120

Add the following table(s) to Article 1067 of the Standard Specifications:

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width	60 ft (10 ft median)
	Number of Lanes	4
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	40 (ft)
	Mast Arm Length	10 (ft)
	Pole Set-Back From Edge of Pavement	10 (ft)
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	51,000
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.70
LAYOUT DATA	Spacing	200 (ft)
	Configuration	Opposite
	Luminaire Overhang over edge of pavement	0 (ft)

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS		
ILLUMINATION	Ave. Horizontal Illumination, E_{AVE}	15.0 Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3.0 (Max)
LUMINANCE	Average Luminance, L_{AVE}	1.3 Cd/m^2
	Uniformity Ratio, L_{AVE}/L_{MIN}	3.0 (Max)
	Uniformity Ratio, L_{MAX}/L_{MIN}	5.0 (Max)
	Veiling Luminance Ratio, L_V/L_{AVE}	0.2 (Max)

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

LUMINAIRE, PEDESTRIAN TUNNEL/UNDER-BRIDGE, SURFACE MOUNT, 50 WATT, HIGH PRESSURE SODIUM VAPOR

Description
This work shall consist of furnishing and installing a surface mounted pedestrian tunnel luminaire as described herein.

Materials
Luminaires shall be Kenall Deco Pro II luminaires with 75 watt quartz restrike system and both high pressure sodium and quartz lamps, catalog number DP1212-C-N/A-50S-1-120-FS-QR-SA-C0796. No substitutions permitted. All mounting hardware shall be stainless steel.

Installation
Luminaire, pedestrian tunnel, shall be installed in compliance with Section 821 of the *Standard Specifications* and as specified below.

The Contractor shall install luminaires in the positions shown on the plans or as otherwise directed by the Engineer. Fasteners shall be attached to inserts pre-installed in the tunnel or abutment wall concrete during manufacture or with epoxy set stainless steel anchors in pre-drilled holes. Expansion anchors or explosive-driven anchors shall not be used. Luminaire surface adapter shall be sealed at all edges where it meets the tunnel concrete with silicone adhesive caulk.

Method of Measurement
This work will be measured per each LUMINAIRE, PEDESTRIAN TUNNEL, SURFACE MOUNT, 50 WATT, HIGH PRESSURE SODIUM VAPOR furnished and installed..

Basis of Payment
This work will be paid for at the contract unit price per each of LUMINAIRE, PEDESTRIAN TUNNEL, SURFACE MOUNT, 50 WATT, HIGH PRESSURE SODIUM VAPOR. This includes all labor, materials, tools, and equipment to perform the work identified herein.

MAINTENANCE OF LIGHTING SYSTEMS

Effective: January 1, 2007

Replace Article 801.11 and 801.12 of the Standard Specifications with the following:

Effective the date the Contractor's activities (electrical or otherwise) at the job site begin, the Contractor shall be responsible for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by the work until final acceptance or as otherwise determined by the Engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. The request for the maintenance preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained.

Maintenance of Existing Lighting Systems

Existing lighting systems. Existing lighting systems shall be defined as any lighting system or part of a lighting system in service prior to this contract. The contract drawings indicate the general extent of any existing lighting, but whether indicated or not, it remains the Contractor's responsibility to ascertain the extent of effort required for compliance with these specifications and failure to do so will not be justification for extra payment or reduced responsibilities.

Extent of Maintenance.

Partial Maintenance. Unless otherwise indicated, if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work, the Contractor needs only to maintain the affected circuits. The affected circuits shall be isolated by means of in-line waterproof fuse holders as specified elsewhere and as approved by the Engineer.

Full Maintenance. If the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work, the Contractor shall maintain the entire controller and all associated circuits.

Maintenance of Proposed Lighting Systems

Proposed Lighting Systems. Proposed lighting systems shall be defined as any lighting system or part of a lighting system which is to be constructed under this contract.

The Contractor shall be fully responsible for maintenance of all items installed under this contract. Maintenance shall include, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, Contractor operations, or other means. The potential cost of replacing or repairing any malfunctioning or damaged equipment shall be included in the bid price of this item and will not be paid for separately.

Lighting System Maintenance Operations

The Contractor's responsibility shall include all applicable responsibilities of the Electrical Maintenance Contract, State of Illinois, Department of Transportation, Division of Highways, District One. These responsibilities shall include the maintenance of lighting units (including sign lighting), cable runs and lighting controls. In the case of a pole knockdown or sign light damage caused by normal vehicular traffic, the Contractor shall promptly clear the lighting unit and circuit discontinuity and restore the system to service.

Responsibilities shall also include weekly night-time patrol of the lighting system, with patrol reports filed immediately with the Engineer and with deficiencies corrected within 24 hours of the patrol. Patrol reports shall be presented on standard forms as designated by the Engineer. Uncorrected deficiencies may be designated by the Engineer as necessitating emergency repairs as described elsewhere herein.

The following chart lists the maximum response, service restoration, and permanent repair time the Contractor will be allowed to perform corrective action on specific lighting system equipment.

INCIDENT OR PROBLEM	SERVICE RESPONSE TIME	SERVICE RESTORATION TIME	PERMANENT REPAIR TIME
Control cabinet out	1 hour	4 hours	7 Calendar days
Hanging mast arm	1 hour to clear	na	7 Calendar days
Radio problem	1 hour	4 hours	7 Calendar days
Motorist caused damage or leaning light pole 10 degrees or more	1 hour to clear	4 hours	7 Calendar days
Circuit out – Needs to reset breaker	1 hour	4 hours	na
Circuit out – Cable trouble	1 hour	24 hours	21 Calendar days
Outage of 3 or more successive lights	1 hour	4 hours	na
Outage of 75% of lights on one tower	1 hour	4 hours	na
Outage of light nearest RR crossing approach, Islands and gores	1 hour	4 hours	na
Outage (single or multiple) found on night outage survey or reported to EMC	na	na	7 Calendar days
Navigation light outage	na	na	24 hours

- **Service Response Time** -- amount of time from the initial notification to the Contractor until a patrolman physically arrives at the location.

- **Service Restoration Time** – amount of time from the initial notification to the Contractor until the time the system is fully operational again (In cases of motorist caused damage the undamaged portions of the system are operational.)

- **Permanent Repair Time** – amount of time from initial notification to the Contractor until the time permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from the

cost of the Contract. Repeated failures and/or a gross failure of maintenance shall result in the State's Electrical Maintenance Contractor being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

Damage caused by the Contractor's operations shall be repaired at no additional cost to the Contract.

Operation of Lighting

The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Lighting systems shall not be kept in operation during long daytime periods. The contractor shall demonstrate to the satisfaction of the Engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request.

Basis of Payment. Maintenance of lighting systems shall be paid for at the contract unit price per calendar month or fraction thereof for **MAINTENANCE OF LIGHTING SYSTEM**, which shall include all work as described herein.

REMOVAL OF EXISTING LIGHTING UNIT, SALVAGE

Description
This work shall consist of removing an existing lighting unit, and providing proper salvage and disposal of the lighting unit components as described herein.

Materials
Luminaires boxes and packing material shall be designed for the protection of cobra-head luminaires. The boxes from new luminaires installed in this project shall be acceptable as long as they have been maintained in good condition and clearly marked to reflect the actual contents and obscure the original contents identification.

Installation
The Contractor shall remove existing lighting units including any integral foundation where shown on the plans. The Contractor shall remove the luminaires from the poles and retain the lamp, all mounting hardware, electrical connectors, and photocell or other accessories included found with the luminaire. The luminaire shall be packed in a box with such hardware and accessories and the box labeled with the luminaire manufacturer, model, wattage and lamp type, and the IDOT contract number under which it was removed clearly marked on the box in lettering not less than ½ " tall in waterproof ink. Luminaires shall be delivered to a location within the City of Naperville as directed by the Engineer. The Contractor shall obtain a receipt confirming delivery of the luminaires. Aluminum light poles shall be similarly delivered to a location within the City of Naperville as directed by the Engineer. The Contractor shall obtain a receipt confirming delivery of the light poles. All other materials become property of the Contractor, for which all disposal costs are included in this pay item and no additional compensation shall be provided.

Method of Measurement
This work will be measured per each location where an existing light pole was removed and the luminaire and aluminum light pole delivered to the City. The receipt for delivery of the luminaire, and aluminum light pole where applicable, must be attached to the request for payment.

Basis of Payment
This work will be paid for at the contract unit price per each of REMOVAL OF EXISTING LIGHTING UNIT, SALVAGE. This includes all labor, materials, tools, and equipment to perform the work identified herein.

LIGHT POLE FOUNDATION, 24" DIAMETER, OFFSET

Description
This work shall consist of furnishing and installing a 24" diameter offset light pole foundation following the guidelines found in section 836 of the *Standard Specifications.*

Materials
The materials used to construct the light pole foundation shall fully meet the product requirements specified on details on the plan sheets and the *Standard Specifications.*

Installation
Installation shall meet requirements per the detail on the plan sheets and section 836 found in the *Standard Specifications.*

Method of Measurement
This work will be measured as specified in section 836 in the *Standard Specifications.*

Basis of Payment
This work will be paid for at the contract unit price per foot for LIGHT POLE FOUNDATION, 24" DIAMETER, OFFSET. This includes all labor, materials, tools, and equipment to perform the work identified herein.

TRANSFORMER BASE

Description
This work shall consist of furnishing and installing a frangible light pole transformer base as manufactured by Valmont or approved equivalent following the guidelines described in section 838 of the *Standard Specifications*.

Materials
The materials used to install the transformer base shall fully meet the product and dimensional requirements detailed in section 838.02 of the *Standard Specifications*. The device shall be approximately 9" tall and have an aluminum access door. Certification shall be submitted from the supplier of a breakaway device that the particular design meets the 1985 AASTHO breakaway specification. The contractor shall submit the technical information, to include catalog data sheets.

Installation
Installation shall meet requirements per the detail on the plan sheets and section 838.03(A) found in the *Standard Specifications*. Breakaway devices shall not be installed on poles mounted on bridge parapets or barrier walls adjacent to or over walkways, bikeways, or other roadways.

Method of Measurement
This work will be measured as specified in section 838.04 in the *Standard Specifications.*

Basis of Payment
This work will be paid for at the contract unit price per each for TRANSFORMER BASE. This includes all labor, materials, tools, and equipment to perform the work identified herein.

REMOVE EXISTING CONCRETE FOUNDATION

Description
This work shall consist of the removal of concrete foundations as described in section 895.05(C) of the standard specifications.

Removal
The concrete foundation shall be removed as outlined in section 895.05(C) of the standard specifications. All removed materials shall become property of the contractor, be removed off site and disposed of properly.

Method of Measurement
This work will be measured as specified in section 895 in the *Standard Specifications.*

Basis of Payment
This work will be paid for at the contract unit price per each for REMOVE EXISTING CONCRETE FOUNDATION. This includes all labor, materials, tools, and equipment to perform the work identified herein.

TRAFFIC SIGNAL SPECIFICATIONS

Effective: May 22, 2002
Revised: January 1, 2007

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

SECTION 720 SIGNING

MAST ARM SIGN PANELS.

Add the following to Section 720.02 of the Standard Specifications:

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by the District Sign Shops. Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware are acceptable based upon the Department's approval.

DIVISION 800 ELECTRICAL

INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Article 801.10 of the Standard Specifications:

All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier facilities prior to field installation, at no extra cost to this contract. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be new, built, tested and approved by the controller equipment vendor, in the vendor's District One facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

DAMAGE TO TRAFFIC SIGNAL SYSTEM.

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any damaged equipment or equipment not operating properly from any cause whatsoever shall be repaired with new equipment provided by the Contractor at no additional cost to the Contract and or owner of the traffic signal system, all as approved by the Engineer. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed.

RESTORATION OF WORK AREA.

Add to Section 801 of the Standard Specifications:

Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, trench and backfill, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

SUBMITTALS.

Revise Article 801.05 of the Standard Specifications to read:

The Contractor shall provide:

a. All material approval requests shall be submitted at the preconstruction meeting, including major traffic signal items listed in the table in Article 801.05..
b. All material or equipment which are similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
c. Seven (7) copies of a letter from the Traffic Signal Contractor on company letterhead listing the contract number or permit number, project location/limits, pay item description, pay code number, manufacturer's name and model numbers of the proposed equipment and stating that the proposed equipment meets all contract requirements. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approvable.
d. Seven (7) copies of shop drawings for mast arm poles and assemblies, including combination mast arm poles, are required. A minimum of two (2) copies of all other material catalog cuts are required. Submittals for equipment and materials shall be complete. Partial or incomplete submittals will be returned without review.
e. Certain non-standard mast arm poles and assemblies will require additional review from IDOT's Central Office. Examples include ornamental/decorative and non-standard length mast arm pole assemblies. The Contractor shall account for the additional review time in his schedule.
f. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of the letter, material catalog cuts and mast arm poles and assemblies drawings.

g. Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.
h. After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Information Only'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.
i. All submitted items reviewed and marked 'APPROVED AS NOTED', or 'DISAPPROVED' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify contract compliance at no additional cost to the contract.
j. Exceptions, Deviations and Substitutions. In general, exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

MAINTENANCE AND RESPONSIBILITY.

Revise Article 801.11 of the Standard Specifications to read:

a) Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which they are located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," shall become the full responsibility of the Contractor. The Contractor shall supply the engineer and the Department's Electrical Maintenance Contractor a 24-hour emergency contact name and telephone number.

b) When the project has a pay item for "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," the Contractor must notify both the Area Traffic Signal

Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.

c) Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. See additional requirements in these specifications under Inductive Loop Detector.

d) The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

e) The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Department, the Department's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The District's Electrical Maintenance Contractor may inspect any signalizing device on the Department's highway system at any time without notification.

TRAFFIC SIGNAL INSPECTION (TURN-ON).

Revise Article 801.15(b) of the Standard Specifications to read:

It is the intent to have all electric work completed and equipment field tested by the vendor prior to the Department's "turn-on" field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two (2) hours to complete, the inspection shall be canceled and the Contractor will be required to reschedule at another date. The maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Department's facsimile number is (847) 705-4089. The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Preemption (EVP) is included in the project. The Contractor must notify the SCAT Consultant of the turn-on schedule, as well as stage changes and phase changes during construction.

The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and turn-on of the traffic signal installation. The Contractor shall be responsible to provide a police officer to direct traffic at the time of testing.
The Contractor shall provide a representative from the control equipment vendor's office to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons. Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The Agency that is responsible for the maintenance of each traffic signal installation will assume the maintenance upon successful completion of this inspection.

The District requires the following from the Contractor at traffic signal turn-ons.

1. One set of signal plans of record with field revisions marked in red ink.
2. Notification from the Contractor and the equipment vendor of satisfactory field testing.
3. A knowledgeable representative of the controller equipment supplier shall be required at the traffic signal turn-on. The representative shall be knowledgeable of the cabinet design and controller functions.
4. A copy of the approved material letter.
5. One (1) copy of the operation and service manuals of the signal controller and associated control equipment.
6. Five (5) copies 11" x 17" (280 mm X 430 mm) of the cabinet wiring diagrams.
7. The controller manufacturer shall supply a printed form, not to exceed 11" x 17" (280 mm X 430 mm) for recording the traffic signal controller's timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and

Detector Switching; and any other functions programmable from the keyboard. The form shall include a location, date, manufacturer's name, controller model and software version. The form shall be approved by the Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on." If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the final inspection. The Contractor shall notify the Electrical Maintenance Contractor to inspect all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of $500 per month per incident.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements shall be subject to removal and disposal at the Contractor's expense.

LOCATING UNDERGROUND FACILITIES.

Revise Section 803 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities the local Counties or Municipalities may need to be contacted, in the City of Chicago contact D.I.G.G.E.R. at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123.

ELECTRIC SERVICE INSTALLATION.

Revise Section 805 of the Standard Specifications to read:

Description.
This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details" and applicable portions of the Specifications.

General.
The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company. The service agreement and sketch shall be submitted for signature to the Traffic Program's engineer.

Materials.

a. General. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

b. Enclosures.
    a. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080-inch (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14-inches (350 mm) high, 9-inches (225 mm) wide and 8-inches (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.

    b. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125-inch (3.175 mm) thick, the top 0.250-inch (6.350 mm) thick and the bottom 0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof

stainless steel .075-inch (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40-inches (1000 mm) high, 16-inches (400 mm) wide and 15-inches (375 mm) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.

c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of –40C to +85C. The surge protector shall be UL 1449 Listed.

d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.

f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.

h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 feet (3.0m) in length, and 3/4 inch (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation.

a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.

c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment.

The service installation shall be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The type A foundation which includes the ground rod shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 inch (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility companies shall be approved by the engineer and paid for as an addition to the contract according to Article 109.05 of the Standard Specifications.

GROUNDING OF TRAFFIC SIGNAL SYSTEMS.

General.

All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See IDOT District One Traffic Signal detail plan sheets for additional information.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations were measured resistance exceeds 25 ohms. Ground rods are included in the applicable foundation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

(a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.

(b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications.

1. Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.

2. Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A Listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points.

3. All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.

4. Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.

(c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, listed pressure connectors, listed clamps or other approved listed means.

HANDHOLES.

Add the following to Section 814 of the Standard Specifications:

All handholes shall be concrete, poured in place, with inside dimensions of 21-1/2 inches (549mm) minimum. Frames and lid openings shall match this dimension. The cover of the handhole frame shall be labeled "Traffic Signals" with legible raised letters.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (15.875mm) diameter stainless bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 12 inches (300mm).

All conduits shall enter the handhole at a depth of 30 inches (760mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 1/2 inch (12.7 mm) diameter with two 90 degree bends and extend into the handhole at least 6 inches (150 mm). Hooks shall be placed a minimum of 12 inches (300 mm) below the lid or lower if additional space is required.

FIBER OPTIC TRACER CABLE.

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. The tracer cable will be allowed to be spliced at the handholes only. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable splice shall use a Western Union Splice soldered with resin core flux. All exposed surfaces of the solder shall be smooth. Splices shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with WCSMW 30/100 heat shrink tube, minimum length 4 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

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

GROUNDING CABLE.

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add to Article 817.02 (b) of the Standard Specifications:

Unless otherwise noted on the Plans, traffic signal grounding conductor shall be one conductor, #6 gauge copper, with a green color coded XLP jacket.

The traffic signal grounding conductor shall be bonded, using a Listed grounding connector (Burndy type KC/K2C, as applicable, or approved equal), to all proposed and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding

conductor shall be bonded to all proposed and existing pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system and noted herein and detailed on the plans. Bonding to existing handhole frames and covers shall be paid for separately.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.
Grounding cable shall be measured in place for payment in foot (meter). Payment shall be at the contract unit price for ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6, 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds, grounding connectors, and other hardware.

RAILROAD INTERCONNECT CABLE.

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add to Article 817.02 of the Standard Specifications:

The railroad interconnect cable shall be three conductor stranded #14 copper cable in a clear polyester binder, shielded with #36 AWG tinned copper braid with 85% coverage, and insulated with .016" polyethylene (black, blue, red). The jacket shall be black 0.045 PVC or polyethylene.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.
This work shall be paid for at the contract unit price per foot (meter) for ELECTRIC CABLE IN CONDUIT, RAILROAD, NO. 14 3C, which price shall be payment in full for furnishing, installing, and making all electrical connections in the traffic signal controller cabinet. Connections in the railroad controller cabinet shall be performed by railroad personnel.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Revise Section 850 of the Standard Specifications to read:

The energy charges for the operation of the traffic signal installation shall be paid for by others. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof.

The Contractor shall have on staff electricians with IMSA Level II certification to provide signal maintenance.

This item shall include maintenance of all traffic signal equipment at the intersection, including emergency vehicle pre-emption equipment, master controllers, uninterruptible power supply

(UPS and batteries), telephone service installations, communication cables and conduits to adjacent intersections.

The maintenance shall be according to District One revised Article 801.11 and the following contained herein.

The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to ensure that they are functioning properly. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs.

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. The Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24 hour telephone number for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications.

The Contractor shall respond to all emergency calls from the Department or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the contract. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the State's Electrical Maintenance Contractor perform the maintenance work required. The State's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

Basis of Payment.

This work shall be paid for at the contract unit price each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

TRAFFIC ACTUATED CONTROLLER.

Add the following to Article 857.02 of the Standard Specifications:

Controllers shall be NEMA TS2 Type 1, Econolite ASC/2S-1000 or Eagle/Siemens M41 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment manufacturers will be allowed. The controller shall be the most recent model and software version supplied by the manufacturer at the time of the approval. The traffic signal controller shall provide features to inhibit simultaneous display of a circular yellow ball and a yellow arrow display. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being skipped during program changes and after all preemption events.

MASTER CONTROLLER.

Revise Articles 860.02 - Materials and 860.03 - Installation of the Standard Specifications to read:

Only controllers supplied by one of the District approved closed loop equipment manufacturers will be allowed. Only NEMA TS 2 Type 1 Eagle/Siemens and Econolite closed loop systems shall be supplied. The latest model and software version of master controller shall be supplied.

Functional requirements in addition to those in Section 863 of the Standard Specification include:

The system commands shall consist of, as a minimum, six (6) cycle lengths, five (5) offsets, three (3) splits, and four (4) special functions. The system commands shall also include commands for free or coordinated operation.

Traffic Responsive operation shall consist of the real time acquisition of system detector data, data validation, and the scaling of acquired volumes and occupancies in a deterministic fashion so as to cause the selection and implementation of the most suitable traffic plan.

Upon request by the Engineer, each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support. Each set shall consist of software on CD, DVD, or other suitable media approved by the Engineer, and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for use in monitoring the system.

The approved manufacturer of equipment shall loan the District one master controller and two intersection controllers of the most recent models and the newest software version to be used for instructional purposes in addition to the equipment to be supplied for the Contract.

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District One staff. This telephone line may be coupled with a DSL line and a phone filter to isolate the dial-up line. An E911 address is required.

The cabinet shall be provided with an Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date.

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum and shall be capable of speeds to 38,400 or above as technology allows. The controller, when installed in an Ethernet topology, may operate non-serial communications.
The cabinet shall be equipped with a 9600 baud, auto dial/auto answer modem. It shall be a US robotics 33.6K baud rate or equal.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the Administrative Support Manager in the District One Business Services Section at (847) 705-4011 to request a phone line installation.

A follow-up fax transmittal to the Administrative Support Manager (847-705-4712) with all required information pertaining to the phone installation is required from the Contractor as soon as possible or within one week after the initial request has been made. A copy of this fax transmittal must also be faxed by the Contractor to the Traffic Signal Systems Engineer at (847) 705-4089. The required information to be supplied on the fax shall include (but not limited to): A street address for the new traffic signal controller (or nearby address); a nearby existing telephone number; what type of telephone service is needed; the name and number of the Contractor's employee for the telephone company to contact regarding site work and questions.

The usual time frame for the activation of the phone line is 4-6 weeks after the Business Services Section has received the Contractor supplied fax. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor in anticipation of this time frame. On jobs which include roadway widening in which the conduit cannot be installed until this widening is completed, the Contractor will be allowed to delay the phone line installation request to the Business Services Section until a point in time that is 4-6 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the Administrative Support Manager with an expected installation date considering the 4-6 week processing time.

The telephone line shall be installed and activated one month before the system final inspection.

All costs associated with the telephone line installation and activation (not including the Contract specified conduit installation between the point of telephone service and the traffic signal controller cabinet) shall be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number not a Contractor phone number).

FIBER OPTIC CABLE.

Add the following to Articles 871.01, 872.02, 871.04, and 871.05 of the Standard Specifications:

This work shall consist of furnishing and installing Fiber Optical cable in conduit with all accessories and connectors according to Section 871 of the Standard Specifications. The cable shall be of the type, size, and the number of fiber specified.

The control cabinet distribution enclosure shall be CSC FTWO12KST-W/O 12 Port Fiber Wall Enclosure or an approved equivalent. The fiber optic cable shall provide six fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of 13.0 feet (4m) of extra cable length shall be provided for the controller cabinet. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Fiber Optic cable may be gel filled or have an approved water blocking tape.
Basis of Payment.
The work shall be paid for at the contract unit price for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F, per foot (meter) for the cable in place, including distribution enclosure and all connectors.

CONCRETE FOUNDATIONS.

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, except all anchor bolts shall be hot dipped galvanized the full length of the anchor bolt including the hook.

Concrete Foundations, Type "A" for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "District One Standard Traffic Signal Design Details." All Type "A" foundations shall be a minimum depth of 48 inches (1.22 m).

Concrete Foundations, Type "C" for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS) cabinet installations shall be a minimum of 48 inches (1.22 m) long and 31 inches (790 mm) wide. All Type "C" foundations shall be a minimum depth of 48 inches (1.22 m). An integral concrete pad to support the UPS cabinet shall be constructed a minimum of 20 inches (510 mm) long and a minimum depth of 10 inches (250 mm). The concrete apron in front of the Type IV or V cabinet shall be 36 in. x 48 in. x 5 in. (910 mm X 1220 mm X 130 mm). The

concrete apron in front of the UPS cabinet shall be 36 in. x 31 in. x 5 in. (910 mm X 790 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "D" for Traffic Signal Cabinets shall be a minimum of 48 inches (1.22 m) long and 31 inches (790 mm) wide. All Type "D" foundations shall be a minimum depth of 48 inches (1.22 m). The concrete apron shall be 36 in. x 48 in. x 5 in. (910 mm X 1220 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "E" for Mast Arm and Combination Mast Arm Poles shall meet the following requirements:

Table 1
DESIGN TABLE FOR MAST ARM FOUNDATIONS

MAST ARM LENGTH	FOUNDATION DEPTH*	FOUNDATION DIAMETER	SPIRAL DIAMETER	QUANTITY OF NO. 15 (NO. 5) BARS
Less than 9.1m (30')	10'-0" (3.0m)	30" (750mm)	24" (600mm)	8
Greater than or equal to 9.1m (30') and less than 12.2m (40')	13'-6" (4.1m)	30" (750mm)	24" (600mm)	8
	11'-0" (3.4m)	36" (900mm)	30" (750mm)	12
Greater than or equal to 12.2m (40') and less than 15.2m (50')	13'-0" (4.0m)	36" (900mm)	30" (750mm)	12
Greater than or equal to 15.2m (50') and up to 16.8m (55')	15'-0" (4.6m)	36" (900mm)	30" (750mm)	12

Foundation depths specified are for sites which have cohesive soils (clayey, silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive strength of (Qu)>1.0 tsf (100kPa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.

Concrete Foundations, Type "E" for Combination Mast Arm Poles shall be 36 inch (900 mm) diameter, regardless of mast arm length. Foundations used for Combination Mast Arm Poles shall provide an extra 2-1/2 inch (65 mm) raceway.

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

DETECTOR LOOP.

Revise Section 886 of the Standard Specifications to read:

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4424 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

Loop detectors shall be installed according to the requirements of the "District One Standard Traffic Signal Design Details." Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit 250W175C water proof tag, or an approved equal, secured to each wire with nylon ties.

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

(a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb and handhole shall be cut with a 1/4 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark location of each loop lead-in.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 1/8 inch (3 mm) below the pavement surface, if installed above the surface the overlap shall be removed immediately.

Detector loop measurements shall include the saw cut and the length of the loop lead-in to the edge of pavement. The lead-in wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. Unit duct, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.

(b) Preformed. This work shall consist of furnishing and installing a rubberized heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:

Preformed detector loops shall be installed in new pavement constructed of Portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be extended to a

temporary enclosure near the proposed handhole location with ends capped and sealed against moisture and other contaminants.

Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. Non-metallic coilable duct, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.

Preformed detector loops shall be factory assembled. Homeruns and interconnects shall be pre-wired and shall be an integral part of the loop assembly. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using 11/16 inch (17.2 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating. Hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in the hose except where necessary to connect homeruns or interconnects to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be heavy duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum of four turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to insure complete moisture blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6.5 feet of extra cable in the handhole.

