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

Proposal Submitted By
Name
Address
City

183

Letting June 12, 2009

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

Illinois Department of Transportation

Springfield, Illinois 62764

Contract No. 63073
KANE County
Section 06-00214-10-BR
Route FAP 361 (McLean Blvd. & IL 31)
Project HPP-1527 (009)
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. 63073
KANE County
Section 06-00214-10-BR
Project HPP-1527 (009)
Route FAP 361 (McLean Blvd. & IL 31)
District 1 Construction Funds

Pavement widening and reconstruction consisting of pavement removal, earth excavation, placement of furnished excavation, railroad bridge and railroad track construction, PCC pavement, median and sidewalk construction, storm sewer installation, retaining wall construction, landscaping, traffic signal modernization and interconnecton, placement of pavement markings and all other incidental items to complete the work on FAP Route 361 (McLean Boulevard/IL Route 31) at New Stearns Road at McLean Boulevard and McLean Boulevard at IL Route 31 intersections.

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.

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
KANE	089	01	06-00214-10-BR	HPP-1527/009/000	FAP 361

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
K0038000	PEREN PL WETLND EM TY	UNIT	53.560	X			=		
K1004485	PERENNIAL PLANTS W-TY	UNIT	17.850	X			=		
XX003503	FLARED END SEC REM	EACH	2.000	X			=		
XX004848	STONE DRIVE REPLACE	SQ YD	80.000	X			=		
XX005369	TRAF CONT-PROT TEMP D	L SUM	1.000	X			=		
XX005723	VIDEO DET SY COMP INT	EACH	1.000	X			=		
XX006128	TRAF BAR TRM TI SP	EACH	2.000	X			=		
XX006338	EROS CONT BLANKET SPL	SQ YD	1,333.000	X			=		
XX006628	FILTER FAB INLET PROT	EACH	21.000	X			=		
XX006698	TREE PROTECT & PRESER	EACH	3.000	X			=		
XX006701	SEED CL 4 MOD MES PRA	ACRE	4.330	X			=		
XX006702	SEED CL 4 MOD WET MP	ACRE	0.790	X			=		
XX006706	SEED CL 4 MOD DET BAS	ACRE	0.300	X			=		
XX006709	SEED CL 5 MOD MES PRA	ACRE	4.330	X			=		
XX006710	SEED CL 5 MOD WET MP	ACRE	0.790	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX008014	TEMP RR EMBANKMENT	CU YD	36,310.000	X			=		
XX008015	SITE ACCESS CONTROL	L SUM	1.000	X			=		
XX008016	SPHER BEAR BOOK-EXPAN	EACH	2.000	X			=		
XX008017	SPHER BEAR BOOK-FIXED	EACH	2.000	X			=		
XX008018	TEMP SOIL RET SYS	L SUM	1.000	X			=		
XX008019	UNINTER POW SUP SKDOT	EACH	1.000	X			=		
X0321809	PERMANENT GRND ANCHOR	EACH	95.000	X			=		
X0322671	STAB CONSTR ENTRANCE	SQ YD	150.000	X			=		
X0322925	ELCBL C TRACER 14 1C	FOOT	948.000	X			=		
X0323260	SEDIMENT BASIN	EACH	1.000	X			=		
X0323426	SED CONT DR ST INL CL	EACH	4.000	X			=		
X0323670	PREFORM DETECT LOOP	FOOT	245.000	X			=		
X0323973	SED CONT SILT FENCE	FOOT	7,595.000	X			=		
X0323974	SED CONT SILT FN MAIN	FOOT	7,595.000	X			=		
X0324007	OPTIM TRAF SIGNAL SYS	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
X0324045	SED CON STAB CON EN R	EACH	1.000	X			=		
X0324455	DRILL/SET SOLD P SOIL	CU FT	5,617.000	X			=		
X0324456	DRILL/SET SOLD P ROCK	CU FT	70.000	X			=		
X0324774	SED CON STAB CONST EN	SQ YD	150.000	X			=		
X0324775	SED CON STAB CON EN M	SQ YD	150.000	X			=		
X0325346	RAILROAD TRACK	TRK FT	2,395.000	X			=		
X0325355	RAIL TRACK, REMOVE	TRK FT	2,395.000	X			=		
X0325775	WET RF TEM TAPE T3 4	FOOT	7,333.000	X			=		
X0325840	WET RF TEM TAPE T3 12	FOOT	476.000	X			=		
X0712400	TEMP PAVEMENT	SQ YD	1,421.000	X			=		
X2510635	HD EROS CONT BLANK SP	SQ YD	2,361.000	X			=		
X4023000	TEMP ACCESS- ROAD	EACH	1.000	X			=		
X8050015	SERV INSTALL POLE MT	EACH	2.000	X			=		
X8620020	UNINTER POWER SUPPLY	EACH	1.000	X			=		
X8710020	FOCC62.5/125 MM12SM12	FOOT	974.000	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	1,475.000	X			=		
X8730250	ELCBL C 20 3C TW SH	FOOT	2,159.000	X			=		
Z0001050	AGG SUBGRADE 12	SQ YD	20,835.000	X			=		
Z0002300	BALLAST	CU YD	1,400.000	X			=		
Z0007601	BLDG REMOV NO 1	L SUM	1.000	X			=		
Z0007602	BLDG REMOV NO 2	L SUM	1.000	X			=		
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000	X			=		
Z0022800	FENCE REMOVAL	FOOT	1,024.000	X			=		
Z0030260	IMP ATTN TEMP FRN TL3	EACH	6.000	X			=		
Z0041700	PLUG EX STORM SEWERS	EACH	1.000	X			=		
Z0048665	RR PROT LIABILITY INS	L SUM	1.000	X			=		
Z0069700	SUB-BALLAST	CU YD	1,800.000	X			=		
Z0076600	TRAINEES	HOUR	5,000.000	X	0	.80	=	4,000	.00
20100110	TREE REMOV 6-15	UNIT	58.000	X			=		
20100210	TREE REMOV OVER 15	UNIT	18.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
20100500	TREE REMOV ACRES	ACRE	3.250			X =		
20101700	SUPPLE WATERING	UNIT	4.200			X =		
20200100	EARTH EXCAVATION	CU YD	96,749.000			X =		
20200200	ROCK EXCAVATION	CU YD	3,443.000			X =		
20201200	REM & DISP UNS MATL	CU YD	7,510.000			X =		
20300100	CHANNEL EXCAV	CU YD	2,566.000			X =		
20700220	POROUS GRAN EMBANK	CU YD	255.000			X =		
20800150	TRENCH BACKFILL	CU YD	2,870.000			X =		
21101615	TOPSOIL F & P 4	SQ YD	39,400.000			X =		
21101685	TOPSOIL F & P 24	SQ YD	835.000			X =		
25000210	SEEDING CL 2A	ACRE	2.510			X =		
25000400	NITROGEN FERT NUTR	POUND	11.000			X =		
25000500	PHOSPHORUS FERT NUTR	POUND	11.000			X =		
25000600	POTASSIUM FERT NUTR	POUND	11.000			X =		
25200110	SODDING SALT TOLERANT	SQ YD	835.000			X =		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
28000200	EARTH EXC - EROS CONT	CU YD	631.000			X =		
28000255	TEMP EROS CONTR SEED	ACRE	7.000			X =		
28000300	TEMP DITCH CHECKS	EACH	33.000			X =		
28100105	STONE RIPRAP CL A3	SQ YD	483.000			X =		
28100107	STONE RIPRAP CL A4	SQ YD	111.000			X =		
28100109	STONE RIPRAP CL A5	SQ YD	669.000			X =		
28101500	RIPRAP SPL	SQ YD	22.000			X =		
28200200	FILTER FABRIC	SQ YD	1,285.000			X =		
35101800	AGG BASE CSE B 6	SQ YD	2,421.000			X =		
35600716	HMA BC WID 10	SQ YD	397.000			X =		
40600200	BIT MATLS PR CT	TON	0.500			X =		
40600825	P LEV BIND MM N50	TON	258.000			X =		
40600895	CONSTRUC TEST STRIP	EACH	2.000			X =		
40600982	HMA SURF REM BUTT JT	SQ YD	31.000			X =		
40603310	HMA SC "C" N50	TON	276.000			X =		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
40603335	HMA SC "D" N50	TON	387.000			X =		
40701976	HMA PAVT FD 14 3/4	SQ YD	1,193.000			X =		
42000501	PCC PVT 10 JOINTED	SQ YD	16,434.000			X =		
42001300	PROTECTIVE COAT	SQ YD	19,430.000			X =		
42400100	PC CONC SIDEWALK 4	SQ FT	205.000			X =		
44000100	PAVEMENT REM	SQ YD	6,912.000			X =		
44000200	DRIVE PAVEMENT REM	SQ YD	2,072.000			X =		
44000500	COMB CURB GUTTER REM	FOOT	2,460.000			X =		
44000600	SIDEWALK REM	SQ FT	126.000			X =		
44001005	HMA SURFACE REMOVAL	SQ YD	4,260.000			X =		
44002248	HMA RM OV PAT 12	SQ YD	330.000			X =		
44004250	PAVED SHLD REMOVAL	SQ YD	1,080.000			X =		
44004300	PAVT BREAKING	SQ YD	784.000			X =		
44201785	CL D PATCH T1 12	SQ YD	213.000			X =		
44201789	CL D PATCH T2 12	SQ YD	15.000			X =		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
44201794	CL D PATCH T3 12	SQ YD	20.000			X =		
44201796	CL D PATCH T4 12	SQ YD	82.000			X =		
48101500	AGGREGATE SHLDS B 6	SQ YD	1,518.000			X =		
48203021	HMA SHOULDERS 6	SQ YD	1,528.000			X =		
50100100	REM EXIST STRUCT	EACH	1.000			X =		
50104400	CONC HDWL REM	EACH	4.000			X =		
50105200	REM EXIST CULVERTS	EACH	3.000			X =		
50200100	STRUCTURE EXCAVATION	CU YD	4,033.000			X =		
50200400	ROCK EXC STRUCT	CU YD	2,241.000			X =		
50300225	CONC STRUCT	CU YD	852.500			X =		
50300285	FORM LINER TEX SURF	SQ FT	7,311.000			X =		
50300500	DECK DRAINS	FOOT	240.000			X =		
50500105	F & E STRUCT STEEL	L SUM	1.000			X =		
50500505	STUD SHEAR CONNECTORS	EACH	1,962.000			X =		
50700209	UNTREATED TIMBER LAG	SQ FT	6,843.000			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	69,532.000	X			=		
50800205	REINF BARS, EPOXY CTD	POUND	115,500.000	X			=		
50901105	STEEL RAILING	FOOT	610.000	X			=		
50901720	BICYCLE RAILING	FOOT	280.000	X			=		
50901760	PIPE HANDRAIL	FOOT	284.000	X			=		
51202100	FUR STL PILE HP14X117	FOOT	1,470.000	X			=		
51202210	FUR SOLDIER PILES HP	FOOT	170.000	X			=		
51202220	FUR SOLDIER PILES BU	FOOT	1,834.000	X			=		
51202305	DRIVING PILES	FOOT	1,470.000	X			=		
51203600	TEST PILE ST HP12X53	EACH	2.000	X			=		
51204650	PILE SHOES	EACH	70.000	X			=		
51500100	NAME PLATES	EACH	3.000	X			=		
51500110	NAME PLATES SPL	EACH	1.000	X			=		
54003000	CONC BOX CUL	CU YD	313.000	X			=		
542A2785	P CUL CL A 4 60	FOOT	22.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
54201525	P CUL 2 CS/A CP 60	FOOT	178.000			X =		
54213657	PRC FLAR END SEC 12	EACH	1.000			X =		
54213669	PRC FLAR END SEC 24	EACH	2.000			X =		
54213675	PRC FLAR END SEC 30	EACH	1.000			X =		
54213687	PRC FLAR END SEC 42	EACH	1.000			X =		
54213915	STEEL END SEC 60	EACH	8.000			X =		
54244805	INLET BOX 542501	EACH	1.000			X =		
54247130	GRATING-C FL END S 24	EACH	2.000			X =		
54247150	GRATING-C FL END S 30	EACH	1.000			X =		
54247180	GRATING-C FL END S 42	EACH	1.000			X =		
550A0050	STORM SEW CL A 1 12	FOOT	57.000			X =		
550A0120	STORM SEW CL A 1 24	FOOT	25.000			X =		
550A0340	STORM SEW CL A 2 12	FOOT	1,360.000			X =		
550A0360	STORM SEW CL A 2 15	FOOT	284.000			X =		
550A0380	STORM SEW CL A 2 18	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
550A0410	STORM SEW CL A 2 24	FOOT	586.000			X =		
550A0430	STORM SEW CL A 2 30	FOOT	120.000			X =		
550A0470	STORM SEW CL A 2 42	FOOT	30.000			X =		
550A0480	STORM SEW CL A 2 48	FOOT	285.000			X =		
550A0750	STORM SEW CL A 3 36	FOOT	735.000			X =		
550A0770	STORM SEW CL A 3 42	FOOT	1,160.000			X =		
550A0940	STORM SEW CL A 4 12	FOOT	10.000			X =		
550A1240	STORM SEW CL A 5 12	FOOT	21.000			X =		
55101200	STORM SEWER REM 24	FOOT	74.000			X =		
55101400	STORM SEWER REM 30	FOOT	120.000			X =		
55101800	STORM SEWER REM 42	FOOT	30.000			X =		
58000100	MEMBRANE WATERPROOF	SQ FT	2,350.000			X =		
58700300	CONCRETE SEALER	SQ FT	3,030.000			X =		
59100100	GEOCOMPOSITE WALL DR	SQ YD	2,856.000			X =		
60100915	PIPE DRAINS 6	FOOT	40.000			X =		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
60100945	PIPE DRAINS 12	FOOT	150.000			X =		
60107600	PIPE UNDERDRAINS 4	FOOT	76.000			X =		
60107700	PIPE UNDERDRAINS 6	FOOT	575.000			X =		
60109584	P UNDR FOR STRUCT 8	FOOT	713.000			X =		
60202405	CB TA 4 DIA	EACH	25.000			X =		
60205605	CB TA 5 DIA	EACH	2.000			X =		
60220200	MAN TA 4 DIA	EACH	14.000			X =		
60222900	MAN TA 5 DIA	EACH	11.000			X =		
60224200	MAN TA SPL 6D T1F CL	EACH	1.000			X =		
60240395	INLETS TB	EACH	3.000			X =		
60248000	JUNCTION CHAMBER N1	EACH	1.000			X =		
60255500	MAN ADJUST	EACH	1.000			X =		
60402210	GRATES T8	EACH	5.000			X =		
60404920	FR & GRATES T21	EACH	7.000			X =		
60404950	FR & GRATES T24	EACH	25.000			X =		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
60406100	FR & LIDS T1 CL	EACH	18.000	X			=		
60406600	GRATING	SQ FT	830.000	X			=		
60500040	REMOV MANHOLES	EACH	1.000	X			=		
60500050	REMOV CATCH BAS	EACH	1.000	X			=		
60600095	CLASS SI CONC OUTLET	CU YD	4.000	X			=		
60602800	CONC GUTTER TB	FOOT	474.000	X			=		
60603800	COMB CC&G TB6.12	FOOT	45.000	X			=		
60605000	COMB CC&G TB6.24	FOOT	6,588.000	X			=		
60618310	CONC MEDIAN SURF 4 SP	SQ FT	5,181.000	X			=		
60619100	CONC MED TSB SPL	SQ FT	1,713.000	X			=		
63000001	SPBGR TY A 6FT POSTS	FOOT	450.000	X			=		
63100045	TRAF BAR TERM T2	EACH	2.000	X			=		
63200305	SPBGR REM	FOOT	629.000	X			=		
67100100	MOBILIZATION	L SUM	1.000	X			=		
70101800	TRAF CONT & PROT SPL	L SUM	1.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
70102550	TR CONT-PROT TEMP DET	EACH	1.000	X			=		
70106800	CHANGEABLE MESSAGE SN	CAL MO	18.000	X			=		
70300100	SHORT-TERM PAVT MKING	FOOT	400.000	X			=		
70300240	TEMP PVT MK LINE 6	FOOT	809.000	X			=		
70301000	WORK ZONE PAVT MK REM	SQ FT	3,173.000	X			=		
70400100	TEMP CONC BARRIER	FOOT	1,012.500	X			=		
70400200	REL TEMP CONC BARRIER	FOOT	887.500	X			=		
72000100	SIGN PANEL T1	SQ FT	96.250	X			=		
72900200	METAL POST TY B	FOOT	174.000	X			=		
78000100	THPL PVT MK LTR & SYM	SQ FT	110.000	X			=		
78000200	THPL PVT MK LINE 4	FOOT	7,772.000	X			=		
78000400	THPL PVT MK LINE 6	FOOT	694.000	X			=		
78000600	THPL PVT MK LINE 12	FOOT	551.000	X			=		
78000650	THPL PVT MK LINE 24	FOOT	77.000	X			=		
78008200	POLYUREA PM T1 LTR-SY	SQ FT	656.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
78008210	POLYUREA PM T1 LN 4	FOOT	1,436.000	X			=		
78008230	POLYUREA PM T1 LN 6	FOOT	2,922.000	X			=		
78008240	POLYUREA PM T1 LN 8	FOOT	105.000	X			=		
78008250	POLYUREA PM T1 LN 12	FOOT	1,233.000	X			=		
78008270	POLYUREA PM T1 LN 24	FOOT	250.000	X			=		
78100100	RAISED REFL PAVT MKR	EACH	168.000	X			=		
78200405	GUARDRAIL MARKERS	EACH	6.000	X			=		
78201000	TERMINAL MARKER - DA	EACH	4.000	X			=		
81000600	CON T 2 GALVS	FOOT	1,936.000	X			=		
81000700	CON T 2 1/2 GALVS	FOOT	263.000	X			=		
81000800	CON T 3 GALVS	FOOT	109.000	X			=		
81000900	CON T 3 1/2 GALVS	FOOT	17.000	X			=		
81001000	CON T 4 GALVS	FOOT	742.000	X			=		
81001100	CON T 5 GALVS	FOOT	10.000	X			=		
81018500	CON P 2 GALVS	FOOT	77.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
81018900	CON P 4 GALVS	FOOT	213.000	X			=		
81400100	HANDHOLE	EACH	8.000	X			=		
81400200	HD HANDHOLE	EACH	4.000	X			=		
81400300	DBL HANDHOLE	EACH	3.000	X			=		
81900200	TR & BKFIL F ELECT WK	FOOT	2,378.000	X			=		
85700200	FAC T4 CAB	EACH	2.000	X			=		
86000100	MASTER CONTROLLER	EACH	1.000	X			=		
86400100	TRANSCEIVER - FIB OPT	EACH	2.000	X			=		
87301215	ELCBL C SIGNAL 14 2C	FOOT	1,029.000	X			=		
87301225	ELCBL C SIGNAL 14 3C	FOOT	1,829.000	X			=		
87301245	ELCBL C SIGNAL 14 5C	FOOT	6,823.000	X			=		
87301255	ELCBL C SIGNAL 14 7C	FOOT	3,192.000	X			=		
87301305	ELCBL C LEAD 14 1PR	FOOT	3,412.000	X			=		
87301805	ELCBL C SERV 6 2C	FOOT	65.000	X			=		
87502480	TS POST GALVS 14	EACH	2.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
87502500	TS POST GALVS 16	EACH	5.000	X			=		
87502520	TS POST GALVS 18	EACH	1.000	X			=		
87700170	S MAA & P 26	EACH	1.000	X			=		
87700240	S MAA & P 40	EACH	1.000	X			=		
87700310	S MAA & P 54	EACH	1.000	X			=		
87702985	STL COMB MAA&P 52	EACH	1.000	X			=		
87703020	STL COMB MAA&P 58	EACH	1.000	X			=		
87703030	STL COMB MAA&P 60	EACH	1.000	X			=		
87703090	STL COMB MAA&P 70	EACH	1.000	X			=		
87800100	CONC FDN TY A	FOOT	32.000	X			=		
87800150	CONC FDN TY C	FOOT	4.000	X			=		
87800200	CONC FDN TY D	FOOT	4.000	X			=		
87800400	CONC FDN TY E 30D	FOOT	15.000	X			=		
87800415	CONC FDN TY E 36D	FOOT	45.000	X			=		
87800420	CONC FDN TY E 42D	FOOT	75.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
88030020	SH LED 1F 3S MAM	EACH	15.000	X			=		
88030050	SH LED 1F 3S BM	EACH	2.000	X			=		
88030100	SH LED 1F 5S BM	EACH	1.000	X			=		
88030110	SH LED 1F 5S MAM	EACH	6.000	X			=		
88030210	SH LED 2F 3S BM	EACH	2.000	X			=		
88030220	SH LED 2F 5S BM	EACH	1.000	X			=		
88030240	SH LED 2F 1-3 1-5 BM	EACH	3.000	X			=		
88102717	PED SH LED 1F BM CDT	EACH	6.000	X			=		
88200210	TS BACKPLATE LOU ALUM	EACH	21.000	X			=		
88500100	INDUCTIVE LOOP DETECT	EACH	9.000	X			=		
88600100	DET LOOP T1	FOOT	182.000	X			=		
88700200	LIGHT DETECTOR	EACH	8.000	X			=		
88700300	LIGHT DETECTOR AMP	EACH	2.000	X			=		
88800100	PED PUSH-BUTTON	EACH	6.000	X			=		

TOTAL $

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

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 $177,412.00. Sixty percent of the salary is $106,447.20.

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. <u>International Anti-Boycott</u>

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. <u>Drug Free Workplace</u>

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.

M. Disclosure of Business Operations in Iran

Section 50-36 of the Illinois Procurement Code, 30ILCS 500/50-36 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 Code.

Failure to make the disclosure required by the Code 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.

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

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

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

The undersigned business entity certifies that it has registered as a business with the State Board of Elections and acknowledges a continuing duty to update the registration in accordance with the above referenced statutes. A copy of the certificate of registration shall be submitted with the bid. The bidder is cautioned that the Department will not award a contract without submission of the certificate of registration.

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

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 $106,447.20 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 $106,447.20? 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:

_____

_____

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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 $106,447.20 (60% of the Governor's salary as of 3/1/09). **(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 $106,447.20, (60% of the Governor's salary as of 3/1/09) 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 $106,447.20, (60% of the Governor's salary as of 3/1/09) 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 $106,447.20, (60% of the Governor's salary as of 3/1/09) 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 $106,447.20, (60% of the Governor's salary as of 3/1/09) 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 $106,447.20.00, (60% of the salary of the Governor as of 3/1/09) 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 $106,447.20, (60% of the Governor's salary as of 3/1/09) 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 __

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(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

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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. 63073
KANE County
Section 06-00214-10-BR
Project HPP-1527 (009)
Route FAP 361 (McLean Blvd. & IL 31)
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.

BC-1256 (Rev. 12/11/08)

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. 63073
KANE County
Section 06-00214-10-BR
Project HPP-1527 (009)
Route FAP 361 (McLean Blvd. & IL 31)
District 1 Construction Funds

PROPOSAL SIGNATURE SHEET

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

(IF AN INDIVIDUAL)

Firm Name _____

Signature of Owner _____

Business Address _____

_____

(IF A CO-PARTNERSHIP)

Firm Name _____

By _____

Business Address _____

_____

Name and Address of All Members of the Firm:

_____ _____

(IF A CORPORATION)

Corporate Name _____

By _____
Signature of Authorized Representative

_____
Typed or printed name and title of Authorized Representative

Attest _____
Signature

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

Business Address _____

_____

(IF A JOINT VENTURE)

Corporate Name _____

By _____
Signature of Authorized Representative

_____
Typed or printed name and title of Authorized Representative

Attest _____
Signature

Business Address _____

_____

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

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 _____ day of _____ A.D., _____ .

PRINCIPAL	**SURETY**
_____ (Company Name)	_____ (Company Name)
By _____ (Signature & Title)	By: _____ (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

BDE 356B (REV. 10/24/07

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. 63073
KANE County
Section 06-00214-10-BR
Project HPP-1527 (009)
Route FAP 361 (McLean Blvd. & IL 31)
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., June 12, 2009. 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. 63073
   KANE County
   Section 06-00214-10-BR
   Project HPP-1527 (009)
   Route FAP 361 (McLean Blvd. & IL 31)
   District 1 Construction Funds

Pavement widening and reconstruction consisting of pavement removal, earth excavation, placement of furnished excavation, railroad bridge and railroad track construction, PCC pavement, median and sidewalk construction, storm sewer installation, retaining wall construction, landscaping, traffic signal modernization and interconnecton, placement of pavement markings and all other incidental items to complete the work on FAP Route 361 (McLean Boulevard/IL Route 31) at New Stearns Road at McLean Boulevard and McLean Boulevard at IL Route 31 intersections.

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

Gary Hannig,
Acting Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2009

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 1-1-09)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

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

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ARMY CORPS OF ENGINEERS PERMIT

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY PERMIT

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET
Effective: March 6, 2009

√	Pg #	File Name	Title	Effective	Revised
		GBSP4	Polymer Modified Portland Cement Mortar	June 7, 1994	June 1, 2007
		GBSP11	Permanent Steel Sheet Piling	Dec 15, 1993	Jan 1, 2007
		GBSP12	Drainage System	June 10, 1994	Jan 1, 2007
		GBSP13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Mar 6, 2009
		GBSP14	Jack and Remove Existing Bearings	April 20, 1994	Jan 1, 2007
		GBSP15	Three Sided Precast Concrete Structure	July 12, 1994	Mar 6, 2009
		GBSP16	Jacking Existing Superstructure	Jan 11, 1993	Jan 1, 2007
		GBSP17	Bonded Preformed Joint Seal	July 12, 1994	Jan 1, 2007
		GBSP18	Modular Expansion Joint	May 19, 1994	Jan 1, 2007
		GBSP21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	Jan 1, 2007
X	221	GBSP22	Cleaning and Painting New Metal Structures	Sept 13, 1994	Mar 6, 2009
		GBSP25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	July 9, 2008
		GBSP26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	Mar 6, 2009
		GBSP28	Deck Slab Repair	May 15, 1995	Jan 12, 2009
		GBSP29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	June 1, 2007
		GBSP30	Bridge Deck Latex Concrete Overlay	May 15, 1995	June 1, 2007
		GBSP31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	June 1, 2007
		GBSP32	Temporary Sheet Piling	Sept 2, 1994	Jan 1, 2007
		GBSP33	Pedestrian Truss Superstructure	Jan 13, 1998	Mar 6, 2009
		GBSP34	Concrete Wearing Surface	June 23, 1994	Jan 12, 2009
		GBSP35	Silicone Bridge Joint Sealer	Aug 1, 1995	Jan 1, 2007
		GBSP36	Surface Preparation and Painting Req. for Weathering Steel	Nov 21, 1997	Mar 6, 2009
		GBSP37	Underwater Structure Excavation Protection	April 1, 1995	Mar 6, 2009
		GBSP38	Mechanically Stabilized Earth Retaining Walls	Feb 3, 1999	Mar 6, 2009
X	230	GBSP42	Drilled Soldier Pile Retaining Wall	Sept 20, 2001	Feb 2, 2007
X	236	GBSP43	Driven Soldier Pile Retaining Wall	Nov 13, 2002	Feb 2, 2007
		GBSP44	Temporary Soil Retention System	Dec 30, 2002	Jan 1, 2007
		GBSP45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Jan 1, 2007
		GBSP46	Geotextile Retaining Walls	Sept 19, 2003	June 1, 2007
		GBSP47	High Performance Concrete Structures	Aug 5, 2002	Jan 1, 2007
		GBSP50	Removal of Existing Non-composite Bridge Decks	June 21, 2004	Jan 1, 2007
X	239	GBSP51	Pipe Underdrain for Structures	May 17, 2000	Jan 1, 2007
		GBSP52	Porous Granular Embankment (Special)	Sept 28, 2005	Nov 14, 2008
		GBSP53	Structural Repair of Concrete	Mar 15, 2006	April 2, 2008
		GBSP55	Erection of Curved Steel Structures	June 1, 2007	
		GBSP56	Setting Piles in Rock	Nov 14, 1996	Jan 1, 2007
		GBSP57	Temporary Mechanically Stabilized Earth Retaining Walls	Jan 6, 2003	April 2, 2008
		GBSP58	Mechanical Splicers	Sep 21, 1995	Mar 6, 2009
		GBSP59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	July 9, 2008
		GBSP60	Containment and Disposal of Non-Lead Pain Cleaning Residues	Nov 25, 2004	Mar 6, 2009
		GBSP61	Slipform Parapet	June 1, 2007	Jan 12, 2009
		GBSP62	Concrete Deck Beams	June 13, 2008	Nov 14, 2008
		GBSP63	Demolition Plans for Removal of Existing Structures	Sept 5, 2007	
		GBSP64	Segmental Concrete Block Wall	Jan 7, 1999	July 9, 2008
		GBSP65	Precast Modular Retaining Walls	Mar 19, 2001	Nov 14, 2008
		GBSP66	Wave Equation Analysis of Piles	Nov 14, 2008	
		GBSP67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	

LIST ADDITIONAL SPECIAL PROVISIONS BELOW

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	240	☒	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	Nov. 1, 2008
LR 107-4	243	☒	Insurance	Feb. 1, 2007	Aug. 1, 2007
LR 107-5		☐	Substance Abuse Prevention Program	Jan. 1, 2008	Jan. 8, 2008
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 1030		☐	Growth Curve	Mar. 1, 2008	
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 April 24 and June 12, 2009 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	244	X	Alkali-Silica Reaction for Cast-in-Place Concrete	Aug. 1, 2007	Jan. 1, 2009
	80213	247	X	Alkali-Silica Reaction for Precast and Precast Prestressed Concrete	Jan. 1, 2009	
*	80243			American Recovery and Reinvestment Act Provisions	April 1, 2009	
*	80236			American Recovery and Reinvestment Act Signing	April 1, 2009	April 2, 2009
	80207	250	X	Approval of Proposed Borrow Areas, Use Areas, and/or Waste Areas Inside Illinois State Borders	Nov. 1, 2008	
	80192			Automated Flagger Assistance Device	Jan. 1, 2008	
*	80173			Bituminous Materials Cost Adjustments	Nov. 2, 2006	April 1, 2009
	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	251	X	Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	Jan. 1, 2007
*	80166	280	X	Cement	Jan. 1, 2007	April 1, 2009
	80198			Completion Date (via calendar days)	April 1, 2008	
	80199			Completion Date (via calendar days) Plus Working Days	April 1, 2008	
*	80094	283	X	Concrete Admixtures	Jan. 1, 2003	April 1, 2009
	80193			Concrete Barrier	Jan. 1, 2008	
	80214			Concrete Gutter, Type A	Jan. 1, 2009	
	80215			Concrete Joint Sealer	Jan. 1, 2009	
*	80226			Concrete Mix Designs	April 1, 2009	
*	80237			Construction Air Quality – Diesel Vehicle Emissions Control	April 1, 2009	
*	80239			Construction Air Quality – Idling Restrictions	April 1, 2009	
*	80227			Determination of Thickness	April 1, 2009	
	80177			Digital Terrain Modeling for Earthwork Calculations	April 1, 2007	
	80029	287	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Nov. 1, 2008
	80178	295	X	Dowel Bars	April 1, 2007	Jan. 1, 2008
	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	296	X	Equipment Rental Rates	Aug. 2, 2007	Jan. 2, 2008
*	80228			Flagger at Side Roads and Entrances	April 1, 2009	
*	80229			Fuel Cost Adjustment	April 1, 2009	
	80169			High Tension Cable Median Barrier	Jan. 1, 2007	
	80194			HMA – Hauling on Partially Completed Full-Depth Pavement	Jan. 1, 2008	
	80181	298	X	Hot-Mix Asphalt – Field Voids in the Mineral Aggregate	April 1, 2007	April 1, 2008
	80201	300	X	Hot-Mix Asphalt – Plant Test Frequency	April 1, 2008	
	80202	302	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	Nov. 1, 2008
	80110	303	X	Impact Attenuators, Temporary	Nov. 1, 2003	Jan. 1, 2007
*	80230	305	X	Liquidated Damages	April 1, 2009	
	80196	306	X	Mast Arm Assembly and Pole	Jan. 1, 2008	Jan. 1, 2009
	80045			Material Transfer Device	June 15, 1999	Jan. 1, 2009
*	80203			Metal Hardware Cast into Concrete	April 1, 2008	April 1, 2009
	80165			Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2007
*	80238			Monthly Employment Report	April 1, 2009	
	80082	308	X	Multilane Pavement Patching	Nov. 1, 2002	
	80180	309	X	National Pollutant Discharge Elimination System / Erosion and Sediment Control Deficiency Deduction (NOTE: This special provision was previously named *"Erosion and Sediment Control Deficiency Deduction"*.)	April 1, 2007	Nov. 1, 2008
	80208			Nighttime Work Zone Lighting	Nov. 1, 2008	
	80129			Notched Wedge Longitudinal Joint	July 1, 2004	Jan. 1, 2007
	80182	310	X	Notification of Reduced Width	April 1, 2007	

File Name	Pg#		Special Provision Title	Effective	Revised
80069			Organic Zinc-Rich Paint System	Nov. 1, 2001	Jan. 1, 2008
80216			Partial Exit Ramp Closure for Freeway/Expressway	Jan. 1, 2009	
* 80231			Pavement Marking Removal	April 1, 2009	
80022	311	X	Payments to Subcontractors	June 1, 2000	Jan. 1, 2006
* 80235	313	X	Payrolls and Payroll Records	Mar. 1, 2009	
80209	315	X	Personal Protective Equipment	Nov. 1, 2008	
* 80232			Pipe Culverts	April 1, 2009	
80134	316	X	Plastic Blockouts for Guardrail	Nov. 1, 2004	Jan. 1, 2007
80119	317	X	Polyurea Pavement Marking	April 1, 2004	Jan. 1, 2009
80210			Portland Cement Concrete Inlay or Overlay	Nov. 1, 2008	
80170	324	X	Portland Cement Concrete Plants	Jan. 1, 2007	
80217			Post Clips for Extruded Aluminum Signs	Jan. 1, 2009	
80171	326	X	Precast Handling Holes	Jan. 1, 2007	
* 80218			Preventive Maintenance – Bituminous Surface Treatment	Jan. 1, 2009	April 1, 2009
* 80219			Preventive Maintenance – Cape Seal	Jan. 1, 2009	April 1, 2009
80220			Preventive Maintenance – Micro-Surfacing	Jan. 1, 2009	
80221			Preventive Maintenance – Slurry Seal	Jan. 1, 2009	
80211			Prismatic Curb Reflectors	Nov. 1, 2008	
80015			Public Convenience and Safety	Jan. 1, 2000	
3426I	328	X	Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157			Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80223			Ramp Closure for Freeway/Expressway	Jan. 1, 2009	
* 80172	329	X	Reclaimed Asphalt Pavement (RAP)	Jan. 1, 2007	April 1, 2009
80183			Reflective Sheeting on Channelizing Devices	April 1, 2007	Nov. 1, 2008
* 80151	330	X	Reinforcement Bars	Nov. 1, 2005	April 1, 2009
* 80206	332	X	Reinforcement Bars – Storage and Protection	Aug. 1, 2008	April 1, 2009
80224			Restoring Bridge Approach Pavements Using High-Density Foam	Jan. 1, 2009	
80184	333	X	Retroreflective Sheeting, Nonreflective Sheeting, and Translucent Overlay Film for Highway Signs	April 1, 2007	
* 80233			Right-of-Entry Permit	April 1, 2009	
80131	339	X	Seeding	July 1, 2004	Jan. 1, 2009
80152			Self-Consolidating Concrete for Cast-In-Place Construction	Nov. 1, 2005	Jan. 1, 2009
80132	342	X	Self-Consolidating Concrete for Precast Products	July 1, 2004	Jan. 1, 2007
80212	344	X	Sign Panels and Sign Panel Overlays	Nov. 1, 2008	
80197	345	X	Silt Filter Fence	Jan. 1, 2008	
* 80127	346	X	Steel Cost Adjustment	April 2, 2004	April 1, 2009
80153			Steel Plate Beam Guardrail	Nov. 1, 2005	Aug. 1, 2007
80191	347	X	Stone Gradation Testing	Nov. 1, 2007	
* 80234			Storm Sewers	April 1, 2009	
80143	348	X	Subcontractor Mobilization Payments	April 2, 2005	
80075			Surface Testing of Pavements	April 1, 2002	Jan. 1, 2007
80087			Temporary Erosion Control	Nov. 1, 2002	Jan. 1, 2008
80225			Temporary Raised Pavement Marker	Jan. 1, 2009	
80176	349	X	Thermoplastic Pavement Markings	Jan. 1, 2007	
20338	351	X	Training Special Provisions	Oct. 15, 1975	
80185			Type ZZ Retroreflective Sheeting, Nonreflective Sheeting, and Translucent Overlay Film for Highway Signs	April 1, 2007	
80149	354	X	Variable Spaced Tining	Aug. 1, 2005	Jan. 1, 2007
80071			Working Days	Jan. 1, 2002	
80204			Woven Wire Fence	April 1, 2008	

The following special provisions are in the 2009 Supplemental Specifications and Recurring Special Provisions:

File Name	Special Provision Title	New Location	Effective	Revised
80108	Asbestos Bearing Pad Removal	Check Sheet #32	Nov. 1, 2003	
7254I	Asbestos Waterproofing Membrane and Asbestos Hot-Mix Asphalt Surface Removal	Check Sheet #33	June 1, 1989	Jan. 2, 2007
80167	Electrical Service Installation – Traffic Signals	Section 805	Jan. 1, 2007	
80164	Removal and Disposal of Regulated Substances	Section 669	Aug. 1, 2006	Jan. 1, 2007
80161	Traffic Signal Grounding	Sections 873 and 1076	April 1, 2006	Jan. 1, 2007
80162	Uninterruptable Power Supply (UPS)	Sections 801, 862 and 1074	April 1, 2006	Jan. 1, 2007

File Name	Special Provision Title	New Location	Effective	Revised
80163	Water Blaster with Vacuum Recovery	Articles 783.02 and 1101.12	April 1, 2006	Jan. 1, 2007

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

- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- Completion Date
- Completion Date Plus Working Days
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Right-of-Entry Permit
- Training Special Provisions
- Working Days

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 "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 New Stearns Road stage 2, Section 06-00214-10-BR, Project HPP-1527(009) in Kane County, and in case of conflict with any part, or parts, of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF IMPROVEMENT

This improvement begins on a point on the centerline of Illinois Route 31 approximately 1,326 feet west of McLean Boulevard in the Village of South Elgin in Lake County and extends in a westerly direction 1199 feet. It also includes McLean Boulevard from the intersection of Route 31 North 2327 feet. The total project length is 1.084 miles.

DESCRIPTION OF IMPROVEMENT

This improvement is pavement widening and reconstruction and the work to be performed under this contract shall consist of pavement removal, earth excavation, placement of furnished excavation, railroad bridge and railroad track construction, PCC pavement, median and sidewalk construction, storm sewer installation, retaining wall construction, landscaping, traffic signal modernization and interconnection, placement of pavement markings and all incidental and collateral work necessary to complete the improvement as shown in the plans and as described herein.

CORRIDOR SPECIFICATIONS

COORDINATION AND COOPERATION

The Stearns Road Corridor Project encompasses various construction contracts which will be performed concurrently. Contracts may abut and/or overlap others. Therefore, each contract includes work items that require close coordination between contractors regarding the sequence and timing for execution of work items.

CONTRACT PACKAGING SUMMARY.

Contract	General Work	Target Letting Date
1	Construction of structures: • IL Route 31 over New Stearns Road. • New Stearns over Brewster Creek. • Dunham Road over CC&P.	Already bid
2-63073	McLean Blvd. and IL Route 31.	Summer/2009
3-63074	Stearns Road, Dunham Road and IL Route 25.	Summer/2009
4-63075	Fox River Bridge, New Stearns Road from McLean Blvd. to IL Route 25.	Spring/2009
5-63076	Stearns Road, Randall Road to McLean Blvd.	Summer/2009
Corridor Landscaping	Landscaping encompasses all previous contracts.	Spring 2011

GENERAL COORDINATION. The contractor is directed and shall comply with Section 105.08 of the Standard Specifications and as herein described.

WEEKLY MEETINGS. All Contractors shall attend a weekly corridor meeting coordinating timing and sequence of work activities. These meetings shall be in addition to meetings required per individual contract.

In addition, add the following paragraph to the beginning of Article 105.08 of the Standard Specifications "The Contractor shall identify all critical work items at the beginning of the contract and coordinate the sequence and timing for their execution and completion with the other Contractors. All of these work items shall be identified as separate line items in the Contractor's proposed Construction Progress Schedule. Additional compensation or the extension of contract time will not be allowed for the progress of the work items affected by the lack of such coordination by the Contractor."

A critical work item is defined as an item requiring adjacent and/or overlapping contractor cooperation.

SIGNING COOPERATION WITH KANE COUNTY. Existing Kane County Department of Transportation (KDOT) signage shall be removed by the KDOT Sign Shop. The Contractor shall provide a list of these signs and give KDOT 72 hours notice prior to required removal. The Contractor will be required to replace all damaged signs if 72

hour notice was not provided to KDOT at no additional cost to the Contract. The contractor shall contact Ray Johnson (630)669-7912 a minimum of 72 hours prior to the desired time of removal.

All new signs to be located within the county right-of-way shall be supplied and installed by the KDOT sign shop. The contractor shall contact Ray Johnson (630) 669-7912 a minimum of fifteen (15) working days prior to the desired time of installation.

The Contractor shall fully cooperate at all times with KDOT for the removal and installation of KDOT signage.

Signage along IDOT routes is the responsibility of the contractor in accordance with Article 107.25 of the Standard Specifications.

AGENCY COOPERATION. The Contractor shall coordinate and cooperate as necessary with the Illinois Department of Transportation, Kane and DuPage County Division of Transportation, the Kane/DuPage Soil/Water Conservation District, the US Army Corps of Engineers and other agencies that are appropriate for work activities.

FIELD OFFICE. Two resident engineering field offices will be established for the corridor (one west of the Fox River and the other east). The west field office will be provided in the County's Construction Corridor Management engineering contract, which will accommodate contracts 2, 4 and 5 and include a conference room for meetings. The east field office will be in contract 3 which will accommodate contract 3 and portions of contract 4. In addition, the contract 4 field office will provide space for the corridor management team. Corridor meetings will be held in the west field office on the west side of the Fox River.

DETOURS. As part of corridor construction, detours will be placed to facilitate construction. The following suggested detours are provided to give advance knowledge to the Contractor (Final detour routes will be reviewed and approved by the appropriate agencies). Contractors should coordinate with the appropriate contractor to determine schedules if this route impacts their operations:

- Contract 2 – 63073 – Southbound Direction (Detour): During the closure of McLean Boulevard, the detour route will be Spring Street/Hopps Roads, Randall Road, Silver Glen Road and IL Route 31.

- Contract 2 – 63073 – Northbound Direction (Detour): During the closure of McLean Boulevard, the detour route will be IL Route 31 and Sundown Road.

- Contract 3 – 63074 – During the closure of Old Stearns Road, the detour route will be West Bartlett Road (US Route 20 if Bartlett is not available), IL Route 59 (Sutton Road) and Stearns Road.

- Contract 3 – 63074 – During the closure of the at grade rail crossing on IL 25, the detour route will be IL 25, IL 64 and Dunham Road.

UTILITY COOPERATION. A Subsurface Utility Exploration (S.U.E.) study has been conducted for the corridor and has been included as part of the Contract Documents. Although the S.U.E. study is being provided, the Contractor shall be responsible for all arrangements necessary to verify the location of utilities and protection of the utilities in compliance with Articles 105.07 and 107.31 of the Standard Specifications.

The Contractor is responsible for verifying the nature and status of all utility relocation work prior to preparation of the Construction Progress Schedule (Article 108.02 of the Standard Specifications). The Construction Progress Schedule shall reflect construction sequencing which coordinates with all utility relocation work. The Contractor shall be required to adjust the order of its work from time to time, to coordinate same with utility relocation work, and shall prepare a revised Construction Progress Schedule as directed by the Engineer.

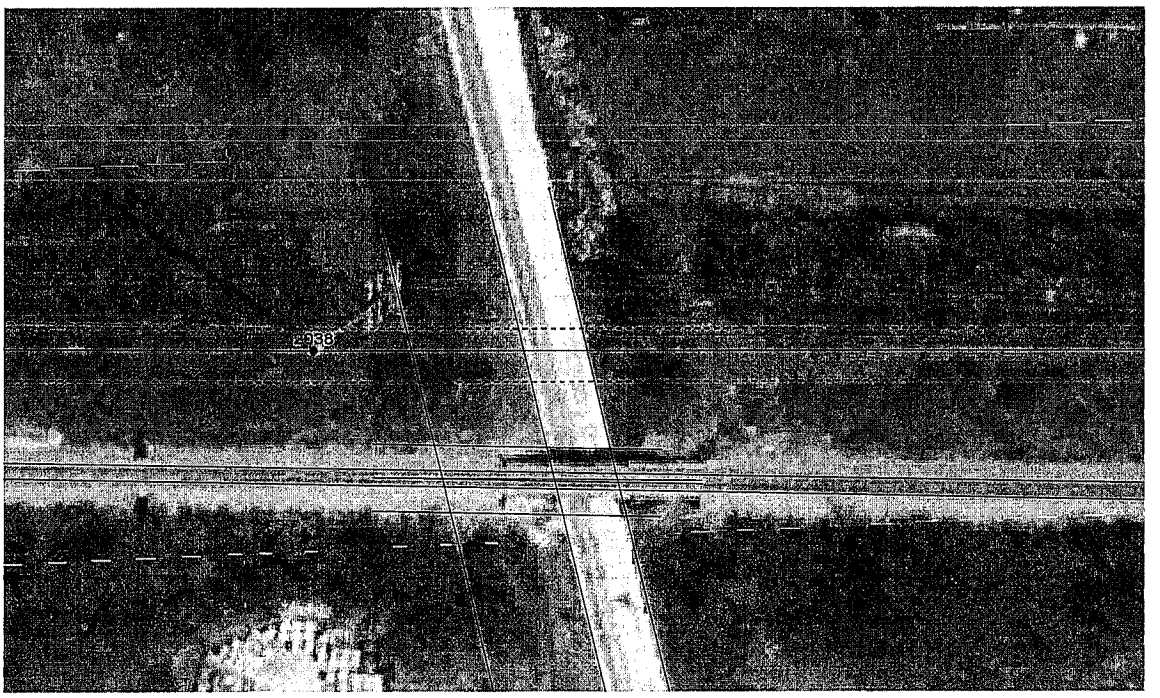
The Contractor is to adhere to all Com Ed clearance requirements. Following this specification section is the high power transmission line clearance requirements..

