BID PROPOSAL INSTRUCTIONS

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

PREQUALIFICATION

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

WHO CAN BID ?

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

REQUESTS FOR AUTHORIZATION TO BID

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

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?

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

ABOUT AUTHORIZATION TO BID

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

ADDENDA AND REVISIONS

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

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

The Internet is the Department's primary way of doing business. The subscription service emails are an added courtesy the Department provides. It is suggested that bidders check IDOT's website at http://www.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 DOT.D&Econtracts@illlinois.gov

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

STANDARD GUIDELINES FOR SUBMITTING BIDS

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

BID SUBMITTAL CHECKLIST

☐ **Cover page** (the sheet that has the item number on it) **–** This should be the first page of your bid proposal, **followed by your bid (the Schedule of Prices/Pay Items).** If you are using special software or CBID to generate your schedule of prices, do not include the blank pages of the schedule of prices that came with the proposal package.

☐ **Page 4 (Item 9)** – Check "YES" if you will use a subcontractor(s) with an annual value over $50,000. Include the subcontractor(s) name, address, general type of work to be performed and the dollar amount. If you will use subcontractor(s) but are uncertain who or the dollar amount; check "YES" but leave the lines blank.

☐ **After page 4 –** Insert the following documents: The I**llinois Office Affidavit** (Not applicable to federally funded projects) followed by Cost Adjustments for Steel, Bituminous and Fuel (if applicable) and the Contractor Letter of Assent (if applicable). The general rule should be, if you don't know where it goes, put it after page 4.

☐ **Page 10 (Paragraph J)** – Check "YES" or "NO" whether your company has any business in Iran.

☐ **Page 10 (Paragraph K)** – (Not applicable to federally funded projects) List the name of the apprenticeship and training program sponsor holding the certificate of registration from the US Department of Labor. If no applicable program exists, please indicate the work/job category **Your bid will not be read if this is not completed.** Do not include certificates with your bid. Keep the certificates in your office in case they are requested by IDOT.

☐ **Page 11 (Paragraph L)** – A copy of your State Board of Elections certificate of registration is no longer required with your bid.

☐ **Page 11 (Paragraph M)** – Indicate if your company has hired a lobbyist in connection with the job for which you are submitting the bid proposal.

☐ **Page 12 (Paragraph C)** – This is a work sheet to determine if a completed Form A is required. It is not part of the form and you do not need to make copies for each completed Form A.

☐ **Pages 14-17 (Form A)** – One Form A (4 pages) is required for each applicable person in your company. Copies of the forms can be used and only need to be changed when the information changes. The certification signature and date must be original for each letting. **Do not staple the forms together**. If you answered "NO" to all of the questions in Paragraph C (page 12), complete the first section (page 14) with your company information and then sign and date the Not Applicable statement on page 17.

☐ **Page 18 (Form B)** - If you check "YES" to having other current or pending contracts it is acceptable to use the phrase, "See Affidavit of Availability on file". **Ownership Certification** (at the bottom of the page) - Check N/A if the Form A(s) you submitted accounts for 100 percent of the company ownership. Check YES if any percentage of ownership falls outside of the parameters that require reporting on the Form A. Checking NO indicates that the Form A(s) you submitted is not correct and you will be required to submit a revised Form A.

☐ **Page 20 (Workforce Projection)** – Be sure to include the Duration of the Project. It is acceptable to use the phrase "Per Contract Specifications".

☐ **Proposal Bid Bond –** (Insert after the proposal signature page) Submit your proposal Proposal Bid Bond (if applicable) using the current Proposal Bid Bond form provided in the proposal package. The Power of Attorney page should be stapled to the Proposal Bid Bond. If you are using an electronic bond, include your bid bond number on the Proposal Bid Bond and attach the Proof of Insurance printed from the Surety's Web Site.

☐ **Disadvantaged Business Utilization Plan and/or Good Faith Effort –** The last items in your bid should be the DBE Utilization Plan (SBE 2026), followed by the DBE Participation Statement (SBE 2025) and supporting paperwork. If you have documentation of a Good Faith Effort, it is to follow the SBE Forms.

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

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

QUESTIONS: pre-letting up to execution of the contract

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

QUESTIONS: following contract execution

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

RETURN WITH BID

83

Proposal Submitted By
Name
Address
City

Letting September 20, 2013

NOTICE TO PROSPECTIVE BIDDERS
This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction.
BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL

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

Illinois Department of Transportation

Springfield, Illinois 62764

Contract No. 63598
KANE County
Section 06-00214-18-RP
Route FAP 361 (Il 25)
Project HPP-1527(037)
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)

Page intentionally left blank

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. 63598
KANE County
Section 06-00214-18-RP
Project HPP-1527(037)
Route FAP 361 (Il 25)
District 1 Construction Funds

Project consists of replacing the structure carrying the UP Railroad over IL 25, the construction of a temporary shoo-fly structure to carry the UP Railroad over IL 25, the construction of a structure to carry IL 25 over the East Branch of Brewster Creek, roadway widening and reconstruction, traffic signal modernization and drainage improvements, located at the north approach to Brewster Creek to Dunham Road and the intersection of IL 25 at Gilbert Road.

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, addenda form of contract and contract bond, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this 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. **AUTHORITY TO DO BUSINESS IN ILLINOIS.** Section 20-43 of the Illinois Procurement Code (the Code) (30 ILCS 500/20-43) provides that a person (other than an individual acting as a sole proprietor) must be a legal entity authorized to do business in the State of Illinois prior to submitting the bid.

9. **The services of a subcontractor will be used.**

Check box Yes ☐
Check box No ☐

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

_____

_____

10. **EXECUTION OF CONTRACT**: The Department of Transportation will, in accordance with the rules governing Department procurements, execute the contract and shall be the sole entity having the authority to accept performance and make payments under the contract. Execution of the contract by the Chief Procurement Officer (CPO) or the State Purchasing Officer (SPO) is for approval of the procurement process and execution of the contract by the Department. Neither the CPO nor the SPO shall be responsible for administration of the contract or determinations respecting performance or payment there under except as otherwise permitted in the Code.

STATE JOB #- C-91-230-12
PPS NBR -

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 63598

RUN DATE - 03/18/13
RUN TIME - 183051

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
KANE	089	01	06-00214-18-RP	HPP-1527/037/000	FAP 361

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
A2002716	T-CARYA OVATA 2	EACH	6.000	X			=		
A2002916	T-CELTIS OCCID 2	EACH	4.000	X			=		
A2004816	T-GLED TRI-I SK 2	EACH	8.000	X			=		
A2005016	T-GYMNOCLA DIO 2	EACH	6.000	X			=		
A2006416	T-QUERCUS ALBA 2	EACH	5.000	X			=		
A2006516	T-QUERCUS BICOL 2	EACH	11.000	X			=		
A2006716	T-QUERCUS MACR 2	EACH	6.000	X			=		
A2007116	T-QUERCUS RUBRA 2	EACH	3.000	X			=		
A2007816	T-TILIA AMER 2	EACH	5.000	X			=		
A2016616	T-QUERCUS ELLIP 2	EACH	6.000	X			=		
B2001164	T-CERCIS CAN CL 5'	EACH	1.000	X			=		
B2001666	T-CRATAE CRU-I SF 6'	EACH	3.000	X			=		
B2005466	T-PRUN VR SH CL 6'	EACH	1.000	X			=		
XX000366	CLAY LINER	CU FT	6,238.000	X			=		
XX005968	TURBIDITY CURTAIN	SQ YD	100.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX006701	SEED CL 4 MOD MES PRA	ACRE	2.500	X			=		
XX006709	SEED CL 5 MOD MES PRA	ACRE	2.500	X			=		
XX006821	CONC TRUCK WASHOUT	L SUM	1.000	X			=		
XX006847	VINYL FENCE, 4'	FOOT	774.000	X			=		
XX008003	FORM LINER TEX SUR SP	SQ FT	1,405.000	X			=		
XX008386	PRECAST CONC BOX SEG	L SUM	1.000	X			=		
XX008626	TEMP BRIDGE	L SUM	1.000	X			=		
XX008836	PILE SHOES (SPECIAL)	EACH	60.000	X			=		
XX008837	STRUCTURE MARKER SIGN	EACH	2.000	X			=		
XX008838	IMPACT ATTEN REMOVAL	EACH	2.000	X			=		
X0321865	ANTI-GRAFFIT PROT SYS	SQ FT	1,405.000	X			=		
X0322916	PRO SS CONN TO EX SS	EACH	22.000	X			=		
X0322917	PRO SS CONN TO EX MAN	EACH	24.000	X			=		
X0322918	PRO MAN/CB CON OV SS	EACH	7.000	X			=		
X0322936	REMOV EX FLAR END SEC	EACH	6.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
X0324045	SED CON STAB CON EN R	EACH	17.000	X			=		
X0324085	EM VEH P S LSC 20 3C	FOOT	1,362.000	X			=		
X0324775	SED CON STAB CON EN M	SQ YD	4,896.000	X			=		
X0326401	BARRIER WALL REMOVAL	FOOT	115.000	X			=		
X0326694	PLUG EX STORM SEWERS	CU YD	0.300	X			=		
X0327036	BIKE PATH REM	SQ YD	1,685.000	X			=		
X2070304	POROUS GRAN EMB SPEC	CU YD	177.000	X			=		
X4021000	TEMP ACCESS- PRIV ENT	EACH	2.000	X			=		
X4022000	TEMP ACCESS- COM ENT	EACH	6.000	X			=		
X4023000	TEMP ACCESS- ROAD	EACH	2.000	X			=		
X4024100	TEMP ACCESS WINTERIZE	SQ YD	396.000	X			=		
X5020200	STRUCTURE EXCAV SPL	CU YD	1,019.000	X			=		
X5030225	CONC STRUCT SPL	CU YD	388.200	X			=		
X5120005	DRIVING PILES SPL	FOOT	5,705.000	X			=		
X5121800	PERM STEEL SHT PILING	SQ FT	4,670.000	X			=		

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 63598

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
X5510100	STORM SEWER REMOVAL	FOOT	1,484.000	X		=		
X5537800	SS CLEANED 12	FOOT	279.000	X		=		
X5538000	SS CLEANED 18	FOOT	370.000	X		=		
X5538100	SS CLEANED 21	FOOT	197.000	X		=		
X5538200	SS CLEANED 24	FOOT	73.000	X		=		
X5538600	SS CLEANED 36	FOOT	218.000	X		=		
X5538700	SS CLEANED 42	FOOT	431.000	X		=		
X6012005	PIPE DRAINS 12 SPL	FOOT	68.000	X		=		
X6013600	PIPE UNDERDRAIN 4 MOD	FOOT	90.000	X		=		
X6061100	CONC MED TSB SPL	SQ FT	5,206.000	X		=		
X7010216	TRAF CONT & PROT SPL	L SUM	1.000	X		=		
X7240311	REL EX SIGN PANEL SP	EACH	6.000	X		=		
X8570226	FAC T4 CAB SPL	EACH	2.000	X		=		
X8620200	UNINTER POWER SUP SPL	EACH	2.000	X		=		
X8710031	FIB OPT CBL 36F SM	FOOT	4,380.000	X		=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
Z0002300	BALLAST	CU YD	40.000	X			=		
Z0013796	SED CON STAB CONST EN	SQ YD	4,896.000	X			=		
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000	X			=		
Z0018500	DRAINAGE STR CLEANED	EACH	24.000	X			=		
Z0018905	DRILL-GROUT BARS	EACH	96.000	X			=		
Z0019600	DUST CONTROL WATERING	UNIT	300.000	X			=		
Z0022800	FENCE REMOVAL	FOOT	119.000	X			=		
Z0023202	SED CONT DR ST INL CL	EACH	113.000	X			=		
Z0028450	GEOTEX FAB/RR CROSS	SQ YD	476.000	X			=		
Z0030850	TEMP INFO SIGNING	SQ FT	226.000	X			=		
Z0033056	OPTIM TRAF SIGNAL SYS	EACH	1.000	X			=		
Z0033058	P MT FL BEAC INS SPL	EACH	4.000	X			=		
Z0046304	P UNDR FOR STRUCT 4	FOOT	130.000	X			=		
Z0048665	RR PROT LIABILITY INS	L SUM	1.000	X			=		
Z0056622	STORM SEW WM REQ 36	FOOT	326.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
Z0062456	TEMP PAVEMENT	SQ YD	3,111.000	X			=		
Z0062458	TEMP PAVEMT VAR DEPTH	TON	29.000	X			=		
Z0069700	SUB-BALLAST	CU YD	1,167.000	X			=		
Z0073002	TEMP SOIL RETEN SYSTM	SQ FT	9,451.000	X			=		
Z0073346	SLEEPER SLAB	SQ YD	62.000	X			=		
Z0073500	TEMP SUPPORT SYSTEM	L SUM	1.000	X			=		
Z0073510	TEMP TR SIGNAL TIMING	EACH	21.000	X			=		
Z0076100	TRACK REMOVAL	FOOT	766.000	X			=		
Z0076300	TRACK WORK	FOOT	766.000	X			=		
Z0076600	TRAINEES	HOUR	2,000.000	X	0	.80	=	1,600	.00
Z0076604	TRAINEES TPG	HOUR	2,000.000	X	10	.00	=	20,000	.00
Z0077900	WD POST & RAIL FENCE	FOOT	40.000	X			=		
20100110	TREE REMOV 6-15	UNIT	68.000	X			=		
20100210	TREE REMOV OVER 15	UNIT	183.000	X			=		
20101000	TEMPORARY FENCE	FOOT	2,498.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
20101100	TREE TRUNK PROTECTION	EACH	20.000	X			=		
20200100	EARTH EXCAVATION	CU YD	76,680.000	X			=		
20400800	FURNISHED EXCAVATION	CU YD	10,520.000	X			=		
20800150	TRENCH BACKFILL	CU YD	2,274.000	X			=		
20900110	POROUS GRAN BACKFILL	CU YD	228.000	X			=		
21001000	GEOTECH FAB F/GR STAB	SQ YD	43,985.000	X			=		
21101505	TOPSOIL EXC & PLAC	CU YD	5,896.000	X			=		
25000210	SEEDING CL 2A	ACRE	5.750	X			=		
25000400	NITROGEN FERT NUTR	POUND	518.000	X			=		
25000600	POTASSIUM FERT NUTR	POUND	518.000	X			=		
25000700	AGR GROUND LIMESTONE	TON	12.000	X			=		
25000775	SELECT MOWING STAKES	EACH	11.000	X			=		
25100115	MULCH METHOD 2	ACRE	5.750	X			=		
25100630	EROSION CONTR BLANKET	SQ YD	14,398.000	X			=		
25200200	SUPPLE WATERING	UNIT	10.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
28000250	TEMP EROS CONTR SEED	POUND	1,056.000	X		=		
28000305	TEMP DITCH CHECKS	FOOT	578.000	X		=		
28000400	PERIMETER EROS BAR	FOOT	7,667.000	X		=		
28000500	INLET & PIPE PROTECT	EACH	9.000	X		=		
28000510	INLET FILTERS	EACH	113.000	X		=		
28001100	TEMP EROS CONTR BLANK	SQ YD	14,398.000	X		=		
28100105	STONE RIPRAP CL A3	SQ YD	108.000	X		=		
28100107	STONE RIPRAP CL A4	SQ YD	399.000	X		=		
28200200	FILTER FABRIC	SQ YD	565.000	X		=		
30300112	AGG SUBGRADE IMPR 12	SQ YD	43,985.000	X		=		
35101800	AGG BASE CSE B 6	SQ YD	5,513.000	X		=		
35501316	HMA BASE CSE 8	SQ YD	1,262.000	X		=		
40201000	AGGREGATE-TEMP ACCESS	TON	3,135.000	X		=		
40600100	BIT MATLS PR CT	GALLON	4,437.000	X		=		
40600300	AGG PR CT	TON	19.000	X		=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
40600895	CONSTRUC TEST STRIP	EACH	5.000	X			=		
40601005	HMA REPL OVER PATCH	TON	3.000	X			=		
40603335	HMA SC "D" N50	TON	342.000	X			=		
40701901	HMA PAVT FD 11	SQ YD	2,606.000	X			=		
40701931	HMA PAVT FD 12 1/2	SQ YD	2,302.000	X			=		
42000501	PCC PVT 10 JOINTED	SQ YD	30,088.000	X			=		
42001300	PROTECTIVE COAT	SQ YD	73,258.000	X			=		
42400800	DETECTABLE WARNINGS	SQ FT	95.000	X			=		
44000100	PAVEMENT REM	SQ YD	29,967.000	X			=		
44000200	DRIVE PAVEMENT REM	SQ YD	2,188.000	X			=		
44000500	COMB CURB GUTTER REM	FOOT	1,761.000	X			=		
44003100	MEDIAN REMOVAL	SQ FT	10,423.000	X			=		
44004250	PAVED SHLD REMOVAL	SQ YD	4,167.000	X			=		
44201757	CL D PATCH T3 9	SQ YD	21.000	X			=		
44213100	PAVEMENT FABRIC	SQ YD	476.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
48101200	AGGREGATE SHLDS B	TON	185.000	X			=		
48203021	HMA SHOULDERS 6	SQ YD	639.000	X			=		
50100300	REM EXIST STRUCT N1	EACH	1.000	X			=		
50100400	REM EXIST STRUCT N2	EACH	1.000	X			=		
50105220	PIPE CULVERT REMOV	FOOT	126.000	X			=		
50200100	STRUCTURE EXCAVATION	CU YD	18.000	X			=		
50300225	CONC STRUCT	CU YD	115.200	X			=		
50300255	CONC SUP-STR	CU YD	200.300	X			=		
50300260	BR DECK GROOVING	SQ YD	379.000	X			=		
50300280	CONCRETE ENCASEMENT	CU YD	5.000	X			=		
50300300	PROTECTIVE COAT	SQ YD	497.000	X			=		
50401005	F & E P P CON I-BM 48	FOOT	274.000	X			=		
50500105	F & E STRUCT STEEL	L SUM	1.000	X			=		
50500505	STUD SHEAR CONNECTORS	EACH	880.000	X			=		
50800205	REINF BARS, EPOXY CTD	POUND	85,200.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
50800515	BAR SPLICERS	EACH	60.000	X			=		
50901730	BRIDGE FENCE RAILING	FOOT	428.000	X			=		
51100100	SLOPE WALL 4	SQ YD	194.000	X			=		
51201600	FUR STL PILE HP12X53	FOOT	882.000	X			=		
51201900	FUR STL PILE HP14X89	FOOT	5,705.000	X			=		
51202305	DRIVING PILES	FOOT	882.000	X			=		
51203600	TEST PILE ST HP12X53	EACH	2.000	X			=		
51203900	TEST PILE ST HP14X89	EACH	5.000	X			=		
51204650	PILE SHOES	EACH	14.000	X			=		
51500100	NAME PLATES	EACH	2.000	X			=		
54213657	PRC FLAR END SEC 12	EACH	3.000	X			=		
54213663	PRC FLAR END SEC 18	EACH	8.000	X			=		
550A0050	STORM SEW CL A 1 12	FOOT	267.000	X			=		
550A0090	STORM SEW CL A 1 18	FOOT	146.000	X			=		
550A0340	STORM SEW CL A 2 12	FOOT	3,793.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
550A0360	STORM SEW CL A 2 15	FOOT	439.000	X			=		
550A0380	STORM SEW CL A 2 18	FOOT	785.000	X			=		
550A0400	STORM SEW CL A 2 21	FOOT	622.000	X			=		
550A0450	STORM SEW CL A 2 36	FOOT	430.000	X			=		
550A0640	STORM SEW CL A 3 12	FOOT	24.000	X			=		
550A0680	STORM SEW CL A 3 18	FOOT	480.000	X			=		
55200600	STORM SEWERS JKD 18	FOOT	50.000	X			=		
55201300	STORM SEWERS JKD 36	FOOT	192.000	X			=		
58000100	MEMBRANE WATERPROOF	SQ FT	3,932.000	X			=		
58700300	CONCRETE SEALER	SQ FT	5,350.000	X			=		
59100100	GEOCOMPOSITE WALL DR	SQ YD	94.000	X			=		
60200805	CB TA 4 DIA T8G	EACH	10.000	X			=		
60201340	CB TA 4 DIA T24F&G	EACH	115.000	X			=		
60205040	CB TA 5 DIA T24F&G	EACH	3.000	X			=		
60205310	CB TA 6 DIA T24F&G	EACH	3.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
60218400	MAN TA 4 DIA T1F CL	EACH	23.000	X			=		
60221100	MAN TA 5 DIA T1F CL	EACH	12.000	X			=		
60223800	MAN TA 6 DIA T1F CL	EACH	3.000	X			=		
60500040	REMOV MANHOLES	EACH	6.000	X			=		
60500050	REMOV CATCH BAS	EACH	15.000	X			=		
60602800	CONC GUTTER TB	FOOT	252.000	X			=		
60605000	COMB CC&G TB6.24	FOOT	15,396.000	X			=		
60610400	COMB CC&G TM6.24	FOOT	300.000	X			=		
60625600	ISLAND PAVEMENT 6	SQ YD	2,140.000	X			=		
60625900	PCC RAMP MED TERM	EACH	2.000	X			=		
63000001	SPBGR TY A 6FT POSTS	FOOT	350.000	X			=		
63100070	TRAF BAR TERM T5	EACH	1.000	X			=		
63100085	TRAF BAR TERM T6	EACH	3.000	X			=		
63100167	TR BAR TRM T1 SPL TAN	EACH	2.000	X			=		
63200310	GUARDRAIL REMOV	FOOT	325.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
63301210	REM RE-E SPBGR TY A	FOOT	887.500	X			=		
63301990	REM RE-E T B TERM T1	EACH	5.000	X			=		
63302700	REM RE-E T B TERM T6	EACH	1.000	X			=		
66400305	CH LK FENCE 6	FOOT	154.000	X			=		
66700205	PERM SURV MKRS T1	EACH	10.000	X			=		
67000400	ENGR FIELD OFFICE A	CAL MO	19.000	X			=		
67100100	MOBILIZATION	L SUM	1.000	X			=		
70106800	CHANGEABLE MESSAGE SN	CAL MO	54.000	X			=		
70300210	TEMP PVT MK LTR & SYM	SQ FT	1,258.000	X			=		
70300220	TEMP PVT MK LINE 4	FOOT	61,471.000	X			=		
70300240	TEMP PVT MK LINE 6	FOOT	11,081.000	X			=		
70300260	TEMP PVT MK LINE 12	FOOT	1,957.000	X			=		
70300280	TEMP PVT MK LINE 24	FOOT	395.000	X			=		
70301000	WORK ZONE PAVT MK REM	SQ FT	11,989.000	X			=		
70400100	TEMP CONC BARRIER	FOOT	1,200.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
70600240	IMP ATTN TEMP NRD TL2	EACH	8.000	X			=		
70600340	IMP ATTN REL NRD TL2	EACH	1.000	X			=		
72000100	SIGN PANEL T1	SQ FT	249.000	X			=		
72400310	REMOV SIGN PANEL T1	SQ FT	149.000	X			=		
72400710	RELOC SIGN PANEL T1	SQ FT	205.000	X			=		
72400720	RELOC SIGN PANEL T2	SQ FT	45.000	X			=		
72800100	TELES STL SIN SUPPORT	FOOT	198.000	X			=		
72900100	METAL POST TY A	FOOT	751.000	X			=		
72900200	METAL POST TY B	FOOT	261.000	X			=		
73000100	WOOD SIN SUPPORT	FOOT	56.000	X			=		
73100100	BASE TEL STL SIN SUPP	EACH	13.000	X			=		
73700100	REM GR MT SIN SUPPORT	EACH	57.000	X			=		
78000100	THPL PVT MK LTR & SYM	SQ FT	73.000	X			=		
78000200	THPL PVT MK LINE 4	FOOT	4,438.000	X			=		
78000400	THPL PVT MK LINE 6	FOOT	429.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
78000600	THPL PVT MK LINE 12	FOOT	158.000	X			=		
78008200	POLYUREA PM T1 LTR-SY	SQ FT	1,231.000	X			=		
78008210	POLYUREA PM T1 LN 4	FOOT	2,085.000	X			=		
78008230	POLYUREA PM T1 LN 6	FOOT	5,390.000	X			=		
78008240	POLYUREA PM T1 LN 8	FOOT	1,513.000	X			=		
78008250	POLYUREA PM T1 LN 12	FOOT	831.000	X			=		
78008270	POLYUREA PM T1 LN 24	FOOT	567.000	X			=		
78100100	RAISED REFL PAVT MKR	EACH	194.000	X			=		
78100105	RAISED REF PVT MKR BR	EACH	6.000	X			=		
78100200	TEMP RAIS REF PVT MKR	EACH	738.000	X			=		
78200410	GUARDRAIL MKR TYPE A	EACH	17.000	X			=		
78200530	BAR WALL MKR TYPE C	EACH	6.000	X			=		
78201000	TERMINAL MARKER - DA	EACH	6.000	X			=		
78300100	PAVT MARKING REMOVAL	SQ FT	5,947.000	X			=		
78300200	RAISED REF PVT MK REM	EACH	200.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
80500020	SERV INSTALL POLE MT	EACH	2.000	X			=		
81028200	UNDRGRD C GALVS 2	FOOT	2,762.000	X			=		
81028210	UNDRGRD C GALVS 2 1/2	FOOT	1,852.000	X			=		
81028220	UNDRGRD C GALVS 3	FOOT	118.000	X			=		
81028240	UNDRGRD C GALVS 4	FOOT	1,313.000	X			=		
81400100	HANDHOLE	EACH	21.000	X			=		
81400200	HD HANDHOLE	EACH	3.000	X			=		
81400300	DBL HANDHOLE	EACH	5.000	X			=		
86400100	TRANSCEIVER - FIB OPT	EACH	2.000	X			=		
87300925	ELCBL C TRACER 14 1C	FOOT	4,380.000	X			=		
87301215	ELCBL C SIGNAL 14 2C	FOOT	3,494.000	X			=		
87301225	ELCBL C SIGNAL 14 3C	FOOT	2,215.000	X			=		
87301245	ELCBL C SIGNAL 14 5C	FOOT	8,370.000	X			=		
87301255	ELCBL C SIGNAL 14 7C	FOOT	607.000	X			=		
87301305	ELCBL C LEAD 14 1PR	FOOT	9,229.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
87301805	ELCBL C SERV 6 2C	FOOT	77.000	X			=		
87301900	ELCBL C EGRDC 6 1C	FOOT	6,854.000	X			=		
87502480	TS POST GALVS 14	EACH	3.000	X			=		
87502500	TS POST GALVS 16	EACH	1.000	X			=		
87502520	TS POST GALVS 18	EACH	1.000	X			=		
87700230	S MAA & P 38	EACH	1.000	X			=		
87700250	S MAA & P 42	EACH	2.000	X			=		
87702910	STL COMB MAA&P 36	EACH	1.000	X			=		
87702990	STL COMB MAA&P 54	EACH	1.000	X			=		
87800100	CONC FDN TY A	FOOT	52.000	X			=		
87800150	CONC FDN TY C	FOOT	8.000	X			=		
87800415	CONC FDN TY E 36D	FOOT	74.000	X			=		
87900200	DRILL EX HANDHOLE	EACH	5.000	X			=		
88030020	SH LED 1F 3S MAM	EACH	15.000	X			=		
88030050	SH LED 1F 3S BM	EACH	9.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
88030110	SH LED 1F 5S MAM	EACH	1.000	X			=		
88030210	SH LED 2F 3S BM	EACH	3.000	X			=		
88030240	SH LED 2F 1-3 1-5 BM	EACH	1.000	X			=		
88102717	PED SH LED 1F BM CDT	EACH	2.000	X			=		
88200210	TS BACKPLATE LOU ALUM	EACH	34.000	X			=		
88500100	INDUCTIVE LOOP DETECT	EACH	19.000	X			=		
88600700	PREFORM DETECT LOOP	FOOT	1,339.000	X			=		
88700200	LIGHT DETECTOR	EACH	5.000	X			=		
88700300	LIGHT DETECTOR AMP	EACH	2.000	X			=		
88800100	PED PUSH-BUTTON	EACH	2.000	X			=		
89000100	TEMP TR SIG INSTALL	EACH	3.000	X			=		
89501150	RELOC EX TS POST	EACH	8.000	X			=		
89501300	RELOC EX MAA & POLE	EACH	1.000	X			=		
89502105	REBUILD EX SIG HD LED	EACH	2.000	X			=		
89502200	MOD EX CONTR	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
89502300	REM ELCBL FR CON	FOOT	5,362.000			X =		
89502375	REMOV EX TS EQUIP	EACH	3.000			X =		
89502376	REBUILD EX HANDHOLE	EACH	1.000			X =		
89502380	REMOV EX HANDHOLE	EACH	19.000			X =		
89502385	REMOV EX CONC FDN	EACH	20.000			X =		
						TOTAL $		

NOTE:

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

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

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

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

RETURN WITH BID

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

I. GENERAL

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

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

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

II. ASSURANCES

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

A. Conflicts of Interest

1. The 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.

B. Negotiations

1. The 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.

C. Inducements

1. The 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.

D. Revolving Door Prohibition

1. The Code provides:

Section 50-30. Revolving door prohibition. CPOs, SPOs, procurement compliance monitors, their designees whose principal duties are directly related to State procurement, and executive officers confirmed by the Senate are expressly prohibited for a period of 2 years after terminating an affected position from engaging in any procurement activity relating to the State agency most recently employing them in an affected position for a period of at least 6 months. The prohibition includes, but is not limited to: lobbying the procurement process; specifying; bidding; proposing bid, proposal, or contract documents; on their own behalf or on behalf of any firm, partnership, association, or corporation. This Section applies only to persons who terminate an affected position on or after January 15, 1999.

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.

E. Reporting Anticompetitive Practices

1. The Code provides:

Section 50-40. Reporting anticompetitive practices. When, for any reason, any vendor, bidder, contractor, CPO, SPO, designee, elected official, or State employee suspects collusion or other anticompetitive practice among any bidders, offerors, contractors, proposers, or employees of the State, a notice of the relevant facts shall be transmitted to the Attorney General and the CPO.

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.

F. Confidentiality

1. The Code provides:

Section 50-45. Confidentiality. Any CPO, SPO, designee, or executive officer who willfully uses or allows the use of specifications, competitive bid documents, proprietary competitive information, proposals, contracts, or selection information to compromise the fairness or integrity of the procurement, bidding, or contract process shall be subject to immediate dismissal, regardless of the Personnel code, any contract, or any collective bargaining agreement, and may in addition be subject to criminal prosecution.

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.

G. Insider Information

1. The Code 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

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

A. Bribery

1. The 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, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

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

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 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, and every subcontract subject to Section 20-120 of the Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

B. Felons

1. The 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, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

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

C. Debt Delinquency

1. The Code provides:

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

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.
The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

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

F. 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.

G. 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.

H. International Anti-Boycott

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

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

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

I. Drug Free Workplace

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

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

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

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

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

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

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

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

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

J. Disclosure of Business Operations in Iran

Section 50-36 of the 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, offeror, or proposing entity, or any of its corporate parents or subsidiaries, within the 24 months before submission of the bid, offer, or proposal had business operations that involved contracts with or provision of supplies or services to the Government of Iran, companies in which the Government of Iran has any direct or indirect equity share, consortiums or projects commissioned by the Government of Iran, or companies involved in consortiums or projects commissioned by the Government of Iran and either of the following conditions apply:

(1) More than 10% of the Company's revenues produced in or assets located in Iran involve oil-related activities or mineral-extraction activities; less than 75% of the Company's revenues produced in or assets located in Iran involve contracts with or provision of oil-related or mineral-extraction products or services to the Government of Iran or a project or consortium created exclusively by that government; and the Company has failed to take substantial action.

(2) The Company has, on or after August 5, 1996, made an investment of $20 million or more, or any combination of investments of at least $10 million each that in the aggregate equals or exceeds $20 million in any 12-month period, which directly or significantly contributes to the enhancement of Iran's ability to develop petroleum resources of Iran.

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

Failure to make the disclosure required by the Code 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.

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

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

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. Political Contributions and Registration with the State Board of Elections

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

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

The undersigned 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. If the business entity is required to register, the CPO shall verify that it is in compliance on the date the bid or proposal is due. The CPO shall not accept a bid or proposal if the business entity is not in compliance with the registration requirements.

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

M. Lobbyist Disclosure

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

(i) Disclose all costs, fees, compensation, reimbursements, and other remunerations paid or to be paid to the lobbyist related to the contract,

(ii) Not bill or otherwise cause the State of Illinois to pay for any of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration, and

(iii) Sign a verification certifying that none of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration were billed to the State.

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

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

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

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

Or

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

Name and address of person: _____

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

_____

_____

_____

IV. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Code provides that all bids of more than $25,000 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, filed with the Procurement Policy Board, and shall be incorporated as a material term of the contract. Furthermore, pursuant to Section 5-5, the Procurement Policy Board may review a proposal, bid, or contract and issue a recommendation to void a contract or reject a proposal or bid based on any violation of the Code or the existence of a conflict of interest as provided in subsections (b) and (d) of Section 50-35.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 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.
The current annual salary of the Governor is $177,412.00.

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 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 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 60% of the annual salary of the Governor? YES ___ NO___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the bidding entity's or parent entity's distributive income? YES ___ NO __
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO __

   (Note: Only one set of forms needs to be completed per 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 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

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

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

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

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

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

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A
Financial Information & Potential Conflicts of Interest Disclosure

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

Disclosure of the information contained in this Form is required by the Section 50-35 of the Code (30 ILCS 500). Vendors desiring to enter into a contract with the State of Illinois must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for bids in excess of $25,000, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):

% or $ value of ownership/distributable income share: _____

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

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

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

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___No __

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

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

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

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

Yes ___No __

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

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___No __

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

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess 100% of the annual salary of the Governor? Yes ___ No __

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or any minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income from your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor?

Yes ___ No __

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes ___No __

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___No __

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United State of America, or any unit of local government authorized by the Constitution of the State of Illinois or the 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 __

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___No __

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

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

---

3. Communication Disclosure.

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

Name and address of person(s): _____

_____

_____

_____

RETURN WITH BID

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

Name of person(s): _____

Nature of disclosure: _____
_____
_____
_____

APPLICABLE STATEMENT

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

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

NOT APPLICABLE STATEMENT

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

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

☐ _____ _____
Signature of Authorized Representative — Date

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

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Other Contracts & Financial Related Information Disclosure

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

Disclosure of the information contained in this Form is required by the Section 50-35 of the Code (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of $25,000, 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

OWNERSHIP CERTIFICATION

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

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

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

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

The following requirements of the Illinois Department of Human Rights' 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. 63598
KANE County
Section 06-00214-18-RP
Project HPP-1527(037)
Route FAP 361 (Il 25)
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				TOTAL EMPLOYEES		MINORITY EMPLOYEES	
JOB CATEGORIES	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.		APPREN-TICES		ON THE JOB TRAINEES					
	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. 12/11/07)

Note: See instructions on page 2

RETURN WITH BID

Contract No. 63598
KANE County
Section 06-00214-18-RP
Project HPP-1527(037)
Route FAP 361 (Il 25)
District 1 Construction Funds

PART II. WORKFORCE PROJECTION - continued

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

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

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

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

PART III. AFFIRMATIVE ACTION PLAN

A. The undersigned bidder understands and agrees that in the event the foregoing minority and female employee utilization projection included under **PART II** is determined to be an underutilization of minority persons or women in any job category, and in the event that the undersigned bidder is awarded this contract, he/she will, prior to commencement of work, develop and submit a written Affirmative Action Plan including a specific timetable (geared to the completion stages of the contract) whereby deficiencies in minority and/or female employee utilization are corrected. Such Affirmative Action Plan will be subject to approval by the contracting agency and the **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. 12/11/07)

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. 63598
KANE County
Section 06-00214-18-RP
Project HPP-1527(037)
Route FAP 361 (Il 25)
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 the bid proposal under "Proposal Guaranty" in effect on the date of the Invitation for Bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

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

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

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

In TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by

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

PRINCIPAL	**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

Illinois Department of Transportation

DBE Utilization Plan

(1) Policy

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

(2) Obligation

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

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route _____ Total Bid _____

Section _____ Contract DBE Goal _____ (Percent) _____ (Dollar Amount)

Project _____

County _____

Letting Date _____

Contract No. _____

Letting Item No. _____

(4) Assurance

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

☐ Meets or exceeds contract award goals and has provided documented participation as follows:

Disadvantaged Business Participation _____ percent

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

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

Disadvantaged Business Participation _____ percent

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

_____
Company

By _____

Title _____

Date _____

The "as read" Low Bidder is required to comply with the Special Provision.

Submit only one utilization plan for each project. The utilization plan shall be submitted in accordance with the special provision.

Bureau of Small Business Enterprises
2300 South Dirksen Parkway
Springfield, Illinois 62764

Local Let Projects
Submit forms to the
Local Agency

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

Illinois Department of Transportation

DBE Participation Statement

Subcontractor Registration _____ Letting _____

Participation Statement Item No. _____

(1) Instructions Contract _____

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

(2) Work

Pay Item No.	Description	Quantity	Unit Price	Total
			Total	

(3) Partial Payment Items

For any of the above items which are partial pay items, specifically describe the work and subcontract dollar amount:

(4) Commitment

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

_____ _____

Signature for Prime Contractor Signature for DBE Firm

Title _____ Title _____

Date _____ Date _____

Contact _____ Contact Person _____

Phone _____ Phone _____

Firm Name _____ Firm Name _____

Address _____ Address _____

City/State/Zip _____ City/State/Zip _____

E _____

WC _____

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

PROPOSAL ENVELOPE

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. 63598
KANE County
Section 06-00214-18-RP
Project HPP-1527(037)
Route FAP 361 (Il 25)
District 1 Construction Funds

Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

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

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

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

RETURN WITH SUBCONTRACT

STATE ETHICAL STANDARDS GOVERNING SUBCONTRACTORS

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

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

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

A. Bribery

1. The 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, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

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

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract to which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 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, and every subcontract subject to Section 20-120 of the Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

B. Felons

1. The 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, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

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

RETURN WITH SUBCONTRACT

C. Debt Delinquency

1. The Code provides:

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

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.
The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the CPO shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-12 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the CPO may declare the contract void if this certification is false.

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

_____
Name of Subcontracting Company

_____ _____
Authorized Officer Date

RETURN WITH SUBCONTRACT

SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

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

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the subcontracting entity or its parent entity, whichever is less, unless the subcontractor is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 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.
The current annual salary of the Governor is $177,412.00.

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the subcontractor is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 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 subcontractor is not subject to Federal 10K reporting, the subcontractor must determine if any individuals are required by law to complete a financial disclosure form. To do this, the subcontractor should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the subcontracting company. Note: These questions are for assistance only and are not required to be completed.

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

   (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.)
4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO __

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

A "YES" answer to any of these questions requires the completion of Form A. The subcontractor must determine each individual in the subcontracting entity or the subcontracting entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by 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 subcontractor is responsible for the accuracy of any information provided.

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

RETURN WITH SUBCONTRACT

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

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

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

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

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

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

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

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):

% or $ value of ownership/distributable income share: _____

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

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

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

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___No __

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

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor?
Yes ___No __

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___No __

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

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

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___No __

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

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of of 100% of the annual salary of the Governor? Yes ___No __

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor?
Yes ___No __

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes ___No __

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___No __

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes ___No __

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___No __

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government.
Yes ___No __

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

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

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

---

3 Communication Disclosure.

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

Name and address of person(s): _____

_____

_____

_____

RETURN WITH SUBCONTRACT

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

Name of person(s): _____

Nature of disclosure: _____

_____

_____

_____

APPLICABLE STATEMENT

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

Completed by: ☐ _____ _____

Signature of Individual or Authorized Officer — Date

NOT APPLICABLE STATEMENT

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

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

☐ _____ _____

Signature of Authorized Officer — Date

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Subcontractor: Other Contracts & Financial Related Information Disclosure

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

Disclosure of the information contained in this Form is required by the Section 50-35 of the Code (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for subcontracts with a total value of $50,000 or more, from subcontractors identified in Section 20-120 of the Code, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

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

OWNERSHIP CERTIFICATION

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

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

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

Illinois Department of Transportation

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 o'clock a.m September 20, 2013. 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. 63598
   KANE County
   Section 06-00214-18-RP
   Project HPP-1527(037)
   Route FAP 361 (Il 25)
   District 1 Construction Funds

Project consists of replacing the structure carrying the UP Railroad over IL 25, the construction of a temporary shoo-fly structure to carry the UP Railroad over IL 25, the construction of a structure to carry IL 25 over the East Branch of Brewster Creek, roadway widening and reconstruction, traffic signal modernization and drainage improvements, located at the north approach to Brewster Creek to Dunham Road and the intersection of IL 25 at Gilbert Road.

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

Ann L. Schneider,
Secretary

CONTRACT 63598

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2013

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-12) (Revised 1-1-13)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

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

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

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

Table of Contents

TABLE OF CONTENTS

TABLE OF CONTENTS (cont'd)

TABLE OF CONTENTS (cont'd)

INDEX LOCAL ROADS AND STREETS SPECIAL PROVISIONS

LR #	Pg #		Special Provision Title	Effective	Revised
LR SD12		☐	Slab Movement Detection Device	Nov. 11, 1984	Jan. 1, 2007
LR SD13		☐	Required Cold Milled Surface Texture	Nov. 1, 1987	Jan. 1, 2007
LR SD406		☐	Safety Edge	April 1, 2011	
LR 105	407	☒	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 107-4	410	☒	Insurance	Feb. 1, 2007	Aug. 1, 2007
LR 107-7		☐	Wages of Employees on Public Works	Jan. 1, 1999	Jan. 2, 2013
LR 108		☐	Combination Bids	Jan. 1, 1994	Mar. 1, 2005
LR 109		☐	Equipment Rental Rates	Jan. 1, 2012	
LR 212		☐	Shaping Roadway	Aug. 1, 1969	Jan. 1, 2002
LR 355-1		☐	Bituminous Stabilized Base Course, Road Mix or Traveling Plant Mix	Oct. 1, 1973	Jan. 1, 2007
LR 355-2		☐	Bituminous Stabilized Base Course, Plant Mix	Feb. 20, 1963	Jan. 1, 2007
LR 400-1		☐	Bituminous Treated Earth Surface	Jan. 1, 2007	Apr. 1, 2012
LR 400-2		☐	Bituminous Surface Plant Mix (Class B)	Jan. 1, 2008	
LR 400-3		☐	Hot In-Place Recycling (HIR) – Surface Recycling	Jan. 1, 2012	
LR 400-4		☐	Full-Depth Reclamation (FDR) with Emulsified Asphalt	Apr. 1, 2012	Jun. 1, 2012
LR 400-5		☐	Cold In-Place Recycling (CIR) With Emulsified Asphalt	Apr. 1, 2012	Jun. 1, 2012
LR 400-6		☐	Cold In Place Recycling (CIR) with Foamed Asphalt	June 1, 2012	
LR 400-7		☐	Full-Depth Reclamation (FDR) with Foamed Asphalt	June 1, 2012	
LR 402		☐	Salt Stabilized Surface Course	Feb. 20, 1963	Jan. 1, 2007
LR 403-1		☐	Surface Profile Milling of Existing, Recycled or Reclaimed Flexible Pavement	Apr. 1, 2012	Jun. 1, 2012
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 1000-1		☐	Cold In-Place Recycling (CIR) and Full Depth Reclamation (FDR) with Emulsified Asphalt Mix Design Procedures	Apr. 1, 2012	Jun. 1, 2012
LR 1000-2		☐	Cold In-Place Recycling (CIR) and Full Depth Reclamation (FDR) with Foamed Asphalt Mix Design Procedures	June 1, 2012	
LR 1004		☐	Coarse Aggregate for Bituminous Surface Treatment	Jan. 1, 2002	Jan. 1, 2007
LR 1030		☐	Growth Curve	Mar. 1, 2008	Jan. 1, 2010
LR 1032-1		☐	Emulsified Asphalts	Jan. 1, 2007	Feb. 7, 2008
LR 1102		☐	Road Mix or Traveling Plan Mix Equipment	Jan. 1, 2007	

BDE SPECIAL PROVISIONS

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

	File Name	Pg.		Special Provision Title	Effective	Revised
	80240			Above Grade Inlet Protection	July 1, 2009	Jan. 1, 2012
	80099			Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2007
	80274			Aggregate Subgrade Improvement	April 1, 2012	Jan. 1, 2013
	80309	411	X	Anchor Bolts	Jan. 1, 2013	
	80192			Automated Flagger Assistance Device	Jan. 1, 2008	
	80173	412	X	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Jan. 1, 2012
	80241			Bridge Demolition Debris	July 1, 2009	
	80276			Bridge Relief Joint Sealer	Jan. 1, 2012	Aug. 1, 2012
	5026I			Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
	5048I			Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
	5049I			Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
	5053I			Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
*	80292	415	X	Coarse Aggregate in Bridge Approach Slabs/Footings	April 1, 2012	April 1, 2013
	80310	416	X	Coated Galvanized Steel Conduit	Jan. 1, 2013	
	80198			Completion Date (via calendar days)	April 1, 2008	
	80199			Completion Date (via calendar days) Plus Working Days	April 1, 2008	
	80293			Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	
	80294			Concrete Box Culverts with Skews ≤ 30 Degrees Regardless of Design Fill and Skews > 30 Degrees with Design Fills > 5 Feet	April 1, 2012	
	80311			Concrete End Sections for Pipe Culverts	Jan. 1, 2013	
	80277			Concrete Mix Design – Department Provided	Jan. 1, 2012	
	80261	417	X	Construction Air Quality – Diesel Retrofit	June 1, 2010	
	80029	420	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Aug. 2, 2011
	80312	430	X	Drain Pipe, Tile, Drainage Mat, and Wall Drain	Jan. 1, 2013	
	80313			Fabric Bearing Pads	Jan. 1, 2013	
	80265			Friction Aggregate	Jan. 1, 2011	
	80229	431	X	Fuel Cost Adjustment	April 1, 2009	July 1, 2009
	80303	435	X	Granular Materials	Nov. 1, 2012	
	80304			Grooving for Recessed Pavement Markings	Nov. 1, 2012	Jan. 1, 2013
	80169			High Tension Cable Median Barrier	Jan. 1, 2007	Jan. 1, 2013
	80246	436	X	Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	April 1, 2012
	80315			Insertion Lining of Culverts	Jan. 1, 2013	
*	80320	438	X	Liquidated Damages	April 1, 2013	
	80045			Material Transfer Device	June 15, 1999	Jan. 1, 2009
	80297			Modified Urethane Pavement Marking	April 1, 2012	
	80165			Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
	80253			Movable Traffic Barrier	Jan. 1, 2010	Jan. 1, 2013
	80231	439	X	Pavement Marking Removal	April 1, 2009	
	80298			Pavement Marking Tape Type IV	April 1, 2012	
	80254	440	X	Pavement Patching	Jan. 1, 2010	
*	80321	441	X	Pavement Removal	April 1, 2013	
	80022	442	X	Payments to Subcontractors	June 1, 2000	Jan. 1, 2006
	80316	444	X	Placing and Consolidating Concrete	Jan. 1, 2013	
	80278	447	X	Planting Woody Plants	Jan. 1, 2012	Aug. 1, 2012
	80305	449	X	Polyurea Pavement Markings	Nov. 1, 2012	Jan. 1, 2013
	80279	450	X	Portland Cement Concrete	Jan. 1, 2012	Jan. 1, 2013
	80300			Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	

File Name	Pg.		Special Provision Title	Effective	Revised
80218			Preventive Maintenance – Bituminous Surface Treatment	Jan. 1, 2009	April 1, 2012
80219			Preventive Maintenance – Cape Seal	Jan. 1, 2009	April 1, 2012
80220			Preventive Maintenance – Micro-Surfacing	Jan. 1, 2009	April 1, 2012
80221			Preventive Maintenance – Slurry Seal	Jan. 1, 2009	April 1, 2012
80281	493	X	Quality Control/Quality Assurance of Concrete Mixtures	Jan. 1, 2012	Jan. 1, 2013
3426I			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157	509	X	Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306			Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	Jan. 1, 2013
* 80283	511	X	Removal and Disposal of Regulated Substances	Jan. 1, 2012	Nov. 2, 2012
* 80319	515	X	Removal and Disposal of Surplus Materials	Nov. 2, 2012	
80224			Restoring Bridge Approach Pavements Using High-Density Foam	Jan. 1, 2009	Jan. 1, 2012
80271			Safety Edge	April 1, 2011	
80307			Seeding	Nov. 1, 2012	
80127			Steel Cost Adjustment	April 2, 2004	April 1, 2009
80255			Stone Matrix Asphalt	Jan. 1, 2010	Jan. 1, 2012
80143	516	X	Subcontractor Mobilization Payments	April 2, 2005	April 1, 2011
80317			Surface Testing of Hot-Mix Asphalt Overlays (NOTE: This special provision was previously named "*Surface Testing of Pavements*".)	Jan. 1, 2013	
80308			Synthetic Fibers in Concrete Gutter, Curb, Median and Paved Ditch	Nov. 1, 2012	
80286	517	X	Temporary Erosion and Sediment Control	Jan. 1, 2012	
80225	518	X	Temporary Raised Pavement Marker	Jan. 1, 2009	
80256			Temporary Water Filled Barrier	Jan. 1, 2010	Jan. 1, 2013
80301	519	X	Tracking the Use of Pesticides	Aug. 1, 2012	
80273	520	X	Traffic Control Deficiency Deduction	Aug. 1, 2011	
20338	521	X	Training Special Provisions	Oct. 15, 1975	
* 80318			Traversable Pipe Grate	Jan. 1, 2013	April 1, 2013
80270			Utility Coordination and Conflicts	April 1, 2011	Jan. 1, 2012
80288	524	X	Warm Mix Asphalt	Jan. 1, 2012	Nov. 1, 2012
80302	530	X	Weekly DBE Trucking Reports	June 2, 2012	
80289			Wet Reflective Thermoplastic Pavement Marking	Jan. 1, 2012	
80071			Working Days	Jan. 1, 2002	

The following special provisions are either in the 2013 Standard Specifications, the 2013 Recurring Special Provisions, or the special provisions Portland Cement Concrete, QC/QA of Concrete Mixtures, or Placing and Consolidating Concrete:

File Name	Special Provision Title	New Location	Effective	Revised
80275	Agreement to Plan Quantity	Article 202.07	Jan. 1, 2012	
80291	Calcium Chloride Accelerator for Class PP-2 Concrete	Recurring CS #28	April 1, 2012	
80237	Construction Air Quality – Diesel Vehicle Emissions Control	Articles 105.03 and 107.41	April 1, 2009	Jan. 2, 2012
80239	Construction Air Quality – Idling Restrictions	Articles 105.03 and 107.41	April 1, 2009	
80177	Digital Terrain Modeling for Earthwork Calculations	Recurring CS #32	April 1, 2007	
80272	Drainage and Inlet Protection Under Traffic	Articles 603.02 and 603.07	April 1, 2011	Jan. 1, 2012
80228	Flagger at Side Roads and Entrances	Articles 701.13 and 701.20	April 1, 2009	
80109	Impact Attenuators	Section 643	Nov. 1, 2003	Jan. 1, 2012
80110	Impact Attenuators, Temporary	Section 706	Nov. 1, 2003	Jan. 1, 2012
80203	Metal Hardware Cast into Concrete	Articles 503.02, 504.02, and 1006.13	April 1, 2008	Jan. 1, 2012
80290	Payrolls and Payroll Records	Recurring CS #5	Jan. 2, 2012	
80299	Portland Cement Concrete Inlay or Overlay	Recurring CS #29	April 1, 2012	
80280	Portland Cement Concrete Sidewalk	Article 424.07	Jan. 1, 2012	

File Name	Special Provision Title	New Location	Effective	Revised
80152	Self-Consolidating Concrete for Cast-In-Place Construction	The following special provisions: Portland Cement Concrete, QC/QA of Concrete Mixtures and Placing and Consolidating Concrete	Nov. 1, 2005	April 1, 2012
80132	Self-Consolidating Concrete for Precast and Precast Prestressed Products	The following special provisions: Portland Cement Concrete, QC/QA of Concrete Mixtures and Placing and Consolidating Concrete	July 1, 2004	April 1, 2012
80284	Shoulder Rumble Strips	Article 642.05	Jan. 1, 2012	
80285	Sidewalk, Corner or Crosswalk Closure	Articles 701.03, 701.15, and 1106.02	Jan. 1, 2012	
80075	Surface Testing of Pavements (Section 406 overlay portion will remain a special provision and will now be called "Surface Testing of HMA Overlays".)	Articles 407.09, 407.12, 420.10, 420.20, and 1101.10	April 1, 2002	Jan. 1, 2007
80287	Type G Inlet Box	Article 610.09	Jan. 1, 2012	

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

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

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET

Effective as of the: April 26, 2013 Letting

Pg #	√	File Name	Title	Effective	Revised
		GBSP 4	Polymer Modified Portland Cement Mortar	June 7, 1994	Feb 6, 2013
		GBSP 11	Permanent Steel Sheet Piling	Dec 15, 1993	Jan 1, 2007
		GBSP 12	Drainage System	June 10, 1994	Jan 1, 2007
		GBSP 13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Oct 30, 2012
		GBSP 14	Jack and Remove Existing Bearings	April 20, 1994	Jan 1, 2007
		GBSP 15	Three Sided Precast Concrete Structure	July 12, 1994	Oct 15, 2011
		GBSP 16	Jacking Existing Superstructure	Jan 11, 1993	Jan 1, 2007
		GBSP 17	Bonded Preformed Joint Seal	July 12, 1994	Jan 1, 2007
		GBSP 18	Modular Expansion Joint	May 19, 1994	Jan 1, 2007
		GBSP 21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	May 18, 2011
		GBSP 25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	April 19, 2012
		GBSP 26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	April 30, 2010
		GBSP 28	Deck Slab Repair	May 15, 1995	Oct 15, 2011
		GBSP 29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	Oct 30, 2012
		GBSP 30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Jan 18, 2011
		GBSP 31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	Oct 30, 2012
		GBSP 32	Temporary Sheet Piling	Sept 2, 1994	Jan 31, 2012
		GBSP 33	Pedestrian Truss Superstructure	Jan 13, 1998	Aug 17, 2012
		GBSP 34	Concrete Wearing Surface	June 23, 1994	Feb 6, 2013
		GBSP 35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct 15, 2011
		GBSP 38	Mechanically Stabilized Earth Retaining Walls	Feb 3, 1999	Feb 6, 2013
		GBSP 42	Drilled Soldier Pile Retaining Wall	Sept 20, 2001	Aug 17, 2012
		GBSP 43	Driven Soldier Pile Retaining Wall	Nov 13, 2002	Aug 17, 2012
531	X	GBSP 44	Temporary Soil Retention System	Dec 30, 2002	May 11, 2009
		GBSP 45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
		GBSP 46	Geotextile Retaining Walls	Sept 19, 2003	Oct 30, 2012
		GBSP 47	High Performance Concrete Structures	Aug 5, 2002	Jan 1, 2007
533	X	GBSP 51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
534	X	GBSP 52	Porous Granular Embankment (Special)	Sept 28, 2005	Nov 14, 2008
		GBSP 53	Structural Repair of Concrete	Mar 15, 2006	Feb 6, 2013
		GBSP 55	Erection of Curved Steel Structures	June 1, 2007	
		GBSP 56	Setting Piles in Rock	Nov 14, 1996	April 19, 2012
		GBSP 57	Temporary Mechanically Stabilized Earth Retaining Walls	Jan 6, 2003	Feb 6, 2013
		GBSP 59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	July 9, 2008
		GBSP 60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Mar 6, 2009
		GBSP 61	Slipform Parapet	June 1, 2007	Aug 17, 2012
		GBSP 62	Concrete Deck Beams	June 13, 2008	Oct 9, 2009
		GBSP 64	Segmental Concrete Block Wall	Jan 7, 1999	Oct 30, 2012
		GBSP 65	Precast Modular Retaining Walls	Mar 19, 2001	Oct 30, 2012
		GBSP 66	Wave Equation Analysis of Piles	Nov 14, 2008	
		GBSP 67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	
		GBSP 70	Braced Excavation	Aug 9, 1995	May 18, 2011
		GBSP 71	Aggregate Column Ground Improvement	Jan 15, 2009	Oct 15, 2011

		GBSP 72	Bridge Deck Fly Ash or GGBF Slag Concrete Overlay	Jan 18, 2011	Oct 15, 2011
		GBSP 73	Cofferdams	Oct 15, 2011	
535	X	GBSP 74	Permanent Steel Sheet Piling (LRFD)	Jan 31, 2012	Aug 17, 2012
		GBSP 75	Bond Breaker for Prestressed Concrete Bulb-T Beams	April 19, 2012	
		GBSP 76	Granular Backfill for Structures	April 19, 2012	Oct 30, 2012
		GBSP 77	Weep Hole Drains for Abutments, Wingwalls, Retaining Walls And Culverts	April 19, 2012	

LIST ANY ADDITIONAL SPECIAL PROVISIONS BELOW

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

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

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

File Name	Title	Disposition:
GBSP37	Underwater Structure Excavation Protection	Replaced by GBSP73

STATE OF ILLINOIS
SPECIAL PROVISIONS

The following Special Provisions supplement the *Standard Specifications for Road and Bridge Construction*, adopted January 1, 2012, (hereinafter referred to as the Standard Specifications); the latest edition of the *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; in effect on the date of invitations 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 FAP 361 (IL RTE 25/Stearns Road from South of Stearns Road to Dunham Road; Project No: HPP-1527(037), Section 06-00214-18-RP, 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.

F.A.P. 361/Illinois Route 25/Stearns Road
Section: 06-00214-18-RP
South of Stearns Road
to
Dunham Road
County: Kane
Contract: 63598

LOCATION OF IMPROVEMENT

This improvement begins on IL RTE 25 at the north approach of the IL 25 over Brewster Creek structure and extends in a northeasterly direction towards Dunham Road for a total gross and net length of 4441.68 feet (0.841 miles) along IL RTE 25/Stearns Road. The improvement also includes the intersections of Stearns Road and IL 25 for a distance of 600 feet along Stearns Road and Gilbert St and IL 25/Stearns Road for a total distance of 900 feet along Gilbert Street. This improvement is located within Kane County in the St. Charles Township.

DESCRIPTION OF IMPROVEMENT

The work consists of roadway widening, roadway reconstruction, a 30 foot grassed median, traffic signal modernization, interconnect, proposed PCC pavement, curb and gutter, full depth HMA, the replacement of the existing Union Pacific Railroad (UPRR) over IL25/Stearns Road structure, the construction of a proposed IL 25/Stearns Road structure over the East Branch of Brewster Creek, the construction of a temporary shoo-fly structure for the UPRR over IL 25/Stearns Road, temporary traffic control, temporary detour, a retaining wall, coordination with the Chicago Central and Pacific Railroad (CCPRR) to complete the proposed grade crossing, drainage improvements, open ditches, a closed drainage system, landscaping, and all incidental and collateral work necessary to complete the project as shown on the plans and as described herein. All work for this project will be in English units.

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

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

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

STATUS OF UTILITIES TO BE ADJUSTED
Effective: January 30, 1987
Revised: January 24, 2013

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

Name of Utility	Type	Location	Estimated Duration of Time for the Completion of Relocation or Adjustments
NICOR	Gas	- IL 25/Stearns Rd. Intersection - Il 25/Stearns Rd. Gilbert St. Intersection - IL 25/Stearns Rd. – Gilbert Street to E. Branch Brewster Creek	-
ComEd	Electricity	- Various Pole Relocations - Aerial Line over UPRR	-
AT&T	Telephone, fiber optic	-	-
Fox River Water Reclamation District	Force Main	- UPRR over IL 25/Stearns Rd. South Side	-

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

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

1) Proposed right of way is clear for contract award.

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

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 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 IDOT & ISTHA Program Manager, Public Relocation ComEd Two Lincoln Center, 8h Floor Oakbrook Terrace, IL 60181-4260
Otter Creek Reclamation District	Bill Rickert Otter Creek WRD c/o RHMG Engineers

Utility Company	Contact
	975 Campus Drive Mundelein, IL 60060 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 1000 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

COMPLETION DATE PLUS WORKING DAYS
Effective: September 30, 1985
Revised: January 1, 2007

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

"When a completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on August 31, 2015 except as specified herein.

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

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

RESTRICTION ON WORKING DAYS AFTER A COMPLETION DATE
Effective: January 21, 2003
Revised: January 1, 2007

All temporary lane closures during the period governed by working days after a completion date will not be permitted during the hours of 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m. Monday through Friday.

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

Failure to Open Traffic Lanes to Traffic: Should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable and shall pay to the Department the amount of $250 per lane blocked, not as a penalty but as liquidated and ascertained damages, for each and every 15 minute interval or a portion thereof that a lane is blocked outside the allowable time limitations. The Department may deduct such damages from any monies due the Contractor. These damages shall apply during the period governed by working days after a completion date and any extensions of that contract time.

PUBLIC CONVENIENCE AND SAFETY (DIST 1)
Effective: May 1, 2012
Revised: July 15, 2012

Add the following to the end of the fourth paragraph of Article 107.09:

> "If the holiday is on a Saturday or Sunday, and is legally observed on a Friday or Monday, the length of Holiday Period for Monday or Friday shall apply."

Add the following sentence after the Holiday Period table in the fourth paragraph of Article 107.09:

> "The Length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday After"

Delete the fifth paragraph of Article 107.09 of the Standard Specifications:

> "On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical."

TRAFFIC CONTROL PLAN
Effective: September 30, 1985
Revised: January 1, 2007

Traffic Control shall be according to the applicable sections of the Standard Specifications, the Supplemental Specifications, the "Illinois Manual on Uniform Traffic Control Devices for Streets

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

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

STANDARDS:

701001-02	OFF-RD 2L, 2W, MORE THAN 15' AWAY
701006-04	OFF-RD OPERATIONS, 2L, 2W 15' TO 24' FROM EDGE OF PAVEMENT
701011-03	OFF-RD OFF-RD MOVING OPERATIONS, 2L, 2W, DAY ONLY
701106-02	OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701311-03	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS DAY ONLY
701326-04	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING FOR SPEEDS ≥ 45 MPH
701421-05	LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY, FOR SPEEDS ≥ 45 MPH TO 55 MPH
701501-06	URBAN LANE CLOSURE, 2L, 2W, UNDIVIDED
701601-08	URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE
	MEDIAN
701606-08	URBAN LANE CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN
701701-08	URBAN LANE CLOSURE, MULTILANE INTERSECTION
701901-02	TRAFFIC CONTROL DEVICES
704001-07	TEMPORARY CONCRETE BARRIER

DETAILS:

TC-10 TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS AND DRIVEWAYS

TC-13 DISTRICT ONE TYPICAL PAVEMENT MARKINGS

TC-14 TRAFFIC CONTROL AND PROTECTION AT TURN BAYS (TO REMAIN OPEN TO TRAFFIC)

TC-16 PAVEMENT MARKING LETTERS AND SYMBOLS FOR TRAFFIC STAGING

TC-21 DETOUR SIGNING FOR CLOSING STATE HIGHWAYS

TC-22 ARTERIAL ROAD INFORMATION SIGN

TC-23 TYPICAL SUPPLEMENTAL SIGNING AND PAVEMENT MARKING TREATMENT FOR RAILROAD CROSSINGS

TC-26 DRIVEWAY ENTRANCE SIGNING

SPECIAL PROVISIONS:

TEMPORARY INFORMATION SIGNING
MAINTENANCE OF ROADWAYS
TRAFFIC CONTROL AND PROTECTION (ARTERIALS)
TRAFFIC CONTROL AND PROTECTION (SPECIAL)
EXTENDED TRAFFIC CONTROL AND PROTECTION
WINTERIZED TEMPORARY ACCESS
PUBLIC CONVENIENCE AND SAFETY (D1)
PAVEMENT MARKING REMOVAL (BDE)
PAVEMENT PATCHING (BDE)
TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)

TRAFFIC CONTROL AND PROTECTION (SPECIAL)

Work under this item will be performed in accordance with Section 701 of the Standard Specifications.

Description. This item of work shall include furnishing, installation, maintenance, relocation and subsequent removal of all signs, signals, markings, traffic cones, barricades, warning lights, flaggers and other devices which are to be used for the purpose of regulating, warning or guiding traffic during the construction of this improvement.

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.

General Requirements. Traffic Control will be in accordance with the applicable sections of the Standard Specifications, the applicable guidelines contained in the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways, the Special Provision, Interim Special Provisions and any Special Details and Highway Standards contained herein and in the plans.

At the preconstruction meeting the Contractor will furnish the name of the individual in his/her direct employ who is to be responsible for the installation and maintenance of the traffic control for this project. If the actual installation and maintenance are to be accomplished by a subcontractor, consent will be requested of the Department and County at the time of the preconstruction meeting in accordance with Article 108.01 of the Standard Specifications. This will not relieve the Contractor of the foregoing requirement for a responsible individual in his/her direct employ. The Department will provide to the Contractor the name of its representative who will be responsible for the administration of the Traffic Control Plan. The Contractor will notify the District One Bureau of Traffic 72 hrs. before commencing construction for changing traffic flow.

The Contractor shall be responsible for the proper location, installation and arrangement of all traffic control devices as shown on the plans, or as directed by the Engineer. Special attention must be given to advance guide signs during these operations in order to keep barricade placement consistent with lane assignment. The Contractor will cover all traffic control devices

which may be inconsistent with traffic patterns during the transfer from one construction stage to another.

The Contractor's vehicle will always move with and not against or across the flow of traffic. These vehicles will enter or leave work areas in a manner which will not be hazardous to or interfere with normal traffic and will not park or stop except within designated work areas. Personal vehicles will not be permitted to park within the right of way except in specific areas designated by the Engineer.

The Contractor will immediately furnish a certified flagger or flaggers if, in the opinion of the Engineer, the Contractor's construction means or methods warrant. No additional compensation will be made for flaggers. If no flaggers are available, the Contractor will cease operations until they become available.

All signs, signals, markings, traffic cones, barricades, warning lights, flaggers, and other traffic control devices must conform to the plans, specifications, special provisions and the latest edition of the "State of Illinois Manual on Uniform Traffic Control Devices." The Contractor will obtain, erect, maintain, and remove all traffic control devices in accordance with Article 107.14 of the Standard Specifications. Placement and maintenance of all traffic control devices will be as directed by the Engineer. The Engineer will be the sole judge as to the acceptability of placement and maintenance of the traffic control devices prescribed in the appropriate standards.

The Contractor will ensure that all barricades, signs, lights and other devices installed by him are operational every day, including Sundays and holidays. In the event of severe weather conditions, the Contractor must furnish any additional personnel required to properly maintain all traffic control devices as directed by the Engineer.

At the completion of each stage of construction or whenever operations indicate that a relocation of a proposed or existing traffic control device is advisable as determined by the Engineer, the Contractor will remove all traffic control devices which were furnished, installed and maintained by him/her under this contract, and such devices will remain the property of the Contractor. All traffic control devices must remain in place until specific authorization for relocation or removal is received from the Engineer.

The Contractor must be aware of the requirements for coordination of all work in this project and adjoining or overlapping projects and for coordination of barricade placement necessary to provide a uniform traffic detour pattern. The Contractor will not be permitted to erect, change or remove his/her detour barricade system without the prior approval of the Engineer.
The placement of barricades and warning signs for the required lane closures will be as specified herein and will proceed in the direction of the flow of traffic. The removal of all signs and barricades will begin at the end of the construction areas and proceed toward oncoming traffic.

Arrow Boards: A flashing arrow board meeting the requirements of Article 1106.03 of the Standard Specifications will be operating at all times when a lane is closed to traffic on a multi-lane highway. Arrow boards will be provided and located in ahead-on position within each lane closure taper. The cost of furnishing and maintaining arrow boards will be considered included in the contract lump sum price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Traffic Control Highway Standards: Traffic Control Highway Standards 701001, 701006, 701011, 701106, 701301, 701311, 701326, 701421, 701501, 701601, 701606, 701701 and 701901 will not be paid for separately but shall be included in the contract lump sum price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Revisions in the staging of construction, requested by the Contractor, may require traffic control to be installed according to standards and/or designs other than those included in the plans. Revisions or modifications to the traffic control shown in the contract shall be submitted by the Contractor for approval by the Engineer. Any requested revisions, is approved by the Engineer, shall not be at any additional cost to the contract and considered included in the contract lump sum price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

Delays to the Contractor caused by complying with these requirements will be considered included in the cost of TRAFFIC CONTROL AND PROTECTION, (SPECIAL) and no additional compensation will be allowed.

Method of Measurement. Traffic control and protection will be measured for payment on a lump sum basis.

Basis of Payment. This work will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL) which price will be payment in full for all labor, materials, transportation, handling and incidentals necessary to furnish, install, maintain, and remove all traffic control devices required by the appropriate standards and as approved by the Engineer. No adjustment or additional compensation will be allowed except as specified herein. The salvage value of the materials removed will be reflected in the bid price for this item.

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 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.

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 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.

Add the following as Article 280.02:

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

Add the following as Article 280.04:

(i) 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.

Add the following to Article 280.05:

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.

Add the following as Article 280.07:

(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) Sediment Control, Drainage Structure Inlet Filter Cleaning. This work will be measured for payment for each inlet filter cleaned. All excavation and removal of material shall be included in the cost of Sediment Control, Drainage Structure Inlet Filter Cleaning.

Revise Article 280.08 (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 280.08:

(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) 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.

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 in climate 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.

RAILROAD RIGHT OF ENTRY (CCP RR)

See the right of entry permit application located in CCP/CN Special Provisions section in this document.

RAILROAD FLAGGING (CCP RR)

Description. This work shall be performed as in accordance with Sections 107.12 and 109.05 of the Standard Specifications.

General Requirements. The flagging costs incurred for the work associated at the location of the IL 25/Stearns Rd and the CCP RR grade crossing will be reimbursed by IDOT in accordance with Section 109.05 of the Standard Specifications. The Contractor is responsible for prepaying the CN in advance for flagging services provided. The Contractor shall deposit the cost of flagging services for thirty (30) days with the CN. If the Contractor uses less than 30 days, then the Contractor will be charged for the days used and the balance will be reimbursed back to the Contractor. The Contractor will then be reimbursed by IDOT for the actual number of flagging days used. The Contractor is required to conduct operations at all times in full compliance with the rules, regulations and requirements of the CC&P RR Special Provisions contained in the Contract Specifications and as described below.

The Contractor shall give thirty (30) days advance written notice to the Engineering Superintendent of the Railroad or his authorized representative prior to commencement of any

construction work on the Improvement affecting the railroad property. The Contractor shall notify the Railroad sufficiently in advance of when the protective services are required. The Contractor shall make every effort to notify the Railroad in advance if a previously requested flagger will not be needed for any reason. Any costs for flagging protection provided by the Railroad at the Contractor's request for those days when the Contractor does not work shall be borne by the Contractor.

Basis of Payment. RAILROAD FLAGGING (CC&P RR) will be paid for according to Article 109.05 of the Standard Specifications.

RAILROAD RIGHT OF ENTRY (UPRR)

See right of entry permit application located in UPRR Special Provisions section in this document.

RAILROAD FLAGGING (UPRR)

Description. This work shall be performed as in accordance with Section 107.12 and 109.05 of the Standard Specifications, except that the Union Pacific Railroad will bill the Contractor directly for this Work

This special provision shall apply to following locations only:

- Existing UPRR bridge west of the IL Rte. 25 and Gilbert Street Intersection
- Temporary UPRR shoo-fly structure
- Proposed in-line UPRR bridge

The Contractor is required to conduct their operations at all times in full compliance with the rules, regulations and requirements of the UP RR Special Provisions.

General Requirements. The flagging costs incurred for the work associated at the locations listed above will be reimbursed by IDOT in accordance with a separate agreement between IDOT and the Railroad. The Contractor is responsible for the flagging costs incurred and for processing payment in accordance with Article 109.05 of the Standard Specifications. However, the Contractor is required to conduct their operations at all times in full compliance with the rules, regulations and requirements of the UPRR SPECIAL PROVISIONS contained in the Contract Specifications and as described below.

The Contractor shall give thirty (30) days advance written notice to the Engineering Superintendent of the Railroad or his authorized representative prior to commencement of any construction work on the Improvement affecting the railroad property. The Contractor shall notify the Railroad sufficiently in advance of when the protective services are required. The Contractor shall make every effort to notify the Railroad in advance if a previously requested flagger will not be needed for any reason. Any costs for flagging protection provided by the Railroad at the Contractor's request for those days when the Contractor does not work shall be borne by the Contractor.

Basis of Payment. RAILROAD FLAGGING (UPRR) will be paid for according to Article 109.05 of the Standard Specifications.

AGGREGATE FOR CONCRETE BARRIER (DISTRICT ONE)
Effective: February 11, 2004
Revised: January 24, 2008

Add the following paragraph to Article 637.02 of the Standard Specifications:

"The coarse aggregate to be used in the concrete barrier walls shall conform to the requirement for coarse aggregate used in Class BS concrete according to Article 1004.01(b), paragraph 2."

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."

AGGREGATE SUBGRADE IMPROVEMENT (D-1)
Effective: February 22, 2012
Revised: January 1, 2013

Add the following Section to the Standard Specifications:

"SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement.

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.06
(b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2)	1031

Note 1. Crushed RAP, from either full depth or single lift removal, may be mechanically blended with aggregate gradations CS 01 or CS 02 but shall not exceed 40 percent of the total product. The top size of the Coarse RAP shall be less than 4 in. (100 mm) and well graded.

Note 2. RAP having 100 percent passing the 1 1/2 in. (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradations CS 01 or CS 02 are used in lower lifts. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders.

303.03 Equipment. The vibratory machine shall be according to Article 1101.01, or as approved by the Engineer.

303.04 Soil Preparation. The stability of the soil shall be according to the Department's Subgrade Stability Manual for the aggregate thickness specified.

303.05 Placing Aggregate. The maximum nominal lift thickness of aggregate gradations CS 01 or CS 02 shall be 24 in. (600 mm).

303.06 Capping Aggregate. The top surface of the aggregate subgrade shall consist of a minimum 3 in. (75 mm) of aggregate gradations CA 06 or CA 10. When Reclaimed Asphalt Pavement (RAP) is used, it shall be crushed and screened where 100 percent is passing the 1 1/2 in. (37.5 mm) sieve and being well graded. RAP that has been fractionated to size will not be permitted for use in capping. Capping aggregate will not be required when the aggregate subgrade improvement is used as a cubic yard pay item for undercut applications. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders.

303.07 Compaction. All aggregate lifts shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.08 Finishing and Maintenance of Aggregate Subgrade Improvement. The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.09 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.10 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified.

Add the following to Section 1004 of the Standard Specifications:

"**1004.06 Coarse Aggregate for Aggregate Subgrade Improvement.** The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete.

(b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.

(c) Gradation.

(1) The coarse aggregate gradation for total subgrade thickness less than or equal to 12 in. (300 mm) shall be CS 01.

The coarse aggregate gradation for total subgrade thickness more than 12 in. (300 mm) shall be CS 01 or CS 02.

Grad No.	COARSE AGGREGATE SUBGRADE GRADATIONS Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

	COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)				
Grad No.	Sieve Size and Percent Passing				
	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

(2) The 3 in. (75 mm) capping aggregate shall be gradation CA 6 or CA 10."

CLEANING EXISTING DRAINAGE STRUCTURES
Effective: September 30, 1985
Revised: December 1, 2011

All existing storm sewers, pipe culverts, manholes, catch basins and inlets shall be considered as drainage structures insofar as the interpretation of this Special Provision is concerned. When specified for payment, the location of drainage structures to be cleaned will be shown on the plans.
All existing drainage structures which are to be adjusted or reconstructed shall be cleaned in accordance with Article 602.15 of the Standard Specifications. This work will be paid for in accordance with Article 602.16 of the Standard Specifications.

All other existing drainage structures which are specified to be cleaned on the plans will be cleaned according to Article 602.15 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price each for DRAINAGE STRUCTURES TO BE CLEANED, and at the contract unit price per foot (meter) for STORM SEWERS TO BE CLEANED, of the diameter specified.

DRAINAGE AND INLET PROTECTION UNDER TRAFFIC (DISTRICT 1)
Effective: April 1, 2011
Revised: April 2, 2011

Add the following to Article 603.02 of the Standard Specifications:

"(i) Temporary Hot-Mix Asphalt (HMA) Ramp (Note 1) 1030
(j) Temporary Rubber Ramps (Note 2)

Note 1. The HMA shall have maximum aggregate size of 3/8 in. (95 mm).

Note 2. The rubber material shall be according to the following.

Property	Test Method	Requirement
Durometer Hardness, Shore A	ASTM D 2240	75 ±15
Tensile Strength, psi (kPa)	ASTM D 412	300 (2000) min
Elongation, percent	ASTM D 412	90 min
Specific Gravity	ASTM D 792	1.0 - 1.3
Brittleness, °F (°C)	ASTM D 746	-40 (-40)"

Revise Article 603.07 of the Standard Specifications to read:

"603.07 Protection Under Traffic. After the casting has been adjusted and the Class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b.

When castings are under traffic before the final surfacing operation has been started, properly sized temporary ramps shall be placed around the drainage and/or utility castings according to the following methods.

(a) Temporary Asphalt Ramps. Temporary hot-mix asphalt ramps shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 2 ft (600 mm) around the entire surface of the casting.

(b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 40 mph or less and when the height of the casting to be protected meets the proper sizing requirements for the rubber ramps as shown below.

Dimension	Requirement
Inside Opening	Outside dimensions of casting + 1 in. (25 mm)
Thickness at inside edge	Height of casting ± 1/4 in. (6 mm)
Thickness at outside edge	1/4 in. (6 mm) max.
Width, measured from inside opening to outside edge	8 1/2 in. (215 mm) min

Placement shall be according to the manufacturer's specifications.

Temporary ramps for castings shall remain in place until surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary ramp shall be removed. Excess material shall be disposed of according to Article 202.03."

HOT MIX ASPHALT MIXTURES, EGA MODIFIED PERFORMANCE GRADED (PG) ASPHALT BINDER
Effective: March 16, 2009

Description. This work shall consist of constructing Hot Mix Asphalt (HMA) mixtures containing ethylene-glycidyl-acrylate (EGA) Modified Performance Graded (PG) Asphalt Binder. Work shall be according to Sections 406, 1030, and 1032 of the Standard Specifications, except as modified herein.

The asphalt binder shall meet the following requirements:

EGA Modified Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 "Standard Specification for Performance Graded

Asphalt Binder" for the grade shown on the plans. An ethylene-glycidyl-acrylate (EGA) terpolymer with a maximum of 0.3 percent polyphosphoric acid by weight of asphalt binder, shall be added to the base asphalt binder to achieve the specified performance grade. Asphalt modification at hot-mix asphalt plants will not be allowed. The modified asphalt binder shall be smooth, homogeneous, and be according to the requirements shown in the following table for the grade shown on the plans.

Ethylene-Glycidyl-Acrylate (EGA) Modified Asphalt Binders		
Test	Asphalt Grade EGA PG 70-22 EGA PG 70-28	Asphalt Grade EGA PG 76-22 EGA PG 76-28
Separation of Polymer Illinois Test Procedure, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions.	4 (2) max.	4 (2) max.
TEST ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	60 min.	70 min.

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)."

EXTENDED LIFE CONCRETE PAVEMENT
Effective: January 3, 2005
Revised: September 1, 2012
Amended Oct.18, 2012 (Delete: HMA Stabilized Subbase, Add: Geotechnical Fabric for Ground Stabilization)

Description. This work shall consist of constructing concrete pavement, shoulders and areas striped as medians using extended life concrete. Work shall be performed according to the Standard Specifications except as modified herein:

Definitions.

a) Granular Subbase. The aggregate above the subgrade and below the granular subbase cap.

b) Granular Subbase Cap. The aggregate above the granular subbase and below the Hot-Mix Asphalt base.

c) Aggregate Subgrade. The Aggregate Subgrade layer shall contain the Granular Subbase and the Granular Subbase Cap.

d) Geotechnical Fabric for Ground Stabilization. The fabric layer is below the granular subbase.

Embankment. Add the following to Section 205:

"Embankment material shall be approved by the Engineer and shall have a standard laboratory density of not less than 90 lb/cu ft. It shall not have an organic content greater than ten percent when tested according to AASHTO T 194. Reclaimed Asphalt Pavement shall not be used within the ground water table or as a fill if ground water is present. Soils that demonstrate the following properties shall be restricted to the interior of the embankment:

a) A grain size distribution with less than 35 percent passing the #200 sieve.
b) A plasticity index (PI) of less than 12.
c) A liquid limit (LL) in excess of 50.
d) Potential for erosion.
e) Potential for excess volume change.

Such soils shall be covered on the side and top with a minimum of 3 ft. of soil not characterized by any of the five items above."

Revised the second paragraph of Article 205.06 to read:

"All lifts shall be compacted to not less than 95 percent of the standard laboratory density."

Revise the first sentence of the third paragraph of Article 205.06 to read:

"The embankment shall not contain more than 110 percent of the optimum moisture content for all forms of clay soils and not more than 105 percent of the optimum moisture content for all forms of clay loam soils determined according to AASHTO T 99 (Method C)."

Add the following paragraph to the end of Section 205.06:

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

Aggregate Subgrade. Work shall be done according to the Special Provision for "AGGREGATE SUBGRADE IMPROVEMENT (D1)".

Placement. Prior to starting the work, all granular subbase and granular subbase cap shall be placed and compacted in a manner meeting the approval of the Engineer.

The Granular subbase may be constructed in layers not more than 2 ft. thick when compacted. The finished granular subbase shall be covered with a granular subbase cap. All layers shall be compacted with a vibratory roller.

If the moisture content of the material is insufficient to obtain satisfactory compaction, sufficient water shall be added, at the Contractors expense, so that satisfactory compaction can be obtained.

Pavement and Shoulders. Add the following to Articles 420.03, 421.03, and 483.03:

"The Contractor shall submit to the Engineer, for approval before paving, the proposed internal type vibrator spacing for the paver. The Contractor shall also provide the proposed vibrator operating frequencies for a paving speed greater than or equal to 3 ft/min and a paving speed less than 3 ft/min."

Add the following to Article 420.07 and 421.04(a):

"When the surface temperature, as measured on the surface with a device as approved by the Engineer, of the Stabilized Sub-base is 115 °F or greater the Contractor shall spray the Stabilized Sub-base with a water mist with equipment that meets the approval of the Engineer. The Stabilized Sub-base shall be cooled below 115 °F prior to paving on top. The water spray shall not produce excessive water runoff or leave puddles on the Stabilized Sub-base at the time of paving. All cooling shall be completed a minimum of 10 minutes prior to paving. The surface temperature shall be monitored during the paving operation to determine if the Stabilized Sub-base requires re-spraying. The water used shall meet the requirements of Section 1002."

Add the following to Article 701.17(c)(5):

"Construction vehicles, except light weight saws, will not be permitted on the pavement during the cure period even if the concrete has obtained the minimum required strength."

Add the following to Article 1020.02(d):

"Note 1. For pavement, shoulders, and striped median, the freeze-thaw rating expansion limit for the coarse aggregate shall be a maximum of 0.040 percent according to Illinois Modified AASHTO T 161, Procedure B."

Revise the curing table of Article 1020.13 as follows:

"The curing period for all pavement, shoulder, and striped median shall be a minimum of 7 days."

Revise the first sentence of the second paragraph of Article 1020.13(a)(4) to read:

"Membrane curing shall be completed within ten minutes after tining."

Add the following to Article 1020.14(a):

"Prior to placing concrete, the Contractor shall indicate to the Engineer how the temperature of the concrete mixture will be controlled. If the temperature requirements are not being met, production of concrete shall stop until corrective action is taken. The Contractor will be allowed to deliver concrete already in route to the paving site."

Method of Measurement. This work shall be measured for payment per Sections 200, 300, and 400.

Basis of Payment. The plans indicate which roadways will be constructed to the extended life requirements. The cost to construct the roadways to the extended life requirements will not be paid for separately, but are included in the cost of the various items of work.

The additional costs to meet the various Material, Samples, Compaction, Stability, Placing and Trimming requirements for embankment beneath and adjacent to the extended life items will not be measured for payment, but are included in the cost of the various items of excavation.

The additional cost to meet the various Material, Equipment, Placing, Stability, Compaction, Trimming, and Finishing requirements for Granular Subbase beneath and areas adjacent to the extended life items will not be paid for separately, but are included in the cost of the Aggregate Subgrade Improvement. Capping Aggregate shall be included in the cost of the Aggregate Subgrade Improvement.

The additional costs to meet the various Material, Placing, Stability, Compaction, Trimming, and Finishing requirements for the geotechnical fabric for ground stabilization beneath and areas adjacent to the extended life items will not be paid for separately, but are included in the cost per square yard for GEOTECHNICAL FABRIC FOR GROUND STABILIZATION.

The additional costs to meet the various Material, Equipment, Placement, Finishing, Curing, and Sealing requirements for extended life items will not be paid for separately but are included in the cost per square yard for PORTLAND CEMENT CONCRETE PAVEMENT (JOINTED) or CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, of the thickness specified; and per square yard for PORTLAND CEMENT CONCRETE SHOULDER, of the thickness specified.

EMBANKMENT I
Effective: March 1, 2011

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

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

a) The laboratory Standard Dry Density shall be a minimum of 90 lb/cu ft (1450 kg/cu m) when determined according to AASHTO T 99 (Method C).

b) The organic content shall be less than ten percent determined according to AASHTO T 194 (Wet Combustion).

c) Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 3 ft (900 mm) of soil not considered detrimental in terms of erosion potential or excess volume change.

   1) A grain size distribution with less than 35 percent passing the number 75 um (#200) sieve.

   2) A plasticity index (PI) of less than 12.

   3) A liquid limit (LL) in excess of 50.

d) Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present.

CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

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

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

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

COARSE AGGREGATE FOR BACKFILL, TRENCH BACKFILL AND BEDDING (D-1)
Effective: November 1, 2011

This work shall be according to Section 1004.05 of the Standard Specifications except for the following:

> Reclaimed Asphalt Pavement (RAP) maybe blended with gravel, crushed gravel, crushed stone crushed concrete, crushed slag, chats, crushed sand stone or wet bottom boiler slag. The RAP materials shall be crushed and screened. Unprocessed RAP grindings will not be permitted. The RAP shall be uniformly graded and shall pass the 1.0 in. (25 mm) screen. When RAP is blended with any of the coarse aggregate listed above, the blending shall be done mechanically with calibrated feeders. The feeders shall have an accuracy of ± 2.0 percent of the actual quantity of material delivered. The final blended product shall not contain more than 40 percent by weight RAP.

The coarse aggregate listed above shall meet CA 6 and CA 10 gradations prior to being blended with the processed and uniformly graded RAP.

FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)
Effective: May 1, 2007
Revised: January 1, 2012

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

"(c) Gradation. The fine aggregate gradation for all HMA shall be FA1, FA 2, FA 20, FA 21 or FA 22. When Reclaimed Asphalt Pavement (RAP) is incorporated in the HMA design, the use of FA 21 Gradation will not be permitted.

FRICTION SURFACE AGGREGATE (D1)
Effective: January 1, 2011
Revised: January 24, 2013

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

"(4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.

a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).

b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase."

Revise Article 1004.03(a) of the Standard Specifications to read:

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

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

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	Allowed Alone or in Combination: Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Shoulders	Allowed Alone or in Combination: Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) 1/ Crushed Steel Slag 1/ Crushed Concrete

<table>
<tr><th>Use</th><th>Mixture</th><th>Aggregates Allowed</th></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>C Surface
IL-12.5,IL-9.5,
or IL-9.5L</td><td><u>Allowed Alone or in Combination:</u>

Crushed Gravel
Carbonate Crushed Stone
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF) 1/
Crushed Steel Slag 1/
Crushed Concrete</td></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">D Surface
IL-12.5 or
IL-9.5</td><td><u>Allowed Alone or in Combination:</u>

Crushed Gravel
Carbonate Crushed Stone (other than Limestone)
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF) 1/
Crushed Steel Slag 1/
Crushed Concrete</td></tr>
<tr><td><u>Other Combinations Allowed:</u>

Up to... | With...</td></tr>
<tr><td>25% Limestone | Dolomite</td></tr>
<tr><td>50% Limestone | Any Mixture D aggregate other than Dolomite</td></tr>
<tr><td>75% Limestone | Crushed Slag (ACBF) 1/ or Crushed Sandstone</td></tr>
<tr><td>HMA
High ESAL</td><td>F Surface
IL-12.5 or
IL-9.5</td><td><u>Allowed Alone or in Combination:</u>

Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF) 1/
Crushed Steel Slag 1/

No Limestone or no Crushed Gravel alone.</td></tr>
</table>

Use	Mixture	Aggregates Allowed	
		Other Combinations Allowed:	
		Up to...	*With...*
		50% Crushed Gravel, or Dolomite	Crushed Sandstone, Crushed Slag (ACBF)[1/], Crushed Steel Slag[1/], or Crystalline Crushed Stone
HMA High ESAL	SMA Ndesign 80 Surface	Crystalline Crushed Stone Crushed Sandstone Crushed Steel Slag[1/]	

1/ When either slag is used, the blend percentages listed shall be by volume.

Add to Article 1004.03 (b) of the Standard Specifications to read:

"When using Crushed Concrete, the quality shall be determined as follows. The Contractor shall obtain a representative sample from the stockpile, witnessed by the Engineer, at a frequency of 2500 tons (2300 metric tons). The sample shall be a minimum of 50 lb (25 kg). The Contractor shall submit the sample to the District Office. The District will forward the sample to the BMPR Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent by weight will be applied for acceptance. The stockpile shall be sealed until test results are complete and found to meet the specifications above."

RECLAIMED ASPHALT PAVEMENT FOR NON-POROUS EMBANKMENT AND BACKFILL
Effective: April 1, 2001
Revised: January 1, 2007

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

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

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

"One hundred percent of the RAP when used shall pass the 3 inch (75 mm) sieve. The

RAP shall be well graded from coarse to fine. RAP that is gap-graded or single-sized will not be accepted."

RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (D-1)
Effective: November 1, 2012
Revise: January 1, 2013

Revise Section 1031 of the Standard Specifications to read:

"SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES

1031.01 Description. Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

(a) Reclaimed Asphalt Pavement (RAP). RAP is the material resulting by cold milling or crushing an existing hot-mix asphalt (HMA) pavement. RAP will be considered processed FRAP after completion of both crushing and screening to size. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.

(b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Bureau of Materials and Physical Research Policy Memorandum "Reclaimed Asphalt Shingle (RAS) Sources", by weight of RAS. All RAS used shall come from a Bureau of Materials and Physical Research approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 90 percent passing the #4 (4.75 mm) sieve . RAS shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.

(1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.

(2) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

1031.02 Stockpiles. RAP and RAS stockpiles shall be according to the following.

(a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. 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. All stockpiles (including unprocessed RAP and Processed FRAP) shall be identified by signs indicating the type as listed below (i.e. "Non- Quality, FRAP -#4 or Type 2 RAS", etc...).

(1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in FRAP

shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. All FRAP shall be processed prior to testing sized into fractions with the separation occurring on or between the #4 (4.75 mm) and 1/2 in. (12.5 mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP in the coarse fraction shall pass the maximum sieve size specified for the mix the RAP will be used in.

(2) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, Superpave (High ESAL), or HMA (High ESAL). If approved by the Engineer, the aggregate from a maximum 3.0 inch single combined pass of surface/binder milling will be classified as B quality. All millings from this application will be processed into FRAP as described previously.

(3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed (FRAP) prior to testing. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.

(4) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from HMA shoulders, bituminous stabilized subbases or Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture. The coarse aggregate in this RAP may be crushed or round but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.

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

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

(b) RAS Stockpiles. The Contractor shall construct individual, sealed RAS stockpiles meeting one of the following definitions. No additional RAS shall be added to the pile after the pile has been sealed. Type 1 and Type 2 RAS shall be stockpiled separately and shall be sufficiently separated to prevent intermingling at the base. Each stockpile shall be signed indicating what type of RAS is present.

However, a RAS source may submit a written request to the Department for approval to blend mechanically a specified ratio of type 1 RAS with type 2 RAS. The source will not be permitted to change the ratio of the blend without the Department prior written approval. The Engineer's written approval will be required, to mechanically blend RAS with any fine aggregate produced under the AGCS, up to an equal weight of RAS, to improve workability. The fine aggregate shall be "B Quality" or better from an approved

Aggregate Gradation Control System source. The fine aggregate shall be one that is approved for use in the HMA mixture and accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type and lot number shall be maintained by project contract number and kept for a minimum of three years.

1031.03 Testing. RAP/FRAP and RAS testing shall be according to the following.

(a) RAP/FRAP Testing. When used in HMA, the RAP/FRAP shall be sampled and tested either during processing or after stockpiling.

(1) During Stockpiling. For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

(2) After Stockpiling. For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Before extraction, each field sample whether RAP or FRAP, shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

(b) RAS Testing. RAS shall be sampled and tested either during or after stockpiling.

During stockpiling, washed extraction, and testing for unacceptable materials shall be run at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 1000 tons (900 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a ≤ 1000 ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS shall be stockpiled in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

Before extraction, each field sample shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

1031.04 Evaluation of Tests. Evaluation of tests results shall be according to the following.

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

Parameter	RAP or FRAP	Conglomerate "D" Quality RAP
1 in. (25 mm)		± 5 %
1/2 in. (12.5 mm)	± 8 %	± 15 %
No. 4 (4.75 mm)	± 6 %	± 13 %
No. 8 (2.36 mm)	± 5 %	
No. 16 (1.18 mm)		± 15 %
No. 30 (600 µm)	± 5 %	
No. 200 (75 µm)	± 2.0 %	± 4.0 %
Asphalt Binder	± 0.4 % 1/	± 0.5 %
G_{mm}	± 0.03 2/	

1/ The tolerance for FRAP shall be ± 0.3 %.
2/ For slag and steel slag

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

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

(b) Evaluation of RAS Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and gradation. Individual test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	± 5 %
No. 30 (600 µm)	± 4 %
No. 200 (75 µm)	± 2.0 %
Asphalt Binder Content	± 1.5 %

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, the RAS shall not be used in Department projects unless the RAS, RAP or FRAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

1031.05 Quality Designation of Aggregate in RAP/FRAP.

(a) RAP. The aggregate quality of the RAP for homogenous, conglomerate, and conglomerate "D" quality stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

(1) RAP from Class I, Superpave (High ESAL)/HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.

(2) RAP from Superpave (High ESAL)/HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.

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

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

(b) FRAP. If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer.

If the quality is not known, the quality shall be determined as follows. Fractionated RAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5,000 tons (4,500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant prequalified by the Department for the specified testing. The consultant shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the BMPR Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent will be applied for all HMA applications. The fine aggregate portion of the fractionated RAP shall not be used in any HMA mixtures that require a minimum of "B" quality aggregate or better, until the coarse aggregate fraction has been determined to be acceptable thru a MicroDeval Testing.

1031.06 Use of RAS, RAP or FRAP in HMA. The use of RAS, RAP or FRAP shall be a Contractor's option when constructing HMA in all contracts.

(a) RAP/FRAP. The use of RAP/FRAP in HMA shall be as follows.

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

(2) Steel Slag Stockpiles. RAP/FRAP stockpiles containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in HMA (High ESAL and Low ESAL) mixtures regardless of lift or mix type.

(3) Use in HMA Surface Mixtures (High and Low ESAL). RAP/FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall have coarse aggregate that is Class B quality or better. RAP/FRAP shall be considered equivalent to limestone for frictional considerations unless produced/screened to minus 3/8 inch.

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

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

(b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.

(c) RAP/FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with RAP or FRAP in HMA mixtures up to a maximum of 5.0% by weight of the total mix.

When the Contractor chooses the RAP option, the percentage of the percentage of virgin asphalt binder replaced by the asphalt binder from the RAP shall not exceed the percentages indicated in the table below for a given N Design:

Max Asphalt Binder Replacement RAP Only
Table 1

HMA Mixtures 1/, 2/	Maximum % Asphalt Binder replacement (ABR)		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30L	25	15	10
50	25	15	10
70	15	10	10
90	10	10	10
105	10	10	10
4.75 mm N-50			15
SMA N-80			10

1/ For HMA "All Other" (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the asphalt binder replacement exceeds 15 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement would require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 percent, the required virgin asphalt binder grade shall be PG64-28.

When the Contractor chooses either the RAS or FRAP option, the percent binder replacement shall not exceed the amounts indicated in the tables below for a given N Design.

Max Asphalt Binder Replacement RAS or FRAP
Table 2

HMA Mixtures 1/, 2/	Level 1 - Maximum % ABR		
Ndesign	Binder/Leveling Binder	Surface	Polymer 3/, 4/ Modified
30L	35	30	15
50	30	25	15
70	30	20	15
90	20	15	15
105	20	15	15
4.75 mm N-50			25
SMA N-80			15

1/ For HMA "All Other" (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the asphalt binder replacement exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement will require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 percent, the required virgin asphalt binder grade shall be PG64-28.

3/ When the ABR for SMA is 15 percent or less, the required virgin asphalt binder grade shall be SBS PG76-22.

4/ When the ABR for IL-4.75 mix is 15 percent or less, the required virgin asphalt binder grade shall be SBS PG76-22. When the ABR for the IL-4.75 mix exceeds 15 percent, the virgin asphalt binder grade shall be SBS PG70-28.

When the Contractor chooses the RAS with FRAP combination, the percent asphalt binder replacement shall split equally between the RAS and the FRAP, and the total replacement shall not exceed the amounts indicated in the tables below for a given N Design.

Max Asphalt Binder Replacement RAS and FRAP Combination

Table 3

HMA Mixtures 1/, 2/	Level 2 - Maximum % ABR		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified 3/, 4/
30L	50	40	30

HMA Mixtures [1/, 2/]	Level 2 - Maximum % ABR		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified [3/, 4/]
50	40	35	30
70	40	30	30
90	40	30	30
105	40	30	30
4.75 mm N-50			40
SMA N-80			30

1/ For HMA "All Other" (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the binder replacement exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement will require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28).

3/ When the ABR for SMA is 15 percent or less, the required virgin asphalt binder shall be SBS PG76-22. When the ABR for SMA exceeds 15%, the virgin asphalt binder grade shall be SBS PG70-28.

4/ When the ABR for IL-4.75 mix is 15 percent or less, the required virgin asphalt binder grade shall be SBS PG76-22. When the ABR for the IL-4.75 mix exceeds 15 percent, the virgin asphalt binder grade shall be SBS PG70-28.

1031.07 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the above detailed requirements.

All HMA mixtures will be required to be tested, prior to submittal for Department verification, according to Illinois Modified AASHTO T324 (Hamburg Wheel) and shall meet the following requirements:

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG76-XX	20,000	12.5
PG70-XX	20,000	12.5
PG64-XX	10,000	12.5
PG58-XX	10,000	12.5
PG52-XX	10,000	12.5
PG46-XX	10,000	12.5

Note: For SMA Designs (N-80) the maximum rut depth is 6.0 mm at 20,000 repetitions.
For IL 4.75 mm Designs (N-50) the maximum rut depth is 9.0 mm at 15,000 repetitions.

1031.08 HMA Production. All HMA mixtures shall be sampled within the first 500 tons (450 metric tons) on the first day of production or during start up with a split reserved for the Department. The mix sample shall be tested according to the Illinois Modified AASHTO T 324 and shall meet the requirements specified herein. Mix production shall not exceed 1500 tons

(1350 metric tons) or one day's production, whichever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the plant produced mixture demonstrates conformance prior to start of mix production for a contract.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAS, RAP and FRAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.
If the RAS, RAP and FRAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAs, RAP or FRAP and either switch to the virgin aggregate design or submit a new RAS, RAP or FRAP design.

(a) RAP/FRAP. The coarse aggregate in all RAP/FRAP used shall be equal to or less than the maximum size requirement for the HMA mixture being produced.

(b) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.

(c) RAS, RAP and FRAP. HMA plants utilizing RAS, RAP and FRAP shall be capable of automatically recording and printing the following information.

(1) Dryer Drum Plants.

a. Date, month, year, and time to the nearest minute for each print.

b. HMA mix number assigned by the Department.

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

d. Accumulated dry weight of RAS, RAP and FRAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

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

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

g. Residual asphalt binder in the RAS, RAP and FRAP material as a percent of the total mix to the nearest 0.1 percent.

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

i. When producing mixtures with FRAP and/or RAS, a positive dust control system shall be utilized.

j. Accumulated mixture tonnage.

k. Dust Removed (accumulated to the nearest 0.1 ton)

(2) Batch Plants.

a. Date, month, year, and time to the nearest minute for each print.

b. HMA mix number assigned by the Department.

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

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

f. RAS, RAP and FRAP weight to the nearest pound (kilogram).

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

h. Residual asphalt binder in the RAS, RAP and FRAP material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

1031.09 RAP in Aggregate Surface Course and Aggregate Shoulders. The use of RAP or FRAP in aggregate surface course and aggregate shoulders shall be as follows.

(a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Non-Quality" and "FRAP". The testing requirements of Article 1031.03 shall not apply.

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

HMA MIXTURE DESIGN REQUIREMENTS (D-1)

Effective: January 1, 2013.
Revised: January 16, 2013

1) Design Composition and Volumetric Requirements

Revise Article 1030.04(a)(1) of the Standard Specifications to read.

"(1)High ESAL Mixtures. The Job Mix Formula (JMF) shall fall within the following limits.

High ESAL, MIXTURE COMPOSITION (% PASSING) 1/										
Sieve Size	IL-25.0 mm		IL-19.0 mm		IL-12.5 mm		IL-9.5 mm		IL-4.75 mm	
	min	max	min	max	min	max	min	max	min	max
1 1/2 in (37.5 mm)		100								
1 in. (25 mm)	90	100		100						
3/4 in. (19 mm)		90	82	100		100				
1/2 in. (12.5 mm)	45	75	50	85	90	100		100		100
3/8 in. (9.5 mm)						89	90	100		100
#4 (4.75 mm)	24	42 2/	24	50 2/	28	65	28	65	90	100
#8 (2.36 mm)	16	31	20	36	28	48 3/	32	52 3/	70	90
#16 (1.18 mm)	10	22	10	25	10	32	10	32	50	65
#50 (300 µm)	4	12	4	12	4	15	4	15	15	30
#100 (150 µm)	3	9	3	9	3	10	3	10	10	18
#200 (75 µm)	3	6	3	6	4	6	4	6	7	9
Ratio Dust/Asphalt Binder		1.0		1.0		1.0		1.0		1.0 /4

1/ Based on percent of total aggregate weight.

2/ The mixture composition shall not exceed 40 percent passing the #4 (4.75 mm) sieve for binder courses with Ndesign ≥ 90.

3/ The mixture composition shall not exceed 44 percent passing the #8 (2.36 mm) sieve for surface courses with Ndesign ≥ 90.

4/ Additional minus No. 200 (0.075 mm) material required by the mix design shall be mineral filler, unless otherwise approved by the Engineer."

Delete Article 1030.04(a)(4) of the Standard Specifications.

Revise Article 1030.04(b)(1) of the Standard Specifications to read.

"(1) High ESAL Mixtures. The target value for the air voids of the HMA shall be 4.0 percent and for IL-4.75 it shall be 3.5 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix, and shall conform to the following requirements.

VOLUMETRIC REQUIREMENTS High ESAL						
	Voids in the Mineral Aggregate (VMA), % minimum					Voids Filled with Asphalt Binder (VFA), %
Ndesign	IL-25.0	IL-19.0	IL-12.5	IL-9.5	IL-4.75 1/	
50	12.0	13.0	14.0	15	18.5	65 – 78 2/
70						65 - 75
90						
105						

1/ Maximum Draindown for IL-4.75 shall be 0.3%
2/ VFA for IL-4.75 shall be 72-85%"

Delete Article 1030.04(b)(4) of the Standard Specifications.

Revise the Control Limits Table in Article 1030.05(d)(4) of the Standard Specifications to read.

"CONTROL LIMITS					
Parameter	High ESAL Low ESAL Individual Test	High ESAL Low ESAL Moving Avg. of 4	All Other Individual Test	IL-4.75 Individual Test	IL-4.75 Moving Avg. of 4
% Passing: 1/					
1/2 in. (12.5 mm)	± 6 %	± 4 %	± 15 %		
No. 4 (4.75 mm)	± 5 %	± 4 %	± 10 %		
No. 8 (2.36 mm)	± 5 %	± 3 %			
No. 16 (1.18 mm)				± 4 %	± 3 %
No. 30 (600 µm)	± 4 %	± 2.5 %			
Total Dust Content No. 200 (75 µm)	± 1.5 %	± 1.0 %	± 2.5 %	± 1.5 %	± 1.0 %
Asphalt Binder Content	± 0.3 %	± 0.2 %	± 0.5 %	± 0.3 %	± 0.2 %
Voids	± 1.2 %	± 1.0 %	± 1.2 %	± 1.2 %	± 1.0 %
VMA	-0.7 % 2/	-0.5 % 2/		-0.7 % 2/	-0.5 % 2/

1/ Based on washed ignition oven
2/ Allowable limit below minimum design VMA requirement"

2) Design Verification and Production

Description. The following states the requirements for Hamburg Wheel and Tensile Strength testing for High ESAL, IL-4.75, and SMA hot mix asphalt (HMA) mixes during mix design verification and production.

When the options of Warm Mix Asphalt, Reclaimed Asphalt Shingles, or Reclaimed Asphalt Pavement are used by the Contractor, the Hamburg Wheel and tensile strength requirements in this special provision will be superseded by the special provisions for Warm Mix Asphalt, Reclaimed Asphalt Shingles, or Reclaimed Asphalt Pavement as applicable.

Mix Design Testing. Add the following to Article 1030.04 of the Standard Specifications:

"(d) Verification Testing. High ESAL, IL-4.75, and SMA mix designs submitted for verification will be tested to ensure that the resulting mix designs will pass the required criteria for the Hamburg Wheel Test (IL mod AASHTO T-324) and the Tensile Strength Test (IL mod AASHTO T-283). The Department will perform a verification test on gyratory specimens compacted by the Contractor. If the mix fails the Department's verification test, the Contractor shall make the necessary changes to the mix and resubmit compacted specimens to the Department for verification. If the mix fails again, the mix design will be rejected.

All new and renewal mix designs will be required to be tested, prior to submittal for Department verification meeting the following requirements:

(1)Hamburg Wheel Test criteria.

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG 70 -XX (or higher)	20,000	12.5
PG 64 -XX (or lower)	10,000	12.5

Note: For SMA Designs (N-80) the maximum rut depth is 6.0 mm at 20,000 repetitions. For IL 4.75mm Designs (N-50) the maximum rut depth is 9.0mm at 15,000 repetitions.

(2) Tensile Strength Criteria. The minimum allowable conditioned tensile strength shall be 415 kPa (60 psi) for non-polymer modified performance graded (PG) asphalt binder and 550 kPa (80 psi) for polymer modified PG asphalt binder. The maximum allowable unconditioned tensile strength shall be 1380 kPa (200 psi)."

Production Testing. Add the following to Article 1030.06 of the Standard Specifications:

"(c) Hamburg Wheel Test. All HMA mixtures shall be sampled within the first 500 tons (450 metric tons) on the first day of production or during start up with a split reserved for the Department. The mix sample shall be tested according to the Illinois Modified AASHTO T 324 and shall meet the requirements specified herein. Mix production shall not exceed 1500 tons (1350 metric tons) or one day's production, whichever comes first, until the testing is completed and the mixture is found to be in conformance. The

requirement to cease mix production may be waived if the plant produced mixture demonstrates conformance prior to start of mix production for a contract.
The Department may conduct additional Hamburg Wheel Tests on production material as determined by the Engineer. If the mixture fails to meet the Hamburg Wheel criteria, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria"

Basis of Payment. Revise the seventh paragraph of Article 406.14 of the Standard Specifications to read:

"For all mixes designed and verified under the Hamburg Wheel criteria, the cost of furnishing and introducing anti-stripping additives in the HMA will not be paid for separately, but shall be considered as included in the contract unit price of the HMA item involved.

No additional compensation will be awarded to the Contractor because of reduced production rates associated with the addition of the anti-stripping additive."

UNDERGROUND RACEWAYS
Effective: January 1, 2012

Revise Article 810.04 of the Standard Specifications to read:

"Installation. All underground conduit shall have a minimum depth of 30-inches (700 mm) below the finished grade."

Add the following to Article 810.04 of the Standard Specifications:

"All metal conduit installed underground shall be Rigid Steel Conduit unless otherwise indicated on the plans."

Add the following to Article 810.04 of the Standard Specifications:

"All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum or 300 mm (12") or the length shown on the plans beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped. The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap. The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 3 mm (0.125") thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring."

Add the following to Article 810.04(c) of the Standard Specifications:

"Coilable non-metallic conduit shall be machine straightened to remove the longitudinal curvature caused by coiling the conduit onto reels prior to installing in trench, encasing in concrete or embedding in structure. The straightening shall not deform the cross-section of the conduit such that any two measured outside diameters, each from any location and at any orientation around the longitudinal axis along the conduit differ by more than 6 mm (0.25")." The longitudinal axis of the straightened conduit shall not deviate by more than 20 mm per meter (0.25" per foot" from a straight line. The HDPE and straightening mechanism manufacturer operating temperatures shall be followed.

UNIT DUCT
Effective: January 1, 2012

Revise the first paragraph of Article 810.04 to read:

"The unit duct shall be installed at a minimum depth of 30-inches (760 mm) unless otherwise directed by the Engineer."

Revise Article 1088.01(c) to read:

"(c) Coilable Nonmetallic Conduit.

General:
The duct shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The duct shall be a plastic duct which is intended for underground use and can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 2447, for schedule 40. The duct shall be composed of black high density polyethylene meeting the requirements of ASTM D 3350, Class C, Grade P33. The wall thickness shall be in accordance with Table 2 for ASTM D 2447.

The duct shall be UL Listed per 651-B for continuous length HDPE coiled conduit. The duct shall also comply with NEC Article 354.100 and 354.120.

Submittal information shall demonstrate compliance with the details of these requirements.

Dimensions:

Duct dimensions shall conform to the standards listed in ASTM D2447. Submittal information shall demonstrate compliance with these requirements.

Nominal Size		Nominal I.D.		Nominal O.D.		Minimum Wall	
mm	in	mm	in	mm	in	mm	in
31.75	1.25	35.05	1.380	42.16	1.660	3.556 +0.51	0.140 +0.020
38.1	1.50	40.89	1.610	48.26	1.900	3.683 +0.51	0.145 +0.020

Nominal Size		Pulled Tensile	
mm	in	N	lbs
31.75	1.25	3322	747
38.1	1.50	3972	893

Marking:

As specified in NEMA Standard Publication No. TC-7, the duct shall be clearly and durably marked at least every 3.05 meters (10 feet) with the material designation (HDPE for high density polyethylene), nominal size of the duct and the name and/or trademark of the manufacturer.

Performance Tests:

Polyethylene Duct testing procedures and test results shall meet the requirements of UL 651. Certified copies of the test report shall be submitted to the Engineer prior to the installation of the duct. Duct crush test results shall meet or exceed the following requirements:

Duct Diameter		Min. force required to deform sample 50%	
mm	in	N	lbs
35	1.25	4937	1110
41	1.5	4559	1025

WIRE AND CABLE
Effective: January 1, 2012

Add the following to the first paragraph of Article 1066.02(a):

"The cable shall be rated at a minimum of 90°C dry and 75°C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals."

Revise the Aerial Electric Cable Properties table of Article 1066.03(a)(3) to read:

Aerial Electric Cable Properties

Phase Conductor				Messenger wire	
Size AWG	Stranding	Average Insulation Thickness		Minimum Size AWG	Stranding
		mm	mils		
6	7	1.1	(45)	6	6/1
4	7	1.1	(45)	4	6/1
2	7	1.1	(45)	2	6/1
1/0	19	1.5	(60)	1/0	6/1
2/0	19	1.5	(60)	2/0	6/1
3/0	19	1.5	(60)	3/0	6/1
4/0	19	1.5	(60)	4/0	6/1

Add the following to Article 1066.03(b) of the Standard Specifications:

"Cable sized No. 2 AWG and smaller shall be U.L. listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be U.L. listed Type RHH/RHW/USE."