Basis of Payment.
This work shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP as specified in the plans, which price shall be payment in full for furnishing and installing the detector loop and all related connections for proper operation.

EMERGENCY VEHICLE PRIORITY SYSTEM.

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par

38 LED flood lamp with a 30 degree light spread, maximum 6 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4D-11 of the "Manual on Uniform Traffic Control Devices." The stopped pre-empted movements shall be signalized by a continuous indication.

All light operated systems shall include security and transit preemption software and operate at a uniform rate of 14.035 Hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

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

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM.

Description.
This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
   a Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
   b Proposed signal timing plan for the new or modified intersection(s) shall be forwarded to IDOT for review prior to implementation.
   c Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.
   a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
   b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
   a. Traffic counts shall be taken at the subject intersection after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.

b. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
c. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.
   a. Consultant shall furnish to IDOT one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
      (1) Brief description of the project
      (2) Printed copies of the analysis output from Synchro (or other appropriate, approved optimization software file)
      (3) Printed copies of the traffic counts conducted at the subject intersection
   b. Consultant shall furnish to IDOT two (2) CDs for the optimized system. The CDs shall include the following elements:
      (1) Electronic copy of the technical memorandum in PDF format
      (2) Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system
      (3) Traffic counts conducted at the subject intersection
      (4) New or updated intersection graphic display file for the subject intersection
      (5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

Basis of Payment.
This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid.

OPTIMIZE TRAFFIC SIGNAL SYSTEM.

Description.
This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor

shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system.

2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.

3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.

4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.

5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.

6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.

(b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Consultant shall furnish to IDOT one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

Cover Page in color showing a System Map
Figures 1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion. 2. General location map in color – showing signal system location in the metropolitan area. 3. Detail system location map in color – showing cross street names and local controller addresses. 4. Controller sequence – showing controller phase sequence diagrams.
Table of Contents
Tab 1: Final Report 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) 7. Evaluation a. Speed and Delay runs
Tab 2. Turning Movement Counts 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)
Tab 3. Synchro Analysis 1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM
Tab 4: Speed and Delay Studies 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period.
Tab 5: Electronic Files 1. Two (2) CDs for the optimized system. The CDs shall include the following elements: a. Electronic copy of the SCAT Report in PDF format b. Copies of the Synchro files for the optimized system c. Traffic counts for the optimized system d. New or updated intersection graphic display files for each of the system intersections and the system graphic display file including system detector locations and addresses.

Basis of Payment.

The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP

programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

TEMPORARY TRAFFIC SIGNAL TIMINGS.

Description.
This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Closed Loop Traffic signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMINGS.

(a) Consultant shall attend temporary traffic signal inspection (turn-on) and conduct on-site implementation of the traffic signal timings. Make fine-turning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

(b) Consultant shall provide monthly observation of traffic signal operations in the field.

(c) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.

(d) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.

Basis of Payment.
The work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMINGS, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation.

TEMPORARY TRAFFIC SIGNAL INSTALLATION.

Revise Section 890 of the Standard Specifications to read:

General.
Only an approved equipment vendor will be allowed to assemble the temporary traffic signal cabinet. Also, an approved equipment vendor shall assemble and test a temporary railroad

traffic signal cabinet. (Refer to the "Inspection of Controller and Cabinet" specification). A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Construction Requirements.

(a) Controllers.

1. Only controllers supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS1 or TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption.

2. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.

(b) Cabinets. All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4 inch (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

(c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 807 of the Standard Specifications and shall meet the requirements of the District 1 Traffic Signal Specifications for "Grounding of Traffic Signal Systems".

(d) Traffic Signal Heads. All traffic signal sections and pedestrian signal sections shall be 12 inches (300 mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. The Contractor shall furnish enough extra cable length to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.

(e) Interconnect.

1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.

2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the item Temporary Traffic Signal Installation. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.

3. Temporary wireless interconnect, compete. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This item shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:

    a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
    b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
    c. Antennas (Omni Directional or Yagi Directional)
    d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
    e. Brackets, Mounting Hardware, and Accessories Required for Installation
    f. RS232 Data Cable for Connection from the radio to the local or master controller
    g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in this item.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the manufacturers recommendations.

The following radio equipment is currently approved for use in Region One/District One: Encon Model 5100 and Intuicom Communicator II.

(f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.

(g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. All approaches shall have vehicular detection provided by Video Vehicle Detection System as shown on the plans or as directed by the Engineer. The microwave vehicle sensor or video vehicle detection system shall be approved by IDOT before furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor shall be present and assist

the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.

(h) Signs. All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.

(i) Energy Charges. The electrical utility energy charges for the operation of the traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.

(j) Maintenance. Maintenance shall meet the requirements of the Traffic Specifications and District Specifications for "Maintenance of Existing Traffic Signal Installation." Maintenance of temporary signals and of the existing signals shall be included to the cost of this item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. Maintenance responsibility of the existing signals shall be included to the item Temporary Traffic Signal Installation(s). In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic (847) 705-4424 for an inspection of the installation(s).

(k) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District 1 Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the above requirements for "Temporary Traffic Signal Installation". In addition all electric cable shall be aerially suspended, at a minimum height of 18 feet (5.5m), on temporary wood poles (Class 5 or better) of 45 feet (13.7 m), minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection may be used in place of the detector loops as approved by the Engineer.

(l) Temporary Portable Traffic Signal for Bridge Projects.

1. Unless otherwise directed by the Engineer, temporary portable traffic signals shall be restricted to use on roadways of less than 8000 ADT that have limited access to electric utility service, shall not be installed on projects where the estimated need exceeds ten (10) weeks, and shall not be in

operation during the period of November through March. The Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract if the bridge project or Engineer requires temporary traffic signals to remain in operation into any part of period of November through March. If, in the opinion of the engineer, the reliability and safety of the temporary portable traffic signal is not similar to that of a temporary span wire traffic signal installation, the Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract.

2. The controller and LED signal displays shall meet the above requirements for "Temporary Traffic Signal Installation".

3. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.

4. General.

   a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.

   b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.

   c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.

   d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.

   e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference

present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.

f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV of the Manual on Uniform Traffic Control Devices (MUTCD). The signal system shall be designed to continuously operate over an ambient temperature range between -30 °F (-34 °C) and 120 °F (48 °C). When not being utilized to inform and direct traffic, portable signals shall be treated as nonoperating equipment according to Article 701.11.

g. Basis of Payment. This work will be paid for according to Article 701.20(c).

Basis of Payment.
This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION. The price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, all material required, the installation and complete removal of the temporary traffic signal.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT.

Add the following to Article 895.05 of the Standard Specifications:

The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within 30 days of removing it from the traffic signal installation. The Contractor shall provide 5 copies of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. He shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned with these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time he takes maintenance of the signal installation until the acceptance of a receipt drawn by the State's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications.

TRAFFIC SIGNAL PAINTING.

Description.
This work shall include surface preparation, powder type painted finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All work associated with applying the painted finish shall be performed at the manufacturing facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts.

Surface Preparation.
All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

Painted Finish.
All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 degrees F for a minimum one (1) hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 degrees F.
The finish paint color shall be one of the manufacturer's standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Traffic signal heads, pedestrian signal heads and controller cabinets are not included in this pay item.

Any damage to the finish after leaving the manufacturer's facility shall be repaired to the satisfaction of the Engineer using a method approvable by the Engineer and manufacturer. If while at the manufacturer's facility the finish is damaged, the finish shall be re-applied.

Warranty.
The Contractor shall furnish in writing to the Engineer, the paint manufacturer's standard warranty and certification that the paint system has been properly applied.

Packaging.

Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment.

This work shall be paid for at the contract unit price each for PAINT NEW MAST ARM POLE, UNDER 40 FEET (12.19 METER); PAINT NEW MAST ARM POLE, 40 FEET (12.19 METER) AND OVER; PAINT NEW COMBINATION MAST ARM POLE, UNDER 40 FEET (12.19 METER); PAINT NEW COMBINATION MAST ARM POLE, 40 FEET (12.19 METER) AND OVER; or TRAFFIC SIGNAL POST of any height, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

DIVISION 1000 MATERIALS

PEDESTRIAN PUSH-BUTTON.

Revise Article 1074.02 of the Standard Specifications to read:

(a) General. Push-button assemblies shall be ADA compliant, highly vandal resistant, be pressure activated with minimal movement and cannot be stuck in a closed or constant call position. A red LED and audible tone shall be provided for confirmation of an actuation call.
(b) Housing. The push-button housing shall be solid 6061 aluminum and powder coated yellow, unless otherwise noted on the plans.
(c) Actuator. The actuator shall be stainless steel with a solid state electronic Piezo switch rated for a minimum of 20 million cycles with no moving plunger or moving electrical contacts. The operating voltage shall be 12-24 V AC/DC.
(d) Pedestrian Station. Stations shall be designed to be mounted directly to a post, mast arm pole or wood pole. The station shall be aluminum and accept a 3-inch round push button assembly and 5 X 7 ¾ -inch R10-3b or R10-3d sign. A larger station will be necessary to accommodate the sign, R10-3e, for a count-down pedestrian signal.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Add the following to Article 1074.03 of the Standard Specifications:

(a) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.

(b)(5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
(b) (6) Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
(b) (7) Surge Protection – EDCO Model 1210 IRS with failure indicator.
(b) (8) BIU – Containment screw required.
(b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
(b) (10) Switch Guards – All switches shall be guarded.
(b) (11) Heating – Two (2) porcelain light receptacles with cage protection controlled by both a wall switch and a thermostat or a thermostatically controlled 150 watt strip heater.
(b) (12) Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
(b) (13) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.

(b) (14) Field Wiring Labels – All field wiring shall be labeled.
(b) (15) Field Wiring Termination – Approved channel lugs required.
(b) (16) Power Panel – Provide a nonconductive shield.
(b) (17) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
(b) (18) Police Door – Provide wiring and termination for plug in manual phase advance switch.
(b) (19) Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET.

Add the following to Article 857.02 of the Standard Specifications:

Controller shall comply with Article 1073.01 as amended in these Traffic Signal Special Provisions.

Controller Cabinet and Peripheral Equipment shall comply with Article 1074.03 as amended in these Traffic Signal Special Provisions.

Add the following to Articles 1073.01 (c) (2) and 1074.03 (a) (5) (e) of the Standard Specifications:

Controllers and cabinets shall be new and NEMA TS2 Type 1 design.

A method of monitoring and/or providing redundancy to the railroad preemptor input to the controller shall be included as a component of the Railroad, Full Actuated Controller and Cabinet installation and be verified by the traffic signal equipment supplier prior to installation.

Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment supplier. The equipment shall be tested and approved in the equipment supplier's District One facility prior to field installation.

ELECTRIC CABLE.

Delete "or stranded, and No. 12 or" from the last sentence of Article 1076.04 (a) of the Standard Specifications.

MAST ARM ASSEMBLY AND POLE.

Add the following to Article 1077.03 (a) of the Standard Specifications:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization.

This work shall consist of furnishing and installing a galvanized steel or extruded aluminum shroud for protection of the mast arm pole base plate similar to the dimensions detailed in the "District One Standard Traffic Signal Design Details." The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall allow air to circulate throughout the mast arm but not allow infestation of insects or other animals. The shroud shall be constructed, installed and designed not to be hazardous to probing fingers and feet. All mounting hardware shall be stainless steel. The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

TRAFFIC SIGNAL POST.

Add the following to Article 1077.01 (b) of the Standard Specifications:

All posts and bases shall be steel and hot dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization.

SIGNAL HEADS.

Add the following to Section 1078 of the Standard Specifications to read:

All signal and pedestrian heads shall provide 12" (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signal and/or pedestrian heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

Pedestrian signal heads shall be furnished with the international symbolic "Walking Person" and "Upraised Palm" lenses. Egg crate sun shields are not permitted.

Signal heads shall be positioned according to the "District One Standard Traffic Signal Design Details."

SIGNAL HEAD, BACKPLATE.

Delete 1st sentence of Article 1078.03 of the Standard Specifications and add "All backplates shall be aluminum and louvered".

INDUCTIVE LOOP DETECTOR.

Add the following to Article 1079.01 of the Standard Specifications:

Contracts requiring new cabinets shall provide for card mounted detector amplifiers. Loop amplifiers shall provide LCD displays with loop frequency, inductance, and change of inductance readings.

ILLUMINATED SIGN, LIGHT EMITTING DIODE.

Revise Sections 891 of the Standard Specifications to read:

Description.
This work shall consist of furnishing and installing an illuminated sign with light emitting diodes.

General.
The light emitting diode (LED) blank out signs shall be manufactured by National Sign & Signal Company, or an approved equal and consist of a weatherproof housing and door, LEDs and transformers.

(a) Display.

1. The LED blank out sign shall provide the correct symbol and color for "NO LEFT TURN" OR "NO RIGHT TURN" indicated in accordance with the requirements of the "Manual on Uniform Traffic Control Devices". The message shall be formed by rows of LEDs.

2. The message shall be clearly legible. The message shall be highly visible, anywhere and under any lighting conditions, within a 15 degree cone centered about the optic axis.

   The sign face shall be 24 inches (600 mm) by 24 inches (600 mm). The sign face shall be completely illegible when not illuminated. No symbol shall be seen under any ambient light condition when not illuminated.

3. All LEDs shall be T-1 3/4 (5mm) and have an expected lamplife of 100,000 hours. Operating wavelengths will be Red-626nm, Amber-590nm, and Bluish/Green-505nm. Transformers shall be rated for the line voltage with Class A insulation and weatherproofing. The sign shall be designed for operation over a range of temperatures from –35F to +165 F (-37C to +75C).

4. The LED module shall include the message plate, high intensity LEDs and LED drive electronics. Door panels shall be flat black and electrical connections shall be made via barrier-type terminal strip. All fasteners and hardware shall be corrosion resistant stainless steel.

(b) Housing.

1. The housing shall be constructed of extruded aluminum. All corners and seams shall be heli-arc welded to provide a weatherproof seal around the entire case. Hinges shall be continuous full-length stainless steel. Signs shall have stainless

steel hardware and provide tool free access to the interior of the sign. Doors shall be 0.125-inch thick extruded aluminum with a 3/16-inch x 1-inch neoprene gasket and sun hood. The sign face shall have a polycarbonate, matte clear, lexan face plate. Drainage shall be provided by four drain holes at the corners of the housing. The finish on the sign housing shall include two coats of exterior enamel applied after the surface is acid-etched and primed with zinc-chromate primer.

2. Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and brackets specified herein.

Basis of Payment.
This work shall be paid for at the unit price each for ILLUMINATED SIGN, L.E.D.

GROUNDING EXISTING HANDHOLE FRAME AND COVER.

Description.
This work shall consist of all materials and labor required to bond the equipment grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details" and applicable portions of the Specifications.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Burndy type YGHA or approved equal). The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

Welding preparation for the stainless steel bolt hex-head to the frame and to the cover shall include thoroughly cleaning the contact and weldment area of all rust, dirt and contaminates. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

The grounding cable shall be paid for separately.

Method of Measurement.
Units measured for payment will be counted on a per handhole basis, regardless of the type of handhole and its location.

Basis of Payment.

This work shall be paid for at the contract unit price each for GROUNDING EXISTING HANDHOLE FRAME AND COVER which shall be payment in full for grounding the handhole complete.

UNIT DUCT.

All installations of Unit Duct shall be included in the contract and not paid for separately. Polyethylene unit duct shall be used for detector loop raceways to the handholes. On temporary traffic signal installations with detector loops, polyethylene unit duct shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans. Unit duct shall meet the requirements of NEC Article 343.

UNINTERRUPTIBLE POWER SUPPLY (UPS).

Description.
This work shall consist of furnishing and installing an uninterruptible power supply (UPS).

The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of six hours.

The UPS shall include, but not be limited to the following: inverter/charger, power transfer relay, batteries, battery cabinet, a separate manually operated non-electronic bypass switch, and all necessary hardware and interconnect wiring according to the plans. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption. The transfer from utility power to battery power and visa versa shall not interfere with the normal operation of traffic controller, conflict monitor/malfunction management unit, or any other peripheral devices within the traffic controller assembly.

The UPS shall be designed for outdoor applications, and shall meet the environmental requirements of, "NEMA Standards Publication No. TS 2 – Traffic Controller Assemblies", except as modified herein.

Materials.
The UPS shall be line interactive and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection's normal traffic signal operating connected load, plus 20 percent (20%). The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 700 W/VA active output capacity, with 90 percent minimum inverter efficiency).

The maximum transfer time from loss of utility power to switchover to battery backed inverter power shall be 65 milliseconds.

The UPS shall have a minimum of three (3) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted

terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans. Contact closures shall be energized whenever the unit:

- Switches to battery power. Contact shall be labeled or marked "On Batt".
- Has been connected to battery power for two (2) hours. Contact shall be labeled or marked "Timer".
- Has an inverter/charger failure. Contact shall be labeled or marked "UPS Fail".

Operating temperature for the inverter/charger, power transfer relay, and manual bypass switch shall be -35 to 165 °F (-37 to +74 °C).

Both the power transfer relay and manual bypass switch shall be rated at 240 VAC/30 amps, minimum.

The UPS shall use a temperature-compensated battery charging system. The charging system shall compensate over a range of 1.4 – 2.2 mV/°F (2.5 - 4.0 mV/°C) per cell. The temperature sensor shall be external to the inverter/charger unit. The temperature sensor shall come with 6.5 ft (2 m) of wire.

Batteries shall not be recharged when battery temperature exceeds 122 °F ± 5 °F (50 °C ± 3 °C).

The UPS shall bypass the utility line power whenever the utility line voltage is outside of the following voltage range: 85 VAC to 135 VAC (± 2 VAC).

When utilizing battery power, the UPS output voltage shall be between 110 and 125 VAC, pure sine wave output, ≤ 3 percent THD, 60 Hz ± 3 Hz.
The UPS shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

When the utility line power has been restored at above 90 VAC ± 2 VAC for more than 30 seconds, the UPS shall dropout of battery backup mode and return to utility line mode.

When the utility line power has been restored at below 130 VAC ± 2 VAC for more than 30 seconds, the UPS shall dropout of battery backup mode and return to utility line mode.

The UPS shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service.

In the event of inverter/charger failure, the power transfer relay shall revert to the NC state, where utility line power is reconnected to the cabinet. In the event of an UPS fault condition, the UPS shall always revert back to utility line power.

Recharge time for the battery, from "protective low-cutoff" to 80 percent or more of full battery charge capacity, shall not exceed twenty hours.

The manual bypass switch shall be wired to provide power to the UPS when the switch is set to manual bypass.

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, service receptacles, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

As the battery reserve capacity reaches 50 percent, the intersection shall automatically be placed in all-red flash. The UPS shall allow the controller to automatically resume normal operation after the power has been restored. The UPS shall log an alarm in the controller for each time it is activated.

A blue LED indicator light shall be mounted on the front of the traffic signal cabinet or on the side of the UPS cabinet facing traffic and shall turn on to indicate when the cabinet power has been disrupted and the UPS is in operation. The light shall be a minimum 1 in. (25 mm) diameter, be viewable from the driving lanes, and able to be seen from 200 ft (60 m) away.

All 24 volt and 48 volt systems shall include an external or internal component that monitors battery charging to ensure that every battery in the string is fully charged. The device shall compensate for the effects of adding a new battery to an existing battery system by ensuring that the charge voltage is spread equally across all batteries.

Mounting/Configuration.
The inverter/charger unit shall be rack or shelf-mounted.

All interconnect wiring provided between the power transfer relay, manual bypass switch, and cabinet terminal service block shall be at least 6.5 ft (2 m) of #10 AWG wire.

Relay contact wiring provided for each set of NO/NC relay contact closure terminals shall be 6.5 ft (2 m) of #18 AWG wire.

Battery Cabinet.

Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish.

The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

The manually bypass switch shall be installed inside the traffic signal cabinet.

No more than three batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

A minimum of three shelves shall be provided. Each shelf shall support a load of 132 lb (60 kg) minimum.

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

The battery cabinet shall be ventilated through the use of louvered vents, filters, and one thermostatically controlled fan. The cabinet fan shall not be energized when the traffic signals are on UPS power.

The battery cabinet shall have provisions for an external generator connection.

The UPS with battery cabinet shall come with all bolts, conduits and bushings, gaskets, shelves, and hardware needed for mounting. A warning sticker shall be placed on the outside of the cabinet indicating that there is an uninterruptible power supply inside the cabinet.

Maintenance, Displays, Controls, and Diagnostics.
The UPS shall include a display and/or meter to indicate current battery charge status and conditions.

The UPS shall have lightning surge protection compliant with IEEE/ANSI C.62.41.

The UPS shall be equipped with an integral system to prevent battery from destructive discharge and overcharge.

The UPS hardware and batteries shall be easily replaced without requiring any special tools or devices.

The UPS shall include a resettable front-panel event counter display to indicate the number of times the UPS was activated. The total number of hours the unit has operated on battery power shall be available from the controller unit or UPS unit.

The UPS shall be equipped with an RS-232 port.

The UPS shall include tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.

The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate (Hubbell model HBL4716C or approved equal). Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.

The manufacturer shall include two sets of equipment lists, operation and maintenance manuals, board-level schematic and wiring diagrams of the UPS, and battery data sheets. The manufacturer shall include any software needed to monitor, diagnose, and operate the UPS. The manufacturer shall include any required cables to connect the UPS to a laptop computer.

Battery System.
Individual batteries shall be 12 V type, 65 amp-hour minimum capacity at 20 hours, and shall be easily replaced and commercially available off the shelf.

The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four batteries shall be provided.

All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic leadcalcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.

Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.

The batteries shall be provided with appropriate interconnect wiring and corrosion resistant mounting trays and/or brackets appropriate for the cabinet into which they will be installed.

Batteries shall indicate maximum recharge data and recharging cycles.

Battery interconnect wiring shall be via a modular harness. Batteries shall be shipped with positive and negative terminals pre-wired with red and black cabling that terminates into a typical power-pole style connector. The harness shall be equipped with mating power-pole style connectors for the batteries and a single, insulated plug-in style connection to the inverter/charger unit. The harness shall allow batteries to be quickly and easily connected in any order and shall be keyed and wired to ensure proper polarity and circuit configuration.

Battery terminals shall be covered and insulated so as to prevent accidental shorting.

Warranty.
The warranty for an uninterruptible power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years from the date the traffic signal and UPS are placed into service.

Installation.

When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

Basis of Payment.
This work will be paid for at the contract unit price per each for UNINTERRUPTABLE POWER SUPPLY.

SIGNAL HEAD, LIGHT EMITTING DIODE.

Description.
This work shall consist of furnishing and installing a traffic signal head or pedestrian signal head with light emitting diodes (LED) of the type specified in the plan or retrofitting an existing traffic signal head with a traffic signal module or pedestrian signal module with LEDs as specified in the plans.

General.
LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Sections 880 and 881 and Articles 1078.01 and 1078.02 of the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2007, and amended herein:

1. The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH] or show signs of entrance of moisture or contaminants within the first 60 months of the date of delivery shall be replaced or repaired. The manufacturer's written warranty for the LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the State.

2. Each module shall consist of an assembly that utilizes LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections.

(a) Physical and Mechanical Requirements

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

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

c. 12 inch (300 mm) pedestrian, 2 sections

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

3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

4. Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.

5. The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.

6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

1. The minimum initial luminous intensity values for the modules shall conform to the values in Table 1 of the VTCSH (2005) for circular signal indications, and as stated in Table 3 of these specifications for arrow and pedestrian indications at 25°C.

2. The modules shall meet or exceed the illumination values stated in Article 1078.01(3)c of the "Standard Specifications for Road and Bridge Construction," Adopted January 1, 2007 for circular signal indications, and Table 3 of these specifications for arrow and pedestrian indications, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.

3. The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Section 4.2 of the VTCSH (2005).

4. The LEDs utilized in the modules shall be AlInGaP technology for red, yellow, Portland orange (pedestrian) and white (pedestrian) indications, and GaN for green indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40°C to +74°C.

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.

2. LED modules will have EPA Energy Star compliance ratings, if applicable to that shape, size and color.

3. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

4. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

5. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.

6. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

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

(d) Retrofit Traffic Signal Module

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

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

   a. 12 inch (300 mm) circular, multi-section
   b. 12 inch (300 mm) arrow, multi-section
   c. 12 inch (300 mm) pedestrian, 2 sections

3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.

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

5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

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

7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

(e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.

1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) for arrow indications.

2. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.

(f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.

1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

(g) The following specification requirements apply to the 12 inch (300 mm) Pedestrian module only. All general specifications apply unless specifically superseded in this section.

1. Each pedestrian signal LED module shall provide the ability to actuate the solid upraised hand and the solid walking person on one 12 inch (300mm) section.

2. Two (2) pedestrian sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man.

3. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).

Basis of Payment.

This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, of the type specified, which price shall be payment in full for furnishing the equipment described above including signal head, LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

Pedestrian head(s) shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified and of the particular kind of material when specified.

The type specified will indicate the number of faces and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for SIGNAL HEAD, LED of the type specified, RETROFIT, which price shall be payment in

full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of faces and the method of mounting.

TABLES

Table 2 Maximum Power Consumption (in Watts)

	Red		Yellow		Green	
Temperature	25°C	74°C	25°C	74°C	25°C	74°C
12 inch (300 mm) circular	11	17	22	25	15	15
12 inch (300 mm) arrow	9	12	10	12	11	11
	Hand–Portland Orange		Person-White			
Pedestrian Indication	6.2		6.3			

Table 3 Minimum Initial & Maintained Intensities for Arrow and Pedestrian Indications (in cd/m^2)

	Red	Yellow	Green
Arrow Indication	5,500	11,000	11,000

PEDESTRIAN COUNTDOWN SIGNAL HEAD, LIGHT EMITTING DIODE.

Description.
This work shall consist of furnishing and installing a pedestrian countdown signal head, with light emitting diodes (LED) of the type specified in the plan.

Pedestrian Countdown Signal Head, Light Emitting Diode, shall conform fully to the SIGNAL HEAD, LIGHT EMITTING DIODE specification, with the following modifications:

(a). Application.

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

2. All pedestrian signals at an intersection shall be the same type and have the same display. No mixing of countdown and other types of pedestrian traffic signals will be permitted.

(b) General.

1. The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. Module shall not have user accessible switches or controls for modification of cycle.

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

3. The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

4. The module shall allow for consecutive cycles without displaying the steady Upraised Hand.

5. The module shall recognize preemption events and temporarily modify the crossing cycle accordingly.

6. If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.

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

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

9. If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.

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

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

12. The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules," or applicable successor ITE specifications, except as modified herein.

13. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

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

15. The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.

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

(c) Pedestrian Countdown Signal Heads.

1. Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for single units with the housings glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.

2. Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 inches (229mm) in height and easily identified from a distance of 120 feet (36.6m).

(d) Electrical.

1. Maximum power consumption for LED modules is 29 watts.

2. The measured chromaticity shall remain unchanged over the input line voltage range listed of 80 VAC to 135 VAC.

Basis of Payment.
This item shall be paid for at the contract unit price each for PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, of the type specified, which shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL)
Effective: January 1, 2002
Revised: January 1, 2007
Revised: T Y Lin February 29, 2008

This work shall consist of furnishing and installing a(n) "Econolite" brand traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of the current District One Traffic Signal Special Provisions including conflict monitor, load switches and flasher relays, with all necessary connections for proper operation..

Basis of Payment. This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET (SPECIAL) or FULL-ACTUATED CONTROLLER AND TYPE V CABINET (SPECIAL).

CONFIRMATION BEACON
Effective: January 1, 2002
Revised: January 1, 2007

This item shall consist of furnishing and installing a Traffic Signal Emergency Confirmation Beacon (single channel or dual channel) at the locations specified on the plans and as described as follows for intersections which have existing emergency preemption systems previously installed.