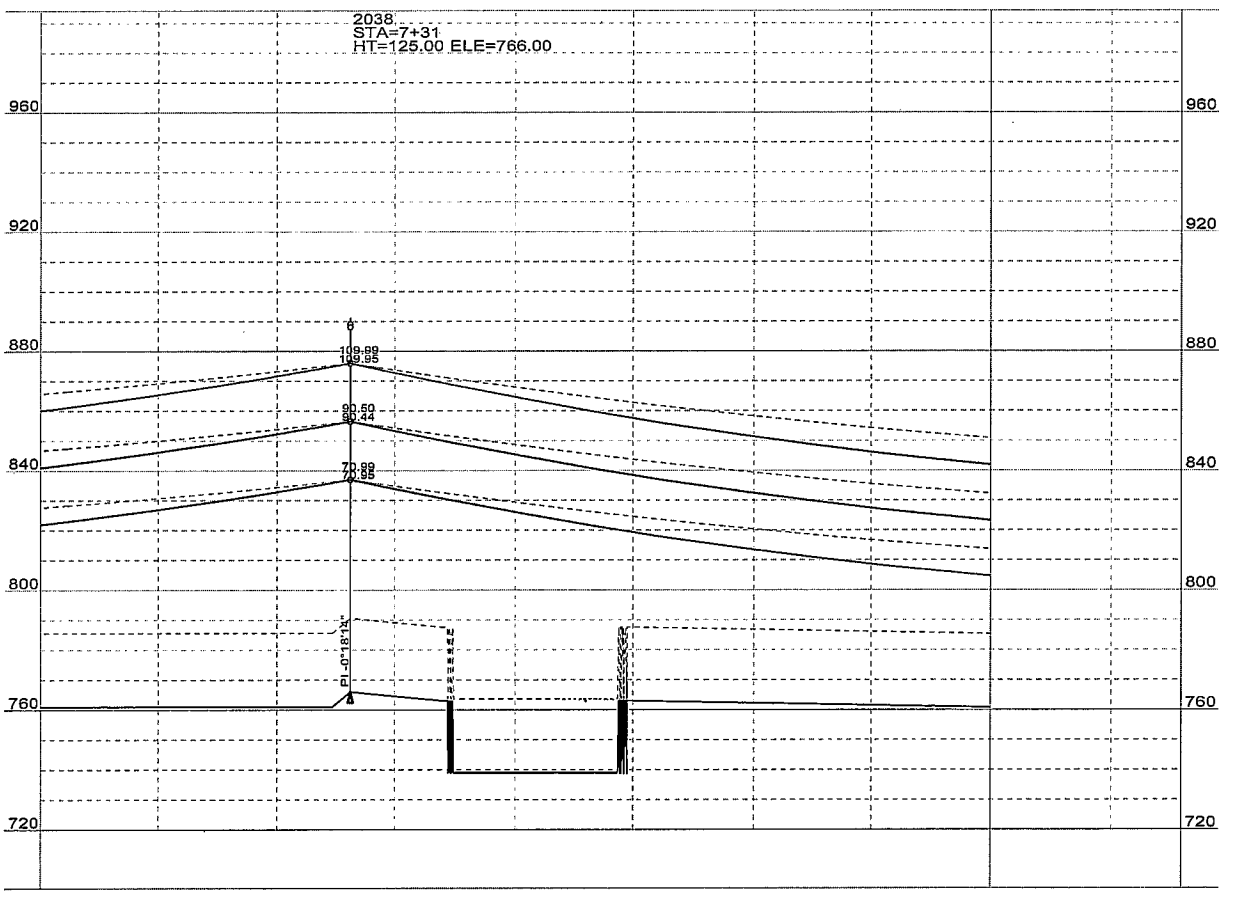
The following have been contacted in reference to utilities they own and operate within the right-of-way limits for this project:

Utility Company	**Contact**
Village of South Elgin	Mr. Charlton Behm Village of South Elgin 735 Martin Drive South Elgin, IL 60177 cbehm@southelgin.com 847-695-2742
Com Ed	Joe Stacho Com Ed 1N423 Swift Road Lombard, IL 60148 Joseph.stacho@comed.com John Pribich Program Manager, Public Relocation ComEd Three Lincoln Center, 4th Floor Oakbrook Terrace, IL 60181-4260
Otter Creek Reclamation District	Bill Rickert Otter Creek WRD c/o RHMG Engineers Libertyville, IL 60048 847-362-5959 wrickert@rhmg.com
Nicor Gas	Chris Winters NICOR Gas Crystal Lake, IL cwinter@nicor.com 815-455-0271 x 203 Ms. Constance Lane Utility Consultant NICOR Gas Engineering Department

	1844 Ferry Road Naperville, IL 60563-9600
AT&T	Mr. David Phelps AT&T 100 Commerce Drive Oak Brook, IL 60523
Comcast Cable	Mrs. Martha Gieras Comcast Cable Communications, Inc. Design/Drafting Department 688 Industrial Drive Elmhurst, IL 60126
Fox River Water Reclamation District	Mr. Douglas Haacker Supt of Public Works Fox River Water Reclamation District 100 Purify Drive Elgin, IL 60120

PLS-CADD DRAWING
New Stearns Road Stage 2
Section: 06-00214-10-BR
Kane County





50.0 FT. HORIZ. SCALE

40.0 FT. VERT. SCALE

138KVL7910-CCPRR-MCLEANRD
3/17/2009

00000-000

SHT 1 OF 1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY NOTICE OF INTENT (NOI). The notice of intent for construction form must be filed by the Contractor electronically (preferred) or by mail at least 30 days prior to the start of construction. The website address for this process is www.epa.state.il.us. An electronic copy of the Stormwater Pollution Prevention Plan (SWPPP) can be furnished by the design engineer and should be requested with a 48 hour notice to allow adequate time for delivery or transmission to the Contractor. The NOI is required to be submitted at least 30 days prior to the start of construction and requires coordination with IDNR and IHPA.

CONTRACTOR ACCESS COORDINATION. At times one Contractor may have to access the jobsite through an adjacent Contractor's project. In accordance with Section 105.08 of the Standard Specifications the Contractors shall coordinate this access. The Contractor requiring access will have the general responsibility of barricade maintenance, daily cleanup, maintenance of traffic and flagman and other associated work with this access.

Contractors shall also be responsible for coordination of lane closures among the respective contracts.

McLean Boulevard will be fully closed to through traffic at IL 31 from approximately September 2009 to the end of project completion. The Contract 2 contractor will be responsible for providing and maintaining access to adjacent contracts through or across McLean Boulevard at all times. Other contractors needing to use McLean for access to their respective sites shall coordinate their schedules and needs with the Contract 2 contractor in sufficient time to accommodate their project requirements. No additional compensation will be allowed on any contract due to the failure to coordinate and communicate among contractors for McLean Boulevard access.

ELECTRONIC DOCUMENT MANAGEMENT SYSTEM. Contractor shall participate and utilize an electronic document management system as implemented by the Corridor Management Resident Engineer. Contractor shall provide internet access and email systems in their field office for their personnel to respond to requests and utilize this system in an electronic fashion.

WORK RESTRICTIONS. The Contractor shall not proceed with any construction operations, which would require permanent (24 hour per day) lane closures, lane shifts, and/or shoulder closures on Route 31 between December 1 and March 1 unless approved by the Engineer.

The Engineer's written approval shall be obtained by the Contractor before proceeding with any work that interferes with traffic prior to that date. Off-road work may proceed prior to that date if approved by the Engineer.

The Contractor, the Erosion and Sediment Control Manager, and all sub-contractors are required to attend an Erosion and Sediment Control/Environmental Training Meeting. No work shall be performed on this contract before this meeting has taken place and all erosion control and environmental issues have been completed to the satisfaction of the Engineer. Any workers on the site shall be required to attend a mandatory training session regarding environmental and erosion issues prior to working on site.

MEASUREMENT AND PAYMENT. There will be no separate measurement or payment for fulfilling the COORDINATION AND COOPERATION requirements described herein, and all costs, direct or indirect, shall be included in the prices for other items. Failure to provide satisfactory schedule submittals within the time specified herein will result in the withholding of Contractor payments until the requirements of this sub-section are met.

ENVIRONMENTAL CONSIDERATIONS AND COMMITMENTS

The entire Stearns Corridor is a highly sensitive environmental corridor. As such, a number of commitments were agreed upon during the development of this project, and it is required that the contractor honor these commitments to the fullest. The following is a list of environmental consideration and commitments established for this project:

Agency	Commitment
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Allow Midwest Groundcovers access to Brewster Creek
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Bicycle Facility coordination will be maintained throughout the development of the project with the Kane County Forest Preserve, the Illinois Department of Natural Resources and the DuPage County Forest Preserve.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Maintain minimum 10' vertical clearance for recreational boating on the Fox River at the Bolz Road and CCP/Stearns Road Bridges.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Archeological artifacts – potential archeological interest was identified. If a site is identified and impacted by the construction, and it is determined that the site is eligible for inclusion on the National Register of Historic Places, a data recovery plan and Memorandum of Agreement will be developed in consultation with the State Historic Preservation Officer.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Groundwater Protection – maintain lining of swales minimizing groundwater contamination. Any modifications will require all agency approval.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Shallow Groundwater Aquifer Protection – maintain swales and other drainage facilities not to intercept groundwater,
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Prevent sources of contaminant from affecting groundwater.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Maintain erosion and sedimentation devices as identified in the plan documents.

Agency	Commitment
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Compliance with the Environmental Corridor Plan.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Any disturbance to the Fox River occur only between June 8 and February 29 only.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Construction noise be attenuated in accordance with Section 107.35 of the Standard Specifications.
US Department of Transportation Federal Highway Administration Illinois Department of Transportation Record of Decision FHWA-IL-EIS-93-01-F/4(f)	Dust and air-born dirt control shall be in accordance with Section 107.36 of the Standard Specifications.
Intergovernmental Agreement Between the Counties of DuPage and Kane	DuPage County shall be named as additional insured in the contract documents.
Intergovernmental Agreement Between the Counties of DuPage and Kane	Work in DuPage County will require DuPage County be provided insurance coverage as specified in the Standard Specifications.
Intergovernmental Agreement Between the Counties of DuPage and Kane	Copies of insurance for DuPage County shall be provided to the DuPage County Engineer prior to work commencement.
Intergovernmental Agreement Between the Counties of DuPage and Kane	Any change order work in DuPage County shall be approved by the DuPage County Engineer.

It is the Contractor's responsibility to comply with these considerations and commitments and coordinate activities with other corridor contractors to assure overall compliance in accordance with Section 105.08 of the Standard Specifications.

A copy of the US Army Corps of Engineer's Permit and the Illinois Division of Natural Resources 401 Certification are included as a part of this Special Provision. The General Conditions, Special Conditions and Permit Restrictions of these documents are incorporated and a part of this contract. Compliance with the requirements contained therein is required as a part of the completion of this project.

MEASUREMENT AND PAYMENT. There will be no separate measurement or payment for fulfilling the ENVIRONMENTAL CONSIDERATIONS AND COMMITMENTS requirements described herein, and all costs, direct or indirect, shall be included in the prices for other items.

RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)

Work on these contracts will cross or be adjacent to the CCP and UP Railroads. The Contractor shall meet the insurance and liability requirements in accordance with Section 107.11 of the Standard Specifications and/or required by the CCP and UP Railroads. In addition, the Contractor shall comply with Section 107.12 of the Standard Specifications for all work on the Railroads right-of-way.

All workers working on the railroad R.O.W. regardless if they are a prime or sub need to complete the "rail-safe" online registration and obtain the required identification.

DESCRIPTION. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications, expect the limits shall be a minimum of $5,000,000 combined single limit per occurrence for bodily injury liability and property damage liability with an aggregate limit of $10,000,000 over the life of the policy. A separate policy is required for each railroad unless otherwise noted.

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
Chicago Central and Pacific Railroad Company and its Parents 17641 S. Ashland Ave. Homewood, IL 60430-1345	-0-	2 trains/day@30mph

DOT/AAR No.: 289 908W
RR Division: Eastern
RR Mile Post: 40.07
RR Sub-Division: Chicago

For Freight/Passenger Information Contact: Mr. John Henriksen
Phone: 708/332-3557

For Insurance Information Contact: Terry Lee
Phone: 715/345-2501

DOT/AAR No.:
RR Division:
RR Mile Post:
RR Sub-Division:

For Freight/Passenger Information Contact: Phone:
For Insurance Information Contact: Phone:

APPROVAL OF INSURANCE. The original and one certified copy of each required policy shall be submitted to the following address for approval:

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

METHOD OF MEASUREMENT. This work will be measured as a lump sum item for each applicable contract.

BASIS OF PAYMENT. RAILROAD PROTECTIVE LIABILITY INSURANCE shall be paid as a lump sum item.

RAILROAD RIGHT OF ENTRY

In addition to railroad protective liability insurance, any contractors working on CN right of way will need to apply for a right-of-entry permit and pay the $750 fee. The prime contractor would apply for this permit and all subcontractors and subconsultants will be covered under the prime's policy and permit. This is only required in instances where the contract will require work on the CN right of way.

METHOD OF MEASUREMENT. There will be no separate measurement or payment for fulfilling the requirements described herein, and all costs, direct or indirect, shall be included in the prices for other items.

SCHEDULE

A progress schedule shall be developed and submitted in conformance with Article 108.02 of the Standard Specifications. The following additional requirements shall also apply:

PROGRESS SCHEDULE REQUIREMENTS

PRELIMINARY DETAILED PROGRESS SCHEDULE. At the preconstruction conference, the Contractor shall submit to the Owner for review and acceptance a Preliminary Detailed Progress Schedule. The Preliminary Detailed Progress Schedule shall be sufficiently complete in detail to indicate the sequence of operations, submittals, critical material deliveries and durations showing the first 60 Days. Work beyond 60 Days shall be in summary form.

The Preliminary Detailed Progress Schedule shall be prepared to the same level of effort required to produce the Detailed Progress Schedule and to the same standards for quality and detail. The Schedule shall be a summary level schedule for completion of the entire work in accordance with the Contract Milestones, which incorporates the Contractor's detailed work activities for the first 60 days of the contract. The summary level schedule shall be in sufficient detail and content to show the Contractors general plan for completing the work and to identify the anticipated critical and near critical paths and to permit delay and impact analysis.

The Preliminary Detailed Progress Schedule will be used for a period not to exceed 60 days as measured from the date the Contract is signed. Following its review and acceptance by the Owner, this schedule will be reflected in the Detailed Progress Schedule. The Contractor will submit the Preliminary Detailed Progress Schedule to the Owner for acceptance. The Contractor will be required to make corrections to the schedule as necessary to comply with the contract requirements and will adjust the schedule to incorporate any missing information requested by the Owner.

No payment for Mobilization will be paid until the Preliminary Detailed Progress Schedule is accepted by the Owner. The Preliminary Detailed Progress Schedule submittal shall include a schedule narrative, which will itemize and describe the critical path (i.e. access limitations, constraints, shift work, etc.), identify any critical resources and compare early and late dates.

DETAILED PROGRESS SCHEDULE. At the preconstruction conference, the Contractor shall submit the proposed Schedule Engineer's qualifications for approval by the Owner. The Scheduling Engineer shall have experience in developing and updating project schedules of similar magnitude and scope and will be responsible for developing the initial Detailed Progress Schedule submittal and subsequent Revised Detailed Progress Schedule submittals as required.

Within 30 Days after the date the Contract is signed, the Contractor shall provide a Detailed Progress Schedule in accordance with the provisions outlined herein. This Project shall be planned and constructed utilizing the latest version of Primavera P5 or Primavera Contractor 5.0, as the scheduling software package. The Detailed Progress Schedule shall clearly and separately define the progression of Work from the date the Contract is signed to Final Acceptance by using separate activities for all work

components. The schedule shall be in sufficient detail to allow evaluation of progress and to facilitate payment of all work items.

The Owner will not consider processing any Contractor payments after 60 Days from the date the Contract is signed without the acceptance of the Detailed Progress Schedule, unless otherwise agreed to by the Owner. The Detailed Progress Schedule submittal is to be accompanied by a narrative that describes the critical path(s) of the project, outlines the Contractors approach to the work, defines the project calendars and identifies critical resources.

The Detailed Progress Schedule shall consist of the following items as defined herein;

1) Activity description, including location of work.
2) Activity duration: Durations in excess of one month will require approval by the Owner's Project Manager.
3) Activity Calendar-type (provide various calendars as required to comply with the work area/work times provided.) The Contractor must coordinate working hours with local townships and municipalities and plan its work in accordance with local ordinances unless waivers can be obtained by the Contractor.
4) Activity codes as provided by Owner: once the Contract is signed, the Owner will provide a project code dictionary which must be used by the Contractor when preparing and updating its schedule. This code dictionary may dictate, in part, the Contractors ability to structure its schedule activities (i.e. each activity shall only be coded with a single Contractor; in other words you cannot assign 2 Contractors to the identical activity). The Contractor is responsible to completely populate all applicable code fields, as defined by the Engineer, within each of the scheduled activities.
5) Incorporating of Unit Prices & Quantities in accordance with the Contractors bid. This will be used by the Owner to compare planned progress to actual progress {earned value} and assist the Owner with its cash flow analysis. Each schedule activity shall include the total cost of performing each activity and shall show the intended rate of production for each item. The sum of cost for all activities shall equal the total Contract value.
6) The schedule shall establish provisions for continuous work, with special emphasis on the completion of major work elements impacting local communities/ local traffic. The Contractor will not be permitted to schedule work stoppages without prior approval by the Owner.
7) The Contractor shall consider and include in the Contract Schedule planning and scheduling of all work, seasonal weather conditions, utility coordination, expected job learning curves, the work of other Contractors and any other foreseeable delays. The Detailed Progress Schedule will be formulated to absorb adverse weather conditions normally anticipated. The Contract time has been predicated assuming a normal amount of adverse weather.
8) Predecessor and Successor Activity Logic The Detailed Progress Schedule shall include, in addition to all activities required to execute the work, such tasks as permits, owner defined access constraints, mobilization, demobilization, submittal and approval of material samples and shop drawings, procurement of significant materials and fabrication of special items, as well as installation and testing. A period of fourteen (14) Days from receipt to release of the submittal by the Owner, or as otherwise specified, shall be allowed for the Owner's review of all drawings. The

activities shall be sufficiently detailed so that a reviewer can readily follow the sequence. The activities are to be described so that the work is readily identifiable. All activities, with the exception of the date the Contract is signed and project completion milestone, shall have a predecessor and successor. No open-ended schedules will be permitted without prior approval of the Owner. No more than 25% of the schedule activities shall be critical or near critical. "Near critical" will be defined as float in the range of 1 to 21 Days. "Critical" will be defined as having zero days of Total Float. Contractor imposed constraints will not be allowed without the prior approval of the Tollway. Neither the Owner nor the Contractor owns the schedule float. The Project owns the float. As such, liability for delay of the Completion dates will rest with the party actually causing delay to the Completion dates. Delays to non-critical activities are to be absorbed by the project schedule and will not be considered as schedule delays, unless the delay causes a non-critical activity to become critical. The activities shall be organized and described so as to conform to the contract bid items, a comprehensive written description of the activity may be required. The Contractor's accepted Detailed Progress Schedule shall be subject to updates in accordance with 4, the Monthly Progress Schedule section. A delay of thirty (30) Days or more, based on the original Detailed Progress Schedule critical paths shall be sufficient cause for the Owner to notify the Contractor's bonding firms and other involved parties.

REVISED DETAILED PROGRESS SCHEDULE. If the Contractor requests changes to the accepted Detailed Progress Schedule in logic, durations, resources, constraints, etc., or, in the event, in the sole judgment of the Owner such changes become necessary in the best Interest of The Work due to circumstances not known by the Owner at the time the Contract was entered into or arising thereafter, or if the Contractor has failed to comply with the accepted Detailed Progress Schedule, the Contractor shall submit a Revised Detailed Progress Schedule, which shall show how the Contractor proposes to complete the balance of The Work by the Completion Date. The Revised Detailed Progress Schedule shall be submitted within 10 Days of an Engineer's request for an Adjustment and shall be subject to the acceptance of the Owner. Upon Acceptance of the Revised Detailed Progress Schedule, this schedule will be deemed the current Detailed Progress Schedule and used for all future Monthly Progress Schedule updates. The Revised Detailed Progress Schedule submittal is to be accompanied by a narrative that details the Contractor's intentions on how to recover lost time and how the Contractor proposes to bring the project back on schedule. The Revised Detailed Progress Schedule submittal shall be consistent with the requirements of the Detailed Progress Schedule submittal.

MONTHLY PROGRESS SCHEDULE. After acceptance of the Contractor's Detailed Progress Schedule, the Contractor shall monitor progress of Work and update the schedule to reflect actual progress for each pay period. The Monthly Progress Schedule will be used as the basis for managing the weekly progress and for evaluating job progress and time extension requests. The purpose of the Monthly Progress Schedule is to report progress and is not to be used to revise the schedule logic, resources, durations, constraints, etc. as defined by the current Detailed Progress Schedule. Monthly Progress Schedule submittals are required at minimum every 30 Days and shall be due with and be a requisite to each Pay Estimate.

A Monthly Progress Report shall be submitted along with the Contractor's schedule update. The Owner will not release the progress payments until the progress schedule update has been accepted. The Monthly Progress Schedule update shall support the basis of the Pay Estimate amount. The Contractor shall make every Monthly Progress Schedule submitted consistent with all Contract requirements, including the order and time of performance of specified portion of The Work. Every Monthly Progress Schedule submittal shall be accompanied with a schedule narrative, which describes progress made since the last Monthly Progress Schedule submittal with special emphasis on critical and near critical activities, actual and potential delays to contract milestones and the utilization of any critical resources.

Monthly Progress Schedules shall not be accepted if more than 35% of the scheduled activities are deemed to be critical or near critical as defined in section Detailed Progress Schedule section above. The Contractor shall use all practicable means to make the progress of The Work conform to the original logic included in the latest accepted Detailed Progress Schedule. If the Contractor falls behind the scheduled progress, it shall take such measures as may be necessary to bring its work into compliance with the latest accepted Detailed Progress Schedule. The Contractor shall identify and promptly report to the Owner progress delays during the prosecution of the work. The Contractor shall promptly take appropriate action to provide schedule recovery plans whenever the Contractor's actual physical progress is behind schedule. The Contractor must demonstrate through the submission of a progress schedule and narrative how it intends to modify production to achieve the necessary schedule gains to complete the affected milestone completion dates.

In the event the Contractor fails to bring its Work into such compliance, the Owner may, at its discretion, require the Contractor to take any or all of the actions listed In Section 108.10 of the Owner's Standard Specifications, at no additional cost to the Owner. The Contractor shall not be entitled to payment for any work performed if the Contractor is delinquent in the submission of a Monthly Progress Schedule which is acceptable to the Owner and, should the Contractor fail to submit a Monthly Progress Schedule in compliance with this Section, such failure shall in and of itself also be grounds for default as provided in Section 108.7 of the Owner's Standard Specifications.

The Contractor will be responsible for requesting a time extension for any delay or occurrence that, in the opinion of the Contractor, impacts the critical path of the Monthly Progress Schedule update. The Contractor shall submit a separate fragnet for each change order request, whether or not the work impacts the Project's critical path. The fragnet will consist of activities with durations and will depict the estimated float change to the assigned activities, and should show how the Contractor proposes to incorporate the changes in the schedule, and how it impacts the current schedule update critical path. Once agreement has been reached, the fragnet will be incorporated into the next monthly schedule update. Delays to non-critical activities will not be the basis for a time extension. The Owner will not be liable for any additional costs associated with the Contractor's obligation to complete the project in accordance with the contract requirements.

MEASUREMENT AND PAYMENT. There will be no separate measurement or payment for fulfilling the requirements described herein, and all costs, direct or indirect, shall be included in the prices for other items. Failure to provide satisfactory schedule submittals

within the time specified herein will result in the withholding of Contractor payments until the requirements of this sub-section are met.

LIQUIDATED DAMAGES. The Contractor shall be subject to liquidated damages in the amount of $1000 per day for each and every day the Contractor is delinquent in the submission of the Preliminary Detailed Progress Schedule, the Detailed Progress Schedule, the Revised Detailed Progress Schedule or the Monthly Progress Schedule.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM / EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)

Revise Article 105.03(a) of the Standard Specifications to read:

" (a) National Pollutant Discharge Elimination System (NPDES) / Erosion and Sediment Control Deficiency Deduction.

When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, or the Contractor's activities represents a violation of the Department's NPDES permits, the Engineer 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 work effort required. 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 Department's NPDES permits. 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 $2500.00 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."

LANDSCAPE COORDINATION AND TRANSFER OF EROSION CONTROL DEVICES

LANDSCAPE COORDINATION. Contractor shall install the proposed landscaping as shown on the Plans. The proposed landscaping and erosion control shall be maintained (ie mowed, weeded, stones removed and erosion problems repaired) until May 2011 or until the corridor landscaping contract begins if prior to May 2011.

Prior to the commencement of the work under the corridor landscaping contract, a meeting between the contractor and the corridor landscape contractor shall occur. At this meeting, the Contractor shall transfer over maintenance of the landscaping to the corridor landscaping Contractor. Prior to this transfer, all dead or damaged materials shall be replaced or repaired to the satisfaction of the engineer by the Contractor at no additional cost to the County. In addition, all erosion control measures (i.e. ditch checks straw bales, filter fabric etc.) shall be performing as required at the time of this transfer. Replacement of measures with new materials will not be required, but they must be functional to qualify for transfer.

MEASUREMENT AND PAYMENT. There will be no separate measurement or payment for fulfilling the requirements described herein, and all costs, direct or indirect, shall be included in the prices for other items. Failure to successfully transfer erosion control devices will result in the withholding of Contractor payments until the requirements of this sub-section are met.

DRAINAGE AND EROSION CONTROL

INTERIM DRAINAGE. Sufficient drainage facilities shall be maintained throughout construction to facilitate surface runoff. When any loose material is deposited in the flow line of ditches, gutter or drainage structures so that the natural flow of water is obstructed, it shall be removed at the close of each working day. At the conclusion of the construction operations all drainage structures so affected shall be free from dirt and debris. This work shall be incidental in the cost of other items and not paid for separately. It shall be the Contractor's responsibility to plan his operations, with the approval of the Engineer in the field, so as to utilize the facilities provided to prevent local flooding and insure proper surface runoff. Any minor ditch grading as directed by the Engineer, necessary to provide for the interim drainage will not be paid for separately but shall be included as incidental to cost of other items as well.

PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION. Unless otherwise noted in the contract plans, the existing drainage facilities shall remain in use during the period of construction.

Locations of existing drainage structures and sewers as shown on the contract plans are approximate. Prior to commencement of work, the Contractor, at his own expense, shall determine the exact location of existing structures which are within the proposed construction site.

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

Unless reconstruction or adjustment of an existing manhole, catch basin, or inlet is called for in the contract plans or ordered by the Engineer, the proposed work shall meet the existing elevations of these structures. Should reconstruction or adjustment of a drainage structure be required by the Engineer in the field, the necessary work and payment shall be done in accordance with Section 602 and Article 104.02 respectively, of the Standard Specifications.

Existing frames and grates are to remain unless otherwise noted in the contract plans or as directed by the Engineer. Frames and grates that are missing or damaged prior to construction shall be replaced. The type of replacements frame or grate shall be determined by the Engineer, and replacement and payment for same shall be in accordance with Section 604 and Article 104.02 respectively, of the Standard Specifications unless otherwise noted in the plans or Special Provisions.

EROSION AND SEDIMENT CONTROL MANAGER. This Special Provision revises Section 105 (Control of Work) of the Standard Specifications for Road and Bridge Construction, creating a requirement for a designated erosion and sediment control manager to be present full time at this project.

Add the following to Article 105.06:

Erosion and Sediment Control Manager (ESCM). The Contractor shall assign to the project an on-site full-time employee to serve in the capacity of ESCM. This employee shall be thoroughly experienced in all aspects of erosion and sediment control and construction. The ESCM shall have sufficient authority for the implementation of the approved erosion and sediment control schedules and methods of operation, including both on-site and off-site activities.

At least 10 days prior to beginning any work on this project, the name and credentials of the ESCM shall be submitted to the Engineer. Any changes in the ESCM shall require a resubmission of the above. The resubmission shall be timed to ensure that an ESCM is assigned to the project at all times. This ESCM is considered to be included in the base bid and no separate pay item shall be provided.

EROSION AND SEDIMENT CONTROL CALL OUT. This work shall consist of the short notice mobilization of a work crew for the purpose of maintaining and repairing critical erosion and sediment control items when required to respond to unpredictable events beyond the Contractor's control. Upon receipt of a written notification of the Request for Erosion and Sediment Control Call Out (RESCCO) from the Engineer, the Contractor shall have until the end of the next Working Day to perform the required work.

If the required work is not performed by the end of the next Working Day, the Request for Erosion and Sediment Control Call Out will also be considered the warning for an Erosion and Sediment Control Deficiency Deduction (ESCDD). The Erosion and Sediment Control Deficiency Deduction will be dated 2 Working Days after the date on the Request for Erosion and Sediment Control Call Out. The Erosion and Sediment Control Deficiency Deduction will be enforced as described herein:

Contractor Action	Department Action
Receipt of RESCCO end of Day One.	Deliver RESCCO on Day One.
Finish required Work end of Day Two.	Department measures work performed according to Erosion and Sediment Control Call Out Method of Measurement.
Finish required Work end of Day Three.	Department pays only standard pay items and does not apply to Erosion and Sediment Control Call Out Method of Measurement.
Finish required Work end of Day Four or later.	Department invokes ESCDD prior to Work Day Three, pays only standard work pay items, and does not apply to Erosion and Sediment Control Call Out Method of Measurement.

Any individual RESCCO will not be applied towards work whose contract prices total more than $10,000 (ten thousand dollars) before the application of Article 280.06.

Method of Measurement. This work will not be measured for payment separately, but included in the items of work performed, when indicated in a Request for Erosion and Sediment Control Call Out. Each RESCCO will be paid at a rate of 1.1 units for every 1.0 units of work measured and performed.

Basis of Payment. This work will be paid for at the contract unit price for the work items performed, measured as specified and will not be paid for separately

EROSION AND SEDIMENT CONTROL SCHEDULE

This Special Provision revises Section 108 (Prosecution and Progress) of the Standard Specifications for Road and Bridge Construction, creating a requirement that erosion and sediment control work items be included in the overall Progress Schedule.

Add the following to the end of the first paragraph of Article 108.02:

The Progress Schedule shall also include the following listed items. The erosion and sediment control components of the Progress Schedule shall be referred to as the Erosion and Sediment Control Schedule.

The Erosion and Sediment Control Schedule shall include the following:

(a) Clearing of areas necessary for installation of perimeter controls specified in the Contract Documents.
(b) Construction of perimeter controls specified in the Contract Documents.
(c) Remaining clearing.
(d) Roadway grading (including off-site work).
(e) Structural Stabilization devices listed in the Storm Water Pollution Prevention Plan (SWPPP).
(f) Winter shutdown date and probable days lost to inclimate weather.
(g) Seeding dates.
(h) If applicable, utility installation and whether storm drains shall be used or blocked after construction.
(i) Final grading, landscaping, and stabilization.
(j) Removal of perimeter controls as required by plans.

EROSION AND SEDIMENT CONTROLS

This Special Provision revises Section 280 (Temporary Erosion Control) of the Standard Specifications for Road and Bridge Construction.

Include the following as the third paragraph of Article 280.01:

This work shall also include implementation and management of the approved Erosion and Sediment Control Schedules, method of operation weekly co-inspections, inspection following rainfalls, and preparation and adherence to the Erosion and Sediment Control Schedule. Removal of erosion and sediment control items will be by others in the future where shown on the Plans or as directed by the Engineer.

Revise Article 280.02 (f) to read:

(f) Silt Fence ..... Article 1080.02

Add the following as Article 280.02:

(k) Course Aggregate ..... Article 1004.01 gradation CA-3
(l) Geotextile Fabric ..... Article 1080.03
(m) Seeding Class 2A ..... Article 250.07 & 1081.04
(n) Excelsior Blanket ..... Article 1081.10 (a)
(o) Riprap, Gradation 3 ..... Article 1005.01
(p) Cellular Confinement Grid ..... Article 1080.06

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).

Add the following as Article 280.04:

(h) Sediment Control, Stabilized Construction Entrance. This work shall consist of the furnishing of all equipment, labor, and materials necessary for the installation of the stabilized construction entrances as shown on the Plans or as directed by the Engineer. Construction entrances shall be used in conjunction with the stabilization of construction roads and other exposed areas to reduce or eliminate the tracking of sediment onto public right-of-ways or streets.

Topsoil shall be removed, geotextile fabric placed, and the cellular confinement grid installed and staked according to the manufacturer's recommendations. Stabilized construction entrances shall be built to the lines and dimensions shown in the details at the locations shown in the Plans, or as directed by the Engineer. The cells shall be filled with aggregate base course using gradation CA-3. The aggregate base course shall be placed

within the cellular confinement grid using the methods and equipment recommended by the manufacturer. The aggregate base course shall be placed by applicable portions for Section 351 of the Standard Specification. All surface water flowing or diverted toward the construction entrance shall be accounted for either by installation of a pipe culvert under the entrance, or if piping is impractical, a mountable berm will be permitted.

Sediment Control, Stabilized Construction Entrance Removal. This work shall consist of the removal of a stabilized construction entrance and all items necessary for the removal of a stabilized construction entrance. This includes the under entrance pipe culvert or excess aggregate for the mountable berm, any aggregate radii abutting temporary pavement, cellular confinement grids, and all unnecessary aggregate within 5 m (16 ft) of the original lines and dimensions of which the entrance was constructed. All methods of removal shall be approved by the Engineer. Material shall be disposed of according to Article 202.03, or as directed by the Engineer.

(i) Erosion Control, Temporary Pipe Slope Drain. This work shall consist of furnishing of the equipment, labor and materials necessary for the installation, maintaining and removal of pipe, anchor devices, filter fabric and flared end sections to convey surface runoff down the face of un-stabilized slopes to minimize erosion on the slope face. Temporary Pipe Slope Drain shall be used in conjunction with temporary berms that direct runoff into the temporary pipe slope drain flared end section located at the top of the embankment, for the length of the embankment.

The temporary pipe slope drain shall be constructed as shown in the plans and shall outlet into a sediment trap or basin, or a stable conveyance system that leads to a sedimentation device, as approved by the Engineer. The temporary pipe slope drain, inlet, and outlet shall be securely anchored to the slope in such a manner to prevent any movement laterally and vertically. All methods of anchoring shall be approved by the Engineer. All connections are to be watertight. A flared end section shall be attached to the inlet end of the pipe and shall be relocated each time the pipe is extended. The height of the temporary berm at the location of the temporary pipe slope drain shall be at least 2 times the diameter of the pipe. To prevent erosion around the flared end section, geotextile fabric will be placed under the flared end section and shall extend 2 meters (6 feet) in front of it and up the front face of the temporary berm. This work shall be installed as shown in the Plans or as approved by the Engineer.

At the end of each construction day, temporary berms at the top edge of the embankment shall be constructed and each temporary pipe slope drain will be extended and the inlet reinstalled. These temporary berms shall be constructed as shown on the Plans or as directed by the Engineer.

(j) Erosion Control, Temporary Channel Diversion. This system consists of the furnishing of the equipment, labor, and materials required to install, maintain and remove the temporary channel diversion needed to carry the existing stream flow through or around a construction site while the permanent

drainage structure is being installed. The temporary channel diversion will be stabilized as shown on the drawings and will be removed/filled once the permanent drainage structure is in place and stabilized.

All surfaces to be protected shall be graded and compacted. Prepared surfaces that become crusted shall be reworked to an acceptable condition prior to placing the geotextile fabric.

Geotextile Fabric Installation In-Stream. Geotextile fabric shall be applied with the length of roll laid parallel to the flow of the water. Start the installation with the initial strip placed in the center of the ditch to avoid an overlap in the center of the ditch. Where more than one width is required, lap joints shall be limited to one every 3 meters of width.

An anchor slot shall be placed at the upslope and downslope ends of the geotextile fabric perpendicular to the flow of water. At least 30 cm (12 in) of the end of the geotextile fabric shall be buried vertically in the anchor slot. The geotextile fabric shall be secured in the anchor slot by pins at 1 meter (3 feet) or less on center prior to burying. The soil shall be firmly compacted against the geotextile fabric in the anchor slot. This shall be accomplished by placing the geotextile fabric into the slot, folding it over to expose the underside, pinning the fabric through both layers, backfilling the anchor slot, and compacting the soil.

Pins shall be a 5 mm diameter x 450 mm (3/16 in x 18 in) long wire with a 40 mm (1.5 in) washer attached and shall be driven flush to geotextile fabric surface.

Successive lengths of geotextile fabric shall be overlapped at least 1 meter (3 feet) with the upstream length on top. Pin the overlap by placing 3 pins evenly spaced across the upslope end, center, and downslope end of the overlap, totaling 9 pins for each overlap. Check slots, oriented perpendicular to the flow of water, shall be constructed by placing a tight fold at least 20 cm (8 in) vertically into the soil spaced no more than 8 meters (27 feet) on center. Pin the geotextile fabric in the check slot at each edge overlap and in the center of the geotextile fabric.

Side edges of temporary diversion channel geotextile fabric shall terminate on horizontal shelves running parallel to the flow of water for the full length of the ditch. Edges of the geotextile fabric shall be pinned at 1 meter (3 feet) on center and buried in the Sediment Control, Silt Fence trench.

The Contractor shall maintain the temporary diversion channel until all work on the contract has been completed and accepted. Maintenance shall consist of the repair of areas damaged by any cause.

Restoration of the Temporary channel shall include cleaning any sediment from the channel and backfilling it with approved embankment.

The location of the temporary channel diversion shall be as shown in the plans, or as directed by the Engineer. Water shall not be diverted through the diversion channel until it is adequately protected with geotextile fabric.

(k) Same-Day Stabilization. This work is to be implemented after the initial perimeter controls are in place and concurrently placed with the Contractor's daily operations. These critical areas shall be designated for Same-Day Stabilization as shown on the Plans.

Same-Day Stabilization may consist of either temporary erosion control measures or the permanent landscaping as indicated on the Plans. The permanent landscaping shall be implemented for the Same-Day Stabilization whenever possible. The placing of permanent landscaping intended to be removed at a later date shall receive prior approval by the Engineer. The Contractor shall stage his work so that portions of the slopes and ditches can be brought to finish grade, topsoil placed, and landscaped prior to the end of the workday, whenever possible.

In either case, the work zone must be left in such condition that the disturbed areas are stabilized. Temporary erosion control measures consist of tarps sufficiently staked to the ground or other erosion controls approved by the Engineer. Measures shall be taken to control sediment –laden water and on-site runoff into dewatering or sedimentation devices on a daily basis.

The Contractor shall be responsible for coordinating his operations with the work of any subcontractors, to insure that stabilization is performed the same day that the disturbance occurs. The performance of Same-Day Stabilization is also subject to the penalties of the Erosion and Sediment Control Deficiency Deduction described herein.

(l) Erosion Control, Diversion Dike and Temporary Ditch. This work shall consist of the construction and maintenance of a temporary ridge of compacted soil, located to intercept and divert runoff to a stabilized outlet or to intercept sediment-laden water and divert it to a sediment-trapping device. Diversion Dikes or Temporary Ditches shall be constructed to the lines and dimensions shown on the plans or as directed by the Engineer.

The diversion dike shall be stabilized through the use of Erosion Control Blanket and Temporary Erosion Control Seeding. Diversion dikes intended for use longer than one construction season may be seeded with Seeding Class 2A, or as directed by the Engineer. Excelsior Blanket shall be installed in the manner described for placement in ditches, with the direction of water flow being parallel to the length of the diversion dike.

The embankment used to construct the diversion dike shall be placed along an alignment which all trees, brush, stumps, and other obstructions have been removed that would interfere with the proper functioning of the diversion dike. The embankment shall be constructed by applicable portions for Section 205 of the Standard Specification.

(m) Sediment Control, Dewatering Basins. This work shall consist of the construction, maintenance, and removal or filling and compacting of the dewatering basins. A dewatering basin shall be installed wherever the Contractor is removing and discharging water from excavated areas on the construction site and the water is not being routed through an adequately sized sediment trap or sediment basin, as determined by the Engineer. The purpose of the basin is to temporarily store the discharged water and to release it in a manner that causes the sediment-laden water to be filtered prior to release into a natural drainage way or stabilized conveyance. Dewatering basins shall be located above the water table whenever possible. Whenever possible the excavated material shall be placed in a ring around the dewatering basin. An aggregate spillway consisting of Class 3 riprap, shall be constructed as shown in the plan detail and lined with geotextile fabric.

The volume required to be stored is dependent upon the pumping rate and the amount of sediment in the water. Locations of the dewatering basins are as shown on the Plans or as approved by the Engineer. All methods of placing embankment must be approved by the Engineer.

Dewatering Basins shall be filled in or removed by a method approved by the Engineer. Whenever possible, the material excavated from the dewatering basin shall be the material returned to the dewatering basin. Final dewatering shall not be made directly into a stream or channel All other fill materials shall require the approval of the Engineer. Material shall be disposed of according to Article 202.03, or as directed by the Engineer.

(n) Sediment Control, Stone Outlet Structure Sediment Trap. This work shall consist of the furnishing all of the equipment, labor and materials required to install and maintain a stone outlet structure sediment trap, as shown on the Details in the Plans, or as directed by the Engineer. Riprap, placed over a geotextile fabric, shall be used to construct the stone outlet structure.

Add the following to Article 280.05:

Sediment Control, 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.

Sediment Control, Stabilized Construction Entrance Maintenance shall consist of maintaining stabilized construction entrances that have become ineffective as a result of standard operations and natural forces. This work will include will include the removal and proper disposal of excess materials and the delivery and placing of aggregate in the manner described in Sediment Control, Stabilized Construction Entrance.

Sediment Control, Drainage Structure Inlet Filter Cleaning 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.

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

(a) Excavation for Sediment and Dewatering Basins, Temporary Ditches, Diversion Dikes, and Dewatering Basins. The volume of excavation for sediment and dewatering basins, temporary ditches, and diversions dikes will be measured for payment in place and the volume computed in cubic meters (cubic yards).

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 the Plans or the Engineer will be measured for payment by this item, as well.

Sediment Control, Silt Fence Maintenance. This work will be measured for payment, each incident, in meters (feet) of silt fence cleaned, re-erected, or otherwise maintained.

Add the following as Article 280.06:

(h) Sediment Control, Stabilized Construction Entrance. This work will be measured for payment by the outside dimensions of cellular confinement grid and the area calculated in square meters (square yards). All grading, excavation and embankment necessary to construct the entrance shall not be paid for separately, but included in the cost of Sediment Control, Stabilized Construction Entrance. Temporary pavement placement shall be paid for separately. Placement of the Pipe Culvert, of the diameter specified, shall be paid for separately. If additional Trench Backfill should be required for placement of the Pipe Culvert, it shall be paid for separately.

Sediment Control, Stabilized Construction Entrance Maintenance. This work will be measured for payment to the outside dimensions of the material removed and the area calculated in square meters (square yards). All excavation and grading necessary to remove and replace the sediment fill aggregate shall not paid for separately, but shall be included in the cost of Sediment Control, Stabilized Construction Entrance Maintenance.

Sediment Control, Stabilized Construction Entrance Removal. This work will be measured for payment for each stabilized construction entrance removed. Removal of temporary pavement and temporary pipe culverts shall not be

paid for separately, but included in the cost of Sediment Control, Stabilized Construction Entrance Removal.

(i) Erosion Control, Temporary Pipe Slope Drains. This work will be measured for payment by each complete system installed and maintained, regardless of pipe diameter and length. This work will be measured only once per location installed. All connections, anchors, extensions, geotextile materials, and temporary berms used to install, reinstall, or operate the temporary pipe slope drains will not be measured for payment.

(j) Erosion Control, Temporary Channel Diversion. This work will be measured for payment along the centerline of the channel in meters (feet) of temporary channel diversion installed, maintained, and removed. Earth Excavation, Earth Plug, Riprap, geotextile materials for channel lining, and backfill will not be measured separately for payment, but be included in cost of temporary channel diversion. Sediment Control, Silt Fence shall be paid for separately.

(k) Same-Day Stabilization. This work will not be measured for payment, but included in the cost of the items utilized shown on the Plans or as directed by the Engineer.

(l) Sediment Control, Stone Outlet Structure Sediment Trap. This work will not be measured for payment separately, but included in the price for each item of work performed as shown in the Details in the Plans.

(m) Sediment Control, Drainage Structure Inlet Filter Cleaning. This work will be measure for payment each time that the cleaning work is performed at each of the drainage structure inlet filter locations.

Revise Article 280.07 (a) to read:

(a) Excavation for Sediment and Dewatering Basins, Temporary Ditches, and Diversion Dikes.

This work will be paid for at the contract unit price per cubic meter (cubic yard) for EARTH EXCAVATION FOR EROSION CONTROL. The various required linings shall be paid for at the contract unit price for the various items of work as detailed on the plans.

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.

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

Revise Article 280.07 (h) to read:

(h) Maintenance. Maintenance of temporary erosion and sediment control systems, including repair of the various systems, removal of entrapped sediment and cleaning of any silt filter fabric will be paid for according to

Article 109.04, unless otherwise specified. The sediment shall be removed as directed by the Engineer during the contract period and disposed of according to Article 202.03.

Add the following as Article 280.07:

(i) Sediment Control, Stabilized Construction Entrance. This work will be paid for at the contract unit price per square meter (square yard), for SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE. Pipe Culverts shall be paid for in accordance to Article 542.11 of the Standard Specifications. Trench Backfill shall be paid for in accordance to Article 208.04.

Sediment Control, Stabilized Construction Entrance Maintenance. This work will be paid for at the contract unit price per square meter (square yard), for SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE MAINTENANCE.

Sediment Control, Stabilized Construction Entrance Removal. This work will be paid for at the contract unit price each, for SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE REMOVAL.

(j) Erosion Control, Temporary Pipe Slope Drains. This work will be paid for at the contract unit price each, for EROSION CONTROL, TEMPORARY PIPE SLOPE DRAINS.

(k) Erosion Control, Temporary Channel Diversion. This work will be paid for at the contract unit price, per meter (feet), for EROSION CONTROL, TEMPORARY CHANNEL DIVERSION.

(l) Same-Day Stabilization. This work will be paid for at the contract unit price for the various items of work performed and will not be paid for separately.

(m) Sediment Control, Stone Outlet Structure Sediment Trap. This work will be paid for at the contract unit price for the work measured and will not be paid for separately. Riprap will be paid for according to Article 281.07. Earth Excavation for Erosion Control will be paid for according to Article 280.07 (a).

(n) Sediment Control, Drainage Structure Inlet Filter Cleaning. This work will be paid for at the contract unit price per each occurrence for SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING.

DISTRICT ONE SPECIAL PROVISIONS

MAINTENANCE OF ROADWAYS
Effective: September 30, 1985Revised: November 1, 1996

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

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

STATUS OF UTILITIES TO BE ADJUSTED
Effective: January 30, 1987
Revised: July 1, 1994

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

Name of Utility	Type	Location	Estimated Dates for Start and Completion of Relocation or Adjustments
Com Ed	Over Head	McLean/Route 31	Start 5/4/09

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.

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."

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 will not be allowed.

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 incidental work necessary to furnish, install, maintain and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

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

Traffic Control shall be in accordance with 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, the Traffic Specifications and the Special Provisions contained herein.

Special attention is called to Articles 107.09 and 107.14 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

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

STANDARDS:

701006-03	Off-Road Operations, 2L, 2W, 4.5 M (15') to 600 MM (24") from Pavement Edge
701311-02	Lane Closure 2-Lane, 2-Way Moving Operations – Day Only
701501-05	Urban Lane Closure 2-Lane, 2-Way Undivided
701701-04	Urban Lane Closures, Multilane Intersection
701801-04	Lane Closure Multilane 1-Way or 2-Way Crosswalk or Sidewalk Closure
701901	Traffic Control Devices (3 Sheets)

DETAILS:

Traffic Control Plans
District One Typical Pavement Markings
Typical Markings for Closing State Highways

SPECIAL PROVISIONS:

Maintenance of Roadways
Temporary Information Signing
Traffic Control Protection for Temporary Detour

TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR
Effective: September 1, 1995
Revised: January 1, 2007

When traffic is to be directed over a detour route, the Contractor shall furnish, erect, maintain and remove all applicable traffic control devices along the detour route according to the details shown in the plans.

Basis of Payment. This work will be paid for at the contract unit price each for TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR.

COARSE AGGREGATE FOR HOT-MIX ASPHALT (HMA) (D-1)
Effective : March 16, 2009

Revise Article 1004.03 of the Standard Specifications to read:

1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete

Use	Mixture	Aggregates Allowed
HMA All Other	Stabilized Subbase or Shoulders	Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag Crushed Concrete The coarse aggregate for stabilized subbase, if approved by the Engineer, may be produced by blending aggregates according to Article 1004.04(a).
HMA High ESAL Low ESAL	IL-25.0, IL-19.0, or IL-19.0L	Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF)
HMA High ESAL Low ESAL	C Surface IL-12.5,IL-9.5, or IL-9.5L	Gravel (only when used in IL-9.5L) Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag (except when used as leveling binder)
HMA High ESAL	D Surface IL-12.5 or IL-9.5	Crushed Gravel Crushed Stone (other than Limestone) Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag (except when used as leveling binder) Limestone may be used in Mixture D if blended by volume in the following coarse aggregate percentages: Up to 25% Limestone with at least 75% Dolomite. Up to 50% Limestone with at least 50% any aggregate listed for Mixture D except Dolomite. Up to 75% Limestone with at least 25% Crushed Slag (ACBF) or Crushed Sandstone.

Use	Mixture	Aggregates Allowed
HMA High ESAL	E Surface IL-12.5 or IL-9.5	Crushed Gravel Crushed Stone (other than Limestone and Dolomite) Crushed Sandstone No Limestone. Dolomite may be used in Mixture E if blended by volume in the following coarse aggregate percentages: Up to 75% Dolomite with at least 25% Crushed Sandstone, Crushed Slag (ACBF), or Crushed Steel Slag. When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 25% to a maximum of 75% of either Slag by volume. Up to 50% Dolomite with at least 50% of any aggregate listed for Mixture E. If required to meet design criteria, Crushed Gravel or Crushed Stone (other than Limestone or Dolomite) may be blended by volume in the following coarse aggregate percentages: Up to 75% Crushed Gravel or Crushed Stone (other than Limestone or Dolomite) with at least 25% Crushed Sandstone, Crushed Slag (ACBF), or Crushed Steel Slag. When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 25% to a maximum of 50% of either Slag by volume.
HMA High ESAL	F Surface IL-12.5 or IL-9.5	Crushed Sandstone No Limestone. Crushed Gravel, Crushed Concrete, or Crushed Dolomite may be used in Mixture F if blended by volume in the following coarse aggregate percentages: Up to 50% Crushed Gravel, Crushed Concrete or Crushed Dolomite with at least 50% Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or any Other Crushed Stone (to include Granite, Diabase, Rhyolite or Quartzite). When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 50% to a maximum of 75% of either Slag by volume.