Revise Article 1066.04 to read:

"Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to Section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor. Unless otherwise indicated, the code word designation of this cable assembly is "Palomino". The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474."

Revise the second paragraph of Article 1066.05 to read:

"The tape shall have reinforced metallic detection capabilities consisting of a woven reinforced polyethylene tape with a metallic core or backing."

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.

WINTERIZED TEMPORARY ACCESS
Effective: January 1, 2012
Revised: March 5, 2012

Description. This work shall consist of constructing, maintaining and removing winterized temporary access for private and commercial entrances and side roads designed for use throughout the winter months.

Materials. Materials shall be according to the following.

ITEM	ARTICLE/SECTION
Hot-Mix Asphalt	1030

CONSTRUCTION REQUIREMENTS

For projects lasting longer than one construction season, the contractor shall construct and maintain temporary access composed of an HMA surface course over an existing aggregate temporary access. The contractor shall install the winterized temporary access prior to winter shut down at the direction of the engineer. The top 2" of the existing aggregate temporary access should be removed and replaced with 2" of Hot-Mix Asphalt. Compensation will be given for the winterized temporary access at the time of the installation of the Hot-Mix Asphalt surface course.

HMA Surface Course. The Hot-Mix Asphalt surface course shall be 2 in. thick when compacted. HMA Surface Course, Mix "D", N50 shall be used except as modified by the plans or as directed by the Engineer. This work shall be constructed in accordance with the applicable portions of Section 406 of the Standard Specifications and as directed by the Engineer. The material shall conform to the applicable portions of Section 1030 of the Standard Specifications.

The winterized temporary access shall be constructed to the dimensions and grades of the existing aggregate temporary access.

Maintaining the winterized temporary access shall include repairing the HMA surface course after any operation that may disturb or remove the winterized temporary access to the satisfaction of the Engineer.

When use of the winterized temporary access is discontinued, the winterized temporary access shall be removed according to Article 440.03 of the Standard Specifications. The material shall be disposed of according to Article 202.03 of the Standard Specifications or may be utilized in the permanent construction with the approval of the Engineer.

Method of Measurement. Winterized temporary access for private and commercial entrances and roads will be measured for payment at the contract unit price per square yard for every private entrance, commercial entrance or road constructed for the purpose of winterized temporary access.

Basis of Payment. Winterized temporary access for private and commercial entrances and roads will be paid for at the contract unit price per square yard for TEMPORARY ACCESS (WINTERIZE) as specified in the plans.

Partial payment of the square yard amount bid for each winterized temporary access will be paid according to the following schedule:

(a) Upon construction of the winterized temporary access, sixty percent of the contract unit price per square yard will be paid.

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

TEMPORARY INFORMATION SIGNING
Effective: November 13, 1996
Revised: January 2, 2007

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

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

	Item	Article/Section
a.)	Sign Base (Notes 1 & 2)	1090
b.)	Sign Face (Note 3)	1091
c.)	Sign Legends	1092
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 4)	1090.02

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

requirements of Article 1106.01.

Note 4. The overlay panels shall be 0.08 inch (2 mm) thick.

GENERAL CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

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

NIGHTTIME WORK ZONE LIGHTING (D1)

Effective: November 1, 2008
Revised: June 15, 2010

Description. This work shall consist of furnishing, installing, maintaining, moving, and removing lighting for nighttime work zones. Nighttime shall be defined as occurring shortly before sunset until after sunrise.

Materials. The lighting shall consist of mobile and/or stationary lighting systems as required herein for the specific type of construction. Mobile lighting systems shall consist of luminaires attached to construction equipment or moveable carts. Stationary lighting systems shall consist of roadway luminaires mounted on temporary poles or trailer mounted light towers at fixed locations. Some lighting systems, such as balloon lights, may be adapted to both mobile and stationary applications.

Equipment. The Contractor shall furnish an illuminance meter for use by the Engineer. The meter shall have a digital display calibrated to NIST standards, shall be cosine and color corrected, and shall have an accuracy of ± five percent. The sensor shall have a level indicator to ensure measurements are taken in a horizontal plane.

CONSTRUCTION REQUIREMENTS

General. At the preconstruction conference, the Contractor shall submit the type(s) of lighting system to be used and the locations of all devices.

Before nighttime construction may begin, the lighting system shall be demonstrated as being operational.

Nighttime Flagging. The requirements for nighttime flagging shall be according to Article 701.13 of the Standard Specifications and the glare control requirements contained herein.

Lighting System Design. The lighting system shall be designed to meet the following.

(a) Lighting Levels. The lighting system shall provide a minimum of 5 foot candles (54 lux) throughout the work area. For mobile operations, the work area shall be defined as 25 ft (9 m) in front of and behind moving equipment. For stationary operations, the work area shall be defined as the entire area where work is being performed.

Lighting levels will be measured with an illuminance meter. Readings will be taken in a horizontal plane 3 ft (1 m) above the pavement or ground surface.

(b) Glare Control. The lighting system shall be designed and operated so as to avoid glare that interferes with traffic, workers, or inspection personnel. Lighting systems with flood, spot, or stadium type luminaires shall be aimed downward at the work and rotated outward no greater than 30 degrees from nadir (straight down). Balloon lights shall be positioned at least 12 ft (3.6 m) above the roadway.

As a large component of glare, the headlights of construction vehicles and equipment shall not be operated within the work zone except as allowed for specific construction operations. Headlights shall never be used when facing oncoming traffic.

(c) Light Trespass. The lighting system shall be designed to effectively light the work area without spilling over to adjoining property. When, in the opinion of the Engineer, the lighting is disturbing adjoining property, the Contractor shall modify the lighting arrangement or add hardware to shield the light trespass.

Construction Operations. The lighting design required above shall be provided at any location where construction equipment is operating or workers are present on foot. When multiple operations are being carried on simultaneously, lighting shall be provided at each separate work area.

The lighting requirements for specific construction operations shall be as follows.

(a) Installation or Removal of Work Zone Traffic Control. The required lighting level shall be provided at each truck and piece of equipment used during the installation or removal of work zone traffic control. Headlights may be operated in the work zone.

(b) Guardrail, Fence and High Tension Cable Barrier Median Repair. The required lighting level shall be provided by mounting a minimum of one balloon light to each piece of mobile construction equipment used in the work zone. This would include all machines but not include trucks used to transport materials and personnel or other vehicles that are continuously moving in and out of the work zone. The headlights of construction equipment shall not be operated within the work zone.

(c) Pavement Marking and Raised Reflective Pavement Marker Removal/Installation. The striping truck and the attenuator/arrow board trucks may by operated by headlights alone; however, additional lighting may be necessary for the operator of the striping truck to perform the work.

For raised reflective pavement marker removal and installation and other pavement marking operations where workers are on foot, the required lighting level shall be provided at each truck and piece of equipment.

(d) Sweeping. The required lighting level shall be mounted on the sweeping train vehicles during the sweeping operations. Headlights may be operated in the work zone.

(e) Layout, Testing, and Inspection. The required lighting level shall be provided for each active area of construction layout, material testing, and inspection. The work area shall be defined as 15 ft (7.6 m) in front and back of the individual(s) performing the tasks.

Nighttime Work Zone Lighting will not be paid for as a separate item, but the cost shall be considered as included in the contract unit prices for the construction items involved, and no additional compensation will be allowed.

CONCRETE MEDIAN, TYPE SB (SPECIAL)

Description: This item consists of a concrete median at the locations shown on the plans, including the types of curb and gutter used. All work shall be in accordance with the applicable Sections of 606 of the Standard Specifications.

Method of Measurement: This work will be measured for payment in lineal feet along the face of the concrete curb on the baseline side of the concrete median.

Basis of Payment: This work will be paid for at the contract unit price per SQUARE FOOT for CONCRETE MEDIAN, TYPE SB (SPECIAL), which price shall include all material and labor required to complete the work as herein specified.

ISLAND PAVEMENT (6")

Description: Island pavement shall be constructed according to Article 606 of the Standard Specifications.

See Intersection Details sheet for location and dimensions of island pavements.

Method of Measurement: This work shall be measured for payment in square yards for the area inside the island back of curb.

Basis of Payment: The work shall be paid at the contract price per square yard for ISLAND PAVEMENT (6"). The price shall include the island concrete curb and gutter as shown on the plans.

P.C.C. RAMPED MEDIAN TERMINAL

Description: This work shall be constructed in accordance with Article 606 of the Standard Specifications, at the locations shown in the contract plans, as detailed on the Intersection Details and the Standard Detail.

Method of Measurement: This work shall be measured for payment by EACH.

Basis of Payment: The work shall be paid at the contract price per each for P.C.C. RAMPED MEDIAN TERMINAL. The price shall include the concrete curb and gutter or median as shown on the plans.

REMOVE EXISTING HANDHOLE

Description: Work under this item shall be the removal and disposal of all existing handholes. It is the contractor's responsibility to verify the nature of all removals prior to bid. All work shall be in accordance with the applicable portions of Section 895 of the Standard Specifications.

Method of Measurement: REMOVE EXISTING HANDHOLE will be measured for payment by each.

Basis of Payment: REMOVE EXISTING HANDHOLE will be paid by each.

REMOVE EXISTING CONCRETE FOUNDATION

Description: Work under this item shall be the removal and disposal of all Concrete Foundation. It is the contractor's responsibility to verify the nature of all removals prior to bid. All work shall be in accordance with the applicable portions of Section 895 of the Standard Specifications.

Method of Measurement: REMOVE CONCRETE FOUNDATIONS will be measured for payment by EACH.

Basis of Payment: REMOVE CONCRETE FOUNDATIONS will be paid by EACH.

STORM SEWERS, (WATER MAIN REQUIREMENTS), 36"

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

Materials. Pipe materials shall be:

Reinforced concrete pipe, steel cylinder type, with rubber and steel joints, or Reinforced concrete pressure pipe with rubber and steel joints.

Method of Measurement. This work shall be measured in accordance with Article 550.08 of the Standard Specifications.

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

PROPOSED STORM SEWER CONNECTION TO EXISTING STORM SEWER
PROPOSED STORM SEWER CONNECTION TO EXISTING MANHOLE
PROPOSED MANHOLE/CATCH BASIN CONNECTION OVER EXISTING STORM SEWER

Description. This work consists of providing a proposed connection with new pipe to storm sewer or manhole at the locations shown on the plans. The connection shall follow Section 550.06 or Section 602.13 of the Standard Specifications or another connection detail as reviewed and approved by the Engineer. Any damaged pipe will be removed and replaced if required or as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per Each for PROPOSED STORM SEWER CONNECTION TO EXISTING STORM SEWER or per EACH for PROPOSED STORM SEWER CONNECTION TO EXISTING MANHOLE or per EACH for PROPOSED MANHOLE/CATCH BASIN CONNECTION OVER EXISTING STORM SEWER.

FENCE REMOVAL

Description: This work shall consist of removing and disposing the existing fences as shown on the removal plans or as directed by the Engineer. The Contractor shall be responsible for inspecting and determining the kind and condition of existing fences to be removed.

Method of Measurement: This work will be measured for payment per foot of fence removed and disposed offsite. Work shall include all labor and equipment needed to remove and dispose of the existing fence to the satisfaction of the Engineer.

Basis of Payment: This work will be paid for at the contract unit price per FOOT for FENCE REMOVAL, which price shall include all labor, equipment, and material required to complete the work as herein specified.

TEMPORARY CONCRETE BARRIER

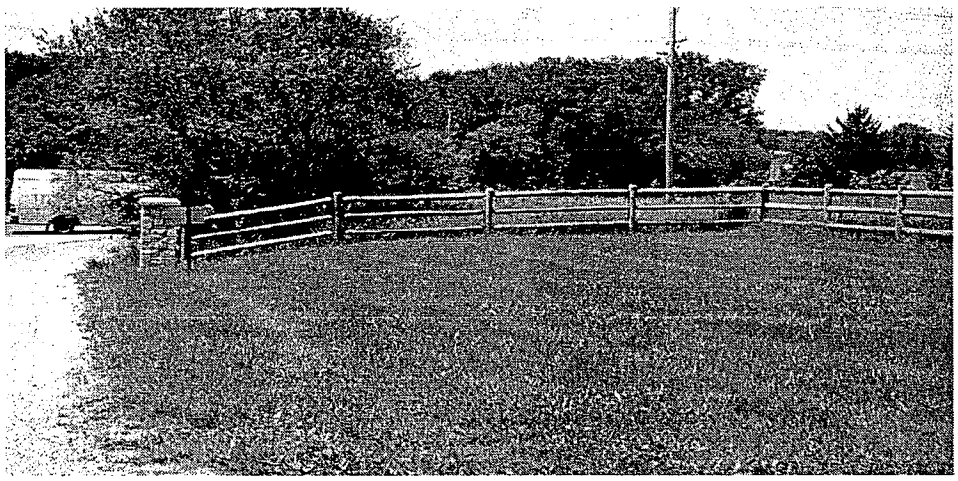
Revise Section 704.04 of the Standard Specifications to include the following: Anchoring pins shall be used to secure the concrete barrier, in addition to the ends of the barrier, when needed or as directed by the Engineer.

Revise Section 704.05 of the Standard Specifications to include the following: This work shall include the materials and labor necessary for providing the additional anchoring. This work will

not be paid for separately, but shall be included in the contract pay item for Temporary Concrete Barrier.

WOOD POST AND RAIL FENCE

Description. This work shall consist of installing a split rail fence in the existing fence location matching the fence removal limits shown on the removal plans. The existing fence is to be removed within the limits of the temporary easement to allow proposed grading and driveway reconstruction as shown on the plans. The fence is located on the property of the White Oaks Skeet Club on IL 25 at the south end of the project. Posts and rails shall be cedar. Post spacing shall match the existing spacing, direct buried a minimum of three feet in to the ground and shall extend to a height matching the existing height and rail spacing. Included in this work is the removal and reconstructing the brick pillar at the end of the fence.



Method of Measurement. This item shall be measured per foot along the centerline of the fence.

Basis of Payment. This work shall be paid for at the contract unit price per foot for WOOD POST AND RAIL FENCE, and shall include all material, labor and equipment to furnish and install the fence as specified herein.

STORM SEWER REMOVAL

Description. This work shall consist of removing and disposing existing concrete storm sewer as shown on the plans and as directed by the Engineer. This work shall conform to Section 551 of the Standard Specifications.

Method of Measurement. This work shall be measured for payment per foot of storm sewer removed.

Basis of Payment. This work shall be paid for at the contract unit price per foot for STORM SEWER REMOVAL, and shall include all labor, equipment, excavation and other materials

necessary for construction as specified herein. If backfill is required to fill the excavation, it shall be paid for as TRENCH BACKFILL.

REMOVE EXISTING FLARED END SECTION

Description. This work shall be performed in compliance with Section 501 of the Standard Specifications.

Method of Measurement. This work shall be measured for payment per each at the locations shown on the plans.

Basis of Payment. This work shall be paid for at the contract unit price per each for REMOVE EXISTING FLARED END SECTION, and shall include all labor, equipment, excavation and other materials necessary for construction as specified herein. If backfill is required to fill the excavation, it shall be paid for as TRENCH BACKFILL.

SLEEPER SLAB

Description. This work shall be done in accordance with the plans, details and District Detail BD52 – Detail of Pavement Separation Joint for Jointed PCC pavements at Intersections.

Method of Measurement. This work shall be measures per foot for sleeper slab at the locations shown on the plans.

Basis of Payment. This work shall be paid at the contract unit price per foot for SLEEPER SLAB, which price shall include all labor, materials and excavations necessary for construction as specified herein.

BARRIER WALL REMOVAL

Description. This work shall be performed in compliance with Section 440 of the Standard Specifications.

Method of Measurement. This work shall be measured for payment per foot at the location shown on the plans.

Basis of Payment. This work shall be paid for at the contract unit price per foot for BARRIER WALL REMOVAL, and shall include all labor, equipment and other materials necessary for construction as specified herein. If backfill is required to fill the excavation, it shall be paid for as TRENCH BACKFILL.

PLUG EXISTING STORM SEWERS

Description. This work consists of filling and abandoning storm sewer after the storm sewer is no longer necessary and at the direction of the Engineer. This work shall include removing the end(s) of the pipe as needed to provide a minimum of two feet of cover when final construction of the roadway ditch at the outfall is performed, and providing concrete to completely fill the storm sewer or culvert. The pipe removed shall be disposed offsite by the contractor. This work also includes patching and repairing any drainage structures affected by this work.

Method of Measurement. Plug existing storm sewers shall be measured in Cubic Yards of concrete used to fill the pipe. Removal and offsite disposal of pipe sections removed in accordance with this item shall be incidental to the work.

Basis of Payment. This work will be paid for at the contract unit price per Cubic Yard for PLUG EXISTING STORM SEWER, and shall include all labor, equipment, excavation and other materials necessary for construction as specified herein.

CLAY LINER

Description: This work consists of providing suitable material obtained from locations furnished by the Contractor, transporting the material to the jobsite, and placing the material at the location shown on the plans and in the manner described within this specification.

Requirements:

A. References:
ASSHTO T-99 (Method C)
ASTM D 2487 – Classification of Soils for Engineering Purposes
ASTM D 2922 – Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318 – Liquid Limit, Plastic Limit, and Plasticity Index of Soils

B. Materials:
Clay Pond Liner shall be excavated clay material classified as CL according to ASTM D 2487 and free of organic matter and debris which might cause settlement. The clay shall have a liquid limit of less than 45% and a plasticity index less than 25% as defined by ASTM D 4318.

C. Placing Material:
Begin placement of the clay liner at low points and spread uniformly in approximately horizontal layers not exceeding 6 inches in thickness before compaction. Shape clay liner to conform to details in plans.

To minimize saturation of newly constructed clay liner, seal the clay liner with smooth wheeled equipment at the end of each work day. Before the placement of the next clay layer over the previously sealed area, scarify the surface to insure bonding.

Protect exposed clay liner from drying, erosion or frost, or recompact any areas disturbed by drying, erosion, or frost.

After spreading, thoroughly manipulate each layer by plowing, disking, or other approved methods, to the full depth of the layer being placed to assure uniform density and moisture distribution for proper compaction.

The moisture content for the clay liner should be within 3% of optimum on the high side during placement.

Suspend earthwork operations whenever satisfactory results cannot be obtained because of rain, freezing or other conditions. Do not place the clay liner on saturated or frozen surfaces.

D. Compaction:
Compact the clay liner to 90% of maximum dry density in accordance with ASSHTO T99 (Method C) or as determined by the Engineer. Tests will be according to ASTM D 2922.

The roller being used must be able to readily remold soil clods into a new homogenous mass. Soil clods must be destroyed and lifts must be properly bonded. The lift should be thin enough so that the roller feet penetrate sufficiently and thoroughly remold the soil. The roller shall make enough passes to ensure that all of the lift is remolded. The clay liner shall be compacted to the satisfaction of the Engineer.

Method of Measurement: Clay Liner will be measured for payment in place and the area computed in cubic feet.

Basis of Payment: This work will be paid for at the contract unit price per cubic foot for CLAY LINER.

TEMPORARY DITCH CHECK

Description: This work shall consist of constructing a temporary ditch check at locations and of the type as shown on the plans, or as directed by the Engineer during the life of the project, and the removal and disposal of the temporary ditch check upon the direction of the engineer. This work will be completed per Section 280 of the Standard Specification for Road and Bridge Construction.

Construction Requirements: The Temporary Ditch Check shall be staked in the ditch with wooden stakes spaced 2 feet on center as shown on the detail. Maintenance of the ditch check includes replacement of ditch check cleaning and disposal of sediment as directed by the Engineer.

Method of Measurement. Temporary Ditch Checks, will be measured for payment in feet in place.

Basis of Payment. TEMPORARY DITCH CHECKS will be paid for at the contract unit price per foot constructed and maintained as specified herein.

TEMPORARY PAVEMENT (VARIABLE DEPTH)

Description. This work shall consist of placing Temporary Pavement in variable depths as shown on the plans. The depth of the pavement varies from approximately 6" to 12". The materials for the temporary pavement are defined in the HOT-MIX ASPHALT REQUIREMENTS table in the plans.

Method of Measurement. Temporary Pavement (variable depth) will be measured in TON for pavement in place.

Basis of Payment. This work will be paid for at the contract unit price per TON for TEMPORARY PAVEMENT (VARIABLE DEPTH), which price shall be payment in full for all labor, equipment, and materials necessary to complete the work as specified.

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

POST MOUNTED FLASHING BEACON INSTALLATION (SPECIAL)

Description: This work shall consist of furnishing and installing a new post mounted, flashing beacon interconnected to a traffic signal in accordance with Standard Drawing No. 880001-01, the Illinois Department of Transportation District 1 Traffic Signal Specifications, latest edition and this specification.

This item shall consist of furnishing and installing a 12 inch single yellow flashing module on a new post as shown on the plans or as directed by the Engineer. This item shall include furnishing and installing a flasher controller that is integrated within the signal head, LED module, electronics, compact housing and be capable of operating 24 hours, 7 days a week. The flashing beacon shall be interconnected to the traffic signal as indicated on the plans. The beacon shall only activate during the signal phases indicated on the plans. The flasher unit shall be installed on standard wood or metal posts. The flash pattern shall be MUTCD complaint and have alternate flash patterns available. The LED module shall be ITE VTCSH-STD Part-2 complaint. The flasher unit shall operate over a maximum temperature range of -40 °F to 176 °F. The sections of the flasher unit shall be secured with tamper resistant stainless steel hardware and unless otherwise noted, the housing shall be black in color.

Method of Measurement: This work shall be measured for payment at the contract unit price each for POST MOUNTED FLASHING BEACON INSTALLATION (SPECIAL).

Basis of Payment: This work shall be paid for at the contract unit price each for POST MOUNTED FLASHING BEACON INSTALLATION (SPECIAL). The price shall be payment in full for all labor and material necessary to complete the work described above.

BIKE PATH REMOVAL

Description: This work shall consist of the removal the existing multi-use path with applicable portions of the Standard Specifications and Special Provisions contained herein at locations shown on the plans or as directed by the Engineer.
Pavement removal should conform to Section 440 of the Standard Specifications.

Method of Measurement: This work will be measured for payment in square yards for the removal of the bike path.

Basis of Payment: This work will be paid for at the contract unit price per SQUARE YARD for BIKE PATH REMOVAL, which price shall include all material and labor required to complete the work as herein specified.

TURBIDITY CURTAIN

Description: This work shall include all labor, materials, and equipment necessary for the installation of the TURBIDITY CURTAIN.

Cleaning and maintenance of the turbidity curtain will be completed as required.

The development and maintenance of the turbidity curtain and dewatering basin shall be coordinated with the IDOT Erosion and Sediment Control representative on site.

Style 250EX, a nonwoven polypropylene fabric supplied by Thrace-LINQ, Inc. or approved equal, meets the fabric properties listed below:

PROPERTY	TEST PROCEDURE	METRIC		ENGLISH	
		MARV		MARV	
Grab Tensile Strength	ASTM D-4632	1202	N	270	lbs
Grab Elongation	ASTM D-4632	50	%	50	%
Trapezoid Tear	ASTM D-4533	445	N	100	lbs
Puncture	ASTM D-4833	690	N	155	lbs
Puncture (CBR)	ASTM D-6241	3226	N	725	lbs
Mullen Burst	ASTM D-3786	3171	kPa	460	psi
Permittivity	ASTM D-4491	1.2	sec^{-1}	1.2	sec^{-1}
A.O.S.	ASTM D-4751	0.15	mm	100	U.S. Sieve
UV Stavility (500 hrs)	ASTM D-4355	70	%	70	%
Water Flow Rate	ASTM D-4491	3463	Lpm/m^2	85	gpm/ft^2

MARV: Minimum Average Roll Value

Apparent Opening Size (AOS) properties are Maximum Average Roll Values

Method of Measurement: This work is measured for payment in square yards in place.

Basis of Payment: This work will be paid for at the contract unit price per SQUARE YARD for TURBIDITY CURTAIN.

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 will be local genotype and will 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

Ind. Status	Scientific Name	Common Name	LB PLS per Acre
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 multi florum	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.

Method of Measurement: Seeding, Class 4 (Modified) Mesic Prairie will be measured for payment in acres of surface area of seeding.

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

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 will be local genotype and will 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

Ind. Status	Scientific Name	Common Name	LB PLS per Acre
FACU-	Cassia fasciculate	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	false 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	still 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 fasciculate	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.

Method of Measurement: Seeding, Class 5 (Modified) Mesic Prairie will be measured for payment in acres of surface area of seeding.

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

CONCRETE TRUCK WASHOUT

Description: CONCRETE TRUCK WASHOUT are used to contain concrete liquids when the chutes of concrete trucks are rinsed out after delivery of concrete to the construction site. These washout facilities function to consolidate solids for disposal and prevent runoff liquids associated with concrete. Details of the construction of the non-portable facilities are included in the plans as "temporary concrete washout facilities". Failure to comply with appropriate washout location requirements will result in monetary deficiency deduction against the contractor.

General Requirements:

- The contractor must submit a plan of his/her proposed temporary concrete washout facility to the resident engineer for his/her approval at least 10 days prior to the first concrete pour.
- Temporary concrete washout facilities are to be in place before any delivery of concrete to the construction site.
- Temporary concrete washout facilities are to be located at least 50 feet from storm drain inlets, open drainage facilities, or water bodies. Each facility is to be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign is to be installed adjacent to each temporary concrete washout facility to inform concrete equipment operators of the designated washout facility.

DESIGN:
Two types of temporary concrete washouts are available for use on IDOT construction projects with details provided in the plans:

- Prefabricated Portable Facilities
  - Various products are now being marketed specifically for this purpose.
- Non-Portable Facilities – see details
  - Above Grade
    - Constructed using a barrier wall and polyethylene sheeting.
    - Barrier walls are constructed to create a berm, then lined with a single sheet of 10-mil. Polyethylene sheeting, which is free of holes, tears, or other defects which may compromise the impermeability of the material. Sandbags are used to hold the sheeting in place on top of the berm.
    - Sheeting must extend over entire basin and berm to prevent escape of discharge.
  - Below Grade
    - Constructed via excavation and the use of polyethylene sheeting and sandbags.
    - A pit is first excavated in a designated location and then lined with a single sheet of 10-mil polyethylene sheeting which is free of holes, tears, or other defects, which may compromise the impermeability of the material.
    - Sandbags are then to hold the sheeting in place.

SIZE OF WASHOUTS:

- The number and size of each washout facility is to be determined by the contractor. It is his/her responsibility to provide enough storage for the excess concrete and water produced on the target.
- Non-portable facilities are to have a minimum length and width of 10'.

INSPECTION/MAINTENANCE/REMOVAL:

- Temporary concrete washout facilities are to be inspected by the resident engineer during his/her weekly erosion and sediment control inspection, after a storm event of ½" or greater and at the end of any day when concrete has been poured on the construction site. The inspector is to ensure that there are no leaks, no spills, and that the facilities' capacity has not yet been compromised.
- Any overflowing of the washout facilities onto the ground must be cleaned up and removed within 24 hours of discovery.
- If a rain or snow event is forecasted, a non-collapsing, non-water collecting cover shall be placed over the washout facility and secured to prevent accumulation and overflow of precipitation.
- Contents of each concrete washout facility are not to exceed 75% of its designed capacity. If the contents reach 75% capacity, discontinue pouring concrete into the facility until it has been cleaned out.
- Allow slurry to evaporate or remove the site in a safe manner (i.e., vacuum truck). All hardened material can then be removed and disposed of properly.
- If a lined basin is used, immediately replace the liner if it becomes damaged.
- Remove temporary concrete washout facilities when they are no longer needed and restore the disturbed areas to their original condition.
- Note the locations of temporary concrete washout facilities and any changes to these facilities on the SWPPP.

Basis of Payment: The work shall be paid for at the contract unit price lump sum for CONCRETE TRUCK WASHOUT, which price shall be payment in full for all material, labor, excavation, inspection, and maintenance of the facility.

DUST CONTROL WATERING

Description: This work shall consist of the control of dust resulting from the construction operations exclusively. This item shall not be used in the compaction of earth embankments.

The dust shall be controlled by the uniform application of sprinkled water and shall be applied only when directed and in a manner approved by the Engineer.

All equipment used for this work shall meet with the Engineer's approval and shall be equipped with adequate measuring devices for metering the exact amount of water discharge. All water used shall be properly documented by ticket or other approved means.

Method of Measurement. This work will be measured in units of gallons of water applied. One unit will be equivalent to 1,000 gallons of water applied.

Basis of Payment: This work will be paid for at the contract unit price per unit as DUST CONTROL WATERING, which price shall be payment in full for furnishing all labor, water and equipment for controlling dust as specified.

IMPACT ATTENUATOR REMOVAL

Description: Impact attenuators at each end of temporary concrete barrier along west side of existing IL 25/Stearns Road under the UPRR shall be removed.

See Removal Plans for location of impact attenuators to be removed.

Method of Measurement and Basis of Payment: The work shall be paid for at the contract price per each for IMPACT ATTENUATOR REMOVAL. The price shall include loading, transporting, and unloading the impact attenuators.

ANTI-GRAFFITI PROTECTION SYSTEM

Description. This work shall consist of the furnishing and applying of an anti-graffiti coating to concrete surfaces as noted on the plans and to concrete surfaces with a form liner treatment that are color stained.

General Requirements. The anti-graffiti protection system shall consist of a permanent, color stable, UV, stain, chemical and abrasion resistant coating. The removal of graffiti from the protected surfaces shall be accomplished by applying a separate removal agent as recommended by the manufacturer of the permanent coating. The removal agent shall have the capability of completely removing all types of paints and stains. After graffiti removal there shall be no damage to the anti-graffiti coating or the surface to which it is applied. Additionally there shall be no evidence of ghosting, shadowing, or staining of the protected surface.

Qualifications. The anti-graffiti protection system shall be a product that has been commercially available for a period of at least five (5) years. The Contractor shall apply the material to a test following the manufacturer's recommendation. The location of the test patch shall be at a location below the final finished grade line on the face of the wall at the direction of the Engineer. After the manufacturer's recommended curing period, the Engineer will apply various types of graffiti materials to the coating. After three (3) days the removal agent shall be used to remove the graffiti. If after graffiti removal the anti-graffiti coating is clean and undamaged, with no evidence of ghosting, shadowing or staining, then the anti-graffiti coating is approved for use.

Surface Preparation. Prior to application of the anti-graffiti coating, all designated surfaces shall be cleaned of all loose debris, and all foreign matter by a method as recommended by the coating manufacturer and approved by the Engineer. All surfaces shall be thoroughly clean, dry and free of dust that might prevent penetration of the coating. New concrete should be thoroughly cured before application of the coating. Concrete surfaces shall be properly sealed according to the manufacturer's recommendations so the application of the system does not produce any noticeable long-term change in the color of the surfaces being treated. A technical representative of the manufacturer shall be present to approve surface preparation and application of the anti-graffiti protection system.

Weather Conditions. Coatings shall not be applied in the rain, snow, fog or mist, nor shall they be applied if these conditions are expected within twelve (12) hours of application. Coatings shall not be applied when surface or air temperatures are less than 40° F nor greater than 100° F, or is expected to exceed these temperatures within twelve (12) hours of application.

Application. The manufacturer's product data sheets and application guides shall be submitted to the Engineer prior to coating application. All information contained in the data sheets and application guides shall be strictly followed. All coatings shall be applied in the presence of the Engineer. The wet film thickness will be measured by the Engineer and shall be according to the manufacturer's recommendation. Application of the clear protective coating shall take place

after the application and curing of the FORM LINER TEXTURED SURFACE (SPECIAL) stain item as appropriate for the surface to be treated.

In a contrasting color of the same anti-graffiti system, the name of the system used and the date of application shall be stenciled in letters not to exceed 2 inches high. The location of the stencil shall be near one end of the work at the bottom of the surface to be protected. For projects greater than 3,000 sq. ft. near the bottom at the locations designated by the Engineer.

Cleaning Agent. The Contractor shall supply the Engineer with an initial quantity of the removal agent and written instructions for its use, as recommended by the manufacturer for graffiti removal. The amount shall be furnished at the rate of one (1) gallon per 81 sq. yd of treated surface.

Pre-Approved Suppliers

The product shall be as outlined below or an approved equal meeting all of the requirements of the product outlined below:

- Sherwin Williams Anti-Graffiti Coating Clear B97C00150 or approved equal

Method of Measurement. This work will be measured in place per square feet of surface area upon which the anti-graffiti protection system has been applied and accepted by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per square feet for ANTI-GRAFFITI PROTECTION SYSTEM which price shall be payment in full for the cleaning of designated surfaces, the application of the anti-graffiti coating, supplying the manufacturer's technical representative and supplying the initial quantity of cleaning agent and the test patch.

FORM LINER TEXTURED SURFACE (SPECIAL)

Description: This work shall consist of the construction of textured and colored formed concrete surface using simulated stone masonry molds and color stain system designated to duplicate closely the appearance of natural stone.

General: Form liners shall be used for the textured concrete surfaces specified on the plans and shall be installed in conformance with the manufacturer's recommendations, unless other methods of forming textured concrete surfaces are approved by the Engineer. Form liners shall be in conformance with this special provision as well as section 503.06(a) of the Standard Specifications. Form liners shall be manufactured from an elastomeric material or a semi-elastomeric polyurethane material by a manufacturer of commercially available concrete form liners. No substitution of other types of form liner material will be allowed. Form liners shall leave crisp, sharp definition of the architectural surface. Recurring textural configurations exhibited by repeating, recognizable shadow patterns shall be prevented by proper casting of form liner patterns. Textured concrete surfaces with such recurring textural configurations shall be reworked to remove such patterns until approved by the Engineer or the concrete shall be replaced.

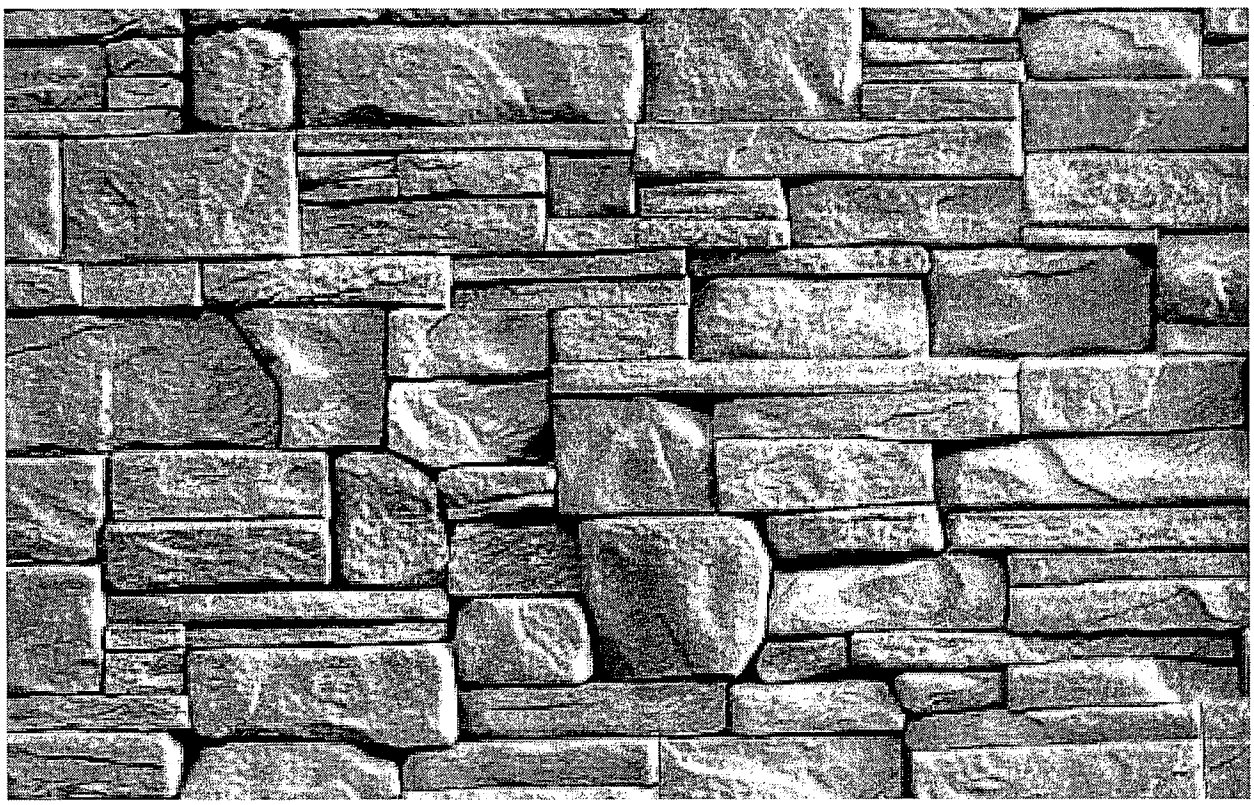
Cuts and tears in form liners shall be sealed and repaired in conformance with the manufacturer's recommendations. Form liners that are delaminated from the form liner shall not be used. Form liners with deformations to the manufactured surface caused by improper

storage practices or any other reason shall not be used. Clean forms and make free of buildup prior to each pour. Molds shall not compress more than ¼" when concrete is poured at a rate of 10 vertical feet per hour.

Form liners shall extend the full length of texturing with 1'-0" smooth bands at each construction joint as shown on plans. Small pieces of form liners shall not be used. Grooves shall be aligned straight and true. Joints in the direction of grooves in grooved patterns shall be located only in the depressed portion of the textured concrete. Adjoining form liners shall be butted together without distortion, open cracks or offsets at the joints. Joints between liners shall be cleaned before each use to remove any mortar in the joint.

If the form pattern selected has molds connecting through the middle of stones, carefully remove the seam line created by abutting molds. Match the texture and shape of the surrounding stone, avoiding visible seems or mold marks. The form liner pattern shall be Spec Formliners Incorporated Custom Rock Pattern #1548 (shown below) or an equivalent to be submitted to KDOT for approval.

Adhesives shall be compatible with the form liner material and with concrete. Adhesives shall be approved by the form liner manufacturer. Adhesives shall not cause swelling of the form liner material. Form ties shall be made of either metal or fiberglass. Using metal ties, which result in a portion of the tie permanently embedded in the concrete, shall be designed to separate at least 1" back from the finished surface, leaving only a neat hole that can be plugged with patching material. Contractor shall submit the type of form ties to the Engineer for approval prior to use in this work. Place form ties at thinnest points of molds. Neatly patch the remaining hole after disengaging the protruding portion of the tie so that it will not be visible after coloring the concrete surface.



Releasing Form Liners: Products and application procedures for form liner release agents shall be approved by the form liner manufacturer. Release agents shall not cause swelling of the form liner material or delamination of the form liner. Release agents shall not stain the concrete or react with the form liner material. Release agent shall coat form liner with a thin film. Following application of release agent, the form liner surface shall be cleaned of excess amounts of release agent using compressed air. Buildup of release agent caused by reuse of a form liner shall be removed at least every 5 uses.

Form liners shall release without leaving particles or pieces of form liner material on concrete and without pulling or breaking concrete from the textured surface. The concrete and textured surfaces exposed by removing form liners shall be protected from damage. Form stripping and related construction shall avoid creating defects in the concrete.

All concrete shall be cured in conformance with the Standard Specifications.

Coloration: All patterning of simulated stone masonry shall appear natural and non-repeating. Seam lines and or match lines caused from two or more molds coming together shall not be apparent when viewing final wall. 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 or rusting. Joints shall be colored to simulate real mortar.

Concrete surface shall be cleaned prior to applying color 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 3,000 psi (a rate of three to four gallons per minute), using a 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.

Color stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight, and weathering. Stain mix shall be a waterborne, low V.O.C. material, less than 180 grams / liter. All simulated stone surfaces that are to be stained shall be at least 30 days old. Apply color stain when ambient temperature is between 50 and 100 degrees F. Consult manufacturer and Engineer if conditions differ from this requirement.

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

Base color - 33446 (Medium Tan)

Test samples of the stain on concrete shall be submitted for acceptance to the owner and the Engineer before any staining is to start on the structure. The stains shall contain an integral silane or siloxane penetrating concrete sealer.

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

Tri-Sheen Pigmented Stain
XL 70 Bridge Cote with Silane by Texcote

Custom Rock Stain. by CRI

Submittals: Within 30 days of receiving the general contract, contractor shall submit to the Engineer for approval the following: Catalogue cuts of the proposed liner, including bonding and release agents. Verification Sample Panel. Submit a 2' x 2' sample of the simulated stone masonry finish which demonstrates the finishes, colors, and textures specified.

Thirty days prior to starting construction of any form lined surface, provide a mock-up to remain on the site as a basis for comparison of the work constructed on the project. Duplicate in form and appearance (texture, joint dimension, stone size and coloration) all work constructed on the project matching the sample panel. Remove any sample rejected by the Engineer from the project and submit a new sample at no additional expense to the County. The mock-up shall be 4' x 10' x 6" and shall include color staining.

Shop drawing plan, elevation, and details to show overall pattern, joint locations, form tie locations, and end, edge, as well as other special conditions.

Quality Assurance: Manufacturer of simulated stone masonry molds and custom coloring system shall have a minimum of five years of experience making stone masonry molds and color stains to create formed concrete surfaces to match natural stone shapes, surface textures, and colors.

Contractor shall schedule a pre-installation meeting with manufacturer representative to assure understanding of simulated stone masonry, molds use, color application, requirements for construction mockup, and to coordinate the work.

Formed concrete construction shall require five years' experience pouring vertically formed architectural concrete. Manufacturer or manufacturer's authorized representative shall perform the color stain system application.

Method of Measurement: This work will be measured for payment in place and the area computed in square feet. Measurement will include all costs associated with providing the aesthetic treatment including the furnishing, installing, stripping and reusing the form liner as well as all costs for furnishing and applying the color stain system.

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

RELOCATE EXISTING SIGN PANEL (SPECIAL)

Description. This work shall consist of removing and relocating sign panels.

Removal. Removal shall be as follows.

The sign panel shall be removed completely, including all hardware, and transported to the location specified in the contract.

Relocate. Relocation of sign panel shall be as follows.

The sign panel shall be installed or reinstalled on previously erected sign supports or a sign structure using new mounting hardware according to the details shown in the plans or as directed by the Engineer. Any new sign support brackets or existing brackets shall be provided when necessary. In no case shall the time between the removal of an existing sign panel and its reinstallation be in excess of two hours, unless authorized in writing by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per each for RELOCATE EXISTING SIGN PANEL (SPECIAL), of the type specified.

FIBER OPTIC CABLE 36 FIBERS, SINGLE MODE

Description. This work shall consist of following IDOT's District One Traffic Signal Specifications for FIBER OPTIC CABLE.

The fiber optic cable shall be 36 fiber, single mode.

TRAFFIC SIGNAL SPECIFICATIONS
Effective: May 22, 2002
Revised: January 1, 2012
Amended: October 18, 2012 (KDOT ITS Compatibility)

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. Traffic signal construction and maintenance work shall be performed by personnel holding IMSA Traffic Signal Technician Level II certification. 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 Article 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

SUBMITTALS.
Revise Article 801.05 of the Standard Specifications to read:

All material approval requests shall be submitted in accordance with the District's current Electrical Product Data and Documentation Submittal Guidelines. General requirements include:

1. Material approval requests shall be made at the preconstruction meeting, including major traffic signal items listed in the table in Article 801.05. Material or equipment which is 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.
2. Product data and shop drawings shall be assembled by pay item and separated from of other pay item submittals. Only the top sheet of each pay item submittal will be stamped by the Department with the review status, except shop drawings for mast arm pole assemblies and the like will be stamped with the review status on each sheet.
3. Partial or incomplete submittals will be returned without review.

4. Certain non-standard mast arm poles and structures 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.
5. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of correspondence, catalog cuts and mast arm poles and assemblies drawings.
6. 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.
7. 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 'Incomplete'. 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.
8. All submitted items reviewed and marked 'APPROVED AS NOTED', 'DISAPPROVED', or 'INCOMPLETE' 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.
9. 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.

INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Article 801.10 of the Standard Specifications:

(c) 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.

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. Automatic Traffic Enforcement equipment is not owned by the State and the Contractor shall not be responsible for maintaining it during construction. The Contractor shall supply the Engineer, Area Traffic Signal Maintenance and Operations Engineer, IDOT ComCenter and the Department's Electrical Maintenance Contractor with two 24-hour emergency contact names and telephone numbers.

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. Damaged Automatic Traffic Enforcement equipment, including cameras, detectors, or other peripheral equipment, shall be replaced by others, per Permit agreement, at no cost to the contract. 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 shut down 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.

f. Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.

DAMAGE TO TRAFFIC SIGNAL SYSTEM.

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any traffic signal control equipment damaged or not operating properly from any cause whatsoever shall be replaced with new equipment meeting current District One traffic signal specifications and 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 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.

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause whatsoever, shall be the responsibility of the municipality or the Automatic Traffic Enforcement company per Permit agreement.

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. When the contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, or TEMPORARY TRAFFIC SIGNAL TIMINGS, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation 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. Written 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.

8. All manufacturer and contractor warrantees and guarantees required by Article 801.14.

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.

RECORD DRAWINGS

The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the 2nd paragraph of Article 801.16 of the Standard Specifications to read:

a. "When the work is complete, and seven days before the request for a final inspection, the full-size set of contract drawings. Stamped "RECORD DRAWINGS", shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor's supervising Engineer or electrician. The record drawings shall be submitted in PDF format on CDROM as well as hardcopy for review and approval.

b. In addition to the record drawings, copies of the final catalog cuts which have been Approved or Approved as Noted shall be submitted in PDF format along with the record drawings. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible."

c. Additional requirements are listed in the District's Electrical Product Data and Documentation Guidelines.

Add the following to Article 801.16 of the Standard Specifications:

"In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by this contract:

- All Mast Arm Poles and Posts
- Handholes
- Conduit roadway crossings
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV Camera installations
- Fiber Optic Splice Locations

Datum to be used shall be North American 1983.

Data shall be provided electronically and in print form. The electronic format shall be compatible with MS Excel. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

1. Description of item
2. Designation or approximate station if the item is undesignated
3. Latitude
4. Longitude

Examples:

Description	Designation	Latitude	Longitude
Mast Arm Pole Assembly (dual, combo, etc)	MP (SW, NW, SE or NE corner)	41.580493	-87.793378
FO mainline splice handhole	HHL-ST31	41.558532	-87.792571
Handhole	HH	41.765532	-87.543571
Electric Service	Elec Srv	41.602248	-87.794053
Conduit crossing	SB IL83 to EB I290 ramp SIDE A	41.584593	-87.793378
PTZ Camera	PTZ	41.584600	-87.793432
Signal Post	Post	41.558532	-87.792571
Controller Cabinet	CC	41.651848	-87.762053
Master Controller Cabinet	MCC	41.580493	-87.793378
Communication Cabinet	ComC	41.558532	-87.789771
Fiber splice connection	Toll Plaza34	41.606928	-87.794053

Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 100 feet. Upon verification, data collection can begin. Data collection can be made as construction progresses, or can be collected after all items are installed. If the data is unacceptable the

contractor shall make corrections to the data collection equipment and or process and submit the data for review and approval as specified.

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have a minimum 5 meter accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years."

Delete the last sentence of the 3rd paragraph of Article 801.16.

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, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

RESTORATION OF WORK AREA.

Add the following article to Section 801 of the Standard Specifications:

801.17 Restoration of work area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, trench and backfill, underground raceways, 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. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

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 to the Engineer and Area Traffic Signal Maintenance and Operations Engineer. The service agreement and sketch shall be submitted for signature to the IDOT's Traffic Operations Programs 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.

1. 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.

2. 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 CONCRETE FOUNDATION, TYPE A, 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.

Revise Section 806 of the Standard Specifications to read:

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 concrete foundation or service installation 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, conduits, 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. Conduit grounding bushings shall be installed at all conduit terminations.

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.

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 Standard Specifications and these 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.

COILABLE NON-METALLIC CONDUIT.

Description. This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC) for detector loop raceways.

General. The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 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

Basis of Payment. All installations of CNC for loop detection shall be included in the contract and not paid for separately.

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.

GROUNDING CABLE.

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add the following 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. The grounding conductor shall be bonded to conduit terminations using rated grounding bushings. 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, conduit grounding bushings, and other hardware.

RAILROAD INTERCONNECT CABLE.

The cable shall meet the requirements of Section 873 of the Standard Specifications, except for the following:

Add to Article 873.02 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 873.05 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.

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. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600v, 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.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Revise Articles 850.02 and 850.03 of the Standard Specifications to read:

Procedure.
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 electricians with IMSA Level II certification on staff 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, conduits to adjacent intersections, and other traffic signal equipment, but shall not include Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, or peripheral equipment, not owned by the State.

Maintenance.
The maintenance shall be according to MAINTENANCE AND RESPONSIBILITY in Division 800 of these specifications and the following:.

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 or otherwise removed from normal operation, 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. When the signals operate in flash, 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 the Standard Specifications and these special provisions.

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.

TRAFFIC ACTUATED CONTROLLER.

Add the following to Article 857.02 of the Standard Specifications:

Controllers shall be NTCIP compliant NEMA TS2 Type 1, Econolite ASC/3S-1000 or Eagle/Siemens M50, Ethernet compatible (IP addressable), 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 and include the standard data key. 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.

Add the following to Article 857.03 of the Standard Specifications:

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET as called for on the traffic signal installation plans. If the traffic signal installation is part of a traffic signal system, a telephone line is usually not required, unless a telephone line is called for on the traffic signal plans. The Contractor shall follow the requirements for the telephone service installation as contained in the current District One Traffic Signal Special Provisions under Master Controller.

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. The master controller shall be Ethernet compatible (IP addressable).

Functional requirements in addition to those in Section 863 of the Standard Specifications 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).

UNINTERRUPTIBLE POWER SUPPLY.

Add the following to Article 862.01 of the Standard Specifications:

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 be Ethernet compatible(IP addressable).

Add the following to Article 862.02 of the Standard Specifications:

Materials shall be according to Article 1074.04 as modified in UNINTERRUPTIBLE POWER SUPPLY in Division 1000 of these specifications.

Add the following to Article 862.03 of the Standard Specifications:

The UPS shall additionally include, but not be limited to, a battery cabinet. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption.

Revise Article 862.04 of the Standard Specifications to read:

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.

At locations where UPS is installed and Emergency Vehicle Priority System is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the contract. A concrete apron 67 in. x 50 in. x 5 in. (1702mm x 1270mm x 130mm) shall be provided on the side of the existing Type D Foundation, where the UPS cabinet is located. The concrete apron shall follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet. The concrete apron shall follow Articles 424 and 202 of the Standard Specifications.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the UPS.

Revise Article 862.05 of the Standard Specifications to read:

Basis of Payment. This work will be paid for at the contract unit price per each for UNINTERRUPTIBLE POWER SUPPLY SPECIAL. Replacement of Emergency Vehicle Priority System confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTIBLE POWER SUPPLY SPECIAL item. The concrete apron and earth excavation required shall be included in the cast of the UNINTERRUPTIBLE POWER SUPPLY SPECIAL item.

FIBER OPTIC CABLE.

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 872.02 of the Standard Specifications:

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. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six single mode 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 controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

MAST ARM ASSEMBLY AND POLE.

Revise Article 877.01 of the Standard Specifications to read:

Description. This work shall consist of furnishing and installing a steel mast arm assembly and pole and a galvanized steel or extruded aluminum shroud for protection of the base plate.

Revise Article 877.03 of the Standard Specifications:

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. All product data and shop drawings shall be submitted in electronic form on CD-ROM

(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 12 in. (300 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.

(c) The galvanized steel or extruded aluminum shroud shall have dimensions similar to those detailed in the "District One Standard Traffic Signal Design Details." The shroud shall be installed such that it allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet.

Add the following to Article 877.04 of the Standard Specifications:

The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

CONCRETE FOUNDATIONS.

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. (300 mm) from the threaded end.

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 (1220 mm).

Concrete Foundations, Type "C" for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS) cabinet installations shall be a minimum of 72 inches (1830 mm) long and 31 inches (790 mm) wide. All Type "C" foundations shall be a minimum depth of 48 inches (1220 mm). The concrete apron in front of the Type IV or V cabinet shall be 36 in. x 48 in. x 5 in. (915 mm X 1220 mm X 130 mm). The concrete apron in front of the UPS cabinet shall be 36 in. x 67 in. x

5 in. (915 mm X 1700 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 (1220 mm) long and 31 inches (790 mm) wide. All Type "D" foundations shall be a minimum depth of 48 inches (1220 mm). 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 current requirements listed in the Highway Standards.

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.

LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD.

Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

Basis of Payment. The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.

LIGHT EMITING DIODE (LED), SIGNAL HEAD, RETROFIT

Description. This work shall consist of retrofitting an existing polycarbonate traffic signal head with a traffic signal module, pedestrian signal module, and pedestrian countdown signal module, with light emitting diodes (LEDs) as specified in the plans.

Materials. Materials shall be according to LIGHT EMITTING DIODE (LED) AND OPTICALLY PROGRAMMED LED SIGNAL HEAD, AND LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD in Divisions 880, 881 and 1000 of these specifications.

Add the following to Article 880.04 of the Standard Specifications:

Basis of Payment. This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, RETROFIT, or PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, for the type and number of polycarbonate signal heads, faces, and sections specified, which price shall be payment in full for furnishing the equipment described above including LED 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.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD

Add the following to the third paragraph of Article 881.03 of the Standard Specifications:

No mixing of different types of pedestrian traffic signals or displays will be permitted.

Add the following to Article 881.03 of the Standard Specifications:

(a) Pedestrian Countdown Signal Heads.

(1) Pedestrian Countdown Signal Heads shall not be installed at signalized intersections where traffic signals and railroad warning devices are interconnected.

(2) 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.

(3) 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).

Add the following to Article 881.04 of the Standard Specifications:

Basis of Payment. The price shall include furnishing the equipment described above, all mounting hardwire and installing them in satisfactory operating condition.

DETECTOR LOOP.

Revise Section 886 of the Standard Specifications to read:

Description. This work shall consist of furnishing and installing a detector loop in the pavement.

Procedure. 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.

Installation. 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 PLFIM 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.

(b) Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement AC 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.

(c) 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.

(d) Preformed. This work shall consist of furnishing and installing a rubberized or crosslinked polyethylene heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:

(e) 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 protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.

(f) 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.

(g) Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. 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 or a similarly sized XLPE cable jacket. 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. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. 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.

Method of Measurement. This work will be measured for payment in feet (meters) in place. Type I detector loop will be measured along the sawed slot in the pavement containing the loop and lead-in, rather than the actual length of the wire. Preformed detector loops will be measured along the detector loop and lead-in embedded in the pavement, rather than the actual length of the wire.

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 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. 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.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

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. Any required modifications to the traffic signal controller shall be included in the cost of the LIGHT DETECTOR AMPLIFIER. 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.

TEMPORARY TRAFFIC SIGNAL INSTALLATION.

Revise Section 890 of the Standard Specifications to read:

Description. This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptible power supply, and signing. Temporary traffic signal controllers and cabinets interconnected to railroad traffic control devices shall be new. When temporary traffic signals will be operating within a county or local agency Traffic Management System, the equipment must be NTCIP compliant and compatible with the current operating requirements of the Traffic Management System.

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 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. All railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications as modified herein.

2. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary traffic signal locations. 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 806 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. Pedestrian signal heads shall be Light Emitting Diode (LED) Pedestrian Countdown Signal Heads except when a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing. When a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing, Light Emitting Diode (LED) Pedestrian Signal Heads shall be furnished. 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, complete. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This item shall include all temporary wireless interconnect components, complete, at the adjacent existing traffic signal(s) to provide a completely operational closed loop system. 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: Encom 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 vehicle detection system as shown on the plans or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor 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) Uninterruptible Power Supply. All temporary traffic signal installations shall have Uninterruptible Power Supply (UPS). The UPS cabinet shall be mounted to the temporary traffic signal cabinet and meet the requirements of Uninterruptible Power Supply in Divisions 800 and 1000 of these specifications.

(i) 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. Any intersection regulatory signs that are required for the temporary traffic signal shall be provided as shown on the plans or as directed by the Engineer. Relocation, removing, bagging and installing the regulatory signs for the various construction stages shall be provided as shown on the plans or as directed by the Engineer.

(j) Energy Charges. The electrical utility energy charges for the operation of the temporary 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.

(k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION in Division 800 of these specifications. Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY

TRAFFIC SIGNAL INSTALLATION pay 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. 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 Operations (847) 705-4424 for an inspection of the installation(s).

(l) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District One Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. 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 as shown in the plans, or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.

(m) 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 Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification.

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 and other applicable portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois 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 non-operating 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, the temporary wireless interconnect system complete, temporary fiber optic interconnect system complete, all material required, the installation and complete removal of the temporary traffic signal. Each intersection will be paid for separately.

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. The Contractor 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 Contractor 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 or delivery 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 at no cost to the contract.

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 °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 °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.

Painting of traffic signal heads, pedestrian signal heads and controller cabinets is 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 recommended by the manufacturer and approved by the Engineer. If while at the manufacturer's facility the finish is damaged, the finish shall be re-applied at no cost to the contract.

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 AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, PAINT NEW COMBINATION MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW COMBINATION MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, or PAINT NEW TRAFFIC SIGNAL POST of the length specified, 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.

ILLUMINATED STREET NAME SIGN

Description. This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials. Materials shall be in accordance with ILLUMINATED STREET NAME SIGN in Division 1000 of these specifications.

Installation. The sign can be mounted on most steel mast arm poles. Mounting on aluminum mast arm pole requires supporting structural calculations. Some older or special designed steel mast arm poles may require structural evaluation to assure that construction of the mast arm pole is adequate for the proposed additional loading. Structural calculations and other supporting documentation as determined by the Engineer shall be provided by the contractor for review by the Department.

The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be Pelco model SE-5015, or approved equal, utilizing stainless steel components.

Signs shall be installed such that they are not energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptible power supply (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

Basis of Payment. This work will be paid for at the contract unit price each for ILLUMINATED STREET NAME SIGN, of the length specified which shall be payment in full for furnishing and installing the LED internally illuminated street sign, complete with circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

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. Each intersection will be paid for separately.

OPTIMIZE TRAFFIC SIGNAL SYSTEM.

Description. This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system.

2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.

3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.

4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.

5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.

6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.

(b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.
1. Consultant shall furnish to IDOT one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

Cover Page in color showing a System Map

Figures

1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion.
2. General location map in color – showing signal system location in the metropolitan area.
3. Detail system location map in color – showing cross street names and local controller addresses.
4. Controller sequence – showing controller phase sequence diagrams.

Table of Contents

Tab 1: Final Report

1. Project Overview
2. System and Location Description (Project specific)
3. Methodology
4. Data Collection
5. Data Analysis and Timing Plan Development
6. Implementation
   a. Traffic Responsive Programming (Table of TRP vs. TOD Operation)
7. Evaluation
   a. Speed and Delay runs

Tab 2. Turning Movement Counts

1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)

Tab 3. Synchro Analysis

1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings.
2. Midday: same as AM
3. PM: same as AM

Tab 4: Speed, 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: Environmental Report

1. Environmental impact report including gas consumption, NO2, HCCO, improvements.

Tab 6: 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, as well as impact to existing traffic signal timings caused by detours or other temporary conditions.

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/or detour meeting 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 and/or detour implemented, 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 and/or detour.

MODIFYING EXISTING CONTROLLER CABINET.

The work shall consist of modifying an existing controller cabinet as follows:

(a) Uninterruptible Power Supply (UPS). The addition of uninterruptible power supply (UPS) to an existing controller cabinet could require the relocation of the existing controller cabinet items to allow for the installation of the uninterruptible power supply (UPS) components inside the existing controller cabinet as outlined under Sections 862 and 1074.04 of the Standard Specifications.

(b) Light Emitting Diode (LED) Signal Heads, Light Emitting Diode (LED) Optically Programmed Signal Heads and Light Emitting Diode (LED) Pedestrian Signal Heads. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(5)(b)(2) of the Standard Specifications and the recommended load requirements of the light emitting diode (LED) signal heads that are being installed at the existing traffic signal. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

(c) Light Emitting Diode (LED), Signal Head, Retrofit. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(2) of the Standard Specifications and the recommended load requirements of light emitting diode (LED) traffic signal modules, pedestrian signal modules, and pedestrian countdown signal modules as specified in the plans. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

Basis of Payment. Modifying an existing controller cabinet will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER CABINET. This shall include all material and labor required to complete the work as described above, the removal and disposal of all items removed from the controller cabinet, as directed by the Engineer. The equipment for the Uninterruptible Power Supply (UPS) and labor to install it in the existing controller cabinet shall be included in the pay item Uninterruptible Power Supply. Modifying an existing controller will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER, per Sections 895.04 and 895.08 of the Standard Specifications.

DIVISION 1000 MATERIALS

PEDESTRIAN PUSH-BUTTON.

Revise Article 1074.02(a) of the Standard Specifications to read:

The pedestrian push-button housing shall be constructed of aluminum alloy according to ASTM B 308 6061-T6 and powder coated yellow, unless otherwise noted on the plans. The housing shall be furnished with suitable mounting hardware.

Revise Article 1074-02(e) of the Standard Specifications to read:

Stations shall be designed to be mounted directly to a post, mast arm pole or wood pole. The station shall be aluminum and shall accept a 3 inch (75mm) round push-button assembly and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9 x 15 inch sign with arrow(s) for a count-down pedestrian signal. The pedestrian station size without count-down pedestrian signals shall accommodate a MUTCD sign series R10-3b or R10-3d 9 x 12 inch sign with arrow(s).

Add the following to Article 1074.02(a) of the Standard Specifications:

(f) Location. Pedestrian push-buttons and stations shall be mounted directly to a post, mast arm pole or wood pole as shown on the plans and shall be fully accessible from a paved or concrete surface. See the District's Detail sheets for orientation and mounting details.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) 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 – Plug-in type EDCO SHA-1250 or Atlantic/Pacific approved equal.

(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 – One (1) 200 watt, thermostatically-controlled, Hoffman electric heater, or approved equivalent.

(b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a wall switch. Relume Traffic Control Box LED Panels and power supply or approved equivalent.

(b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 ½ inch (38mm) deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lbs. (23 kg) in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 24 inches (610mm) wide.

(b) (14) Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.

(b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.

(b) (16) Field Wiring Labels – All field wiring shall be labeled.

(b) (17) Field Wiring Termination – Approved channel lugs required.

(b) (18) Power Panel – Provide a nonconductive shield.

(b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.

(b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.

(b) (21) Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET.

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. 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.

UNINTERRUPTIBLE POWER SUPPLY (UPS).

Revise Article 1074.04(a)(1) of the Standard Specifications to read:

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/1000 VA active output capacity, with 90 percent minimum inverter efficiency). The UPS shall be Ethernet compatible (IP addressable).

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

The UPS shall have a minimum of four (4) 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.

Revise Article 1074.04(a)(10) of the Standard Specifications to read:

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.

Revise Article 1074.04(a)(17) of the Standard Specifications to read:

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

Revise Article 1074.04(b)(2)b of the Standard Specifications to read:

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.

Revise Article 1074.04(b)(2)c of the Standard Specifications to read:

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.

Revise Article 1074.04(b)(2)e of the Standard Specifications to read:

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).

UPS
End of paragraph 1074.04(b) (2)e

The door shall be equipped with a two position doorstop, one a 90° and one at 120°.

Revise Article 1074.04(b)(2)g of the Standard Specifications to read:

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.

Add the following to Article 1074.04(b)(2) of the Standard Specifications:

j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

(8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.

(9) 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.

Battery System.
Revise Article 1074.04(d)(3) of the Standard Specifications to read:

All batteries supplied in the UPS shall be 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.

Revise Article 1074.04(d)(4) of the Standard Specifications to read:

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.

Add the following to Article 1074.04(d) of the Standard Specifications:

(9) 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.

Add the following to the Article 1074.04 of the Standard Specifications:

(e) 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.

ELECTRIC CABLE.

Delete "or stranded, and No. 12 or" from the last sentence of Article 1076.04 (a) of the Standard Specifications.

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

TRAFFIC SIGNAL POST.

Add the following to Article 1077.01 (d) 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 in accordance with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

PEDESTRIAN PUSH-BUTTON POST.

Add the following to Article 1077.02(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 in accordance with Traffic Signal Painting in Division 800 of these 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 in accordance with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall be constructed and designed to allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet. All mounting hardware shall be stainless steel.

LIGHT EMITTING DIODE (LED) TRAFFIC SIGNAL HEAD.

Add the following to Section 1078 of the Standard Specifications:

General.
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" displays. Egg crate sun shields are not permitted.

Signal heads shall be positioned according to the "District One Standard Traffic Signal Design Details."

LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Articles 1078.01 and 1078.02 of the Standard Specifications 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 applicable successor ITE specifications, 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.

(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 Articles 1078.01 and 1078.02 the Standard Specifications 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) or applicable successor ITE specifications.

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. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

3. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

4. 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.

5. 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.

6. 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) or applicable successor ITE specifications 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).

LIGHT EMITTING DIODE (LED) PEDESTRIAN COUNTDOWN SIGNAL HEAD.

Add the following to Article 1078.02 of the Standard Specifications:

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.

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.

TRAFFIC SIGNAL BACKPLATE.

Delete 1st sentence of Article 1078.03 of the Standard Specifications and add "All backplates shall be aluminum and louvered".

Add the following to the third paragraph of Article 1078.03 of the Standard Specifications. The reflective backplate shall not contain louvers.

Delete second sentence of the fourth paragraph of Article 1078.03 f the Standard Specifications.

Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

When retro reflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the manufacturer's recommendations. The retro reflective sheeting shall be installed under a controlled environment at the manufacturer/supplier before shipment to the contractor. The aluminum backplate shall be prepared and cleaned, following recommendations of the retro reflective sheeting manufacturer.

INDUCTIVE LOOP DETECTOR.

Add the following to Article 1079.01 of the Standard Specifications:

Contracts requiring new cabinets shall provide for rack mounted detector amplifier cards. Detector amplifiers shall provide LCD displays with loop frequency, inductance, and change of inductance readings.

ILLUMINATED SIGN, LIGHT EMITTING DIODE.

Delete last sentence of Article 1084.01(a) and add "Mounting hardwire shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and bracket specified herein and shall provide tool free access to the interior."

Revise the second paragraph of Article 1084.01(a) to read:

The exterior surface of the housing shall be acid-etched and shop painted with one coat of zinc-chromate primer and two coats of exterior enamel. The housing shall be the same color (yellow or black) to match the existing or proposed signal heads. The painting shall be according to Section 851.

Add the following to Article 1084.01 (b) of the Standard Specifications:

The message shall be formed by rows of LEDs. The sign face shall be 24 inches (600 mm) by 24 inches (600 mm).

Add the following to Article 1084.01 of the Standard Specifications:

(e) 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.

ILLUMINATED STREET NAME SIGN

The illuminate street name sign shall be as follows.

(a) Description.
The LEDs shall be white in color and utilize InGaN or UV thermally efficient technology. The LED Light Engines shall be designed to fit inside a standard fluorescent illuminated street sign housing in lieu of fluorescent lamps and ballasts or a slim line type housing. The LED internally-illuminated street name sign shall display the designated street name clearly and legibly in the daylight hours without being energized and at night when energized. The sign assembly shall consist of a four-, six-, or eight-foot aluminum housing. White translucent 3M DG^3 reflective sheeting sign faces with the street name applied in 3M/Scotchlite Series 1177 or current 3M equivalent transparent green shall be installed in hinged doors on the side of the sign for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

(b) Environmental Requirements.
The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50°C (-40 to +122°F) for storage in the ambient temperature range of -40 to +75°C (-40 to +167°F).

(c) General Construction.
1. The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply must be designed to fit and mounted on the inside wall at one end of the street sign housing. The LED Light Engine shall be mounted within the inner top portion of the housing and no components of the light source shall sit between the sign faces.

2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI, C136.31-2001 standards.

(d) Mechanical Construction.
1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum top with a minimum thickness of .140" x 10 ¾" deep (including the drip edge). The extruded aluminum bottom is .094" thick x 5 7/8" deep. The ends of the housing shall be cast aluminum with a minimum thickness of .250". A six-foot sign shall be 72 5/8" long and 22 5/16" tall and not weigh more than 77 pounds. An eight-foot sign shall be 96 5/8" long and 22 5/16" tall and not weigh more than 92 pounds. All corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal around the entire housing.

2. The door shall be constructed of extruded aluminum. Two corners are continuous TIG welded with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length, .040" x 1 1/8" open stainless steel hinge. The door shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by three (six total for two-way sign) quarter-turn fasteners to form a watertight seal between the door and the housing.

3. The sign face shall be constructed of .125" white translucent polycarbonate. The letters shall be 8" upper case and 6" lower case. The sign face legend background shall consist of 3M/Scotchlite Series 4090T or current equivalent 3M translucent DG^3 white VIP (Visual Impact Performance) diamond grade sheeting (ATSM Type 9) and 3M/Scotchlite Series 1177 or current 3M equivalent transparent green acrylic EC (electronic cut-able) film applied to the front of the sign face. The legend shall be framed by a white polycarbonate border. A logo symbol and/or name of the community may be included with approval of the Engineer.

4. All surfaces of the sign shall be etched and primed in accordance to industry standards before receiving appropriate color coats of industrial enamel.

5. All fasteners and hardware shall be corrosion resistant stainless steel. No tools are required for routine maintenance.

6. All wiring shall be secured by insulated wire compression nuts.

7. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and provide a weather tight seal.

8. A photoelectric switch shall be mounted in the control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.

9. Brackets and Mounting: LED internally-illuminated street name signs will be factory drilled to accommodate mast arm two-point support assembly mounting brackets.

(e) Electrical.

1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.

2. The LED Light Engine shall operate from a 60 +- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +- 10%.

3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage, and at a temperature of +25°C (+77°F), shall not exceed 20%.

4. The LED Light Engine shall cycled ON and OFF with a photocell as shown on the detail sheet and shall not exceed the following maximum power values:

4-Foot Sign	60 W
6-Foot Sign	90 W
8-Foot Sign	120 W

The signs shall not be energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power source (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m^2.

2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.

3. Twelve (12) 1.25 watt LED units shall be mounted on 1-inch x 22-inch metal cone printed circuit boards (MCPCB). The viewing angle shall be 120 degrees. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) Quality Assurance.

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes. LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL) (D-1)
Effective: January 1, 2002
Revised: January 1, 2007

This work shall consist of furnishing and installing a(n) " Siemens (Eagle) " brand traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of the current District One Traffic Signal Special Provisions including conflict monitor, load switches and flasher relays, with all necessary connections for proper operation..

Basis of Payment. This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET (SPECIAL) or FULL-ACTUATED CONTROLLER AND TYPE V CABINET (SPECIAL).

REBUILD EXISTING HANDHOLE (D-1)
Effective: January 1, 2002
Revised: January 1, 2007

This item shall consist of rebuilding and bringing to grade a hand hole at a location shown on the plans or as directed by the Engineer. The work shall consist of removing the hand hole frame and cover and the walls of the hand hole to a depth of eight (8) inches below the finished grade.

Upon completion of the above work, four (4) holes, four (4) inches in depth and, one half (1/2) inch in diameter, shall be drilled into the remaining concrete; one hole centered on each of the four handhole walls. Four (4) #3 steel dowels, eight (8) inches in length, shall be furnished and shall be installed in the drilled holes with a masonry epoxy.

All concrete debris shall be removed from State right-of-way to a location approved by the Engineer.

The area adjacent to each side of the handhole shall be excavated to allow forming. All steel hooks, handhole frame, cover, and concrete shall be provided to construct a rebuilt handhole according to applicable portions of the current District One Traffic Signal Specifications. (The existing frame and cover shall be replaced if it was damaged during removal or as determined by the Engineer.)

Basis of Payment. This work shall be paid for at the contract unit price each for REBUILD EXISTING HANDHOLE, which price shall be payment in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings.

EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C

This work shall consist of furnishing and installing lead-in cable for light detectors installed at existing and/or proposed traffic signal installations as part of an emergency vehicle priority system. The work includes installation of the lead-in cables in existing and/or new conduit. The electric cable shall be shielded and have three (3) stranded conductors colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the manufacturer of the Emergency Vehicle Priority System Equipment.

Basis of Payment. This work will be paid for at the contract unit price per foot for EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operation.

TEMPORARY TRAFFIC SIGNAL TIMING
Effective: November 28, 2012

This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impacts to existing traffic signal timings caused by construction, detours or other temporary conditions.

This work shall be in accordance with all applicable portions of the IDOT District 1 Traffic Signal Specifications, as contained in this contract, for Temporary Traffic Signal Timings except as modified herein.

This item shall include the following intersections, which are also on the detour route:

1. IL 25 @ W Bartlett Rd.
2. IL 25 @ W Stearns Rd.
3. Dunham Rd. @ Army Trail Rd. (Co Rd 11)
4. Kirk Rd. @ Fox Chase Dr.
5. Kirk Rd. @ Foxfield Dr.
6. Kirk Rd. @ Main St. (IL 64)
7. E. Main St. (IL 64) @ Lakeside Dr.
8. E. Main St. (IL 64) @ Dunham Rd.
9. E. Main St. (IL 64) @ S Tyler Rd.
10. E. Main St. (IL 64) @ S. 7th Ave.
11. E. Main St. (IL 64) @ N. 5th Ave. (IL 25)
12. IL 25 @ Country Club Rd.
13. IL 25 @ Red Gate Rd.
14. E. Main St. (IL 64) @ Riverside Ave.
15. E. Main St. (IL 64) @ S. 1st St.
16. E. Main St. (IL 64) @ 2nd St. (IL 31)
17. IL 31 @ Red Gate Rd.
18. IL 31 @ S McLean Blvd.
19. Stearns Rd @ S McLean Blvd.
20. IL 25 @ Gilbert St.
21. IL 25 @ Dunham Rd.

This item shall include the following intersections which have multiply temporary traffic signal setups, for the various construction stages, for the intersections listed:

1. IL 25 @ W Stearns Rd.
2. IL 25 @ Gilbert St.
3. IL 25 @ Dunham Rd.

This work shall include making all timings and adjustments to the above intersections necessary from the first day of construction until the completion of construction on this contract.

The contractor shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.

Basis of Payment. This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMING, 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. All other listed intersections will be paid 50 percent of the bid price after 2 weeks from the start of construction on this contract. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation and/or after returning the traffic signal timing to its existing condition at all other intersections listed at the completion of construction on this contract.

PIPE DRAINS 12" (SPECIAL)

Description: This work shall consist of installing corrugated metal pipe culverts under the UPRR temporary shoo-fly track at locations shown on the plans. The work shall be completed complying with the attached UPRR Bridge Standards.

Basis of Payment: This work shall be paid for at the contract unit price per foot for PIPE DRAINS 12" (SPECIAL). Payment for this item shall include all labor, equipment, and material, including pipe bedding and riprap, required to complete the work as herein specified.

IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION (TPG)

Effective: August 1, 2012

In addition to the Contractor's equal employment opportunity affirmative action efforts undertaken as elsewhere required by this Contract, the Contractor is encouraged to participate in the incentive program to provide additional on-the-job training to certified graduates of IDOT's community college pre-apprenticeship programs outlined by this Special Provision.

It is the policy of IDOT to fund IDOT pre-apprenticeship training programs based at Illinois Community Colleges throughout Illinois, by Intergovernmental Agreement with the Illinois Community College Board, to provide training and skill-improvement opportunities to assure the increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The intent of this IDOT Training Program Graduate (TPG) Special Provision is to place certified graduates of these IDOT funded pre-apprentice training programs on IDOT project sites when feasible, and provide the graduates with meaningful on-the-job training intended to lead to journey-level employment. IDOT and its sub-recipients, in carrying out the responsibilities of a state contract, shall determine which state funded construction contracts shall include "Training Program Graduate (TPG) Special Provisions." To benefit from the incentives to encourage the participation in the additional on-the-job training under this Training Program Graduate (TPG) Special Provision, the Contractor shall make every reasonable effort to employ certified graduates of the IDOT funded Pre-apprenticeship Training Program to the extent such persons are available within a reasonable recruitment area.

Participation pursuant to IDOT's requirements by the Contractor or subcontractor in this Training Program Graduate (TPG) Special Provision entitles the Contractor or subcontractor to be reimbursed at $10.00 per hour for training given a certified graduate trainee on this contract. As approved by the Department, reimbursement will be made for training persons as specified herein. This reimbursement will be made even though the Contractor or subcontractor may receive additional training program funds from other sources for other trainees, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving other reimbursement. For purposes of this Special Provision the Contractor is not relieved of requirements under the Illinois Prevailing Wage Act and is not eligible for other training fund reimbursements in addition to the Training Program Graduate (TPG) Special Provision reimbursement.

No payment shall be made to the Contractor if the Contractor or subcontractor fails to provide the required training. It is normally expected that a TPG will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project through completion of the contract, so long as training opportunities exist in his work classification or until he has completed his training program. Should the TPG's employment end in advance of the completion of the contract, the Contractor shall promptly notify the designated IDOT staff member under this Special Provision that the TPG's involvement in the contract has ended and supply a written report of the reason for the end of the involvement, the hours completed by the

TPG under the Contract and the number of hours for which the incentive payment provided under this Special Provision will be or has been claimed for the TPG.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting its performance under this Special Provision.

METHOD OF MEASUREMENT: The unit of measurement is in hours.

BASIS OF PAYMENT: This work will be paid for at the contract unit price of $10.00 per hour for TRAINEES TRAINING PROGRAM GRADUATE. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

The Contractor shall provide training opportunities aimed at developing full journeyworker in the type of trade or job classification involved. The initial number of TPGs for which the incentive is available under this contract is 4. During the course of performance of the Contract the Contractor may seek approval from the Department for additional incentive eligible TPGs. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the TPGs are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this Special Provision. The Contractor shall also insure that this Training Program Graduate Special Provision is made applicable to such subcontract if the TPGs are to be trained by a subcontractor and that the incentive payment is passed on to each subcontractor.

For the Contractor to meet the obligations for participation in this TPG incentive program under this Special Provision, the Department has contracted by Intergovernmental Agreement with the Illinois Community College Board to provide screening, tutoring and pre-training to individuals interested in working in the applicable construction classification and has certified those students who have successfully completed the program and are eligible to be TPGs. A designated IDOT staff member, the Director of the Office of Business and Workforce Diversity (OBWD), will be responsible for providing assistance and referrals to the Contractor for the applicable TPGs. For this contract, the Director of OBWD is designated as the responsible IDOT staff member to provide the assistance and referral services related to the placement for this Special Provision. For purposes of this Contract, contacting the Director of OBWD and interviewing each candidate he/she recommends constitutes reasonable recruitment.

Prior to commencing construction, the Contractor shall submit to the Department for approval the TPGs to be trained in each selected classification. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. No employee shall be employed as a TPG in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. Notwithstanding the on-the-job training purpose of this TPG Special Provision, some offsite training is permissible as long as the offsite training is an integral part of the work of the contract and does not comprise a significant part of the overall training.

Training and upgrading of TPGs of IDOT pre-apprentice training programs is intended to move said TPGs toward journeyman status and is the primary objective of this Training Program

Graduate Special Provision. Accordingly, the Contractor shall make every effort to enroll TPGs by recruitment through the IDOT Illinois Community College Program to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance and entitled to the Training Program Graduate TPG Special Provision $10.00 an hour incentive.

The Contractor or subcontractor shall provide each TPG with a certification showing the type and length of training satisfactorily completed.

CCP RR / CN SPECIAL PROVISIONS

CCP / CN RR REQUIREMENTS FOR THE WORK NEAR OR UNDER CN RR

This section includes the CC&P & RR (CN) Special Provisions and requirements for working near or under Railroad at the following locations:

- Right of Entry Permit Application
- Flagging Special Provision
- Pipeline Crossing Specifications

IMPORTANT NOTICE

CORPORATIONS

Agreement must be signed by the President or a Vice President of the Corporation or Company, or be accompanied by a certified resolution of the Board of Directors authorizing execution by a lesser official.

PARTNERSHIP

Agreement must be signed by all of the partners.

MUNICIPALITIES OR GOVERNMENTAL AGENCIES

Agreement must be accompanied by a certified resolution authorizing the official signing the agreement to execute on behalf of the Governmental Body. The resolution should not be certified by the same official who executed the agreement.

RIGHT OF ENTRY

The _____ Railroad Company (hereinafter referred to as the Railroad Company) hereby grants to _____ (hereinafter called the Licensee) license and permission, at the Licensee's sole cost, risk and expense, to enter the Railroad Company's property in the vicinity of _____, Railroad Milepost _____, _____ Subdivision for purposes related to _____ near _____, IL on, over and near the Railroad Company's tracks and right-of-way, as generally shown on Location Exhibit, attached hereto and made a part hereof.

Licensee shall pay to the Railroad Company upon execution of this agreement the sum of **$750.00** to cover preparation and administration of this agreement. The aforesaid sum is not refundable in the event Licensee elects not to enter upon the Railroad Company's property or the event the Railroad Company elects to terminate this license for any reason whatsoever.

The Licensee shall not enter the Railroad Company's premises for the purpose as set forth above without having first given the Railroad Company's Senior Engineering Manager or his authorized representative at least five (5) days' advance notice of the date Licensee plans to commence the work.

The Railroad Company shall have the right, but not the duty, to require the Licensee to furnish detailed plans prior to entry upon the premises and to view and inspect any activity or work on or above the Railroad Company's property. If in the sole opinion of the authorized representative of the Railroad Company any said activity or work is undesirable for any reason, the Railroad Company shall have the right to terminate this agreement and the Licensee's license and permission at once.

The Railroad Company shall have the right, but not the duty, to restrict the Licensee's activity on the Railroad Company's property in any way that the Railroad Company may, in its sole opinion, deem necessary from time to time and shall also have the right, but not the duty, to require the Licensee to adopt and take any safety precautions that the Railroad Company may, in its sole opinion, deem necessary from time to time. No work shall be performed or equipment located within twenty-five feet (25') of the centerline of the nearest railroad track without the expressed permission of the Railroad Company's Senior Engineering Manager or his duly authorized representative and then only when either the track has been removed from service or a Railroad Company flagman is present.

The Railroad Company may, at the Licensee's sole cost, risk and expense, furnish whatever protective services it considers necessary, including, but not limited to, flagmen, watchmen and inspectors.

The Licensee shall at all times conduct its work in accordance with any and all "Special Provisions" which may be appended hereto which, by reference hereto, are hereby made a part hereof.

AS A CONSIDERATION AND AS A CONDITION, WITHOUT WHICH THIS LICENSE WOULD NOT HAVE BEEN GRANTED, LICENSEE AGREES TO INDEMNIFY AND SAVE HARMLESS RAILROAD COMPANY, ITS PARENT, AFFILIATES, AND THEIR

DIRECTORS, OFFICERS, EMPLOYEES AND AGENTS AND TO ASSUME ALL LIABILITY FOR DEATH OR INJURY TO ANY PERSONS, INCLUDING, BUT NOT LIMITED TO, OFFICERS, EMPLOYEES, AGENTS, PATRONS AND LICENSEES OF THE PARTIES HERETO, AND FOR ALL LOSS, DAMAGE OR INJURY TO ANY PROPERTY, INCLUDING, BUT NOT LIMITED TO, THAT BELONGING TO THE PARTIES HERETO, TOGETHER WITH ALL EXPENSES, ATTORNEYS' FEES AND COSTS INCURRED OR SUSTAINED BY RAILROAD COMPANY, WHETHER IN DEFENSE OF ANY SUCH CLAIMS, DEMANDS, ACTIONS AND CAUSES OF ACTION OR IN THE ENFORCEMENT OF THE INDEMNIFICATION RIGHTS HEREBY CONFERRED, IN ANY MANNER OR DEGREE CAUSED BY, ATTRIBUTABLE TO OR RESULTING FROM THE EXERCISE OF THE RIGHTS HEREIN GRANTED, OR THE FAILURE OF THE LICENSEE TO CONFORM TO CONDITIONS OF THIS LICENSE, WORK PERFORMED BY THE RAILROAD COMPANY FOR THE LICENSEE UNDER THE TERMS OF THIS LICENSE OR THE CONSTRUCTION, MAINTENANCE, REPAIR, RENEWAL, ALTERATION, CHANGE, RELOCATION, EXISTENCE, PRESENCE, USE, OPERATION OR REMOVAL OF ANY STRUCTURE INCIDENT THERETO, OR FROM ANY ACTIVITY CONDUCTED ON OR OCCURRENCE ORIGINATING ON THE AREA COVERED BY THIS AGREEMENT, REGARDLESS OF ANY NEGLIGENCE OF RAILROAD COMPANY, ITS OFFICERS, EMPLOYEES AND AGENTS. SAID LICENSEE AGREES ALSO TO RELEASE, INDEMNIFY AND SAVE HARMLESS RAILROAD COMPANY, ITS OFFICERS, EMPLOYEES AND AGENTS FROM ALL LIABILITY TO LICENSEE, ITS OFFICERS, EMPLOYEES, AGENTS OR PATRONS, RESULTING FROM RAILROAD OPERATIONS AT OR NEAR THE AREA IN WHICH THE LICENSE IS TO BE EXERCISED, WHETHER OR NOT THE DEATH, INJURY OR DAMAGE RESULTING THEREFROM MAY BE DUE TO WHOLE OR IN PART TO THE NEGLIGENCE OF THE RAILROAD COMPANY, ITS OFFICERS, EMPLOYEES OR AGENTS. AT THE ELECTION OF RAILROAD COMPANY, THE LICENSEE, UPON NOTICE TO THAT EFFECT SHALL ASSUME OR JOIN IN THE DEFENSE OF ANY CLAIM BASED UPON ALLEGATIONS PURPORTING TO BRING SAID CLAIM WITHIN THE COVERAGE OF THIS SECTION.

Before commencing work and until this Agreement shall be terminated, the LICENSEE shall provide and maintain the following insurance in form and amount with companies satisfactory to and as approved by the RAILROAD.

a. Statutory Workers Compensation and Employer's Liability insurance.

b. Automobile Liability in an amount not less than $1,000,000 dollars combined single limit.

c. Comprehensive General Liability (occurrence form) in an amount not less than $5,000,000 dollars per occurrence, with an aggregate limit of not less than $10,000,000 dollars. **The Policy must name the appropriate RAILROAD and its Parents** as additional insureds in the following form:

RAILROAD name and its Parents
Attn: Rob Glass
17641 South Ashland Avenue
Homewood, IL 60430
708.332.6673 (office)
Rob.Glass@cn.ca

The Policy must not contain any exclusions related to:

1. Doing business or undertaking construction or demolition on, near, or adjacent to railroad facilities.

2. Loss or damage resulting from surface, subsurface pollution contamination or seepage, or handling, treatment, disposal, or dumping of waste materials or substances.

Before commencing work, the LICENSEE shall deliver to the RAILROAD a **CERTIFICATE OF INSURANCE** evidencing the foregoing coverage and upon request the LICENSEE shall deliver a certified, true and complete copy of the policy or policies. The policies shall provide for not less that ten (10) days prior written notice to the RAILROAD of cancellation of or any material change in, the policies; **and shall contain the waiver of right of subrogation.**

It is understood and agreed that the foregoing insurance coverage is not intended to, and shall not, relieve the LICENSEE from or serve to limit LICENSEE's liability under the indemnity provisions of any applicable agreement.

It is further understood and agreed that, so long as the Agreement shall remain in force or the FACILITY shall have been removed (whichever shall be later), the RAILROAD shall have the right, from time to time, to revise the amount or form of insurance coverage provided as circumstances or changing economic conditions may require. The RAILROAD shall give the LICENSEE written notice of any such requested change at least thirty (30) days prior to the date of expiration of the then existing policy or policies; and the LICENSEE agrees to, and shall, thereupon provide the RAILROAD with such revised policy or policies thereof.

If a contractor is to be employed by the Licensee for the installation of the FACILITY, then, before commencing work, the contractor shall provide and maintain the following insurance, in form and amount and with companies satisfactory to, and as approved by, the RAILROAD.

a. Statutory Workers' Compensation and Employer's Liability insurance.

b. Automobile Liability in an amount not less than $1,000,000 dollars combined single limit.

c. An Occurrence Form Railroad Protective Policy with limits of not less that $5,000,000 dollars per occurrence, with $10,000,000 dollars aggregate, for the term of the policy with respect of Bodily Injury, Liability, Property Damage Liability and Physical Damage to Property. **The Policy must name the appropriate RAILROAD and its Parents** Insured in the following form:

RAILROAD name and its Parents
Attn: Rob Glass
17641 South Ashland Avenue
Homewood, IL 60430
708.332.6673 (office)
Rob.Glass@cn.ca

and shall provide for not less than ten (10) days prior written notice to the RAILROAD of cancellation of, or any material change in, the policy.

All insurance submittals for approval are to be directed to Rob Glass at address and/or email shown above.

The Railroad Company's exercise or failure to exercise any rights under this agreement shall not relieve the Licensee of any responsibility under this agreement, including, but not limited to, the obligation to indemnify the Railroad Company as herein provided.

Cost and expense for work performed by the Railroad Company, as referred to in this agreement, shall consist of the actual cost of labor, materials, equipment and other plus the Railroad Company's standard additives in effect at the time the work is performed.

This license and permission herein granted is revocable at the option and discretion of the Railroad Company upon notice to the Licensee and shall not be transferred or assigned. Unless sooner revoked by the Railroad Company, extended at request of Licensee and granted by Railroad Company in writing, or relinquished by act of the Licensee, this license and permission **shall terminate on** _____.

Upon termination of this license, the Licensee shall remove all of its property, leaving the Railroad Company's premises in a neat and safe condition satisfactory to the Railroad Company's Senior Engineering Manager or his authorized representative, failing in which the Railroad Company may do so at the Licensee's sole cost, risk and expense.

_____

By: _____

Print Name: _____

Title: _____

ACCEPTED:

_____

By: _____

Print Name: _____

Title: _____

_____ Railroad Company - Original

SPECIAL PROVISIONS

RELATIVE TO FLAGGING AND OTHER PROTECTION OF RAILROAD COMPANY TRAFFIC AND FACILITIES DURING CONSTRUCTION ADJACENT AND ABOVE, ON OR ACROSS, THE PROPERTY OF, OR ON, ABOVE AND BENEATH THE TRACKS OF THE _____ RAILROAD COMPANY

The Grantee, Licensee, Permittee and/or its Contractor shall, before entering upon the property of the Railroad Company for performance of any work, secure a right of entry agreement and permission from the Railroad Company's Senior Engineering Manager or his authorized representative for the occupancy and use of the Railroad Company's property. The Grantee, Licensee, Permittee and/or its Contractor shall confer with the Railroad Company relative to requirements for railroad clearances, operation and general safety regulations. Prior to any entry onto Railroad Company's property, the employees and/or subcontractors of the Grantee, Licensee, Permittee and/or its Contractor doing work on CN's property shall complete all necessary registration procedures and the Railroad Safety and Railroad Security Awareness training thru e-RailSafe at www.e-railsafe.com. Prior to contacting e-RailSafe, the Grantee, Licensee, Permittee and/or its Contractor shall contact CN Special Agent James Conroy at telephone 708-332-5947 or James.Conroy@cn.ca to obtain a CN "Vendor Number" and determine the level of required safety training. Mr. Conroy will determine by the work to be performed the level of safety training to be required, and whether or not background checks will be required of the employees and/or subcontractors of the Grantee, Licensee, Permittee and/or its Contractor. If required, and prior to entry onto Railroad Company's property, such the employees and/or subcontractor must successfully complete a mandatory background check. If the work will or may foul the track at any time, and before entering the Railroad Company's property, all employees of the Grantee, Licensee, Permittee and/or its Contractor must also complete the On-Track Safety Training course approved by Railroad Company and provided by R.R. Safety – AMR, P.O. Box 75, Lomira, WI 53048, telephone (920) 517-1677, email rrsafetytraining@yahoo.com.

Minimum information required of the Grantee, Licensee, Permittee and/or Contractor when contacting either Special Agent James Conroy or e-RailSafe is Name, Address, Telephone, Contact Person for State Projects, DOT Contract Number, and the AAR/DOT Number. The employees, subcontractors, and/or agents of the Grantee, Licensee, Permittee and/or its Contractor shall qualify for, and make available for inspection to Railroad Company's employees or other authorized personnel at all times while on Railroad Company property, a photo identification issued by www.e-railsafe.com, along with at least one other government-issued form of identification. The Grantee, Licensee, Permittee and/or its Contractor shall bear all costs of compliance with the requirements of this Section. Railroad Company reserves the right to bar any of employees or agents of the Grantee, Licensee, Permittee and/or its Contractor from Railroad Company's property at any time for any reason.

The Grantee, Licensee, Permittee and/or its or any Contractor engaged on its behalf, shall at all times conduct their work in a manner satisfactory to the Senior Engineering Manager of the Railroad Company, or his authorized representative, and shall exercise care so as to not damage the property of the Railroad Company, or that belonging to any other grantees, licensees, permitees or tenants of the Railroad Company, or to interfere with railroad operations.

The Senior Engineering Manager of Railroad Company, or his authorized representative, will at all times have jurisdiction over the safety of railroad operations, and the

decision of the Senior Engineering Manager or his authorized representative as to procedures which may affect the safety of railroad operations shall be final, and the Licensee, and/or any contractor engaged on its behalf shall be governed by such decision.

All work shall be conducted in such a manner as will assure the safety of the Railroad Company. The Railroad Company's authorized representative shall have the right, but not the duty, to require certain procedures to be used or to supervise the work on the Railroad Company's property.

Should any damage occur to Railroad Company property as a result of the unauthorized or negligent operations of any Grantee, Licensee, Permittee and/or any Contractor engaged on its behalf, and the Railroad Company deems it necessary to repair such damage or perform any work for the protection of its property or operations, the Grantee, Licensee, Permittee and/or Contractor, as the case may be, shall promptly reimburse the Railroad Company for the actual cost of such repairs or work. For the purpose of these Special Provisions, cost shall be deemed to include the direct cost of any labor, materials, equipment, or contract expense plus the Railroad Company's then current customary additives in each instance.

If the work requires the construction of a temporary grade crossing across the track(s) of the Railroad Company, the Grantee, Licensee, Permittee and/or its Contractor shall make the necessary arrangements with the Railroad Company for the construction, protection, maintenance, and later removal of such temporary grade crossing. The cost of such temporary grade crossing construction, protection, maintenance, and later removal shall be promptly reimbursed to the Railroad Company upon receipt of bill(s) therefor.

The Grantee, Licensee, Permittee and/or its Contractor shall at no time cross the Railroad Company's property or tracks with vehicles or equipment of any kind or character, except at such temporary grade crossing as may be constructed as outlined herein, or at any existing and open public grade crossing.

Any flagging protection, watchmen service or standby personnel required by Railroad Company for the safety of railroad operations because of work being conducted by a Grantee, Licensee, Permittee and/or its Contractor, or in connection therewith, will be provided by the Railroad Company and the cost thereof shall be pre-paid, to the Railroad Company by the respective Grantee, Licensee, Permittee or Contractor upon receipt of bill(s) therefore. The requirements of the Railroad Company are as follows:

The services of a flagman will be required during any operation involving direct interference with the Railroad Company's tracks or traffic, fouling of railroad operating clearances, or reasonable proximity of accidental hazard to railroad traffic, when work takes place within twenty-five (25) feet horizontally of the nearest centerline, any work over any railroad track, or in any other condition that the Railroad Company deems the services of a flagman necessary, which may include work on Railroad Company's property more than twenty-five (25) feet from the nearest centerline of a railroad track. Additional flagmen will also be furnished whenever, in the opinion of Railroad Company such protection is needed.

Before any digging, trenching, or boring activities on Railroad Company property, or beneath any railroad track, an on-site meeting shall be conducted with the Railroad Company's Signal Supervisor or Signal Maintainer to ascertain, to the extent possible, the location of any buried railroad signal cables near the proposed work. No digging, trenching

or boring activities shall be conducted in the proximity of any known buried Railroad Company signal cables without the Railroad Company's Signal Maintainer being present.

In order that the Railroad Company may be prepared to furnish protective services, it is incumbent upon the Grantee, Licensee, Permittee, and/or its Contractor to complete the Railroad Company's "Request for Flagging Services" form hereto attached, and notify Railroad Company sufficiently in advance of when the protective services are required. For work activities which require a flagman, Signal Maintainer or other Railroad Company personnel to be present while said work is being conducted, should the Railroad Company be unable to furnish the flagman or other personnel at the desired time or on the desired date(s), the Grantee, Licensee, Permittee and/or its Contractor shall not perform the said operation or work until such time and date(s) that appropriate Railroad Company personnel can be made available. It is understood the Railroad Company shall not be liable for any increased costs incurred by the Grantee, Licensee, Permittee and/or its Contractor owing to Railroad Company's inability or failure to have appropriate Railroad Company personnel available at the time or on the date requested.

The rate of pay for the Railroad Company employees will be the prevailing hourly rate for an eight (8) hour day for the class of labor during regularly assigned work hours, overtime rates in accordance with Labor Agreements and Schedules and the Railroad Company's standard additives, all as in effect at the time the work is performed.

Wage rates are subject to change, at any time, by law or by agreement between the Railroad Company and employees, and may be retroactive because of negotiations or a ruling by an authorized Governmental Agent. If the wage rates are changed, the Grantee, Licensee, Permittee, and/or its Contractor shall pay on the basis of the new rates.

No digging, trenching, or boring on Railroad Company property shall be conducted without Railroad Company's written approval of the plans that were furnished in advance of the excavation.

The following temporary clearances are the minimum that must be maintained at all times during any operation:

Vertical: 22'-0" (7.00 m) above top of highest rail within 12'-0" (3.81 m) of the centerline of any track

Horizontal: 12'-0" (3.81 m) from centerline of the nearest track, measured at right angles thereto

If lesser clearances than the above are required for any part of the work, the Grantee, Licensee, Permittee and/or its Contractor shall secure written authorization from the Railroad Company's Senior Engineering Manager for such lesser clearances in advance of the start of that portion of the work.

No materials, supplies, or equipment will be stored within 15 feet of the centerline of any railroad track, measured at right angles thereto.

The Grantee, Licensee, Permittee and/or its Contractor will be required upon the completion of the work to remove from within the limits of the Railroad Company's property all machinery, equipment, surplus materials, false work, rubbish or temporary buildings, and to leave said property in a condition satisfactory to the Senior Engineering Manager of the Railroad Company or his authorized representative.

Nothing in these Special Provisions shall be construed to place any responsibility on the Railroad Company for the quality or conduct of the work performed by the Grantee, Licensee, Permittee and/or it's Contractor hereunder. Any approval given or supervision exercised by Railroad Company hereunder, or failure of Railroad Company to object to any work done, material used, or method of operation shall not be construed to relieve the Grantee, Licensee, Permittee and/or its Contractor of any obligations pursuant hereto or under the Agreement these Special Provisions are appended to.

Accepted: _____

Print Name: _____

Request for flagging services

Southern Region

TO: **CN** **Date submitted:** _____

Attn: Mary Ellen Carmody, Audit Officer
2800 Livernois, Suite 220
Troy, Michigan 48083
(248) 740-6227
(248) 740-6036 fax
maryellen.carmody@cn.ca

FROM: _____
(Name)

I am requesting a flagman for the following project. All blanks below must be completely filled in before any flagman request will be honored. Proof of Insurance must accompany this form. Flagman will be provided within five (5) business days, at your cost, depending on availability. Direct your calls concerning availability and problems to (248) 740-6227.

Project Location: _____

RR milepost, Street, etc. _____

Company: _____

Billing Address: _____

City: _____ State: _____ Zip: _____

Company Phone: _____ Company Fax: _____

**Agreement or Authorization No.: _____ Dated: _____

With: _____

Contractor's Contact Person: _____ Phone: _____

Date(s) Flagging needed: _____

Starting time: _____ Ending Time: _____

Location for flagman to report: _____

Prepayment for WEEKDAY flagman protection is required, and must be submitted by over-night delivery to the address shown at the top of this page. The prepayment amount will be based on the number of weekdays a flagman is required, at the base rate of $1000.00 per weekday (1-8 hour continuous period). Prepayment for WEEKEND flagman protection will be at the rate of $150.00 per hour, with an eight hour (8) minimum of $1,200.00. Any hours in excess of eight (8) continuous hours per flagman on either WEEKDAY or WEEKEND days are to be prepaid at the rate of $150.00 per hour. Hours of flagman protection provided in excess of prepayment amounts will be billed at the proper rate and will be promptly paid by over-night delivery.

If project will run longer than originally anticipated, MaryEllen Carmody must be contacted in advance, and an additional check for the overrun submitted by over-night delivery.

Cost for a railroad S&C cable locate is $250.00, and is to be prepaid by over-night delivery.

*** You must have an agreement with CN railroad subsidiary, such as a Right of Entry Permit, Formal Agreement or State, County, City Project Number and proof of insurance before you can enter the property.*

Description of work to be performed: _____

_____

_____

Will you receive State or Federal Funds as reimbursement for this project? Yes____ No____

I agree to pay for flagging services as requested: _____

Attach map or other location info and fax completed form with cover letter on your company's letterhead and proof of insurance to MaryEllen Carmody (248) 740-6036.

140

_____ Railroad Company - Original

CN

PIPELINE CROSSING SPECIFICATIONS

1. GENERAL REQUIREMENTS

Pipe lines under railroad tracks or across or along railroad right-of-way shall conform to current American Railway Engineering Association Specifications. If laws or orders of public authority prescribe a higher degree of protection than specified herein, then the higher degree of protection so specified shall be adhered to.

Plans and specifications for proposed installation shall be submitted to the CE (Chief Engineer) and meet the approval of the railroad company before construction is begun. Plans shall be drawn to scale showing the relation of the proposed pipeline, angle of crossing, location of valves, railway survey station, right-of-way line and general layout of tracks and railway facilities. Plan should also show a cross-section (or sections) from field survey, showing pipe in relation to actual profile of ground and tracks, complete description of materials to be used, and location of jacking and receiving pits. If open cutting or tunneling is necessary, details of sheeting and method of supporting tracks or driving tunnel should be shown. The execution of the work on the railway right-of-way, including the supporting of tracks, shall be subject to the inspection and direction of the CE office.

Pipelines shall be installed under tracks by boring or jacking, if practicable, boring excavation must not exceed the outside diameter of the pipe. Jacking or boring of corrugated metal pipe, cast iron pipe or pipe with flanges, bells or couplings will not be permitted. Directional boring will be allowed at the discretion of the Railroad. Soils investigation and a geotechnical report may be required.

Pipeline shall be located, where practicable, to cross tracks at approximately right angles thereto but preferably at not less than 45 degrees. Pipelines shall not be placed within a culvert, under railway bridges, nor closer than 100 feet to any portion of any railway bridge, building or other important structure, except in special cases and then be of special design as approved by the CE of the railway company.

Pipelines laid longitudinally in railway right-of-way shall be located as far as practicable from any tracks or other important structures. Pipelines carrying flammable products or products under pressure located within 25 feet of the centerline of any track or where there is danger of damage from leakage to any bridge, building or other important structure, shall be encased or of special design as approved by the CE of the railway company.

Pipelines laid longitudinally on the railway right-of-way, 50 feet or less from the centerline of track shall be buried not less than 4'6" from the ground surface to the top of pipe. If distance is more than 50 feet from centerline of track, minimum cover shall be 3 feet.

If additional tracks are constructed in the future and the Railway company determines that the roadbed requires widening, then the casing shall be extended correspondingly by the Licensee at the Licensee's cost.

All casing pipes, except those laid longitudinally, shall be sloped not less than 0.3%.

Pipelines shall not be installed on wood trestles but consideration will be given to permitting attachment to steel spans where unreasonable expense would be required to provide separate crossing over waterway, public way or railroad as approved by the CE.

The ends of casing pipe shall be securely and permanently sealed to outside of carrier pipe with approved joint material against encroachment of outside elements. The vent pipes shall be connected to the top surface of casing pipe at both ends of the casing pipe.

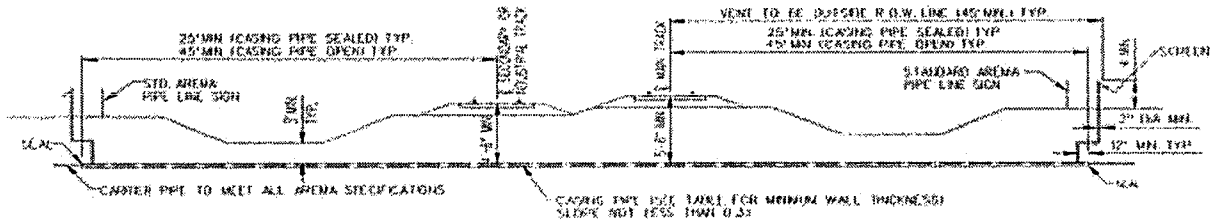
CN

PIPELINE CROSSING SPECIFICATIONS

1. PIPELINES CARRYING FLAMMABLE SUBSTANCES

This includes oil, gas, gasoline, petroleum products or other flammable or highly volatile substance under pressure.

PIPE LINES CARRYING FLAMMABLE SUBSTANCES.



ALL MINIMUM DIMENSIONS MEASURED NORMAL TO ℄ OF OUTSIDE TRACK.

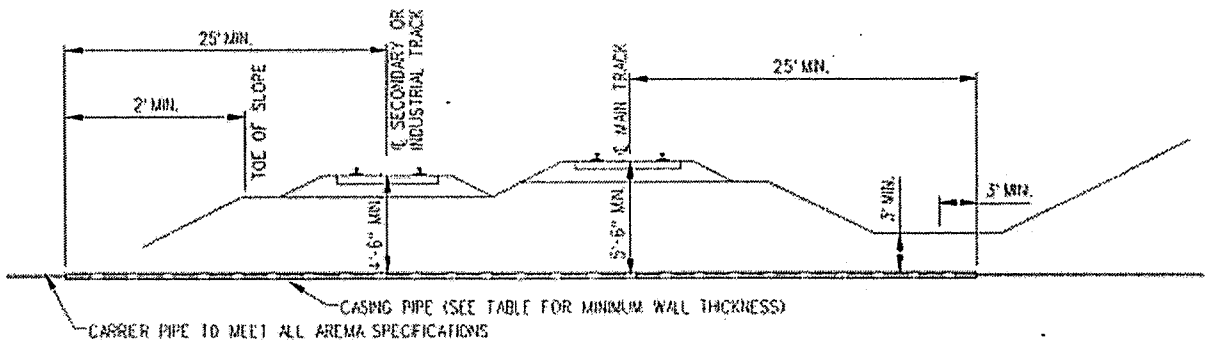
THIS DRAWING COVERS OIL, GASOLINE, PETROLEUM PRODUCTS, OR OTHER FLAMMABLE OR HIGHLY VOLATILE SUBSTANCE UNDER PRESSURE
NOTE: FOR NATURAL GAS PIPES ONLY, CASING PIPE MAY BE ELIMINATED IF PIPE IS STEEL AND INSTALLED A MINIMUM OF 10' BELOW TOP OF RAIL

feet.

2. PIPELINES CARRYING NON-FLAMMABLE SUBSTANCES

This includes steam, water or any non-flammable substance, which from its nature or pressure might cause damage if escaping on or in the vicinity or railway property. Sewers and drains do not require casing pipe unless conditions exist which will endanger security of track, but must be of sufficient strength to withstand E-80 railway loading.

PIPE LINES CARRYING NON-FLAMMABLE SUBSTANCES.



ALL MINIMUM DIMENSIONS MEASURED NORMAL TO ℄ OF OUTSIDE TRACK.

THIS DRAWING COVERS STEAM, WATER OR ANY NONFLAMMABLE SUBSTANCE WHICH FROM ITS NATURE OF PRESSURE MIGHT CAUSE DAMAGE IF ESCAPING ON OR IN THE VICINITY OF RAILWAY PROPERTY. SEWERS AND DRAINS DO NOT REQUIRE CASING PIPE UNLESS CONDITIONS EXIST WHICH WILL ENDANGER SECURITY OF TRACK, BUT MUST BE OF SUFFICIENT STRENGTH TO WITHSTAND E-80 LOADING.

CN

PIPELINE CROSSING SPECIFICATIONS

CASING PIPE FOR E-80 LOADING

STEEL PIPE

(REFERENCE SOURCE: AREMA, CHAPER 1, PART 5).
WALL THICKNESS FOR STEEL CASING PIPE
(MINIMUM YIELD STRENGTH 35,000 psi)

DIAMETER OF PIPE (INCHES)	PIPE COATED OR CATHODICALLY PROTECTED NOMINAL THICKNESS (INCHES)	PIPE NOT COATED OR CATHODICALLY PROTECTED NOMINAL THICKNESS (INCHES)
12 3/4 AND UNDER	0.188	0.188
14	0.188	0.250
16	0.219	0.281
18	0.250	0.312
20 AND 22	0.281	0.344
24	0.312	0.375
26	0.344	0.406
28	0.375	0.438
30	0.406	0.469
32	0.438	0.500
34 AND 36	0.469	0.531
38	0.500	0.562
40	0.531	0.594
42	0.562	0.625
44 AND 46	0.594	0.656
48	0.625	0.688
50	0.656	0.719
52	0.688	0.750
54	0.719	0.781
56 AND 58	0.750	0.812
60	0.781	0.844
62	0.812	0.875
64	0.844	0.906
66 AND 68	0.875	0.938
70	0.906	0.969
72	0.938	1.000

REINFORCED CONCRETE PIPE

PIPE SHALL CONFORM TO A.S.T.M. DESIGNATION C-76. CLASS IV, WALL "B" (MIN.). ROUND PIPE SHALL HAVE CIRCULAR, NOT ELLIPTICAL REINFORCEMENT.

CORRUGATED METAL PIPE

PIPE SHALL BE GALVANIZED, BONDED AND ASPHALT COATED

GAGE OF METAL BEFORE GALVANIZING U.S. STD GAGE	DIAMETER OF PIPE (INCHES)
14	18 AND UNDER
12	24, 30, AND 36
10	42 AND 46

Additional Resources for Underground Crossings

http://www.undergroundfocus.com/onecalldir.php	Provides links and information on state calls for cable locates
http://www.ntdpc.com/	National Telecommunications Damage Prevention Council
http://www.commongroundalliance.com	Common Ground Alliance

CN

WIRELINE CROSSING AND ENCROACHMENT SPECIFICATIONS

UNDERGROUND WIRELINE CROSSINGS

1. Must be a minimum of 5'6" feet below base of rail.

2. Must be enclosed in casing or conduit adequate to protect the line.

3. Wherever located on railroad right-of-way outside the track ballast section, the following are minimum burial depths below ground line:

Line Voltage	Depth Below Ground Line
0-600	24 inches
601 - 22,000	30 inches
22,001 - 40,000	36 inches
40,001 - Above	42 inches

OVERHEAD WIRELINE CROSSINGS

1. Must not be located within 300' of a bridge in either direction

2. Must not be attached to a company pole line or pole lines licensed to others except where specifically authorized.

3. All poles extending in height above ground equal to or greater than the distance from pole to end of cross line will be anchored and guyed against tipping toward track.

4. Guys will be guarded to a distance of 8' above ground line and the guards shall be orange in color.

5. All clearances and safety provisions are subject to the applicable National and State codes. Provisions of that portion of the National Electric Safety Code (American National Standard Institute) pertaining to railroads apply.

GENERAL NOTES

1. All power or communication line crossings are subject to license agreements with the railroad company.

2. All clearances and safety provisions are subject to the applicable national and State Codes. Provisions of that portion of The National Electrical Safety Code (American National Standard Institute) pertaining to railroads apply.