Confirmation Beacon, Single Channel - Where the light detector is used to detect a single direction of traffic, one LED lamp for only that direction shall be provided. If the detector covers opposing directions of traffic and has a single output, a separate lamp for each direction shall be provided but they shall have identical indications.

Confirmation Beacon, Dual Channel - A separate LED lamp with appropriate separate indications for each direction shall be provided.

It shall be the Contractor's responsibility to verify the existing brand of emergency vehicle equipment at the intersection and the confirmation beacons must be completely compatible with all existing components. The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, 120V, and a 2000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. No new holes may be drilled into signal poles, mast arms, or posts. The Confirmation Beacon shall be mounted to the existing light detector hardware as shown on the mounting detail in the plans. In order to maintain uniformity between communities, the Confirmation Beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified the current District One Traffic Signal Special Provisions. The stopped pre-empted movements shall be signalized by a continuous indication.

Any modification required to the existing optical detector installation to meet the requirements of the mounting detail shown in the plans shall be included in this item.

Basis of Payment. This work will be paid for at the contract unit price each for CONFIRMATION BEACON.

TRAFFIC SIGNAL SPECIFICATIONS FOR DETECTOR REPLACEMENT AND/OR INSTALLATION ON ROADWAY GRINDING, RESURFACING, & PATCHING OPERATIONS

Effective: October 1, 1999
Revised: January 1, 2007

The following Traffic Signal Special Provisions and the "District 1 Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction.".

The intent of this Special Provision is to prescribe the materials and construction methods commonly used to replace traffic signal detector loops and replace magnetic signal detectors with detector loops during roadway resurfacing, grinding and patching operations. Loop detector replacement will not require the transfer of traffic signal maintenance from the District Electrical Maintenance Contractor to this contract's electrical contractor. Replacement of magnetic detector will require wiring revisions inside the control cabinet and therefore the transfer of maintenance will be required. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer.

The work to be provided under this contract consists of furnishing and installing all traffic signal work as specified on the Plans and as specified herein in a manner acceptable and approved by the Engineer.

NOTIFICATION OF INTENT TO WORK. Contracts such as pavement grinding or patching which result in the destruction of traffic signal detection require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the detection removal, the Contractor shall notify the:

- Traffic Signal Maintenance and Operations Engineer at (847)705-4424
- IDOT Electrical Maintenance Contractor at (773) 287-7600

at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection.

Failure to provide proper notification may require the District's Electrical Maintenance Contractor to be called to investigate complaints of inadequate traffic signal timing. All costs associated with these expenses will be paid for by the Contractor at no additional expense to the Department according to Section 109 of the "Standard Specifications."

ACCEPTANCE OF MATERIAL.

The Contractor shall provide:

1. All material approval requests shall be submitted a minimum of seven (7) days prior to the delivery of equipment to the job site, or within 30 consecutive calendar days after the contract is awarded, or within 15 consecutive calendar days after the preconstruction meeting, whichever is first.

2. Seven (7) copies of a letter listing the manufacturer's name and model numbers of the proposed equipment shall be supplied. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approved. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.
3. One (1) copy of material catalog cuts.
4. The contract number, permit number or intersection location must be on each sheet of the letter and material catalog cuts as required in items 2 and 3.

INSPECTION OF CONSTRUCTION.

When the road is open to traffic, except as otherwise provided in Section 801 and 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Traffic Signal Maintenance and Operations Engineer at (847)705-4424 a minimum of seven (7) working days prior to the time of the requested inspection.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on." If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. If this work is not completed in time, the Department reserves the right to have the work completed by others at the Contractor's expense.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements will be subject to removal and disposal at the Contractor's expense.

RESTORATION OF WORK AREA. Restoration of the traffic signal work area shall be incidental to the related pay item such as foundation, conduit, handhole, trench and backfill, etc., and no extra compensation shall be allowed. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced as shown in the plans or in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded.

REMOVAL, DISPOSAL AND SALVAGE OF EXISTING TRAFFIC SIGNAL EQUIPMENT. This item shall be incidental to this contract. All material and equipment removed shall become the property of the Contractor and disposed of by the Contractor outside the State's right-of-way. No additional compensation shall be provided to the Contractor for removal, disposal or salvage expense for the work in this contract.

DETECTOR LOOP REPLACEMENT. This work shall consist of replacing existing detector loops which are destroyed during grinding, resurfacing, or patching operations.

If damage to the detector loop is unavoidable, replacement of the existing detection system will be necessary. This work shall be completed by an approved Electrical Contractor as directed by the Engineer.

Replacement of the loops shall be accomplished in the following manner: The Engineer shall mark the location of the replacement loops. The Traffic Signal Maintenance and Operations Engineer shall be called to approve loop locations prior to the cutting of the pavement. The Contractor may reuse the existing conduit (duct) located between the existing handhole and the pavement if it hasn't been damaged. All burrs shall be removed from the edges of the existing conduit which may cause damage to the new detector loop during installation. If the existing conduit is damaged beyond repair, or if it cannot be located, or if additional conduits are required to provide one lead-in duct for each proposed loop; the Contractor shall be required to drill through the existing pavement into the appropriate handhole, and install 25 mm (1") unit duct conduit. This work and the required materials shall not be paid for separately but shall be included in the pay item Detector Loop Replacement. Upon establishment of the duct, the loop may be cut, installed, sealed and spliced to the twisted-shielded controller cable in the handhole.

Detector loop measurements shall include the saw-cut and the length of the loop lead-in leading to the edge of pavement. Unit duct, splicing, trench and backfill, and drilling of pavement or handholes shall be incidental to detector loop quantities.

All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement or the curb shall be cut with a 6.3 mm (1/4") deep x 100 mm (4") saw-cut to mark location of each loop lead-in.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Traffic Signal Maintenance and Operations Engineer (847)705-4424 to inspect and approve the layout.

Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details." Saw-cuts from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit 250W175C water proof tag or approved equal secured to each wire with nylon ties. The lead-in wire, including all necessary connections for proper operation, from the edge of pavement to the handhole, shall be incidental to the price of the detector loop.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 3 mm (1/8") below the pavement surface, if installed above the surface the overlap shall be removed immediately.

Round loop(s) 1.8 m (six foot) diameter may be substituted for 1.8 m (six foot) by 1.8 m (six foot) square loop(s) and shall be paid for as 7.2 m (24 feet) of detector loop.

Resistance to ground shall be a minimum of 100 megohms under any conditions of weather or moisture.

Heat shrink splices shall be used according to the "District 1 Standard Traffic Signal Design Details."

Drilling handholes, sawing the pavement, furnishing and installing unit-duct to the appropriate handhole, cable splicing to provide a fully operable detector loop, testing and all trench and backfill shall be included in this item.

Detector loop replacement shall be measured along the sawed slot in the pavement containing the loop and lead-in, rather than the actual length of the wire in the slot.

Basis of Payment. Detector Loop Replacement shall be paid for at the contract unit price per foot (meter) of DETECTOR LOOP REPLACEMENT.

MAGNETIC DETECTOR REMOVAL AND DETECTOR LOOP INSTALLATION. This work shall consist of the removal of existing magnetic detectors, magnetic detector lead-in cable and magnetic detection amplifiers and related control equipment wiring, installation of detector lead-in cable, detector loops, detector amplifiers and related equipment wiring. The detector loop, cable, and amplifier shall be installed according to the applicable portions of the "Standard Specifications" and the applicable portions of the Special Provision for "Detector Loop Replacement." All drilling of handholes, furnishing and installing unit duct, cable splicing, trench and backfill, removal of equipment, and pulling cable from conduit shall be included in this item.

Basis of Payment. Magnetic Detector Removal and Detector Loop Installation shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I, per each for INDUCTIVE LOOP DETECTOR, and foot (meter) for ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT
Effective: January 1, 2002
Revised: January 1, 2007

This item shall consist of relocating the existing emergency vehicle priority system, detector unit (single channel or dual channel) from its existing location to a new traffic signal post or mast arm assembly and pole, and connecting it to an emergency vehicle priority system, phasing unit. If the existing Emergency Vehicle Priority System, Detector Unit Assembly includes a Confirmation Beacon, the Confirmation Beacon shall also be relocated and connected to the Emergency Vehicle Priority System, Detector Unit and shall be included in this item.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment.

Basis of Payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT
Effective: January 1, 2002
Revised: January 1, 2007

This item shall consist of relocating the existing emergency vehicle priority system phasing unit from an existing traffic signal controller cabinet to a new traffic signal controller cabinet, as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting the emergency vehicle priority system phasing unit(s) and reconnecting it to a new wiring harness which is to be factory wired into the new traffic signal controller cabinet.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment. The Contractor must demonstrate to the satisfaction of the Engineer that the emergency vehicle system operates properly.

Basis of Payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT.

REBUILD EXISTING HANDHOLE
REBUILD EXISTING HANDHOLE, SPECIAL
Effective: January 1, 2002
Revised: January 1, 2007
Revised: T Y Lin International, December 31, 2007

This item shall consist of rebuilding and bringing to grade a handhole or double handhole at a locations shown on the plans or as directed by the Engineer. The work shall consist of removing the handhole frames and coves and the walls of the handholes to a depth of eight (8) inches below the finished grade.

Upon completion of the above work, four (4) holes, four (4) inches in depth and, one half (1/2) inch in diameter, shall be drilled into the remaining concrete; one hole centered on each of the four handhole walls. Four (4) #3 steel dowels, eight (8) inches in length, shall be furnished and shall be installed in the drilled holes with a masonry epoxy.

All concrete debris shall be removed from State right-of-way to a location approved by the Engineer.

The area adjacent to each side of the handholes shall be excavated to allow forming. All steel hooks, handhole frames, covers, and concrete shall be provided to construct a rebuilt handhole according to applicable portions of the current District One Traffic Signal Specifications. (The existing frame and cover shall be replaced if it was damaged during removal or as determined by the Engineer.)

Method of Measurement: Work for rebuilding single handholes shall be measured per each for REBUILD EXISTING HANDHOLE. Work for rebuilding double handholes shall be measured per each for REBUILD EXISTING HANDHOLE, SPECIAL.

Basis of Payment. This work shall be paid for at the contract unit price each for REBUILD EXISTING HANDHOLE or REBUILD EXISTING HANDHOLE, SPECIAL, which price shall be payment in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings.

REMOVE AND REINSTALL FIBER OPTIC CABLE IN CONDUIT.

This item shall consist of removing existing fiber optic traffic signal interconnection cable from existing conduit and reinstalling the existing fiber optic cable in new conduit, to a different termination point. All work shall be done in accordance with applicable portions of Section 871 of the Standard Specifications, including provisions for cable slack and testing.

The work shall be done with all care to avoid crushing, kinking or damage to the cable jacket.

The work shall include any reconnections necessary.

Method of Measurement: The work will be measured as Lump Sum. Approximately 100 feet of cable will require removal from existing conduit and approximately 55 feet of fiber optic cable will require reinstallation in new conduit.

Basis of Payment: This work shall be paid for at the contract unit price, per lump sum, for REMOVE AND REINSTALL FIBER OPTIC CABLE IN CONDUIT which price shall be payment in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings.

MODIFY TEMPORARY TRAFFIC SIGNAL INSTALLATION

By T Y Lin : February 29, 2008

This work shall be performed in accordance with Section 890 of the Standard Specifications, District One Traffic Signal Special Provisions and as herein modified.

General
The existing traffic signal installation at Hobson Road and Washington Street is a temporary traffic signal installation.

The Contractor will be allowed to use all or portions of the existing temporary traffic signal installation, including wood poles, span wires, traffic signal heads and controller in the Maintenance of Traffic for this project. All provisions for work included as part of the District One Traffic Signal Special Provisions, including maintenance and operation of the modified temporary traffic signal installation, shall apply.

All traffic signal equipment currently on the site will be disposed of at the end of construction as noted on the plans.

Basis of Payment.
This work shall be paid for at the contract unit price each for MODIFY TEMPORARY TRAFFIC SIGNAL INSTALLATION. The price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, all material required, the installation and complete removal of the temporary traffic signal.

REMOVE EXISTING HANDHOLE
By T Y Lin : July 16, 2008

Description: This item shall consist of removing existing handholes as depicted in the plans and as directed by the Engineer. This work shall include all materials, labor, and equipment necessary to complete removal of the handhole and backfill the remaining void.

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

All cable shall be safely removed from connecting conduit and ducts prior to the removal operation. Duct and Conduits shall only be sealed if they are to be abandoned.

After handhole removal, no portion of the handhole shall remain from the ground surface to a depth of three feet below existing grade.

Measurement: This item will be measured at the contract unit price – per each handhole removed including all labor and materials necessary.

Payment: The work shall be paid for at the contract unit price per each for REMOVE EXISTING HANDHOLE.

COAXIAL CABLE IN CONDUIT
By T Y Lin : July 16, 2008

Description: This work shall be done in accordance with Section 873 of the Standard Specifications except as herein modified.

This work shall consist of furnishing and installing a Belden 8281 Coaxial Cable or approved equal for distances between the video junction box and the traffic signal cabinet of less than 2000 feet. The cable shall be a 75 ohm coaxial cable with 20 gauge solid bare copper conductor (9.9 ohms/M), solid polyethylene insulating dielectric, 96%(min) tinned copper double-braided shield, and black polyethylene outer covering. The nominal outside diameter

shall be 0.304 inches. Amphenol 31-71032 (or equivalent) BNC plug connectors shall be used at both the video junction box and traffic control cabinet ends of the cable.

Measurement: This item will be measured at the contract unit price – per foot of cable installed including all labor and materials necessary to complete the work.

Payment: The work shall be paid for at the contract unit price per foot for COAXIAL CABLE IN CONDUIT.

VIDEO VEHICLE DETECTOR

By T Y Lin : July 16, 2008

This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device. This work shall consist of furnishing and installing an Autoscope Solo Terra or approved equal video vehicle detection system at one signalized intersection, including all necessary hardware, cable and accessories necessary to complete the installation in accordance with the manufacturer's specifications.

This item shall consist of one (1) integrated machine vision processor sensors (MVPs), an electrical interface panel, and a detector interface card. The system shall also include a ten-inch color VGA monitor with BNC connector for video input.

This item will be paid for at the contract unit price each for VIDEO VEHICLE DETECTOR, which price shall be payment in full for furnishing all associated equipment required, installing the system at one signalized intersection, and placing the system in operation to the satisfaction of the Engineer. This item shall include a cabinet-mounted video interface panel with a serial port and/or Gigabit Ethernet port.

STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH DUAL MAST ARMS, 24 FT. AND 54 FT.

Add the following to Article 1077.03 of the "Standard Specifications":
The poles for all mast arms and combination mast arms, up to and including forty (40) feet in length, shall be manufactured with an eighteen (18)-inch bolt circle at the foundation base plate. The poles for all mast arms and combination mast arms forty-two (42) feet long and longer shall be manufactured with a twenty-one (21)-inch bolt circle.

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7206

FEB 12 2008

REPLY TO
ATTENTION OF:
Technical Services Division
Regulatory Branch
LRC-2008-60

T.Y. LIN
INTERNATIONAL
FEB 21 2008
REC'D

SUBJECT: Proposed Improvements to the 75th Street at Washington Street Intersection Which Includes Reconstruction of the 75th Street Bridge, Connection of the DuPage River Trail and Construction of a Pedestrian Tunnel in the City of Naperville, DuPage County, Illinois

City of Naperville
Attention: Robert Kozurek, Engineering Manager
400 South Eagle Street
Naperville, IL 60566

Dear Mr. Kozurek:

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 T.Y. Lin International.

This office has verified that your proposed activity complies with the terms and conditions of Regional Permits 3 and 7 and the overall RPP under Category I of the Regional Permit Program dated April 1, 2007. 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.

In addition, this authorization is contingent upon the Kane/DuPage Soil and Water Conservation District determining your soil erosion and sediment control plan meets technical standards, and implementing and maintaining soil erosion and sediment controls in a serviceable condition throughout the duration of the project.

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 Intersection Improvement - Washington Street - 75th Street dated February 22, 2008, prepared by T.Y. Lin International. 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 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. Bruce Yurdin at IEPA's Division of Water Pollution Control, Permit Section #15, by telephone at (217) 782-3362.

For a complete copy of the RPP program or any additional information on the RPP program, please access our website: www.lrc.usace.army.mil/co-r. Once you have completed the authorized activity, please sign and return the enclosed compliance certification. If you have any questions, please contact Diedra Willis of my staff by telephone at (312) 846-5539 or email at Diedra.l.willis@usace.army.mil.

Sincerely,

Leesa A. Beal
Chief, East Section
Regulatory Branch

Enclosure

Copy Furnished (w/o enclosure):

United States Fish & Wildlife Service (Rogner)
Illinois Environmental Protection Agency (Yurdin)
Illinois Department of Natural Resources (Schanzle)
Illinois Department of Natural Resources/OWR (Jereb)
DuPage County DEC (Karen Laskowski)
Kane/DuPage SWCD (Kelsey Musich)
T.Y. Lin International (Allan Bolchazy)

Kane – DuPage Soil & Water Conservation District

February 27, 2008

Allan Bolchazy, P.E.
TY Lin International
200 South Wacker, Suite 1400
Chicago, IL 60606

Corps Number: LRC 2008 060

Dear Allan:

I received your revised soil erosion and sedimentation control plan submittal for the Washington at 75th reconstruction project in Naperville, Illinois. Thank you for incorporating our comments into the plan, it will improve the quality of protection for the natural resources, both on and off site. This letter and a set of stamped plans located at the construction office on site, will serve to certify that the erosion and sediment control plans meet Technical Standards.

I will visit the site several times during the course of construction to assess compliance with the specifications and will be glad to address specific issues that may arise during the course of construction.

Sincerely,

Stasi McCrory, CPESC
Resource Analyst
Kane-DuPage Soil and Water Conservation District

T.Y. LIN INTERNATIONAL
FEB 27 2008
RECEIVED

CC: Diedra Willis, USACE

2315 Dean Street, Suite 100 St. Charles, Illinois 60175 (630) 584-7961x3 Fax: (630) 584-9534
www.kanedupageswcd.org

Illinois Department of Transportation

Storm Water Pollution Prevention Plan

Route	FAU 2552	Marked Rt.	Washington St @ 75th St. Limits: Washington from Tamarack Av to Bluebird; 75th from Olympus Dr to Oxford Ln
Section	00-00114-00-PV	Project No.	M-CMM-BRM-7003 (985)
County	DuPage	Contract No.	63024

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency on May 30, 2003 for storm water discharges from Construction Site Activities. This plan has also been prepared to comply with the provisions of NPDES Permit Number ILR40 for discharges from small municipal separate storm sewer systems if checked below.

NPDES permits associated with this project:

- ☒ ILR10 Permit No. (if applicable): ILR400493
- ☐ ILR40 Permit No. (if applicable): _____

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.

William Novack
Print Name

City Engineer
Title

City of Naperville
Agency

Signature

5/4/06
Date

I. Site Description:

A. The following is a description of the project location:

This improvement on Washington Street (FAU 2552) begins at Station 427+95, near Tamarack Avenue, and extends in a southerly direction to Station 468+25, near Bluebird Lane. Washington Street travels along the west bank of the West Branch DuPage River. The improvement on 75th Street (FAP 0369) roadway reconstruction begins at Station 128+00, near Olympus Drive, and extends in an easterly direction to Station 163+50, near Oxford Lane. Washington Street intersects 75th Street at Washington's NB base line Sta. 454+18.60 and 75th's centerline Sta. 149+43.44. Improvements on Hobson Road (FAU 3567) begin at its intersection with Washington Street at Sta. 700+00 and extends easterly to Sta.702+24.28 (just east of the Hobson Road bridge over the West Branch DuPage River). Hobson Road intersects Washington Street at Washington's NB base line Sta. 446+39.28.

Washington Street roadway improvement length is 4030 feet. 75th Street roadway improvement length is 3550 feet. Hobson Road roadway improvement length is 224.28 feet. The total roadway improvement gross length is 7805 Feet (1.48 miles).

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

The proposed improvements to the 75th Street at Washington Street Intersection include the reconstruction of the 75th Street bridge over the West Branch DuPage River (including abutment and pier construction), connection of the DuPage River Trail (under the 75th Street Bridge – along the west bank of the West Branch DuPage River), and construction of a Pedestrian Tunnel (under Washington Street – along the north side of 75th Street).

1,722 feet of retaining walls along Washington Street and 676 feet of retaining walls along 75th Street, west of the pedestrian tunnel, two (2) traffic signal replacement – including interconnect, and drainage improvements. The work includes roadway reconstruction, new bridge, retaining walls, new pedestrian tunnel, grading, excavation, tree removal, seeding, planting, trench excavation, and drainage improvements. Drainage improvements include new scuppers, catch basins, manholes, storm sewers, restrictor manholes at sensitive outlets, drop manholes, junction chamber, new driveway culverts, junction chambers, swales, ditches, storms sewer outlets to ditches, and inline storm water detention. The project occurs on existing and contiguous alignment with one wetland within the project limits, of which will not be impacted due to the proposed improvements.

C. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading:

Stage construction of both Washington Street, 75th Street, and Hobson Road will be pursued, with one lane of traffic operating in each direction at all times.

Stage Pre A will consist of utility relocation, temporary pavement installation, and installation of drainage sewers along 75th Street median.

Stage Pre B will consist of retaining wall construction in the NE, SE, and NW quadrants of the intersection of Washington Street / 75th Street as well as continuation of utility relocation.

Stage 1 will consist of construction of the Washington Street northbound lanes, 75th Street eastbound lanes, Hobson Road eastbound lanes, and the eastbound 75th Street bridge. Traffic will be limited to one lane in all directions, including one left turn (and/or right turn) at each signalized intersection during Stage 1. Tree removal and horizontal and vertical control work will also occur in Stage 1.

Stage 1A will consist of construction of the shared-use path along the east side of Washington Street as well as the east end of the pedestrian tunnel. Stage 1A will also continue construction of the Washington Street northbound lanes and 75th Street eastbound lanes. Traffic will be limited to one lane in all directions, including one left turn (and/or right turn) at each signalized intersection during Stage 1A. Tree removal and horizontal and vertical control work will also occur in Stage 1A.

Stage 1B will consist of construction of the westbound lane of Hobson Road, median work on Washington Street at Hobson Road and south of 75th Street, intersection work in the northeast quadrant of the intersection of Washington Street/75th Street, and 75th Street driveway and median work. Traffic will be limited to one lane in all directions, including one left turn (and/or right turn) at each signalized intersection during Stage 1B.

Stage 2 will consist of construction of the Washington Street southbound lanes, 75th Street westbound lanes, and the westbound 75th Street bridge. Stage 2 will include construction of the west end of the pedestrian tunnel and re-alignment of the DuPage Trail in the northwest quadrant of the intersection of Washington Street/75th Street. Traffic will be limited to one lane in all directions, including one left turn (and/or right turn) at each signalized intersection during Stage 2.

Stage 2A will consist of intersection work in the southwest quadrant of the intersection of Washington Street/75th Street, and median work/landscaping along parts of 75th Street. Traffic will be limited to one lane in all directions, including one left turn (and/or right turn) at each signalized intersection during Stage 2A.

Stage 3 will consist of construction remaining portions of the medians/islands along Washington Street and 75th Street. Traffic will be limited to two lanes in all directions, including one left turn and one right turn at the intersection of Washington Street/75th Street. The intersection of Washington Street/Hobson Road traffic will include southbound (two thru, one left), northbound (one thru, one thru/right), and westbound (one left, one right) during Stage 3.

Following is a sequence of erosion control measures:

1.) Installation of soil erosion and sediment control SE/SC measures. Install down slope and side slope perimeter controls before site demolition occurs.

a.) Selective vegetation removal for silt fence installation

b.) Silt fence installation
c.) Stabilized construction entrances

2.) An area will not be disturbed until necessary for construction to proceed.
3.) Tree removal where necessary (clear & grub)
4.) Construct sediment trapping devices
5.) Strip topsoil, stockpile topsoil
6.) Temporarily stabilize topsoil stockpiles (seed and silt fence around toe of slope) as soon as possible.
7.) Curb and gutter removal, pavement removal, bridge removal and underground utility removal.
8.) Site grading and earth excavation
9.) Install storm sewer and associated inlet & outlet protection, utility installation
10.) Pavement installation, pedestrian tunnel installation, and bridge construction
11.) Temporarily stabilize all areas that have reached temporary grade
12.) Install roadways
13.) Permanently stabilize all disturbed areas.
14.) Remove all temporary SE/SC measures after the site is stabilized with vegetation.

* Soil erosion and sediment control maintenance must occur every two weeks and after every ½" or greater rainfall event.

D. The total area of the construction site is estimated to be 29.1 acres.

The total area of the site that is estimated will be disturbed by excavation, grading or other activities is 29.1 acres.

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

The estimated runoff coefficients of the various areas of the site after construction activities are completed are contained in the project drainage study, which is hereby incorporated by reference in this plan.

Estimated proposed runoff coefficients:
Outlet 1 – C(avg.) = 0.53
Outlet 2 – C(avg.) = 0.61
Outlet 3 – C(avg.) = 0.68
Outlet 4 – C(avg.) = 0.48
Outlet 6 – C(avg.) = 0.61
Outlet 7 – C(avg.) = 0.90
Outlet 8 – C(avg.) = 0.90

Project Average C = 0.56

F. The following is a description of the soil types found at the project site followed by information regarding their erosivity:

Seven soil types are located within the project area. They are listed in order of percentage in the project area, with Grundelein silt loam (526A) at the top of the list with approximate percentage of 37% of the project area. The maps used were from the Natural Resources Conservation Service, http://websoilsurvey.nrcs.usda.gov. They web soil survey is dated 3/3/2008. Erosion Hazard ratings were created using the website for each of the soil types and is listed next to each. The soil types found within the project are:

Grundelein silt loam (526A) 0 to 2 percent slopes – slight erosion rating

Drummer silty clay loam (152A) 0 to 2 percent slopes – slight erosion rating

Varana silt loam (223B) 2 to 4 percent slopes – slope/erodiblity (0.50)

Elliott silt loam (146B) 2 to 4 percent slopes – slope/erodiblity (0.50)

Sawmill silty clay loam (3107A) 0 to 2 percent slopes, frequently flooded – slight erosion rating

Ashkum silty clay loam (232A) 0 to 2 percent slopes – slight erosion rating

Waupecan silt loam (369B) 2 to 4 percent slopes – slope/erodiblity (0.50)

Below is a summary of the soils (typical) found along the roadway or at each bridge or wall location. Additional specific information at each specific boring location or for more information describing the soils at the sites refer to the following reports:

- Geotechnical Investigations for the 75th Street and Washington Street Intersection Improvements, Naperville, Illinois, Prepared by O'Brien & Associates, September 5, 2002,
- Geotechnical Investigation Report – 75th Street Bridge over the DuPage River - Existing Structure No. 022-3039 – Naperville, Illinois, Prepared by O'Brien & Associates, January 9, 2008
- Geotechnical Investigation Report – proposed Retaining Walls – Washington and 75th Street Improvements, Prepared by O'Brien & Associates, January 9, 2008.

1.0 foot of topsoil was typically encountered at the ground surface, and the organic content of the topsoil materials varied from approximately 6.0% to 12%. Silty clay to clay loam soils were generally present below the pavement and surficial topsoil materials. In the borings performed closer to the West Branch DuPage River, dense to very dense sand and gravel deposits below higher moisture content clay or topsoil materials were encountered. Refusal from bedrock occurred in a few borings at depths of 7.0' and 7.5'.