(b) Quality. For surface courses and binder courses when used as surface course, the coarse aggregate shall be Class B quality or better. For Class A (seal or cover coat), other binder courses, and surface course IL-9.5L (Low ESAL), the

coarse aggregate shall be Class C quality or better. For All Other courses, the coarse aggregate shall be Class D quality or better.

(c) Gradation. The coarse aggregate gradations shall be as listed in the following table.

Use	Size/Application	Gradation No.
Class A-1, 2, & 3	3/8 in. (10 mm) Seal	CA 16
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & 3	Cover	CA 14
HMA High ESAL	IL-25.0 IL-19.0 IL-12.5 IL-9.5	CA 7 1/ or CA 8 1/ CA 11 1/ CA 16 and/or CA 13 CA 16
HMA Low ESAL	IL-19.0L IL-9.5L	CA 11 1/ CA 16
HMA All Other	Stabilized Subbase or Shoulders	CA 6 2/, CA 10, or CA 12

1/ CA 16 or CA 13 may be blended with the gradations listed.
2/ CA 6 will not be permitted in the top lift of shoulders.

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)."

FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)
Effective: May 1, 2007
Revised: February 5, 2009

Add the following to the gradation tables of Article 1003.01(c) of the Standard Specifications:

FINE AGGREGATE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	3/8	No. 4	No. 8	No. 16	No. 200
FM 23	100	6/	6/	8±8	2±2

FINE AGGREGATE GRADATIONS (metric)					
	Sieve Size and Percent Passing				
Grad No.	9.5 mm	4.75 mm	2.36 mm	1.16 mm	0.075 mm
FM 23	100	6/	6/	8±8	2±2

6/ For the fine aggregate gradations FA 23, the aggregate producer shall set the midpoint percent passing and a range of ± 10% shall be applied. The midpoint shall not be changed without Department approval.

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

"Gradation. The fine aggregate gradation for all HMA shall be FA1, FA 2, FA 20, FA 21 or FA 23. 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 (D-1)
Effective: January 1, 2007
Revised: January 8, 2009

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 correlated nuclear gauge or cores. When using a correlated 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 Test 2/	Minimum Unconfined Test
IL-9.5, IL-12.5	Ndesign ≥ 90	92.0 – 96.0 %	90.0 %
IL-9.5, IL-9.5L, IL-12.5	Ndesign < 90	92.5 – 97.4 %	90.0 %
IL-19.0, IL-25.0	Ndesign ≥ 90	93.0 – 96.0 %	90.0 %
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4 %	90.0 %
All Other	Ndesign = 30	93.0 1/ - 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.

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.

USE OF RAP (dist 1)

Effective: January 1, 2007
Revised: January 7, 2009

In Article 1030.02(g) of the Standard Specifications, 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) results from the cold milling or crushing of an existing hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under

federal, state, or local agency jurisdiction. The contractor can also request that a processed pile be tested by the Department to determine the aggregate quality.

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 and size as listed below (i.e. "Homogenous Surface").

Prior to milling or removal of an HMA pavement, the Contractor may request the District to provide verification of the existing mix composition 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 Variable Size. Conglomerate variable size RAP 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 variable size RAP shall be processed prior to testing by crushing and screening to where all RAP is separated into various sizes. All the conglomerate variable size RAP shall pass

the 3/4 in. (19 mm) screen and shall be a minimum of two sizes. Conglomerate variable size RAP stockpiles shall not contain steel slag or other expensive material as determined by the Department.

(e) 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 in consistent gradation and/or asphalt binder content. Conglomerate DQ Rap stockpiles shall not contain steel slag or other expansive material as determined by the Department.

(f) 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 and Conglomerate Variable Size. In addition to the requirements above, conglomerate 3/8 and variable size 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 %
3/4 in. (19mm)		
1/2 in. (12.5mm)	± 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 %
Gmm Gmm	±0.02 % 2/ ±0.03 % 3/	

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.

3/ Applies only to conglomerate variable size. When variation of the G_{mm} exceeds the ± 0.03 tolerance, a new conglomerate variable size 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 or variable size 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, conglomerate variable size, 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, conglomerate variable size, 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 Mix Rap Percentage

HMA Mixtures [1/ 3/]		Maximum % Rap	
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30	30/40 [2/]	30	10
50	25/40 [2/]	15/25 [2/]	10
70	25/30 [2/]	10/20 [2/]	10
90	10/15 [2/]	10/15 [2/]	10
105	10/15 [2/]	10/15 [2/]	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 or conglomerate variable size RAP is utilized.

3/ When RAP exceeds 20% the AC shall be PG58-22. However, when RAP exceeds 20% and is used in full depth HMA pavement the AC shall be PG58-28.

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 or conglomerate variable size 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) Drier 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)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 (per size) as a percent of the total mix to the nearest 0.1 unit.

(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) Individual RAP Aggregate weight to the nearest pound (kilogram).

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

(7) Residual asphalt binder of each RAP size 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."

TEMPORARY PAVEMENT
Effective: March 1, 2003
Revised: April 10, 2008

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

The contractor shall use either Portland cement concrete according to Sections 353 and 354 of the Standard Specifications or HMA according to Sections 355, 356, 406 of the Standard Specifications, and other applicable HMA special provisions as contained herein. The HMA mixtures to be used shall be specified in the plans. The thickness of the Temporary Pavement shall be as described in the plans. The contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans.

Articles 355.08 and 406.11 of the Standard Specifications shall not apply.

The removal of the Temporary Pavement, if required, shall conform to Section 440 of the Standard Specification.

Method of Measurement. Temporary pavement 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 TEMPORARY PAVEMENT and TEMPORARY PAVEMENT (INTERSTATE).

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

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 (D-1)
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.

TEMPORARY SOIL RETENTION SYSTEM (PROJECT SPECIFIC)

Description. This work shall consist of designing, furnishing, installing and subsequently removing a temporary soil retention system at the locations shown on the plans. The scope of work shall be in accordance with all the requirements of the District 1 Special Provision for "Temporary Soil Retention System" with the following modifications:

- The word Department shall be construed to mean the Contract.
- Temporary soil retention system shall not be measured for payment but shall be paid for at the Contract Lump Sum price when installed, maintained and removed in accordance with all specified requirements.

It is the Contractor's responsibility to inform all involved utility companies as soon as possible about the potential conflict the proposed construction may have on any of their lines, to prevent damage or shifting or settlement. Early coordination is also necessary to avoid construction delays in case utility relocation is required.
The Contractor shall submit a Temporary Soil Retention System design including plan views, sections, and details, as well as design calculations for review and acceptance by the Engineer and the Railroad. The Contractor's design and calculations should be submitted as early in the Construction Phase as possible, so that the Railroad has sufficient time to perform its review. The Construction Schedule should allow at least 30 days for the Railroad's review period, in addition to any time needed by IDOT or others to review the submittal.

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.

TYPE III TEMPORARY TAPE FOR WET CONDITIONS
Effective: February 1, 2007

Description. This work shall consist of furnishing, installing, maintaining and removing Type III Temporary Pavement Marking Tape for Wet Conditions.

Type III Temporary Tape shall meet the requirements of Article 1095.06 of the Standard Specifications. Initial minimum reflectance values under dry and wet conditions shall be as specified in Article 1095.06. The marking tape shall maintain its reflective properties when submerged in water. The wet reflective properties shall be verified by a visual inspection method performed by the Department. The surface of the material shall provide an average skid resistance of 50 BPN when tested according to ASTM E 303.

Prior to application a surface preparation adhesive shall be applied to a clean, dry road surface. The pavement marking tape shall have a pre-coated pressure sensitive adhesive and shall require no activation procedures.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for WET REFLECTIVE TEMPORARY TAPE TYPE III of the line width specified, and at the contract unit price per square foot (square meter) for WET REFLECTIVE TEMPORARY LETTERS AND SYMBOLS.

PROJECT SPECIFIC SPECIAL PROVISIONS

COMPLETION DATE PLUS GUARANTEED WORKING DAYS

The Contractor shall complete all contract items and safely open all roadways and multi-use paths to traffic by 11:59 PM, May 1, 2011, except as specified herein.

This contract includes interim completion dates.

The Contractor shall complete all embankment work for the temporary railroad runaround by September 30, 2009.

The Contractor shall complete all work for Stearns Road, McLean Boulevard and Route 31 as shown in the plans in order to accept traffic safely on all lanes by 11:59 PM November 23, 2010 except as specified herein.

The Contractor will be allowed to complete all clean-up work, punch list items, and landscaping within 10 guaranteed 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 guaranteed working days allowed for clean-up work and punch list items. Temporary lane closures for this work in accordance with the Traffic Control Plan may be allowed during allowable hours at the discretion of the Engineer.

The Special Provision for failure to Complete the Work on Time, if included in this contract shall apply to both the completion date and the interim milestones.

PERENNIAL PLANTS, WETLAND EMERGENT TYPE

Description:

All work, materials and equipment shall conform to Sections 254 and 1081 of the Standard Specifications except as modified herein.

Perennial plants shall be spaced 12" on center and planted in groups with 1 species per group. Size of groups shall be a minimum of 40 sf. and a maximum of 200 sf. All native species shall be local genotype and shall be from within a radius of 150 miles from the site.

Materials:

Revise Article 254.03 Types and Mixtures – Add the following:

Perennial Plants, Wetland Emergent Type – Emergent Aquatic

Scientific Name	Common Name	Plants/Acre
Acorus calamus	sweet flag	850

Pontedaria cordata	pickerel weed	850
Polygonum amphibium	knotweed	850
Scirpus acutus	hard stemmed bulrush	850
Scirpus atrovirens	dark green bulrush	850
Scirpus fluviatilis	river bulrush	850
Sparganium americanum	bur reed	850
	Total	**5,950**

Measurement:

Revise Article 254.10 to include the following, PERENNIAL PLANTS, WETLAND EMERGENT TYPE will be measured for payment in units of 100 perennial plants of the type specified.

Payment:

This work will be paid for at the contract unit price per unit for PERENNIAL PLANTS, WETLAND EMERGENT TYPE.

PERENNIAL PLANTS, WETLAND TYPE

Description:

All work, materials and equipment shall conform to Sections 254 and 1081 of the Standard Specifications except as modified herein.

Perennial plants shall be spaced 12" on center and planted in groups with 1 species per group. Size of groups shall be a minimum of 40 sf. and a maximum of 200 sf. All native species shall be local genotype and shall be from within a radius of 150 miles from the site.

Materials:

Revise Article 254.03 Types and Mixtures – Add the following:

Perennial Plants, Wetland Type – Detention Basin

Ind. Status	**Scientific Name**	**Common Name**	**Plants/Acre**
OBL	Alisma subcordatum	water plantian	500
OBL	Justicia americana	water willow	1,000
OBL	Sagittaria latifolia	common arrowhead	500
OBL	Scirpus acutus	hardstem bulrush	1,500
OBL	Scirpus fluviatilis	river bulrush	1,000
OBL	Sparganium eurycarpum	common bur reed	1,500
		Total	**6,000**

Measurement:

Revise Article 254.10 to include the following, PERENNIAL PLANTS, WETLAND TYPE will be measured for payment in units of 100 perennial plants of the type specified.

Payment:

This work will be paid for at the contract unit price per unit for PERENNIAL PLANTS, WETLAND TYPE.

SEEDING, CLASS 4 (MODIFIED) MESIC PRAIRIE

Description:

All work, materials and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein.

The seed mix shall be supplied in pounds of Pure Live Seed. All native species shall be local genotype and shall be from within a radius of 150 miles from the site. Fertilizer is not required.

Materials:

Revise Article 250.07 Seeding Mixtures – Add the following to Table 1:

Seeding, Class 4 (Modified) Mesic Prairie

Ind. Status	Scientific Name	Common Name	LB PLS per Acre
FAC-	Andropogon gerardii	big bluestem	2.000
FACU-	Andropogon scoparius	little bluestem	0.500
UPL	Bouteloua curtipendula	side oats	0.250
FAC-	Elymus canadensis	Canada wild rye	1.000
FAC+	Panicum virgatum	switch grass	0.750
FACU+	Sorghastrum nutans	indian grass	1.500
UPL	Carex bicknellii	Bicknell's sedge	0.062
		Total Weight of Seeds (LB PLS)	**6.062**

Cover Crop:

		oats	32.000
UPL	Lolium multiflorum	annual rye	3.000
		Total Weight of Seeds (LB PLS)	**35.000**

Notes:

1. Purity and germination tests no older than twelve months must be submitted for all seed supplied to verify quantities of bulk seed required to achieve the LB PLS specified.
2. Horticultural grade vermiculite shall be added at a rate of one bushel per acre to facilitate the equal spreading of the seeds over an entire acre.

Measurement:

SEEDING, CLASS 4, (MODIFIED) MESIC PRAIRIE will be measured for payment in acres of surface area of seeding.

Payment:

This work will be paid for at the contract unit price per acre for SEEDING, CLASS 4, (MODIFIED) MESIC PRAIRIE.

SEEDING, CLASS 4 (MODIFIED) WET TO MESIC PRAIRIE

Description:

All work, materials and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein.

The seed mix shall be supplied in pounds of Pure Live Seed. All native species shall be local genotype and shall be from within a radius of 150 miles from the site. Fertilizer is not required.

Materials:

Revise Article 250.07 Seeding Mixtures – Add the following to Table 1:

Seeding, Class 4 (Modified) Wet to Mesic Prairie

Ind. Status	Scientific Name	Common Name	LB PLS per Acre
FAC-	Andropogon gerardii	big bluestem	1.500
OBL	Calamagrostis canadensis	blue joint grass	0.350
FACW-	Elymus virginicus	Virginia wild rye	1.000
FACW	Glyceria striata	fowl manna grass	0.500
FACW	Hierchloe odorata	vanilla grass	0.500
OBL	Leersia oryzoides	rice cut grass	1.000
FAC+	Panicum virgatum	switch grass	0.250
FACW+	Spartina pectinata	cord grass	0.250
FAC	Carex annectens xanthocarpa	yellow fruited sedge	0.125
OBL	Carex bebbii	Bebb's sedge	0.125
OBL	Carex buxbaumii	sedge	0.063
FAC	Carex normalis	normal sedge	0.125
OBL	Carex vulpinoidea	fox sedge	0.125
		Total Weight of Seeds (LB PLS)	**5.913**

Cover Crop:			
OBL	Agrostis alba palustris	bent grass	1.000
UPL	Lolium multiflorum	annual rye	3.000
FACW+	Polygonum pennsylvanicum	Pennsylvania knotweed	0.250
		Total Weight of Seeds (LB PLS)	**4.250**

Notes:

1. Purity and germination tests no older than twelve months must be submitted for all seed supplied to verify quantities of bulk seed required to achieve the LB PLS specified.
2. Horticultural grade vermiculite shall be added at a rate of one bushel per acre to facilitate the equal spreading of the seeds over an entire acre.

Measurement:

SEEDING, CLASS 4 (MODIFIED) WET TO MESIC PRAIRIE will be measured for payment in acres of surface area of seeding.

Payment:

This work will be paid for at the contract unit price per acre for SEEDING, CLASS 4 (MODIFIED) WET TO MESIC PRAIRIE.

SEEDING, CLASS 4 (MODIFIED) DETENTION BASIN

Description:

All work, materials and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein.

The seed mix shall be supplied in pounds of Pure Live Seed. All native species shall be local genotype and shall be from within a radius of 150 miles from the site. Fertilizer is not required.

Materials:

Revise Article 250.07 Seeding Mixtures – Add the following to Table 1:

Seeding, Class 4 (Modified) Detention Basin

Ind. Status	Scientific Name	Common Name	LB PLS per Acre
OBL	Agrostis alba palustris	bent grass	1.500
FACW-	Elymus virginicus	Virginia wild rye	2.250
FACW	Glyceria striata	fowl manna grass	1.250
OBL	Leersia oryzoides	rice cut grass	1.250
FACW	Carex blanda	common wood sedge	0.125
OBL	Carex stipata	awl fruited sedge	0.125
OBL	Carex vulpinoidea	fox sedge	1.000
OBL	Cyperus erythrorhizos	red-rooted nut sedge	0.125
		Total Weight of Seeds (LB PLS)	**7.625**
Cover Crop:			
FACW	Agrostis alba	red top grass	1.500
FACW	Echinochloa crusgalli	barnyard grass	3.000
		Total Weight of Seeds (LB PLS)	**4.500**

Notes:

1. Purity and germination tests no older than twelve months must be submitted for all seed supplied to verify quantities of bulk seed required to achieve the LB PLS specified.
2. Horticultural grade vermiculite shall be added at a rate of one bushel per acre to facilitate the equal spreading of the seeds over an entire acre.

Measurement:

SEEDING, CLASS 4 (MODIFIED) DETENTION BASIN will be measured for payment in acres of surface area of seeding.

Payment:

This work will be paid for at the contract unit price per acre for SEEDING, CLASS 4 (MODIFIED) DETENTION BASIN.

SEEDING, CLASS 5 (MODIFIED) MESIC PRAIRIE

Description:

All work, materials and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein.

The seed mix shall be supplied in pounds of Pure Live Seed. All native species shall be local genotype and shall be from within a radius of 150 miles from the site. The seed mix shall be supplied with the appropriate inoculants. Fertilizer is not required.

Materials:

Revise Article 250.07 Seeding Mixtures – Add the following to Table 1:

Seeding, Class 5 (Modified) Mesic Prairie

Ind. Status	Scientific Name	Common Name	LB PLS per Acre
UPL	Amorpha canescens	leadplant	0.125
UPL	Aster laevis	smooth blue aster	0.062
FACW	Aster novae-angliae	New England aster	0.062
FACU+	Baptisia leucantha*	white wild indigo	0.062
FACU-	Cassia fasciculata*	partridge pea	0.125
UPL	Echinacea purpurea	purple coneflower	0.420
FAC+	Eryngium yuccifolium	rattlesnake master	0.188
UPL	Heliopsis helianthoides	ox-eye sunflower	0.031
FACU	Lespedeza capitata*	roundhead bushclover	0.125
UPL	Liatris aspera	button blazing star	0.125
FAC-	Liatris pycnostachya	prairie blazing star	0.188
FACU	Monarda fistulosa	bergamot	0.031
UPL	Parthenium integrifolium	wild quinine	0.063

FAC-	Penstemon digitalis	foxglove beardtongue	0.125
UPL	Petalostemum purpureum	purple prairie clover	0.063
OBL	Physostegia virginiana	fase dragonhead	0.063
FACU-	Potentilla arguta	prairie cinquefoil	0.063
UPL	Ratibida pinnata	yellow coneflower	0.125
FACU	Rosa blanda	early wild rose	0.125
FACU	Rudbeckia hirta	black-eyed susan	0.250
FACU+	Rudbeckia subtomentosa	sweet coneflower	0.250
UPL	Silphium integrifolium	rosin weed	0.188
UPL	Silphium laciniatum	compass plant	0.188
FACU	Silphium terebinthinaceum	prairie dock	0.188
UPL	Solidago nemoralis	old-field goldenrod	0.125
OBL	Solidago riddellii	Riddell's goldenrod	0.063
FACW-	Solidago rigida	stiff goldenrod	0.063
UPL	Solidago speciosa	showy goldenrod	0.063
FACU+	Tradescantia ohiensis	spiderwort	0.063
UPL	Verbena stricta	hoary vervain	0.125
FACW	Vernonia fasciculata	common ironweed	0.188
FAC	Veronicastrum virginicum	Culver's root	0.013
		Total Weight of Seeds (LB PLS)	**3.938**

* = inoculant required

Notes:

1. Purity and germination tests no older than twelve months must be submitted for all seed supplied to verify quantities of bulk seed required to achieve the LB PLS specified.
2. Horticultural grade vermiculite shall be added at a rate of one bushel per acre to facilitate the equal spreading of the seeds over an entire acre.

Measurement:

SEEDING, CLASS 5 (MODIFIED) MESIC PRAIRIE will be measured for payment in acres of surface area of seeding.

Payment:

This work will be paid for at the contract unit price per acre for SEEDING, CLASS 5 (MODIFIED) MESIC PRAIRIE.

SEEDING, CLASS 5 (MODIFIED) WET TO MESIC PRAIRIE

Description:

All work, materials and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein.

The seed mix shall be supplied in pounds of Pure Live Seed. All native species shall be local genotype and shall be from within a radius of 150 miles from the site. Fertilizer is not required.

Materials:

Revise Article 250.07 Seeding Mixtures – Add the following to Table 1:

Seeding, Class 5 (Modified) Wet to Mesic Prairie

Ind. Status	Scientific Name	Common Name	LB PLS per Acre
OBL	Asclepias incarnata	swamp milkweed	0.063
UPL	Aster laevis	smooth blue aster	0.125
FACW	Aster novae-angliae	New England aster	0.031
OBL	Aster prealtius	willow aster	0.031
FACU+	Baptisia leucantha	wild white indigo	0.250
OBL	Chelone glabra	turtle head	0.031
FAC-	Desmodium canadense	showy tick trefoil	0.150
OBL	Eupatorium maculatum	spotted joe pye weed	0.259
FACW+	Eupatorium perfoliatum	boneset	0.115
FACW+	Helenium autumnale	sneezeweed	0.500
FAC+	Hypericum pyramidatum	great St. John's wort	0.063
OBL	Iris virginica shrevei	blue flag	0.125
FAC	Juncus dudleyi	Dudley's rush	0.031
FACW	Juncus torreyi	Torrey rush	0.062
FAC	Liatris spicata	spiked gayfeather	0.188
FAC-	Liatris pycnostachya	prairie gayfeather	0.313
FACW+	Lobelia siphilitica	great blue lobelia	0.031
OBL	Lycopus americanus	water horehound	0.063
OBL	Lythrum alatum	winged loosestrife	0.015
OBL	Mimulus ringens	monkey flower	0.031
FACU	Monarda fistulosa	bergamot	0.016
OBL	Penthorum sedoides	ditch stonecrop	0.001
OBL	Physostegia virginiana	false dragonhead	0.063
FACW+	Pycnanthemum virginianum	common mountain mint	0.160
FACU	Rudbeckia hirta	black-eyed susan	0.250
FACW+	Rudbeckia laciniata	wild golden glow	0.063
OBL	Scirpus atrovirens	dark green rush	0.500
FACW-	Silphium perfoliatum	cup plant	0.125
OBL	Solidago riddellii	Riddell's goldenrod	0.063
FACW-	Solidago rigida	stiff goldenrod	0.125
FACW+	Verbena hastata	blue vervain	0.046
FACW	Vernonia fasciculata	common ironweed	0.018
FAC	Veronicastrum virginicum	Culver's root	0.063
FAC+	Zizia aurea	golden alexander	0.031
		Total Weight of Seeds (LB PLS)	**4.001**

Notes:

1. Purity and germination tests no older than twelve months must be submitted for all seed supplied to verify quantities of bulk seed required to achieve the LB PLS specified.

2. Horticultural grade vermiculite shall be added at a rate of one bushel per acre to facilitate the equal spreading of the seeds over an entire acre.

Measurement:

SEEDING, CLASS 5 (MODIFIED) WET TO MESIC PRAIRIE will be measured for payment in acres of surface area of seeding.

Payment:

This work will be paid for at the contract unit price per acre for SEEDING, CLASS 5 (MODIFIED) WET TO MESIC PRAIRIE.

PAVEMENT BREAKING

Description: In areas when the distance between the existing pavement and the proposed subgrade is between 3 inches and 3 feet, the existing pavement shall be broken into pieces not to exceed 3 square feet in surface area. At the option of the Contractor, the broken roadway may stay in place unless otherwise directed by the Engineer.

Method of Measurement: Pavement Breaking will be measured for payment in place and the area computed in square yards.

Basis of Payment: Pavement Breaking will be paid for at the unit price per square yard for PAVEMENT BREAKING.

FLARED END SECTION REMOVAL

Description:

All work shall consist of removal and disposal of existing reinforced concrete flared end sections as specified on the plans in accordance with Section 501 or as modified herein.

Method of Measurement and Basis of Payment: Flared end section removal shall be paid for at the contract unit price per each for FLARED END SECTION REMOVAL, regardless of diameters, which price shall include all excavation and backfilling, labor, equipment and materials necessary to perform the work as herein specified.

MANHOLES, TYPE A, SPECIAL, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID

Description. This work shall consist of constructing manholes with restrictor plates, together with the necessary cast iron frames and grates or lids.

Materials. This work shall be completed in accordance with applicable portions of Section 602 of the Standard Specifications, applicable portions of Standard 602406-02 and drainage details in the contract plans.

Add the following to Sub-Section 602.02 – Materials:

MANHOLES, TYPE A, SPECIAL, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID shall include a 3/8-inch thick steel restrictor plate constructed as shown on the Plans. The restrictor plate should have a sharp-edged opening, centered horizontally, of the diameter and vertical location shown on the Plans.

The steel restrictor plate shall be placed between pairs of 3" x 3" x 3/8" steel angles placed along the bottom and both vertical edges of the restrictor plate. Vertical steel angles should extend the full length from the bottom to the top of the restrictor plate. Horizontal steel angles should extend from vertical angle to vertical angle. All steel angles and the restrictor plate shall be galvanized after fabrication.

Each section of steel angle shall be fastened to the manhole wall and base using 3/8" stainless steel studs with nuts and expansion anchors. Fasteners shall be uniformly spaced along each angle with a 6" space from each end. A minimum of 3 fasteners shall be used on each horizontal angle and a minimum of 6 fasteners shall be used on each vertical angle.

Measurement. MANHOLES, TYPE A, SPECIAL, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID constructed as shown in the Plans and applicable portions of Standard 602406-02, and in conformance with these Specifications will be measured for payment, in place, per each.

Basis of Payment. Payment for MANHOLES, TYPE A, SPECIAL, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID will be made at the Contract unit price per each, complete in place and accepted, and measured as specified. In addition, payment shall constitute full compensation for furnishing, hauling, and placing Precast Reinforced Concrete Flat Slab Tops, Frames and Lids and Steel Restrictor Plates with all mounting materials.

PLUG EXISTING STORM SEWERS

Description. This work shall consist of plugging existing storm sewer structure S105, when temporary pipe P105T is removed.

Materials. Materials used to PLUG EXISTING STORM SEWERS shall be brick and mortar at locations shown in the plans. Thickness of materials shall match wall thickness of structure and prevent seepage.

Method of Measurement and Basis of Payment. This work will be measured for payment in place per each for PLUG EXISTING STORM SEWERS, applicable to S105, which price shall include labor, equipment, and materials necessary to complete the work as specified.

DROP INLET, SPECIAL

Description. This work shall consist of constructing and removal of a modified CMP drop inlet and baffle as shown on the plans. This structure is designed to work as a temporary structure to drain McLean Boulevard, north of the CC&P RR runaround, through the railroad embankment.

Materials. Materials used shall be in accordance with applicable portions of Section 602 of the Standard Specifications and modified standard detail NRCS IL-578.

The work shall include installation, fabrication, and removal of the CMP drop inlet and baffle as shown on the detail in the plans. The items include but are not limited to, concrete base with bars, CMP riser and stub pipe, low flow pipe and hickenbottom, and 3" aggregate.

Basis of Payment. No separate payment will be made for the Drop Inlet. It shall be considered incidental to the pay item SEDIMENT BASIN.

STONE RIP-RAP, SPECIAL

This item shall consist of furnishing all labor and materials unless otherwise noted for the placement of Stone Rip-Rap, SPECIAL throughout the limits of the project as shown on the plans or as directed by the Engineer. This rip-rap material shall be a flagstone material.

The work shall be performed in accordance with Section 281 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

Filter fabric shall be paid for separately.

This work shall be paid for at the plan quantity and at the contract unit price per square yard for STONE RIPRAP, SPECIAL, and no additional compensation will be allowed.

EROSION CONTROL BLANKET – SPECIAL (S150BN)

This item shall consist of furnishing all labor and materials unless otherwise noted for the placement of EROSION CONTROL BLANKET - SPECIAL (150 BN) throughout the limits of the project as shown on the plans or as directed by the Engineer. The blanket shall be North American Green S150BN or similar product with corresponding performance specifications approved equal by the Engineer. This blanket shall be temporary; therefore unit price shall include removal at the conclusion of construction if necessary or when directed by the Engineer.

The work shall be performed in accordance with Section 280 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per square yard for EROSION CONTROL BLANKET – SPECIAL (S150BN), and no additional compensation will be allowed.

HEAVY DUTY EROSION CONTROL BLANKET – SPECIAL (P550)

This item shall consist of furnishing all labor and materials unless otherwise noted for the placement of HEAVY DUTY EROSION CONTROL BLANKET - SPECIAL (P550) throughout the limits of the project as shown on the plans or as directed by the Engineer. The blanket shall be North American Green P550 or similar product with corresponding performance specifications approved equal by the Engineer.

The work shall be performed in accordance with Section 251 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per square yard for HEAVY DUTY EROSION CONTROL BLANKET – SPECIAL (P550), and no additional compensation will be allowed.

FILTER FABRIC - INLET PROTECTION

This item shall consist of furnishing all labor and materials unless otherwise noted for the placement of FILTER FABRIC- INLET PROTECTION throughout the limits of the project as shown on the plans or as directed by the Engineer. The filter fabric protections shall be temporary, therefore unit price shall include removal at the conclusion of construction or when directed by the Engineer.

The work shall be performed in accordance with Section 280 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per each for FILTER FABRIC- INLET PROTECTION, and no additional compensation will be allowed.

FILTER FABRIC

This item shall consist of furnishing all labor and materials unless otherwise noted for the placement of FILTER FABRIC throughout the limits of the project in rip-rap areas or as directed by the Engineer. The filter fabric placement may be temporary at designated locations, therefore unit price shall include removal at the conclusion of construction or when directed by the Engineer where necessary.

The work shall be performed in accordance with Section 282 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per square yard for FILTER FABRIC, and no additional compensation will be allowed.

TEMPORARY DITCH CHECKS

This item shall consist of furnishing all labor and materials unless otherwise noted for the installing TEMPORARY DITCH CHECKS throughout the limits of the project as shown on the plans or as directed by the Engineer. The ditch checks are temporary, therefore unit price shall include removal at the conclusion of construction or when directed by the Engineer where necessary.

The work shall be performed in accordance with Section 280 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per each for TEMPORARY DITCH CHECKS, and no additional compensation will be allowed.

TEMPORARY EROSION CONTROL SEEDING

This item shall consist of furnishing all labor and materials to fertilize, seed, and mulch all bare and disturbed areas during construction. Areas to be seeded shall be clean and free from aggregate to a depth of 4 inches and approved by the Engineer prior to seeding.

Areas disturbed by the Contractor's operations outside the construction limits shall be regraded and seeded to the satisfaction of the Engineer, but shall not be measured for payment.
The work shall be performed in accordance with Section 280 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per acre for TEMPORARY EROSION CONTROL SEEDING, which price shall include the seed, fertilizer, nutrients, mulching, and necessary incidental work as directed by the Engineer, and no additional compensation will be allowed.

TREE PROTECTION AND PRESERVATION

This item shall consist of furnishing all labor and materials for TREE PROTECTION AND PRESERVATION at the designated trees on the Erosion Control Plans or at the discretion of the Engineer.

Trees shall be protected and preserved in accordance with Section 201 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per each for TREE PROTECTION AND PRESERVATION, and no additional compensation will be allowed.

SEDIMENT BASIN

This item shall consist of furnishing all labor and materials for the SEDIMENT BASIN shown on the Erosion Control Plans. The basin is temporary; therefore said work shall include removal of the basin at the direction of the Engineer.

This work shall include all necessary appurtenances to construct the basin, including, but not limited to; anti-seep collars, backflow preventer, 30" CMP riser, outlet structure, 12" perforated pipe, small rock, 12" pipe, excavation and grading. The basin shall be constructed and maintained in accordance with Section 280 of the "Standard Specifications for Road and Bridge Construction, January 1, 2007".

This work shall be paid for at the plan quantity and at the contract unit price per each for SEDIMENT BASIN, and no additional compensation will be allowed.

STONE DRIVEWAY REPLACEMENT

Description. This work shall consist of installation of 6" stone driveways above the 60" CMP culverts in Sugar Ridge Drainage Ditch.

Materials. CA-6 coarse aggregate per Section 1004.

Measurement. STONE DRIVEWAY REPLACEMENT shall be constructed as shown in the Plans and in conformance with these Specifications will be measured for payment, in place, per square yard.

Basis of Payment. Payment for STONE DRIVEWAY REPLACEMENT will be made at the Contract unit price per square yard, complete in place and accepted, and measured as specified.

SEEPAGE COLLAR

Description. This work shall consist of installation of flexible antiseep collars with temporary structure S153T

Materials. Materials used shall be in accordance with NRCS standard detail IL-593, FLEXIBLE ANTISEEP COLLAR, as shown in the contract plans.

Basis of Payment. Seepage Collar will not be paid for separately but shall be considered incidental to the item SEDIMENT BASIN.

DECK DRAINS

Description. This work shall consist of furnishing and installing deck drains as shown on the plans, consisting of galvanized and perforated corrugated half round metal pipes including their end sections, placed on top of the water collecting metal pan, the surrounding geotextile filter fabric and all incidentals and appurtenances required.
The deck drain system shall extend beyond the abutment back wall, and provisions shall be made for the floor pan to be connected to the pipe drain system. Closure pieces shall be installed at the end of the corrugated half round metal pipes and the floor pan, to ensure that drain water discharges into the pipe drains.
Materials.

(a) Precoated Galvanized Corrugated Steel Pipe and Precoated Galvanized Floor Plan. The precoated steel sheets used to fabricate these items shall be according to AASHTO M 246, Grade 250/250. The precoated pipe shall be according to AASHTO M 245. The sawed or cut edges and ends of corrugated pipe and pan shall be coated according to the methods described in the Repair of Damaged Coatings in AASHTO M 245. When the smooth sleeve-type coupler is used, the gasket material on the coupler shall be polyisoprene or equal with a durometer hardness of 45 ± 5 (ASTM D 2240, Shore A).

1. The thickness for corrugated steel pipe shall be 0.064 in. for a pipe with a nominal diameter of 8 in. Corrugations of 1 ½ x ¼ in. shall be used.

2. The perforations in Perforated Corrugated Steel Pipe shall have a nominal diameter of 3/16 in.

(b) Geotextile filter fabric shall consist of woven or nonwoven filaments of polypropylene, polyester, or polyethylene. Nonwoven fabric may be needle punched, heat-bonded, resin-bonded or combinations thereof. The filaments shall be dimensionally stable (i.e., filaments shall maintain their relative position with respect to each other) and resistant to delamination. The filaments shall be free from any chemical treatment or coating that might significantly reduce porosity and permeability.

The fabric shall be according to the following:

PHYSICAL PROPERTIES	
Weight (oz/sq yd) – ASTM D 3776	3.5 min.
Grab Tensile Strength (lb) – ASTM D 4632[1/]	100 min.
Grab Elongation @ Break (%) – ASTM D 4632[1/]	20 min.
Apparent Opening Size (AOS No.) – ASTM D 4751[2/]	30 max. (nonwoven) 50 max. (woven)

1/ For woven fabric, test results shall be referenced to orientation with warp or fill, whichever the case may be. Both woven and nonwoven fabrics shall be tested wet.

2/ Manufacturer's certification of fabric to meet requirements.

Basis of Payment. This work will be paid for at the contract unit price per foot for DECK DRAINS when installed as shown on the drawings, specified herein and directed by the Engineer.

FORM LINER TEXTURED SURFACE

Description. This work shall consist of designing, developing, furnishing and installing form liners and forming concrete using reusable, high-strength urethane form liners to achieve the various concrete treatments as shown in the drawings and specifications. This item also consists of providing and applying a concrete stain to the textured surface to replicate actual stone masonry. Form lined surfaces shall include areas of all cast-in-place concrete retaining walls where shown on the plans. Work shall be performed in

accordance with applicable portions of Section 503 of the Standard Specifications and as specified herein.

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

Form Liners for Retaining Walls

1. Custom Rock International, St. Paul, MN (Jim Rogers; 800-637-2447)

2. Milestones Incorporated, Hudson WI (Paul Nasvik; 715-381-9660)

Retaining wall patterns shall consist of a random Limestone Coursed Pattern with a maximum 1 1/2" relief. The form liner pattern is to be as shown below.

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

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

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

To minimize the possibility of preparing an unsatisfactory Cast Concrete Mockup as described herein, the Contractor may elect to provide shop drawings for the Mockups.

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

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

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

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

Qualifications of Contractor. The concrete stain applicator shall have a minimum of five (5) years demonstrated experience in applying stains to simulate rock. The Contractor shall submit evidence of appropriate experience, job listings, and project photographs from previous work.

Cast Concrete Mockup. The Contractor shall provide a cast concrete mockup containing the limestone form liner surface. The form liner manufacturer's technical representative shall be on-site for technical supervision during the installation and removal operations.

Purpose of the mockup is to select and verify the masonry pattern and concrete stain to be used.

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

2. The mockup shall be a minimum 10 ft x 10 ft x 6 in. thick.

3. Apply the concrete stain to one side of the mock-up wall located on the jobsite. Stain shall be of type and color which will be used on actual walls. Application procedures and absorption rates shall be as hereinafter specified, unless otherwise recommended by the manufacturer in writing to achieve color uniformity.

    a. Approval by the Engineer shall serve as a standard of comparison with respect to color and overall appearance.

    b. General application to actual surfaces on the retaining wall shall not proceed until jobsite mockup has been approved in writing by the Engineer.

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

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

6. After concrete work on mockup is completed and cured for a minimum of 28 days, and after surface is determined to be acceptable for coloring, apply color stain system.

7. After coloring is determined to be acceptable by the Engineer, construction of project may proceed, using mockup as quality standard.

Concrete Stain. Special penetrating stain mix as provided by manufacturer, shall achieve color variations present in the natural stone being simulated for this project, as required by the Engineer. Submit manufacturer's literature, certificates and color samples to the Engineer. The stain color shall be selected by the Engineer from the stain manufacturer's standard colors after viewing the mock-up.

Stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight or weathering. Stain mix shall be a water borne, low V.O.C. material, less than 1.5 lbs./gal, and shall meet requirements for weathering resistance of 2000 hours accelerated exposure.

Color stain system application: The simulated limestone masonry patterned surface shall be stained with a minimum of three (3) colors to simulate the appearance of real

simulated limestone masonry, subject to approval on the field constructed mock-up. The stain applicator shall be the manufacturer or manufacturer's authorized representative.

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

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

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

With the use of standard Portland cement concrete mixtures, the Contractor shall employ proper consolidation methods to ensure the highest quality finish. Internal vibration shall be achieved with a vibrator of appropriate size, the highest frequency and low to moderate amplitude. Concrete placement shall be in lifts not to exceed 1.5 feet. Internal vibrator operation shall be at appropriate intervals and depths and withdrawn slowly enough to assure a minimal amount of surface air voids and the best possible finish without causing segregation. External form vibrators may be required to assure the proper results. Any use of external form vibrators must be approved by the form liner manufacturer and the Engineer. The use of internal or external vibratory action shall not be allowed with the use of self consolidating concrete mixtures. It is the intention of this specification that no rubbing of flat areas or other repairs shall be required after form removal. The finished exposed formed concrete surfaces shall be free of visible vertical seams, horizontal seams, and butt joint marks. Grinding and chipping of finished formed surfaces shall be avoided.

The concrete staining work described herein shall be performed after the grading is finished. Final coloration of cast stone concrete surface shall accurately simulate the appearance of real stone including the multiple colors, shades, flecking and veining that is apparent in real stone. It shall also demonstrate the colors that may be apparent from aging, such as staining from oxidation, rusting and/or organic staining from soil and/or vegetation.

Applying Color Stain. Clean surface prior to application of stain materials to assure that surface is free of latency, dirt, dust, grease, efflorescence, paint, or other foreign material, following manufacturer's instructions for surface preparation. Do not sandblast. Preferred method to remove latency is pressure washing with water, minimum 3000 psi (a rate of three to four gallons per minute), using fan nozzle perpendicular to and at a distance of one or two feet from surface. Completed surface shall be free of blemishes, discoloration, surface voids and unnatural form marks.

Surfaces to receive stain shall be structurally sound, clean, dry, fully cured, and free from dust, curing agents or form release agents, efflorescence, scale, or other foreign materials. Methods and materials used for cleaning of substrate shall be as recommended by the manufacturer of the water-repellent stain. Concrete shall be at least 30 days old prior to concrete stain application. Curing agents must be removed a minimum of 14 days prior to coating to allow the concrete to dry out.

The stain shall be thoroughly mixed in accordance with the manufacturer's directions using an air-driven or other explosion-proof power mixer. Mix all containers thoroughly prior to application. Do not thin the material.

Materials shall be applied at the rate as recommended by the manufacturer. Absorption rates could be increased or decreased depending upon surface texture and porosity of the substrate so as to achieve even staining.

Temperature and relative humidity conditions during time of concrete stain application shall be per manufacturer's application instructions. Do not apply materials under rainy conditions or within three (3) days after surfaces become wet from rainfall or other moisture. Do not apply when weather is foggy or overcast. Take precaution to ensure that workmen and work areas are adequately protected from fire and health hazards resulting from handling, mixing and application of materials. Furnish all the necessary equipment to complete the work. Provide drop cloths and other forms of protection necessary to protect all adjoining work and surfaces to render them completely free of overspray and splash from the concrete stain work. Any surfaces, which have been damaged or splattered, shall be cleaned, restored, or replaced to the satisfaction of the Engineer.

Avoid staining the "mortar joints" by providing suitable protection over the joints during the staining process.

Sequencing: Schedule color stain application with earthwork and back-filling of any wall areas making sure that all simulated stone texture is colored to the minimum distance below grade. Delay adjacent plantings until color application is completed. Coordinate work to permit coloring applications without interference from other trades.

Where exposed soil or pavement is adjacent which may spatter dirt or soil from rainfall, or where surface may be subject to over-spray from other processes, provide temporary cover of completed work.

Guidelines For Use of Form Liners. Form liners are being used on this project to achieve very specific architectural results. The Contractor shall not deviate from the guidelines contained herein unless authorized by the Engineer in writing.

Measurement. Form Liner Textured Surface will be measured in square feet and paid for the area of actual concrete surface formed with concrete form liners and colored as specified herein.

Form Liner Mockup will not be measured for payment. The effort required to prepare the initial mockup, perform corrections as directed and pour additional mockups as required shall be considered incidental to the item Form Liner Textured Surface.

Payment. Form lined retaining wall surfaces shall be paid for at the contract unit price per square feet for FORM LINER TEXTURED SURFACE, which shall also include the cost for preparing, pouring and staining form liner mockups. The unit price bid shall include all labor, material and costs associated with forming, pouring, surface coloring and disposal of forms, including a satisfactory cast concrete mockup panel to the requirements included herein.

PERMANENT GROUND ANCHOR

Description. This work shall consist of designing, furnishing, installing, testing and stressing permanent cement-grouted ground anchors in accordance with the plans and the special provisions. The work shall include but not be limited to mobilization, surveying, drilling, inserting, grouting, stressing, load testing, and lock-off of ground anchors at the appropriate locations.

This is a performance specification for single ground anchors. The Contractor is given the responsibility for the ground anchor design, construction and performance based on the soil information and job condition. The Contractor shall select the ground anchor type and the installation method, and determine the bond length and anchor diameter. The Contractor shall be responsible for installing ground anchors that will develop the load-carrying capacity indicated on the Contract Drawings in accordance with the testing subsection of this Specification.

Working Drawings - Submittals. At least four weeks before work is to begin, the Contractor shall submit to the Engineer for review and approval complete working drawings and design calculations prepared and sealed by a Licensed Structural Engineer of Illinois, describing the ground anchor system or systems intended for use. The submittal shall include the following:

(1) A ground anchor schedule giving:

(a) Ground anchor number,
(b) Ground anchor design load,
(c) Type and size of tendon,
(d) Minimum total anchor length,
(e) Minimum bond length,
(f) Minimum tendon length, and
(g) Minimum unbonded length.

(2) A drawing of the ground anchor tendon and the corrosion protection system, including details for the following:

(a) Spacers separating elements of tendon and their location,
(b) Centralizers and their location,
(c) Unbonded length corrosion protection system,
(d) Bond length corrosion protection system,
(e) Anchorage and trumpet,
(f) Anchorage corrosion protection system,
(g) Drilled or formed hole size,
(h) Level of each stage of grouting, and
(i) Any revisions to structure details necessary to accommodate ground anchor system intended for use.

(3) The grout mix design and procedures for placing the grout.

The Engineer will approve or reject the Contractor's working drawings within three weeks of receipt of a complete submittal. No work on ground anchors shall begin until working drawings have been approved in writing by the Engineer. Such approval shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work.

Qualifications. The Contractor performing the work described in this Specification shall have installed permanent ground anchors for a minimum of three (3) years. At the time of bid submittal, the Contractor shall submit a list containing at least five (5) projects, completed within the last three (3) years, where the Contractor has installed permanent ground anchors. A brief description of each project and a reference shall be included for each project listed. As a minimum, the reference shall include an individual's name and current phone number and company or organization affiliation.

Prior to the start of work, the Contractor shall submit a list identifying the engineer, drill operators and on-site supervisors who will be assigned to the project. The list shall contain a summary of each individual's experience and it shall be complete enough for the Engineer to determine whether or not each individual has satisfied the required qualifications.

The Contractor shall assign an engineer to supervise the work with at least three (3) years of experience in the design and construction of permanent ground anchors. The

Contractor may not use consultant's or manufacturer's representatives in order to meet the requirements of this section. Drill operators and on-site supervisors shall have a minimum of one (1)-year experience installing permanent ground anchors with the Contractor's organization.

The Engineer shall approve or reject the Contractor's qualifications and staff within fifteen (15) working days after receipt of the submission. Work shall not be started by the Contractor on any ground anchor wall system, nor materials ordered, until approval of the qualifications are received. The Engineer may suspend the ground anchor work if the Contractor substitutes unqualified personnel for approved personnel during construction. If work is suspended due to the substitution of unqualified personnel, the Contractor shall be fully liable for additional costs resulting from the suspension of work and no adjustments to contract time resulting from suspension will be allowed.

Inadequate proof of the qualifications, as judged by the Engineer, shall be cause for withholding contract award or for rejection of the bid.

Site Geology and Soils Conditions. The results of the geotechnical investigation and the encountered soil conditions are contained in the Geotechnical Report prepared by Wang Engineering, Inc. for the proposed improvements of this project. If necessary, the Contractor shall take additional borings to allow him/her to successfully design and install the ground anchors in accordance with these special provisions.

Anchor Design. The anchor design loads shown on the plans are based on the interpretation of the requirements set forth in the AASHTO specifications. It is the responsibility of the anchor specialty contractor to accurately figure the anchor bond lengths that will meet the loading requirements based on the anchor diameter and other variables he/she plans to use.

Materials:

Prestressing Steel: Ground anchor tendons shall consist of single or multiple elements of prestressing steel, and anchorage devices of one of the following prestressing steels:

1) Steel bars conforming to AASHTO M275
2) Seven-wire, low-relaxation-strands conforming to AASHTO M203
3) "Compact" seven-wire, low-relaxation strands conforming to ASTM A-779
4) Indented, seven-wire strands, conforming to ASTM A886/A886M
5) Epoxy coated, seven-wire strands, conforming to ASTM A882/A882M

Prestressing Steel Couplers: Prestressing steel couplers shall be capable of developing 95 percent of the minimum specified ultimate tensile strength of the prestressing steel.

Grout: Cement shall be Type I Portland Cement conforming to ASTM C150. Cement used for grouting shall be fresh and shall not contain any lumps or other indications of hydration or "pack set."

Aggregate shall conform to the requirements for fine aggregate according to ASTM C33.

Admixtures may be used in the grout subject to the approval of the Engineer. Expansive admixtures may only be added to the grout used for filling sealed encapsulations, trumpets and anchorage covers. Accelerators shall not be used.

Water for mixing grout shall be potable, clean and free of substances known to be harmful to Portland cement and prestressing steel.

Steel Elements: Bearing plates shall be fabricated from steel conforming to ASTM A709, Grade 36, or be a ductile iron casting conforming to ASTM A-536.

Trumpets used to provide a transition from the anchorage to the unbonded length corrosion protection shall be fabricated from a steel pipe or tube conforming to the requirements of ASTM A-53 for pipe or ASTM A-500 for tubing. Minimum wall thickness shall be 0.20 inches.

Anchorage covers used to enclose exposed anchorages shall be fabricated from steel, steel pipe, steel tube, or ductile cast iron conforming to the requirement of ASTM A709, Grade 36 for steel, ASTM A-53 for pipe, ASTM A-500 for tubing, and ASTM A-536 for ductile cast iron. Minimum thickness shall be 0.10 inches.

Galvanization of these steel elements when required shall be in accordance with ASTM A-123.

Corrosion Protection Element: Corrosion inhibiting grease shall conform to the requirements of the Post Tensioning Institute's "Specifications for Unbonded Single Strand Tendons." Section 3.2.5.