CN

WIRELINE CROSSING AND ENCROACHMENT SPECIFICATIONS

OVERHEAD WIRELINE CLEARANCE CHART

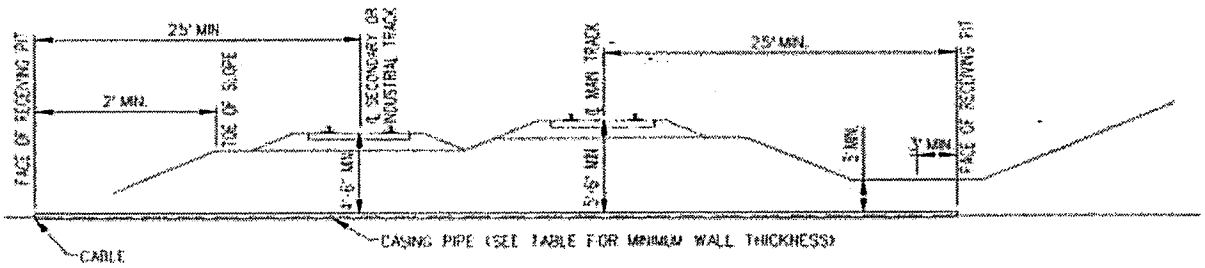
FORMULA: .5" increase for every 1,000 volts in excess of 50 KV
6" increase for every 12,000 volts in excess of 50 KV

Voltage (to ground)	Minimum Clearance Required above top Of rail	Minimum Clearance (Including Static Wires) Required above Communication and Signal Lines
0 to 750	27'0"	4'0"
8,700	28'0"	4'0"
15,000	28'0"	6'0"
50,000	30'0"	6'0"
74,000	31'0"	7'0"
98,000	32'0"	8'0"
122,000	33'0"	9'0"
146,000	34'0"	10'0"
170,000	35'0"	11'0"
194,000	36'0"	12'0"
218,000	37'0"	13'0"
242,000	38'0"	14'0"
266,000	39'0"	15'0"
290,000	40'0"	16'0"
THESE CLEARANCES ARE TO INCLUDE ALL TRACKS OPERATED AS MAIN TRACKS, SIDINGS, AND OTHER AUXILIARY TRACKAGE.		

CN

WIRELINE CROSSING AND ENCROACHMENT SPECIFICATIONS

CABLE CROSSING

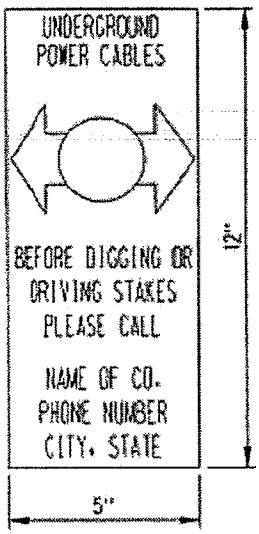


ALL MINIMUM DIMENSIONS MEASURED NORMAL TO ℄ OF OUTSIDE TRACK.

NOTE LOW VOLTAGE CABLE SUCH AS TELEPHONE OR CABLE TV MAY BE INSTALLED IN PVC CARRIER PIPE

MARKING OF BURIED POWER CABLES ON RAILROAD RIGHT OF WAY

CABLE ROUTE MUST BE MARKED AT EDGE OF RIGHT OF WAY WHERE CABLE ENTERS OR LEAVES RAILROAD PROPERTY. IN CASES OF PARALLEL CABLE ROUTE, SIGNS AS INDICATED IN FIGURE 1 ON THIS EXHIBIT WILL BE PLACED APPROXIMATELY EVERY 200 FEET. SIGNS TO BE OF A PERMANENT VERTICAL TYPE, NOT SMALLER THAN 5 INCHES WIDE BY 12 INCHES HEIGHT. YELLOW BACKGROUND WITH BOLD BLACK LETTERING. SIGNS TO BE MOUNTED ON METAL POSTS OR AS OTHERWISE AGREED TO AT A HEIGHT OF 3 FEET ABOVE GROUND LEVEL.



CN

INSURANCE REQUIREMENTS

1. By Licensee

Before commencing work, and until this Agreement shall be terminated or the FACILITY shall be removed (whichever date is later), the LICENSEE shall provide and maintain the following insurance in form and amount with companies satisfactory to and as approved by the RAILROAD.

a. Statutory Workers Compensation and Employer's Liability insurance.

b. Automobile Liability in an amount not less than $1,000,000 dollars combined single limit.

c. Comprehensive General Liability in an amount not less than $5,000,000 dollars combined single limit. In the event the policy is a Claim Made policy coverage shall include an aggregate of $10,000,000 dollars. The Policy must name the appropriate RAILROAD as an Additional Insured and must not contain any exclusions related to:

   1. Doing business on, near, or adjacent to railroad facilities.

   2. Loss or damage resulting from surface, subsurface pollution contamination or seepage, or handling, treatment, disposal, or dumping of waste materials or substances.

Before commencing work, the LICENSEE shall deliver to the RAILROAD a certificate of insurance evidencing the foregoing coverage and upon request the LICENSEE shall deliver a certified, true and complete copy of the policy or policies. The policies shall provide for not less than ten (10) days prior written notice to the RAILROAD of cancellation of or any material change in, the policies; and shall contain the waiver of right of subrogation.

It is understood and agreed that the foregoing insurance coverage is not intended to, and shall not, relieve the LICENSEE from or serve to limit LICENSEE's liability under the indemnity provisions of any applicable agreement.

It is further understood and agreed that, so long as the Agreement shall remain in force or the FACILITY shall have been removed (whichever shall be later), the RAILROAD shall have the right, from time to time, to revise the amount or form of insurance coverage provided as circumstances or changing economic conditions may require. The RAILROAD shall give the LICENSEE written notice of any such requested change at least thirty (30) days prior to the date of expiration of the then existing policy or policies; and the LICENSEE agrees to, and shall, thereupon provide the RAILROAD with such revised policy or policies thereof.

d. Notwithstanding the above, LICENSEE shall have the right to self-insure any portion of this obligation. If LICENSEE elects to self-insure any portion of such insurance, LICENSEE shall provide the RAILROAD with such documentation as the RAILROAD may require in support of LICENSEE's ability to do so.

CN

INSURANCE REQUIREMENTS

2. By the Licensee's Contractor

If a contractor is to be employed by the Licensee for the installation of the FACILITY, then, before commencing work, the contractor shall provide and maintain the following insurance, in form and amount and with companies satisfactory to, and as approved by, the RAILROAD.

a. Statutory Workers' Compensation and Employer's Liability insurance.

b. Automobile Liability in an amount not less than $1,000,000 dollars combined single limit.

c. An Occurrence Form Railroad Protective Policy with limits of not less than $5,000,000 dollars per occurrence for Bodily Injury Liability, Property Damage Liability and Physical Damage to Property with $10,000,000 dollars aggregate for the term of the policy with respect of Bodily Injury Liability, Property Damage Liability and Physical Damage to Property. The policy must name the appropriate RAILROAD as the insured, and shall provide for not less than ten (10) days prior written notice to the RAILROAD'S as cancellation of, or any material change, in the policy.

CN

PIPELINE/WIRELINE CROSSING CONTACTS

CROSSING PERMITS

Name: Daryl Lang

Address: Canadian National
Daryl Lang
2800 Livernois Rd
Troy, Michigan 48083

Phone: 248-740-6545

Fax: 248-740-6031

Email: daryl.lang@cn.ca

FLAGGING AND/OR CABLE LOCATE

Name: Tom Tucker

Address: Canadian National
Tom Tucker
2800 Livernois Rd
Troy, Michigan 48083

Phone: 248-740-6227

Fax: 248-740-6031

Email: tom.tucker@cn.ca

INITIAL NOTIFICATION OF INTENT TO CONSTRUCT PIPELINE CROSSING/ENCROACHMENT

Complete this form and return it along with a *COPY OF YOUR PLAT, LEGAL DESCRIPTION AND DETAILED CROSS SECTIONS* and a non-refundable preparation fee of $750 made out to CN.

DATE:

1. Owner/Applicant Information

Name and Address:_____

_____

Authorized Representative:_____Title_____

Phone Number: _____Fax Number_____Email_____

2. Location Of Pipeline

Pipeline Location Mile Post:_____ plus _____feet (if parallel) to Mile Post:_____ plus _____feet

At or Near_____(Name of City, Town, Village)

3. Commodity to be transmitted in pipe line:_____

(steam, air, water, gasoline or other petroleum products, chemical-specify: natural or artificial gas. If sewer, identify as to force or gravity line, sanitary, storm or chemical waste – specify)

4. Pipe Data

	CARRIER PIPE	CASING PIPE
A. Inside Diameter:	_____	_____
B. Outside Diameter:	_____	_____
C. Wall Thickness:	_____	_____
D. Pipe Material:	_____	_____
E. Specification/Grade or class:	_____	_____
F. Min. Yield Point of Material	_____	_____
G. Process of Manufacture	_____	_____
H. Name of Manufacturer	_____	_____
I. Type of Joint	_____	_____
J. Working Pressure	_____	_____

K. Maximum operating pressure in pipeline:_____(psi by gauge)

L. Length of Casing pipe:_____Feet

M. Will casing pipe/uncased carrier pipe be cathodically protected:_____

N. Hydrostatic pressure carrier pipe will be tested with before using_____(psi)

O. Will casing pipe be vented? _____ Size:_____

P. Will casing pipe/uncased carrier pipe have a protective coating?_____Type:_____

Q. Depth of top of casing or uncased carrier pipe below base of rail or top of ground_____feet. (Minimum at closest point)

R. Method of installing casing pipe /uncased carrier pipe_____.
(dry bore & jack, directional, tunnel, other – specify)

Attach to this application (3 copies) showing north arrow and a location sketch with crossings measured from the nearest railroad mile post and a profile sketch of actual situations showing relationship of tracks, contour of ground, the buried pipe, etc. Distance from each facility (encroachment) to the centerline of nearest road, crossing, bridge or other Railroad structures, must be clearly indicated. Right of way lines of railroad and labeled Street or highway, if involved, should also be shown.

INITIAL NOTIFICATION OF INTENT TO CONSTRUCT PIPELINE CROSSING/ENCROACHMENT

Complete this form and return it along with a *COPY OF YOUR PLAT, LEGAL DESCRIPTION AND DETAILED CROSS SECTIONS* and a non-refundable preparation fee of $750 made out to CN.

DATE:

1. Owner/Applicant Information

Name and Address:_____

_____

Authorized Representative:_____

Title_____

Phone Number: _____Fax Number_____

Email Address:_____

2. Engineer/Consultant Information

Name and Address:_____

_____

Authorized Representative:_____

Title_____

Phone Number: _____Fax Number_____

Email Address:_____

3. Location Description (Attach a Copy of a Sketch Showing Location)

_____1/4 _____ ¼ Sec._____, Township _____, Range _____

(Circle One)

City / Village /Township: _____

County:_____ State:_____

Wireline Location Mile Post:_____ plus _____feet

(if parallel) to Mile Post:_____ plus _____feet

4. Indicate Type of Utility/Facility:

Power Line _____

Telephone _____ Fiber Optic _____ Copper Pair ____

Cable TV _____ Fiber Optic _____ Coaxial _____

Other_____

_____

5. Desired Method of Installation/Construction

Underground _____

Overhead _____

Crossing _____

Longitudinal _____

Copper Pairs _____ # of Wires _____

Fiber Optic _____ # of Strands _____

Other_____

6. Wire/Cable Data

a. Number of Poles/Towers on Property _____

b. Number of Guys/Anchors on Property _____

c. Cross arm Overhang (feet & quantity) _____

d. Maximum Voltage _____

e. Number of Wires/Cables/Pairs/Strands (circle one) _____

f. Depth of Top of Wire/Cable/Casing below base of Rail or Top of Ground _____

g. Clearance Over Railroad Company's Wires _____

h. Clearance Over Railroad Company's Tracks _____

i. Casing Length (Property Line to Property Line) _____

j. Size & Kind of Pipe or Duct _____

k. Method: How is Pipe or Duct to be installed under the track (dry bore & jack, directional, tunnel, other – specify) _____

l. Size and Type of Wire/Cable _____

m. Insulated _____

n. Bare/Open Wire _____

o. Stranded _____

p. Solid _____

q. Angle of Crossing _____

r. Length of Span Crossing Tracks _____

7. Location References and Clearances of Facility (Encroachment)

a. Name of Public Road (crossing track) _____

b. Width of Public Road (crossing track) _____

c. Distance From Each Facility (Encroachment) to Center Line of Main Track _____

d. Distance From Each Facility (Encroachment) to Center Line of any Adjacent Track _____

e. Side Clearance from Railroad Company's Wire to Nearest Pole/Tower _____

f. Distance and Direction From Bridge Abutment, Culvert, Switch, Road Crossing, etc. _____

(Do Not Use Milepost Sign as Reference) (Enclose plans of proposed facility with North Arrow and a vicinity map)

Attach to this application (3 copies) showing north arrow and a location sketch with crossings measured from the nearest railroad mile post and a profile sketch of actual situations showing relationship of tracks, contour of ground, the buried pipe, etc. Distance from each facility (encroachment) to the centerline of nearest road, crossing, bridge or other Railroad structures, must be clearly indicated. Right of way lines of railroad and labeled Street or highway, if involved, should also be shown.

UPRR SPECIAL PROVISIONS

SECTION 02050

REMOVAL OF EXISTING STRUCTURES

PART 1: DESCRIPTION

1.01 General

A. This work shall consist of the removal of the railroad bridge structures. Removal shall be in accordance with the Union Pacific Railroad Guidelines for Bridge Demolition as well as any requirements for IDOT and Kane County for the respective bridges. The bridges to be removed shall include the following:

1. The existing Union Pacific Railroad Bridge over IL 25 / Stearns Road.

2. Temporary Shoo-fly Bridge over IL 25 / Stearns Road.

B. Submittals

The Contractor shall submit three complete sets of the demolition plan to the Engineer and the Union Pacific Railroad for approval, detailing the proposed methods of demolition and the amount, location(s) and type(s) of equipment to be used. For work adjacent to or over an active roadway, the demolition plan shall include an assessment of the structure's condition and an evaluation of the structure's strength and stability during demolition and shall be sealed by an Illinois Licensed Structural Engineer. Review and comment of the demolition plan by the Railroad or Engineer will not relieve the Contractor of the ultimate responsibility and liability for the demolition of the structure. A minimum of three weeks shall be allowed for the Railroad's review after the complete submittal is received. No removal operations will be permitted until the submitted material has been reviewed and comments provided. The removal plan shall include the following:

1. Plan, elevation and location of the bridge, and the locations of any access roads needed for the movement of the equipment.

   The as-built drawings may be used for the submittal provided the removal steps are clearly marked and legible.

2. Bridge removal sequences and procedures for the entire bridge including the staging for the removal of the superstructure and substructure.

3. List type and number of equipment required and their locations during demolition operations.

4. Location and types of temporary supports, shoring or bracing required. These members shall be designed to meet Union Pacific Railroad current standard drawing 710000 (formerly UPRR C.E. 106613) "General Shoring Requirements", "Guidelines for Design and Construction of Falsework for Structure Over Union Pacific Railroad", Guidelines for Design and Construction

of Shoring Adjacent to Active Railroad Tracks", and the appropriate local and national building and design code requirements.

5. The proposed vertical and horizontal clearance from all tracks to the temporary and permanent supports.

6. If any temporary supports interfere with the natural drainage along the Railroad right-of-way, a temporary drainage plan shall be submitted for review and comment prior to constructing temporary supports. The proposed drainage plan shall route all drainage away from the railroad tracks.

7. Details, limits, and locations of protective covers or other measures proposed to be used to protect the tracks.

8. All procedures necessary to remove the bridge in a safe and controlled manner. The estimated time for complete removal shall be noted.

9. All overhead and underground utilities in the area affected by removal of the bridge shall be located on the drawings, including any fiber optic, electric, railroad signal, and communication lines.

10. The location and details of track crossings required for moving of the equipment across the railroad tracks.

11. Limits of demolition of substructures.
12. Details of on-site fire suppression.

1.02 Special Requirements

1. Reference Standards - The work is subject to requirements of applicable portions of Section 501 and any other articles or sections that are referenced within Section 501 or other Sections or articles cited elsewhere in this Specification, of the following:

    1. "Standard Specifications for Road and Bridge Construction" prepared by the Illinois Department of Transportation, latest edition; and any of its Supplemental Specifications and Recurring Special Provisions. The "Standard Specifications for Road and Bridge Construction" is referred to in the following Articles as the "Standard Specifications" and except as may be otherwise stated, the work to be done under this section must conform to the requirements of said "Standard Specifications".

    2. Where the "Standard Specifications" refer to the "Engineer" it is understood to mean "Engineer." Except where the "Standard Specification" refers to the "Engineer" for required tests/inspections, it will be understood to mean "Contractor".

    3. Standard Specifications articles referring to "Protective Shield System", "Method of Measurement" and "Basis of Payment" are not applicable and are replaced by the articles included in this Specification.

1.03 References

A. BNSF Railway – Union Pacific Railroad "Guidelines for Railroad Grade Separation Projects"

B. UPRR-"Guidelines for Temporary Shoring"

C. UPRR – "Guidelines for Preparation of a Bridge Demolition and Removal Plan for Structures Over Railroad"

1.04 Related Work

A. VINYL FENCE, 4' Section 02800

PART 2: MATERIALS

2.01 (Not Used)

PART 3: EXECUTION

3.01 General

A. Existing structures shall be removed to at least 3 ft (300 mm) below the proposed elevation of subgrade or ground surface. Portions of existing structures below this elevation that interfere with the proposed construction shall also be removed.

B. Structural Steel material from the existing structure and the temporary shoo-fly structure will be considered property of the Contractor for recycling or legal disposal.

C. The Contractor shall comply with the requirements of this specification and all applicable Federal, State and Local laws, codes and regulations pertaining to the removal and disposal of the structural steel from the existing structure; including but not limited to the regulations of the United States Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), and the Illinois Environmental Protection Agency (IEPA). The Contractor shall comply with all applicable regulations even if the regulation is not specifically referenced herein. If a Federal, State or Local regulation is more restrictive than the requirements of this Specification, the more restrictive requirements shall prevail.

D. The Contractor is solely responsible for the payment of any fines and undertaking of any clean-up activities mandated by Federal or State environmental agencies for improper waste handling, storage, transportation or disposal.

E. Contractor shall furnish, install and remove Silt Fence around the bridge demolition area.

F. Site restoration must be performed on disturbed areas due to work required in this Specification immediately after removal of the existing structure is complete to the approval of the Engineer. Site restoration measures include installing topsoil and permanent seeding.

G. Disposal of the removed structures off-site shall be included in the cost to Remove Existing Structure. No separate payment will be made for the Disposal of removed structures.

H. The work shall in no way impede train operations.

I. The Contractor shall be responsible for planning and executing all procedures necessary to remove structures in a safe and controlled manner.

J. The Railroad's tracks and property shall be protected at all times.

K. The Contractor shall ensure that the area immediately adjacent to operational tracks shall remain free from stumble or like hazards to the ground railroad personnel to prevent injuries. Open excavations shall be in accordance with all applicable local, state, and OSHA regulations and shall be protected by appropriate fencing.

L. No work shall be performed within 50 feet of the nearest rail when trains pass the work site.

M. Staged demolition of the portions of the structure immediately adjacent to operational tracks shall not jeopardize the integrity of the structure over said tracks until actual removal of the portion of the structure over the tracks is being completed.

N. A flagman is required when any work is performed within 25 feet of the nearest rail.

O. No blasting or burning will be permitted on Railroad's right-of-way.

3.02 Procedure

A. During removal operations the remaining structure shall be stable during all stages of the removal operation.

B. The Contractor Shall Coordinate the removal schedule with the Railroad. All of the removal work within the vicinity of an active track area shall be performed during the time windows when trains are not passing the site.

C. All debris and refuse resulting from the work shall be removed from the right-of-way by the Contractor and the premises left in a neat and presentable condition.

D. The work progress shall be reviewed and logged by the Contractor's Engineer. Should an unplanned event occur, the Contractor shall inform the Railroad and submit procedure to correct or remedy the occurrence.

3.03 Track Protection

A. Construction equipment shall not be placed on the tracks unless tracks are protected.

B. Temporary haul road crossings shall be timbers. The type of crossing shall be approved by the Railroad. Solid timbers or ballast with timber headers shall be used between multiple tracks. If temporary crossing is accessible to the public crossing shall be protected with barricades or locked gates when the Contractor is not actively working at the site or weekends.

C. Track protection is required for all equipment including rubber tired equipment operating within 25 ft. of the tracks.

3.04 Cranes

A. When cranes are operated near the tracks the following is required:

1. Only cranes with the capacity to handle the loads may be used. Front end loaders and backhoes cannot be used to lift over the tracks.

2. The Contractor shall verify that the foundations under the crane can support the loads.

3. The size and material type of crane mats shall be submitted to the Railroad for review and comment. No mat substitution will be allowed. The mats shall be rigid and of sufficient capacity to distribute the crane load and prevent tipping of the crane.
4. Installation of temporary track crossings for equipment shall be scheduled with the Railroad.

5. Additional track protection is required when crossing with a crane. The protection methods shall be submitted to the Railroad for review and comment.

6. Equipment shall not place outriggers on the tracks or ballast.

7. Cranes shall not be placed within the track clearance envelope without flagman protection.

3.05 Cutting Torches

A. When a cutting torch is used near the tracks or any timber, the following steps shall be taken:

1. Fire suppression equipment is required on-site.

2. Do not use a torch over, between, or adjacent to the tracks unless a steel plate protective cover is used. Care shall be taken to make certain the steel plate does not come in contact with the rails. Details of the shield shall be submitted to the Railroad for approval.

3. Wet ties and other timber below the cutting area

4. Monitor the work site for at least 3 hours after cutting for a smoldering fire.

3.06 Utilities

A. The demolition operations shall be planned such that the utility lines are operating safely at all times. The utility lines shall be protected if affected by demolition operations. All of the work associated with utility lines shall be coordinated by the contractor with the respective utility companies.

B. Appropriate safety measures shall be in place to prevent any conflicts with the high voltage transmission lines in the vicinity of the bridges. All submittals shall specifically address the high voltage transmission lines to protect against conflicts if applicable.

3.07 Hazardous Material

A. If any hazardous materials are found, provide material protection as specified in local hazardous material codes and immediately contact the Railroad.

PART 4: METHOD OF MEASUREMENT

4.01 Measurements

A. Removal of Existing Structures will be measured for payment in units of each at the location designated on the Plans.

B. Excavation of earth or rock necessary to perform the removal of existing structures will not be measured for payment.

C. Hauling and transporting broken concrete will not be measured for payment.

D. Disposal of all steel material including girders, railings, plates and hardware will not be measured for payment.

E. Furnishing, installing and removing VINYL FENCE, 4' will be measured for payment in linear feet in place.

F. Clearing and Grubbing necessary to complete the work in this Specification will not be measured for payment and will be included in the cost of Removal of Existing Structures.

G. Removal and Disposal of all debris and other appurtenances (excluding ballast, ties, rail, and other track material) located on the structure shall be included in the cost of Removal of Existing Structures and will not be measured separately for payment.

H. All temporary shoring shall be considered incidental to the Removal of Existing Structures and will not be measured separately for payment.

PART 5: BASIS OF PAYMENT

5.01 Payments

A. The work will be paid for at the Contract unit price per each for REMOVAL OF EXISTING STRUCTURES at the location designated on the Plans.

5.02 Payment will be made under:

A. REMOVAL OF EXISTING STRUCTURES NO. 1, per each.

B. REMOVAL OF EXISTING STRUCTURES NO. 2, per each.

SECTION 02051

TEMPORARY BRIDGE

PART 1: DESCRIPTION

1.01 General

A. This Section includes all the work required to construct the Temporary Shoo-fly Structure as indicated in the Plans. Construction includes but is not limited to driving piling, furnishing and erecting precast concrete bent caps, furnishing and erecting structural steel, installing a new open timber deck, placing track, and installing the walk and handrail.

1.02 References

A. Union Pacific Railroad Safety Rules

B. Union Pacific Railroad Maintenance of Way Rules

C. Union Pacific Railroad Engineering Standards

D. Union Pacific Railroad Chief Engineer's Bulletins

E. Union Pacific Railroad – General Conditions for New Bridge Projects

F. BNSF Railway - Union Pacific Railroad – "Guidelines for Railroad Grade Separation Projects"

G. AREMA: Manual for Railway Engineering, latest edition

1.03 Quality Assurance

A. CONSTRUCTION SUPERVISION - The bridge construction shall be progressed with skilled supervision and labor and the Contractor shall construct the structure in such a manner as may be required by the Engineer. Any supervisor or laborer not satisfactory to the Union Pacific Railroad or the Engineer shall be removed from the Project on request of the Engineer.

PART 2: MATERIALS

2.01 Polyurethane Bearing Pads

A. Polyurethane bearing pads (80 durometer) shall meet the requirements of the AREMA Manual for Railway Engineering, Chapter 15, Part 10, Table 15-10-3.

2.02 Precast Concrete Caps and Wingwalls

A. Precast concrete caps and wingwalls shall conform to the applicable requirements of the Standard Specifications, Sections 503 and 504.

B. The minimum compressive strength of concrete for precast concrete members shall be 5000 psi at 28 days.

2.03 Steel Piles HP14x89

A. HP14x89 piles and Pile Shoes shall conform to Section 02455 of the Detailed Specifications.

2.04 Reinforcement Bars

A. Reinforcement Bars (plain) shall conform to Article 508 of the Standard Specifications.

2.05 Structural Steel

A. Structural steel shall conform to the applicable requirements of Section 05120 of the Detailed Specifications. .

2.06 Stud Shear Connectors

A. Stud Shear Connectors shall conform to the applicable requirements. of the Standard Specifications, Section 1006.32.

2.07 Anchor Bolts

A. Anchor bolts shall conform to the applicable requirements of Section 05120 of the Detailed Specifications.

2.08 Handrail

A. Handrail shall conform to the applicable requirements of Section 05120 of the Detailed Specifications.

2.09 Walkway Grating

A. Walkway grating shall be as specified in the Plans.

2.10 Trackwork

A. Ties, rail, inner guard rail, and other track material shall conform to the Specification for Trackwork Construction.

PART 3: EXECUTION

3.01 Driving Piles

A. Driving of piles shall conform to Section 02455 of the Detailed Specifications.

3.02 Precast Concrete

A. Construction of precast concrete shall conform to the applicable

requirements of the Standard Specifications, Sections 503 and 504.

B. Precast concrete elements shall be furnished with all materials required for erection.

C. Precast concrete elements shall be carefully lowered into their proper positions and to the specified elevations. After the elements are in place and fastened as designated in the Plans, the lifting loops may be cut to ½" below the surface of the cap and the recess filled with nonshrink grout to top of surrounding concrete.

3.03 Erecting Structural Steel

A. Erection of Structural Steel shall conform to the applicable requirements of Section 05120 of the Detailed Specifications. .

3.04 Trackwork

A. Placement of ties, rail, inner guard rail, and other track material shall be according to the Specification for Trackwork Construction.

3.05 Handrail

A. Placement of handrail shall be according to the applicable requirements of Section 05120 of the Detailed Specifications.

3.06 Stud Shear Connectors

A. Welding and workmanship shall be according to the requirements of the AWS-Bridge Welding Code.

3.07 Walkway Grating

A. Walkway grating shall be installed in accordance with the manufacturer's instructions or as directed by the Engineer.

PART 4: METHOD OF MEASUREMENT

4.01 Measurement

A. Construction of the temporary shoo-fly structure will be measured for payment in units of a lump sum at the location designated on the Plans. Individual components of the temporary shoo-fly structure as described and shown on the Plans will not be measured for payment.

PART 5: BASIS OF PAYMENT

5.01 Payment

A. This work will be paid for at the Contract unit lump sum price for TEMPORARY BRIDGE completely installed and accepted in the location designated on the Plans. This payment shall be considered to be full compensation for all work,

including all labor, furnishing and shipping materials, and equipment necessary to construct the structure.

SECTION 02115

TRACK REMOVAL

PART 1 – GENERAL

1.01 Description. This Specification shall cover the removal of existing track and includes removing rails, crossties, rail connections, and other track material.

The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labor, materials not supplied by OWNER, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of the work described herein.

PART 2 – PRODUCTS

2.01 Materials. Contractor is responsible for all salvageable material which is damaged as a result of Contractor's operations. Contractor shall replace all such damaged material with new or used material which is in a condition equal to or better than the originally undamaged salvageable material.

PART 3 – EXECUTION

3.01 ENGINEER shall determine which track materials (both timber and/or metal) are salvageable and which are not salvageable and will so mark the material in the field.

The non-salvageable material shall become the property of the Contractor and shall be hauled off the site and legally disposed of by the Contractor. Non-salvageable material includes scrap crossties, track bolts, nuts, and lockwashers, and track spikes.

The salvageable material will remain the property of the railroad. The Contractor shall stockpile salvageable material at a location as directed by the ENGINEER. Salvageable material includes usable cross ties, rail, joint bars, rail anchors and tie plates. Salvageable material not to be reused on this project shall be loaded by the Contractor into rail cars provided by the railroad as directed by the ENGINEER.

PART 4 – MEASUREMENT AND BASIS OF PAYMENT

4.01 This work shall be measured in place per foot, along the centerline of track, and will be paid for at the contract unit price for TRACK REMOVAL, which price shall include the entire cost of all labor, materials, superintendence and equipment required for removal of track as shown on the drawings and as specified herein.

SECTION 02160

TEMPORARY SUPPORT SYSTEM

PART 1: GENERAL

1.01 Description of Work: This Section specifies requirements for the temporary soil retention systems required to support the existing track embankment during construction of the new temporary Shoo-fly bridge and to support the temporary Shoo-fly embankment during construction of the new bridge. The work under this Section will include furnishing all labor, materials, tools, equipment and adjusting for stage construction when required to design, install, cut-off to proper elevation, and remove and dispose of as directed by the Engineer, all temporary excavation support walls including but not limited to steel sheet piling, walers, tie rods, rakers, timber lagging, temporary safety handrails and connections, and other related work required to support all earth around excavations, as specified herein, directed by the Engineer or shown on the Plans.

1.02 Related Work

A.	REMOVAL OF EXISTING STRUCTURES	Section 02050
B.	STRUCTURE EXCAVATION (SPECIAL)	Section 02201
C.	FURNISHING STEEL PILES HP14x89	Section 02455
D.	CONCRETE STRUCTURES (SPECIAL)	Section 03300
E.	FURNISHING AND ERECTING STRUCTURAL STEEL	Section 05120

1.03 Submittals:

A. Shop Drawings: The Contractor must prepare Shop Drawings for submittal in accordance with these Detailed Specifications showing details of the steel sheet piles, tie rods, rakers, wales, temporary safety handrails and all necessary connections. The Shop Drawings must also include details for support of utilities as shown on the Plans or as directed by the Engineer within the area of excavation.

B. Manufacturer's Data: The Contractor must submit two (2) copies of the steel manufacturer's specifications including laboratory test reports and other data as may be required to show compliance with these specifications. Required are certified copies of mill reports covering chemical and physical properties of the Structural Steel.

C. Calculations and drawings detailing the TEMPORARY SUPPORT SYSTEM must be submitted by the Contractor for the Engineer's and UPRR's review and approval. Submittal requirements for the UPRR are per the "UPRR/BNSF Guidelines for Temporary Shoring". All drawings and calculations must be signed and sealed by a State of Illinois licensed Structural Engineer. No installation will be allowed until the UPRR's and Engineer's approval is obtained.

D. It will be understood that the Engineer's review of the submitted temporary soil retention systems in no way relieves the Contractor for the actual performance of the installed system. It will be the Contractor's responsibility that facilities adjacent to and or protected by this system not be damaged as a result of the inadequate performance of this system and any damage to adjacent facilities will be repaired or replaced at the Contractor's expense as directed by the Engineer.

1. Common Items

The Following items are to be included with all soil retention system (SRS) submittals, regardless of the structural type. All SRS drawings and calculations to be sealed and signed by Illinois licensed Structural Engineer.

a. Boring logs and associated field/lab test data.

b. A Geotechnical Report for the project.

c. List all design assumptions used in the calculations, as they are introduced in sequence of computations.

d. Provide copies of relevant pages of references used in the calculations. These include all graphs, charts, or tables used in the analysis or design.

e. Provide copies of catalogue cuts, tables of material properties used in the structural calculations.

f. All submittals must begin with a sketch and/or listing of soil layering, soil parameters, and design water level assumed in the calculations. Specific borings which were used in establishing the design conditions should be identified by boring numbers as given on the logs.

g. Calculations should show cross-sections giving design elevations for:
   i. Top and toe of the wall
   ii. Existing surrounding ground
   iii. Bottom of the excavation
   iv. Existing adjacent foundations within the zone of influence
   v. Cut slopes and set-backs
   vi. Water elevation.

h. All formulas must be listed, as they are being used in the various parts of the calculations.

i. Include all calculation steps that are a normal, part of an actual hand solution – whether or not a computer-assisted analysis/design was used. Do not submit re-copied computer output as hand calculation.

j. Construction surcharge should be matched to the actual conditions planned by the constructors. However in no case should traffic surcharge be less than a 240 psf uniformly distributed vertical load.

k. SRS drawings must include plan views and cross-sections which are consistent with the final design options, eliminating alternatives. Sufficient cross-sections must be provided to show top of grade, cutback slopes, adjacent buildings, sidewalks, alleys, and roadways, as well as utilities with the zone of influence (within 2.5 times the excavation depth from grade).

l. A Groundwater Control Plan and dewatering calculations prepared by an Illinois licensed PE must be submitted for review in all cases where well/wellpoints and/or dewatering are necessary to maintain a dry, stable excavation.

m. SRS drawings must include a step-wise installation and dismantling procedure.

2. Soil Retention System (SRS) Items – General

The SRS submitted must include calculations for the design of all vertical wall components and for all bracing components.

For example, depending on the system selected, this may include design for:

- Sheet piles, soldier piles and lagging, secant piles, slurry walls, etc.
- Walers, struts, rakers, kicker blocks, anchors, and temporary earth berms.
- Supports for crossing utilities which are not relocated.
- Use of proprietary systems, such as trench boxes or slide rail shoring, require that a structural engineer licensed in the state of Illinois confirm that the systems components are satisfactory for site-specific conditions. Manufacturers or suppliers cut sheets must be submitted, listing serial numbers of frames or boxes proposed for use on the project. Such cut sheets must clearly state the maximum loading and depths for which the system has been designed. These cut sheets must be stamped by the structural engineer (licensed in Illinois) who is approving the use of such system.

3. Items Specific to Cantilever Wall Analysis/Design

In addition to the items listed under Part I and II above, the following must be included as part of the submitted.

a. Provide a step-wise calculation of lateral pressure distribution. Calculate pressures at every change of state of the problem, e.g. stratum boundaries excavation depth, brace or anchor level, adjacent foundation load as it varies with depth.

b. Plot lateral pressures on diagram to reasonable size for illustration. Split diagram into sensible triangular and rectangular units; identify units by letter or number for use in moment equations. Account for all components of load: soil, water, and surcharge.

c. In cases where a theoretical negative or small positive active earth pressures are predicted through clay strata, a minimum active earth pressure of 0.25 γz should be substituted, where γz is the total overburden pressure at depth z.

d. Provide moment calculations based on above pressure diagram, solving for wall embedment depth required for rotational equilibrium (SF=1.0) about the toe. Show intermediate steps, reducing moment expression to its final form for solution. Find zero shear, maximum moment, to size sheeting.

e. Provide additional embedment length to establish safety factor or margin of safety vs. rotational failure about the toe. Any of the generally recognized methods of determining design embedment depth may be used. However, a minimum safety factor of 1.5 vs. ultimate passive resistance is required in all cases.

f. Provide analysis of structural wall deflection and also ground deformation required to mobilize passive resistance.

g. A check of base stability or overall (global) stability should be made using generally accepted methods. A safety factor of 1.5 is the minimum allowable.

4. Items Specific to Single Level Braced or Anchored Walls.

a. Common items (I.A. through I.M.) and item 2 above apply.

b. The free-earth support method should be used as the basis of design. No moment reduction due to flexibility of the wall should be assumed.

c. Provide calculations to show wall embedment depth required for rotational equilibrium about the brace or anchor level (SF=1.0 condition). Provide additional embedment length required for safety factor as in cantilever case.

d. Provide strut or anchor load calculations by taking moment about toe. Size sheeting as a beam with above system of forces applied.

e. Provide design of all bracing components (walers, struts, rakers, etc). If friction along the wall/soil interface is considered, do not reduce load on the walers by more than 20% of the waler load per linear foot as an allowance for friction.

5. Multiple-Tier Braced Walls

a. Provide analyses for cantilever and single brace stages, strut removal, and final depth of excavation stages.

b. Use generally recognized apparent earth pressure envelopes for determining multi-tier strut loads, do not reduce strut or anchor loads to account for temporary conditions.

c. Provide base stability analysis for full and partial depth of cut, as needed to final critical correlation. Minimum required safety factor is 1.5.

d. An estimate of adjacent ground movement should be made using Clough's method or other methods, accounting for stiffness of proposed wall used safety factor vs. base heave.

e. When analyzing overall stability of the execution, do not include friction between the wall and retained soil as contributing to stability of the system.

f. Provide design for all bracing components (walers, struts, rakers, etc.)

1.04 Quality Assurance:

A. Codes, Standards and Specifications: Comply with the provisions of the following, except as otherwise indicated:

1. AWS – D1.5 Bridge Welding Code
2. ASTM – "Standard Specifications"
3. Standard Specification; SECTION 512; PILING
4. AREMA Manual for Railway Engineering
5. UPRR/BNSF Guidelines for Temporary Shoring

B. Responsibility for After-settlement: Any depression or settlement which develops in the track fill, embankment, or backfill adjacent to the temporary soil retention systems will be the responsibility of the Contractor. The Contractor must provide all necessary material and labor and must perform all necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved by the Engineer. The Contractor will be responsible for all cost incurred if settlement of the track structure occurs as a result of failure of the Contractor's excavation support system.

PART 2: PRODUCTS

2.01 General: All materials and fabricated items must be furnished by an established and reputable manufacturer or supplier.

2.02 Steel Sheet Piling: Steel sheet piling must be full length, hot rolled PZ 35, PZ 27, PZ 22 AND PZC 18 sheeting conforming to the requirements of ASTM A572, Gr. 50. The temporary sheet piling may be new or previously used meeting the approval of the Engineer. Sheet piles must be continuously interlocked throughout their entire length with adjacent units. Cold formed sheet pile sections will not be considered for this project.

2.03 Accessories: Rakers, walers, splice plates, bearing plates and other structural steel must conform to ASTM A709, Gr. 50. Steel associated with temporary handrails must conform to ASTM A709, Gr. 36. Bolts, nuts and washers for splicing walers must conform to ASTM A325. All other bolts, nuts and washers must conform to ASTM A307. Design requirements for temporary handrails shall be in accordance with AREMA, Chapter 15, Part 8, Section 8.5.

2.04 Concrete: Cast-in-place concrete must be as specified in SECTION 03300 – CONCRETE STRUCTURES (SPECIAL) of these Specifications.

2.05 Timber Lagging: All timber lagging must meet the requirements of Section 507 of the Standard Specifications.

2.06 Temporary Support System:

A. The TEMPORARY SUPPORT SYSTEM, shown and detailed on the plans depicts the general system expected to be used by the Contractor to support the excavation. It is the Contractor's responsibility to have the actual TEMPORARY SUPPORT SYSTEM designed and detailed including provisions for additional loads resulting from his construction equipment and operations. The TEMPORARY SUPPORT 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. This submittal must include but not be limited to the following:

1. Complete design calculations, shop drawings including but not limited to physical arrangement of the completed system, material specifications, installation procedure, size, location and elevations of top and bottom of steel sheeting or sheet piling, location, size and length of rakers and walers, Illinois Structural Engineer's Seal on the

calculations and drawings for this submittal, monitoring procedure and ground water and surface water control plan.

2. The TEMPORARY SUPPORT SYSTEM at track level must be designed to include Cooper's E-80 track for the soil condition at each bridge site. The minimum factor of safety must be 1.5 for overturning, sliding and bearing capacity failure. The analysis must account for earth pressures, live load surcharge including any contractor equipment, creep or heave in the retained soils and the length of time involved between installation and removal of this system. Settlement of the soil retained behind the system must be limited to AREMA and ENGINEER/UPRR maximums. The design of the temporary soil retention system must be in accordance with UPRR/BNSF Guidelines for Temporary Shoring.

3. Structural design of the steel sheeting, steel soldier beams, walers and the timber lagging must meet the requirements of AREMA, Chapter 8, Part 28. All plans and calculations must be sealed by a Licensed Structural Engineer in the State of Illinois.

4. Bearing plates and brackets must be fabricated from steel conforming to ASTM A709, Gr. 50.

2.07 Tie Rods: Tie rods must conform to ASTM A722.

PART 3: EXECUTION

3.01 Temporary Support System: The steel sheet piles must be in place prior to commencing any excavation or removal. The subsequent staged excavation and installation of tie rods, walers, rakers and all connections shall be as shown on the plans. The Contractor shall not excavate below the maximum excavation line shown in the approved design without the prior permission of the Engineer.

3.02 Steel Piles And Steel Sheet Piling:

A. All steel piles and sheet piles must be driven in accordance with Article 512.10 of the Standard Specifications, except as modified herein.

B. Driving Hammers: All steel sheet piles must be driven by hammer. Both the hammer and the method of driving must conform to environmental control and Kane County noise requirements and the General Specifications. Driving hammers must be vibrator, diesel, air or steam hammer type. The driving energy of the hammers must be as recommended by the manufacturer for the piling weights and such that proper penetration is secured for the particular site soil conditions. For both steam and air hammers, the volume pressure of steam or air recommended by manufacturer of the hammer must be maintained at all times to insure full energy of driving blow.

C. The Contractor must establish and locate all lines and levels and be responsible for correct locations of all steel piles and sheet piles in accordance with Article 512.12 of the Standard Specifications.

D. Driving tolerances must in accordance with Article 512.12 of the Standard Specifications.

E. Beams and piles cut-off must be in accordance with Article 512.13 of the Standard Specifications.

F. The Contractor must take extra care and coordinate with ComEd and UPRR Signal Department and other utilities for working clearances, where the work is required to be performed under or near an energized transmission or distribution line, signal facility or fiber optic cable.

G. Tie rods, deadmen, rakers and walers must be installed as the work progresses. The installation of the steel sheet piling and timber lagging work must be coordinated with the excavation work so that both may proceed simultaneously and the existing embankment is maintained without settlement.

1. The Contractor will be solely responsible for stability, strength and safety of the excavation support system.

2. If at any time the safety of any adjacent structures, streets, or utilities appears to be endangered, the Contractor must cease operations, notify the Engineer, take all proper means to support such structures, etc. and not resume operations until corrective measures have been completed. Provide and place additional bracing and shoring necessary to safeguard and prevent any such movement and settlement, or as so order by the Engineer. Should the Contractor fail to comply promptly with such order, such bracing and shoring may be placed by the Engineer at the Contractor's expense. Any such action, however, will not relieve the Contractor of the responsibility for the adequacy of the sheet piling, bracing, and shoring.

H. The Contractor must notify the Engineer prior to driving of sheet piling or steel piles to arrange for railroad flagging or special operations, if required.

I. The Contractor must verify all locations of underground utilities before driving the steel piles or steel sheet piling.

J. Any disturbance or damage to existing structures or existing tie-back for abutments, roadways, or other property, caused by the Contractor's operation must be repaired by the Contractor in a manner satisfactory to the Engineer and at no additional cost to the Contract.

K. Any beam or piling that has been set, but not driven below the rail, that fouls the 10'-0" clearance from the pile to the center of the closest track, must be cut off below the rail to allow the passage of trains, and welded together when sufficient track time is available to complete the driving below the rail.

L. No beam or piling must protrude above the top of rail in any location where it is within ten feet of the centerline of an active track.

M. Safety handrails must be as shown on the Plans or installed as specified by the Engineer.

3.03 Survey Readings: Lateral and vertical readings must be taken at the top of the sheet piles, at the walers and at the bottom of excavation. These readings must be dated, recorded, and reported to the Engineer. The frequency of readings will be dictated by the phase of current construction but must be sufficient to detect serious movements so that corrective measures can be initiated immediately. Reading must be made once per day until settlement is less than 0.125 inches after which the frequency will be once per week.

3.04 Removal of Temporary Support Systems: All steel sheet piling, walers, tie rods and related materials must be removed and disposed of by the Contractor after completion of the Work unless directed otherwise by the Engineer.

A. If the removal of any of the temporary soil retention walls will endanger or cause settlement of any adjacent structure, track or utilities, the Contractor must submit to the Engineer for his approval, methods to be used to support the structures, track or utilities.

B. Removal of the TEMPORARY SUPPORT SYSTEM, except as noted, must be performed in such a way as to ensure the stability of all adjacent and future construction.

3.05 Clean-Up: At the completion of the work, all equipment, debris, and surplus and salvaged material must be removed and the site left clean and level.

3.06 Special Requirements:

A. Site Conditions:

1. The Contractor must be held to have visited the site before bidding and satisfying himself as to condition and characteristics of site traffic, means of access, and any other features which may influence the cost of the work.

2. The Contractor must use established benchmarks and other reference points. He must replace benchmarks if they are destroyed or disturbed in any manner due to his operations.

3. The Contractor must make all necessary arrangements and provide all services required to protect, relocate, terminate or abandon any gas mains, water mains, sewer, telephone and electrical conduits and cables, and all other items of this nature as required. Work on utilities will be completed by the respective utility owners unless otherwise noted. He must assume all responsibility for coordinating his work with the utility companies involved, at no cost to the Contract.

4. The Contractor must consult with all public and service company records, to fully inform himself of the location and extent of all utilities.

B. Protection of Work, Property and Personnel:

1. The Contractor must be responsible for and will protect existing structures, or other property and thoroughfares that are to be maintained during his operations.

2. The Contractor must provide all barricades, lights, fall protection and other protective devices necessary according to the requirements of Federal, State, and Municipal laws or ordinances, and as directed by the Engineer, and will maintain same for the full period of this operation.

3. Excavation and embankment must be protected at all times and maintained in good order until fill, backfill, or embankment is completely in place.

C. Obstruction Mitigation

1. 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.

2. Obstruction mitigation shall be paid for according to Article 109.04 of the Standard Specifications.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: No separate measurement will be made for TEMPORARY SUPPORT SYSTEM.

4.02 Payment: Payment shall be made at the Contract lump sum price as shown in the Schedule of Prices for TEMPORARY SUPPORT SYSTEM.

SECTION 02201

STRUCTURE EXCAVATION (SPECIAL)

PART 1: GENERAL

1.01 Description: This Section specifies the requirements for excavation for structures. The work under this Section includes furnishing all labor, tools, materials, and equipment necessary for excavation associated with the construction of both permanent and temporary structures and will include, but not be limited to: removal and disposal of all excavated materials; the removal and disposal of tie backs, sheet piles, drains and other items encountered during the course of excavation; timber shoring required to support earth sides of shallow excavations; bailing, pumping and draining, as directed by the Engineer.

1.02 Prior to commencing any excavation, the Contractor must submit to the Engineer for approval, his proposed areas of excavation, defining all limits. Existing adjacent trackwork, sideslopes, depth of excavation and proposed temporary sheeting must be included in the submittal. All drawings for the submittal must be drawn true to scale.

1.03 Except as modified herein, the work will conform to the applicable portion of the Standard Specifications, Section 502.

1.04 Related Work:

A.	REMOVAL OF EXISTING STRUCTURES	Section 02050
B.	TEMPORARY SUPPORT SYSTEM	Section 02160
C.	POROUS GRANULAR BACKFILL	Section 02203

1.05 Definitions:

A. Structure Excavation: Excavation required to remove the existing abutments and wingwalls, and other structures and for the construction of the new substructure elements.

B. Disposal: Disposal will consist of the hauling and removal from the site of all excavated material that is excavated. Written authorization or a permit from the disposal site is required prior to removing any material from the site.

PART 2: PRODUCTS

2.01 Porous Granular Backfill: Specified in Section 02203 of these Specifications.

2.02 Temporary Timber Shoring: All timber used for temporary shoring must be Southern Pine, Select Structural Grade or better. The timber and hardware will be in accordance with Section 507 of the Standard Specifications.

PART 3: EXECUTION

3.01 The excavation will be performed in stages after the TEMPORARY SUPPORT SYSTEM has been placed, and in accordance with other applicable staging provisions herein.

3.02 Prior to backfilling behind new abutments or wingwalls with porous granular backfill, the existing subgrade must be benched and uniformly compacted to not less than 95% of the Modified Proctor maximum dry density, ASTM D698 determined for this material to a depth of at least one foot.

3.03 If the new structure or wingwall is to bear on the existing subgrade and the existing subgrade is excessively soft or unsuitable, it must be excavated to a depth meeting with the Engineer's approval. The bottom of the excavation must then be compacted to a depth of one foot as previously described. The over excavation will then be filled to the correct elevation with material satisfying SECTION 02203 - POROUS GRANULAR BACKFILL.

3.04 If after removing the old structure, the depth of excavation is deeper than required for the new structure or wingwall, the bottom of excavation must be uniformly compacted to a depth of one foot as previously described including removal of any unsuitable material. Then the excavation will be filled to the correct elevation with material satisfying SECTION 02203 - POROUS GRANULAR BACKFILL.

3.05 Elevations of the bottom of existing abutment footings shown on the Plans are estimated values.

3.06 All excavated material must be disposed of at an approved location. The Contractor must provide written authorization to ENGINEER for the use of that location.

3.07 Removal of the TEMPORARY SUPPORT SYSTEM, except as noted, must be performed in such a way as to ensure the stability of all adjacent and future constructions.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work shall be measured in place and the volume computed in cubic yards.

4.02 Payment: The work covered under this Section will be paid for at the Contract unit price per cubic yard as shown for STRUCTURE EXCAVATION (SPECIAL).

SECTION 02203

POROUS GRANULAR BACKFILL

PART 1: GENERAL

1.01 Description: This Section specifies the requirements for porous granular backfill. The work under this Section includes furnishing all labor, materials, tools and equipment necessary to furnish, place and compact porous granular backfill to be used as backfill behind abutments, behind wingwalls and as required in connection with Removal of Existing Structures and Excavation for Structures.

1.02 Except as modified herein, the work will conform to the applicable portions of Section 207 of the Standard Specifications.

1.03 Related Work: Related work specified, elsewhere includes:

A. REMOVAL OF EXISTING STRUCTURES	Section 02050
B. STRUCTURE EXCAVATION (SPECIAL)	Section 02201
C. TEMPORARY SUPPORT SYSTEM	Section 02160
D. PIPE UNDERDRAINS 4" (MODIFIED)	Section 02704

PART 2: PRODUCTS

2.01 The material must consist of granular limestone backfill CA 11, or as approved by the Engineer, conforming to the requirements of Section 1004 of the Standard Specifications, except as herein modified.

2.02 The use of chats, wet bottom boiler slag, slag sand or crushed concrete will not be allowed for this item.

PART 3: EXECUTION

3.01 Before the material is deposited, it must contain the amount of moisture required for compaction. The amount of moisture required will be determined by the Engineer, for the material and compaction methods being used.

3.02 The Porous Granular Backfill must be placed in lifts not exceeding 6 inches and compacted to 95% Standard Proctor maximum dry density as determined by ASTM D - 1557 Method C. The granular material must be placed in the full width of the excavation with equipment as approved by the Engineer and in such a manner which will not cause segregation and which will require minimum blading or manipulation. The equipment and the method used must be approved by the Engineer.

Backfilling must proceed immediately after installation of the geocomposite wall drains and underdrain pipes, where applicable, but not prior to 14 days after placement of concrete of the wall to be backfilled, or three days where high early strength concrete is used and as approved by the Engineer.

3.03 Each layer must be compacted immediately after placing.

3.04 If the moisture is insufficient to maintain satisfactory compaction or to prevent segregation, water must be added as directed by the Engineer.

3.05 Compaction tests must be made at the direction of the Engineer.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work shall be measured in place and the volume computed in cubic yards.

4.02 Payment: The work covered under this section will be paid for at the Contract Unit Price per cubic yard for POROUS GRANULAR BACKFILL.

SECTION 02450

BALLAST

PART 1: GENERAL

1.01 Description of Work: This Section specifies requirements for placing an initial 4" layer of track ballast material over the completed waterproofing system on the steel plate bridge decks. The work under this Section includes all labor, tools and equipment required to place and tamp a layer of ballast on the bridge. Ballast will be furnished by UPRR.

1.02 The Contractor will place a 4" (four inch) layer of ballast on the bridge deck as protection. UPRR will also furnish the remaining ballast, which is to be placed by the Contractor to raise the tracks to final grade in the future.

1.03 The ballast will be delivered to a site determined by ENGINEER/UPRR and stockpiled. The Contractor must transport the ballast from the stockpiled location to the bridge site for placing.

1.04 Related Work:

A. MEMBRANE WATERPROOFING Section 07101

PART 2: PRODUCTS

2.01 Track Materials: Materials for the track construction will be as follows:

A. The ballast material to be furnished by UPRR will be UP Ballast Class 1, as shown in the UPRR Standard Drawing 0010B. Slag material will not be permitted.

B. Ballast and the final lift on the bridges will be furnished by UPRR in the future.

C. UPRR to provide all track material as noted in Section 05050 – TRACKWORK CONSTRUCTION, Part 2 – Products, paragraph 2.3, Track Materials.

PART 3: EXECUTION

3.01 Coordination: The Contractor will coordinate the installation of the bridge deck waterproofing with the placement of the ballast so that the waterproofing is not damaged.

3.02 The Contractor must place a layer of ballast on the waterproofed sections of the bridges as soon as the deck waterproofing is completed to protect the waterproofed surfaces. Extra ballast must be placed along the waterproofed ballast curbs for their protection.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work shall be measured in place and the volume computed in cubic yards. The Contractor must verify the quantity on his own. The Contractor is expected to install the ballast as shown on the plan regardless of any quantity differences and no additional extras will be permitted.

4.02 Payment: The work covered under this section will be paid for at the Contract unit price per cubic yard for BALLAST.

SECTION 02455

FURNISHING STEEL PILES HP14x89

PART 1: DESCRIPTION

1.01 General

A. This Section specifies requirements for furnishing, driving, building-up and cutting-off, splicing, furnishing and installing pile shoes for steel H-piles in accordance with the lines, grades and locations shown on the plans or as directed by the Engineer.

B. Material for piling shall be as specified in Section 1006.05 of the IDOT Standard Specifications for Road and Bridge Construction, dated January 1, 2012.

C. Steel bearing piles shall be of the section shown on the plans and shall be structural steel, containing no less than 0.2% copper, and conforming to ASTM Designation A572, Grade 50.

1.02 References

A. AREMA "Manual for Railway Engineering" - Chapter 8, Concrete Structures and Foundations.

B. The applicable provisions of Section 512, Piling,, IDOT Standard Specifications for Road and Bridge Construction, dated January 1, 2012.

C. Section 05120 – Furnishing & Erecting Structural Steel

1.03 Submittals:

A. The Contractor shall provide to the Engineer and the UPRR a description of all pile driving equipment to be employed in the work, prior to commencement of pile installation. This shall include details including weights of pile hammer, power plant, leads, pile cushion, cap block and helmet.

B. The Contractor is to submit the following

1. Reports and Records –include:

a. Test Pile Reports – Submit two (2) copies of each test report after completion of tests.

b. Driving Records – Submit driving record of each pile to the Engineer not later than two days after driving.
Include:

(1) Project name and number.
(2) Name of Contractor.
(3) Pile location and number.

(4) Type and size of hammer used.
(5) Type of cap used for pile driving.
(6) Pile dimensions.
(7) Tip elevation after driving.
(8) Elevation before and after cut-off.
(9) Ground elevation.
(10) Continuous record of number of blows for each foot of penetration.
(11) Pile deviation from vertical.
(12) Pile uplift and reaction.
(13) Unusual occurrences during pile driving.
(14) Date of driving.
(15) Elevation at cut-off, if re-driving is required.

2. Test Reports

a. Submit test reports necessary to show compliance with the Contract Documents.

b. Refer to requirements specified under PART 2 EXECUTION

3. Manufacturer's Certification

a. Submit certification that products meet or exceed the specified requirements.

b. Certification for pile driving equipment.

1.03 SAFETY

1. The Contractor is responsible for performing all pile operations in compliance with the current state, federal, local, FRA and OSHA regulations, specifically with respect to fall protection.

1.04 QUALITY CONTROL

A. Perform Work in accordance with the following:

1. Refer to requirements specified under PART 2 – EXECUTION

B. Welder Qualifications – Qualify welders, welding processes and procedures in accordance with AWS "Structural Welding Code".

1.05 DELIVERY, STORAGE AND HANDLING

A. Delivery, Storage and Handling

1. Materials delivered to the Project must be free of mechanical damage, with rust free surface.

2. The method of storing and handling piles shall be such as to minimize the danger of fracture by impact or undue bending stresses. Unless otherwise provided, piles shall be handled by means of a suitable bridle or sling

attached to the pile at the pick-up points marked on the pile. Use of rubberized cables is also acceptable. The use of chain slings will not be permitted.

3. Piles shall be stored above ground on adequate blocking within 1 foot of the pick-up points marked on the pile that will prevent undue stresses in the piles. When piles are only partially supported during hauling, the overhang shall not exceed the lengths permitted for pick-up. If piles are stacked for storage, blocking for all layers shall be in the same vertical plane.

PART 2: EXECUTION

2.01 General

A. Steel piles shall consist of structural steel H-pile shapes. Splices shall be in accordance with the details provided on the Plans. Pile shoes shall be fastened to the piles in accordance with the details provided on the Plans.

B. Welding on the piles shall be in accordance with Section 05120, Furnishing and Erecting Structural Steel.

C. Piles shall not be driven until after the excavation or embankment near piles for the footings, abutments, or piers construction is completed. Any material forced up between the piles shall be removed to the correct elevation before concrete in the foundation is placed.

D. Piles shall be driven with an impact hammer such as a steam/air, hydraulic, or diesel, approved by the Engineer prior to use. The driving system selected by the Contractor shall not result in damage to the pile. The impact hammer shall be capable of being operated at an energy which will maintain a pile penetration rate between 2 and 10 blows per 1 in. (25 mm) when the nominal driven bearing of the pile approaches the nominal required bearing.

E. For hammer selection purposes, the minimum and maximum hammer energy necessary to achieve these penetration rates may be estimated as follows.

$E \geq 0.082 \times [R_N + 100]^2$ (English)
$E \leq 0.193 \times [R_N + 100]^2$ (English)

Where:
R_N = Nominal required bearing in kips (kN)
E = Energy developed by the hammer per blow in ft lb (J)

F. When steel piles are driven to hard rock, the penetration resistance and hammer energy may both abruptly increase, making it difficult to calculate the penetration rate and increase concern for pile tip damage. Under these conditions, the Contractor shall reduce hammer energy and/or calculate the penetration rate over a reduced penetration increment (less than 1 in. (25 mm)) to assure that the pile has obtained the nominal required bearing and has not sustained damage.

G. Air/Steam hammers may be single or double acting but must have a total weight of striking parts of not less than one-third of the weight (mass) of the pile and drive cap and in no case shall the striking part have a weight (mass) less than 1.4 tons (1.3 metric tons). The equipment supplied with the hammer shall maintain the pressure at the hammer that is specified by the manufacturer. The Contractor shall provide the Engineer with the hammer Specifications so that the energy developed by the hammer with each blow may be determined.

H. Diesel hammers may be open-ended or closed-ended. Open-end single acting diesel hammers shall be equipped with either a device to measure ram impact velocity or speed of operation (with the necessary correlation charts) unless the stroke height can be directly observed to determine the energy developed by the hammer with each blow. Closed-end double acting diesel hammers shall be equipped with a bounce chamber pressure gauge that is easily readable and the Contractor shall provide a correlation chart and hammer data to determine the energy developed by the hammer with each blow.

I. Hydraulic hammers shall be equipped with an energy readout device and the Contractor shall furnish wave equation analysis to aid in the determination of the adequacy of the hammer and indicate the nominal driven bearing of the pile. The formula in F may not be used for these calculations.

J. The heads of all piles shall be protected by a pile drive head also referred to as a helmet or cap during driving. The drive head shall consist of a cast or structural steel helmet capable of holding the axis of the pile in line with the axis of the hammer.

K. Piles must be installed to a penetration that satisfies all of the following.

   (a) The nominal driven bearing, as determined by the formula in 2.01.P is not less than the nominal required bearing shown on the plans.

   (b) The pile tip elevation is at or below the minimum tip elevation shown on the plans. In cases where no minimum tip elevation is provided, the piles shall be driven to a penetration of at least 10 ft (3 m) below the bottom of footing or below undisturbed earth, whichever is greater.

L. When piles fail to achieve nominal driven bearings in excess of the nominal required bearing after driving the full furnished lengths, but are within 85 percent of nominal required bearing, these piles shall be left for a minimum of 24 hours to allow for soil setup and retesting before splicing and driving additional length. After the waiting period has passed, the pile shall be re-driven to check the gain in nominal driven bearing upon soil setup. The soil setup nominal driven bearing shall be based on the number of re-driving blows necessary to drive the pile an additional 3 in. (75 mm) using a hammer that has been warmed up by applying at least 20 blows to another pile. These piles will be accepted if they exhibit a nominal driven bearing larger than nominal required bearing.

M. Piles shall be driven with a variation from the vertical or required batter alignment of not more than 1/4 in./ft (20 mm/m). Piles shall be driven to an accuracy where no portion of the visible pile is out of plan position by more than 6 in. (150 mm) in any direction, provided that no design modification is required to accommodate

the pile location, and where forcing them into tolerance after driving would not result in injury to the piles.

N. After driving piles, they shall be cut off perpendicular to their longitudinal axis at the elevations shown on the Plans. The remaining portion of the piles shall be free of damage or bruising. All debris shall be removed and disposed of from around the piles. The cutoff portions of all piles, including test piles, shall be retained and made available for use in splicing or extending piles, if required, until the pile driving is complete. Upon completion of the work, the cutoffs shall become the property of the Contractor and shall be disposed of.

O. Estimated capacity of driven piles shall be calculated using the Modified ENR formula, unless otherwise noted. Qualified Contractor QC personnel to verify nominal bearing capacity of piles and submit to the UPRR and the Engineer.

P. When specified in the contract or when a hydraulic hammer is used, the nominal driven bearing of the piles will be determined by the results of a wave equation analysis. The analysis will take into account the hammer driving system, site specific subsurface data, and project pile geometry to develop driving criteria which will not overstress the pile and correctly indicate its nominal driven bearing.

Q. Test piles shall be of the same material and size, satisfy all splicing requirements, and contain any pile shoes as specified for the production piles. Test piles shall be driven with the same equipment as will be used for driving the production piles. The furnished length for test piles shall be at least 10 ft (3 m) longer than the estimated length shown on the Plans. Before driving test piles, the excavation or embankment near piles shall be within 2 ft (600 mm) of the proposed grade of the footing, pier, abutment, or channel. Test piles shall be driven to a nominal driven bearing 10 percent greater than the nominal required bearing shown on the Plans. The Engineer may stop the driving of any test pile at tip penetrations exceeding 10 ft (3 m) beyond the estimated length to check for pile setup. After any retesting, the Contractor shall recommence test pile driving, providing piling, splices, and any retests until the nominal driven bearing during driving reaches 10 percent more than the nominal required bearing or the Engineer stops the driving due to having sufficient data to provide the itemized list of furnished lengths. Test piles driven in production pile locations that are incorporated into the structure shall be cut off as permanent piles. Test piles not driven in a production location shall be cut off or pulled, as directed by the Engineer.

R. The Contractor shall furnish pile lengths according to a written itemized list provided by the Engineer. Should the Contractor elect to preorder piles prior to being provided with the itemized list, it shall be done at his/her own risk. The itemized list of furnished lengths will be based on the Engineer's evaluation of the test pile results, the soil boring data, and the estimated pile lengths on the plans.

PART 3: METHOD OF MEASUREMENT

3.01 Measurements

A. Furnishing piles will be measured for payment in lineal foot. Measurement will include the total length of piles delivered to the site of the work, according to an

itemized list furnished by the Engineer, and any additional lengths delivered for splicing as ordered by the Engineer. Measurements will be made to the nearest 1 ft. Driving piles will be measured for payment in lineal foot. Measurements will be made to the nearest 1 ft.

B. Driving piles will be measured for payment in lineal foot. Measurement will include the total length of piles subtracting cutoffs. Measurements will be made to the nearest 1 ft.

C. Test pile installation will be measured for payment as each.

PART 4 BASIS OF PAYMENT

4.01 Payments

1. Furnishing and Driving Steel Piles – HP14 x 89 will be paid for separately at the contract unit price per linear foot for Furnishing and Driving Piles, respectively.

2. Furnishing and driving test piles will be paid for at the Contract unit price per each for Test Pile Steel HP14X89.

3. The furnishing and installing of pile shoes, including those for test piles driven in production locations, will be paid for at the Contract unit price per each for Pile Shoes.

4. Payment will be made under:

    1. FURNISHING STEEL PILES HP14x89, per linear foot
    2. DRIVING PILES (SPECIAL), per linear foot.
    3. TEST PILE STEEL HP14x89, per each.
    4. PILE SHOES (SPECIAL), per each.

SECTION 02704

PIPE UNDERDRAINS 4" (MODIFIED)

PART 1: GENERAL

1.01 Description of Work: This Section specifies requirements for the end bent pipe underdrains. The work under this Section includes furnishing all labor, materials, tools and equipment required for construction of the end bent pipe underdrains including, but not necessarily limited to all pipes, fittings, elbows and their joining; underdrain backfill; geotextile fabric wrap; geocomposite wall drain materials; cleanouts; capping, concrete headwalls and all appurtenant items as will be required to complete this Item as shown on the Plans or as directed by the Engineer.

1.02 Standards:

A. Except as modified herein, Geocomposite Wall Drain work will conform to the applicable portion of the Standard Specifications, Section 591.

B. Except as modified herein, Pipe Drain and Underdrain work will conform to the applicable portions of the Standard Specifications, Section 601.

1.03 Related Work:

A.	POROUS GRANULAR BACKFILL	Section 02203
B.	CONCRETE STRUCTURES (SPECIAL)	Section 03300
C.	MEMBRANE WATERPROOFING	Section 07101

PART 2: PRODUCTS

2.01 Pipe Materials:

A. Pipe for underdrains behind the abutments must be 4-inch diameter perforated corrugated metal pipe conforming to the requirements of Article 1006.01(a) of the Standard Specifications and must be bituminous coated in accordance with the requirements of AASHTO M190, Type A.

2.02 Geotextile Fabric: Fabric considered for use under this section must consist of stabilized nonwoven filaments of polyester meeting the applicable portions of Article 1080.02 of the Standard Specifications. Nonwoven fabric must be needle punched; no resin or heat conditioning will be allowed. The filaments must be dimensionally stable (i.e., filaments must maintain their relative position with respect to each other) and resistant to delamination. The filaments must be free from any chemical treatment or coating that might significantly reduce porosity and permeability. The fabric must meet or exceed the following requirements:

Weight (oz./sq. Yd.) (ASTM D 3776)	3.5
Grab Strength (lbs) (ASTM D 4632)	100*

Grab Elongation (%) (ASTM D 4632)	20*

* Fabrics must be tested wet.

Equivalent Opening Size (EOS No.) (Corps of Engineers) (CW 02215.77)	30 nonwoven**

** Manufacturer=s certification of fabric to meet requirement.

2.03 Geocomposite Wall Drain: Geocomposite Wall Drain must be a flexible geocomposite consisting of a supporting structure or core conforming to the requirements of Article 1040.07 of the Standard Specifications. Material must be compatible with any coatings it has contact with.

2.04 Underdrain Backfill: Backfill of the geotextile fabric envelope must be coarse aggregate of gradation CA 7 in accordance with Section 1004 of the Standard Specifications.

2.05 Impervious Clay Layer: The clay layer beneath the underdrain shall be a fine grained, inorganic clay of low to medium plasticity (Soil Classification CL).

PART 3: EXECUTION

3.01 The geocomposite wall drains must be installed on the soil side of the end bents and wingwalls after the walls are waterproofed according to manufacturer's instructions. The limits of the geocomposite wall drains must be as shown on the plans. For waterproofing back of walls, see Section 03300 – CONCRETE STRUCTURES (SPECIAL).

3.02 Place supporting layer of impervious backfill under geotextile fabric where drainage pipe is to be laid to depth indicated.

3.03 All filter fabric must be installed at pipe underdrains as shown on the Plans and as specified herein. After excavation has been completed and impervious backfill bedding has been placed at underdrain locations, install filter fabric of sufficient width so that after installation of the underdrain and placement of the underdrain backfill, the fabric can be folded back over the backfill and will lap a minimum of one foot.

3.04 The fabric should not be stretched so that it will tear when the envelope aggregate is placed. When several sections of fabric are used, the fabric must overlap a minimum of 2 feet to assure continuity of the filter. Enough fabric must remain uncovered to provide for fabric overlap at the top.

3.05 Place geotextile envelope backfill over drain lines after satisfactory testing of drain lines. Place geotextile envelope backfill in layers not exceeding 3" in loose depth and compact each layer placed. Place backfill to provide 9-inch cover. After backfilling operations, the fabric must be lapped over the top.

3.06 Backfilling must immediately follow completion of the geocomposite wall drain and underdrain work, as specified in Section 02203 - POROUS GRANULAR BACKFILL.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work shall be measured in place for payment in lineal foot for PIPE UNDERDRAINS 4" (MODIFIED).

4.02 Payment: Payment will be made at the Contract unit price per linear foot for PIPE UNDERDRAINS 4" (MODIFIED).

SECTION 02711

BRIDGE FENCE RAILING

PART 1: DESCRIPTION

1.01 General

A. This work shall consist of furnishing and erecting bridge fencing as shown on the Contract Plans.

B. Work shall be according to the details shown on the Plans, and lines and grades shall not follow any defects in the structure. Fence posts shall be vertical. Top of railings shall be parallel to grade line.

1.02 References

A. Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, January 1, 2012; Section 664.

B. Notes on the Plans

C. BNSF Railway - Union Pacific Railroad – Guidelines for Railroad Grade Separation Projects

PART 2: MATERIALS

2.01 General

A. Materials shall be according to the following Sections of the IDOT Standard Specifications:

1. Steel Pipe .....1006.27(b)

2. Chain Link Fabric..... 1006.27(a)(1)a.

PART 3: SUBMITTALS

3.01 General

A. Before beginning fabrication, the Contractor shall submit shop Drawings to the Engineer for approval.

PART 4: CONSTRUCTION

A. The furnishing and installing of the chain link fabric shall be according to Section 664 of the IDOT Standard Specifications. Stretcher bars shall be used on all four sides of each panel. The chain link fabric shall be placed along the outside face of the bridge as detailed on the Plans. When galvanizing is specified, all posts, rails, splices, anchorage devices and plates shall be galvanized according to AASHTO M 111. Vent holes for galvanizing shall be placed in the posts and rails at

locations that will not allow the accumulation of moisture in the members. Field drilled holes shall be spot painted with one coat of aluminum epoxy mastic paint before erection.

PART 5: METHOD OF MEASUREMENT

5.01 Measurements

BRIDGE FENCE RAILING shall be measured for payment in place in linear feet.

5.02 Basis of Payment

Payments

A. This work will be paid for at the Contract unit price per linear foot for BRIDGE FENCE RAILING.

SECTION 02800

VINYL FENCE, 4'

PART 1: GENERAL

1.01 Description of Work: This Section specifies requirements for installation and removal of a barrier fence to provide a Contractor's work zone. The work under this Section includes furnishing all materials, labor and equipment required for installing, maintaining, shifting and removing the barrier fence. The limits of the barrier fence will be established by the Engineer.

1.02 Related Work:

A.	REMOVAL OF EXISTING STRUCTURES	Section 02050
B.	STRUCTURE EXCAVATION (SPECIAL)	Section 02201

PART 2: PRODUCTS

2.01 The barrier fence will be the snow fence type and shall be a minimum of 4 feet high with stakes placed a maximum of 15 feet apart. Details and a color sample of the fence must be submitted to the Engineer for approval before beginning work. The details must indicate the type of mounting the Contractor plans to use.

PART 3: EXECUTION

3.01 Installation:

A. The Contractor must install a temporary barrier fence to provide a Contractor's work zone.

B. The barrier fence must be set to provide a minimum clearance distance of 8'-6" to the track centerline of an active track.

C. Fence must be anchored and braced to resist natural wind forces and the wind forces from the passing trains.

D. The Contractor will be required to shift the barrier fence sections as required to perform his embankment work and other miscellaneous operations.

E. The barrier fence must be maintained by the Contractor to the satisfaction of the Engineer.

3.02 Removal:

A. When the project is completed the Contractor will remove the barrier fence after receiving the Engineer's approval.

B. The barrier fence will be removed from the site and disposed of to the satisfaction of the Engineer.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work shall be measured in place by linear foot.

4.02 Payment: The work covered under this Section will be paid for at the Contract Unit Price per foot for VINYL FENCE, 4'.

SECTION 02851

SUBBALLAST

PART 1 - GENERAL

1.1 SUMMARY

This work shall consist of furnishing and installing a foundation course for railroad ballast or asphalt surface course and shall be composed of either caliche, argillaceous, limestone, conglomerate, gravel, crushed slag, or other granular materials and shall be constructed as herein specified in one or more courses in conformity with the typical sections shown on plans and to the lines provided by the Design-Builder. This work shall meet the applicable requirements Article 1004 of Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction, Adopted January 1, 2007, except as modified herein.

1.2 REFERENCE STANDARDS

Comply with applicable provisions of all Local, State and Federal codes, specifications, standards, and recommended practices, and in particular:

A. American Railway Engineering and Maintenance of Way Association (AREMA) Specifications – Manual for Railway Engineering, current edition.

B. Union Pacific Railroad (UPRR) Company Technical Specifications for Construction of Industrial Tracks. http://www.uprr.com/aboutup/operations/specs/track/index.shtml

PART 2 - PRODUCTS

2.1 MATERIALS

A. Requirements:
Materials shall be 100% crushed stone produced from oversize quarried aggregate, sized by crushing and produced from a naturally occurring single source. Aggregate retained on a No. 10 sieve shall consist of hard, durable particles or fragments of stone, gravel, sand, or slag. Materials that break up when alternately frozen and thawed or wetted and dried shall not be used. Aggregate shall have a percentage of wear, by the Los Angeles abrasion test, of not more than 50. A higher or lower percentage of wear may be specified by the Design-Builder, depending on the material available.

B. Gradation:
It is the intent of this specification, that unless otherwise indicated on the plans, the subballast shall consist of gradation CA-6 except that the percentage of material passing the #200 sieve shall not be greater than 10%.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

A. Preparation of Subgrade. The road bed shall be shaped in conformity with the typical sections shown on plans and to the line and grades provided by the Design-Builder. All unstable or otherwise objectionable material shall be removed from the subgrade and replaced with approved material. All holes, ruts and depressions shall be filled with approved material and if required, the subgrade shall be properly wetted with water and reshaped and rolled to the extent directed in order to place the subgrade in an acceptable condition to receive the subballast material. Sufficient subgrade shall be prepared in advance to insure satisfactory progression of the work.

B. If the required compacted depth of the subballast exceeds 6 inches, the subballast shall be constructed in two or more layers of approximate equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches and shall be compacted to a density of not less than 95% modified proctor density.

C. If the material is laid and compacted in more than one layer, the Contractor shall plan and coordinate this work in such a manner that the previously placed and compacted layers be allowed ample time for curing and development of sufficient stability before vehicles hauling materials for the succeeding layers, or other heavy equipment are permitted on the subballast. Prior to placing the succeeding layers of material, the top of the under layer shall be sufficiently moist to insure a strong bond between the layers. The edges and/or edge slopes of the subballast shall be bladed or otherwise dressed to conform to the lines and dimensions shown on the plans and present straight, neat, and workmanlike lines and/or slopes as free of loose material as practicable.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

A. This work shall be measured in cubic yards within the neat lines of the typical sections, line, grades and slopes established, and shall be paid for at the contract unit price per cubic yard for SUBBALLAST, placed according to the specifications including furnishing, unloading, hauling, compacting, dressing, testing and incidental work or equipment required.

SECTION 03100

CONCRETE FORMWORK

PART 1: GENERAL

1.01 Description of Work: This Section specifies requirements for furnishing, installing and removing concrete formwork. The work under this Section includes furnishing and installing all labor, materials, tools, equipment and incidentals necessary for the installation of concrete formwork and shoring, the installation of items into formwork and/or concrete including but not limited to, anchor bolts, anchorages, and inserts (but not including reinforcement bars unless specifically noted), and removal of all temporary formwork and shoring.

1.02 Standards: The work will be performed in accordance with the applicable portions of the Standard specifications, Article 503.06, as well as the requirements of this Section.

1.03 Related Work:

A. CONCRETE STRUCTURES (SPECIAL) Section 03300

1.04 Quality Assurance:

A. Qualifications of Workmen: The Contractor must provide at least one person who will be present at all times during execution of this portion of the work who must be thoroughly familiar with the type of materials installed, the referenced standards, and the requirements of this work, and who will direct all work performed under this Section.

B. Codes and Standards: Unless otherwise shown or specified, the design, construction, erection, maintenance, and removal of forms and related structures for cast-in-place concrete work must be in compliance with American Concrete Institute Standards ACI 347, "Recommended Practice for Concrete Formwork" and ACI 318, "Building Code Requirements for Reinforced Concrete" (latest edition) and AREMA, Chapter 8.

C. Allowable Tolerances: Except as specified in paragraph 3.02.D herein, formwork must be constructed to provide completed cast-in-place concrete surfaces complying with the tolerances specified in ACI 347. Before concrete placement, the lines and levels of erected formwork must be checked. Corrections and adjustments must be made to ensure proper size and location of concrete members and stability of forming systems. During concrete placement, formwork and related supports must be checked to ensure that forms are not displaced and that completed work will be within specified tolerances.

1.05 Submittals: The Contractor must submit to the Engineer his proposed installation and support procedure for the formwork. The Contractor will make modifications, if required, to his procedure to the satisfaction of the Engineer, but it is understood that

the Engineer's approval will not relieve the Contractor from his sole responsibility for obtaining satisfactory results.

PART 2: PRODUCTS

2.01 Form Materials: Concrete surfaces must be formed with steel forms with steel facings as manufactured by Symons Corporation or Peri Formwork Systems, Inc. or an approved equal. A ¾ inch chamfer will be required on all edges.

2.02 Ties And Spreaders: Ties must be factory-fabricated, adjustable-length, snap-off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal. Ties must be fabricated so that the portion remaining within concrete after removal of the exterior parts is at least one and one-half (1½) inches from the outer concrete surface and will not leave a hole larger than one (1) inch diameter in the concrete surface. Form ties fabricated on the site and wire ties are not acceptable.

2.03 Form Coating: Form-coating compounds must be commercial formulated that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatment of concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compound.

PART 3: EXECUTION

3.01 Design of Work:

A. General Requirements:

1. The design and engineering of the formwork as well as its construction will be the responsibility of the Contractor and must conform to "Recommended Practice for Concrete Formwork", ACI 347.

2. Forms must conform to shape, lines, and dimensions shown on the drawings. They must be substantial and designed to safely resist the pressure and weight of concrete and must be properly tied and braced or shored as to maintain position and shape.

3. Formwork must be designed to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

B. Formwork for grade beams and footings: Side forms are required for all footings and grade beams.

C. Temporary Openings: Temporary openings must be provided where interior area of formwork is inaccessible for clean out, for inspection before concrete placement, and for placement of concrete. Temporary closures must be braced and set tightly to forms to prevent loss of concrete mortar. Temporary openings must be located on forms in as inconspicuous locations as possible, consistent with Project requirements.

3.02 Construction Formwork

A. General: All required forms are to be substantial, sufficiently tight to prevent leakage of mortar, and able to withstand internal pressure when filled with wet concrete.

B. Layout:

1. All required, cast-in-place concrete must be formed to the shapes, sizes, lines, and dimensions indicated on the drawings.

2. Particular care must be exercised in the layout of forms to avoid necessity for cutting of concrete after forms have been removed.

3. Proper provisions must be made for all openings, offsets, recesses, anchorage, blocking, and other features of the work as shown or required.

4. The Plans and Specifications must be carefully examined and other trades consulted as required, relative to provisions for openings, reveals and anchor bolts, and other items in the forms.

C. Bracing:

1. The forms must be properly braced and tied together so as to maintain position and shape and to ensure safety to personnel during concrete placement.

2. All bracing, supporting members, and centering must be constructed of ample size and strength to safely carry, without excessive deflection, all dead and live loads to which they may be subjected.

3. The forms must be properly apart and securely tied together, using metal spreader ties that give position typing and accurate spreading.

D. Tolerances: All forms must be straight, true, plumb, and square within a tolerance horizontally of one in two hundred and a tolerance vertically of one in five hundred.

E. Wetting: Forms must be sufficiently wetted to prevent joints opening before concrete is placed.

3.03 Work Prior to Concrete Placement

A. Form Coatings: Form surfaces must be coated with form-coating compound before reinforcement is placed. Excess form coating material must not be allowed to accumulate in the forms or to come into contact with surfaces which will be bonded to fresh concrete. Form coating must be applied in compliance with manufacturer's instructions. Steel forms must be coated with a non-staining, rust preventative form oil or otherwise protected against rusting. Rust-stained steel formwork is not acceptable.

B. Cleaning and Tightening: Forms and adjacent surfaces must be thoroughly cleaned to receive concrete. Chips, wood, sawdust, dirt, or other debris must be removed just before concrete is to be placed. Forms must be tightened immediately after placement as required to eliminate mortar leaks.

C. Edge Forms and Screed Strips: Edge forms or bulkheads and intermediate screed strips for slabs must be set to obtain required elevations and contours in the finished slab surface. The Contractor will provide and secure units to support types of screeds required.

3.04 Removal of Formwork: Forms must be left in place a minimum of 72 hours after casting the concrete.

3.05 Re-Use of Forms: Any surfaces of forms to be re-used in work must be cleaned and repaired. Damaged form facing material will not be acceptable. New form coating compound material must be applied to concrete contact surfaces as specified for successive concrete placement. Contractor must thoroughly clean surfaces, remove fins, and laitance, and tighten forms to close all joints. Joints must be aligned and secured to avoid offsets. The Engineer will have the right to reject the re-use of any forms.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: No separate measurement or payment will be made for CONCRETE FORMWORK, the cost of which will be included in Section 03300 – CONCRETE STRUCTURES (SPECIAL).

SECTION 03300

CONCRETE STRUCTURES (SPECIAL)

PART 1: GENERAL

1.01 Description of Work: This Section specifies the requirements for cast-in-place concrete for the permanent UPRR railroad bridge components. The work under this Section includes furnishing all labor, materials, tools and equipment required for constructing expansion and contraction joints and waterstops for cast-in-place concrete; normal and rubbed surfaces; waterproofing of all concrete surfaces to be backfilled or exposed to water, embedded steel items including anchor rods, sleeves, plates and dovetail slots; drilling and grouting dowels and pins; and all other appurtenant work, as specified herein, shown on the Plans or as directed by the Engineer.

1.02 Standards: Except as modified herein, the work performed under this Section will conform to the applicable portions of the Standard Specifications, Sections 503 and 504.

1.03 Related Work:

A.	FURNISHING STEEL PILES HP14x89	Section 02455
B.	CONCRETE FORMWORK	Section 03100
C.	CONCRETE REINFORCEMENT	Section 03200

1.04 Submittals:

A. The Contractor must submit his proposed concrete mix designs for the review and approval of the Engineer. All mix designs must be IDOT mix designs approved for the ready-mix supplier.

B. Samples: Prepare and submit samples of remolded fillers for approval.

C. Manufacturers Data: Furnish copies of the manufacturer's specifications for the admixtures, bonding agent, patching and surfacing compound, non-slip material, form oil, joint filler, sand and vapor barrier, including methods of application and installation.

D. Ready-Mix Delivery Tickets:

1. Maintain a record at the job site showing date, time and place of each pour of concrete, together with ready-mix delivery tickets certifying contents of each pour.

2. Make the record available to Engineer for inspection upon request and upon completion of the work deliver the record and the delivery tickets to the Engineer.

1.05 Quality Assurance:

A. Codes and Standards: All work included in this section will be performed in accordance with pertinent provisions of the following codes and standards, except where otherwise shown or specified:

1. ACI 301 Specifications for Structural Concrete for Building@.

2. ACI 304 Recommend Practice for Measuring, Mixing, Transporting and Placing Concrete.

3. ACI 305 Recommended Practice for Hot Weather Concreting.

4. ACI 306 Recommended Practice for Cold Weather Concreting.

5. ACI 309 Recommended Practice for Consolidation of Concrete.

6. ACI 311 Recommended Practice for Concrete Inspection.

7. ACI 315 Manual of Standard Practice for Detailing Reinforced Concrete Structures.

8. ACI 318 Building Code Requirements for Reinforced Concrete.

9. ACI 347 Formwork for Concrete.

B. Where provisions of the above codes and standards are in conflict with the building code in force for this work, the building code must govern. In case of conflict between the project Specifications and ACI 301, the project Specifications must govern.

C. The following material specifications are referred to hereinafter:

1. ASTM A185 Welded Steel Wire Fabric for Concrete Reinforcement

2. ASTM A615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

3. ASTM C33 Concrete Aggregate

4. ASTM C94 Ready Mixed Concrete

5. ASTM C150 Portland Cement

6. ASTM C260 Air-Entraining Admixtures for Concrete

7. ASTM C494 Chemical Admixtures for Concrete

8. ASTM D994 Preformed Expansion Joint Filler for Concrete (Bituminous Type)

9. ASTM D1751 Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Type)

D. The following testing methods are referred to hereinafter:

1. ASTM C31 Making and Curing Concrete, Test Specimens in the Field

2. ASTM C39 Compressive Strength of Cylindrical Concrete Specimens, Test For

3. ASTM C42 Drilled Cores and Sawed Beams of Concrete, Obtaining and Testing

4. ASTM C143 Slump of Hydraulic Cement Concrete, Test For

5. ASTM C173 Air Content of Freshly Mixed Concrete by the Volumetric Method

6. ASTM C192 Making and Curing Concrete Test Specimens in the Laboratory

7. ASTM C231 Air Content of Freshly Mixed Concrete by the Pressure Method, Test For

8. ASTM E96 Water Vapor Transmission of Materials

E. Unless a date is specified, the edition of all Standard Specifications or codes current as of 90 days prior to date of bid documents will be used and applicable copies of the above recommended practices must be available on the site at all times. Note that ACI 318 includes additional materials and testing specifications which by the above reference to ACI 318, become a part of this Specification.

F. Ready-Mixed Concrete: All ready-mix structural concrete must be furnished by an approved supplier whose plant is certified by the National Ready Mix Concrete Association.

G. Correction of Defective Work: All concrete work which does not conform to the requirements of the Contract Documents, including strength, tolerances, and finishing, must be corrected as directed by the Engineer at the Contractors expense. The Contractor will be responsible for the cost of corrections to any other work affected by or resulting from corrections to the concrete work.

PART 2: PRODUCTS

2.01 Concrete Materials:

A. Portland Cement: ASTM C150, domestic brand, Type 1, normal Portland Cement; Type III for high-early strength Portland cement. The same brand of Portland Cement must be used for exposed concrete throughout the job

unless a change is approved by the Engineer. Air entraining cement is not acceptable.

B. High-early strength concrete may be used subject to Engineers approval. All provisions of the specifications will apply except that the 7 day compressive strength must be equal the 28 day strength required for normal concrete.

C. Coarse Aggregate: ASTM C33, Sections 7 through 10 for crushed stone and must meet the following requirements: Size CA7, for slabs, wall and foundations.

D. Fine Aggregate: ASTM C33, Sections 3 through 6 for natural sand.

E. Admixtures: Use air-entraining admixture in all concrete, except concrete to be placed in drilled shafts. Add air-entraining admixture at the manufacturers prescribed rate to result in concrete at the point of placement having an air content of not less than 5% nor more than 8% of the volume of the concrete.

F. Water-reducing Admixture: ASTM C494, Type A, Pozzolith 322N (Master Builders Co.) WRDA (W.R. Grace & Co.) or Plastocrete 161" (Sika Chemical Corp.).

G. Air-entraining Admixture: ASTM C260, Darex (W.R. Grace & Co.) or A.E.R. (Sika Chemical Corp.), MBVR STD. (Master Builders Co.).

H. Fly Ash: Must not be used.

I. Calcium Chloride: Must not be used.

J. Water: Must be potable.

K. Bonding Agent: Epoxy type: Resided Concrete Bonding R7650 Adhesives (HB. Fuller Co.), PR-930" (Products Research Co.). Epoweld 812" (Coast Pro-Seal& Manufacturing Co.), Sta-Crete T1": (Sta-Crete, Inc.). Use Bonding Agent where patching is allowed for certain concrete, subject to the Engineers approval. Apply in accordance with the manufacturers printed instructions.

L. Patching and Surfacing Compound: Epoxy Type: PR-940 Patching and Surfacing Compound (Products Research Co.) Chemcrete (Protex-A-Cote, Inc.), Resiweld 7640 Series with sand aggregate (HB. Fuller Co.), Sta-Crete 12" with sand aggregate (Sika Chemical Corp.). Use where patching compound is allowed for certain concrete work, subject to the Engineers approval. Apply in accordance with the manufacturers printed instructions. Patching and surfacing compound for use on Aexposed concrete surfaces must be equal in color and texture to the basic concrete structure, as approved by the Engineer.

M. Grout: Must be non-metallic, non-shrink type in accordance with CRD-C 621, Corps of Engineers specification for non-shrink grout. Compressive strength of grout must be minimum of 5,000 psi in accordance with ASTM-C109.

N. Burlap Curing Blankets: Concrete must be cured for seven (7) days with damp or wetted burlap. The burlap blankets must be made from whole stock widths of new burlap and must be two feet longer than the width of slab being placed. The burlap must be free from substances which may be deleterious to freshly laid concrete. Sacks or burlap reclaimed from uses other than curing must not be used. Reused burlap must be in a condition satisfactory to the Engineer. The burlap will conform to the following requirements:

1. Weight per square yard, not less than 9 oz.

2. Ash (based on dry weight), not more than 3.0%.

3. The burlap must be composed of not less than 95.0% jute and manila fibers.

O. Waterproof Paper Blankets: Waterproof paper blankets must meet the requirements of AASHTO M 171 with the following changes and additions:

1. General Requirements: The paper composing the blankets must be 100% sulphate kraft. The color of the top sheet must be that which the paper industry terms white for this grade of paper and must meet the approval of the Engineer. Blankets must be reinforced by jute, cotton or glass yarn of satisfactory weight, completely embedded in the bituminous cement, running in both longitudinal and transverse directions not more than 2 inch apart and crossing at approximately right angles. Unspun fibers may be used, in which case approximately 1,400 lineal feet per square yard must be embedded in the bituminous cement in a manner that will provide adequate reinforcing in both longitudinal and transverse directions. A suitable bituminous cement will be used.

2. Impermeability: When tested in accordance with AASHTO T155, mortar specimens having the surfaces sealed with samples of impermeable paper blanket proposed for use, must show moisture losses no greater than 0.150 grams per square inch of exposed surface after 72 hours.

3. Tensile Strength: The specimens to be tested wet must be immersed in water having a temperature between 70° F and 75° F for a period of one hour immediately prior to testing.

P. White Polyethylene Sheeting: White polyethylene sheeting must be of single sheet stock manufactured from virgin resin and must contain no scrap or additives. It must be free from visible defects and of uniform appearance; and must not easily tear, puncture or otherwise become unfit for use. Its color must be white and must meet the approval of the Engineer. The sheeting must meet the following physical requirements:

1. Impermeability: When tested by the applicable parts of the method prescribed in Paragraph 2.01.O.2, above, mortar specimens having the surface sealed with samples of the sheeting proposed for use must show moisture losses no greater than specified.

2. Tensile Strength and Elongation: When tested in accordance with ASTM D882 Method B, the polyethylene sheeting must have a tensile strength of not less than 1700 pounds per square inch in the machine direction and 1,200 pounds per square inch in transverse direction. The elongation must not be less than 225 percent in the machine direction and 350 percent in the transverse direction. Tests must be made at a temperature between 75° F and 78° F.

Q. Burlap-Polyethylene Blanket: The burlap and polyethylene must be bonded together so that the blanket acts as a unit. The burlap must conform to the requirements of Paragraph 2.01.N, above. The polyethylene sheeting must conform to the requirements of Paragraph 2.01.P, above. When tested by the applicable parts of the method prescribed in Paragraph 2.01.O.2, above, mortar specimens having the surface sealed with samples of blanket proposed for use must show moisture losses no greater than specified herein.

2.02 Curing and Finishing Materials:

A. Liquid Membrane-Forming Compounds for Curing Concrete: Fed. Spec. TT-C-800A, Type I Styrene Acrylate or Type II Chlorinated Rubber; non-pigmented; "Kure-N-Seal" (Sonneborn Div. Of Contech, Inc,), "Dekore T130" (W.R. Grace & Co.) or CR-26" (W.R. Meadows, Inc.).

Cure for seven (7) days, i.e., apply each day for seven days after forms are removed.

B. Curing compounds must be guaranteed not to affect the bond, adhesion or effectiveness of damp proofing, or surface treatments.

2.03 Jointing Materials:

A. Premolded joint filler must be of thickness shown on the Drawings. Exterior joints adjacent to existing abutment walls to remain, part of walkways, building walls or foundations must be cork type conforming to ASTM D1752, Type II; asphalt impregnated fibre ASTM D1751.

B. Waterstops shall be polyvinyl chloride (PVC) made from virgin raw materials and shall conform to the requirements of the U.S. Army Corps of Engineers Specifications CRD C572, in accordance with the AREMA Manual, Chapter 8, Part 1, Section 1.11.7.

2.04 Design Mixes:

A. General: The Contractor, at his own expense, will employ a technical agency, approved by the Engineer, familiar with local construction conditions and materials to design concrete mixes.

B. Mix Designs: Must be formulated with ample lead time (6 weeks) to allow testing and verification of the design as hereinafter specified so that mixes can be reviewed by the Engineer prior to job use. All concrete must have a

minimum of six (6) bags of cement per cubic yard and must attain a minimum compressive strength of 4,000 psi at 28 days, except as otherwise specified.

C. Mix designs reviewed by the Engineer are to be on file in the Contractors field office prior to pouring concrete.

D. Concrete mix designs must be made on the basis of Laboratory Trial Batches or of Field Experience with the material to be employed, for each type of concrete required, in accordance with the Drawings and Specifications. Chapter 4: Concrete Quality of ACI 318 must apply unless specified otherwise herein.

E. List design mixes stating where each applies, and properly identified.

F. The design mixes must be obtained from the following:

1. All concrete must be normal weight type, with water reducing admixture.

2. Strength requirements must be as noted on the Drawings.

3. The maximum slump must be 3 inches, plus or minus 1 inch, for unpumped concrete; 4-1/2 inches, plus or minus 1 inch for pumped concrete and lean concrete.

4. A water-reducing admixture must be used in strict accordance with the manufacturers information on the varying quantities to be used to suit variations in temperatures.

5. All weather-exposed concrete such as pavements, curbs, abutments and piers must be air-entrained 5% to 7% of volume.

6. A retarding admixture may be permitted in hot weather with the approval of the Engineer. The retarding admixture must be in accordance with Articles 1020.05 (b) and 1021.03 of the Standard Specifications.

G. Verify the adequacy of the design mixes for compressive strength in accordance with ACI 301, and with a minimum of 12 cylinders; 6 tested at 7 days and 6 tested at 28 days with appropriate ASTM procedures for compressive and split cylinder strength.

H. The Contractor must immediately notify the technical agency and the Engineer, if, at any time during construction, the concrete, resulting from the approved mix design, proves to be unsatisfactory for any reason, such as: too much water; lack of sufficient plasticity to prevent segregation, honey-comb, etc.; or insufficient strength. The technical agency must modify the design, subject to approval of the Engineer until a satisfactory concrete is obtained.

I. The Engineer will review the concrete test reports and the design mix for the concrete, check that all required tests are made and laboratory tests are submitted, order such changes for the concrete mix as required to produce

concrete construction for compliance with the specifications and approved Plans, and report to the Owner any deviation from the requirements of these Specifications as indicated by records of inspection and reports of tests.

2.05 Ready Mix Concrete:

A. General Requirements:

1. All ready-mixed concrete must comply with ASTM C94 and as herein specified.

2. The ready-mixed concrete producer must submit duplicate delivery tickets, one for the Contractor and one for the Engineer, with each load of concrete delivered to the site.

3. Delivery tickets must provide the following information:

a. Date
b. Name of ready-mix concrete plant
c. Contractor
d. Job Location
e. Type (Standard or H.E.S.) and brand of cement
f. Design Mix
g. Cement content in bags per cubic yard of concrete
h. Truck number
i. Time dispatched, and time unloaded
j. Amount of concrete in load in cubic yards
k. Admixtures in concrete, if any
l. Type of maximum size and aggregate
m. Maximum allowable slump

B. Special Requirements:

1. Delete the reference in ASTM C94 allowing extra water to be added to the batch for material with insufficient slump. Addition of water to batch will not be permitted.

2. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time that specified in ASTM C94 may be required. When the air temperature is between 85 ° F and 90° F, reduce the mixing and delivery time from 1-1/2 hours to 74 minutes and when air temperature is above 90° F, reduce the mixing and delivery time to 60 minutes.

2.06 Cast-In-Place Provisions: The PVC pipe sleeves to be cast in the abutment wingwalls shall be smooth wall polyvinyl chloride pipe conforming to ASTM D1785 and of the size shown on the Plans.

2.07 Surface Treatment: Polymer-modified Portland cement coating "Sika Top 144" or equal. Apply in accordance with manufacturer's directions.

2.08 Joint Waterproofing: Construction joints must be covered with a two foot strip of 3/32 inch thick butyl rubber membrane with adhesive in accordance with the applicable provisions of Section 580 of the Standard Specifications.

PART 3: EXECUTION

3.01 Concrete Placement:

A. Pre-placement Inspection: Before placing concrete, inspect and complete the formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other trades to permit the installation of their work and cooperate with other trades in setting such work as required. Thoroughly wet wood forms where permitted immediately before placing concrete as required where form coatings are not used. Coordinate the installation of joint materials with placement of forms and reinforcing steel.

B. General Requirements: Comply with ACI 304 and also with all of the following specific requirements:

1. Short troughs or pipes used as aids in placing concrete must be arranged and used in such a manner that the ingredients of the concrete are not separated.

2. Dropping the concrete a distance of more than 5 feet or depositing a larger quantity at any point and running or working it along the forms will not be permitted.

3. Special care must be exercised to prevent splashing concrete on forms and reinforcement, and any hardened deposit must be removed before covering with fresh concrete.

4. The placing of concrete must be carried on continuously between construction joints. Construction joints must be as approved by the Engineer and be as detailed. When it is necessary, because of an emergency, to place less than a complete horizontal layer at one operation, the layers must terminate with a keyed joint.

5. In any given layer, the separate batches must follow each other so closely that each one will be placed and compacted before the preceding one has taken its initial set. Green concrete must not be injured and there must be no line of separation between the batches, or between layers. The operation of depositing and compacting the concrete must be conducted so that exposed surfaces must be smooth and of uniform texture and completely free of honey-combing and voids.

6. Concrete must be placed with the aid of internal mechanical vibrator equipment capable of 6,000 to 9,000 impulses per minute. Vibration must be transmitted directly to the concrete. The duration of vibration at any location must be held to a minimum necessary to produce thorough compaction.

7. Concrete must be placed in layers not over 24 inches deep and each layer must be vibrated into place in such a manner as will not cause the ingredients to separate. Where necessary, vibration must be supplemented by hand spading to secure these results. Vibrators must be kept constantly in motion and must not be held in one location long enough to draw a pool of grout or water from the concrete. Maintain spare equipment to avoid breakdown delays.

8. Submit vibration methods and equipment information for prior approval to Engineer.

9. Footings and Foundations: The bottom of all excavations must be properly leveled off before placing concrete. Footings and foundations must be of sizes and shapes as shown on the Drawings. Concrete must be placed as soon as possible after excavations have been completed. All concrete must be placed continuously from bottom to top.

10. Maintain reinforcing in the proper position during concrete placement operations.

C. Cold Weather Placement:

1. When cold weather conditions exist that would impair the quality and strength of concrete, place concrete in compliance with ACI 306 "Recommended Practice for Cold Weather Concreting" and as herein specified.

2. When cold weather protection is required it must be provided with a heated enclosure. Adequate equipment must be provided for heating concrete materials and protecting the concrete during freezing or near-freezing weather. All concrete materials and reinforcement, forms, fillers, and ground with which the concrete is to come in contact with must be free from frost. No frozen materials or materials containing ice will be used.

3. Take whatever precautions are necessary during the construction period to prevent damage to foundations and interior building slabs on grade resulting from heaving of ground due to frost. Blankets must be used when night time temperature is 40° F or below and heated enclosures when less than 40° F.

D. Hot Weather Placement:

1. When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

2. Cool ingredients before mixing to maintain concrete temperature at all times of placement below 90° F. Mixing water may be chilled, or crushed ice may be used to control the concrete temperature provided

the water equivalent of the ice is included in the total amount of mixing water.

3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

4. Wet forms thoroughly before placing concrete.

5. Retarding admixture may be used if approved by the Engineer.

3.02 Concrete Curing and Protection:

A. General Requirements:

1. Curing must be in accordance with the applicable portions of Section 1020.13 of the Standard Specifications.

2. Protect freshly placed concrete from premature drying and excessive cold or heat, and maintain without drying at a relatively consistent temperature for a period of time necessary for hydration of cement and proper hardening.

3. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours.

4. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 (seven) days and in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period. Perform curing of concrete by moisture retaining cover curing, by membrane curing, or by combination thereof, as hereinafter specified.

B. Moisture Curing: Provide moist curing by one of the following methods:

1. Keep concrete surface continuously wet by covering with water.

2. Continuous water-fog spray.

3. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4 inch lap over adjacent absorptive covers.

C. Moisture Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

D. Membrane Curing: Apply membrane forming curing compound to damp concrete surfaces as soon as water film has disappeared. Apply uniformly in 1-coat continuous operation by power-spray equipment in accordance with manufacturer=s directions. Recoat areas which are subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

E. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

F. Curing Unformed Surfaces: In general, cure unformed surfaces, such as slabs, and other surfaces by membrane curing.

G. Curing surfaces which are to receive a seamless floor coating or a waterproof membrane: A sprayed on curing compound will not be used unless approved by the surfacing manufacturer. These surfaces will be cured by one of the following methods:

1. Waterproof Paper Method: The surface of the concrete must be covered with waterproof paper as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete must be wetted immediately before the paper is placed. The blankets must be lapped at least 12 inches end to end, and these laps must be securely weighted with a windrow of earth, or other approved method, to form a closed joint. The same requirements will apply to the longitudinal laps where separate strips are used for curing edges, except the lap must be at least 9 inches. The edges of the blanket must be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight over. Any torn places or holes in the paper must be repaired immediately by patches cemented over the openings, using a bituminous cement having a melting point of not less than 180° F. The blankets may be reused, provided they are air-tight and kept serviceable by proper repairs.

   a. A longitudinal pleat must be provided in the blanket to permit shrinkage where the width of the blanket is sufficient to cover the entire surface. The pleat will not be required where separate strips are used for the edges. Joints in the blanket must be sewed or cemented together in such a manner that they will not separate during use.

   b. The Engineer may approve the use of other impermeable covering, in lieu of waterproof paper, provided it has been shown through laboratory and field investigation that the results obtained are at least as satisfactory as those obtained with waterproof paper.

2. Polyethylene Sheeting Method:

a. The surface of the concrete must be covered with white polyethylene sheeting as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete must be wetted immediately before the sheeting is placed. The edges of the sheeting must be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Adjoining sheets must overlap not less than 12 inches and the laps must be securely weighted with earth, or any other means satisfactory to the Engineer, to provide an air-tight cover.

b. Any torn places or holes in the sheeting must be repaired by cemented patches. When sheets are no longer serviceable as single unit, the Contractor may select from such sheets and reuse those which will serve for further applications, provided two sheets are used as a single unit; however, the double sheet units may be rejected when the Engineer deems that they no longer provide an air-tight cover.

3. Wetted Burlap Method: The surface of the concrete must be covered with wetted burlap blankets as soon as the concrete has hardened sufficiently to prevent marring of the surface. The blankets must overlap 6 inches. At least two layers of wetted burlap must be placed on the finished surface. The burlap must be kept saturated by means of mechanically operated sprinkling system. In place of the sprinkling system, the following may be used: two layers of burlap covered with impermeable covering. The burlap must be kept saturated with water. Plastic coated burlap may be substituted for one layer of burlap and impermeable covering. The blankets must be placed so that they are in contact with the edges of the concrete, and that portion of the material in contact with the edges must be kept saturated with water.

3.03 Concrete Joints: General Requirements: Isolation joints, construction joints, and control joints must be as shown on the Drawings, and as specified. Additional construction joints must be subject to approval by the Engineer.

3.04 Concrete Finishing:

A. All exposed surfaces are to have a rubbed finish in accordance with the applicable portions of Article 503.16 (b) of the Standard Specifications.

B. Concrete work which has not been installed as indicated on the Plans, or which is out of line or level, or has defective surfaces must be considered not conforming with intent of these Specifications and will be removed, unless the Engineer grants permission to patch defective areas. Permission to patch any special area must not be considered a waiver of Engineers right to require complete removal of defective work if patching does not satisfactorily restore quality and appearance of surface.

C. Immediately after stripping forms, inspect surfaces, cut ties, remove fins or projections, fill tie holes, patch honeycombing. This is also to be done on sides which will not be exposed to view.

D. Patching must be done before concrete is thoroughly dry. Patching must be with same materials and proportions as concrete, except coarse aggregate will be omitted. On exposed work white Portland cement must be substituted for a part of the gray cement in order to produce a color matching that of the surrounding concrete, and determined by a trial patch. Dampen area to patched. Add only enough water to permit working mortar into defects, strike off and allow to set. Rub with carborundum to bring surface to same texture, color, etc., as adjacent surfaces.

E. All surfaces of concrete to remain exposed after removal of forms must have holes left by withdrawal of rods, or the hole left by removal of ends of ties, filled solid with mortar after first being thoroughly wetted. For holes passing entirely through the wall, a plunger type grout gun must be used to force the mortar through the wall starting at the back face. A piece of burlap or canvas must be held over the hole on the outside and when the hole is completely filled, the excess mortar must be struck off with a cloth flush with the surface. Holes not passing entirely through the wall must be filled with a small tool that will permit packing the hole solidly with mortar. Any excess mortar at the surface of the wall must be struck off flush with a cloth. Exposed face of mortar must have aggregate embedded similar to that on adjacent surface.

3.05 WATERPROOFING: Construction joints between the abutment cap and the backwall, and between the cap and wingwall and other locations as directed by the Engineer must be covered by a two foot strip of butyl rubber membrane secured one foot each side of the joint with adhesive before applying the asphalt waterproofing. The back of abutments and wingwalls must be waterproofed according to the requirements of Article 503.18 of the Standard Specifications. The waterproofing of the walls must be completed and accepted by the Engineer before installing the geocomposite wall drains as per Section 02704 – PIPE UNDERDRAINS 4" (MODIFIED).

PAR T 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work shall be measured based on the dimensions shown in the plans and the quantity calculated in cubic yards.

4.02 Payment:

A. This work will be paid for at the Contract Unit Price per cubic yard for CONCRETE STRUCTURES (SPECIAL).

B. All work required to correct deficiencies in construction techniques; finish and uniformity of the concrete, including demolition, removal, disposal and reconstruction will be performed by the Contractor at no additional expense to the Contract.

SECTION 03415

PRECAST CONCRETE BOX SEGMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

This section specifies the requirements for precast prestressed concrete fascia beams. The Work under this section includes furnishing all labor, materials, tools and equipment required for furnishing, transporting and erecting precast prestressed concrete fascia beams; furnishing and installing embedded steel items and lifting devices, steel sole plates and anchor bolts, polyurethane bearing pads, preformed joint filler and all other appurtenant work as specified herein, shown on the Plans or as directed by the Engineer.

1.02 STANDARDS

Except as modified herein, the Work shall conform to the applicable portions of the Standard Specifications, Section 504, and the 2011 AREMA Manual for Railway Engineering, Chapter 8, Part 17 - Prestressed Concrete Design.

1.03 RELATED WORK

A.	CONCRETE FORMWORK	Section 03100
B.	CONCRETE STRUCTURES (SPECIAL)	Section 03300
C.	FURNISHING AND ERECTING STRUCTURAL STEEL	Section 05120

1.04 SUBMITTALS

A. The Contractor shall submit his proposed concrete mix designs for the review and approval of the Engineer.

B. The Contractor shall furnish Shop Drawings to the Engineer for approval for the precast prestressed concrete fascia beams.

1.05 QUALITY ASSURANCE

Production procedures shall be in accordance with the Manual of Quality Control for Plants and Production of Precast and Prestressed Concrete Products, Publication No. MNL-116.

PART 2 - PRODUCTS

2.01 STRUCTURAL STEEL

A. All embedded steel items and the sole plates for the fascia beams shall be structural steel conforming to the requirements of ASTM A588, unless otherwise specified herein or on the Plans.
B. Stud shear connectors shall conform to the applicable requirements of the Standard Specifications, Section 1006.32

2.02 BEARING ANCHOR BOLTS

Bearing anchor bolts shall be as shown on the Plans. The swedge bar shall be ASTM F1554, GRADE 105, with 2-heavy hex nuts and wrought washer. The nuts shall meet the requirements of ASTM A563A Heavy Hex. Washers shall be galvanized after fabrication in accordance with ASTM A123. Anchor bolts and nuts shall be hot-dip galvanized in accordance with ASTM F2329.

2.03 POLYURETHANE BEARING PADS

Polyurethane bearing pads (80 durometer) shall meet the requirements of AREMA Manual for Railway Engineering, Chapter 15, Part 10, Table 15-10-3.

2.04 CONCRETE

Concrete materials shall conform to the applicable requirements of Section 504 of the Standard Specifications, and SECTION 03300 – CONCRETE STRUCTURES (SPECIAL), except that concrete compressive strengths shall be as shown on the Plans. Fly ash shall not be used.

2.05 FORMWORK

Formwork for precast prestressed concrete fascia beams shall conform to the applicable requirements of Section 504 of the Standard Specifications and SECTION 03100 - CONCRETE FORMWORK.

2.06 CONCRETE REINFORCEMENT

All reinforcing steel shall be epoxy coated and conform to the requirements of Article 508 of the Standard Specifications.

2.07 GUARANTEE

Manufacturer of precast prestressed concrete fascia beams shall provide a guarantee for no less than ten (10) years from the date of installation against spalling, cracking or

color fading of his product. Any such units that fail during the stipulated guarantee period shall be replaced with new units or suitably repaired units at no additional cost to the Contract.

PART 3 - EXECUTION

3.01 GENERAL

A. Each member shall be identified by the producer by application of a waterproof paint showing product designation, date of casting, and weight or by a metal tag cast into the concrete.

B. Design of lifting devices shall be the responsibility of the Fabricator.

C. Transportation of members shall not be undertaken until the full 28-day concrete strength has been achieved, or by order of the Engineer.

D. Plans including all details of the proposed lifting and transportation methods including loading, blocking and securing materials shall be submitted to the Engineer for approval before shipping may commence.

E. The Contractor shall be responsible for proper handling, lifting, storing and erection of all members so that they are placed in the structure without damage or undue marring of the concrete.

F. The walk surface on the top side of the fascia beam shall receive a non-slip broom finish in the direction perpendicular to the track. The broom finish technique must be approved by the Engineer.

3.02 HANDLING

A. Members shall be handled such that the points of support and directions of the reactions with respect to the unit are approximately the same during transportation and storage as when the member is in its final position. Care shall be taken during storage, hoisting, and handling of the members to prevent cracking or damage. Members damaged by improper storage or handling shall be replaced or repaired to the satisfaction of the Engineer by the Fabricator at his expense.