Undercuts of 1.0' were recommended at the following locations because of higher moisture content materials at or near the expected subgrade elevation:

* 75th Street Sta. 228+00 to Sta. 232+20
* Washington Street Sta. 444+00 to Sta. 447+10
* Washington Street Sta. 454+50 to Sta. 458+15
* Washington Street Sta. 461+50 to Sta. 464+50

75th Street: Borings B1 – B13, Beneath the topsoil is mostly A-6, occasional A-1-a, A-2-4, A-4, crushed stone, clayey topsoil, and topsoil black. Water was encountered at two borings at a depth of 1.0' to 8.5' below the ground surface during the drilling operation. After completion of these borings, water level readings were noted at a depth of 8.0' below ground surface for one and dry for the other boring.

Washington Street: Borings B14 – B25, Beneath the topsoil is mostly A-4 and A-6, occasional A-1, A-1-a, A-1-b, A-2-4, A-2-6, boulder/bedrock, crushed stone, topsoil, and clayey gravel. Water was encountered at one borings at a depth of 8.5' below the ground surface during the drilling operation. After completion of these borings, water level readings were noted at a depth of 8.5' below ground surface.

Bridge: Fill materials consisted of sandy topsoil with gravel and stone, and topsoil. Blow the topsoil were mostly crushed stone with clay, A-6 and A-4, also found were A-1-a, A-2-4, A-2-6, A-7, clayey sand, sand, and gravel. Bedrock was encountered in borings between elevation 653.8 and 638.6.

Retaining Walls: Top fill material consists of silty sand, gravel, crushed stone, and stone. Beneath topsoil, mostly A-4 and A-6, little clay loam, A-1, A-1-a, A-2, A-2-4, A-3, and A-7; followed by bedrock.

Tunnel Borings: Top soil, followed with sand, gravel, silty clay, and cobbles; followed by bedrock.

G. The following is a description of potentially erosive areas associated with this project:

The design/project report, hydraulic report, or plan documents, hereby incorporated by reference, contain site map(s) indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of major soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters, and locations where storm water is discharged to a surface water.

The majority of the project site is considered slight for erosion hazard (road, trail) by NRCS/USDA WebSoilSurvey. The ratings of the interpretation of the erosion hazard indicate the hazard of soil loss from unsurfaced roads and trails. The ratings are based on soil erosion factor K, slope, and content of rock fragments. Three areas are considered moderate, 146B, 223B, and 369B, together accounting for only approximately 8.5% of the project area.

H. The following is a description of soil disturbing activities, their locations, and their erosive factors (e.g. steepness of slopes, length of slopes, etc):

The proposed roadway ditch slopes vary between 0.40% and 3.70%. There is one area along 75th Street (approx. Sta. 155+25 to Sta. 155+50) where the ditch is 5.33%, stone riprap is proposed in this area. Stone riprap class A5 is proposed from Sta. 155+25 to Sta. 160+73.

The ditch side slopes vary between 2.5:1 and 3:1 except for small sections along 75th Street, west of Washington Street where the slopes exceed 3:1. In these areas stone riprap class A3 are proposed for soil stabilization. These locations are:

Sta. 131+25 – Sta. 134+47 - North
Sta. 132+00 – Sta. 133+50 - South
Sta. 140+00 – Sta. 142+00 - South
Sta. 145+50 – Sta. 148+00 - South

Six retaining walls will be constructed as part of the project. The four along the east side of Washington Street, two north and two south of 75th Street are along either side of the DuPage River Trail. There are also two retaining walls along the north side of 75th Street, just west of Washington Street along both sides of the sidewalk.

Varana silt loam (223B) 2 to 4 percent slopes – slope/erodiblity (0.50)
Elliott silt loam (146B) 2 to 4 percent slopes – slope/erodiblity (0.50)
Waupecan silt loam (369B) 2 to 4 percent slopes – slope/erodiblity (0.50)

I. 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.

J. The following is a list of receiving water(s) and the ultimate receiving water(s), and areal extent of wetland acreage at the site. The location of the receiving waters can be found on the erosion and sediment control plans:

The project storm water runoff flows into ditches, swales, culverts, and storm sewers. Storm sewer runoff eventually flows into the West Branch DuPage River.

There is one delineated wetland within the project limits near the southern project boundary, approximately 150 feet north of Bluebird Lane, east of Washington Street. The approximate size is 0.076 acres. There will be no construction activities including grading within this wetland and an approximate 50-foot buffer around the wetland during the proposed improvements.

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

☒	Soil Sediment	☒	Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids)
☒	Concrete	☐	Antifreeze / Coolants
☒	Concrete Truck Waste	☐	Waste water from cleaning construction equipment
☒	Concrete Curing Compounds	☐	Other (specify)
☐	Solid Waste Debris	☐	Other (specify)
☐	Paints	☐	Other (specify)
☐	Solvents	☐	Other (specify)
☐	Fertilizers / Pesticides	☐	Other (specify)

There are two former gas station locations within the project limits, in the northeast and southeast quadrants of the intersection of Washington Street and 75th Street. Both sites are currently owned by the City of Naperville. The north property, formerly Citgo, has been mitigated. Amoco (now BP), has an agreement with the City of Naperville to mitigate the environmental impacts of the south property site before construction begins.

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. 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

1. **Stabilized 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(A)(1)(a) and II(A)(3), stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days 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 21 or more calendar days.

   a. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

   The following Stabilization Practices will be used for this project:

☒	Preservation of Mature Vegetation	☒	Erosion Control Blanket / Mulching
☒	Vegetated Buffer Strips	☐	Sodding
☒	Protection of Trees	☒	Geotextiles
☒	Temporary Erosion Control Seeding	☐	Other (specify)
☐	Temporary Turf (Seeding, Class 7)	☐	Other (specify)
☐	Temporary Mulching	☐	Other (specify)
☒	Permanent Seeding	☐	Other (specify)

   Describe how the Stabilization Practices listed above will be utilized:

   All the following Stabilization Practices will be applied/installed per IDOT specifications.

   1.) Temporary Erosion Control Seeding with erosion control blanket in areas along the grading of Washington Street, 75th Street, and Hobson Road. This item will be applied to all bare areas every seven days to minimize the amount of exposed surface areas.
   2.) Erosion Control Blanket along all seeded areas along Washington Street, 75th Street and Hobson Road with permanent seeding.
   3.) Seed mix 'A' – IDOT 2A – salt tolerant roadside mixture - along the majority of the roadway along both Washington Street and 75th Street, including grassed medians.
   4.) Seed mix 'B' – IDOT Class 4 – native grass mixture – between Washington Street and DuPage River Trail (east side of Washington Street from 75th Street to southern project limits).
   5.) Seed mix 'C' – Modified IDOT Blend – Mesic to Wet Native Grasses – along the West Branch of DuPage River from Hobson Road to Bunting Lane (between DuPage River Trail and West Branch DuPage River).
   6.) Protection of Trees/temporary Tree Protection – This item shall consist of items 'temporary fencing' and 'tree trunk protection' as shown on the plans or directed by the Engineer and in accordance with Article 201.05 of the Illinois Department of Transportation's Standard Specifications for Road and Bridge.

   Permanent Stabilization – All areas disturbed by construction will be stabilized with permanent seeding immediately following the finished grading. Erosion control blankets will be installed over all permanently seeded areas that have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and allow seed to germinate properly.

2. **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:

☒	Perimeter Erosion Barrier	☐	Rock Outlet Protection
☒	Temporary Ditch Check	☒	Riprap
☒	Storm Drain Inlet Protection	☐	Gabions
☒	Sediment Trap	☐	Slope Mattress
☐	Temporary Pipe Slope Drain	☐	Retaining Walls
☐	Temporary Sediment Basin	☐	Slope Walls
☐	Temporary Stream Crossing	☐	Concrete Revetment Mats
☒	Stabilized Construction Exits	☐	Level Spreaders
☐	Turf Reinforcement Mats	☒	Other (specify) cofferdam
☐	Permanent Check Dams	☒	Other (specify) silt curtain
☐	Permanent Sediment Basin	☐	Other (specify)
☐	Aggregate Ditch	☐	Other (specify)
☐	Paved Ditch	☐	Other (specify)

Describe how the Structural Practices listed above will be utilized:

1.) Silt Fence, Sediment Control along Washington Street, 75th Street, Hobson Road, and adjacent to the existing delineated wetland to prevent sediment runoff during storms. Silt Fence is to meet minimum AASHTO M288-00 Standards.
2.) Inlet Filter to be installed in off project drainage structures accepting project storm water runoff and will be cleaned on a regular basis. (Straw bales will not be allowed for inlet filters.)
3.) Temporary Ditch Check along ditches and swales dependent on ditch or swale slope, where runoff velocity is high. (Straw bales will not be allowed for temporary ditch checks.)
4.) Inlet and pipe protection for all storm sewer structures located in disturbed turfed areas and will be cleaned on a regular basis. (Straw bales will not be allowed for inlet and pipe protection.) Inlets should be protected with inlet filters.
5.) Concentrated flows should be constantly stabilized with erosion control blanket and permanent or temporary seed, and ditch checks where needed.
6.) Non-erodable cofferdams to be used around perimeter of the pier and abutment work to isolate concentrated flow from the work area.
7.) A silt curtain will be placed around the perimeter of the pier and abutment work.

3. **Storm Water Management:** Provided below is a description of measures that will be installed during the construction process to control 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.

a. 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 Section 59-8 (Erosion and Sediment Control) in Chapter 59 (Landscape Design and Erosion Control) of the Illinois Department of Transportation Bureau of Design and Environment Manual. If practices other than those discussed in Section 59-8 are selected for implementation or if practices are applied to situations different from those covered in Section 59-8, the technical basis for such decisions will be explained below.

b. 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 Storm Water Management Controls.

Stormwater detention/storage due to the proposed improvements is provided by with oversized inline stormsewer pipes, ditches, and control structures.

(i) Such practices may include: 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 Section 10-300 (Design Considerations) in Chapter 10 (Erosion and Sedimentation Control) of the Illinois Department of Transportation Drainage Manual. If practices other than those discussed in Section 10-300 are selected for implementation or if practices are applied to situations different from those covered in Section 10-300, the technical basis for such decisions will be explained below.**

(ii) 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).

1.) Construction of vegetated ditches and swales adjacent to Washington Street and 75th Street to assist in the removal of offsite and some on site flows. These swales and ditches will direct the runoff to a storm sewer system, swales, ditches, culverts, and a wetland which will discharge to the West Branch DuPage River. Native vegetation or flower mixture will be used when possible.
2.) Storm sewer restrictor manholes will be used at locations with sensitive outlets.
3.) Ditches or swales with low maintenance native vegetation will be incorporated.
4.) Riprap will be placed where necessary at outlets for erosion protection and sediment control.

4. Other Controls:

a. Vehicle Entrances and Exits – Stabilized construction entrances and exits must be constructed to prevent tracking of sediments onto roadways.

The contractor will provide the resident engineer with a written plan identifying the location of stabilized entrances and exits and the procedures (s)he will use to construct and maintain them.

b. Material Delivery, Storage, and Use – The following BMPs shall be implemented to help prevent discharges of construction materials during delivery, storage, and use:
   - All products delivered to the project site must be properly labeled.
   - Water tight shipping containers and/or semi trailers shall be used to store hand tools, small parts, and most construction materials that can be carried by hand, such as paint cans, solvents, and grease.
   - A storage/containment facility should be chosen for larger items such as drums and items shipped or stored on pallets. Such material is to be covered by a tin roof or large sheets of plastic to prevent precipitation from coming in contact with the products being stored.
   - Large items such as light stands, framing materials and lumber shall be stored in the open in a general storage area. Such material shall be elevated with wood blocks to minimize contact with storm water runoff.
   - Spill clean-up materials, material safety data sheets, an inventory of materials, and emergency contact numbers shall be maintained and stored in one designated area and each Contractor is to inform his/her employees and the resident engineer of this location.

c. Stockpile Management – BMPs shall be implemented to reduce or eliminate pollution of storm water from stockpiles of soil and paving materials such as but not limited to portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate sub base, and pre-mixed aggregate. The following BMPs may be considered:
   - Perimeter Erosion Barrier
   - Temporary Seeding

- Temporary Mulch
- Plastic Covers
- Soil Binders
- Storm Drain Inlet Protection

The contractor will provide the resident engineer with a written plan of the procedures (s)he will use on the project and how they will be maintained.

d. Waste Disposal. No materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.

e. The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

f. The contractor shall provide a written and graphic plan to the resident engineer identifying where each of the above areas will be located and how they are to be managed.

5. **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, 1995. 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 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:

Refer to the attached Illinois Department of Transportation Division of Highways plans for proposed highway: FAU Route 2552 Washington Street at 75th Street; Section 00-00114-00-PV "Roadway Reconstruction, Bridge Reconstruction, Erosion Control, and Landscaping Plans".

III. Maintenance:

The following is a description of procedures that 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. The resident engineer will provide maintenance guides to the contractor for the practices associated with this project.

Seeding - All erodible bare earth areas will be temporarily seeded on a weekly basis to minimize the amount of erodible surface within the contract limits.

Perimeter Erosion Barrier - Sediment will be removed if the integrity of the perimeter erosion barrier fencing is in jeopardy and any fencing knocked down will be repaired immediately.

Erosion control blanket/mulching – Any areas which have failed will be repaired immediately.

Protection of Trees/Temporary Tree Protection – Any protective measures which are knocked down or needs repair, will be repaired immediately.

Ditch Checks – Sediment will be removed if the integrity of the ditch check is in jeopardy. Any ditch checks which fail will be repaired or replaced immediately.

Stockpiles – If a stockpile is to remain in place for more than three (3) days, then erosion and sediment control shall be provided for such stockpile.

All maintenance of erosion control systems will be the responsibility of the contractor. All locations where vehicles enter and exit the construction site and all other areas subject to erosion should also be inspected periodically. Inspection of these areas shall be made at least once every seven calendar days and within 24 hours of the end of each 0.5 inches or greater rainfall, or an equivalent snowfall. All sediment deposits shall be removed after each rainfall/snowfall.

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. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

A. Disturbed areas, use areas (storage of materials, stockpiles, machine maintenance, fueling, etc.), borrow sites, and waste sites shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Discharge locations or points that are accessible, shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.

B. Based on the results of the inspection, the description of potential pollutant sources identified in section I above and pollution prevention measures identified in section II above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within ½ hour to 1 week based on the urgency of the situation. The resident engineer will notify the contractor of the time required to implement such actions through the weekly inspection report.

C. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection (DECI), the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section IV(B) shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.

D. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the DECI, the resident engineer shall complete and file an "Incidence of Noncompliance" (ION) report for the identified violation. The DECI or resident engineer shall use forms provided by the Illinois Environmental Protection Agency 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 noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

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

The Kane-DuPage Soil and Water Conservation District (KDSWCD) must be notified one week prior to the pre-construction conference, one week prior to the commencement of land disturbing activities, and one week prior to final inspection.

V. Non-Storm Water Discharges:

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge.

A. Spill Prevention and Control – BMPs shall be implemented to contain and clean-up spills and prevent material discharges to the storm drain system. The contractor shall produce a written plan stating how his/her company will prevent, report, and clean up spills and provide a copy to all of his/her employees and the resident engineer. The contractor shall notify all of his/her employees on the proper protocol for reporting spills. The contractor shall notify the resident engineer of any spills immediately.

B. Concrete Residuals and Washout Wastes – The following BMPs shall be implemented to control residual concrete, concrete sediments, and rinse water:
   - Temporary Concrete Washout Facilities shall be constructed for rinsing out concrete trucks. Signs shall be installed directing concrete truck drivers where designated washout facilities are located.
   - The contractor shall have the location of temporary concrete washout facilities approved by the resident engineer.
   - All temporary concrete washout facilities are to be inspected by the contractor after each use and all spills must be reported to the resident engineer and cleaned up immediately.
   - Concrete waste solids/liquids shall be disposed of properly.

C. Litter Management – A proper number of dumpsters shall be provided on site to handle debris and litter associated with the project. The Contractor is responsible for ensuring his/her employees place all litter including marking paint cans, soda cans, food wrappers, wood lathe, marking ribbon, construction string, and all other construction related litter in the proper dumpsters.

D. Vehicle and Equipment Cleaning – Vehicles and equipment are to be cleaned in designated areas only, preferably off site.

E. Vehicle and Equipment Fueling – A variety of BMPs can be implemented during fueling of vehicles and equipment to prevent pollution. The contractor shall inform the resident engineer as to which BMPs will be used on the project. The contractor shall inform the resident engineer how (s)he will be informing his/her employees of these BMPs (i.e. signs, training, etc.). Below are a few examples of these BMPs:
   - Containment
   - Spill Prevention and Control
   - Use of Drip Pans and Absorbents
   - Automatic Shut-Off Nozzles
   - Topping Off Restrictions
   - Leak Inspection and Repair

F. Vehicle and Equipment Maintenance – On site maintenance must be performed in accordance with all environmental laws such as proper storage and no dumping of old engine oil or other fluids on site.

VI. Failure to Comply:

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of an Erosion and Sediment Control Deficiency Deduction against the contractor and/or penalties under the NPDES permit which could be passed onto the contractor.

Illinois Department of Transportation

Contractor Certification Statement

This certification statement is part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with NPDES Permit No. ILR10 issued by the Illinois Environmental Protection Agency on May 30, 2003.

Route	FAU 2552	Marked Rt.	Washington St @ 75th St. Limits: Washington from Tamarack Av to Bluebird; 75th from Olympus Dr to Oxford Ln
Section	00-00114-00-PV	Project No.	M-CMM-BRM-7003 (985)
County	DuPage	Contract No.	63024

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification. I have read and understand all of the information and requirements stated in the Storm Water Pollution Prevention Plan for the above mentioned project. I have provided all documentation required to be in compliance with the ILR10 and Storm Water Pollution Prevention Plan and will provide timely updates to these documents as necessary.

☐ Contractor

☐ Sub-Contractor

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

Illinois Department of
Natural Resources

Office of Water Resources - 2050 West Stearns Road, Bartlett, IL 60103

Rod R. Blagojevich, Governor

Sam Flood, Acting Director

February 12, 2008

T.Y. LIN
INTERNATIONAL
FEB 14 2008
RECEIVED

Subject: Application No. 2008009
Applicant: City of Naperville
Project: 75th Street Bridge Replacement
Watercourse: West Branch DuPage River
Community: City of Naperville

Robert Kozurek
City of Naperville
400 South Eagle Street
Naperville, IL 60566-7020

Dear Mr. Kozurek:

Thank you for your January 10, 2008 application for permit for the above-referenced project. According to the application, the project involves reconstruction of the 75th Street Bridge over the West Branch of the DuPage River. The site is in the Northeast Quarter of Section 30, Township 38 North, Range 10 East of the Third Principal Meridian in DuPage County.

On April 11, 1997, the Illinois Department of Natural Resources, Office of Water Resources (IDNR/OWR) delegated its floodway permitting authority for certain construction activities to the DuPage County Department of Economic Development and Planning (EDP). By copy of this letter, we are informing EDP of your project and that we are delegating the permit review to them. Further review by IDNR/OWR is not necessary provided you receive a EDP permit or certification.

If you have any questions regarding this letter, please contact Bill Boyd of my staff at 847/608-3100 x-2025. You may also want to contact Clayton Heffter of EDP at 630/407-6700.

Sincerely,

Gary W. Jereb, P.E., Chief
Northeastern Illinois Regulatory Programs

GJ/WB

cc: Clayton Heffter, DuPage County EDP
Allan Bolchazy, T.Y. Lin International

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
COOPERATION WITH UTILITIES

Effective: January 1, 1999
Revised: January 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, adop ted by the Department of Transportation.

Replace Article 105.07 of the Standard Specifications with the following:

"**105.07 Cooperation with Utilities.** The adjustment of utilities consists of the relocation, removal, replacement, rearrangements, reconstruction, improvement, disconnection, connection, shifting, new installation or altering of an existing utility facility in any manner.

When the plans or spe cial provisions include information pertaining to the location of underground utility facilities, such information represents only the opinion of the Department as to the location of such utilities and is only included for the convenience of the bidder. The Department assumes no responsibility in respect to the sufficiency or the accuracy of the information shown on the plans relative to the location of the underground utility facilities.

Utilities which are to be adjusted shall be adjusted by the utility owner or the owner's representative or by the Contractor as a contract item. Generally, arrangements for adjusting existing utilities will be made by the Department prior to project construction; however, utilities will not necessarily be adjusted in advance of project construction and, in some cases, utilities will not be removed from the proposed construc tion limits. When utility adjustments must be performed in conjunction with construction, the utility adjustment work will be shown on the plans and/or covered by Special Provisions.

When the Contractor discovers a utility has not been adjusted by the owner or the owner's representative as indicated in the co ntract documents, or the utility is not shown on the plans or described in the Special Provis ions as to be adjusted in conjunction with construction, the Contractor shall not inter fere with said utility, and shall take proper precautions to prevent damage or interruption of the utility and shall promptly notify the Engineer of the nature and location of said utility.

All necessary adjustments, as determined by the Engineer, of utilities not shown on the plans or not identified by markers, will be made at no cost to the C ontractor except traffic structures, light poles, etc., that are nor mally located within the proposed con struction limits as hereinafter defined will not be adjusted unless required by the proposed improvement.

(a) Limits of Proposed Construction for Utilities Paralleling the Roadway. For the purpose of this Article, limits of proposed construction for utilities extending in the same longitudinal direction as the roadway, shall be defined as follows:

(1) The horizontal limits shall be a vertical plane, outside of, parallel to, and 600 mm (2 ft) distant at right angles from the plan or revised slope limits.

In cases where the limits of excavation for structures are not shown on the plans, the horizontal limits shall be a vertical plane 1.2 m (4 ft) outside the edges of structure footings or the structure where no footings are required.

(2) The upper vertical limits shall be the regulations governing the roadbed clearance for the specific utility involved.

(3) The lower vertical limits shall be the top of the utility at the depth below the proposed grade as prescribed by the governing agency or the limits of excavation, whichever is less.

(b) Limits of Proposed Construction for Utilities Crossing the Roadway. For the purpose of this Article, limits of proposed construction for utilities crossing the roadway in a generally transverse direction shall be defined as follows:

(1) Utilities crossing excavations for structures that are normally made by trenching such as sewers, underdrains, etc. and all minor structures such as manholes, inlets, foundations for signs, foundations for traffic signals, etc., the limits shall be the space to be occupied by the proposed permanent construction unless otherwise required by the regulations governing the specific utility involved.

(2) For utilities crossing the proposed site of major structures such as bridges, sign trusses, etc., the limits shall be as defined above for utilities extending in the same general direction as the roadway.

The Contractor may make arrangements for adjustment of utilities outside of the limits of proposed construction provided the Contractor furnishes the Department with a signed agreement with the utility owner covering the adjustments to be made. The cost of any adjustments made outside the limits of proposed construction shall be the responsibility of the Contractor unless otherwise provided.

The Contractor shall request all utility owners to field locate their facilities according to Article 107.31. The Engineer may make the request for location from the utility after receipt of notice from the Contractor. On request, the Engineer will make an inspection to verify that the utility company has field located its facilities, but will not assume responsibility for the accuracy of such work. The Contractor shall be responsible for maintaining the excavations or markers provided by the utility owners. This field location procedure may be waived if the utility owner has stated in writing to the Department it is satisfied the construction plans are sufficiently accurate. If the utility owner does not submit such statement to the Department, and they do not field locate their facilities in both horizontal and vertical alignment, the Engineer will authorize the Contractor in writing to proceed to locate the facilities in the most economical and reasonable manner, subject to the approval of the Engineer, and be paid according to Article 109.04.

The Contractor shall coordinate with any planned utility adjustment or new installation and the Contractor shall take all precautions to prevent disturbance or damage to utility facilities. Any failure on the part of the utility owner, or their representative, to proceed with any planned utility adjustment or new installation shall be reported promptly by the Contractor to the Engineer orally and in writing.

The Contractor shall take all necessary precautions for the protection of the utility facilities. The Contractor shall be responsible for any damage or destruction of utility facilities resulting from neglect, misconduct, or omission in the Contractor's manner or method of execution or nonexecution of the work, or caused by defective work or the use of unsatisfactory materials. Whenever any damage or destruction of a utility facility occurs as a result of work performed by the Contractor, the utility company will be immediately notified. The utility company will make arrangements to restore such facility to a condition equal to that existing before any such damage or destruction was done.

It is understood and agreed that the Contractor has considered in the bid all of the permanent and temporary utilities in their present and/or adjusted positions.

No additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from the said utility facilities or the operation of relocating the said utility facilities.

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

TY LIN INTERNATIONAL CITY OF NAPERVILLE

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

ALKALI-SILICA REACTION FOR CAST-IN-PLACE CONCRETE (BDE)

Effective: August 1, 2007

Description. This special provision is intended to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The special provision is not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate or sodium formate. The special provision shall not apply to the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy. The special provision shall also not apply to precast products or precast prestressed products.

Aggregate Expansion Values. Each coarse and fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II cement having a total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates and 0.03 percent to limestone or dolomite fine aggregates (manufactured stone sand); however the Department reserves the right to perform the ASTM C 1260 test.

Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

AGGREGATE GROUPS			
Coarse Aggregate or Coarse Aggregate Blend ASTM C 1260 Expansion	Fine Aggregate or Fine Aggregate Blend ASTM C 1260 Expansion		
	≤ 0.16%	> 0.16% - 0.27%	> 0.27%
≤ 0.16%	Group I	Group II	Group III
> 0.16% - 0.27%	Group II	Group II	Group III
> 0.27%	Group III	Group III	Group IV

Mixture Options. Based upon the aggregate group, the following mixture options shall be used; however, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

Group I - Mixture options are not applicable. Use any cement or finely divided mineral.
Group II - Mixture options 1, 2, 3, 4, or 5 shall be used.
Group III - Mixture options 1, 2 and 3 combined, 4, or 5 shall be used.
Group IV - Mixture options 1, 2 and 4 combined, or 5 shall be used.

For Class PP-3 concrete the mixture options are not applicable, and any cement may be used with the specified finely divided minerals.

a) Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

Weighted Expansion Value = (a/100 x A) + (b/100 x B) + (c/100 x C) + ...

Where: a, b, c... = percentage of aggregate in the blend;
A, B, C...= expansion value for that aggregate.

b) Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. The replacement ratio is defined as "finely divided mineral:portland cement".

1) Class F Fly Ash. For Class PV, BS, MS, DS, SC, and SI concrete and cement aggregate mixture II (CAM II), Class F fly ash shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

2) Class C Fly Ash. For Class PV, MS, SC, and SI Concrete, Class C fly ash with 18 percent to less than 26.5 percent calcium oxide content, and less than 2.0 percent loss on ignition, shall replace 20 percent of the portland cement at a minimum replacement ratio of 1:1; or at a minimum replacement ratio of 1.25:1 if the loss on ignition is 2.0 percent or greater. Class C fly ash with less than 18 percent calcium oxide content shall replace 20 percent of the portland cement at a minimum replacement ratio of 1.25:1.

For Class PP-1, RR, BS, and DS concrete and CAM II, Class C fly ash with less than 26.5 percent calcium oxide content shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

3) Ground Granulated Blast-Furnace Slag. For Class PV, BS, MS, SI, DS, and SC concrete, ground granulated blast-furnace slag shall replace 25 percent of the portland cement at a minimum replacement ratio of 1:1.

For Class PP-1 and RR concrete, ground granulated blast-furnace slag shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

For Class PP-2, ground granulated blast-furnace slag shall replace 25 to 30 percent of the portland cement at a minimum replacement ratio of 1:1.

4) Microsilica or High Reactivity Metakaolin. Microsilica solids or high reactivity metakaolin shall be added to the mixture at a minimum 25 lb/cu yd (15 kg/cu m) or 27 lb/cu yd (16 kg/cu m) respectively.

c) Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.60 percent. When aggregate in Group II is involved, any finely divided mineral may be used with a portland cement.

d) Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.45 percent. When aggregate in Group II or III is involved, any finely divided mineral may be used with a portland cement.

e) Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly. For latex concrete, the ASTM C 1567 test shall be performed without the latex. The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($Na_2O + 0.658K_2O$), a new ASTM C 1567 test will not be required.

