

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

### **PREQUALIFICATION**

Any contractor who desires to become pre-qualified to bid on work advertised by IDOT must submit the properly completed pre-qualification forms to the Bureau of Construction no later 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.

### **REQUESTS FOR AUTHORIZATION TO BID**

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

### **WHO CAN BID ?**

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

**WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?:** When a prospective prime bidder submits a "Request for Authorization to Bid/or Not For Bid Status"(BDE 124INT) he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued an **Authorization to Bid or Not for Bid Report**, approved by the Central Bureau of Construction 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 form within a reasonable time of complete and correct original document submittal should contact the department as to status. This is critical in the week before the letting. These documents must be received three days before the letting date. Firms unsure as to authorization status should call the Prequalification Section of the Bureau of Construction at the number listed at the end of these instructions.

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

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

The Internet is the Department's primary way of doing business. The subscription server e-mails are an added courtesy the Department provides. It is suggested that bidders check IDOT's website at <http://www.dot.il.gov/desenv/delett.html> before submitting final bid information.

### ***IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL FAILURES.***

Addenda Questions may be directed to the Contracts Office at (217)782-7806 or [D&Econtracts@dot.il.gov](mailto:D&Econtracts@dot.il.gov)

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

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

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

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

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

**WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?**

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

**ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS**

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

# 225

RETURN WITH BID

Proposal Submitted By
Name
Address
City

Letting January 15, 2010

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

### NOTICE TO PROSPECTIVE BIDDERS

This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction.  
(SEE INSTRUCTIONS ON THE INSIDE OF COVER)

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



Illinois Department  
of Transportation

Springfield, Illinois 62764

Contract No. 60H80  
COOK County  
Section 0303 VB-I  
District 1 Construction Funds  
Route FAU 1321

PLEASE MARK THE APPROPRIATE BOX BELOW:

- A Bid Bond is included.
- A Cashier's Check or a Certified Check is included.

Prepared by

S

Checked by

(Printed by authority of the State of Illinois)

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## INSTRUCTIONS

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

**WHO CAN BID?:** Bids will be accepted from only those companies that request and receive written **Authorization to Bid** from IDOT's Central Bureau of Construction. To request authorization, a potential bidder must complete and submit Part B of the Request for Authorization to Bid/or Not For Bid Status form (BDE 124 INT) and submit an original Affidavit of Availability (BC 57).

**WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?:** When a prospective prime bidder submits a "Authorization to Bid or Not for Bid" form, he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued a **Authorization to Bid or Not for Bid Report**, approved by the Central Bureau of Construction, 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. If a contractor has requested to bid but has not received a **Authorization to Bid or Not for Bid Report**, they should contact the Central Bureau of Construction in advance of the letting date.

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

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

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

RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of \_\_\_\_\_

\_\_\_\_\_

Taxpayer Identification Number (Mandatory) \_\_\_\_\_ a

for the improvement identified and advertised for bids in the Invitation for Bids as:

**Contract No. 60H80  
COOK County  
Section 0303 VB-I  
Route FAU 1321  
District 1 Construction Funds**

**Concrete overlay and bridge joint repair for the structure carrying IL Route 19 (Irving Park Road) over the Elgin, Joliet & Eastern Railway Company railroad in Streamwood, Bartlett and Elgin.**

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.

**RETURN WITH BID**

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, form of contract and contract bond, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.
4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** The undersigned further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bond satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract.
5. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

<u>Amount of Bid</u>		<u>Proposal Guaranty</u>	<u>Amount of Bid</u>		<u>Proposal Guaranty</u>	
Up to	\$5,000 .....	\$150	\$2,000,000	to	\$3,000,000 .....	\$100,000
\$5,000	to \$10,000 .....	\$300	\$3,000,000	to	\$5,000,000 .....	\$150,000
\$10,000	to \$50,000 .....	\$1,000	\$5,000,000	to	\$7,500,000 .....	\$250,000
\$50,000	to \$100,000 .....	\$3,000	\$7,500,000	to	\$10,000,000 .....	\$400,000
\$100,000	to \$150,000 .....	\$5,000	\$10,000,000	to	\$15,000,000 .....	\$500,000
\$150,000	to \$250,000 .....	\$7,500	\$15,000,000	to	\$20,000,000 .....	\$600,000
\$250,000	to \$500,000 .....	\$12,500	\$20,000,000	to	\$25,000,000 .....	\$700,000
\$500,000	to \$1,000,000 .....	\$25,000	\$25,000,000	to	\$30,000,000 .....	\$800,000
\$1,000,000	to \$1,500,000 .....	\$50,000	\$30,000,000	to	\$35,000,000 .....	\$900,000
\$1,500,000	to \$2,000,000 .....	\$75,000	over		\$35,000,000 .....	\$1,000,000

Bank cashier's checks or properly certified checks accompanying 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.**

**RETURN WITH BID**

6. **COMBINATION BIDS.** The undersigned further agrees that if awarded the contract for the sections contained in the following combination, he/she will perform the work in accordance with the requirements of each individual proposal comprising the combination bid specified in the schedule below, and that the combination bid shall be prorated against each section in proportion to the bid submitted for the same. If an error is found to exist in the gross sum bid for one or more of the individual sections included in a combination, the combination bid shall be corrected as provided in the specifications.