B. All members shall be hauled, stored, and shipped in a manner to avoid chipping, cracking, fractures, and excessive bending stresses. These members shall be supported on firm blocking with foundations suitable to prevent differential settlement or twisting of the units.

C. The ends of precast members shall not be permitted to extend a distance exceeding the depth of the member beyond any point of bearing during hauling or stockpiling.

D. Precast members shall be handled with a suitable hoisting device or crane provided with a spreader sling of sufficient capacity to handle the members. The spreader shall be of sufficient length to prevent horizontal forces in the member due to lifting, and shall be equipped with leads and hooks at each end.

E. The members shall be maintained in upright position at all times and shall be supported only at the ends. During lifting, they shall be supported only by the lifting devices provided for that purpose.

3.03 STORAGE

A. Storing of precast, prestressed concrete fascia beams shall be done with adequate blocking so that warpage or cracking will not occur. The blocking shall be of such nature that uneven settlement due to wet ground or inadequate material underneath the blocking will not occur. Placement of the blocking from the beam or girder ends shall be at locations not greater than the depth of the beam or girder and, in no case, more than 3-1/2 feet. Members which are improperly stored and which become cracked, warped, or otherwise damaged in storage will be subject to rejection.

B. Precast, prestressed members, when stacked, shall be separated by blocking capable of supporting the members in a level position without twisting. The blocking shall be arranged in vertical planes. Stacking of precast prestressed members shall be arranged such that lifting devices will be accessible and undamaged.

3.04 ERECTION

A. Bearing areas on concrete caps and the fascia beams that are to be in contact with the bearing pads shall be abrasive blast cleaned to remove all form oil and curing agents and shall be left in a dust free condition.

B. In erecting beams and girders, care shall be taken to keep bridge seats and tops of bearing devices free of foreign materials. Any shifting of beams shall be done while they are held free of the foundation.

C. The Contractor will be required to shift or interchange beams and girders to achieve a better fit when directed by the Engineer. As the beams and girders are placed in their final position, and prior to securing anchor bolts, rods, or diaphragms, the beams shall be brought to full and even bearing on the bearings.

D. Precast members shall be set in the proper location using care not to damage concrete members. After beams are set, burn off lifting loops a maximum of 2 inches above concrete surface. Remaining portion of lifting loops are to be coated with paint. Patch recesses, if necessary, around lifting loops with epoxy mortar.

E. Patching or repair of spalled or chipped members shall be done using an approved mortar, mixed and installed in accordance with manufacturer's written instructions.

F. Fascia beam bearing pads shall be set level in exact position and shall have full and even bearing upon the bridge seat areas.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: No separate measurement will be made for PRECAST CONCRETE BOX SEGMENTS.

4.02 Payment: Fascia beams furnished and erected in place will be paid for at the lump sum price for PRECAST CONCRETE BOX SEGMENTS.

This price shall include full compensation for furnishing all material, equipment, tools, labor and incidentals necessary to fabricate, handle, store, transport and erect the fascia beams in accordance with the Plans and to complete the work. This price shall include furnishing and installing embedded plates, structural steel sole plates, anchor bolts and polyurethane bearing pads and all other accessories required to complete the work.

SECTION 03601

DRILL AND GROUT BARS

PART 1: GENERAL

1.01 Description of Work: This Section specifies requirements for drilling and epoxy grouting of anchor rods or bars for the beam bearings, and other locations shown on the Plans. The work under this section will consist of furnishing all labor, materials, tools and equipment required for drilling and epoxy grouting the anchor rods.

1.02 Submittals: Prior to performing the work, the Contractor must submit a notarized certification by the formulator stating that epoxy-resin grout meets the requirements as set forth herein.

1.03 Related Work:

A. CONCRETE STRUCTURES (SPECIAL) Section 03300

PART 2: PRODUCTS

2.01 The epoxy grout must be a two-component, epoxy-resin bonding system conforming to the requirements of ASTM C881, Type I, Grade 2, Class A, B or C. The class supplied must be governed by the range of temperatures for which the material is to be used. The resin must contain a white pigment and the hardener must contain a black pigment in such proportions that the resulting mixture is concrete gray.

2.02 The two-component, epoxy-resin grout must be furnished by the manufacturer in pre-measured, pre-assembled cartridges suitably designed for mixing and application of the grout, or in containers individually marked to clearly identify each component.

2.03 Packaging: The epoxy grout must be packaged in a kit with each component in a separate container. The containers of each kit must be filled with the grout components in exact mixing proportions, and one container must be large enough to mix both of the components. The size of the kit must be the total volume of the mixed grout which must be one gallon or five gallons as specified. Regardless of how it is furnished, the manufacturer must supply mixing instructions.

PART 3: EXECUTION

3.01 Drilling: Holes must be drilled in the concrete to 1/4" larger diameter than the diameter of the anchor rods or bolts or as shown on the drawings and to the depth shown on the Plans. A template or other approved method must be used to assure accurate location of the drilled holes. All holes must be blown free of concrete dust and chips, and must be absolutely dry prior to placing the epoxy grout.

3.02 Installation: Prior to inserting the anchor rod into the hole, the hole must be filled approximately one-third full of the mixed epoxy grout. The anchor rod must be inserted into the partially filled hole and moved up and down several times to ensure total contact of the grout with the concrete, as well as the anchor rod. Extrude additional grout to proper concrete level and finish as necessary. Align anchor rod to

maintain perpendicular plane. No load must be applied to the anchors until the grout has cured for at least 24 hours.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work shall be measured per each.

4.02 Payment: Payment shall be made at the Contract Unit Price per each for DRILL AND GROUT BARS.

SECTION 05050

TRACKWORK CONSTRUCTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials as specified, equipment, tools, layout survey and incidentals necessary to construct trackwork complete as indicated in the Contract Drawings or as directed by the Engineer.

B. Work includes but is not limited to placement and installation of ballast, ties, rail, tie plates, spikes, anchors, bolts, nuts, washers, and other track material.

C. Place and tamp a layer of ballast on the deck of the permanent bridge over IL 25 / Stearns Road.

D. UPRR to perform all trackwork in the UPRR main line to the 15' clearance point as indicated in the Contract Documents. The Contractor is to install all trackwork between 15' clearance points. UPRR will be responsible for making the connections to the work installed by the Contractor including welds and track surfacing.

E. All signal work to be performed by UPRR. Contractor to coordinate his work with UPRR signal forces.

F. UPRR to provide all track material as noted in Part 2 – Products, paragraph 2.03 Track Materials.

G. Field welds required to provide continuous welded rail (with no joint bars) along final alignment. Joint bars are permissible for temporary alignment. It is assumed that 8 field welds are required.

1.02 REFERENCE STANDARDS

A. Comply with all applicable local, state, and federal codes of the most recent edition, including all addenda, specifications, standards, and recommended practices of the documents listed below, except as otherwise indicated:

1. Union Pacific Track Standards, latest edition.
2. Union Pacific Railroad Safety Rules
3. Union Pacific Railroad Maintenance of Way Rules
4. Union Pacific Railroad Engineering Standards
5. Union Pacific Railroad Chief Engineer's Bulletins
6. Union Pacific Railroad Form 7913 – Instructions governing the Inspection, Welding, Grinding, and Heat Treating of Track Components
7. Track Safety Standards of the Federal Railroad Administration
8. Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction, current edition.

9. American Railway Engineering and Maintenance of Way Association (AREMA) Specifications – Manual for Railway Engineering, current edition.
10. Form 7913: Instructions for Inspecting, Welding and Grinding of Rail and Track Components, current edition.
11. Union Pacific Railroad Fire Prevention Manual
12. Union Pacific Engineering Track Maintenance Field Handbook
13. Union Pacific Railroad (UPRR) Company Technical Specifications for Construction of Industrial Tracks. http://www.uprr.com/aboutup/operations/specs/track/index.shtml

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. None.

1.04 SUBMITTALS

The Contractor shall submit the following in accordance with the General and Special Conditions:

A. Shop Drawings: Submit shop drawing and product data for trackwork items not specifically defined by engineering standards.
B. Equipment: Submit suitability of track construction equipment including equipment manufacturer's specifications. Include equipment specifications for ballast consolidation and tamping equipment. Track tamper shall be laser guided.
C. Tools: Submit list of all track tools and equipment to be employed for installation of rail including rail cutting equipment, rail heating device and destressing equipment.
D. Material Handling: Submit procedure for transport, stockpiling and handling of trackwork materials within the limits of the project site.
E. Installation: Submit proposed construction and installation procedure for new trackwork. Contractor may modify installation procedure stated hereinafter, to produce the most efficient method for track installation, for approval by the Engineer.
F. Rail End Hardening: Submit rail end hardening procedure.
G. Track Welding: Submit procedure and field welding material technical data for field welding rail. In addition, the submittal shall provide documentation that all welders working on the project have passed the Boutet Welding Course. Contractor shall perform all required testing and associated documentation of each weld made on the project. Submittal shall include documentation of all tests performed and that all welds have passed.
H. Rail temperature anchoring record and rail destressing reports. This submittal shall also include documentation of how much rail has been added or removed.
I. Track Materials: Provide product data for each product indicated.
J. Material Inventory Reports: Provide material inventory reports as indicated in these specifications.

1.05 QUALITY ASSURANCE

A. CONSTRUCTION SUPERVISION - The track construction shall be progressed with skilled supervision and labor and the Contractor shall assemble the track material in such a manner as may be required by the Engineer. Any supervisor or laborer not satisfactory to the Union Pacific Railroad or the Engineer shall be removed from the project on request of the Engineer.

B. INSPECTION OF SUBBALLAST - Shall be made just prior to track laying. Track construction shall not commence until the subballast has been approved by the Engineer.

C. DAMAGE AND RESTORATION - The Contractor shall perform hauling, loading and unloading operations as well as track construction in such a manner as to cause no damage to the roadbed, ditches, shoulders, slopes, drainage pipes, risers, drop inlets, roads and any other facilities. Any damage to the forgoing shall be repaired or replaced, where necessary, in a manner satisfactory to the Engineer and at the expense of the Contractor. In making repairs and replacement, equivalent materials shall be used and the method of placement shall be as directed by the Engineer.

1.06 TRACK TESTING

A. Tracks will be subjected to frequent inspection, measurement and operational tests by the Engineer and UPRR using both localized testing and inspection during the construction and by means of operating test trains, geometry cars, rail flaw detection cars, engines, and other equipment as required over the entire track structure after completion of installation but prior to final acceptance of the work.

B. During the installation and testing period, all personnel, equipment, and materials necessary to make corrections to the track shall be available for replacements, re-ballasting, resurfacing and realigning, or repair of constructed items, as the Engineer may direct to ensure proper completion of the work in accordance with the Contract at the Contractor's cost for compliance with the specifications.

1.07 ADJUSTMENTS

A. Railroad track will be subject to a 'break-in' period after construction is complete. Contractor shall be responsible for the correction of track alignment within the first year after acceptance by Union Pacific Railroad.

B. Adjustments will be made only for items requiring adjustment due to 'breaking-in,' but not for damage as the result of derailments or adjustments made by the railroad following construction.

C. Adjustments shall be coordinated with the Engineer and Union Pacific Railroad such as to cause minimal disruption of railroad operations. The cost of these adjustments shall be considered part of the price of track construction.

D. Adjustments shall include, at a minimum, out of face resurfacing of all trackwork within the project limits constructed by the Track Contractor as part of this project at or near six (6) months from the date of acceptance. It is noted that requirements for resurfacing to maintain surface for the one (1) year warranty period is not limited to this single event.

E. The Contractor shall also be responsible to address and repair defects in workmanship including alignment and surface problems within the one (1) year warranty period. Repairs shall be made when requested by the railroad per the following schedule:

1. Service is required within 24 hours if track is out of service.
2. Service is required within 48 hours if track needs adjustment but is safe for operation.
3. Service for non-emergency work is to be performed in a timely manner but within a timeframe not to exceed five (5) days.

1.08 WORK TRAIN SERVICE

A. The UPRR may deliver materials to the site by rail. The Contractor shall be responsible for all coordination and arrangements with the UPRR and Engineer regarding material shipments to the site. The location where cars are to be spotted, unloaded and picked up shall be the sole responsibility of the Contractor, however approval of the plan must be received from the Engineer and the Union Pacific representative.

B. The Contractor shall provide all labor required for all work associated with unloading and distribution of materials.

C. No work train shall operate over any track, completed or skeletonized without prior approval of both the Engineer and the UPRR designated representative.

D. The cost to re-rail, and repair derailed equipment, as well as the cost to repair track, civil construction damage or other related damage, is the sole responsibility of the Contractor.

E. The cost of Work Train Service will not be paid for separately and shall be considered incidental to the Work included in the Construction Documents.

F. Material cars shall be unloaded promptly and spotted for pick up as soon as reasonably possible. The Contractor shall unload and release the cars for pick-up by Union Pacific Railroad within three (3) days after the car has been delivered for unloading.

PART 2 – PRODUCTS

2.01 CONSTRUCTION EQUIPMENT

A. Contractor shall submit with the bid a preliminary list, with a final list within 10 days of Notice to Proceed, indicating what track construction equipment that will be used on this project.

B. If the Engineer determines that Contractor's equipment is not in good working condition or that the kind, size, capacity or quantity of equipment is incapable of contributing to the work progress or to the requirements of the drawings and specifications, the Contractor will be directed to promptly replace the equipment with an improved kind, type, size, capacity, or quantity. Rejection of equipment shall not be considered justification for a delay claim.

C. Equipment shall operate within the track clearance outlined, except as otherwise

indicated. Equipment shall be compatible with the clearances indicated in UPRR Standard Plans and Engineering Instructions.

D. Wheel contours of all rail-mounted equipment shall conform to the Association of American Railroads (AAR) wheel standards or AREMA maintenance of way equipment wheel standards.

E. All construction loads shall be applied between gauge lines of running rails on each track. Single wheel loads shall not exceed 16,000 pounds.

F. Surfacing equipment shall have all tamping feet in place and operational during surfacing operations.

2.02 TRACK TOOLS

A. Furnish tools and equipment necessary to construct the track.

B. Track gauges, track levels, and other tools shall conform to the AREMA "Specifications and Plans for Tools" and UPRR Standards.

C. Tools and equipment shall be maintained in a safe condition so as not to damage the work or impair their safe usage, and shall be subject to inspection by the Engineer.

D. Tools not conforming to standard shall be "dressed" to AREMA standards, or shall be replaced. Substitution of tools other than AREMA or UPRR standard shall be permitted only with approval of the Engineer.

2.03 TRACK MATERIALS

A. The Contractor shall be responsible to furnish track material and associated parts, tools and equipment necessary to complete the Work included in the Contract Documents except for materials identified below.

B. All track materials shall meet or exceed all UPRR standards.

C. The following track material will be provided by the UPRR for use on this project:

1. 136 RE Continuously Welded Rail (CWR)
2. Ties, wood 9' for the shoo-fly track
3. Tie Plates
4. Cut Spikes, Lock Spikes, Screw Spikes
5. Rail Anchors
6. Track Bolts, Nuts, and Spring Washers
7. Joint Bars – Quantity of bars will be sufficient to facilitate construction assuming welding is performed on a reasonable schedule so bars can be reused during the life of the project. At the completion of the project the bars shall be returned to the railroad.
8. Insulated Plugs
9. Ballast - Main Line and Walkway Ballast
10. Field Welding Kits

D. Miscellaneous Materials

The Contractor shall provide all additional materials not listed above that are required for the completion of the Work by the Contract Documents. This material includes but is not limited to:

1. Tie Plugs
2. Wood Preservative
3. Small Fasteners and Fittings

E. Material for Construction

The Contractor shall provide at no additional cost to the project all other materials required for construction not mentioned above whether it remains in the final project or not.

2.04 RAIL

Rail will be 136 RE CWR or other 6" base rail supplied by UPRR, meeting UPRR standards and the following minimum requirements. All rail will be supplied by UPRR and is subject to change at the discretion of the UPRR depending on timing and availability. The following is the anticipated use of rail on this project.

A. New 136 RE CWR or heavier is required.

B. New or No. 1 Relay - 6" base rail in all body tracks and other tracks.

C. The use of jointed rail is not anticipated on the project but if provided the following requirements shall be used for handling the jointed rail.

1. UNLOADING JOINTED RAIL - Rail must not be dropped from cars, but must be unloaded with an authorized device. Jointed rail shall be distributed in upright position convenient for tonging into place. Rail must be so placed that it will be below top of rail of track to be laid. Rails to be handled with machine must be center-marked to indicate proper location for application of rail tongs.

2. HOISTING JOINTED RAIL - When handling rail, tongman, ground man and any other employee must always face the direction of rail movement. Employees must not turn their back on rail being handled. The hoisting line should be in a vertical position over center of rail when lifted from ground to minimize end motion and swinging.

3. In addition to a tongman, one or two tailmen with tag lines will be assigned when necessary, to steady the rails being lifted to or from car. When loading cars and tongman cannot be seen by the operator, the tailmen in view of the operator must relay signals from the tongman. The tongman and tailmen must step well into clear while rail is being hoisted and deposited inside car.

4. When unloading and distributing rail, tongman and at least one additional employee will be used in handling rail from car. Rails must be swung from car in a level position.

5. In handling rails from ground on stockpile to car, tongman, after applying tongs, shall signal operator of machine to take slack out of line to hold tongs in position.

Tongman shall then step into clear and signal operator to hoist rail. Spreader bar will be used when handling rails exceeding 48 feet in length.

D. CWR and continuous bolted strings of rail shall be handled in accordance with Union Pacific Railroad Chief Engineer's instructions, using special equipment provided for that purpose.

E. CWR must not be unloaded where it would obstruct a grade crossing and must either be cut or buried through it.

F. UNLOADING CONTINUOUS WELDED RAIL STRINGS – The Contractor shall be solely responsible for unloading of all welded rail. If the Contractor has the CWR delivered to the site on rail, it shall be on CWR trains. The Contractor shall provide for the handling and laying of welded rail strings in such a manner as to avoid damage to the roadbed, sub-ballast and rail strings. Care must be taken to avoid twisting or damaging the welded rail strings. The speed of unloading welded rail strings shall not exceed 4 MPH. Guide rollers shall be placed in pairs about every 39 feet for the entire length of each string at the unloading end of the rail train. In areas where new construction is adjacent to existing track, continuous welded rail may be unloaded using a threader car and pulling away from the rail. The Contractor shall provide such equipment, tools and materials as necessary and in common practice for welded rail track construction. It may be necessary for the Contractor to move the welded rail strings to the exact location of installation. The Contractor shall furnish such additional equipment and supplies as may be required to handle and place the CWR strings and the cost thereof included in the unit price for track construction.

G. When unloading CWR, joint straps shall be removed; rail ends by-passed when necessary and wooden blocks or shims shall be placed between rail ends to accommodate thermal expansion of rail.

H. All Contractor personnel involved in unloading or handling jointed rail or CWR are required to view the Union Pacific Railroad rail unloading video prior to handling rail on this project.

2.05 TIE PLATES

Tie Plates will be new or secondhand, double shoulder plates free of injurious defects and foreign material conforming to AREMA Specifications with AREMA punching A-8.

2.06 RAIL ANCHORS

Rail anchors shall be new anchors meeting AREMA criteria and sized to fit the rail section.

2.07 TIES

A. All ties shall meet UPRR standards.

B. Wood ties shall be AREMA No. 5 (7"x9") 9' long for the shoo-fly track, cross ties shall have an approved gang nail anti-splitting device on each end.

2.08 SPIKES

All spikes shall be 5/8" x 6" cut spikes conforming to AREMA specifications for low carbon steel track spikes. Spikes shall be new.

2.09 TRACK BOLTS, NUTS AND LOCK WASHERS

All track bolts, nuts and lock washers shall be new, conforming to AREMA specifications and size appropriately for the application.

2.10 BALLAST

A. Ballast will be UPRR Class 1 for the UPRR shoo-fly will be provided by UPRR.

B. Ballast size may vary at the discretion of the UPRR.

C. Ballast provided will be quarried rock crushed to the gradation meeting UPRR criteria and free from loam, dust and other foreign particles, with fully fractured faces.

D. Walkway ballast will be UPRR Class 2 or screenings as approved by the UPRR and Engineer and shall be in accordance with UPRR standards.

2.11 TIE PLUGS

Tie Plugs shall be per UPRR standards.

2.12 WOOD PRESERVATIVE

Preservative for the plugging of ties shall comply with AREMA Manual for Railway Engineering Chapter 3, Section 6, "Wood Preserving" and shall meet UPRR requirements.

2.13 INVENTORY OF MATERIAL

A. All material delivered will be counted and recorded as it is unloaded by the Contractor and quantities checked against the waybill. Any discrepancies are to be reported immediately to the Engineer. If the quantities check, the Contractor or his Superintendent will sign for the material and the Contractor is then responsible for the material.

B. A copy of the inventory sheets showing the car number, date received, material inventoried from the car or truck, and storage location, if stored, shall be furnished to the Engineer.

C. Any shortage or overage of materials shall be immediately reported to the Engineer.

D. All track materials received from Union Pacific Railroad shall be the responsibility of the Contractor until installed and accepted by the UPRR as completed work or returned and accepted by the railroad at the completion of the project.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

All work shall be completed in accordance with UPRR Standard Plans and Engineering Instructions.

3.02 TRACK LAYOUT

All field track survey layout, both horizontal and vertical, shall be by the Contractor and included in the unit track price. Stakes shall be reset by the Contractor for alignment and top of rail elevation before the finishing lift is made. The final track surface, cross level and line shall not deviate from the plans and stakes by more than the following:

A. The deviation from uniform profile on either rail at the mid-ordinate of a 62-foot chord may not be more than one half (1/2) inch.

B. Deviation from zero or design cross-level at any point shall not be more than one quarter (1/4) inch.

C. The difference in cross-level between any two points less than 62 feet apart on tangents or curved track may not be more than three eighths (3/8) inch.

D. Deviation of final line on tangent or curved track shall not exceed one half (1/2) inch in terms of the difference between measured and theoretical mid-ordinates of a 62-foot chord.

3.03 ROADBED PREPARATION AND DRAINAGE

A. Clearing and grubbing, grading, excavation, embankment preparation, drainage, subgrade preparation and subballast are specified elsewhere and is not included in the Track Contractor's Scope of Work.

B. Where the subgrade or roadbed is damaged during distribution of materials, ruts and depressions shall be filled and compacted and the roadbed surface leveled by the Contractor. The damaged roadbed shall be re-approved by the Engineer prior to track construction. No additional compensation will be given for this work.

3.04 TIE INSTALLATION PROCEDURES

A. Cross ties and switch ties shall be handled to avoid breaking or bruising. They shall not be thrown from cars or trucks onto rails, other track material or rocks. Moving and placing ties with picks, spike mauls, sledges, or shovels is prohibited. Surfaces damaged, cut, or drilled in the field shall be coated with creosote or coal tar creosote.

B. All tracks with wood ties shall be spaced at 19 ½ inches center to center.

C. Ties shall be installed in such a manner that there is a tie under each joint as defined in the FRA Track Safety Standards (except in CWR areas where ties are not allowed under field welds).

D. All ties shall be spaced uniformly, and laid with heart side down, except when ties are not true, the bow side shall be laid upward. Ties under joint bars shall be true.

E. Ties shall be placed and maintained square to the line of rail on straight track and radially on curves. The hooks or tongs shall be lined parallel with the rail. The hooks

or tongs shall be used in handling ties instead of picks, spike mauls, sledgehammers or other improper tools to avoid injuring the ties. New treated ties must not be adzed without authority from the Engineer. If adzing is authorized, an approved preservative shall be applied to the adzed surface.

F. For timber cross ties, adzing shall be restricted to that necessary to provide a sound true bearing for the tie plate and approved by the Engineer. Adzing in excess of 0.2 in. shall not be permitted. Where adzing is necessary, completely saturate the cut surface with creosote or other approved preservatives.

G. Ties damaged as a result of improper handling by Contractor and rejected by the Engineer shall be removed and replaced with undamaged ties at no additional cost to the Engineer. The cost of replacement ties is the responsibility of the Contractor.

H. No Concrete ties are anticipated for use on this project, but if that situation changes, transitions between concrete ties and standard 8' or 9' wood ties shall be made with 10 – 10' wood ties spaced on 19 1/2" centers.

3.05 TIE PLATES

A. Timber Ties

1. Tie plates must set squarely on the tie and shall be of the dimensions to fit the base of rail used. All tracks shall be fully tie plated and spiked in accordance with the proper criteria. Tie plates shall be centered and have full bearing on ties. Rail shall be properly seated in the tie plates and not riding on the shoulder of the tie plate.
2. Tie plates shall be free of dirt and other foreign material when installed.
3. Canted tie plates shall be installed so as to cant the rail inward.

3.06 RAIL

A. Work shall be performed in accordance to all UPRR Standards including the UPRR Engineering Maintenance Field Handbook.

B. RAIL CUTTING - Rail joint staggering in jointed rail locations and turnouts shall be in accordance with Section 3.5. When laying up to switches, a combination or rails less than standard length shall be used to avoid cutting, if practicable. Rail saws shall be used when necessary to cut rail. The use of a torch or track chisel will not be permitted. All necessary new bolt holes shall be marked using an approved rail drilling template and the drilling operation shall be carefully performed. Rail cutting shall utilize proper lubrication and coolant. When necessary to cut second hand rail, the cut end shall be beveled. When necessary to cut new standard carbon rail, the cut end shall be end hardened and beveled in accordance with Union Pacific Railroad Company Instructions Governing the Inspection, Welding, Grinding, and Heat Treating of Track Components.

C. BOLT HOLES – Bolt holes must be drilled to the approved diameter and proper spacing and must not be torch cut. Holes must not be drilled in rail through holes in joint bars. Bars must be removed and the proper template or indexing bar and fillet block must be used to ensure exact positioning of all bolt holes. Lubricating coolant must be used during the drilling operation. All burrs and fins must be carefully removed by grinding. Rail with extra bolt holes must not be installed in main track or leads.

D. CWR Installation

1. CWR will be placed on the tie plate/rail seat using guide rollers, or rail crane. Under no circumstances will the rail be struck with a spike maul, sledgehammer, or other device as a means of adjustment for installation.
2. Once seated, rail shall be affixed to the tie using cut spikes or mechanical fastening system per UPRR Engineering Instructions.
3. Where timber ties are employed, one rail will be laid first, and fully fastened before the second rail is installed.
4. Prior to distressing operations, track shall be surfaced and lined to the grades and line indicated on the plans.
5. See Specification Section 05650 Field Welding and Thermal Adjustment
6. In advance of the rail anchoring, an approved rail thermometer shall be used to determine rail temperature. Thermometer shall be placed on web or base of rail shaded from the sun and left long enough to record the rail temperature accurately. The temperature shall be checked frequently. All rail thermometers shall be checked for accuracy. Rail temperature shall be recorded by the Contractor and recorded for reference during destressing operation. The air and rail temperature at the time of anchoring shall be painted on the web of the rail with four (4) inch letters. As an example: A98°R102° will indicate an air temperature of 98 and a rail temperature of 102°. The marking should be made with a type of permanent paint. Record of temperature will include the rail temperature, ambient air temperature, weather conditions at time of construction, and a means of definite identification of rail location. A copy of rail laying temperature records shall be submitted to the Engineer not more than 24 hours after rail has been laid, and prior to CWR destressing.
7. Rail shall be de-stressed at the required temperature only after final track line and grade has been achieved, or as directed by the Engineer.
8. Rail shall be anchored, after the rail has been destressed at the required temperature, as required per UPRR Engineering Instructions and only after final track line and grade has been achieved, or as directed by the Engineer.
9. The ends of CWR strings will be connected using joint bars prior to ballasting operation. Rail ends will be drilled per Section 3.6.A of these specifications, OMITTING THE HOLE CLOSEST TO THE END OF EACH STRING.
10. Tools used for field cutting rails shall be approved rail saws or abrasive cutting wheels. Rail cutting will be performed in accordance with Section 3.6.B of this specification. Cutting torches shall not be used on rail. Any rail damaged by torches shall be rejected and removed from the track.
11. No rail shorter than 18 feet will be allowed except for temporary closures and transition rails.

3.07 RAIL JOINTS

Rail not in CWR locations shall be staggered according to the Union Pacific Maintenance of Way Rules or at the direction of the Engineer, except when balancing the joints for switch leads, road crossings, bridge ends and signal circuits, as well as in secondary tracks where use of prefabricated track panels is authorized. To reduce the

resonant reaction, rail joints shall be staggered at 12 feet from the nearest joint on the opposite rail. To avoid unnecessary rail cutting in providing staggered joints, a two-foot tolerance will be permitted in either direction. When laying rail, joints must not be located in road crossings, bridge decks, or on ends of bridges. Where joints are required in these areas, the joints shall be welded.

A. Drilling

1. Rail ends for bolted joints shall be drilled in accordance with UPRR Engineering Instructions. Any additional holes in rail will be sufficient cause for rejection.
2. Holes for complete bolting of cut rails shall be drilled with an approved type of rail drill. Under no circumstances shall new holes be drilled between two holes already drilled. Cutting rails or drilling holes in rails by means of acetylene or electric torch will not be permitted.
3. No holes closer than five (5) inches from the weld will be permitted in the rail. Distance is measured from the cut face to the closest edge of the hole unless authorized by the Engineer.
4. A variation of 1/32 inch in size and location of bolt holes will be allowed.
5. Holes shall be located with the proper size rail-drilling template and marked with a center punch prior to drilling. Drilling through joint bars is prohibited.

B. Rail Expansion Shims

Expansion shims must be used to establish the proper opening between rails. At joints, the opening between rail ends must be as shown in the following table:

Rail Temperature	Opening
Below 25° F	½"
51° F to 75° F	1/8"
Above 75° F	1/8" every other joint

FOR 78-FOOT RAIL

Rail Temperature	Opening
Below 25° F	½"
25° F to 50° F	3/8"
51° F to 75° F	¼"
75° F to 100° F	1/8"
Above 100° F	1/8" every other joint

Rail thermometers of the approved type must be used to determine the rail temperature and being provided.

EXCEPTION: Expansion shims must not be used at the ends of strings when laying CWR.

C. Rail Cutting

1. Rails shall be cut square and clean by means of rail saws and cleaned a minimum distance of six (6) inches from the end with torch and wire brush to free the area of grease, rust, and other foreign materials.

2. All rail ends to be cut must be supported.
3. Contractor will not cut rail strings except as required to fit rail to turnouts or crossings.
4. Rail shall be cut with rail saw to a tolerance of 1/32 inch from square. All burrs shall be removed and ends made smooth. Torch cut rails will be rejected.
5. Where the running surface of rails at joints are mismatched by more than one eighth (1/8) inch, the Contractor shall build up, grind and profile the rail per Union Pacific Railroad Company Instructions Governing the Inspection, Welding and Heat Treating of Track Components. A rail of more section shall not be ground down to match the lesser, but the lesser built up.

D. Rail End Hardening

All permanent rail joints shall be field end hardened in accordance with the AREMA Manual, Chapter 4, Rail, Part 2, Specifications - "Specifications for Steel Rails," Supplementary Requirement S1, End Hardening.

E. Rail End Beveling

Rail ends at bolted joints and bolted insulated joints shall be beveled in accordance with AREMA Standard Plan 1005-40.

F. Joint Bars

1. Joint Bars must be well oiled and properly applied with full number and correct size of bolts, nuts and spring washers. Joint bolts must be properly tightened before spiking rail and the two center bolts will be tightening in advance of the end bolts.
2. Bolts shall be placed with the nuts alternatively on the inside and outside of the rail. Nuts must be placed with the flat side toward the rail. Track bolts, joint bars and finishing surfaces of rails at joint bars shall be swabbed with oil.
3. Bars shall be properly seated in the rail and the full number of correct-size bolts, nuts, and spring washers installed. Every bolt and nut shall incorporate a lock washer. Bolts shall be tightened to torque of approximately 650 ft-lbs, beginning at the center of the joint and working both ways to the ends of the joint. After the track has been in service all bolts shall be checked and re-tightened to a torque of approximately 650 ft-lbs.
4. The application of lubricants and general maintenance of rail joints in jointed-rail territory are necessary to ensure that the rail is working properly to accommodate rail expansion and contraction resulting from temperature variations, and prevent the occurrence of track buckles or sun kinks and pull-aparts. Joint bars and rail ends must be cleaned and lubricated with an approved joint lubricant when installing joint bars. Joints must be installed with the full number of bolts and the nuts tightened to the proper tension.
5. When laying new or second hand jointed rail, or constructing new track using jointed rail, the contact surface of the rail ends and joint bars shall be lubricated using a liberal amount of approved lubricant.

6. To maintain free rail movement in existing joint rail territory, joint area must be thoroughly lubricated along all marring surfaces and into the interior of the bars, using a Hudson sprayer or equivalent. Frozen joint conditions shall be corrected by loosening the bolts and breaking the bars free from the rail to permit proper oiling and ensure free rail movement within the joint.

G. Insulated Joints

Insulated joints shall be installed per the manufacturer's instructions and the UPRR Engineering Instructions. Insulated joints shall not be installed prior to destressing CWR.

H. Transition Rail and Compromise Joints

1. Transition rail will be utilized on this project for connecting different rail sections of different groups (i.e.: 141 and 136). Transition rail will be provided to the Contractor by the UPRR and shall be installed by the Contractor. The number and size of transition rails required will be dependent upon the rail provided by the railroad. Installation of the transition rails will include the two welds required for placement in the track.
2. Connections between different weights of rail within a similar group (ie: 136/133/132/131) will be connected with compromise welds provided by UPRR and installed by the Contractor.
3. At permanent connections of different rail sections, compromise joints or compromise welds shall be installed in accordance with Union Pacific Railroad Engineering Track Standards, and where practicable they shall not be located in crossings, main track curves, on open deck bridges, or in turnouts.
4. Compromise Joints are required at all locations between the ends of rail of different weights or cross section. The Contractor shall install all compromise joints as directed by the Engineer. Installation of compromise joints shall be considered incidental to track laying and no separate payment made therefore. Compromise joints shall not be placed within the limits of turnouts.

3.08 RAIL FASTENERS

A. Elastomeric Fasteners

Elastomeric fasteners will be installed per manufacturer's instructions and UPRR's Engineering Instructions. Where special tools are recommended for the attachment of rail clips, the Contractor shall supply such tools at no additional cost to the Engineer.

B. Screw and Lock Spike Installation

Screw and lock spikes will be installed per UPRR Engineering Instructions. Ties must be pre-bored and treated prior to installation of spikes. Any tie, which is bored clear through (holes on more than one face), will be replaced at the Contractor's expense.

C. Track Bolts, Nuts and Spring Washers

Track bolts, with nuts, which have wrench turn fittings, shall be used. Spring washers shall be the correct size to fit the bolt. All bolts shall be tightened with the approved bolt machine or torque wrench to a torque of 650 foot-pounds. If a track wrench is

used, the nut must be tightened until the spring washer is fully compressed. Bolting shall be started with the center bolts working toward the ends and all nuts shall be turned up tight with bolt heads staggered inside and outside of the rail alternatively. All joint bars, rail ends, bolts, nuts and washers to be well covered with a lubricant coating as approved by the Engineer. All bolts will be rechecked for proper torque, before the track will be accepted by the Union Pacific Railroad.

D. Cut Spike Installation

1. Rail shall be spiked per UPRR Engineering Instructions and in accordance with Engineering Track Standards Drawing 0453B. All track spikes are to be the proper size, with square reinforced throat design, conforming to the current Union Pacific Specifications.
2. Tie plates shall be adjusted as necessary so that the spikes can be driven into the predrilled spike holes in the ties. Care shall be taken to make sure that the base of rail is not riding on the shoulder of the tie plate when spikes are driven. Spikes shall be started, driven vertically, and square when driven into the spike holes of the tie plate. Push or hydraulic spikes shall not be used, but percussion spikes will be allowed. Crooked or bent spikes shall be removed and replaced. When spikes are pulled, the hole shall be plugged with a standard treated tie plug. In driving the spikes, the last few blows of the hammer shall be such that the spike head will not be bent or broken, and the hammer shall not be permitted to strike directly upon the rail. Spikes shall not be driven at rail joints until all bolts in the joints have been installed and tightened. Spikes shall not be driven against the ends of joint bars. Good second hand spikes may be used as hold-down or rattle spikes.
3. All special switch plates, frog plates and guardrail plates in all turnouts and crossings frogs must be fully spiked (i.e., all spike holes filled)
4. Whenever possible, new spikes should be used for rail spikes and second hand spikes should be used for hold-down spikes. Additional rail spikes may be driven in lieu of hold-down spikes through road crossings or at other locations where hold-down spikes cannot be installed. When only two rail spikes per plate are required, gauge and field side spikes will be staggered so they do not fall directly across from each other. Where possible in eight hole tie plates, hold-down spikes will be staggered so they do not fall directly in line with the rail spikes on the same side of the tie plate. In six hole tie plates, rail spike holes punched the greatest distance from the edge of the tie plate will be used in preference to holes nearer the edge of the plate. Whenever possible, field and gauge side rail spikes must be installed in corresponding tie plate spike holes in consecutive ties resulting in a uniform spiking pattern.
5. Where spiking cannot be accomplished in accordance with the above due to lack of sufficient spike holes in smaller tie plates, spiking shall be made to maximum extent tie plates permit. Curve blocks or other approved fasteners may be used in lieu of or in conjunction with track spikes as authorized by the Union Pacific Railroad Chief Engineer.
6. Care shall be taken not to strike rail or fastenings when driving spikes. Bent spikes shall be removed and the spike hole treated and plugged per Section 3.7.D of these Specifications. A new spike should then be driven in the available adjacent hole. Where the adjacent hole is already spiked, the new spike should be driven into the same hole without plugging.

E. Tie Plugs

If spikes are withdrawn, the holes shall be swabbed with creosote or approved wood preservative substitute and plugged with creosoted tie plugs of proper size to fit the hole. If spikes are withdrawn and spikes are to be reinserted in existing spike holes, the holes shall be swabbed with creosote or approved wood preservative substitute prior to re-driving the spike. Tie plugs shall not be installed in pre-bored holes unless spikes have been driven and withdrawn.

3.09 RAIL ANCHOR INSTALLATION

A. Rail anchors, where conditions require, shall be applied by an approved rail anchor applicator machine and in the approved manner as designed in Union Pacific Railroad Maintenance of Way Rules and Track Standard Drawings. Rail anchors shall be installed after the ballast operation and the track is raised, lined and ties re-spaced. Under no circumstances shall rail anchors be installed on ties under or immediately adjacent to rail joints, nor shall anchors be installed on one side of the tie under one rail and on the opposite side of the tie under the other rail. Care shall be taken to avoid overdriving or damaging anchors and shall be installed per rail anchor manufacturer's specifications. Anchors shall not be driven or slid along the rail.

B. Sufficient rail anchors shall be applied and maintained to effectively control longitudinal rail movement. Anchors shall be installed on the same side(s) of the tie on both rails. Anchors must not be applied to one rail only, but must be applied to both rails in a uniform pattern. In bolted-rail territories and where standard joints, insulted joints, or weld safety straps are installed in CWR territories, anchors must not be applied on the opposite rail directly across from the joints or straps. Compression clips or other approved fasteners may be used in lieu of, or in conjunction with, rail anchors as authorized by the Union Pacific Railroad Chief Engineer.

C. When using sledge to remove rail anchors, the foot must be placed on top of the rail anchor in such a manner to prevent the anchor from flying and causing injuries.

D. Spike mauls must not be used in lieu of sledges for applying and removing rail anchors.

E. Care must be taken to avoid over driving as this may fracture or spread the metal resulting in loss of holding power.

F. Rail anchors fractured or metal spread, will be rejected.

3.10 BALLAST AND SURFACING

Ballast shall be uniformly distributed and the track raised, lined, surfaced, and tamped, with the finished surface of the ballast dressed in accordance with the Contract Drawings. Per the Contract Drawings 8" of ballast under the tie shall be placed in the body tracks and 12" of ballast under the tie along the leads and ladder tracks unless stated otherwise. Ballast depth shall be determined at the centerline of track.

A. Lifts

1. The ballasting of track will be performed in 'lifts.' A four (4) inch lift will include the application of sufficient ballast and tamping to effectively raise the track four (4) inches from its current elevation.
2. Tamping shall be performed between each lift in accordance with Section 3.10.B of these Specifications.
3. The track shall be laid and connected before ballast is spread and raised. It will not be permissible to operate over long stretches of track before it has been raised and surfaced unless approved by the Engineer. Immediately prior to unloading ballast for the initial four (4) inch raise, the track shall be lined as close as practical to the stakes and all ties straightened and re-spaced as necessary. Ballast shall then be spread evenly and leveled to the required section, taking care to assure that subgrade material is not intermixed with the ballast.
4. Ballast shall be spread and the track raised in a series of lifts to the approved elevation. No single lift shall be higher than four (4) inches. In raising track, if jacks or mechanical tampers are used they shall be so regulated as to avoid the bending of angle bars or straining of joints. Sufficient sets of track jacks, if used, shall be simultaneously used and properly spaced to avoid sharp breaks or bends in the rail when the track is raised. Both rails shall be raised simultaneously and to proper cross level by utilizing standard track level boards with each set of track raising jacks.
5. The final lift shall not exceed 2 inches.

B. Tamping

1. Tamping will be performed in accordance with UPRR Engineering Instructions.
2. Tamping is to be done by machines approved by the Engineer, in a manner that will produce uniform compaction. Tamping must not disturb subgrade/subballast. Thorough tamping under the rail seat is required, and joint ties shall be tamped especially firm. In areas inaccessible to on-track machines, a hand held method of power tamping, approved by the Engineer, shall be used to meet the uniform compaction requirement stated above.
3. Raising and tamping of track shall be performed with an automatic, vibratory, squeeze type power tamper with 16 tamping heads, capable of raising both rails simultaneously and maintaining cross level. The equipment to be used for surfacing operations will be subject to approval by the Engineer. Every tie in the track shall receive two or more full insertions of the tamping heads.
4. Ballast shall be power-tamped under both sides of ties from each end to a point 15-in. inside each rail for 8 ft. or 9 ft. ties. The center shall be filled with ballast, but tamping shall not be permitted in the center of the tie between the above stated limits. Both ends of the ties shall be tamped simultaneously and tamping inside and outside of the rail will be done at the same time. Tamping will not be permitted at the middle of a tie where ballast is to be left to settle of its own accord.
5. Regardless of the kind of ballast or the kind of power tamper used, tamping tools shall be worked opposite each other on the same tie. Ballast under switch ties and ties in road crossings shall be tamped the entire length of each tie. All ties shall be tamped to provide solid bearing against the base of the rail after the

track or turnout is raised to grade at final surfacing. All down ties shall be brought up to the base of rail and machine tamped. The resultant track surface and alignment shall be both uniform and smooth.

6. Tamping of track in snow or frozen ballast conditions will not be permitted.
7. All ties that are pulled loose in the track raising operation shall be placed in their proper position and properly tie-plated and fully spiked before tamping.
8. The track shall be true to line and grade as staked with tangent track level transversely. During each track raise, the track is to be tamped in such a manner that it will be uniform. When raising track, a spot board or other approved device shall be used to maintain grade, and a level shall be used to keep track to proper cross level. Laser guided alignment is required for all tangents. Horizontal alignment must be maintained during the raising operation. Use of automated controls on tampers will satisfy this requirement.
9. After ballasting is completed and the track is in correct gauge, surfaced and lined according to the stakes, the ballast shall be trimmed neatly to the section shown on the drawings, and any surplus material shall be spread evenly along the slopes of the ballast section. Dressing of the ballast by placing earth higher than the ballast toe and thus preventing proper draining will not be permitted.
10. Hand tamping with shovels or picks will not be permitted unless authorized by the Engineer. A method of power tamping approved by the Engineer must be used in areas where on-track machine tamping is not feasible or practical.
11. Two tamping tools shall always be used opposite each other on the same tie. Tampers shall be started from a nearly vertical position and worked downward past the bottom of the tie, after which the tool should be slanted downward to force ballast under the tie. Double tamp every joint tie.
12. Excess ballast shall be removed, or may, at Contractor's option, be placed as directed by the Engineer. Payment will not be made for ballast in excess of dimensions shown on the Contract Drawings.
13. In the tracks that have paved surfaces between them such as the Switching/Inspection Tracks and Maintenance Area tracks, the Contractor shall install the ballast drainage layer under the pavement. This can be placed by plowing excess ballast into this area with a ballast regulator or other means approved by the Engineer.
14. Overworked and excessively tamped ballast as determined by the Engineer shall be removed and replaced at no additional cost.
15. After the track has been raised to its final elevation and super-elevation, a tamping and consolidation of all tracks shall be performed, before the track is placed in service. The Contractor shall resurface the all new track and all turnouts 180 days after the facility is placed into service.
16. All ties after tamping shall have tie plates squarely under rail and seated in plate with no debris or stones between base of rail and tie plate.

3.11 CWR Destressing

A. The Contractor shall thermally adjust (destress) CWR after field welding is complete. Rail shall be adjusted for the UPRR recommended neutral temperature for the area. The Engineer will supply the neutral temperature to the Contractor in writing. Rail laid whose temperature was at or near the supplied neutral temperature at the time of installation must still be checked and thermally adjusted unless directed otherwise in writing by the Engineer.

B. Rail shall be destressed in accordance with UPRR Engineering Instructions and Union Pacific Engineering Maintenance Field Handbook.

C. Each track will have a Record of Neutral Temperature of Welded Rail as Laid completed by the Contractor and submitted to the Engineer within 24 hours of thermal correction.

3.12 TRACK CRITERIA AND TOLERANCES

A. Track shall be constructed to the alignment and grade prescribed.

1. All rails shall be gauged according to Union Pacific Railroad standards. The standard gauge is 4' 8-1/2" at 5/8" below the top of rail on the two inside gage faces of the rail. Gauge should not be widened in curves.
2. It is expected that in new track construction, all track is to be constructed to standard gage. Deviation from established gage will be rejected by UPRR.
3. Track gauges must be used at every fourth tie when spiking track.
4. All gauges used by the Contractor shall be checked by the Engineer. If found to be more than 1/16" in variance from the master gauge, those gauges shall immediately be removed from the job.
5. When track is being gauged, all spike pulling and re-driving should be done along one rail, on the opposite side from the rail used for lining. Before moving the rail, all spike holes must be plugged tight, and when re-spiking, the gauge must be laid square across the track, close to the point where spikes are being driven, and the rail held firmly up to gauge.
6. Deviation from established cross level shall not exceed 1/8".
7. Profile grade and horizontal alignment shall not exceed 1/8 inch in 50'.

B. Tangent track shall be level unless otherwise specified. The inside rail of each track on curves shall be maintained at the prescribed grade. Where required, superelevation shall be provided by raising the outer rail.

C. Install track and other track material in accordance with the Contract Drawings, UPRR Engineering Instructions, and UPRR Standard Plans.

D. Construct track within specified tolerances for uniformity of gauge, cross-level, profile grade, and horizontal alignment. Humps, sags, or hollows in track surface or alignment irregularities in excess of specified tolerances will not be accepted. UPRR standards will be used for all new track construction.

E. Provide vertical and horizontal control stakes every 50 feet on curves and every 100 feet on tangents.

F. The low rail on all superelevated track shall be designated as the profile rail.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

This work shall be measured in place, per FOOT.

4.2 PAYMENT

A. Track Construction – Track Work

This work shall be paid for at the Contract unit price per FOOT (FT) for Track Work and shall constitute full payment for labor, equipment and incidentals necessary to install track complete. The price shall include all costs for unloading and handling materials, installation of rail, ties, ballast including walking ballast, destressing, surfacing track to the line and grade indicated on the drawings and all incidental work in accordance with the Contract Drawings and Specifications.

B. Field Welds

Field Welds will not be measured separately, but shall be considered incidental to Track Work which shall constitute full payment for labor, equipment and incidentals necessary to install field welds complete. The price shall include all costs for unloading and handling materials, installing field welds and all incidental work in accordance with the Contract Drawings and Specifications. The quantity of field welds will be agreed upon between the Engineer and the Contractor prior to performing any field welding in accordance with these specifications.

SECTION 05120

FURNISHING AND ERECTING STRUCTURAL STEEL

PART 1: GENERAL

1.01 Description of Work: This Section specifies requirements for furnishing and erecting structural steel for the permanent UPRR railroad bridge. The work under this section shall include furnishing all labor, materials, tools, equipment and incidentals required to furnish and erect structural steel for the bridge including, but not limited to, purchase, preparation and fabrication of structural steel components; all welding, drilling, bolting and other means of connection; carbon structural steel and high-strength low alloy steel components; bearing plates, polyurethane bearing pads, bearing anchor bolts; non-destructive testing and any repairs and corrections determined by the Engineer to be necessary; all erection, field modifications as required, field connections, temporary erection bents, erection derricks, shoring and cribbing; all shop and field cleaning including sandblasting, all shipping and handling including special permits if required; and all other appurtenant items required for this work.

1.02 Standards: All materials, fabrication, inspection, testing and erection procedures shall conform to the applicable provisions of the following codes except as modified herein.

A. Standard Specifications, Sections 505 and 506, including the current Supplemental Specifications for these sections.

B. American Railway Engineering and Maintenance-of-Way Association (AREMA) "Manual for Railway Engineering", Chapter 15, "Steel Structures", current issue, Parts 1, 3 and 4 with particular emphasis on Section 15.1.14, FRACTURE CRITICAL MEMBERS.

1.03 Submittals: Submittals shall include the following:

A. Mill Affidavits and Certifications: The Contractor shall supply to the Engineer mill chemical and physical test reports, and Charpy test results, when required, for all structural steel and Welder certificates for all welders involved with fabrication or erection.

B. Shop Drawings: Prior to fabrication of structural steel, the Contractor shall submit Shop Drawings for structural steel fabrication and erection prepared by a qualified steel detailer. The Shop Drawings shall indicate all connections, lengths, locations of field and shop splices, attachments, erection and fabrication plans, and types of steel used. The Contractor shall review all Shop Drawings and verify all dimensions and procedures. The Contractor shall submit Shop Drawings to the Engineer for his review. Fabrication shall not commence until approval is received from the Engineer. The Contractor shall direct the Shop Drawing preparer to make all corrections and modifications, as directed by the Engineer, and resubmit the Drawings to the Engineer. The Engineer's approval of the Shop Drawings in

no way shall relieve the Contractor of responsibility for erectability, fabrication and fit in the field.

C. Bolt, Nut and Washer Affidavits and Certifications: The Contractor shall supply to the Engineer the bolt manufacturer's chemical and physical mill test reports by heat, including nut-proof load and washer hardness.

D. Non-destructive Testing: The Contractor shall submit to the Engineer all radiographic, ultrasonic, magnetic particle and other test records and test reports. This requirement shall in no way relieve the Contractor of the responsibility for determining the suitability or adequacy of the materials and procedures.

1.04 Qualifications: The structural steel fabricator fabricating the steel, shall be certified under the American Institute of Steel Construction Quality Certification Program, Category III - Major Steel Bridges Including Rolled Beam Bridges, in accordance with Article 3.1.1 (a) and 3.1.1 (c) Part 3, Chapter 15 of the AREMA Specifications. Evidence of certification shall be submitted to the Engineer for his approval before beginning work.

1.06 Inspection: All materials and workmanship shall be subject to inspection by the Engineer in accordance with Article 505.05 "Inspection", of the Standard Specifications.

1.07 Non-Destructive Testing of Welding: Radiographic, ultrasonic and magnetic particle inspections shall be performed on all welded steel construction in accordance with Article 505.04 (q) of the Standard Specifications except as modified herein.

A. The radiographic, ultrasonic and magnetic particle inspections shall be performed by the Contractor or his representative. Such inspections shall be at the Contractor's expense. In addition, the Engineer may use any method of non-destructive testing for examination of weld passes or completed welds.

B. The Contractor shall give the Engineer sufficient advance notice of the date on which the material will be radiographic, ultrasonic or magnetic particle inspected so that he may be present during the inspection.

C. An interpretation of all radiographic films shall be furnished to the Engineer by the Contractor. The interpretation report shall be submitted on a form approved by the Engineer. In the event the Contractor questions the Engineer's interpretation of the radiographic films, a joint review of the film will be made; however, the Engineer's final interpretation shall govern.

1.08 The bridge steel support structure will be grounded. Plans of the grounding system shall be prepared by a Qualified Grounding Company and submitted to ENGINEER for approval. The Grounding Company shall also furnish evidence that they have been engaged in the successful installation of grounding systems for at least 10 years and obtain ENGINEER's approval. The design and details shall be signed and sealed by a licensed Professional Electrical Engineer in the State of Illinois.

PART 2: PRODUCTS

2.01 Steel:

A. All structural steel shall be carbon structural steel conforming to the requirements of Structural Steel, ASTM A709, Grade 50W, unless otherwise specified herein or on the Plans.

B. The deck plates, cover plates, backwall plate and the curb flashing plates shall conform to the requirements of ASTM A709, Grade 36. The flashing plates, cover plates and backwall plates shall be hot-dipped galvanized in accordance with the requirements of ASTM A123.

C. The longitudinal steel beams of the bridge shall conform to the Supplemental Requirements for Non-Fracture Critical Impact Test Requirements for Zone 2. These components are noted on the Plans as Notch Toughness Requirements (N.T.R.).

D. All other steel required for diaphragms, deck support brackets, sole plates, cover plates and other minor parts which are nominally stressed, will be exempt from the above notch toughness requirements.

E. Rimmed or capped steel will not be permitted.

F. Ballast curbs, diaphragms, diaphragm connectors, deck support brackets, and sole plates shall be corrosion-resistant steel conforming to ASTM A588.

G. Drain pipe to be ASTM A53, Grade B.

2.02 Bearing Anchor Bolts: Bearing anchor bolts shall be as shown on the Plans. The swedge bar shall be ASTM F1554, GRADE 36, with 2-heavy hex nuts and wrought washer. The nuts shall meet the requirements of ASTM A563A Heavy Hex. Washers shall be galvanized after fabrication in accordance with ASTM A123. Anchor bolts and nuts shall be hot- dip galvanized in accordance with ASTM F2329.

2.03 Polyurethane Bearing Pads: Polyurethane bearing pads (80 durometer) shall meet the requirements of AREMA Manual for Railway Engineering, Chapter 15, Part 10, Table 15-10-3.

2.04 High-Strength Bolts: All bolts in structural connections shall be heavy hex high-strength structural bolts conforming to ASTM A325, Type 3. Bolt heads to be on exterior surfaces of the structure.

2.05 Nuts: All nuts shall be heavy hex nuts conforming to ASTM A563-DH3.

2.06 Washers: Washers shall be hardened washers conforming to ASTM F436-3.

2.07 Joint Sealant: Joint sealant to fill the gaps between the field welded deck plates shall be a multi-component, single base, non-sag polyurethane sealant, and shall be subject to the approval of the Engineer.

PART 3: EXECUTION

3.01 Fabrication: Structural steel shall be fabricated in accordance with Section 505 "Steel Structures", of the Standard Specifications, and also in accordance with Parts 1 and 3, Chapter 15 of the AREMA Manual. Where differences occur in the provisions of the Standard Specifications and the AREMA Manual, the more stringent requirements shall be followed as determined by the Engineer.

3.02 Holes: Holes for shop and field connections for the bridge shall be subpunched or subdrilled and reamed to size with parts assembled as required by the AREMA Specifications.

3.03 Shop Assembly: The steel shall be shop assembled in the shop and checked for fit and accuracy and all parts matchmarked.

A. Top flanges of the beams shall be in a true plane to provide uniform support for the deck plates. The flanges of beams at bearings shall be perpendicular to the web.

3.04 Connections: All shop and field connections for the bridge shall be bolted with high-strength bolts, except as otherwise shown or noted on the Plans. High-strength bolts shall be installed in accordance with the procedure for the installation of high-strength bolts, using turn-of-nut method. All high-strength bolts shall have a hardened washer under the element (nut or bolt head) turned in tightening.

3.05 Welded Construction: All welding on the bridge shall be in accordance with the requirements of Chapter 15 of the current edition of AREMA Specifications and the applicable provisions of Article 505.04 (q) of the Standard Specifications except as specified herein or on the Plans. In case of conflict between the AREMA Specifications and the Standard Specifications, the AREMA Specifications shall take precedence and shall govern. Electroslag and electrogas welding will not be permitted.

A. All welding inspection shall be at the Contractor's expense. Inspection procedures and inspection personnel qualifications for non-destructive testing of welded members shall be in accordance with the applicable requirements of Chapter 15 of the AREMA Specifications except as modified herein. The welded work shall be inspected within the following minimum limits:

1. All welds shall be visually inspected by the fabricator.

2. All fillet welds shall be inspected by magnetic particle - 10%.

3. The inspection service shall report the amount of inspection performed in lineal feet, location and length of defects, if any, and furnish a certification that these tests were performed in accordance with these specifications.

4. Welds requiring repairs shall be retested after repairs are made.

B. ENGINEER shall be furnished copies of all welding inspection reports including a certificate stating that these inspections have been made and that

all welds meet the quality requirements of the Standard Specifications, or AREMA Manual of Railway Engineering, Chapter 15, Part 1, Section 14 - Fracture Critical Members.

C. Welding Requirements:

1. All beam to deck plate shop welding shall be with the SAW process.
2. All field welding shall be with the SMAW of FCAW process. Welding electrodes must be E7018 for SMAW or E70T-1,5 for FCAW.
3. All other welding shall be with the SAW or SMAW.
4. All welding shall be per AWS D1.5, Bridge Welding Code.
5. All welders must possess valid certification.

3.06 Assembly and Erection: Structural steel shall be assembled and erected in accordance with Section 505 "Steel Structures", of the Standard Specifications, and also in accordance with Part 4 "Erection", Chapter 15 of the AREMA Manual. Where differences occur in the provisions of the Standard Specifications and the AREMA Manual, the more stringent requirement shall be followed, as determined by the Engineer.

A. Field welds other than those shown on the Plans or specified herein are prohibited.

B. The 5/8" x 36" deck plates shall be field welded to the beams as shown on the Plans and specified herein under Section 3.05 (C).

C. Bolt heads shall face outward on exterior girder webs.

D. The Contractor shall prepare the bridge seats, place the bearing units and perform other necessary work before erection to avoid unnecessary delay in erecting the structural steel in place.

E. The Contractor shall be required to submit to the Engineer an erection plan sufficiently in advance of erection to allow the Engineer time to approve the proposed method. The erection plan shall include the type and size of crane to be used for erection, total weight of the crane, location of the crane and its outriggers in relation to the existing beams, boom heights and maximum "reach-length" of the boom. Also included shall be the safety requirements and restrictions for operating machinery and equipment under any electrical transmission line. The Contractor shall not proceed with the steel erection until the erection plan has been approved by the Engineer.

3.07 Shop and Field Cleaning: Metal structures shall be cleaned in the shop and field in accordance with Section 506 "Cleaning and Painting Metal Structures", of the Standard Specification or as specified by the Engineer.

A. All faying surfaces, regardless of location, shall be cleaned to a minimum of SSPC-SP6, Commercial Blast Cleaning.

B. All steel surfaces shall be cleaned to a minimum of SSPC-SP1, solvent cleaning except as specified herein.

C. All steel surfaces visible from sides (beams, curbs and brackets) shall be cleaned to a minimum of SSPC-SP6, Commercial Blast Cleaning.

3.08 Unauthorized Fittings: The use of field welding, except as permitted on the Plans, or the temporary attachment of hooks, pintles, lifting or fitting devices, or field burning of holes are prohibited.

3.09 Grounding: After the bridge has been erected, the steel superstructure shall be grounded in accordance with the approved grounding system specified herein under Section 1.09.

3.10 Bearing pads shall be shipped flat.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: All structural steel shown on the Plans for the permanent UPRR Bridge will be included for payment.

4.02 Payment: Structural steel and other material complying with the requirements of this item, furnished and erected complete in place, in accordance with the specifications and accepted, will be paid for at Lump Sum Price for FURNISHING AND ERECTING STRUCTURAL STEEL, which price shall be payment in full for all materials and fabrication, shop work, transportation and erection. No payment shall be made until the material is erected complete in place.

SECTION 05571

STRUCTURE MARKER SIGNS

PART 1: GENERAL

1.01 Description of Work: This Section specifies the requirements for furnishing and installing structure marker signs. The work under this Section includes all labor, materials, tools, equipment, connectors and incidentals necessary to furnish and install the structure marker signs at each bridge as specified herein, and as required for a complete and proper installation.

1.02 Standards: All materials, fabrication and installation procedures must conform to the applicable portions of Section 515 in the Standard Specifications except as modified herein. The details of the structure marker sign must be in accordance with UPRR Standard Drawing 0507, included with these specifications. The Contractor must coordinate with and obtain from the UPRR the bridge designation number to be shown on the structure marker sign for each of the bridges.

1.03 Related Work:

A. FURNISHING AND ERECTING STRUCTURAL STEEL Section 05120

1.04 Submittals:

A. The Contractor must submit Shop Drawings for the fabrication of the structure marker signs including details covering all materials, layout, sizes, shapes and finishes.

B. The Contractor must submit Shop Drawings for the installation of the structure marker signs including details covering connection methods, fasteners and locations.

C. The Contractor must submit samples of structure marker signs material with appropriate finish.

3.01 Installation:

A. The structure marker signs must be installed in the proper location as shown on Standard Drawing 0507 or as directed by the Engineer.

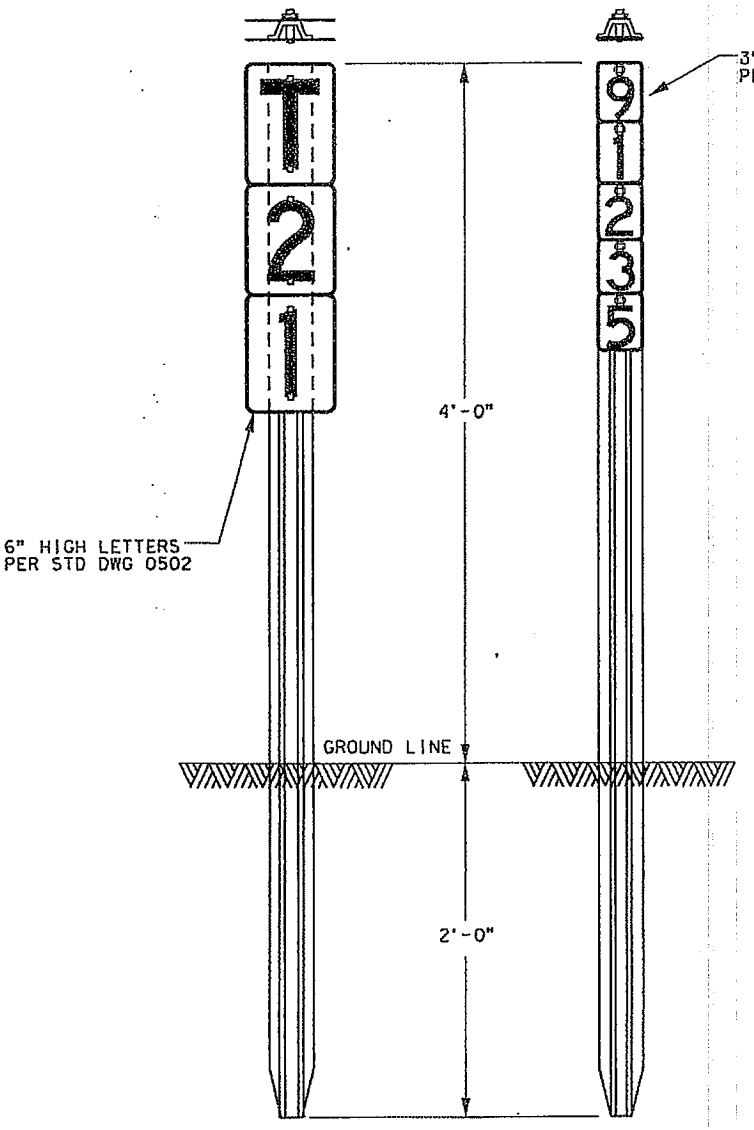
B. The structure marker signs must be installed straight and true.

C. The structure marker signs must be rigidly secured to the end plate of the through plate girder according to the details shown on the Standard Drawing 0507 or as directed by the Engineer.

PART 4: MEASUREMENT AND PAYMENT

4.01 Measurement: This work will be measured per each.

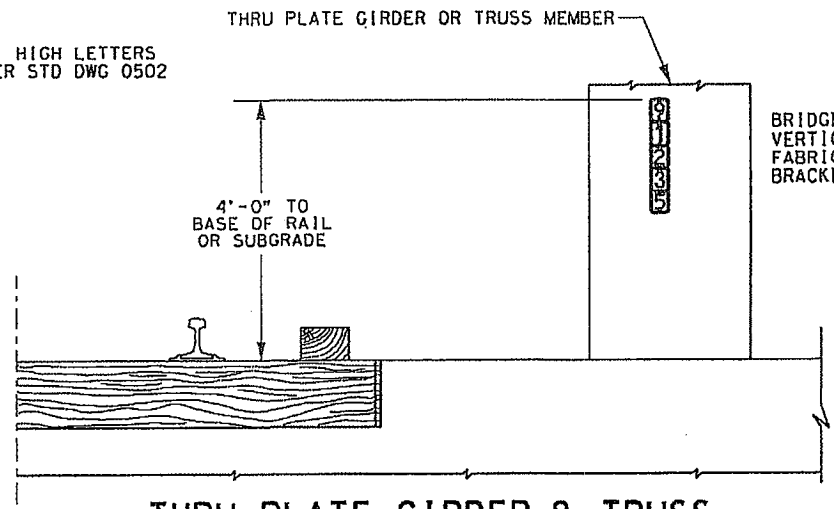
4.02 Payment: This work shall be paid for at the Contract Unit Price per each for STRUCTURE MARKER SIGNS



TUNNEL

OVERHEAD RAILROAD, CULVERT,
OVERHEAD HIGHWAY, BRIDGE

STRUCTURE MARKERS



THRU PLATE GIRDER & TRUSS

NOTES:
IN MULTIPLE TRACK LOCATIONS, SIGNS WILL BE PLACED ON FIELD SIDE OF OUTSIDE TRACKS ONLY.

BRIDGE, TUNNEL, OVERHEAD RAILROAD, AND OVERHEAD HIGHWAY SIGNS TO BE PLACED ON ENGINEERS SIDE OF TRACK AT BOTH ENDS OF STRUCTURE AT A MINIMUM OF 10'-0" FROM THE GAGE LINE OF THE NEAREST RAIL.

WHEN AT ALL POSSIBLE, TUNNEL AND OVERHEAD CROSSING SIGNS SHOULD BE MOUNTED ON ADJACENT STRUCTURES INSTEAD OF FLANGED CHANNEL POST. USE 5/16" EXPANSION BOLTS IN MASONRY AND 5/16" LAG SCREW IN WOOD

ONLY ONE CULVERT MARKER SIGN ON DOUBLE OR SINGLE TRACK TO BE PLACED ON RIGHT HAND SIDE GOING IN THE SAME DIRECTION AS MILE MARKER POST.

FOR NUMERAL SIGNS, SEE STD DWG 0502
FOR MOUNTING DETAILS, SEE STD DWG 0599

REF. PREVIOUS U.P. STD PAGE 507-A & 553-A

UNION PACIFIC RAILROAD
ENGINEERING STANDARDS

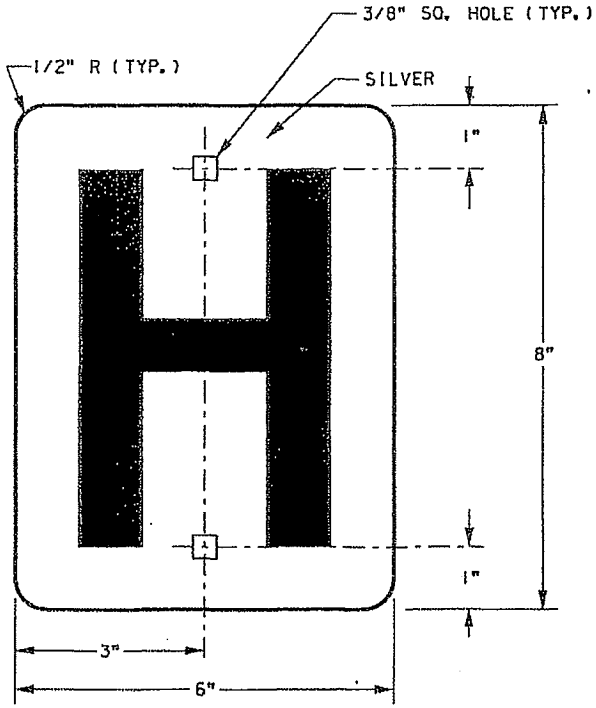
STRUCTURE MARKER SIGNS

ADOPTED: OCT. 1, 1904
REVISED: DEC. 30, 1996
FILE NO.: 0507

STD DWG
0507

STD DWG
0507

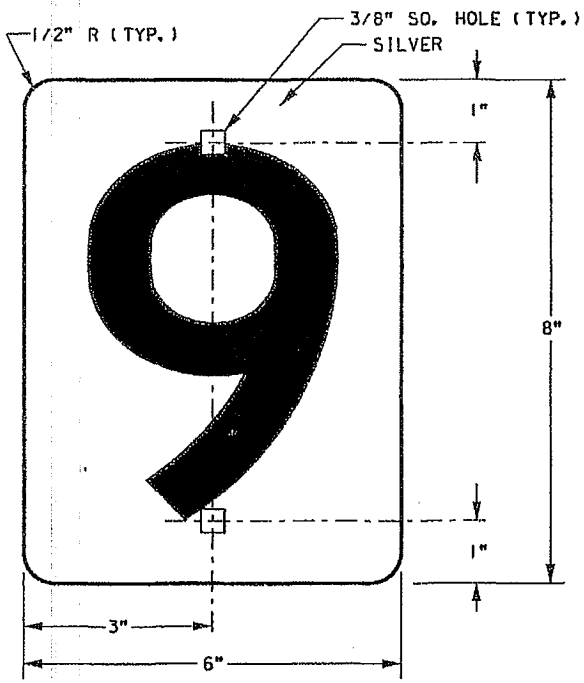
250



LETTER SIGN

LETTER	ITEM NO.
A	393-8250
B	393-8252
C	393-8254
D	393-8256
E	393-8258
F	393-8260
G	393-8262
H	393-8264
I	393-8266
J	393-8268
K	393-8270
L	393-8272
M	393-8274

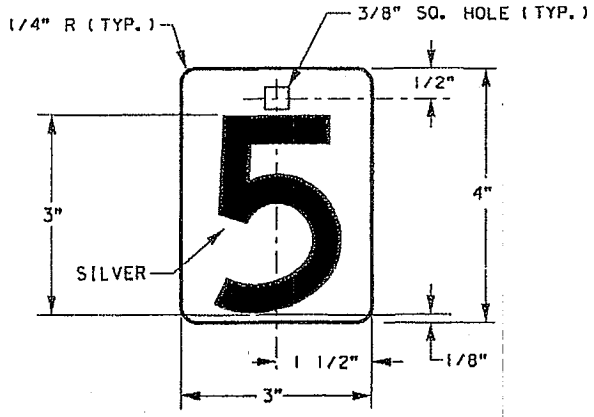
LETTER	ITEM NO.
N	393-8276
O	393-8278
P	393-8280
Q	393-8282
R	393-8284
S	393-8286
T	393-8288
U	393-8290
V	393-8292
W	393-8294
X	393-8296
Y	393-8298
Z	393-8300



6" NUMERAL SIGN

USE IN MARKING MILE POST, TUNNELS, HIGHWAY CROSSINGS, WHISTLE SIGN, AND PERMANENT SPEED RESTRICTION SIGNS

6" NUMBERS	
NUMERAL	ITEM NO.
1	393-8201
2	393-8202
3	393-8203
4	393-8204
5	393-8205
6 OR 9	393-8206
7	393-8207
8	393-8208
0	393-8210



3" NUMERAL SIGN

USE IN MARKING STRUCTURE SIGNS

3" NUMBERS	
NUMERAL	ITEM NO.
1	393-8220
2	393-8211
3	393-8212
4	393-8213
5	393-8214
6	393-8215
7	393-8216
8	393-8217
9	393-8219
0	393-8218

NOTES:
SIGNS TO BE 3870 SILVER 3M SILVER HIGH INTENSITY BACKGROUND ON 0.80" 3105 ALUMINUM SHEET.

FOR MILE MARKER DETAIL,	SEE STD DWG 0535
FOR VARIOUS MARKER DETAILS,	SEE STD DWG 0507
FOR TUNNEL SIGN DETAIL,	SEE STD DWG 0553
FOR HIGHWAY CROSSING DETAIL,	SEE STD DWG 0529
FOR LETTER DETAIL,	SEE STD DWG 0501
FOR NUMERAL DETAIL,	SEE STD DWG 0501

UNION PACIFIC RAILROAD
ENGINEERING STANDARDS

SINGLE LETTER AND NUMERAL SIGN

UNION PACIFIC

ADOPTED: JAN. 24, 1997
REVISED: MARCH 1, 1998
FILE NO.: 0502

STD DWG
0502A

STD DWG 0502A

251

SECTION 07101

MEMBRANE WATERPROOFING

PART 1: GENERAL

1.01 DESCRIPTION OF WORK: The work under this Section includes, but is not limited to, furnishing all labor, materials, tools, equipment and incidentals necessary to complete the placement of the deck waterproofing system.

1.02 SUBMITTALS:

A. Certificates of compliance attesting that the materials meet specification requirements must be submitted.

B. Instructions:

1. Manufacturer's instructions for installation of the deck waterproofing, including procedures for preparing the membrane for use, splicing and sealing at ends of end bent backwalls, and for the deck joints must be submitted for approval. Instructions must stress safety precautions required in handling and use of joint cleaners and sealants.

2. Manufacturer's instructions for installation of the asphalt plank must be submitted for approval.

C. Samples: The following samples must be submitted for approval:

Butyl Rubber Membrane	1 by 1-foot section
Sealant	8 ounces of each type
Splicing Cement	1 quart
Splicing Tape	1-foot strip
Rubber-base Bonding Adhesive	1 quart
Waterproofing Asphalt Plank	1 by 1-foot section
Anti–Bonding Paper	1-foot strip
Pre-Molded Expansion Joint	1-foot strip

D. Shop Drawings: Shop Drawings must be submitted for approval and must show size of sheets, position of sheets and splices and termination details, and must include details for the deck joints.

1.03 RELATED WORK:

A.	BALLAST	Section 02450
B.	PIPE UNDERDRAINS 4" (MODIFIED)	Section 02704
C.	CONCRETE STRUCTURES (SPECIAL)	Section 03300
D.	FURNISHING AND ERECTING STRUCTURAL STEEL	Section 05120

PART 2: PRODUCTS

2.01 BUTYL RUBBER MEMBRANE:

A. General: The butyl rubber membrane, rubber-base bonding adhesive, rubber membrane splicing cement, butyl gum tape and anti-bonding paper must be in accordance with the requirements for "Membrane Waterproofing", as specified in Chapter 8, Part 29 of the AREMA Specifications except as modified herein.

B. The butyl rubber membrane must be 3/32" thick. The sheet size must be as large as practicable and subject to the approval of the Engineer. Butt splices (AREMA 8-29-14, Figure 8-29-3 No. 2) must be used.

2.02 RUBBER-BASE BONDING ADHESIVE: Rubber-base bonding adhesive for securing butyl rubber membrane must be compatible with the membrane and with the material to which it is bonded. It must remain workable to its brittle point (minus 40 degrees F.). It must be applied in accordance with the manufacturer's directions and must conform to the following requirements:

Viscosity	2,000-2,500 CPS
Total Solids	32-35%
Base	Synthetic Rubber
Color	Transparent

2.03 WATERPROOFING ASPHALT PLANK: The protective cover over the butyl rubber membrane must be asphalt plank having a minimum total thickness of 1 inch using two layers with joints staggered and shall be bonded to the membrane and each other. The asphalt plank must be in accordance with the requirements of ASTM D 517 and as specified in Part 2, Chapter 29 of the AREMA Specifications. Edges of the asphalt plank must be applied in a single layer and supplied with shiplapped joints.

2.04 SEALANT: The sealant for sealing unavoidable gaps between flashing plates and between flashing plates and ballast curb must be compatible with materials containing bitumens and any other materials in contact with it. The type of sealant, with evidence of compatibility, must be submitted to the Engineer for approval before it may be furnished.

2.05 FLASHING PLATE: The galvanized flashing plates connect to the web of the ballast curb and extend over the waterproofing membrane and protection planks for protection from the elements. The flashing plate shall be fabricated from 1/4" steel conforming to ASTM A36 steel and shall be hot dipped galvanized in accordance with requirements of ASTM A 123.

2.06 PRE-MOLDED EXPANSION JOINT: Pre-molded expansion joint shall be according to manufacturer's specifications and must be submitted to the Engineer for approval before it may be furnished.

PART 3: EXECUTION

3.01 PREPARATION OF SURFACES: Immediately prior to the application of the waterproofing, all areas of the floor plates and ballast apron plates to be covered with the waterproofing must be sandblasted to the satisfaction of the Engineer. Surfaces to be waterproofed must be clean, smooth, dry and free of fins, sharp edges, oil, grease and loose or foreign materials. Projections or depressions on the surface on which the waterproofing is to be applied, that may cause injury to the waterproofing, must be filled or removed as directed by the Engineer.

3.02 INSTALLATION OF MEMBRANE WATERPROOFING SYSTEM: The deck waterproofing materials must be installed in accordance with the applicable requirements of Chapter 8, Part 29, of the AREMA Specifications except as modified herein.

A. The component parts of the system must be applied on the deck in the following order:

1. A coating of rubber-base bonding adhesive to areas specified herein.
2. Butyl rubber membrane.
3. A coating of rubber-base bonding adhesive to areas specified herein.
4. Waterproofing Asphalt Plank.
5. Mop coat of hot asphalt.
6. Install the galvanized flashing plate on the ballast stop.

B. Application of Bonding Adhesive: Rubber-base bonding adhesive for securing the membrane to the deck must be applied to the vertical sides of the ballast curb, to a 12" - wide horizontal strip of floor plate at the base of the ballast curb, and to a two-foot width of steel floor deck plate two feet before the end of the deck section at a joint. Bonding adhesive must also be applied to the back of the end bent backwalls to secure the membrane to the back side of the end bent backwalls. No adhesive will be applied to the steel floor deck plate and ballast curb two feet before the end of the deck section at a joint. The rubber-base bonding adhesive must be applied to the surfaces described above in a uniform, continuous, thin layer at a rate of not less than one gallon per 60 square feet based on both mating surfaces.

C. Installation of Butyl Rubber Membrane:

1. Butyl rubber membrane must not be applied when the atmospheric temperature is below 40 degrees F, without written permission of the Engineer.

2. The butyl rubber sheeting must be positioned, drawn tight without stretching, pressed firmly and uniformly in place against the previously applied adhesive. Care must be used in placing the sheets and in making field splices so they will lie flat without air bubbles or wrinkles.

Each succeeding sheet must be positioned to fit the previously installed sheet and spliced.

3. All splice areas must be carefully cleaned with heptane, hexane, toluene, trichlorethylene or white gasoline, using a clean cloth, mop or similar synthetic cleaning device. Cement must be spread continuously on splice areas at a uniform rate of not less than two gallons per 100 square feet. After cement is allowed to dry until it will not stick to a dry finger touch, apply butyl gum tape to cemented areas of membrane, extending tape at least 1/8" beyond edges of splice areas. Roll or press the tape firmly into place obtaining full contact. Corner splices must be reinforced with two continuous layers of rubber membrane. Any holes in the sheeting must be patched with a minimum overlap of 4 inches. Butyl gum tape must be used between layers of rubber membrane.

4. At expansion joints of bridge decks protected with butyl rubber membrane waterproofing, a strip of anti-bonding paper 24 inches wide shall be laid and centered on the joint above and below the membrane before Waterproofing Asphalt Planks are applied.

D. Installation of Pre-molded Expansion Joint: Pre-molded Expansion Joint shall be installed according to the manufacturer`s specifications and as specified herein. The Pre-molded Expansion Joint shall be furnished and installed in one continuous length for entire joint length including ballast curbs.

E. Placing of Waterproofing Asphalt Planks: During the progress of the work, care must be exercised to prevent injury to the waterproofing membrane by the passage of men and equipment. As soon as practicable after the membrane waterproofing has been placed, it must be protected from damage by the installation of the protective covering of asphalt planks.

1. The asphalt plank protection course must be placed over the horizontal and the vertical waterproofed surface of the deck, as shown on the Plans and as specified herein. The asphalt planks must be laid in accordance with Chapter 8, Part 29, of the AREMA Specifications except as modified herein.

2. A protective cover of 1" total thick asphalt plank meeting requirements of A.S.T.M. Specifications, Designation D 517, must be laid in a coating of rubber-base bonding adhesive applied to the entire surface to be protected at a minimum rate of 1 gallon per 100 square feet.

3. Each asphalt plank must be crowded up closely against the shiplap of the adjoining asphalt plank using wedges, jacks, bars or other suitable means so as not to injure the rubber membrane or the edges of the asphalt planks. Any asphalt plank which splits, crumbles or is damaged in any manner during its installation must be removed and replaced by a new plank.

4. After completion of placing the asphalt planks, the planks must be given a mop coat of hot asphalt to completely fill the joints between planks.

5. The butyl rubber membrane and the asphalt planks must be placed as high up as possible under the ballast curb flashing plate.

6. The gap between the flashing plates and between flashing plate and ballast curb must be sealed with a sealant as specified in 2.04 of this Specification.

7. The asphalt protection planks must be covered with ballast as soon as possible after installation to protect the waterproofing in accordance with Section 02450 – BALLAST - 4".

3.03 QUALITY CONTROL: The Contractor must establish and maintain quality control for work under this section to assure compliance with Contract requirements, and maintain records of this quality control for all construction operations including, but not limited to, the following:

Membrane Waterproofing.

A copy of the records of inspections and tests, as well as the records of corrective action taken, will be furnished to the Engineer.

PART 4: MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

MEMBRANE WATERPROOFING will be measured for payment in units of square feet. Payment will constitute full compensation for furnishing and placing the butyl rubber membrane, bonding adhesive, butyl gum tape, rubber membrane splicing cement, sealant, waterproofing asphalt planks, pre-molded expansion joint, anti-bonding paper and all other materials, labor, equipment and incidentals necessary to complete this item as shown on the Plans and specified herein.

4.02 PAYMENT:

MEMBRANE WATERPROOFING will be paid for at the contract unit price per square foot for MEMBRANE WATERPROOFING.

Appendices

- Exhibit D – Public Road Crossing Overpass/Underpass Agreement
- Exhibit E – Contractor's Right-of-Entry Agreement
- Right-of-Entry Application
- Union Pacific Railroad Engineering Standards

EXHIBIT D

TO PUBLIC ROAD CROSSING OVERPASS/UNDERPASS AGREEMENT

MINIMUM CONSTRUCTION REQUIREMENTS

1.01 DESCRIPTION

This project includes construction work within the right-of-way and/or properties of the Union Pacific Railroad Company ("UPRR") and adjacent to its tracks, wire lines and other facilities. This section describes the minimum special requirements for coordination with UPRR when work by the Contractor will be performed upon, over or under the UPRR right-of-way or may impact current or future UPRR operations. The Contractor will coordinate with UPRR while performing the work outlined in this Contract, and shall afford the same cooperation with UPRR as it does with the Agency.

For purposes of this project, the UPRR Designated Representative shall be the person or persons designated by the UPRR Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 DEFINITION OF AGENCY AND CONTRACTOR

As used in these UPRR requirements, the term "Agency" shall mean the Political Body.

As used in these UPRR requirements, the term "Contractor" shall mean the contractor or contractor's hired by the Agency to perform any project work on any portion of UPRR's property and shall also include the contractor's subcontractor's and the contractor's and subcontractor's respective officer, agents and employees, and others acting under its or their authority.

1.03 UPRR CONTACTS

The primary UPRR point of contact for this project is:

Richard Ellison, Tel: 312-777-2048 office

For UPRR flagging services and track work, contact:

Daryl Clark, Tel: 708-649-5273 Office

1.04 REQUEST FOR INFORMATION / CLARIFICATION

All Requests for Information ("RFI") involving work within any UPRR right-of-way shall be in accordance with the procedures listed elsewhere in these bid documents. All RFI's shall be submitted to the Engineer of Record. The Engineer of Record will submit the RFI to the UPRR Designated Representative for review and approval for RFI's corresponding to work within the UPRR right-of-way. The Contractor shall allow four (4) weeks for the review and approval process by UPRR.

1.05 PLANS / SPECIFICATIONS

The plans and specifications for this project, affecting the UPRR, are subject to the written approval by the UPRR and changes in the plans may be required after award of the Contract. Such changes are subject to the approval of the Agency and the UPRR.

1.06 UTILITIES AND FIBER OPTICS

All installations shall be constructed in accordance with current AREMA recommendations and UPRR specifications and requirements. UPRR general guidelines and the required application forms for utility installations can be found on the UPRR website at uprr.com.

1.07 GENERAL

A. Contractor shall perform all its work in compliance with all applicable UPRR and FRA rules and regulations. Contractor shall arrange and conduct its work in such manner and at such times as shall not endanger or interfere with the safe operation of the tracks and property of UPRR and the traffic moving on such tracks, or the wires, signals and other property of UPRR, its tenants or licensees, at or in the vicinity of the Work.

B. Construction activities will be permitted within 12 feet of the operational tracks only if absolutely necessary and UPRR's Designated Representative grants approval. Construction activities within 12 feet of the operational track(s) must allow the tracks to stay operational.

C. Track protection is required for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail.

D. The Contractor is also advised that new railroad facilities within the project may be built by UPRR and that certain Contractor's activities cannot proceed until that work is completed. The Contractor shall be aware of the limits of responsibilities and allow sufficient time in the schedule for that work to be accomplished and shall coordinate its efforts with the UPRR.

1.08 RAILROAD OPERATIONS

A. The Contractor shall be advised that trains and/or equipment are expected on any track, at any time, in either direction. Contractor shall be familiar with the train schedules in this location and structure its bid assuming intermittent track windows in this period, as defined in Paragraph B below.

B. All railroad tracks within and adjacent to the Contract Site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. Railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. The Contractor shall coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Work windows for this Contract shall be coordinated with the Agency's and the UPRR's Designated Representatives. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and adjacent to the railroad tracks within 25 feet of the nearest track, a UPRR flag person will be required. At the direction of the UPRR flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the UPRR Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window the railroad tracks and/or signals must be completely operational for train operations and all UPRR, Public Utilities Commission (PUC) and Federal Railroad Administration (FRA) requirements, codes and regulations for operational tracks must be complied with. In the situation where the operating tracks and/or signals have been affected, the UPRR will perform inspections of the work prior to placing that track back into service. UPRR flag persons will be required for construction activities requiring an Absolute Work Window. **Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for UPRR review.**

1.09 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Prior to beginning any work on or over the property of, or affecting the facilities of, the UPRR, the Contractor shall enter into an agreement with the UPRR in the form of the "Contractor's Right of Entry Agreement", attached as **Exhibit E**, or latest version thereof provided by the UPRR. There is a fee for processing of the agreement. This cost shall be borne by the Contractor. Contractor shall submit a copy of the executed agreement and the insurance policies, binders, certificates and endorsements set forth therein to the Agency prior to commencing work on UPRR property. The right of entry agreement shall specify working time frames, flagging and inspection requirements, and any other items specified by the UPRR.

B. The Contractor shall give the advance notice to the UPRR as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over UPRR's right-of-way and shall observe UPRR's rules and regulations with respect thereto.

C. All work upon UPRR's right-of-way shall be done at such times and in such manner as not to interfere with or endanger the operations of UPRR. Whenever work may affect the operations or safety of trains, the method of doing such work shall first be submitted to UPRR's Designated Representative for approval, but such approval shall not relieve the Contractor from liability.

Any work to be performed by the Contractor, which requires flagging service or inspection service, shall be deferred until the flagging protection required by UPRR is available at the job site. See Section 3.18 for railroad flagging requirements.

D. The Contractor shall make requests in writing for both Absolute and Conditional Work Windows, at least two weeks in advance of any work. The written request must include:

1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

The Contractor shall provide a written confirmation notice to the UPRR at least 48 hours before commencing work in connection with approved work windows when work will be performed within **25 feet of any track center line.** All work shall be performed in accordance with previously approved work plans.

E. Should a condition arising from, or in connection with the work, require that immediate and unusual provisions be made to protect operations and property of UPRR, the Contractor shall make such provisions. If in the judgment of UPRR's Designated Representative such provisions are insufficient, the UPRR's Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the UPRR. UPRR or the Agency shall have the right to order Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the UPRR's Designated Representative, the Contractor's operations could endanger UPRR's operations. In the event such an order is given, Contractor shall immediately notify the Agency of the order.

1.10 INSURANCE

Contractor shall not begin work upon or over UPRR's right-of-way until UPRR has been furnished the insurance policies, binders, certificates and endorsements required by the "Contractor's Right-of-Entry Agreement" and UPRR's Designated Representative has advised the Agency that such insurance is in accordance with the Agreement. The required insurance shall be kept in full force and effect during the performance of work and thereafter until Contractor removes all tools, equipment, and material from UPRR's property and cleans the premises in a manner reasonably satisfactory to UPRR.

1.11 RAILROAD SAFETY ORIENTATION

All personnel employed by the Contractor and all subcontractors must complete the UPRR course "Orientation for Contractor's Safety", and be registered prior to working on UPRR property. This orientation is available at www.contractororientation.com. This course is required to be completed annually.

1.12 COOPERATION

UPRR will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of UPRR's right-of-way in performing the work.

1.13 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

The Contractor shall abide by the Construction of Maintenance Agreement for Contract 63598 between Agency and UPRR.

1.14 APPROVAL OF REDUCED CLEARANCES

A. The minimum track clearances to be maintained by the Contractor during construction are specified in Section 3.07 herein.

B. Any proposed infringement on the specified minimum clearances due to the Contractor's operations shall be submitted to UPRR's Designated Representative through the Agency at least 30 days in advance of the work and shall not be undertaken until approved in writing by the UPRR's Designated Representative.

C. No work shall commence until the Contractor receives in writing assurance from UPRR's Designated Representative that arrangements have been made for flagging service, as may be necessary and receives permission from UPRR's Designated Representative to proceed with the work.

1.15 CONSTRUCTION AND AS-BUILT SUBMITTALS

A. Submittals are required for construction materials and procedures as outlined below. The submittals shall include all review comments from the Agency and the Engineer of Record. All design submittals shall be stamped and signed by a Professional Engineer registered in the State of Name of State.

B. The tables below provide UPRR's minimum submittal requirements for the construction items noted. Submittal requirements are in addition to those specified elsewhere in these bid documents. The minimum review times indicated below represent UPRR's requirements only. The Contractor shall allow additional time for the Agency's review time as stated elsewhere in these bid documents.

C. Submittals shall be made by the Agency to the UPRR Manager of Industry and Public Projects unless otherwise directed by the Railroad. Items in Table 1 shall be submitted for both railroad overpass and underpass projects, as applicable. Items in Table 2 shall be submitted for railroad underpass projects only.

TABLE 1

ITEM	DESCRIPTION	SETS REQD.	UPRR's Minimum Review Time
1	Shoring design and details	4	4 weeks
2	**Falsework design and details**	4	4 weeks
3	Drainage design provisions	4	4 weeks
4	Erection diagrams and sequence	4	4 weeks
5	Demolition diagram and sequence	4	4 weeks

Prior to or during construction of railroad underpass structures, the UPRR requires the review of drawings, reports, test data and material data sheets to determine compliance with the specifications. Product information for items noted in Table 2 be submitted to UPRR's Designated Representative through the Agency for their own review and approval of the material. The signed submittal and the Agency's review comments will be reviewed by UPRR or their consultant. If a consultant performs the reviews, the consultant may reply directly to the Agency or its Designated Representative after consultation with UPRR. Review of the submittals will not be conducted until after review by the Agency or its Designated Representative. Review of the submittal items will require a minimum of four (4) weeks after receipt from the Agency.

TABLE 2

ITEM	DESCRIPTION	SETS REQD.	NOTES
1	Shop drawings	4	Steel and Concrete members
2	Bearings	4	For all structures
3	Concrete Mix Designs	4	For all structures
4	Rebar & Strand certifications	4	For superstructure only
5	28 day concrete strength	4	For superstructure only
6	Waterproofing material certifications and installation procedure	4	Waterproofing & protective boards
7	Structural steel certifications	4	All fracture critical members & other members requiring improved notch toughness
8	Fabrication and Test reports	4	All fracture critical members & other members requiring improved notch toughness
9	Welding Procedures and Welder Certification	4	AWS requirements
10	Foundation Construction Reports	4	Pile driving, drilled shaft construction, bearing pressure test reports for spread footings
11	Compaction testing reports for backfill at abutments	4	Must meet 95% maximum dry density, Modified Proctor ASTM D1557

D. As-Built Records shall be submitted to the UPRR within 60 days of completion of the structures. These records shall consist of the following items:

Overpass Projects

1. Electronic files of all structure design drawings with as-constructed modifications shown, in Microstation J or Acrobat .PDF format.
2. Hard copies of all structure design drawings with as-constructed modifications shown.

Underpass Projects

1. Electronic files of all structure design drawings with as-constructed modifications shown, in Microstation SE or Acrobat PDF format.
2. Hard copies of all structure design drawings with as-constructed modifications shown.
3. Final approved copies of shop drawings for concrete and steel members.
4. Foundation Construction Reports
5. Compaction testing reports for backfill at abutments

1.16 APPROVAL OF DETAILS

The details of the construction affecting the UPRR tracks and property not already included in the Contract Plans shall be submitted to UPRR's Designated Representative through the Agency for UPRR's review and written approval before such work is undertaken. Review and approval of these submittals will require a minimum of four (4) weeks in addition to the Agency's review time as stated elsewhere in these bid documents.

1.17 MAINTENANCE OF RAILROAD FACILITIES

A. The Contractor shall be required to maintain all ditches and drainage structures free of silt or other obstructions which may result from Contractor's operations; to promptly repair eroded areas within UPRR's right of way and to repair any other damage to the property of UPRR, or its tenants.

B. All such maintenance and repair of damages due to the Contractor's operations shall be done at the Contractor's expense.

C. The Contractor must submit a proposed method of erosion control and have the method reviewed by the UPRR prior to beginning any grading on the Project Site. Erosion control methods must comply with all applicable local, state and federal regulations.

1.18 SITE INSPECTIONS BY UPRR's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by UPRR's Designated Representative at significant points during construction, including the following if applicable:

1. Pre-construction meetings.
2. Pile driving/drilling of caissons or drilled shafts.
3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
4. Erection of precast concrete or steel bridge superstructure.
5. Placement of waterproofing (prior to placing ballast on bridge deck).
6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by UPRR.

C. A detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to be performed, shall be provided to the Agency for submittal to UPRR's Designated Representative for review prior to commencement of work. This schedule shall also include the anticipated dates when the above listed events will occur. This schedule shall be updated for the above listed events as necessary, but at least monthly so that site visits may be scheduled.

1.19 UPRR REPRESENTATIVES

A. UPRR representatives, conductors, flag person or watch person will be provided by UPRR at expense of the Agency or Contractor (as stated elsewhere in these bid documents) to protect UPRR facilities, property and movements of its trains or engines. In general, UPRR will furnish such personnel or other protective services as follows:

B. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from centerline of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

C. For any excavation below elevation of track subgrade if, in the opinion of UPRR's Designated Representative, track or other UPRR facilities may be subject to settlement or movement.

D. During any clearing, grubbing, excavation or grading in proximity to UPRR facilities, which, in the opinion of UPRR's Designated Representative, may endanger UPRR facilities or operations.

E. During any contractor's operations when, in the opinion of UPRR's Designated Representative, UPRR facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

F. The Contractor shall arrange with the UPRR Designated Representative to provide the adequate number of flag persons to accomplish the work.

1.20 WALKWAYS REQUIRED

Along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than twelve feet (12') from centerline of track, shall be maintained. Any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours while UPRR's flagman service is provided shall be removed before the close of each work day. Walkways with railings shall be constructed by Contractor over open excavation areas when in close proximity of track, and railings shall not be closer than 8' – 6" horizontally from center line of tangent track or 9' – 6" horizontal from curved track.

1.21 COMMUNICATIONS AND SIGNAL LINES

If required, UPRR will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by UPRR's forces in connection with its operation at expense of the Agency. This work by UPRR will be done by its own forces and it is not a part of the Work under this Contract.

1.22 TRAFFIC CONTROL

Contractor's operations that control traffic across or around UPRR facilities shall be coordinated with and approved by the UPRR's Designated Representative.

1.23 CONSTRUCTION EXCAVATIONS

A. The Contractor shall be required to take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of OSHA, AREMA and UPRR "Guidelines for Temporary Shoring".

B. The Contractor shall contact UPRR's "Call Before Your Dig" at least 48 hours prior to commencing work at 1-800-336-9193 during normal business hours (6:30 a.m. to 8:00 p.m. central time, Monday through Friday, except holidays - also a 24 hour, 7 day a week number for emergency calls) to determine location of fiber optics. If a telecommunications system is buried anywhere on or near UPRR property, the Contractor will co-ordinate with UPRR and the Telecommunication Company(ies) to arrange for relocation or other protection of the system prior to beginning any work on or near UPRR property.

1.24 RAILROAD FLAGGING

Performance of any work by the Contractor in which person(s) or equipment will be within twenty-five (25) feet of any track, or will be near enough to any track that any equipment extension (such as, but not limited to, a crane boom) will reach within twenty-five (25) feet of any track, may require railroad flagging services or other protective measures. Contractor shall give the advance notice to the UPRR as required in the "Contractor's Right of Entry Agreement" before commencing any such work, so that the UPRR may determine the need for flagging or other protective measures to ensure the safety of the railroad's operations. Contractor shall comply with all other requirements regarding flagging services covered by the "Contractor's Right of Entry Agreement". Any costs associated with failure to abide by these requirements will be borne by the Contractor.

The estimated pay rate for each flag person is $950.00 per day for an 8 hour work day with time and one-half for overtime, Saturdays, Sundays; double time and one-half for holidays. Flagging rates are set by the UPRR and are subject to change.

1.25 CLEANING OF RIGHT-OF-WAY

Contractor shall, upon completion of the work to be performed by Contractor upon the premises, over or beneath the tracks of UPRR, promptly remove from the right-of-way of UPRR all of Contractor's tools, implements, and other materials whether brought upon the right-of-way by Contractor or any subcontractors, employee or agent of Contractor or of any subcontractor, and leave the right-of-way in a clean and presentable condition to satisfaction of UPRR.

EXHIBIT 'E'
CONTRACTOR'S
RIGHT OF ENTRY AGREEMENT

THIS AGREEMENT is made and entered into as of the _____ day of _____, 20_____, by and between **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation ("Railroad"); and _____ _____, a _____ corporation ("Contractor").

RECITALS:

Contractor has been hired by _____ to perform work relating to _____ _____ (the "work"), with all or a portion of such work to be performed on property of Railroad in the vicinity of Railroad's Milepost _____ on Railroad's _____ [Subdivision] [Branch] [at or near DOT No. _____] located at or near _____, in _____ County, State of _____, as such location is in the general location shown on the print marked **Exhibit A**, attached hereto and hereby made a part hereof, which work is the subject of a contract dated _____ between Railroad and _____.

Railroad is willing to permit Contractor to perform the work described above at the location described above subject to the terms and conditions contained in this Agreement

AGREEMENT:

NOW, THEREFORE, it is mutually agreed by and between Railroad and Contractor, as follows:

ARTICLE 1 - DEFINITION OF CONTRACTOR.

For purposes of this Agreement, all references in this agreement to Contractor shall include Contractor's contractors, subcontractors, officers, agents and employees, and others acting under its or their authority.

ARTICLE 2 - RIGHT GRANTED; PURPOSE.

Railroad hereby grants to Contractor the right, during the term hereinafter stated and upon and subject to each and all of the terms, provisions and conditions herein contained, to enter upon and have ingress to and egress from the property described in the Recitals for the purpose of performing the work described in the Recitals above. The right herein granted to Contractor is limited to those portions of Railroad's property specifically described herein, or as designated by the Railroad Representative named in Article 4.

ARTICLE 3 - TERMS AND CONDITIONS CONTAINED IN EXHIBITS B, C AND D.

The terms and conditions contained in **Exhibit B, Exhibit C** and **Exhibit D**, attached hereto, are hereby made a part of this Agreement.

ARTICLE 4 - ALL EXPENSES TO BE BORNE BY CONTRACTOR; RAILROAD REPRESENTATIVE.

A. Contractor shall bear any and all costs and expenses associated with any work performed by Contractor, or any costs or expenses incurred by Railroad relating to this Agreement.

B. Contractor shall coordinate all of its work with the following Railroad representative or his or her duly authorized representative (the "Railroad Representative"):

John Venice- Manager, Industry and Public Projects
101 N. Wacker Drive, Suite 1920
Chicago, IL 60606
(312) 777-2043

C. Contractor, at its own expense, shall adequately police and supervise all work to be performed by Contractor and shall ensure that such work is performed in a safe manner as set forth in Section 7 of **Exhibit B**. The responsibility of Contractor for safe conduct and adequate policing and supervision of Contractor's work shall not be lessened or otherwise affected by Railroad's approval of plans and specifications involving the work, or by Railroad's collaboration in performance of any work, or by the presence at the work site of a Railroad Representative, or by compliance by Contractor with any requests or recommendations made by Railroad Representative.

ARTICLE 5 - TERM; TERMINATION.

A. The grant of right herein made to Contractor shall commence on the date of this Agreement, and continue until _____, unless sooner terminated as herein provided, or at such time as Contractor has completed its work on Railroad's property, whichever is earlier. Contractor agrees to notify the Railroad Representative in writing when it has completed its work on Railroad's property.

B. This Agreement may be terminated by either party on ten (10) days written notice to the other party.

ARTICLE 6 - CERTIFICATE OF INSURANCE.

A. Before commencing any work, Contractor will provide Railroad with the (i) insurance binders, policies, certificates and endorsements set forth in **Exhibit C** of this Agreement, and (ii) the insurance endorsements obtained by each subcontractor as required under Section 12 of **Exhibit B** of this Agreement.

B. All insurance correspondence, binders, policies, certificates and endorsements shall be sent to:

Union Pacific Railroad Company
1400 Douglas St., MS 1690
Omaha , NE 68179
Attn:Kathy Nesser

Folder No. _____

ARTICLE 7 - DISMISSAL OF CONTRACTOR's EMPLOYEE.

At the request of Railroad, Contractor shall remove from Railroad's property any employee of Contractor who fails to conform to the instructions of the Railroad Representative in connection with the work on Railroad's property, and any right of Contractor shall be suspended until such removal has occurred. Contractor shall indemnify Railroad against any claims arising from the removal of any such employee from Railroad's property.

ARTICLE 8 - ADMINISTRATIVE FEE.

Upon the execution and delivery of this Agreement, Contractor shall pay to Railroad _____ Dollars ($_____) as reimbursement for clerical, administrative and handling expenses in connection with the processing of this Agreement.

ARTICLE 9 - CROSSINGS.

No additional vehicular crossings (including temporary haul roads) or pedestrian crossings over Railroad's trackage shall be installed or used by Contractor without the prior written permission of Railroad.

ARTICLE 10.- EXPLOSIVES.

Explosives or other highly flammable substances shall not be stored or used on Railroad's property without the prior written approval of Railroad.

IN WITNESS WHEREOF, the parties hereto have duly executed this agreement in duplicate as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY

By:_____
Title:_____

_____
(Name of Contractor)

By:_____
Title:_____

Exhibit A will be a print showing the general location of the work site.

EXHIBIT B
TO
CONTRACTOR'S RIGHT OF ENTRY AGREEMENT

Section 1. NOTICE OF COMMENCEMENT OF WORK - FLAGGING.

A. Contractor agrees to notify the Railroad Representative at least ten (10) working days in advance of Contractor commencing its work and at least thirty (30) working days in advance of proposed performance of any work by Contractor in which any person or equipment will be within twenty-five (25) feet of any track, or will be near enough to any track that any equipment extension (such as, but not limited to, a crane boom) will reach to within twenty-five (25) feet of any track. No work of any kind shall be performed, and no person, equipment, machinery, tool(s), material(s), vehicle(s), or thing(s) shall be located, operated, placed, or stored within twenty-five (25) feet of any of Railroad's track(s) at any time, for any reason, unless and until a Railroad flagman is provided to watch for trains. Upon receipt of such thirty (30)-day notice, the Railroad Representative will determine and inform Contractor whether a flagman need be present and whether Contractor needs to implement any special protective or safety measures. If flagging or other special protective or safety measures are performed by Railroad, Railroad will bill Contractor for such expenses incurred by Railroad, unless Railroad and a federal, state or local governmental entity have agreed that Railroad is to bill such expenses to the federal, state or local governmental entity. If Railroad will be sending the bills to Contractor, Contractor shall pay such bills within thirty (30) days of Contractor's receipt of billing. If Railroad performs any flagging, or other special protective or safety measures are performed by Railroad, Contractor agrees that Contractor is not relieved of any of its responsibilities or liabilities set forth in this Agreement.

B. The rate of pay per hour for each flagman will be the prevailing hourly rate in effect for an eight-hour day for the class of flagmen used during regularly assigned hours and overtime in accordance with Labor Agreements and Schedules in effect at the time the work is performed. In addition to the cost of such labor, a composite charge for vacation, holiday, health and welfare, supplemental sickness, Railroad Retirement and unemployment compensation, supplemental pension, Employees Liability and Property Damage and Administration will be included, computed on actual payroll. The composite charge will be the prevailing composite charge in effect at the time the work is performed. One and one-half times the current hourly rate is paid for overtime, Saturdays and Sundays, and two and one-half times current hourly rate for holidays. Wage rates are subject to change, at any time, by law or by agreement between Railroad and its employees, and may be retroactive as a result of negotiations or a ruling of an authorized governmental agency. Additional charges on labor are also subject to change. If the wage rate or additional charges are changed, Contractor (or the governmental entity, as applicable) shall pay on the basis of the new rates and charges.

C. Reimbursement to Railroad will be required covering the full eight-hour day during which any flagman is furnished, unless the flagman can be assigned to other Railroad work during a portion of such day, in which event reimbursement will not be required for the portion of the day during which the flagman is engaged in other Railroad work. Reimbursement will also be required for any day not actually worked by the flagman following the flagman's assignment to work on the project for which Railroad is required to pay the flagman and which could not reasonably be avoided by Railroad by assignment of such flagman to other work , even though Contractor may not be working during such time. When it becomes necessary for Railroad to bulletin and assign an employee to a flagging position in compliance with union collective bargaining agreements, Contractor must provide Railroad a minimum of five (5) days notice prior to the cessation of the need for a flagman. If five (5) days notice of cessation is not given, Contractor will still be required to pay flagging charges for the five (5) day notice period required by union agreement to be given to the employee, even though flagging is not required for that period. An additional thirty (30) days notice must then be given to Railroad if flagging services are needed again after such five day cessation notice has been given to Railroad.

Section 2. LIMITATION AND SUBORDINATION OF RIGHTS GRANTED

A. The foregoing grant of right is subject and subordinate to the prior and continuing right and obligation of the Railroad to use and maintain its entire property including the right and power of Railroad to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, roadways, signal, communication, fiber optics, or other wirelines, pipelines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by Railroad without liability to Contractor or to any other party for compensation or damages.

B. The foregoing grant is also subject to all outstanding superior rights (whether recorded or unrecorded and including those in favor of licensees and lessees of Railroad's property, and others) and the right of Railroad to renew and extend the same, and is made without covenant of title or for quiet enjoyment.

Section 3. NO INTERFERENCE WITH OPERATIONS OF RAILROAD AND ITS TENANTS.

A. Contractor shall conduct its operations so as not to interfere with the continuous and uninterrupted use and operation of the railroad tracks and property of Railroad, including without limitation, the operations of Railroad's lessees, licensees or others, unless specifically authorized in advance by the Railroad Representative. Nothing shall be done or permitted to be done by Contractor at any time that would in any manner impair the safety of such operations. When not in use, Contractor's machinery and materials shall be kept at least fifty (50) feet from the centerline of Railroad's nearest track, and there shall be no vehicular crossings of Railroads tracks except at existing open public crossings.

B. Operations of Railroad and work performed by Railroad personnel and delays in the work to be performed by Contractor caused by such railroad operations and work are expected by Contractor, and Contractor agrees that Railroad shall have no liability to Contractor, or any other person or entity for any such delays. The Contractor shall coordinate its activities with those of Railroad and third parties so as to avoid interference with railroad operations. The safe operation of Railroad train movements and other activities by Railroad takes precedence over any work to be performed by Contractor.

Section 4. LIENS.

Contractor shall pay in full all persons who perform labor or provide materials for the work to be performed by Contractor. Contractor shall not create, permit or suffer any mechanic's or materialmen's liens of any kind or nature to be created or enforced against any property of Railroad for any such work performed. Contractor shall indemnify and hold harmless Railroad from and against any and all liens, claims, demands, costs or expenses of whatsoever nature in any way connected with or growing out of such work done, labor performed, or materials furnished. If Contractor fails to promptly cause any lien to be released of record, Railroad may, at its election, discharge the lien or claim of lien at Contractor's expense.

Section 5. PROTECTION OF FIBER OPTIC CABLE SYSTEMS.

A. Fiber optic cable systems may be buried on Railroad's property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. Contractor shall telephone Railroad during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except holidays) at 1-800-336-9193 (also a 24-hour, 7-day number for emergency calls) to determine if fiber optic cable is buried anywhere on Railroad's property to be used by Contractor. If it is, Contractor will telephone the telecommunications company(ies) involved, make arrangements for a cable locator and, if applicable, for relocation or other protection of the fiber optic cable. Contractor shall not commence any work until all such protection or relocation (if applicable) has been accomplished.

b. In addition to other indemnity provisions in this Agreement, Contractor shall indemnify, defend and hold Railroad harmless from and against all costs, liability and expense whatsoever (including, without limitation, attorneys' fees, court costs and expenses) arising out of any act or omission of Contractor, its agents and/or employees, that causes or contributes to (1) any damage to or destruction of any telecommunications system on Railroad's property, and/or (2) any injury to or death of any person employed by or on behalf of any telecommunications company, and/or its contractor, agents and/or employees, on Railroad's property. Contractor shall not have or seek recourse against Railroad for any claim or cause of action for alleged loss of profits or revenue or loss of service or other consequential damage to a telecommunication company using Railroad's property or a customer or user of services of the fiber optic cable on Railroad's property.

Section 6. PERMITS - COMPLIANCE WITH LAWS.

In the prosecution of the work covered by this Agreement, Contractor shall secure any and all necessary permits and shall comply with all applicable federal, state and local laws, regulations and enactments affecting the work including, without limitation, all applicable Federal Railroad Administration regulations.

Section 7. SAFETY.

A. Safety of personnel, property, rail operations and the public is of paramount importance in the prosecution of the work performed by Contractor. Contractor shall be responsible for initiating, maintaining and supervising all safety, operations and programs in connection with the work. Contractor shall at a minimum comply with Railroad's safety standards listed in **Exhibit D**, hereto attached, to ensure uniformity with the safety standards followed by Railroad's own forces. As a part of Contractor's safety responsibilities, Contractor shall notify Railroad if Contractor determines that any of Railroad's safety standards are contrary to good safety practices. Contractor shall furnish copies of **Exhibit D** to each of its employees before they enter the job site.

B. Without limitation of the provisions of paragraph A above, Contractor shall keep the job site free from safety and health hazards and ensure that its employees are competent and adequately trained in all safety and health aspects of the job.

C. Contractor shall have proper first aid supplies available on the job site so that prompt first aid services may be provided to any person injured on the job site. Contractor shall promptly notify Railroad of any U.S. Occupational Safety and Health Administration reportable injuries. Contractor shall have a nondelegable duty to control its employees while they are on the job site or any other property of Railroad, and to be certain they do not use, be under the influence of, or have in their possession any alcoholic beverage, drug or other substance that may inhibit the safe performance of any work.