Sheath for the unbonded length of a tendon shall consist of one of the following:

(1) Seamless polyethylene (PE) tube having a minimum wall thickness of 60 mils plus or minus 10 mils. The polyethylene shall be cell classification 334413 by ASTM D3350.

(2) Seamless polypropylene tube having a minimum wall thickness of 60 mils plus or minus 10 mils. The polypropylene shall be cell classification PP210B55542-11 by ASTM D4101.

(3) Heat shrinkable tube consisting of a radiation crosslinked polyolefin tube internally coated with an adhesive sealant. The minimum tube wall thickness before shrinking shall be 24 mils. The minimum adhesive sealant thickness shall be 20 mils.

(4) Corrugated polyvinyl chloride (PVC) tube having a minimum wall thickness of 30 mils.

Encapsulation for the tendon bond length shall consist of one of the following:

(1) Corrugated high density polyethylene (HDPE) tube having a minimum wall thickness of 30 mils and conforming to AASHTO M252 requirements.

(2) Deformed steel tube or pipe having a minimum wall thickness of 25 mils.

(3) Corrugated polyvinyl chloride (PVC) tube having a minimum wall thickness of 30 mils. ASTM D-1784, Class 13464-B.

(4) Fusion-bonded epoxy conforming to the requirements of AASHTO M284, except that it shall have a film thickness of 15 mils.

Miscellaneous Elements. Bondbreaker for a tendon shall consist of smooth plastic tube or pipe that is resistant to aging by ultra-violet light and that is capable of withstanding abrasion, impact and bending during handling and installation.

Spacers for separation of elements of a multi-element tendon shall permit the free flow of grout. They shall be fabricated from plastic, steel or material which is not detrimental to the prestressing steel. Wood shall not be used.

Centralizers shall be fabricated from plastic, steel or material which is not detrimental to either the prestressing steel or any element of the tendon corrosion protection. Wood shall not be used. The centralizer shall be able to maintain the position of the tendon so that a minimum of 0.5 inches of grout cover is obtained on the tendons at all locations along the tendons.

Fabrication. Tendons for ground anchors may be either shop or field fabricated from materials conforming to this specification requirements. Tendons shall be fabricated as shown on the approved working drawings. The tendon shall be sized so that the maximum test load does not exceed 80 percent of the minimum guaranteed ultimate strength of the tendon.

Bond Length and Tendon Bond Length: The Contractor shall determine the bond length necessary to satisfy the load test requirements. The minimum bond length shall be ten feet in rock, fifteen feet in soil. The minimum tendon bond length shall be ten feet.

Spacers shall be placed along the tendon bond length of multi-element tendons so that the prestressing steel will bond to the grout. They shall be located at 10 foot maximum centers with the upper one located a maximum of 5 feet from the top of the tendon bond

length and the lower one located a maximum of 5 feet from the bottom of the tendon bond length.

The centralizer shall be able to maintain the position of the tendon so that a minimum of 0.75 inches of grout cover is obtained on the tendons at all locations along the tendons.

Centralizers shall be placed along the bond length. They shall be located at 5 feet maximum centers with the upper one located a maximum of 5 feet from the top of the bond length and the lower one located one foot from the bottom of the bond length. Centralizers are not required on tendons installed utilizing a hollow-stem auger if it is grouted through the auger and the drill hole is maintained full of a stiff grout (9 inch slump or less) during extraction of the auger. A combination centralizer-spacer may be used.

Encapsulation Protected Ground Anchor Tendon: The tendon bond length shall be encapsulated by a grout-filled corrugated plastic or deformed steel tube, or by a fusion-bonded epoxy coating. The tendon can be grouted inside the encapsulation prior to inserting the tendon in the drill or after the tendon has been placed in the drill hole. Punching holes in the encapsulation and allowing the grout to flow from the encapsulation to the drill hole, or vice versa, will not be permitted. The tendon shall be centralized within the encapsulation and the tube sized to provide an average of 0.20 inches of grout cover for the prestressing steel. The anchorage device of tendons protected with fusion-bonded epoxy shall be electrically isolated from the structure.

Unbonded Length: The unbonded length of the tendon shall be a minimum of fifteen feet or as indicated on the plans or approved working drawings.

Corrosion protection shall be provided by a sheath completely filled with corrosion inhibiting grease or grout, or a heat shrinkable tube. If grease is used to fill the sheath, provisions shall be made to prevent it from escaping at the ends. The grease shall completely coat the tendon and fill the interstices between the wires of seven-wire Strands. Continuity of corrosion protection shall be provided at the transition from the bonded length to unbonded length of the tendon.

If the sheath provided is not a smooth tube, then a separate bondbreaker must be provided to prevent the tendon from bonding to the anchor grout surrounding the unbonded length.

Anchorage and Trumpet: Non-restressable anchorages may be used unless restressable anchorages are designated on the plans.

The trumpet shall be welded to the bearing plate. The trumpet shall have an inside diameter at least 0.25 inches larger than the hole in the bearing plate. The trumpet shall be long enough to accommodate movements of the structure during testing and stressing. For strand tendons with encapsulation over the unbonded length, the trumpet shall be long enough to enable the tendons to make a transition from the diameter of the tendon in the unbonded length to the diameter of the tendon at the anchor head without damaging the encapsulation. Trumpets filled with corrosion-inhibiting grease shall have a permanent Buna-N rubber or approved equal seal provided between the trumpet and the unbonded length corrosion protection. Trumpets filled with grout shall have a

temporary seal provided between the trumpet and the unbonded length corrosion protection.

Tendon Storage and Handling: Tendons shall be stored and handled in such a manner as to avoid damage or corrosion. Damage to tendon prestressing steel as a result of abrasions, cuts, nicks, welds and weld splatter will be cause for rejection by the Engineer. Grounding of welding leads to the prestressing steel is not permitted. Prior to inserting a tendon into the drilled hole, its corrosion protection elements shall be examined for damage. Any damaged tendons shall be rejected, or if repairable, repaired in a manner approved by the Engineer.

Installation. The Contractor shall select the drilling method, the grouting procedure and grouting pressure to be used for the installation of the ground anchor as necessary to satisfy the load test requirements. The Contractor shall follow the same installation procedures that are used on the successful verification test anchors.

The first two anchors of each level should be installed and performance tested successfully before drilling any other anchors at that level. They should be tested within the first working day after the grout curing period. In the event that one or both anchors fail the performance test, the contractor shall re-evaluate the installation procedure and take necessary corrective action. In addition, the first two tie-backs installed after the Contractor takes necessary corrective action shall be performance tested. The above process shall be repeated until these anchors pass the performance test.

Drilling: The drilling method used may be core drilling, rotary drilling, percussion drilling, auger drilling or driven casing. The method of drilling used shall be that which prevents loss of ground above the drilled hole that may be detrimental to the structure or existing structures. Casing for anchor holes, if used, shall be removed, unless permitted by the Engineer to be left in place. Excessive amounts of water shall not be used in the drilling operation. The location, inclination, and alignment of the drilled hole shall be as shown on the plans. Inclination and alignment shall be within plus or minus 3 degrees of the planned angle at the bearing plate. Drilling in shale or soil shall require the hole to be completed, tendon inserted, and grouted within the same working day.

Tendon Insertion: The tendon shall be inserted into the drilled hole to the desired depth without difficulty. When the tendon cannot be completely inserted it shall be removed and the drill hole cleaned or redrilled to permit insertion. Partially inserted tendons shall not be driven or forced into the hole.

Grouting: A neat cement grout or sand-cement grout conforming to the "Material Grout" portion of this specification shall be used.

The grouting equipment shall produce a grout free of lumps and undispersed cement. A positive displacement grout pump shall be used. The pump shall be equipped with a pressure gauge to monitor grout pressures. The pressure gauge shall be capable of measuring pressures of at least 150 psi or twice the actual grout pressures used, whichever is greater. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The mixer shall be capable of continuously agitating the grout.

The grout shall be injected from the lowest point of the drilled hole. The grout may be pumped through grout tubes, casing, hollow-stem augers or drill rods. The grout may be placed before or after insertion of the tendon. The quantity of the grout and the grout pressures shall be recorded. The grout pressures and grout takes shall be controlled to prevent excessive heave of the ground or fracturing of rock formations.

Except where indicated below, the grout above the top of the bond length may be placed at the same time as the bond length grout, but it shall not be placed under pressure. The grout at the top of the drill hole shall stop six inches from the back of the structure or from the bottom of the trumpet, whichever is lowest.

If the ground anchor is installed in a fine-grained soil using a drilled hole larger than six inches in diameter, then the grout above the top of the bond length shall be placed after the ground anchor has been load tested. The entire drill hole may be grouted at the same time if it can be demonstrated that the ground anchor system does not derive a significant portion of its load resistance from the soil above the bond length portion of the ground anchor.

If grout protected tendons are used for ground anchors anchored in rock, then pressure grouting techniques shall be utilized. Pressure grouting requires that the drill hole be sealed and that the grout be injected until a 50 psi grout pressure can be maintained on the grout within the bond length for a period of five minutes.

Upon completion of grouting, the grout tube may remain in the drill hole provided it is filled with grout.

After grouting, the tendon shall not be loaded for a minimum of three days.

Trumpet and Anchorage: The corrosion protection surrounding the unbonded length of the tendon shall extend into the trumpet a minimum of six inches beyond the bottom seal in the trumpet.

The corrosion protection surrounding the unbonded length of the tendon shall not contact the bearing plate or the anchor head during load testing or stressing.

The bearing plate and anchor head shall be placed perpendicular to the axis of the tendon.

The trumpet shall be completely filled with corrosion inhibiting grease or grout. The grease may be placed any time during construction. The grout shall be placed after the ground anchor has been load tested. The Contractor shall demonstrate that the procedures selected for placement of either grease or grout will produce a completely filled trumpet.

Anchorages not encased in concrete shall be covered with a corrosion inhibiting grease-filled or grout-filled steel enclosure.

Production Anchor Testing and Stressing: Each ground anchor shall be load tested by the Contractor. No load greater than 10 percent of the design load may be applied to

the ground-anchor prior to load testing. The test load shall be simultaneously applied to the entire tendon.

Testing Equipment: A dial gauge or vernier scale capable of measuring displacements to 0.001 inches shall be used to measure ground anchor movement. It shall have adequate travel so total ground anchor movement can be measured without resetting the device.

A hydraulic jack and pump shall be used to apply the test load. The jack and a calibrated pressure gauge shall be used to measure the applied load. The pressure gauge shall be graduated in 100-psi increments or less. When the theoretical elastic elongation of the total anchor length at the maximum test load exceeds the ram travel of the jack, the procedure for recycling the jack ram shall be included in the working drawings. Each increment of test load shall be applied in one minute or less.

A calibrated reference pressure gauge shall be available at the site. The reference gauge shall be calibrated with the test jack and pressure gauge.

An electrical resistance load cell and readout shall be provided when performing a creep test.

The stressing equipment shall be placed over the ground anchor tendon in such a manner that the jack, bearing plates, load cell and stressing anchorage are axially aligned with the tendon and the tendon is centered within the equipment.

Performance Test: Five percent of the ground anchors or a minimum of three ground anchors, whichever is greater shall be performance tested in accordance with the following procedures. The Engineer shall select the ground-anchors to be performance tested. The remaining anchors shall be tested in accordance with the proof test procedures.

The performance test shall be made by incrementally loading and unloading the ground anchor in accordance with the following schedule unless a different maximum test load and schedule are indicated on the plans. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement shall be measured and recorded to the nearest 0.001 inches with respect to an independent fixed reference point at the alignment load and at each increment of load. The load shall be monitored with a pressure gauge. The reference pressure gauge shall be placed in series with the pressure gauge during each performance test. If the load determined by the reference pressure gauge and the load determined by the pressure gauge differ by more than 10 percent, the jack, pressure gauge and reference pressure gauge shall be recalibrated. At load increments other than the maximum test load, the load shall be held just long enough to obtain the movement reading.

Performance Test Schedule

Applied Load	Applied Load (Continued)
AL	0.25DL
0.25DL*	0.50DL
AL	0.75DL
0.25DL	1.00DL
0.50DL*	1.20DL*
AL	AL
0.25DL	0.25DL
0.50DL	0.50DL
0.75DL*	0.75DL
AL	1.00DL
0.25DL	1.20DL
0.50DL	1.33DL* (Max. test load)
0.75DL	Reduce to
1.00DL*	lock-off load (1.00DL)
AL	

Where: AL = Alignment Load
DL = Design load for ground anchor
* = Graph required

The maximum test load in a performance test shall be held for 10 minutes. The jack shall be repumped as necessary in order to maintain a constant load. The load hold period shall start as soon as the maximum test load is applied and the ground anchor movement shall be measured and recorded at 1 minute, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movements between 1 minute and 10 minutes exceed 0.04 inches, the maximum test load shall be held for an additional 50 minutes. If the load-hold is extended, the ground anchor movement shall be recorded at 15 minutes, 20, 25, 30, 45 and 60 minutes.

A graph shall be constructed showing a plot of ground anchor movement versus load for each load increment marked with an asterisk (*) in the performance test schedule. A plot of the residual ground anchor movement of the tendon at each alignment load versus the highest previously applied load shall be prepared and submitted to the Engineer. Graph format shall be approved by the Engineer prior to use.

Proof Test: The proof test shall be performed by incrementally loading the ground anchor in accordance with the following schedule. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement shall be measured and recorded to the nearest 0.001 inches with respect to an independent fixed reference point at the alignment load and at each increment of load. The load shall be monitored with a pressure gauge. At load increments other than the maximum test load, the load shall be held just long enough to obtain the movement reading.

Proof Test Schedule

Applied Load	Applied Load (Continued)
AL	1.00DL
0.25DL	1.20DL
0.50DL	1.33DL (Max. test load)
0.75DL	Reduce to lock-off load (1.00DL)

Where AL = Alignment Load
DL = Design load for ground anchor

The maximum test load in a proof test shall be held for 10 minutes. The Jack shall be repumped as necessary in order to maintain a constant load. The load-hold period shall start as soon as the maximum test load is applied and the ground anchor movement shall be measured and recorded at 1 minute, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movement between 1 minute and 10 minutes exceeds 0.04 inches, the maximum test load shall be held for an additional 50 minutes. If the load-hold is extended, the ground anchor movement shall be recorded at 15 minutes, 20, 25, 30, 45 and 60 minutes. A graph shall be constructed showing a plot of ground anchor movement versus load for each load increment in the proof test. Graph format shall be approved by the Engineer prior to use.

Creep Test: Creep tests shall be performed on two upper anchors and one lower anchor. The Engineer shall select the ground anchors to be creep tested.

The creep test shall be made by incrementally loading and unloading the ground anchor in accordance with the performance test schedule used. At the end of each loading cycle, the load shall be held constant for the observation period indicated in the creep test schedule below unless a different maximum test load is indicated on the plans. The times for reading and recording the ground anchor movement during each observation period shall be 1 minute, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30, 45, 60, 75, 90, 100, 120, 150, 180, 210, 240, 270 and 300 minutes as appropriate for the load increment. Each load-hold period shall start as soon as the test load is applied. In a creep test, the pressure gauge and reference pressure gauge will be used to measure the applied load, and the

load cell will be used to monitor small changes in load during constant load-hold periods. The jack shall be repumped as necessary in order to maintain a constant load.

Creep Test Schedule

Applied Load	Observation Period (Minutes)
AL	
0.25DL	10
0.50DL	30
0.75DL	30
1.00DL	45
1.20DL	60
1.33DL	300

A graph shall be constructed showing a plot of the ground anchor movement and the residual movement measured in a creep test as described for the performance test. Also, a graph shall be constructed showing a plot of the ground creep movement for each load-hold as a function of the logarithm of time. Graph formats shall be approved by the Engineer prior to use.

Ground Anchor Load Test Acceptance Criteria: A performance-tested or proof-tested ground anchor with a 10 minute load-hold is acceptable if the:

(1) Ground anchor resists the maximum test load with less than 0.04 inches of movement between 1 minute and 10 minutes; and

(2) Total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.

(3) Total movement at the maximum test load may not exceed the theoretical elastic elongation of the unbonded length plus 50 percent of the theoretical elastic elongation of the bonded length.

A performance-tested or proof-tested ground anchor with a 60 minute load-hold is acceptable if the:

(1) Ground anchor resists the maximum test load with a creep rate that does not exceed 0.08 inches in the last log cycle of time; and

(2) Total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.

(3) Total movement at the maximum test load may not exceed the theoretical elastic elongation of the unbonded length plus 50 percent of the theoretical elastic elongation of the bonded length.

A creep-tested ground anchor is acceptable if the:

(1) Ground anchor carries the maximum test load with a creep rate that does not exceed 0.08 inches in the last log cycle of time; and

(2) Total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.

(3) Total movement at the maximum test load for ground anchors in rock may not exceed the theoretical elastic elongation of the unbonded length plus 50 percent of the theoretical elastic elongation of the bonded length.

If the total movement of the ground anchor at the maximum test load does not exceed 80 percent of the theoretical elastic elongation of the unbonded length, the ground anchor shall be replaced at the Contractor's expense.

A ground anchor which has a creep rate greater than 0.08 inches per log cycle of time can be incorporated into the structure at a design load equal to one-half of its failure load. The failure load is the load resisted by the ground anchor after the load has been allowed to stabilize for 10 minutes.

When a ground anchor fails, the Contractor shall modify the design and/or the installation procedures. These modifications may include, but are not limited to, installing a replacement ground anchor, reducing the design load by increasing the number of ground anchors, modifying the installation methods, increasing the bond length or changing the ground anchor type. Any modification which requires changes to the structure shall be approved by the Engineer. Any modifications of design or construction procedures shall be without additional-cost to the Owner and without extension of contract time.

Retesting of a ground anchor will not be permitted, except that regrouted ground anchors may be retested.

Lock-off: Upon successful completion of the load testing, the ground anchor load shall be reduced to the lock-off load indicated on the plans and transferred to the anchorage device. The ground anchor may be completely unloaded prior to lock-off. After transferring the load and prior to removing the jack, a lift-off load reading shall be made. The lift-off load shall be within 10 percent of the specified lock-off load. If the load is not within 10 percent of the specified lock-off load, the anchorage shall be reset and another lift-off load reading shall be made. This process shall be repeated until the desired lock-off load is obtained.

Method of Measurement. This item shall be measured per each PERMANENT GROUND ANCHOR, installed in accordance with the plans or as ordered by the Engineer, and passing the testing program(s) required in this Special Provision.

Basis of Payment. This item will be paid for at the contract unit price each for PERMANENT GROUND ANCHOR and shall be compensation in full for designing, furnishing, installing, and testing ground anchors as specified herein.

REMOVAL OF EXISTING STRUCTURE

Description. This work shall consist of removing the existing structure, consisting of timber bents supporting structural steel or timber beams and the CN railroad track. The structure shall be removed to the limits shown on the plans or as specified herein. The work shall conform to all applicable requirements of section 501 of the Standard Specifications.

Construction Requirements. All removed material will become property of the Contractor and shall be properly disposed of by the Contractor to the satisfaction of the Engineer. When determining the bid price of this item, the Contractor shall consider the value of certain components to be removed, i.e. structural steel components and rails.
The Contractor shall be aware that the existing paint system of the structural steel components may contain lead. The removal, handling, transporting and disposal of these components shall conform to all applicable environmental rules and regulations and, if removal of any of these coatings will be required, shall also conform to the IDOT Guide Bridge Special Provision for "Containment and Disposal of Lead Paint Cleaning Residues." However, the cost for all special requirements pertaining to the removal and disposal of lead paint shall be incidental to this item and no additional payment will be made for this work.
All substructure components shall be removed to a depth of 1'-0" below the proposed improvement. No extra compensation shall be made for any subsequent removal of components that do not satisfy this requirement, nor for filling any voids, resulting from the removal operations.
Prior to the start of removal operations, the Contractor shall inquire about the content and magnitude of submittals required by the Engineer. If deemed necessary by the Engineer, drawings and calculations prepared by a Licensed Structural Engineer from the State of Illinois shall be submitted.

Basis of Payment. This work will be paid for at the Contract Lump Sum price for REMOVAL OF EXISTING STRUCTURE which shall be compensation in full for removing the existing railroad trestle as specified herein.

SPHERICAL BEARINGS

Description. This work shall consist of furnishing and installing spherical bearing assemblies at the locations shown on the plans. A spherical bearing shall consist of a self lubricating bronze bearing plate, top plate (sole plate), bed plate (bottom masonry plate) and a laminated fabric leveling pad, furnished to the sizes and dimensions shown on the plans.
The spherical bearings shall be of the type specified and designed for the loads shown on the plans. The design of the bearing plate as well as the top plate and bed plate is based on detail assumptions which are not applicable to all suppliers and may require modifications depending on the supplier chosen by the Contractor. The overall depth dimension for the spherical bearings shall be as specified on the plans. The horizontal dimensions shall be limited to the available bearing seat area. Any modifications required to accommodate the bearing fabricator's requirements shall be submitted to the

Engineer for approval prior to ordering materials. Modifications required shall be made at no additional cost to the contract.
The Contractor shall comply with all manufacturer's material, fabrication and installation requirements specified. Materials and fabrication will be subjected to inspection by the Engineer or by organization(s) appointed by Engineer. The Contractor shall provide suitable facilities and cooperate fully with inspection organization and Engineer in carrying out inspection and tests required.
Submittals. Shop drawings shall be submitted to the Engineer for approval according to Article 105.04 of the Standard Specifications. In addition, the Contractor shall furnish certified copies of the bearing manufacturer's test reports on the physical properties of the component materials for the bearings to be furnished and a certification by the bearing manufacturer, stating the bearing assemblies furnished conform to all the requirements shown on the plans and as herein specified. Submittals with insufficient test data and supporting certifications will be rejected.
Upon completion of the work, as-built shop drawings shall be submitted in electronic form and also in approved photographic reproductions. Electronic form shall be submitted in a CD disk in two different formats – ADOBE ACROBAT "PDF" and AUTOCAD "DWG". Photographic reproductions shall be inked on double matte 0.004 mil mylar film or legible reproductions on 0.004 mil photographic type of emulsion polyester fixed line film. Washoff and diazo type reproductions are not acceptable. Approved photographic reproductions of the bridge plans and its components shall be delivered to the CN Railway Company as soon as the shop fabrication is completed. Plans shall be addressed to:

Canadian National Railways
Senior Structural Engineer
10004-104th Avenue, 16th Floor
Edmonton, Alberta
T5J OK2

Materials.

(c) Structural Steel: Steel for the bed plates, top plates and bolting clips shall be in accordance with CSA G40.21-M98, Grade 300W (ASTM A572 / A36 Grade 50).

(d) Bronze Plate: Bronze Bearing metal shall meet the requirements of ASTM Specification B22-02, Copper Alloy UNS No. C86300.

(e) Finishes and Tolerances: Bearings shall be machine finished and the surface roughness when measured in accordance with ASA Standard B46.1-1955 shall not exceed the following:

3. Expansion Bearing Plates: 125 micro inches.
4. Fixed Expansion Bearing Plates: 250 micro inches.
5. Top Surface of Bronze Spherical Surface: 63 micro inches.

The bearing surfaces of the opposing steel plates shall also be finished in the same manner.

(f) Lubricant:

1. Spherical surface of bronze bearing plate shall be provided with trepanned recesses which shall be filled with a lubricating compound capable of withstanding the atmospheric elements and consisting of graphite and metallic substance with a lubricating binder. The compound shall be pressed into the recesses by hydraulic presses so as to form dense, non-plastic lubricating inserts. The lubricant shall be Lubrite, or approved equal. Materials, which do not have lubricating qualities or promote chemical or electrolytic reactions, will not be acceptable. The total lubricating area (the trepanned recesses) shall comprise not less than 25% of the total bearing area of the plate.
2. Coefficient of Friction: The coefficient of friction between the self-lubricating plates and the steel plates in contact with them shall not exceed 0.10 when subjected to the designed unit loading and also at twice the designed unit loading.

(g) Corrosion Protection:

1. All non-sliding bearing surfaces shall be zinc metallized with a minimum coating of 0.25mm in accordance with CSA Standard G189-1966 "Sprayed Metallic Coatings for Atmospheric Corrosion Protection".
2. All edges of steel (bearing plates, etc.) to be metallized shall be slightly rounded in order that metallizing will adhere.

(h) Bolts:

1. Supply all bolts as detailed on the drawings:
   - Bolts shall conform to ASTM A325 Type 3.
   - Nuts shall conform to ASTM A563 Grade DH3.
   - Washers shall conform to ASTM F436 Type 3.
   - Anchors bolts shall conform to ASTM F1554.
2. Bolts, washers and nuts shall be hot dip galvanized in accordance with CSA Standard G164-M92 "Hot Dip Galvanizing of Irregularly Shaped Objects".

(i) Rubber Cushioning (Levelling) Fabric Pads:

1. The Fabricator shall supply and place ¼" thick laminated fabric rubber cushioning pads under the bed plates where indicated on the drawings.
2. Rubber cushioning fabric pads shall be made from neoprene, durometer hardness 60 conforming to A.R.E.M.A. Chapter 19, Section 1, Clause 1.6.2.1 and meeting the requirements of Table 19.1.2 Elastomeric Material Property Test Requirements.
3. The Fabricator shall submit a certificate from his supplier to the Engineer stating that the requirements of the above clause have been met.

Fabrication. The bearings shall be complete factory-produced assemblies. They shall provide for rotation in all directions and for sliding, when specified, in directions as indicated on the plans. All bearings shall be furnished as a complete unit from one manufacturing source. All material used in the manufacture shall be new and unused with no reclaimed material incorporated into the finished assembly.

(a) Finished Surfaces: Metal-to-metal contact surfaces within bearings shall be prepared either by machining or fine grinding. As far as practicable, machining shall be carried out after welding has been finished. Machining of sliding contact surfaces shall be carried out only in the principal direction of movement. Care shall be taken to remove abrasive materials from finished surfaces, which shall also be cleaned with a degreasing agent. Finished surfaces shall be protected from contamination and/or mechanical damage.

(b) Bolts and Bolt Holes: Boltholes shall be drilled or reamed. Where specified by the Engineer, bolts or screws shall be of a vibration resistant type. Taper washers, of the correct angle of taper, shall be provided under all heads and nuts bearing on beveled surfaces.

(c) Welding: Welding procedures shall be such as to minimize distortion of the bearing components and to avoid damage to finished work or bonded materials. All welding shall conform to the requirements of CSA Standard W59-M1989.

(d) Final Assembly and Clamping: After final inspection and acceptance of the various parts of the finished bearing, they shall be assembled and clamped together. Bearings shall be preset at the time of fixing the clamping devices. All deleterious material shall be excluded from sliding and other contact surfaces.

(e) Marking: Completed bearings shall have the supplier's name (or trademark) and a serial number indelibly marked thereon. The serial number shall be unique and such as to enable other bearings manufactured at the same time to be traced through the production control records should the need arise. Where practicable, the serial number shall also be visible after installation of the bearing in the structure. The top of each bearing shall be clearly marked and the size and direction or preset, if any, and the direction of installation shall be indicated.

(f) Manufacturing Tolerances:

1. General: The tolerances given in this clause shall be observed unless otherwise specified or approved by the Engineer.
2. Type of Tolerances:
   - Size: Tolerances for size referred to in this special provision shall be taken to be variations from the normal dimensions. They shall be used to control the overall dimensions and components with respect to length, thickness, height and diameter.

- Fit: Tolerances for fit referred to in this special provision relate to clearance and shall be taken as the difference between the sizes of an element and the hole in which it fits, where this difference is positive.

3. Overall Dimensions of Assembled Bearings:
   - General: Overall dimensions of assembled bearings shall be within ±3mm.
   - Parallelism of Outer Surfaces: When designed to be parallel, the tolerance on parallelism of the upper surface of a bearing with respect to the lower surface of the bearing, as datum, shall be 0.2% of the diameter for surfaces circular in plan and 0.2% of the longer side for surfaces rectangular in plan.
4. Dimensions of Bearing Parts:
   - Tolerance on profile of surface for spherical bearings shall be 0.0002 Xh mm or 0.24mm, whichever is the greater, where "X" is the length of the chord (in mm) between the ends of the bronze surface in the direction of rotation, and "h" is the projection of the bronze (in mm) above the top of the confining recess.
   - The tolerance on size with respect to the radius of the curved surface on the finished bearing shall be 3% of the intended radius.
   - The surface roughness Ra of metal curved sliding surfaces shall not exceed 0.5 um.

Inspection and Testing.

(a) Materials and Workmanship: The testing and inspection of materials and workmanship used in the manufacture of bearings shall be carried out to ensure compliance with this specification. Test Certificates shall be made available for inspection by the Engineer prior to the shipment of bearings.

(b) Testing of Complete Bearings: Testing of complete bearings, when specified or required by the Engineer, shall be carried out in accordance with his instructions. The bearings shall be considered satisfactory when the results of the test comply with this special provision and any other special requirements specified by the Engineer.

Handling, Transport, Storage and Installation.

(a) Care and Protection: During handling, transport and storage, bearings shall be kept clean and protected from mechanical damage, heat, contaminants and other deleterious effects.

(b) Handling Devices: Suitable handling devices shall be provided as required. Temporary clamping devices shall be used to maintain the correct orientation of

the parts but shall not be used for slinging suspending bearings unless specifically designed for this purpose.

(c) Disassembly of Bearings: In order that moving surfaces are not contaminated, bearings should not normally be dismantled after leaving the manufacturer's works, but, if for any reason they are, then this should only be done under expert supervision and the manufacturer's assistance should be sought.

Guarantee. The bearing supplier shall provide a written guarantee, stating that the bearings will perform satisfactorily, within the design rate of movement and under the design loads for a period of 5 years. The supplier shall state that he/she has reviewed the installation procedures and that the Fabricator was present on site and that the installation was done in accordance with the Fabricator's recommendations. The Fabricator shall guarantee the replacement of the bearings at no cost in the event that the bearings do not perform satisfactorily within the design range of movement and under the design loads.

Basis of Payment. This work will be paid for at the contract unit price each for SPHERICAL BEARINGS, of the load rating indicated on the plans, if fabricated and installed as herein specified.

REMOVE EXISTING CULVERTS

Description. This work shall consist of removing existing culverts of the sizes and lengths indicated on the plans including all appurtenances required to complete the removal to the satisfaction of the Engineer. The removal operations shall conform to the applicable requirements of Section 501, Removal of Existing Structures, of the Standard Specifications. The scope of work consists of removing existing culverts beneath:

- IL Route 31 and
- McLean Boulevard

As part of this work, the Contractor shall be responsible to maintain or divert the waterflow during all phases of construction to the satisfaction of the Engineer. The waterflow shall be maintained during removal operations as well as during reconstruction of culverts and the adjacent junction chamber (Junction Chamber No. 1). If pumping of the water is required, the work will also include construction of a dewatering basin in accordance with the State's design standards, located in the agency's erosion and sediment control manual, landscape design criteria manual, or approved equal by the engineer in the field. Cleaning and maintenance of the dewatering basin will be completed as required.

Construction Requirements. The Contractor shall be familiar with the ground conditions as well as the structural integrity of the existing culverts. If the existing culvert has to be removed in stages, the condition of the culvert shall be evaluated to assure the remaining portion is capable to support anticipated vertical and lateral loads at the

removal line, regardless if the loads are imposed by construction equipment or by vehicular traffic. If necessary, temporary shoring shall be installed to support the culvert. In some areas, a portion of the existing culvert may be located in rock. At these locations, the removal of the existing culverts includes only removal of the structural components that were initially constructed to obtain the cross sectional area of the culvert. Additional rock excavation for the construction of the proposed culverts shall be paid for as "Rock Excavation for Structures".

As indicated on the plans, a temporary soil retention system may be required at some locations. The temporary soil retention system may have to support earth pressures as well as surcharges from construction equipment and/or vehicular traffic. It is the Contractor's responsibility to design and install a system that can safely support all lateral and vertical loads during the various construction phases to the satisfaction of the Engineer. The Contractor shall submit calculations and drawings prepared by a licensed Structural Engineer from the State of Illinois of the proposed retention system to the Engineer for approval. However, such approval shall not relieve the Contractor from his/her sole responsibility for the successful construction of the temporary soil retention system.

Basis of Payment. This work will be paid for at the contract unit price each for REMOVE EXISTING CULVERTS, at the locations indicated on the plans. Staged construction may be required. The work shall include maintaining and/or diverting the waterflow during the removal operations and during reconstruction of culverts and the junction chamber. The design and construction of temporary soil retention systems as required, at locations shown or not shown on the plans, is also included in this work to render Contractor's activities safe during all phases of work.

FURNISHING SOLDIER PILES (BUILT-UP SECTIONS)

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate and furnish built-up soldier piles in accordance with the details shown on the plans and as directed by the Engineer.

The built-up HP Sections shall be assembled in the shop, tied together with the steel plates, and shipped as complete units. Fabrication shall conform to all applicable requirements of Section 505, Steel Structures, of the Standard Specifications.

The remainder of the retaining wall components as shown on the plans, such as drilled shafts, shear studs, timber lagging, concrete facing, 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 and tie plates shall conform to the requirements of AASHTO M270, Grade 36, unless otherwise designated on the plans.

Construction Requirements.

(a) Soldier Pile Fabrication. The solider 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 Guide Bridge 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 (Built-Up Sections).
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.

Method of Measurement. The furnishing of soldier piles will be measured for payment in feet along the centerline of the solider 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.

Basis of Payment. The furnishing of soldier piles will be paid for at the contract unit price per foot for FURNISHING SOLDIER PILES, (Built-Up Sections), for the total number of feet furnished and delivered to the job site.

JUNCTION CHAMBER NO. 1

Description. This work shall consist of providing all labor, materials and equipment necessary to construct Junction Chamber No. 1 to the size and dimensions indicated, at the location shown on the plans.
The work shall conform to all applicable requirements of Section 503, Concrete Structures, of the Standard Specifications. Concrete shall be Class SI concrete. Reinforcement bars shall conform to the requirements of Section 508 of the Standard Specifications.
The work shall include structure excavation, placing reinforcement bars or welded wire fabric, pouring concrete including formwork, waterproofing the concrete surfaces below ground, furnishing and installing grating and ladder rungs. Also included is the cost for furnishing and placing of compacted sub base as directed by the Engineer.

Basis of Payments. This work will be paid for at the contract unit price each for JUNCTION CHAMBER NO. 1, when installed in accordance with all applicable requirements. Grating, frame and ladder rung materials shall conform to the requirements shown on the plans.

NAME PLATES (SPECIAL)

Description. This work shall consist of furnishing and installing name plates (special) to the size and dimensions indicated, at the location shown on the plans.
The work shall conform to all applicable requirements of Section 515, Name Plates, of the Standard Specifications.

Submittal. Prior to starting fabrication, the Contractor shall submit a shop drawing of the proposed name plate to the Engineer and the Canadian National Railways for review and approval. Fabrication shall not commence until approval from all reviewing agencies has been obtained.

Basis of Payments. This work will be paid for at the contract unit prices each for NAME PLATES (SPECIAL) when furnished and installed in accordance with all applicable requirements.

SITE ACCESS CONTROL

Description
The Contractor shall provide access through their construction site for Contractors working on the two adjacent projects constructing New Stearns Road to the East and West. This access will be via the construction entrance at McLean Boulevard and Route 31. Contractor will coordinate with adjacent projects to maintain this access.

Basis of Payment.
Site Access Control will be paid for as lump sum for SITE ACCESS CONTROL.

CONSTRUCTION OF TRACK

The Contractor shall construct new track for the temporary runaround as shown on the plans. Such construction shall include supplying all materials required for the track construction, including sub-ballast, ballast, railroad embankment, crossties, and other track materials. The Contractor will install the rail but CC&P will supply the rail. The CC&P railroad will construct all runaround track within 15' of the mainline. All Permanent track will be constructed by the CC&P Railroad. All materials used in the construction shall conform to CN Railroad Standard Specifications including, but not limited to, CN Engineering Procedures for the Installation, Adjustment, Maintenance and Inspection of CWR as required by FRA 49 CFR 213.119, dated January 6, 2006; CN Engineering Maintenance of Way Standard Practice Circulars dated April 2005 and subsequent revisions to same; All track construction will be in accordance with the appropriate CN track construction specifications and standard details. Those standards and details are made a part of these Special Provisions. Aggregate Size No. CA 6 (IDOT) may be substituted for the sub-ballast. Dolomite limestone ballast may be used for the temporary runaround track, provided it is approved by CN. Slag will not be allowed.

No roadbed or track work shall be performed on frozen ground or when ballast is frozen. The Contractor shall only perform work during time periods approved by the CN.

After the new railroad bridge is constructed and in operation, the Contractor shall remove the runaround track and all materials used in the construction of the runaround including sub-ballast, ballast, railroad embankment, crossties, rail and other track materials.

Materials used in the construction of the track shall conform to the following specifications:

Rail: New 115RE CWR, new per CN Specifications, (CWR: continuous welded rail, not jointed)

Welds: Orgo-Thermit Field Welds or Flash Butt Welds. Welds shall be installed and tested as per CN specifications.

Only welders qualified by CN will be allowed to perform any of the field welding that will be required. CN-qualified welders include the following:

Bankhead Railway Services, Inc.
1080 Donald L. Hollowell Pkwy.
Atlanta, GA 30318
Phone: 404-894-7924
Fax: 404-894-7937

Orgo-Thermit, Inc.
3500 Colonial Drive North
Manchester, NJ 08759
Phone: (732)657-5781, Ext. 26
Fax: (732)657-1047

Railtech Boutet, Inc.
25 Interstate Dr., P.O. Box 69
Napoleon, OH 43545
Phone: (419)592-5050
Fax: (419)599-3630

Crossties: Mainline, 7" X 9"x8'-6", New, AREMA grade

Ballast: Mainline, Dolomite, Limestone or Granite, MTL-2 (clean 3" stone) per CN specifications.

Tie Plates AREMA 14" plan 8 for 5-1/2 inch rail base.

Anchors Unit 5 drive on or equivalent

The Contractor shall provide written notification to CN at least thirty (30) days in advance of when track work will be completed to enable the anticipated track shift to the new alignments. The Contractor shall provide written confirmation at least ten (10) days prior to the actual date the new alignments will be ready for the track shift. All work on the new alignment track must be completed, including tamping and regulating, prior to

initiating the shift of each track onto the new alignment track. The specific day of the track shift shall be established by the CN.

Payment:

SUB-BALLAST shall include all labor, material and transportation to install this pay item. Subballast shall be paid for per cubic yard.

BALLAST shall include all labor, material and transportation to install this pay item. Ballast shall be paid for per cubic yard.

The pay item TEMPORARY RAILROAD EMBANKMENT shall include all labor, material and transportation to install this item. Temporary Railroad Embankment will paid for per cubic yard.

The pay item RAILROAD TRACK shall include all labor, equipment, lining, surfacing and material, required to install the Runaround track and any new track associated with the new bridge to the line and grade shown on the plans. This pay item shall include all materials including rail, ties, OTM (tie plates, spikes, anchors, joint bars and bolts with washers, etc.), equipment and labor, except for materials provided by CN, required to install the new track. Installation of the railroad track shall be measured per lineal foot of track installed.

The pay item RAILROAD TRACK, REMOVE shall include all labor, equipment and material required to remove the railroad runaround track and railroad track removal for the construction of the new bridge. This pay item will include the removal, transportation and storage of wood ties, rail and OTM at a location designated by CN. Rails and other track materials shall become the property of CN unless otherwise directed by these specifications or the Railroad Engineer. This item shall also include removal of the ballast, sub-ballast and temporary railroad embankment of the runaround.

CN STANDARD FOR RAIL, GENERAL

RAIL

TS 1.0 - General

1. Where unloaded rail presents a walking hazard it shall be covered by a General Bulletin Order (GBO).
2. Rails kept for spot renewals should have the wear measurements, length and UTT (where applicable) clearly marked.
3. Rails used for spot renewals should be selected to have the same average wear, and metallurgy as the rail in track.
4. Scrap rails must be clearly marked with an X or red paint at regular intervals to differentiate them from reusable rails.
5. Rails used in main track tangents must not be less than 12' long. For welding in curves, rails in main tracks should not be less than 19' 6".
6. When cutting rail the saw cut must be made at least 4 inches from any torch mark or bond/bolt hole in the rail.
7. Rail having cuts or holes made with an oxy acetylene torch or an electric arc must not be used in track unless being cropped for use per item 6.
8. Rail should be unloaded by use of a crane with magnets, rail tongs, skids or threader and must not be dropped.
9. Rail must not be struck with a spike mauls, steel hammer or similar tool.
10. Rail on curves that are approaching their rail wear limits shall be monitored frequently.

11. Rail should not be transposed in main track with annual tonnage greater than 10 MGT. In locations where it has been deemed acceptable, the high rail may be transposed to the low side. In no case will the low rail be transposed to the high side.
12. If rail is continued in service beyond the following vertical wear limits, high clearance joint bars must be used on the gauge side of rail for new construction, repairs and spot replacements.

141 lb. 140 lb.	136 lb. 155 lb. 124 lb.	119 lb. 132 lb. 152 lb.	115 lb. 110 lb. 130 HF	112 lb. 113 lb.	100 lb. 105 lb.	90 lb. 100 HF	85 lb. (or less)
26 mm	23 mm	19 mm	16 mm	13 mm	10 mm	6 mm	5mm
1"	7/8"	3/4"	5/8"	1/2"	3/8"	1/4"	3/16"

a) Appendix A indicates the wear limits at which rail should be removed from track. If rail worn beyond the limits in this table is to be left in track, the Assistant Regional Chief Engineer must be notified. A speed restriction may be placed and additional inspection frequency specified at the discretion of the Regional Chief Engineer.

b) Maximum allowable gauge face wear is 1/2 inch (13 mm).

APPENDIX A - TABLE 1: RAIL WEAR LIMITS

(i) For rail having vertical wear only (no flange wear):

141 lb. 140 lb.	136 lb. 155 lb. 124 lb.	119 lb. 132 lb. 152 lb.	115 lb. 110 lb. 130 HF	112 lb. 113 lb.	100 lb. 105 lb.	90 lb. 100 HF	85lb. (or less)
26mm 1"	23 mm 7/8"	19mm 3/4"	16mm 5/8"	13 mm 1/2"	10mm 3/8"	6 mm 1/4"	5 mm 3/16"

(ii) For rail having both vertical and flange wear, vertical wear shall not exceed the limits tabulated in (i), but the sum of the vertical and flange wear (gauge and field side) permitted shall not exceed:

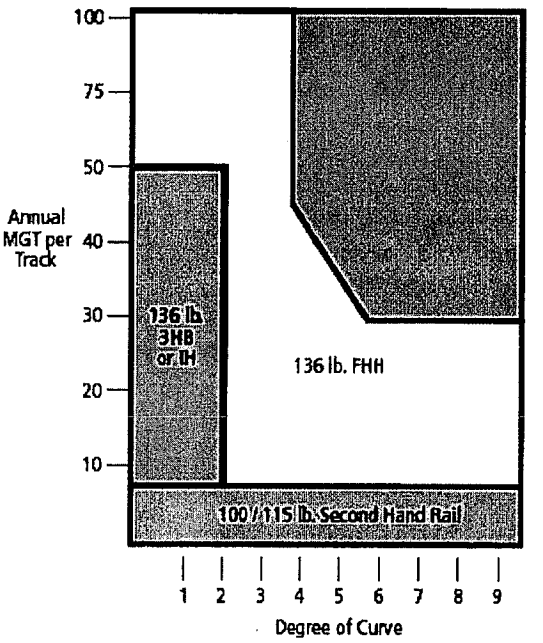
141 lb. 140 lb.	136 lb. 155 lb. 124 lb.	132 lb. 152 lb.	115 lb. 119 lb. 110 lb. 130 HF	112 lb. 113 lb.	100 lb. 105 lb.	90 lb. 100 HF	85 lb. (or less)
32 mm 1-1/4"	29 mm 1-1/8"	24 mm 15/16"	21 mm13/16"	17 mm 11/16"	14 mm 9/16"	11 mm 7/16"	8 mm 5/16"

* For gauge face wear see section 12 b)

13. Rail for relay programs will be in accordance with Appendix B

APPENDIX B

RAIL USAGE GUIDELINES



CN STANDARD FOR LAYING RAIL, GENERAL

TS 1.2 - Laying Rail - General

1. Rail of different metallurgies shall not be mixed in any given stretch of track
2. The gauge of track after laying must be uniform. Rail must be laid to the gauge shown in Table 1.

TABLE 1: GAUGE FOR HIGH DEGREE CURVES

Degree of Curve	Gauge in inches
Up to 14°00'	56-1/2
14°01' to 16°00'	56-5/8
16°01' to 18°00"	56-3/4
18°01' to 20°00'	56-7/8

3. On completion of the rail laying, cribs must be filled and the track must be surfaced and lined, if necessary, as soon as possible.
4. Jointed rail shall be laid with staggered joints. The stagger between joints of opposite rails should not be less than 12ft.
5. The rail temperature shall be measured periodically throughout the day with at least two accurate thermometers placed on the base of the rail near the web, away from wind and out of the direct rays of the sun and away from all sources of artificial heat or cold. The thermometer shall be left in place for at least 10 minutes prior to taking a reading. A pyrometer may also be used to measure rail temperature.

6. Expansion space between rail ends, when laying bolted rail or track panels, must be provided. Expansion space of the proper dimension between rail ends can be obtained through the use of shims of the correct thickness as per Tables 2A below. Expansion shims must not be removed until the rail is properly spiked, the bolts tightened and rail anchors applied.

TABLE 2A. EXPANSION GAP IN INCHES REQUIRED FOR RAIL TEMPERATURE

Expansion Gap Inches	33 ft Rail Rail Temp. Degree F.	39 ft Rail Rail Temp. Degree F.
5/16	Below 10	Below 6
1/4	10 to 14	6 to 25
3/16	15 to 34	26 to 45
1/8	35 to 59	46 to 65
1/16	60 to 85	65 to 85
0	Above 85	Above 85

7. Rail joints should not be installed closer than
   - 20 ft. from the edge of road crossings. Short welded rails (SWR) should be used wherever possible;
   - 20 ft. to the face of the backwall of an open deck bridge on the approach side, nor less than 4 ft. from the face of the backwall on the bridge side.

8. Joint bars must be applied and the bolts tightened before the rail is spiked. Bolts in rail joints shall be tightened in the following sequence:
   - the two bolts in the center of the bar
   - the second bolt from the center
   - the third bolt from the center, if applicable.
9. Tighten track bolts with track wrenches or power wrenches set to the proper torque settings. Care must be exercised when tightening bolts to avoid stripping threads.

TORQUE TO BE APPLIED TO TRACK BOLTS

Size of Bolt	7/8	1	1 1/8
Torque—ft-lb	375	490	705

10. When the day's work is completed, all the rail laid must be bolted and anchored per standard and each plate must have a minimum of two spikes.
11. Rail joints should be slotted to prevent flowed rail and chipped joints.

    Where different sections of rail are being joined, one of the following methods shall be used:
    - compromise rails of the correct sections
    - compromise welds
    - compromise joints of the correct design

12. When newly laid rail joins rail previously in track, the old rail should be built up by welding at the joint, if necessary, to protect the end of the newly laid rail.
13. Where rail end mismatch exceeds 1/8" (3 mm) on the top or the gauge side of a rail joint, it shall be repaired promptly by grinding, welding or replacement of the rail. Until such time as these repairs are made, movements over the mismatch shall not exceed the speed for the appropriate class of track, as prescribed by the following table:

Class of Track	Maximum Mismatch On top of Rail	Maximum Mismatch on Gauge side of Rail
1	1/4"	1/4"
2	1/4"	3/16"
3	3/16"	3/16"
4 and 5	1/8"	1/8"

14. Rail ends with excessive flow will be repaired by slotting. Crushed or battered rail ends will be repaired by welding.

CN STANDARD FOR CONTINUOUS WELDED RAIL (CWR)

TS 1.3 - Continuous Welded Rail (CWR)

DEFINITIONS

1. "Continuous Welded Rail" (CWR) is rail welded into lengths of 400 feet or more.
2. "Rail Laying Temperature" (RLT) is the actual temperature at which the CWR is laid.
3. The "Preferred Rail Laying Temperature" (PRLT) is the target installation temperature of welded rail in a particular area.
4. The "Preferred Rail Laying Temperature Range" (PRLT) is between the PRLT and the PRLT plus 25 degrees F.
5. CWR may be installed on open deck bridges with curves provided that the anchoring requirements adhere to Track Standard 3.2.
6. Current PRLTs are shown in the following Table:

TABLE 1: PREFERRED RAIL LAYING TEMPERATURE

Eastern/Western Regions	Southern Region
90° F	105° F Former DWP/DMIR: 100° F

7. CWR will be installed and anchored within the PRLTR without further adjustment. CWR installed outside the PRLTR must be de-stressed as soon as possible after laying. Destressing must be completed before the rail temperature increase is greater than 40 degrees F above the RLT.
8. CWR must be destressed using proper procedures. Heaters or expanders must be used to bring the rail to the correct length. The CWR Thermal Expansion Chart is contained in Appendix A.