Testing. If an individual aggregate has an ASTM C 1260 expansion value > 0.16 percent, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The ASTM C 1293 test shall be performed with Type I or II cement having a total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container or wick of absorbent material, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 or 1567 test result. The Engineer will not accept the result if the precision and bias for the test methods are not met.

The laboratory performing the ASTM C 1567 test shall be inspected for Hydraulic Cement - Physical Tests by the Cement and Concrete Reference Laboratory (CCRL) and shall be approved by the Department. The laboratory performing the ASTM C 1293 test shall be inspected for Portland Cement Concrete by CCRL and shall be approved by the Department.

ASBESTOS BEARING PAD REMOVAL (BDE)

Effective: November 1, 2003

Description. This work shall consist of the removal and disposal of existing asbestos bearing pads.

The Contractor is advised that the existing bearing pads contain asbestos. All necessary precautions shall be taken in removing, handling, transporting and disposing of the bearing pads. Work shall be in conformance with all governing laws, codes, ordinances or other regulations except that, by agreement with IEPA, it shall not be necessary to notify IEPA or to have a person trained in the asbestos requirements on-site for removal and disposal of asbestos bearing pads.

Documentation. The Engineer will keep records of the removal, handling, transportation and disposal site.

CONSTRUCTION REQUIREMENTS

General. Prior to removal, the asbestos bearing pads shall be thoroughly wetted.

During handling and transportation, the pads shall be covered with an approved wetting material or contained in such a way as to prevent dust or debris from entering the atmosphere.

The asbestos bearing pads shall be hauled to an approved landfill disposal site.

Basis of Payment. This work will be paid for at the contract unit price per each for ASBESTOS BEARING PAD REMOVAL.

80108

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)

Effective: November 2, 2006
Revised: January 2, 2007

Description. For projects with at least 1200 tons (1100 metric tons) of work involving applicable bituminous materials, cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and pavement preservation type surface treatments. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$

Where: CA = Cost Adjustment, $.
BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, $/ton ($/metric ton).
BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting, $/ton ($/metric ton).
$\%AC_V$ = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.
Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: Q, tons = A x D x (G_{mb} x 46.8) / 2000. For HMA mixtures measured in square meters: Q, metric tons = A x D x (G_{mb} x 24.99) / 1000. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: Q, tons = V x 8.33 lb/gal x SG / 2000
For bituminous materials measured in liters: Q, metric tons = V x 1.0 kg/L x SG / 1000

Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).

SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

Percent Difference = $\{(BPI_L - BPI_P) \div BPI_L\} \times 100$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR BITUMINOUS MATERIALS COST ADJUSTMENTS

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract?

Yes ☐ No ☐

Signature: _____ **Date:** _____

80173

CEMENT (BDE)

Effective: January 1, 2007
Revised: November 1, 2007

Revise Section 1001 of the Standard Specifications to read:

"SECTION 1001. CEMENT

1001.01 Cement Types. Cement shall be according to the following.

(a) Portland Cement. Acceptance of portland cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland cement shall be according to ASTM C 150, and shall meet the standard physical and chemical requirements. Type I or Type II may be used for cast-in-place, precast, and precast prestressed concrete. Type III may be used according to Article 1020.04, or when approved by the Engineer. All other cements referenced in ASTM C 150 may be used when approved by the Engineer.

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement and the total of all inorganic processing additions shall be a maximum of 4.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids that improve the flowability of cement, reduce pack set, and improve grinding efficiency. Inorganic processing additions shall be limited to granulated blast-furnace slag according to the chemical requirements of AASHTO M 302 and Class C fly ash according to the chemical requirements of AASHTO M 295.

(b) Portland-Pozzolan Cement. Acceptance of portland-pozzolan cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland-pozzolan cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type IP or I(PM) may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The pozzolan constituent for Type IP shall be a maximum of 21 percent of the weight (mass) of the portland-pozzolan cement. All other cements referenced in ASTM C 595 may be used when approved by the Engineer.

For cast-in-place construction, portland-pozzolan cements shall not be used in concrete mixtures when the air temperature is below 40 °F (4 °C) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-

reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above. Inorganic processing additions shall not be used.

(c) Portland Blast-Furnace Slag Cement. Acceptance of portland blast-furnace slag cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland blast-furnace slag cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type I(SM) slag-modified portland cement may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. All other cements referenced in ASTM C 595 may be used when approved by the Engineer.

For cast-in-place construction, portland blast-furnace slag cements shall not be used in concrete mixtures when the air temperature is below 40 °F (4 °C) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above. Inorganic processing additions shall not be used.

(d) Rapid Hardening Cement. Rapid hardening cement shall be used according to Article 1020.04 or when approved by the Engineer. The cement shall be on the Department's current "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs", and shall be according to the following.

(1) The cement shall have a maximum final set of 25 minutes, according to Illinois Modified ASTM C 191.

(2) The cement shall have a minimum compressive strength of 2000 psi (13,800 kPa) at 3.0 hours, and 4000 psi (27,600 kPa) at 24.0 hours, according to Illinois Modified ASTM C 109.

(3) The cement shall have a maximum drying shrinkage of 0.050 percent at seven days, according to Illinois Modified ASTM C 596.

(4) The cement shall have a maximum expansion of 0.020 percent at 14 days, according to Illinois Modified ASTM C 1038.

(5) The cement shall have a minimum 80 percent relative dynamic modulus of elasticity; and shall not have a weight (mass) gain in excess of 0.15 percent or a weight (mass) loss in excess of 1.0 percent, after 100 cycles, according to Illinois Modified AASHTO T 161, Procedure B. At 100 cycles, the specimens are measured and weighed at 73 °F (23 °C).

(e) Calcium Aluminate Cement. Calcium aluminate cement shall be used when specified by the Engineer. The cement shall meet the standard physical requirements for Type I cement according to ASTM C 150, except the time of setting shall not apply. The chemical requirements shall be determined according to ASTM C 114 and shall be as follows: minimum 38 percent aluminum oxide (Al_2O_3), maximum 42 percent calcium oxide (CaO), maximum 1 percent magnesium oxide (MgO), maximum 0.4 percent sulfur trioxide (SO_3), maximum 1 percent loss on ignition, and maximum 3.5 percent insoluble residue.

1001.02 Uniformity of Color. Cement contained in single loads or in shipments of several loads to the same project shall not have visible differences in color.

1001.03 Mixing Brands and Types. Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall not be mixed or used alternately in the same item of construction unless approved by the Engineer.

1001.04 Storage. Cement shall be stored and protected against damage, such as dampness which may cause partial set or hardened lumps. Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall be kept separate."

80166

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000
Revised: January 1, 2007

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 DBE Directory or most recent addendum.

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.

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 firms 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. This 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 12 % 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 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 forth in this Special Provision:

(a) The bidder documents that firmly committed 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 may consult the DBE Directory as a reference source for DBE companies certified by the Department. 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 web site at www.dot.il.gov.

BIDDING PROCEDURES. Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid not responsive.

(a) In order to assure the timely award of the contract, the as-read low bidder shall submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven working days after the date of letting. To meet the seven day requirement, the bidder may send the Plan by certified mail or delivery service within the seven working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the bidder to ensure that the postmark or receipt date is affixed within the seven working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted 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). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the

project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.

(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. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The name and address of each DBE to be used;

(2) A description, including pay item numbers, of the commercially useful work to be done by each DBE;

(3) The price to be paid to each DBE for the identified work specifically stating 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) A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and

(5) If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).

(d) The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five working day period in order to cure the deficiency.

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 firm 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 firm 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 contact. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.

(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 or 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.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt 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 could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those 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.

(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 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 a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will designate a five working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.

(c) The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five working days after 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 pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. 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 whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

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 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.

(a) 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) All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to

find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

(c) 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 therefor 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 Report on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the Report 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 Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

(d) 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.

(e) 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.

DOWEL BARS (BDE)

Effective: April 1, 2007
Revised: January 1, 2008

Revise the fifth and sixth sentences of Article 1006.11(b) of the Standard Specifications to read:

"The bars shall be epoxy coated according to AASHTO M 284, except the thickness of the epoxy shall be 7 to 12 mils (0.18 to 0.30 mm) and patching of the ends will not be required. The epoxy coating applicator shall be certified according to the current Bureau of Materials and Physical Research Policy Memorandum, "Epoxy Coating Plant Certification Procedure". The Department will maintain an approved list."

80178

ELECTRICAL SERVICE INSTALLATION - TRAFFIC SIGNALS (BDE)

Effective: January 1, 2007

Add the following to Article 805.02 of the Standard Specifications:

"(d) Wood Pole ..... 1069.04"

Add the following to Article 805.03 of the Standard Specifications:

"When a service pole is necessary, it shall be installed according to Article 830.03(c)."

80167

EQUIPMENT RENTAL RATES (BDE)

Effective: August 2, 2007
Revised: January 2, 2008

Replace the second and third paragraphs of Article 105.07(b)(4)a. of the Standard Specifications with the following:

"Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4)."

Replace Article 109.04(b)(4) of the Standard Specifications with the following:

"(4) Equipment. Equipment used for extra work shall be authorized by the Engineer. The equipment shall be specifically described, be of suitable size and capacity for the work to be performed, and be in good operating condition. For such equipment, the Contractor will be paid as follows.

a. Contractor Owned Equipment. Contractor owned equipment will be paid for by the hour using the applicable FHWA hourly rate from the "Equipment Watch Rental Rate Blue Book" (Blue Book) in effect when the force account work begins. The FHWA hourly rate is calculated as follows.

FHWA hourly rate = (monthly rate/176) x (model year adj.) x (Illinois adj.) + EOC

Where: EOC = Estimated Operating Costs per hour (from the Blue Book)

The time allowed will be the actual time the equipment is operating on the extra work. For the time required to move the equipment to and from the site of the extra work and any authorized idle (standby) time, payment will be made at the following hourly rate: 0.5 x (FHWA hourly rate - EOC).

All time allowed shall fall within the working hours authorized for the extra work.

The rates above include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profits, insurance, and all incidentals. The rates do not include labor.

The Contractor shall submit to the Engineer sufficient information for each piece of equipment and its attachments to enable the Engineer to determine the proper equipment category. If a rate is not established in the Blue Book for a particular piece of equipment, the Engineer will establish a rate for that piece of equipment that is consistent with its cost and use in the industry.

b. Rented Equipment. Whenever it is necessary for the Contractor to rent equipment to perform extra work, the rental and transportation costs of the equipment plus five percent for overhead will be paid. In no case shall the rental rates exceed those of established distributors or equipment rental agencies.

All prices shall be agreed to in writing before the equipment is used."

80189

EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: April 1, 2007

Revise Article 105.03(a) of the Standard Specifications to read:

"(a) Erosion and Sediment Control Deficiency Deduction. When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 1 week based on the urgency of the situation and the nature of the deficiency. The Engineer will be the sole judge.

A deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for Construction Site Activities. A deficiency may also be applied to situations where corrective action is not an option such as the failure to participate in a jobsite inspection of the project, failure to install required measures prior to initiating earth moving operations, disregard of concrete washout requirements, or other disregard of the NPDES permit.

If the Contractor fails to correct a deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with notification to the Contractor and end with the Engineer's acceptance of the correction. The daily monetary deduction will be either $1000.00 or 0.05 percent of the awarded contract value, whichever is greater. For those deficiencies where corrective action was not an option, the monetary deduction will be immediate and will be valued at one calendar day."

80180

HMA - HAULING ON PARTIALLY COMPLETED FULL-DEPTH PAVEMENT (BDE)

Effective: January 1, 2008

Revise Article 407.08 of the Standard Specifications to read:

"**407.08 Hauling on the Partially Completed Full-Depth Pavement.** Legally loaded trucks will be permitted on the partially completed full-depth HMA pavement only to deliver HMA mixture to the paver, provided the last lift has cooled a minimum of 12 hours. Hauling shall be limited to the distances shown in the following tables. The pavement surface temperature shall be measured using an infrared gun. The use of water to cool the pavement to permit hauling will not be allowed. The Contractor's traffic pattern shall minimize hauling on the partially completed pavement and shall vary across the width of the pavement such that "tracking" of vehicles, one directly behind the other, does not occur.

MAXIMUM HAULING DISTANCE FOR PAVEMENT SURFACE TEMPERATURE BELOW 105 °F (40 °C)				
Total In-Place Thickness Being Hauled On, in. (mm)	Thickness of Lift Being Placed			
	3 in. (75 mm) or less		More than 3 in. (75 mm)	
	Modified Soil Subgrade	Granular Subbase	Modified Soil Subgrade	Granular Subbase
3.0 to 4.0 (75 to 100)	0.75 miles (1200 m)	1.0 mile (1600 m)	0.50 miles (800 m)	0.75 miles (1200 m)
4.1 to 5.0 (101 to 125)	1.0 mile (1600 m)	1.5 miles (2400 m)	0.75 miles (1200 m)	1.0 mile (1600 m)
5.1 to 6.0 (126 to 150)	2.0 miles (3200 m)	2.5 miles (4000 m)	1.5 miles (2400 m)	2.0 miles (3200 m)
6.1 to 8.0 (151 to 200)	2.5 miles (4000 m)	3.0 miles (4800 m)	2.0 miles (3200 m)	2.5 miles (4000 m)
Over 8.0 (200)	No Restrictions			

MAXIMUM HAULING DISTANCE FOR PAVEMENT SURFACE TEMPERATURE OF 105 °F (40 °C) AND ABOVE				
Total In-Place Thickness Being Hauled On, in. (mm)	Thickness of Lift Being Placed			
	3 in. (75 mm) or less		More than 3 in. (75 mm)	
	Modified Soil Subgrade	Granular Subbase	Modified Soil Subgrade	Granular Subbase
3.0 to 4.0 (75 to 100)	0.50 miles (800 m)	0.75 miles (1200 m)	0.25 miles (400 m)	0.50 miles (800 m)
4.1 to 5.0 (101 to 125)	0.75 miles (1200 m)	1.0 mile (1600 m)	0.50 miles (800 m)	0.75 miles (1200 m)
5.1 to 6.0 (126 to 150)	1.0 mile (1600 m)	1.5 miles (2400 m)	0.75 miles (1200 m)	1.0 mile (1600 m)
6.1 to 8.0 (151 to 200)	2.0 miles (3200 m)	2.5 miles (4000 m)	1.5 miles (2400 m)	2.0 miles (3200 m)
Over 8.0 (200)	No Restrictions			

Permissive hauling on the partially completed pavement shall not relieve the Contractor of his/her responsibility for damage to the pavement. Any portion of the full-depth HMA pavement that is damaged by hauling shall be removed and replaced, or otherwise repaired to the satisfaction of the Engineer.

Crossovers used to transfer haul trucks from one roadway to the other shall be at least 1000 ft (300 m) apart and shall be constructed of material that will prevent tracking of dust or mud on the completed HMA lifts. The Contractor shall construct, maintain, and remove all crossovers."

80194

HOT-MIX ASPHALT - FIELD VOIDS IN THE MINERAL AGGREGATE (BDE)

Effective: April 1, 2007
Revised: April 1, 2008

Add the following to the table in Article 1030.05(d)(2)a. of the Standard Specifications:

"Parameter	Frequency of Tests High ESAL Mixture Low ESAL Mixture	Frequency of Tests All Other Mixtures	Test Method See Manual of Test Procedures for Materials
VMA Note 5.	Day's production ≥ 1200 tons: 1 per half day of production	N/A	Illinois-Modified AASHTO R 35
	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 5. 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."

Add the following to the Control Limits table in Article 1030.05(d)(4) of the Standard Specifications:

"CONTROL LIMITS			
Parameter	High ESAL Low ESAL Individual Test	High ESAL Low ESAL Moving Avg. of 4	All Other Individual Test
VMA	-0.7 % 2/	-0.5 % 2/	N/A

2/ Allowable limit below minimum design VMA requirement"

Add the following to the table in Article 1030.05(d)(5) of the Standard Specifications:

"CONTROL CHART REQUIREMENTS	High ESAL Low ESAL	All Other
	VMA"	

Revise the heading of Article 1030.05(d)(6)a.1. of the Standard Specifications to read:

"1. Voids, VMA, and Asphalt Binder Content."

Revise the first sentence of the first paragraph of Article 1030.05(d)(6)a.1.(a.) of the Standard Specifications to read:

"If the retest for voids, VMA, or asphalt binder content exceeds control limits, HMA production shall cease and immediate corrective action shall be instituted by the Contractor."

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

"Test Parameter	Acceptable Limits of Precision
% Passing: 1/	
1/2 in. (12.5 mm)	5.0 %
No. 4 (4.75 mm)	5.0 %
No. 8 (2.36 mm)	3.0 %
No. 30 (600 μm)	2.0 %
Total Dust Content No. 200 (75 μm) 1/	2.2 %
Asphalt Binder Content	0.3 %
Maximum Specific Gravity of Mixture	0.026
Bulk Specific Gravity	0.030
VMA	1.4 %
Density (% Compaction)	1.0 % (Correlated)

1/ Based on washed ignition."

80181

HOT-MIX ASPHALT – PLANT TEST FREQUENCY (BDE)

Effective: April 1, 2008

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	Frequency of Tests All Other Mixtures	Test Method See Manual of Test Procedures for Materials
Aggregate Gradation Hot bins for batch and continuous plants. Individual cold-feed or combined belt-feed for drier drum plants. % 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) Note 1.	1 dry gradation per day of production (either morning or afternoon sample). and 1 washed ignition oven test on the mix per day of production (conduct in the afternoon if dry gradation is conducted in the morning or vice versa). Note 3. Note 4.	1 gradation per day of production. The first day of production shall be a washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix. Note 4.	Illinois Procedure
Asphalt Binder Content by Ignition Oven Note 2.	1 per half day of production	1 per day	Illinois-Modified AASHTO T 308
Air Voids Bulk Specific Gravity of Gyratory Sample	Day's production ≥ 1200 tons: 1 per half day of production	1 per day	Illinois-Modified AASHTO T 312
	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)		

"Parameter	Frequency of Tests High ESAL Mixture Low ESAL Mixture	Frequency of Tests All Other Mixtures	Test Method See Manual of Test Procedures for Materials
Maximum Specific Gravity of Mixture	Day's production ≥ 1200 tons: 1 per half day of production	1 per day	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)		

80201

HOT-MIX ASPHALT – TRANSPORTATION (BDE)

Effective: April 1, 2008

Revise Article 1030.08 of the Standard Specifications to read:

"**1030.08 Transportation.** Vehicles used in transporting HMA shall have clean and tight beds. The beds shall be sprayed with asphalt release agents from the Department's approved list. In lieu of a release agent, the Contractor may use a light spray of water with a light scatter of manufactured sand (FA 20 or FA 21) evenly distributed over the bed of the vehicle. After spraying, the bed of the vehicle shall be in a completely raised position and it shall remain in this position until all excess asphalt release agent or water has been drained.

When the air temperature is below 60 °F (15 °C), the bed, including the end, endgate, sides and bottom shall be insulated with fiberboard, plywood or other approved insulating material and shall have a thickness of not less than 3/4 in (20 mm). When the insulation is placed inside the bed, the insulation shall be covered with sheet steel approved by the Engineer. Each vehicle shall be equipped with a cover of canvas or other suitable material meeting the approval of the Engineer which shall be used if any one of the following conditions is present.

(a) Ambient air temperature is below 60 °F (15 °C).

(b) The weather is inclement.

(c) The temperature of the HMA immediately behind the paver screed is below 250 °F (120 °C).

The cover shall extend down over the sides and ends of the bed for a distance of approximately 12 in. (300 mm) and shall be fastened securely. The covering shall be rolled back before the load is dumped into the finishing machine."

80202

IMPACT ATTENUATORS, TEMPORARY (BDE)

Effective: November 1, 2003
Revised: January 1, 2007

Description. This work shall consist of furnishing, installing, maintaining, and removing temporary impact attenuators of the category and test level specified.

Materials. Materials shall meet the requirements of the impact attenuator manufacturer and the following:

Item	Article/Section
(a) Fine Aggregate (Note 1)	1003.01
(b) Steel Posts, Structural Shapes, and Plates	1006.04
(c) Rail Elements, End Section Plates, and Splice Plates	1006.25
(d) Bolts, Nuts, Washers and Hardware	1006.25
(e) Hollow Structural Tubing	1006.27(b)
(f) Wood Posts and Wood Blockouts	1007.01, 1007.02, 1007.06
(g) Preservative Treatment	1007.12
(h) Packaged Rapid Hardening Mortar	1018.01

Note 1. Fine aggregate shall be FA 1 or FA 2, Class A quality. The sand shall be unbagged and shall have a maximum moisture content of five percent.

CONSTRUCTION REQUIREMENTS

General. Impact Attenuators shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 for the test level specified and shall be on the Department's approved list.

Installation. Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer's specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage.

Impact attenuators shall be installed according to the manufacturer's specifications and include all necessary transitions between the impact attenuator and the item to which it is attached.

When water filled attenuators are used between November 1 and April 15, they shall contain anti-freeze according to the manufacturer's recommendations.

Markings. Sand module impact attenuators shall be striped with alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes. There shall be at least two of each stripe on each module.

Other types of impact attenuators shall have a terminal marker applied to their nose and reflectors along their sides.

Maintenance. All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

Relocate. When relocation of temporary impact attenuators is specified, they shall be removed, relocated and reinstalled at the new location. The reinstallation requirements shall be the same as those for a new installation.

Removal. When the Engineer determines the temporary impact attenuators are no longer required, the installation shall be dismantled with all hardware becoming the property of the Contractor.

Surplus material shall be disposed of according to Article 202.03. Anti-freeze, when present, shall be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement, the anchor holes shall be repaired with rapid set mortar Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, RESETTABLE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

80110

MAST ARM ASSEMBLY AND POLE (BDE)

Effective: January 1, 2008

Revise Article 1077.03 of the Standard Specifications to read:

"**1077.03 Mast Arm Assembly and Pole.** Mast arm assembly and pole shall be as follows.

(a) Steel Mast Arm Assembly and Pole and Steel Combination Mast Arm Assembly and Pole. The steel mast arm assembly and pole and steel combination mast arm assembly and pole shall consist of a traffic signal mast arm, a luminaire mast arm or davit (for combination pole only), a pole, and a base, together with anchor rods and other appurtenances. The configuration of the mast arm assembly, pole, and base shall be according to the details shown on the plans.

(1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 1994 Edition for 80 mph (130 km/hr) wind velocity. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the "ring plate" detail as shown in Figure 11-1(f) of the 2002 Interim, to the AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 2001 4th Edition.

(2) Structural Steel Grade. The mast arm and pole shall be fabricated according to ASTM A 595, Grade A or B, ASTM A 572 Grade 55, or ASTM A 1011 Grade 55 HSLAS Class 2. The base and flange plates shall be of structural steel according to AASHTO M 270 Grade 50 (M 270M Grade 345). Luminaire arms and trussed arms 15 ft (4.5 m) or less shall be fabricated from one steel pipe or tube size according to ASTM A 53 Grade B or ASTM A 500 Grade B or C. All mast arm assemblies, poles, and bases shall be galvanized according to AASHTO M 111.

(3) Fabrication. The design and fabrication of the mast arm assembly, pole, and base shall be according to the requirements of the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals published by AASHTO. The mast arm and pole may be of single length or sectional design. If section design is used, the overlap shall be at least 150 percent of the maximum diameter of the overlapping section and shall be assembled in the factory.

The manufacturer will be allowed to slot the base plate in which other bolt circles may fit, providing that these slots do not offset the integrity of the pole. Circumferential welds of tapered arms and poles to base plates shall be full penetration welds.

(4) Shop Drawing Approval. The Contractor shall submit detailed drawings showing design materials, thickness of sections, weld sizes, and anchor rods to the Engineer

for approval prior to fabrication. These drawings shall be at least 11 x 17 in. (275 x 425 mm) in size and of adequate quality for microfilming.

(b) Anchor Rods. The anchor rods shall be ASTM F 1554 Grade 105 according to Article 1006.09 and shall be threaded a minimum of 7 1/2 in. (185 mm) at one end and have a bend at the other end. The first 10 in. (250 mm) at the threaded end shall be galvanized. Two nuts, one lock washer, and one flat washer shall be furnished with each anchor rod. All nuts and washers shall be galvanized."

80196

MULTILANE PAVEMENT PATCHING (BDE)

Effective: November 1, 2002

Pavement broken and holes opened for patching shall be completed prior to weekend or holiday periods. Should delays of any type or for any reason prevent the completion of the work, temporary patches shall be constructed. Material able to support the average daily traffic and meeting the approval of the Engineer shall be used for the temporary patches. The cost of furnishing, placing, maintaining, removing and disposing of the temporary work, including traffic control, shall be the responsibility of the Contractor.

80082

NOTCHED WEDGE LONGITUDINAL JOINT (BDE)

Effective: July 1, 2004
Revised: January 1, 2007

Description. This work shall consist of constructing a notched wedge longitudinal joint between successive passes of hot-mix asphalt (HMA) binder course that is placed in 2 1/4 in. (57 mm) or greater lifts on pavement that is open to traffic.

The notched wedge longitudinal joint shall consist of a 1 to 1 1/2 in. (25 to 38 mm) vertical notch at the centerline or lane line, a 9 to 12 in. (230 to 300 mm) uniform taper extending into the open lane, and a second 1 to 1 1/2 in. (25 to 38 mm) vertical notch (see Figure 1).

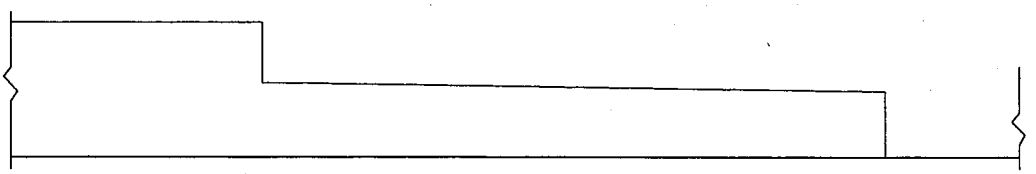


Figure 1

Equipment. Equipment shall meet the following requirements:

a) Strike Off Device. The strike off device shall produce the notches and wedge of the joint and shall be adjustable. The device shall be attached to the paver and shall not restrict operation of the main screed.

b) Wedge Roller. The wedge roller shall have a minimum diameter of 12 in. (300 mm), a minimum weight of 50 lb/in. (9 N/mm) of width, and a width equal to the wedge. The roller shall be attached to the paver.

CONSTRUCTION REQUIREMENTS

Joint Construction. The notched wedge longitudinal joint shall be formed by the strike off device on the paver. The wedge shall then be compacted by the joint roller.

Compaction. Initial compaction of the wedge shall be as close to final density as possible. Final density requirements of the entire binder mat, including the wedge, shall remain unchanged.

Prime Coat. Immediately prior to placing the adjacent lift of binder, the bituminous material specified for the mainline prime coat shall be applied to the entire face of the notched wedge longitudinal joint. The material shall be uniformly applied at a rate of 0.05 to 0.1 gal/sq yd (0.2 to 0.5 L/sq m).

Method of Measurement. The notched wedge longitudinal joint will not be measured for payment.

The prime coat will be measured for payment according to Article 406.13 of the Standard Specifications.

Basis of Payment. The work of constructing the notched wedge longitudinal joint will not be paid for separately but shall be considered as included in the cost of the HMA binder course being constructed.

The prime coat will be paid for according to Article 406.14 of the Standard Specifications.

80129

NOTIFICATION OF REDUCED WIDTH (BDE)

Effective: April 1, 2007

Add the following after the first paragraph of Article 701.06 of the Standard Specifications:

"Where the clear width through a work zone with temporary concrete barrier will be 16.0 ft (4.88 m) or less, the Contractor shall notify the Engineer at least 21 days in advance of implementing the traffic control for that restriction."