D. If and when requested by Railroad, Contractor shall deliver to Railroad a copy of Contractor's safety plan for conducting the work (the "Safety Plan"). Railroad shall have the right, but not the obligation, to require Contractor to correct any deficiencies in the Safety Plan. The terms of this Agreement shall control if there are any inconsistencies between this Agreement and the Safety Plan.

Section 8. INDEMNITY.

A. To the extent not prohibited by applicable statute, Contractor shall indemnify, defend and hold harmless Railroad, its affiliates, and its and their officers, agents and employees (individually an "Indemnified Party" or collectively "Indemnified Parties") from and against any and all loss, damage, injury, liability, claim, demand, cost or expense (including, without limitation, attorney's, consultant's and expert's fees, and court costs), fine or penalty (collectively, "Loss") incurred by any person (including, without limitation, any Indemnified Party, Contractor, or any employee of Contractor or of any Indemnified Party) arising out of or in any manner connected with (i) any work performed by Contractor, or (ii) any act or omission of Contractor, its officers, agents or employees, or (iii) any breach of this Agreement by Contractor.

b. The right to indemnity under this Section 8 shall accrue upon occurrence of the event giving rise to the Loss, and shall apply regardless of any negligence or strict liability of any Indemnified Party, except where the Loss is caused by the sole active negligence of an Indemnified Party as established by the final judgment of a court of competent jurisdiction. The sole active negligence of any Indemnified Party shall not bar the recovery of any other Indemnified Party.

c. Contractor expressly and specifically assumes potential liability under this Section 8 for claims or actions brought by Contractor's own employees. Contractor waives any immunity it may have under worker's compensation or industrial insurance acts to indemnify the Indemnified Parties under this Section 8. Contractor acknowledges that this waiver was mutually negotiated by the parties hereto.

d. No court or jury findings in any employee's suit pursuant to any worker's compensation act or the Federal Employers' Liability Act against a party to this Agreement may be relied upon or used by Contractor in any attempt to assert liability against any Indemnified Party.

e. The provisions of this Section 8 shall survive the completion of any work performed by Contractor or the termination or expiration of this Agreement. In no event shall this Section 8 or any other provision of this Agreement be deemed to limit any liability Contractor may have to any Indemnified Party by statute or under common law.

Section 9. RESTORATION OF PROPERTY.

In the event Railroad authorizes Contractor to take down any fence of Railroad or in any manner move or disturb any of the other property of Railroad in connection with the work to be performed by Contractor, then in that event Contractor shall, as soon as possible and at Contractor's sole expense, restore such fence and other property to the same condition as the same were in before such fence was taken down or such other property was moved or disturbed. Contractor shall remove all of Contractor's tools, equipment, rubbish and other materials from Railroad's property promptly upon completion of the work, restoring Railroad's property to the same state and condition as when Contractor entered thereon.

Section 10. WAIVER OF DEFAULT.

Waiver by Railroad of any breach or default of any condition, covenant or agreement herein contained to be kept, observed and performed by Contractor shall in no way impair the right of Railroad to avail itself of any remedy for any subsequent breach or default.

Section 11. MODIFICATION - ENTIRE AGREEMENT.

No modification of this Agreement shall be effective unless made in writing and signed by Contractor and Railroad. This Agreement and the exhibits attached hereto and made a part hereof constitute the entire understanding between Contractor and Railroad and cancel and supersede any prior negotiations, understandings or agreements, whether written or oral, with respect to the work to be performed by Contractor.

Section 12. ASSIGNMENT - SUBCONTRACTING.

Contractor shall not assign or subcontract this Agreement, or any interest therein, without the written consent of the Railroad. Contractor shall be responsible for the acts and omissions of all subcontractors. Before Contractor commences any work, the Contractor shall, except to the extent prohibited by law; (1) require each of its subcontractors to include the Contractor as "Additional Insured" in the subcontractor's Commercial General Liability policy and Business Automobile policies with respect to all liabilities arising out of the subcontractor's performance of work on behalf of the Contractor by endorsing these policies with ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage; (2) require each of its subcontractors to endorse their Commercial General Liability Policy with "Contractual Liability Railroads" ISO Form CG 24 17 10 01 (or a substitute form providing equivalent coverage) for the job site; and (3) require each of its subcontractors to endorse their Business Automobile Policy with "Coverage For Certain Operations In Connection With Railroads" ISO Form CA 20 70 10 01 (or a substitute form providing equivalent coverage) for the job site.

EXHIBIT C
TO
CONTRACTOR'S
RIGHT OF ENTRY AGREEMENT

Union Pacific Railroad Company
Insurance Provisions For
Contractor's Right of Entry Agreement

Contractor shall, at its sole cost and expense, procure and maintain during the course of the Project and until all Project work on Railroad's property has been completed and the Contractor has removed all equipment and materials from Railroad's property and has cleaned and restored Railroad's property to Railroad's satisfaction, the following insurance coverage:

A. **Commercial General Liability** insurance. Commercial general liability (CGL) with a limit of not less than $5,000,000 each occurrence and an aggregate limit of not less than $10,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage).

The policy must also contain the following endorsement, which must be stated on the certificate of insurance:

- Contractual Liability Railroads ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.
- Designated Construction Project(s) General Aggregate Limit ISO Form CG 25 03 03 97 (or a substitute form providing equivalent coverage) showing the project on the form schedule.

B. **Business Automobile Coverage** insurance. Business auto coverage written on ISO form CA 00 01 10 01 (or a substitute form providing equivalent liability coverage) with a combined single limit of not less $5,000,000 for each accident and coverage must include liability arising out of any auto (including owned, hired and non-owned autos).

The policy must contain the following endorsements, which must be stated on the certificate of insurance:

- Coverage For Certain Operations In Connection With Railroads ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Property" as the Designated Job Site.
- Motor Carrier Act Endorsement - Hazardous materials clean up (MCS-90) if required by law.

C. **Workers' Compensation and Employers' Liability** insurance. Coverage must include but not be limited to:

- Contractor's statutory liability under the workers' compensation laws of the state where the work is being performed.
- Employers' Liability (Part B) with limits of at least $500,000 each accident, $500,000 disease policy limit $500,000 each employee.

If Contractor is self-insured, evidence of state approval and excess workers compensation coverage must be provided. Coverage must include liability arising out of the U. S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

The policy must contain the following endorsement, which must be stated on the certificate of insurance:

- Alternate Employer endorsement ISO form WC 00 03 01 A (or a substitute form providing equivalent coverage) showing Railroad in the schedule as the alternate employer (or a substitute form providing equivalent coverage).

D. **Railroad Protective Liability** insurance. Contractor must maintain "Railroad Protective Liability" (RPL) insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of Railroad as named insured, with a limit of not less than $2,000,000 per occurrence and an aggregate of $6,000,000. The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this Agreement and shall describe all WORK or OPERATIONS performed under this agreement." Contractor shall provide this Agreement to Contractor's insurance agent(s) and/or broker(s) and Contractor shall instruct such agent(s) and/or broker(s) to

procure the insurance coverage required by this Agreement. A BINDER STATING THE POLICY IS IN PLACE MUST BE SUBMITTED TO RAILROAD BEFORE THE WORK MAY COMMENCE AND UNTIL THE ORIGINAL POLICY IS FORWARDED TO UNION PACIFIC RAILROAD. **[Ken - there is a closed quote in this paragraph but no open quote.]**

E. **Umbrella or Excess** insurance. If Contractor utilizes umbrella or excess policies, these policies must "follow form" and afford no less coverage than the primary policy.

F. **Pollution Liability** insurance. Pollution liability coverage must be included when the scope of the work as defined in the Agreement includes installation, temporary storage, or disposal of any "hazardous" material that is injurious in or upon land, the atmosphere, or any watercourses; or may cause bodily injury at any time.

If required, coverage may be provided in separate policy form or by endorsement to Contractors-CGL or RPL. In any form coverage must be equivalent to that provided in ISO form CG 24 15 "Limited Pollution Liability Extension Endorsement" or CG 28 31 "Pollution Exclusion Amendment" with limits of at least $5,000,000 per occurrence and an aggregate limit of $10,000,000.

If the scope of work as defined in this Agreement includes the disposal of any hazardous or non-hazardous materials from the job site, Contractor must furnish to Railroad evidence of pollution legal liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting the materials, with coverage in minimum amounts of $1,000,000 per loss, and an annual aggregate of $2,000,000.

Other Requirements

G. All policy(ies) required above (except worker's compensation and employers liability) must include Railroad as "Additional Insured" using ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage). The coverage provided to Railroad as additional insured shall, to the extent provided under ISO Additional Insured Endorsement CG 20 26, and CA 20 48 provide coverage for Railroad's negligence whether sole or partial, active or passive, and shall not be limited by Contractor's liability under the indemnity provisions of this Agreement.

H. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless the law governing this Agreement prohibits all punitive damages that might arise under this Agreement.

I. Contractor waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against Railroad and its agents, officers, directors and employees. This waiver must be stated on the certificate of insurance.

J. Prior to commencing the work, Contractor shall furnish Railroad with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements in this Agreement.

K. All insurance policies must be written by a reputable insurance company acceptable to Railroad or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state where the work is being performed.

L. The fact that insurance is obtained by Contractor or by Railroad on behalf of Contractor will not be deemed to release or diminish the liability of Contractor, including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Railroad from Contractor or any third party will not be limited by the amount of the required insurance coverage.

EXHIBIT D
TO
CONTRACTOR'S RIGHT OF ENTRY AGREEMENT

MINIMUM SAFETY REQUIREMENTS

The term "employees" as used herein refer to all employees of Contractor as well as all employees of any subcontractor or agent of Contractor.

I. Clothing

A. All employees of Contractor will be suitably dressed to perform their duties safely and in a manner that will not interfere with their vision, hearing, or free use of their hands or feet.

Specifically, Contractor's employees must wear:

(i) Waist-length shirts with sleeves.
(ii) Trousers that cover the entire leg. If flare-legged trousers are worn, the trouser bottoms must be tied to prevent catching.
(iii) Footwear that covers their ankles and has a defined heel. Employees working on bridges are required to wear safety-toed footwear that conforms to the American National Standards Institute (ANSI) and FRA footwear requirements.

B. Employees shall not wear boots (other than work boots), sandals, canvas-type shoes, or other shoes that have thin soles or heels that are higher than normal.

C. Employees must not wear loose or ragged clothing, neckties, finger rings, or other loose jewelry while operating or working on machinery.

II. Personal Protective Equipment

Contractor shall require its employees to wear personal protective equipment as specified by Railroad rules, regulations, or recommended or requested by the Railroad Representative.

(i) Hard hat that meets the American National Standard (ANSI) Z89.1 – latest revision. Hard hats should be affixed with Contractor's company logo or name.
(ii) Eye protection that meets American National Standard (ANSI) for occupational and educational eye and face protection, Z87.1 – latest revision. Additional eye protection must be provided to meet specific job situations such as welding, grinding, etc.
(iii) Hearing protection, which affords enough attenuation to give protection from noise levels that will be occurring on the job site. Hearing protection, in the form of plugs or muffs, must be worn when employees are within:

- 100 feet of a locomotive or roadway/work equipment
- 15 feet of power operated tools
- 150 feet of jet blowers or pile drivers
- 150 feet of retarders in use (when within 10 feet, employees must wear dual ear protection – plugs and muffs)
-

(iv) Other types of personal protective equipment, such as respirators, fall protection equipment, and face shields, must be worn as recommended or requested by the Railroad Representative.

III. On Track Safety

Contractor is responsible for compliance with the Federal Railroad Administration's Roadway Worker Protection regulations – 49CFR214, Subpart C and Railroad's On-Track Safety rules. Under 49CFR214, Subpart C, railroad contractors are responsible for the training of their employees on such regulations. In addition to the instructions contained in Roadway Worker Protection regulations, all employees must:

(i) Maintain a distance of twenty-five (25) feet to any track unless the Railroad Representative is present to authorize movements.
(ii) Wear an orange, reflectorized workwear approved by the Railroad Representative.
(iii) Participate in a job briefing that will specify the type of On-Track Safety for the type of work being performed. Contractor must take special note of limits of track authority, which tracks may or may not be fouled, and clearing the track. Contractor will also receive special instructions relating to the work zone around machines and minimum distances between machines while working or traveling.

IV. Equipment

A. It is the responsibility of Contractor to ensure that all equipment is in a safe condition to operate. If, in the opinion of the Railroad Representative, any of Contractor's equipment is unsafe for use, Contractor shall remove such equipment from Railroad's property. In addition, Contractor must ensure that the operators of all equipment are properly trained and competent in the safe operation of the equipment. In addition, operators must be:

- Familiar and comply with Railroad's rules on lockout/tagout of equipment.
- Trained in and comply with the applicable operating rules if operating any hy-rail equipment on-track.
- Trained in and comply with the applicable air brake rules if operating any equipment that moves rail cars or any other railbound equipment.

B. All self-propelled equipment must be equipped with a first-aid kit, fire extinguisher, and audible back-up warning device.

C. Unless otherwise authorized by the Railroad Representative, all equipment must be parked a minimum of twenty-five (25) feet from any track. Before leaving any equipment unattended, the operator must stop the engine and properly secure the equipment against movement.

D. Cranes must be equipped with three orange cones that will be used to mark the working area of the crane and the minimum clearances to overhead powerlines.

V. General Safety Requirements

A. Contractor shall ensure that all waste is properly disposed of in accordance with applicable federal and state regulations.

B. Contractor shall ensure that all employees participate in and comply with a job briefing conducted by the Railroad Representative, if applicable. During this briefing, the Railroad Representative will specify safe work procedures, (including On-Track Safety) and the potential hazards of the job. If any employee has any questions or concerns about the work, the employee must voice them during the job briefing. Additional job briefings will be conducted during the work as conditions, work procedures, or personnel change.

C. All track work performed by Contractor meets the minimum safety requirements established by the Federal Railroad Administration's Track Safety Standards 49CFR213.

D. All employees comply with the following safety procedures when working around any railroad track:

(i) Always be on the alert for moving equipment. Employees must always expect movement on any track, at any time, in either direction.

(ii) Do not step or walk on the top of the rail, frog, switches, guard rails, or other track components.
(iii) In passing around the ends of standing cars, engines, roadway machines or work equipment, leave at least 20 feet between yourself and the end of the equipment. Do not go between pieces of equipment of the opening is less than one car length (50 feet).
(iv) Avoid walking or standing on a track unless so authorized by the employee in charge.
(v) Before stepping over or crossing tracks, look in both directions first.
(vi) Do not sit on, lie under, or cross between cars except as required in the performance of your duties and only when track and equipment have been protected against movement.

E. All employees must comply with all federal and state regulations concerning workplace safety.

APPLICATION – RIGHT OF ENTRY

(Please allow 30-45 days for processing)

1. Name of Licensee_____
(Exact Name of the Owner of the Utility)

State of Incorporation _____; if not incorporated, please list entity's legal status

_____

2. Address, email, phone and Fax number of Licensee

_____

Email_____Phone_____Fax_____

3. Name, address and phone number of individual to whom agreement is to be mailed ***if different than Item 2.***

_____

_____

4. Contact information for individual to contact in the event of questions.

_____

Email_____Phone_____Fax_____

5. Project site location:

_____
(City, County and State)

6. Railroad site location information:

_____
(Railroad Mile Post, Subdivision, or any other pertinent location detail.)

7. Time period for your project use of Railroad Company's property:

Start Date:_____ Stop Date:_____

8. Will there be any activity or equipment within 25 feet of a Railroad track in connection with this property?
( ) No ( ) Yes *(If Yes, a Flagman will be required on site at your cost.)*

9. Will there be any excavation involved?
( ) No ( ) Yes *(If Yes, include shoring plans within Railroad standards.)*

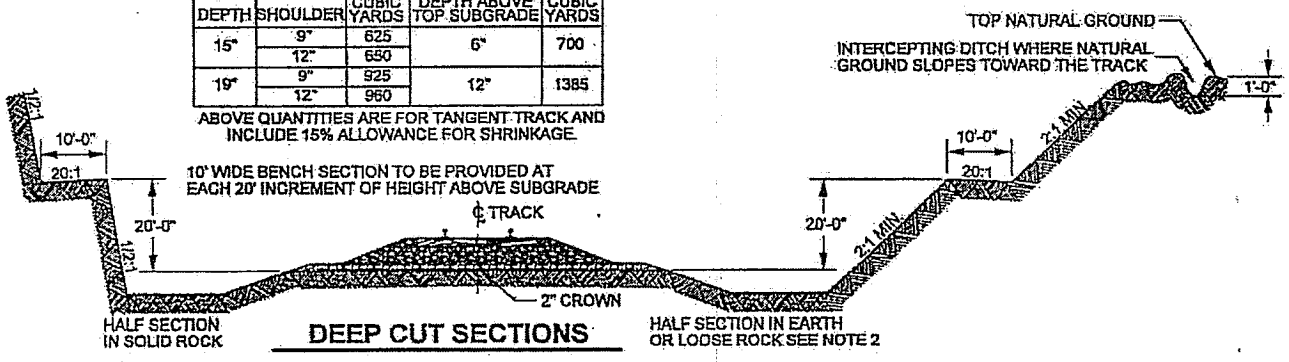
10. Purpose of your request:
(This must be detailed & complete; attach engineering plans, shoring plans and any pertinent supporting details, including maps or prints.)

- Additional Fees and charges may be applicable to your request. These changes cannot be determined until your project is approved.

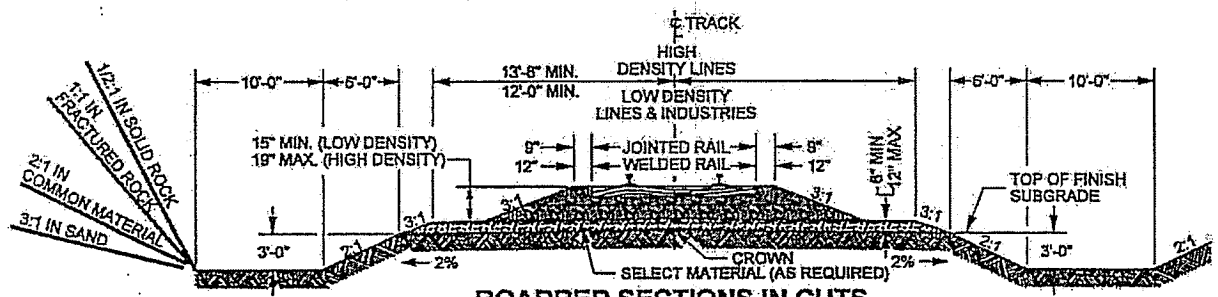
UNION PACIFIC RAILROAD
1400 DOUGLAS STREET MS 1690
OMAHA NE 68179

MATERIAL REQUIRED FOR 1000 FEET OF SINGLE TRACK				
BALLAST			SELECTED MATERIAL	
DEPTH	SHOULDER	CUBIC YARDS	DEPTH ABOVE TOP SUBGRADE	CUBIC YARDS
15"	9"	625	6"	700
	12"	650		
19"	9"	925	12"	1385
	12"	960		

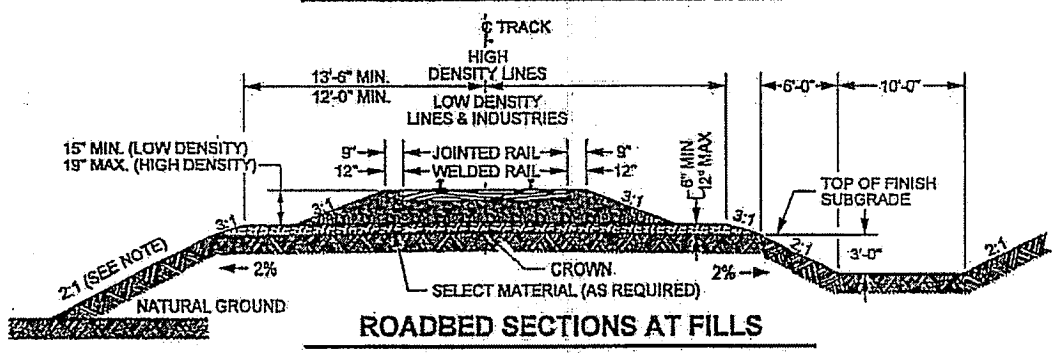
ABOVE QUANTITIES ARE FOR TANGENT TRACK AND INCLUDE 15% ALLOWANCE FOR SHRINKAGE.



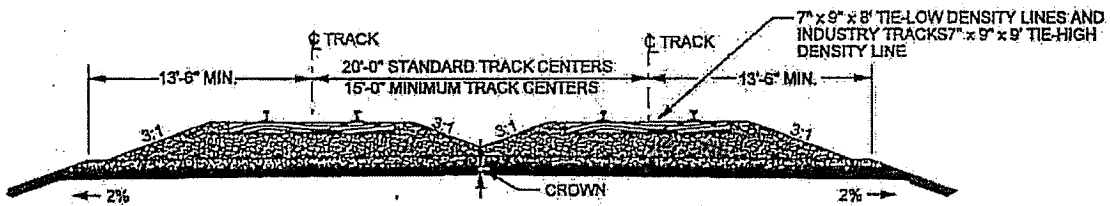
DEEP CUT SECTIONS



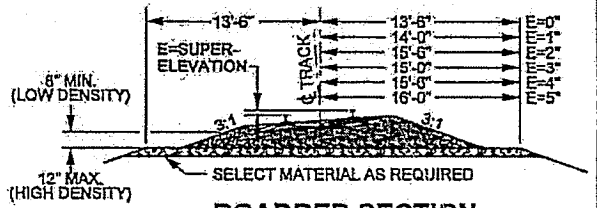
ROADBED SECTIONS IN CUTS



ROADBED SECTIONS AT FILLS



BALLAST SECTION FOR TWO TRACKS



ROADBED SECTION AT CURVED TRACK

FOR DETAILS NOT SHOWN, SEE CUT AND FILL SECTIONS ELSEWHERE ON THIS SHEET

NOTES:

1. THE DEPTH OF BALLAST AND DEPTH OF SELECTED MATERIAL SHALL BE DECIDED ON THE BASIS OF VOLUME OF TRAFFIC AND THE QUALITY OF SELECTED MATERIAL AND SUBGRADE DETERMINED BY THE RAILROAD'S ENGINEER SUBJECT TO THE APPROVAL OF THE CHIEF ENGINEER.
2. SLOPES SHOWN FOR BANKS IN CUTS AND ON FILLS SHALL BE CONSIDERED STANDARD AND GENERALLY USED, BUT MAY BE MODIFIED AS REQUIRED BY LOCAL CONDITIONS AND CHARACTER OF MATERIAL.
3. BALLAST MUST BE EQUALIZED IN ADVANCE OF DRESSING SO THAT FINAL SECTION WILL CONFORM TO SLOPE REQUIREMENTS AND CHARACTER OF MATERIAL.
4. WHERE OFF-TRACK ROADWAY IS TO BE PROVIDED, ADD 10'-0" ADDITIONAL WIDTH TO THE ROADBED SECTION AT TOP OF SELECTED MATERIAL ELEVATION.
5. ALL FILL SLOPES SHALL BE FACED WITH COVER OF MATERIAL SUITABLE FOR GROWING GRASS AND HAVING A THICKNESS OF APPROXIMATELY 6 INCHES. THE OUTER SURFACE OF THIS COVER SHALL COINCIDE WITH THE DESIGN SLOPE OF THE EMBANKMENT. MATERIAL FOR THIS COVER MAY BE OBTAINED FROM STRIPPING.
6. FLOW LINE ON 0.2% MINIMUM GRADE DITCHES AND BENCHES.
7. FLAT BOTTOM DITCHES ARE REQUIRED FOR HIGH DENSITY LINES, HOWEVER A "V" DITCH IS ACCEPTABLE FOR INDUSTRY TRACKS WHEN RIGHT-OF-WAY IS LIMITED AND WHERE LOCAL CONDITIONS AND CHARACTER OF MATERIAL SO REQUIRE.
8. REF U.P. STD DWG PAGE 0001.

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

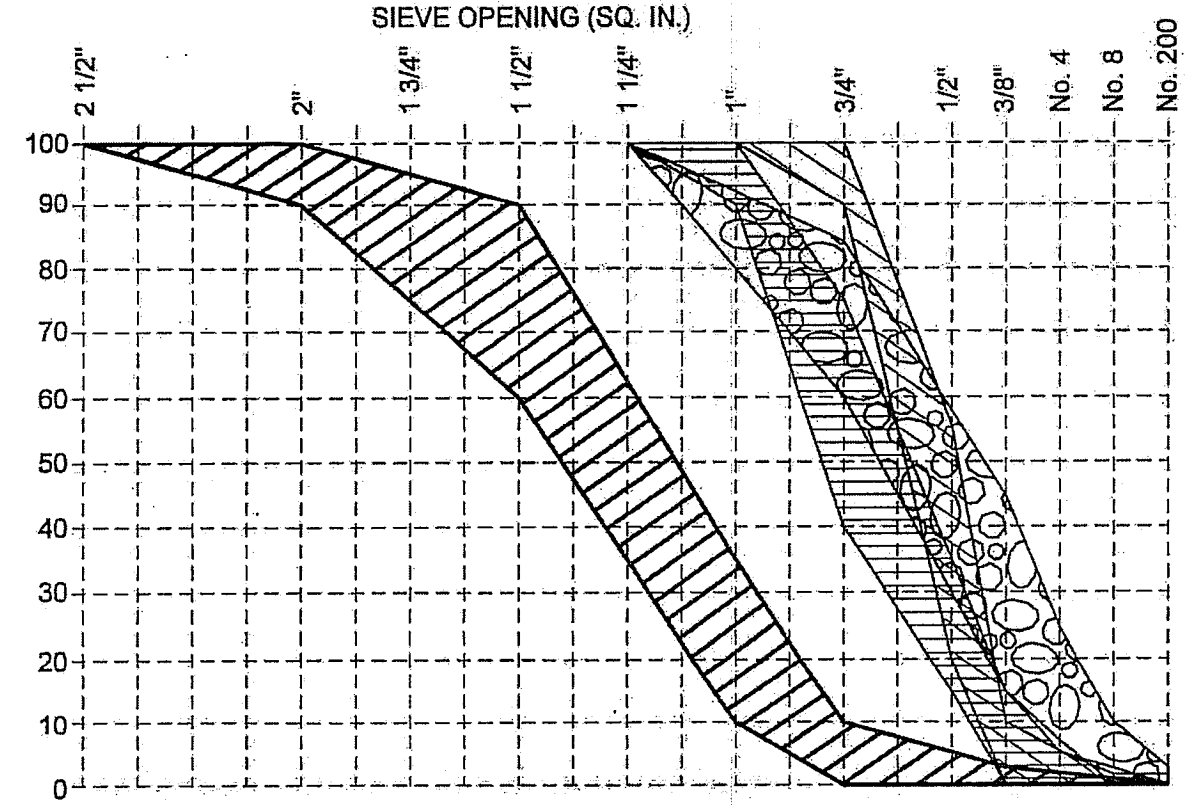
ROADBED SECTION FOR WOOD TIE TRACK CONSTRUCTION

ADOPTED: JAN. 21, 1927
REVISED: SEPT 29, 2006
FILE NO.: 0001B

STD DWG 0001B

STD DWG 0001B

280



	UP BALLAST CLASS			
	1	2	3	SUB BALLAST
SQUARE OPENING	2"-3/4"	1"-3/8"	3/4"-0"	1 1/2"-0"
2 1/2"	100			
2"	90-100			
1 3/4"				
1 1/2"	60-90			
1 1/4"		100		100
1"	10-35	90-100	100	
3/4"	0-10	40-75	90-100	60-85
1/2"		15-35	20-55	
3/8"	0-3	0-15	0-10	15-45
No.4		0-5	0-5	7-25
No.8			0-1	0-10
No.200	0-.5	0-.5	0-1	0-3

PERCENT PASSING (BY WEIGHT)
[ALL AGGREGATE SAMPLING AND TESTING PER ASTM LATEST REVISION.]

CLASS 1 BALLAST FOR MAIN TRACK (OLD "D")

CLASS 2 BALLAST FOR SECONDARY MAIN, BRANCH AND YARD TRACK (OLD "C")

CLASS 3 BALLAST SCREENINGS FOR SIGNAL MOUNDS, ETC..

SELECT MATERIAL (SUB BALLAST - SEE NOTE)

NOTES:
FOR STANDARD CROSS SECTIONS, SEE STD DWG 0001, OR STD DWG 0002.

SELECT MATERIAL TO BE USED AS SUB BALLAST IN POOR NATIVE SOIL CONDITIONS WHERE SPECIFIED BY CHIEF ENGINEER.

CLASS 1 AND CLASS 2 BALLAST MATERIALS ARE REQUIRED TO BE WASHED PRIOR TO LOADING.

BALLAST CLASS	ITEM NO.
1	562-0766
2	562-1432
3	562-2098
SUB BALLAST	562-5428

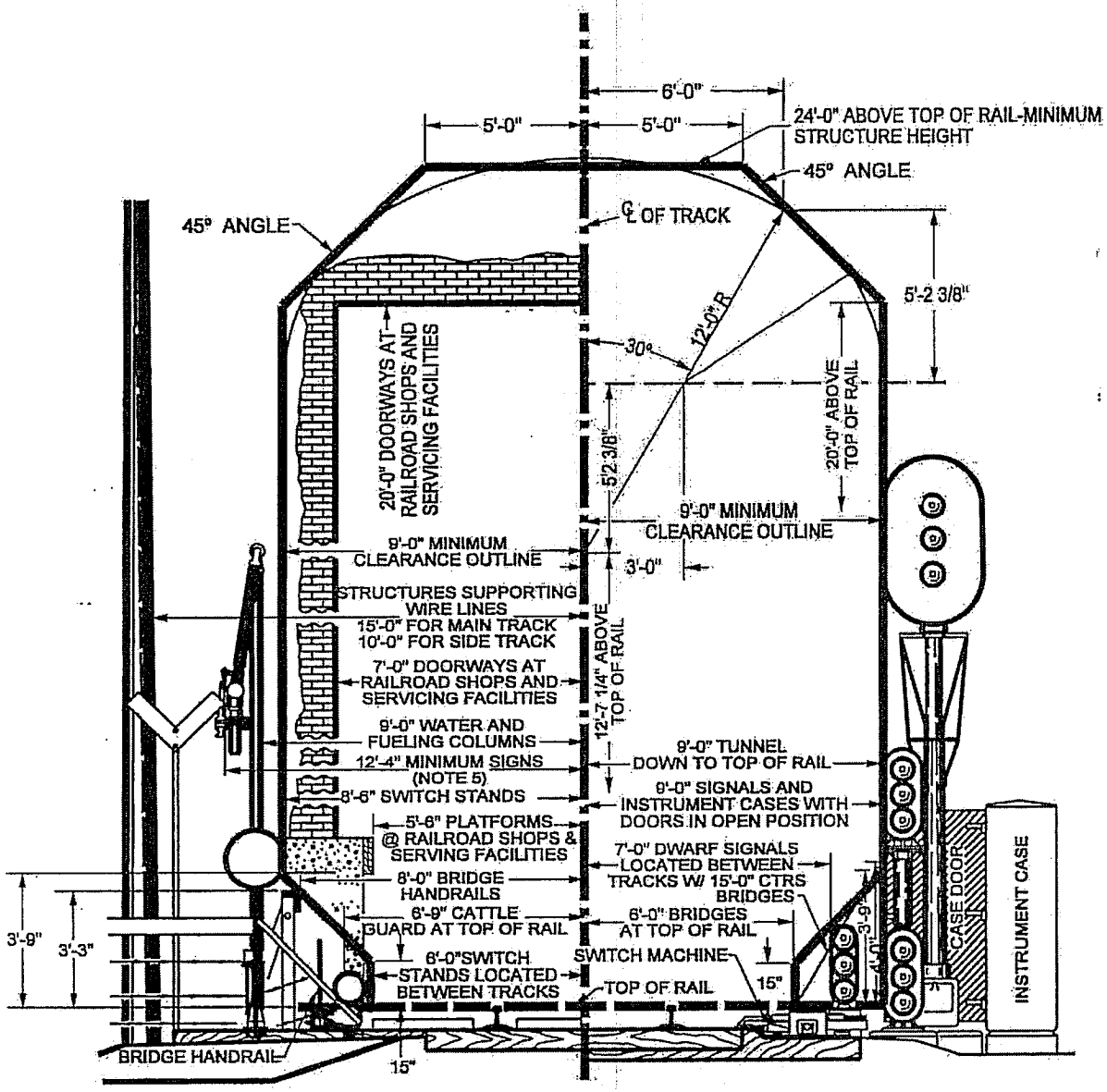
UNION PACIFIC RAILROAD ENGINEERING STANDARDS

BALLAST GRADATION TABLE

ADOPTED: DEC. 31, 1996
REVISED: DEC. 5, 2002
FILE NO.: 0010B

STD DWG
0010B

STD DWG 0010B



THROUGH RAILROAD OWNED STRUCTURES AND FACILITIES

GENERAL NOTES (SEE PAGE 1 FOR TRACK NOTES):

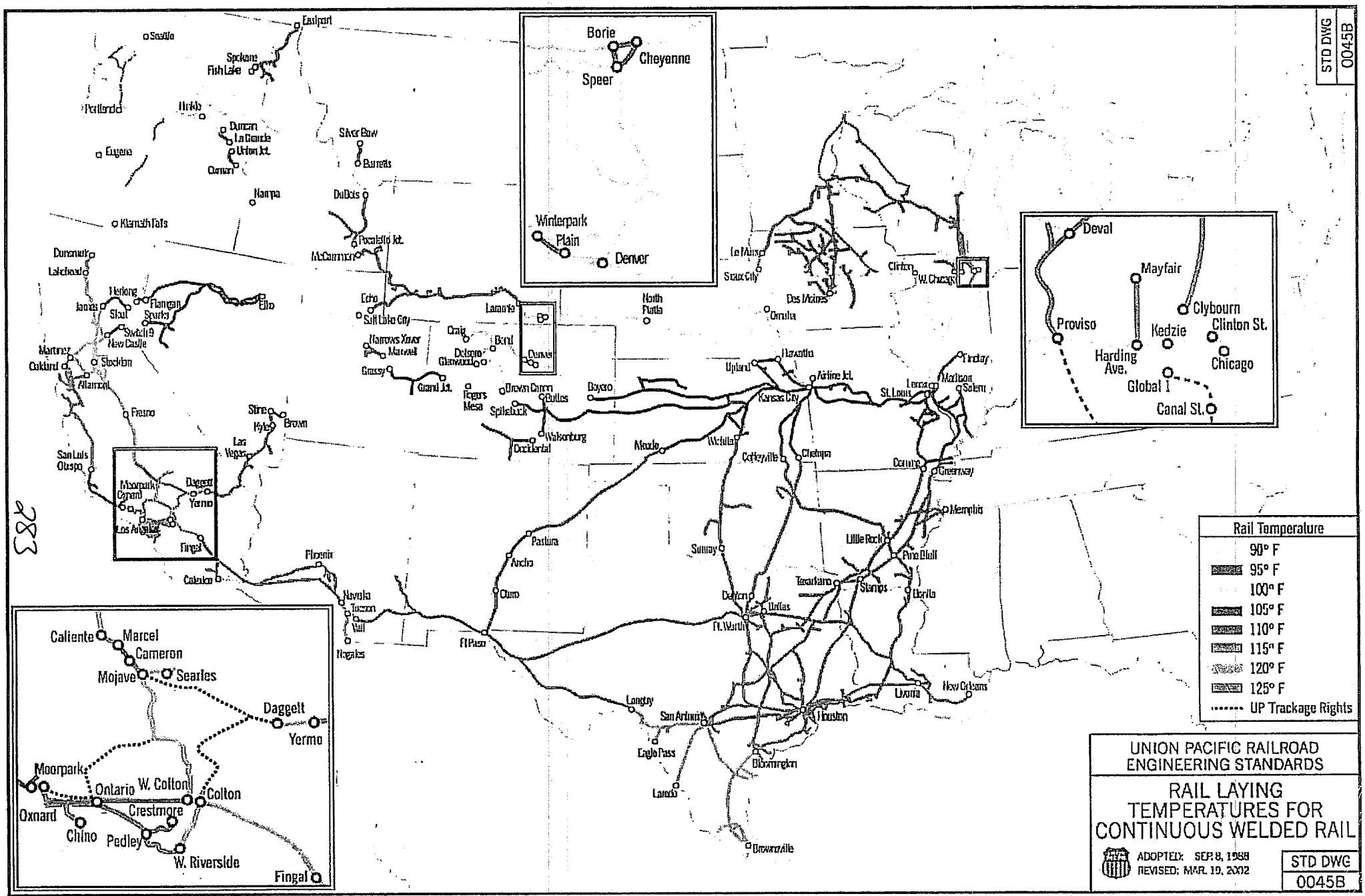
1. ALL STRUCTURES OR FACILITIES NOT SHOWN MUST BE AT LEAST 9'-0" FROM THE CENTER LINE OF TRACK AND AT LEAST 23'-0" ABOVE THE TOP OF RAIL.
2. CLEARANCES FOR STRUCTURES OR FACILITIES ON CURVES MUST BE INCREASED LATERALLY ON EACH SIDE 1 1/2" PER EACH DEGREE OF CURVATURE, EXTENDING TO 80'-0" BEYOND THE END OF THE CURVE.
3. ANY FACILITIES FALLING WITHIN THESE DIMENSIONS WILL BE CONSIDERED IMPAIRED CLEARANCE, SUBJECT TO AGREEMENT, AND MUST BE APPROVED PRIOR TO CONSTRUCTION BY UNION PACIFIC RAILROAD'S OFFICE OF THE CHIEF ENGINEER OF DESIGN.
4. WHERE STATE OR LOCAL LAWS REQUIRE GREATER CLEARANCES THAN SHOWN HERE, THOSE LAWS SHALL PREVAIL.
5. SIGNS FOR INTERIOR MAIN TRACKS IN MULTIPLE MAIN TRACK TERRITORY WILL BE A MINIMUM OF 9'-0" FROM CENTER OF TRACK.

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

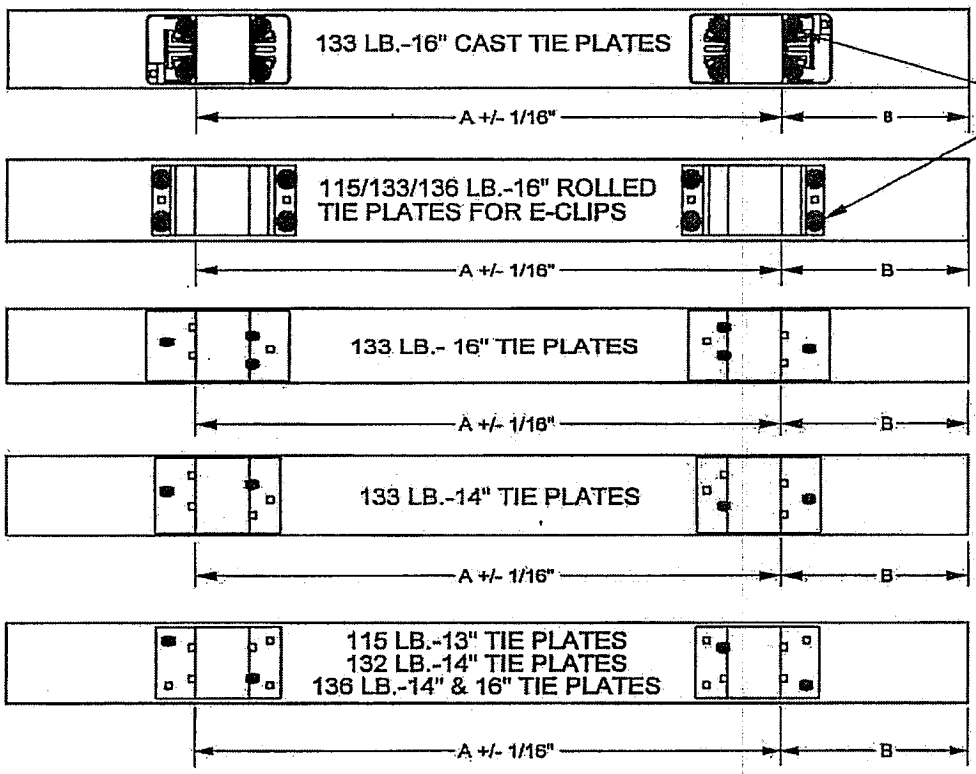
STANDARD MINIMUM OPERATING CLEARANCES

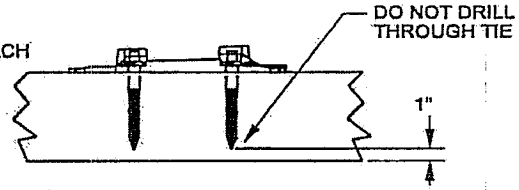
ADOPTED: MAY 2, 1977
REVISED: OCT. 25, 2004
FILE NO.: 0038F

STD DWG 0038F PAGE 2 OF 2

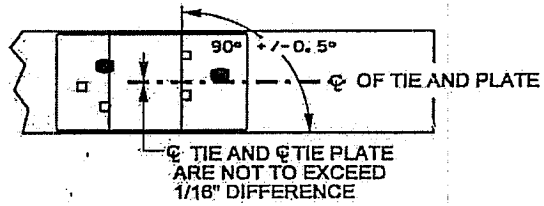

STD DWG 0045B
Borie
Cheyenne
Speer
Winterpark
Plain
Denver
Deval
Mayfair
Proviso
Clybourn
Kedzie
Clinton St.
Harding Ave.
Chicago
Global 1
Canal St.
Caliente
Marcel
Cameron
Mojave
Searles
Daggett
Yermo
Moorpark
Ontario
W. Colton
Colton
Oxnard
Crestmore
Chino
Pedley
W. Riverside
Fingal
Rail Temperature
90° F
95° F
100° F
105° F
110° F
115° F
120° F
125° F
UP Trackage Rights
UNION PACIFIC RAILROAD
ENGINEERING STANDARDS
RAIL LAYING
TEMPERATURES FOR
CONTINUOUS WELDED RAIL
ADOPTED: SEP. 8, 1959
REVISED: MAR. 19, 2002
STD DWG
0045B

283

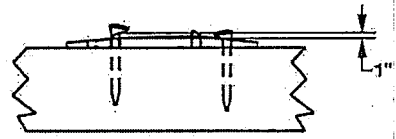




COACH SCREW CLEARANCE



TYP. PLATE ALIGNMENT



GAGE SPIKE CLEARANCE

RAIL WEIGHT (ALL TIES 7" X 9")		QUANTITY SPIKES OR SCREWS	TIE PLATE	A	B	ITEM NUMBER		
						HARDWOOD	SOFTWOOD	COMPOSITE
115 LB.	8'	4	13" SPIKE	65"	15 1/2"	502-9793	-	-
	9'				21 1/2"	502-9700	502-9785	-
115 LB.	9'	8	16" ROLLED FOR E-CLIPS	65"	15 1/2"	502-7976	-	-
	10'				21 1/2"	502-7975	-	-
132 LB./ 136 LB.	8'	4	14" SPIKE	65 3/4"	15 1/8"	502-9787	-	-
	9'				21 1/8"	502-9706	-	-
133 LB./ 136 LB.	8'	4	14" SPIKE	65 3/4"	15 1/8"	502-9795	502-9796	-
	9'	6	16" SPIKE	65 3/4"	21 1/8"	502-9797	502-9798	-
133 LB./ 136 LB.	9'	8	16" CAST SAFELOK CLIPS	65 3/4"	21 1/8"	502-9799	-	503-2505
	10'				27 1/8"	502-1020	-	-
133 LB./ 136 LB.	9'	8	16" ROLLED FOR E-CLIPS	65 3/4"	21 1/8"	502-7888	-	503-2501
	10'				27 1/8"	502-7999	-	-

NOTES:
PRE-BORED HOLES NECESSARY TO INSTALL COACH SCREWS WITH RESILIENT FASTENER TIE PLATES DRILLED TO ONE HALF INCH FROM BOTTOM OF THE TIE, USING FOLLOWING PRE-BORED DIAMETERS:
11/16"-SOFT WOOD TIES
3/4"-HARD WOOD & COMPOSITE TIES
13/16"-AZOBE TIES

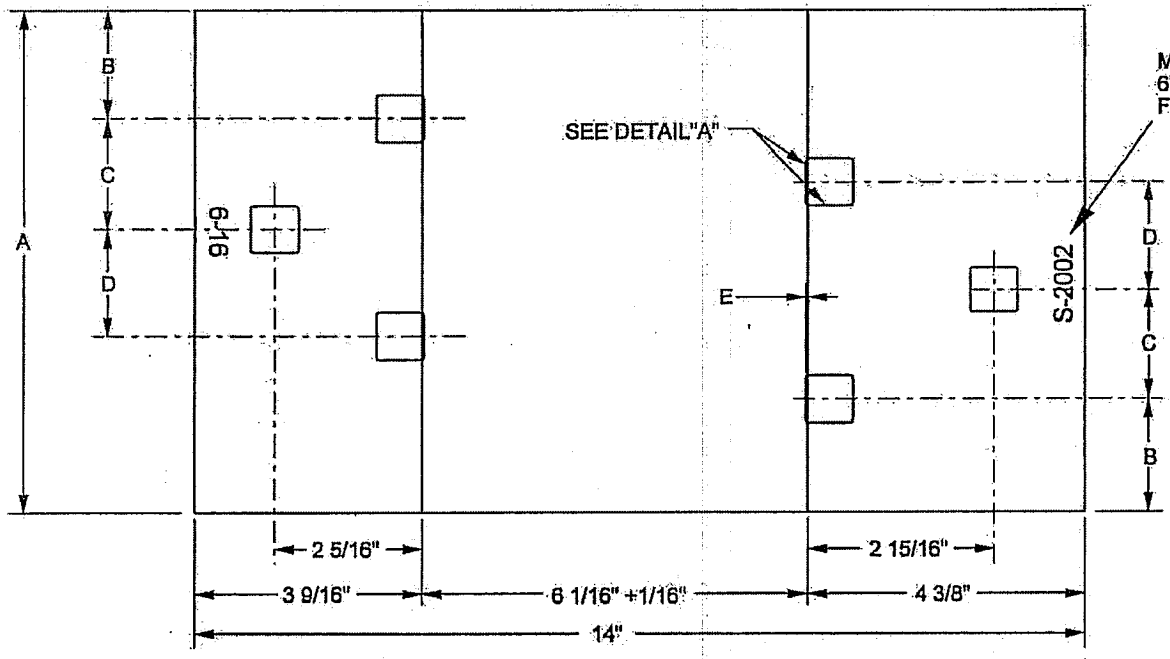
RAIL GAGE SPIKES WILL HAVE 1" CLEARANCE BETWEEN RAIL SEAT AND UNDERSIDE OF SPIKE HEAD.

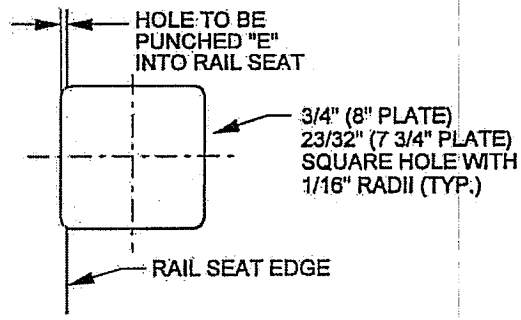
UNION PACIFIC RAILROAD ENGINEERING STANDARDS

PREPLATING DIMENSIONS FOR WOOD TIES

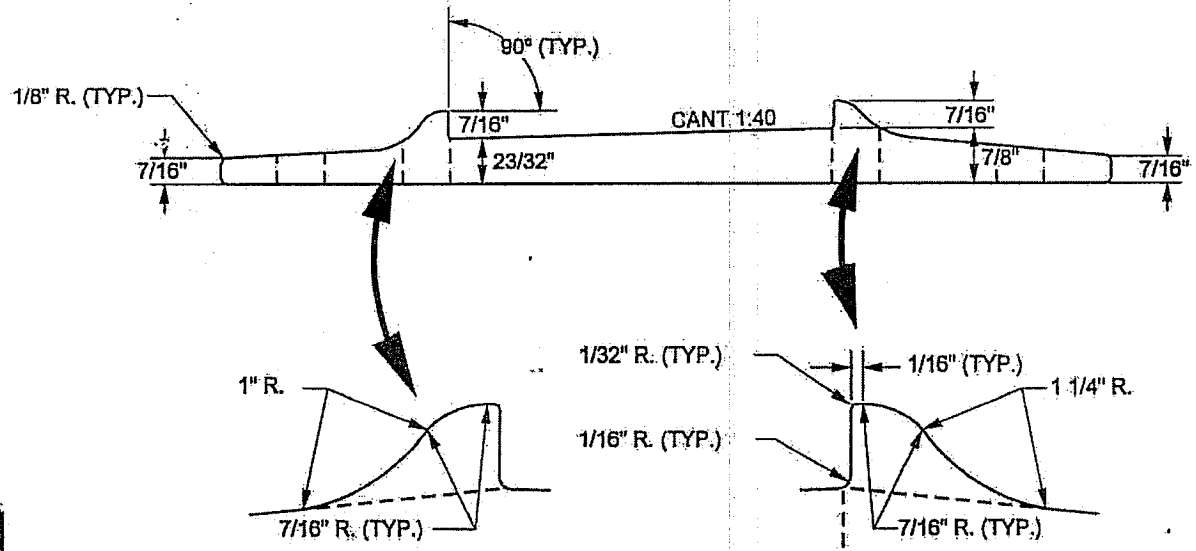
ADOPTED: DEC. 31, 1996
REVISED: SEPT. 11, 2002
FILE NO.: 0211G

STD DWG
0211G





DETAIL"A"



ITEM NOS.	USE	A	B	C	D	E
554-4668	2ND HAND ONLY	8"	1 3/4"	1 3/4"	1 3/4"	1/32"
554-3230	NEW	7 3/4"	2"	1 7/8"	1 1/4"	3/64"

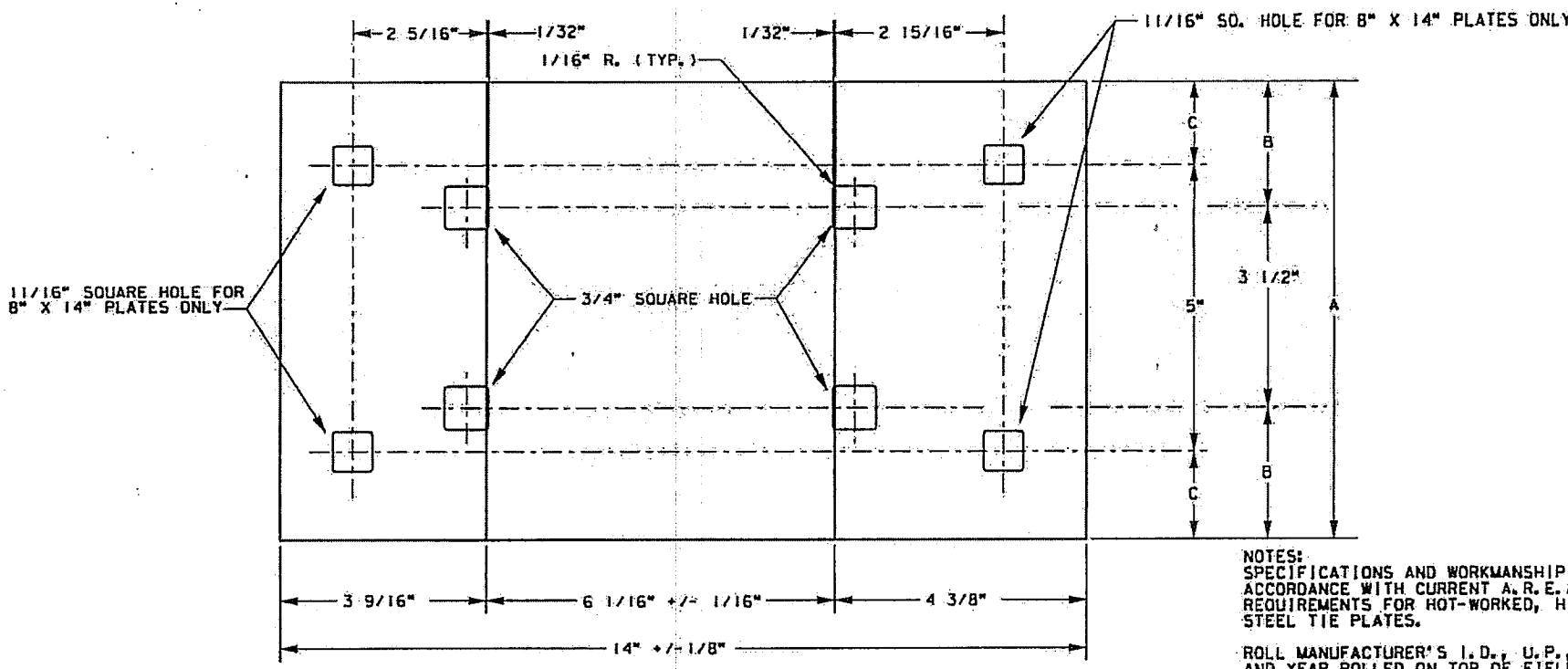
NOTES:
SPECIFICATIONS AND WORKMANSHIP TO BE IN ACCORDANCE WITH CURRENT AREMA MANUAL REQUIREMENTS FOR HOT-WORKED, HIGH CARBON STEEL TIE PLATES.

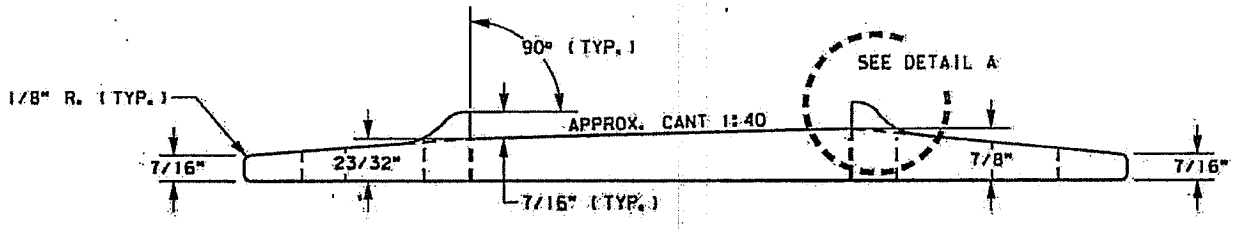
UNION PACIFIC RAILROAD ENGINEERING STANDARDS

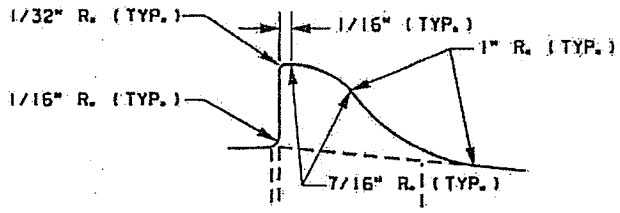
DOUBLE SHOULDER 6-HOLE TIE PLATE FOR 6" BASE RAIL

ADOPTED: MARCH 1, 1998
REVISED: APRIL 22, 2002
FILE NO.: 0439A

STD DWG 0439A







DETAIL A

NOTES:
SPECIFICATIONS AND WORKMANSHIP TO BE IN ACCORDANCE WITH CURRENT A.R.E.A. MANUAL REQUIREMENTS FOR HOT-WORKED, HIGH CARBON STEEL TIE PLATES.

ROLL MANUFACTURER'S I.D., U.P., RAIL SECTION AND YEAR ROLLED ON TOP OF FIELD SIDE OF TIE PLATE.

ALL SPIKE HOLES TO BE 3/4" SQUARE UNLESS OTHERWISE NOTED

ESTIMATED FINISHED WEIGHT OF 8" X 14" PUNCHED PLATE = 22.19 LBS..

ESTIMATED FINISHED WEIGHT OF 7 3/4" X 14" PUNCHED PLATE = 21.50 LBS..

NET AREA OF 8" X 14" PLATE = 105.50 SQUARE INCHES.

NET AREA OF 7 3/4" X 14" PLATE = 104.01 SQUARE INCHES.

PLATE	U.P. 8" X 14"	C.N.W. 7 3/4" X 14"
ITEM NO.	554-4445	554-3223
A	8"	7 3/4"
B	2 1/4"	2 1/8"
C	1 1/2"	1 3/8"

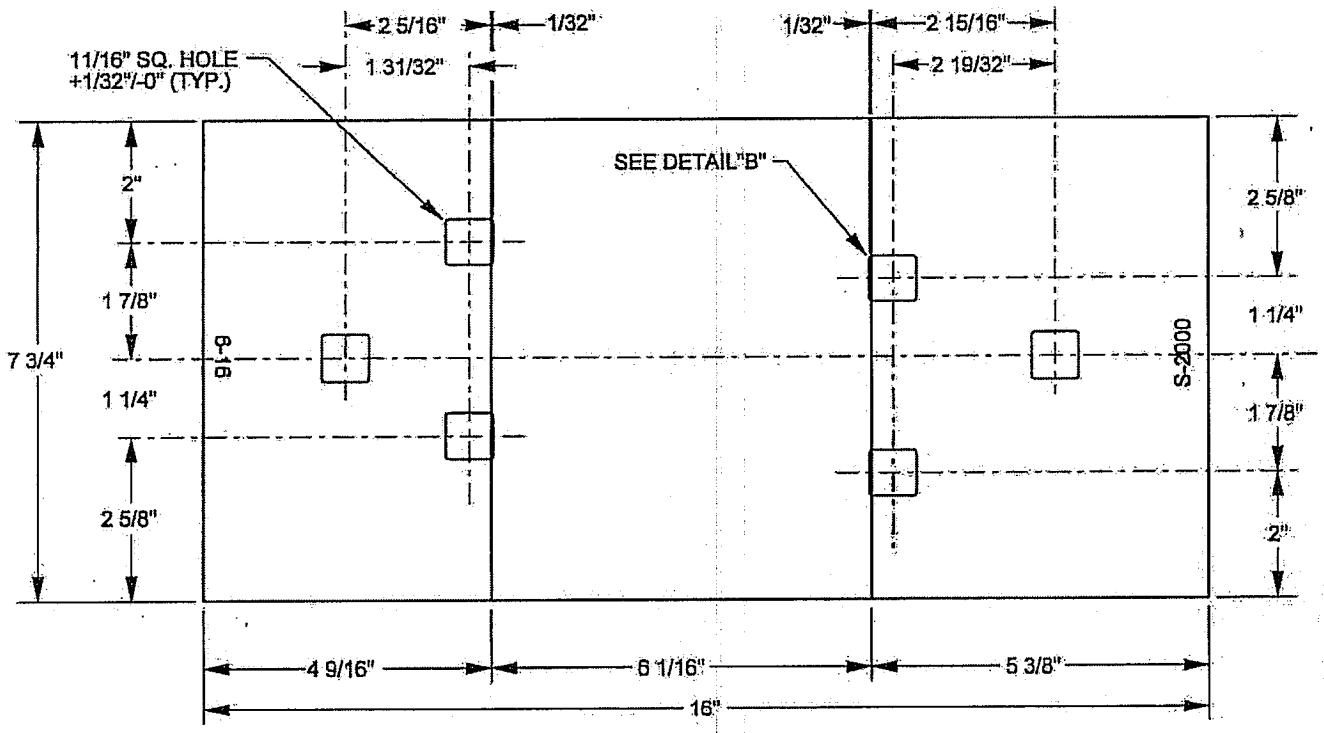
UNION PACIFIC RAILROAD
ENGINEERING STANDARDS

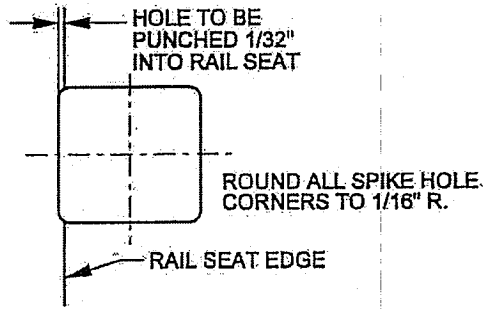
DOUBLE SHOULDER TIE PLATE FOR 6" BASE RAIL

ADOPTED: DEC. 30, 1996
REVISED: MARCH 1, 1998
FILE NO.: 0441

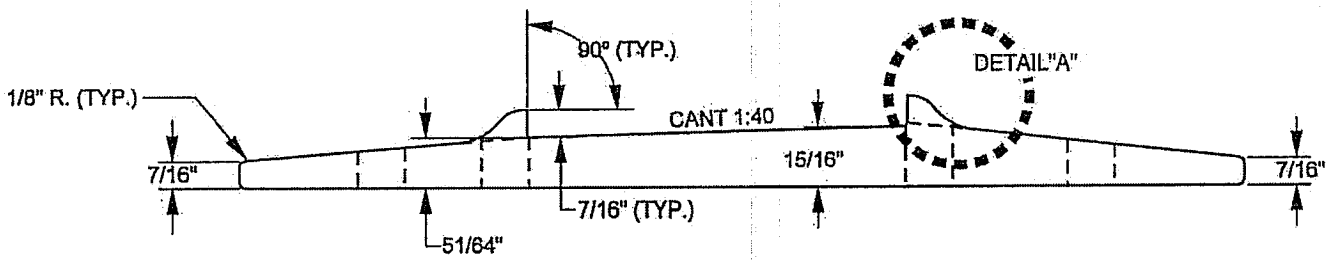
STD DWG
0441A

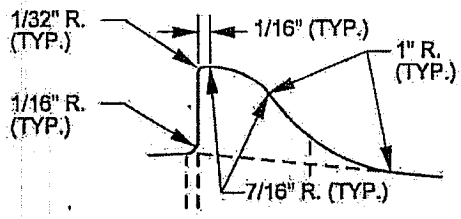
STD DWG
0441A





DETAIL"B"





DETAIL"A"

NOTES:
1. SPECIFICATIONS AND WORKMANSHIP TO BE IN ACCORDANCE WITH CURRENT AREMA MANUAL REQUIREMENTS FOR HOT-WORKED, HIGH CARBON STEEL TIE PLATES.
2. ROLL MANUFACTURER'S I.D., AND YEAR ON TOP FIELD SIDE OF TIE PLATE. ROLL RAIL BASE SIZE AND PLATE LENGTH ON TOP GAGE SIDE OF PLATE AS SHOWN ON DRAWING.
3. ESTIMATED FINISHED WEIGHT OF PUNCHED PLATE = 26.10 LBS.
4. NET AREA OF PLATE BASE = 124.0 SQ. INCHES.

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

DOUBLE SHOULDER TIE PLATE FOR 6" BASE RAIL 1:40 CANT

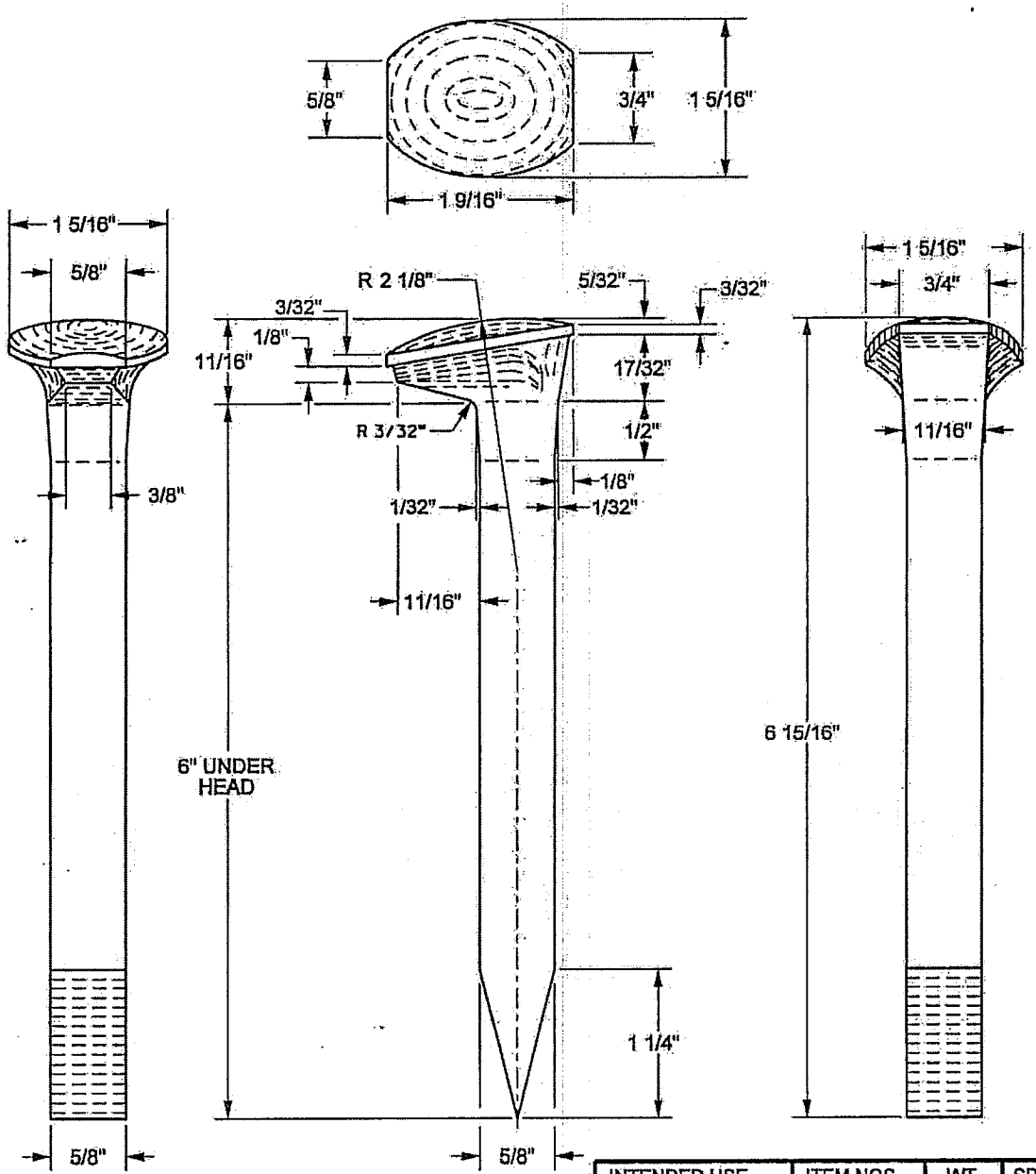
ITEM NO.	STD DWG
554-3240	0442C

UNION PACIFIC

ADOPTED: DEC. 6, 1991
REVISED: JUNE 3, 2004
FILE NO.: 0442C

PAGE 1 OF 2

STD DWG 0442C PAGE 1 OF 2



NOTES:
MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH CURRENT AREMA MANUAL REQUIREMENTS FOR HIGH CARBON STEEL TRACK SPIKES WITHOUT COPPER.

PERMISSIBLE SHANK STRAIGHTNESS VARIATION, MEASURED IN EITHER PLANE, SHALL NOT EXCEED 0.0313".

MANUFACTURER'S I.D. AND THE LETTERS "HC" SHALL BE PRESSED ON THE HEAD OF EACH SPIKE WHILE BEING FORMED.

WEIGHT = APPROXIMATELY 0.875 LBS. EACH.

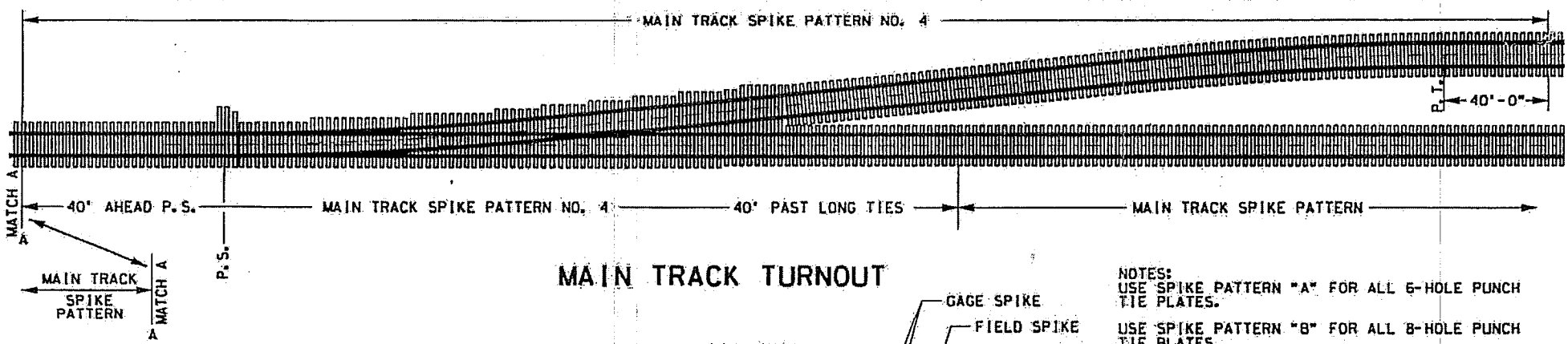
INTENDED USE	ITEM NOS.	WT	SPIKES/KG
MAINTENANCE	550-6766	47	50
PROJECT	550-6707	200	220
BULK	550-6710	N/A	N/A
6" SHIM SPIKE	550-6678	200	200

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

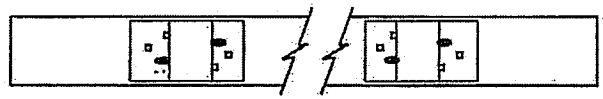
CUT SPIKE FOR WOOD TIES

ADOPTED: DEC. 30, 1996
REVISED: APRIL 9, 2001
FILE NO.: 0451A

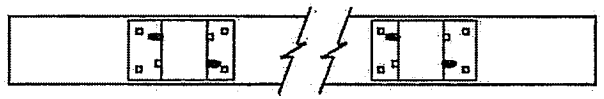
STD DWG 0451A



MAIN TRACK TURNOUT

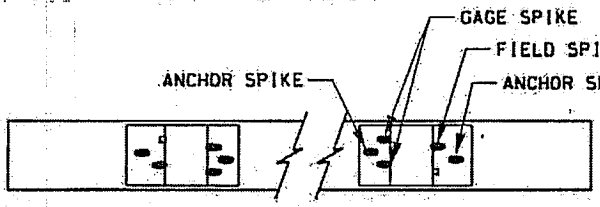


SPIKE PATTERN 1A

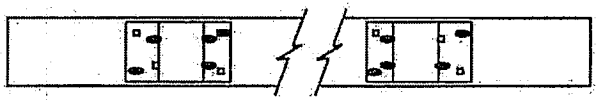


SPIKE PATTERN 1B

SPIKE PATTERN NO. 1

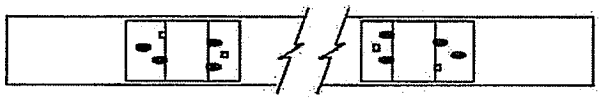


SPIKE PATTERN 3A

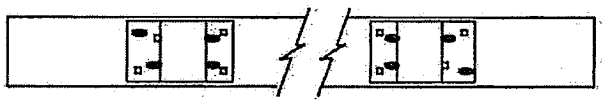


SPIKE PATTERN 3B

SPIKE PATTERN NO. 3

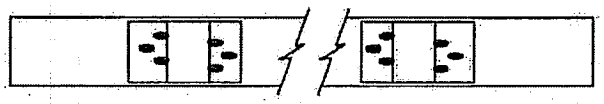


SPIKE PATTERN 2A

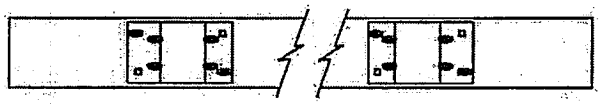


SPIKE PATTERN 2B

SPIKE PATTERN NO. 2



SPIKE PATTERN 4A



SPIKE PATTERN 4B

SPIKE PATTERN NO. 4

NOTES:
USE SPIKE PATTERN "A" FOR ALL 6-HOLE PUNCH TIE PLATES.

USE SPIKE PATTERN "B" FOR ALL 8-HOLE PUNCH TIE PLATES.

THE SPIKE PATTERNS SHOWN ARE FOR MAIN TRACKS, BRANCH LINE TRACKS, HEAVY TONNAGE SPURS, AND C.T.C. SIDINGS WITH 13" AND LONGER PLATES.

CHIEF ENGINEER WILL DETERMINE ANCHOR SPIKE PATTERN FOR ANY PLATES LESS THAN 13" LONG.

USE PATTERN 1A AND 1B ON TANGENT TRACK AND CURVES BELOW 1°30' FOR SPEEDS BELOW 40 MPH.

USE PATTERN 2A AND 2B:
1) ON TANGENT TRACK AND CURVES BELOW 1°30' FOR SPEEDS 40 MPH AND ABOVE.
2) ON CURVES 1°30' AND GREATER, BUT UNDER 4° FOR SPEEDS BELOW 40 MPH.
3) ON NON C.T.C. SIDINGS, YARD AND INDUSTRY TRACKS WITH CURVES OVER 4°00'.

USE PATTERN 3A AND 3B:
1) ON CURVES 1°30' AND GREATER BUT UNDER 4° FOR SPEEDS ABOVE 40 MPH.
2) ON CURVES 4° AND GREATER, BUT UNDER 8° FOR SPEEDS BELOW 40 MPH.

USE PATTERN 4A AND 4B:
1) ON CURVES 4° AND GREATER, BUT UNDER 8° FOR SPEEDS ABOVE 40 MPH.
2) ON ALL CURVES 8° AND GREATER.
3) ON ALL MAIN TRACK TURNOUTS.

ANY SPIKING PATTERN OTHER THAN WHAT IS SHOWN ON THIS DRAWING ARE TO BE APPROVED BY THE CHIEF ENGINEER.

UNION PACIFIC RAILROAD
ENGINEERING STANDARDS

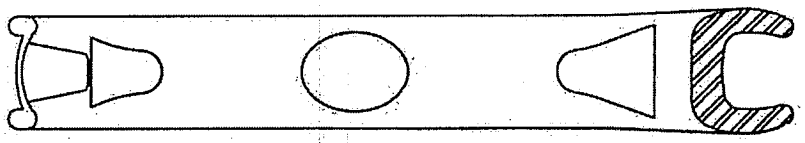
SPIKING PATTERN

UNION PACIFIC

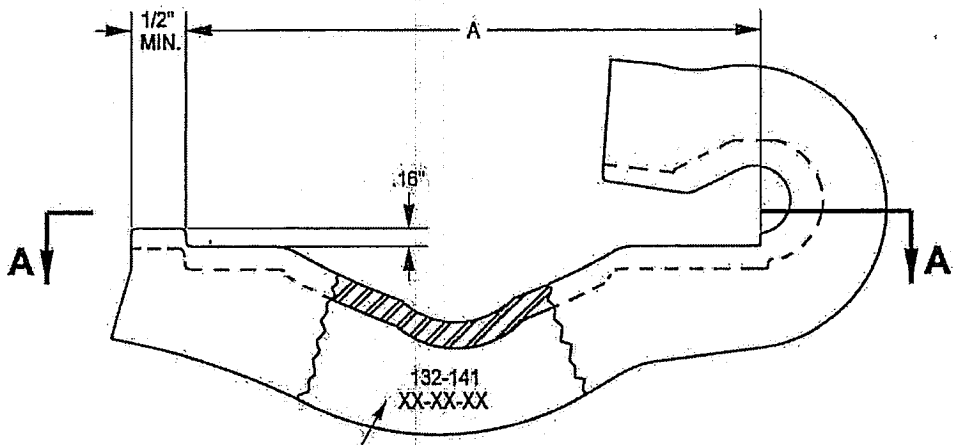
ADOPTED: DEC. 31, 1996
REVISED: JUNE 22, 2001
FILE NO.: 0453B

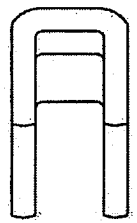
STD DWG
0453B

STD DWG
0453B



SECTION "A-A"





290

ANCHOR STAMPTO INCLUDE:
RAIL SIZE
MANUFACTURER'S LOGO
DATE MADE OR DATE CODE

RAIL SIZE	A	PROJECT ITEM NO.	MAINTENANCE ITEM NO.
110 - 119	5.575" +/-.025	550-1413	550-1425
132 - 141	6.075" +/- .025	550-1648	550-1660

NOTES:
MATERIAL: HIGH CARBON STEEL

HEAT TREAT TO Rc 34-47
TARGET RANGE Rc 39-44

ALL DIMENSIONS ARE MINIMUM UNLESS OTHERWISE SPECIFIED.

FOR STANDARD ANCHOR PATTERNS, SEE STD DWG 0460

TYPICAL CHEMISTRY: CARBON .58-.90, MANGANESE .7-1.1, SILICON .5 MAX

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

HEAVY DUTY RAIL ANCHOR

ADOPTED: DEC. 31, 1999
REVISED: MARCH 1, 2001
FILE NO.: 0457A

STD DWG
0457A

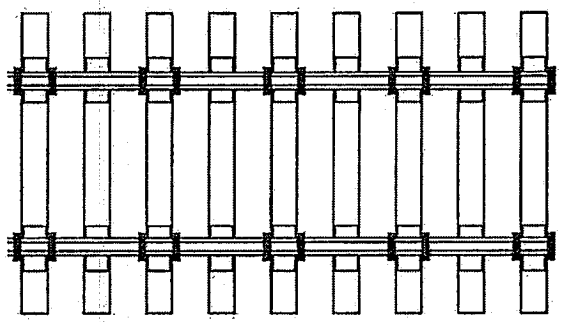
STD DWG
0457A

GENERAL NOTES:

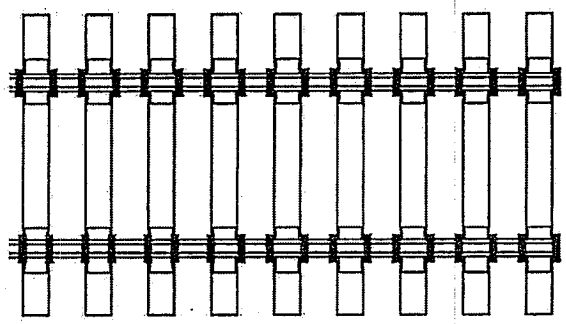
ANCHOR PATTERN #1 WILL BE USED FOR ALL RAIL RELAYS. EXISTING ANCHOR PATTERNS MAY REMAIN UNTIL A RAIL RELAY IS DONE.

WHERE ELASTIC FASTENERS FAIL TO PROPERLY RESTRAIN THE RAIL FROM MOVING LONGITUDINALLY, INSTALL ADDITIONAL ANCHORS AS REQUIRED.

WHERE PRACTICAL, ANCHOR TO BE INSTALLED FROM GAGE SIDE OF RAIL.



ANCHOR PATTERN #1



ANCHOR PATTERN #2

NOTES:

CONTINUOUS WELDED RAIL (NEW INSTALLATION):

1) EVERY OTHER TIE BOX ANCHORED (USE PATTERN #1).
2) BOX ANCHOR 120 TIES IN BOTH DIRECTIONS FROM OPEN DECK BRIDGES, INSULATED JOINTS, HOT BOX DETECTORS, CROSSING FROGS AND TURNOUTS (USE PATTERN #2).
3) CHIEF ENGINEER MAY AUTHORIZE ADDITIONAL ANCHORS TO BE INSTALLED WHERE INCREASED RAIL RESTRAINT IS DESIRED. SUCH LOCATIONS MAY BE: LINES EXPECTED TO HANDLE 95MGT OR MORE ANNUALLY, OPEN JOINTS IN CWR TERRITORY, HEAVY TRAIN BRAKING GRADES, ETC.

JOINTED RAIL (NEW INSTALLATION):

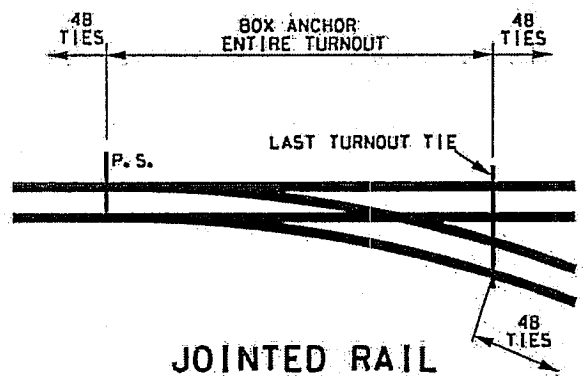
1) BOX ANCHOR EVERY OTHER TIE (USE PATTERN #1)
2) BOX ANCHOR 48 TIES AHEAD OF POINT OF SWITCH AND BEHIND LAST TURNOUT TIE

TURNOUTS (NEW INSTALLATION):

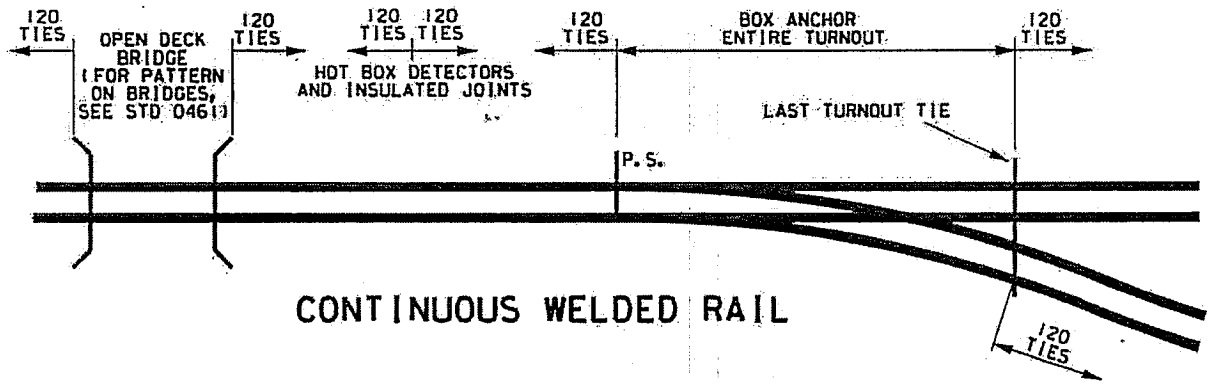
EVERY TIE BOX ANCHORED (USE PATTERN #2).

HOT BOX DETECTORS:

BOX ANCHOR 120 TIES AWAY FROM HOT BOX DETECTOR IN BOTH DIRECTIONS.



JOINTED RAIL



CONTINUOUS WELDED RAIL

STD DWG 0460D

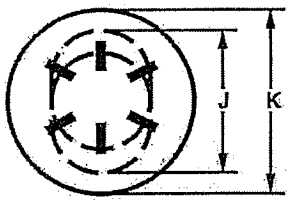
UNION PACIFIC RAILROAD
ENGINEERING STANDARDS

RAIL ANCHOR PATTERNS FOR NEW RAIL INSTALLATIONS

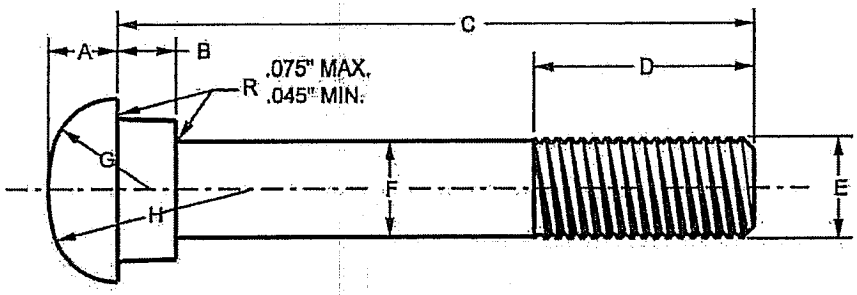
ADOPTED: DEC. 31, 1996
REVISED: MARCH 24, 2000
FILE NO.: 0460D

STD DWG 0460D

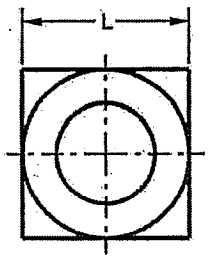
BOLT SIZE	RAIL SIZE	HEAD DEPTH A	SHOULDER DEPTH B	LENGTH UNDER HEAD C	THREAD LENGTH D	NOMINAL DIE OVER THREAD E	SHANK DIA F	HEAD DIMENSIONS G	HEAD DIMENSIONS H	SHOULDER HEIGHT J	HEAD DIAMETER K	NUT WIDTH L	THREAD	ITEM NUMBER
1 1/8 X 6 1/2"	SP & DRGW 112-136 UP 136 & 141	45/64"	5/8"	6 1/2"	2 1/2"	1 1/8"	1 1/16"	43/64"	1 55/64"	1 17/32"	1 57/64"	1 11/16"	A.N.C. 8 THREAD	550-9035
1 1/16 X 6"	UP 112, 131 & 133	5/8"	9/16"	6"	2 3/8"	1 1/16"	1"	43/64"	1 55/64"	1 3/8"	1 11/16"	1 5/8"	A.N.C. 8 THREAD	550-6344
1 1/16" X 5 1/2"	UP 110	5/8"	9/16"	5 1/2"	2 3/8"	1 1/16"	1"	21/32"	1 3/4"	1 3/8"	1 11/16"	1 5/8"	A.N.C. 8 THREAD	550-6226
1" X 6"	136,132,119, 115,CNW 112	5/8"	9/16"	6"	2 1/4"	1"	15/16"	19/32"	1 5/8"	1 3/8"	1 11/16"	1 5/8"	A.N.C. 8 THREAD	550-5873
1" X 5 1/2"	CNW 110, SSW 115	5/8"	9/16"	5 1/2"	2 1/4"	1"	15/16"	19/32"	1 5/8"	1 3/8"	1 11/16"	1 5/8"	A.N.C. 8 THREAD	550-5756
15/16" X 4 5/8"	UP 90	35/64"	1/2"	4 5/8"	2 1/8"	15/16"	7/8"	33/64"	1 25/64"	1 7/32"	1 31/64"	1 1/2"	9 THREADS	550-5404
7/8" X 5"	UP CNW 90	35/64"	1/2"	5"	2"	7/8"	13/16"	33/64"	1 25/64"	1 7/32"	1 31/64"	1 7/16"	9 THREADS	550-5050



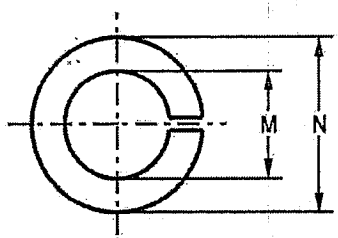
BOLT HEAD



BOLT



SQUARE NUT



SPLIT WASHER

ITEM NO.	NOMINAL WASHER SIZE	INSIDE DIAMETER M	OUTSIDE DIAMETER N
550-7060	7/8"	.905"	1.576"
550-7177	15/16"	.970"	1.688"
550-7295	1"	1.042"	1.799"
550-7413	1 1/16"	1.107"	1.910"
550-7648	1 1/8"	1.188"	2.218"

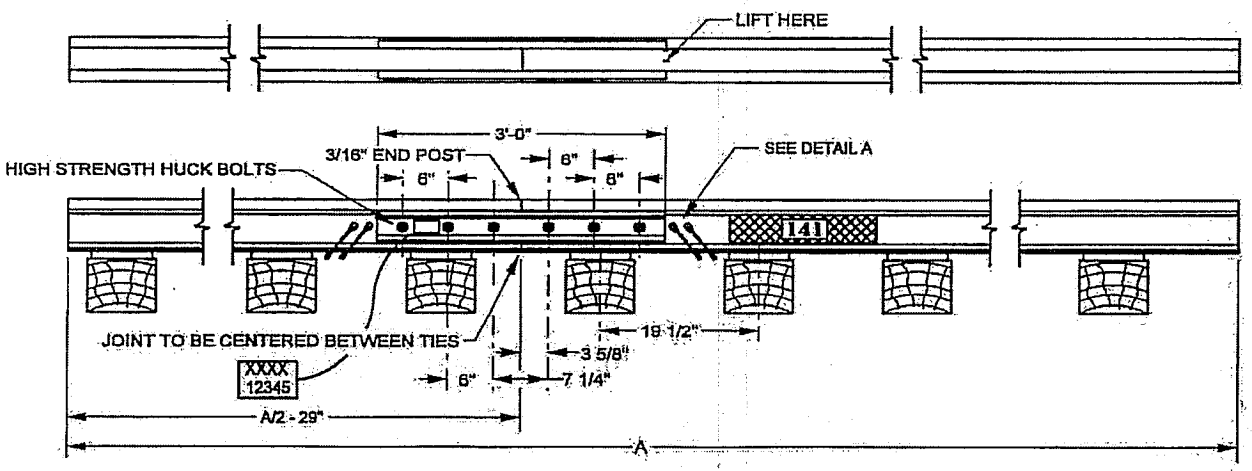
NOTES:
1. ITEM NUMBERS IN BOLT CHART ARE TO INCLUDE APPROPRIATE BOLT, WASHER AND NUT.
2. TRACK BOLTS TO CONFORM TO SAE J429 GRADE 8 SPECIFICATIONS.
3. NUTS TO HAVE 2H PHYSICAL REQUIREMENTS.
4. TENSILE STRENGTH:
   150,000 PSI
   YIELD STRENGTH:
   130,000 PSI
   ELONGATION 12% MIN.
   REDUCTION OF AREA 35% MIN.
   PROOF LOAD 120,000 PSI
   ALL THREADS TO BE FREE FIT.

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

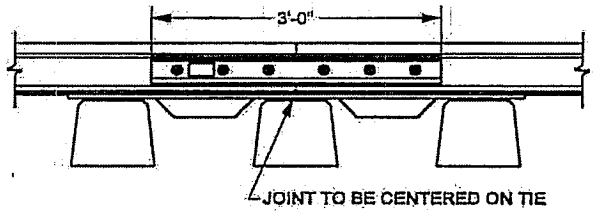
TRACK BOLT

ADOPTED: FEB. 8, 1997
REVISED: NOV. 30, 2004
FILE NO.: 0950G

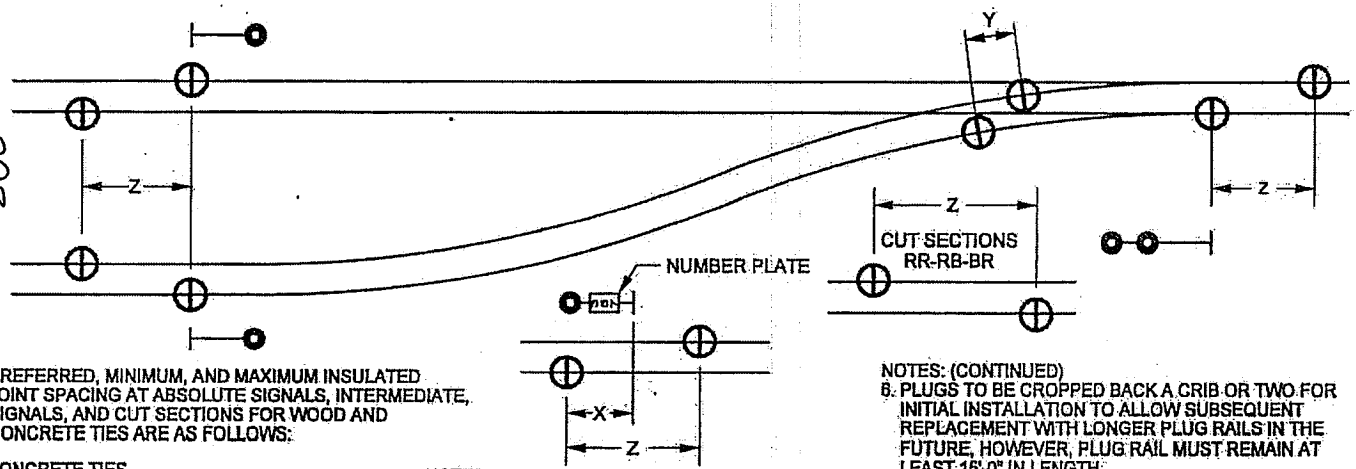
STD DWG 0950G



IJ LAYOUT FOR WOOD TIES



IJ LAYOUT FOR CONCRETE TIES USING 3-TIE SUPPORT PLATE



PREFERRED, MINIMUM, AND MAXIMUM INSULATED JOINT SPACING AT ABSOLUTE SIGNALS, INTERMEDIATE, SIGNALS, AND CUT SECTIONS FOR WOOD AND CONCRETE TIES ARE AS FOLLOWS:

CONCRETE TIES
X = 2'-0" (PREFERRED), 0" MIN., 10'-0" MAX.
Y = 4'-6" MAX.
Z = 4'-0" (PREFERRED AND MIN.), 20'-0" MAX.

WOOD TIES
X = 1'-7 1/2" (PREFERRED), 0" MIN., 9'-9" MAX.
Y = 4'-6" MAX.
Z = 3'-3" (PREFERRED AND MIN.), 19'-6" MAX.

NOTES:
1. ALL PLUGS TO BE CONSTRUCTED FROM HEAD HARDENED RAIL.
2. REF. UP STD DWG 0432 FOR FASTENING ASSEMBLY FOR CONCRETE TIE LAYOUT.
3. 8-HOLE JOINTS TO BE DRILLED 3 1/2-6-6-6
4. ATTACH BONDING WIRES AS SHOWN PER DETAIL A (ONE SIDE OF RAIL ONLY). BONDING MUST BE OF AN APPROVED LOW HEAT SOURCE.
5. 18' - 23' PLUGS TO BE USED IN TANGENT TRACK AND CURVES UP TO ONE DEGREE. 39'-0" PLUGS TO BE USED WHERE CURVATURE EXCEEDS 1°.

NOTES: (CONTINUED)
6. PLUGS TO BE CROPPED BACK A CRIB OR TWO FOR INITIAL INSTALLATION TO ALLOW SUBSEQUENT REPLACEMENT WITH LONGER PLUG RAILS IN THE FUTURE, HOWEVER, PLUG RAIL MUST REMAIN AT LEAST 15'-0" IN LENGTH.
7. MANUFACTURER TO PAINT BOTH WEBS OF RAIL NEAR CENTER OR FIVE FEET FROM END POST SOLID WHITE. USE 2" BLOCK LETTERING TO IDENTIFY RAIL WEIGHT.
8. EACH PAIR OF BARS WILL HAVE MANUFACTURERS NAME AND SERIAL NUMBER WITH 3/8" MINIMUM CHARACTERSSTAMPED OR ENGRAVED ON ONE END.
9. INSULATED JOINT LOCATIONS SHOWN ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS TO BE VERIFIED WITH A SIGNAL REPRESENTATIVE PRIOR TO INSTALLATION.
10. REF. SIGNAL STD DWG NO. SD50A.3

DESCRIPTION	ITEM NO.	A
115 LB. STRAIGHT CUT	553-1050	18'-29' (6-HOLE)
115 LB. STRAIGHT CUT	553-1094	39' (6-HOLE)
133 LB. STRAIGHT CUT	553-1651	18'-23' (8-HOLE)
133 LB. STRAIGHT CUT	553-1708	18'-29' (6-HOLE)
133 LB. STRAIGHT CUT	553-1723	39' (6-HOLE)
136 LB. STRAIGHT CUT	553-2231	18'-29' (6-HOLE)
136 LB. STRAIGHT CUT	553-2280	39' (6-HOLE)
141 LB. STRAIGHT CUT	553-2298	18'-23' (8-HOLE)
141 LB. STRAIGHT CUT	553-2320	35'-40' (8-HOLE)

UNION PACIFIC RAILROAD ENGINEERING STANDARDS

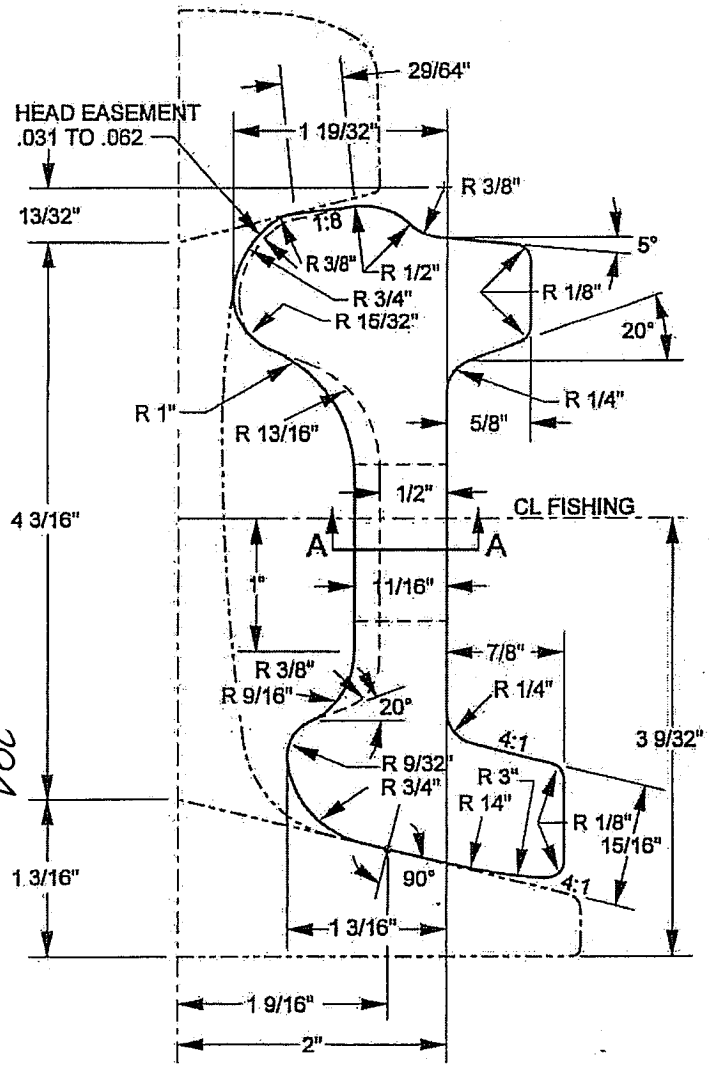
INSULATED JOINT PLUG RAILS

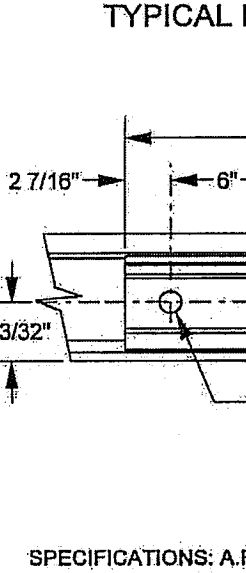
UNION PACIFIC

ADOPTED: JAN. 27, 1997
REVISED: AUG. 30, 2004
FILE NO.: 0960F

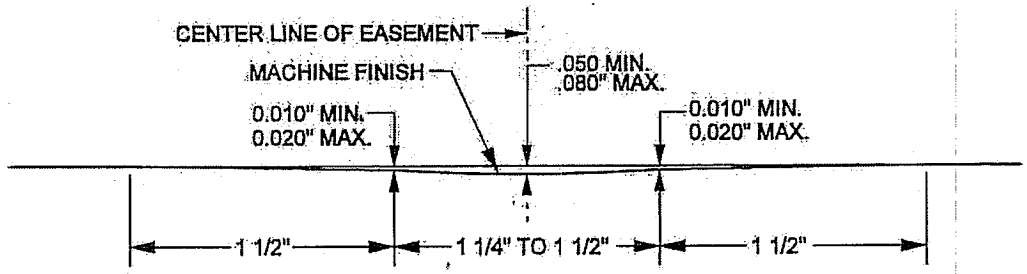
STD DWG
0960F

STD DWG 0960F

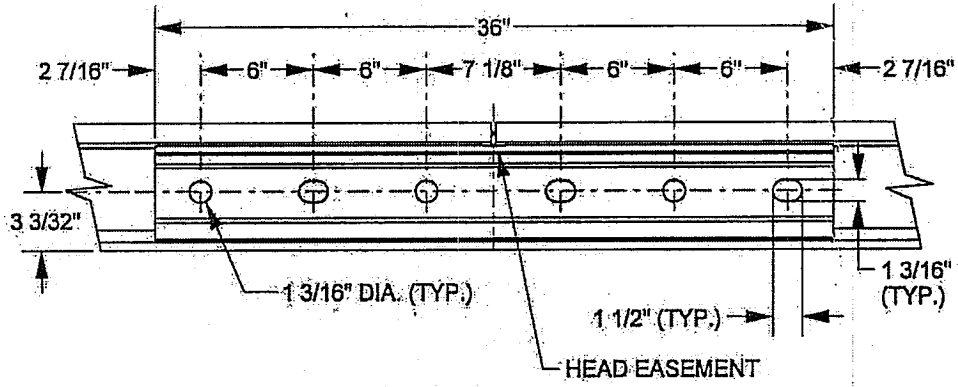




SECTION A-A



TYPICAL EASEMENT PROFILE



ELEVATION

SPECIFICATIONS: A.R.E.M.A. SPECIFICATIONS FOR CARBON STEEL JOINT BARS

PHYSICAL PROPERTIES OF ONE JOINT BAR

GROSS AREA
MAX. = 6.04 SQUARE INCHES
MIN. = 5.56 SQUARE INCHES
AVERAGE = 5.80 SQUARE INCHES

MOMENT OF INERTIA = 15.98 QUAD INCHES

SECTION MODULUS
TOP = 6.60 CUBIC INCHES
BOTTOM = 6.05 CUBIC INCHES

NEUTRAL AXIS
FROM TOP = 2.421 INCHES
FROM BOTTOM = 2.643 INCHES

NET WEIGHT = 59.20 LBS.

180100

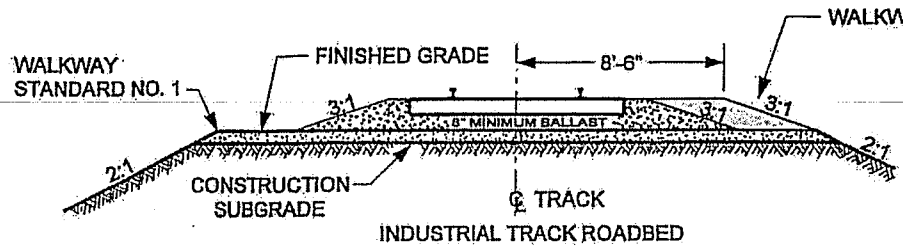
COMMON STANDARDS

36", 6-HOLE 136 LB. JOINT BAR

UPRR ITEM NO.	BNSF ITEM NO.
552-7650	520440971N

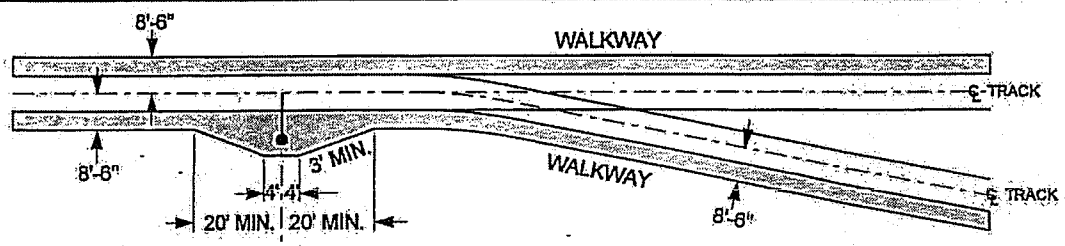
FILE OWNER: UPRR	DATE: OCT. 26, 2001
REV. NO.: 0	DWG NO: 180100

EXHIBIT "E"



INDUSTRIAL TRACK ROADBED

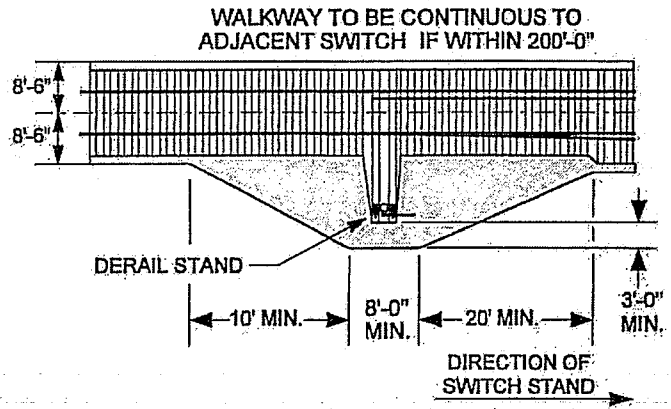
WALKWAY STANDARDS NO. 1 AND 2



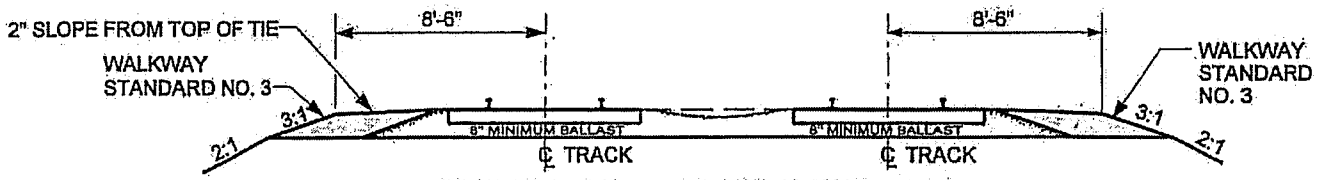
WALKWAYS AT SWITCHES

INSIDE EDGE OF WALKWAY MUST BE BETWEEN THE OUTSIDE EDGE OF THE RAIL AND A POINT THREE FEET FROM ℄ OF THE TRACK.

WALKWAY STANDARD NO. 3

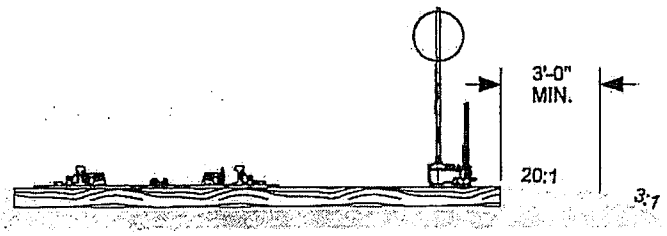


WALKWAY STANDARD NO. 4



INDUSTRIAL ROADBED FOR TWO OR MORE TRACKS

WALKWAY STANDARD NO. 5



TYP. SWITCH STAND SECTION

UNION PACIFIC RAILROAD

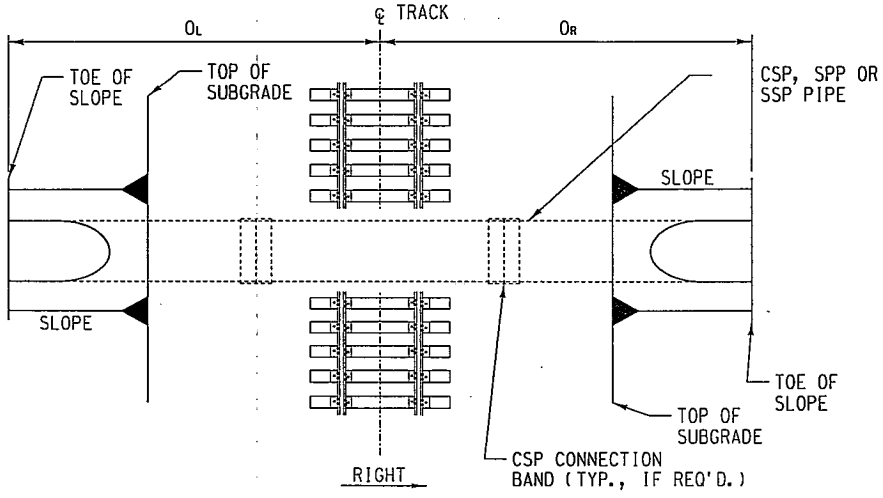
Office of Chief Engineer Design

INDUSTRY STANDARDS

TYPICAL WALKWAY STANDARDS FOR INDUSTRIAL TRACKS

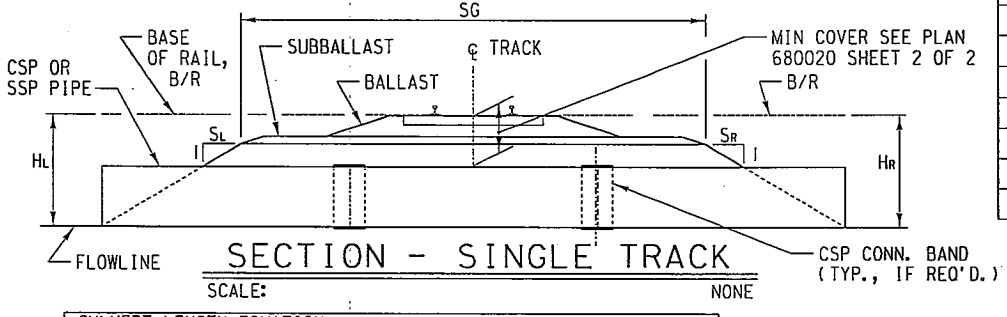
ADOPTED: JAN. 1, 1996
REVISED: AUG. 4, 2003
FILE NO.: EXHIBIT E

EXHIBIT "E"



PLAN - SINGLE TRACK

SCALE: NONE



SECTION - SINGLE TRACK

SCALE: NONE

CULVERT LENGTH EQUATION:

$$PL = O_L + O_R = SG + (H_L - 2.0')S_L + (H_R - 2.0')S_R$$

KEY:

H = AVERAGE HEIGHT - BASE OF RAIL TO FLOWLINE
H_L = HEIGHT - BASE OF RAIL TO FLOWLINE LEFT OF TRACK
H_R = HEIGHT - BASE OF RAIL TO FLOWLINE RIGHT OF TRACK
SG = WIDTH OF SUBGRADE = 2 SHOULDER + TRACK CENTER SPACING
S_L = SLOPE LEFT OF TRACK
S_R = SLOPE RIGHT OF TRACK
PL = PIPE LENGTH
O_L = OFFSET LEFT
O_R = OFFSET RIGHT

Assume SG = 30'

CULVERT PIPE LENGTH (PL) FOR STANDARD CROSS SECTIONS

H - B/R TO FLOWLINE (FT.)	SINGLE TRACK SLOPE			13' TRACK CENTERS SLOPE			20' TRACK CENTERS SLOPE		
	1.5:1	2:1	3:1	1.5:1	2:1	3:1	1.5:1	2:1	3:1
4	36	38	42	50	52	56	58	60	64
5	40	42	48	52	56	62	60	64	70
6	42	46	54	56	60	68	64	68	76
7	46	50	60	58	64	74	66	72	82
8	48	54	66	62	68	80	70	76	88
9	52	58	72	64	72	86	72	80	94
10	54	62	78	68	76	92	76	84	100
11	58	66	84	70	80	98	78	88	106
12	60	70	90	74	84	104	82	92	112
13	64	74	96	76	88	110	84	96	118
14	66	78	102	80	92	116	88	100	124
15	70	82	108	82	96	122	90	104	130
16	72	86	114	86	100	128	94	108	136
17	76	90	120	88	104	134	96	112	142
18	78	94	126	92	108	140	100	116	148
19	82	98	132	94	112	146	102	120	154
20	84	102	138	98	116	152	106	124	160
21	88	106	144	100	120	158	108	128	166
22	90	110	150	104	124	164	112	132	172
23	94	114	156	106	128	170	114	136	178
24	96	118	162	110	132	176	118	140	184
25	100	122	168	112	136	182	120	144	190
26	102	126	174	116	140	188	124	148	196

LENGTHS ARE ROUNDED TO THE NEAREST EVEN NUMBER OF FEET
TABLE ASSUMES 15'-0" SHOULDER FOR SINGLE TRACK AND 13' CENTERS,
15'-6" SHOULDER FOR 20' TRACK CENTERS,
ADD 10' FOR EACH ACESS ROAD,
LENGTHS SHOWN ARE FOR STANDARD CROSS SECTIONS FOR TANGENT TRACK,
ADD 2' TO PIPE LENGTH (TO OUTSIDE OF CURVE) IF SUPER ELEVATION IS 2" OR GREATER.