UNLOADING

9. When unloading CWR the following procedures should be followed:
   a. A qualified employee will be present to direct the operation and use of equipment.
   b. The qualified person will be in complete charge of the unloading or loading of CWR and
   c. No other person will supersede his authority
   d. Do not loosen any of the rail tie downs on the CWR train until the train is at the unloading site and unloading operation is ready to begin
   e. Maximum unloading speed for CWR trains is 5 M.P.H
   f. Unload CWR to the outside of the track unless otherwise instructed
   g. CWR may be cut with acetylene torch when being unloaded to meet physical conditions, such as turnouts, paved highway crossings, railroad crossings, etc.
   h. When unloading CWR, chain clevises will be removed and rail ends bypassed to provide for rail expansion.
   i. When a CWR train is partially unloaded, all remaining CWR on the train must be secured before the train is moved.
10. After a CWR train is unloaded, secure all tie down fastenings, tools, clevises, and other equipment in their proper boxes.
11. If strings of CWR are left on the train for shipment to other locations, tie-down clamps must be checked and re-secured if necessary. Tie-down bolt locks must be in place prior to movement of the train.

INSTALLATION

12. CWR will not end on open deck bridges or closer than 200 feet from the backwall of the bridge.
13. A list of the rail temperatures marked on each string, the string numbers, alloy (if any) mileage and date of laying or adjusting shall be compiled and kept up to date by the Track Supervisor with copies to the Engineering Superintendent. The actual rail laying temperature will be marked at the end of each string of CWR installed.
14. Field welds (thermite or flash butt) should be made at the time of rail laying, regardless of temperature.
15. Trains may operate over unanchored track at a speed not exceeding 10 mph under authorization from the Foreman. Such authorization should include instructions to avoid unnecessary brake applications through or near the work area.
16. On completion of the days work, all rail laid, or ties inserted, must be spiked with a minimum of two rail loading spikes per plate, bolted and anchored per standard. The gang must then return to spike the ties to the applicable spiking pattern in TS 3.4.
17. CWR strings may be left between the rails until the next shift (overnight) provided that:
    a. the CWR string height does not exceed 1" above the top of the running rail
    b. deflectors are placed at each end of rail
    c. the CWR rail ends are bypassed and secured at the ends with spikes.
18. When destressing, the adjusting temperature is to be marked on the rail and all previous temperature markings shall be obliterated.

MAINTENANCE OF RAIL NEUTRAL TEMPERATURE

19. Detailed guidelines on destressing CWR are contained in RM 3205-0 and RM3205-2. Guidelines on handling rail failures in CWR are contained in RM 3205-1.
20. Precautions must be taken to monitor the length of rail installed during rail changes and repairs. Whenever practicable, rail will not be added to CWR track.
21. When a rail is to be changed, reference marks will be made on the web of the rail extending on to the rail base prior to cutting the CWR. They will be on each side of the location where the cut is to be made and where the mark will not be covered by joint bars or removed by changing the rail.
22. The reference marks and the measured distance between them will be written with paint stick or other permanent marker.
23. When addressing a failure in CWR,
    a. if the rail ends have pulled apart, the distance of separation of the two rail ends will be noted. The distance recorded on the rail shall then be the measured distance between the reference marks minus the separation of the rail ends.
    b. If the rail ends bypass each other, the distance recorded on the rail shall be the measured distance between the reference marks plus the amount the rail ends bypass.
    c. After the rail has been changed, measure the distance between the reference marks. If the distance changes over the original measured distance, the amount of rail added or removed will be marked on the rail and forwarded to the Track Supervisor.

24. The Track Supervisor will be responsible for the locations and amounts of rail added or removed.

25. The Superintendent of Engineering will ensure that any locations with rail added during cooler weather will have the correct length plug installed prior to the ambient temperature reaching 85°F in the US and 70°F in Canada. When ambient temperatures exceed these, and adjustments have not been made, a speed restriction will be placed.

26. Except in the case of emergencies, no surfacing and lining, rail replacement or tie renewal will be performed if the rail temperature is above the PRLTR unless approved by the Assistant Regional Chief Engineer. As a guideline, rail temperature will be 25 to 30°F above the ambient temperature.

27. Track maintenance activities that disturbs track and could potentially cause a track buckle must be protected by the appropriate speed restriction. Table 2 contains the speed restrictions and the timeframe for removing them on CWR track.

TABLE 2: MINIMUM REQUIRED SPEED RESTRICTIONS IN CWR TERRITORY

Type of Work	Maximum Expected Rail Temperature within next 24 hours	Required Speed Restriction	
		Without Dynamic Stabilizer	With Dynamic Stabilizer
Mechanized tie renewal Panelized turnout Replacement Out-of-face surfacing Ballast cleaning Undercutting Shoulder cleaning Lining	At or above the PRLT	1 freight train at 10 mph then inspect, if OK then 25 mph for 100,000 tons then inspect, if OK then return to track speed	2 freight trains at 25 mph then inspect, if OK then return to track speed
	Between the PRLT and 40° below the PRLT	1 freight train at 10 mph then inspect, if Ok then 25 mph for 50,000 tons then inspect, if OK the return to track speed	1 freight train at 25 mph then inspect, if OK then return to track speed
	40° or more below the PRLT	2 freight trains at 25 mph then inspect, if OK then return to track speed	Inspect, if OK then allow track speed
Spot tie renewal Spot surfacing	At or above the PRLT	1 freight train at 25 mph then inspect, if OK then return to track speed	n/a
	Below the PRLT	Inspect, if OK then allow track speed	n/a

ENGINEERING TRACK STANDARDS

a. Where traffic is predominately passenger service and the above speed restrictions are applied, 6 passenger trains may be treated as equivalent to 1 freight train.

b. If the neutral temperature of the rail is known or suspected to be below the PRLT, the suspected neutral temperature will be used in place of the PRLT for determining speed restrictions in the above table.

c. The limits of the speed restriction should be 500 feet on either side of the work area.

d. More restrictive speed restrictions may be required depending on local conditions such as subgrade condition, weak ballast, insufficient anchors, poor ties etc.

e. Prior to increasing or removing a speed restriction, the track must be inspected to ensure appropriate anchorage exists and that there are no signs of tight rail per clause 29. Verification must also be made that the required tonnage actually passed over the track being restricted. Speed restrictions should not be removed in the heat of the day.

f. The following equivalency table can be used as a guideline for determining train tonnages:

Table 3: Equivalency Tonnage Table

Number of Trains		Equivalent Tonnage		Total Tonnage
_____ loaded trains	x	8,000 tons	=	_____ tons
_____ empty trains	x	3,500 tons	=	_____ tons
_____ passenger trains	x	1,333 tons	=	_____ tons
		Total =		_____ tons

TRACK BUCKLE PREVENTION

28. During periods of potential track buckles, CWR track in track buckle prone areas should be inspected during the hours of maximum rail temperature, generally between the hours of 12:00 (noon) and 20:00. Sufficient patrols will be arranged in order to cover the track.

29. When any of the following are apparent: bunched or pushing ties which are plowing ballast, rail running either through rail anchors or with the anchors, rail lifting up under the spike heads, rail pushing against both shoulders of the tie plates, canting rail on curves, gaps at the ends of the ties indicating lateral movement of the track or track having a kinky alignment immediate remedial action will be taken by either placing a speed restriction or adjusting the rail.

30. When surfacing near high risk locations Track Standard 4.0 item 11 must be followed.

31. Before surfacing and lining a curve on main tracks class 2 and above, the curve must be staked if it is more than 3° and the rail temperature is more than 50°F below the preferred rail laying temperature, or is expected to be in the next 24 hours.

32. To stake a curve prior to surfacing and lining, place at least 3 reference stakes uniformly spaced around the curve with the middle stake located near the middle of the curve. Additional stakes may be used due to the overall length of the curve.

33. Inspect for curve movement periodically after the work, especially during periods of large temperature changes. If the curve is found to have shifted inward more than 1", it must be lined out or destressed prior to ambient temperature reaching 85°F in the US and 70°F in Canada. If the curve is not lined out or destressed, then a speed restriction must be placed. The effective rail length added to a curve as a result of chording inwards is calculated as per Appendix B.

DESTRESSING RAIL

34. When it is evident that the stress free temperature of a section of rail has decreased to a level that a track buckle may occur, the stress-free temperature should be adjusted back to the Preferred Rail Laying Temperature. The method of destressing involves removing rail anchors, cutting the rail and removing rail to achieve the correct rail laying temperature.

35. Prior to cutting the rail, make reference marks on the web of the rail extending on to the rail base on either side of where the cut is to be made. The distance between the marks will be measured and written on the rail. The rail will be cut and ends either trimmed or offset, anchors will be removed for a sufficient length each side of the cut and the rail allowed to grow. The current rail temperature is now the Stress Free Temperature and Rail Laying Temperature at this location and it must be clearly marked on the web of the rail along with the date and gang ID.

FAILURES IN CWR

36. Service failures of CWR include broken rails, pull-aparts, buckles or other rail damage. Any service failure and the associated remedial action must be reported promptly in RDTS.

37. When a track buckle occurs one of the following corrective actions must be taken:

    a. Make cuts in the CWR near the buckle, remove rail anchors a sufficient distance either side of the buckle allowing rail to run, line the track and make a closure.

    b. Place the track in the best possible alignment where it will remain without further movement and where it will provide proper clearance.

    c. While under temporary repair, trains are to be operated at a speed specified by the foreman in charge but not more than 10 m.p.h.

    d. After the track is full repaired, it will be treated as disturbed track and protected by speed restrictions as shown in Table 2.

38. When a pull-apart occurs corrective action must be taken by either applying heat or expanders to bring the rail ends together or by installing a temporary closure.

39. Joints in CWR will be treated in the following manner:

    a. Temporary joints in CWR that cannot be immediately welded will be drilled and splice bars applied to allow for future thermite welding, leaving a joint gap not exceeding 3/8". All temporary joints should be welded prior to the onset of winter. Any temporary joints that are unable to be welded prior to winter should be fully drilled, bolted and box anchored.

    b. Permanent joints in CWR which are not intended to be welded will be fully drilled and bolted, splice bars applied, and the rail fully box anchored 200 feet each side of the joint in accordance with the applicable Track Standards.

APPENDIX A - CONTINUOUS WELDED RAIL THERMAL EXPANSION CHART

Determination of rail expansion for lengths between those shown in the table can be done through averaging rail lengths that bound the intermediate length and rounding to the nearest 1/8th inch.

TEMP Difference from PRLT °F	LENGTH OF CURVE (Ft.)								
	200	400	600	800	1000	1200	1400	1482
	CURVE MOVEMENT (In.)							
5	1/8	1/8	1/4	3/8	3/8	1/2	1/2	5/8
10	1/8	3/8	1/2	5/8	3/4	1	1 1/8	1 1/8
15	1/4	1/2	3/4	1	1 1/4	1 1/2	1 5/8	1 3/4
20	3/8	5/8	1	1 1/4	1 5/8	1 7/8	2 1/4	2 3/8
25	3/8	3/4	1 1/4	1 5/8	2	2 3/8	2 3/4	3
30	1/2	1	1 1/2	1 7/8	2 3/8	2 7/8	3 3/8	3 1/2
35	1/2	1 1/8	1 5/8	2 1/4	2 3/4	3 3/8	3 7/8	4 1/8
40	5/8	1 1/4	1 7/8	2 1/2	3 1/4	3 7/8	4 1/2	4 3/4
45	3/4	1 1/2	2 1/8	2 7/8	3 5/8	4 3/8	5	5 3/8
50	3/4	1 5/8	2 3/8	3 1/4	4	4 3/4	5 5/8	5 7/8
55	7/8	1 3/4	2 5/8	3 1/2	4 3/8	5 1/4	6 1/8	6 1/2
60	1	1 7/8	2 7/8	3 7/8	4 3/4	5 3/4	6 3/4	7 1/8

TEMP Difference from PRLT °F	LENGTH OF CURVE (Ft.)							
	200	400	600	800	1000	1200	1400	1482
	CURVE MOVEMENT (In.)							
5	1/8	1/8	1/4	3/8	3/8	1/2	1/2	5/8
10	1/8	3/8	1/2	5/8	3/4	1	1 1/8	1 1/8
15	1/4	1/2	3/4	1	1 1/4	1 1/2	1 5/8	1 3/4
20	3/8	5/8	1	1 1/4	1 5/8	1 7/8	2 1/4	2 3/8
25	3/8	3/4	1 1/4	1 5/8	2	2 3/8	2 3/4	3
30	1/2	1	1 1/2	1 7/8	2 3/8	2 7/8	3 3/8	3 1/2
35	1/2	1 1/8	1 5/8	2 1/4	2 3/4	3 3/8	3 7/8	4 1/8
40	5/8	1 1/4	1 7/8	2 1/2	3 1/4	3 7/8	4 1/2	4 3/4
45	3/4	1 3/8	2	2 5/8	3 3/8	4	4 5/8	5
50	3/4	1 1/2	2 1/8	2 3/4	3 1/2	4 1/8	4 3/4	5 1/8
55	7/8	1 5/8	2 3/8	3	3 5/8	4 3/8	5	5 3/8
60	1	1 3/4	2 1/2	3 1/4	3 7/8	4 5/8	5 1/4	5 5/8
65	1	1 7/8	2 5/8	3 3/8	4	4 7/8	5 1/2	5 7/8
70	1 1/8	1 7/8	2 3/4	3 5/8	4 1/4	5 1/8	5 3/4	6 1/8
75	1 1/8	2	2 7/8	3 3/4	4 3/8	5 3/8	6	6 3/8
80	1 1/4	2 1/8	3	3 7/8	4 5/8	5 5/8	6 1/4	6 5/8
85	1 1/4	2 1/4	3 1/8	4	4 3/4	5 7/8	6 1/2	6 7/8
90	1 3/8	2 3/8	3 1/4	4 1/4	4 7/8	6	6 3/4	7 1/8
95	1 3/8	2 3/8	3 3/8	4 3/8	5	6 1/4	7	7 3/8
100	1 1/2	2 1/2	3 1/2	4 1/2	5 1/4	6 1/2	7 1/4	7 5/8

APPENDIX B - EFFECTIVE RAIL LENGTH ADDED FOR CURVES CHORDING INWARD

When a curve chords inward, it is equivalent to adding rail into the track. The effective amount of rail added into a curve based on the amount the curve has shifted, or chorded inward can be calculated by the table below.

EFFECTIVE RAIL LENGTH ADDED TO CURVE PER 100 FT OF CURVE (INCHES)

DEGREE OF CURVE	DISTANCE CURVE HAS CORED INWARD (INCHES)												
	1/2	1	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6
0-30	0	1/8	1/8	1/8	1/4	1/4	1/4	3/8	3/8	3/8	1/2	1/2
1-00	1/8	1/8	1/4	3/8	1/2	1/2	5/8	3/4	3/4	7/8	1	1
1-30	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	1-5/8
2-00	1/8	3/8	1/2	3/4	7/8	1	1-1/4	1-3/8	1-1/2	1-3/4	1-7/8	2-1/8
2-30	1/4	3/8	5/8	7/8	1-1/8	1-1/4	1-1/2	1-3/4	1-7/8	2-1/8	2-3/8	2-5/8
3-00	1/4	1/2	3/4	1	1-1/4	1-5/8	1-7/8	2-1/8	2-3/8	2-5/8	2-7/8	3-1/8
3-30	1/4	5/8	7/8	1-1/4	1-1/2	1-7/8	2-1/8	2-1/2	2-3/4	3-1/8	3-3/8	3-5/8
4-00	3/8	3/4	1	1-3/8	1-3/4	2-1/8	2-1/2	2-3/4	3-1/8	3-1/2	3-7/8	4-1/4
4-30	3/8	3/4	1-1/8	1-5/8	2	2-3/8	2-3/4	3-1/8	3-1/2	3-7/8	4-3/8	4-3/4
5-00	1/2	7/8	1-1/4	1-3/4	2-1/8	2-5/8	3	3-1/2	3-7/8	4-3/8	4-3/4	5-1/4

EFFECTIVE RAIL LENGTH ADDED TO CURVE PER 100 FT OF CURVE (INCHES)

DEGREE OF CURVE	DISTANCE CURVE HAS CORED INWARD (INCHES)												
	1/2	1	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6
5-30	1/2	1	1-1/2	1-7/8	2-3/8	2-7/8	3-3/8	3-7/8	4-1/4	4-3/4	5-1/4	5-3/4
6-00	1/2	1	1-5/8	2-1/8	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/4	5-3/4	6-1/4
6-30	5/8	1-1/8	1-3/4	2-1/4	2-7/8	3-3/8	4	4-1/2	5	5-5/8	6-1/8	6-3/8
7-00	5/8	1-1/4	1-7/8	2-1/2	3	3-5/8	4-1/4	4-7/8	5-1/2	6-1/8	6-3/4	7-3/8
7-30	5/8	1-1/4	2	2-5/8	3-1/4	3-7/8	4-5/8	5-1/4	5-7/8	6-1/2	7-1/4	7-7/8
8-00	3/4	1-3/8	2-1/8	2-3/4	3-1/2	4-1/4	4-7/8	5-5/8	6-1/4	7	7-5/8	8-3/8
8-30	3/4	1-1/2	2-1/8	3	3-3/4	4-1/2	5-1/4	5-7/8	6-5/8	7-3/8	8-1/8	8-7/8
9-00	3/4	1-1/2	2-3/8	3-1/8	3-7/8	4-3/4	5-1/2	6-1/4	7	7-7/8	8-5/8	9-3/8
9-30	7/8	1-5/8	2-1/2	3-3/8	4-1/8	5	5-3/4	6-5/8	7-3/8	8-1/4	9-1/8	10
10-00	7/8	1-3/4	2-5/8	3-1/2	4-3/8	5-1/4	6-1/8	7	7-3/4	8-3/4	9-5/8	10-1/2

Example:

A 2000' 4 degree curve is found to have shifted inwards an average of 3 inches. What is the effective amount of rail added to the curve? Per the table, for a 4-degree curve and 3 inches of movement, it is equivalent to adding 2-1/8" of rail per 1000'. For a 2000' curve the effective rail length added would therefore be 4-1/4.

CN STANDARD FOR FIELD WELDING

TS 1.6 - Field Welding

1. Prior to welding, rail must be visually examined for physical defects and must meet the criteria herein for alignment and wear.
2. Welding kits must be compatible with the type of rail being welded. For any weld involving a chrome alloy rail, only a chrome welding procedure shall be used.
3. Thermite or field flash butt welds shall be located as close as possible to the center of tie cribs. The weld should not be closer than 4" to the edge of the tie and in no case may a field weld be situated over a tie plate.
4. Thermite Welds will not be made:
   a. Within 6 feet of another thermite weld
   b. Within 3 feet of a plant weld
5. Welding gaps for thermite welds shall be minumum1", maximum 1 1/8" inches except where approved wide gap welds are used.
6. All rail ends must be saw cut. The cut must be square and perpendicular to the rail axis, with a variation not exceeding 1/8" and all burrs must be removed.
7. In case of emergency, torch cutting of the rail is allowable provided:
   a. the rail is preheated prior to cutting;
   b. the torch cut is relatively smooth; and
   c. within 30 minutes of torch cutting, the rail is trimmed with a rail saw at least 1/4".
8. If a train has been allowed to pass over the torch cut rail prior to cooling to 100°F, a minimum of 4" of rail must be removed.

9. The distance from the end of rail to the nearest edge of any hole drilled in the rail shall not be less than 4", except in class 1 tracks.
10. The Month, Year, Welder ID, and weld number if applicable of each weld shall be identified with a tag or written with marker on the gauge side of the web, 6" away from the weld.
11. Rails which require thermite welding on bridges shall be welded off the bridge wherever possible, and then laid in place on the bridge after all work on the weld is finished. However, when there is no alternative to doing thermite welding on a bridge, the following precautions must be taken.
    a. Before any welding is undertaken, a site inspection must be made to identify any hazards, and in particular, anything that may take fire. Any loose combustible material, dry vegetation, etc., must be removed. The entire structure must be examined. Do not assume that if no combustible is visible from above, the bridge is fire safe. A ballast deck timber trestle is as combustible as an open deck timber trestle and must be treated as such.
    b. When thermite welding must be performed on open deck bridges, a 1/4" thick steel sandbox partially filled with sand and placed between the ties is required in case of a run through. Bridge timbers will be spread by the B&S forces so that the box may be installed. Welding shall not be undertaken without the use of the box.

c. A thorough job briefing must be conducted with all personnel involved, to determine what will be done in case of accident or fire. Where sufficient personnel and equipment are not available to take care of any accident or fire that may occur, welding shall not be undertaken.

d. Designated fire watch person(s) must be assigned. Such person(s) must understand their duties and ensure that suitable fire fighting equipment is in position before the work commences. Where the fire watch person(s) are positioned under the bridge, fire-fighting equipment must also be available on the bridge deck.

e. The area around the weld must be wetted down to lessen the chance of fire.

f. When welding is complete, a fire watch person(s) shall remain at the site until the weld has cooled to ambient temperature.

12. During the arc welding process stray electrical current can damage sensitive signal equipment. The following is applicable:

a. Avoid accidentally striking an arc while ground clamp is attached to the opposite rail.

b. In locations of potential damage notify the S & C employee well in advance in order that circuit fuses can be installed to protect the equipment.

c. All electrical equipment must be grounded at the source.

d. No more than two single arc welding machines may be operated within the limits of any track circuit. This applies to territory having one or more tracks.

13. For the welding of insulated joints, standard splice bars shall be applied on only one joint at a time. (Note that when the insulated joint is on the closure rail the installation of standard splice bars may short the track circuit.

MAXIMUM ALLOWABLE RAIL HEIGHT DIFFERENCE

TYPE OF WELD	WEIGHT OF RAIL: 100 lb. and smaller	112 / 115 lb.	132 / 136 / 141 lb.
Standard Thermite Kit	0.125" (3 mm)	0.30" (8 mm)*	0.30" (8 mm)*
Step Down Thermite Kit 136NBW to 13610	———		0.375" (10 mm)
Flash Butt Welder	0.20" (5 mm)		

* If Vertical Rail Base Offset exceeds 1/8" (3 mm) a sloped base plate must be used

CN STANDARD FOR JOINTS

TS 1.8 – Joints

1. In conventional jointed track, each rail shall be bolted with at least two bolts at each joint in Classes 2 through 5 track and with at least one bolt in Class 1 track.
2. In the case of CWR track, each rail shall be bolted with at least two bolts at each joint.

CONVENTIONAL RAIL JOINTS

3. Rail bolt holes will be located using the correct indexing bar. The indexing bar will be placed so that the edge of the indexing bar matches the end of the rail.
4. Only joint bars of the correct design for the rail section, drilling pattern and bolt type will be used.
5. All joints in CWR territory must be inspected at a minimum frequency of that shown in TS, section 7.
6. In Class 3 and above track, broken or cracked joint bars on that allow vertical movement of either rail when all bolts are tight should be replaced as soon as possible.
7. Track joint bars that are cracked or broken between the middle two bolt holes regardless of the class of track must be replaced immediately.
8. Rail joints should be slotted to prevent flowed rail and chipped joints.
9. Where 33 to 39 foot panels are installed and three or more consecutive square joints exist, speed will be limited to that of class 3 track.

INSULATED JOINTS

10. Defective insulated joints must be repaired or replaced promptly.

11. Signal forces must report defective insulated joints to track forces promptly.
12. Signal forces must advise the track forces of the location of insulated joints for proper signal operation. The location must not be changed without the approval of the Signal Supervisor.
13. Bonded insulated joints are to be used in Continuous Welded Rail.
14. Encapsulated (coated) insulated joints are to be used in jointed rail sections.
15. Fibre bars may be used in light rail sections.
16. Plates must be used with all insulated joints on wood track ties. As shown on TS-1206, insulated tie plates will be used on ties within 2" of the end post of an insulated joint.
17. Proper insulated joint clip fully driven in place must be used when Pandrol tie plates or concrete ties are used.
18. Insulated joints should be suspended, that is, the end post should not be over a tie.
19. Rail ends where insulated joints are to be installed must conform to the following:
    a. The end face shall be saw cut and bolt holes drilled to the proper size and location for the rail section.
    b. All rough edges and burrs shall be removed from the end face and the bolt holes.
    c. Batter shall not exceed 1/32 inch.
    d. The heights of the adjacent rails shall not differ by more than 1/16 inch.
20. All rust, scale, dirt or other foreign matter must be removed from the rail joint area and from the joint bars before the joint is installed.

21. If the end post projects above the top of rail, it must be trimmed so that the top is below the top of rail, but not exceeding 1/8 inch below.
22. Track near insulated joints shall be adequately anchored. Non-glued insulated joints will be considered as joints and will be anchored to the correct standard.
23. Rail anchors must not be applied on the sides of ties adjacent to bootlegs.
24. Rail end overflow must be removed at insulated joints by slotting in accordance with Standard Plan TS 1113. The gap should be filled with silicone sealer to prevent the influx of dirt and grinding material.
25. After welding insulation must not be replaced until the rails have cooled.
26. Insulated joints, no longer required must be removed from track as soon as possible.

COMPROMISE JOINTS AND RAILS

27. To determine the hand of the joint, face the joint from the center of the track. When the larger rail section is on the left side of the joint, it is a left hand joint. When the rail of larger section is on the right, it is a right hand joint.
28. A compromise joint consists of one gauge side and one field side bar. The rail sections that the compromise bar will fit are indicated at each end of the bar.
29. Compromise joint bars must not be modified from its initial design to fit a different rail section.
30. Compromise joints (except 132/136 lb.) must not be installed in turnouts, or within 20 ft. of an open deck bridge, turnout, highway crossing or railroad crossing.

31. Compromise joint should be painted a colour designated by the Regional Chief Engineer.
32. Compromise rails consist of a single piece of rail, with a forged transition from one rail section to another. Compromise rails may be universal or "handed", depending on the rail sections, and are identified just as a joint would be.
33. Compromise rails will be fully supported and tamped with the correct size tie plates under the corresponding rail section.
34. The use of 100/115 lb. and 115/136 lb. compromise bars is not be permitted on main tracks where:
    a. Operating speed is greater than Class 2, or;
    b. Where annual tonnage is greater than 10 mgt.
35. Compromise bars are permitted in non-main tracks, main tracks in Class 1 and 2, and main tracks less than and equal to 10 mgt annually.

CN STANDARD FOR TIMBER TIE INSTALLATION AND MAINTENANCE

TIES

TS 2.1 - Timber Tie Installation and Maintenance

1. Bridge approach ties as per plan TS-1108 must be used on the approaches to open deck bridges and trestles.
2. Treated ties must not be handled with any tool having sharp points that will penetrate beyond the depth of the treatment, or cause damage to the ties.
3. When ties are re-spiked, the spike holes must be plugged.
4. Ties must not be allowed to become center-bound.
5. In preparation for a tie renewal program:
   a) The Track Supervisor, or a person designated by the Regional Chief Engineer, shall be responsible for inspecting, marking and recording ties for renewal and preparing a list showing the actual number of ties per mile that are to be replaced the following year; and
   b) The following definitions of defective ties will be used:
      i. Broken Tie - Tie that is broken through the entire depth of the tie
      ii. Split Tie - Tie split end to end for the entire depth of the tie
      iii. Split Tie End - Tie end split into the spike holes, or split full depth and wide enough to permit ballast to come through, resulting in poor surface and gauge.
      iv. Cut Tie - Tie that is rail or plate cut or adzed to a depth of 2" or more on No. 1 ties, or 1" or more on No. 2 ties.
      v. Crushed Tie - Tie that has the bearing surface under the rail crushed or splintered, 1" or more, to the extent that it cannot hold surface, line or gauge.
      vi. Spike Killed Tie - Condition may be indicated by numerous splits at the tie end, loose or high spikes, rail or plate movement of more than 1/2" or wide gauge (including dynamic wide gauge).
      vii. Decayed Tie - Tie that is decayed and cannot hold spikes, gauge or surface.
      viii. Damaged Tie - Tie that has been damaged by derailment, dragging equipment, or fire to the extent that it cannot hold surface, line or gauge.
      ix. Worn Tie - A tie worn or rounded on the bottom from movement of the tie in the ballast, resulting in poor surface and line and an inability to hold spikes.
6. At least one tie at each rail joint must be sound and in any case the number of non-defective ties in any 39 foot length of track shall never be less than that indicated in the table below and shall be so distributed as to effectively support the entire 39' length.

Track Class	Train Speed Max.		Minimum No. of Non-Defective Ties	
	Passenger (mph)	Freight (mph)	Tangent up to 2 Deg.	Turnouts and curves More than 2 Deg.
5	90*	80	12	14
4	80	60	12	14
3	60	40	10	10
2	30	25	8	9
1	15	10	5	6

*For Can. Lines 95 mph, for LRC Trains, 100 mph

7. A cluster (or spot renewal) program should be undertaken when there is a high frequency of:
   a. four or more consecutive defective ties;
   b. three or more consecutive defective ties in a curve greater than 2°; or
   c. defective ties in the joint area.
8. When renewing ties, regardless of method of installation:
   a. Correct gauge where required;
   b. Where required, no more ballast than is absolutely necessary should be removed from the crib or shoulder;
   c. All ties installed must be spiked and anchored, the ballast shoulders restored, and the ties properly tamped before the close of each day. Any adjacent ties that may be left hanging should also be tamped; and
   d. When necessary to allow trains to operate through tie gang renewal areas during working hours, not more than three consecutive ties on tangent track or two consecutive ties on curved track can be left unspiked, ties on either side of all joints must be spiked, and the speed must be limited to a maximum of 10 mph.
   e. In preparation for the following day tie installation the spiking pattern may be reduced to a minmum of 2 rail holding spikes per plate on each tie to be removed.

9. No ties will be installed when the temperature is above the PRLTR unless directed by the Regional Chief Engineer. The Regional Chief Engineer must specify all necessary precautions to be taken such as mandating the use of a stabilizer, a production tamper, increased inspections, more restrictive speed restrictions, or limiting work to emergency applications.
10. The track will be protected by the appropriate speed restriction as per TS 1.3 until track has been surfaced, backfilled and consolidation has occurred.
11. In CWR territory the maximum number of consecutive track ties that can be renewed in a single pass shall be:

	Number of Consecutive Ties	
	Tangent track to 2° curves	Greater than 2°
With a Junior or Production Tamper	5	4
With Hand Tamping or Hydraulic Tools	3	2

12. Switch ties in CWR territory may be replaced in a single pass provided the appropriate speed restriction is applied for spot surfacing.
13. Crossing Ties in CWR territory replaced as part of crossing rehabilitation may all be changed in a single pass provided;
   a. Crossing surface is replaced immediately following tie renewal;
   b. Crossing approaches are restored and are of sound condition; and
   c. The appropriate speed restriction is applied for spot surfacing.

14. Transition tie sets in CWR territory may be changed out in a singlepass provided:
    a. The ties are being replaced in conjunction with ballast rehabilitation work.
    b. Upon completion of work, the ballast section is fully restored with a minimum 12" shoulder; and
    c. The appropriate speed restriction is applied for spot surfacing.
15. Gauge rods installed in winter must be removed in the next work season and a sufficient number of ties installed. Under no circumstances are gauge rods that have been installed in one winter to be left in track through the following winter

CN STANDARD FOR TIE PLATES

O.T.M.

TS 3.1 - Tie Plates

1. The use of new or second hand tie plates shall be as directed by the Regional Chief Engineer, however:
   a) Broken or damaged tie plates must not be reused.
   b) Tie plates with excessively worn spike holes or shoulders greter than the limits shown below should not be reused:
      i) spike holes worn more than 1/4 inch
      ii) timber screws holes worn more than 1/4 inch
      iii) Tie plate shoulders worn more than 1/4 inch
2. Tie plates must be installed so that:
   a) The plates have full, even bearing on the ties.
   b) The field side plate shoulder is square against the field side base edge of the rail
   c) The plate is centered on the tie.
   d) The rail is canted toward the center of the track.
   e) Each plate has the same cant. (1:40)
3. In Classes 3 through 5 track where timber crossties are used there shall be tie plates under the running rails on at least eight of any 10 consecutive ties.
4. Ensure that there are no metal objects that cause concentrated loading solely supporting the rail between the rail and the tie plate. This includes the tie plate shoulders and spike heads.
5. Torch cutting of tie plates is not permitted.
6. Tie plates shall be used in accordance with the following table:

Recommended Tie Plate Usage – Lines Carrying Heavy Axle Loads

Add Annual Tonnage (MGT)	Class of Track	5 1/2 " rail base				6" rail base				
		11" or 12" plate		13" or 14" plate, MSR 16" and 18" Plates		12" plate	14" plate	16" plate	MSR 16" plate (Pandrol Clips)	Degree of Curve
		Degree of Curve								
		0° to 2°		More than 2° to 6°						
<5	1–5				All					
More than5	1–5									
Annual Tonnage (MGT)	Class of Track									
<5	1–5					0° to 2°	More than 2° to 6°	More than 8°		
5 to 20	1–5						0° to 4°	More than 4° to 6°		More than 6°
20 to 40	1–2						0° to 4°	More than 4° to 8°		More than 8°
	3–6						0° to 2°	More than 2° to 4°		More than 4°
>40	3–6							0° to 2°		>2°

CN STANDARD FOR RAIL ANCHORS

TS 3.2 - Rail Anchors

1. Anchors should be applied uniformly along the rail against ties.
2. To avoid tie skewing, anchors must be installed in the same direction against the same tie on the opposite rail. Ties should be at right angles to rail before applying anchors
3. Anchors will be applied to the gauge side of the rail when practicable.
4. When changing rail or renewing ties, all anchors removed must be reapplied.
5. Sprung or damaged rail anchors will not be installed.
6. Use only the proper tools or machines when applying or removing anchors in order to avoid damaging the anchor or risk injury. The use of spike mauls is prohibited. Anchors should be removed from the rail while the rail is still in track.
7. When installing anchors, ensure the anchor is fully engaged on the rail base with the rail base inside the lip of the anchor. Drive on rail anchors must not be overdriven.
8. Do not install anchors within one inch of a plant or field weld.
9. Do not install anchors on the rail opposite joints.
10. Do not install rail anchors where they will contact and damage signal connection wires.
11. Rail anchors are not to be used on shimmed track. Anchors removed during shimming shall be replaced promptly when shims are removed.

12. In jointed rail, the minimum number of evenly spaced anchors per 39' of track are:

TC / FRA Class of Track	No of Ties to Box Anchor
1	6
2 & 3	8
4 & 5	10

13. Turnouts should be fully anchored to the extent possible in both jointed and CWR track.
14. In CWR track, rail anchors will be installed in a box pattern on every other tie except:
    a. At permanent joints within CWR (joints that will not be welded), then every tie will be box anchored for a minimum distance of 200' each direction from the joint.
    b. When jointed rail abuts CWR, a minimum of 200' of rail on either side immediately adjacent to the joint will have every tie boxed anchored.
    c. At turnouts, non-glued insulated joints and crossing frogs, every tie will be box anchored for a minimum distance of 200' each way from the turnout or joint.

15. When CWR is installed on a bridge with an open deck span, the following, when practicable, will be used:

LENGTH OF CONTINOUS OPEN DECK PORTION (ft)	INDIVIDUAL SPAN LENGTH (ft)	RAIL ANCHOR REQUIREMENTS	SLIDING JOINT REQUIREMENTS
100 ft. or Less	All Spans	No anchors	Not required
		OR	
100 ft. or Less (if anchors are required)	100 ft or Less	Box Anchor every second tie*	Not required
Greater than 100 ft	100 ft or Less	Box Anchor every second tie*	None Required
		OR	
		No Anchors	Sliding Joint(s) Required
	Greater than 100 ft.	Box anchor every second tie for 100' from fixed end of span*	None Required
		OR	
		No Anchors	Sliding Joint(s) Required
	Greater than 300 ft	Box anchor every second tie for 100' from fixed end of span*	As directed by the Assistant Chief Engineer - Bridges

* Box anchors are to be applied only to ties that are hook bolted to the span. Box anchor spacing may be extended to every 3rd tie if required to match the hook bolt spacing.

a. Manager B & S to identify fixed ends of spans prior to installing CWR.

b. Prior to anchoring CWR on open deck steel TPG, TT, and DT spans, the Manager B & S will confirm the requirements for bridge traction bracing.

c. Anchor requirements and pattern should be confirmed with the Manager B & S.

d. Box anchor every tie for a minimum of 200' off each end of open deck portion.

e. On timber span bridges, only box anchor the ties that are attached to the span with boat spikes, usually every other tie or as directed by the Regional Chief Engineer.

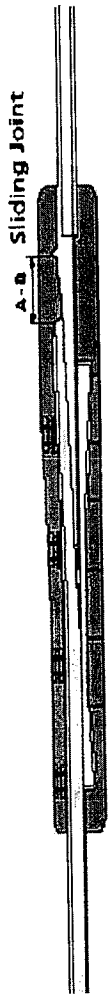
f. Movable spans will be anchored as directed by the Chief Engineer.

g. Where elastic fasteners provide longitudinal restraint they will considered equivalent to anchoring.

16. CWR installed on a ballast deck bridge or span will be box anchored a minimum of every second tie.

FIGURE 1

EXPANSION LENGTH OF SLIDING JOINTS IN CWR



Rail Temp °F	Distance from A to B in inches																				
0	16 1/2	16 3/4	17 1/8	17 1/2	17 7/8	18 1/4	18 5/8	19	19 3/8	19 3/4	20 1/8	20 3/8									
10	16 1/8	16 3/8	16 3/4	17	17 1/4	17 1/2	17 7/8	18 1/8	18 3/8	18 5/8	19	19 1/8									
20	15 3/4	16	16 1/4	16 3/8	16 5/8	16 3/4	17	17 1/4	17 3/8	17 5/8	17 7/8	18									
30	15 1/2	15 5/8	15 3/4	15 7/8	16	16	16 1/4	16 3/8	16 1/2	16 5/8	16 3/4	16 3/4									
40	15 1/8	15 1/4	15 1/4	15 1/4	15 3/8	15 3/8	15 3/8	15 1/2	15 1/2	15 1/2	15 1/2	15 5/8									
50	14 7/8	14 3/4	14 3/4	14 3/4	14 5/8	14 5/8	14 1/2	14 1/2	14 1/2	14 1/2	14 1/2	14 1/2									
60	14 1/2	14 3/8	14 1/4	14 1/8	14	13 7/8	13 3/4	13 5/8	13 1/2	13 3/8	13 3/8	13 3/8									
70	14 1/4	14	13 3/4	13 5/8	13 3/8	13 1/4	13	12 3/4	12 5/8	12 3/8	12 1/8	12									
80	13 7/8	13 5/8	13 3/8	13	12 3/4	12 1/2	12 1/8	11 7/8	11 5/8	11 3/8	11	10 7/8									
90	13 1/2	13 1/4	12 7/8	12 1/2	12 1/8	11 3/4	11 3/8	11	10 5/8	10 1/4	9 7/8	9 5/8									
100	13 1/4	12 3/4	12 3/8	11 7/8	11 1/2	11	10 5/8	10 1/8	9 3/4	9 1/4	8 3/4	8 1/2									
	Length of unanchored CWR in feet																				
	400	500	600	700	800	900	1000	1100	1200	1300	1400	1482									

17. Sliding Joints that are installed shall be:

a. of a design approved by the Chief Engineer;

b. installed in pairs, and opposite each other or properly guarded if staggered;

c. installed and maintained with sufficient expansion length as per Figure 1;

d. normally located behind the abutment and on the downgrade approach or expansion end of end spans to the bridge, and;

e. spaced no more than 1500' apart, which may result in sliding joints being installed on the deck of longer structures.

CN STANDARD FOR RAIL FASTENING

TS 3.4 - Rail Fastening

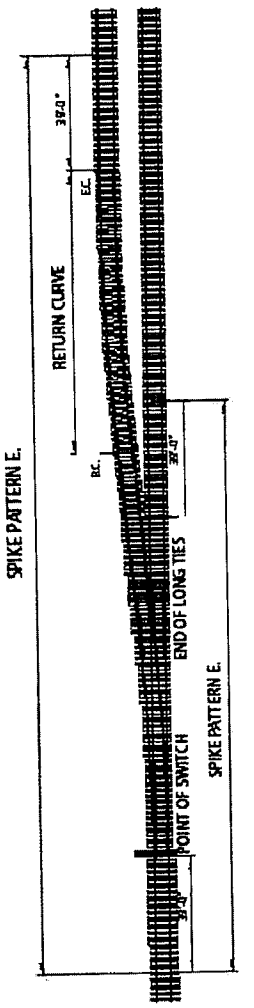
1. Each rail shall be spiked as per the appropriate attached spiking pattern.
2. Drive spikes vertically with the face of the spike in contact with the base edge of the rail, except spikes against insulated joints, which will be installed with heads turned away from the joint bar and not in solid contact with the joint bar. No fastenings may be installed at insulated joints in a manner that may short circuit the track circuit.
3. Spikes will be driven to a depth such that the spike head is within 3/16" of top of the rail base. Every effort should be made not to overdrive spikes.
4. Spikes should not be driven at the ends of insulated joint bars in any manner that would cause the insulated joint bar to become electrically connected to the rail.
5. Spikes will be driven only with a standard spike maul, pneumatic or hydraulic spiking hammer or spiking machine.
6. Spikes will not be driven within 2 inches of the end of, or in the slots of, skirted (slotted) joint bars.

FIGURE 1: Spiking Patterns

No.	SPIKING PATTERN Field	Gauge	MGT PER YEAR	DEGREE OF CURVE Tangent up to 2°	2° to 4°	4° to 6°	>6°
A			Other than Main Track	X			
B			Other than Main Track		X	X	X
			0-20	X			
C		OR	0-20		X	X	
			>20	X			
D			0-20				X
			>20		X	X	
E			>20				X

Turnouts Spiking patterns E will be applied to turnouts as per Figure 1 below

FIGURE 2: Spiking Through Turnouts



7. When pulling spikes, a spike lifter will be used when spikes cannot be loosened with a claw bar.
8. Spikes between the running rail and guard rails, as well as spikes in tight areas around heel blocks and frogs will be removed using a four-ball spike puller and claw-bar.
9. Claw bars will not be struck with mauls or other tools.
10. Timber screw installation will require a 5/8" pilot hole, drilled a minimum 5 inches into the tie.
11. Timber screws will be run (turned) into tie and not driven.
12. Timber screws will be used without washers.
13. Pandrol e 2055 clips are used on wood tie turnouts and wooden track ties with elastic fastener plates.
14. Care must be taken to drive the clips correctly
    a) On concrete ties the "e" clips should be driven so that the leg is flush with the shoulder
    b) On turnout plates on timber ties clips must be driven flush with the shoulder
    c) On pandrol plates clips will be driven so that the radius in the clips does not contact the plate
15. Where clips are installed by hand, care must be taken not to strike the shoulder or tie with the striking tool.
16. Where clips are installed by machine, the operator must ensure that the machine is adjusted to insert the clip horizontally into the hole without binding.

CN STANDARD FOR BALLASTING, SURFACING, AND LINING

TS 4.0 - Ballasting, Surfacing, and Lining

DEFINITIONS:

1. "Spot Surfacing" Restoring track surface, cross-level and alignment through short stretches, not more than 19'6" in length, when a continuous raise is not necessary.
2. "Out-of-face Surfacing" - The continuous raising of track to restore track surface, cross-level and alignment.

SURFACING

3. When surfacing operations effect signal related track components, the Signal Department must be notified in order to perform needed adjustments, repairs or inspections.
4. During surfacing work, employees must check the surface using a track level.
5. Any anchors removed must be replaced, anchors adjusted, missing elastic fasteners replaced, high spikes plugged and re-driven, and hanging ties brought up tight to the rail base. After all work is completed employees should check for missing clips.
6. On completion of surfacing, the surface must be in compliance with Track Standard 7.1.
7. When tamping, only 16" on either side of the rail is to be tamped. The center of the tie must not be tamped. When tamping transition ties, the entire length of the tie outside the rail must be tamped.
8. Track raises in excess of 6" should be avoided, however, if it is necessary, such lifts should be carried out successively so that individual lifts do not exceed 3 inches. Dynamic stabilizers should be used between lifts.

9. Track surfacing and lining which eliminates long line swings or lines curves to the inside may generate additional rail and should when practicable be monitored to determine if adjustment is needed.
10. When surfacing CWR track, monitor the rail temperature.
11. When rail has been added or the track lined inwards within 300 feet of a high risk location listed below AND the rail temperature is above the PRLT, the following precautions must be taken:

High risk locations:

a. Bottom of a grade near a fixed track location such as a bridge, turnout, road crossing or diamond
b. Known areas of heavy train breaking at or near fixed track locations
c. areas of no insufficient anchors (not per Track Standard)
d. fixed track locations within a directional running zone
e. any areas showing signs of high rail compression

Precautions to be taken:

a. If possible surface away from the fixed location and not towards it.
b. If not possible, cut the rail and ensure a desirable rail neutral temperature.

12. Before surfacing and lining a curve on main tracks class 2 and above, the curve must be staked if it is more than 3° and the rail temperature is more than 50° F below the preferred rail laying temperature, or is expected to be in the next 24 hours.

13. To stake a curve prior to surfacing and lining, place at least 3 reference stakes uniformly spaced around the curve with the middle stake located near the middle of the curve. Additional stakes may be used due to the overall length of the curve.

14. Inspect for curve movement periodically after the work, especially during periods of large temperature changes. If the curve is found to have shifted inward more than 1', it must be lined out or destressed prior to ambient temperature reaching 85° F in the US and 70° F in Canada. If the curve is not lined out or destressed than a speed restriction must be placed. The effective rail length added to a curve as a result of chording inwards is calculated in Appendix B of Track Standard 1.3.

15. After surfacing, track seen to exhibit signs that CWR is out of adjustment shall be reported to the appropriate authority and the track protected until remedial action is taken.

BALLASTING

16. Ballast cross sections for new construction shall conform to TS plan 2205.

17. Usage of ballast shall be in accordance with Track Standard 8.0.

18. Ballast cross section shall have:

a. cribs filled to a minimum of 1" below the top of tie (except concrete ties).

b. No ballast left on top of ties, spikes and tie plates.

c. Shoulder ballast for jointed rail to be maintained to a minimum of 6" out from the end of the tie before sloping.

d. Shoulder ballast for CWR track should be maintained to a minimum of 12 "out from the end of the tie before sloping.

e. On double main track and between main and siding tracks, a ballast trough between tracks should be maintained.

19. Ample clearance for rolling stock shall be provided when distributing and dressing ballast. Remove ballast from switches or flangeways through frogs, guardrails and crossings, which will impede proper operation or passage of wheel flanges.

20. When unloading ballast, only the amount of ballast required should be unloaded and in the correct location in order to reduce wasting ballast. Extra care should be taken when unloading near open deck bridges or road crossings. Car doors should be closed prior to any movement across open deck bridges. Ballast shall not be allowed to accumulate on road crossings.

21. When unloading ballast in the center of the track, a plow tie may be used in order to evenly spread ballast and prevent excessive rock from accumulating on the rail and possibly derailing cars.

22. When unloading ballast, all cars must be completely empty and doors closed and locked prior to releasing.

23. Care must be exercised when unloading ballast from cars on one side or on curves with superelevation. Prior to movement, the load should be levelled.

CN STANDARD FOR TRACK INSPECTION GUIDELINES

TS 7.0 - Track Inspection Guidelines

1. The allowable train speed on a subdivision, or portion thereof, shall be used to determine the class of track as follows:

Track Class	Maximum Allowable Speed, mph			
	Canadian Lines		US Lines	
	Passenger	Freight	Passenger	Freight
1	15	10	15	10
2	30	25	30	25
3	60	40	60	40
4	80	60	80	60
5	95*	80	90	80

*For LRC Trains, 100 mph

   a. Minimum track inspection frequencies in Canada shall be as outlined in the Transport Canada Track Safety Rules. Minimum track inspection frequencies in the US shall be as outlined in the FRA Track Safety Standards.

   b. The Track Supervisor must know that any person designated to do track inspections is qualified and must ensure the quality of inspection.

2. Walking inspections on class 3, 4, and 5 main track and sidings, and on class 1 and 2 main tracks that carry more than 25 million gross tons of traffic per year should be carried out in such a manner that priority locations and areas of known problems, such as those outlined in Table 1, are monitored.

3. Walking inspections on class 1 and 2 main track and sidings that carry less than 25 million gross tons of traffic will be performed as directed by the Regional Chief Engineer.

4. Each turnout, railway crossing at grade, moveable bridge lift rail, derail, sliding joint, or other transition device must be inspected on foot at least monthly.

   b. In the case of track that is used less than monthly, each turnout, railway crossing at grade, moveable bridge lift rail, derail, sliding joint, or other transition device must be inspected on foot before it is used.

5. Walking inspections of public crossings shall be undertaken at least annually, with no more than 12 calendar months between inspections.