80182

ORGANIC ZINC-RICH PAINT SYSTEM (BDE)

Effective: November 1, 2001
Revised: January 1, 2008

Add the following to Section 1008 of the Standard Specifications:

"**1008.05 Organic Zinc-Rich Paint System.** The organic zinc-rich paint system shall consist of an organic zinc-rich primer, an epoxy or urethane intermediate coat, and aliphatic urethane finish coats. It is intended for use over blast-cleaned steel when three-coat shop applications are specified. The system is also suitable for field painting blast-cleaned existing structures.

The coating system shall be evaluated for performance through the National Transportation Product Evaluation Program (NTPEP) for Structural Steel Coatings following the requirements of AASHTO R 31, and shall meet the performance criteria listed herein. After successful NTPEP testing, the coatings shall be submitted to the Illinois Department of Transportation, Bureau of Materials and Physical Research, for qualification and acceptance testing.

(a) General Requirements.

(1) Compatibility. Each coating in the system shall be supplied by the same paint manufacturer.

(2) Toxicity. Each coating shall contain less than 0.01 percent lead in the dry film and no more than trace amounts of hexavalent chromium, cadmium, mercury or other toxic heavy metals.

(3) Volatile Organics. The volatile organic compounds of each coating shall not exceed 3.5 lb/gal (420 g/L) as applied.

(b) Panel Preparation for NTPEP testing. The test panels shall be prepared according to AASHTO R 31, except for the following: Test panels shall be scribed according to ASTM D 1654 with a single "X" mark centered on the panel. The rectangular dimensions of the scribe shall have a top width of 2 in. (50 mm) and a height of 4 in. (100 mm). The scribe cut shall expose the steel substrate as verified with a microscope.

(c) Zinc-Rich Primer Requirements.

(1) Generic Type. This material shall be an organic zinc-rich epoxy or urethane primer. It shall be suitable for topcoating with epoxies, urethanes, and acrylics.

(2) Zinc Dust. The zinc dust pigment shall comply with ASTM D 520, Type II.

(3) Slip Coefficient. The organic zinc coating shall meet a Class B AASHTO slip coefficient (0.50 or greater) for structural steel joints using ASTM A 325 (A 325M) or A 490 (A 490M) bolts.

(4) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 900 psi (6.2 MPa) when tested according to ASTM D 4541 Annex A4.

(5) Unit Weight. The unit weight of the mixed material shall be within 0.4 lb/gal (48 kg/cu m) of the original qualification sample unit weight when tested according to ASTM D 1475.

(6) Percent Solids by Weight of Mixed Primer. The percent solids by weight for the mixed material shall be a minimum of 70 percent and shall not vary more than ±2 percentage points from the percent solids by weight of the original qualification samples when tested according to ASTM D 2369.

(7) Percent Solids by Weight of Vehicle Component. The percent solids by weight of the vehicle component shall not vary more than ±2 percentage points from the percent solids by weight of the original qualification samples when tested according to ASTM D 2369.

(8) Viscosity. The viscosity of the mixed material shall not vary more than ±10 Krebs Units from the original qualification sample viscosity when tested according to ASTM D 562 at 77 °F (25 °C).

(9) Dry Set to Touch. The mixed material when applied at 6 mils (150 microns) wet film thickness shall have a dry set to touch of 30 minutes or less when tested according to ASTM D 1640 at 77°°F (25 °C).

(10) Pot Life. After sitting eight hours at 77°°F (25 °C), the mixed material shall not show curdling, gelling, gassing, or hard caking.

(d) Intermediate Coat Requirements.

(1) Generic Type. This material shall be an epoxy or urethane. It shall be suitable as an intermediate coat over inorganic and organic zinc primers and compatible with acrylic, epoxy, and polyurethane topcoats.

(2) Color. The color of the intermediate coat shall be white, off-white, or beige.

(3) Unit Weight. The unit weight of the mixed material and the unit weight of the individual components shall be within 0.20 lb/gal (24 kg/cu m) of the original qualification sample unit weights when tested according to ASTM D 1475.

(4) Percent Solids by Weight. The percent solids by weight for the mixed material shall not vary more than ±2 percentage points from the percent solids by weight of the original qualification samples when tested according to ASTM D 2369.

(5) Dry Time. The mixed material shall be dry to touch in two hours and dry hard in eight hours when applied at 10 mils (255 microns) wet film thickness and tested according to ASTM D 1640.

(6) Viscosity. The viscosity of the mixed material shall not vary more than ±10 Krebs Units from the original qualification samples when tested according to ASTM D 562 at 77 °F (25 °C).

(7) Pot Life. After sitting two hours at 77°°F (25 °C), the mixed material shall not show curdling, gelling, gassing, or hard caking.

(e) Urethane Finish Coat Requirements.

(1) Generic Type. This material shall be an aliphatic urethane. It shall be suitable as a topcoat over epoxies and urethanes.

(2) Color and Hiding Power. The finish coat shall match Munsell Glossy Color 7.5G 4/8 Interstate Green, 2.5YR 3/4 Reddish Brown, 10B 3/6 Blue, or 5B 7/1 Gray. The color difference shall not exceed 3.0 Hunter Delta E Units. Color difference shall be measured by instrumental comparison of the designated Munsell standard to a minimum dry film thickness of 3 mils (75 microns) of sample coating produced on a test panel according to ASTM D 823, Practice E, Hand–Held, Blade Film Application. Color measurements shall be determined on a spectrophotometer with 45 degrees circumferential/zero degrees geometry, illuminant C, and two degrees observer angle. The spectrophotometer shall measure the visible spectrum from 380-720 nanometers with a wavelength interval and spectral bandpass of 10 nanometers.

(3) Contrast Ratio. The contrast ratio of the finish coat applied at 3 mils (75 microns) dry film thickness shall not be less than 0.99 when tested according to ASTM D 2805.

(4) Weathering Resistance. Test panels shall be aluminum alloy measuring 12 x 4 in. (300 x 100 mm) prepared according to ASTM D 1730 Type A, Method 1 Solvent Cleaning. A minimum dry film thickness of 3 mils (75 microns) of finish coat shall be applied to three test panels according to ASTM D 823, Practice E, Hand Held Blade Film Application. The coated panels shall be cured at least 14 days at 75 °F ± 2 °F (24 °C ± 1 °C) and 50 ± 5 percent relative humidity. The panels shall be subjected to 300 hours of accelerated weathering using the light and water exposure apparatus (fluorescent UV - condensation type) as specified in ASTM G 53-96 and ASTM G 154 (equipped with UVB-313 lamps). The cycle shall consist of eight hours UV exposure at 140 °F (60 °C) followed by four hours of condensation at 104 °F (40 °C). After exposure, rinse the panel with clean water; allow to dry at room temperature for one hour. The exposed panels shall not show a color change of more than 3 Hunter Delta E Units.

(5) Dry Time. The mixed material shall be dry to touch in two hours and dry hard in six hours when applied at 6 mils (150 microns) wet film thickness and tested according to ASTM D 1640.

(f) Three Coat System Requirements.

(1) Finish Coat Color. For NTPEP testing purposes, the color of the finish coat shall match the latest applicable AASHTO R 31 specified color.

(2) Salt Fog. When tested according to ASTM B 117 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after scraping after 5,000 hours of salt fog exposure:

Salt Fog Acceptance Criteria		
Blister Criteria	Rust Criteria	
Conversion Value	Maximum Creep	Average Creep
9	4 mm	2 mm

(3) Cyclic Exposure. When tested according to ASTM D 5894 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of cyclic exposure:

Cyclic Exposure Acceptance Criteria		
Blister Criteria	Rust Criteria	
Conversion Value	Maximum Creep	Average Creep
9	7 mm	4 mm

(4) Abrasion. The abrasion resistance shall be evaluated according to ASTM D 4060 using a Taber Abrader with a 2.20 lb (1000 gram) load and CS 17 wheels. The duration of the test shall be 1,000 cycles. The loss shall be calculated by difference and be less than 0.00049 lb (220 mgs).

(5) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 900 psi (6.2 MPa) when tested according to ASTM D 4541 Annex A4.

(6) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24 hour cycle shall consist of 16 hours of approximately -22 °F (-30 °C) followed by four hours of thawing at 122 °F (50 °C) and four hours tap water immersion at 77 °F (25 °C). The test panels shall remain in the freezer mode on weekends and holidays.

(g) Sampling, Testing, Acceptance, and Certification. Sampling, testing, acceptance, and certification of the coating system shall be according to Article 1008.01."

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000
Revised: January 1, 2006

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section

7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

80022

PLASTIC BLOCKOUTS FOR GUARDRAIL (BDE)

Effective: November 1, 2004
Revised: January 1, 2007

Add the following to Article 630.02 of the Standard Specifications:

"(g) Plastic Blockouts (Note 1.)

Note 1. Plastic blockouts may be used in lieu of wood blockouts for steel plate beam guardrail. The plastic blockouts shall be the minimum dimensions shown on the plans and shall be on the Departm ent's approved list."

80134

PORTLAND CEMENT CONCRETE PLANTS (BDE)

Effective: January 1, 2007

Add the following to Article 1020.11(a) of the Standard Specifications.

"(9) Use of Multiple Plants in the Same Construction Item. The Contractor may simultaneously use central-mixed, truck-mixed, and shrink-mixed concrete from more than one plant, for the same construction item, on the same day, and in the same pour. However, the following criteria shall be met.

a. Each plant shall use the same cement, finely divided minerals, aggregates, admixtures, and fibers.

b. Each plant shall use the same mix design. However, material proportions may be altered slightly in the field to meet slump and air content criteria. Field water adjustments shall not result in a difference that exceeds 0.02 between plants for water/cement ratio. The required cement factor for central-mixed concrete shall be increased to match truck-mixed or shrink-mixed concrete, if the latter two types of mixed concrete are used in the same pour.

c. The maximum slump difference between deliveries of concrete shall be 3/4 in. (19 mm) when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the slump difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for slump by the Contractor. Thereafter, when a specified test frequency for slump is to be performed, it shall be conducted for each plant at the same time.

d. The maximum air content difference between deliveries of concrete shall be 1.5 percent when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the air content difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for air content by the Contractor. Thereafter, when a specified test frequency for air content is to be performed, it shall be conducted for each plant at the same time.

e. Strength tests shall be performed and taken at the jobsite for each plant. When a specified strength test is to be performed, it shall be conducted for each plant at the same time. The difference between plants for their mean strength shall not exceed 450 psi (3100 kPa) compressive and 80 psi (550 kPa) flexural. The strength standard deviation for each plant shall not exceed 650 psi (4480 kPa) compressive and 110 psi (760 kPa) flexural. The mean and standard deviation requirements shall apply to the test of record. If the strength difference requirements are exceeded, the Contractor shall take corrective action.

f. The maximum haul time difference between deliveries of concrete shall be 15 minutes. If the difference is exceeded, but haul time is within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and check subsequent deliveries of concrete until the haul time difference is corrected."

80170

PRECAST CONCRETE HANDLING HOLES (BDE)

Effective: January 1, 2007

Add the following to Article 540.02 of the Standard Specifications:

"(g) Handling Hole Plugs ..... 1042.16"

Add the following paragraph after the sixth paragraph of Article 540.06 of the Standard Specifications:

"Handling holes shall be filled with a precast concrete plug and sealed with mastic or mortar, or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation. When metal lifting inserts are used, their sockets shall be filled with mastic or mortar."

Add the following to Article 542.02 of the Standard Specifications:

"(ee) Handling Hole Plugs ..... 1042.16"

Revise the fifth paragraph of Article 542.04(d) of the Standard Specifications to read:

"Handling holes in concrete pipe shall be filled with a precast concrete plug and sealed with mastic or mortar; or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation."

Add the following to Article 550.02 of the Standard Specifications:

"(o) Handling Hole Plugs ..... 1042.16"

Replace the fourth sentence of the fifth paragraph of Article 550.06 of the Standard Specifications with the following:

"Handling holes in concrete pipe shall be filled with a precast concrete plug and sealed with mastic or mortar; or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation."

Add the following to Article 602.02 of the Standard Specifications:

"(p) Handling Hole Plugs ..... 1042.16(a)"

Replace the fifth sentence of the first paragraph of Article 602.07 of the Standard Specifications with the following:

"Handling holes shall be filled with a precast concrete plug and sealed with mastic or mortar. The plug shall not project beyond the inside surface after installation. When metal lifting inserts are used, their sockets shall be filled with mastic or mortar."

Add the following to Section 1042 of the Standard Specifications:

"**1042.16 Handling Hole Plugs.** Plugs for handling holes in precast concrete pr oducts shall be as follows.

(a) Precast Concrete Plug. The precast concrete plug shall have a tapered shape and shall have a minimum compressive strength of 3000 psi (20,700 kPa) at 28 days.

(b) Polyethylene Plug. The polyethylene plug shall have a "mushroom" shape with a flat round top and a stem with three different size ribs. The plug shall fit snuggly and cover the handling hole.

The plug shall be according to the following.

Mechanical Properties	Test Method	Value (min.)
Flexural Modulus	ASTM D 790	3300 psi (22,750 kPa)
Tensile Strength (Break)	ASTM D 638	1600 psi (11,030 kPa)
Tensile Strength (Yield)	ASTM D 638	1200 psi (8270 kPa)

Thermal Properties	Test Method	Value (min.)
Brittle Temperature	ASTM D 746	-49 °F (-45 °C)
Vicat Softening Point	ASTM D 1525	194 °F (90 °C)"

80171

PUBLIC CONVENIENCE AND SAFETY (BDE)

Effective: January 1, 2000

Add the following paragraph after the fourth 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."

80015

REFLECTIVE SHEETING ON CHANNELIZING DEVICES (BDE)

Effective: April 1, 2007

Revise the seventh paragraph of Article 1106.02 of the Standard Specifications to read:

"At the time of manufacturing, the retroreflective prismatic sheeting used on channelizing devices shall meet or exceed the initial minimum coefficient of retroreflection as specified in the following table. Measurements shall be conducted according to ASTM E 810, without averaging. Sheeting used on cones, drums and flexible delineators shall be reboundable as tested according to ASTM D 4956. Prestriped sheeting for rigid substrates on barricades shall be white and orange.

Initial Minimum Coefficient of Retroreflection candelas/foot candle/sq ft (candelas/lux/sq m) of material				
Observation Angle (deg.)	Entrance Angle (deg.)	White	Orange	Fluorescent Orange
0.2	-4	365	160	150
0.2	+30	175	80	70
0.5	-4	245	100	95
0.5	+30	100	50	40"

Revise the first sentence of the first paragraph of Article 1106.02(c) of the Standard Specifications to read:

"Barricades and vertical panels shall have alternating white and orange stripes sloping downward at 45 degrees toward the side on which traffic will pass."

Revise the third sentence of the first paragraph of Article 1106.02(d) of the Standard Specifications to read:

"The bottom panels shall be 8 x 24 in. (200 x 600 mm) with alternating white and orange stripes sloping downward at 45 degrees toward the side on which traffic will pass."

80183

REINFORCEMENT BARS (BDE)

Effective: November 1, 2005
Revised: January 2, 2008

Revise Article 1006.10(a) of the Standard Specifications to read:

" (a) Reinforcement Bars. Reinforcement bars will be accepted according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reinforcement Bar and/or Dowel Bar Plant Certification Procedure". The Department will maintain an approved list of producers.

(1) Reinforcement Bars (Non-Coated). Reinforcement bars shall be according to ASTM A 706 (A 706M), Grade 60 (420) for deformed bars and the following.

a. For straight bars furnished in cut lengths and with a well-defined yield point, the yield point shall be determined as the elastic peak load, identified by a halt or arrest of the load indicator before plastic flow is sustained by the bar and dividing it by the nominal cross-sectional area of the bar.

b. For bars without a well-defined yield point, including bars straightened from coils, the yield strength shall be determined by taking the corresponding load at 0.005 strain as measured by an extensometer (0.5% elongation under load) and dividing it by the nominal cross-sectional area of the bar.

c. For bars straightened from coils or bars bent from fabrication, there shall be no upper limit on yield strength; and for bar designation Nos. 3 - 6 (10 - 19), the elongation after rupture shall be at least 9%.

d. Heat Numbers. Bundles or bars at the construction site shall be marked or tagged with heat identification numbers of the bar producer.

e. Guided Bend Test. Bars may be subject to a guided bend test across two pins which are free to rotate, where the bending force shall be centrally applied with a fixed or rotating pin of a certain diameter as specified in Table 3 of ASTM A 706 (A 706M). The dimensions and clearances of this guided bend test shall be according to ASTM E 190.

f. Spiral Reinforcement. Spiral reinforcement shall be deformed or plain bars conforming to the above requirements or cold-drawn steel wire conforming to AASHTO M 32.

(2) Epoxy Coated Reinforcement Bars. Epoxy coated reinforcement bars shall be according to Article 1006.10(a)(1) and shall be epoxy coated according to AASHTO M 284 (M 284M) and the following.

a. Certification. The epoxy coating applicator shall be certified according to the current Bureau of Materials and Physical Research Policy Memorandum, "Epoxy Coating Plant Certification Procedure". The Department will maintain an approved list.

b. Coating Thickness. The thickness of the epoxy coating shall be 7 to 12 mils (0.18 to 0.30 mm). When spiral reinforcement is coated after fabrication, the thickness of the epoxy coating shall be 7 to 20 mils (0.18 to 0.50 mm).

c. Cutting Reinforcement. Reinforcement bars may be sheared or sawn to length after coating, providing the end damage to the coating does not extend more than 0.5 in. (13 mm) back and the cut is patched before any visible rusting appears. Flame cutting will not be permitted."

80151

REINFORCEMENT BARS - STORAGE AND PROTECTION (BDE)

Effective: August 1, 2008

Revise Article 508.03 of the Standard Specifications to read:

"**508.03 Storage and Protection.** Reinforcement bars, when delivered on the job, shall be stored off the ground using platforms, skids, or other supports; and shall be protected from mechanical injury and from deterioration by exposure. Epoxy coated bars shall be stored on wooden or padded steel cribbing and all systems for handling shall have padded contact areas. The bars or bundles shall not be dragged or dropped.

When it is necessary to store epoxy coated bars outside for more than two months, they shall be protected from sunlight, salt spray, and weather exposure. The protection shall consist of covering with opaque polyethylene sheeting or other suitable opaque material. The covering shall be secured and allow for air circulation around the bars to minimize condensation under the cover.

When placed in the work the bars shall be free from dirt, detrimental scale, paint, oil, or other foreign substances. A light coating of rust will not be considered objectionable on black bars."

80206

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: August 1, 2006
Revised: January 1, 2007

Revise Article 669.01 of the Standard Specifications to read:

"**669.01 Description.** This work shall consist of the excavation, removal, and proper disposal of contaminated soil, water, and underground storage tanks (UST), their content and associated underground piping to the point where the piping is above the ground, including determining the content types and estimated quantities."

Revise the first paragraph of Article 669.15 of the Standard Specifications to read:

"**669.15 Method of Measurement.** Non-special waste, special waste, and hazardous waste soil will be measured for payment according to Article 202.07(b) when performing earth excavation, Article 502.12(b) when excavating for structures, or by computing the volume of the trench using the maximum trench width permitted and the actual depth of the trench."

Revise the second paragraph of Article 669.16 of the Standard Specifications to read:

"The excavation, transportation, and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (cubic meter) for NON-SPECIAL WASTE DISPOSAL, SPECIAL WASTE DISPOSAL, or HAZARDOUS WASTE DISPOSAL."

80164

RETROREFLECTIVE SHEETING, NONREFLECTIVE SHEETING, AND TRANSLUCENT OVERLAY FILM FOR HIGHWAY SIGNS (BDE)

Effective: April 1, 2007

General. This special provision covers retroreflective sheeting and translucent overlay films intended for application on new or refurbished aluminum. The sheeting serves as the reflectorized background for sign messages and as cutout legends and symbols applied to the reflectorized background. Messages may be applied in opaque black or transparent colors.

This special provision also covers nonreflective sheeting for application on new or refurbished aluminum, and as material for cutout legends and symbols applied to the reflectorized background.

All material furnished under this specification shall have been manufactured within 18 months of the delivery date. All material shall be supplied by the same manufacturer.

Retroreflective Sheeting Properties. Retroreflective sheeting shall consist of a flexible, colored, prismatic, or glass lens elements adhered to a synthetic resin, encapsulated by a flexible, transparent plastic having a smooth outer surface and shall meet the following requirements.

Only suppliers whose products have been tested and approved in the Department's periodic Sheeting Study will be eligible to supply material. All individual batches and or lots of material shall be tested and approved by the Department. The Department reserves the right to sample and test delivered materials according to Federal Specification LS-300.

(a) Adhesive. The sheeting shall have a Class 1, pre-coated, pressure sensitive adhesive according to ASTM D 4956. The adhesive shall have a protective liner that is easily removed when tested according to ASTM D 4956. The adhesive shall be capable of being applied to new or refurbished aluminum and reflectorized backgrounds without additional adhesive.

(b) Color. The sheeting shall be uniform in color and devoid of streaks throughout the length of each roll. The color shall conform to the latest appropriate standard color tolerance chart issued by the U.S. Department of Transportation, Federal Highway Administration and to the daytime and nighttime color requirements of ASTM D 4956. Sheeting used for side by side overlay applications shall have a Hunter Lab Delta E of less than 3.

(c) Coefficient of Retroreflection. When tested according to ASTM E 810, without averaging, the sheeting shall have a minimum coefficient of retroreflection as shown in the following tables. The brightness of the sheeting when totally wet shall be a minimum of 90 percent of the values shown when tested according to the standard rainfall test specified in Section 7.10.1 of AASHTO M 268-84.

Type A Sheeting
Minimum Coefficient of Retroreflection
candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type A

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Orange	Red	Green	Blue	Brown
0.2	-4	250	170	100	45	45	20	12
0.2	+30	150	100	60	25	25	12	8.5
0.5	-4	95	65	30	15	15	8	5
0.5	+30	75	50	25	10	10	5	3.5

Type AA Sheeting
Minimum Coefficient of Retroreflection
candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type AA (0 and 90 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	FO
0.2	-4	800	660	215	80	43	200
0.2	+30	400	340	100	35	20	120
0.5	-4	200	160	45	20	9.8	80
0.5	+30	100	85	26	10	5.0	50

Type AA (45 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	Yellow	FO
0.2	-4	550	165
0.2	+30	130	45
0.5	-4	145	70
0.5	+30	70	40

Type AP Sheeting
Minimum Coefficient of Retroreflection
candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type AP

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	Brown	FO
0.2	-4	550	425	100	75	50	30	275
0.2	+30	200	150	40	35	25	15	90
0.5	-4	300	250	60	35	25	20	150
0.5	+30	100	70	20	20	10	5	50

Type AZ Sheeting
Minimum Coefficient of Retroreflection
candelas/foot candle/sq ft (candelas/lux/sq m) of material

Type AZ (0 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	FYG	FY
0.2	-4	430	350	110	45	20	325	240
0.2	+30	235	140	60	24	11	200	150
0.5	-4	250	200	60	25	10	235	165
0.5	+30	170	135	40	19	7	105	75
1.0	-4	70	45	10	10	4	70	30
1.0	+30	30	20	7	5	2.5	45	15

Type AZ (90 degree rotation)

Observation Angle (deg.)	Entrance Angle (deg.)	White	Yellow	Red	Green	Blue	FYG	FY
0.2	-4	320	250	100	45	20	300	220
0.2	+30	235	140	40	24	11	200	150
0.5	-4	240	200	60	25	10	235	165
0.5	+30	100	85	20	10	7	80	75
1.0	-4	30	30	7	5	4	65	20
1.0	+30	15	15	5	2	2	30	10

(d) Gloss. The sheeting surface shall exhibit a minimum 85 degree gloss-meter rating of 50 when tested according to ASTM D 523.

(e) Durability. When processed and applied, the sheeting shall be weather resistant.

Accelerated weathering testing will be performed for 1000 hours (300 hours for orange/FO) according to ASTM G 151. The testing cycle will consist of 8 hours of light at 140 °F (60 °C), followed by 4 hours of condensation at 104 °F (40 °C). Following accelerated weathering, the sheeting shall exhibit a minimum of 80 percent of its initial minimum coefficient of retroreflection as listed in the previous tables.

Outdoor weathering will entail an annual evaluation of material placed in an outdoor rack with a 45 degree angle and a southern sun exposure. The sheeting will be evaluated for five years. Following weathering, the test specimens will be cleaned by immersing them in a five percent hydrochloric acid solution for 45 seconds, then rinsed with water and blotted dry with a soft clean cloth. Following cleaning, the applied sheeting shall show no appreciable discoloration, cracking, streaking, crazing, blistering, or dimensional change. The sheeting shall exhibit a Hunter Lab Delta E of 5 or less when compared to the original.

(f) Shrinkage. When tested according to ASTM D 4956, the sheeting shall not shrink in any dimension more than 1/32 in. (0.8 mm) in ten minutes and not more than 1/8 in. (3 mm) in 24 hours.

(g) Workability. The sheeting shall show no cracking, scaling, pitting, blistering, edge lifting, inter-film splitting, curling, or discoloration when processed and applied using mutually acceptable processing and application procedures.

(h) Splices. A single roll of sheeting shall contain a maximum of four splices per 50 yd (45 m) length. The sheeting shall be overlapped a minimum of 3/16 in. (5 mm) at each splice.

(i) Adhesive Bond. The sheeting shall form a durable bond to smooth, corrosion and weather-resistant surfaces and adhere securely when tested according to ASTM D 4956.

(j) Positionability. Sheeting, with ASTM D 4956 Class 3 adhesive, used for manufacturing cutout legends and borders shall provide sufficient positionability during the fabrication process to permit removal and reapplication without damage to either the legend or sign background and shall have a plastic liner suitable for use on bed cutting machines. Thereafter, all other adhesive and bond requirements contained in the specification shall apply.

Positionablility shall be verified by cutting 4 in. (100 mm) letters E, I, K, M, S, W, and Y out of the positionable material. The letters shall then be applied to a sheeted aluminum blank using a single pass of a two pound roller. The letters shall sit for five minutes and then a putty knife shall be used to lift a corner. The thumb and fore finger shall be used to slowly pull the lifted corner to lift letters away from the sheeted aluminum. The letters shall not tear or distort when removed.

(k) Thickness. The thickness of the sheeting without the protective liner shall be less than or equal to 0.015 in. (0.4 mm), or 0.025 in. (0.6 mm) for prismatic material.

(l) Processing. The sheeting shall permit cutting and color processing according to the sheeting manufacturer's specifications at temperatures of 60 to 100 °F (15 to 38 °C) and within a relative humidity range of 20 to 80 percent. The sheeting shall be heat resistant and permit forced curing without staining the applied or unapplied sheeting at temperatures recommended by the manufacturer. The sheeting shall be solvent resistant and capable of being cleaned with VM&P naptha, mineral spirits, and turpentine.

Transparent color and opaque black inks shall be single component and low odor. The inks shall dry within eight hours and not require clear coating. After color processing on white sheeting, the sheeting shall show no appreciable discoloration, cracking, streaking, crazing, blistering, or dimensional change when tested for durability (e). The ink on the weathered, prepared panel shall exhibit a Hunter Lab Delta E of 5 or less when compared to the original.

Transparent color electronic cutting films shall be acrylic. After application to white sheeting, the films shall show no appreciable discoloration, cracking, streaking, crazing, blistering, or dimensional change when tested for durability (e). The films on the weathered, prepared panel shall exhibit a Hunter Lab Delta E of 5 or less when compared to the original.