REVISIONS		
DATE	LTR.	DESCRIPTION
/		
/		
/		
/		
/		

DESIGN BY: CLJ | DRAWN BY: KDM | CHECKED BY: CLJ

APPROVED:

George J. Mayn 4/4/08

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

GENERAL NOTES AND DETAILS FOR ROUND STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680000 | SHEET: 1 OF 2

PLOTTED: 4/7/2008 10:10:03 AM

FILE NAME: p:\ustation\dgn\stdPipe culvert\steelpip.dgn

295 H

GENERAL NOTES

CORROSION PROTECTION:

The engineer shall obtain site specific information on corrosiveness of the soil which may require an increase in material thickness or protective coatings based on local experience.

WELL COMPACTED FILL:

Well compacted fill shall be well graded granular soil free of any organic material, stones larger than 1½ inches, frozen lumps, debris or excessive moisture. Fill shall be compacted to 95% of maximum dry density as defined in ASTM International D1557 (Modified Proctor). Fill shall be placed and compacted in layers not to exceed 6 inches. Fill shall be placed simultaneously on both sides of the pipe and between multiple pipes. CLSM may be used in lieu of well compacted fill.

CONTROLLED LOW-STRENGTH MATERIAL (CLSM) FILL:

Controlled Low-Strength Material is a self-compacting, cementitious fill material with an unconfined compressive strength of 50 to 300 psi. The mixture shall consist of water, Portland cement, fly ash, and sound fine or coarse aggregate or both. The mix design shall allow adequate flowability without segregation of aggregates. Hardening time is of prime importance and CLSM should develop 50 psi in about one hour. The maximum layer of thickness for CLSM shall be 3 feet. Additional layers shall not be placed until the CLSM has lost sufficient moisture to be walked on without indenting more than two inches. Pipe spacing may be reduced with CLSM.

PIPE BEDDING:

Pipe bedding shall be granular material such as aggregates ordinarily specified and used in the construction of highway base and subbase. These aggregates include crushed stone, natural or crushed gravel, natural or manufactured sands, crushed slag or a homogeneous mixture of these materials. Pipe bedding shall be compacted to 95% of maximum dry density as defined in ASTM International D1557 (Modified Proctor). Recommended gradation is as follows:

SCREEN SIZE	% PASSING (BY WEIGHT)
1 inch	100
½ inch	60-90
⅜ inch	20-40
No. 4	10-20
No. 200	less than 5%

Union Pacific sealant ballast, item no. 562-5428, may be used.

FIBER OPTIC CABLE:

Contact the Union Pacific "Call Before You Dig" number 90 days (no less than 60 days) prior to the proposed construction start date. Prior to construction, confirm that all necessary relocations have been completed. The CBYD number is: 1-800-336-9193.

RIPRAP:

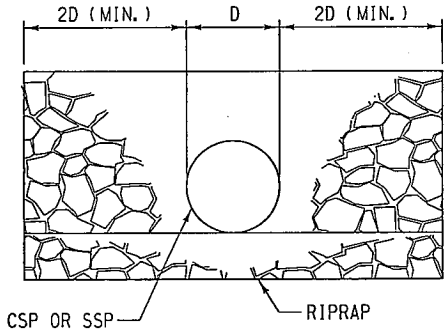
Class of riprap shall be specified by the engineer. Riprap shall be placed in such a manner as to avoid segregation of various sizes of rock, and distributed so that there will be no large accumulation of either the larger or smaller sizes of stone. Individual rocks shall be placed in tight contact with one another in such a way to produce the least amount of void spaces. Riprap shall be solid, unfractured rock or concrete, bulky in shape with sharp angular edges.

Individual rocks shall vary as shown:

RIPRAP CLASS	AVERAGE WEIGHT PER STONE (LBS.)	DIMENSION (INCHES)	ITEM NO.	UNIT OF MEASURE	LAYER THICKNESS	TYPICAL VELOCITIES
I	50 to 200	9 to 14	562-2764	Ton	1'-6"	6 - 8 fps
II	200 to 1,000	14 to 24	562-3430	Ton	2'-0"	8 - 12 fps
III	1,000 to 4,000	24 to 38	562-4096	Ton	3'-0"	> 12 fps
IV	> 4,000	> 38	562-4762	Ton	4'-0"	SPECIAL CASES

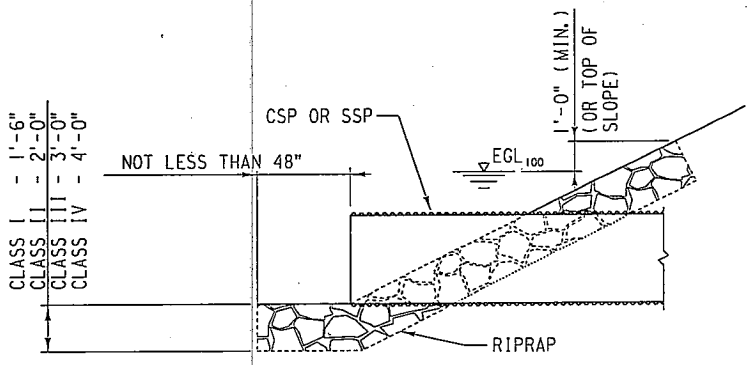
The entire mass of riprap shall well distributed within the limits specified. However, the following allowances shall be acceptable to produce the required riprap protection:

Riprap Class I - No allowances are permitted
Riprap Class II - 15% of Riprap Class I.
Riprap Class III - 15% of Riprap Class I and 15% of Riprap Class II.
Riprap Class IV - 15% of Riprap Class I, 15% of Riprap Class II, and 15% of Riprap Class III.



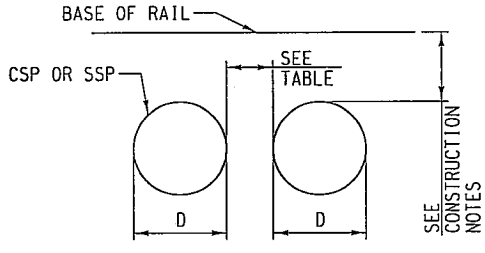
RIPRAP - ELEVATION

SCALE: NONE



RIPRAP - SECTION

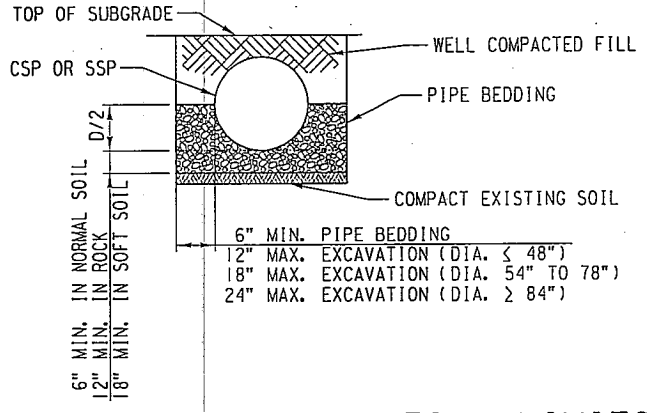
SCALE: NONE



MINIMUM PIPE SPACING AND COVER

SCALE: NONE

SPACING CHART	
PIPE DIAMETER	MIN. SPACING BETWEEN PIPES
12" to 24"	12"
24" to 96"	D/2
96" OR MORE	48"



EXCAVATION AND FILL LIMITS

SCALE: NONE

REVISIONS		
DATE	LTR.	DESCRIPTION
/		
/		
/		
/		
/		
/		

DESIGN BY: CLJ | DRAWN BY: KDM | CHECKED BY: CLJ

APPROVED:

George J. Mayn 4/4/08

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

GENERAL NOTES AND DETAILS FOR ROUND STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680000 | SHEET: 2 OF 2

PLOTTED: 4/7/2008 10:10:37 AM

FILE NAME: p:\station\dgn\std\Pipe culvert\steelpip.dgn

2950

CONSTRUCTION NOTES

GENERAL:

These structures are designed for Cooper E80 live load with impact, and cover as shown in Table 1.

Generally, 30 inch diameter and larger Corrugated Steel Pipe (CSP) is preferred for mainline culverts. Smaller pipes are to be used for local drainage.

Table 1 indicates the minimum required gage thickness for structural stability.

INSTALLATION:

1. Installation of CSP shall conform to the current American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, Chapter 1, Part 4. Culvert lengths are to be based on standard mainline roadbed sections.
2. These standards are for installation in soil with a pH of 5-9 and resistivity ≥ 1,500 ohm-cm. Pipes located in soils outside this range shall have additional corrosion protection as specified by the engineer.
3. Wire or timber strutting used during installation must be removed immediately after installation and backfill are complete.
4. Pipe culverts will generally be joined using 2 foot wide locking corrugated metal connecting bands. The inside of corrugated connecting bands and the outside of pipe culverts to be joined by corrugated connecting bands shall be kept clean and free of all rust, dirt or gravel. The corrugations on the connecting bands and the pipe culvert shall fit snugly as the connecting bands are tightened.
5. Corrugated steel pipe culverts must be placed with the inside circumferential laps pointing downstream.
6. Culverts resting on rock foundation need not be cambered. Unless otherwise specified by the engineer all other CSP culverts shall be cambered in accordance with the following:
   - A. Embankments up to 8 feet high (measured base of rail to flowline) require a 1½ inch camber.
   - B. Embankments 8 feet to 12 feet high require a 2½ inch camber.
   - C. Embankments 12 feet to 18 feet high require a 4 inch camber.

In no case shall the culvert be cambered so high in the center that water will be pocketed at the inlet end of the pipe.

PIPE MATERIAL SPECIFICATIONS, FABRICATION AND TOLERANCE:

1. CSP material shall be in accordance with the current AREMA Manual for Railway Engineering, Chapter 1, Part 4, Section 3.
2. The pipe shall be fabricated, assembled into sections and furnished as follows:

   12", 18", 21", AND 24" DIAMETER ONLY:

   Class 1 with 2 2/3" x ½" annular corrugations.
   Shape 1, vertical elongation is not required.
   Single riveted longitudinal seams.

   30" DIAMETER AND GREATER:

   Class 1 with 3" x 1" annular corrugations (30 inch pipes may have 2 2/3" x ½" annular corrugations).
   Shape 2, factory elongated with vertical length 5% greater than the nominal diameter.
   Double riveted seams.

   ALL CSP DIAMETERS:

   Square cut ends.
   Two lifting lugs per preassembled section.
   Lifting hardware for erection and installation.
   Aluminized Type 2 per American Association of State Highway and Transportation Officials (AASHTO) M274 (96 inch diameter pipes shall be galvanized).
3. Permanently attach an identification plate inside the pipe near the end of the segment. The plate is to contain the following information in at least ¼ inch high letters:
   - Name of manufacturer and plant location
   - Date assembled
   - Gage
   - Diameter
   - Length

   The same information plus the lifting weight shall be stenciled on the outside face of the pipe.
4. The inside diameter of the circular pipe shall not vary more than ½ inch from the nominal diameter when measured on the inside crest of the corrugations for diameters through 48 inches, and 1% for diameters greater than 48 inches. In no case shall the difference in the diameter of the abutting pipe ends be more than ½ inch.
5. The minimum width of the longitudinal lap is 1½ inches for all pipes with nominal inside diameter of 12 to 21 inches, 2 inches for pipes with nominal inside diameter of 24 inches or 30 inches, and 3 inches for all pipes with nominal inside diameter of 36 inches or greater.
6. Riveted Seams:
   - A. All 14 gage pipe shall have at least 5/16 inch diameter rivets. All 12 gage and thicker pipe shall have at least 7/16 inch diameter rivets.
   - B. Longitudinal seams shall be riveted with one rivet in each corrugation valley for all pipes 24 inches in diameter and smaller. Longitudinal seams shall be riveted with two rivets in each corrugation valley for all pipes larger than 24 inches. Circumferential seams shall be riveted with a maximum rivet spacing of six inches.
   - C. All rivets shall be cold driven in such a manner that the metal shall be drawn tightly together throughout the entire lap. The center of each rivet shall not be closer than two rivet diameters from the edge of the sheet. All rivets shall have full hemispherical heads or heads of a form acceptable to the engineer. They shall be driven in a workmanlike manner to completely fill the hole without bending.
   - D. Rivets shall conform to the specifications of ASTM International A31, Grade A and shall be electroplated in accordance with the specifications of ASTM International A164, Type RS.
7. Pipes shall be jointed with locking coupling bands in accordance with the provisions of the AREMA Manual for Railway Engineering Chapter 1, Part 4, Section 4.3.4. Coupling bands shall be of the same base metal and finish as the pipe. Coupling bands shall be 24 inches wide for pipes 30 inch diameter and larger. Smaller pipes may use 7 inch wide bands. Coupling band thickness is shown in Table 1.

2950

REVISIONS		
DATE	LTR.	DESCRIPTION
/		
/		
/		
/		
/		
/		

DESIGN BY: CLJ | DRAWN BY: KDM | CHECKED BY: CLJ

APPROVED:

George J. Meyn 4/4/08

UPRR - MGR SPECIAL PROJECTS & STRUCTURES DESIGN

UNION PACIFIC

BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR CORRUGATED STEEL PIPE CULVERTS

FILE OWNER: UPRR. | DATE:

PLAN NO.: 680020 | SHEET: 1 OF 2

PLOTTED: 4/7/2008 10:11:24 AM

FILE NAME: p:\vstation\dgn\std\Pipe culvert\steelpip.dgn

TABLE 1 - ROUND CORRUGATED STEEL PIPE (CSP)

INSIDE PIPE DIAMETER	GAGE	THICKNESS (IN.)	WEIGHT (LB./FT.)	COVER * MIN. (FT.)	COVER * MAX. (FT.)	10'-0" LENGTH ITEM NO.	10'-0" LENGTH WEIGHT (LB.)	12'-0" LENGTH ITEM NO.	12'-0" LENGTH WEIGHT (LB.)	14'-0" LENGTH ITEM NO.	14'-0" LENGTH WEIGHT (LB.)	16'-0" LENGTH ITEM NO.	16'-0" LENGTH WEIGHT (LB.)	18'-0" LENGTH ITEM NO.	18'-0" LENGTH WEIGHT (LB.)	20'-0" LENGTH ITEM NO.	20'-0" LENGTH WEIGHT (LB.)	22'-0" LENGTH ITEM NO.	22'-0" LENGTH WEIGHT (LB.)	24'-0" LENGTH ITEM NO.	24'-0" LENGTH WEIGHT (LB.)	CONNECTING BANDS ITEM NO.	CONNECTING BANDS GAGE
12"	14	0.079	12	1'-6"	18'-0"	510-2975	120	510-2976	144	-	168	-	192	-	216	510-2977	240	-	264	510-2978	288	-	16
18"	14	0.079	18	1'-6"	18'-0"	510-2979	180	510-2980	216	-	252	-	288	-	324	510-2981	360	-	396	510-2982	432	-	16
21"	14	0.079	21	1'-6"	18'-0"	510-2983	210	510-2984	252	-	294	-	336	-	378	510-2985	420	-	462	510-2986	504	-	16
24"	14	0.079	24	1'-6"	18'-0"	510-2987	240	510-2988	288	-	336	-	384	-	432	510-2989	480	-	528	510-2990	576	510-3123	16
30"	14	0.079	30	1'-6"	18'-0"	-	300	-	360	510-3045	420	510-3046	480	510-3047	540	510-3048	600	510-3049	660	510-0345	720	510-3124	16
36"	14	0.079	41	2'-6"	18'-0"	-	410	-	492	510-3055	574	510-3065	656	510-3066	738	510-3067	820	510-3068	902	510-3069	984	510-3130	16
42"	14	0.079	47	2'-6"	18'-0"	-	470	-	564	510-3073	658	510-3074	752	510-3075	846	510-3077	940	510-3078	1,034	510-3079	1,128	510-3132	16
48"	12	0.109	74	2'-6"	18'-0"	-	740	-	888	510-3081	1,036	510-3082	1,184	510-3083	1,332	510-3084	1,480	510-3085	1,628	510-3086	1,776	510-3138	14
60"	12	0.109	92	2'-6"	18'-0"	-	920	-	1,104	510-3087	1,288	510-3088	1,472	510-3089	1,656	510-3091	1,840	510-3092	2,024	510-3093	2,208	510-3150	14
72"	10	0.138	140	3'-6"	18'-0"	-	1,400	-	1,680	510-3100	1,960	510-3101	2,240	510-3102	2,520	510-3103	2,800	510-3104	3,080	510-3105	3,360	510-3158	12
84"	10	0.138	164	3'-6"	18'-0"	-	1,640	-	1,968	510-3114	2,296	510-3115	2,624	510-3110	2,952	510-3117	3,280	510-3118	3,608	510-3113	3,936	510-3176	12
96"	8	0.168	228	3'-6"	18'-0"	-	2,280	-	2,736	510-3181	3,192	510-3182	3,648	510-3183	4,104	510-3184	4,560	510-3185	5,016	510-3186	5,472	510-3188	10

* COVER TO BE MEASURED FROM BASE OF RAIL TO TOP OF PIPE

295 D

FILE NAME: p:\ustation\dgn\std\Pipe culvert\steelpip.dgn

REVISIONS		
DATE	LTR.	DESCRIPTION
/		
/		
/		
/		
/		
/		

DESIGN BY: CLJ | DRAWN BY: KDM | CHECKED BY: CLJ

APPROVED:

George J. Meyer 4/4/08

UPRR - MGR SPECIAL PROJECTS & STRUCTURES DESIGN

BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR CORRUGATED STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680020 | SHEET: 2 OF 2

PLOTTED: 4/7/2008 10:11:44 AM

CONSTRUCTION NOTES

GENERAL:

These structures are designed for Cooper E80 Live Load with impact, and cover as shown in Table 1.

Table 1 indicates the minimum required thickness.

INSTALLATION:

Installation of Smooth Steel Pipe (SSP) shall conform to the current American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, Chapter 1, Part 4. Culvert lengths are to be based on standard mainline roadbed sections.

JACKING:

Where indicated, pipe to be bored and jacked into place. Bore hole diameter shall be essentially the same as the outside diameter of the pipe. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe by more than 1 inch, notify the Office of AVP Engineering Design. Boring operations shall not be stopped if such a stoppage would be detrimental to the railroad. A survey crew shall continually monitor the elevation and alignment of the railroad track(s) above during the jacking procedures. If track movement or loss of ballast exceeds ¼inch during jacking or boring operations, all work must stop and the Railroad notified. The Railroad may take any action necessary to ensure safe passage of trains. The contractor must immediatley submit a corrective plan of action to the Railroad for review and aproval. The Railroad must review and approve the proposed repair proceedure. The finished repair must be inspected by the Railroad before the track can be placed back into service, and the construction proceed.

BORED AND JACKED TOLERANCE:

The permitted tolerance of a true line is +/- 2". Adjustment to the line and level should be gradual to ensure that the pipe manufacture's stated angular deflection is not exceeded at any joint.

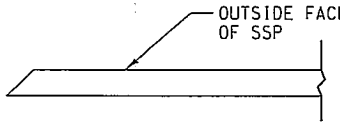
FIELD WELDING:

Welders must posses valid certification.

MATERIALS:

Pipe shall be in accordance with ASTM International A139. Pipe to be Grade B and steel shall have a minimum yield strength of 35 ksi. A hydrostatic test is not required.

Smooth steel pipe shall have a welded straight longitudinal seam. The ends of each section of pipe shall be square cut. One end shall be suitably beveled for field welding sections together.

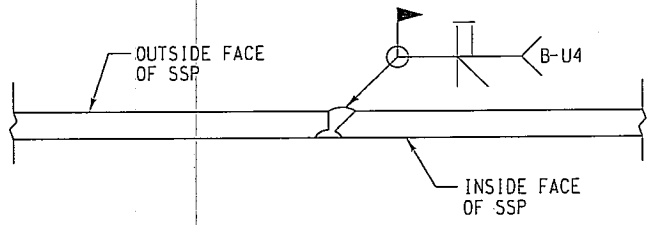


PIPE END BEVEL DETAIL

TABLE 1 - ROUND SMOOTH STEEL PIPE (SSP)

OUTSIDE PIPE DIAMETER	THICKNESS (IN.)	WEIGHT (LB./FT.)	COVER * MIN. (FT.)	COVER * MAX. (FT.)	20'-0" LENGTH STORE ITEM NUMBERS	20'-0" LENGTH WEIGHT (LB.)
12"	3/16	24	1'-6"	18'-0"	-	480
18"	1/4	48	1'-6"	18'-0"	-	960
21"	5/16	69	1'-6"	18'-0"	-	1,380
24"	5/16	80	1'-6"	18'-0"	-	1,600
30"	3/8	119	1'-6"	18'-0"	-	2,380
36"	1/2	190	1'-6"	18'-0"	510-3285	3,800
42"	1/2	222	1'-6"	18'-0"	-	4,440
48"	5/8	317	1'-6"	18'-0"	510-3293	6,340
60"	3/4	475	1'-6"	18'-0"	-	9,500
72"	7/8	666	1'-6"	18'-0"	-	13,320
84"	1	888	1'-6"	18'-0"	-	17,760
96"	1 1/4	1,267	1'-6"	18'-0"	-	25,340

* COVER TO BE MEASURED FROM BASE OF RAIL TO TOP OF PIPE



PIPE END WELD DETAIL

REVISIONS		
DATE	LTR.	DESCRIPTION
/		
/		
/		
/		
/		
/		

DESIGN BY: CLJ | DRAWN BY: KDM | CHECKED BY: CLJ

APPROVED:

George J. Meyn 4/4/08

UPRR - MGR SPECIAL PROJECTS & STRUCTURES DESIGN

BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR SMOOTH STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680010 | SHEET: 1 OF 1

 PLOTTED: 4/7/2008 10:12:09 AM

FILE NAME: p:\ustation\dgn\std\Pipe culvert\steelpip.dgn

295 E

CONSTRUCTION NOTES

GENERAL:

These structures are designed for Cooper E80 Live Load with impact, and cover as shown in Table 1.

Table 1 indicates the minimum required thickness for structural stability based on the assumptions listed below. The required gage thickness for structural steel plate pipe includes an allowance for corrosion.

DESIGN ASSUMPTIONS:

Backfill Unit Weight = 120 pcf.
Factors of Safety: Seam Strength = 3, Wall Area = 2, Buckling = 2
Minimum Yield Point: Steel = 33 ksi.
Modulus of Elasticity: Steel = 29,000 ksi.
Minimum Tensil Strength: Steel = 45 ksi

INSTALLATION:

1. Installation of SPP shall conform to the current American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, Chapter 1, Part 4. Culvert lengths are to be based on standard mainline roadbed sections.
2. These standards are for installation in soil with a pH of 5-9 and resistivity ≥ 1,500 ohm-cm. Pipes located in soils outside this range shall have additional corrosion protection as specified by the engineer.
3. Wire or timber strutting used during installation must be removed immediately after installation and backfill are complete.
4. Structural plate pipe culverts must be placed with the inside circumferential laps pointing downstream.
5. Culverts resting on rock foundation need not be cambered. Unless otherwise specified by the engineer all other SPP culverts shall be cambered in accordance with the following:
   - A. Embankments up to 8 feet high (measured base of rail to flowline) require a 1½ inch camber.
   - B. Embankments 8 feet to 12 feet high require a 2½ inch camber.
   - C. Embankments 12 feet to 24 feet high require a 4 inch camber.
   - D. Embankments 24 feet to 36 feet high require a 6 inch camber.

In no case shall the culvert be cambered so high in the center that water will be pocketed at the inlet end of the pipe.

MATERIALS:

1. SPP material and connecting material shall be in accordance with the current AREMA Manual for Railway Engineering, Chapter 1, Part 4, Section 6.
2. The pipe shall be fabricated, assembled into sections and furnished as follows:
   6" x 2" annular corrugations.
   5% vertical elongation.
   A minimum of 4 steel bolts per foot
3. Permanently attach an identification plate inside the pipe near the end of each pipe run. The plate is to contain the following information in at least ¼ inch high letters:
   Name of manufacturer and plant location
   Date manufactured
   Gage
   Diameter
   Length

STRUCTURAL PLATE PIPE - STEEL GAGE TABLE FOR E-80 LOADS

DIA. (IN.)	HEIGHT OF COVER (FT.) - BASE OF RAIL TO TOP OF PIPE														
	3½-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75
60	10	10	10	10	10	10	10	10	10	8	8	8	8	7	7
66	10	10	10	10	10	10	10	10	8	8	8	8	7	7	7
72	10	10	10	10	10	10	10	8	8	8	8	7	7	7	5
78	10	10	10	10	10	10	10	8	8	8	7	7	7	5	5
84	10	10	10	10	10	10	8	8	8	7	7	7	5	5	3
90	8	10	10	10	10	10	8	8	8	7	7	5	5	3	3
96	8	10	10	10	10	8	8	8	7	7	7	5	3	3	1
102	8	10	10	10	10	8	8	8	7	7	5	5	3	1	1
108	8	10	10	10	8	8	8	7	7	5	5	3	1	1	
114	8	8	10	10	8	8	8	7	7	5	3	3	1	1	
120	8	8	10	10	8	8	7	7	5	5	3	1	1		
126	7	8	10	8	8	8	7	7	5	3	3	1			
132	7	8	10	8	8	8	7	7	5	3	1	1			
138	7	8	10	8	8	7	7	5	3	3	1				
144	7	8	8	8	8	7	7	5	3	1	1				
150	7	8	8	8	8	7	7	3	3	1					
156	7	8	8	8	7	7	5	3	1	1					
162	5	7	8	8	7	7	5	3	1						
168	5	7	8	8	7	5	3	3	1						
174	5	7	8	7	7	5	3	1	1						
180	5	7	8	7	7	5	3	1							
186	3	7	8	7	7	5	3	1							
192	3	7	8	7	7	3	3	1							
198	3	7	8	7	5	3	1								
204	1	5	7	7	5	3	1								
210	1	5	7	7	3	1									
216		3	7	5	3	1									
222		3	7	5	3	1									
228		3	5	3	1										
234		1	5	3	1										
240		1	3	1											

REVISIONS		
DATE	LTR.	DESCRIPTION
/		
/		
/		
/		
/		
/		

DESIGN BY: CLJ | DRAWN BY: CLJ | CHECKED BY: CLJ

APPROVED:

George J. Meyer 4/4/08

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR STRUCTURAL PLATE PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680030 | SHEET: 1 OF 1

PLOTTED: 4/7/2008 10:12:41 AM

FILE NAME: p:\ustation\dgn\std\Pipe culvert\steelpip.dgn

295 F

ARMY CORP PERMIT

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 Doc" 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 & 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 whereas 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

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 D.S.C. 403).

(X) Section 404 of the Clean Water Act (33 D.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 D.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.

Carl Schoedel — JANUARY 5, 2007

PERMITTEE — DATE

Carl Schoedel
Kane County Division of Transportation
221 Burlington Road
St. Charles, Illinois 60175

This authorization becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

199600199

Corps Authorization Number

JAN. 11, 2007

FOR AND ON BEHALF OF — DATE

John D. Drolet
Colonel, U.S. Army
District Commander

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

Huff & Huff
Incorporated
environmental engineers
and consultants

915 Harger Road, Suite 330
Oak Brook, IL 60523
Phone: (630) 684-9100
Fax: (630) 684-9120
Website: http://huffnhuff.com

September 28, 2011

Ms. Kathy Chernich
Chicago District US Army Corps of Engineers
Regulatory Branch
111 North Canal Street
Chicago, Illinois 60606

Re: Permit Extension
Section 404 Permit – LRC #199600199
Stearns Road Corridor
Dunham Road to new Stearns Road/Illinois Route 25 Extension
Kane County Division of Transportation
South Elgin, Kane County, Illinois

Dear Ms. Chernich:

The Kane County Division of Transportation (KCDOT) has completed most of the construction for the Stearns Road corridor in Spring of 2011. The KCDOT has one remaining section to construct before the project is fully complete. The remaining section is currently a two-lane cross-section that is proposed to be widened to the proposed four lane cross-section with median. The proposed design and construction of this last section of roadway still meets all requirements of the Record of Decision that was issued for this project. A copy of the Record of Decision is included with this letter.

The KCDOT requests an extension of the Section 404 permit (#199600199) that will expire on November 1, 2011. We are requesting a three year extension to complete design and construction activities on this last section of the Stearns Road project. The attached exhibit shows the section that will be completed in 2014. This section of roadway was staged separately due to funding issues as there are two crossings of Class 1 railroads within this section.

The section of roadway to be included in this permit extension extends from the new Stearns Road/Illinois Route 25/Dunham Road intersection on the east to the intersection of Illinois Route 25/Stearns Road intersection on the west, east of the Fox River. The two lane section of roadway is dual marked as Illinois Route 25 and Stearns Road and includes the intersection of Gilbert Street. This section of Stearns Road crosses under the Union Pacific Railroad with an at-grade crossing with the Canadian National Railroad

just south of the Union Pacific Railroad. The project will require the reconstruction of the Union Pacific Railroad overpass to provide for the four lane cross-section.

As you are aware, this project was the subject of an Environmental Impact Statement (EIS) and resulting Record of Decision. In addition, the Stearns Road Corridor had also been reviewed through the NEPA/404 Merger Process. As a result, there has been a substantial amount of documentation prepared for the project as well as extensive coordination with the regulatory and resource agencies.

The Illinois Department of Natural Resources (IDNR) has indicated that the slippershell mussel (*Alasmidonta viridis*) has been identified upstream of the project in Brewster Creek. As a result, the KCDOT completed coordination with this agency regarding this species. A conservation plan and Incidental Take Authorization was approved by the IDNR. Because this last section of Stearns Road includes a crossing of the East Branch of Brewster Creek, a mussel survey will be conducted to identify whether any mussels are present within this reach of the stream. This reach was surveyed in 2009 prior to the main construction activities and no live native mussels were found.

As your office has been involved in the NEPA/404 Merger Process, copies of the EIS and Final EIS have been distributed to your office. We are including in this submittal a copy of the signed Record of Decision for your use. This summarizes the findings of the Final EIS as well as providing a summary of the alternatives analysis and minimization and avoidance measures.

Mitigation for the project was coordinated through the NEPA/404 Merger Process. The Stearns Road Vision Document outlines the mitigation strategy for the overall project and guides the mitigation for wetland impacts. Copies of the Stearns Road Vision Document have been previously forwarded to your office and are not included in this submittal.

In addition to the Record of Decision, we are including a copy of the original permit and the IDNR approved Incidental Take Authorization. If you have any questions or require additional information, please call me at 630/684-4411.

Sincerely,

James C. Novak
Senior Environmental Scientist

Enclosures

cc: Mr. Carl Schoedel, KCDOT
Mr. Bruce Yurdin, Illinois Environmental Protection Agency
Mr. Steve Hamer, Illinois Department of Natural Resources
Ms. Joann Majewski, Alfred Benesch and Associates

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7206

REPLY TO
ATTENTION OF:

May 5, 2012

Technical Services Division
Regulatory Branch
LRC #1996-18925, RAMS #199600199

SUBJECT: Permit Modification to the Stearns Road Corridor Highway, Bridge Construction over the Fox River and On-site Mitigation Located at Stearns Road in Kane and DuPage Counties, Illinois (Sections 1, 2, and 3, Township 40 North, Range 8 East)

Carl Schoedel, P.E.
Kane County Division of Transportation
41 W011 Burlington Road
St. Charles, Illinois 60175

Dear Mr. Schoedel:

This is in reference to your letter dated September 30. 2011 in which you requested an extension to your Individual Permit issued on January 11, 2007.

This office has reviewed your proposal for an extension of time and agrees that such an extension would not be contrary to the public interest. Accordingly, the subject permit is hereby specifically modified to extend the expiration date to December 1, 2014. All other permit conditions to which the authorized work was made subject to shall remain in full force and effect. This letter shall be added to all copies of the permit, including those at the work site.

This determination covers only your project as described in your September 28, 2011, and as described above and in the Record of Decision for the project. Caution should be taken so that construction materials and/or activities do not enter any waterway or wetlands beyond the scope of this determination. If the design, location or purpose of the project is changed, you should contact this office to determine the need for other authorization. Be informed that if it becomes necessary to request future time extensions to complete the project, this office reserves the right to re-evaluate the project pursuant to new regulations or District policy.

It is your responsibility to obtain any required state or local approvals for your time extension before commencing any work. If you have any questions, please contact Kathy Chernich, Chief, East Section, Regulatory Branch by telephone at 312-846-5531 or email at Kathy.G.Chernich@usace.army.mil.

Sincerely,

Keith L. Wozniak
Chief, West Section
Regulatory Branch

Copy Furnished:

U.S. Fish and Wildlife Service (Shawn Cirton)
Kane County Division of Environmental Management (Ken Anderson)
Kane/Dupage Soil and Water Conservation District (Kelsey Musich)
Huff & Huff (James Novak)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY PERMIT

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.

217

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

STRUCTURE GEOTECH REPORTS

Geo Services, Inc.
Geotechnical, Environmental and Civil Engineering

May 23, 2011
Revised May 26, 2011
Revised June 29, 2011
Revised December 1, 2011
Revised September 20, 2012
Revised October 11, 2012
Revised October 19, 2012

Alfred Benesch and Company
205 N. Michigan Avenue
Suite 2400
Chicago, Illinois 60601

Attention: Ms. Joann Majewski

Job No. 08032

Re: Structure Geotechnical Report –Union Pacific Railroad (UPRR) Bridge over IL-25
Structure No. 045-3168
Kane County, IL

Dear Ms. Majewski:

The following report presents the geotechnical analysis and recommendations for the permanent replacement bridge for the UPRR over IL-25 as well as the temporary shoo-fly bridge for the UPRR over IL-25 in Kane County, IL. A total of six (6) structural soil borings (UP-01 through UP-06) were completed at the site by Geo Services, Inc. (GSI). In addition, five structure borings performed by others (UPIL25-1 through UPIL25-5) were used in formulating opinions for this report. Copies of the boring logs and location diagram are included in the Appendix to this report. Copies of the previous 2006 boring logs (performed by others) are included in the Appendix also.

If there are any questions with regard to the information submitted in this report, or if we can be of further assistance to you in any way, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, INC.

Andrew J. Ptak, P.E.
Office Manager

TABLE OF CONTENTS

SECTION 01: INTRODUCTION

The following report presents the geotechnical analysis and recommendations for the permanent railroad bridge and the temporary shoo-fly bridge for the UPRR over IL-25 in Kane County, IL. A total of six (6) soil borings (UP-01 through UP-06) were completed for the construction of the UPRR bridges. In addition, five structure borings performed by others ((UPIL25-1 through UPIL25-5) were used in formulating opinions for this report. Copies of these boring logs, location diagrams and lab data are included in this report.

The existing bridge structure for the UPRR over IL-25 is proposed for reconstruction and a temporary shoo-fly bridge will be required during its construction to maintain rail traffic during construction. We understand that the existing railroad bridge consists of a single-span structure having a total length of 52 feet and a width of 14 feet with semi-gravity type abutments. It is our understanding that the existing abutments are on spread footings with a base elevation of 724.0.

The proposed permanent replacement bridge will be a four span bridge that will be supported on bents made up of a cap on either driven piles or drilled shafts. The design basis for the bridge is per the 2011 AREMA specifications (ASD design). The foundation element elevations for the five (5) bents are as follows in Table 1:

TABLE 1
FOUNDATION ELEMENT ELEVATIONS

FOUNDATION ELEMENT	PILE CUT-OFF EL.	EL. AT BASE OF FOUNDATION (IE ELEVATION AT WHICH PILE FRICTION STARTS)
END BENT 1	742.34	741.34
BENT 2	742.17	728.34
BENT 3	741.84	727.97
BENT 4	741.51	729.51
END BENT 5	741.36	740.36

Estimated foundation service loads for the permanent and temporary bridge are as follows:

- Permanent Bridge – 70 tons per pile
- Temporary Bridge – 60 tons per pile

SECTION 02: SUBSURFACE INVESTIGATION PROCEDURES

The soil boring locations were selected by Benesch and Geo Services, Inc. based on

the proposed structure location as well as suitable access for the track-mounted ATV drill-rig used to drill this project. Reference stakes (stations and offsets) were laid out by representatives of Geo Services, Inc. personnel by using right angle and a measuring tape and were later surveyed by Benesch. The as-drilled locations for the borings and cores are shown on the Boring Location Diagram found in Appendix B.

The borings were performed during the month of April, 2011 and October, 2012 with an ATV-mounted or truck-mounted drill rig and the borings were advanced by means of continuous flight augers to a depth of 10 to 15 feet installing 4-in diameter casing and continued with rotary drilling techniques to completion. Representative samples from the drill rig were obtained employing split spoon sampling procedures in accordance with AASHTO T-206.

The borings performed in October, 2012 (UP-05, UP-06) were blind-drilled to a depth of 68.5 feet prior to sampling. The purpose of these borings was to determine the depth to bedrock for piling design.

SECTION 03: LAB TESTING PROGRAM

The laboratory-testing program consisted of performing water content per AASHTO T-265. Water content tests were performed on non-cohesive samples recovered. These tests were performed upon representative portions of the samples obtained in the field. The results of all testing performed, along with a visual classification of the material are based upon both a textural analysis and the AASHTO Soil Classification System, and are indicated on the boring logs.

SECTION 04: SOIL AND WATER TABLE CONDITIONS

The soil borings were completed in April, 2011 and October, 2012. Specific soil conditions are indicated on the boring logs and profiles. The surface consists of 12 to 18 inches of black topsoil. Underlying the topsoil, the soil profile generally consists of loose to medium dense, brown sand and gravel to EL. 701. The stratigraphy then transitions to medium stiff to stiff clay loam to loam to EL. 644 feet. Underlying the cohesive stratum is a medium dense to very dense granular stratum consisting of clayey sand and gravel to Elevation 644 to 649.

Below El. 644 to 649, the stratigraphy consists of a very dense boulder soil matrix to the top of bedrock at El. 611. Note that in the TSC boring UPIL25-1 (located closest to the proposed End Bent 5), this boulder soil matrix was not encountered to the termination of this boring at EL. 634.

Bedrock was encountered in boring UP-05 at an approximate El. 611 and consists of Silurian system, Niagaran series dolomite with thin clay-filled partings. The recovery from the bedrock core was 98.5% and the RQD was 50.2%.

No groundwater was encountered to a depth of 10 feet and the borings were drilled using rotary drilling techniques below a depth of 10 feet. We estimate that the long-term water table was at a depth of 28 to 30 feet based on the coloration change in the soil from brown to gray. Fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending upon variations in precipitation, and surface runoff.

SECTION 05: SEISMIC CONSIDERATIONS

The site has a seismic acceleration coefficient of 0.04g (Seismic Category A) and a Soil Profile Type I; according to the AASHTO/ LRFD Bridge Design Specifications 2010 (with 2010 Interims), the project site has a horizontal Response Spectral Acceleration of 0.037 at a period of 1.0 second and 5% critical dampening (S_1) and 0.095 at a period of 0.2 seconds and 5% critical dampening (S_s), Site Class: D and is designated as an area with a Seismic Performance Zone = 1. This results in a Design Spectral Acceleration at 1.0 second = 0.089 (S_{D1}) and at 0.2 seconds = 0.152 (S_{Ds}) according to the AASHTO/ LRFD Bridge Design Specifications 2010 (with 2010 Interims). In addition, the site can also be classified as a Site Class: C per the LRFD, resulting in a Design Spectral Acceleration at 1.0 second = 0.063 (S_{D1}) and at 0.2 seconds = 0.114 (S_{Ds}). The project site is considered to be in a low seismic area and is considered a non-extreme event. Liquefiable layers, scour, and downdrag are not expected to impact the design.

SECTION 06: SETTLEMENT ANALYSIS

Proposed grade is proposed to be similar to existing grades, and no new fill is expected to be placed in the area of the permanent bridge. The temporary bridge will have a temporary embankment that will be constructed to support the end bents for the temporary bridge between approximately Sta 20008+00 to Sta 20014+50. The embankment height will vary from approximately 7-feet to 15 feet in height. We estimate that settlement in the area of the temporary embankment will on the order of 1/2 inch and that the majority of the settlement will be immediate settlement that occurs at the time of embankment construction due to the granular nature of the subsoils.

We conclude that settlement and downdrag are not considered to affect the design of the temporary or permanent bridges if the temporary embankment is placed prior to any pile installations in the area of the new fill.

Any surficial vegetation, topsoil and surficial soft soils (if any) should be stripped from the bottom of the existing railroad embankment prior to placement of any new embankment fill.

SECTION 07: SCOUR ANALYSIS

There are no streams or rivers in the area of the temporary bridge; therefore, scour is

not an issue.

SECTION 08: RECOMMENDED FOUNDATION TYPES

The existing soils near the surface generally consist of medium dense sand and gravel approximately 30 feet below existing grade and are suitable for shallow foundations or deep foundations. We understand that it may be preferred by the railroad to use a deep foundation system over a shallow foundation system. We have included recommendations for both and we recommend that an economic study of which foundation system will be less costly be considered when selecting a foundation system.

For deep foundations, both driven piles and drilled caissons were considered, but it is our opinion that driven piles will prove a more economical selection of the two deep foundation options due to the granular subsoils present to a depth of 30 feet that will need to be cased off for deep foundations and no presence of a "hardpan" layer below the sands that would allow for relatively high bearing strengths for a belled caisson. Therefore, no caisson recommendation is included in this report.

SECTION 09: SHALLOW FOUNDATION RECOMMENDATIONS

Shallow Foundation Recommendations for Bridge Piers

The use of a shallow spread footing foundations is considered a viable option for design bridge pier foundations. The soil conditions indicate the subgrade soils below the surficial topsoil consist of medium dense sand and gravel can support a spread footing foundation. We recommended using a maximum, gross allowable bearing pressure of 6.0 kips per square foot (ksf) (FOS = 3.0) based a minimum of 4 feet below proposed grade.

Based on the results of the borings obtained, we would recommend undercut near boring UP-03 to an elevation of 724 (depth of 5.5 feet) due to the presence of a loose clayey sand.

For sliding, we recommend using an ultimate friction factor of 0.53 for use in design for a poured-in-place concrete footing on natural soil or compacted, structural fill.

We estimate that maximum settlement may reach 1.5 to 2 inches but that a large portion of this settlement will be immediate settlement as the temporary foundation is being constructed due to the granular nature of the subsoils. Settlement after the temporary substructures are built is anticipated to be 0.5 inch or less.

General Shallow Foundation Design Considerations

Foundation bearing soils should be verified in the field at the time of construction by a licensed Geotechnical Engineer or representative. Actual extents of remedial treatments will be determined at this time. If soils with less than adequate bearing strength are noted at the foundation level during footing construction, the weaker soils encountered at the base of the footings should be undercut to reach suitable bearing soils, and the undercut area filled with lean concrete or a suitable compacted structural (granular) fill material.

Structural fill utilized to support footings should be extended at least 6 inches beyond the proposed footing limits and then one foot horizontally for each one foot of fill placed below the base of the footing. This new fill should consist of inorganic material free of debris. Suitable fill materials include crushed granular materials corresponding to IDOT gradation CA-1, CA-6 or CA-7. If an open-graded stone such as CA-1 or CA-7 is used for structural fill over granular soils, a non-woven geotextile fabric should be required to prevent migration of fines and associated ground loss into the pore space of the structural fill.

Structural fill should be placed in maximum 8-inch loose lifts. CA-6 should be compacted to a minimum of 95% of the maximum dry density obtained in accordance with ASTM Standard D-1557, modified Proctor method. The moisture content of the fill should be controlled within +2% of the optimum moisture content. CA-1 and CA-7 materials can be compacted by placing in lifts and tamping with a backhoe bucket.

To provide adequate frost protection, we recommend the bottom of a reinforced concrete cantilever wall be a minimum of 4 feet below final grade and 3.5 feet below grade for an MSE wall.

Embankment fill behind the retaining wall should be placed in compliance with Section 205 of the IDOT Standard Specifications for Road and Bridge Construction. Backfill behind the wall should consist of a compacted, free-draining granular material.

SECTION 10: DEEP FOUNDATION RECOMMENDATIONS

Driven Pile Recommendations

A deep foundation alternative of non-displacement HP-piles are recommended for foundation support for the bridge structure. Based on the results of the borings and type of structure, and loading, piles may be used for the support of the proposed abutment and piers. Due to the existence of a boulder till soil matrix below EL. 644 to El. 649, pile shoes are recommended. Also due to this boulder till soil matrix, we are recommending HP-piles in lieu of pipe piles for use in the design.

Allowable pile loads, estimated lengths, and pile tip elevations have been calculated using a factor of safety equal to 5.0 and with the Modified ENR Formula and the results are graphically illustrated in Appendix D of this report. Selection of the piles should be based on economic and construction considerations. When steel H-piles are used, the steel H-piles shall be according to ASTM A572, Grade 50.

As per the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual Chapter 8, Part 4, Section 4.3., the Pile Capacities have been calculated using recognized geotechnical methods for computing side and tip resistances. The allowable axial loads are limited to 12,600 psi per pile as described in Section 4.4.3.6 of the AREMA Manual.

Minimum pile tip elevations at each boring location are provided in Table 2:

TABLE 2
MINIMUM PILE TIP ELEVATIONS

Substructure	Minimum Tip Elevation (60 ton design capacity)	Minimum Tip Elevation (70 ton design capacity)	Minimum Tip Elevation (80 ton design capacity)
End Bent 1	647	637	632
Bent 2	642	637	632
Bent 3	649	639	634
Bent 4	646	641	636
End Bent 5	611	611	611

Notes:
1 Note that the minimum tip elevation for End Bent 5 is much deeper than the other substructures due to the boring results of TSC boring UPIL25-1 (drilled near the proposed End Bent 5 at approx. Sta 2001+00, 64' L) that did not encounter the very dense boulder till soil matrix that borings UP-05 and UP-06 near El. 644 to 649; therefore, piles may not encounter pile refusal until bedrock (approx. El. 611).

We recommend that a minimum of one test pile be performed at each substructure unit for both the temporary and permanent bridge. The piles should be driven until satisfactory driving resistance is developed in accordance with the Modified ENR pile driving formula. In accordance with the IDOT 2009 Bridge Manual, the test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information. Note that per UPRR requirements, production piles should be driven to the Modified ENR formula with a factor of safety equal to 5.

The pile size and capacity selected should be based on economic considerations and the loads imposed on the structures. We estimate settlements of 1/4 inch or less. Once a pile type, size and capacity are selected by the design, we can assist the designer in providing a minimum pile tip elevation for the selected pile design.

SECTION 11: LATERAL SOIL PROPERTIES

Table 3 contains a summary of lateral soil parameters to be used for design of deep foundations, sheetpile walls, or wingwalls (if any).

TABLE 3 - SOIL PARAMETERS FOR LATERAL RESISTANCE

Material (Elevation)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci)	Strain
Medium Dense SAND, GRAVEL (730 to 705)	125	34	-	125	-
Stiff CLAY (705 to 665)	120	22	1,000	100	0.01
Dense to Very Dense Sand/Gravel/Fractured Rock (665 to 645)	130	36	-	125	-

Allowances should be made for any surcharge loads adjacent to the retaining structure. The footings are anticipated to be situated on the medium dense sand and gravel soils. Drainage should be provided behind any walls.

SECTION 12: GENERAL CONSTRUCTION CONSIDERATIONS

We do not foresee major issues with pile driving of sheeting for the project based on the boring information obtained. Localized high blow-counts were noted at a depth of approximately 25-feet at boring UP-04 (possibly from cobbles/boulders) that may cause localized refusal of sheets if tip elevations require driving below this depth.

During excavation for the proposed improvements, movement of adjacent soils into the excavation should be prevented. All excavations should be performed in accordance with the latest Occupational Safety and Health Administration (OSHA) requirements. Allowances should be made for any surcharge loads adjacent to the retaining structures.

From the IDOT Standard Specifications for Roadway and Bridge Construction, excavation for structures should be in compliance with Section 502, and the construction of the MSE wall base pad should be in compliance with Section 503. MSE walls should be installed according to the specifications of the supplier approved by the engineer. Vertical and horizontal alignment should be in accordance with IDOT Specifications.

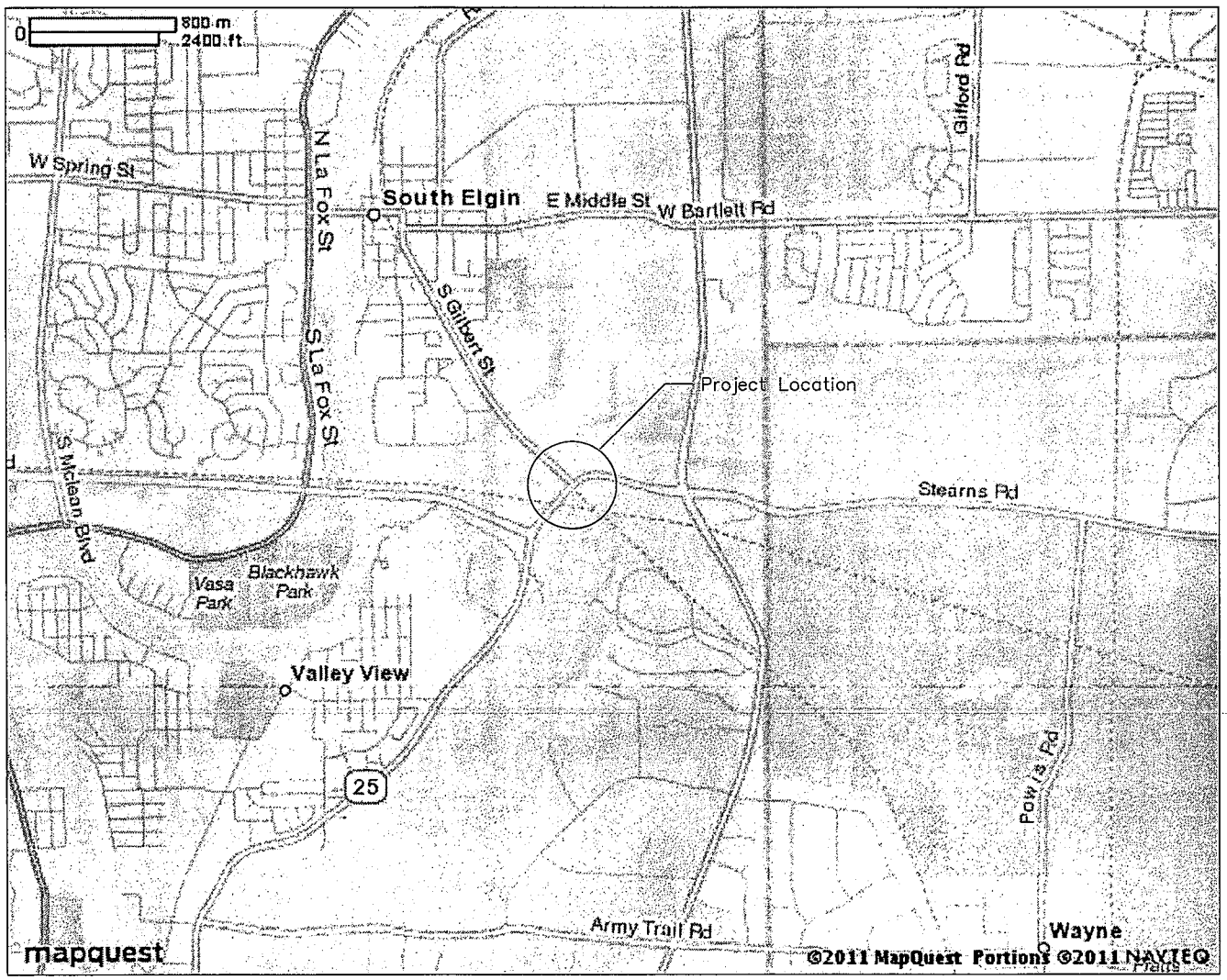
SECTION 13: GENERAL QUALIFICATIONS

The analysis and recommendations presented in this report are based upon the data obtained from our soil borings performed at the indicated locations. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's subsurface data or engineering analyses without the express written authorization of Geo Services Inc.

APPENDIX A

SITE LOCATION MAP

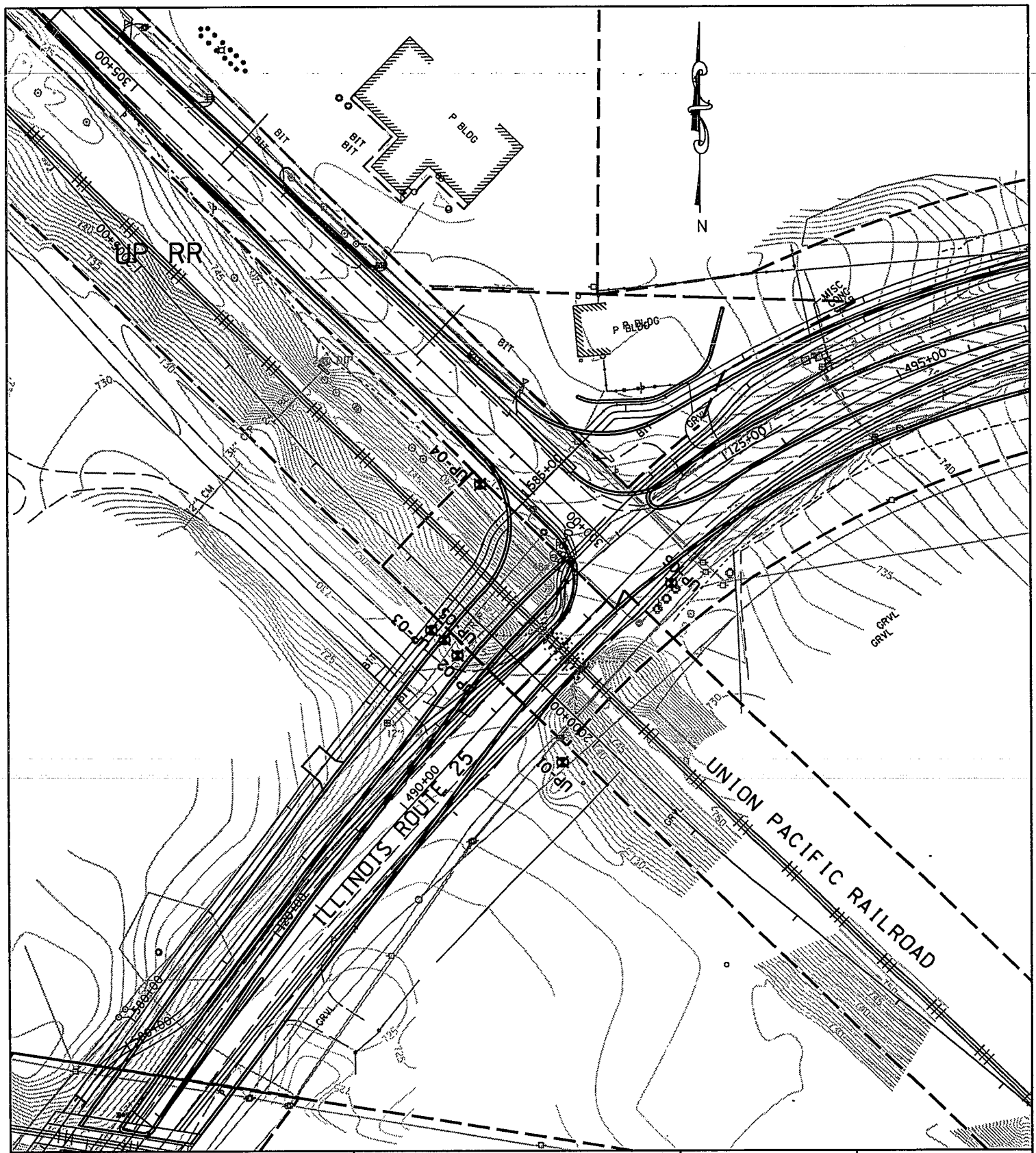


NORTH

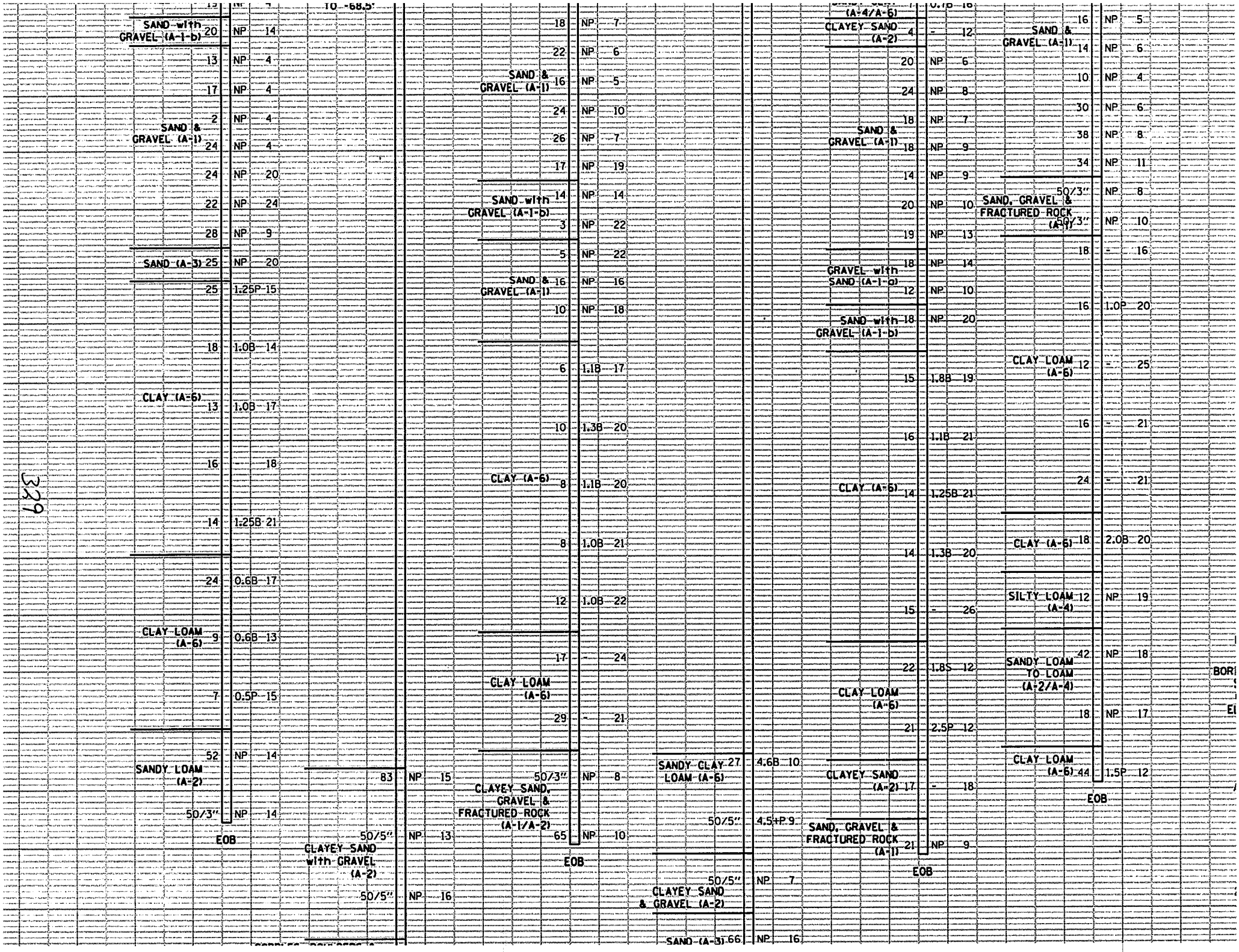
SITE MAP			
Subsurface Investigation for the Temporary Union Pacific Railroad (UPRR) Bridge over IL–25 Bartlett, Illinois	Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2638	DRAWN BY	RWC
		APPROVED BY	AJP
		DATE	May 17, 2011
		GSI JOB No.	08032
		SCALE	Not To Scale

APPENDIX B

BORING LOCATION PLAN AND PROFILE



SOIL BORING LOCATION DIAGRAM			
GEOTECHNICAL INVESTIGATION FOR THE PROPOSED TEMPORARY UNION PACIFIC RAILROAD BRIDGE OVER IL-25 KANE COUNTY, ILLINOIS	Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838	DRAWN BY	RWC
		APPROVED BY	AJP
		DATE	October 10, 2012
		JOB No.	08032
		SCALE	1"=100'


TO -68.5'
SAND with GRAVEL (A-1-b) 20 NP 14
13 NP 4
17 NP 4
SAND & GRAVEL (A-1) 2 NP 4
24 NP 4
24 NP 20
22 NP 24
28 NP 9
SAND (A-3) 25 NP 20
25 1.25P 15
18 1.0B 14
CLAY (A-6) 13 1.0B 17
16 - 18
14 1.25B 21
24 0.6B 17
CLAY LOAM (A-6) 9 0.6B 13
7 0.5P 15
52 NP 14
SANDY LOAM (A-2)
50/3" NP 14
EOB
83 NP 15
CLAYEY SAND with GRAVEL (A-2)
50/5" NP 13
50/5" NP 16
18 NP 7
22 NP 6
SAND & GRAVEL (A-1) 16 NP 5
24 NP 10
26 NP 7
17 NP 19
SAND with GRAVEL (A-1-b) 14 NP 14
3 NP 22
5 NP 22
SAND & GRAVEL (A-1) 16 NP 16
10 NP 18
6 1.1B 17
10 1.3B 20
CLAY (A-6) 8 1.1B 20
8 1.0B 21
12 1.0B 22
17 - 24
CLAY LOAM (A-6)
29 - 21
50/3" NP 8
CLAYEY SAND, GRAVEL & FRACTURED ROCK (A-1/A-2)
65 NP 10
EOB
SANDY CLAY LOAM (A-6) 27 4.6B 10
50/5" 4.5+P 9
50/5" NP 7
CLAYEY SAND & GRAVEL (A-2)
SAND (A-3) 66 NP 16
(A-4/A-6)
CLAYEY SAND (A-2) 4 - 12
20 NP 6
24 NP 8
18 NP 7
SAND & GRAVEL (A-1) 18 NP 9
14 NP 9
20 NP 10
19 NP 13
GRAVEL with SAND (A-1-a) 18 NP 14
12 NP 10
SAND with GRAVEL (A-1-b) 18 NP 20
CLAY LOAM (A-6) 12 - 25
15 1.8B 19
16 - 21
CLAY (A-6) 14 1.25B 21
CLAY (A-6) 18 2.0B 20
SILTY LOAM (A-4) 12 NP 19
15 - 26
42 NP 18
SANDY LOAM TO LOAM (A-2/A-4) 22 1.8S 12
CLAY LOAM (A-6)
18 NP 17
21 2.5P 12
CLAYEY SAND (A-2) 17 - 18
SAND, GRAVEL & FRACTURED ROCK (A-1) 21 NP 9
EOB
16 NP 5
SAND & GRAVEL (A-1) 14 NP 6
10 NP 4
30 NP 6
38 NP 8
34 NP 11
50/3" NP 8
SAND, GRAVEL & FRACTURED ROCK (A-1) 50/3" NP 10
18 - 16
16 1.0P 20
24 - 21
CLAY LOAM (A-6) 44 1.5P 12
EOB

320

APPENDIX C

SOIL BORING LOGS

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2888

SOIL BORING LOG

DATE 4/25/2011

LOGGED BY RJ

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station -
BORING NO. **UP-01**
Station: 2000+08 UPRR
Offset: 31.5' Left
Ground Surface Elev. *732.2*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 15'*
Upon Completion *n/a*
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	AS	-	18	18.0" TOPSOIL-black
730.7	2			
	5			
	9	NP	6	SAND & GRAVEL-brown-medium dense (A-1)
	8			
-5	8			
	11	NP	4	
726.7				
	5			SAND with Gravel-brown-medium dense (A-1-b)
	9			
	11	NP	14	
724.2				
	2			
	5			SAND & GRAVEL-brown-medium dense (A-1)
-10	8	NP	4	
	2			
	4			
	13	NP	4	
	3			
	1			
-15	1	NP	4	
	10			
	11			
	13	NP	4	
	8			
	12			
-20	12	NP	20	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	8			
	11			
	11	NP	24	SAND & GRAVEL-brown-medium dense (A-1)
	11			
	13			
-25	15	NP	9	
706.7				
	12			
	12			SAND-brown-medium dense (A-3)
	13	NP	20	
703.7				
	10			
	10			
-30	15	1.25P	15	
				CLAY-gray-stiff (A-6)
	8		*121*	
	8			
-35	10	1.0B	14	
	10		*114*	
	8			
-40	5	1.0B	17	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/25/2011

LOGGED BY RJ

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station –
BORING NO. **UP-01**
Station: 2000+08 UPRR
Offset: 31.5' Left
Ground Surface Elev. 732.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to 15' ▼
Upon Completion n/a ▽
After ____ Hrs. ▽

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	5		
	7		
-45	9	–	18
	4		*108*
	6		
-50	8	1.25B	21
	9		*114*
	11		
-55	13	0.6B	17
	8		*121*
	5		
-60	4	0.6B	13

CLAY–gray–stiff (A–6)

680.2

CLAY LOAM–gray–medium stiff (A–6)

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	4		
	3		
-65	4	0.5P	15
	24		
	26		
-70	26	NP	14
	20		
	26		
657.2 -75	50/3"	NP	14
-80			

665.2

SANDY LOAM–gray–
dense to very dense (A–2)

CLAY LOAM–gray–medium stiff (A–6)

End Of Boring @ –75.0'
Hollow Stem Augers To –15.0'
Rotary Drilling To Completion
Diedrich Automatic Hammer

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/20/2011

LOGGED BY RJ

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station –
BORING NO. **UP-02**
Station: 2001+22 UPRR
Offset: 29.5' Left
Ground Surface Elev. *730.3*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10'* ▼
Upon Completion *n/a* ▽
After ____ Hrs. ▽

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	AS	–	25	18.0" TOPSOIL–black
728.8	12			
	12			SAND & GRAVEL–brown–
	12	NP	6	medium dense (A–1)
	6			
–5	9	NP	7	
	9			
	5			
	11			
	11	NP	6	
	3			
–10	5	NP	5	
	11			
	10			
	12			
	12	NP	10	
	6			
	12			
–15	14	NP	7	
	3			
	6			
	11	NP	19	
712.3				
	7			SAND with Gravel–brown–
	7			very loose to medium dense (A–1–b)
–20	7	NP	14	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	2			SAND with Gravel–brown–
	2			very loose to medium dense (A–1–b)
	1	NP	22	
707.3				
	3			
	3			
–25	2	NP	22	
	5			SAND & GRAVEL–brown–
	8			loose to medium dense (A–1)
	8	NP	16	
	2			
	4			
–30	6	NP	18	
698.3				
	3		*110*	CLAY–gray–stiff (A–6)
	3			
–35	3	1.1B	17	
	3		*110*	
	5			
–40	5	1.3B	20	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/20/2011

LOGGED BY RJ

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station –
BORING NO. UP-02
Station: 2001+22 UPRR
Offset: 29.5' Left
Ground Surface Elev. 730.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to 10'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY LOAM-gray-medium dense (A-6)
	3		108	
	3			
-45	5	1.1B	20	
				CLAY-gray-stiff (A-6)
				663.3
	3		106	
	4			
-50	4	1.0B	21	
				Clayey SAND, GRAVEL & FRACTURED ROCK-gray-very dense (A-1/A-2)
	3		106	
	6			
-55	6	1.0B	22	
				655.3
				End Of Boring @ -75.0'
				Hollow Stem Augers To -10.0'
				Rotary Drilling To Completion
				Diedrich Automatic Hammer
673.3				
				CLAY LOAM-gray-medium dense (A-6)
	7			
	8			
-60	9	–	24	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	7		
	13		
-65	16	–	21
	38		
	45		
-70	50/3"	NP	8
	27		
	30		
-75	35	NP	10
-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/21/2011

LOGGED BY RJ

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station –
BORING NO. **UP-03**
Station: 2001+50 -UPRR
Offset: 29.5' Left
Ground Surface Elev. *729.4*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 15'*
Upon Completion *n/a*
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				12.0" TOPSOIL-black
728.4	AS	–	16	
	1		***109***	SANDY CLAY-gray-
	3			medium dense (A-4/A-6)
	4	0.7B	16	
726.4				
	2			Clayey SAND-brown-
	2			very loose (A-2)
–5	2	–	12	
723.9				
	9			
	9			
	11	NP	6	
	7			
	14			
–10	10	NP	8	SAND & GRAVEL-brown-
				medium dense (A-1)
	7			
	7			
	11	NP	7	
	10			
	10			
–15	8	NP	9	
	6			
	6			
	8	NP	9	
	3			
	8			
–20	12	NP	10	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	3			SAND & GRAVEL-brown-
	9			medium dense (A-1)
	10	NP	13	
706.4				
	4			
	8			
–25	10	NP	14	GRAVEL with Sand-brown-
				medium dense (A-1-a)
	3			
	5			
	7	NP	10	
701.4				
	8			
	8			
–30	10	NP	20	SAND with Gravel-brown-
				medium dense (A-1-b)
697.4				
	3		***110***	
	6			
–35	9	1.8B	19	
				CLAY-gray-stiff (A-6)
	4		***108***	
	8			
–40	8	1.1B	21	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/21/2011

LOGGED BY RJ

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station –

BORING NO. **UP-03**
Station: 2001+50 UPRR
Offset: 29.5' Left
Ground Surface Elev. *729.4*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 15'*
Upon Completion *n/a*
After _____ Hrs. _____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY—gray—stiff (A-6)
	3		*108*	
	5			
–45	9	1.25B	21	
				CLAY—gray—stiff (A-6)
				662.4
	3		*109*	
	6			Clayey SAND—brown—medium dense (A-2)
–50	8	1.3B	20	
				657.4
	4			SAND, GRAVEL & FRACTURED ROCK—gray—medium dense (A-1)
	6			
–55	9	–	26	
				End Of Boring @ –75.0'
				Hollow Stem Augers To –15.0'
				Rotary Drilling To Completion
				Diedrich Automatic Hammer
				672.4
	24		*124*	CLAY LOAM—gray—stiff to very stiff (A-6)
	11	1.8S@		
–60	11	12.7%	12	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY LOAM—gray—stiff to very stiff (A-6)
	6			
	10			
–65	11	2.5P	12	
				662.4
	7			Clayey SAND—brown—medium dense (A-2)
	7			
–70	10	–	18	
				657.4
	10			SAND, GRAVEL & FRACTURED ROCK—gray—medium dense (A-1)
	9			
654.4 –75	12	NP	9	
				End Of Boring @ –75.0'
				Hollow Stem Augers To –15.0'
				Rotary Drilling To Completion
				Diedrich Automatic Hammer
–80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/26/2011

LOGGED BY RJ

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station –
BORING NO. **UP-04**
Station: 2002+00 UPRR
Offset: 76.5' Right
Ground Surface Elev. *735.5*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 15'*
Upon Completion *n/a*
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				7.0" Clayey SAND *734.8*
	AS	–	11	
	4			SAND–brown–loose (A–3)
	4			
	4	NP	11	
				732.5
	7			
	9			
–5	13	NP	5	
	3			
	5			SAND & GRAVEL–brown– medium dense to dense (A–1)
	7	NP	5	
	5			
	7			
–10	9	NP	5	
	5			
	6			
	8	NP	6	
	4			
	4			
–15	6	NP	4	
	11			
	14			
	16	NP	6	
	16			
	18			
–20	20	NP	8	
	13			SAND & GRAVEL–brown– medium dense to dense (A–1)
	16			
	18	NP	11	
				712.5
	17			
	35			FRACTURED ROCK–brown & gray– very dense (A–1)
–25	50/3"	NP	8	
				710.0
	22			
	50/3"			SAND & GRAVEL–brown– very dense (A–1)
		NP	10	
				707.5
	6			
	8			
–30	10	–	16	
	5			CLAY LOAM–gray– medium dense (A–6)
	7			
–35	9	1.0P	20	
	5			
	5			
	7			
–40	7	–	25	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE _____

LOGGED BY _____

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. 045-3168
Station –
BORING NO. **UP-04**
Station: 2002+00 UPRR
Offset: 76.5' Right
Ground Surface Elev. *735.5*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 15'*
Upon Completion *n/a*
After _____ Hrs. _____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY LOAM–gray–medium dense (A–6)
	4			
	7			
–45	9	–	21	
	6			
	10			
–50	14	–	21	
683.5				
				CLAY–gray–very stiff (A–6)
	7		*103*	
	9			
–55	9	2.0B	20	
678.5				
				SILTY LOAM–gray–medium dense (A–4)
	7			
	5			
–60	7	NP	19	
				SILTY LOAM–gray–medium dense (A–4)
673.5				
	14			
	18			
–65	24	NP	18	
				SANDY LOAM to LOAM–gray–medium dense to dense (A–2/A–4)
	6			
	8			
–70	10	NP	17	
663.5				
				CLAY LOAM–gray–stiff (A–6)
	18			
	22			
660.5 –75	22	1.5P	12	
				End Of Boring @ –75.0'
				Hollow Stem Augers To –15.0'
				Rotary Drilling To Completion
				Diedrich Automatic Hammer
–80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 10/3/2012

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-3168
Station -

BORING NO. **UP-05**
Station: 2001+38 UPRR
Offset: 27.9' Left
Ground Surface Elev. *731.5*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10.0'*
Upon Completion *n/a*
After _____ Hrs. _____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Blind Drill To -68.5'							
-5				-25			
-10				-30			
-15				-35			
-20				-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 10/3/2012

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-3168
Station -
BORING NO. **UP-05**
Station: 2001+38 UPRR
Offset: 27.9' Left
Ground Surface Elev. *731.5*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10.0'*
Upon Completion *n/a*
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)		DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
				Blind Drill To -68.5'				
-45					-65			
				663.0				
						5		*132*
						11		
-50					-70	16	4.6B	10
				SANDY CLAY LOAM with Gravel-gray-hard (A-6)				
						25		
						50/5"		
-55					-75		4.5+P	9
				654.5				
				CLAYEY SAND & GRAVEL-gray-very dense (A-2)		50/5"		
-60					-80		NP	7

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 10/3/2012

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-3168
Station –

BORING NO. **UP-05**
Station: 2001+38 UPRR
Offset: 27.9' Left
Ground Surface Elev. *731.5*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10.0'*
Upon Completion *n/a*
After _____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAYEY SAND & GRAVEL–gray–very dense (A–2)			
649.5			
	29		
SAND–gray–very dense (A–3)	32		
–85	34	NP	16
644.5			
	35		
	50/5"		
–90		–	8
SANDY GRAVELLY CLAY LOAM with Fractured Rock–gray–very dense (A–2)			
	23		
	31		
–95	45	–	8
	50/4"		
–100		–	7

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	50/4"		
–105		–	6
SANDY GRAVELLY CLAY LOAM with Fractured Rock–gray–very dense (A–2)			
	50/3"		
–110		–	6
	50/2"		
–115		–	8
	50/2"		
611.5 –120		–	7

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 10/3/2012

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-3168
Station –

BORING NO. **UP-05**
Station: 2001+38 UPRR
Offset: 27.9' Left
Ground Surface Elev. *731.5*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10.0'*
Upon Completion *n/a*
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
611.1			
RUN 1 (–120.0' to –120.4') SILTY CLAY LOAM			
RUN 1 (–120.4' to –130.') Silurian System, Niagaran Series Dolomite Gray & fine grained with horizontal bedding. Soft & argillaceous with some thin clay partings. Tight horizontal fractures throughout. Becoming light gray with wavy bedding & some chert nodules @ –127.2'. Recovery=98.5% R.Q.D.=50.2%	RUN 1		
–125			
601.5–130			
End Of Boring @ –130.0' Hollow Stem Augers To –10.0' Rotary Drilling To Completion 10.0' Of 4.0"ø Casing Used CME Automatic Hammer			
–135			
–140			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
–145			
–150			
–155			
–160			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

ROCK CORE LOG

PAGE 1 of 1
DATE 10/8/2012
LOGGED BY DR
GSI JOB No. 08032

ROUTE F.A. 361
DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR
SECTION 98-00214-02-BR
LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.
COUNTY Kane
CORING METHOD Rotary Wash
STRUCT. NO. 045-3168
CORING BARREL TYPE & SIZE NX Double Swivel-10 ft
Station –
Core Diameter 2.0 in
Top of Rock Elev. 611.1
BORING NO. UP-05
Begin Core Elev. 611.5
Station: 2001+38 UPRR
Offset: 27.9' Left
Ground Surface Elev. 731.5

DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)
RUN 1 (–120.0' to –120.4') SILTY CLAY LOAM–gray–hard	1	98.5	50.2	n/a	n/a
RUN 1 (–120.4' to –130.') SILURIAN SYSTEM, NIAGARAN SERIES DOLOMITE Gray & fine grained with horizontal bedding. Soft & argillaceous with some thin clay partings. Tight horizontal fractures throughout. Becoming light gray with wavy bedding & some chert nodules @ –127.2'.					
–125					
–130					

Color pictures of the cores Yes Cores will be stored for examination for –
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 10/3/2012

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-3168
Station –
BORING NO. **UP-06**
Station: 200+44 UPRR
Offset: 123.7' Right
Ground Surface Elev. *732.2*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10.0'*
Upon Completion *n/a*
After _____ Hrs. _____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Blind Drill To -68.5'							
-5				-25			
-10				-30			
-15				-35			
-20				-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 10/3/2012

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-3168
Station -
BORING NO. **UP-06**
Station: 200+44 UPRR
Offset: 123.7' Right
Ground Surface Elev. *732.2*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10.0'*
Upon Completion *n/a*
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Blind Drill To -68.5'							
-45				-65			
				663.7			
					29		
-50				-70	38 45	NP	15
CLAYEY SAND with Gravel-gray-very dense (A-2)							
					43		
-55				-75	50/5"	NP	13
					38		
-60				-80	50/5"	NP	16

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 10/3/2012

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 98-00214-02-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-3168
Station –

BORING NO. **UP-06**
Station: 200+44 UPRR
Offset: 123.7' Right
Ground Surface Elev. *732.2*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10.0'* ▼
Upon Completion *n/a* ▽
After ____ Hrs. ____ ▽

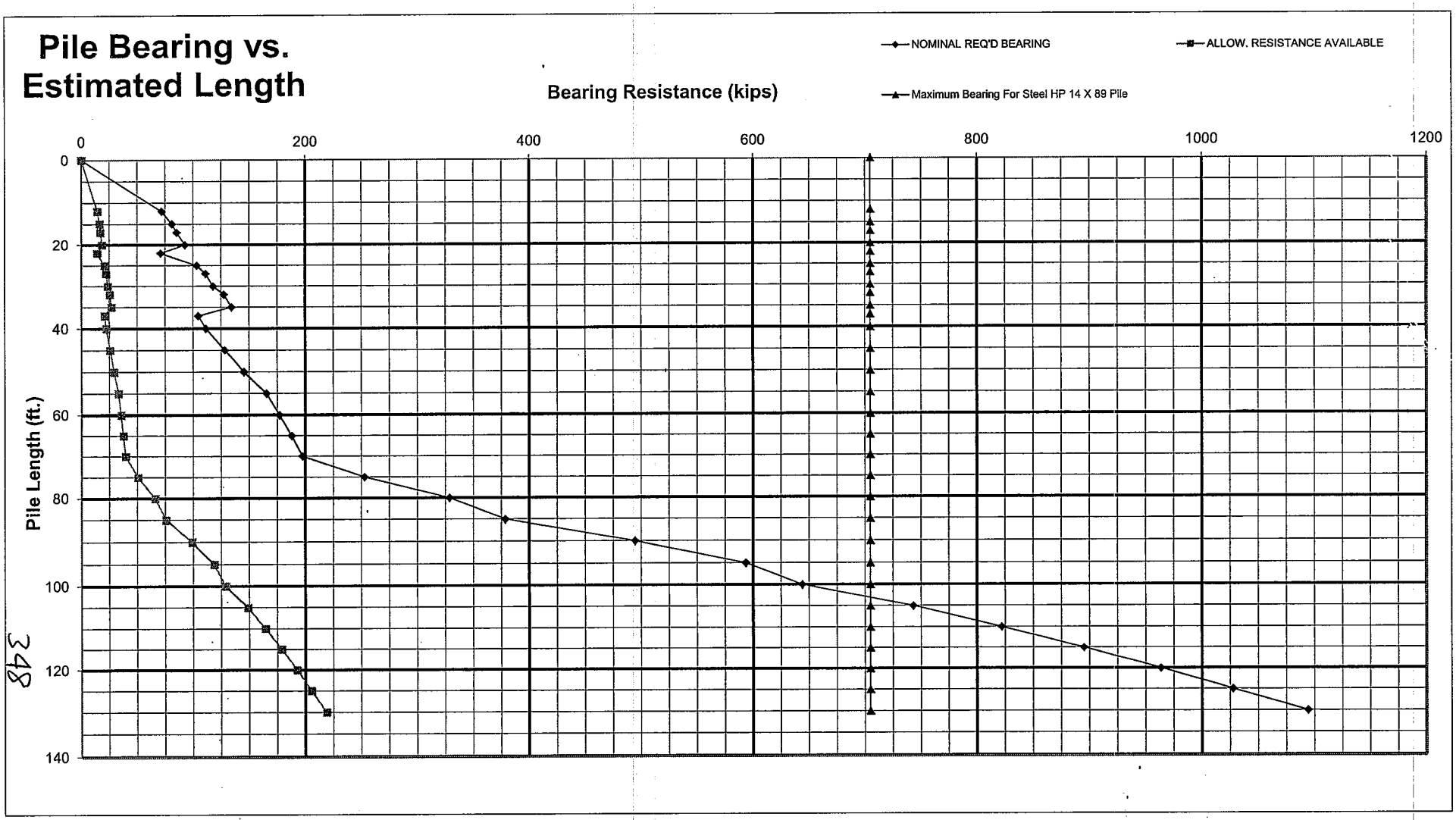
DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAYEY SAND with Gravel–gray–very dense (A–2)
649.2				
	50/0"			
–85			NR	
				COBBLES, BOULDERS & FRACTURED ROCK–gray–very dense (A–1)
	40			
	22			
–90	50/1"	NP	6	
640.2				
	44			
	30			
–95	50/2"	–	8	
				CLAYEY COBBLES, BOULDERS & FRACTURED ROCK–gray–very dense (A–2)
	48			
	50/3"			
–100		–	8	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAYEY COBBLES, BOULDERS & FRACTURED ROCK–very dense (A–2) *631.2*
				End Of Boring @ –101.0'
				Hollow Stem Augers To –10.0'
				Rotary Drilling To Completion
				10.0' Of 4.0"ø Casing Used
				CME Automatic Hammer
–105				
–110				
–115				
–120				

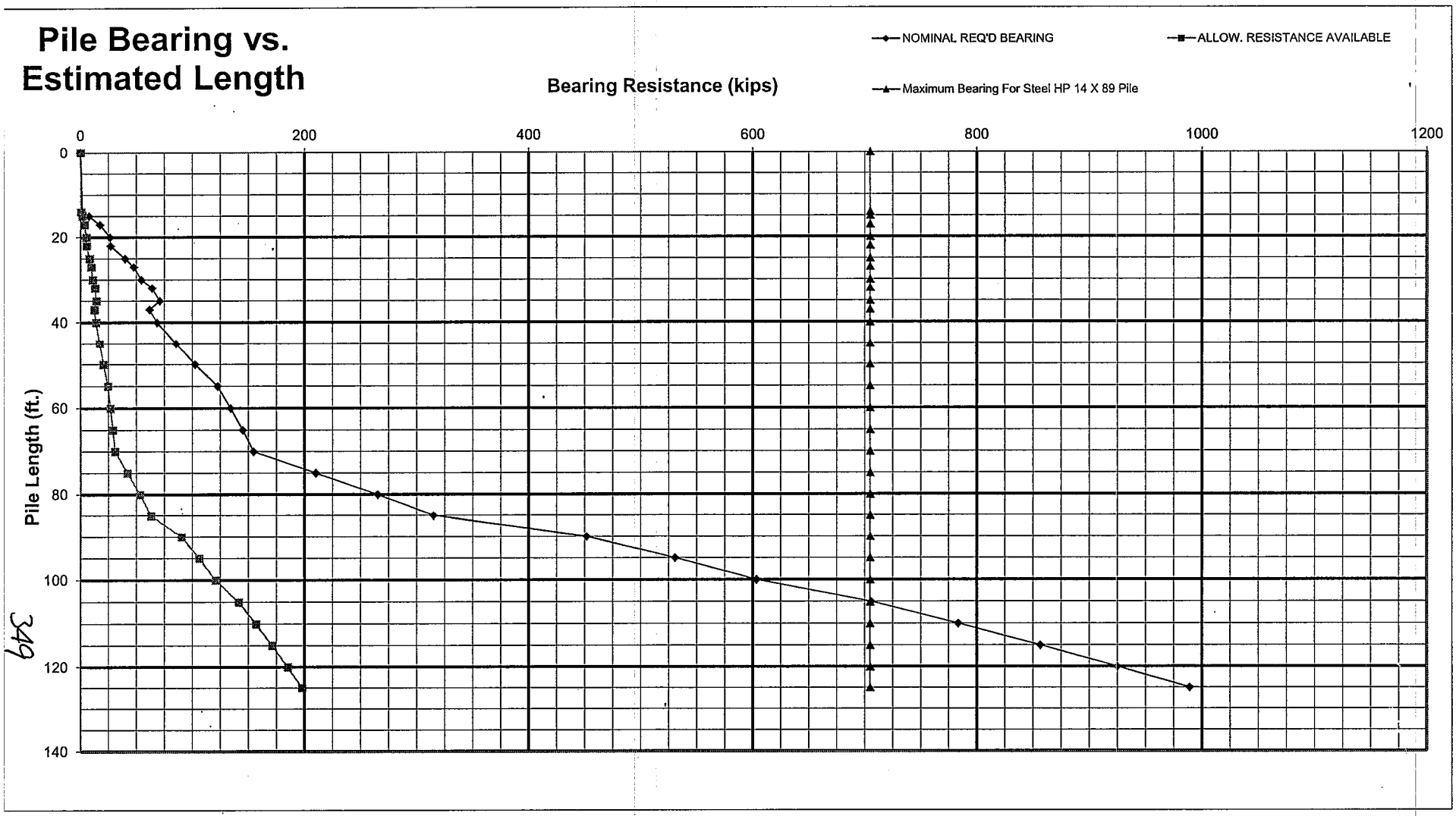
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

APPENDIX D

PILE CAPACITY / LENGTH TABLES

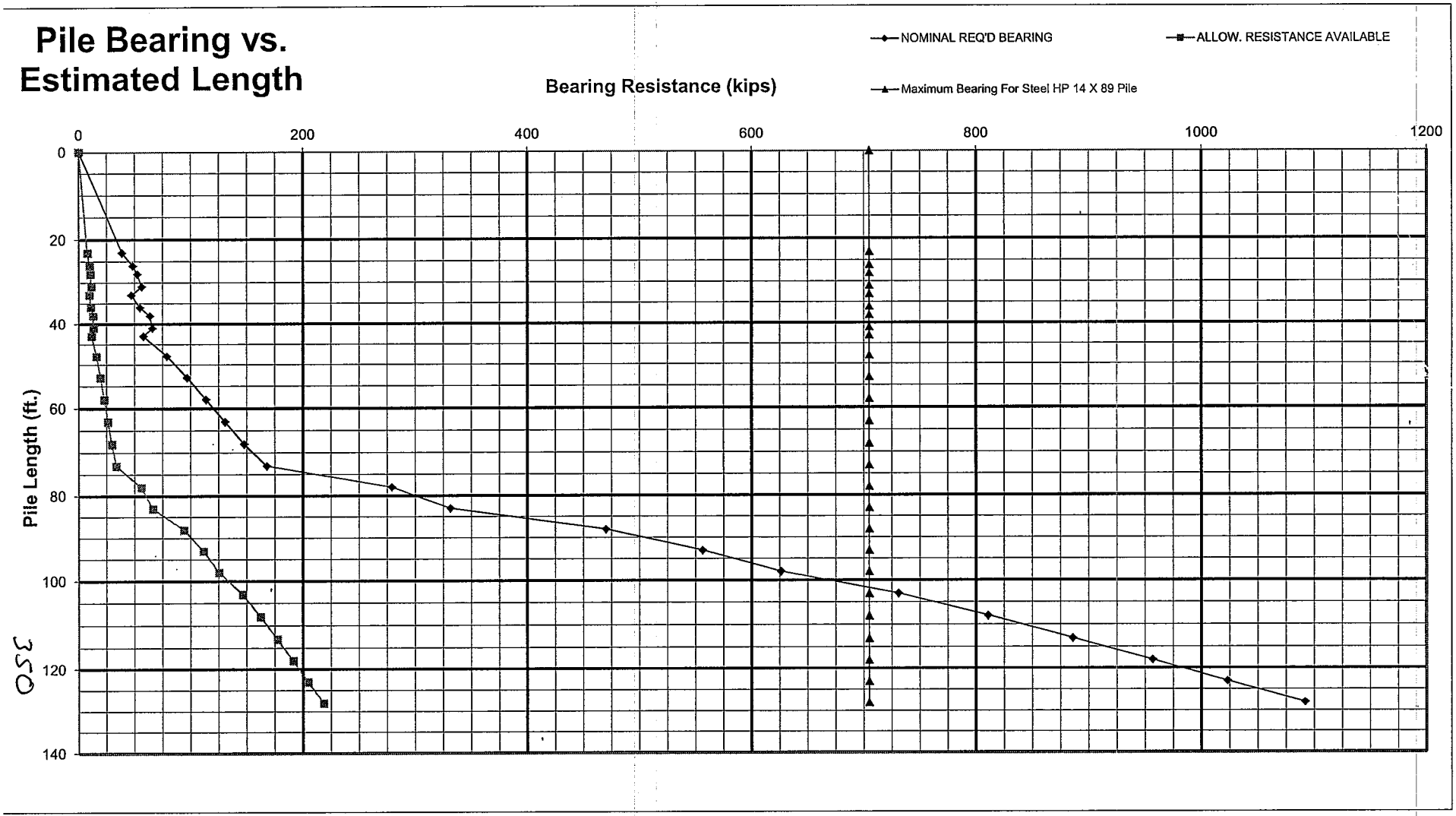


END BENT 1 - HP 14X89
PILE LENGTH = 0 (EL. 742.34 FT)



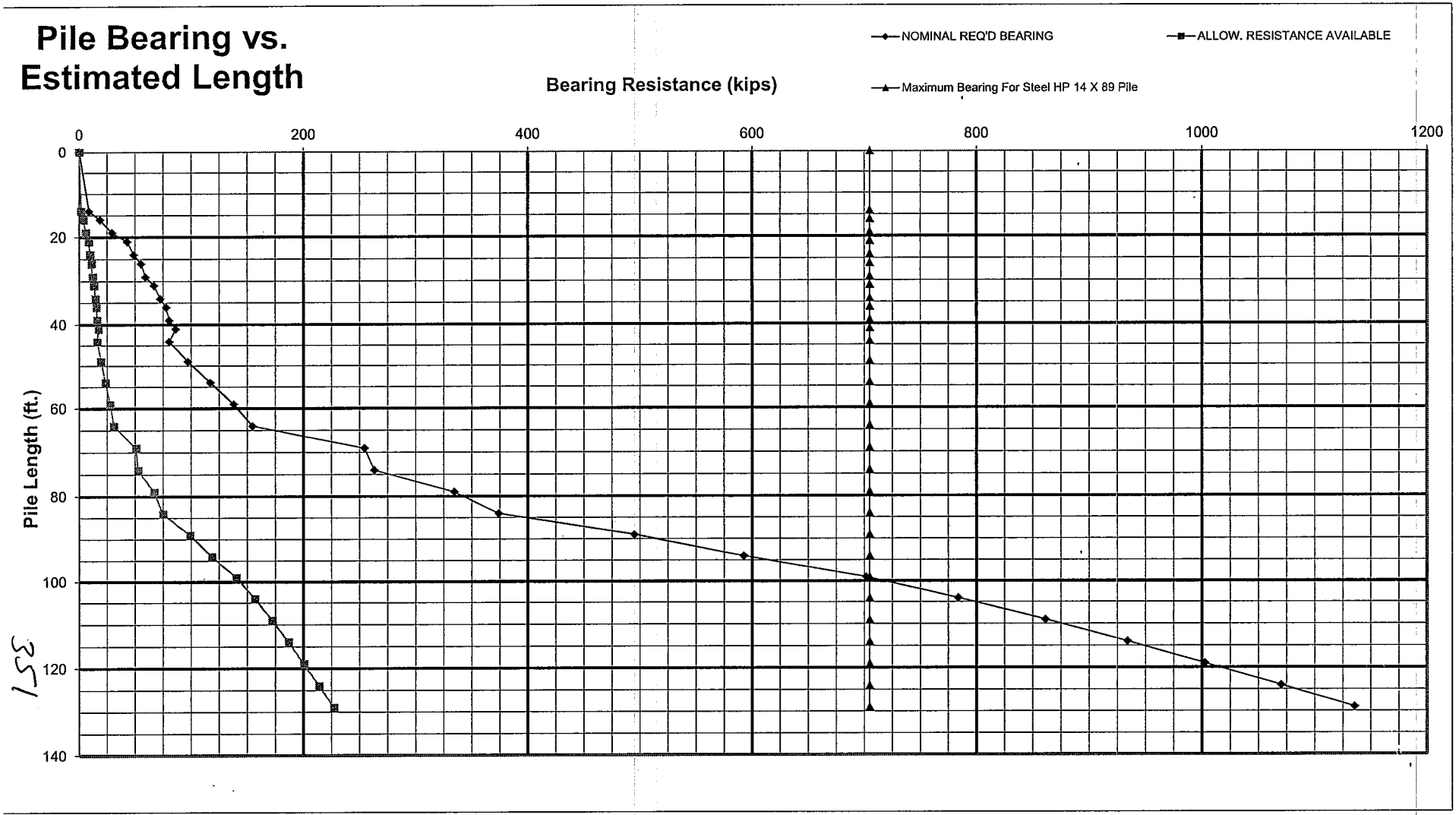
BENT 2 - HP 14X89

PILE LENGTH = 0 (EL. 742.17 FT)



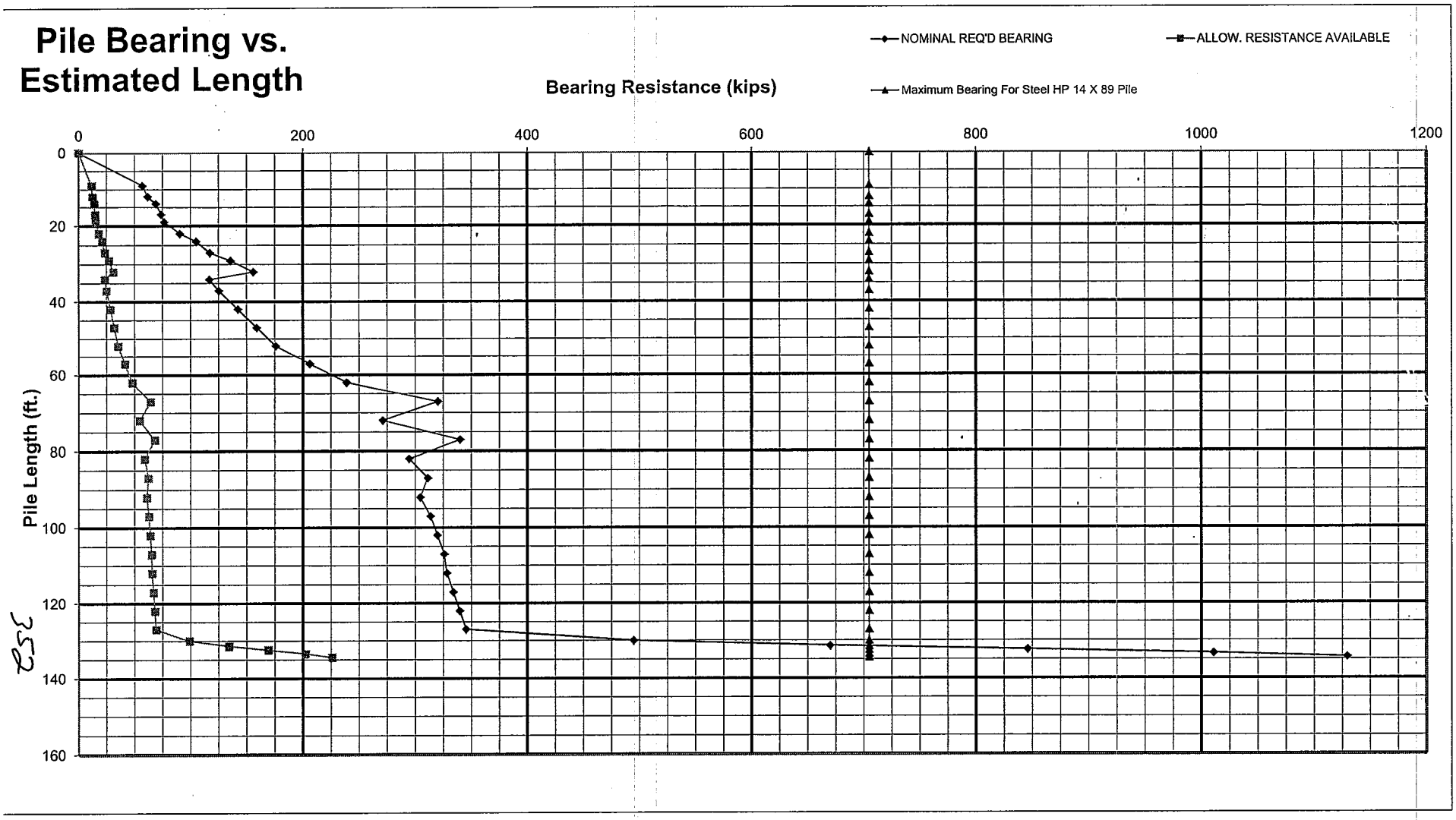
350

BENT 3 - HP 14X89
PILE LENGTH = 0 (EL. 741.84 FT)



BENT 4 - HP 14X89

PILE LENGTH = 0 (EL. 741.51 FT)



END BENT 5 - HP 14X89

PILE LENGTH = 0 (EL. 741.36)

APPENDIX E

2006 PREVIOUS BORING LOGS (BY OTHERS)

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 7/7/06

ROUTE _____ DESCRIPTION U. P. Railroad over IL Route 25 Date Completed 7/7/06

SECT. 98-00214-02-BR STRUCT. NO. _____ DRILLED BY TSC L-60,393

COUNTY Kane LOCATION U.P. RR Embankment S. 1-SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPEMB-1
Station 10+72
Offset 70.00ft RT
Surface Elev. 732.20 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling Dry
at Completion Dry
after _____ Hrs. _____

	DEPTH	BLOWS	Qu tsf	W %
FILL - Dark brown and black CLAY LOAM (topsoil), moist A-6		4 7 11	P 4.5+	15.2
731.00				
FILL - Brown CLAY LOAM with sand layers, moist A-6/A-2-4				11.5
730.20		3 4 5	P 4.5+	18.1
Hard brown and gray CLAY, trace root seams, moist A-6				
728.70		5 6 9		10.1
LL/PL/PI = 18/12/6	-5			
Med. dense brown SILTY LOAM, trace to little gravel, moist A-4(1)		5 4 8		13.4
724.20				
LL/PL/PI = 20/9/11		4 5 6	P 1.0	13.1
Stiff to medium stiff gray SILTY LOAM, trace gravel, very moist A-6(4)	-10			
		3 4 6	P 0.75	13.0
719.20				
Stiff gray CLAY LOAM, trace gravel, moist A-6		3 5 8	P 1.75	13.4
717.20	-15			
End of Boring at 15.0'				
	-20			
	-25			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

2.54

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 7/7/06

Date Completed 7/7/06

ROUTE _____ DESCRIPTION U. P. Railroad over IL Route 25

SECT. 98-00214-02-BR STRUCT. NO. _____ DRILLED BY TSC L-60,393

COUNTY Kane LOCATION U.P. RR Embankment S. 1-SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPEMB-2
Station 13+28
Offset 25.00ft RT
Surface Elev. 734.50 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling Dry
at Completion Dry
after _____ Hrs. _____

DEPTH	BLOWS	Qu tsf	W %
Dark brown clayey Topsoil 734.00			
Hard to very stiff brown CLAY, trace gravel, moist A-6	4 6 6	P 4.25	17.9
731.00	5 5 7	P 3.25	21.6
Very stiff brown and gray CLAY, trace gravel, moist A-6	4 4 5	P 2.5	21.7
-5 729.00			
Soft gray SILTY CLAY LOAM, very moist A-6(9) LL/PL/PI = 23/12/11	2 3 3	P 0.5	19.7
726.50			
Medium stiff to stiff gray SILTY CLAY LOAM, very moist A-4/A-6	2 3 4	P 1.0	19.7
-10 724.00			
Med. dense gray fine SAND, trace clay, moist A-1-b	7 10 13		15.8
721.50			
Very stiff gray CLAY, moist A-6	4 6 11	P 3.5	16.0
719.50 -15			
End of Boring at 15.0'			
-20			
-25			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

355

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 7/7/06

ROUTE _____ DESCRIPTION U. P. Railroad over IL Route 25 Date Completed 7/7/06

SECT. 98-00214-02-BR STRUCT. NO. _____ DRILLED BY TSC L-60,393

COUNTY Kane LOCATION U.P. RR Embankment S. 1-SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPEMB-3
Station 15+75
Offset 21.00ft RT
Surface Elev. 729.40 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling Dry
at Completion Dry
after _____ Hrs. _____

	DEPTH	BLOWS	Qu tsf	W %
FILL - Dark brown clayey Topsoil 728.40		5 8 9		16.8 2.1
Med. dense to dense brown SAND and GRAVEL, damp A-1		4 5 7		2.7
		9 11 16		3.2
723.90	-5			
Med. dense brown fine SAND, damp A-3		8 7 9		3.6
721.40				
Dense brown SAND, some gravel, damp A-1-b		8 11 19		3.0
718.90	-10			
Med. dense brown fine SAND, damp A-3		8 9 10		3.5
716.40				
Very stiff gray SILTY CLAY LOAM, moist A-6		7 8 10	P 2.25	13.3
714.40	-15			
End of Boring at 15.0'	-20			
	-25			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

356

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/30/04

ROUTE _____ DESCRIPTION U.P. Railroad over IL Route 25 Date Completed 9/30/04

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION North of West Abutment S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPHA-1
Station 17+97
Offset 54.00ft LT
Surface Elev. 745.08 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling Dry
at Completion Dry
after _____ Hrs. _____

	DEPTH	BLOWS	Qu tsf	W %
FILL - Black SANDY LOAM, little gravel, damp 744.08				
FILL - Dark brown and black SAND and Cinders, some gravel and Cobbles, damp A-1				10.0
741.08				
FILL - Brown clayey SAND and GRAVEL, damp A-1 740.08	-5			5.4
FILL - Dark brown and brown SAND and GRAVEL, occasional Cobbles, damp A-1-a 737.08				5.0
FILL - Brown CLAY LOAM, little gravel, moist A-6 735.58			P 4.5+	14.4
FILL - Brown SAND and GRAVEL, damp A-1 734.58	-10			3.8
End of Boring at 10.5'				
Boring performed by hand auger methods	-15			
	-20			
	-25			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/30/04

ROUTE ____ DESCRIPTION U.P. Railroad over IL Route 25 Date Completed 9/30/04

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION North of West Abutment S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPHA-2
Station 18+44
Offset 22.00ft LT
Surface Elev. 745.59 ft

Surface Water Elev. ____
Groundwater Elev.:
when drilling Dry
at Completion Dry
after ____ Hrs. ____

	DEPTH	BLOWS	Qu tsf	W %
FILL - Black clayey Topsoil, little gravel and Cobbles 745.09				
				8.0
FILL - Dark brown and black fine to medium SAND, little gravel, trace organic,damp A-1-b				
				7.7
	-5			
740.09				
FILL - Brown SAND and GRAVEL, damp A-1-a				3.1
737.59				
FILL - Dark brown SAND, little gravel, trace organic, damp A-1				5.0
735.59	-10			
End of Boring at 10.0'				
Boring performed by hand auger methods				
	-15			
	-20			
	-25			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

358

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/30/04

Date Completed 9/30/04

ROUTE _____ DESCRIPTION U.P. Railroad over IL Route 25

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION North of East Abutment S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPHA-3
Station 19+90
Offset 46.00ft LT
Surface Elev. 744.08 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling Dry
at Completion Dry
after _____ Hrs. _____

	DEPTH	BLOWS	Qu tsf	W %
FILL - Black clayey Topsoil 743.28				
FILL - Dark brown SAND, little gravel, trace organic, trace clay, damp to moist A-1-b				5.8
				11.0
739.08	-5			
FILL - Brown CLAY LOAM, moist A-4/A-6 738.58				
FILL - Dark brown SAND, little to some gravel, trace clay, trace cinders, moist A-1-b 736.08				10.9
FILL - Gray and dark brown SAND and GRAVEL, trace organic, trace clay, moist A-1 734.58				10.2
	-10			
End of Boring at 9.5'				
Boring performed by hand auger methods				
	-15			
	-20			
	-25			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/9/04

Date Completed 6/9/04

ROUTE _____ DESCRIPTION U.P. Railroad over IL Route 25

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION West of West Abutment S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPIL25-1
Station 17+94
Offset 23.00ft RT
Surface Elev. 728.75 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling 705.3
at Completion 715.8
after _____ Hrs. _____

DEPTH	BLOWS	Qu tsf	W %
FILL - Black clayey Topsoil 727.65			
FILL - Brown SAND, trace gravel, damp A-1-b 725.75	5 5 5		5.6
FILL - Brown sandy SILT, moist A-4 723.25	5 6 7		18.6
-5			
	6 7 9		7.5
	6 7 8		6.0
-10			
	7 7 10		5.0
Medium dense brown SAND and GRAVEL, damp A-1			
	8 9 11		4.4
-15			
	8 12 12		5.3
	8 13 15		4.4
-20			
	7 10 11		3.6
705.75			
Medium dense brown SAND and GRAVEL, saturated A-1 703.75	8 6 7		13.3
-25			

DEPTH	BLOWS	Qu tsf	W %
Medium dense to dense brown SAND and GRAVEL, saturated A-1	10 5 5		10.3
699.25			
	15 18 23	B 3.9 15%	8.6 19.4
Very stiff brown and gray CLAY, moist A-6 698.25			
-30			
	6 8 10	B 2.1 15%	15.8
	6 9 12	B 1.9 15%	18.5
-35			
	5 7 11	B 2.3 15%	17.5
Very stiff gray CLAY, trace gravel, moist A-6			
	5 6 7	B 2.1 15%	18.4
-40			
	7 9 9	B 2.3 15%	17.4
-45			
	8 10 10	B 2.5 15%	16.8
-50			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

360

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/9/04

Date Completed 6/9/04

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. UPIL25-1
Station 17+94
Offset 23.00ft RT
Elevation 678.75 ft

DEPTH	BLOWS	Qu tsf	W %	Description
	7 9 11	B 2.7 15%	16.4	
-55				Very stiff gray CLAY, trace gravel, moist A-6
	8 10 15	B 2.4 15%	17.6	
-60				
665.75				
	7 9 50/1"	B 3.0 15%	19.6	Very stiff gray CLAY LOAM, some gravel, moist A-6
-65				
661.75				
	10 14 30		9.0	Dense gray silty fine SAND, trace gravel, moist A-1-b
-70				
656.75				
	8 10 11		17.1	Medium dense gray SAND, little gravel, saturated A-1-b
-75				

Elevation 653.75 ft

DEPTH	BLOWS	Qu tsf	W %	Description
				Medium dense gray SAND, little gravel, saturated A-1-b
651.75				
	10 13 13		17.9	
-80				
	8 10 10		16.8	Medium dense gray fine to medium SAND, saturated A-1-b
-85				
	10 10 12		19.0	
-90				
	8 10 13		14.6	
633.75 -95				End of Boring at 95.0' Diedrich D-120 Truck Rig (#282) CME Automatic Hammer 3.25" (83 mm) ID HSA
-100				

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/24/04

ROUTE _____ DESCRIPTION U.P. Railroad over IL Route 25 Date Completed 9/24/04

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION NE of West Abutment S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPIL25-2
Station 18+28
Offset 90.00ft LT
Surface Elev. 734.16 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling 675.7
at Completion 714.2
after _____ Hrs. _____

DEPTH	Description	BLOWS	Qu tsf	W %
	Brown fine SAND, trace clay, damp A-3 (possible fill)	6 6 7		11.3
731.16				
	Medium dense brown fine sandy SILT, moist A-4	5 5 7		16.0
-5				
728.66				
	Medium dense brown SAND and GRAVEL, damp A-1-a	10 10 12		3.3
726.16				
	Dense brown SAND, little gravel, damp A-1-b	12 16 19		2.6
-10				
723.66				
		10 10 16		2.8
		8 10 14		1.9
-15				
	Medium dense brown SAND, little to some gravel, damp A-1-a	10 13 13		3.5
		10 10 14		3.3
-20				
		8 12 16		2.1
711.16				
	Medium dense brown SAND and GRAVEL, damp A-1-a	11 13 14		3.9
709.16				
-25				

DEPTH	Description	BLOWS	Qu tsf	W %
	Hard brown CLAY, trace gravel, moist A-6	10 12 12	B 4.3 15%	13.7
706.16				
		6 8 10	B 2.7 15%	17.5
-30	Very stiff gray CLAY, trace gravel, moist A-6			
		7 7 8	B 2.2 15%	17.6
701.16				
		7 7 10	B 1.8 15%	17.9
-35				
		8 8 8	B 1.8 15%	18.3
		7 8 11	B 2.1 15%	16.4
-40	Stiff to very stiff gray CLAY, trace gravel, moist A-6			
		8 10 11	B 2.0 15%	17.5
-45				
		8 12 14	B 2.3 15%	19.1
684.16				
-50				

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

362

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/24/04

Date Completed 9/24/04

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. UPIL25-2
Station 18+28
Offset 90.00ft LT
Elevation 684.16 ft

DEPTH	BLOWS	Qu tsf	W %	Material
				Very stiff gray CLAY, trace gravel, moist A-6
	6 8 11	B 2.7 15%	19.0	
-55				
677.16				
				Medium dense gray SAND, trace gravel, saturated A-1-b
	6 9 10		9.2	
-60				
672.16				
	10 13 16		19.3	
-65				
				Medium dense to dense gray fine to medium SAND, saturated A-1-b
	10 13 18		19.3	
-70				
	11 13 16		17.1	
659.16	-75			

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Elevation 659.16 ft

DEPTH	BLOWS	Qu tsf	W %	Material
	14 18 21		17.9	
-80				
	13 18 21		18.0	
-85				
				Dense gray fine to medium SAND, saturated A-1-b
	12 16 19		15.5	
-90				
	10 17 20		14.1	
639.16	-95			
				End of Boring at 95.0 feet
				Diedrich D-120 Truck Rig (#282) CME Automatic Hammer
				3.25" (83 mm) ID HSA
	-100			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/14/04

ROUTE _____ DESCRIPTION U.P. Railroad over IL Route 25 Date Completed 6/14/04

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION East of Center Pier S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPIL25-3
Station 19+12
Offset 0.00ft LT
Surface Elev. 730.22 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling 712.2
at Completion _____
after _____ Hrs. _____

DEPTH	BLOWS	Qu tsf	W %	Soil Description
	12 18 22		2.9	
	8 12 13		3.3	Dense to medium dense brown SAND and GRAVEL, damp A-1
-5				
	8 10 12		3.8	
	7 8 12		4.7	
-10				
719.72				
	7 9 9		4.6	Medium dense brown fine to medium SAND, trace gravel, damp A-1-b
717.22				
	4 6 8		2.4	Medium dense brown SAND, little to some gravel, damp A-1
-15				
	5 7 7		2.4	
712.22				
	10 10 12		11.8	
-20				
	7 7 9		9.8	Medium dense brown SAND and GRAVEL, saturated A-1
706.22				
	22 11 10	B 4.1 15%	12.5 15.8	Hard brown and gray CLAY, moist A-6
705.22 -25				

DEPTH	BLOWS	Qu tsf	W %	Soil Description
	7 9 9	B 3.4 15%	15.9	
	6 6 7	B 2.2 15%	14.4	Very stiff gray CLAY, trace gravel, moist A-6
-30				
	5 7 8	B 2.1 15%	17.8	
-35				
693.22				
	8 8 9	B 1.9 15%	18.4	Stiff to very stiff gray CLAY, trace gravel, moist A-6
-40				
	6 7 7	B 2.3 15%	18.4	
-45				
	6 7 9	B 1.9 15%	18.9	
-50				

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/14/04

Date Completed 6/14/04

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. UPIL25-3
Station 19+12
Offset 0.00ft LT
Elevation 680.22 ft

DEPTH	BLOWS	Qu tsf	W %	
				Stiff to very stiff gray CLAY, trace gravel, moist A-6
-55	6 8 10	B 2.4 15%	18.3	
-60	5 7 10	B 1.7 15%	18.2	
-65	6 8 8	B 2.5 15%	19.2	
				663.22 Medium dense gray fine to medium SAND, saturated A-1-b
-70	7 10 13		18.7	
				658.22 Medium dense gray SAND, little to some gravel, saturated A-1
-75	7 10 13		12.6	

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Elevation 655.22 ft

DEPTH	BLOWS	Qu tsf	W %	
				Medium dense gray SAND, little to some gravel, saturated A-1
-80	7 9 9		13.5	
				648.22 Hard brown and gray CLAY LOAM, trace gravel, moist A-4/A-6
-85	16 22 24	B 5.8 15%	8.8	
				645.22 End of Boring at 85.0'
-90				Diedrich D-120 Truck Rig (#282) CME Automatic Hammer
-95				3.25" (83 mm) ID HSA
-100				

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/15/04

Date Completed 6/15/04

ROUTE _____ DESCRIPTION U.P. Railroad over IL Route 25

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION NE of East Abutment S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPIL25-4
Station 19+50
Offset 56.00ft LT
Surface Elev. 730.56 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling 712.6
at Completion 715.6
after _____ Hrs. _____

DEPTH	BLOWS	Qu tsf	W %	Description
	8 7 10		3.0	
	7 7 9		4.3	
-5				
	6 8 8		3.8	
				Medium dense brown SAND and GRAVEL, occasional Cobbles, damp A-1
	7 9 9		2.9	
-10				
	8 8 8		3.5	
	6 7 8		3.4	
-15				
	8 8 9		3.9	
712.56				
	5 5 5		19.5	Medium dense brown SAND, little gravel, saturated A-1-b
-20				
710.06				
	5 9 18		13.4	Medium dense brown SAND and GRAVEL, saturated A-1-a
707.56				
	8 6 8	B 2.9 15%	13.0	Very stiff gray CLAY, moist A-6
705.56 -25				

DEPTH	BLOWS	Qu tsf	W %	Description
	8 8 10	B 4.1 15%	16.3	
				Hard gray CLAY, trace gravel, moist A-6
	10 13 13	B 4.8 15%	12.4	
-30				
698.56				
	5 7 7	B 2.2 15%	16.7	
-35				
	6 8 10	B 2.2 15%	17.2	Very stiff gray CLAY, trace gravel, moist A-6
-40				
	7 9 9	B 2.1 15%	18.1	
-45				
	8 10 10	B 2.6 15%	18.8	
-50				

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/15/04
Date Completed 6/15/04

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. UPIL25-4
Station 19+50
Offset 56.00ft LT
Elevation 680.56 ft

DEPTH	BLOWS		Qu tsf	W %
	6 8 8	B	2.3 15%	18.9
-55				
	7 7 9	B	2.4 15%	20.3
-60				
	7 8 9	B	2.3 15%	18.8
-65				
	7 7 9	B	2.3 15%	22.2
-70				
	10 12 15	B	1.4 15%	13.5
-75				

Very stiff gray CLAY, trace gravel, moist
A-6

658.56

Stiff brown and gray CLAY LOAM, trace to little gravel, moist A-4/A-6

655.56

Elevation 655.56 ft

DEPTH	BLOWS		Qu tsf	W %
	17 16 21	S	3.9 10%	9.4
-80				
	57 50/4"			17.2
-85				
-90				
-95				
-100				

Stiff brown and gray CLAY LOAM, trace to little gravel, moist A-6

653.56

Very stiff to hard brown CLAY LOAM, trace to little gravel, damp
A-4/A-6

648.56

Very dense gray silty fine SAND, moist
A-1-b

645.56

End of Boring at 85.0'

Diedrich D-120 Truck Rig (#282)
CME Automatic Hammer

3.25" (83 mm) ID HSA

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

367

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/23/04

Date Completed 9/23/04

ROUTE _____ DESCRIPTION U.P. Railroad over IL Route 25

SECT. 98-00214-02-BR STRUCT. NO. 045-3168 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION SE of East Abutment S. 1 - SW 1/4 , TWP. 40 N , RNG. 8 E

Boring No. UPIL25-5
Station 20+11
Offset 41.00ft RT
Surface Elev. 730.94 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling 692.9
at Completion 690.9
after _____ Hrs. _____

DEPTH	Description	BLOWS	Qu tsf	W %
	FILL - Brown CLAY, damp A-1			
	729.94			
	FILL - Brown SAND and GRAVEL, damp A-1	6 6 8		3.1
	727.94			
	FILL - Dark brown SAND with some clay, little gravel, damp A-1-b	28 10 12		5.2
-5	725.44			
	Medium dense to dense brown SAND and GRAVEL, damp A-1	14 10 12		2.9
		10 15 15		3.0
-10	720.44			
		14 12 12		3.1
		10 8 10		3.9
-15				
	Medium dense brown SAND and GRAVEL, damp A-1	13 12 12		2.7
		10 10 13		2.8
-20				
		11 10 14		2.5
	707.94			
	Medium dense brown SAND, trace gravel, damp A-1-b	14 14 15		3.2
	705.94			
-25				
	Dense brown SAND, trace to little gravel, moist to wet A-1-b	8 14 18		8.2
	702.94			
	(Qp - 3.0 tsf)	7 9 12	B 2.0 15%	12.9
-30				
	Very stiff to stiff gray CLAY, trace gravel, moist A-6	8 10 12	B 2.3 15%	11.9
		8 11 12	B 1.9 15%	11.8
-35				
		10 8 10	B 2.1 15%	13.5
	692.94			
	Medium dense gray clayey SAND, little gravel, moist A-2-4	8 8 10	S 0.6 15%	13.0
-40				
	688.94			
		7 9 12	B 2.1 15%	15.9
-45	Very stiff gray CLAY, trace gravel, moist A-6			
		9 10 11	B 2.3 15%	18.6
-50				

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

368

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/23/04
Date Completed 9/23/04

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. UPIL25-5
Station 20+11
Offset 41.00ft RT
Elevation 680.94 ft

DEPTH	BLOWS	Qu tsf	W %
Very stiff gray CLAY, trace gravel, moist A-6			
	7 7 10	B 2.3 15%	18.5
-55			
673.94			
Medium dense gray SAND, little gravel, saturated A-1-b			
	8 8 9		12.0
-60			
668.94			
	11 13 17		19.2
-65			
Dense gray fine to medium SAND, saturated A-1-b			
	10 17 20		13.3
-70			
658.94			
Very dense gray fine to medium SAND, saturated A-1-b			
	100/3"		15.4
-75			

STRUCTURE NO. 045-3168
ROUTE
SECTION 98-00214-02-BR
COUNTY Kane

Elevation 655.94 ft

DEPTH	BLOWS	Qu tsf	W %
Very dense gray fine to medium SAND, saturated A-1-b			
	100/5"		12.5
-80			
648.94			
Very dense gray SAND, little to some gravel, saturated A-1-b			
	48 50/4"		8.2
-85			
643.94			
	7 12 16		21.0
-90			
Medium dense brown and gray fine SAND, saturated A-3			
	8 12 15		18.0
635.94 -95			
End of Boring at 95.0 feet			
Diedrich D-120 Truck Rig (#282) CME Automatic Hammer			
3.25" (83 mm) ID HSA			
-100			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

369

Geo Services, Inc.
Geotechnical, Environmental and Civil Engineering
An MBE - DBE Firm

May 26, 2011

Alfred Benesch and Company
205 N. Michigan Avenue
Suite 2400
Chicago, Illinois 60601

Attention: Ms. Joann Majewski

Job No. 08032

Re: Structure Geotechnical Report –Stearns Road Retaining Wall
Project: Stearns Road, IL-25 and Dunham Road
Structure No. TBD
Section No. 0700214-15BR
Kane County, IL

Dear Ms. Majewski:

The following report presents the geotechnical analysis and recommendations for the construction of a proposed retaining wall on the north side of IL-25 in Kane County, IL. A total of three (3) structural soil borings (RW-01 through RW-03) were completed at the site by Geo Services, Inc. (GSI). Copies of the boring logs and location diagram are included in the Appendix to this report.