Periodic and Follow-up Inspection of Joint Bars

6. The following classes of track require on foot inspection of joints in CWR:

   - Class 2 – only if passenger trains operate
   - Class 3 and above – required

7. Joints requiring on foot inspection are any joints located in a CWR string, or any joint in a segment of rail between CWR strings that is less than 200 ft apart.

   a. Each joint in CWR track shall be inspected on foot each calendar year at the frequency indicated by class of track and annual tonnage in the following table:

Table 1 Periodic on Foot Joint Bar Inspection Frequencies

Class of Track	Freight			Passenger	
	<40 MGT	> 40 to 60 MGT	> 60 MGT	<20 MGT	> 20 MGT
5	2x	3x[1]	4x[1]	3x[1]	3x[1]
4	2x	3x[1]	4x[1]	2x	2x
3	1x	2x	2x	2x	2x
2	0	0	0	1x	1x

4x = Four times per year, with one inspection in each of the following periods:

January to March; April to June; July to September; and October to December; with consecutive inspections separated by at least 60 calendar days.

3x = three times per calendar year, with one inspection in each of the following periods:

January to April; May to August; September to December; with consecutive inspections separated by at least 90 calendar days.

2x = Twice per calendar year, with one inspection in each of the following periods:

January to June and July to December, with consecutive inspections separated by at least 120 calendar days.

1x = Once per calendar year, with consecutive inspections separated by at least 180 calendar days.

[1]Where extreme weather conditions prevent the periodic inspection of a particular territory within the required interval, the interval may be extended by up to 30 calendar days from the last day that the extreme weather condition prevented the required inspection.

b. Where both passenger and freight trains operate over a portion of CWR track, the greater frequency in the table must be used.

8. If any of the following conditions contained in Table 2 are found at a joint in CWR and are not a regulatory defect and cannot be corrected immediately, on foot follow up inspections will be required until such time as the condition is corrected.

Table 2 Rail Joint Conditions and Remedial or Corrective Actions

Rail Joint Condition	Remedial Action*
Broken Bar	Replace Immediately and Complete Fracture Report
Visible cracks in joint bar	Replace Immediately and Complete Fracture Report
Loose bolt(s)	Tighten bolt(s)
Bent bolt(s)	Replace bolt(s) or re-inspect as per Table 1 above
Missing bolt(s) **	Replace bolt(s)
Rail end batter (More than 3/8" in depth and more than 6" in length measured with a 24" straight-edge)	Repair by welding joint or removing rail or Inspect weekly until corrective action taken
Rail end mismatch exceeding limits specified by FRA 213.115 or TC Track Safety Rules, Part II, Subpart D, IV.	Weld or grind
Longitudinal rail movement greater than 2.5"	Add or adjust rail anchors, tighten bolts, add or remove rail at appropriate time or Inspect weekly until corrective action taken
Wide rail gap greater than 1.5"	Adjust rail gap and secure joint or Inspect weekly until corrective action taken
Surface deviations exceeding limits specified by FRA 213.63 or TC Track Safety Rules, Part II, Subpart C, VI.	Surface joint immediate

* Remedial action may also consist of placing a speed restriction or removing the track from service.

** Minimum of 2 bolts per rail must be in place.

9. In the US, if a cracked or broken joint bar is found by an inspector during a regular track inspection, monthly turnout and track railway crossing at grade, lift rail assembly or transition device inspection, or periodic, follow up, or special inspection, a fracture Report must be completed and sent to the FRA.

   a. The Fracture Report must be completed at the time the cracked or broken bar is found. The Fracture Report must contain the following required information:

- Railroad name
- Date of inspection
- Milepost
- Subdivision
- Class of track
- Annual MGT for the previous year
- Rail section
- Type of bar (standard, insulated or compromise)
- Number of holes in the bar (4 hole or 6 hole bar etc.)
- Location of crack or break
- Length of crack (in inches)
- Gap between rail ends
- Amount and length of rail batter
- Tread and gauge mismatch
- Estimated vertical and lateral movement of the joint

b. In the US, Fracture Reports must be sent to the FRA by July 31 for the preceding six-month period (January 1 to June 30) and by January 31 for the preceding six-month period (July 1 to December 31).

10. A record must be kept of each periodic and follow-up inspection. The record shall contain at a minimum, the date of inspection, the name of the inspector, the boundaries of the territory inspected, the fact that all CWR joints in the specified territory were inspected, the nature and location of any joints with defects or joints of concern, any remedial action or corrective action that has been or is to be taken.

11. On foot inspection of all joints in bridges must be undertaken at the following frequencies:

- track with less than 10 MGT annually - once per year.
- track with 10 MGT or great annually - twice per year.

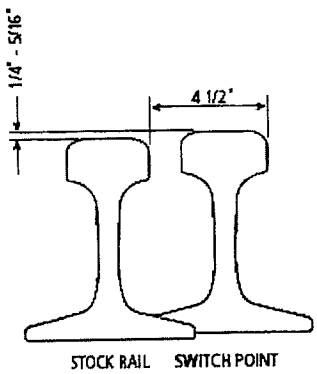
12. Turnouts must be inspected by a qualified track inspector at the following minimum frequencies:

Type of Inspection	Description
Routine Inspection	Each time the turnout is crossed it shall be visually inspected for defects and noted on the track inspection report.
Walking Inspection	Each turnout shall be inspected on foot at least monthly and observing overall condition, except that in the case that track is used less than monthly each turnout will be inspected on foot before the track is used. Inspections will be noted on the switch inspection report.
Detailed Inspection	A thorough detailed observation of the condition of all components in each turnout shall be performed annually. Inspections will be noted on the switch inspection report.

13. In addition, all main track switches in class 3 through 6 track shall be operated in all its positions during one inspection in every 3 month period.

14. A report of each Walking Inspection and Detailed Inspection must be prepared on a prescribed turnout inspection form on the same day that the inspection is performed. The inspection report must be signed by the person making the inspection, and retained at the designated location for at least one year.

15. Description of items to check and acceptable conditions are listed in RM 3500.
16. There must be no broken or bent clips or stop blocks. Switch rods or connecting rods must not be excessively bent, broken or corroded to a depth exceeding 1/8 inch (3 mm).
17. Welding on connecting rods is not allowed.
18. The top surface of switch points shall be inspected to ensure that the outer edge of the wheel tread cannot contact the gauge side of the stock rail.
19. Switch points are manufactured such that the running surface is 1/4" to 5/16" (6 to 8 mm) higher than the stock rail, as measured at the location where the distance between gauge face of stock rail and gauge face of switch point when tight against the stock rail is 4-1/2" (115 mm). When this vertical dimension is reduced by wear to 3/16" (5 mm), the location must be monitored for signs of wheel contact on the stock rail. Where contact is evident, the switch point must be renewed or the stock rail ground to restore the 1/4" to 5/16" (6 to 8 mm) dimension.



20. On point ends which are chipped or broken the thickness must not exceed 3/16" (5 mm).
21. Guard rail bolts and fasteners must be intact and tight. Guard rail wear surfaces must not be worn more than 5/8".
22. Guard Check Gauge and the Guard Face Gauge shall be within the limits shown in Table 1:

TABLE 1. Guard Check Gauge and Guard Face Gauge

Class of Track	MINIMUM Guard Check Gauge[a]	MAXIMUM Guard Face Gauge[b]
1	54 1/8"	53 1/4"
2	54 1/4"	53 1/8"
3,4	54 3/8"	53 1/8"
5,6	54 1/2"[c]	53"

[a] the distance from the gauge line of a frog to the guard line of its guard rail or guarding face, as measured across the track at right angles to the gauge line. See Figure 2.

[b] the distance between guard lines as measured across the track at right angles to the gauge line. See Figure 2.

[c] at points of heavy point frogs equipped with through gauge plates, 54 3/8" (1381 mm)

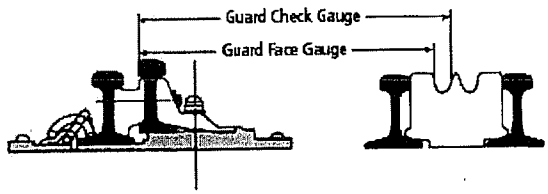


Figure 2. Guard Check Gauge and Guard Face Gauge Measurement Locations.

23. Frogs will be inspected to determine bolts are of the correct size, length and grade. Loose, missing or broken bolts must be replaced.

24. Inspect frog plates for fit and firm attachment to ties or gauge plates. Lateral wear should not exceed 1/8".

25. The flangeway depth measured from a plane across the wheel bearing area of a frog on Class 1 track may not be less than 1 3/8" or less than 1 1/2" on class two through 6 track.

26. If a frog point is chipped, broken or worn more than 5/8" down and 6" back, operating speed over that frog may not be more than 10 m.p.h.

27. If the tread portion of a frog casting is worn down more than 3/8" (10 mm) below the original contour, operating speed over that frog may not be more than 10 m.p.h.

28. Clearance between the horn and hold-down housing on spring frogs must not exceed 1/4" (6 mm), and the horn must not bind on the hold down housing.

29. Each spring must have a compressive force sufficient to hold the wing rail against the point rail. Note, the wing on 100 lb., 115 lb., 132 lb., and 136 lb. spring frogs is designed to be open 3/8" (10 mm) at the half inch point.

30. The retarder, on frogs so equipped, must close completely with a cycle time from 1 minute to 3 minutes after opening.

31. Inspections of all railway crossings at grade shall be conducted as follows:

    a. Every time the crossing is traveled over by hi-rail it shall be visually inspected for defects.

    b. Crossings shall be inspected at least monthly on foot measuring gauge and looking closely at the condition of all components.

32. Unsafe conditions on either railway which cannot be corrected immediately will be reported to the Rail Traffic Controller or Train Dispatcher and proper action taken to protect traffic on all routes.

CULVERT INSPECTION

33. General inspections of all culverts and surface drainage conditions will be conducted by track Inspectors in conjunction with track inspections.

Note: All persons engaged in making inspections will prepare and sign a record of each inspection on the day the inspection is made in accordance with applicable Transport Canada or Federal Railroad Administration Rules. The report shall be retained for at least one year after the date of the inspection.

TABLE 1 - PRIORITY LOCATIONS FOR WALKING INSPECTIONS

Rail

a. areas with high numbers of fatigue related rail defects (based on rail flaw detection reports and CWR Failure Reports) and in service rail failures
b. rail defects protected by joint bars
c. rail damage which has been alleviated by grinding
d. areas approaching condemning limits for wear (based on wear limits in Track Standards SPC 3200)

e. locations prone to overstressed rail, such as;
   i. areas where rail repairs have been made (too little or too much rail installed)
   ii. curves
   iii. areas of severe rail corrugation
   iv. areas of heavy brake application
   v. areas of buffer rails or any joints adjoining CWR
   vi. areas of steep grades
   vii. areas of insufficient or damaged rail anchors, or significant rail movement.
   viii. derailment sites or derailment damaged rail

Joints
- a. Cracked
- b. Broken
- c. pumping

Wood Ties
- a. clusters of defective ties
- b. gauge problem areas (13mm (1/2") or greater dynamic wide gauge using data from T.E.ST. Car)
- c. excessive loss of cant as detected by T.E.ST.. Car
- d. areas prone to hanging ties, such as insulated joints, road crossings and bridge approaches
- e. areas of high or broken spikes or timber tie screws
- f. areas with high dynamic braking such as home signals, PSOs

Concrete Ties
- a. loose or missing clips or insulators
- b. signs of rail movement
- c. loose or damaged shoulder castings
- d. signs of rail seat abrasion
- e. areas repaired by the use of Laird Clips
- f. areas with historical clip failure.

Ballast
- a. sink holes
- b. mud pumping locations
- c. frost heave locations
- d. areas of weak ballast shoulders
- e. areas where recent program work has left ballast disturbed

Roadbed / Slope Stability
- a. areas historically prone to track geometry problems (surface, line, cross level)
- b. slope stability problems (slip, rock falls or mud slides)

Drainage
- a. areas prone to ponding water (beaver dams, drainage ditches, blocked culverts, etc.)
- b. areas of high or increased surface run-off (near forestry operations, industrial development, high water tables, etc.)
- c. areas prone to ice build-up under the plate
- d. culverts

Transition Areas
- a. bridge approaches
- b. concrete tie to wood tie transition areas

Derailment Areas
- a. substandard conditions or temporary repairs
- b. monitor until permanent repairs have been completed

GAS WELDED RAIL INSPECTION POLICY

34. Main track on the core route that contains gas welded continuous welded rail, the minimum inspection frequency is amended as follows:
    a. Three times weekly with at least 1 calendar day between inspections.
    b. The Track Supervisor must make every effort to personally perform at least one inspection per week.
    c. Additional inspections on secondary main tracks and other tracks shall be as directed by the Regional Chief Engineer.

This policy shall be in effect from October 1 to March 1 and other times when the ambient temperature is expected to fall below +25° Fahrenheit.

EXTREME COLD WEATHER INSPECTION POLICY

35. Daily cold weather track inspections will be under taken on core lines under the following conditions:

Territory	Track Conditions	Either Condition Met	
		Extreme Low Temperature	Rapid Drop in Temperature
Canadian Lines	* Susceptible to Cold	less than -25°C	Greater than 25° Celsius within a 24-hour period.
	All Track	less than -35°C	
U.S. Lines North of Chicago	* Susceptible to Cold	less than -25°F	Greater than 40° Fahrenheit within a 24-hour period.
	All Track	less than -30°F	
Between Chicago and Centralia	All Track	less than -10°F	
South of Centralia	All Track	less than -5°F	

36. Lines shall be considered susceptible to cold weather related rail failure if any one of the following conditions applies:
    a. Non-signalled territory.
    b. Jointed and/or gas welded rail.
    c. Rail of 115 lb. weight or lighter subject to 286K lb. loading.
    d. Rail with a history of frequent defects.

37. Additional track inspections should also be considered during the first "cold snap" of the season.

COLD WEATHER TEMPORARY SPEED RESTRICTIONS

38. In areas identified as having rail with a history of frequent defects (a list of such areas will be generated by headquarters engineering each year) the following cold weather temporary speed restrictions will be put in place:

39. When temperature is below -25°C in Canada or -10°F in the U.S. all freight trains shall be restricted to a speed of 35 mph or track speed whichever is more restrictive and all passenger trains shall be restricted to a speed of 60 mph or track speed, whichever is more restrictive.

EXTREME HOT WEATHER POLICY FOR CWR TERRITORY

40. Whenever ambient (air) temperature exceeds those shown in the table below or during periods of significant seasonal increase in temperature (i.e. Spring), hot weather track patrols must be undertaken between the hours of 11:00 and 20:00.

Territory	Ambient Temperature
Canadian Lines	More than 30°C
U.S. Lines North of Centralia	More than 95°F
Lines South of Centralia	More than 100°F

41. Hot weather patrols may be suspended if temperatures have stabilized and previous inspections have shown that the track structure is stable and complies with standards.

HOT WEATHER TEMPORARY SPEED RESTRICTIONS

42. Hot weather TSOs must be applied on portions of Subdivisions where the above temperature thresholds are met and any one of the following track conditions are known to exist:

a. lateral or vertical movement of rail (i.e. "wavy" or improperly seated rail);

b. deviations in alignment;

c. movement of ties (i.e. gaps or voids in ballast at tie ends or in cribs);

d. insufficient ballast section (i.e. weak shoulders, empty cribs);

e. rail running through anchors;

f. "tight steel" (i.e. areas of frequent dynamic brake application, approaches to PSO's, bottoms of grades, etc.);

g. recently completed track work;

h. grade instability; or

i. any other areas having a history of lateral instability or where Track Supervisors have a concern.

43. The magnitude and duration of speed restrictions applied during hot weather under this policy must be commensurate with track and weather conditions. As a guide, speeds ordered for freight trains will be 10 mph less than that normally authorized or 30 mph whichever is greater. Unless otherwise restricted, passenger trains will be limited to 65 mph. Except in extraordinary circumstances, hot weather TSO's are to be in effect between the hours of 1200 noon and 20:00.

NOTE: This policy does not supersede timetable instructions governing either the operation of unit trains over specified branch lines or the movement of trains on subdivisions equipped with HBD talkers broadcasting ambient temperature.

TS 7.1 - Track Geometry

TRACK GEOMETRY MAINTENANCE STANDARDS

1. Deviations exceeding Transport Canada Track Safety Rules or F.R.A. Track Safety Standards minimum safety requirements for track geometry are defined as "URGENT" defects.
2. Where a portion of track exceeds the limits defined as "URGENT", one of the following actions must be immediately taken before the operation of the next train over the defect(s):
   i. the defect(s) must be repaired to within the allowable tolerance;
   ii. except as prescribed in section 4, if the defect is a speed-related type, a temporary slow order (TSO) must be placed restricting trains to a maximum speed which is within the track class allowed for the severity of the defect(s), (refer to Table 3 and Appendix A); or
   iii. operation over the track must be halted
3. Deviations approaching Transport Canada Track Safety Rules or F.R.A. Track safety Standards minimum safety requirements for track geometry are defined as "NEAR URGENT" defects.
   i. "NEAR URGENT" defects will be identified by the Geometry Car and must be inspected within 72 hours and remedial action must be taken within 30 days.
4. Deviations exceeding CN recommended maintenance tolerances are defined as "PRIORITY" defects.
   a. Where a portion of track exceeds the limits defined as "PRIORITY", the defect must be monitored until it is repaired to ensure it does not escalate to an "URGENT" condition

   i. The following approach is to be used in responding to PRIORITY defects and combinations of PRIORITY defects:
      a. address combination defects (i.e. defects within 100' of each other) in the following order;
      b. combination defects on curve spirals
      c. combination defects on curve body
      d. combination defects near changes in track modulus (i.e. near bridges, crossings, turnouts, etc.)
      e. address all other PRIORITY defects
5. When unloaded track is measured to determine compliance with this TS the amount of rail movement, if any, which occurs when the track is loaded must be added to the measurement of the unloaded track.
6. On Canadian Lines:
   a. Where speed related track geometry defects are detected during track geometry (T.E.ST.) car inspections, the Tables 3 and 4 may be used to determine the maximum Temporary Slow Order speed to be applied for the seventy-two (72) hour period immediately following the inspection.
   b. If the track defect has not been repaired upon the expiration of the seventy-two (72) hour period, the temporary slow order speed must be revised, restricting trains to a maximum speed that is within the track class allowed by the severity of the defect(s). (See Table 2 - Urgents)
7. Details of remedial action or temporary slow orders applied must be recorded on the exception reports initialled and dated.

TRACK GEOMETRY DEFINITIONS

8. Gauge

a. Standard gauge is 56-1/2" on tangents and curves up to 14°. Refer to TS 1.2 for standard gauge of curves over 14°.

b. The gauge at hotbox detectors and for a minimum of 50 ft. in either direction must be maintained between 56-1/2" and 56-3/4".

c. Gauge should not be allowed to become less than 56".

On U.S. Lines, where gauge is found to be less than 56" track shall be considered impassable;

On Can. Lines, where gauge is found to be less than 56" must be reduced to the lesser of;

i. the maximum permissible speed for the next lower class of track, or

ii. the maximum permissible speed for the class of track as determined from the following table:

If change in gauge over 20' (6 m) either side of the point of narrow gauge is...	Then limit speed to maximum permissible in Class...
More than 7/8" less than or equal 1 1/8"	3
More than 1 1/8" less than or equal 1 1/2"	2
More than 1 1/2"	1

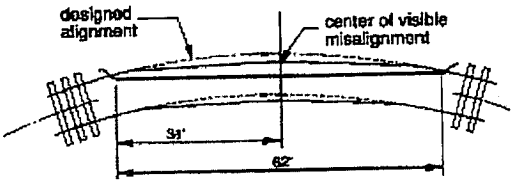
9. ALIGNMENT

a. The measurement for alignment shall be the maximum mid ordinate, (positive or negative), in inches, of a 62' or 31' chord measured at the gauge point.

b. On curved track the high (outside) rail shall be used as the line rail. On tangent track, either rail may be used as the line rail but the same rail must be used throughout the tangent.

c. The maximum mid-ordinate shall be established by centering visible misalignments on the chord.

d. If 62-foot chords are used, the mid-ordinate (in inches) is a 1 to 1 relation with the degree of curve. If 31-foot chords are used, the mid-ordinate (in inches) must be multiplied by 4 to obtain the degree of curve.



10. SUPERELEVATION

a. Except as provided in Section 12 for limits of Cross level from Design, the outside rail of a curve shall not be lower than the inside rail nor have more than 6" of superelevation. Design superelevation should not exceed 5"

b. When superelevation on a curve is less than the amount required, the curve must be checked for V-max.

11. SURFACE

a. The maximum allowable deviations for surface related defects are listed in Table 2.

b. The measurement for SURFACE shall be the maximum positive or negative mid-ordinate, in mm or inches, of a 62' chord measured along the top surface of the rail.

The maximum mid-ordinate shall be established by centering visible peaks or sags on the chord.

(drawings to be reformatted , metric measurements to be removed throughout the drawing below)

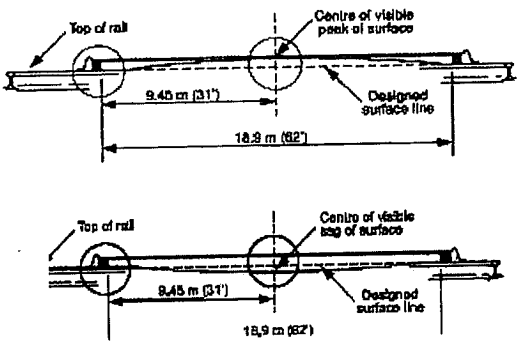


Illustration of Surface measurement

12 CROSS LEVEL

a. The measurement for cross-level shall be the difference in elevation, in mm or inches, between the grade rail and the other rail, measured with a level board.

b. On curved track the grade rail is the low (inside) rail. On tangent track either rail may be used as the grade rail, but the same rail must be used throughout the tangent.

c. The difference in cross level readings shall be used to calculate WARP 31and WARP 62. Measurement for cross level shall be taken so as to ensure that the maximum deviations are recorded. Both of these terms describe variations in cross level which contribute to the wheel lift and harmonic rocking action of rolling stock that can result in a derailment.

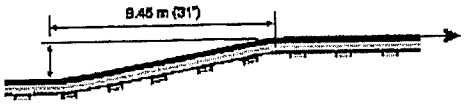
d. NOTE: It is possible to have several combinations of differences in cross level within any 31' or 62'. It is essential that the inspector determine the maximum difference.

e. WARP 31 is defined as the difference in cross level between any two points 31' apart in spirals.

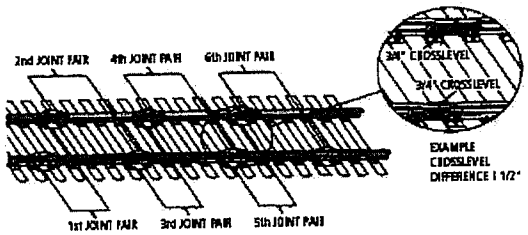
f. Warp in tangents, spirals and curves (WARP 62) is defined as the difference in cross level between any two points less than 62' apart.

g. Designated elevation at any point on a curve is determined by averaging the elevation of 11 points (the point of concern plus 5-points on either side) over a 155 foot track segment at 15.5 foot spacing. If the curve is less than 155 feet, then the average is taken through the full length of the body of the curve. The degree of curve is determined by averaging the degree of curvature over the same track segment as the elevation. Where superelevation is runout onto tangent track per the conditions in RM-1305, designated elevation in the spiral and tangent shall be based on the maximum allowable runout permitted.

13. The RUNOFF at the END of the RAISE, when surfacing track, or when surfacing into any fixed structure, in any 31' of track cannot exceed the URGENT limits for the Class track.



14. To control harmonics (Rock and Roll) on Class 2 through 5 jointed track with staggered joints the cross level differences shall not exceed 11/4 inches in all of six consecutive pairs of joints, as created by 7 low joints. Tracks with joints staggered less than 10 feet shall not be considered as having staggered joints. Joints within the 7 low joints outside of the regular joint spacing shall not be considered as joints.



* NOT DRAWN TO SCALE
JOINT STAGGER MUST EXCEED 10'

TABLE 1 PRIORITY DEFECTS CANADIAN AND US LINES

		TRACK CLASS					
		1	2	3	4	5	
Speed (mph)	Passenger	15	30	60	80	90*	
	Freight +	10	25	40	60	80	
WIDE GAUGE	The distance between the gauge points of the rails 5/8" below the top of the rail may not be more than	57-5/8"	57-1/4"	57-1/4"	57-1/4"	57-1/4"	
ALIGNMENT TANGENT 62'	The deviation of the mid-offset from a 62 foot line may not be more than	3-3/4"	2-1/4"	1-3/8"	1-1/8"	3/8"	
ALIGNMENT CURVE 62'	The deviation of the mid-ordinate from a 62 foot chord may not be more than	3-3/4"	2-1/4"	1-3/8"	1-1/8"	1/2"	
ALIGNMENT CURVE 31'	The deviation of the mid-ordinate from a 31 foot chord may not be more than	No Limit	No Limit	7/8"	3/4"	3/8"	
SURFACE	The deviation from uniform profile on either rail at the mid-ordinate of an 62' chord may not be more than	2"	1-1/2"	1-1/4"	1"	3/4"	

TABLE 1 PRIORITY DEFECTS CANADIAN AND US LINES (continued)

	Speed (mph)	Passenger	TRACK CLASS 1	2	3	4	5
			15	30	60	80	90*
		Freight +	10	25	40	60	80
WARP 31'	Difference in cross level between any two points 31' apart in spiral may not be more than		1-7/8"	1-5/8"	1-1/8"	15/16"	5/8"
WARP 62' Tangents, Spirals and Curves (US only)	The difference in cross level between any two points less than 62' apart on tangents and curves may not be more than		2-1/2"	1-3/4"	1-1/2"	1-3/8"	1-1/8"
WARP62' Tangents and Curves (CANADA only)	The difference in cross level between any two points less than 62' apart on tangents and curves may not be more than		2-1/4"	1-1/2"	1-3/8"	1-1/8"	3/4"
WARP 62' Spirals (CANADA only)	The difference in cross level between any two points less than (62') apart on spirals may not be more than		2-1/4"	1-3/4"	1-1/2"	1-3/8"	1 1/8"
CROSS LEVEL from DESIGN on Tangents and Curves	Deviation from zero cross level at any point on tangent or from designated elevation on curves between spirals may not be more than		1"	1"	1"	1"	11/16"
CROSS LEVEL from DESIGN on Spirals (CANADA only)	Deviation from designated elevation on spirals may not be more than		1"	1"	1"	3/4"	11/16"

* In Canada: 95 mph for Passenger trains and 100 mph for LRC trains

TABLE 2 URGENT DEFECTS CANADIAN AND US LINES

	Speed (mph)	Passenger	TRACK CLASS 1	2	3	4	5
			15	30	60	80	90
		Freight +	10	25	40	60	80
WIDE GAUGE	The distance between the gauge points of the rails 5/8" below the top of the rail may not be more than		58"	57-3/4"	57-3/4"	57-1/2"	57-1/2"
ALIGNMENT TANGENT 62'	The deviation of the mid-offset from a 62 foot line may not be more than		5"	3"	1-3/4"	1-1/2"	3/4"
ALIGNMENT CURVE 62'	The deviation of the mid-ordinate from a 62 foot chord may not be more than		5"	3"	1-3/4"	1-1/2"	5/8"
ALIGNMENT CURVE 31'	The deviation of the mid-ordinate from a 31 foot chord may not be more than		No Limit	No Limit	1 1/4"	1"	1/2"
SURFACE	The deviation from uniform profile on either rail at the mid-ordinate of an 62' chord may not be more than		3"	2-3/4"	2-1/4"	2"	1-1/4"
WARP 31'	Difference in cross level between any two points 31' apart in spirals may not be more than		2"	1-3/4"	1-1/4"	1"	3/4"

TABLE 2 URGENT DEFECTS CANADIAN AND US LINES (continued)

		TRACK CLASS				
		2	3	4	5
Speed (mph)	Passenger	30	60	80	90*
	Freight +	25	40	60	80
WARP 62' Tangents, Spirals and Curves (US only)	The difference in cross level between any two points less than 62' apart on tangents and curves may not be more than	2-1/4"	2"	1-3/4"	1-1/2"
WARP 62' Tangents and Curves (CANADA only)	The difference in cross level between any two points less than 62' apart on tangents and curves may not be more than	2"	1-3/4"	1-1/4"	1"
WARP 62' Spirals (CANADA only)	The difference in cross level between any two points less than 62' apart on spirals may not be more than	2-1/4"	2"	1-3/4"	1-1/2"
CROSS LEVEL from DESIGN on TANGENTS & CURVES	Deviation from zero cross level at any point on tangent or from designated elevation on curves by more than	2"	1-3/4"	1-1/4"	1"
CROSS LEVEL from DESIGN on SPIRALS (CANADA only)	Deviation from designated elevation on spirals may not be more than	1-1/2"	1-1/4"	1"	3/4"
RUNOFF at END of a RAISE	The runoff in any 31' at the end of a raise may not be more than	2"	1-1/2"	1"	1/2"

* In Canada: 95 mph for Passenger trains and 100 mph for LRC trains

Table 3 ALLOWABLE TEMPORARY SLOW ORDERS FOR TEST CAR DEFECTS– CANADIAN LINES ONLY

FREIGHT SPEEDS

Class	Freight SPEED	DEFECT (Inches)											
		Wide Gauge	Alignment Tangent 62'	Alignment Curve 62'	Alignment Curve 31'	Surface	Warp 31' Spirals	Warp 62' Tangents & Curves	Warp 62' Spirals	Cross-Level Tangents & Curves	Cross-Level Spirals	Runoff at End of Raise
1	10	58	5	5	No Limit	3	2	3	3	3	1-3/4	3-1/2
2	15	57-7/8	4-1/4	4-1/4	No Limit	2-7/8	1-7/8	2-5/8	2-3/4	2-5/8	1-5/8	3-5/16
	20	57-13/16	3-5/8	3-5/8	No Limit	2-13/16	1-13/16	2-5/16	2-1/2	2-5/16	1-9/16	3-1/8
	25	57-3/4	3	3	No Limit	2-3/4	1-3/4	2	2-1/4	2	1-1/2	3
3	30	57-3/4	2-1/2	2-1/2	1-1/4	2-9/16	1-9/16	1-7/8	2-1/8	1-7/8	1-3/8	2-5/8
	35	57-3/4	2-1/8	2-1/8	1-1/4	2-3/8	1-3/8	1-13/16	2-1/16	1-13/16	1-5/16	2-5/16
	40	57-3/4	1-3/4	1-3/4	1-1/4	2-1/4	1-1/4	1-3/4	2	1-3/4	1-1/4	2

Table 3 ALLOWABLE TEMPORARY SLOW ORDERS FOR TEST CAR DEFECTS– CANADIAN LINES ONLY
FREIGHT SPEEDS (continued)

Class	Freight SPEED	DEFECT (inches) Wide Gauge	Alignment Tangent 62'	Alignment Curve 62'	Alignment Curve 31'	Surface	Warp 31' Spirals	Warp 62' Tangents & Curves	Warp 62' Spirals	Cross-Level Tangents & Curves	Cross-Level Spirals	Runoff at End of Raise
4	45	57-11/16	1-11/16	1-11/16	1-3/16	2-3/16	1-3/16	1-5/8	1-15/16	1-5/8	1-3/16	1-7/8
	50	57-5/8	1-5/8	1-5/8	1-1/8	2-1/8	1-1/8	1-1/2	1-7/8	1-1/2	1-1/8	1-3/4
	55	57-9/16	1-9/16	1-9/16	1-1/16	2-1/16	1-1/16	1-3/8	1-13/16	1-3/8	1-1/16	1-5/8
	60	57-1/2	1-1/2	1-1/2	1	2	1	1-1/4	1-3/4	1-1/4	1	1-1/2
5	65	57-1/2	1-5/16	1-1/4	7/8	1-13/16	15/16	1-3/16	1-11/16	1-3/16	15/16	1-3/8
	70	57-1/2	1-1/8	1-1/16	3/4	1-5/8	7/8	1-1/8	1-5/8	1-1/8	7/8	1-1/4
	75	57-1/2	15/16	13/16	5/8	1-7/16	13/16	1-1/16	1-9/16	1-1/16	13/16	1-1/8
	80	57-1/2	3/4	5/8	1/2	1-1/4	3/4	1	1-1/2	1	3/4	1

Notes: These tables are used IN CANADA for where speed related track geometry defects are detected during track geometry (T.E.S.T.) car inspections, the tables may be used to determine the maximum Temporary Slow Order speed to be applied for the seventy-two (72) hour period immediately following the inspection.

Table 4 ALLOWABLE TEMPORARY SLOW ORDERS FOR TEST CAR DEFECTS – CANADIAN LINES ONLY
PASSENGER SPEEDS

Class	Freight SPEED	DEFECT (inches) Wide Gauge	Alignment Tangent 62'	Alignment Curve 62'	Alignment Curve 31'	Surface	Warp 31' Spirals	Warp 62' Tangents & Curves	Warp 62' Spirals	Cross-Level Tangents & Curves	Cross-Level Spirals	Runoff at End of Raise
1	15	58	5	5	No Limit	3	2	3	3	3	1-3/4	3-1/2
2	20	57-7/8	4-1/4	4-1/4	No Limit	2-7/8	1-7/8	2-5/8	2-3/4	2-5/8	1-5/8	3-5/16
	25	57-13/16	3-5/8	3-5/8	No Limit	2-13/16	1-13/16	2-5/16	2-1/2	2-5/16	1-9/16	3-1/8
	30	57-3/4	3	3	No Limit	2-3/4	1-3/4	2	2-1/4	2	1-1/2	3
3	45	57-3/4	2-3/8	2-3/8	1-1/4	2-1/2	1-1/2	1-7/8	2-1/8	1-7/8	1-3/8	2-1/2
	50	57-3/4	2-1/8	2-1/8	1-1/4	2-3/8	1-3/8	1-13/16	2-1/16	1-13/16	1-5/16	2-5/16
	55	57-3/4	1-15/16	1-15/16	1-1/4	2-5/16	1-5/16	1-3/4	2-1/16	1-3/4	1-1/4	2-1/8
	60	57-3/4	1-3/4	1-3/4	1-1/4	2-1/4	1-1/4	1-3/4	2	1-3/4	1-1/4	2

Table 4 ALLOWABLE TEMPORARY SLOW ORDERS FOR TEST CAR DEFECTS – CANADIAN LINES ONLY

PASSENGER SPEEDS (continued)

Class	Freight SPEED	DEFECT (Inches)											
		Wide Gauge	Alignment Tangent 62'	Alignment Curve 62'	Alignment Curve 31'	Surface	Warp 31' Spirals	Warp 62' Tangents & Curves	Warp 62' Spirals	Cross-Level Tangents & Curves	Cross-Level Spirals	Runoff at End of Raise
C	65	57-11/16	1-11/16	1-11/16	1-3/8	2-3/16	1-3/16	1-5/8	1-15/16	1-5/8	1-3/8	1-7/8
	70	57-5/8	1-5/8	1-5/8	1-1/8	2-1/8	1-1/8	1-1/2	1-7/8	1-1/2	1-1/8	1-3/4
	75	57-9/16	1-9/16	1-9/16	1-1/16	2-1/16	1-1/16	1-3/8	1-13/16	1-3/8	1-1/16	1-5/8
	80	57-1/2	1-1/2	1-1/2	1	2	1	1-1/4	1-3/4	1-1/4	1	1-1/2
D	65	57-1/2	1-1/4	1-3/16	13/16	1-3/4	7/8	1-1/8	1-11/16	1-1/8	7/8	1-5/16
	90	57-1/2	1	7/8	5/8	1-1/2	13/16	1-1/16	1-9/16	1-1/16	13/16	1-1/8
	95	57-1/2	3/4	5/8	1/2	1-1/4	3/4	1	1-1/2	1	3/4	1

Note: These tables are used IN CANADA for where speed related track geometry defects are detected during track geometry (T.E.S.T.) car inspections, the tables may be used to determine the maximum Temporary Slow Order speed to be applied for the seventy-two (72) hour period

CN STANDARD FOR MINIMUM TRACK CONSTRUCTION STANDARDS

TS 8.0 - Minimum Track Construction Standards

1. The table below indicates the minimum standards for construction and upgrading for the various classes of track as defined by TC and the FRA.

MINIMUM TRACK CONSTRUCTION STANDARDS

Design Speed	Class 4 and Above	Class 3	Class 2	Class 1
Rail Weight	Per Track Standard 1.0 or as specified by the Regional Chief Engineer			
Rail (CWR or Jointed)	CWR	Class 3 - CWR Class 2 - Jointed		Jointed
Tie Plates	100 % tie plated per Track Standard 3.0			
Rail Anchors	Per Track Standard 3.0			
Fasteners	Elastic Fasteners or Cut Spikes		Cut Spikes	
Ties Per Mile Concrete	2640	2640		2640
Wood No. 1	3110	3110		2980
Wood No. 2	N/A	N/A		2980

ENGINEERING TRACK STANDARDS

MINIMUM TRACK CONSTRUCTION STANDARDS (continued)

Description	Class 4 and Above	Class 2 & 3	Class 1
Rail Weight	Per Track Standard 1.0 or as specified by the Regional Chief Engineer		
Track Ties	Concrete or Hardwood	Concrete or Hardwood	Softwood or Hardwood
	Hardwood	Hardwood	Hardwood
Switch Ties	Hardwood	Hardwood	Hardwood
Ballast Crushed Rock	2-1/2" minus	2-1/2" minus	2" minus or AREMA Size No.5
Minimum Depth Below Bottom of Tie	12 inches	12 inches	6 inches
Shoulder width	CWR–12"	Jointed-6",	
CWR–12"	Jointed-6"		
Walking Ballast*		AREMA Size No. 5	AREMA Size No. 5
Sub-ballast ** Minimum Depth	12 inches	12 inches	12 inches
Maintained Top Width	22 ft.	22 ft.	22 ft.

*Where walking ballast is required, it shall be applied in a minimum 4" thick layer.

** As Specified by the Regional Chief Engineer.

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.
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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.

UNINTERRUPTIBLE POWER SUPPLY (SPECIAL KDOT)

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 be provided with safety locks to prevent improper installation. This protection shall include a reverse polarity protection and protection against electrical backfeed to the utility service that complies with UL 1778 and CSA C22.2 No. 107.1.3 requirements and safety standard EN50091-1-1-2 and EN60950. Besides passing Immunity Standards, EN61000-4-2, 3, 4, 5, 6 and 8 and EN61000-3-2 Standards, the manufacturer's nameplate label shall display agency approval mark "cCSAus".

The UPS shall be provided with an SNMP Ethernet port for remote programming and monitoring, complete with password and remote operation software or browser application. Additionally, the UPS shall be provided with an RS-232 port for local programming and a LCD display and local control and monitoring of alarm logging events. The UPS shall be provided with a minimum of three SPDT relay contacts for user programming of alarms or other controls for operation. A sixth SPDT relay contact set shall be provided to output the alarms for a secondary remote alarm system that is programmed by the factory. The really contacts shall be located 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.

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 per cell. The temperature sensor shall be external to the inverter/charger unit. The temperature sensor shall come with 6.5 ft of wire.

Batteries shall not be recharged when battery temperature exceeds 122 °F ± 5 °F .

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. Cabinet wiring shall be

designed to exclude traffic video monitoring operation from functioning during power transition to battery power and shall re-energize normal traffic video monitoring when power is restored to utility power.

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. diameter, be viewable from the driving lanes, and able to be seen from 200 ft 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 of #10 AWG wire.

Relay contact wiring provided for each set of NO/NC relay contact closure terminals shall be 6.5 ft 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 minimum.

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in., a depth of 16 in., and a height of 41 to 48 in.. Clearance between shelves shall be a minimum of 10 in. .

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 shall be provided with a Battery Heater Mat that shall function when power line voltage is present and temperature ranges indicate the advantage of heating the batteries for enhanced performance, activating at five degrees Celsius and deactivating at temperatures at or above fifteen degrees Celsius. The Manual Bypass Switch shall be provided for manual connection or disconnection and testing. The Automatic Transfer Switch shall automatically transfer the load from line power to UPS power and back when the incoming line voltage is impaired and then corrected for proper operation. The battery heater mat shall be sized for the battery array installed.

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 re-settable 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 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 shall be Gel Cell Valve Regulated Lead Acid (VRLA) type specifically designed for outdoor application using a "Float Service" to provide 100% runtime capacity without initialization charging. Batteries shall be constructed using Silver Alloy positive plates and shall have a five year full replacement warranty, non-prorated. Battery capacity rating at 20 hour shall be 94 Amp Hours, 12 VDC – each battery. Battery design for the UPS shall be either four or eight units per design application. Batteries shall be installed and connected to operate at the 48 VDC design. The contractor shall furnish either the four or eight battery design based on the signalized intersection design and power requirements for each intersection. either gel cell or AGM type, deep cycle, completely sealed, prismatic lead/calcium 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.

The Gel Cell Batteries shall be certified by the manufacturer to operate over a temperature range of *-13 to 160 °F*

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.

The UPS shall be provided with a Battery Charge Maintenance Management System to equalize charging of batteries with different battery life ratings and to allow adding new batteries to existing installation sites without changing all existing batteries at a single time. This management system shall comply with CSA C22.2 No. 107.1 and UL 1778 Standards for safe operation of batteries under unattended applications. 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 (SPECIAL KDOT).

VIDEO DETECTION SYSTEM

1.0 General

This specification sets forth the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle traffic.

1.1 System Hardware

The video detection system shall consist of one to six video cameras, a video detection processor (VDP) capable of processing from one to six video sources, and a pointing device.

1.2 System Software

The system shall include software that detects vehicles in multiple lanes using only the video image. Detection zones shall be defined using only an on board video menu and a pointing device to place the zones on a video image. Up to 144 detection zones shall be available. A separate computer shall not be required to program the detection zones.

2.0 Functional Capabilities

2.1 The VDP shall process video from up to 6 video sources simultaneously. The sources can be video cameras or S-VHS video tape players. The video shall be input to the VDP in RS 170 format and shall be digitized and analyzed in real time. A separate microprocessor for each video input shall be used.

2.2 The VDP shall detect the presence of vehicles in up to 24 detection zones per camera. A detection zone shall be approximately the width and length of one car.

2.3 Detection zones shall be programmed via an on board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of the detection zones quickly and easily. A separate computer shall not be required for programming detection zones.

2.4 The VDP shall store up to three different detection zone patterns. The VDP can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device.

2.5 The VDP shall detect vehicles in real time as they travel across each detection zone.

2.6 The VDP shall have an RS232 port for communications with an external computer. The VDP RS232 port shall be multi-drop capable.

2.7 The VDP shall accept new detection patterns from an external computer through the RS-232 port when the external computer uses the correct communications protocol for downloading detection patterns.

2.8 The VDP shall send its detection patterns to an external computer through the RS-232 port when requested when the external computer uses the correct communications protocol for uploading detection patterns.

3.0 Vehicle Detection

3.1 Up to 144 detection zones shall be supported and each detection zone can be sized to suit the site and the desired vehicle detection region.

3.2 Detection zones shall be capable of being Or'ed or ANDed together to indicate vehicle presence on a single detector output channel.

3.3 Placement of detection zones shall be done by using only a pointing device, and a graphical interface built into the VDP and displayed on a video monitor, to draw the detection zones on the video image from each video camera. No separate computer shall be required to program the detection zones.

3.4 Up to 3 detection zone patterns shall be saved for each camera within the VDP memory and this memory shall prevent loss during power outages.

3.5 The selection of the detection zone pattern for current use shall be done through a menu. It shall be possible to activate a detection zone pattern from VDP memory and have that detection zone pattern available within 1 second of activation.

3.6 When a vehicle is detected crossing a detection zone, the corners of the detection zone will flash on the video overlay display to confirm the detection of the vehicle.

3.7 Detection shall be at least 98% accurate in good weather conditions, with slight degradation possible under adverse weather conditions (e.g. rain, snow, or fog)

which reduce visibility. Detection accuracy is dependent upon camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality. See section 5.12 for recommended camera placement.

3.8 The VDP shall provide 32 channels of detection through either a NEMA TS1 port or a NEMA TS2 port.

3.9 The VDP shall provide dynamic zone reconfiguration (DZR). DZR enables normal operation of existing detection zones when one zone is being added or modified during the setup process. The VDP shall output a constant call on any detector channel corresponding to a zone being modified.

3. 10 Detection zones shall be directional to reduce false detections from objects traveling in directions other than the desired direction of travel in the detection area.

3.11 Detection zone setup shall not require site specific information such as latitude and longitude to be entered into the system.

3.12 Detection zone setup shall not require temporal information such as date and time.

3.13 The VDP shall process the video input from each camera using a separate microprocessor at 30 frames per second.

3.14 The VDP shall output a constant call for each enabled detector output channel if a loss of video signal occurs. The VDP shall output a constant call during the background learning period.

4.0 VDP Hardware

4.1 The VDP shall be housed in a durable metal enclosure suitable for shelf mounting or 19" rack mounting in a roadside traffic equipment cabinet. The VDP enclosure shall not exceed 7" height, 17.75" width, and 10.5" depth. The VDP shall be modular in construction with plug in field replaceable units (FRU's) to minimize trouble shooting and repair time.

4.2 The VDP shall operate satisfactorily in a temperature range from -34 °C to +74 °C and a humidity range from 0%RH to 95%RH, non-condensing as set forth in NEMA specifications .

4.3 The VDP shall be powered by 120 VAC 60 Hz single-phase power. Surge ratings shall be as set forth in NEMA specifications. Power consumption shall not exceed 135 watts.

4.4 The VDP shall include an RS232 port for serial communications with a remote computer. The VDP RS232 port shall be multi-drop capable. This port shall be a 9 pin female "D" subminiature connector on the front of the VDP.

4.5 The VDP shall include ports for transmitting TSI and TS2 detections to a traffic controller. The TS1 port shall be a 37 pin female "D" connector on the front of the VDP. The TS2 port shall be a 15 pin female "D" connector on the front of the VDP.

4.6 The front of the VDP shall include up to six BNC video input connections suitable for RS170 video inputs. Each video input shall include a switch selectable 75-ohm or high impedance termination to allow camera video to be routed to other devices, as well as input to the VDP for vehicle detection.

4.7 The front of the VDP shall include one BNC video output. Any one of the six video inputs shall be switch selectable for output on this BNC connection via the pointing device at the VDP, or through software and a personal computer connected through the RS-232 multi-drop port via a full duplex modem link.

4.8 The video inputs to the VDP shall include transient voltage suppression and isolation. Amplification that shall assure the I-volt peak to peak video signal integrity is maintained despite video cabling losses and externally induced transients. The amplifier shall have a minimum common mode rejection at 60 Hz of 90 dB.

4.9 The VDP enclosure shall include provisions to be bonded to a good earth ground.

4.10 The front face of the VDP shall contain indications, such as LED displays, to enable the user to view real time detections for up to 8 detector output channels at a time.

5.0 Camera

5.1 The video cameras used for traffic detection shall be furnished by the VDP supplier and shall be qualified by the supplier to ensure proper system operation.

5.2 The camera shall produce a useable video image of the bodies of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.1 lux to 10,000 lux.

5.3 The camera shall use a CCD sensing element and shall output monochrome video with resolution of not less than 380 lines vertical and 380 lines horizontal.

5.4 The camera shall include an electronic shutter control lens.

5.5 The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry. A single camera configuration shall be used for all approaches in order to minimize the setup time and spares required by the user.

5.6 The camera electronics shall include AGC to produce a satisfactory image at night.

5.7 The camera shall be housed in a weather-tight sealed enclosure. The housing shall be field rotatable to allow proper alignment between the camera and the traveled road surface.

5.8 The camera enclosure shall be equipped with a sun shield. The sunshield shall include a provision for water diversion to prevent water from flowing in the cameras field of view. The camera enclosure with sunshield shall be less than 5" diameter, less than 14" long, and shall weigh less than 5 pounds when the camera and lens are mounted inside the enclosure.

5.9 The camera enclosure shall include a thermostatically controlled heater to assure proper operation of the lens shutter at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure.

5.10 When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -34 °C to +60 °C and a humidity range from 0% RH to 100% RH.

5.11 The camera shall be powered by 120 VAC 60 Hz. Power consumption shall be 15 watts or less under all conditions.

5.12 Recommended camera placement height shall be 33 feet (or 10 meters) above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the camera should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 350 feet for reliable detection (height to distance ratio of 10:100). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

5.13 The camera enclosure shall be equipped with separate, weather-tight connections for power and video cables at the rear of the enclosure. These connections may also allow diagnostic testing and viewing of video at the camera while the camera is installed on a mast arm or pole using a lens adjustment module (LAM) supplied by the VDP supplier. Video and power shall not be connected within the same connector.