Transparent colors screened, or transparent acrylic electronic cutting films, on white sheeting, shall have a minimum initial coefficient of retroreflection values of 50 percent for yellow and red, and a minimum 70 percent for green, blue, and brown of the 0.2 degree observation angle/-4.0 degree entrance angle values as listed in the previous tables for the color being applied. After durability testing, the colors shall retain a minimum 80 percent of the initial coefficient of retroreflection.

(m) Identification. The sheeting shall have a distinctive overall pattern in the sheeting unique to the manufacturer. If material orientation is required for optimum retroreflectivity, permanent orientation marks shall be incorporated into the face of the sheeting. Neither the overall pattern nor the orientation marks shall interfere with the reflectivity of the sheeting.

(n) Packaging. Both ends of each box shall be clearly labeled with the sheeting type, color, adhesive type, manufacturer's lot number, date of manufacture, and supplier's name. Material Safety Data Sheets and technical bulletins for all materials shall be furnished to the Department with each shipment.

Nonreflective Sheeting Properties. Nonreflective sheeting shall consist of a flexible, pigmented cast vinyl film having a smooth, flat outer surface and shall meet the following requirements.

The Department reserves the right to sample and test delivered materials according to Federal Specification LS-300.

(a) Adhesive. The sheeting shall have a Class 1, pre-coated, pressure sensitive adhesive according to ASTM D 4956. The adhesive shall have a protective liner that is easily removed when tested according to ASTM D 4956. The adhesive shall be capable of being applied to new or refurbished aluminum and reflectorized backgrounds without additional adhesive.

(b) Color. The sheeting shall be uniform in color and devoid of streaks throughout the length of each roll.

(c) Gloss. The sheeting shall exhibit a minimum 85 degree gloss-meter rating of 40 when tested according to ASTM D 523.

(d) Durability. Applied sheeting that has been vertically exposed to the elements for seven years shall show no appreciable discoloration, cracking, crazing, blistering, delamination, or loss of adhesion. A slight amount of chalking is permitted but the sheeting shall not support fungus growth.

(e) Testing. Test panels shall be prepared by applying the sheeting to 6 1/2 x 6 1/2 in. (165 x 165 mm) pieces of aluminum according to the manufacturer's specifications. The edges of the panel shall be trimmed evenly and aged 48 hours at 70 to 90 °F (21 to 32 °C). Shrinkage and immersion testing shall be as follows.

(1) Shrinkage. The sheeting shall not shrink more then 1/64 in. (0.4 mm) from any panel edge when subjected to a temperature of 150 °F (66 °C) for 48 hours and shall be sufficiently heat resistant to retain adhesion after one week at 150 °F (66 °C).

(2) Immersion Testing. The sheeting shall show no appreciable decrease in adhesion, color, or general appearance when examined one hour after being immersed to a depth of 2 or 3 in. (50 or 75 mm) in the following solutions at 70 to 90 °F (21 to 32 °C) for specified times.

Solution	Immersion Time (hours)
Reference Fuel (M I L-F-8799A) (15 parts xylol and 85 parts mineral spirits by weight)	1
Distilled Water	24
SAE No. 20 Motor Oil	24
Antifreeze (1/2 ethylene glycol, 1/2 distilled water)	24

(f) Adhesive Bond: The sheeting shall form a durable bond to smooth, corrosion and weather-resistant surfaces and adhere securely when tested according to ASTM D 4956.

(g) Thickness. The thickness of the sheeting without the protective liner shall be a maximum of 0.005 in. (0.13 mm).

(h) Cutting. Material used on bed cutting machines shall have a smooth plastic liner.

(i) Identification. The sheeting shall have a distinctive overall pattern in the sheeting unique to the manufacturer. If material orientation is required for optimum retroreflectivity, permanent orientation marks shall be incorporated into the face of the sheeting. Neither the overall pattern nor the orientation marks shall interfere with the reflectivity of the sheeting.

(j) Packaging. Both ends of each box shall be clearly labeled with the sheeting type, color, adhesive type, manufacturer's lot number, date of manufacture, and supplier's name. Material Safety Data Sheets and technical bulletins for all materials shall be furnished to the Department with each shipment.

SEEDING (BDE)

Effective: July 1, 2004
Revised: August 1, 2007

Revise the following seeding mixtures shown in Table 1 of Article 250.07 of the Standard Specifications to read:

"Table 1 - SEEDING MIXTURES

Class – Type	Seeds	lb/acre (kg/hectare)
2 Roadside Mixture 7/	Tall Fescue (Inferno, Tarheel II, Quest, Blade Runner, or Falcon IV)	100 (110)
	Perennial Ryegrass	50 (55)
	Creeping Red Fescue	40 (50)
	Red Top	10 (10)
2A Salt Tolerant Roadside Mixture 7/	Tall Fescue (Inferno, Tarheel II, Quest, Blade Runner, or Falcon IV)	60 (70)
	Perennial Ryegrass	20 (20)
	Red Fescue (Audubon, Sea Link, or Epic)	30 (20)
	Hard Fescue (Rescue 911, Spartan II, or Reliant IV)	30 (20)
	Fults Salt Grass 1/	60 (70)"

Revise Table II of Article 1081.04(c)(6) of the Standard Specifications to read:

TABLE II

Variety of Seeds	Hard Seed % Max.	Purity % Min.	Pure Live Seed % Min.	Weed % Max.	Secondary * Noxious Weeds No. per oz (kg) Max. Permitted	Notes
Alfalfa	20	92	89	0.50	6 (211)	1/
Clover, Alsike	15	92	87	0.30	6 (211)	2/
Red Fescue, Audubon	0	97	82	0.10	3 (105)	-
Red Fescue, Creeping	-	97	82	1.00	6 (211)	-
Red Fescue, Epic	-	98	83	0.05	1 (35)	-
Red Fescue, Sea Link	-	98	83	0.10	3 (105)	-
Tall Fescue, Blade Runner	-	98	83	0.10	2 (70)	-
Tall Fescue, Falcon IV	-	98	83	0.05	1 (35)	-
Tall Fescue, Inferno	0	98	83	0.10	2 (70)	-
Tall Fescue, Tarheel II	-	97	82	1.00	6 (211)	-
Tall Fescue, Quest	0	98	83	0.10	2 (70)	
Fults Salt Grass	0	98	85	0.10	2 (70)	-
Kentucky Bluegrass	-	97	80	0.30	7 (247)	4/
Oats	-	92	88	0.50	2 (70)	3/
Redtop	-	90	78	1.80	5 (175)	3/

TABLE II						
Variety of Seeds	Hard Seed % Max.	Purity % Min.	Pure Live Seed % Min.	Weed % Max.	Secondary * Noxious Weeds No. per oz (kg) Max. Permitted	Notes
Ryegrass, Perennial, Annual	-	97	85	0.30	5 (175)	3/
Rye, Grain, Winter	-	92	83	0.50	2 (70)	3/
Hard Fescue, Reliant IV	-	98	83	0.05	1 (35)	-
Hard Fescue, Rescue 911	0	97	82	0.10	3 (105)	-
Hard Fescue, Spartan II	-	98	83	0.10	3 (105)	-
Timothy	-	92	84	0.50	5 (175)	3/
Wheat, hard Red Winter	-	92	89	0.50	2 (70)	3/"

Revise the first sentence of the first paragraph of Article 1081.04(c)(7) of the Standard Specifications to read:

"The seed quantities indicated per acre (hectare) for Prairie Grass Seed in Classes 3, 3A, 4, 4A, 6, and 6A in Article 250.07 shall be the amounts of pure, live seed per acre (hectare) for each species listed."

80131

SELF-CONSOLIDATING CONCRETE FOR CAST-IN-PLACE CONSTRUCTION (BDE)

Effective: November 1, 2005
Revised: January 1, 2007

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for cast-in-place concrete construction items involving Class MS, DS, and SI concrete.

Materials. Materials shall be according to Section 1021 of the Standard Specifications.

Mix Design Criteria. Article 1020.04 of the Standard Specifications shall apply, except as follows:

(a) The cement factor shall be according to Article 1020.04 of the Standard Specifications. If the maximum cement factor is not specified, it shall not exceed 7.05 cwt/cu yd (418 kg/cu m). The cement factor shall not be reduced if a water-reducing, retarding, or high range water-reducing admixture is used.

(b) The maximum allowable water/cement ratio shall be according to Article 1020.04 of the Standard Specifications or 0.44, whichever is lower.

(c) The slump requirements shall not apply.

(d) The coarse aggregate gradations shall be CA 13, CA 14, CA 16, or a blend of these gradations. CA 11 may be used when the Contractor provides satisfactory evidence to the Engineer that the mix will not segregate. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.

(e) The slump flow range shall be ± 2 in. (± 50 mm) of the Contractor target value, and within the overall Department range of 20 in. (510 mm) minimum to 28 in. (710 mm) maximum.

(f) The visual stability index shall be a maximum of 1.

(g) The J-ring value shall be a maximum of 4 in. (100 mm). The Contractor may specify a lower maximum in the mix design.

(h) The L-box blocking ratio shall be a minimum of 60 percent. The Contractor may specify a higher minimum in the mix design.

(i) The column segregation index shall be a maximum 15 percent.

(j) The hardened visual stability index shall be a maximum of 1.

Test Methods. Illinois Test Procedures SCC-1, SCC-2, SCC-3, SCC-4, SCC-5, SCC-6, and Illinois Modified AASHTO T 22, 23, 121, 126, 141, 152, 177, 196, and 309 shall be used for testing of self-consolidating concrete mixtures.

Mix Design Submittal. The Contractor's Level III PCC Technician shall submit a mix design according to the "Portland Cement Concrete Level III Technician" course manual, except target slump information is not applicable and will not be required. However, a slump flow target range shall be submitted. In addition, the design mortar factor may exceed 1.10 and durability test data will be waived.

A J-ring value shall be submitted if a lower mix design maximum will apply. An L-box blocking ratio shall be submitted if a higher mix design minimum will apply. The Contractor shall also indicate applicable construction items for the mix design.

Trial mixture information will be required by the Engineer. A trial mixture is a batch of concrete tested by the Contractor to verify the Contractor's mix design will meet specification requirements. Trial mixture information shall include test results as specified in the "Portland Cement Concrete Level III Technician" course manual. Test results shall also include slump flow, visual stability index, J-ring value, L-box blocking ratio, column segregation index, and hardened visual stability index. For the trial mixture, the slump flow shall be near the midpoint of the proposed slump flow target range.

Trial Batch. A minimum 2 cu yd (1.5 cu m) trial batch shall be produced, and the self-consolidating concrete admixture dosage proposed by the Contractor shall be used. The slump flow shall be within 1.0 in. (25 mm) of the maximum slump flow range specified by the Contractor, and the air content shall be within the top half of the allowable specification range.

The trial batch shall be scheduled a minimum of 21 calendar days prior to anticipated use and shall be performed in the presence of the Engineer.

The Contractor shall provide the labor, equipment, and materials to test the concrete. The mixture will be evaluated by the Engineer for strength, air content, slump flow, visual stability index, J-ring value, L-box blocking ratio, column segregation index, and hardened visual stability index.

Upon review of the test data from the trial batch, the Engineer will verify or deny the use of the mix design and notify the Contractor. Verification by the Engineer will include the Contractor's target slump flow range. If applicable, the Engineer will verify the Contractor's maximum J-ring value and minimum L-box blocking ratio.

A new trial batch will be required whenever there is a change in the source of any component material, proportions beyond normal field adjustments, dosage of the self-consolidating concrete admixture, batch sequence, mixing speed, mixing time, or as determined by the Engineer. The testing criteria for the new trial batch will be determined by the Engineer.

When necessary, the trial batches shall be disposed of according to Article 202.03 of the Standard Specifications.

Mixing Portland Cement Concrete. In addition to Article 1020.11 of the Standard Specifications, the mixing time for central-mixed concrete shall not be reduced as a result of a mixer performance test. Truck-mixed or shrink-mixed concrete shall be mixed in a truck mixer for a minimum of 100 revolutions.

Wash water, if used, shall be completely discharged from the drum or container before the succeeding batch is introduced.

The batch sequence, mixing speed, and mixing time shall be appropriate to prevent cement balls and mix foaming for central-mixed, truck-mixed, and shrink-mixed concrete.

Falsework and Forms. In addition to Articles 503.05 and 503.06 of the Standard Specifications, the Contractor shall consider the fluid nature of the concrete for designing the falsework and forms. Forms shall be tight to prevent leakage of fluid concrete.

Placing and Consolidating. Concrete placement and consolidation shall be according to Article 503.07 of the Standard Specifications, except as follows:

Revise the third paragraph of Article 503.07 of the Standard Specifications to read:

"Open troughs and chutes shall extend as nearly as practicable to the point of deposit. The drop distance of concrete shall not exceed 5 ft (1.5 m). If necessary, a tremie shall be used to meet this requirement. The maximum distance of horizontal flow from the point of deposit shall be 25 ft (7.6 m), unless approved otherwise by the Engineer. For drilled shafts, free fall placement will not be permitted."

Delete the seventh, eighth, ninth, and tenth paragraphs of Article 503.07 of the Standard Specifications.

Add to the end of the eleventh paragraph of Article 503.07 of the Standard Specifications the following:

"Concrete shall be rodded with a piece of lumber, conduit, or vibrator if the material has lost its fluidity prior to placement of additional concrete. The vibrator shall be the pencil head type with a maximum diameter or width of 1 in. (25 mm). Any other method for restoring the fluidity of the concrete shall be approved by the Engineer."

Quality Control by Contractor at Plant. The specified test frequencies for aggregate gradation, aggregate moisture, air content, unit weight/yield, and temperature shall be performed as indicated in the contract plans.

Slump flow, visual stability index, and J-ring or L-box tests shall be performed as needed to control production. The column segregation index test and hardened visual stability index test will not be required to be performed at the plant.

Quality Control by Contractor at Jobsite. The specified test frequencies for air content, strength, and temperature shall be performed as indicated in the contract plans.

Slump flow, visual stability index, and J-ring or L-box tests shall be performed on the first two truck deliveries of the day, and every 50 cu yd (40 cu m) thereafter. The Contractor shall select either the J-ring or L-box test for jobsite testing.

The column segregation index test will not be required to be performed at the jobsite. The hardened visual stability index test shall be performed on the first truck delivery of the day, and every 300 cu yd (230 cu m) thereafter. Slump flow, visual stability index, J-ring value or L-box blocking ratio, air content, and concrete temperature shall be recorded for each hardened visual stability index test.

The Contractor shall retain all hardened visual stability index cut cylinder specimens until the Engineer notifies the Contractor that the specimens may be discarded.

If mix foaming or other potential detrimental material is observed during placement or at the completion of the pour, the material shall be removed while the concrete is still plastic.

Quality Assurance by Engineer at Plant. For air content and aggregate gradation, quality assurance independent sam ple testing and split sample testing will be performed as indicated in the contract plans.

For slump flow, visual stability index, and J-ring or L-box tests, quality assurance independent sample testing and split sample testing will be performed as determined by the Engineer.

Quality Assurance by Engineer at Jobsite. For air content and strength, quality assurance independent sample testing and split sample testing will be performed as indicated in the contract plans.

For slump flow, visual stability index, J-ring or L-box, and hardened visual stability index tests, quality assurance independent sample testing will be performed as determined by the Engineer.

For slump flow and visual stability index quality assurance split sample testing, the Engineer will perform tests at the beginning of the project on the first three tests performed by the Contractor. Thereafter, a minimum of ten percent of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design. The acceptable limit of precision will be 1.5 in. (40 mm) for slump flow and a limit of precision will not apply to the visual stability index.

For the J-ring or the L-box quality assurance split sample testing, a minimum of 80 percent of the total tests required of the Contractor will be witnessed by the Engineer per plant, which will

include a minimum of one witnessed test per mix design. The Engineer reserves the right to conduct quality assurance split sample testing. The acceptable limit of precision will be 1.5 in. (40 mm) for the J-ring value and ten percent for the L-box blocking ratio.

For each hardened visual stability index test performed by the Contractor, the cut cylinders shall be presented to the Engineer for determination of the rating. The Engineer reserves the right to conduct quality assurance split sample testing. A limit of precision will not apply to the hardened visual stability index.

80152

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)

Effective: July 1, 2004
Revised: January 1, 2007

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for precast concrete products.

Materials. Materials shall be according to Section 1021 of the Standard Specifications.

Mix Design Criteria. The mix design criteria shall be as follows:

(a) The minimum cement factor shall be according to Article 1020.04 of the Standard Specifications. If the maximum cement factor is not specified, it shall not exceed 7.05 cwt/cu yd (418 kg/cu m).

(b) The maximum allowable water/cement ratio shall be according to Article 1020.04 of the Standard Specifications or 0.44, whichever is lower.

(c) The slump requirements of Article 1020.04 of the Standard Specifications shall not apply.

(d) The coarse aggregate gradations shall be CA 13, CA 14, CA 16, or a blend of these gradations. CA 11 may be used when the Contractor provides satisfactory evidence to the Engineer that the mix will not segregate. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.

(e) The slump flow range shall be ± 2 in. (± 50 mm) of the Contractor target value, and within the overall Department range of 20 in. (510 mm) minimum to 28 in. (710 mm) maximum.

(f) The visual stability index shall be a maximum of 1.

(g) The J-ring value shall be a maximum of 4 in. (100 mm). The Contractor may specify a lower maximum in the mix design.

(h) The L-box blocking ratio shall be a minimum of 60 percent. The Contractor may specify a higher minimum in the mix design.

(i) The column segregation index shall be a maximum 15 percent.

(j) The hardened visual stability index shall be a maximum of 1.

Placing and Consolidating. The maximum distance of horizontal flow from the point of deposit shall be 25 ft (7.6 m), unless approved otherwise by the Engineer.

Concrete shall be rodded with a piece of lumber, conduit, or vibrator if the material has lost its fluidity prior to placement of additional concrete. The vibrator shall be the pencil head type with a maximum diameter or width of 1 in. (25 mm). Any other method for restoring the fluidity of the concrete shall be approved by the Engineer.

Mix Design Approval. The Contractor shall obtain mix design approval according to the Department's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products".

80132

SILT FILTER FENCE (BDE)

Effective: January 1, 2008

For silt filter fence fabric only, revise Article 1080.02 of the Standard Specifications to read:

"**1080.02 Geotextile Fabric.** The fabric for silt filter fence shall be a woven fabric meeting the requirements of AASHTO M 288 for unsupported silt fence with less than 50 percent geotextile elongation."

Replace the last sentence of Article 1081.15(b) of the Standard Specifications with the following:

"Silt filter fence stakes shall be a minimum of 4 ft (1.2 m) long and made of either wood or metal. Wood stakes shall be 2 in. x 2 in. (50 mm x 50 mm). Metal stakes shall be a standard T or U shape having a minimum weight (mass) of 1.32 lb/ft (600 g/300 mm)."

80197

STEEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)

Effective: April 2, 2004
Revised: April 1, 2007

Description. Steel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in steel prices when optioned by the Contractor. The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of steel cost adjustments.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

Metal Piling (excluding temporary sheet piling)
Structural Steel
Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), frames and grates, and other miscellaneous items will be subject to a steel cost adjustment when the pay item they are used in has a contract value of $10,000 or greater.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

(a) Evidence that increased or decreased steel costs have been passed on to the Contractor.

(b) The dates and quantity of steel, in lb (kg), shipped from the mill to the fabricator.

(c) The quantity of steel, in lb (kg), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$SCA = Q \times D$

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in lb (kg)
D = price factor, in dollars per lb (kg)

$D = CBP_M - CBP_L$

Where: CBP_M = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the American Metal Market (AMM) for the day the steel is shipped from the mill. The indices will be converted from dollars per ton to dollars per lb (kg).

CBP_L = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the AMM for the day the contract is let. The indices will be converted from dollars per ton to dollars per lb (kg).

The unit weights (masses) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the CBP_M will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the CBP_L and CBP_M in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(CBP_L - CBP_M) \div CBP_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Attachment

Item	Unit Mass (Weight)
Metal Piling (excluding temporary sheet piling)	
Furnishing Metal Pile Shells 12 in. (305 mm), 0.179 in. (3.80 mm) wall thickness)	23 lb/ft (34 kg/m)
Furnishing Metal Pile Shells 12 in. (305 mm), 0.250 in. (6.35 mm) wall thickness)	32 lb/ft (48 kg/m)
Furnishing Metal Pile Shells 14 in. (356 mm), 0.250 in. (6.35 mm) wall thickness)	37 lb/ft (55 kg/m)
Other piling	See plans
Structural Steel	See plans for weights (masses)
Reinforcing Steel	See plans for weights (masses)
Dowel Bars and Tie Bars	6 lb (3 kg) each
Mesh Reinforcement	63 lb/100 sq ft (310 kg/sq m)
Guardrail	
Steel Plate Beam Guardrail, Type A w/steel posts	20 lb/ft (30 kg/m)
Steel Plate Beam Guardrail, Type B w/steel posts	30 lb/ft (45 kg/m)
Steel Plate Beam Guardrail, Types A and B w/wood posts	8 lb/ft (12 kg/m)
Steel Plate Beam Guardrail, Type 2	305 lb (140 kg) each
Steel Plate Beam Guardrail, Type 6	1260 lb (570 kg) each
Traffic Barrier Terminal, Type 1 Special (Tangent)	730 lb (330 kg) each
Traffic Barrier Terminal, Type 1 Special (Flared)	410 lb (185 kg) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms	
Traffic Signal Post	11 lb/ft (16 kg/m)
Light Pole, Tenon Mount and Twin Mount, 30 - 40 ft (9 – 12 m)	14 lb/ft (21 kg/m)
Light Pole, Tenon Mount and Twin Mount, 45 - 55 ft (13.5 – 16.5 m)	21 lb/ft (31 kg/m)
Light Pole w/Mast Arm, 30 - 50 ft (9 – 15.2 m)	13 lb/ft (19 kg/m)
Light Pole w/Mast Arm, 55 - 60 ft (16.5 – 18 m)	19 lb/ft (28 kg/m)
Light Tower w/Luminaire Mount, 80 - 110 ft (24 – 33.5 m)	31 lb/ft (46 kg/m)
Light Tower w/Luminaire Mount, 120 - 140 ft (36.5 – 42.5 m)	65 lb/ft (97 kg/m)
Light Tower w/Luminaire Mount, 150 - 160 ft (45.5 – 48.5 m)	80 lb/ft (119 kg/m)
Metal Railings (excluding wire fence)	
Steel Railing, Type SM	64 lb/ft (95 kg/m)
Steel Railing, Type S-1	39 lb/ft (58 kg/m)
Steel Railing, Type T-1	53 lb/ft (79 kg/m)
Steel Bridge Rail	52 lb/ft (77 kg/m)
Frames and Grates	
Frame	250 lb (115 kg)
Lids and Grates	150 lb (70 kg)

Return With Bid

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR STEEL COST ADJUSTMENT

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of steel cost adjustments. After award, this form, when submitted shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract plans?

Yes ☐ No ☐

Signature: _____ **Date:** _____

80127

STEEL INSERTS AND BRACKETS CAST INTO CONCRETE (BDE)

Effective: April 1, 2008

Add the following to Article 503.02 of the Standard Specifications:

"(g) Steel Inserts and Brackets Cast Into Concrete ..... 1006.13"

Add the following to Article 504.02 of the Standard Specifications:

"(j) Steel Inserts and Brackets Cast Into Concrete ..... 1006.13"

Revise Article 1006.13 of the Standard Specifications to read:

"**1006.13 Steel Inserts and Brackets Cast Into Concrete.** Steel inserts and brackets cast into concrete shall be galvanized according to AASHTO M 232 or AASHTO M 111.

The inserts shall be ferrules with loop or strut type anchorages having the following minimum certified proof load.

Insert Diameter	Proof Load
5/8 in. (16 mm)	6600 lb (29.4 kN)
3/4 in. (19 mm)	6600 lb (29.4 kN)
1 in. (25 mm)	9240 lb (41.1 kN)"

80203

STEEL PLATE BEAM GUARDRAIL (BDE)

Effective: November 1, 2005
Revised: August 1, 2007

Revise the first paragraph of Article 1006.25 of the Standard Specifications to read:

"**1006.25 Steel Plate Beam Guardrail.** Steel plate beam guardrail, including bolts, nuts, and washers, shall be according to AASHTO M 180. The guardrail shall be Class A, with a Type II galvanized coating; except the weight (mass) of the coating for each side of the guardrail shall be at least 2.00 oz/sq ft (610 g/sq m). The coating will be determined for each side of the guardrail using the average of at least three non-destructive test readings taken on that side of the guardrail. The minimum average thickness for each side shall be 3.4 mils (86 µm)."

80153

STONE GRADATION TESTING (BDE)

Effective: November 1, 2007

Revise the first sentence of note 1/ of the Erosion Protection and Sediment Control Gradations table of Article 1005.01(c)(1) of the Standard Specifications to read:

> "A maximum of 15 percent of the total test sample by weight may be oversize material."

80191

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: April 2, 2005

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting in accordance with Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

80143

SURFACE TESTING OF PAVEMENTS (BDE)

Effective: April 1, 2002
Revised: January 1, 2007

Hot-Mix Asphalt (HMA) Overlays

Revise Article 406.03(h) of the Standard Specifications to read:

"(h) Pavement Surface Test Equipment ..... 1101.10"

Revise Article 406.11 of the Standard Specifications to read:

"**406.11 Surface Tests.** The finished surface of the pavement shall be tested for smoothness within three days of paving. Testing shall be performed in the presence of the Engineer.

Prior to testing, a copy of the approval letter and recorded settings from the Profile Equipment Verification (PEV) Program shall be submitted to the Engineer; and all objects and debris shall be removed from the pavement.

(a) Test Sections/Equipment.

(1) High-Speed Mainline Pavement. High-speed mainline pavement shall consist of pavements, ramps, and loops with a posted speed greater than 45 mph. These sections shall be tested using a profile testing device.

(2) Low-Speed Mainline Pavement. Low-speed mainline pavement shall consist of pavements, ramps, and loops with a posted speed of 45 mph or less. These sections shall be tested using a profile testing device.

(3) Miscellaneous Pavement. Miscellaneous pavement shall consist of:

a. pavement on horizontal curves with a centerline radius of curvature of less than or equal to 1000 ft (300 m) and pavement within the superelevation transition of such curves;

b. pavement on vertical curves having a length of less than or equal to 200 ft (60 m) in combination with an algebraic change in tangent grades greater than or equal to three percent, as may occur on urban ramps or other constricted-space facilities;

c. the first or last 15 ft (4.5 m) of a pavement section where the Contractor is not responsible for the adjoining surface;

d. intersections;

e. variable width pavements;

f. side street returns;

g. crossovers;

h. connector pavement from mainline pavement expansion joint to the bridge approach pavement;

i. bridge approach pavement; and

j. other miscellaneous pavement surfaces (i.e. a turn lane) as determined by the Engineer.

Miscellaneous pavement shall be tested using a 16 ft (5 m) straightedge set to a 3/8 in. (10 mm) tolerance.

(b) Lots/Sublots. Mainline pavement test sections will be divided into lots and sublots.

(1) Lots. A lot will be defined as a continuous strip of pavement 1 mile (1600 m) long and one lane wide. When the length of a continuous strip of pavement is less than 1 mile (1600 m), that pavement will be included in an adjacent lot. Structures will be omitted when measuring pavement length.

(2) Sublots. Lots will be divided into 0.1 mile (160 m) sublots. A partial sublot greater than or equal to 250 ft (76 m) resulting from an interruption in the pavement will be subject to the same evaluation as a whole sublot. Partial sublots less than 250 ft (76 m) shall be included with the previous sublot for evaluation purposes.

(c) Testing Procedure. One wheel track shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to the edge of the lane away from traffic. A guide shall be used to maintain the proper distance.

The profile trace generated shall have stationing indicated every 500 ft (150 m) at a minimum. Both ends of the profile trace shall be labeled with the following information: contract number, beginning and ending stationing, which direction is up on the trace, which direction the data was collected, and the device operator name(s). The top portion of the Department supplied form, "Profile Report of Pavement Smoothness" shall be completed and secured around the trace roll.