If there are any questions with regard to the information submitted in this report, or if we can be of further assistance to you in any way, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, INC.

Andrew J. Ptak, P.E.
Office Manager

enc.

805 Amherst Court, Suite 204 ♦ Naperville, IL 60565-3448 ♦ Phone (630) 305-9186 ♦ Fax (630) 355-2838
www.geoservicesinc.net

TABLE OF CONTENTS

SECTION 01: INTRODUCTION

This report presents the results of the geotechnical investigation for a proposed retaining wall along the north side of IL-25, east of Gilbert Street in Kane County, IL. The wall will be a cut wall retaining approximately 3 to 9 feet of earth.

The results of the structure borings completed by Geo Services, along with site location map, boring location diagram and soil profiles found in Appendix B, are included with this report.

As drilled-boring locations were selected by Geo Services, Inc. and were reviewed and approved by Benesch. Boring locations were laid out in the field by project surveyors at the proposed locations. Final boring locations and elevations were provided by Benesch and are shown on the boring logs and drawings.

This report includes recommendations pertaining to the design and construction of the retaining wall, a description of soil and groundwater conditions, general construction considerations for the site, site location map, boring location diagram/soil profile and boring logs.

As part of the IL Route 25 Reconstruction Project, roadway widening at IL Route 25 mainline is proposed to add one additional lane in both directions of traffic.

SECTION 02: SUBSURFACE INVESTIGATION PROCEDURES

The borings were performed during the months of April, 2011, with a truck-mounted drilling rig equipped with an automatic hammer, and were advanced by means of rotary drilling methods. Representative soil samples were obtained employing split spoon sampling procedures in accordance with AASHTO Method T-206. Samples obtained in the field were returned to our laboratory for further examination and testing.

Split spoon sampling involves driving a 2.0-inch outside diameter split-barrel sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. Blow counts are recorded at 6" intervals and the blow counts are shown on the boring logs. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). The N value is an indication of the relative density of the soil.

SECTION 03: LAB TESTING PROGRAM

The test procedures were performed in accordance with test procedures discussed in the IDOT Geotechnical Manual. All split-spoon samples obtained from the drilling operation were visually classified in the field. Cohesive samples were tested for unconfined compressive strength using an IDOT modified RIMAC test device and/or calibrated penetrometer in the field.

The soil testing program included performing water content, density and either unconfined compression and/or calibrated penetrometer tests on the cohesive samples recovered. Water content tests were performed on the non-cohesive samples recovered. These tests were performed upon representative portions of the samples obtained in the field. The results of the above testing, along with a visual classification of the material based upon both the Illinois textural classification and the AASHTO Soil Classification System, are indicated on the boring logs.

SECTION 04: SUBSURFACE CONDITIONS

Boring logs are located in Appendix C and can be seen on the profile located in Appendix B. Below is a summary of the soil condition at the wall location.

Retaining Wall (RW-01 through RW-03)
Soil conditions at the surface consist of 3 inches of asphalt of loose sand and gravel fill. Fill or apparent fill consisting of loose to medium dense sand and gravel or sandy clay loam extends to a depth of 5 to 8 feet. Underlying the fill, the natural soil consists of medium dense to very dense sand and gravel to a depth of 25 to 30 feet. The soil then transitions to a medium stiff to stiff, gray clay.

SECTION 05: WATER TABLE CONDITIONS

Groundwater was not encountered in the borings prior to switching to wash-rotary drilling methods at a depth of 10 feet. Based on the coloration change in the soils from brown to gray, we estimate the long-term groundwater level to be at 25 to 30 foot depth at the time of drilling. Fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending on variations in precipitation and surface runoff.

SECTION 06: GEOTECHNICAL ANALYSIS

Seismic Conditions

The site has a seismic acceleration coefficient of 0.036g (Seismic Category A) and a Soil Profile Type I; the project site is considered to be in a low seismic area and is considered a non-extreme event. Liquefiable layers and scour are not expected to impact the design of the new retaining walls.

Settlement Analysis

Based on the fact that no new fill is proposed as this is a cut wall and a review of the soil conditions based on the boring logs, no settlement concerns are noted.

Slope Stability Analysis

A maximum exposed wall height of the walls varie from approximately 3 to 9 feet. A slope stability factor of safety of greater than 2.0 and is in excess of the factor of safety of 1.7 set by IDOT for a cut wall, and there are no slope stability concerns with the retaining wall structures.

Bearing Strength Analysis

At the retaining wall location, we have calculated gross allowable bearing ranging from 3.0 kips per square foot. Additional information on bearing can be found in the Foundation Recommendation section of this report.

SECTION 07: FOUNDATION RECOMMENDATIONS

Recommended Wall Types

Considering these fairly low-height walls with a maximum exposed wall height of 3 to 9 feet, feasible wall types include MSE walls, soldier pile and lagging, sheeting walls or cantilever concrete walls. Soldier pile and lagging and sheeting walls are likely the most economical wall types of those listed since this is a cut wall and these walls will limit the need for excavation on the back-side of the wall for construction.

Shallow Foundation Recommendations

We recommend using a maximum, gross allowable bearing pressure of 3.0 kips per square foot for footing foundations founded in the loose to medium dense natural or fill sand soils based a minimum of 4 feet (3.5 feet for MSE wall) below proposed grade for design of the wall foundations and a factor of safety = 3.0. Settlement is anticipated to be 0.5 inch or less.

General Wall Design

If soils with less than adequate bearing strength are noted at the foundation level during footing construction, the weaker soils encountered at the base of the footings should be undercut to reach suitable bearing soils, and the undercut area filled with lean concrete or a suitable compacted structural (granular) fill material.

Structural fill utilized to support footings should be extended at least 6 inches beyond the proposed footing limits and then one foot horizontally for each one foot of fill placed below the base of the footing. This new fill should consist of inorganic material free of debris. Suitable fill materials include crushed granular materials corresponding to IDOT gradation CA-1, CA-6 or CA-7. The native sand and gravel soils found at the site should also be suitable for use as a structural fill.

The structural fill should be placed in maximum 8-inch loose lifts. The CA-6 and native sand and gravels should be compacted to a minimum of 95% of the maximum dry density obtained in accordance with ASTM Standard D-1557, modified Proctor method. The moisture content of the fill should be controlled within +2% of the optimum moisture content. The CA-1 and CA-7 materials can be compacted by placing in lifts and tamping with a backhoe bucket.

Embankment fill behind the retaining wall should be placed in compliance with Section 205 of the IDOT Standard Specifications for Road and Bridge Construction. Backfill behind the wall should consist of a compacted, free-draining granular material. A proper drainage system should be designed and provided behind the wall. The retaining wall should be designed by an IL-licensed Structural Engineer.

To provide adequate frost protection, we recommend the bottom of a concrete wall be a minimum of 4 feet below final grade and 3.5 feet below grade for an MSE wall.

Lateral Resistance Recommendations

Soldier pile and lagging as well as driven steel sheeting are viable wall types for construction. Table 1 contains a summary of lateral soil parameters to be used for design of soldier pile and lagging wall or steel sheeting.

TABLE 1 - SOIL PARAMETERS FOR LATERAL RESISTANCE

Material (Elevation)	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction (pci)	Strain
Loose to Medium Dense Sand and Gravel or Loam (Fill) (740 to 730)	120	30	-	25	-
Medium Dense SAND, GRAVEL (730 to 705)	125	34	-	125	-

Allowances should be made for any surcharge loads adjacent to the retaining structure. Drainage should be provided behind any walls.

For the design of yielding walls, it is recommended that a lateral active earth pressure of 40 psf per foot of depth be used above the water table assuming a free-draining granular backfill is utilized. For cohesive soils, a lateral active earth pressure of 55 psf per foot should be used. For non-yielding walls with granular backfill, a lateral at-rest pressure of 50 psf per foot should be used, assuming proper drainage. For cohesive soils, a lateral at-rest pressure of 65 psf per foot should be used. Allowances should be made for any surcharge loads adjacent to the retaining structure. Drainage should be provided behind the wall. The base of the retaining wall is anticipated to be founded in medium stiff to stiff clay soils. According to the NAVFAQ Design Manual 7.02, a value of 0.34 may be used for the coefficient of friction between the retaining wall and drained cohesive soils (this assumes a concrete base on the stiff cohesive soils). For an MSE wall soil mass (assuming granular fill) or a concrete base on approved granular structural fill, a friction angle of 28 degrees may be used, leading to a coefficient value of 0.53.

SECTION 08: GENERAL CONSTRUCTION CONSIDERATIONS

For soldier pile and lagging wall, lagging should be installed in stages after excavating in stages of 2 to 3 feet to minimize ground-loss behind the wall due to the granular nature of the existing soils.

If excavation for the proposed improvements are in excess of 4 feet, we recommend slopes be in accordance with OSHA safety standards and requirements for temporary side slopes. Movement of adjacent soils near the edge of and into excavation areas should be prevented. All excavations should be performed in accordance with the latest Occupational Safety and Health Administration (OSHA) requirements. Allowances should be made for any surcharge loads adjacent to the excavation areas.

SECTION 09: GENERAL QUALIFICATIONS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil & rock core samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's subsurface data or engineering analyses without the express written authorization of Geo Services Inc.

APPENDIX A

GENERAL NOTES

GENERAL NOTES

CLASSIFICATION

American Association of State Highway & Transportation Officials (AASHTO) System used for soil classification.

Cohesionless Soils

Relative Density	No. of Blows per foot N
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	Over 50

Cohesive Soils

Consistency	Unconfined Compressive Strength - qu (tsf)
Very Soft	Less than 0.25
Soft	0.25 - 0.5
Medium Stiff	0.5 - 1.0
Stiff	1.0 - 2.0
Very Stiff	2.0 - 4.0
Hard	Over 4.0

TERMINOLOGY

Streaks are considered to be paper thick. **Lenses** are considered to be less than 2 inches thick. **Layers** are considered to be less than 6 inches thick. **Stratum** are considered to be greater than 6 inches thick.

DRILLING AND SAMPLING SYMBOLS

SS:	Split Spoon 1-3/8" I.D., 2" O.D.	HS:	Housel Sampler
ST:	Shelby Tube 2" O.D., except where noted	WS:	Wash Sample
AS:	Auger Sample	FT:	Fish Tail
DB:	Diamond Bit - NX: BX: AX	RB:	Rock Bit
CB:	Carboloy Bit - NX: BX: AX	WO:	Wash Out
OS:	Osterberg Sampler		

Standard "N" Penetration: Blows per foot of a 140 lb. hammer falling 30" on a 2" O.D. Split Spoon

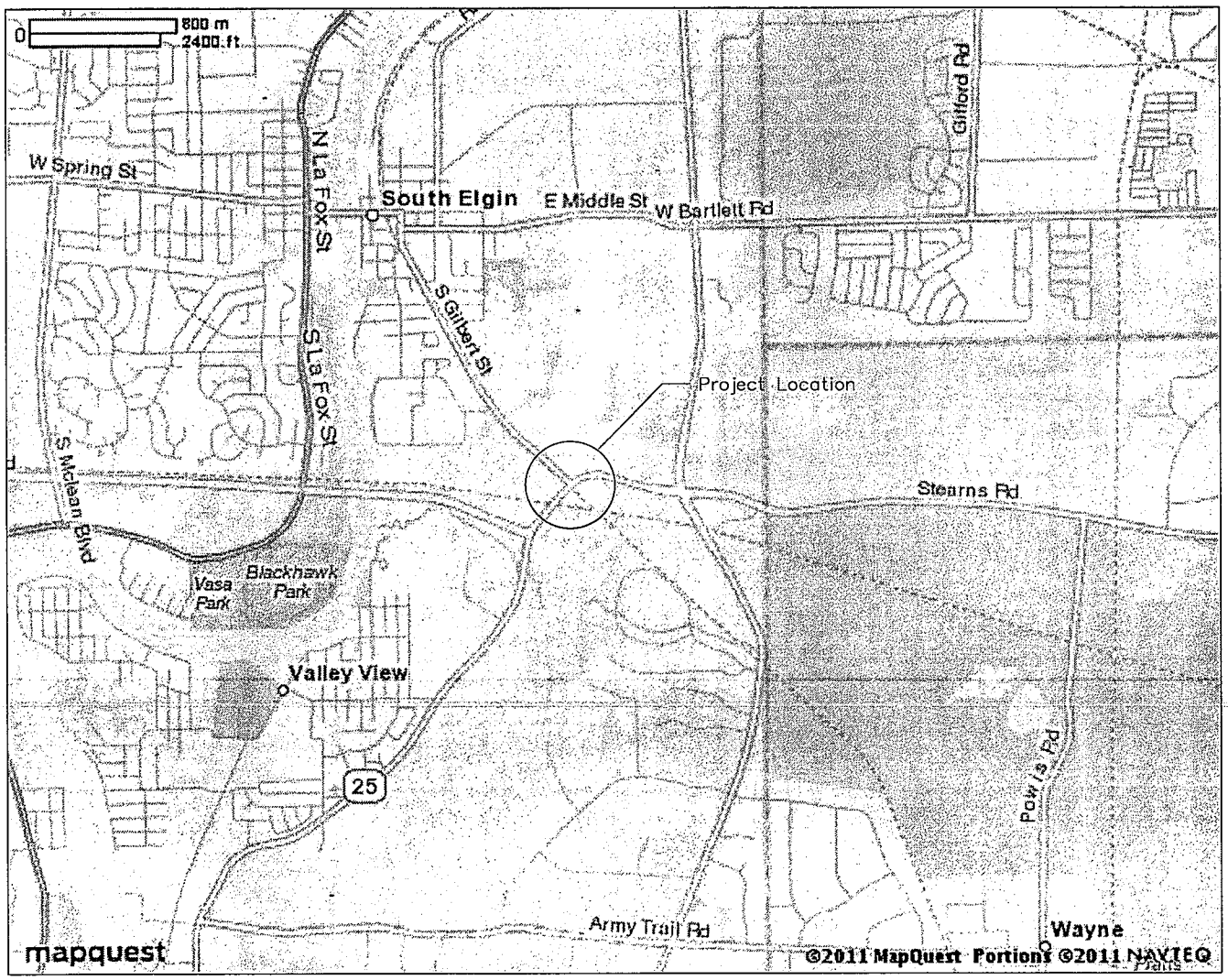
WATER LEVEL MEASUREMENT SYMBOLS

WL:	Water	WD:	While Drilling
WCI:	Wet Cave In	BCR:	Before Casing Removal
DCI:	Dry Cave In	ACR:	After Casing Removal
WS:	While sampling	AB:	After Boring

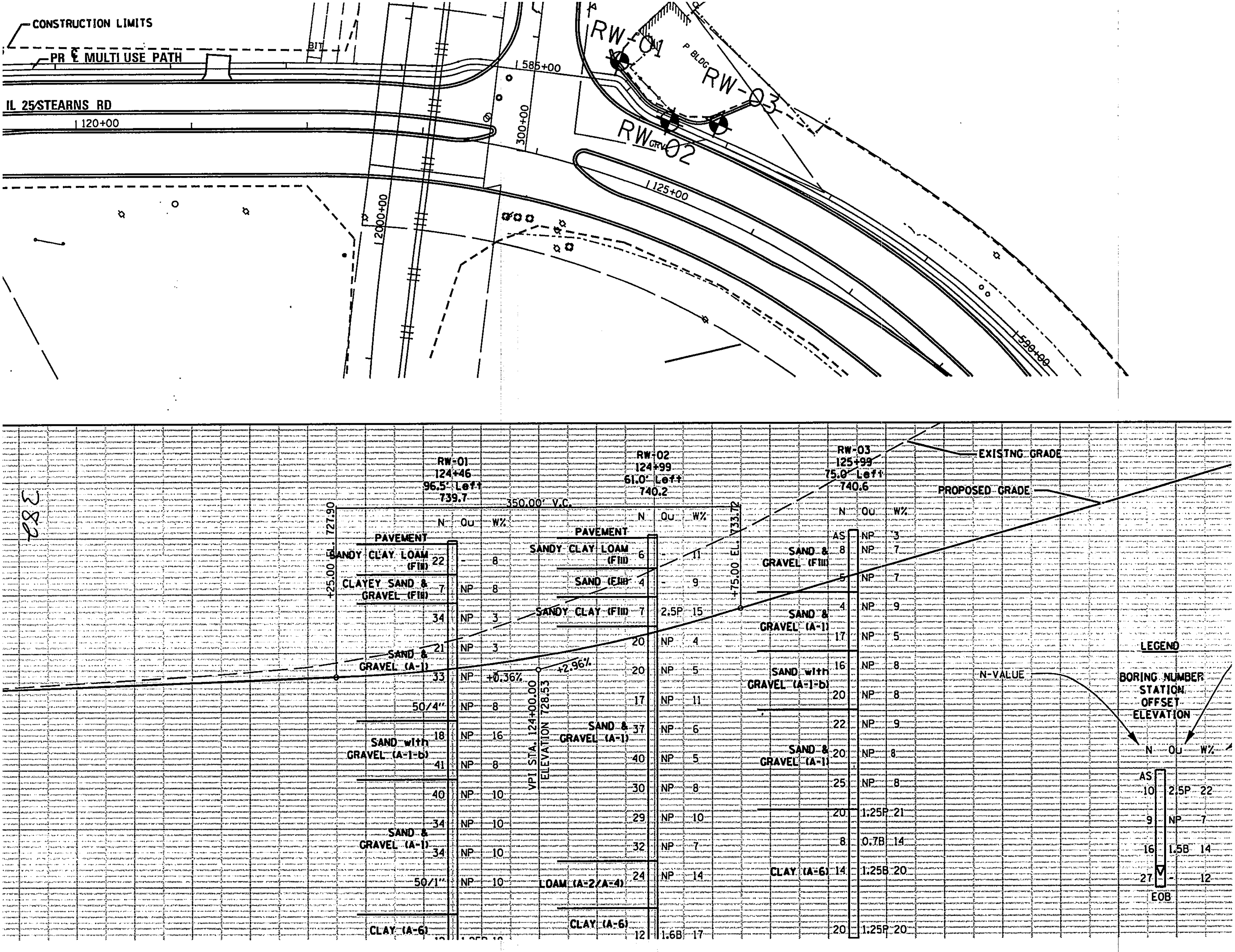
Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

APPENDIX B

SITE MAP, BORING LOCATION DIAGRAM AND SOIL PROFILE



SITE MAP			
Subsurface Investigation for Proposed Retaining Wall at IL–25/Gilbert Street Bartlett, Illinois	Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838	DRAWN BY	RWC
		APPROVED BY	AJP
		DATE	May 26, 2011
		GSI JOB No.	08032
		SCALE	Not To Scale



CONSTRUCTION LIMITS
PR ℄ MULTI USE PATH
IL 25/STEARNS RD
120+00
585+00
300+00
2000+00
125+00
590+00
BIT
RW-01
RW-02
RW-03
P BLDG
382
RW-01
124+46
96.5' Left
739.7
N Qu W%
PAVEMENT
SANDY CLAY LOAM (FIII) 22 - 8
CLAYEY SAND & GRAVEL (FIII) 7 NP 8
34 NP 3
21 NP 3
SAND & GRAVEL (A-1) 33 NP
50/4" NP 8
SAND with GRAVEL (A-1-b) 18 NP 16
41 NP 8
40 NP 10
34 NP 10
SAND & GRAVEL (A-1) 34 NP 10
50/1" NP 10
CLAY (A-6)
RW-02
124+99
61.0' Left
740.2
N Qu W%
PAVEMENT
SANDY CLAY LOAM (FIII) 6 - 11
SAND (FIII) 4 - 9
SANDY CLAY (FIII) 7 2.5P 15
20 NP 4
20 NP 5
17 NP 11
SAND & GRAVEL (A-1) 37 NP 6
40 NP 5
30 NP 8
29 NP 10
32 NP 7
LOAM (A-2/A-4) 24 NP 14
CLAY (A-6) 12 1.6B 17
RW-03
125+99
75.0' Left
740.6
N Qu W%
AS NP 3
SAND & GRAVEL (FIII) 8 NP 7
5 NP 7
4 NP 9
SAND & GRAVEL (A-1) 17 NP 5
16 NP 8
SAND with GRAVEL (A-1-b) 20 NP 8
22 NP 9
SAND & GRAVEL (A-1) 20 NP 8
25 NP 8
20 1.25P 21
8 0.7B 14
CLAY (A-6) 14 1.25B 20
20 1.25P 20
350.00' V.C.
+25.00 EL. 727.90
+75.00 EL. 733.72
VPI STA. 124+00.00
ELEVATION 728.53
+0.36%
+2.96%
EXISTNG GRADE
PROPOSED GRADE
LEGEND
BORING NUMBER
STATION
OFFSET
ELEVATION
N-VALUE
N Qu W%
AS
10 2.5P 22
9 NP 7
16 1.5B 14
27 - 12
EOB

APPENDIX C

BORING LOGS

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/25/2011

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 06-00214-15-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. –
Station –

BORING NO. **RW-01**
Station: 124+46
Offset: 96.5' Left
Ground Surface Elev. 739.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to 10' ▼
Upon Completion n/a ▽
After ____ Hrs. ____ ▽

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
739.4				3.0" ASPHALT
	10			SANDY CLAY LOAM–dark brown–medium dense (Fill)
	11			
	11	–	8	
736.7				
	3			Clayey SAND & GRAVEL–dark brown–loose (A–1) Apparent Fill
	3			
–5	4	NP	8	
734.2				
	8			
	14			
	20	NP	3	
	4			SAND & GRAVEL–brown–medium dense to very dense (A–1)
	8			
–10	13	NP	3	
	14			
	16			
	17	NP	7	
	20			
	42			
–15	50/4"	NP	8	
724.2				
	7			
	8			
	10	NP	16	SAND with GRAVEL–brown–medium dense to dense (A–1–b)
	14			
	19			
–20	22	NP	8	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
719.2				SAND with GRAVEL–brown (A–1–b)
	13			
	19			
	21	NP	10	
	13			
	16			
–25	18	NP	10	SAND & GRAVEL–brown–dense (A–1)
	12			
	15			
	19	NP	10	
	12			
	16			
–30	50/1"	NP	10	
707.7				
	3		*107*	CLAY–gray–stiff (A–6)
	5			
704.7 –35	7	1.25B	18	
				End Of Boring @ –35.0'
				Hollow Stem Augers To –10.0'
				Rotary Drilling To Completion
				Diedrich Automatic Hammer
–40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630)-355-2838

SOIL BORING LOG

PAGE 1 of 1
DATE 4/25/2011
LOGGED BY MD
GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR
SECTION 06-00214-15-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. –
Station –
BORING NO. **RW-02**
Station: 124+99
Offset: 61.0' Left
Ground Surface Elev. 740.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to 10'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				3.0" ASPHALT 739.9
	2			SANDY CLAY LOAM–dark brown–loose (Fill)
	3			
	3	–	11	
				737.2
	2			SAND–brown–very loose (A–3) Apparent Fill
–5	2			
	2	–	9	
				734.7
	2			SANDY CLAY–dark brown–very stiff (A–6) Possible Fill
	3			
	4	2.5P	15	
				732.2
	6			
	8			
–10	12	NP	4	SAND & GRAVEL–brown–medium dense to dense (A–1)
	6			
	9			
	11	NP	5	
	9			
	12			
–15	15	NP	11	
	16			
	18			
	19	NP	6	
	19			
	20			
–20	20	NP	5	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	13			
	14			
	16	NP	8	
	12			SAND & GRAVEL–brown–medium dense to dense (A–1)
	14			
–25	15	NP	10	
	9			
	13			
	19	NP	7	
712.2				
	9			
	12			
–30	12	NP	14	LOAM–brown–medium dense (A–2/A–4)
708.2				
	4		*110*	CLAY–gray–stiff (A–6)
	5			
705.2 –35	7	1.6B	17	
				End Of Boring @ –35.0' Hollow Stem Augers To –10.0' Rotary Drilling To Completion Diedrich Automatic Hammer
–40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

DATE 4/25/2011

LOGGED BY MD

GSI JOB No. 08032

ROUTE F.A. 361 DESCRIPTION Stearns Road (IL. Route 25) From Dunham Road To CC&P RR

SECTION 06-00214-15-BR LOCATION SEC. 1-SW 1/4, TWP. 40 N., RNG. 8 E., 3rd P.M.

COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE Diedrich Automatic

STRUCT. NO. –
Station –

BORING NO. **RW-03**
Station: 125+99
Offset: 75.0' Left
Ground Surface Elev. *740.6*

Surface Water Elev. *n/a*
Stream Bed Elev. *n/a*
Groundwater Elevation:
First Encounter *Dry to 10'* ▼
Upon Completion *n/a* ▽
After ____ Hrs. ____ ▽

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	AS	NP	3	SAND & GRAVEL–dark brown–loose (A–1) Apparent Fill
	3			
	4			
	4	NP	7	
	2			
	2			
–5	3	NP	7	
735.1				
	2			SAND & GRAVEL–brown–loose to medium dense (A–1)
	2			
	2	NP	9	
	6			
	8			
–10	9	NP	5	
730.1				
	6			SAND with GRAVEL–brown–medium dense (A–1–b)
	7			
	9	NP	8	
	7			
	9			
–15	11	NP	8	
725.1				
	6			SAND & GRAVEL–brown–medium dense (A–1)
	9			
	13	NP	9	
	8			
	9			
–20	11	NP	8	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	10			
	12			SAND & GRAVEL–brown–medium dense (A–1)
	13	NP	8	
716.6	10			
	10			
–25	10	1.25P	21	CLAY–brown–stiff (A–6)
715.1				
	3		*117*	
	4			
	4	0.7B	14	
	4		*110*	
	5			CLAY–gray–medium stiff to stiff (A–6)
–30	9	1.25B	20	
	6			
	9			
705.6 –35	11	1.25P	20	
				End Of Boring @ –35.0'
				Hollow Stem Augers To –10.0'
				Rotary Drilling To Completion
				Diedrich Automatic Hammer
–40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

TESTING SERVICE CORPORATION

Corporate Office
360 S. Main Place, Carol Stream, IL 60188-2404
630.462.2600 • Fax 630.653.2988

Local Offices:
1701 W. Market Street, Suite B, Bloomington, IL 61701-2641
309.821.0430 • Fax 309.821.1242

457 E. Gundersen Drive, Carol Stream, IL 60188-2492
630.653.3920 • Fax 630.653.2726

209 Cleveland Street, Suite C, Cary, IL 60013-2978
847.516.0505 • Fax 847.516.0527

650 Peace Road, Suite D, DeKalb, IL 60115
815.748.2100 • Fax 815.748.2110

401 Riverside Drive, Suite 24, Gurnee, IL 60031-5906
847.249.6040 • Fax 847.249.6042

203 Earl Road, Suite A, Shorewood, IL 60431-9408
815.744.1510 • Fax 815.744.1728

8201 W. 183rd Street, Suite C, Tinley Park, IL 60477-9249
708.429.2080 • Fax 708.429.2144

Geotechnical & Environmental Engineering

Construction Materials Engineering & Testing

Laboratory Testing of Soils, Concrete & Asphalt

Geo-Environmental Drilling & Sampling

Geotechnical Investigation

Summary and Recommendations for Foundation Support

Proposed Bridge Structures

IL 25/Stearns Road over E. Br. Brewster Creek

Kane County, Illinois

Alfred Benesch & Company

GEOTECHNICAL GROUP
CAROL STREAM

387

TSC
TESTING SERVICE CORPORATION

Corporate Office:
360 S. Main Place, Carol Stream, IL 60188-2404
630.462.2600 • Fax 630.653.2988

Local Office:
457 E. Gundersen Drive, Carol Stream, IL 60188-2492
630.653.3920 • Fax 630.653.2726

Local Office
March 8, 2005

Mr. M. Michael Okrent, P.E.
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601

RE: Proposed Bridge Structures
IL 25 / Stearns Road over E. Br. Brewster Creek
Kane County
TSC Project No. L-60,393

Dear Mr. Okrent:

TSC has completed five (5) structure borings for the proposed bridge structures carrying the new IL Route 25 and Stearns Road and mixed-use path over the East Branch of Brewster Creek. This report summarizes the results of the geotechnical investigation and provides recommendations for foundation support. This work was performed in accordance with TSC Proposal No. 21,010 (5th Revision) dated March 19, 2004 and the attached General Conditions which are incorporated herein by reference.

The proposed bridge site is located about 100 feet south and east of existing IL Route 25. It falls within the center portion of Section 1 of St. Charles Township (T 40 N, R 8 E). The property is currently owned by Elmhurst - Chicago Tile Company and is being used as a storage area.

The improvements are to include a divided highway consisting of two eastbound lanes and three westbound lanes separated by a 22 foot median. A new mixed-use path is also proposed on the north side of the roadway. The preliminary plans show three parallel bridge structures, including one for the eastbound lanes (32'-2" out to out), one for the westbound lanes (44'-3" out to out) and one for the mixed-use path. Each of the IL 25 / Stearns Road structures will be a single span bridge having a length of about 69.7 feet and integral type abutments. The proposed pavement elevation will be roughly 12 feet above existing ground at each of the borings or about 18 feet above the streambed elevation.

Summary of Work Performed

Five structure borings designated STEB-1 through STEB-4 and BKBR-1 (at northwest corner) were performed for the new bridge structures. Reference is made to the appended location plan showing general boring locations and the boring logs which identify the station, offset and elevation of each boring.

Drilling, sampling and testing procedures for these borings were in accordance with IDOT structure boring criteria. Each of the borings were extended to depths of 61 to 75 feet. Soil samples were taken in accordance with the Standard Penetration Test, for which driving resistance to a 2" split-spoon sampler (in blows per 6" interval) provides an indication of the relative density of granular soils and consistency of cohesive soils.

Unconfined compressive strength values were determined while drilling using a modified Rimac spring tester. Reference is made to the appended boring logs which indicate subsurface stratigraphy, soil descriptions and

results of field and laboratory test data.

Discussion of Results

Ground surface elevations at each of the borings were relatively constant (±6") ranging from 737.2 to 737.7. Each of the borings encountered earth Fill to depths of 5.5 to 6.5 feet. The Fill consisted of Sandy Loam, Clay Loam and Sand with varying amounts of black organic soil mixed in. Relatively low to moderate moisture contents (9-16%) were recorded for the Fill soils.

Borings STEB-1, STEB-2 and STEB-4 encountered a layer of black Clay Loam or Organic Clay underlying the Fill. The black organic soil layer had a thickness of about 1.5 to 2.5 feet but did reveal high moisture contents (42-66%) at STEB-2 and STEB-4.

Underlying soils in each boring typically consisted of interbedded layers of granular and cohesive soil types. These included Sand or Sand / Gravel, Clay, Clay Loam and Silt. The granular soil types were typically in a medium dense to very dense condition and the cohesive soils were very stiff to hard.

Very dense stratigraphy with SPT blow counts greater than 50 blows per foot was typically encountered at depths of 53 to 58 feet, except for BKBR-1 where very dense Sand was encountered at 42 feet. It should be noted the SPT blow counts in each boring except BKBR-1 were obtained using a CME automatic hammer, which has high efficiency, and a rope and cathead hammer was used in BKBR-1.

Free groundwater was encountered in each boring during the drilling operation. Initially, the free groundwater was encountered at depths of about 8 to 9 feet within the Sand / Gravel underlying the Fill and topsoil. However, at completion of drilling the water level had risen to a depth of only 4 feet (Elev. ±733.5) in most of the bore holes.

Recommendations for Foundation Support

Scour Potential

Each of the borings has encountered Sand / Gravel below the streambed elevation. The potential for scour may be significant for this bridge site. It is our understanding that Stone Rip-Rap will be placed on the slopes in front of the abutments for scour protection.

Spread Footings

The borings have encountered Fill soils to depths of 5.5 to 6.5 feet and underlying organic soil layers in three of the borings. Spread footings at the abutments would need to extend beneath the Fill and topsoil, which would then require footing construction beneath the water table in Sand / Gravel. In addition, the potential for scour will probably rule out spread footing foundations.

Pile Foundations

It will be required to support the abutments with pile foundations. The preliminary TS&L plan show the integral type abutments to have the bottom of pile cap at elevation 739.8 to 741.6 for the abutments. Therefore the bottom of pile cap should be about 2 to 4 feet above the ground surface at each of the borings.

Since the structure length is only about 69.7 feet from back to back of abutments (ie., less than 90 feet), it is within IDOT policy to utilize the 12-inch metal shell concrete pile (MSCP) for support of the integral type abutments. It is our understanding that a maximum allowable capacity of about 45 tons per pile would be used for these structures, in order to keep pile spacing within tolerable limits.

It should be noted that the borings did encounter occasional samples of dense granular soils or hard cohesive soils with high SPT blow counts (greater than 30 blows per foot), which raise concern with regard to the use of the metal shell concrete pile (MSCP). This was most noticeable at BKBR-1 for the mixed-use path, which may in part be the result of the rope and cathead hammer used at this boring. It is our opinion that the MSCP may have difficulty penetrating these soils and result in damage to the piles or limited penetration length. It may be required to have a wall thickness of at least 0.25-inch or greater on the MSCP. The driving equipment should be selected so that it can drive the piles to the required ultimate capacity at an adequate final penetration resistance and without inducing pile stresses that exceed allowable values. Once the driving equipment has been selected, a wave equation analysis should be performed by the Contractor to further analyze the required wall thickness of the MSCP. This will ultimately be confirmed during the driving of test piles.

An alternate pile type may consist of steel H-piles which are driven as friction piles, some of which may ultimately reach "refusal". It is our understanding that this is the preferred pile type by IDOT for integral type abutments. IDOT criteria stipulates that when steel H-piles are used as friction piles, that they be driven to 1.5 times the allowable design bearing capacity and test piles driven to an even greater capacity. Therefore, for an allowable design capacity of 45 tons, the production piles would need to be driven to a 67.5 ton bearing capacity and the test piles to capacities of 81 to 101 tons. It is recommended that the design plans stipulate the required driven capacities for both production piles and test piles.

Use of the 12-inch MSCP will probably result in a cost savings over the steel H-piles. However, the MSCP will incorporate greater risk of problems associated with driving the piles. It is our opinion that the design plans should show the steel H-piles with allowable bearing capacity of 45 tons per pile, which are driven to a capacity of 67.5 tons. The Contractor may propose to select the 12-inch MSCP at his own discretion, based on his analysis and experience with similar soil conditions. Summarized in the following table are the estimated tip elevations and pile lengths for 12-inch metal shell concrete piles and steel H-piles having an allowable capacity of 45 tons per pile.

Estimated Pile Lengths* and Tip Elevations
Factor of Safety = 3.0

Boring and Location	Bottom of Pile Cap Elevation	12" MSCP 45 Ton Cap.	HP 12 Section 45 Ton Cap. (Drive to 67.5 Tons)
STEB-1 (EB West Abut.)	741.6	49 feet (695)	62 feet (682)
STEB-2 (EB East Abut.)	741.2	61 feet (682)	65 feet (678 Ref)
STEB-3 (WB West Abut.)	740.2	57 feet (685)	72 feet (670)
STEB-4 (WB East Abut.)	739.8	62 feet (680)	72 feet (676)
BKBR-1 (Mixed-Use West Abut.)	740.0 est.**	47 feet (695)	54 feet (688)

*. Pile lengths include 2.0 feet embedment into pile cap for integral abutments.
** The pile cap elevation of the mixed-use path has been estimated.
Ref - Indicates refusal elevation on possible rock surface.

The above estimated pile lengths are being provided for contract estimates. The actual pile lengths should be determined during installation based on resistance to driving criteria. It is recommended that at least one test pile be driven at each abutment prior to ordering piles for production driving. It is recommended the H-piles be provided with metal pile shoes (pile points) due to the presence of cobbles and possible boulders in the deeper zones of soil stratigraphy.

Embankment Construction and Settlement

Borings STEB-2 and STEB-4 have encountered a buried layer of black organic Clay on the east side of the creek. The organic soil layer has high moisture contents (42-66%) and is potentially compressible beneath the weight of new embankment Fill. It has limited thickness of about 2 to 2.5 feet and is buried at a depth of about 6 to 8 feet. This may represent a buried creek channel or swampy area on the east side of the existing creek.

The proposed pavement grade at the abutments is about 12 feet above ground surface at the boring locations. It is estimated that the buried layer of organic Clay may result in 2 to 3 inches of settlement at the east abutments and approach slabs. It is recommended that the existing Fill materials and buried organic layer on the east side of the creek be removed and replaced with suitable earth embankment and PGES materials. Stripping on the west side of the creek should otherwise be limited to removal of surficial topsoil. Summarized in the following table is the recommended depth of stripping and undercutting at each boring.

Removal and Replacement of Unsuitable Soils

Boring Number and Location	Station and Offset	Recommended Undercut		Thickness PGES
		Depth	Bottom Elev.	
STEB-1 (EB West Abut.)	138+16, 43' RT	0.5 feet TS	737.1	NR
STEB-2 (EB East Abut.)	138+91, 8' RT	8.0 feet OC	729.7	4.5 feet
STEB-3 (WB West Abut.)	137+88, 28' LT	0.5 feet TS	736.8	NR
STEB-4 (WB East Abut.)	139+36, 67' LT	8.0 feet OC	729.2	4.5 feet
BKBR-1 (Mixed-Use West Abut.)	138+35, 71' LT	NR	NR	NR

OC Fill over Organic Clay layer with high moisture contents (42-66%).
TS Dark brown and black clayey Topsoil
PGES Porous Granular Embankment - Subgrade
NR Not Required

The horizontal limits of removal on the east side of the creek should extend to 2V:1H from the back of curb and to a distance at least 75 feet east of the east abutments. Please note that only earth Fill and buried Organic Clay layer should be removed east of the creek, which will extend to variable depths in the area of Borings STEB-2 and STEB-4.

It should be expected that the deep undercut on the east side of the creek will encounter groundwater seepage problems as discussed below. Replacement Fill below the water table should consist of granular materials to facilitate placement and compaction. It is recommended the contract quantities include about 4.5 feet of Porous Granular Embankment - Subgrade (PGES) materials. The coarse granular Fill should not be placed within limits of proposed abutment piles.

Groundwater Management

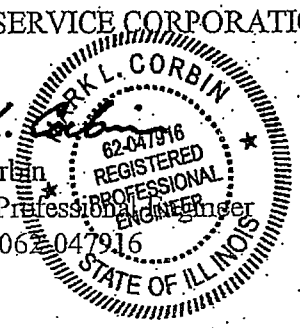
Each of the structure borings for the bridge encountered free groundwater at depths of about 4 feet (Elev. ±733.5). The free groundwater was typically associated with permeable layers of Sand or Sand / Gravel. It should therefore be expected that any excavations extending below Elev. ±733.5 will encounter problems associated with the accumulation of significant seepage. This condition should be expected for the deep undercut on the east side of the creek. The contractor should be prepared to provide adequate dewatering of the excavations by continuous pumping from multiple wells or a well point system.

Closure

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated on the appended plan. This report does not reflect any variations which may occur between these borings, the nature and extent of which may not become evident until during the course of construction. If variations are then identified, recommendations contained in this report should be re-evaluated after performing on-site observations.

Respectfully submitted,

TESTING SERVICE CORPORATION



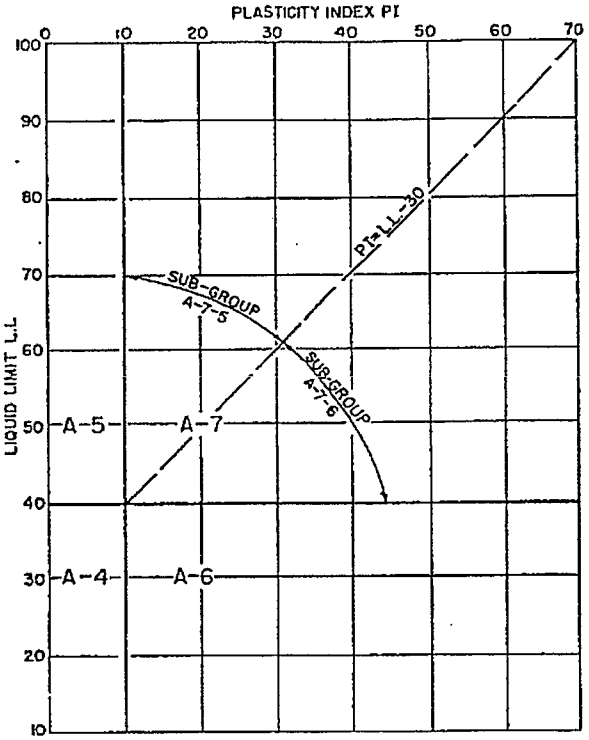
Mark L. Corbin
Registered Professional Engineer
Illinois No. 062-047916

TESTING SERVICE CORPORATION
AASHTO CLASSIFICATION CHART

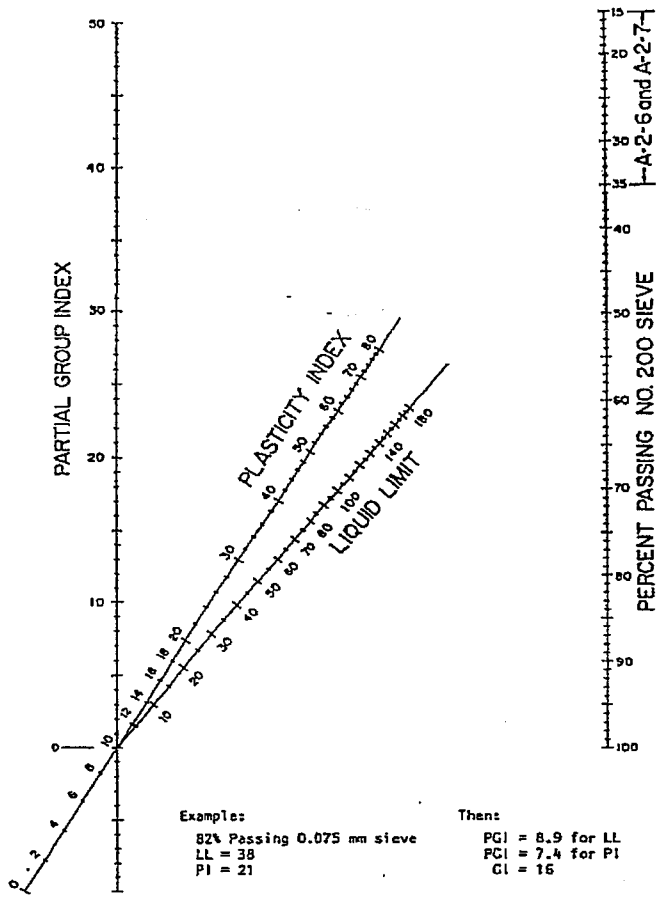
Group Index (GI) = (F-35)[0.2+0.005 (LL-40)]+0.01(F-15)(PI-10)
where F = % Passing 0.075 mm sieve, LL = Liquid Limit,
and PI = Plasticity Index

When working with A-2-6 and A-2-7 subgroups the Partial Group Index (PGI) is determined from the PI only.

When the combined Partial Group Indices are negative, the Group Index should be reported as zero.



Liquid Limit and Plasticity Index Ranges for the A-4, A-5, A-6 and A-7 Subgrade Groups



Example:
82% Passing 0.075 mm sieve
LL = 38
PI = 21

Then:
PGI = 8.9 for LL
PGI = 7.4 for PI
GI = 16

AASHTO SOIL CLASSIFICATION SYSTEM

General Classification	*Granular Materials (35% or less passing No. 200)*							*Silt-Clay Materials (more than 35% passing No. 200)*			
	A-1			*A-2*							*A-7*
Group Classification	*A-1-a*	*A-1-b*	*A-3*	*A-2-4*	*A-2-5*	*A-2-6*	*A-2-7*	*A-4*	*A-5*	*A-6*	*A-7-5, A-7-6*
Sieve analysis, % passing:											
No. 10	50 max	.....	.....	.....	.....	.....	.....	.....	.....	.....	
No. 40	30 max	50 max	51 min	.....	.....	.....	.....	.....	.....	.....	
No. 200	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of fraction passing No. 40:											
Liquid limit	.....		.....	40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Plasticity index	6 max		N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11 min†
Usual types of significant constituent materials	Stone fragments, gravel and sand		Fine sand	Silty or clayey gravel and sand				Silty soils		Clayey soils	
General rating as subgrade	Excellent to good					Fair to poor					

† Plasticity index of A-7-5 subgroup is equal to or less than LL minus 30. Plasticity index of A-7-6 subgroup is greater than LL minus 30.

TESTING SERVICE CORPORATION

LEGEND FOR BORING LOGS
(FPS Units)

SAMPLE TYPE:

All soil samples were taken in accordance with the Standard Penetration Test, for which driving resistance to a 2 inch split-spoon sampler provides an indication of the relative density of granular materials and consistency of cohesive soils.

FIELD AND LABORATORY TEST DATA:

N	=	Standard Penetration Resistance in Blows per 6 inch interval.
WC	=	In-Situ Water Content in percent
Qu	=	Unconfined Compressive Strength in tons per square foot (tsf).
	*	= Hand Penetrometer Measurement; Max. Reading = 4.5+ tsf
	B	= Bulge failure using modified Rimac spring tester
	S	= Shear failure using modified Rimac spring tester

SOIL DESCRIPTION:

MATERIAL	PARTICLE SIZE RANGE
BOULDER	Over 12 inch
COBBLE	12 - 3 inch
Coarse GRAVEL	3 - ¾ inch
Small GRAVEL	¾ inch to No. 10 Sieve
Coarse SAND	No. 10 Sieve to No. 40 Sieve
Fine SAND	No. 40 Sieve to No. 200 Sieve
SILT and CLAY	Passing No. 200 Sieve

COHESIVE SOILS

CONSISTENCY	Qu (tsf)
Very Soft	Less than 0.3
Soft	0.3 to 0.6
Medium Stiff	0.6 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	4.0 and over

COHESIONLESS SOILS

RELATIVE DENSITY	N
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 and over

MODIFYING TERM	PERCENT BY WEIGHT
Trace	1 - 10
Little	10 - 20
Some	20 - 35

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/10/04
Date Completed 9/10/04

ROUTE _____ DESCRIPTION Mixed-Use Bridge over E. Br. Brewster Creek

SECT. 98-00214-02-BR STRUCT. NO. _____ DRILLED BY TSC L-60,393

COUNTY Kane LOCATION West Abutment S. 1 - Cntr , TWP. 40 N , RNG. 8 E

Boring No. BKBR-1
Station 138+35 BL IL25/Stearns
Offset 71.00ft LT
Surface Elev. 737.53 ft

Surface Water Elev. _____
Groundwater Elev.:
when drilling 731.5
at Completion _____
after _____ Hrs. _____

DEPTH	BLOWS	Qu tsf	W %	DEPTH	BLOWS	Qu tsf	W %
FILL - Gravel 737.23							
FILL - Brown and black SANDY LOAM, little gravel, moist A-4 734.53	12 14 25	S 4.1 5%	9.0				
FILL - Brownish-gray SANDY LOAM, trace gravel, moist A-2-4/A-4 732.03	7 10 8	S 1.0 5%	8.9				
-5					7 11 16	B 2.4 15%	18.3
Dense gray SAND and GRAVEL, saturated A-1	9 18 22		11.7	Very stiff gray CLAY, trace gravel, moist A-6 705.53	9 9 19	B 3.2 15%	18.2
-10	10 17 23		11.5	-30			
Dense gray SAND and GRAVEL, occasional Cobbles, saturated A-1-a 724.53	13 18 22		10.8	Medium dense gray fine to medium SAND; trace gravel, saturated A-1-b 700.53	13 15 14		12.9
-15				-35			
Hard gray CLAY, trace gravel, moist A-6 722.03	10 14 16	B 6.6 15%	15.0	Medium dense clayey SAND, trace gravel, moist A-2-4 695.53	5 7 9	B 0.2 15%	11.4
-20	8 10 13	B 2.1 15%	13.4	-40			
Very stiff gray CLAY, trace gravel, moist A-6	9 12 15	B 2.7 15%	15.6	Very dense gray fine SAND, wet A-3 690.53	21 25 44		14.8
-25	9 12 16	B 2.9 15%	16.0	-45			
	6 10 18	B 2.3 15%	17.6	Very dense GRAVEL, little sand, saturated A-1-a	40 50/5"		6.4
				-50			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT_BORING 60393.GPJ IDOT.GDT 3/8/05

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 9/10/04
Date Completed 9/10/04

STRUCTURE NO. _____
ROUTE _____
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. BKBR-1
Station 138+35 BL IL25/Stearns
Offset 71.00ft LT
Elevation 687.53 ft

DEPTH	BLOWS	Qu tsf	W %
Very dense gray GRAVEL, little sand, saturated A-1-a			
685.53			
Very dense gray silty fine SAND, wet A-2-4	43 50/5"		14.5
-55			
680.53			
Medium dense gray clayey SAND, little gravel, very moist A-1-b	6 7 12		8.9
-60			
675.53			
Dense gray fine to medium SAND, trace to little gravel, moist A-1-b	14 19 23		11.7
-65			
670.53			
Very dense gray silty SAND and GRAVEL, occasional Cobbles, wet A-1-a	100/6"		13.9
-70			
664.53			
Probable Dolomite Rock Surface (hard drilling) 663.53			
End of Boring at 74.0'			
-75			

STRUCTURE NO. _____
ROUTE _____
SECTION 98-00214-02-BR
COUNTY Kane

Elevation 662.53 ft

DEPTH	BLOWS	Qu tsf	W %
-80			
-85			
-90			
-95			
-100			

Gus Pech GP-750 Truck Rig (#217)
Rope and Cathead Hammer

Rotary Wash Drill

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT_BORING 60399.GPJ IDOT.GDT 3/8/05

ILLINOIS DEPARTMENT OF TRANSPORTATION

Testing Service Corporation

STRUCTURE BORING LOG

Date Started 6/8/04

Date Completed 6/8/04

ROUTE F.A.P. 2503 DESCRIPTION IL Route 25/Stearns Road over E. Br. Brewster Creek

SECT. 98-00214-02-BR STRUCT. NO. 045-2033 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION South End EB West Abutment S. 1 - Cntr , TWP. 40 N , RNG. 8 E

Boring No. STEB-1
Station 138+16
Offset 43.00ft RT
Surface Elev. 737.60 ft

Surface Water Elev. —
Groundwater Elev.:
when drilling 729.1
at Completion 733.6
after — Hrs. —

DEPTH	BLOWS	Qu tsf	W %
FILL - Dark brown and gray SANDY LOAM, little gravel, moist 736.60			
	9 11 13	S 4.1 10%	15.7
FILL - Brown and gray CLAY LOAM, some black clay, trace to little gravel, moist A-6 734.60			
	7 5 7	B 0.7 15%	14.2
-5			
FILL - Brown and gray SANDY LOAM, trace black clay, little gravel, moist A-2-4/A-4 732.10			
FILL - Black CLAY LOAM (topsoil), moist A-6 731.10	4 5 5	P 1.75	22.8 14.1
Black and dark brown clayey SAND, moist A-2-4 729.60			
	4 6 8		14.0
-10			
Medium dense to dense brown and gray SAND and GRAVEL, saturated A-1			
	10 12 22		9.9
723.60			
Very stiff gray CLAY, trace gravel, moist A-6	10 5 6	B 3.0 15%	11.3 18.8
-15			
722.10			
(trace organic seams)	6 5 5	B 1.9 15%	17.5
Stiff to very stiff gray clayey SILT, moist A-4/A-6	4 5 6	B 1.9 15%	19.4
-20			
(trace clay seams)	6 8 8	B 2.4 15%	19.9
714.60			
Stiff gray CLAY, moist A-6	6 4 5	B 1.2 15%	13.3
(Qp = 2.0 tsf) 712.60			
-25			

DEPTH	BLOWS	Qu tsf	W %
	4 5 7	B 1.3 15%	17.0
	5 5 5	B 1.2 15%	20.9
-30			
Stiff gray CLAY, trace gravel, moist A-6			
	6 7 9	B 1.8 15%	19.8
-35			
699.10			
Hard gray CLAY, trace gravel, moist A-6	10 18 22	B 5.5 15%	17.0
-40			
695.60			
	8 11 15		17.9
-45			
Medium dense gray SAND, trace gravel, wet A-1-b			
	9 10 14		16.5
687.60 -50			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT_BORING 60393.GPJ IDOT.GDT 3/8/05

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/8/04
Date Completed 6/8/04

STRUCTURE NO. 045-2033
ROUTE F.A.P. 2503
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. STEB-1
Station 138+16
Offset 43.00ft RT
Elevation 687.60 ft

Description	DEPTH	BLOWS	Qu tsf	W %
Dense gray SAND, trace gravel, saturated A-1-b	-55	9 12 20		14.9
	-60	9 22 28		15.6
675.60				
Very stiff to stiff gray CLAY LOAM with some gravel, moist A-4 & A-1	-65	22 24 28	P 2.0	11.3
668.60		18 28 33	P 1.75	14.0 11.7
Very dense gray silty fine SAND, wet A-1-b	-70			
664.60				
Probable Fractured Rock, hard drilling 663.60		100/2"		
End of Boring at 74.0'	-75			

STRUCTURE NO. 045-2033
ROUTE F.A.P. 2503
SECTION 98-00214-02-BR
COUNTY Kane

Elevation 662.60 ft

Description	DEPTH	BLOWS	Qu tsf	W %
	-80			
	-85			
	-90			
Diedrich D-120 Truck Rig (#282) CME Automatic Hammer 3.25" (83 mm) ID HSA	-95			
	-100			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

IDOT_BORING 60393.GPJ IDOT.GDT 3/8/05

ILLINOIS DEPARTMENT OF TRANSPORTATION

Testing Service Corporation

STRUCTURE BORING LOG

Date Started 6/8/04

Date Completed 6/8/04

ROUTE F.A.P. 2503 DESCRIPTION IL Route 25/Stearns Road over E. Br. Brewster Creek

SECT. 98-00214-02-BR STRUCT. NO. 045-2033 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION North End EB East Abutment S. 1 - Cntr , TWP. 40 N , RNG. 8 E

Boring No. STEB-2
Station 138+91
Offset 8.00ft RT
Surface Elev. 737.69 ft

Surface Water Elev. ____
Groundwater Elev.:
when drilling 728.2
at Completion 733.7
after ____ Hrs. ____

DEPTH	BLOWS	Qu tsf	W %
0			
FILL - Brown SAND, trace gravel 736.69			
FILL - Brown silty SAND, some black topsoil, llittle gravel, moist A-1-b 734.69	7 9 7		14.3
FILL - Dark brown and gray SANDY LOAM, trace organic, moist A-2-4 732.19	6 7 7	S 0.9 10%	15.0
-5			
Black CLAY LOAM (topsoil), very moist A-7-6 729.69	4 4 5	S 0.6 10%	42.1
Medium dense brown SAND and GRAVEL, occasional Cobbles, saturated A-1-a 724.69	10 11 11		9.8
-10			
	10 10 12		14.3
Very stiff brown and gray CLAY LOAM, trace gravel, moist A-6 722.19	5 5 7	B 2.0 15%	15.5
-15			
	6 8 10	S 2.3 10%	10.0
	6 10 12	B 4.8 15%	12.2
-20			
Very stiff to hard gray CLAY and CLAY LOAM, trace gravel, moist A-6	9 12 12	B 4.6 15%	11.8
	8 10 12	B 3.9 15%	16.0
712.69 -25			

DEPTH	BLOWS	Qu tsf	W %
	8 10 10	B 3.6 15%	17.2
Very stiff gray CLAY, trace gravel, moist A-6			
-30	5 5 5	B 3.0 15%	20.0
705.69			
	12 10 12	B 1.4 15%	11.8
Stiff to very stiff gray CLAY LOAM, trace gravel, moist A-6 -35			
700.69			
	7 9 9	S 0.4 15%	11.8
Medium dense gray clayey SILT and SAND, trace gravel, very moist A-4 -40			
695.69			
	5 5 6		14.7
Medium dense gray fine SAND, wet A-3 -45			
690.69			
Medium dense gray layers of SILT and fine SAND, moist -- A-4 and A-3	7 9 10		8.8
-50			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT BORING 60393.GPJ IDOT.GDT 3/6/05

Testing Service Corporation

STRUCTURE BORING LOG

Date Started 6/8/04

Date Completed 6/8/04

STRUCTURE NO. 045-2033
ROUTE F.A.P. 2503
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. STEB-2
Station 138+91
Offset 8.00ft RT
Elevation 687.69 ft

DEPTH	BLOWS	Qu tsf	W %
Medium dense gray layers of SILT and fine SAND, moist A-4 and A-3 685.69			
-55 Very stiff gray CLAY LOAM, trace to little gravel, moist A-4	7 9 11	P 3.25	8.9
680.69 Very dense gray CLAY LOAM with SAND layers, little sand and gravel, occasional Cobbles, moist A-4 and A-1-a 677.69	22 27 50/1"	B 5.9 15%	10.4
-60 Probable Fractured Rock, hard drilling 676.19	100/0.5"		
End of Boring at 61.5'			
Diedrich D-120 Truck Rig (#282) CME Automatic Hammer 3.25" (83 mm) ID HSA			
-65			
-70			
-75			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT_BORING 60393.GPJ IDOT.GDT 3/8/05

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/7/04
Date Completed 6/7/04

ROUTE F.A.P. 2503 DESCRIPTION IL Route 25/Stearns Road over E. Br. Brewster Creek

SECT. 98-00214-02-BR STRUCT. NO. 045-2033 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION North End WB West Abutment S. 1 - Cntr , TWP. 40 N , RNG. 8 E

Boring No. STEB-3
Station 137+88
Offset 28.00ft LT
Surface Elev. 737.32 ft

Surface Water Elev. ____
Groundwater Elev.:
when drilling 728.8
at Completion 733.3
after ____ Hrs. ____

DEPTH	BLOWS	Qu tsf	W %
	7 10 10	B 8.1 15%	14.4
FILL - Brown and gray CLAY LOAM, trace topsoil, trace gravel, moist A-6			
734.32			
	8 5 5	S 0.6 5%	12.4
FILL - Dark brown and gray SANDY LOAM, trace gravel, moist A-2-4/A-4			
-5			
731.82			
	5 5 4	S 0.6 10%	15.1
Stiff dark gray SANDY LOAM, moist A-2-4			
729.32			
	5 5 7		12.7
Medium dense gray SAND and GRAVEL, saturated A-1			
-10			
726.82			
	8 11 13		12.2
Medium dense brown SAND and GRAVEL, saturated A-1			
724.32			
	6 12 24	P 1.25	11.5
Dense to medium dense brown clayey SAND and GRAVEL, moist A-2-4			
-15			
	8 10 12	P 2.0	17.8
719.32			
	6 5 6	B 0.6 15%	19.3
Medium stiff gray SILTY CLAY LOAM, trace gravel, occasional silt seams, moist A-4/A-6			
-20			
	6 8 12	B 0.8 15%	20.1
714.32			
Very stiff gray CLAY, occasional silt seams, moist A-6	8 10 10	B 3.1 15%	12.9
712.32 -25			

DEPTH	BLOWS	Qu tsf	W %
	7 9 13	B 2.2 15%	12.7
	6 8 11	B 2.9 15%	17.5
-30			
Very stiff gray CLAY, trace gravel, moist A-6			
	6 8 10	B 2.7 15%	18.3
-35			
	5 7 14	B 2.5 15%	18.2
-40			
695.32			
Medium dense gray SAND, trace gravel, trace clay layers, moist A-1-b	8 12 16		9.4
-45			
690.32			
Medium dense gray sandy SILT, trace gravel, moist A-4	8 8 10		11.2
-50			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT BORING 60393.GPJ IDOT.GDT 3/8/05

ILLINOIS DEPARTMENT OF TRANSPORTATION
Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/7/04
Date Completed 6/7/04

STRUCTURE NO. 045-2033
ROUTE F.A.P. 2503
SECTION 98-00214-02-BR
COUNTY Kane

Boring No. STEB-3
Station 137+88
Offset 28.00ft LT
Elevation 687.32 ft

DEPTH	BLOWS	Qu tsf	W %	Description
				Medium dense gray sandy SILT, trace gravel, moist A-4
685.32				
	26 33 40		17.4	Very dense gray SILT, trace sand, moist A-4
-55				
680.32				
	12 10 12	S 2.9 5%	12.5	Medium dense gray clayey SILT, little sand, moist A-4
-60				
675.32				
	12 12 16		10.5	Medium dense gray SAND, trace gravel, saturated A-1-b
-65				
670.32				
	19 24 37		10.8	Very dense gray SAND, trace gravel, saturated A-1-b
-70				
665.32				
				Very dense gray SAND and GRAVEL, saturated A-1-a
663.12	48 27 50/1"	P 4.5+	7.9	
*** 662.32			11.2	
-75				

STRUCTURE NO. 045-2033
ROUTE F.A.P. 2503
SECTION 98-00214-02-BR
COUNTY Kane

Elevation 662.32 ft

DEPTH	BLOWS	Qu tsf	W %	Description
-80				
-85				
-90				***74.2' - 75.0' Hard gray SILTY CLAY LOAM, some gravel, moist A-4
-95				Diedrich D-120 Truck Rig (#282) CME Automatic Hammer 3.25" (83 mm) ID HSA
-100				End of Boring at 75.0'

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT_BORING 60393.GPJ IDOT.GDT 3/8/05

ILLINOIS DEPARTMENT OF TRANSPORTATION

Testing Service Corporation

STRUCTURE BORING LOG

Date Started 6/7/04

Date Completed 6/7/04

ROUTE F.A.P. 2503 DESCRIPTION IL Route 25/Stearns Road over E. Br. Brewster Creek

SECT. 98-00214-02-BR STRUCT. NO. 045-2033 DRILLED BY TSC L-60,393

COUNTY Kane LOCATION North End WB East Abutment S. 1 - Cntr , TWP. 40 N , RNG. 8 E

Boring No. STEB-4
Station 139+36
Offset 66.60ft LT
Surface Elev. 737.22 ft

Surface Water Elev. ____
Groundwater Elev.:
when drilling 729.2
at Completion 733.2
after ____ Hrs. ____

DEPTH	BLOWS	Qu tsf	W %
0			
FILL - Brown and gray SANDY LOAM, little gravel, 736.42	6 8 6	S 1.4 10%	11.9
FILL - Brown and gray CLAY LOAM, some black clay, trace gravel, moist A-4/A-6	10 13 10	S 1.2 10%	12.0
-5			
731.22	6 8 8	B 1.0 15%	66.1
Black ORGANIC CLAY, very moist A-7-6 729.22	9 8 8		9.3
-10			
Medium dense brown SAND and GRAVEL, saturated A-1	10 12 12		8.0
724.22	8 6 6	B 4.0 15%	14.3
-15			
Very stiff to hard gray CLAY, trace gravel, moist A-6	6 9 12	B 3.7 15%	14.9
719.22	6 8 8	B 2.2 15%	19.6
-20			
Very stiff to stiff gray CLAY, trace gravel, moist A-6	4 5 5	B 1.5 15%	21.6
714.22	8 10 12	B 3.5 15%	16.0
-25			
Very stiff gray CLAY, trace gravel, moist A-6 709.22	7 8 8	B 2.9 15%	19.2
-30	7 8 10		12.9
Medium dense brown and gray SAND, trace gravel, saturated A-1-b 705.22			
-35	7 9 12	P 1.0	17.5
Stiff gray CLAY LOAM, trace gravel, moist A-6 (disturbed sample) 700.22			
-40	5 6 6	B 0.4 15%	12.0
Medium dense gray SILTY LOAM, trace gravel, moist A-4 695.22			
-45	7 9 9	S 1.9 5%	11.9
Medium dense gray clayey SILT, trace gravel, moist A-4 690.22			
-50	9 13 15		11.8
Medium dense gray SILT, moist A-4			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT_BORING 60393.GPJ IDOT.GDT 3/8/05

Testing Service Corporation
STRUCTURE BORING LOG

Date Started 6/7/04
Date Completed 6/7/04

STRUCTURE NO. 045-2033
ROUTE F.A.P. 2503
SECTION 98-00214-02-BR
COUNTY Kane

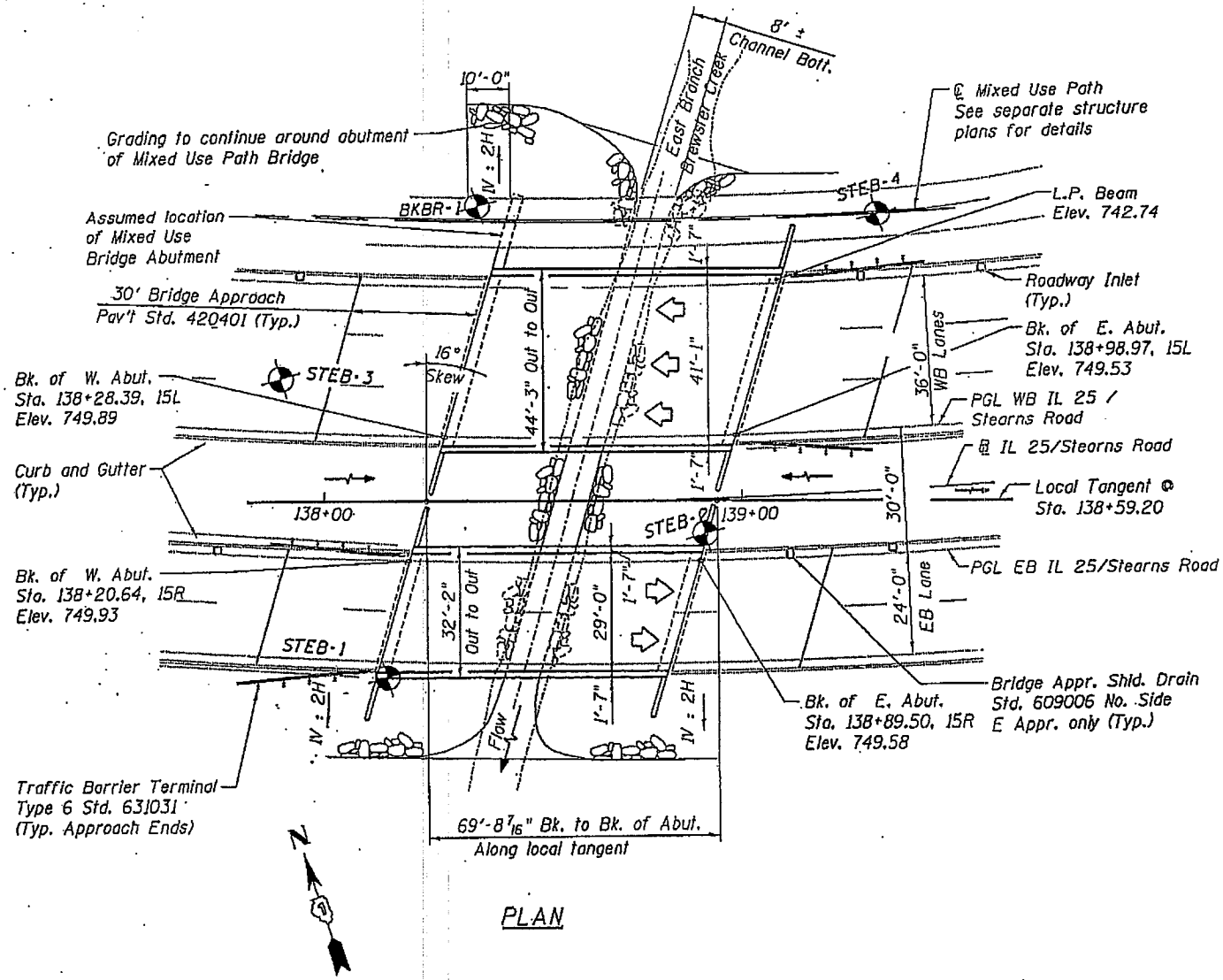
Boring No. STEB-4
Station 139+36
Offset 66.60ft LT
Elevation 687.22 ft

DEPTH	BLOWS	Qu tsf	W %
Medium dense gray SILT, moist A-4			
685.22			
	5 6 12		12.1
Medium dense gray SAND, trace gravel, saturated A-1-b -55			
680.22			
Very dense Cobbles and Boulders, (rock fragments recovered)	100/1"		
-60			
675.22			
Very stiff gray SILTY CLAY LOAM, moist A-6			
673.22	7 22 49	B 2.9 15%	11.2
Very dense Boulder or Fractured Rock 672.22 -65			
	100/0"		
Auger Refusal at 65.0'			
Diedrich D-120 Truck Rig (#282) CME Automatic Hammer			
3.25" (83 mm) ID HSA			
-70			
-75			

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test
Stations, Depths, Offset, and Elevations are in Feet

ILDOT_BORING 60393.GPJ IDOT.GDT 3/8/05

405


8' ± Channel Bott.
East Branch Brewster Creek
10'-0"
1V : 2H
Grading to continue around abutment of Mixed Use Path Bridge
℄ Mixed Use Path See separate structure plans for details
BKBR-1
STEB-4
L.P. Beam Elev. 742.74
Assumed location of Mixed Use Bridge Abutment
1'-7"
Roadway Inlet (Typ.)
30' Bridge Approach Pav't Std. 420401 (Typ.)
44'-3" Out to Out
41'-1"
36'-0" WB Lanes
Bk. of E. Abut. Sta. 138+98.97, 15L Elev. 749.53
16° Skew
STEB-3
Bk. of W. Abut. Sta. 138+28.39, 15L Elev. 749.89
PGL WB IL 25 / Stearns Road
℄ IL 25/Stearns Road
Curb and Gutter (Typ.)
1'-7"
30'-0"
Local Tangent ℄ Sta. 138+59.20
138+00
139+00
STEB-2
PGL EB IL 25/Stearns Road
Bk. of W. Abut. Sta. 138+20.64, 15R Elev. 749.93
32'-2" Out to Out
29'-0"
1'-7"
24'-0" EB Lane
STEB-1
1V : 2H
1'-7"
1V : 2H
Flow
Bridge Appr. Shld. Drain Std. 609006 No. Side E Appr. only (Typ.)
Bk. of E. Abut. Sta. 138+89.50, 15R Elev. 749.58
Traffic Barrier Terminal Type 6 Std. 631031 (Typ. Approach Ends)
69'-8 7/16" Bk. to Bk. of Abut.
Along local tangent
N

PLAN

406

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

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

ANCHOR BOLTS (BDE)

Effective: January 1, 2013

Revise the fourth sentence of the first paragraph of Article 1006.09 of the Standard Specifications to read:

"Stud bolts or fully threaded rods shall be according to either ASTM A 354 Grade BC, ASTM A 193 Grade B7, or ASTM F 1554 Grade 105."

Revise the second paragraph of Article 1006.09 of the Standard Specifications to read:

"Washers and nuts shall match with the hardness of the anchor bolt, stud, or rod. For ASTM F 1554 Grade 36 (Grade 250) or Grade 55 (Grade 380) anchor rods or bolts, washers shall be according to ASTM F 844 or ASTM F 436, and nuts shall be according to AASHTO M 291 Grade A. For ASTM F 1554 Grade 105 (Grade 725) bolts, ASTM A 354, or ASTM A 193 stud bolts, washers shall be according to AASHTO M 293 Type 1 or Type 3, and nuts shall be according to AASHTO M 291 Grade DH or DH3."

Revise the seventh paragraph of Article 1006.09 of the Standard Specifications to read:

"Anchor bolts, rods, studs, nuts, and washers requiring galvanizing shall be hot dipped, with zinc coatings conforming to the requirements of ASTM F 2329."

Revise the fourth paragraph of Article 1070.01 of the Standard Specifications to read:

"Fully threaded and galvanized anchor rods or stud bolts with washers and nuts shall be furnished with the foundations and shall be according to Article 1006.09. Anchors furnished according to ASTM F 1554 shall be Grade 105 (Grade 725)."

Revise the second paragraph of Article 1070.03 of the Standard Specifications to read:

"Top anchor rod nuts for all towers shall be the self-locking type with nylon or steel inserts."

80309

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)

Effective: November 2, 2006
Revised: January 1, 2012

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$

Where: CA = Cost Adjustment, $.
BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, $/ton ($/metric ton).
BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting, $/ton ($/metric ton).
$\%AC_V$ = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.
Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: Q, tons = A x D x (G_{mb} x 46.8) / 2000. For HMA mixtures measured in square meters: Q, metric tons = A x D x (G_{mb} x 24.99) / 1000. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: Q, tons = V x 8.33 lb/gal x SG / 2000
For bituminous materials measured in liters: Q, metric tons = V x 1.0 kg/L x SG / 1000

Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).

SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

Percent Difference = $\{(BPI_L - BPI_P) \div BPI_L\} \times 100$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR BITUMINOUS MATERIALS COST ADJUSTMENTS

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract?

Yes ☐ No ☐

Signature: _____ **Date:** _____

80173

COARSE AGGREGATE IN BRIDGE APPROACH SLABS/FOOTINGS (BDE)

Effective: April 1, 2012
Revised: April 1, 2013

Revise the third paragraph of Article 1004.01(b) of the Standard Specifications to read:

"Aggregates used in Class BS concrete (except when poured on subgrade), Class PS concrete, and Class PC concrete (bridge superstructure products only, excluding the approach slab) shall contain no more than two percent by weight (mass) of deleterious materials. Deleterious materials shall include substances whose disintegration is accompanied by an increase in volume which may cause spalling of the concrete."

Revise the first sentence of the first paragraph of Article 1004.02(f) of the Standard Specifications to read:

"(f) Freeze-Thaw Rating. When coarse aggregate is used to produce portland cement concrete for base course, base course widening, pavement (including precast), driveway pavement, sidewalk, shoulders, curb, gutter, combination curb and gutter, median, paved ditch, concrete superstructures on subgrade such as bridge approach slabs (excluding precast), concrete structures on subgrade such as bridge approach footings, or their repair using concrete, the gradation permitted will be determined from the results of the Department's Freeze-Thaw Test (Illinois Modified AASHTO T 161)."

80292

COATED GALVANIZED STEEL CONDUIT (BDE)

Effective: January 1, 2013

Revise Article 1088.01(a)(3) of the Standard Specifications to read:

"(3) Coated Galvanized Steel Conduit. The conduit prior to coating shall meet the requirements for rigid metal conduit and be manufactured according to NEMA Standard No. RN1.

The coating shall have the following characteristics.

Hardness	85+ Shore A Durometer
Dielectric Strength	400 V/mil @ 60 Hz
Aging	1,000 Hours Atlas Weatherometer
Brittleness Temperature	0 °F (-18 °C) when tested according to ASTM D 746
Elongation	200 percent

The exterior galvanized surfaces shall be coated with a primer before the coating to ensure a bond between the zinc substrate and the coating. The bond strength created shall be greater than the tensile strength of the plastic coating. The nominal thickness of the coating shall be 40 mils (1 mm). The coating shall pass the following bonding test.

Two parallel cuts 1/2 in. (13 mm) apart and 1 1/2 in. (38 mm) in length shall be made with a sharp knife along the longitudinal axis. A third cut shall be made perpendicular to and crossing the longitudinal cuts at one end. The knife shall then be worked under the coating for 1/2 in. (13 mm) to free the coating from the metal.

Using pliers, the freed tab shall be pulled with a force applied vertically and away from the conduit. The tab shall tear rather than cause any additional coating to separate from the substrate.

A two part urethane coating shall be applied to the interior of the conduit. The internal coating shall have a nominal thickness of 2 mils (50 µm). The interior coating shall be applied in a manner so there are no runs, drips, or pinholes at any point. The coating shall not peel, flake, or chip off after a cut is made in the conduit or a scratch is made in the coating. The urethane interior coating applied shall afford sufficient flexibility to permit field bending without cracking or flaking of the interior coating.

All conduit fittings and couplings shall be as specified and recommended by the conduit manufacturer. All conduit fitting covers shall be furnished with stainless steel screws which have been encapsulated with a polyester material on the head to ensure maximum corrosion protection."

80310

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 [1/]	600-749	2002
	750 and up	2006
June 1, 2011 [2/]	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 [2/]	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (http://www.epa.gov/otaq/retrofit/verif-list.htm), or verified by the California Air Resources Board (CARB) (http://www.arb.ca.gov/diesel/verde/verdev.htm); or

b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be $1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.

Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

80261

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000
Revised: August 2, 2011

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

> The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is

based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 14.00% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

(a) The bidder documents that enough DBE participation has been obtained to meet the goal: or

(b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's website at www.dot.il.gov.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement. The failure of the bidder to comply will render the bid not responsive.

(a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The names and addresses of DBE firms that will participate in the contract;

(2) A description, including pay item numbers, of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;

(5) if the bidder is a joint venture comprised of DBE companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,

(6) If the contract goal if not met, evidence of good faith efforts.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work performance to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination.

(c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for consideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is

generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:

(1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement.

(a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217)785-4611. Telefax number (217)785-1524.

(b) TERMINATION OR REPLACEMENT. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in the Special Provision.

(c) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

(1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or

(2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or

(3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

(1) The listed DBE subcontractor fails or refuses to execute a written contract;

(2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;

(3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;

(4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1,200 or applicable state law.

(6) You have determined that the listed DBE subcontractor is not a responsible contractor;

(7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice of its withdrawal;

(8) The listed DBE is ineligible to receive DBE credit for the type of work required;

(9) A DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract;

(10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated, or fails to complete its work on the Contract for any reason the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal.

(f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the BDE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative

reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor my request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department.

80029

DRAIN PIPE, TILE, DRAINAGE MAT, AND WALL DRAIN (BDE)

Effective: January 1, 2013

Add the following to Article 101.01 of the Standard Specifications.

"NTPEP National Transportation Product Evaluation Program"

Revise Article 1040.03(f) of the Standard Specifications to read:

"(f) Profile Wall Pipe-304. The manufacturer shall be listed as compliant through the NTPEP program and the pipe shall be according to AASHTO M 304."

Revise the first sentence of the first paragraph of Article 1040.04(a) of the Standard Specifications to read:

"The manufacturer shall be listed as compliant through the NTPEP program and the pipe shall be according to AASHTO M 252 (nominal size – 3 to 10 in. (75 to 250 mm))."

Revise Article 1040.04(b) of the Standard Specifications to read:

"(b) Corrugated PE Pipe with a Smooth Interior. The manufacturer shall be listed as compliant through the NTPEP program and the pipe shall be according to AASHTO M 294 (nominal size – 12 to 48 in. (300 to 1200 mm)). The pipe shall be Type S or D."

80312

FUEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)

Effective: April 1, 2009
Revised: July 1, 2009

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form or failure to indicate contract number, company name and sign and date the form shall make this contract exempt of fuel cost adjustments for all categories of work. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and work added by adjusted unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Added work paid for by time and materials will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

(1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.

(2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.

(5) Category E: Structures. Structure items having a cumulative bid price that exceeds $250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units

Category	Factor	Units
A - Earthwork	0.34	gal / cu yd
B – Subbase and Aggregate Base courses	0.62	gal / ton
C – HMA Bases, Pavements and Shoulders	1.05	gal / ton
D – PCC Bases, Pavements and Shoulders	2.53	gal / cu yd
E – Structures	8.00	gal / $1000

Metric Units

Category	Factor	Units
A - Earthwork	1.68	liters / cu m
B – Subbase and Aggregate Base courses	2.58	liters / metric ton
C – HMA Bases, Pavements and Shoulders	4.37	liters / metric ton
D – PCC Bases, Pavements and Shoulders	12.52	liters / cu m
E – Structures	30.28	liters / $1000

(c) Quantity Conversion Factors.

Category	Conversion	Factor
B	sq yd to ton	0.057 ton / sq yd / in depth
	sq m to metric ton	0.00243 metric ton / sq m / mm depth
C	sq yd to ton	0.056 ton / sq yd / in depth
	sq m to metric ton	0.00239 m ton / sq m / mm depth
D	sq yd to cu yd	0.028 cu yd / sq yd / in depth
	sq m to cu m	0.001 cu m / sq m / mm depth

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$CA = (FPI_P - FPI_L) \times FUF \times Q$

Where: CA = Cost Adjustment, $
FPI_P = Fuel Price Index, as published by the Department for the month the work is performed, $/gal ($/liter)
FPI_L = Fuel Price Index, as published by the Department for the month prior to the letting, $/gal ($/liter)
FUF = Fuel Usage Factor in the pay item(s) being adjusted
Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Progress Payments. Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Final Quantities. Upon completion of the work and determination of final pay quantities, an adjustment will be prepared to reconcile any differences between estimated quantities previously paid and the final quantities. The value for the balancing adjustment will be based on a weighted average of FPI_P and Q only for those months requiring the cost adjustment. The cost adjustment will be applicable to the final measured quantities of all applicable pay items.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI_L and FPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(FPI_L - FPI_P) \div FPI_L\} \times 100$$

Return With Bid

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR FUEL COST ADJUSTMENT

The bidder shall submit this completed form with his/her bid. Failure to submit the form or properly complete contract number, company name, and sign and date the form shall make this contract exempt of fuel cost adjustments in all categories. Failure to indicate "Yes" for any category of work at the time of bid will make that category of work exempt from fuel cost adjustment. After award, this form, when submitted shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract plans for the following categories of work?

Category A Earthwork.	Yes	☐
Category B Subbases and Aggregate Base Courses	Yes	☐
Category C HMA Bases, Pavements and Shoulders	Yes	☐
Category D PCC Bases, Pavements and Shoulders	Yes	☐
Category E Structures	Yes	☐

Signature: _____ **Date:** _____

80229

GRANULAR MATERIALS (BDE)

Effective: November 1, 2012

Revise the title of Article 1003.04 of the Standard Specifications to read:

"1003.04 Fine Aggregate for Bedding, Trench Backfill, Embankment, Porous Granular Backfill, Sand Backfill for Underdrains, and French Drains."

Revise Article 1003.04(c) of the Standard Specifications to read:

"(c) Gradation. The fine aggregate gradations for granular embankment, granular backfill, bedding, and trench backfill for pipe culverts and storm sewers shall be FA 1, FA 2, or FA 6 through FA 21.

The fine aggregate gradation for porous granular embankment, porous granular backfill, french drains, and sand backfill for underdrains shall be FA 1, FA 2, or FA 20, except the percent passing the No. 200 (75 µm) sieve shall be 2±2."

Revise Article 1004.05(c) of the Standard Specifications to read:

"(c) Gradation. The coarse aggregate gradations shall be as follows.

Application	Gradation
Blotter	CA 15
Granular Embankment, Granular Backfill, Bedding, and Trench Backfill for Pipe Culverts and Storm Sewers	CA 6, CA 9, CA 10, CA 12, CA17, CA18, and CA 19
Porous Granular Embankment, Porous Granular Backfill, and French Drains	CA 7, CA 8, CA 11, CA 15, CA 16 and CA 18"

80303

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010
Revised: April 1, 2012

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

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

"Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4 in. (100 mm), from each pavement edge. (i.e. for a 5 in. (125 mm) lift the near edge of the density gauge or core barrel shall be within 5 in. (125 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.

b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced ten feet apart longitudinally along the unconfined pavement edge and centered at the random density test location."

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

"Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-4.75	Ndesign = 50	93.0 – 97.4%	91.0%
IL-9.5, IL-12.5	Ndesign ≥ 90	92.0 – 96.0%	90.0%
IL-9.5,IL-9.5L, IL-12.5	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0, IL-25.0	Ndesign ≥ 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4%	90.0%

SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%
All Other	Ndesign = 30	93.0 - 97.4%	90.0%"

80246

LIQUIDATED DAMAGES (BDE)

Effective: April 1, 2013

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	$ 475	$ 675
100,000	500,000	750	1,050
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,275	1,725
3,000,000	6,000,000	1,425	2,000
6,000,000	12,000,000	2,300	3,450
12,000,000	And over	6,775	9,525"

80320

PAVEMENT MARKING REMOVAL (BDE)

Effective: April 1, 2009

Add the following to the end of the first paragraph of Article 783.03(a) of the Standard Specifications:

"The use of grinders will not be allowed on new surface courses."

80231

PAVEMENT PATCHING (BDE)

Effective: January 1, 2010

Revise the first sentence of the second paragraph of Article 701.17(e)(1) of the Standard Specifications to read:

"In addition to the traffic control and protection shown elsewhere in the contract for pavement, two devices shall be placed immediately in front of each open patch, open hole, and broken pavement where temporary concrete barriers are not used to separate traffic from the work area."

80254

PAVEMENT REMOVAL (BDE)

Effective: April 1, 2013

Revise Article 440.07(c) of the Standard Specifications to read:

"(c) Adjustment of Quantities. The quantity of pavement removal will be adjusted if the thickness of the existing pavement varies more than 15 percent from that shown on the plans. The quantity will be either increased or decreased according to the following table.

% change of thickness	% change of quantity
0 to less than 15	0
15 to less than 20	10
20 to less than 30	15
30 to less than 50	20

If the thickness of the existing pavement varies by 50 percent or more from that shown on the plans, the character of the work will be considered significantly changed and an adjustment to the contract will be made according to Article 104.02.

When an adjustment is made for variations in pavement thickness a resulting adjustment will also be made in the earthwork quantities when applicable.

No adjustment will be made for variations in the amount of reinforcement."

80321

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

PLACING AND CONSOLIDATING CONCRETE (BDE)

Effective: January 1, 2013

Revise the first paragraph of Article 503.06 of the Standard Specifications to read:

"**503.06 Forms.** Forms shall be set and maintained to the lines and grades shown on the plans, and shall be tight to prevent concrete leakage."

Revise Article 503.07 of the Standard Specifications to read:

"**503.07 Placing and Consolidating.** No concrete shall be placed on ice, snow, or frozen foundation material.

The method and manner of placing concrete shall be such as to avoid segregation or separation of the aggregates or the displacement of the reinforcement. The external surface of all concrete shall be thoroughly worked during the operations of placing in such a manner as to work the mortar against the forms to produce a smooth finish free of honeycomb and with a minimum of water and air pockets.

Open troughs and chutes shall extend as nearly as practicable to the point of deposit. Dropping the concrete a distance of more than 5 ft (1.5 m) or depositing a large quantity at any point and running or working it along the forms will not be permitted. The concrete for walls with an average thickness of 12 in. (300 mm) or less shall be placed with tubes so that the drop is not greater than 5 ft (1.5 m).

For self-consolidating concrete, the maximum distance of horizontal flow from the point of deposit shall be 15 ft (4.6 m). The distance may be increased if the dynamic segregation index (DSI) at the maximum flow distance is 10.0 percent or less according to Illinois Test Procedure SCC-8 (Option C). The maximum distance using the DSI shall be 25 ft (7.6 m). In addition, this specified horizontal flow distance shall apply to precast products. In the case of precast prestressed concrete products, refer to the Department's "Manual of Fabrication for Precast Prestressed Concrete Products" for the specified horizontal flow distance requirements.

When the form height for placing the self-consolidating concrete is greater than 10 ft (3.0 m), direct monitoring of form pressure shall be performed by the Contractor according to Illinois Test Procedure SCC-10. The monitoring requirement is a minimum, and the Contractor shall remain responsible for adequate design of the falsework and forms. The Contractor shall record the formwork pressure during concrete placement. This information shall be used by the Contractor to prevent the placement rate from exceeding the maximum formwork pressure allowed, to monitor the thixotropic change in the concrete during the pour, and to make appropriate adjustments to the mix design. This information shall be provided to the Engineer during the pour.

When concrete is pumped, the equipment shall be suitable in kind and adequate in capacity for the work and arranged so that vibrations will not damage freshly placed concrete. Aluminum

pipe or conduit will not be permitted in pumping or placing concrete. Mixed concrete shall be supplied to maintain continuous operation of the pumping equipment.

When air entrained concrete is pumped, an accessory or accessories shall be incorporated in the discharge components to minimize air loss. The maximum allowable air loss caused by the pumping operation shall be 3.0 percent with the minimum air content at the point of discharge meeting the requirements of Article 1020.04.

Placing of concrete shall be regulated so that the pressures caused by the wet concrete will not exceed those used in the design of the forms. Special care shall be taken to fill each part of the forms by depositing the concrete as near its final position as possible, to work the coarser aggregates back from the face, and to force the concrete under and around the reinforcement bars without displacing them. Leakage through forms onto beams or girders shall not be allowed to harden and shall be removed while in a plastic state.

The concrete shall be consolidated by internal vibration unless self-consolidating concrete is used. Self-consolidating concrete may be used for inaccessible locations where consolidation by internal vibration is not practicable. The self consolidating 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 may only be permitted if it can be used in a manner that does not cause segregation as determined by the Engineer. Any other method for restoring the fluidity of the concrete shall be approved by the Engineer.

The Contractor shall provide and use a sufficient number of vibrators to ensure that consolidation can be started immediately after the concrete has been deposited in the forms.

The vibrators shall be inserted into the concrete immediately after it is deposited and shall be moved throughout the mass so as to thoroughly work the concrete around the reinforcement, embedded fixtures, and into the corners and angles of the forms. Vibrators shall not be attached to the forms, reinforcement bars, or the surface of the concrete.

Application of vibrators shall be at points uniformly spaced and not farther apart than twice the radius over which the vibration is visibly effective. The duration of the vibration at the points of insertion shall be sufficient to thoroughly consolidate the concrete into place but shall not be continued so as to cause segregation. When consolidating concrete in bridge decks, the vibrator shall be vertically inserted into the concrete for 3 - 5 seconds or for a period of time determined by the Engineer. Vibration shall be supplemented by spading when required by the Engineer. In addition to the internal vibration required herein, formed surfaces which will be exposed to view after completion of the work shall be spaded with a spading tool approved by the Engineer.

Concrete shall be placed in continuous horizontal layers. When it is necessary by reason of an emergency to place less than a complete horizontal layer in one operation, such layer shall terminate in a vertical bulkhead. Separate batches shall follow each other closely and in no case shall the interval of time between the placing of successive batches be greater than 20 minutes.

If mix foaming or detrimental material is observed during placement or at the completion of a pour, the material shall be removed while the concrete is still plastic

After the concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement."

Revise Article 516.12(a) of the Standard Specifications to read:

"(a) Free Fall Placement. The free fall placement shall only be permitted in shafts that can be dewatered to ensure less than 3 in. (75 mm) of standing water exist at the time of placement without causing side wall instability. The height of free fall placement shall be a maximum of 60 ft (18.3 m) as measured from the discharge end, but it shall be reduced to a maximum of 30 ft (9.1 m) when self-consolidating concrete is used. The Contractor shall obtain approval from the Engineer to place self-consolidating concrete by free fall.

Concrete placed by free fall shall fall directly to the base without contacting either the rebar cage or shaft sidewall. Drop chutes may be used to direct concrete to the base during free fall placement.

Drop chutes used to direct placement of free fall concrete shall consist of a smooth tube of either one continuous section or multiple pieces that can be added and removed. Concrete may be placed through either a hopper at the top of the tube or side openings as the drop chute is retrieved during concrete placement. The drop chute shall be supported so that free fall does not exceed the specified maximum 60 ft (18.3 m) or 30 ft (9.1 m) at all times from the discharge end, and to ensure the concrete does not strike the rebar cage. If placement cannot be satisfactorily accomplished by free fall in the opinion of the Engineer, either a tremie or pump shall be used to accomplish the pour."

80316

PLANTING WOODY PLANTS (BDE)

Effective: January 1, 2012
Revised: August 1, 2012

Revise the second sentence of Article 253.01 of the Standard Specifications to read:

"This work shall consist of furnishing, transporting, and planting woody plants such as trees, shrubs, evergreens, vines, and seedlings."

Revise Article 253.02(a) of the Standard Specifications to read:

"(a) Trees, Shrubs, Evergreens, Vines and Seedlings ..... 1081.01"

Revise the first sentence of Article 253.08(a) of the Standard Specifications to read:

"(a) Excavation for Deciduous Trees and Evergreen Trees."

Revise the first sentence of Article 253.08(b) of the Standard Specifications to read:

"(b) Excavation for Deciduous Shrubs, Evergreen Shrubs, Vines, and Seedlings."

Revise the first sentence of Article 253.13 of the Standard Specifications to read:

"All deciduous and evergreen trees, with the exception of multi-stem or clump form specimens, over 8 ft (2.5 m) in height shall require three 6 ft (2 m) long steel posts so placed that they are equidistant from each other and adjacent to the outside of the ball."

Revise the first sentence of the second paragraph of Article 253.14 of the Standard Specifications to read:

"This period of establishment for the plants shall not delay acceptance of the entire project and final payment due if the contractor requires and receives from the subcontractor a third party performance bond naming the Department as obligee in the full amount of the planting quantities subject to this period of establishment, multiplied by their contract unit prices."

Revise the third sentence of Article 253.16 of the Standard Specifications to read:

"Trees, shrubs, evergreens, and vines will be measured as each individual plant."

Revise Article 253.17 of the Standard Specifications to read:

"**253.17 Basis of Payment.** This work will be paid for at the contract unit price per each for TREES, SHRUBS, EVERGREENS, or VINES, of the species, root type, and plant size specified; and per unit for SEEDLINGS. Payment will be made according to the following schedule.

(a) Initial Payment. Upon completion of planting, mulch covering, wrapping, and bracing, 90 percent of the pay item(s) will be paid.

(b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third party bond, the remaining ten percent of the pay item(s) will be paid."

Revise the first paragraph of Article 1081.01 of the Standard Specifications to read:

"**1081.01Trees, Shrubs, Evergreens, Vines, and Seedlings.** Trees, shrubs, evergreens, vines, and seedlings shall be according to the current standards adopted by the ANLA."

80278

POLYUREA PAVEMENT MARKINGS (BDE)

Effective: November 1, 2012
Revise: January 1, 2013

Revise the first paragraph of Article 780.13 of the Standard Specifications to read:

"**780.13 Basis of Payment.** This work will be paid for at the contract unit prices per foot (meter) of applied line width, as specified, for THERMOPLASTIC PAVEMENT MARKING - LINE; PAINT PAVEMENT MARKING - LINE; EPOXY PAVEMENT MARKING - LINE; PREFORMED PLASTIC PAVEMENT MARKING - LINE - TYPE B, C, or B - INLAID; PREFORMED THERMOPLASTIC PAVEMENT MARKING – LINE, POLYUREA PAVEMENT MARKING TYPE I – LINE, POLYUREA PAVEMENT MARKING TYPE II - LINE; and/or per square foot (square meter) for THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS; PAINT PAVEMENT MARKING - LETTERS AND SYMBOLS; EPOXY PAVEMENT MARKING - LETTERS AND SYMBOLS; PREFORMED PLASTIC PAVEMENT MARKING - TYPE B, C, or B - INLAID - LETTERS AND SYMBOLS; PREFORMED THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS; POLYUREA PAVEMENT MARKING TYPE I – LETTERS AND SYMBOLS; POLYUREA PAVEMENT MARKING TYPE II – LETTERS AND SYMBOLS."

80305

PORTLAND CEMENT CONCRETE (BDE)

Effective: January 1, 2012
Revised: January 1, 2013

Revise Notes 1 and 2 of Article 312.24 of the Standard Specifications to read:

"Note 1. Coarse aggregate shall be gradation CA 6, CA 7, CA 9, CA 10, or CA 11, Class D quality or better. Article 1020.05(d) shall apply.

Note 2. Fine aggregate shall be FA 1 or FA 2. Article 1020.05(d) shall apply."

Revise the first paragraph of Article 312.26 of the Standard Specifications to read:

"**312.26 Proportioning and Mix Design.** At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials for proportioning and testing. The mixture shall contain a minimum of 200 lb (90 kg) of cement per cubic yard (cubic meter). Portland cement may be replaced with fly ash according to Article 1020.05(c)(1), however the minimum portland cement content in the mixture shall be 170 lbs/cu yd (101 kg/cu m). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design."

Revise the second paragraph of Article 503.22 of the Standard Specifications to read:

Other cast-in-place concrete for structures will be paid for at the contract unit price per cubic yard (cubic meter) for CONCRETE HANDRAIL, CONCRETE ENCASEMENT, and SEAL COAT CONCRETE."

Add the following to Article 1003.02 of the Standard Specifications:

(e) Alkali Reaction.

(1) ASTM C 1260. Each 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 portland 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 0.03 percent will be assigned to limestone or dolomite fine

aggregates (manufactured stone sand). However, the Department reserves the right to perform the ASTM C 1260 test.

(2) ASTM C 1293 by Department. In some instances, such as chert natural sand or other fine aggregates, testing according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.

(3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The laboratory performing the ASTM C 1293 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing".

The ASTM C 1293 test shall be performed with Type I or II portland 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, wick of absorbent material, or amount of coverage inside the container with blotting paper, 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. If the aggregate is manufactured into multiple gradation numbers, and the other gradation numbers have the same or lower ASTM C 1260 value, the ASTM C 1293 test result may apply to multiple gradation numbers.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 test result. When the Contractor performs the test, a split sample shall be provided to the Engineer. The Engineer may also independently obtain a sample at any time. The aggregate will be considered reactive if the Contractor or Engineer obtains an expansion value of 0.040 percent or greater.

Revise the first paragraph of Article 1004.01(e)(5) of the Standard Specifications to read:

"Crushed concrete, crushed slag, or lightweight aggregate for portland cement concrete shall be stockpiled in a moist condition (saturated surface dry or greater) and the moisture content shall be maintained uniformly throughout the stockpile by periodic sprinkling."

Revise Article 1004.02(d) of the Standard Specifications to read:

"(d) Combining Sizes. Each size shall be stored separately and care shall be taken to prevent them from being mixed until they are ready to be proportioned. Separate compartments shall be provided to proportion each size.

(1) When Class BS concrete is to be pumped, the coarse aggregate gradation shall have a minimum of 45 percent passing the 1/2 in. (12.5 mm) sieve. The Contractor may combine two or more coarse aggregate sizes, consisting of CA 7, CA 11, CA 13, CA 14, and CA 16, provided a CA 7 or CA 11 is included in the blend.

(2) If the coarse aggregate is furnished in separate sizes, they shall be combined in proportions to provide a uniformly graded coarse aggregate grading within the following limits.

Class of Concrete 1/	Combined Sizes	Sieve Size and Percent Passing						
		2 1/2 in.	2 in.	1 3/4 in.	1 1/2 in.	1 in.	1/2 in.	No. 4
PV 2/								
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC 2/								
	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

Class of Concrete 1/	Combined Sizes	Sieve Size (metric) and Percent Passing						
		63 mm	50 mm	45 mm	37.5 mm	25 mm	12.5 mm	4.75 mm
PV 2/								
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC 2/								
	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

1/ See Table 1 of Article 1020.04.

2/ Any of the listed combination of sizes may be used."

Add the following to Article 1004.02 of the Standard Specifications:

(g) Alkali Reaction.

(1) ASTM C 1260. Each coarse 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 portland 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. However, the Department reserves the right to perform the ASTM C 1260 test.

(2) ASTM C 1293 by Department. In some instances testing a coarse aggregate according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.

(3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor according to Article 1003.02(e)(3).

Revise the first paragraph of Article 1019.06 of the Standard Specifications to read:

"**1019.06 Contractor Mix Design.** A Contractor may submit their own mix design and may propose alternate fine aggregate materials, fine aggregate gradations, or material proportions. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design."

Revise Section 1020 of the Standard Specifications to read:

"SECTION 1020. PORTLAND CEMENT CONCRETE

1020.01 Description. This item shall consist of the materials, mix design, production, testing, curing, low air temperature protection, and temperature control of concrete.

1020.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003
(d) Coarse Aggregate	1004

(e) Concrete Admixtures 1021
(f) Finely Divided Minerals 1010
(g) Concrete Curing Materials 1022
(h) Straw ..... 1081.06(a)(1)
(i) Calcium Chloride 1013.01

1020.03 Equipment. Equipment shall be according to the following.

Item	Article/Section
(a) Concrete Mixers and Trucks	1103.01
(b) Batching and Weighing Equipment	1103.02
(c) Automatic and Semi-Automatic Batching Equipment	1103.03
(d) Water Supply Equipment	1103.11
(e) Membrane Curing Equipment	1101.09
(f) Mobile Portland Cement Concrete Plants	1103.04

1020.04 Concrete Classes and General Mix Design Criteria. The classes of concrete shown in Table 1 identify the various mixtures by the general uses and mix design criteria. If the class of concrete for a specific item of construction is not specified, Class SI concrete shall be used.

For the minimum cement factor in Table 1, it shall apply to portland cement, portland-pozzolan cement, and portland blast-furnace slag except when a particular cement is specified in the Table.

The Contractor shall not assume that the minimum cement factor indicated in Table 1 will produce a mixture that will meet the specified strength. In addition, the Contractor shall not assume that the maximum finely divided mineral allowed in a mix design according to Article 1020.05(c) will produce a mixture that will meet the specified strength. The Contractor shall select a cement factor within the allowable range that will obtain the specified strength. The Contractor shall take into consideration materials selected, seasonal temperatures, and other factors which may require the Contractor to submit multiple mix designs.

For a portland-pozzolan cement, portland blast-furnace slag cement, or when replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the portland cement content in the mixture shall be a minimum of 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). When calculating the portland cement portion in the portland-pozzolan or portland blast-furnace slag cement, the AASHTO M 240 tolerance may be ignored.

Special classifications may be made for the purpose of including the concrete for a particular use or location as a separate pay item in the contract. The concrete used in such cases shall conform to this section.

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA

Class of Conc.	Use	Specification Section Reference	Cement Factor cwt/cu yd (3)		Water / Cement Ratio lb/lb	Slump in. (4)	Mix Design Compressive Strength (Flexural Strength) psi, minimum			Air Content %	Coarse Aggregate Gradations (14)
							Days				
			Min.	Max			3	14	28		
PV	Pavement Base Course Base Course Widening Driveway Pavement Shoulders Shoulder Curb	420 or 421 353 354 423 483 662	5.65 (1) 6.05 (2)	7.05	0.32 - 0.42	2 - 4 (5)	Ty III 3500 (650)	3500 (650)		5.0 - 8.0 (5)	CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, or CA 14
PP	Pavement Patching Bridge Deck Patching (10)	442					3200 (600) Article 701.17(e)(3)b.				CA 7, CA 11, CA 13, CA 14, or CA 16
	PP-1		6.50 6.20 (Ty III)	7.50 7.20 (Ty III)	0.32 - 0.44	2 - 4	at 48 hours			4.0 - 7.0	
	PP-2		7.35	8.20	0.32 - 0.38	2 - 6	at 24 hours			4.0 - 6.0	
	PP-3		7.35 (Ty III) (8)	7.35 (Ty III) (8)	0.32 - 0.35	2 - 4	at 16 hours			4.0 - 6.0	
	PP-4		6.00 (9)	6.25 (9)	0.32 - 0.50	2 - 6	at 8 hours			4.0 - 6.0	
	PP-5		6.75 (9)	6.75 (9)	0.32 - 0.40	2 - 8	at 4 hours			4.0 - 6.0	
RR	Railroad Crossing	422	6.50 6.20 (Ty III)	7.50 7.20 (Ty III)	0.32 - 0.44	2 - 4	3500 (650) at 48 hours			4.0 - 7.0	CA 7, CA 11, or CA 14
BS	Bridge Superstructure Bridge Approach Slab	503	6.05	7.05	0.32 - 0.44	2 - 4 (5)		4000 (675)		5.0 - 8.0 (5)	CA 7, CA 11, or CA 14 (7)
PC	Various Precast Concrete Items Wet Cast Dry Cast	1042	5.65 5.65 (TY III)	7.05 7.05 (TY III)	0.32 - 0.44 0.25 - 0.40	1 - 4 0 - 1	See Section 1042			5.0 - 8.0 N/A	CA7, CA11,CA 13, CA 14, CA 16, or CA 7 & CA 16
PS	Precast Prestressed Members	504	5.65 5.65 (TY III)	7.05 7.05 (TY III)	0.32 - 0.44	1 - 4			Plans	5.0 - 8.0	CA 11 (11), CA 13, CA 14 (11), or CA 16
	Precast Prestressed Piles and Extensions	512							5000		
	Precast Prestressed Sight Screen	639							3500		

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA

Class of Conc.	Use	Specification Section Reference	Cement Factor cwt/cu yd (3)		Water / Cement Ratio lb/lb	Slump in. (4)	Mix Design Compressive Strength (Flexural Strength) psi, minimum			Air Content %	Coarse Aggregate Gradations (14)
							Days				
			Min.	Max			3	14	28		
DS	Drilled Shaft (12) Metal Shell Piles (12) Sign Structures Drilled Shaft (12) Light Tower Foundation (12)	516 512 734 837	6.65	7.05	0.32 - 0.44	6 - 8 (6)		4000 (675)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.
SC	Seal Coat	503	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	3 - 5		3500 (650)		Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, or CA 11
SI	Structures (except Superstructure) Sidewalk Slope Wall Encasement Box Culverts End Section and Collar Curb, Gutter, Curb & Gutter, Median, and Paved Ditch Concrete Barrier Sign Structures Spread Footing Concrete Foundation Pole Foundation (12) Traffic Signal Foundation Drilled Shaft (12) Square or Rectangular	503 424 511 512 540 542 606 637 734 836 878	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	2 - 4 (5)		3500 (650)		5.0 - 8.0 (5)	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)

457

Notes:

(1) Central-mixed.