5.14 The video signal output by the camera shall be black and white in RS170 or CCIR format.

5.15 The video signal shall be fully isolated from the camera enclosure and power cabling.

6.0 Installation

6.1 The coaxial cable to be used between the camera and the VDP in gauge solid bare copper conductor (9.9 ohms/M), solid polyethylene insulating dielectric, 98% (min) tinned copper double-braided shield and black polyethylene outer covering. The signal attenuation shall not exceed 0.78 dB per 100 feet at 10 MHz. Nominal outside diameter is 0.304 inches. The coax cable shall be a continuous unbroken run from the camera to the VDP. This cable shall be suitable for installation in

conduit or overhead with appropriate span wire. 75-ohm BNC plug connectors should be used at both the Camera and Cabinet ends. The coaxial cable, BNC connector, and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

6.2 The power cabling shall be 16 AWG three conductor cable. The cabling shall comply with the National Electric Code, as well as local electrical codes.

6.3 The video detection system shall be installed by supplier factory certified installers and as recommended by the supplier and documented in installation materials provided by the supplier.

7. Warranty

7.1 The supplier shall provide a limited two-year warranty on the video detection system. See suppliers standard warranty included in the Terms and Conditions of Sale documentation.

7.2 During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

7.3 During the warranty period, updates to VDP software shall be available from the supplier without charge.

8.0 Maintenance and Support

8.1 The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

8.2 The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on site technical support services.

8.3 Installation or training support shall be provided by a factory authorized representative.

Basis of Payment:
This work will be paid for at the contract unit price per each for VIDEO DETECTION SYSTEM COMPLETE INTERSECTION and will include all items discussed in this specification including but not limited to all software, hardware and cabling.

DEPARTMENT OF THE ARMY

PERMIT

Permittee: Kane County Division of Transportation

Application No.: 199600199

Issuing Office: CHICAGO DISTRICT, U.S. ARMY CORPS OF ENGINEERS

DEFINITIONS: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform the work in accordance with the terms and conditions specified below.

Project Description: Proposed Extension of Stearns Road From East of IL Route 25 to West of Randall Road, New Bridge Placement over the Fox River, and Realignment and Improvements along Dunham Road, IL Route 25, IL Route 31, McLean Boulevard and Randall Road Located in South Elgin, Kane County, Illinois. The approved project construction plans are entitled, "Plans For Proposed Federal Aid Highway", dated September 14, 2006, prepared by CBBEL. The approved mitigation and Best Management Plan documents are entitled, "Fox River Bridges - Stearns Road Corridor Vision Document" dated May 8, 2003, revised January 30, 2004, the "Fox River Bridges CCP/Stearns Road Environmental Roadway Corridor, prepared by CBBEL and the "Wetland Compensation Plan Fox River Bridges - Stearns Road Corridor (FAP361) Randall Road to Dunham Road South Elgin, Kane County, Illinois, dated September 2006, prepared by CBBEL and Huff & Huff.

Project Location: South Elgin, Kane County, Illinois, Brewster Creek/Fox River Watershed, (Se ¼ of Section 6, S ½ & Ne ¼ of Section 1, Ne & Nw ¼ of Section 12, S ½ of Section 2, N & S ½ of Section 3, Ne and Nw ¼ of Section 4, Township 40 North, Range 8 East, and Nw ¼ of Section 5, Se ¼ of Section 32 and Sw ¼ of Section 33, Township 41 North, Range 8 East

Permit Conditions:

General Conditions

1. The time limit for completing the authorized work ends on November 1, 2011. If you find that you need more time to complete the authorized activity(s), submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archaeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. You shall comply with the water quality certification issued under Section 401 of the Clean Water Act by the Illinois Environmental Protection Agency for the project. Conditions of the certification are conditions of this authorization. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being accomplished in accordance with the terms and conditions of your permit.

Special Conditions

1. This permit is based on all material submitted as part of application number 199600199. You must comply with all applicable regulations and requirements in carrying out this project. Failure to comply with the terms and conditions of this permit may result in suspension and revocation of your permit.

2. You shall undertake and complete the project as described in the approved project construction plans entitled, "Plans For Proposed Federal Aid Highway", dated September 14, 2006, prepared by CBBEL, and including all relevant documentation to the project plans as proposed.

3. You shall fully implement the approved mitigation and Best Management Plan documents entitled, "Fox River Bridges - Stearns Road Corridor Vision Document" dated May 8, 2003, revised January 30, 2004, the "Fox River Bridges CCP/Stearns Road Environmental Roadway Corridor, prepared by CBBEL and the "Wetland Compensation Plan Fox River Bridges - Stearns Road Corridor (FAP361) Randall Road to Dunham Road South Elgin, Kane County, Illinois, dated September 2006, prepared by CBBEL and Huff & Huff.

All created wetlands shall meet the performance criteria in accordance with the Corps approved mitigation plans.

4. Throughout the project's duration, you shall adhere to all soil erosion and sediment control plans as recommended by the Kane/DuPage Soil and Water Conservation District (KDSWCD). Work authorized herein may not commence until you provide evidence to this office that the KDSWCD has determined that your plan meets technical standards. In addition, you shall enter into an agreement with the KDSWCD where as the SWCD shall oversee construction of the mitigation areas and Best Management Practice (BMP) areas and, if necessary, provide corrective measures to the applicant and to the Corps project manager. Please contact the SWCD for further instructions.

5. As they become available, you shall submit to this office and to the KDSWCD grading plans for each subsequent phase of the project. This office shall approve the construction plans prior to commencement of each additional phase. The KDSWCD sign-off letter and an approved set of stamped plans shall serve to certify that the erosion and sediment control plans has met all applicable soil erosion & sediment control (SESC) Technical Standards. A copy of the District's letter(s) shall be submitted to this office to inform us that you have completed the SESC portion of the permitting process. Please note that the letter confirming the adequacy of the plans applies to the overall principles and practices on the site and not to the individual construction packages. In addition, the more detailed soil

erosion and sediment control plans of the individual construction packages shall be reviewed by the KDSWCD as the construction package level plans are designed and completed. The subsequent plans shall be reviewed in detail and held to the same technical standards as the overall plans. Work authorized herein may not commence until you provide evidence to this office that the SWCD has determined that each construction package meets technical standards

6. You shall insure that mitigated wetlands and adjacent upland buffers are protected through a permanent deed restriction. The approved construction drawings and USACE authorization number shall be included as an exhibit in the deed, and recorded with the Registrar of Deeds or other appropriate office charged with the responsibility for maintaining records of title or interest in real estate property. Within 30 days of receipt of this authorization, you shall submit to this office for review a draft copy of the deed restriction. Recording of the approved deed restriction shall occur upon this office approving the document(s) and within 180 days of permit issuance.

7. You shall submit as-built drawings of the Phase I mitigation area, and all proposed BMP's to be constructed. The as-builts shall be approved by this office and by the KDSWCD prior to the area(s) being seeded.

8. You shall install signs which identify the presence of Federally-protected wetlands and the prohibited activities in the mitigation and BMP areas. The signs shall be spaced every 300 - 400 feet at the boundary of all adjacent upland buffers. The signs shall be installed at completion of seeding and planting activities.

9. You shall provide the informational brochure entitled "Living with Wetlands" to all property owners situated adjacent to the wetlands and BMP's. The brochure discusses the importance of wetlands, the entities that have jurisdiction over the areas, the relevant rules and regulations, and the potential indirect impacts to the wetlands resulting from common land practices, such as the use of lawn fertilizers and chemicals. You can obtain copies of this brochure by contacting Susan Rose with the Wetland Initiative at 53 W. Jackson Blvd. #1015, Chicago, Illinois 60604, (312) 922-0777, email: twi@wetlands-initiative.org.

10. You shall transfer the mitigated wetlands (the McLean Boulevard Fen Recharge Area, South Elgin Sedge Meadow Buffer, the Sandhill Annex and the Direct Impact Mitigation Site) to the Forest Preserve District of Kane County following the 7-year mitigation management and monitoring plan for all mitigation areas and a determination by this office that all performance

criteria have been met. The Forest Preserve District shall ensure that the mitigation areas are maintained and protected as a natural area in perpetuity.

11. You shall ensure that any wetland areas created or preserved as mitigation for work authorized by this permit shall not be made subject to any future construction and/or fill activities, except for the purposes of enhancing or restoring the mitigation area associated with this permit. All plans are to be approved by this office prior to commencement of any work.

12. You are responsible for all work authorized herein and for ensuring that all contractors are aware of the terms and conditions of this authorization. A copy of this authorization must be present at the project site during all phases of construction.

13. You shall notify this office of any proposed modifications to the project, including revisions to any of the plans or documents cited in this authorization. You must receive approval from this office before work affected by the proposed modification is performed.

14. You shall notify this office prior to the transfer of this authorization and liabilities associated with compliance with its terms and conditions. The transferee must sign the authorization in the space provided and forward a copy of the authorization to this office.

Further Information:

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this Authorization.

a. This permit does not obviate the need to obtain other federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. The Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on the behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modifications, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in the reliance on the information you provided.

5. Reevaluation of Permit Decision. The office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures

such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 established a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as a permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

PERMITTEE
Carl Schoedel
Kane County Division of Transportation
221 Burlington Road
St. Charles, Illinois 60175

JANUARY 5, 2007
DATE

This authorization becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

199600199
Corps Authorization Number

FOR AND ON BEHALF OF
John D. Drolet
Colonel, U.S. Army
District Commander

JAN. 11, 2007
DATE

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

TRANSFEREE DATE

_____

ADDRESS

_____

TELEPHONE

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 – (217) 782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 – (312) 814-6026

217/782-3362 ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

SEP 2 2 2006

Chicago District
Corps of Engineers
111 North Canal Street, 6th Floor
Chicago, IL. 60606

Re: Kane County Department of Transportation (Kane & DuPage Counties)
Stearns Road Extension (Route 25 to Randall Road) – Unnamed Wetlands, Fox River and Tributaries
Log # C-0959-05 [CoE appl. # 199600199]

Gentlemen:

This Agency received a request on December 8, 2005 from the Kane County Department of Transportation requesting necessary comments concerning the extension of Stearns Road from Route 25 to Randall Road impacting wetlands, Fox River and tributaries. We offer the following comments.

Based on the information included in this submittal, it is our engineering judgment that the proposed project may be completed without causing water pollution as defined in the Illinois Environmental Protection Act, provided the project is carefully planned and supervised.

These comments are directed at the effect on water quality of the construction procedures involved in the above described project and are not an approval of any discharge resulting from the completed facility, nor an approval of the design of the facility. These comments do not supplant any permit responsibilities of the applicant toward the Agency.

This Agency hereby issues certification under Section 401 of the Clean Water Act (PL 95-217), subject to the applicant's compliance with the following conditions:

1. The applicant shall not cause:

   a. violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulations;

   b. water pollution defined and prohibited by the Illinois Environmental Protection Act; or

   c. interference with water use practices near public recreation areas or water supply intakes.

2. The applicant shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.

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3. Any spoil material excavated, dredged or otherwise produced must not be returned to the waterway but must be deposited in a self-contained area in compliance with all state statues, regulations and permit requirements with no discharge to waters of the State unless a permit has been issued by this Agency. Any backfilling must be done with clean material and placed in a manner to prevent violation of applicable water quality standards.

4. All areas affected by construction shall be mulched and seeded as soon after construction as possible. The applicant shall undertake necessary measures and procedures to reduce erosion during construction. Interim measures to prevent erosion during construction shall be taken and may include the installation of staked straw bales, sedimentation basins and temporary mulching. All construction within the waterway shall be constructed during zero or low flow conditions. The applicant shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activity associated with the project will result in the disturbance of 1 (one) or more acres, total land area on or after March 10, 2003. An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control, Permit Section.

5. The applicant shall implement erosion control measures consistent with the "Illinois Urban Manual" (IEPA/USDA, NRCS; 2002).

6. The Asphalt, bituminous material and concrete with protruding material such as reinforcing bar or mesh shall not be 1) used for backfill, 2) placed on shorelines/streambanks, or 3) placed in waters of the State.

7. The proposed work shall be constructed with adequate erosion control measures (i.e., silt fences, straw bales, etc.) to prevent transport of sediment and materials to the adjoining wetlands and downstream.

8. The wetland mitigation plan received by the Agency on December 8, 2005 shall be implemented. Modifications to the wetland mitigation plan must be submitted to the Agency for approval. The permittee shall submit annual reports by July 1 of each calendar year on the status of the mitigation. The first annual report shall include a hydric soils determination that represents the soils at the completion of initial construction for the wetland mitigation site(s). The permittee shall monitor the mitigation for 5 years after the completion of initial construction. A final report shall be submitted within 90 days after completion of a 5-year monitoring period. Each annual report and the final report shall include the following: IEPA Log No., date of completion of initial construction, representative photographs, floristic quality index, updated topographic maps, description of work in the past year, the performance standards for the mitigation as stated in the mitigation plan, and the activities remaining to complete the mitigation plan. For wetland mitigation sites containing non-hydric soils at the time of initial construction, the final report shall include a hydric soils determination that represents the soils at the end of the 5-year monitoring period. For wetland mitigation provided by purchase of wetland mitigation banking credits, in lieu of the above monitoring and reporting, the permittee shall submit written proof from the wetland mitigation bank that the wetland credits have been purchased within thirty (30) days of said purchase. The subject reports and proof of purchase of mitigation credits shall be submitted to:

Illinois Environmental Protection Agency
Bureau of Water
Watershed Management Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

9. The applicant shall submit finalized plans for each phase of the proposed project to the Agency for approval.

This certification becomes effective when the Department of the Army, Corps of Engineers, includes the above conditions # 1 through # 9 as conditions of the requested permit issued pursuant to Section 404 of PL 95-217.

This certification does not grant immunity from any enforcement action found necessary by this Agency to meet its responsibilities in prevention, abatement, and control of water pollution.

Sincerely,

Bruce J. Yurdin
Manager, Watershed Management Section
Bureau of Water

BY:TJF:0959-05.doc

cc: IEPA, Records Unit
IEPA, DWPC, FOS, Des Plaines
IDNR, OWR, Bartlett
USEPA, Region 5
Mr. Carl Schoedel, Kane County Department of Transportation
Mr. Jim Novak, Huff & Huff, Inc.
Mr. Pat Kelsey, Christopher B. Burke Engineering
Mr. Mike Okrent, Alfred Benesch & Associates ✓

CLEANING AND PAINTING NEW METAL STRUCTURES
Effective Date: September 13, 1994
Revised Date: March 6, 2009

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. Unless stated otherwise, requirements imposed on the "Contactor" in this specification apply to both the shop painting contractor and the field painting contractor.

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 shop or field painting respectively, the Contractor shall submit for the Engineer's review and acceptance, the following applicable plans, certifications and information for completing the field work. Painting work shall not proceed until the submittals are accepted by the Engineer. Qualifications, certifications and QC plans for shop and field cleaning and painting shall be available for review by the QA Inspector.

a) Contractor Shop 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.

b) Contractor Field Qualifications. Unless indicated otherwise in the contract plans, the field painting contractor shall possess current SSPC QP1 certification. Evidence of current qualifications shall be provided.

c) QC Personnel Qualifications. 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 Level 2-Certified, 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, including names, addresses and telephone numbers of contact persons employed by the bridge owner.

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. The QC personnel shall not perform hands on surface preparation or paint activities unless otherwise approved by the Engineer. Painters shall perform wet film thickness measurements, with QC personnel conducting random spot checks of the wet film. The Contractor shall not replace the QC personnel assigned to the project without advance notice to the Engineer, and acceptance of the replacement(s), by the Engineer.

d) 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 shop program shall include a copy of the quality control form(s) that will be completed daily. The field program shall incorporate the IDOT Quality Control Daily Report form, as supplied by the Engineer.

e) 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.

f) 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. Application shall be performed in accordance with the coating manufacturer's instructions.

Quality Control (QC) Inspections. The Contractor shall perform first line, in process QC inspections of each phase of the work. The submitted and accepted QC Program(s) shall be used to insure that the work accomplished complies with these specifications. The shop painting Contractor shall use their forms as supplied in their submittal. These shop reports shall be made available for review when requested by the Engineer. The field painting Contractor shall use the IDOT Quality Control Daily Report form supplied by the Engineer to record the

results of quality control tests. These field reports shall be turned into the Engineer before work resumes the following day.

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

- Psychrometer or comparable equipment for the measurement of dew point and relative humidity, together with all necessary weather bureau tables or psychrometric charts.
- Surface temperature thermometer.
- Bresle Cell Kits or CHLOR*TEST kits for chloride determinations, or equivalent.(only required when erected steel is exposed through the winter prior to field painting.)
- Wet Film Thickness Gage.
- Blotter paper for compressed air cleanliness checks.
- Type 2 Magnetic Dry Film Thickness Gage per SSPC - PA2.
- Calibration standards for dry film thickness gage.
- Light meter for measuring light intensity during cleaning, painting, and inspection activities.
- All applicable ASTM and SSPC Standards used for the work.
- Commercially available putty knife of a minimum thickness of 40 mils (1 mm) and a width between 1 and 3 in. (25 and 75 mm). Note that the putty knife is only required in touch-up areas where the coating is being feathered and must be tested with a dull putty knife.

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

Quality Assurance (QA) Observations. The Engineer may conduct QA observations of any or all phases of the shop or field 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.

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

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

When the surface to be inspected is more than 6 ft. (1.8 m) above the ground or water surface, and fall protection is not provided (e.g. guardrails) 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 for Field Painting. 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. When the containment needs to be attached to the structure, it shall be attached by clamping or similar means. Welding or drilling into the structure shall be prohibited unless otherwise approved by the Engineer in writing. 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.

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

Field Surface Preparation (HOLD POINT). The following processes shall be used to prepare

the shop-coated steel surfaces for field painting.

1. Low Pressure Water Cleaning and Solvent Cleaning. The Contractor shall notify the Engineer 24 hours in advance of beginning surface preparation operations.

   Washing shall involve the use of potable water at a minimum of 1000 psi (7 MPa) and less than 5000 psi (34 MPa) according to "Low Pressure Water Cleaning" of SSPCSP12. Paint spray equipment shall not be used to perform the water cleaning. The cleaning shall be performed in such a manner as to remove dust, dirt, chalk, insect and animal nests, bird droppings, and other foreign matter prior to solvent cleaning.

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

   After washing has been accepted by the Engineer, all traces of asphaltic cement, oil, grease, diesel fuel deposits, and other soluble contaminants which remain on the steel surfaces to be painted shall be removed according to SSPC – SP1 Solvent Cleaning, supplemented with scraping (e.g., to remove large deposits of asphaltic cement) as required. The solvent(s) used for cleaning shall be compatible with the primer. The Contractor shall identify the proposed solvent(s) in the submittals. If the primer is softened, wrinkled, or shows other signs of attack from the solvents, the Contractor shall immediately discontinue their use. The name and composition of replacement solvents, together with MSDS, shall be submitted for Engineer acceptance prior to use. If solvent cleaning/scraping is not successful in removing the foreign matter, the Contractor shall use other methods identified in SP1, such as steam cleaning as necessary.

2. Water Cleaning Between Coats. When foreign matter has accumulated on a newly applied coat, washing shall be performed prior to the application of subsequent coats.

3. Power Tool Cleaning of Shop-Coated Steel. Damaged and rusted areas shall be spot cleaned according Power Tool Cleaning SSPC-SP3 (Modified). The edges of the coating surrounding the spot repairs shall be feathered. A power tool cleaned surface shall be free of all loose rust, loose and peeling paint, and loose rust that is bleeding through and/or penetrating the coating. All locations of visible corrosion and rust bleed, and lifting or loose paint shall be prepared using the power tools.

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

Field Soluble Salt Remediation (HOLD POINT). If the erected steel is exposed to winter weather prior to field painting, the Contractor shall implement surface preparation procedures and processes that will remove chloride from the surfaces prior to field painting. Surfaces that may be contaminated with chloride include, but are not limited to, expansion joints and all areas that are subject to roadway splash or run off such as fascia beams and stringers.

Methods of chloride removal may include, but are not limited to, steam cleaning or pressure washing with or without the addition of a chemical soluble salt remover as approved by the coating manufacturer, and scrubbing before or after initial paint removal. The water does not need to be collected. The Contractor shall provide the proposed procedures for chloride remediation in the Surface Preparation/Painting Plan.

Upon completion of the chloride remediation steps, the Contractor shall use cell methods of field chloride extraction and test procedures (e.g., silver dichromate) accepted by the Engineer, to test representative surfaces for the presence of remaining chlorides. Remaining chloride levels shall be no greater than 7µg/sq cm as read directly from the surface without any multiplier applied to the results. The testing must be performed, and the results must be acceptable.

Surface and Weather Conditions (HOLD POINT). 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.

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

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, and for the minimum and maximum time between coats.

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, 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 as specified above. All damaged shop primed areas shall be spot cleaned per SSPC-SP3 Modified, All damaged areas and all installed fasteners shall be fully primed with

aluminum epoxy mastic. The structural steel shall then receive one full intermediate coat and one full topcoat of waterborne acrylic paint.

a) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:
   Zinc Primer: 3 mils (75 microns) min., 6 mils (150 microns) max.
   Epoxy Mastic(spot coat): 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).

b) 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 completed paint system shall be spot cleaned using SSPC-SP3 (Modified). 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, or when specified on the plans, for the application of two coats in the shop with the finish coat applied in the field. All contact surfaces shall be masked off prior to shop-application of the intermediate and top coats.

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, one coat of epoxy intermediate, and unless stated otherwise in the plans, one coat of urethane finish. Before the application of the field coats, the shop coats and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed as specified above to remove dirt, oil, lubricants, oxidation products, and foreign substances. All damaged shop coated areas shall then be spot cleaned per SSPC-SP3 (Modified). 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.

All damaged areas and all newly installed fasteners shall be fully primed with epoxy mastic. One intermediate coat of epoxy shall be applied over the epoxy mastic and on exposed shop primer. One topcoat of aliphatic urethane shall be applied to all areas where the intermediate coat is visible, whether the intermediate coat was applied in the shop or in the field. The field applied coats shall only overlap onto the existing finish coat where sanding has been performed.

When the plans require the urethane coat to be applied in the field, the maximum recoat time for the intermediate coat shall be observed. If the recoat time for the intermediate coat is exceeded, the Contractor shall remove the shop-applied system, or submit for approval by the Engineer, written recommendations from the coating manufacturer for the procedures necessary to extend that recoat window or otherwise prepare the intermediate coat to receive the finish.

(a) 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 (spot coat): 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.

(b) 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).

(c) 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.

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. When all coats are applied in the shop the shop Contractor shall do the stenciling. When 1 or more coats are applied in the field, the field contractor shall do the stenciling.

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 (field applied finish coats), "CODE AB" for the Organic Zinc/ Epoxy/ Urethane System (shop applied), 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.

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.

DRIVEN SOLDIER PILE RETAINING WALL
Effective: November 13, 2002
Revised: February 2, 2007

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate, furnish, and drive the soldier piles into position to the specified elevations. Also included in this work is the furnishing and installation of the timber lagging. All work shall be according to the details shown on the plans and as directed by the Engineer.

The remainder of the retaining wall components, if any, as shown on the plans, such as concrete facing, shear studs, reinforcement bars, tie backs, hand rails, and various drainage items etc., are not included in this Special Provision but are paid for as specified elsewhere in this Contract.

Materials. The materials used for the soldier piles and lagging shall satisfy the following requirements:

(a) The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270, Grade 36 (AASHTO M270M, Grade 250), unless otherwise designated on the plans.

(b) The Controlled Low-Strength Material (CLSM), used for backfilling shaft excavations to the existing ground surface, shall be according to the Article 1019.

(c) 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.

Construction Requirements. The Contractor shall satisfy the following requirements:

(a) Soldier Pile Fabrication and Placement. The soldier pile is defined as the structural steel section(s) shown on the plans. 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. Piles shall be supplied and driven without splices unless approved by the Engineer. Soldier piles furnished with extra length shall be driven to the required tip elevation and cut to satisfy the top of pile elevation or driven past the required tip elevation to avoid cutting. Standard vibratory or impact hammers may be used to install the soldier piles. The Contractor shall use suitable bracing or pile leads to maintain the position of the soldier pile while driving such that the final location will satisfy the Construction Tolerances portion of this Special Provision. At the contractors option and at no extra cost to the department, the piles may be

installed by setting them in predrilled excavations and backfilling with CLSM according to Section 593. The drilling methods used to maintain the shaft excavation side wall stability during the various phases of shaft excavation and concrete placement, must be appropriate for the site conditions encountered.

(b) Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be penetrated with normal pile driving procedures, but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction.

(c) Construction Tolerances. The soldier piles shall be driven 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 pile.

(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.

(d) Timber Lagging. Timber lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the timber lagging behind the flanges of the soldier piles shall be the minimum necessary to install the lagging. Any voids produced behind the lagging shall be filled with porous granular embankment at the Contractors expense. When the plans require the Contractor to design the timber lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading, traffic surcharges and the lagging span length(s). The nominal thickness of the lagging selected shall not be less than 3 in. (75 mm) and shall satisfy the minimum tabulated unit stress in bending (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 according to Article 1007.03.

(e) 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.

(f) 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 and driving of soldier piles will be measured for payment in feet (meters) along the centerline of the soldier pile for each of the types specified. The length shall be determined as the difference between the plan top of soldier pile and the required tip elevation.

Timber 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) required by the plan design.

The driving of soldier piles will be paid for at the contract unit price per foot (meter) for DRIVING SOLDIER PILES. Any bracing, cutoffs, or splicing required will not be paid for separately but shall be included in this item.

The timber lagging will be paid for at the contract unit price per square foot (square meter) for UNTREATED TIMBER LAGGING, or TREATED TIMBER LAGGING as detailed on the plans.

Obstruction mitigation shall be paid for according to Article 109.04.

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.

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, adopted 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 special 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 construction 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 contract documents, or the utility is not shown on the plans or described in the Special Provisions as to be adjusted in conjunction with construction, the Contractor shall not interfere 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 Contractor except traffic structures, light poles, etc., that are normally located within the proposed construction 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:

Kane County Division of Transportation

McDonough Associates, Inc.,

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
Revised: January 1, 2009

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 either be accredited by the AASHTO Materials Reference Laboratory (AMRL) for ASTM C 227 under Portland Cement Concrete or Aggregate; or 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.

80186

ALKALI-SILICA REACTION FOR PRECAST AND PRECAST PRESTRESSED CONCRETE (BDE)

Effective: January 1, 2009

Description. This special provision is intended to reduce the risk of a deleterious alkali-silica reaction in precast and precast prestressed 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 cast-in-place concrete.

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.

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 PC concrete, precast products, and PS concrete, 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 PC Concrete, precast products, and Class PS 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.

3) Ground Granulated Blast-Furnace Slag. For Class PC concrete, precast products, and Class PS concrete, ground granulated blast-furnace slag shall replace 25 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. 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 either be accredited by the AASHTO Materials Reference Laboratory (AMRL) for ASTM C 227 under Portland Cement or Aggregate; or 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.

80213

APPROVAL OF PROPOSED BORROW AREAS, USE AREAS, AND/OR WASTE AREAS INSIDE ILLINOIS STATE BORDERS (BDE)

Effective: November 1, 2008

Revise the title of Article 107.22 of the Standard Specifications to read:

"**107.22 Approval of Proposed Borrow Areas, Use Areas, and/or Waste Areas Inside Illinois State Borders.**"

Add the following sentence to the end of the first paragraph of Article 107.22 of the Standard Specifications:

"Proposed borrow areas, use areas, and/or waste areas outside of Illinois shall comply with Article 107.01."

80207

BUILDING REMOVAL - CASE IV (NO ASBESTOS) (BDE)

Effective: September 1, 1990
Revised: January 1, 2007

BUILDING REMOVAL: This work shall consist of the removal and disposal of _____ building(s), together with all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

Bldg. No.	Parcel No.	Location	Description
1	1ST012OTE-2	7N394 McLean Blvd. South Elgin, IL 60177	Fox River Stone Company Main Office
2	1ST012OTE-2	7N394 McLean Blvd. South Elgin, IL 60177	Fox River Stone Company Laboratory Building

Discontinuance of Utilities: The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

Signs: Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR
HIGHWAY CONSTRUCTION
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein.

The lump sum unit price(s) for this work shall represent the cost of demolition. Any salvage value shall be reflected in the contract unit price for this item.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least ten days prior to commencement of any demolition activity.

Asbestos Demolition/Renovation Coordinator
Illinois Environmental Protection Agency
Division of Air Pollution Control
P. O. Box 19276
Springfield, Illinois 62794-9276
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.

B. Prior to starting work, the Contractor shall submit proof of written notification and compliance with the "Notifications" paragraph.

5053I

Midwest Environmental Consulting Services, Inc.

COMPREHENSIVE ASBESTOS SURVEY

Performed for:

KANE COUNTY DIVISION OF TRANSPORTATION
41W011 Burlington Road
St. Charles, IL 60175

Project Location:

FOX RIVER STONE CO. – MAIN OFFICE BUILDING
7N394 McLean Boulevard
South Elgin, IL 60177

Inspection Date: March 9, 2009
Report Date: March 16, 2009

MEC PROJECT #: 09-03-108-INSP

4 Bonnie Lane · Yorkville, Illinois 60560 · Phone: 630·553·3989 · FAX: 630·553·3990
www.mec-us.com

KANE COUNTY DIVISION OF TRANSPORTATION

Fox River Stone Co. – Main Office Building
7N394 McLean Boulevard
South Elgin, IL 60177

Table of Contents

MEC Project #09-03-108-INSP

Midwest Environmental Consulting Services, Inc.
4 Bonnie Lane
Yorkville, IL 60560
(630) 553-3989 Fax (630) 553-3990

Section 1:

Introduction:

Midwest Environmental Consulting Services, Inc., (MEC) was retained by the Kane County Division of Transportation to conduct a comprehensive asbestos inspection and bulk sampling of suspect asbestos containing materials (ACM) at the Fox River Stone Company Main Office Building located at 7N394 McLean Boulevard, South Elgin, Illinois, 60177. The asbestos inspection was performed on March 9, 2009. This comprehensive inspection was intended to address the potential existence of ACM on the interior and exterior prior to planned demolition.

Section 2:

Protocol:

The bulk sampling strategy is based upon the protocol of homogeneous areas established by the United States Environmental Protection Agency (US EPA). A homogeneous sampling area (HSA) is defined as an area of material that is uniform in color, texture, construction, general appearance, and date of installation.

Bulk samples of suspect ACM were analyzed by Polarized Light Microscopy (PLM) utilizing the EPA-600/M4-82-020 Method. Bulk samples were analyzed using Asbestos Hazard Emergency Response Act (AHERA) "positive stop" protocol, meaning each sample of each HSA group is analyzed until asbestos is found in the HSA or all samples in the group are analyzed and are negative for asbestos content.

Section 3:

Building Description:

The Main Office Building is a one-story metal framed structure constructed in 1981 with no basement totaling approximately 2,142 square feet. The interior walls are drywall and wood. The floors are covered with vinyl, carpet, and stone. The ceilings are acoustical lay-in tile. The roof is metal.

Section 4:

Scope of Work:

The inspection was to address the following objectives:

- Observe, assess, and collect bulk samples of friable and non-friable asbestos containing building materials within the specific scope of work.
- The inspection was intended to identify all homogeneous areas, and did not attempt to identify or address any other environmental health hazards.
- The scope of work did not include identifying all potential concerns or eliminate possible risks.

A total of nine (9) homogeneous areas were identified within the scope of work. Out of the nine (9) homogeneous areas, none (0) of the homogeneous areas tested positive for asbestos content and no (0) homogeneous areas were assumed to contain asbestos:

Asbestos-Containing Materials:

- **None**

Assumed Asbestos-Containing Materials:

- **None**

Section 5:

Executive Summary:

Standard practice requires that the owner provide Certified-As-Built drawings for review by the inspector. At the time of the inspection, these drawings were not available. Therefore, the accuracy of the inspection can only be based on the materials that were accessible or known about prior to the inspection. If a suspect material is identified during renovation or demolition, all work shall stop immediately until the materials can be sampled for asbestos content.

During demolition, it is recommended that a project design, project oversight, and air monitoring be in place prior to any asbestos abatement work being conducted. An Illinois Department of Public Health licensed asbestos abatement contractor must be in place prior to any asbestos abatement activities.

Prior to any planned demolition taking place, Midwest Environmental Consulting Services, Inc., strongly recommends that either the client contact Midwest Environmental Consulting Services, Inc., or the Illinois Department of Public Health in regards to current rules and regulations.

Although Midwest Environmental Consulting Services, Inc., has attempted to identify all suspect asbestos materials located on the inside of the building; some materials may have been inaccessible. Midwest Environmental Consulting Services, Inc. makes no warranty, expressed or implied.

Respectfully Submitted,
MIDWEST ENVIRONMENTAL CONSULTING SERVICES, INC.

Stephen Merwin
IDPH Licensed Asbestos Building Inspector
(IDPH #100-02871)

Midwest Environmental Consulting Services, Inc.
4 Bonnie Lane
Yorkville, IL 60560
630-553-3989

Project Date: 3/9/09

Asbestos Bulk Sample Field Summary

Client: Kane County Div. of Transportation **Project Location:** Fox River Stone Co.-Main Office Building **Project #:** 09-03-108-INSP
Address: 7N394 McLean Blvd., S. Elgin, IL 60177 **Inspector:** Stephen Merwin – #100-02871

Sample #	Material Description	Location	Approx. Quantity	ACM Yes/No	Comments
MDA	Drywall/Compound/Tape	Throughout	3,360 S.F.	No	
MCA	2x4 Lay-In Ceiling Tile	Front Store Area, Hallway & Offices	1,300 S.F.	No	
MCB	2x2 Lay-In Ceiling Tile	Offices, Hallway & Kitchen	750 S.F.	No	
MBA	Vinyl Wall Base/Mastic –Tan	Front Store Area & Bathroom	120 L.F.	No	
MBB	Vinyl Wall Base/Mastic – Brown	Southwest Office	25 L.F.	No	
MFA	12x12 Floor Tile/Mastic – Beige w/Beige Flecks	Front Store Area & Bathroom	850 S.F.	No	
MFB	12x12 Floor Tile – Gray w/Beige Flecks	Kitchen	100 S.F.	No	
MMA	Carpet Glue On Concrete	Southwest Office & Conference Room	400 S.F.	No	
TPA	Paper Pipe Wrap	Furnace Room	4 L.F.	No	

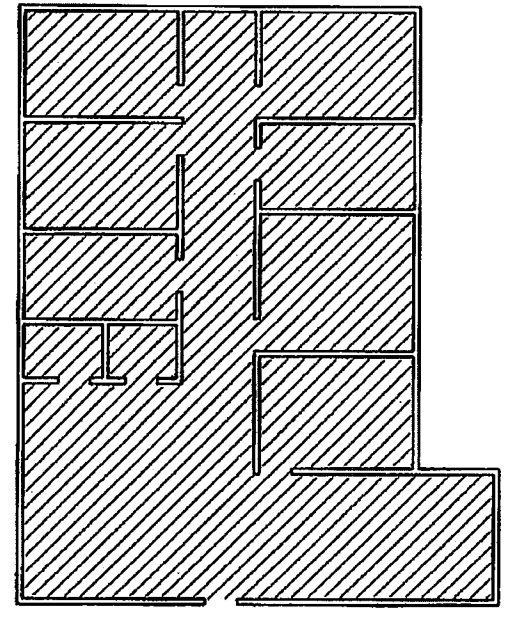
LS2

Inspection performed for:
KANE COUNTY DIVISION OF TRANSPORTATION
41W011 Burlington Road
St. Charles, IL 60175
MEC Project #09-03-108-INSP

HOMO: MDA
DESCRIPTION: Drywall/Compound/Tape
QUANTITY: 3,360 S.F.
ACM: No

COMMENTS:

252



NORTH

MAIN OFFICE BUILDING

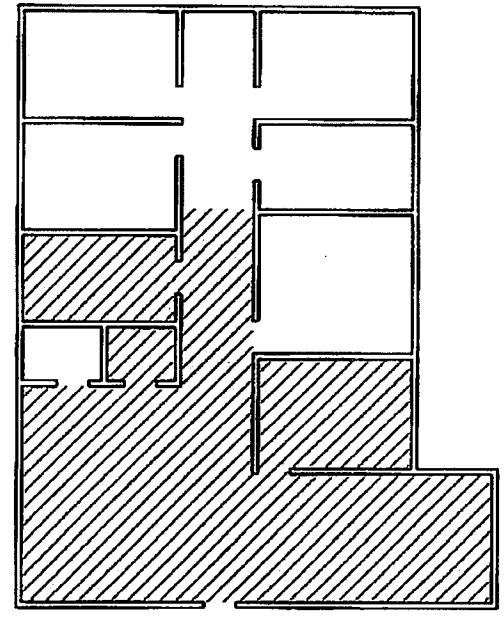
Kane County Division of Transportation 41W011 Burlington Road St. Charles, IL 60175	**Project:** Fox River Stone Co. - Main Office Building 7N394 McLean Blvd. South Elgin, IL 60177	**Consultant:** Midwest Environmental Consulting Services, Inc. 4 Bonnie Lane Yorkville, IL 60560 Ph. 630.553.3989	

REVISIONS			
NO.	DATE	Rev. By	File Name: 09-03-108
			Date 03-10-09
			Drawn By JO Scale: NTS

HOMO: MCA
DESCRIPTION: 2'x4' Lay-in Ceiling Tile
QUANTITY: 1,300 S.F.
ACM: No

COMMENTS:

S2



NORTH

MAIN OFFICE BUILDING

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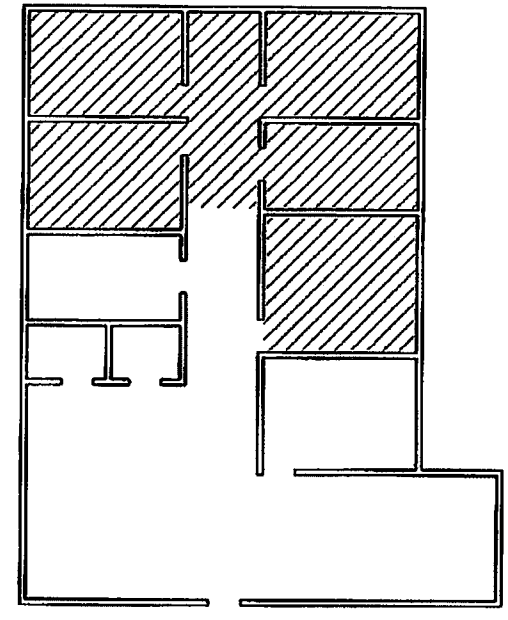
REVISIONS			
NO.	DATE	Rev. By	File Name 09-03-108
			Date 03-10-09
			Drawn By: JO Scale: NTS

HOMO: MCB
DESCRIPTION: 2'x2' Lay-In Ceiling Tile
QUANTITY: 750 S.F.
ACM: No

COMMENTS:



NORTH

MAIN OFFICE BUILDING

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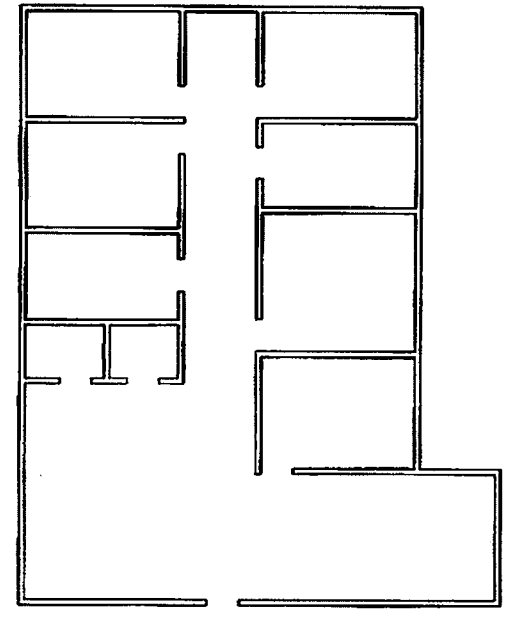
REVISIONS			
NO.	DATE	Rev By	File Name: 09-03-108
			Date 03-10-09
			Drawn By JQ / Scale: NTS

HOMO: MBA
DESCRIPTION: Vinyl Wall Base/Mastic -Tan
QUANTITY: 120 L.F.
ACM: No

COMMENTS:



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MAIN OFFICE BUILDING

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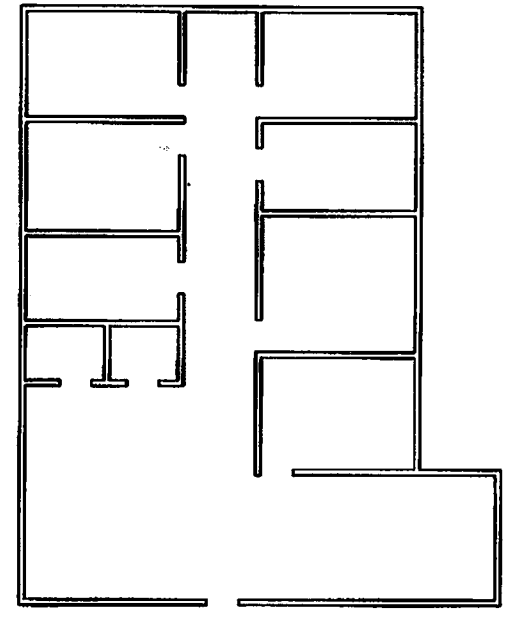
REVISIONS			
NO.	DATE	Rev. By	File Name 09-03-108
			Date 03-10-09
			Drawn By. JQ Scale: NTS

HOMO: MBB
DESCRIPTION: Vinyl Wall Base/Mastic - Brown
QUANTITY: 25 L.F.
ACM: No

COMMENTS:

292



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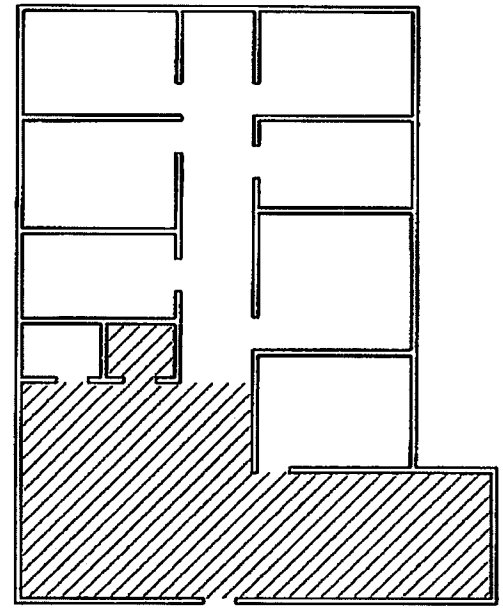
REVISIONS

NO.	DATE	Rev. By	File Name: 09-03-108
			Date: 03-10-09
			Drawn By: JQ Scale: NTS

HOMO: MFA
DESCRIPTION: 12x12 Floor Tile/Mastic -Beige w/Beige Flecks
QUANTITY: 850 S.F.
ACM: No

COMMENTS:



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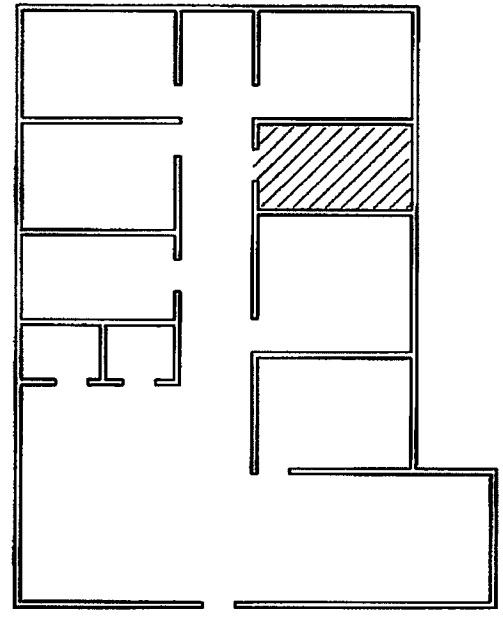
REVISIONS

NO.	DATE	Rev. By	File Name: 09-03-108
			Date 03-10-09
			Drawn By: JQ Scale: NTS

HOMO: MFB
DESCRIPTION: 12x12 Floor Tile-Gray w/Beige Flecks
QUANTITY: 100 S.F.
ACM: No

COMMENTS:



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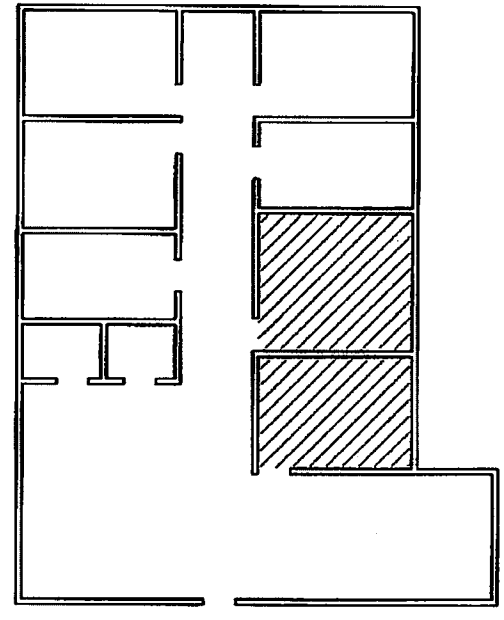
REVISIONS			
NO.	DATE	Rev. By	File Name 09-03-108
			Date 03-10-09
			Drawn By: JQ Scale: NTS

264

HOMO: MMA
DESCRIPTION: Carpet Glue on Concrete
QUANTITY: 400 S.F.
ACM: No

COMMENTS:



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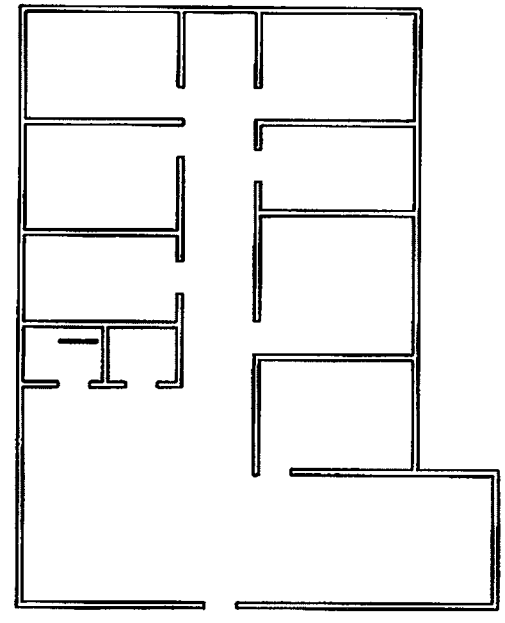
REVISIONS			
NO.	DATE	Rev. By	File Name 09-03-108
			Date. 03-10-09
			Drawn By. JQ | Scale. NTS

HOMO: TPA
DESCRIPTION: Paper Pipe Wrap
QUANTITY: 4 L.F.
ACM: No

COMMENTS:

266



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REVISIONS			
NO.	DATE	Rev By	File Name: 09-03-108
			Date 03-10-09
			Drawn By: JQ Scale: NTS

STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

NVLAP Lab Code 101202-0

ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY

Method: EPA-600/M4-82-020

Midwest Environmental Consulting Serv., Inc.
4 Bonnie Lane
Yorkville, IL 60560
Phone: (630) 553-3989
Fax: (630) 553-3990

Reference: 09-03-108-INSP
Location: Kane County Div. Of Trans. S. Elgin, IL
Batch No.: 282623
Customer No.: 244

Date Received: 03/10/2009
Date Analyzed: 03/11/2009
Date Reported: 03/11/2009
Turn Around Time: 24 Hour

Laboratory Sample	Customer Sample Number	Asbestos Components (%)	Non-Asbestos Components (%)
282623001	MDA-1	ND	Binder 99-100%
282623002	MDA-2	ND	Binder 99-100%
282623003	MDA-3	ND	Binder 99-100%
282623004	MCA-1	ND	Cellulose 20-25% Binder 75-80%
282623005	MCA-2	ND	Cellulose 20-25% Binder 75-80%
282623006	MCA-3	ND	Cellulose 20-25% Binder 75-80%
282623007	MCB-1	ND	Cellulose 20-25% Binder 75-80%
282623008	MCB-2	ND	Cellulose 20-25% Binder 75-80%
282623009	MCB-3	ND	Cellulose 20-25% Binder 75-80%
282623010	MBA-1	ND	Binder 99-100%
282623011	MBA-2	ND	Binder 99-100%
282623012	MBA-3	ND	Binder 99-100%
282623013	MBA-1M	ND	Binder 99-100%

ND = Asbestos Not Detected (Not Present) NA = Not Analyzed NS = Not Submitted

Components of inhomogeneous samples are analyzed per our Standard Operating Procedure, or per customer request.

The use of the NVLAP logo does not imply endorsement by NVLAP or any agency of the US Government.