Although surface testing of intermediate lifts will not be required, they may be performed at the Contractor's option. When this option is chosen, the testing shall be performed and the profile traces shall be generated as described above.

The Engineer may perform his/her own testing at any time for monitoring and comparison purposes.

(d) Trace Reduction and Bump Locating Procedure. All traces shall be reduced. Traces produced by a mechanical recorder shall be reduced using an electronic scanner and computer software. This software shall calculate the profile index of each sublot in in./mile (mm/km) and indicate any high points (bumps) in excess of 0.30 in. (8 mm) with a line intersecting the profile on the printout. Computerized recorders shall provide the same information.

The profile index of each track, average profile index of each sublot, average profile index of the lot and locations of bumps shall be recorded on the form.

All traces and reports shall be provided within two working days of completing the testing to the Engineer for the project file. Traces from either a computerized profile testing device or analysis software used with a manual profile testing device shall display the settings used for the data reduction. The Engineer will compare these settings with the approved settings from the PEV Program. If the settings do not match, the results will be rejected and the section shall be retested/reanalyzed with the appropriate settings.

The Engineer will use the results of the testing to evaluate paving methods and equipment. If the average profile index of a lot exceeds 40.0 in./mile (635 mm/km) for high-speed mainline pavement or 65.0 in./mile (1025 mm/km) for low-speed mainline pavement, the paving operation will be suspended until corrective action is taken by the Contractor.

(e) Corrective Work. All bumps in excess of 0.30 in. (8 mm) in a length of 25 ft (8 m) or less shall be corrected. If the bump is greater than 0.50 in. (13 mm), the pavement shall be removed and replaced. The minimum length of pavement to be removed shall be 3 ft (900 mm).

(1) High-Speed Mainline Pavement. Any sublot having a profile index within the range of, greater than 30.0 to 40.0 in./mile (475 to 635 mm/km) including bumps, shall be corrected to reduce the profile index to 30.0 in./mile (475 mm/km) or less on each trace. Any sublot having a profile index greater than 40.0 in./mile (635 mm/km) including bumps, shall be corrected to reduce the profile index to 30.0 in./mile (475 mm/km) or less on each trace, or replaced at the Contractor's option.

(2) Low-Speed Mainline Pavement. Any sublot having a profile index within the range of, greater than 45.0 to 65.0 in./mile (710 to 1025 mm/km) including bumps, shall be corrected to reduce the profile index to 45.0 in./mile (710 mm/km) or less on each trace. Any sublot having a profile index greater than 65.0 in./mile (1025 mm/km) including bumps, shall be corrected to reduce the profile index to 45.0 in./mile (710 mm/km) or less on each trace, or replaced at the Contractor's option.

(3) Miscellaneous Pavement. Surface variations which exceed the 3/8 in. (10 mm) tolerance will be marked by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed using either an approved grinding device consisting of multiple saws or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area squared normal to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the sublot(s) shall be retested. The Contractor shall furnish the profile tracing(s) and the completed form(s) to the Engineer within two working days after corrections are made. If the profile index and/or bumps still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at no additional cost to the Department.

(f) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each sublot of mainline pavement, per the Smoothness Assessment Schedule. Assessments will be based on the average profile index of each sublot prior to performing any corrective work unless the Contractor has chosen to remove and replace the sublot. For sublots that are replaced, assessments will be based on the profile index determined after replacement.

Assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein.

SMOOTHNESS ASSESSMENT SCHEDULE (HMA Overlays)		
High-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Low-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Assessment per sublot
6.0 (95) or less	15.0 (240) or less	+$150.00
>6.0 (95) to 10.0 (160)	>15.0 (240) to 25.0 (400)	+$80.00
>10.0 (160) to 30.0 (475)	>25.0 (400) to 45.0 (710)	+$0.00
>30.0 (475) to 40.0 (635)	>45.0 (710) to 65.0 (1025)	+$0.00
Greater than 40.0 (635)	Greater than 65.0 (1025)	-$300.00

Smoothness assessments will not be applied to miscellaneous pavement sections."

Hot-Mix Asphalt (HMA) Pavement (Full-Depth)

Revise Article 407.09 of the Standard Specifications to read:

"**407.09 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to each lane edge.

SMOOTHNESS ASSESSMENT SCHEDULE (Full-Depth HMA)		
High-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Low-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Assessment per sublot
6.0 (95) or less		+$800.00
>6.0 (95) to 11.0 (175)	15.0 (240) or less	+$550.00
>11.0 (175) to 17.0 (270)	>15.0 (240) to 25.0 (400)	+$350.00
>17.0 (270) to 30.0 (475)	>25.0 (400) to 45.0 (710)	+$0.00
>30.0 (475) to 40.0 (635)	>45.0 (710) to 65.0 (1025)	+$0.00
Greater than 40.0 (635)	Greater than 65.0 (1025)	-$500.00"

Delete the third paragraph of Article 407.12 of the Standard Specifications.

Portland Cement Concrete Pavement

Revise Article 420.10 of the Standard Specifications to read:

"**420.10 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows:

The finished surface of the pavement shall be tested for smoothness once the pavement has attained a flexural strength of 550 psi (3800 kPa) or a compressive strength of 3000 psi (20,700 kPa).

Two wheel tracks shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to each lane edge.

Membrane curing damaged during testing shall be repaired as directed by the Engineer at no additional cost to the Department.

No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to ground areas according to Article 420.18 at no additional cost to the Department.

For pavement that is corrected by removal and replacement, the minimum length to be removed shall meet the requirements of either Class A or Class B patching.

SMOOTHNESS ASSESSMENT SCHEDULE (PCC)		
High-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Low-Speed Mainline Pavement Average Profile Index in./mile (mm/km)	Assessment per sublot
6.0 (95) or less		+$1200.00
>6.0 (95) to 11.0 (175)	15.0 (240) or less	+$950.00
>11.0 (175) to 17.0 (270)	>15.0 (240) to 25.0 (400)	+$600.00
>17.0 (270) to 30.0 (475)	>25.0 (400) to 45.0 (710)	+$0.00
>30.0 (475) to 40.0 (635)	>45.0 (710) to 65.0 (1025)	+$0.00
Greater than 40.0 (635)	Greater than 65.0 (1025)	-$750.00"

Delete the fourth paragraph of Article 420.20 of the Standard Specifications.

Testing Equipment

Revise Article 1101.10 of the Standard Specifications to read:

"**1101.10 Pavement Surface Test Equipment.** Required surface testing and analysis equipment and their jobsite transportation shall be provided by the Contractor.

(a) 16 ft (5 m) Straightedge. The 16 ft (5 m) straightedge shall consist of a metal I-beam mounted between two wheels spaced 16 ft (5 m) between the axles. Scratcher bolts which can be easily and accurately adjusted, shall be set at the 1/4, 1/2, and 3/4 points between the axles. A handle suitable for pushing and guiding shall be attached to the straightedge.

(b) Profile Testing Device. The profile testing device shall have a decal displayed to indicate it has been tested through the Profile Equipment Verification (PEV) Program administered by the Department.

(1) California Profilograph. The California Profilograph shall be either computerized or manual and have a frame 25 ft (8 m) in length supported upon multiple wheels at either end. The profile shall be recorded from the vertical movement of a wheel attached to the frame at mid point.

The California Profilograph shall be calibrated according to the manufacturer's recommendations and California Test 526. All calibration traces and calculations shall be submitted to the Engineer for the project file.

(2) Inertial Profiler. The inertial profiler shall be either an independent device or a system that can be attached to another vehicle using one or two non-contact sensors to measure the pavement profile. The inertial profiler shall be capable of performing a simulation of the California Profilograph to provide results in the Profile Index format.

The inertial profiler shall be calibrated according to the manufacturer's recommendations. All calibration traces and calculations shall be submitted to the Engineer for the project file.

(3) Trace Analysis. The Contractor shall reduce/evaluate these traces using a 0.00 in. (0.0 mm) blanking band and determine a Profile Index in in./mile (mm/km) for each section of finished pavement surface. Traces produced using a computerized profile testing device will be evaluated without further reduction. When using a manual profile testing device, the Contractor shall provide an electronic scanner, a computer, and software to reduce the trace. All analysis equipment (electronic scanner, computerized recorder, etc.) shall be able to accept 0.00 in. (0.0 mm) for the blanking band.

All traces from pavement sections tested with the profile testing device shall be recorded on paper with scales of 300:1 longitudinally and 1:1 vertically. Equipment and software settings of the profile testing device and analysis equipment shall be set to those values approved through the PEV Program.

The Engineer may retest the pavement at any time to verify the accuracy of the equipment."

80075

TEMPORARY EROSION CONTROL (BDE)

Effective: November 1, 2002
Revised: January 1, 2008

Revise the third paragraph of Article 280.03 of the Standard Specifications to read:

"Erosion control systems shall be installed prior to beginning any activities which will potentially create erodible conditions. Erosion control systems for areas outside the limits of construction such as storage sites, plant sites, waste sites, haul roads, and Contractor furnished borrow sites shall be installed prior to beginning soil disturbing activities at each area. These offsite systems shall be designed by the Contractor and be subject to the approval of the Engineer."

Add the following paragraph after the third paragraph of Article 280.03 of the Standard Specifications:

"The temporary erosion and sediment control systems shown on the plans represent the minimum systems anticipated for the project. Conditions created by the Contractor's operations, or for the Contractor's convenience, which are not covered by the plans, shall be protected as directed by the Engineer at no additional cost to the Department. Revisions or modifications of the erosion and sediment control systems shall have the Engineer's written approval."

Add the following paragraph after the ninth paragraph of Article 280.07 of the Standard Specifications:

"Temporary or permanent erosion control systems required for areas outside the limits of construction will not be measured for payment."

Delete the tenth (last) paragraph of Article 280.08 of the Standard Specifications.

80087

THERMOPLASTIC PAVEMENT MARKINGS (BDE)

Effective: January 1, 2007

Revise Article 1095.01(a)(2) of the Standard Specifications to read:

"(2) Pigment. The pigment used for the white thermoplastic compound shall be a high-grade pure (minimum 93 percent) titanium dioxide (TiO_2). The white pigment content shall be a minimum of ten percent by weight and shall be uniformly distributed throughout the thermoplastic compound.

The pigments used for the yellow thermoplastic compound shall not contain any hazardous materials listed in the Environmental Protection Agency Code of Federal Regulations (CFR) 40, Section 261.24, Table 1. The combined total of RCRA listed heavy metals shall not exceed 100 ppm when tested by X-ray fluorescence spectroscopy. The pigments shall also be heat resistant, UV stable and color-fast yellows, golds, and oranges, which shall produce a compound which shall match Federal Standard 595 Color No. 33538. The pigment shall be uniformly distributed throughout the thermoplastic compound."

Revise Article 1095.01(b)(1)e. of the Standard Specifications to read:

"e. Daylight Reflectance and Color. The thermoplastic compound after heating for four hours ± five minutes at 425 ± 3 °F (218.3 ± 2 °C) and cooled at 77 °F (25 °C) shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degree circumferential/zero degree geometry, illuminant C, and two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

White: Daylight Reflectance .....75 percent min.
*Yellow: Daylight Reflectance .....45 percent min.

*Shall meet the coordinates of the following color tolerance chart.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456"

Revise Article 1095.01(b)(1)k. of the Standard Specifications to read:

"k. Accelerated Weathering. After heating the thermoplastic for four hours ± five minutes at 425 ± 3 °F (218.3 ± 2 °C) the thermoplastic shall be applied to a steel wool abraded aluminum alloy panel (Federal Test Std. No. 141, Method 2013) at a film thickness of 30 mils (0.70 mm) and allowed to cool for 24 hours at room temperature. The coated panel shall be subjected to accelerated weathering

using the light and water exposure apparatus (fluorescent UV - condensation type) for 75 hours according to ASTM G 53 (equipped with UVB-313 lamps).

The cycle shall consist of four hours UV exposure at 122 °F (50 °C) followed by four hours of condensation at 104 °F (40 °C). UVB 313 bulbs shall be used. At the end of the exposure period, the panel shall not exceed 10 Hunter Lab Delta E units from the original material."

80176

TRAFFIC SIGNAL GROUNDING (BDE)

Effective: April 1, 2006
Revised: January 1, 2007

Revise Article 873.02 of the Standard Specifications to read:

"**873.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Electric Cable – Signal, Lead-in, Communication, Service, and Equipment Grounding Conductor	1076.04
(b) Electrical Raceway Materials	1088.01"

Revise Article 873.04 of the Standard Specifications to read:

"**873.04 Grounding System.** All traffic signal circuits shall include an equipment grounding conductor according to Article 801.04. The equipment grounding conductor shall consist of a continuous, green, insulated conductor Type XLP, No. 6 AWG, stranded copper installed in raceways and bonded to each metal enclosure (handhole, post, mast arm pole, signal cabinet, etc.). All clamps shall be bronze or copper, UL approved.

A grounding cable with connectors shall be installed between each handhole cover and frame. The grounding cable shall be looped over cable hooks installed in the handholes and 5 ft (1.5 m) of extra cable shall be provided between the frame and cover.

All equipment grounding conductors shall terminate at the ground bus in the controller cabinet. The neutral conductor and the equipment grounding conductor shall be connected in the service installation. At no other point in the traffic signal system shall the neutral and equipment grounding conductors be connected."

Revise Article 873.05 of the Standard Specifications to read:

"**873.05 Method of Measurement.** Electric cable will be measured for payment in feet (meters) in place. The length of measurement shall be the distance horizontally and vertically measured between the changes in direction, including cables in mast arms, mast arm poles, signal posts, and extra cable length as specified in Article 873.03. The vertical cable length shall be measured according to the following schedule.

Location	Cable Length
Foundation (signal post, mast arm pole, controller cabinet)	3 ft (1 m)
Mast Arm Pole (mast arm mounted signal head)	20 ft (6 m)
Mast Arm Pole (bracket mounted signal head attached to mast arm pole)	13 ft (4 m)
Signal Post (bracket or post mounted signal head)	13 ft (4 m)
Pedestrian Push Button	6 ft (2 m)"

Add the following Article to Section 873 of the Standard Specifications:

"**873.06 Basis of Payment.** This work will be paid for at the contract unit price per foot (meter) for ELECTRIC CABLE, of the method of installation (IN TRENCH, IN CONDUIT, or AERIAL SUSPENDED), of the type, size, and number of conductors specified.

The type specified will indicate the method of installation and whether the electric cable is Service, Signal, Lead-in, Communication, or Equipment Grounding Conductor."

Revise the heading of Article 1076.04 of the Standard Specifications to read:

"**1076.04 Electric Cable – Signal, Lead-in, Communication, Service, and Equipment Grounding Conductor.**"

Add the following paragraph to the end of Article 1076.04 of the Standard Specifications:

"(e) Equipment Grounding Conductor. The cross linked polyethylene (XLP) insulated conductor shall be according to Articles 1066.02 and 1066.03. The stranded copper conductor shall be No. 6 AWG and the insulation color shall be green."

80161

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 8 . 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 then 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

UNINTERRUPTABLE POWER SUPPLY (UPS) (BDE)

Effective: April 1, 2006
Revised: January 1, 2007

Add the following paragraph to the end of Article 801.14 of the Standard Specifications:

"The warranty for an uninterruptable power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years."

Add the following Section to the Standard Specifications:

"SECTION 862. UNINTERRUPTABLE POWER SUPPLY (UPS)

862.01 Description. This work shall consist of furnishing and installing an uninterruptable power supply (UPS).

862.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Uninterruptable Power Supply	1074.04

CONSTRUCTION REQUIREMENTS

862.03 General. The UPS shall provide power for full run-time operation for an "LED-only" intersection (all colors red, yellow, and green) or flashing mode operation for an intersection using red LED's. A UPS that provides a minimum of two hours of full run-time operation will be designated as "standard". A UPS that provides a minimum of six hours of full run-time operation will be designated as "extended".

The UPS shall include, but not be limited to the following: inverter/charger, power transfer relay, batteries, a separate manually operated non-electronic bypass switch, and all necessary hardware and interconnect wiring according to the plans. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption. The transfer from utility power to battery power and visa versa shall not interfere with the normal operation of traffic controller, conflict monitor/malfunction management unit, or any other peripheral devices within the traffic controller assembly.

The UPS shall be designed for outdoor applications, and shall meet the environmental requirements of, "NEMA Standards Publication No. TS 2 – Traffic Controller Assemblies", except as modified herein.

862.04 Installation. When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured

to the existing controller cabinet by means of at least four bolts. The UPS cabinet shall include a bottom constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

862.05 Basis of Payment. This work will be paid for at the contract unit price per each for UNINTERRUPTABLE POWER SUPPLY, STANDARD or UNINTERRUPTABLE POWER SUPPLY, EXTENDED."

Add the following article to Section 1074 of the Standard Specifications:

"**1074.04 Uninterruptable Power Supply (UPS).**

(a) Operation.

(1) The UPS shall be line interactive and provide voltage regulation and power conditioning when utilizing utility power.

The UPS shall be sized appropriately for the intersection load. The total system load shall not exceed the manufacturer's specifications.

A standard UPS shall provide a minimum of two hours full run-time operation for LED signal modules load at 77 °F (25 °C) (minimum 700 W/1000 VA active output capacity, with 80 percent minimum inverter efficiency). An extended UPS shall provide a minimum of six hours full run-time operation for the same conditions.

(2) The maximum transfer time from loss of utility power to switchover to battery backed inverter power shall be 65 milliseconds.

(3) The UPS shall have four sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel-mounted terminal block, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.

a. The first set of NO and NC contact closures shall be energized whenever the unit switches to battery power. Contact shall be labeled or marked "On Batt".

b. The second set of NO and NC contact closures shall be energized whenever the battery approaches approximately 40 percent of remaining useful capacity. Contact shall be labeled or marked "Low Batt".

c. The third set of NO and NC contact closures shall be energized two hours after the unit switches to battery power. Contact shall be labeled or marked "Timer".

d. The fourth set of NO and NC contact closures shall be energized in the event of inverter/charger failure. Contact shall be labeled or marked "UPS Fail".

(4) Operating temperature for the inverter/charger, power transfer relay, and manual bypass switch shall be -35 to 165 °F (-37 to +74 °C).

(5) Both the power transfer relay and manual bypass switch shall be rated at 240 VAC/30 amps, minimum.

(6) The UPS shall use a temperature-compensated battery charging system. The charging system shall compensate over a range of 1.4 – 2.2 mV/°F (2.5 - 4.0 mV/°C) per cell. The temperature sensor shall be external to the inverter/charger unit. The temperature sensor shall come with 6.5 ft (2 m) of wire.

(7) Batteries shall not be recharged when battery temperature exceeds 122 °F ± 5 °F (50 °C ± 3 °C).

(8) The UPS shall bypass the utility line power whenever the utility line voltage is outside of the following voltage range: 100 VAC to 130 VAC (± 2 VAC).

(9) When utilizing battery power, the UPS output voltage shall be between 110 and 125 VAC, pure sine wave output, ≤ 3 percent THD, 60 Hz ± 3 Hz.

(10) The UPS shall be compatible with the Department's traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

(11) When the utility line power has been restored at above 105 VAC ± 2 VAC for more than 30 seconds, the UPS shall dropout of battery backup mode and return to utility line mode.

(12) When the utility line power has been restored at below 125 VAC ± 2 VAC for more than 30 seconds, the UPS shall dropout of battery backup mode and return to utility line mode.

(13) The UPS shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service.

(14) In the event of inverter/charger failure, the power transfer relay shall revert to the NC state, where utility line power is reconnected to the cabinet. In the event of an UPS fault condition, the UPS shall always revert back to utility line power.

(15) Recharge time for the battery, from "protective low-cutoff" to 80 percent or more of full battery charge capacity, shall not exceed twenty hours.

(16) The manual bypass switch shall be wired to provide power to the UPS when the switch is set to manual bypass.

(17) When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, and service receptacles.

(18) As the battery reserve capacity reaches 50 percent, the intersection shall automatically be placed in all-red flash. The UPS shall allow the controller to automatically resume normal operation after the power has been restored. The UPS shall log an alarm in the controller for each time it is activated.

(19) A blue LED indicator light shall be mounted on the front of the traffic signal cabinet or on the side of the UPS cabinet facing traffic and shall turn on to indicate when the cabinet power has been disrupted and the UPS is in operation. The light shall be a minimum 1 in. (25 mm) diameter, be viewable from the driving lanes, and able to be seen from 200 ft (60 m) away.

(20) All 24 volt and 48 volt systems shall include an external component that monitors battery charging to ensure that every battery in the string is fully charged. The device shall compensate for the effects of adding a new battery to an existing battery system by ensuring that the charge voltage is spread equally across all batteries.

(b) Mounting/Configuration.

(1) General.

a. The inverter/charger unit shall be rack or shelf-mounted.

b. All interconnect wiring provided between the power transfer relay, manual bypass switch, and cabinet terminal service block shall be at least 6.5 ft (2 m) of #10 AWG wire.

c. Relay contact wiring provided for each set of NO/NC relay contact closure terminals shall be 6.5 ft (2 m) of #18 AWG wire.

d. To ensure interchangeability between all UPS manufacturers, the UPS power transfer relay and manual bypass switch shall be interconnected with Type IV or Type V NEMA cabinets as shown on the plans.

(2) Battery Cabinet.

a. The inverter/charger and power transfer relay shall be installed inside the external battery cabinet and the manually bypass switch shall be installed inside the traffic signal cabinet.

b. Batteries shall be housed in a separate NEMA Standard TS 2 rated Type II cabinet. This external battery cabinet shall be according to Article 1074.03 for the construction and finish of the cabinet.

c. No more than two batteries shall be mounted on individual shelves for a cabinet housing four batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

d. A minimum of three shelves shall be provided. Each shelf shall support a load of 132 lb (60 kg) minimum for dual batteries.

e. The battery cabinets housing four batteries shall have nominal outside dimensions according to a NEMA Type II cabinet; or alternatively, a width of 14 in. (355 mm), a depth of 9 in. (230 mm), and a height of 45 to 55 in. (1.14 to 1.4 m). The battery cabinets housing eight batteries shall have nominal outside dimensions according to a NEMA Type III cabinet; or alternatively, a width of 28 in. (710 mm), a depth of 9 in. (230 mm), and a height of 45 to 55 in. (1.14 to 1.4 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

f. The battery cabinet shall be ventilated through the use of louvered vents, filters, and one thermostatically controlled fan as per NEMA TS 2 specifications. The cabinet fan shall not be energized when the traffic signals are on UPS power.

g. The battery cabinet shall have a door opening to the entire cabinet. The door shall be attached to the cabinet through the use of a continuous stainless steel or aluminum piano hinge. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

h. The UPS with battery cabinet shall come with all bolts, conduits and bushings, gaskets, shelves, and hardware needed for mounting.

i. A warning sticker shall be placed on the outside of the cabinet indicating that there is an uninterruptable power supply inside the cabinet.

(c) Maintenance, Displays, Controls, and Diagnostics.

(1) The UPS shall include a display and/or meter to indicate current battery charge status and conditions.

(2) The UPS shall have lightning surge protection compliant with IEEE/ANSI C.62.41.

(3) The UPS shall be equipped with an integral system to prevent battery from destructive discharge and overcharge.

(4) The UPS hardware and batteries shall be easily replaced without requiring any special tools or devices.

(5) The UPS shall include a resettable front-panel event counter display to indicate the number of times the UPS was activated and a front-panel hour meter to display the total number of hours the unit has operated on battery power.

(6) The UPS shall be equipped with an RS-232 port.

(7) The manufacturer shall include two sets of equipment lists, operation and maintenance manuals, board-level schematic and wiring diagrams of the UPS, and battery data sheets. The manufacturer shall include any software needed to monitor, diagnose, and operate the UPS. The manufacturer shall include any required cables to connect the UPS to a laptop computer.

(d) Battery System.

(1) Individual batteries shall be 12 V type, 65 amp-hour minimum capacity at 20 hours, and shall be easily replaced and commercially available off the shelf.

(2) Batteries used for the UPS shall consist of four to eight batteries with a cumulative minimum rated capacity of 240 amp-hours.

(3) Batteries shall be premium gel cell, deep cycle, completely sealed, prismatic lead-calcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance.

(4) Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C).

(5) The batteries shall be provided with appropriate interconnect wiring and corrosion-resistant mounting trays and/or brackets appropriate for the cabinet into which they will be installed.

(6) Batteries shall indicate maximum recharge data and recharging cycles.

(7) Battery interconnect wiring shall be via a modular harness. Batteries shall be shipped with positive and negative terminals pre-wired with red and black cabling that terminates into a typical power-pole style connector. The harness shall be equipped with mating power-pole style connectors for the batteries and a single, insulated plug-in style connection to the inverter/charger unit. The harness shall allow batteries to be quickly and easily connected in any order and shall be keyed and wired to ensure proper polarity and circuit configuration.

(8) Battery terminals shall be covered and insulated so as to prevent accidental shorting."

WATER BLASTER WITH VACUUM RECOVERY (BDE)

Effective: April 1, 2006
Revised: January 1, 2007

Add the following to Article 783.02 of the Standard Specifications.

"(c) Water Blaster with Vacuum Recovery ..... 1101.12"

Revise Article 1101.12 of the Standard Specifications to read.

"**1101.12 Water Blaster with Vacuum Recovery.** The water blaster shall remove the stripe from the pavement using a high pressurized water spray with a vacuum recovery system to provide a clean, almost dry surface, without the use of a secondary cleanup process. The removal shall be to the satisfaction of the Engineer. The equipment shall contain a storage system that allows for the storage of the wastewater while retaining the debris. The operator shall be in immediate control of the blast head."

80163

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. These contract provisions shall apply to all word 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.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4 and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 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 DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

a. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

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 and 41 CFR 60 (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 Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American 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 State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his 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, preapprenticeship, and/or on-the-job-training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of EEO 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 minority group employees.

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 minority groups 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 employees referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish which such identified sources procedures whereby minority group 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, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group 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 his 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 his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

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. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

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 minority group and women employees 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 his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. 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 best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best 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 SHA 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 minority and women 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 quailifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) 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 SHA.

8. 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.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. 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 completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number 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;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA 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. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term “segregated facilities” means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers 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 (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter “the wage determination”) which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the

contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) 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. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, 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 paragraphs 4 and 5 of this Section IV.

b. 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.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification 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 DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour 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.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional 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 question, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advised the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. 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 or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any cost 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.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) 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 DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/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 Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees 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 employee 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 listed in 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 or subcontractor 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-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) 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 journeyman-level 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 for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) 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 DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. 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.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level 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-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which cases such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor 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. Helpers:
Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV. 2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. 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.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor 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, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainee's 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 SHA contracting officer 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.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her 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, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall; upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies 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 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof 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. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found 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 and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period).

The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V.

This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all suncontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such 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 the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. 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 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U/S. C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for

inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, 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 SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions 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.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all federal-aid contracts on the national highway system, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on /Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

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 State. 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 contractors' own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly 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, assignee, or agent of the prime contractor.

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 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 VII 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 SHA 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 SHA 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 SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

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 SHA 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. 333).

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. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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, the following notice 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:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

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 not more than $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more).

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary 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 participant shall submit an 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 primary 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 department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary 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,""lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary 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 primary 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 Transaction," provided by the department or agency entering into this covered transaction, without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded from Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. 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.

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.

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Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-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;

c. 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 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

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," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tie 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.

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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

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 dealing.

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.

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Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion-Lower Tier Covered Transactions:

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 participation in this transaction 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.

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XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(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 his or her bid or proposal that he or she 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.

NOTICE

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at http://www.dot.state.il.us/desenv/delett.html.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at http://www.dot.state.il.us/desenv/subsc.html.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.