(2) Truck-mixed or shrink-mixed.

(3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.

(4) The maximum slump may be increased to 7 in. when a high range water-reducing admixture is used for all classes of concrete, except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 8 in. For Class PP-1, the maximum slump may be increased to 6 in. For Class PS, the 7 in. maximum slump may be increased to 8 1/2 in. if the high range water-reducing admixture is the polycarboxylate type.

(5) The slump range for slipform construction shall be 1/2 to 2 1/2 in. and the air content range shall be 5.5 to 8.0 percent.

(6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 8 - 10 in. at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 2 - 4 in.

(7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.

(8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 ºF, the Type III portland cement may be replaced with Type I or II portland cement.

(9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.

(10) For Class PP concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 4,000 psi compressive or 675 psi flexural strength for all PP mix designs.

(11) The nominal maximum size permitted is 3/4 in. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.

(12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 2 cu yd trial batch to verify the mix design.

(13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.

(14) Alternate combinations of gradation sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA (metric)												
Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Slump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum			Air Content %	Coarse Aggregate Gradations (14)
							Days				
			Min.	Max			3	14	28		
PV	Pavement Base Course Base Course Widening Driveway Pavement Shoulders Shoulder Curb	420 or 421 353 354 423 483 662	335 (1) 360 (2)	418	0.32 - 0.42	50 - 100 (5)	Ty III 24,000 (4500)	24,000 (4500)		5.0 - 8.0 (5)	CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, or CA 14
PP	Pavement Patching Bridge Deck Patching (10)	442					22,100 (4150) Article 701.17(e)(3)b.				
	PP-1		385 365 (Ty III)	445 425 (Ty III)	0.32 - 0.44	50 - 100	at 48 hours			4.0 - 7.0	CA 7, CA 11, CA 13, CA 14, or CA 16
	PP-2		435	485	0.32 - 0.38	50 - 150	at 24 hours			4.0 - 6.0	
	PP-3		435 (Ty III) (8)	435 (Ty III) (8)	0.32 - 0.35	50 - 100	at 16 hours			4.0 - 6.0	
	PP-4		355 (9)	370 (9)	0.32 - 0.50	50 - 150	at 8 hours			4.0 - 6.0	
	PP-5		400 (9)	400 (9)	0.32 – 0.40	50 - 200	at 4 hours			4.0 – 6.0	
RR	Railroad Crossing	422	385 365 (Ty III)	445 425 (Ty III)	0.32 - 0.44	50 - 100	24,000 (4500) at 48 hours			4.0 - 7.0	CA 7, CA 11, or CA 14
BS	Bridge Superstructure Bridge Approach Slab	503	360	418	0.32 - 0.44	50 - 100 (5)		27,500 (4650)		5.0 - 8.0 (5)	CA 7, CA 11, or CA 14 (7)
PC	Various Precast Concrete Items Wet Cast Dry Cast	1042	335 335 (TY III)	418 418 (TY III)	0.32 - 0.44 0.25 - 0.40	25 - 100 0 - 25	See Section 1042			5.0 - 8.0 N/A	CA7, CA11, CA13, CA 14, CA 16, or CA 7 & CA 16
PS	Precast Prestressed Members	504	335 335 (TY III)	418 418 (TY III)	0.32 - 0.44	25 - 100			Plans	5.0 - 8.0	CA 11 (11), CA 13, CA 14 (11), or CA 16
	Precast Prestressed Piles and Extensions	512							34,500		
	Precast Prestressed Sight Screen	639							24,000		

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA (metric)												
Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Slump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum Days			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max			3	14	28		
DS	Drilled Shaft (12) Metal Shell Piles (12) Sign Structures Drilled Shaft (12) Light Tower Foundation (12)	516 512 734 837	395	418	0.32 - 0.44	150 -200 (6)		27,500 (4650)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.
SC	Seal Coat	503	335 (1) 360 (2)	418	0.32 - 0.44	75 - 125		24,000 (4500)		Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, or CA 11
SI	Structures (except Superstructure) Sidewalk Slope Wall Encasement Box Culverts End Section and Collar Curb, Gutter, Curb & Gutter, Median, and Paved Ditch Concrete Barrier Sign Structures Spread Footing Concrete Foundation Pole Foundation (12) Traffic Signal Foundation Drilled Shaft (12) Square or Rectangular	503 424 511 512 540 542 606 637 734 836 878	335 (1) 360 (2)	418	0.32 - 0.44	50 - 100 (5)		24,000 (4500)		5.0 - 8.0 (5)	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)

460

Notes:
(1) Central-mixed.
(2) Truck-mixed or shrink-mixed.
(3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.
(4) The maximum slump may be increased to 175 mm when a high range water-reducing admixture is used for all classes of concrete except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 200 mm. For Class PP-1, the maximum slump may be increased to 150 mm. For Class PS, the 175 mm maximum slump may be increased to 215 mm if the high range water-reducing admixture is the polycarboxylate type.
(5) The slump range for slipform construction shall be 13 to 64 mm and the air content range shall be 5.5 to 8.0 percent.
(6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 200 - 250 mm at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 50 – 100 mm.
(7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.
(8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 ºC, the Type III portland cement may be replaced with Type I or II portland cement.
(9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.
(10) For Class PP concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 27,500 kPa compressive or 4,650 kPa flexural.
(11) The nominal maximum size permitted is 19 mm. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
(12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 1.5 cu m trial batch to verify the mix design.
(13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.
(14) Alternate combinations of gradation sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation. Self-consolidating concrete mix designs may be developed for Class BS, PC, PS, DS, and SI concrete. Self-consolidating concrete mix designs may also be developed for precast concrete products that are not subjected to Class PC concrete requirements according to Section 1042. The mix design criteria for the concrete mixture shall be according to Article 1020.04 with the following exceptions.

(a) The slump requirements shall not apply.

(b) The concrete mixture should be uniformly graded, and information in the "Portland Cement Concrete Level III Technician Course – Manual of Instructions for Design of Concrete Mixtures" may be used to develop the uniformly graded mix design. The coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. However, the final gradation when using a single coarse aggregate or combination of coarse aggregates shall have 100 percent pass the 1 in. (25 mm) sieve, and minimum 95 percent pass the 3/4 in. (19 mm) sieve. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.

(c) The slump flow range shall be 22 in. (560 mm) minimum to 28 in. (710 mm) maximum and tested according to Illinois Test Procedure SCC-2.

(d) The visual stability index shall be a maximum of 1 and tested according to Illinois Test Procedure SCC-2.

(e) The J-Ring value shall be a maximum of 2 in. (50 mm) and tested according to Illinois Test Procedure SCC-3. The L-Box blocking ratio shall be a minimum of 80 percent and tested according to Illinois Test Procedure SCC-3. The Contractor has the option to select either test.

(f) The hardened visual stability index shall be a maximum of 1 and tested according to Illinois Test Procedure SCC-6.

(g) If Class PC concrete requirements do not apply to the precast concrete product according to Section 1042, the maximum cement factor shall be 7.05 cwt/cu yd (418 kg/cu m) and the maximum allowable water/cement ratio shall be 0.44.

(h) If the measured slump flow, visual stability index, J-Ring value, or L-Box blocking ratio fall outside the limits specified, a check test will be made. In the event of a second failure, the Engineer may refuse to permit the use of the batch of concrete represented.

The Contractor may use water or self-consolidating admixtures at the jobsite to obtain the specified slump flow, visual stability index, J-ring value, or L-box blocking ratio. The maximum design water/cement ratio shall not be exceeded.

1020.05 Other Concrete Criteria. The concrete shall be according to the following.

(a) Proportioning and Mix Design. For all Classes of concrete, it shall be the Contractor's responsibility to determine mix design material proportions and to proportion each batch of concrete. A Level III PCC Technician shall develop the mix design for all Classes of concrete, except Classes PC and PS. The mix design, submittal information, trial batch, and Engineer verification shall be according to the "Portland Cement Concrete Level III Technician" course material.

The Contractor shall provide the mix designs a minimum of 45 calendar days prior to production. More than one mix design may be submitted for each class of concrete.

The Engineer will verify the mix design submitted by the Contractor. Verification of a mix design shall in no manner be construed as acceptance of any mixture produced. Once a mix design has been verified, the Engineer shall be notified of any proposed changes.

Tests performed at the jobsite will determine if a mix design can meet specifications. If the tests indicate it cannot, the Contractor shall make adjustments to a mix design, or submit a new mix design if necessary, to comply with the specifications.

(b) Admixtures. The Contractor shall be responsible for using admixtures and determining dosages for all Classes of concrete, cement aggregate mixture II, and controlled low-strength material that will produce a mixture with suitable workability, consistency, and plasticity. In addition, admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Contractor shall obtain approval from the Engineer to use an accelerator when the concrete temperature is greater than 60 °F (16 °C). However, this accelerator approval by the Engineer will not be required for Class PP, RR, PC, and PS concrete. The accelerator shall be the non-chloride type unless otherwise specified in the contract plans.

The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(10). For information on approved controlled low-strength material air-entraining admixtures, refer to Article 1019.02. The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted by the Contractor prior to the pour when determining an admixture dosage from this list or when making minor admixture dosage adjustments at the jobsite. 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 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.

The sequence, method, and equipment for adding the admixtures shall be approved by the Engineer. Admixtures shall be added to the concrete separately. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

Admixture use shall be according to the following.

(1) When the atmosphere or concrete temperature is 65 °F (18 °C) or higher, a retarding admixture shall be used in the Class BS concrete and concrete bridge deck overlays. The proportions of the ingredients of the concrete shall be the same as without the retarding admixture, except that the amount of mixing water shall be reduced, as may be necessary, in order to maintain the consistency of the concrete as required. In addition, a high range water-reducing admixture shall be used in bridge deck concrete. At the option of the Contractor, a water-reducing admixture may be used with the high range water-reducing admixture in Class BS concrete.

(2) At the Contractor's option, admixtures in addition to an air-entraining admixture may be used for Class PP-1 or RR concrete. When the air temperature is less than 55 °F (13 °C) and an accelerator is used, the non-chloride accelerator shall be calcium nitrite.

(3) When Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 or RR concrete, a water-reducing or high range water-reducing admixture shall be used.

(4) For Class PP-2 or PP-3 concrete, a non-chloride accelerator followed by a high range water-reducing admixture shall be used, in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite. For Class PP-2 concrete, the non-chloride accelerator shall be calcium nitrite when the air temperature is less than 55 °F (13 °C).

(5) For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. An accelerator shall not be used. For stationary or truck-mixed concrete, a retarding admixture shall be used to allow for haul time. The Contractor has the option to use

a mobile portland cement concrete plant, but a retarding admixture shall not be used unless approved by the Engineer.

For PP-5 concrete, a non-chloride accelerator, high range water-reducing admixture, and air-entraining admixture shall be used. The accelerator, high range water-reducing admixture, and air-entraining admixture shall be per the Contractor's recommendation and dosage. The approved list of concrete admixtures shall not apply. A mobile portland cement concrete plant shall be used to produce the patching mixture.

(6) When a calcium chloride accelerator is specified in the contract, the maximum chloride dosage shall be 1.0 quart (1.0 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.0 quarts (2.0 L) per 100 lb (45 kg) of cement if approved by the Engineer. When a calcium chloride accelerator for Class PP-2 concrete is specified in the contract, the maximum chloride dosage shall be 1.3 quarts (1.3 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.6 quarts (2.6 L) per 100 lb (45 kg) of cement if approved by the Engineer.

(7) For Class DS concrete a retarding admixture and a high range water-reducing admixture shall be used. For dry excavations that are 10 ft (3 m) or less, the high range water-reducing admixture may be replaced with a water-reducing admixture if the concrete is vibrated. The use of admixtures shall take into consideration the slump loss limits specified in Article 516.12 and the fluidity requirement in Article 1020.04 (Note 12).

(8) At the Contractor's option, when a water-reducing admixture or a high range water-reducing admixture is used for Class PV, PP-1, RR, SC, and SI concrete, the cement factor may be reduced a maximum 0.30 hundredweight/cu yd (18 kg/cu m). However, a cement factor reduction will not be allowed for concrete placed underwater.

(9) When Type F or Type G high range water-reducing admixtures are used, the initial slump shall be a minimum of 1 1/2 in. (40 mm) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.

(10) When specified, a corrosion inhibitor shall be added to the concrete mixture utilized in the manufacture of precast, prestressed concrete members and/or other applications. It shall be added, at the same rate, to all grout around post-tensioning steel when specified.

When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m), and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch.

When Rheocrete 222+ is used, it shall be added at the rate of 1.0 gal/cu yd (5.0 L/cu m), and the batching sequence shall be according to the manufacturer's instructions.

(c) Finely Divided Minerals. Use of finely divided minerals shall be according to the following.

(1) Fly Ash. At the Contractor's option, fly ash from approved sources may partially replace portland cement in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete.

The use of fly ash shall be according to the following.

a. Measurements of fly ash and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).

b. When Class F fly ash is used in cement aggregate mixture II, Class PV, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 25 percent by weight (mass).

c. When Class C fly ash is used in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 30 percent by weight (mass).

d. Fly ash may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

(2) Ground Granulated Blast-Furnace (GGBF) Slag. At the Contractor's option, GGBF slag may partially replace portland cement in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete. For Class PP-3 concrete, GGBF slag shall be used according to Article 1020.04.

The use of GGBF slag shall be according to the following.

a. Measurements of GGBF slag and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).

b. When GGBF slag is used in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC and SI concrete, the amount of portland cement replaced shall not exceed 35 percent by weight (mass).

c. GGBF slag may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

(3) Microsilica. At the Contractor's option, microsilica may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

Microsilica shall be used in Class PP-3 concrete according to Article 1020.04.

(4) High Reactivity Metakaolin (HRM). At the Contractor's option, HRM may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

(5) Mixtures with Multiple Finely Divided Minerals. Except as specified for Class PP-3 concrete, the Contractor has the option to use more than one finely divided mineral in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete as follows.

a. The mixture shall contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 35.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 30.0 percent for Class C fly ash or 25.0 percent for Class F fly ash. The Class C and F fly ash combination shall not exceed 30.0 percent. The ground granulated blast-furnace slag portion shall not exceed 35.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed ten percent. The finely divided mineral in the portland-pozzolan cement or portland blast-furnace slag blended cement shall apply to the maximum 35.0 percent.

b. Central Mixed. For Class PV, SC, and SI concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 535 lbs/cu yd (320 kg/cu m).

c. Truck-Mixed or Shrink-Mixed. For Class PV, SC, and SI concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 575 lbs/cu yd (345 kg/cu m).

d. Central-Mixed, Truck-Mixed or Shrink-Mixed. For Class PP-1 and RR concrete, the mixture shall contain a minimum of 650 lbs/cu yd (385 kg/cu m) of cement and finely divided minerals summed together. For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a minimum of 620 lbs/cu yd (365 kg/cu m).

For Class PP-2 concrete, the mixture shall contain a minimum of 735 lbs/cu yd (435 kg/cu m) of cement and finely divided minerals summed together. For Class BS concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m). For Class DS concrete, the mixture shall contain a minimum of 665 lbs/cu yd (395 kg/cu m).

If a water-reducing or high range water-reducing admixture is used in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 620 lbs/cu yd (365 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used with Type III portland cement in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 590 lbs/cu yd (350 kg/cu m).

e. Central-Mixed or Truck-Mixed. For Class PC and PS concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.

f. The mixture shall contain a maximum of 705 lbs/cu yd (418 kg/cu m) of cement and finely divided mineral(s) summed together for Class PV, BS, PC, PS, DS, SC, and SI concrete. For Class PP-1 and RR concrete, the mixture shall contain a maximum of 750 lbs/cu yd (445 kg/cu m). For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a maximum of 720 lbs/cu yd (425 kg/cu m). For Class PP-2 concrete, the mixture shall contain a maximum of 820 lbs/cu yd (485 kg/cu m).

g. For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the allowable cement and finely divided minerals summed together shall be increased by ten percent.

h. The combination of cement and finely divided minerals shall comply with Article 1020.05(d).

(d) Alkali-Silica Reaction. For cast-in-place (includes cement aggregate mixture II and latex mixtures), precast, and precast prestressed concrete, one of the mixture options provided in Article 1020.05(d)(2) shall be used to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The mixture options are not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate, or sodium formate. The mixture options will not be required for the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy.

The mixture options shall not apply to concrete revetment mats, insertion lining of pipe culverts, portland cement mortar fairing course, controlled low-strength material, miscellaneous grouts that are not prepackaged, Class PP-3 concrete, Class PP-4 concrete, and Class PP-5 concrete.

(1) 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	Fine Aggregate Or Fine Aggregate Blend		
	ASTM C 1260 Expansion		
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

(2) 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.

Reduction of Risk for Deleterious Alkali-Silica Reaction					
Aggregate Groups	Mixture Options				
	Option 1	Option 2	Option 3	Option 4	Option 5
Group I	Mixture options are not applicable. Use any cement or finely divided mineral.				
Group II	X	X	X	X	X
Group III	X	Combine Option 2 with Option 3	Combine Option 2 with Option 3	X	X
Group IV	X	Combine Option 2 with Option 4	Invalid Option	Combine Option 2 with Option 4	X

"X" denotes valid mixture option for aggregate group.

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. Coarse aggregate may only be blended with another coarse aggregate. Fine aggregate may only be blended with another fine aggregate. Blending of

coarse with fine aggregate to place the material in another group will not be permitted.

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. In addition, a blended cement with a finely divided mineral may be added to a separate finely divided mineral to meet the following requirements, provided the finely divided minerals are the same material. However, adding together two different finely divided minerals to obtain the specified minimum percentage of one material will not be permitted for 1), 2), 3), and 4). Refer to Mixture Option 5 to address this situation.

1. Class F Fly Ash. For cement aggregate mixture II, Class PV, BS, PC, PS, MS, DS, SC and SI concrete, the Class F fly ash shall be a minimum 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

   If the maximum total equivalent available alkali content ($Na_2O + 0.658K_2O$) exceeds 4.50 percent for the Class F fly ash, it may be used only if it complies with Mixture Option 5.

2. Class C Fly Ash. For cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, Class C fly ash shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

   If the maximum total equivalent available alkali content ($Na_2O + 0.658K_2O$) exceeds 4.50 percent or the calcium oxide exceeds 26.50 percent for the Class C fly ash, it may be used only per Mixture Option 5.

3. Ground Granulated Blast-Furnace Slag. For Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, ground granulated blast-furnace slag shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

   If the maximum total equivalent available alkali content ($Na_2O + 0.658K_2O$) exceeds 1.00 percent for the ground granulated blast-furnace slag, it may be used only per Mixture Option 5.

4. Microsilica or High Reactivity Metakaolin, Microsilica solids or high reactivity metakaolin shall be a minimum 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

   If the maximum total equivalent available alkali content ($Na_2O + 0.658K_2O$) exceeds 1.00 percent for the Microsilica or High Reactivity Metakaolin, it may be used only if it complies with Mixture Option 5.

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 and the Contractor desires to use a finely divided mineral, any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($Na_2O + 0.658K_2O$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.

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 and the Contractor desires to use a finely divided mineral, any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($Na_2O + 0.658K_2O$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica, or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.

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 laboratory performing the ASTM C 1567 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing". 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.

   The Engineer reserved the right to verify a Contractor's ASTM C 1567 test result. When the Contractor performs the test, a split sample may be requested by the Engineer. The Engineer may also independently obtain a sample at any time.

The proposed cement or finely divided mineral will not be allowed for use if the Contractor or Engineer obtains an expansion value greater than 0.16 percent.

1020.06 Water/Cement Ratio. The water/cement ratio shall be determined on a weight (mass) basis. When a maximum water/cement ratio is specified, the water shall include mixing water, water in admixtures, free moisture on the aggregates, and water added at the jobsite. The quantity of water may be adjusted within the limit specified to meet slump requirements.

When fly ash, ground granulated blast-furnace slag, high-reactivity metakaolin, or microsilica (silica fume) are used in a concrete mix, the water/cement ratio will be based on the total cement and finely divided minerals contained in the mixture.

1020.07 Slump. The slump shall be determined according to Illinois Modified AASHTO T 119.

If the measured slump falls outside the limits specified, a check test will be made. In the event of a second failure, the Engineer may refuse to permit the use of the batch of concrete represented.

If the Contractor is unable to add water to prepare concrete of the specified slump without exceeding the maximum design water/cement ratio, a water-reducing admixture shall be added.

1020.08 Air Content. The air content shall be determined according to Illinois Modified AASHTO T 152 or Illinois Modified AASHTO T 196. The air-entrainment shall be obtained by the use of cement with an approved air-entraining admixture added during the mixing of the concrete or the use of air-entraining cement.

If the air-entraining cement furnished is found to produce concrete having air content outside the limits specified, its use shall be discontinued immediately and the Contractor shall provide other air-entraining cement which will produce air contents within the specified limits.

If the air content obtained is above the specified maximum limit at the jobsite, the Contractor may have the concrete further mixed, within the limits of time and revolutions specified, to reduce the air content. If the air content obtained is below the specified minimum limit, the Contractor may add to the concrete a sufficient quantity of an approved air-entraining admixture at the jobsite to bring the air content within the specified limits.

1020.09 Strength Tests. The specimens shall be molded and cured according to Illinois Modified AASHTO T 23. Specimens shall be field cured with the construction item as specified in Illinois Modified AASHTO T 23. The compressive strength shall be determined according to Illinois Modified AASHTO T 22. The flexural strength shall be determined according to Illinois Modified AASHTO T 177.

Except for Class PC and PS concrete, the Contractor shall transport the strength specimens from the site of the work to the field laboratory or other location as instructed by the Engineer. During transportation in a suitable light truck, the specimens shall be embedded in straw,

burlap, or other acceptable material in a manner meeting with the approval of the Engineer to protect them from damage; care shall be taken to avoid impacts during hauling and handling. For strength specimens, the Contractor shall provide a field curing box for initial curing and a water storage tank for final curing. The field curing box will be required when an air temperature below 60 °F (16 °C) is expected during the initial curing period. The device shall maintain the initial curing temperature range specified in Illinois Modified AASHTO T 23, and may be insulated or power operated as appropriate.

1020.10 Handling, Measuring, and Batching Materials. Aggregates shall be handled in a manner to prevent mixing with soil and other foreign material.

Aggregates shall be handled in a manner which produces a uniform gradation, before placement in the plant bins. Aggregates delivered to the plant in a nonuniform gradation condition shall be stockpiled. The stockpiled aggregate shall be mixed uniformly before placement in the plant bins.

Aggregates shall have a uniform moisture content before placement in the plant bins. This may require aggregates to be stockpiled for 12 hours or more to allow drainage, or water added to the stockpile, or other methods approved by the Engineer. Moisture content requirements for crushed concrete, crushed slag or lightweight aggregate shall be according to Article 1004.01(e)(5).

Aggregates, cement, and finely divided minerals shall be measured by weight (mass). Water and admixtures shall be measured by volume or weight (mass).

The Engineer may permit aggregates, cement, and finely divided minerals to be measured by volume for small isolated structures and for miscellaneous items. Aggregates, cement, and finely divided minerals shall be measured individually. The volume shall be based upon dry, loose materials.

1020.11 Mixing Portland Cement Concrete. The mixing of concrete shall be according to the following.

(a) Ready-Mixed Concrete. Ready-mixed concrete is central-mixed, truck-mixed, or shrink-mixed concrete transported and delivered in a plastic state ready for placement in the work and shall be according to the following.

(1) Central-Mixed Concrete. Central-mixed concrete is concrete which has been completely mixed in a stationary mixer and delivered in a truck agitator, a truck mixer operating at agitating speed, or a nonagitator truck.

The stationary mixer shall operate at the drum speed for which it was designed. The batch shall be charged into the drum so that some of the water shall enter in advance of the cement, finely divided minerals, and aggregates. The flow of the water shall be uniform and all water shall be in the drum by the end of the first 15 seconds of the mixing period. Water shall begin to enter the drum from zero to

two seconds in advance of solid material and shall stop flowing within two seconds of the beginning of mixing time.

Some coarse aggregate shall enter in advance of other solid materials. For the balance of the charging time for solid materials, the aggregates, finely divided minerals, and cement (to assure thorough blending) shall each flow at acceptably uniform rates, as determined by visual observation. Coarse aggregate shall enter two seconds in advance of other solid materials and a uniform rate of flow shall continue to within two seconds of the completion of charging time.

The entire contents of the drum, or of each single compartment of a multiple-drum mixer, shall be discharged before the succeeding batch is introduced.

The volume of concrete mixed per batch shall not exceed the mixer's rated capacity as shown on the standard rating plate on the mixer by more than ten percent.

The minimum mixing time shall be 75 seconds for a stationary mixer having a capacity greater than 2 cu yd (1.5 cu m). For a mixer with a capacity equal to or less than 2 cu yd (1.5 cu m) the mixing time shall be 60 seconds. Transfer time in multiple drum mixers is included in the mixing time. Mixing time shall begin when all materials are in the mixing compartment and shall end when the discharge of any part of the batch is started. The required mixing times will be established by the Engineer for all types of stationary mixers.

When central-mixed concrete is to be transported in a truck agitator or a truck mixer, the stationary-mixed batch shall be transferred to the agitating unit without delay and without loss of any portion of the batch. Agitating shall start immediately thereafter and shall continue without interruption until the batch is discharged from the agitator. The ingredients of the batch shall be completely discharged from the agitator before the succeeding batch is introduced. Drums and auxiliary parts of the equipment shall be kept free from accumulations of materials.

The vehicles used for transporting the mixed concrete shall be of such capacity, or the batches shall be so proportioned, that the entire contents of the mixer drum can be discharged into each vehicle load.

(2) Truck-Mixed Concrete. Truck-mixed concrete is completely mixed and delivered in a truck mixer. When the mixer is charged with fine and coarse aggregates simultaneously, not less than 60 nor more than 100 revolutions of the drum or blades at mixing speed shall be required, after all of the ingredients including water are in the drum. When fine and coarse aggregates are charged separately, not less than 70 revolutions will be required. For self-consolidating concrete, a minimum of 100 revolutions is required in all cases. Additional mixing beyond 100 revolutions shall be at agitating speed unless additions of water, admixtures, or other materials are made at the jobsite. The mixing operation shall begin immediately after the cement and water, or the cement and wet aggregates, come in contact. The

ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.

(3) Shrink-Mixed Concrete. Shrink-mixed concrete is mixed partially in a stationary mixer and completed in a truck mixer for delivery. The mixing time of the stationary mixer may be reduced to a minimum of 30 seconds to intermingle the ingredients, before transferring to the truck mixer. All ingredients for the batch shall be in the stationary mixer and partially mixed before any of the mixture is discharged into the truck mixer. The partially mixed batch shall be transferred to the truck mixer without delay and without loss of any portion of the batch, and mixing in the truck mixer shall start immediately. The mixing time in the truck mixer shall be not less than 50 nor more than 100 revolutions of the drum or blades at mixing speed. For self-consolidating concrete, a minimum of 100 revolutions is required in the truck mixer. Additional mixing beyond 100 revolutions shall be at agitating speed, unless additions of water, admixtures, or other materials are made at the jobsite. Units designed as agitators shall not be used for shrink mixing. The ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.

(4) Mixing Water. Wash water shall be completely discharged from the drum or container before a batch is introduced. All mixing water shall be added at the plant and any adjustment of water at the jobsite by the Contractor shall not exceed the specified maximum water/cement ratio or slump. If strength specimens have been made for a batch of concrete, and subsequently during discharge there is more water added, additional strength specimens shall be made for the batch of concrete. No additional water may be added at the jobsite to central-mixed concrete if the mix design has less than 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.

(5) Mixing and Agitating Speeds. The mixing or agitating speeds used for truck mixers or truck agitators shall be per the manufacturer's rating plate.

(6) Capacities. The volume of plastic concrete in a given batch will be determined according to AASHTO T 121, based on the total weight (mass) of the batch, determined either from the weight (masses) of all materials, including water, entering the batch or directly from the net weight (mass) of the concrete in the batch as delivered.

The volume of mixed concrete in truck mixers or truck agitators shall in no case be greater than the rated capacity determined according to the Truck Mixer, Agitator,

and Front Discharge Concrete Carrier Standards of the Truck Mixer Manufacturer's Bureau, as shown by the rating plate attached to the truck. If the truck mixer does not have a rating plate, the volume of mixed concrete shall not exceed 63 percent of the gross volume of the drum or container, disregarding the blades. For truck agitators, the value is 80 percent.

(7) Time of Haul. Haul time shall begin when the delivery ticket is stamped. The delivery ticket shall be stamped no later than five minutes after the addition of the mixing water to the cement, or after the addition of the cement to the aggregate when the combined aggregates contain free moisture in excess of two percent by weight (mass). If more than one batch is required for charging a truck using a stationary mixer, the time of haul shall start with mixing of the first batch. Haul time shall end when the truck is emptied for incorporation of the concrete into the work.

The time elapsing from when water is added to the mix until it is deposited in place at the site of the work shall not exceed 30 minutes when the concrete is transported in nonagitating trucks.

The maximum haul time for concrete transported in truck mixers or truck agitators shall be according to the following.

Concrete Temperature at Point of Discharge °F (°C)	Haul Time	
	Hours	Minutes
50-64 (10-17.5)	1	30
>64 (>17.5) - without retarder	1	0
>64 (>17.5) - with retarder	1	30

To encourage start-up testing for mix adjustments at the plant, the first two trucks will be allowed an additional 15 minutes haul time whenever such testing is performed.

For a mixture which is not mixed on the jobsite, a delivery ticket shall be required for each load. The following information shall be recorded on each delivery ticket: (1) ticket number; (2) name of producer and plant location; (3) contract number; (4) name of Contractor; (5) stamped date and time batched; (6) truck number; (7) quantity batched; (8) amount of admixture(s) in the batch; (9) amount of water in the batch; and (10) Department mix design number.

For concrete mixed in jobsite stationary mixers, the above delivery ticket may be waived, but a method of verifying the haul time shall be established to the satisfaction of the Engineer.

(8) Production and Delivery. The production of ready-mixed concrete shall be such that the operations of placing and finishing will be continuous insofar as the job operations require. The Contractor shall be responsible for producing concrete that will have the required workability, consistency, and plasticity when delivered to the work. Concrete which is unsuitable for placement as delivered will be rejected. The

Contractor shall minimize the need to adjust the mixture at the jobsite, such as adding water and admixtures prior to discharging.

(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 strength shall not exceed 900 psi (6200 kPa) compressive and 90 psi (620 kPa) flexural. 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.

(b) Class PC Concrete. The concrete shall be central-mixed or truck-mixed. Variations in plastic concrete properties shall be minimized between batches.

(c) Class PV Concrete. The concrete shall be central-mixed, truck-mixed, or shrink-mixed.

The required mixing time for stationary mixers with a capacity greater than 2 cu yd (1.5 cu m) may be less than 75 seconds upon satisfactory completion of a mixer performance test. Mixer performance tests may be requested by the Contractor when the quantity of concrete to be placed exceeds 50,000 sq yd (42,000 sq m). The testing shall be conducted according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

The Contractor will be allowed to test two mixing times within a range of 50 to 75 seconds. If satisfactory results are not obtained from the required tests, the mixing time shall continue to be 75 seconds for the remainder of the contract. If satisfactory results are obtained, the mixing time may be reduced. In no event will mixing time be less than 50 seconds.

The Contractor shall furnish the labor, equipment, and material required to perform the testing according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

A contract which has 12 ft (3.6 m) wide pavement or base course, and a continuous length of 1/2 mile (0.8 km) or more, shall have the following additional requirements.

(1) The plant and truck delivery operation shall be able to provide a minimum of 50 cu yd (38 cu m) of concrete per hour.

(2) The plant shall have automatic or semi-automatic batching equipment.

(d) All Other Classes of Concrete. The concrete shall be central-mixed, truck-mixed, or shrink-mixed concrete.

1020.12 Mobile Portland Cement Concrete Plants. The use of a mobile portland cement concrete plant may be approved under the provisions of Article 1020.10 for volumetric proportioning in small isolated structures, thin overlays, and for miscellaneous and incidental concrete items.

The first 1 cu ft (0.03 cu m) of concrete produced may not contain sufficient mortar and shall not be incorporated in the work. The side plate on the cement feeder shall be removed

periodically (normally the first time the mixer is used each day) to see if cement is building up on the feed drum.

Sufficient mixing capacity of mixers shall be provided to enable continuous placing and finishing insofar as the job operations and the specifications require.

Slump and air tests made immediately after discharge of the mix may be misleading, since the aggregates may absorb a significant amount of water for four or five minutes after mixing.

1020.13 Curing and Protection. The method of curing, curing period, and method of protection for each type of concrete construction is included in the following Index Table.

INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Cast-in-Place Concrete [11/]			
Pavement Shoulder	1020.13(a)(1)(2)(3)(4)(5) [3/ 5/]	3	1020.13(c)
Base Course Base Course Widening	1020.13(a)(1)(2)(3)(4)(5) [2/]	3	1020.13(c)
Driveway Median Barrier Curb Gutter Curb & Gutter Sidewalk Slope Wall Paved Ditch	1020.13(a)(1)(2)(3)(4)(5) [4/ 5/]	3	1020.13(c) [16/]
Catch Basin Manhole Inlet Valve Vault	1020.13(a)(1)(2)(3)(4)(5) [4/]	3	1020.13(c)
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5) [2/]	3 [12/]	1020.13(c)
Bridge Deck Patching	1020.13(a)(3)(5)	3 or 7 [12/]	1020.13(c)
Railroad Crossing	1020.13(a)(3)(5)	1	1020.13(c)
Piles and Drilled Shafts	1020.13(a)(3)(5)	7	1020.13(d)(1)(2)(3)
Foundations & Footings Seal Coat	1020.13(a)(1)(2)(3)(4)(5) [4/ 6/]	7	1020.13(d)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5) [1/ 7/]	7	1020.13(d)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) [8/]	7	1020.13(d)(1)(2)
Deck Bridge Approach Slab	1020.13(a)(5)	7	1020.13(d)(1)(2) [17/]
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5) [1/ 7/]	7	1020.13(d)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5) [1/]	7	1020.13(d)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5) [4/ 6/]	7	1020.13(d)(1)(2) [18/]
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)
Precast Concrete [11/]			
Bridge Slabs Piles and Pile Caps Other Structural Members	1020.13(a)(3)(5) [9/ 10/]	As [13/] Required	9/
All Other Precast Items	1020.13(a)(3)(4)(5) [2/ 9/ 10/]	As [14/] Required	9/
Precast, Prestressed Concrete [11/]			
All Items	1020(a)(3)(5) [9/ 10/]	Until Strand Tensioning is Released [15/]	9/

Notes-General:

1/ Type I, membrane curing only

2/ Type II, membrane curing only

3/ Type III, membrane curing only

4/ Type I, II and III membrane curing

5/ Membrane Curing will not be permitted between November 1 and April 15.

6/ The use of water to inundate foundations and footings, seal coats or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 45 °F (7 °C) or higher.

7/ Asphalt emulsion for waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.

8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed oil emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09(b).

9/ Steam, supplemental heat, or insulated blankets (with or without steam/supplemental heat) are acceptable and shall be according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products" and the "Manual for Fabrication of Precast, Prestressed Concrete Products".

10/ A moist room according to AASHTO M 201 is acceptable for curing.

11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.

12/ Curing maintained only until opening strength is attained for pavement patching, with a maximum curing period of three days. For bridge deck patching the curing period shall be three days if Class PP concrete is used and 7 days if Class BS concrete is used.

13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

15/ The producer has the option to continue curing after strand release.

16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(d)(1).

17/ When Article 1020.13(d)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(d)(1).

18/ For culverts having a waterway opening of 10 sq ft (1 sq m) or less, the culverts may be protected according to Article 1020.13(d)(3).

(a) Methods of Curing. Except as provided for in the Index Table of Curing and Protection of Concrete Construction, curing shall be accomplished by one of the following described methods. When water is required to wet the surface, it shall be applied as a fine spray so that it will not mar or pond on the surface. Except where otherwise specified, the curing period shall be at least 72 hours.

(1) Waterproof Paper Method. The surface of the concrete shall be covered with waterproof paper as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the paper is placed. The blankets shall be lapped at least 12 in. (300 mm) end to end, and these laps shall be securely weighted with a windrow of earth, or other approved method, to form a closed joint. The same requirements shall apply to the longitudinal laps where separate strips are used for curing edges, except the lap shall be at least 9 in. (225 mm). The edges of the blanket shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Any torn places or holes in the paper shall be repaired immediately by patches cemented over the openings, using a bituminous cement having a melting point of not less than 180 °F (82 °C). The blankets may be reused, provided they are air-tight and kept serviceable by proper repairs.

A longitudinal pleat shall be provided in the blanket to permit shrinkage where the width of the blanket is sufficient to cover the entire surface. The pleat will not be required where separate strips are used for the edges. Joints in the blanket shall be sewn or cemented together in such a manner that they will not separate during use.

(2) Polyethylene Sheeting Method. The surface of the concrete shall be covered with white polyethylene sheeting as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the sheeting is placed. The edges of the sheeting shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Adjoining sheets shall overlap not less than 12 in. (300 mm) and the laps shall be securely weighted with earth, or any other means satisfactory to the Engineer, to provide an air tight cover.

For surface and base course concrete, the polyethylene sheets shall be not less than 100 ft (30 m) in length nor longer than can be conveniently handled, and shall be of such width that, when in place, they will cover the full width of the surface, including the edges, except that separate strips may be used to cover the edges. Any tears or holes in the sheeting shall be repaired. When sheets are no longer serviceable as a single unit, the Contractor may select from such sheets and reuse those which will serve for further applications, provided two sheets are used as a single unit; however, the double sheet units will be rejected when the Engineer deems that they no longer provide an air tight cover.

(3) Wetted Burlap Method. The surface of the concrete shall be covered with wetted burlap blankets as soon as the concrete has hardened sufficiently to prevent marring the surface. The blankets shall overlap 6 in. (150 mm). At least two layers of wetted burlap shall be placed on the finished surface. The burlap shall be kept saturated by means of a mechanically operated sprinkling system. In place of the sprinkling system, at the Contractor's option, two layers of burlap covered with impermeable covering shall be used. The burlap shall be kept saturated with water. Plastic coated burlap may be substituted for one layer of burlap and impermeable covering.

The blankets shall be placed so that they are in contact with the edges of the concrete, and that portion of the material in contact with the edges shall be kept saturated with water.

(4) Membrane Curing Method. Membrane curing will not be permitted where a protective coat, concrete sealer, or waterproofing is to be applied, or at areas where rubbing or a normal finish is required, or at construction joints other than those necessary in pavement or base course. Concrete at these locations shall be cured by another method specified in Article 1020.13(a).

After all finishing work to the concrete surface has been completed, it shall be sealed with membrane curing compound of the type specified within ten minutes. The seal shall be maintained for the specified curing period. The edges of the concrete shall, likewise, be sealed within ten minutes after the forms are removed. Two separate applications, applied at least one minute apart, each at the rate of not less than 1 gal/250 sq ft (0.16 L/sq m) will be required upon the surfaces and edges of the concrete. These applications shall be made with the mechanical equipment specified. Type III compound shall be agitated immediately before and during the application.

At locations where the coating is discontinuous or where pin holes show or where the coating is damaged due to any cause and on areas adjacent to sawed joints, immediately after sawing is completed, an additional coating of membrane curing compound shall be applied at the above specified rate. The equipment used may be of the same type as that used for coating variable widths of pavement. Before the additional coating is applied adjacent to sawed joints, the cut faces of the joint shall be protected by inserting a suitable flexible material in the joint, or placing an

adhesive width of impermeable material over the joint, or by placing the permanent sealing compound in the joint. Material, other than the permanent sealing compound, used to protect cut faces of the joint, shall remain in place for the duration of the curing period. In lieu of applying the additional coating, the area of the sawed joint may be cured according to any other method permitted.

When rain occurs before an application of membrane curing compound has dried, and the coating is damaged, the Engineer may require another application be made in the same manner and at the same rate as the original coat. The Engineer may order curing by another method specified, if unsatisfactory results are obtained with membrane curing compound.

(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry or damp cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 4 ft (1.2 m) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3).

(b) Removing and Replacing Curing Covering. When curing methods specified above in Article 1020.13(a), (1), (2), or (3) are used for concrete pavement, the curing covering for each day's paving shall be removed to permit testing of the pavement surface with a profilograph or straightedge, as directed by the Engineer.

Immediately after testing, the surface of the pavement shall be wetted thoroughly and the curing coverings replaced. The top surface and the edges of the concrete shall not be left unprotected for a period of more than 1/2 hour.

(c) Protection of Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 32 °F (0 °C), or lower, or if the actual temperature drops to 32 °F (0 °C), or lower, concrete less than 72 hours old shall be provided at least the following protection.

Minimum Temperature	Protection
25 – 32 °F (-4 – 0 °C)	Two layers of polyethylene sheeting, one layer of polyethylene and one layer of burlap, or two layers of waterproof paper.
Below 25 °F (-4 °C)	6 in. (150 mm) of straw covered with one layer of polyethylene sheeting or waterproof paper.

These protective covers shall remain in place until the concrete is at least 96 hours old. When straw is required on pavement cured with membrane curing compound, the compound shall be covered with a layer of burlap, polyethylene sheeting or waterproof paper before the straw is applied.

After September 15, there shall be available to the work within four hours, sufficient clean, dry straw to cover at least two days production. Additional straw shall be provided as needed to afford the protection required. Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced.

(d) Protection of Concrete Structures From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low below 45 °F (7 °C), or if the actual temperature drops below 45 °F (7 °C), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities, and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. When winter construction is specified, the Contractor shall proceed with the construction, including excavation, pile driving, concrete, steel erection, and all appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced.

(1) Protection Method I. The concrete shall be completely covered with insulating material such as fiberglass, rock wool, or other approved commercial insulating material having the minimum thermal resistance R, as defined in ASTM C 168, for

the corresponding minimum dimension of the concrete unit being protected as shown in the following table.

Minimum Pour Dimension		Thermal Resistance R
in.	(mm)	
6 or less	(150 or less)	R=16
> 6 to 12	(> 150 to 300)	R=10
> 12 to 18	(> 300 to 450)	R=6
> 18	(> 450)	R=4

The insulating material manufacturer shall clearly mark the insulating material with the thermal resistance R value.

The insulating material shall be completely enclosed on sides and edges with an approved waterproof liner and shall be maintained in a serviceable condition. Any tears in the liner shall be repaired in a manner approved by the Engineer. The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period.

On formed surfaces, the insulating material shall be attached to the outside of the forms with wood cleats or other suitable means to prevent any circulation of air under the insulation and shall be in place before the concrete is placed. The blanket insulation shall be applied tightly against the forms. The edges and ends shall be attached so as to exclude air and moisture. If the blankets are provided with nailing flanges, the flanges shall be attached to the studs with cleats. Where tie rods or reinforcement bars protrude, the areas adjacent to the rods or bars shall be adequately protected in a manner satisfactory to the Engineer. Where practicable, the insulation shall overlap any previously placed concrete by at least 1 ft (300 mm). Insulation on the underside of floors on steel members shall cover the top flanges of supporting members. On horizontal surfaces, the insulating material shall be placed as soon as the concrete has set, so that the surface will not be marred and shall be covered with canvas or other waterproof covering. The insulating material shall remain in place for a period of seven days after the concrete is placed.

The Contractor may remove the forms, providing the temperature is 35 °F (2 °C) and rising and the Contractor is able to wrap the particular section within two hours from the time of the start of the form removal. The insulation shall remain in place for the remainder of the seven days curing period.

(2) Protection Method II. The concrete shall be enclosed in adequate housing and the air surrounding the concrete kept at a temperature of not less than 50 °F (10 °C) nor more than 80 °F (27 °C) for a period of seven days after the concrete is placed. The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period. All exposed surfaces within the housing shall be cured according to the Index Table.

The Contractor shall provide adequate fire protection where heating is in progress and such protection shall be accessible at all times. The Contractor shall maintain labor to keep the heating equipment in continuous operation.

At the close of the heating period, the temperature shall be decreased to the approximate temperature of the outside air at a rate not to exceed 15 °F (8 °C) per 12 hour period, after which the housing maybe removed. The surface of the concrete shall be permitted to dry during the cooling period.

(3) Protection Method III. As soon as the surface is sufficiently set to prevent marring, the concrete shall be covered with 12 in. (300 mm) of loose, dry straw followed by a layer of impermeable covering. The edges of the covering shall be sealed to prevent circulation of air and prevent the cover from flapping or blowing. The protection shall remain in place until the concrete is seven days old. If construction operations require removal, the protection removed shall be replaced immediately after completion or suspension of such operations.

1020.14 Temperature Control for Placement. Temperature control for concrete placement shall be according to the following.

(a) Concrete other than Structures. Concrete may be placed when the air temperature is above 35 °F (2 °C) and rising, and concrete placement shall stop when the falling temperature reaches 40 °F (4 °C) or below, unless otherwise approved by the Engineer.

The temperature of concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete at point of placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). A maximum concrete temperature shall not apply to Class PP concrete.

(b) Concrete in Structures. Concrete may be placed when the air temperature is above 40 °F (4 °C) and rising, and concrete placement shall stop when the falling temperature reaches 45 °F (7 °C) or below, unless otherwise approved by the Engineer.

The temperature of the concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete at point of placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C).

When insulated forms are used according to Article 1020.13(d)(1), the maximum temperature of the concrete mixture immediately before placement shall be 80 °F (25 °C).

When concrete is placed in contact with previously placed concrete, the temperature of the freshly mixed concrete may be increased to 80 °F (25 °C) by the Contractor to offset anticipated heat loss.

(c) All Classes of Concrete. Aggregates and water shall be heated or cooled uniformly and as necessary to produce concrete within the specified temperature limits. No frozen aggregates shall be used in the concrete.

(d) Temperature. The concrete temperature shall be determined according to Illinois Modified AASHTO T 309.

1020.15 Heat of Hydration Control for Concrete Structures. The Contractor shall control the heat of hydration for concrete structures when the least dimension for a drilled shaft, foundation, footing, substructure, or superstructure concrete pour exceeds 5.0 ft (1.5 m). The work shall be according to the following.

(a) Temperature Restrictions. The maximum temperature of the concrete after placement shall not exceed 150 °F (66 °C). The maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface shall not exceed 35 °F (19 °C). The Contractor shall perform temperature monitoring to ensure compliance with the temperature restrictions.

(b) Thermal Control Plan. The Contractor shall provide a thermal control plan a minimum of 28 calendar days prior to concrete placement for review by the Engineer. Acceptance of the thermal control plan by the Engineer shall not preclude the Contractor from specification compliance, and from preventing cracks in the concrete. At a minimum, the thermal control plan shall provide detailed information on the following requested items and shall comply with the specific specifications indicated for each item.

(1) Concrete mix design(s) to be used. Grout mix design if post-cooling with embedded pipe.

The mix design requirements in Articles 1020.04 and 1020.05 shall be revised to include the following additional requirements to control the heat of hydration.

a. The concrete mixture should be uniformly graded and preference for larger size aggregate should be used in the mix design. Article 1004.02(d)(2) shall apply and information in the "Portland Cement Concrete Level III Technician Course – Manual of Instructions for Design of Concrete Mixtures" may be used to develop the uniformly graded mixture.

b. The following shall apply to all concrete except Class DS concrete or when self-consolidating concrete is desired. For central-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 520 lbs/cu yd (309 kg/cu m) of cement and finely divided minerals summed together. For truck-mixed or shrink-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 550 lbs/cu yd (326 kg/cu m) of cement and finely divided minerals summed together. A water-reducing or high range water-reducing admixture shall be used in the central mixed, truck-mixed or shrink-

mixed concrete mixture. For any mixture to be placed underwater, the minimum cement and finely divided minerals shall be 550 lbs/cu yd (326 kg/cu m) for central-mixed concrete, and 580 lbs/cu yd (344 kg/cu m) for truck-mixed or shrink-mixed concrete.

For Class DS concrete, CA 11 may be used. If CA 11 is used, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 605 lbs/cu yd (360 kg/cu m) summed together. If CA 11 is used and either Class DS concrete is placed underwater or a self-consolidating concrete mixture is desired, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 635 lbs/cu yd (378 kg/cu m) summed together.

c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161 Procedure A or B, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.

d. The maximum cement replacement with fly ash shall be 40.0 percent. The maximum cement replacement with ground granulated blast-furnace slag shall be 65.0 percent. When cement replacement with ground granulated blast-furnace slag exceeds 35.0 percent, only Grade 100 shall be used.

e. The mixture may contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 65.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 40.0 percent. The ground granulated blast-furnace slag portion shall not exceed 65.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed 5.0 percent.

f. The time to obtain the specified strength may be increased to a maximum 56 days, provided the curing period specified in Article 1020.13 is increased to a minimum of 14 days.

The minimum grout strength for filling embedded pipe shall be as specified for the concrete, and testing shall be according to AASHTO T 106.

(2) The selected mathematical method for evaluating heat of hydration thermal effects, which shall include the calculated adiabatic temperature rise, calculated maximum concrete temperature, and calculated maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface. The time when the maximum concrete temperature and maximum temperature differential will occur is required.

Acceptable mathematical methods include ACI 207.2R "Report on Thermal and Volume Change Effects on Cracking of Mass Concrete" as well as other proprietary methods. The Contractor shall perform heat of hydration testing on the cement and finely divided minerals to be used in the concrete mixture. The test shall be according to ASTM C 186 or other applicable test methods, and the result for heat shall be used in the equation to calculate adiabatic temperature rise. Other required test parameters for the mathematical model may be assumed if appropriate.

The Contractor has the option to propose a higher maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface, but the proposed value shall not exceed 50 °F (28 °C). In addition, based on strength gain of the concrete, multiple maximum temperature differentials at different times may be proposed. The proposed value shall be justified through a mathematical method.

(3) Proposed maximum concrete temperature or temperature range prior to placement.

Article 1020.14 shall apply except a minimum 40 °F (4 °C) concrete temperature will be permitted.

(4) Pre-cooling, post-cooling, and surface insulation methods that will be used to ensure the concrete will comply with the specified maximum temperature and specified or proposed temperature differential. For reinforcement that extends beyond the limits of the pour, the Contractor shall indicate if the reinforcement is required to be covered with insulation.

Refer to ACI 207.4R "Cooling and Insulating Systems for Mass Concrete" for acceptable methods that will be permitted. If embedded pipe is used for post-cooling, the material shall be polyvinyl chloride or polyethylene. The embedded pipe system shall be properly supported, and the Contractor shall subsequently inspect glued joints to ensure they are able to withstand free falling concrete. The embedded pipe system shall be leak tested after inspection of the glued joints, and prior to the concrete placement. The leak test shall be performed at maximum service pressure or higher for a minimum of 15 minutes. All leaks shall be repaired. The embedded pipe cooling water may be from natural sources such as streams and rivers, but shall be filtered to prevent system stoppages. When the embedded pipe is no longer needed, the surface connections to the pipe shall be removed to a depth of 4 in. (100 mm) below the surface of the concrete. The remaining pipe shall be

completely filled with grout. The 4 in. (100 mm) deep concrete hole shall be filled with nonshrink grout. Form and insulation removal shall be done in a manner to prevent cracking and ensure the maximum temperature differential is maintained. Insulation shall be in good condition as determined by the Engineer and properly attached.

(5) Dimensions of each concrete pour, location of construction joints, placement operations, pour pattern, lift heights, and time delays between lifts.

Refer to ACI 207.1R "Guide to Mass Concrete" for acceptable placement operations that will be permitted.

(6) Type of temperature monitoring system, the number of temperature sensors, and location of sensors.

A minimum of two independent temperature monitoring systems and corresponding sensors shall be used.

The temperature monitoring system shall have a minimum temperature range of 32 °F (0 °C) to 212 °F (100 °C), an accuracy of ± 2 °F (± 1 °C), and be able to automatically record temperatures without external power. Temperature monitoring shall begin once the sensor is encased in concrete, and with a maximum interval of one hour. Temperature monitoring may be discontinued after the maximum concrete temperature has been reached, post-cooling is no longer required, and the maximum temperature differential between the internal concrete core and the ambient air temperature does not exceed 35 °F (19 °C). The Contractor has the option to select a higher maximum temperature differential, but the proposed value shall not exceed 50 °F (28 °C). The proposed value shall be justified through a mathematical method.

At a minimum, a temperature sensor shall be located at the theoretical hottest portion of the concrete, normally the geometric center, and at the exterior face that will provide the maximum temperature differential. At the exterior face, the sensor shall be located 2 to 3 in. (50 to 75 mm) from the surface of the concrete. Sensors shall also be located a minimum of 1 in. (25 mm) away from reinforcement, and equidistant between cooling pipes if either applies. A sensor will also be required to measure ambient air temperature. The entrant/exit cooling water temperature for embedded pipe shall also be monitored.

Temperature monitoring results shall be provided to the Engineer a minimum of once each day and whenever requested by the Engineer. The report may be electronic or hard copy. The report shall indicate the location of each sensor, the temperature recorded, and the time recorded. The report shall be for all sensors and shall include ambient air temperature and entrant/exit cooling water temperatures. The temperature data in the report may be provided in tabular or graphical format, and the report shall indicate any corrective actions during the monitoring period. At the

completion of the monitoring period, the Contractor shall provide the Engineer a final report that includes all temperature data and corrective actions.

(7) Indicate contingency operations to be used if the maximum temperature or temperature differential of the concrete is reached after placement.

(c) Temperature Restriction Violations. If the maximum temperature of the concrete after placement exceeds 150 °F (66 °C), but is equal to or less than 158 °F (70 °C), the concrete will be accepted if no cracking or other unacceptable defects are identified. If cracking or unacceptable defects are identified, Article 105.03 shall apply. If the concrete temperature exceeds 158 °F (70 °C), Article 105.03 shall apply.

If a temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface exceeds the specified or proposed maximum value allowed, the concrete will be accepted if no cracking or other unacceptable defects are identified. If unacceptable defects are identified, Article 105.03 shall apply.

When the maximum 150 °F (66 °C) concrete temperature or the maximum allowed temperature differential is violated, the Contractor shall implement corrective action prior to the next pour. In addition, the Engineer reserves the right to request a new thermal control plan for acceptance before the Contractor is allowed to pour again.

(d) Inspection and Repair of Cracks. The Engineer will inspect the concrete for cracks after the temperature monitoring is discontinued, and the Contractor shall provide access for the Engineer to do the inspection. A crack may require repair by the Contractor as determined by the Engineer. The Contractor shall be responsible for the repair of all cracks. Protective coat or a concrete sealer shall be applied to a crack less than 0.007 in. (0.18 mm) in width. A crack that is 0.007 in. (0.18 mm) or greater shall be pressure injected with epoxy according to Section 590.

80279

QUALITY CONTROL/QUALITY ASSURANCE OF CONCRETE MIXTURES (BDE)

Effective: January 1, 2012
Revised: January 1, 2013

Add the following to Section 1020 of the Standard Specifications:

"**1020.16 Quality Control/Quality Assurance of Concrete Mixtures.** This Article specifies the quality control responsibilities of the Contractor for concrete mixtures (except Class PC and PS concrete), cement aggregate mixture II, and controlled low-strength material incorporated in the project, and defines the quality assurance and acceptance responsibilities of the Engineer.

A list of quality control/quality assurance (QC/QA) documents is provided in Article 1020.16(g), Schedule D.

A Level I Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete testing.

A Level II Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete proportioning.

A Level III Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete mix design.

A Concrete Tester shall be defined as an individual who has successfully completed the Department's training to assist with concrete testing and is monitored on a daily basis.

Aggregate Technician shall be defined as an individual who has successfully completed the Department's training for gradation testing involving aggregate production and mixtures.

Mixture Aggregate Technician shall be defined as an individual who has successfully completed the Department's training for gradation testing involving mixtures.

Gradation Technician shall be defined as an individual who has successfully completed the Department's training to assist with gradation testing and is monitored on a daily basis.

(a) Equipment/Laboratory. The Contractor shall provide a laboratory and test equipment to perform their quality control testing.

The laboratory shall be of sufficient size and be furnished with the necessary equipment, supplies, and current published test methods for adequately and safely performing all required tests. The laboratory will be approved by the Engineer according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Private Laboratory Requirements for Construction Materials Testing or Mix Design". Production of a mixture shall not begin until the Engineer provides written approval of the laboratory.

The Contractor shall refer to the Department's "Required Sampling and Testing Equipment for Concrete" for equipment requirements.

Test equipment shall be maintained and calibrated as required by the appropriate test method, and when required by the Engineer. This information shall be documented on the Department's "Calibration of Concrete Testing Equipment" form.

Test equipment used to determine compressive or flexural strength shall be calibrated each 12 month period by an independent agency, using calibration equipment traceable to the National Institute of Standards and Technology (NIST). The Contractor shall have the calibration documentation available at the test equipment location.

The Engineer will have unrestricted access to the plant and laboratory at any time to inspect measuring and testing equipment, and will notify the Contractor of any deficiencies. Defective equipment shall be immediately repaired or replaced by the Contractor.

(b) Quality Control Plan. The Contractor shall submit, in writing, a proposed Quality Control (QC) Plan to the Engineer. The QC Plan shall be submitted a minimum of 45 calendar days prior to the production of a mixture. The QC Plan shall address the quality control of the concrete, cement aggregate mixture II, and controlled low-strength material incorporated in the project. The Contractor shall refer to the Department's "Model Quality Control Plan for Concrete Production" to prepare a QC Plan. The Engineer will respond in writing to the Contractor's proposed QC Plan within 15 calendar days of receipt.

Production of a mixture shall not begin until the Engineer provides written approval of the QC Plan. The approved QC Plan shall become a part of the contract between the Department and the Contractor, but shall not be construed as acceptance of any mixture produced.

The QC Plan may be amended during the progress of the work, by either party, subject to mutual agreement. The Engineer will respond in writing to a Contractor's proposed QC Plan amendment within 15 calendar days of receipt. The response will indicate the approval or denial of the Contractor's proposed QC Plan amendment.

(c) Quality Control by Contractor. The Contractor shall perform quality control inspection, sampling, testing, and documentation to meet contract requirements. Quality control includes the recognition of obvious defects and their immediate correction. Quality control also includes appropriate action when passing test results are near specification limits, or to resolve test result differences with the Engineer. Quality control may require increased testing, communication of test results to the plant or the jobsite, modification of operations, suspension of mixture production, rejection of material, or other actions as appropriate. The Engineer shall be immediately notified of any failing tests and subsequent remedial action. Passing tests shall be reported no later than the start of the next work day.

When a mixture does not comply with specifications, the Contractor shall reject the material; unless the Engineer accepts the material for incorporation in the work, according to Article 105.03.

(1) Personnel Requirements. The Contractor shall provide a Quality Control (QC) Manager who will have overall responsibility and authority for quality control. The jobsite and plant personnel shall be able to contact the QC Manager by cellular phone, two-way radio or other methods approved by the Engineer.

The QC Manager shall visit the jobsite a minimum of once a week. A visit shall be performed the day of a bridge deck pour, the day a non-routine mixture is placed as determined by the Engineer, or the day a plant is anticipated to produce more than 1000 cu yd (765 cu m). Any of the three required visits may be used to meet the once per week minimum requirement.

The Contractor shall provide personnel to perform the required inspections, sampling, testing and documentation in a timely manner. The Contractor shall refer to the Department's "Qualifications and Duties of Concrete Quality Control Personnel" document.

A Level I PCC Technician shall be provided at the jobsite during mixture production and placement, and may supervise concurrent pours on the project. For concurrent pours, a minimum of one Concrete Tester shall be required at each pour location. If the Level I PCC Technician is at one of the pour locations, a Concrete Tester is still required at the same location. Each Concrete Tester shall be able to contact the Level I PCC Technician by cellular phone, two-way radio or other methods approved by the Engineer. A single Level I PCC Technician shall not supervise concurrent pours for multiple contracts.

A Level II PCC Technician shall be provided at the plant, or shall be available, during mixture production and placement. A Level II PCC Technician may supervise a maximum of three plants. Whenever the Level II PCC Technician is not at the plant during mixture production and placement, a Concrete Tester or Level I PCC Technician shall be present at the plant to perform any necessary concrete tests. The Concrete Tester, Level I PCC Technician, or other individual shall also be trained to perform any necessary aggregate moisture tests, if the Level II PCC Technician is not at the plant during mixture production and placement. The Concrete Tester, Level I PCC Technician, plant personnel, and jobsite personnel shall have the ability to contact the Level II PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer.

For a mixture which is produced and placed with a mobile portland cement concrete plant as defined in Article 1103.04, a Level II PCC Technician shall be provided. The Level II PCC Technician shall be present at all times during mixture production and placement. However, the Level II PCC Technician may request to be available if

operations are satisfactory. Approval shall be obtained from the Engineer, and jobsite personnel shall have the ability to contact the Level II PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer.

A Concrete Tester, Mixture Aggregate Technician, and Aggregate Technician may provide assistance with sampling and testing. A Gradation Technician may provide assistance with testing. A Concrete Tester shall be supervised by a Level I or Level II PCC Technician. A Gradation Technician shall be supervised by a Level II PCC Technician, Mixture Aggregate Technician, or Aggregate Technician.

(2) Required Plant Tests. Sampling and testing shall be performed at the plant, or at a location approved by the Engineer, to control the production of a mixture. The required minimum Contractor plant sampling and testing is indicated in Article 1020.16(g) Schedule A.

(3) Required Field Tests. Sampling and testing shall be performed at the jobsite to control the production of a mixture, and to comply with specifications for placement. For standard curing, after initial curing, and for strength testing; the location shall be approved by the Engineer. The required minimum Contractor jobsite sampling and testing is indicated in Article 1020.16(g), Schedule B.

(d) Quality Assurance by Engineer. The Engineer will perform quality assurance tests on independent samples and split samples. An independent sample is a field sample obtained and tested by only one party. A split sample is one of two equal portions of a field sample, where two parties each receive one portion for testing. The Engineer may request the Contractor to obtain a split sample. Aggregate split samples and any failing strength specimen shall be retained until permission is given by the Engineer for disposal. The results of all quality assurance tests by the Engineer will be made available to the Contractor. However, Contractor split sample test results shall be provided to the Engineer before Department test results are revealed. The Engineer's quality assurance independent sample and split sample testing is indicated in Article 1020.16(g), Schedule C.

(1) Strength Testing. For strength testing, Article 1020.09 shall apply, except the Contractor and Engineer strength specimens may be placed in the same field curing box for initial curing and may be cured in the same water storage tank for final curing.

(2) Comparing Test Results. Differences between the Engineer's and the Contractor's split sample test results will be considered reasonable if within the following limits:

Test Parameter	Acceptable Limits of Precision
Slump	0.75 in. (20 mm)
Air Content	0.9%
Compressive Strength	900 psi (6200 kPa)

Flexural Strength	90 psi (620 kPa)
Slump Flow (Self-Consolidating Concrete (SCC))	1.5 in. (40 mm)
Visual Stability Index (SCC)	Not Applicable
J-Ring (SCC)	1.5 in. (40 mm)
L-Box (SCC)	10 %
Hardened Visual Stability Index (SCC)	Not Applicable
Dynamic Segregation Index (SCC)	1.0 %
Flow (Controlled Low-Strength Material (CLSM))	1.5 in. (40 mm)
Strength (Controlled Low-Strength Material (CLSM))	40 psi (275 kPa)
Aggregate Gradation	See "Guideline for Sample Comparison" in Appendix "A" of the Manual of Test Procedures for Materials.

When acceptable limits of precision have been met, but only one party is within specification limits, the failing test shall be resolved before the material may be considered for acceptance.

(3)Test Results and Specification Limits.

a. Split Sample Testing. If either the Engineer's or the Contractor's split sample test result is not within specification limits, and the other party is within specification limits; immediate retests on a split sample shall be performed for slump, air content, slump flow, visual stability index, J-Ring, L-Box, dynamic segregation index, flow (CLSM), or aggregate gradation. A passing retest result by each party will require no further action. If either the Engineer's or Contractor's slump, air content, slump flow, visual stability index, J-Ring, L-Box, dynamic segregation index, flow (CLSM), or aggregate gradation split sample retest result is a failure; or if either the Engineer's or Contractor's strength or hardened visual stability index test result is a failure, and the other party is within specification limits; the following actions shall be initiated to investigate the test failure:

1. The Engineer and the Contractor shall investigate the sampling method, test procedure, equipment condition, equipment calibration, and other factors.

2. The Engineer or the Contractor shall replace test equipment, as determined by the Engineer.

3. The Engineer and the Contractor shall perform additional testing on split samples, as determined by the Engineer.

For aggregate gradation, jobsite slump, jobsite air content, jobsite slump flow, jobsite visual stability index, jobsite J-Ring, jobsite L-Box, jobsite dynamic segregation index, and jobsite flow (CLSM); if the failing split sample test result is not resolved according to 1., 2., or 3., and the mixture has not been placed, the Contractor shall reject the material; unless the Engineer accepts the material for

incorporation in the work according to Article 105.03. If the mixture has already been placed, or if a failing strength or hardened visual stability index test result is not resolved according to 1., 2., or 3., the material will be considered unacceptable.

If a continued trend of difference exists between the Engineer's and the Contractor's split sample test results, or if split sample test results exceed the acceptable limits of precision, the Engineer and the Contractor shall investigate according to items 1., 2., and 3.

b. Independent Sample Testing. For aggregate gradation, jobsite slump, jobsite air content jobsite slump flow, jobsite visual stability index, jobsite J-Ring, jobsite L-Box, jobsite dynamic segregation index, jobsite flow (CLSM); if the result of a quality assurance test on a sample independently obtained by the Engineer is not within specification limits, and the mixture has not been placed, the Contractor shall reject the material, unless the Engineer accepts the material for incorporation in the work according to Article 105.03. If the mixture has already been placed or the Engineer obtains a failing strength or hardened visual stability index test result, the material will be considered unacceptable.

(e) Acceptance by the Engineer. Final acceptance will be based on the Standard Specifications and the following:

(1) The Contractor's compliance with all contract documents for quality control.

(2) Validation of Contractor quality control test results by comparison with the Engineer's quality assurance test results using split samples. Any quality control or quality assurance test determined to be flawed may be declared invalid only when reviewed and approved by the Engineer. The Engineer will declare a test result invalid only if it is proven that improper sampling or testing occurred. The test result is to be recorded and the reason for declaring the test invalid will be provided by the Engineer.

(3) Comparison of the Engineer's quality assurance test results with specification limits using samples independently obtained by the Engineer.

The Engineer may suspend mixture production, reject materials, or take other appropriate action if the Contractor does not control the quality of concrete, cement aggregate mixture II, or controlled low-strength material for acceptance. The decision will be determined according to (1), (2), or (3).

(f) Documentation.

(1) Records. The Contractor shall be responsible for documenting all observations, inspections, adjustments to the mix design, test results, retest results, and corrective actions in a bound hardback field book, bound hardback diary, or appropriate

Department form, which shall become the property of the Department. The documentation shall include a method to compare the Engineer's test results with the Contractor's results. The Contractor shall be responsible for the maintenance of all permanent records whether obtained by the Contractor, the consultants, the subcontractors, or the producer of the mixture. The Contractor shall provide the Engineer full access to all documentation throughout the progress of the work.

The Department's form MI 504M, form BMPR MI654, and form BMPR MI655 shall be completed by the Contractor, and shall be submitted to the Engineer weekly or as required by the Engineer. A correctly completed form MI 504M, form BMPR MI654, and form BMPR MI655 are required to authorize payment by the Engineer, for applicable pay items.

(2) Delivery Truck Ticket. The following information shall be recorded on each delivery ticket or in a bound hardback field book: initial revolution counter reading (final reading optional) at the jobsite, if the mixture is truck-mixed; time discharged at the jobsite; total amount of each admixture added at the jobsite; and total amount of water added at the jobsite.

(g) Basis of Payment and Schedules. Quality Control/Quality Assurance of portland cement concrete mixtures will not be paid for separately, but shall be considered as included in the cost of the various concrete contract items.

SCHEDULE A

CONTRACTOR PLANT SAMPLING AND TESTING			
Item	Test	Frequency	IL Modified AASHTO or Department Test Method [1/]
Aggregates (Arriving at Plant)	Gradation [2/]	As needed to check source for each gradation number	2, 11, 27, and 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Gradation [2/]	2,500 cu yd (1,900 cu m) for each gradation number [3/]	2, 11, 27, and 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Moisture [4/]: Fine Aggregate	Once per week for moisture sensor, otherwise daily for each gradation number	Flask, Dunagan, Pychnometer Jar, or 255
	Moisture [4/]: Coarse Aggregate	As needed to control production for each gradation number	Dunagan, Pychnometer Jar, or 255
Mixture [5/]	Slump Air Content Unit Weight / Yield Slump Flow (SCC) Visual Stability Index (SCC) J-Ring (SCC) [6/] L-Box (SCC) [6/] Temperature	As needed to control production	T 141 and T 119 T 141 and T 152 or T 196 T 141 and T 121 SCC-1 and SCC-2 SCC-1 and SCC-2 SCC-1 and SCC-3 SCC-1 and SCC-4 T 141 and T 309
Mixture (CLSM) [7/]	Flow Air Content Temperature	As needed to control production	Illinois Test Procedure 307

1/ Refer to the Department's "Manual of Test Procedures for Materials".

2/ All gradation tests shall be washed. Testing shall be completed no later than 24 hours after the aggregate has been sampled.

3/ One per week (Sunday through Saturday) minimum unless the stockpile has not received additional aggregate material since the previous test.

One per day minimum for a bridge deck pour unless the stockpile has not received additional aggregate material since the previous test. The sample shall be taken and testing completed prior to the pour. The bridge deck aggregate sample may be taken the day before the pour or as approved by the Engineer.

4/ If the moisture test and moisture sensor disagree by more than 0.5 percent, retest. If the difference remains, adjust the moisture sensor to an average of two or more moisture tests. The Department's "Water/Cement Ratio Worksheet" form shall be completed when applicable.

5/ The Contractor may also perform strength testing according to Illinois Modified AASHTO T 141, T 23, and T 22 or T 177; or water content testing according to Illinois Modified AASHTO T 318.

The Contractor may also perform other available self-consolidating concrete (SCC) tests at the plant to control mixture production.

6/ The Contractor shall select the J-Ring or L-Box test for plant sampling and testing.

7/ The Contractor may also perform strength testing according to Illinois Test Procedure 307.

SCHEDULE B

CONTRACTOR JOBSITE SAMPLING & TESTING [1/]			
Item	Measured Property	Random Sample Testing Frequency per Mix Design and per Plant [2/]	IL Modified AASHTO Test Method
Pavement, Shoulder, Base Course, Base Course Widening, Driveway Pavement, Railroad Crossing, Cement Aggregate Mixture II	Slump [3/ 4/]	1 per 500 cu yd (400 cu m) or minimum 1/day	T 141 and T 119
	Air Content [3/ 5/ 6/]	1 per 100 cu yd (80 cu m) or minimum 1/day	T 141 and T 152 or T 196
	Compressive Strength [7/ 8/] or Flexural Strength [7/ 8/]	1 per 1250 cu yd (1000 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23
Bridge Approach Slab [9/], Bridge Deck [9/], Bridge Deck Overlay [9/], Superstructure [9/], Substructure, Culvert, Miscellaneous Drainage Structures, Retaining Wall, Building Wall, Drilled Shaft Pile & Encasement Footing, Foundation, Pavement Patching, Structural Repairs	Slump [3/ 4/]	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 and T 119
	Air Content [3/ 5/ 6/]	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 and T 152 or T 196
	Compressive Strength [7/ 8/] or Flexural Strength [7/ 8/]	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23
Seal Coat	Slump [3/]	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141 and T 119
	Air Content [3/ 5/ 6/]	1 per 250 cu yd (200 cu m) or minimum 1/day when air is entrained	T 141 and T 152 or T 196
	Compressive Strength [7/ 8/] or Flexural Strength [7/ 8/]	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23

CONTRACTOR JOBSITE SAMPLING & TESTING [1/]			
Curb, Gutter, Median, Barrier, Sidewalk, Slope Wall, Paved Ditch, Fabric Formed Concrete Revetment Mat [10/], Miscellaneous Items, Incidental Items	Slump [3/ 4/]	1 per 100 cu yd (80 cu m) or minimum 1/day	T 141 and T 119
	Air Content [3/ 5/ 6/]	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 and T 152 or T 196
	Compressive Strength [7/ 8/] or Flexural Strength [7/ 8/]	1 per 400 cu yd (300 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23
The Item will use a Self-Consolidating Concrete Mixture	Slump Flow [3/] VSI [3/] J-Ring [3/ 11/] L-Box [3/ 11/]	Perform at same frequency that is specified for the Item's slump	SCC-1 & SCC-2 SCC-1 & SCC-2 SCC-1 & SCC-3 SCC-1 & SCC-4
The Item will use a Self-Consolidating Concrete Mixture	HVSI [12/]	Minimum 1/day at start of production for that day	SCC-1 and SCC-6
The Item will use a Self-Consolidating Concrete Mixture	Dynamic Segregation Index (DSI)	Minimum 1/week at start of production for that week	SCC-1 and SCC-8 (Option C)
The Item will use a Self-Consolidating Concrete Mixture	Air Content [3/ 5/ 6/]	Perform at same frequency that is specified for the Item's air content	SCC-1 and T 152 or T 196
The Item will use a Self-Consolidating Concrete Mixture	Compressive Strength 7/ 8/ or Flexural Strength [7/ 8/]	Perform at same frequency that is specified for the Item's strength	SCC-1, T 22 and T 23 or SCC-1, T 177 and T 23
All	Temperature [3/]	As needed to control production	T 141 and T 309
Controlled Low-Strength Material (CLSM)	Flow, Air Content, Compressive Strength (28-day) [13/], and Temperature	First truck load delivered and as needed to control production thereafter	Illinois Test Procedure 307

1/ Sampling and testing of small quantities of curb, gutter, median, barrier, sidewalk, slope wall, paved ditch, miscellaneous items, and incidental items may be waived by the Engineer if requested by the Contractor. However, quality control personnel are still required according to Article 1020.16(c)(1) The Contractor shall also provide recent evidence that similar material has been found to be satisfactory under normal sampling and testing procedures. The total quantity that may be waived for testing shall not exceed 100 cu yd (76 cu m) per contract.

If the Contractor's or Engineer's test result for any jobsite mixture test is not within the specification limits, all subsequent truck loads delivered shall be tested by the Contractor until the problem is corrected.

2/ If one mix design is being used for several construction items during a day's production, one testing frequency may be selected to include all items. The construction items shall have the same slump, air content, and water/cement ratio specifications. For self-consolidating concrete, the construction items shall have the same slump flow, visual stability index, J-Ring, L-Box, air content, and water/cement ratio specifications. The frequency selected shall equal or exceed the testing required for the construction item.

One sufficiently sized sample shall be taken to perform the required test(s). Random numbers shall be determined according to the Department's "Method for Obtaining Random Samples for Concrete". The Engineer will provide random sample locations.

3/ The temperature, slump, and air content tests shall be performed on the first truck load delivered, for each pour. For self consolidating concrete, the temperature, slump flow, visual stability index, J-Ring or L-Box, and air content tests shall be performed on the first truck load delivered, for each pour. Unless a random sample is required for the first truck load, testing the first truck load does not satisfy random sampling requirements.

4/ The slump random sample testing frequency shall be a minimum 1/day for a construction item which is slipformed.

5/ If a pump or conveyor is used for placement, a correction factor shall be established to allow for a loss of air content during transport. The first three truck loads delivered shall be tested, before and after transport by the pump or conveyor, to establish the correction factor. Once the correction is determined, it shall be re-checked after an additional 50 cu yd (40 cu m) is pumped, or an additional 100 cu yd (80 cu m) is conveyored. This shall continue throughout the pour. If the re-check indicates the correction factor has changed, a minimum of two truckloads is required to re-establish the correction factor. The correction factor shall also be re-established when significant changes in temperature, distance, pump or conveyor arrangement, and other factors have occurred. If the correction factor is >3.0 percent, the Contractor shall take corrective action to reduce the loss of air content during transport by the pump or conveyor. The Contractor shall record all air content test results, correction factors and corrected air contents. The corrected air content shall be reported on form BMPR MI654.

6/ If the Contractor's or Engineer's air content test result is within the specification limits, and 0.2 percent or closer to either limit, the next truck load delivered shall be tested by the Contractor. For example, if the specified air content range is 5.0 to 8.0 percent and the test result is 5.0, 5.1, 5.2, 7.8, 7.9 or 8.0 percent, the next truck shall be tested by the Contractor.

7/ The test of record for strength shall be the day indicated in Article 1020.04. For cement aggregate mixture II, a strength requirement is not specified and testing is not required. Additional strength testing to determine early falsework and form removal, early pavement or bridge opening to traffic, or to monitor strengths is at the discretion of the Contractor. Strength shall be defined as the average of at least two cylinder or two beam breaks for field tests.

8/ In addition to the strength test, a slump test, air content test, and temperature test shall be performed on the same sample. For self-consolidating concrete, a slump flow test, visual stability index test, J-Ring or L-Box test, air content test, and temperature test shall be performed on the same sample as the strength test. For mixtures pumped or conveyored, the Contractor shall sample according to Illinois Modified AASHTO T 141.

9/ The air content test will be required for each delivered truck load.

10/ For fabric formed concrete revetment mat, the slump test is not required and the flexural strength test is not applicable.

11/ The Contractor shall select the J-Ring or L-Box test for jobsite sampling and testing.

12/ In addition to the hardened visual stability index (HVSI) test, a slump flow test, visual stability index (VSI) test, J-Ring or L-Box test, air content test, and temperature test shall be performed on the same sample. The Contractor shall retain all hardened visual stability index cut cylinder specimens until the Engineer notifies the Contractor that the specimens may be discarded.

13/ The test of record for strength shall be the day indicated in Article 1019.04. In addition to the strength test, a flow test, air content test, and temperature test shall be performed on the same sample. The strength test may be waived by the Engineer if future removal of the material is not a concern.

SCHEDULE C

ENGINEER QUALITY ASSURANCE INDEPENDENT SAMPLE TESTING		
Location	Measured Property	Testing Frequency [1/]
Plant	Gradation of aggregates stored in stockpiles or bins, Slump and Air Content	As determined by the Engineer.
Jobsite	Slump, Air Content, Slump Flow, Visual Stability Index, J-Ring, L-Box, Hardened Visual Stability Index, Dynamic Segregation Index and Strength	As determined by the Engineer.
	Flow, Air Content, Strength (28-day), and Dynamic Cone Penetration for Controlled Low-Strength Material (CLSM)	As determined by the Engineer

ENGINEER QUALITY ASSURANCE SPLIT SAMPLE TESTING		
Location	Measured Property	Testing Frequency [1/]
Plant	Gradation of aggregates stored in stockpiles or bins [2/]	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 10% of total tests required of the Contractor will be performed per aggregate gradation number and per plant.
	Slump and Air Content	As determined by the Engineer.
Jobsite	Slump [2/], Air Content [2/ 3/], Slump Flow [2/], Visual Stability Index [2/], J-Ring [2/] and L-box [2/]	At the beginning of the project, the first three tests performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.
	Hardened Visual Stability Index [2/]	As determined by the Engineer.
	Dynamic Segregation Index [2/]	As determined by the Engineer.
	Strength [2/]	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.
	Flow, Air Content, and Strength (28-day) for Controlled Low-Strength Material (CLSM)	As determined by the Engineer.

1/ The Engineer will perform the testing throughout the period of quality control testing by the Contractor.

2/ The Engineer will witness and take immediate possession of or otherwise secure the Department's split sample obtained by the Contractor.

3/ Before transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant. After transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant.

SCHEDULE D

CONCRETE QUALITY CONTROL AND QUALITY ASSURANCE DOCUMENTS

(a) Model Quality Control Plan for Concrete Production (*)

(b) Qualifications and Duties of Concrete Quality Control Personnel (*)

(c) Development of Gradation Bands on Incoming Aggregate at Mix Plants (*)

(d) Required Sampling and Testing Equipment for Concrete (*)

(e) Method for Obtaining Random Samples for Concrete (*)

(f) Calibration of Concrete Testing Equipment (BMPR PCCQ01 through BMPR PCCQ09) (*)

(g) Water/Cement Ratio Worksheet (BMPR PCCW01) (*)

(h) Field/Lab Gradations (MI 504M) (*)

(i) Concrete Air, Slump and Quantity (BMPR MI654) (*)

(j) P.C. Concrete Strengths (BMPR MI655) (*)

(k) Aggregate Technician Course or Mixture Aggregate Technician Course (*)

(l) Portland Cement Concrete Tester Course (*)

(m) Portland Cement Concrete Level I Technician Course - Manual of Instructions for Concrete Testing (*)

(n) Portland Cement Concrete Level II Technician Course - Manual of Instructions for Concrete Proportioning (*)

(o) Portland Cement Concrete Level III Technician Course - Manual of Instructions for Design of Concrete Mixtures (*)

(p) Manual of Test Procedures for Materials

* Refer to Appendix C of the Manual of Test Procedures for Materials for more information."

80281

RAILROAD PROTECTIVE LIABILITY INSURANCE (5 and 10) (BDE)

Effective: January 1, 2006

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

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
Chicago Central and Pacific Railroad Company and its Parents 17641 South Ashland Ave. Homewood, IL 60430-1345	0	10 @ 50 mph
DOT/AAR No.: 289 905B RR Division: Northern	RR Mile Post: 38.15 RR Sub-Division: Freeport	
For Freight/Passenger Information Contact: Patrick Jones For Insurance Information Contact: Rob Glass		Phone: 708/332-3557 Phone: 708/332-6673
Union Pacific Railroad 1400 Douglas Street Omaha, NE 68179	0	2 @ 25 mph
DOT/AAR No.: 174540B (Overpass) RR Division: Chicago / Illinois	RR Mile Post: 37.79 RR Sub-Division: Belvedere	
For Freight/Passenger Information Contact: Rich Ellison For Insurance Information Contact: Bill Smith / Marsh USA		Phone: 312-777-2048 Phone: 1-800-729-7001

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

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

The Contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Engineer evidence that the required insurance has been approved by the railroad(s). The Contractor shall also provide the Engineer with the expiration date of each required policy.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

80157

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2012
Revised: November 2, 2012

Revise Article 669.01 of the Standard Specifications to read:

"**669.01 Description.** This work shall consist of the transportation and proper disposal of contaminated soil and water. This work shall also consist of the removal, transportation, and proper disposal of underground storage tanks (UST), their content and associated underground piping to the point where the piping is above the ground, including determining the content types and estimated quantities."

Revise Article 669.08 of the Standard Specifications to read:

"**669.08 Contaminated Soil and/or Groundwater Monitoring.** The Contractor shall hire a qualified environmental firm to monitor the area containing the regulated substances. The affected area shall be monitored with a photoionization detector (PID) utilizing a lamp of 10.6eV or greater or a flame ionization detector (FID). Any field screen reading on the PID or FID in excess of background levels indicates the potential presence of contaminated material requiring handling as a non-special waste, special waste, or hazardous waste. No excavated soils can be taken to a clean construction and demolition debris (CCDD) facility or an uncontaminated soil fill operation with detectable PID or FID meter readings that are above background. The PID or FID meter shall be calibrated on-site and background level readings taken and recorded daily. All testing shall be done by a qualified engineer/technician. Such testing and monitoring shall be included in the work. The Contractor shall identify the exact limits of removal of non-special waste, special waste, or hazardous waste. All limits shall be approved by the Engineer prior to excavation. The Contractor shall take all necessary precautions.

Based upon the land use history of the subject property and/or PID or FID readings indicating contamination, a soil or groundwater sample shall be taken from the same location and submitted to an approved laboratory. Soil or groundwater samples shall be analyzed for the contaminants of concern, including pH, based on the property's land use history or the parameters listed in the maximum allowable concentration (MAC) for chemical constituents in uncontaminated soil established pursuant to Subpart F of 35 Illinois Administrative Code 1100.605. The analytical results shall serve to document the level of soil contamination. Soil and groundwater samples may be required at the discretion of the Engineer to verify the level of soil and groundwater contamination.

Samples shall be grab samples (not combined with other locations). The samples shall be taken with decontaminated or disposable instruments. The samples shall be placed in sealed containers and transported in an insulated container to the laboratory. The container shall maintain a temperature of 39 °F (4 °C). All samples shall be clearly labeled. The labels shall indicate the sample number, date sampled, location and elevation, and any other observations.

The laboratory shall use analytical methods which are able to meet the lowest appropriate practical quantitation limits (PQL) or estimated quantitation limit (EQL) specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846 and "Methods for the Determination of Organic Compounds in Drinking Water", EPA, EMSL, EPA-600/4-88/039. For parameters where the specified cleanup objective is below the acceptable detection limit (ADL), the ADL shall serve as the cleanup objective. For other parameters the ADL shall be equal to or below the specified cleanup objective."

Replace the first two paragraphs of Article 669.09 of the Standard Specifications with the following:

"**669.09 Contaminated Soil and/or Groundwater Management and Disposal.** The management and disposal of contaminated soil and/or groundwater shall be according to the following:

(a) Soil Analytical Results Exceed Most Stringent MAC. When the soil analytical results indicate that detected levels exceed the most stringent maximum allowable concentration (MAC) for chemical constituents in uncontaminated soil established pursuant to Subpart F of 35 Illinois Administrative Code 1100.605, the soil shall be managed as follows:

(1) When analytical results indicate inorganic chemical constituents exceed the most stringent MAC but they are still considered within area background levels by the Engineer, the excavated soil can be utilized within the construction limits as fill, when suitable. Such soil excavated for storm sewers can be placed back into the excavated trench as backfill, when suitable, unless trench backfill is specified. If the soils cannot be utilized within the construction limits, they shall be managed and disposed of off-site as a non-special waste, special waste, or hazardous waste as applicable.

(2) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for a Metropolitan Statistical Area (MSA) County, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as "uncontaminated soil" at a CCDD facility or an uncontaminated soil fill operation within an MSA County provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.

(3) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, or the MAC within the Chicago corporate limits, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as "uncontaminated soil" at a CCDD facility or an uncontaminated soil fill operation within an MSA County excluding Chicago or within the Chicago corporate limits provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.

(4) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as "uncontaminated soil" at a CCDD facility or an uncontaminated soil fill operation within an MSA County excluding Chicago provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.

(5) When the Engineer determines soil cannot be managed according to Articles 669.09(a)(1) through (a)(4) above, the soil shall be managed and disposed of off-site as a non-special waste, special waste, or hazardous waste as applicable.

(b) Soil Analytical Results Do Not Exceed Most Stringent MAC. When the soil analytical results indicate that detected levels do not exceed the most stringent MAC but the pH of the soil is less than 6.25 or greater than 9.0, the excavated soil can be utilized within the construction limits or managed and disposed of off-site as "uncontaminated soil" according to Article 202.03. However the excavated soil cannot be taken to a CCDD facility or an uncontaminated soil fill operation.

(c) Groundwater. When groundwater analytical results indicate the detected levels are above Appendix B, Table E of 35 Illinois Administrative Code 742, the most stringent Tier 1 Groundwater Remediation Objectives for Groundwater Component of the Groundwater Ingestion Route for Class 1 groundwater, the groundwater shall be managed off-site as a special waste.

All groundwater encountered within lateral trenches may be managed within the trench and allowed to infiltrate back into the ground. If the groundwater cannot be managed within the trench it must be removed as a special or hazardous waste. The Contractor is prohibited from managing groundwater within the trench by discharging it through any existing or new storm sewer. The Contractor shall install backfill plugs within the area of groundwater contamination.

One backfill plug shall be placed down gradient to the area of groundwater contamination. Backfill plugs shall be installed at intervals not to exceed 50 ft (15 m). Backfill plugs are to be 4 ft (1.2 m) long, measured parallel to the trench, full trench width and depth. Backfill plugs shall not have any fine aggregate bedding or backfill, but shall be entirely cohesive soil or any class of concrete. The Contractor shall provide test data that the material has a permeability of less than 10^{-7} cm/sec according to ASTM D 5084, Method A or per another test method approved by the Engineer."

Revise Article 669.14 of the Standard Specifications to read:

"**669.14 Final Environmental Construction Report.** At the end of the project, the Contractor will prepare and submit three copies of the Environmental Construction Report on the activities conducted during the life of the project, one copy shall be submitted to the Resident Engineer, one copy shall be submitted to the District's Environmental Studies Unit, and one copy shall be submitted with an electronic copy in Adode.pdf format to the Geologic

and Waste Assessment Unit, Bureau of Design and Environment, IDOT, 2300 South Dirksen Parkway, Springfield, Illinois 62764. The technical report shall include all pertinent information regarding the project including, but not limited to:

(a) Measures taken to identify, monitor, handle, and dispose of soil or groundwater containing regulated substances, to prevent further migration of regulated substances, and to protect workers,

(b) Cost of identifying, monitoring, handling, and disposing of soil or groundwater containing regulated substances, the cost of preventing further migration of regulated substances, and the cost for worker protection from the regulated substances. All cost should be in the format of the contract pay items listed in the contract plans (identified by the preliminary environmental site investigation (PESA) site number),

(c) Plan sheets showing the areas containing the regulated substances,

(d) Field sampling and testing results used to identify the nature and extent of the regulated substances,

(e) Waste manifests (identified by the preliminary environmental site investigation (PESA) site number) for special or hazardous waste disposal, and

(f) Landfill tickets (identified by the preliminary environmental site investigation (PESA) site number) for non-special waste disposal."

Revise the second paragraph of Article 669.16 of the Standard Specifications to read:

"The transportation and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (cubic meter) for NON-SPECIAL WASTE DISPOSAL, SPECIAL WASTE DISPOSAL, or HAZARDOUS WASTE DISPOSAL."

80283

REMOVAL AND DISPOSAL OF SURPLUS MATERIALS (BDE)

Effective: November 2, 2012

Revise the first four paragraphs of Article 202.03 of the Standard Specifications to read:

"**202.03 Removal and Disposal of Surplus, Unstable, Unsuitable, and Organic Materials.** Suitable excavated materials shall not be wasted without permission of the Engineer. The Contractor shall dispose of all surplus, unstable, unsuitable, and organic materials, in such a manner that public or private property will not be damaged or endangered.

Suitable earth, stones and boulders naturally occurring within the right-of-way may be placed in fills or embankments in lifts and compacted according to Section 205. Broken concrete without protruding metal bars, bricks, rock, stone, reclaimed asphalt pavement with no expansive aggregate, or uncontaminated dirt and sand generated from construction or demolition activities may be used in embankment or in fill. If used in fills or embankments, these materials shall be placed and compacted to the satisfaction of the Engineer; shall be buried under a minimum of 2 ft (600 mm) of earth cover (except when the materials include only uncontaminated dirt); and shall not create an unsightly appearance or detract from the natural topographic features of an area. Broken concrete without protruding metal bars, bricks, rock, or stone may be used as riprap as approved by the Engineer. If the materials are used for fill in locations within the right-of-way but outside project construction limits, the Contractor must specify to the Engineer, in writing, how the landscape restoration of the fill areas will be accomplished. Placement of fill in such areas shall not commence until the Contractor's landscape restoration plan is approved by the Engineer.

Aside from the materials listed above, all other construction and demolition debris or waste shall be disposed of in a licensed landfill, recycled, reused, or otherwise disposed of as allowed by State or Federal laws and regulations. When the Contractor chooses to dispose of uncontaminated soil at a clean construction and demolition debris (CCDD) facility or at an uncontaminated soil fill operation, it shall be the Contractor's responsibility to have the pH of the material tested to ensure the value is between 6.25 and 9.0, inclusive. A copy of the pH test results shall be provided to the Engineer.

A permit shall be obtained from IEPA and made available to the Engineer prior to open burning of organic materials (i.e., plant refuse resulting from pruning or removal of trees or shrubs) or other construction or demolition debris. Organic materials originating within the right-of-way limits may be chipped or shredded and placed as mulch around landscape plantings within the right-of-way when approved by the Engineer. Chipped or shredded material to be placed as mulch shall not exceed a depth of 6 in. (150 mm)."

80319

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: April 2, 2005
Revised: April 1, 2011

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 according to 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.

The mobilization payment to the subcontractor is an advance payment of the reported amount of the subcontract and is not a payment in addition to the amount of the subcontract; therefore, the amount of the advance payment will be deducted from future progress payments.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

80143

TEMPORARY EROSION AND SEDIMENT CONTROL (BDE)

Effective: January 1, 2012

Revise the first paragraph of Article 280.04(f) of the Standard Specifications to read:

"(f) Temporary Erosion Control Seeding. This system consists of seeding all erodible/bare areas to minimize the amount of exposed surface area. Seed bed preparation will not be required if the surface of the soil is uniformly smooth and in a loose condition. Light disking shall be done if the soil is hard packed or caked. Erosion rills greater than 1 in. (25 mm) in depth shall be filled and area blended with the surrounding soil. Fertilizer nutrients will not be required."

Delete the last sentence of Article 280.08(e) of the Standard Specifications.

80286

TEMPORARY RAISED PAVEMENT MARKER (BDE)

Effective: January 1, 2009

Description. This work shall consist of furnishing and installing temporary raised pavement markers.

Materials. The marker body shall be approximately 0.06 in. (1.5 mm) thick polyurethane formed in an "L" shape. The base of the marker shall be approximately 4 in. (100 mm) wide by 1.125 in. (28 mm) long with a solid 0.125 in. (3.2 mm) thick butyl rubber adhesive pad protected with a release paper. The vertical portion of the marker shall be approximately 4 in. (100 mm) wide by 2 in. (50 mm) high.

A cube-corner micro-prism reflective tape material shall be placed horizontally along both sides at the top of the vertical section of the marker. The reflective material shall be recessed in an "I-Beam" design to protect the reflective material from aggregate. A clear flexible polyvinyl chloride plastic cover is to be attached to the vertical section of the marker with a heavy duty staple to cover the reflective material during surfacing operations. The flexible raised pavement marker shall be readily visible at night when viewed with high beam automobile headlamps from a distance of at least 300 ft (90 m).

Construction Requirements

Application. The temporary markers shall be installed at the centerline or lane line(s) prior to application of any surface treatment which would cover the existing pavement markings. Temporary markers shall also be applied at edge lines when specified on the plans.

For temporary replacement of skip dash markings, an abbreviated pattern of two markers spaced 4 ft (1.2 m) apart with a maximum spacing of 40 ft (12 m) between sets of markers shall be used. For temporary replacement of solid lines, one marker shall be placed every 5 ft (1.5 m). The marker color and location shall match the existing line color and location.

Basis of Payment. This work will be paid for at the contract unit price per each for TEMPORARY RAISED PAVEMENT MARKER.

80225

TRACKING THE USE OF PESTICIDES (BDE)

Effective: August 1, 2012

Add the following paragraph after the first paragraph of Article 107.23 of the Standard Specifications:

"Within 48 hours of the application of pesticides, including but not limited to herbicides, insecticides, algaecides, and fungicides, the Contractor shall complete and return to the Engineer, Operations form "OPER 2720"."

80301

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: August 1, 2011

Revise the third sentence of the third paragraph of Article 105.03(b) of the Standard Specifications to read:

"The daily monetary deduction will be $2,500."

80273

TRAINING SPECIAL PROVISIONS (BDE) This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 4 . In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather 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

WARM MIX ASPHALT (BDE)

Effective: January 1, 2012
Revised: November 1, 2012

Description. This work shall consist of designing, producing and constructing Warm Mix Asphalt (WMA) in lieu of Hot Mix Asphalt (HMA) at the Contractor's option. Work shall be according to Sections 406, 407, 408, 1030, and 1102 of the Standard Specifications, except as modified herein. In addition, any references to HMA in the Standard Specifications, or the special provisions shall be construed to include WMA.

WMA is an asphalt mixture which can be produced at temperatures lower than allowed for HMA utilizing approved WMA technologies. WMA technologies are defined as the use of additives or processes which allow a reduction in the temperatures at which HMA mixes are produced and placed. WMA is produced by the use of additives, a water foaming process, or combination of both. Additives include minerals, chemicals or organics incorporated into the asphalt binder stream in a dedicated delivery system. The process of foaming injects water into the asphalt binder stream, just prior to incorporation of the asphalt binder with the aggregate.

Approved WMA technologies may also be used in HMA provided all the requirements specified herein, with the exception of temperature, are met. However, asphalt mixtures produced at temperatures in excess of 275 °F (135 °C) will not be considered WMA when determining the grade reduction of the virgin asphalt binder grade.

Materials.

Add the following to Article 1030.02 of the Standard Specifications.

"(h) Warm Mix Asphalt (WMA) Technologies (Note 3)"

Add the following note to Article 1030.02 of the Standard Specifications.

"Note 3. Warm mix additives or foaming processes shall be selected from the current Bureau of Materials and Physical Research Approved List, "Warm-Mix Asphalt Technologies"."

Equipment.

Revise the first paragraph of Article 1102.01 of the Standard Specifications to read:

"**1102.01 Hot-Mix Asphalt Plant.** The hot-mix asphalt (HMA) plant shall be the batch-type, continuous-type, or dryer drum plant. The plants shall be evaluated for prequalification rating and approval to produce HMA according to the current Bureau of Materials and Physical Research Policy Memorandum, "Approval of Hot-Mix Asphalt Plants and Equipment". Once approved, the Contractor shall notify the Bureau of Materials and Physical Research to obtain approval of all plant modifications. The plants shall not be used to produce mixtures concurrently for more than one project or for private work unless permission is granted in writing

by the Engineer. The plant units shall be so designed, coordinated and operated that they will function properly and produce HMA having uniform temperatures and compositions within the tolerances specified. The plant units shall meet the following requirements."

Add the following to Article 1102.01(a) of the Standard Specifications.

"(13) Equipment for Warm Mix Technologies.

a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of ± 2 percent of the actual water metered. The foaming control system shall be electronically interfaced with the asphalt binder meter.

b. Additives. Additives shall be introduced into the plant according to the supplier's recommendations and shall be approved by the Engineer. The system for introducing the WMA additive shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes."

Mix Design Verification.

Add the following to Article 1030.04 of the Standard Specifications.

"(d) Warm Mix Technologies.

(1) Foaming. WMA mix design verification will not be required when foaming technology is used alone (without WMA additives). However, the foaming technology shall only be used on HMA designs previously approved by the Department.

(2) Additives. WMA mix designs utilizing additives shall be submitted to the Engineer for mix design verification. Additional mixture verification requirements include Hamburg Wheel testing according to Illinois Modified AASHTO T324 and tensile strength testing according to Illinois Modified AASHTO T283 which shall meet the criteria in Tables 1 and 2 respectively herein. The Contractor shall provide the additional material as follows:

a. Four gyratory specimens to be prepared in the Contractor's lab according to Illinois Modified AASHTO T324.

b. Sufficient mixture to conduct tensile strength testing according to Illinois Modified AASHTO T283.

Table 1. Illinois Modified AASHTO T324 Requirements [1/]

Asphalt Binder Grade	# Wheel Passes	Max Rut Depth in. (mm)
PG 76-XX	20,000	1/2 in. (12.5 mm)
PG 70-XX	15,000	1/2 in. (12.5 mm)

PG 64-XX	7,500	1/2 in. (12.5 mm)
PG 58-XX	5,000	1/2 in. (12.5 mm)

1/ Loose WMA shall be oven aged at 270 ± 5 °F (132 ± 3 °C) for two hours prior to gyratory compaction of Hamburg Wheel specimens.

Table 2. Tensile Strength Requirements

Asphalt Binder Grade	Tensile Strength psi (kPa)	
	Minimum	Maximum
PG 76-XX	80 (552)	200 (1379)
PG 70-XX		
PG 64-XX	60 (414)	200 (1379)"
PG 58-XX		

Production.

Revise the second paragraph of Article 1030.06(a) of the Standard Specifications to read:

"At the start of mix production for HMA, WMA, and HMA using WMA technologies, QC/QA mixture start-up will be required for the following situations; at the beginning of production of a new mix of a new mixture design, at the beginning of each production season, and at every plant utilized to produce mixtures, regardless of the mix."

Insert the following after the sixth paragraph of Article 1030.06(a) of the Standard Specifications:

"Warm mix technologies shall be as follows.

(1) Mixture sampled to represent the test strip shall include additional material sufficient for the Department to conduct Hamburg Wheel testing according to Illinois Modified AASHTO T324 and tensile strength testing according to Illinois Modified AASHTO T283 (approximately 110 lb (50 kg) total).

(2) Upon completion of the start-up, WMA, or HMA using WMA technologies, production shall cease. The Contractor may revert to conventional HMA production provided a start-up has been previously completed for the current construction season for the mix design. WMA, or HMA using WMA technologies, may resume once all the test results, including Hamburg Wheel results are completed and found acceptable by the Engineer."

Add the following after the first paragraph of Article 1030.05(d)(2)c. of the Standard Specifications:

"During production of each WMA mixture or HMA utilizing WMA technologies, the Engineer will request a minimum of one randomly located sample, identified by

the Engineer, for Hamburg Wheel testing to determine compliance with the requirements specified in Table 1 herein."

Quality Control/Quality Assurance Testing.

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 % 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 washed ignition oven test on the mix per half day of production Note 4.	1 washed ignition oven test on the mix per day of production 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
VMA Note 3.	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)		
Air Voids Bulk Specific Gravity of Gyratory Sample Note 5.	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)		

Note 1. The No. 8 (2.36 mm) and No. 30 (600 µm) sieves are not required for All Other Mixtures.

Note 2. The Engineer may waive the ignition oven requirement for asphalt binder content if the aggregates to be used are known to have ignition asphalt binder content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the asphalt binder content.

Note 3. The G_{sb} used in the voids in the mineral aggregate (VMA) calculation shall be the same average G_{sb} value listed in the mix design.

Note 4. The Engineer reserves the right to require additional hot bin gradations for batch

Note 5. The WMA compaction temperature for mixture volumetric testing shall be 270 ± 5 °F (132 ± 3 °C) for quality control testing. The WMA compaction temperature for quality assurance testing will be 270 ± 5 °F (132 ± 3 °C) if the mixture is not allowed to cool to room temperature. If the mixture is allowed to cool to room temperature it shall be reheated to standard HMA compaction temperatures."

Construction Requirements.

Revise the second paragraph of Article 406.06(b)(1) of the Standard Specifications to read:

"The HMA shall be delivered at a temperature of 250 to 350 °F (120 to 175 °C). WMA shall be delivered at a minimum temperature of 215 °F (102 °C)."

Basis of Payment.

This work will be paid at the contract unit price bid for the HMA pay items involved. Anti-strip will not be paid for separately, but shall be considered as included in the cost of the work.

80288

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

The Contractor shall provide a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used on the jobsite; or used for the delivery and/or removal of equipment/material to and from the jobsite. The jobsite shall also include offsite locations, such as plant sites or storage sites, when those locations are used solely for this contract.

The report shall be submitted on the form provided by the Department within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur. The report shall be submitted to the Engineer and a copy shall be provided to the district EEO Officer.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

80302

TEMPORARY SOIL RETENTION SYSTEM
Effective: December 30, 2002
Revised : May 11, 2009

Description. This work shall consist of designing, furnishing, installing, adjusting for stage construction when required and subsequent removal of the temporary soil retention system according to the dimensions and details shown on the plans and in the approved design submittal.

General. The temporary soil retention system shall be designed by the Contractor as a minimum, to retain the exposed surface area specified in the plans or as directed by the Engineer.

The design calculations and details for the temporary soil retention system proposed by the Contractor shall be submitted to the Engineer for approval. The calculations shall be prepared and sealed by an Illinois Licensed Structural Engineer. This approval will not relieve the Contractor of responsibility for the safety of the excavation. Approval shall be contingent upon acceptance by all involved utilities and/or railroads.

Construction. The Contractor shall verify locations of all underground utilities before installing any of the soil retention system components or commencing any excavation. Any disturbance or damage to existing structures, utilities or other property, caused by the Contractor's operation, shall be repaired by the Contractor in a manner satisfactory to the Engineer at no additional cost to the Department. The soil retention system shall be installed according to the Contractor's approved design, or as directed by the Engineer, prior to commencing any related excavation. If unable to install the temporary soil retention system as specified in the approved design, the Contractor shall have the adequacy of the design re-evaluated. Any reevaluation shall be submitted to the Engineer for approval prior to commencing the excavation adjacent to the area in question. The Contractor shall not excavate below the maximum excavation line shown in the approved design without the prior permission of the Engineer. The temporary soil retention system shall remain in place until the Engineer determines it is no longer required.

The temporary soil retention system shall be removed and disposed of by the Contractor when directed by the Engineer. When allowed, the Contractor may elect to cut off a portion of the temporary soil retention system leaving the remainder in place. The remaining temporary soil retention system shall be removed to a depth which will not interfere with the new construction, and as a minimum, to a depth of 12 in. (300 mm) below the finished grade, or as directed by the Engineer. Removed system components shall become the property of the Contractor.

When an obstruction is encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to break up, push aside, or remove the obstruction. An obstruction shall be defined as any object (such as but not limited to, boulders, logs, old foundations etc.) where its presence was not obvious or specifically noted on the plans prior to bidding, that cannot be driven or installed through or around, with normal driving or installation procedures, but requires additional excavation or other procedures to remove or miss the obstruction.

Method of Measurement. The temporary soil retention system furnished and installed according to the Contractor's approved design or as directed by the Engineer will be measured for payment in place, in square feet (square meters). The area measured shall be the vertical exposed surface area envelope of the excavation supported by temporary soil retention system. Portions of the temporary soil retention system left in place for reuse in later stages of construction shall only be measured for payment once.

Any temporary soil retention system installed beyond those dimensions shown on the contract plans or the approved contractor's design without the written permission of the Engineer, shall not be measured for payment but shall be done at the contractor's own expense.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for TEMPORARY SOIL RETENTION SYSTEM.

Payment for any excavation, related solely to the installation and removal of the temporary soil retention system and/or its components, shall not be paid for separately but shall be included in the unit bid price for TEMPORARY SOIL RETENTION SYSTEM. Other excavation, performed in conjunction with this work, will not be included in this item but shall be paid for as specified elsewhere in this contract.

Obstruction mitigation shall be paid for according to Article 109.04 of the Standard Specifications.

PIPE UNDERDRAINS FOR STRUCTURES
Effective: May 17, 2000
Revised: January 22, 2010

Description. This work shall consist of furnishing and installing a pipe underdrain system as shown on the plans, as specified herein, and as directed by the Engineer.

Materials. Materials shall meet the requirements as set forth below:

The perforated pipe underdrain shall be according to Article 601.02 of the Standard Specifications. Outlet pipes or pipes connecting to a separate storm sewer system shall not be perforated.

The drainage aggregate shall be a combination of one or more of the following gradations, FA1, FA2, CA5, CA7, CA8, CA11, or CA13 thru 16, according to Sections 1003 and 1004 of the Standard Specifications.

The fabric surrounding the drainage aggregate shall be Geotechnical Fabric for French Drains according to Article 1080.05 of the Standard Specifications.

Construction Requirements. All work shall be according to the applicable requirements of Section 601 of the Standard Specifications except as modified below.

The pipe underdrains shall consist of a perforated pipe drain situated at the bottom of an area of drainage aggregate wrapped completely in geotechnical fabric and shall be installed to the lines and gradients as shown on the plans.

Method of Measurement. Pipe Underdrains for Structures shall be measured for payment in feet (meters), in place. Measurement shall be along the centerline of the pipe underdrains. All connectors, outlet pipes, elbows, and all other miscellaneous items shall be included in the measurement. Concrete headwalls shall be included in the cost of Pipe Underdrains for Structures, but shall not be included in the measurement for payment.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for PIPE UNDERDRAINS FOR STRUCTURES of the diameter specified. Furnishing and installation of the drainage aggregate, geotechnical fabric, forming holes in structural elements and any excavation required, will not be paid for separately, but shall be included in the cost of the pipe underdrains for structures.

POROUS GRANULAR EMBANKMENT, SPECIAL
Effective: September 28, 2005
Revised: November 14, 2008

Description. This work shall consist of furnishing and placing porous granular embankment special material as detailed on the plans, according to Section 207 except as modified herein.

Materials. The gradation of the porous granular material may be any of the following CA 8 thru CA 18, FA 1 thru FA 4, FA 7 thru FA 9, and FA 20 according to Articles 1003 and 1004.

Construction. The porous granular embankment special shall be installed according to Section 207, except that it shall be uncompacted.

Basis of Payment. This work will be paid for at the contract unit price per Cubic Yard (Cubic Meter) for POROUS GRANULAR EMBANKMENT, SPECIAL.

PERMANENT STEEL SHEET PILING (LRFD)
Effective: January 31, 2012
Revised: August 17, 2012

Description. This work shall consist of furnishing and installing the permanent sheet piling to the limits and tolerances shown on the plans according to Section 512 of the Standard Specifications.

Material. The sheet piling shall be made of steel and shall be new material. Unless otherwise specified the sheeting shall have a minimum yield strength of 50 ksi (345 MPa) according to ASTM A 572. The sheeting shall be identifiable and free of bends and other structural defects. The Contractor shall furnish a copy of the published sheet pile section properties to the Engineer for verification purposes. The Engineer's approval will be required prior to driving any sheeting. All driven sheeting not approved by the Engineer shall be removed at the Contractor's expense.

The Contractor shall furnish a sheet pile section, to be used for each wall section, with a published section modulus equal to or larger than that specified on the plans.

The selection of the sheet pile section shall not relieve the Contractor of the responsibility to satisfy all details including minimum clearances, cover, reinforcement, shear stud locations, interlocking, and field cutting. Any modifications of the plans to accommodate the Contractor's selection shall be paid for by the Contractor and subject to the approval of the Engineer.

Construction. The Contractor shall verify locations of all underground utilities before driving any sheet piling. Any disturbance or damage to existing structures, utilities or other property, caused by the Contractor's operation, shall be repaired by the Contractor in a manner satisfactory to the Engineer at no additional cost to the Department. The Contractor shall be responsible for determining the appropriate equipment necessary to drive the sheeting to the tip elevation(s) specified on the plans or according to the Contractor's approved design. The sheet piling shall be driven, as a minimum, to the tip elevation(s) specified, prior to commencing any related construction. If unable to reach the minimum tip elevation, the adequacy of the sheet piling design will require re-evaluation by the Department prior to allowing construction adjacent to the sheet piling in question.

Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be driven through with normal driving procedures, but requires special equipment to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to break up, push aside, or remove the obstruction.

Method of Measurement. This work will be measured in place in square feet (square meters). Sheet piling associated with other work in this contract or for permanent sheet piling that is cut off or driven beyond those dimensions shown on the plans will not be measured for payment.

Obstruction mitigation shall be paid for according to Article 109.04.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for PERMANENT STEEL SHEET PILING at the location shown on the plans.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. Davis-Bacon and Related Act Provisions

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for

debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded,"

as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the

certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.

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.