Analyzed by Name: Henry Robateau / Microscopist

Date: 03/11/2009

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STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

NVLAP Lab Code 101202-0

ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY

Method: EPA-600/M4-82-020

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4 Bonnie Lane
Yorkville, IL 60560
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Reference: 09-03-108-INSP
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Batch No.: 282623
Customer No.: 244

Date Received: 03/10/2009
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Turn Around Time: 24 Hour

Laboratory Sample	Customer Sample Number	Asbestos Components (%)	Non-Asbestos Components (%)
282623014	MBA-2M	ND	Binder 99-100%
282623015	MBA-3M	ND	Binder 99-100%
282623016	MBB-1	ND	Binder 99-100%
282623017	MBB-2	ND	Binder 99-100%
282623018	MBB-3	ND	Binder 99-100%
282623019	MBB-1M	ND	Binder 99-100%
282623020	MBB-2M	ND	Binder 99-100%
282623021	MBB-3M	ND	Binder 99-100%
282623022	MFA-1	ND	Binder 99-100%
282623023	MFA-2	ND	Binder 99-100%
282623024	MFA-3	ND	Binder 99-100%
282623025	MFA-1M	ND	Binder 99-100%
282623026	MFA-2M	ND	Binder 99-100%
282623027	MFA-3M	ND	Binder 99-100%
282623028	MFB-1	ND	Binder 99-100%
282623029	MFB-2	ND	Binder 99-100%
282623030	MFB-3	ND	Binder 99-100%
282623031	MMA-1	ND	Binder 99-100%

ND = Asbestos Not Detected (Not Present) NA = Not Analyzed NS = Not Submitted
Components of inhomogeneous samples are analyzed per our Standard Operating Procedure, or per customer request.
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Analyzed by Name: Henry Robateau / Microscopist

Date: 03/11/2009

STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

NVLAP Lab Code 101202-0

ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY

Method: EPA-600/M4-82-020

Midwest Environmental Consulting Serv., Inc.
4 Bonnie Lane
Yorkville, IL 60560
Phone: (630) 553-3989
Fax: (630) 553-3990

Reference: 09-03-108-INSP
Location: Kane County Div. Of Trans. S. Elgin, IL
Batch No.: 282623
Customer No.: 244

Date Received: 03/10/2009
Date Analyzed: 03/11/2009
Date Reported: 03/11/2009
Turn Around Time: 24 Hour

Laboratory Sample	Customer Sample Number	Asbestos Components (%)	Non-Asbestos Components (%)
282623032	MMA-2	ND	Binder 99-100%
282623033	MMA-3	ND	Binder 99-100%
282623034	TPA-1	ND	Binder 99-100%
282623035	TPA-2	ND	Binder 99-100%
282623036	TPA-3	ND	Binder 99-100%

ND = Asbestos Not Detected (Not Present) NA = Not Analyzed NS = Not Submitted
Components of inhomogeneous samples are analyzed per our Standard Operating Procedure, or per customer request.
The use of the NVLAP logo does not imply endorsement by NVLAP or any agency of the US Government.

Analyzed by Name: Henry Robateau / Microscopist Date: 03/11/2009

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STAT Analysis Corporation
2242 W. Harrison, Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386
e-mail address: STATinfo@STATAnalysis.com AIHA accredited 101160 NVLAP accredited 101202-0

NVLAP ACCREDITED LABORATORY

CHAIN OF CUSTODY RECORD

Page : 1 of 2

Client: Midwest Environmental Consulting Service Inc
Street Address: 4 Bonnie Ln.
City, State, Zip: Yorkville IL. 60560
Phone: 630-553-3989
Fax: 630-553-3990
e-mail/Alt. Fax:
Project Number: 09-03-108-INSP
Project Name: Kane County Div. of Trans.
Project Location: Fox River Bdge Co-S. Elgin
Project Manager: Stephen Merwin PE
P.O. Number:

Turn Around: Immediate ☐ 4 Hrs ☐ 8 Hrs ☐ 12 Hrs ☐ 24 Hrs ☒ 48 Hrs ☐ 72 Hrs ☐ 5 Days ☐
Date Due: Time Due
Note: Not all turn around times are available for all analysis.

OFFICE USE ONLY BELOW THIS

Batch No.: 282623
Samples Acceptable: Yes: ☒ No: ☐
Checked by (Initial/Date): 3/10/09
QC by (Initial/Date): 3/11/09
Reported By (Initial/Date/Time/Method):
Comments:

	Relinquished by:	Date/Time:
	Received by: Depew	Date/Time: 3/10/09 0800
	Relinquished by:	Date/Time:
	Received by:	Date/Time:
	Relinquished by:	Date/Time:
	Received by:	Date/Time:

Client Sample Number/Description:	Date Taken	Time On	Time Off	Rate (lpm)	Volume (Liters)	Area Wiped (ft^2)	Laboratory Sample No.	PCM Asbestos	PLM Asbestos (Bulk)	PLM Point Count	TEM Air Asbestos	TEM Bulk Asbestos	TEM Gravimetric Asb.	TEM Microvac Asb	TEM Water	Other:
MDA-1 Drywall w/ Compound									X							
-2																
-3																
MCA-1 2'X4' Lay-In Ceiling Tile																
-2																
-3																
MCB-1 2'X2' Lay-In Ceiling Tile																
-2																
-3																
MBA-1 Vinyl Wall Base/Mustic-Tan																
-2																
-3																
MBB-1 Vinyl Wall Base/Mustic-Brown																

Comments: Stop at First Positive
FOR MBB AND MBC-Analize the Mustic Only.
MAIN OFFICE BLDG.

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NVLAP — AIHA ACCREDITED LABORATORY

CHAIN OF CUSTODY RECORD

Page: 2 of 2

Client: Midwest Environmental Consulting Serv. Inc.
Street Address: 4 Bonnie Ln.
City, State, Zip: Yorkville IL 60560
Phone: 630-553-3989
Fax: 630-553-3990
e-mail/Alt. Fax:
Project Number: 09-03-108-STWSP
Project Name: Kane County Div of Trans
Project Location: Fox River Stowe(?) -S
Project Manager: Stephen Mennin Elgin IL
P.O. Number:

Turn Around: Immediate [ ] 4 Hrs [ ] 8 Hrs [ ] 12 Hrs [ ] 24 Hrs [X] 48 Hrs [ ] 72 Hrs [ ] 5 Days [ ]
Date Due: Time Due:
Note: Not all turn around times are available for all analysis.

OFFICE USE ONLY BELOW
Batch No.: 282623
Samples Acceptable: Yes: [✓] No: [ ]
Checked by (Initial/Date): 3/10/09
QC by (Initial/Date):
Reported By (Initial/Date/Time/Method):
Comments:

Relinquished by: [signature]		Date/Time: 3/10/09 0800
Received by: [signature]		Date/Time: 3/10/09 850
Relinquished by:		Date/Time:
Received by:		Date/Time:
Relinquished by:		Date/Time:
Received by:		Date/Time:

Client Sample Number/Description	Date Taken	Time On	Time Off	Rate (lpm)	Volume (Liters)	Area Wiped (ft²)	Laboratory Sample No.	PCM Asbestos	PLM Asbestos (Bulk)	PLM Point Count	TEM Air Asbestos	TEM Bulk Asbestos	TEM Gravimetric Asb.	TEM Microvac Asb.	TEM Water	Other
MBB-2									X							
-3									↓							
MFA-1 12X12 Floor Tile/Mastic-Beige w/Gray Flecks									↓							
-2									↓							
-3									↓							
MFB-1 12X12 Floor Tile-Gray w/ Beige Flecks									↓							
-2									↓							
-3									↓							
MMA-1 Carpet Glue on Concrete									↓							
-2									↓							
-3									↓							
TPA-1 Paper Pipe Wrap									↓							
-2,3									↓							

Comments: Stop at First Positive

1 L2

Midwest Environmental Consulting Services, Inc.

COMPREHENSIVE ASBESTOS SURVEY

Performed for:

KANE COUNTY DIVISION OF TRANSPORTATION
41W011 Burlington Road
St. Charles, IL 60175

Project Location:

FOX RIVER STONE CO. – LABORATORY BUILDING
7N394 McLean Boulevard
South Elgin, IL 60177

Inspection Date: March 9, 2009
Report Date: March 16, 2009

MEC PROJECT #: 09-03-108-INSP

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4 Bonnie Lane · Yorkville, Illinois 60560 · Phone: 630·553·3989 · FAX: 630·553·3990
www.mec-us.com

KANE COUNTY DIVISION OF TRANSPORTATION
Fox River Stone Co. – Laboratory Building
7N394 McLean Boulevard
South Elgin, IL 60177

Table of Contents
MEC Project #09-03-108-INSP

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Midwest Environmental Consulting Services, Inc.
4 Bonnie Lane
Yorkville, IL 60560
(630) 553-3989 Fax (630) 553-3990

Section 1:

Introduction:

Midwest Environmental Consulting Services, Inc., (MEC) was retained by the Kane County Division of Transportation to conduct a comprehensive asbestos inspection and bulk sampling of suspect asbestos containing materials (ACM) at the Fox River Stone Company Laboratory Building located at 7N394 McLean Boulevard, South Elgin, Illinois, 60177. The asbestos inspection was performed on March 9, 2009. This comprehensive inspection was intended to address the potential existence of ACM on the interior and exterior prior to planned demolition.

Section 2:

Protocol:

The bulk sampling strategy is based upon the protocol of homogeneous areas established by the United States Environmental Protection Agency (US EPA). A homogeneous sampling area (HSA) is defined as an area of material that is uniform in color, texture, construction, general appearance, and date of installation.

Bulk samples of suspect ACM were analyzed by Polarized Light Microscopy (PLM) utilizing the EPA-600/M4-82-020 Method. Bulk samples were analyzed using Asbestos Hazard Emergency Response Act (AHERA) "positive stop" protocol, meaning each sample of each HSA group is analyzed until asbestos is found in the HSA or all samples in the group are analyzed and are negative for asbestos content.

Section 3:

Building Description:

The Laboratory Building is a one-story metal framed structure constructed in 1981 with no basement totaling approximately 1,081 square feet. The interior walls are concrete and wood. The floors are covered with concrete. The ceilings are drywall and wood.
The roof is metal.

Section 4:

Scope of Work:

The inspection was to address the following objectives:

- Observe, assess, and collect bulk samples of friable and non-friable asbestos containing building materials within the specific scope of work.
- The inspection was intended to identify all homogeneous areas, and did not attempt to identify or address any other environmental health hazards.
- The scope of work did not include identifying all potential concerns or eliminate possible risks.

A total of two (2) homogeneous areas were identified within the scope of work. Out of the two (2) homogeneous areas, none (0) of the homogeneous areas tested positive for asbestos content and no (0) homogeneous areas were assumed to contain asbestos:

Asbestos-Containing Materials:

- **None**

Assumed Asbestos-Containing Materials:

- **None**

Section 5:

Executive Summary:

Standard practice requires that the owner provide Certified-As-Built drawings for review by the inspector. At the time of the inspection, these drawings were not available. Therefore, the accuracy of the inspection can only be based on the materials that were accessible or known about prior to the inspection. If a suspect material is identified during renovation or demolition, all work shall stop immediately until the materials can be sampled for asbestos content.

During demolition, it is recommended that a project design, project oversight, and air monitoring be in place prior to any asbestos abatement work being conducted. An Illinois Department of Public Health licensed asbestos abatement contractor must be in place prior to any asbestos abatement activities.

Prior to any planned demolition taking place, Midwest Environmental Consulting Services, Inc., strongly recommends that either the client contact Midwest Environmental Consulting Services, Inc., or the Illinois Department of Public Health in regards to current rules and regulations.

Although Midwest Environmental Consulting Services, Inc., has attempted to identify all suspect asbestos materials located on the inside of the building; some materials may have been inaccessible. Midwest Environmental Consulting Services, Inc. makes no warranty, expressed or implied.

Respectfully Submitted,
MIDWEST ENVIRONMENTAL CONSULTING SERVICES, INC.

Stephen Merwin
IDPH Licensed Asbestos Building Inspector
(IDPH #100-02871)

Midwest Environmental Consulting Services, Inc.
4 Bonnie Lane
Yorkville, IL 60560
630-553-3989

Project Date: 3/9/09

Asbestos Bulk Sample Field Summary

Client: Kane County Div. of Transportation **Project Location:** Fox River Stone Co.-Laboratory Building **Project #:** 09-03-108-INSP
Address: 7N394 McLean Blvd., S. Elgin, IL 60177 **Inspector:** Stephen Merwin – #100-02871

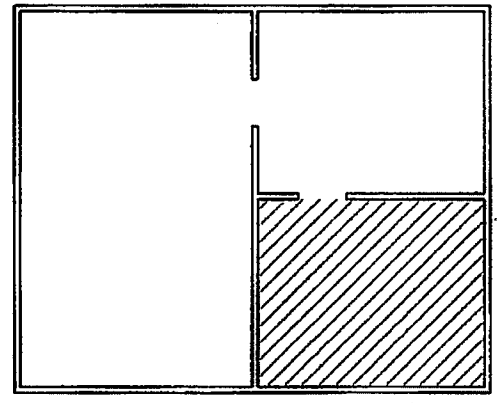
Sample #	Material Description	Location	Approx. Quantity	ACM Yes/No	Comments
MDA	Drywall	Southwest Office	360 S.F.	No	
MBA	Vinyl Wall Base/Mastic - Brown	Southwest Office	75 L.F.	No	

Inspection performed for:
KANE COUNTY DIVISION OF TRANSPORTATION
41W011 Burlington Road
St. Charles, IL 60175
MEC Project #09-03-108-INSP

HOMO: MDA
DESCRIPTION: Drywall
QUANTITY: 360 S.F.
ACM: No

COMMENTS:

LL2



NORTH

LABORATORY BUILDING

Kane County Division of Transportation 41W011 Burlington Road St. Charles, IL 60175	**Project:** Fox River Stone Co. - Laboratory Building 7N394 McLean Blvd. South Elgin, IL 60177	**Consultant:** Midwest Environmental Consulting Services, Inc. 4 Bonnie Lane Yorkville, IL 60560 Ph. 630.553.3989	

REVISIONS

NO.	DATE	Rev. By	File Name: 09-03-108
			Date: 03-10-09
			Drawn By: JQ / Scale: NTS

STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

NVLAP Lab Code 101202-0

ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY

Method: EPA-600/M4-82-020

Midwest Environmental Consulting Serv., Inc.
4 Bonnie Lane
Yorkville, IL 60560
Phone: (630) 553-3989
Fax: (630) 553-3990

Reference:	09-03-108-INSP	Date Received:	03/10/2009
Location:	Kane County Div of Transp. Elgin, IL	Date Analyzed:	03/11/2009
Batch No.:	282621	Date Reported:	03/11/2009
Customer No.:	244	Turn Around Time:	24 Hour

Laboratory Sample	Customer Sample Number	Asbestos Components (%)	Non-Asbestos Components (%)
282621001	MDA-1	ND	Cellulose 5-10% Binder 90-95%
282621002	MDA-2	ND	Cellulose 5-10% Binder 90-95%
282621003	MDA-3	ND	Cellulose 5-10% Binder 90-95%
282621004	MBA-1	ND	Binder 99-100%
282621005	MBA-2	ND	Binder 99-100%
282621006	MBA-3	ND	Binder 99-100%
282621007	MBA-1M	ND	Binder 99-100%
282621008	MBA-2M	ND	Binder 99-100%
282621009	MBA-3M	ND	Binder 99-100%

ND = Asbestos Not Detected (Not Present) NA = Not Analyzed NS = Not Submitted

Components of inhomogeneous samples are analyzed per our Standard Operating Procedure, or per customer request.

The use of the NVLAP logo does not imply endorsement by NVLAP or any agency of the US Government.

Analyzed by Name: Henry Robatcau - Microscopist

Date: 03/11/2009

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STAT Analysis Corporation

2242 W. Harrison, Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386
e-mail address: STATinfo@STATAnalysis.com AIHA accredited 101160 NVLAP accredited 101202-0

NVLAP ACCREDITED LABORATORY

CHAIN OF CUSTODY RECORD

Page: 1 of 1

Client: Midwest Environmental Consulting Svcs Inc
Street Address: 4 Bonnie Ln.
City, State, Zip: Yorkville IL. 60560
Phone: 630-553-3989
Fax: 630-553-3990
e-mail/Alt. Fax:
Project Number: 09-03-108-FNSP
Project Name: Kane County Div of Transp.
Project Location: Fox River Stone Co. Elgin IL
Project Manager: Stephen Mellin
P.O. Number:

Turn Around: Immediate ☐ 4 Hrs ☐ 8 Hrs ☐ 12 Hrs ☐ 24 Hrs ☒ 48 Hrs ☐ 72 Hrs ☐ 5 Days ☐
Date Due: Time Due:
Note: Not all turn around times are available for all analysis.

QUICK USE ONLY BELOW

Batch No.: 282621
Samples Acceptable. Yes ☒ No ☐
Checked by (Initial/Date). 3/10/09
QC by (Initial/Date). 3/10/09
Reported By (Initial/Date/Time/Method):
Comments:

Relinquished by: [signature] Date/Time: 3/10/09 0800
Received by: [signature] Date/Time: 3/10/09 8:57A
Relinquished by: Date/Time:
Received by: Date/Time:
Relinquished by: Date/Time:
Received by: Date/Time:

Client Sample Number/Description	Date Taken	Time On	Time Off	Rate (lpm)	Volume (Liters)	Area Wiped (ft^2)	Laboratory Sample No.	PCM Asbestos	PLM Asbestos (Bulk)	PLM Point Count	TEM Air Asbestos	TEM Bulk Asbestos	TEM Gravimetric Asb.	TEM Microvac Asb.	TEM Water	Other:
MDA-1 Drywall									X							
-2																
-3																
MBA-1 Vinyl Weld Base / Mastic-Brown																
-2																
-3									✓							

Comments: Stop at First Positive
LAB BUILDING. — FOR MBA — ANALIZE MASTIC ONLY.

CEMENT (BDE)

Effective: January 1, 2007
Revised: April 1, 2009

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. The total of all inorganic processing additions shall be a maximum of 4.0 percent by weight (mass) of the cement. However, a cement kiln dust inorganic processing addition shall be limited to a maximum of 1.0 percent. 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, Class C fly ash according to the chemical requirements of AASHTO M 295, and cement kiln dust.

(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 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.

For cast-in-place construction, portland-pozzolan cement 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 be limited to cement kiln dust at a maximum of 1.0 percent.

(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 IS portland blast-furnace slag cement may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The blast-furnace slag constituent for Type IS shall be a maximum of 25 percent of the weight (mass) of the portland blast-furnace slag cement.

For cast-in-place construction, portland blast-furnace slag cement 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 be limited to cement kiln dust at a maximum of 1.0 percent.

(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, 3200 psi (22,100 kPa) at 6.0 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 AASHTO T 161, Procedure B.

(e) Calcium Aluminate Cement. Calcium aluminate cement shall be used only where 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

CONCRETE ADMIXTURES (BDE)

Effective: January 1, 2003
Revised: April 1, 2009

Replace the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

"(b) Admixtures. The use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted when approved by the Engineer. Admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(12). The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted when determining an admixture dosage from this list. The dosage shall be within the range indicated on the approved list unless the influence by other admixtures, jobsite conditions (such as a very short haul time), or other circumstances warrant a dosage outside the range. The Engineer shall be notified when a dosage is proposed outside the range. To determine an admixture dosage, air temperature, concrete temperature, cement source and quantity, finely divided mineral sources(s) and quantity, influence of other admixtures, haul time, placement conditions, and other factors as appropriate shall be considered. The Engineer may request the Contractor to have a batch of concrete mixed in the lab or field to verify the admixture dosage is correct. An admixture dosage or combination of admixture dosages shall not delay the initial set of concrete by more than one hour. When a retarding admixture is required or appropriate for a bridge deck or bridge deck overlay pour, the initial set time shall be delayed until the deflections due to the concrete dead load are no longer a concern for inducing cracks in the completed work. However, a retarding admixture shall not be used to further extend the pour time and justify the alteration of a bridge deck pour sequence.

When determining water in admixtures for water/cement ratio, the Contractor shall calculate 70 percent of the admixture dosage as water, except a value of 50 percent shall be used for a latex admixture used in bridge deck latex concrete overlays."

Revise Section 1021 of the Standard Specifications to read:

"**SECTION 1021. CONCRETE ADMIXTURES**

1021.01 General. Admixtures shall be furnished in liquid form ready for use. The admixtures shall be delivered in the manufacturer's original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer and trade name of the material. Containers shall be readily identifiable as to manufacturer and trade name of the material they contain.

Corrosion inhibitors will be maintained on the Department's Approved List of Corrosion Inhibitors. All other concrete admixture products will be maintained on the Department's

Approved List of Concrete Admixtures. For the admixture submittal, a report prepared by an independent laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) for Portland Cement Concrete shall be provided. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications. However, for corrosion inhibitors the ASTM G 109 test information specified in ASTM C 1582 is not required to be from and independent lab. All other information in ASTM C 1582 shall be from and independent lab.

Tests shall be conducted using materials and methods specified on a "test" concrete and a "reference" concrete, together with a certification that no changes have been made in the formulation of the material since the performance of the tests. Per the manufacturer's option, the cement content for all required tests shall either be according to applicable specifications or 5.65 cwt/cu yd (335 kg/cu m). Compressive strength test results for six months and one year will not be required.

Prior to the approval of an admixture, the Engineer reserves the right to request a sample for testing. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to AASHTO T 161, Procedure B. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The test and reference concrete mixture shall contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

The manufacturer shall include in the submittal the following admixture information: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and the manufacturing range for pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM C 494. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to ASTM C 260.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, and 1021.07, the pH allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to ASTM C 494.

When test results are more than seven years old, the manufacturer shall re-submit the infrared spectrophotometer trace and the report prepared by an independent laboratory accredited by AASHTO.

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass).

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material.

1021.02 Air-Entraining Admixtures. Air-entraining admixtures shall be according to AASHTO M 154.

1021.03 Retarding and Water-Reducing Admixtures. The admixture shall be according to the following.

(a) The retarding admixture shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).

(b) The water-reducing admixture shall be according to AASHTO M 194, Type A.

(c) The high range water-reducing admixture shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

1021.04 Accelerating Admixtures. The admixture shall be according to AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating).

1021.05 Self-Consolidating Admixtures. The self-consolidating admixture system shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete mixture that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

The high range water-reducing admixture shall be according to AASHTO M 194, Type F.

The viscosity modifying admixture shall be according to ASTM C 494, Type S (specific performance).

1021.06 Rheology-Controlling Admixture. The rheology-controlling admixture shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. The rheology-controlling admixture shall be according to ASTM C 494, Type S (specific performance).

1021.07 Corrosion Inhibitor. The corrosion inhibitor shall be according to one of the following.

(a) Calcium Nitrite. The corrosion inhibitor shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution, and shall comply with the requirements of AASHTO M 194, Type C (accelerating).

(b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582."

80094

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000
Revised: November 1, 2008

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory 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 companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. 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 10 % 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 IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's 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 companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).

(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 does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the 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 of Small Business Enterprises and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau of Small Business Enterprises 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 Agreement on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the 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

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

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

LIQUIDATED DAMAGES (BDE)

Effective: April 1, 2009

Revise the table in Article 108.09 of the Standard Specifications to read:

"Schedule of Deductions for Each Day of Overrun in Contract Time			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
$ 0	$ 100,000	$ 375	$ 500
100,000	500,000	625	875
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,125	1,550
3,000,000	5,000,000	1,425	1,950
5,000,000	10,000,000	1,700	2,350
10,000,000	And over	3,325	4,650"

80230

MAST ARM ASSEMBLY AND POLE (BDE)

Effective: January 1, 2008
Revised: January 1, 2009

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, coated by the hot-dip galvanizing process according to AASHTO M 232, 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

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM / EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: April 1, 2007
Revised: November 1, 2008

Revise Article 105.03(a) of the Standard Specifications to read:

"(a) National Pollutant Discharge Elimination System (NPDES) / Erosion and Sediment Control Deficiency Deduction. When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, or the Contractor's activities represents a violation of the Department's NPDES permits, the Engineer 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 work effort required. 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 Department's NPDES permits. 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

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

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

PAYROLLS AND PAYROLL RECORDS (BDE)

Effective: March 1, 2009

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

"STATEMENTS AND PAYROLLS

The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work, except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number.). The submittals shall be on the Department's form SBE 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form."

STATE CONTRACTS. Revise Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

"IV. COMPLIANCE WITH THE PREVAILING WAGE ACT

1. Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions.

2. Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of three years from the date of completion of this contract, records of the wages paid to his/her workers. The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid. Upon two business days' notice, these records shall be available, at all reasonable hours at a location within the State, for inspection by the Department or the Department of Labor.

3. Submission of Payroll Records. The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work, except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). The submittals shall be on the Department's form SBE 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form.

   Each submittal shall be accompanied by a statement signed by the Contractor or subcontractor which avers that: (i) such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required by the Act; and (iii) the Contractor or subcontractor is aware that filing a payroll record that he/she knows to be false is a Class B misdemeanor.

4. Employee Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor."

80235

PERSONAL PROTECTIVE EQUIPMENT (BDE)

Effective: November 1, 2008

Revise the first sentence of Article 701.12 of the Standard Specifications to read:

"All personnel on foot, excluding flaggers, within the highway right-of-way shall wear a fluorescent orange, fluorescent yellow/green, or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of ANSI/ISEA 107-2004 for Conspicuity Class 2 garments."

80209

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 Department's approved list."

80134

POLYUREA PAVEMENT MARKING (BDE)

Effective: April 1, 2004
Revised: January 1, 2009

Description. This work shall consist of furnishing and applying pavement marking lines.

The type of polyurea pavement marking applied will be determined by the type of reflective media used. Polyurea Pavement Marking Type I shall use glass beads as a reflective media. Polyurea Pavement Marking Type II shall use a combination of composite reflective elements and glass beads as a reflective media.

Polyurea-based liquid pavement markings shall only be applied by Contractors on the list of Approved Polyurea Contractors maintained by the Engineer of Operations and in effect on the date of advertisement for bids.

Materials. Materials shall meet the following requirements:

(a) Polyurea Pavement Marking. The polyurea pavement marking material shall consist of 100 percent solid two part system formulated and designed to provide a simple volumetric mixing ratio of two components (must be two or three volumes of Part A to one volume of Part B). No volatile or polluting solvents or fillers will be allowed.

(b) Pigmentation. The pigment content by weight (mass) of component A shall be determined by low temperature ashing according to ASTM D 3723. The pigment content shall not vary more than ± two percent from the pigment content of the original qualified paint.

White Pigment shall be Titanium Dioxide meeting ASTM D 476 Type II, Rutile.

Yellow Pigment shall be an Organic Yellow and contain no heavy metals.

(c) Environmental. Upon heating to application temperature, the material shall not exude fumes which are toxic or injurious to persons or property.

(d) Daylight Reflectance. The daylight directional reflectance of the cured polyurea material (without reflective media) shall be a minimum of 80 percent (white) and 50 percent (yellow) relative to magnesium oxide when tested using a color spectrophotometer with a 45 degrees circumferential /zero degrees geometry, illuminant C, and two degrees 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. In addition, the color of the yellow polyurea shall visually match Color Number 33538 of Federal Standard 595a with chromaticity limits as follows:

X	0.490	0.475	0.485	0.539
Y	0.470	0.438	0.425	0.456

(e) Weathering Resistance. The polyurea marking material, when mixed in the proper ratio and applied at 14 to 16 mils (0.35 to 0.41 mm) wet film thickness to an aluminum alloy

panel (Federal Test Std. No. 141, Method 2013) and allowed to cure for 72 hours at room temperature, shall be subjected to accelerated weathering for 75 hours. The accelerated weathering shall be completed by using the light and water exposure apparatus (fluorescent UV - condensation type) and tested according to ASTM G 53.

The cycle shall consist of four hours UV exposure at 122 °F (50 °C) and four hours of condensation at 104 °F (40 °C). UVB 313 bulbs shall be used. At the end of the exposure period, the material shall show no substantial change in color or gloss.

(f) Dry Time. The polyurea pavement marking material, when mixed in the proper ratio and applied at 14 to 16 mils (0.35 to 0.41 mm) wet film thickness and with the proper saturation of reflective media, shall exhibit a no-tracking time of ten minutes or less when tested according to ASTM D 711.

(g) Adhesion. The catalyzed polyurea pavement marking materials when applied to a 4 x 4 x 2 in. (100 x 100 x 50 mm) concrete block, shall have a degree of adhesion which results in a 100 percent concrete failure in the performance of this test.

The concrete block shall be brushed on one side and have a minimum strength of 3500 psi (24,100 kPa). A 2 in. (50 mm) square film of the mixed polyurea shall be applied to the brushed surface and allowed to cure for 72 hours at room temperature. A 2 in. (50 mm) square cube shall be affixed to the surface of the polyurea by means of an epoxy glue. After the glue has cured for 24 hours, the polyurea specimen shall be placed on a dynamic testing machine in such a fashion so that the specimen block is in a fixed position and the 2 in. (50 mm) cube (glued to the polyurea surface) is attached to the dynamometer head. Direct upward pressure shall be slowly applied until the polyurea system fails. The location of the break and the amount of concrete failure shall be recorded.

(h) Hardness. The polyurea pavement marking materials when tested according to ASTM D 2240, shall have a shore D hardness of between 70 and 100. Films shall be cast on a rigid substrate at 14 to 16 mils (0.35 to 0.41 mm) in thickness and allowed to cure at room temperature for 72 hours before testing.

(i) Abrasion. The abrasion resistance shall be evaluated according to ASTM D 4060 using a Taber Abrader with a 1,000 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 120 mgs. The tests shall be run on cured samples of polyurea material which have been applied at a film thickness of 14 to 16 mils (0.35 to 0.41 mm) to code S-16 stainless steel plates. The films shall be allowed to cure at room temperature for at least 72 hours and not more than 96 hours before testing.

(j) Reflective Media. The reflective media shall meet the following requirements:

(1) Type I - The glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications and the following requirements:

a. First Drop Glass Beads. The first drop glass beads shall be tested by the standard visual method of large glass spheres adopted by the Department. The beads shall have a silane coating and meet the following sieve requirements:

U.S. Standard Sieve Number	Sieve Size	% Passing By Weight (mass)
12	1.70 mm	95-100
14	1.40 mm	75-95
16	1.18 mm	10-47
18	1.00 mm	0-7
20	850 µm	0-5

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B.

(2) Type II - The combination of microcrystalline ceramic elements and glass beads shall meet the following requirements:

a. First Drop Glass Beads. The first drop glass beads shall meet the following requirements:

1. Composition. The elements shall be composed of a titania opacified ceramic core having clear and or yellow tinted microcrystalline ceramic beads embedded to the outer surface.

2. Index of Refraction. All microcrystalline reflective elements embedded to the outer surface shall have an index of refraction of 1.8 when tested by the immersion method.

3. Acid Resistance. A sample of microcrystalline ceramic beads supplied by the manufacturer, shall show resistance to corrosion of their surface after exposure to a one percent solution (by weight (mass)) of sulfuric acid. Adding 0.2 oz (5.7 ml) of concentrated acid into the water shall make the one percent acid solution. This test shall be performed by taking a 1 x 2 in. (25 x 50 mm) sample and adhering it to the bottom of a glass tray and placing just enough acid solution to completely immerse the sample. The tray shall be covered with a piece of glass to prevent evaporation and allow the sample to be exposed for 24 hours under these conditions. The acid solution shall be decanted (do not rinse, touch, or otherwise disturb the bead surfaces) and the sample dried while adhered to the glass tray in a 150 °F (66 °C) oven for approximately 15 minutes. Microscope examination (20X) shall show no white (corroded) layer on the entire surface.

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B or the following manufacturer's specification:

1. Sieve Analysis. The glass beads shall meet the following sieve requirements:

U.S. Standard Sieve Number	Sieve Size	% Passing By Weight (mass)
20	850 µm	100
30	600 µm	75-95
50	300 µm	15-35
100	150 µm	0-5

The manufacturer of the glass beads shall certify that the treatment of the glass beads meets the requirements of the polyurea manufacturer.

2. Imperfections. The surface of the glass beads shall be free of pits and scratches. The glass beads shall be spherical in shape and shall contain a maximum of 20 percent by weight (mass) of irregular shapes when tested by the standard method using a vibratile inclined glass plate as adopted by the Department.

3. Index of Refraction. The index of refraction of the glass beads shall be a minimum of 1.50 when tested by the immersion method at 77 °F (25 °C).

(k) Packaging. Microcrystalline ceramic reflective elements and glass beads shall be delivered in approved moisture proof bags or weather resistant bulk boxes. Each carton shall be legibly marked with the manufacturer, specifications and type, lot number, and the month and year the microcrystalline ceramic reflective elements and/or glass beads were packaged. The letters and numbers used in the stencils shall be a minimum of 1/2 in. (12.7 mm) in height.

(1) Moisture Proof Bags. Moisture proof bags shall consist of at least five ply paper construction unless otherwise specified. Each bag shall contain 50 lb (22.7 kg) net.

(2) Bulk Weather Resistance Boxes. Bulk weather resistance boxes shall conform to Federal Specification PPP-8-640D Class II or latest revision. Boxes are to be weather resistant, triple wall, fluted, corrugated-fiber board. Cartons shall be strapped with two metal straps. Straps shall surround the outside perimeter of the carton. The first strap shall be located approximately 2 in. (50 mm) from the bottom of the carton and the second strap shall be placed approximately in the middle of the carton. All cartons shall be shrink wrapped for protection from moisture. Cartons shall be lined with a minimum 4 mil polyester bag and meet Interstate Commerce Commission requirements. Cartons shall be approximately 38 x 38 in. (1 x 1 m), contain 2000 lb (910 kg) of microcrystalline ceramic reflective elements and/or glass beads and be supported on a wooden pallet with fiber straps.

(l) Packaging. The material shall be shipped to the job site in substantial containers and shall be plainly marked with the manufacturer's name and address, the name and color of the material, date of manufacture, and batch number.

(m) Verification. Prior to approval and use of the polyurea pavement marking materials, the manufacturer shall submit a notarized certification of an independent laboratory, together with the results of all tests, stating these materials meet the requirements as set forth

herein. The certification test report shall state the lot tested, manufacturer's name, brand name of polyurea and date of manufacture. The certification shall be accompanied by one 1 pt (1/2 L) samples each of Part A and Part B. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B.

After approval by the Department, certification by the polyurea manufacturer shall be submitted for each batch used. New independent laboratory certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer.

(n) Acceptance samples. Acceptance samples shall consist of one 1 pt (1/2 L) samples of Part A and Part B, of each lot of paint. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B. The samples shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state the formulation for the lot represented is essentially identical to that used for qualification testing. All, acceptance samples will be taken by a representative of the Department. The polyurea pavement marking materials shall not be used until tests are completed and they have met the requirements as set forth herein.

(o) Material Retainage. The manufacturer shall retain the test sample for a minimum of 18 months.

Equipment. The polyurea pavement marking compounds shall be applied through equipment specifically designed to apply two component liquid materials, glass beads and/or reflective elements in a continuous and skip-line pattern. The two-component liquid materials shall be applied after being accurately metered and then mixed with a static mix tube or airless impingement mixing guns. The static mixing tube or impingement mixing guns shall accommodate plural component material systems that have a volumetric ratio of 2 to 1 or 3 to 1. This equipment shall produce the required amount of heat at the mixing head and gun tip and maintain those temperatures within the tolerances specified. The guns shall have the capacity to deliver materials from approximately 1.5 to 3 gal/min (5.7 to 11.4 L/min) to compensate for a typical range of application speeds of 6 to 8 mph (10 to 13 km/h). The accessories such as spray tip, mix chamber, and rod diameter shall be selected according to the manufacturer's specifications to achieve proper mixing and an acceptable spray pattern. The application equipment shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. This equipment shall also have as an integral part of the gun carriage, a high pressure air spray capable of cleaning the pavement immediately prior to making application.

The equipment shall be capable of spraying both yellow and white polyurea, according to the manufacturer's recommended proportions and be mounted on a truck of sufficient size and stability with an adequate power source to produce lines of uniform dimensions and prevent application failure. The truck shall have at least two polyurea tanks each of 110 gal (415 L) minimum capacity and be equipped with hydraulic systems and agitators. It shall be capable of placing stripes on the left and right sides and placing two lines on a three-line system simultaneously with either line in a solid or intermittent pattern, in yellow or white, and applying the appropriate reflective media according to manufacturer's recommendations. All guns shall be in full view of operations at all times. The equipment shall have a metering device to register

the accumulated installed quantities for each gun, each day. Each vehicle shall include at least one operator who shall be a technical expert in equipment operations and polyurea application techniques. Certification of equipment shall be provided at the pre-construction conference.

The mobile applicator shall include the following features:

(a) Material Reservoirs. The applicator shall provide individual material reservoirs, or space for the storage of Part A and Part B of the resin composition.

(b) Heating Equipment. The applicator shall be equipped with heating equipment of sufficient capacity to maintain the individual resin components at the manufacturer's recommended temperature of ±5 °F (±2.8 °C) for spray application.

(c) Dispensing Equipment. The applicator shall be equipped with glass bead and/or reflective element dispensing equipment. The applicator shall be capable of applying the glass beads and/or reflective elements at a rate and combination indicated by the manufacturer.

(d) Volumetric Usage. The applicator shall be equipped with metering devices or pressure gauges on the proportioning pumps as well as stroke counters to monitor volumetric usage. Metering devices or pressure gauges and stroke counters shall be visible to the Engineer.

(e) Pavement Marking Placement. The applicator shall be equipped with all the necessary spray equipment, mixers, compressors and other appurtenances to allow for the placement of reflectorized pavement markings in a simultaneous sequence of operations.

The Contractor shall provide an accurate temperature-measuring device(s) that shall be capable of measuring the pavement temperature prior to application of the material, the material temperature at the gun tip and the material temperature prior to mixing.

CONSTRUCTION REQUIREMENTS

General. The pavement shall be cleaned by a method approved by the Engineer to remove all dirt, grease, glaze, or any other material that would reduce the adhesion of the markings with minimum or no damage to the pavement surface. New portland cement concrete pavements shall be air-blast-cleaned to remove all latents.

Widths, lengths, and shapes of the cleaned surface shall be of sufficient size to include the full area of the specified pavement marking to be placed.

The cleaning operation shall be a continuous moving operation process with minimum interruption to traffic.

Markings shall be applied to the cleaned surfaces on the same calendar day. If this cannot be accomplished, the surface shall be re-cleaned prior to applying the markings. No markings shall be applied until the Engineer approves the cleaning.

The pavement markings shall be applied to the cleaned road surface, during conditions of dry weather and subsequently dry pavement surfaces at a minimum uniform wet thickness of 15 mils (0.4 mm) according to the manufacturer's installation instructions. On new hot-mix asphalt (HMA) surfaces the pavement markings shall be applied at a minimum uniform wet thickness of 20 mils (0.5 mm). The application of and combination of reflective media (glass beads and/or reflective elements) shall be applied at a rate specified by the manufacturer. At the time of installation the pavement surface temperature and the ambient temperature shall be above 40 °F (4 °C) and rising. The pavement markings shall not be applied if the pavement shows any visible signs of moisture or it is anticipated that damage causing moisture, such as rain showers, may occur during the installation and set periods. The Engineer will determine the atmospheric conditions and pavement surface conditions that produce satisfactory results.

Using the application equipment, the pavement markings shall be applied in the following manner, as a simultaneous operation:

(a) The surface shall be air-blasted to remove any dirt and residue.

(b) The resin shall be mixed and heated according to manufacturer's recommendations and sprayed onto the pavement surface.

The edge of the center line or lane line shall be offset a minimum distance of 2 in. (50 mm) from a longitudinal crack or joint. Edge lines shall be approximately 2 in. (50 mm) from the edge of pavement. The finished center and lane lines shall be straight, with the lateral deviation of any 10 ft (3 m) line not to exceed 1 in. (25 mm).

Notification. The Contractor shall notify the Engineer 72 hours prior to the placement of the markings in order that he/she can be present during the operation. At the time of notification, the Contractor shall provide the Engineer the manufacturer and lot numbers of polyurea and reflective media that will be used.

Inspection. The polyurea pavement markings will be inspected following installation according to Article 780.10 of the Standard Specifications, except, no later than December 15, and inspected following a winter performance period that extends 180 days from December 15.

Method of Measurement. This work will be measured for payment as follows:

(a) Contract Quantities. The requirements for the use of contract quantities shall be according to Article 202.07(a).

(b) Measured Quantities. Lines will be measured for payment in place in feet (meters). Double yellow lines will be measured as two separate lines.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for POLYUREA PAVEMENT MARKING TYPE I – LINE of the line width specified or for POLYUREA PAVEMENT MARKING TYPE II – LINE of the line width specified.

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 products 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

RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)

Effective: December 1, 1986
Revised: January 1, 2006

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications, expect the limits shall be a minimum of $5,000,000 combined single limit per occurrence for bodily injury liability and property damage liability with an aggregate limit of $10,000,000 over the life of the policy. A separate policy is required for each railroad unless otherwise noted.

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
Chicago Central and Pacific Railroad Company and its Parents 17641 S. Ashland Ave. Homewood, IL 60430-1345	-0-	2 trains/day@30mph

DOT/AAR No.: 289 908W
RR Division: Eastern
RR Mile Post: 40.07
RR Sub-Division: Chicago

For Freight/Passenger Information Contact: Mr. John Henriksen Phone: 708/332-3557
For Insurance Information Contact: Terry Lee Phone: 715/345-2501
"

DOT/AAR No.:
RR Division:
RR Mile Post:
RR Sub-Division:

For Freight/Passenger Information Contact: Phone:
For Insurance Information Contact: Phone:

Approval of Insurance. The original and one certified copy of each required policy shall be submitted to the following address for approval:

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

REFLECTIVE SHEETING ON CHANNELIZING DEVICES (BDE)

Effective: April 1, 2007
Revised: November 1, 2008

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. 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.

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: April 1, 2009

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. Tensile strength shall be a minimum of 1.20 times the yield strength.

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. 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
Revised: April 1, 2009

Revise Article 508.03 of the Standard Specifications to read:

"**508.03 Storage and Protection.** Reinforcement bars 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 epoxy coated bars are stored in a manner where they will be exposed to the weather more than 60 days prior to use, they shall be protected from deterioration such as that caused by 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.

Covering of the epoxy coated bars will not be required when the bars are installed and tied, or when they are partially incorporated into the concrete."

80206

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: July 1, 2009

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)
1A	Salt Tolerant Lawn Mixture 7/	Bluegrass	60 (70)
		Perennial Ryegrass	20 (20)
		Red Fescue (Audubon, Sea Link, or Epic)	20 (20)
		Hard Fescue (Rescue 911, Spartan II, or Reliant IV)	20 (20)
		Fults Salt Grass 1/ or Salty Alkaligrass	60 (70)
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/ or Salty Alkaligrass	60 (70)
3	Northern Illinois Slope Mixture 7/	Elymus Canadensis (Canada Wild Rye)	5 (5)
		Perennial Ryegrass	20 (20)
		Alsike Cover 2/	5 (5)
		Desmanthus Illinoensis (Illinois Bundleflower) 2/, 5/	2 (2)
		Andropogon Scoparius (Little Bluestem) 5/	12 (12)
		Bouteloua Curtipendula (Side-Oats Grama)	10 (10)
		Fults Salt Grass 1/ or Salty Alkaligrass	30 (35)
		Oats, Spring	50 (55)
		Slender Wheat Grass 5/	15 (15)
		Buffalo Grass (Cody or Bowie) 4/, 5/, 9/	5 (5)

"Table 1 - SEEDING MIXTURES			
6A	Salt Tolerant Conservation Mixture	Andropogon Scoparius (Little Bluestem) 5/	5 (5)
		Elymus Canadensis (Canada Wild Rye) 5/	2 (2)
		Buffalo Grass (Cody or Bowie) 4/, 5/, 9/	5 (5)
		Vernal Alfalfa 2/	15 (15)
		Oats, Spring	48 (55)
		Fults Salt Grass 1/ or Salty Alkaligrass	20 (20)"

Revise Note 7 of Table 1 – Seeding Mixtures of Article 250.07 of the Standard Specifications to read:

"7/ In Districts 1 through 6, the planting times shall be April 1 to June 15 and August 1 to November 1. In Districts 7 through 9, the planting times shall be March 1 to June 1 and August 1 to November 15. Seeding may be performed outside these dates provided the Contractor guarantees a minimum of 75 percent uniform growth over the entire seeded area(s) after a period of establishment. Inspection dates for the period of establishment will be as follows: Seeding conducted in Districts 1 through 6 between June 16 and July 31 will be inspected after April 15 and seeding conducted between November 2 and March 31 will be inspected after September 15. Seeding conducted in Districts 7 through 9 between June 2 and July 31 will be inspected after April 15 and seeding conducted between November 16 and February 28 will be inspected after September 15. The guarantee shall be submitted to the Engineer in writing prior to performing the work. After the period of establishment, areas not exhibiting 75 percent uniform growth shall be interseeded or reseeded, as determined by the Engineer, at no additional cost to the Department."

Delete the last sentence of the first paragraph of Article 1081.04(c)(2) of the Standard Specifications.

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)	-

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
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)	-
Salty Alkaligrass	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/
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 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

SIGN PANELS AND SIGN PANEL OVERLAYS (BDE)

Effective: November 1, 2008

Description. This work shall consist of furnishing, fabricating, and installing sign panels and/or sign panel overlays. Work shall be according to Sections 720 and 721 of the Standard Specifications, except as modified herein.

Materials. Type AP and AZ sheeting shall meet the requirements of the special provision, "Retroreflective Sheeting, Nonreflective Sheeting, and Translucent Overlay Film for Highway Signs". Type ZZ sheeting shall meet the requirements of the special provision, "Type ZZ Retroreflective Sheeting, Nonreflective Sheeting, and Translucent Overlay Film for Highway Signs".

The sheeting for the background, legend, border, shields, and symbols shall be provided by the same manufacturer.

CONSTRUCTION REQUIREMENTS

Fabrication. Signs shall be fabricated according to the current Bureau of Operations Policy Memorandum, "Fabrication of Highway Signs", the MUTCD, the FHWA Standard Highway Signs manual, the Illinois standard highway signs, and as shown on the plans.

Signs shall be fabricated such that the material for the background, legend, border, shields, and symbols is applied in the preferred orientation for the maximum retroreflectivity per the manufacturer's recommendation. The nesting of legend, border, shields, or symbols will not be permitted.

80212

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 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

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

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 10 . 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

VARIABLY SPACED TINING (BDE)

Effective: August 1, 2005
Revised: January 1, 2007

Revise the first sentence of the third paragraph of Article 420.09(e)(1) of the Standard Specifications to read:

"The metal comb shall consist of a single line of tempered spring steel tines variably spaced as shown in the table below and securely mounted in a suitable head."

Revise the fifth sentence of the third paragraph of Article 420.09(e)(1) of the Standard Specifications to read:

"The tining device shall be operated so as to a produce a pattern of grooves, 1/8 to 3/16 in. (3 to 5 mm) deep and 1/10 to 1/8 in. (2.5 to 3.2 mm) wide across the pavement. The tining device shall be operated at a 1:6 skew across the pavement for facilities with a posted speed limit of 55 mph or greater. The tining pattern shall not overlap or leave gaps between successive passes."

Add the following table after the third paragraph of Article 420.09(e)(1) of the Standard Specifications:

"Center to Center Spacings of Metal Comb Tines in. (mm) (read spacings left to right)				
1 5/16 (34)	1 7/16 (36)	1 7/8 (47)	2 1/8 (54)	1 7/8 (48)
1 11/16 (43)	1 1/4 (32)	1 1/4 (31)	1 1/16 (27)	1 7/16 (36)
1 1/8 (29)	1 13/16 (46)	13/16 (21)	1 11/16 (43)	7/8 (23)
1 5/8 (42)	2 1/16 (52)	15/16 (24)	11/16 (18)	1 1/8 (28)
1 9/16 (40)	1 5/16 (34)	1 1/16 (27)	1 (26)	1 (25)
1 1/16 (27)	13/16 (20)	1 7/16 (37)	1 1/2 (38)	2 1/16 (52)
2 (51)	1 3/4 (45)	1 7/16 (37)	1 11/16 (43)	2 1/16 (53)
1 1/16 (27)	1 7/16 (37)	1 5/8 (42)	1 5/8 (41)	1 1/8 (29)
1 11/16 (43)	1 3/4 (45)	1 3/4 (44)	1 3/16 (30)	1 7/16 (37)
1 5/16 (33)	1 9/16 (40)	1 1/8 (28)	1 1/4 (31)	1 15/16 (50)
1 5/16 (34)	1 3/4 (45)	13/16 (20)	1 3/4 (45)	1 15/16 (50)
2 1/16 (53)	2 (51)	1 1/8 (29)	1 (25)	11/16 (18)
2 1/16 (53)	11/16 (18)	1 1/2 (38)	2 (51)	1 9/16 (40)
11/16 (17)	1 15/16 (49)	1 15/16 (50)	1 9/16 (39)	2 (51)
1 7/16 (36)	1 7/16 (36)	1 1/2 (38)	1 13/16 (46)	1 1/8 (29)
1 1/2 (38)	1 15/16 (50)	15/16 (24)	1 5/16 (33)"	

80149

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

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 submitting payroll copies of all subcontractors.

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.