**When a combination bid is submitted, the schedule below must be completed in each proposal comprising the combination.**

**If alternate bids are submitted for one or more of the sections comprising the combination, a combination bid must be submitted for each alternate.**

**Schedule of Combination Bids**

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

7. **SCHEDULE OF PRICES.** The undersigned bidder submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought. The unit prices bid are in U.S. dollars and cents, and all extensions and summations have been made. The bidder understands that the quantities appearing in the bid schedule are approximate and are provided for the purpose of obtaining a gross sum for the comparison of bids. If there is an error in the extension of the unit prices, the unit prices shall govern. Payment to the contractor awarded the contract will be made only for actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as provided elsewhere in the contract.

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

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER -

60H80

State Job # - C-91-816-09  
 PPS NBR - 0-01616-1009  
 County Name - COOK- -  
 Code - 31 - -  
 District - 1 - -  
 Section Number - 0303VB-I

Project Number

Route  
 FAU 1321

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0322256	TEMP INFO SIGNING	SQ FT	51.400				
X0322489	BR DK LTX C OLY 2 1/2	SQ YD	695.000				
X0325305	STR REP CON DP = < 5	SQ FT	437.000				
Z0001700	APPROACH SL REP (FD)	SQ YD	10.000				
Z0001800	APPROACH SL REP (PD)	SQ YD	10.000				
Z0006204	BR DECK HY-SCAR 1/2	SQ YD	695.000				
Z0016002	DECK SLAB REP (FD-T2)	SQ YD	16.000				
Z0048665	RR PROT LIABILITY INS	L SUM	1.000				
40600982	HMA SURF REM BUTT JT	SQ YD	320.000				
40603335	HMA SC "D" N50	TON	45.000				
44201809	CL D PATCH T4 13	SQ YD	34.000				
50102400	CONC REM	CU YD	16.000				
50157300	PROTECTIVE SHIELD	SQ YD	101.000				
50300255	CONC SUP-STR	CU YD	18.000				
50300260	BR DECK GROOVING	SQ YD	683.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER -

60H80

State Job # - C-91-816-09  
 PPS NBR - 0-01616-1009  
 County Name - COOK- -  
 Code - 31 - -  
 District - 1 - -  
 Section Number - 0303VB-I

Project Number

Route  
 FAU 1321

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
50300300	PROTECTIVE COAT	SQ YD	727.000				
50800205	REINF BARS, EPOXY CTD	POUND	2,100.000				
52000110	PREF JT STRIP SEAL	FOOT	103.000				
67000400	ENGR FIELD OFFICE A	CAL MO	3.000				
67100100	MOBILIZATION	L SUM	1.000				
70102550	TR CONT-PROT TEMP DET	EACH	1.000				
70102622	TR CONT & PROT 701502	L SUM	1.000				
70106800	CHANGEABLE MESSAGE SN	CAL MO	1.000				
78008200	POLYUREA PM T1 LTR-SY	SQ FT	20.800				
78008210	POLYUREA PM T1 LN 4	FOOT	1,781.000				
78008230	POLYUREA PM T1 LN 6	FOOT	50.000				
78008250	POLYUREA PM T1 LN 12	FOOT	90.000				
78100105	RAISED REF PVT MKR BR	EACH	21.000				
78300200	RAISED REF PVT MK REM	EACH	21.000				
85000200	MAIN EX TR SIG INSTAL	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER - 60H80

State Job # - C-91-816-09  
 PPS NBR - 0-01616-1009  
 County Name - COOK- -  
 Code - 31 - -  
 District - 1 - -  
 Section Number - 0303VB-I

Project Number

Route

FAU 1321

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
88600600	DET LOOP REPL	FOOT	56.000				

**CONTRACT NUMBER**

**60H80**

**THIS IS THE TOTAL BID**

**\$ \_\_\_\_\_**

**NOTES:**

- 1. Each PAY ITEM should have a UNIT PRICE and a TOTAL PRICE.**
- 2. The UNIT PRICE shall govern if no TOTAL PRICE is shown or if there is a discrepancy between the product of the UNIT PRICE multiplied by the QUANTITY.**
- 3. If a UNIT PRICE is omitted, the TOTAL PRICE will be divided by the QUANTITY in order to establish a UNIT PRICE.**
- 4. A bid may be declared UNACCEPTABLE if neither a unit price nor a total price is shown.**

## RETURN WITH BID

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

#### **I. GENERAL**

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

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

**C.** In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for termination of the contract and the suspension or debarment of the bidder.

#### **II. ASSURANCES**

**A.** The assurances hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous assurance, and the surety providing the performance bond shall be responsible for the completion of the contract.

##### **B. Felons**

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any state agency from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

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

##### **C. Conflicts of Interest**

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

(a) Prohibition. It is unlawful for any person holding an elective office in this State, holding a seat in the General Assembly, or appointed to or employed in any of the offices or agencies of state government and who receives compensation for such employment in excess of 60% of the salary of the Governor of the State of Illinois, or who is an officer or employee of the Capital Development Board or the Illinois Toll Highway Authority, or who is the spouse or minor child of any such person to have or acquire any contract, or any direct pecuniary interest in any contract therein, whether for stationery, printing, paper, or any services, materials, or supplies, that will be wholly or partially satisfied by the payment of funds appropriated by the General Assembly of the State of Illinois or in any contract of the Capital Development Board or the Illinois Toll Highway authority.

(b) Interests. It is unlawful for any firm, partnership, association or corporation, in which any person listed in subsection (a) is entitled to receive (i) more than 7 1/2% of the total distributable income or (ii) an amount in excess of the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(c) Combined interests. It is unlawful for any firm, partnership, association, or corporation, in which any person listed in subsection (a) together with his or her spouse or minor children is entitled to receive (i) more than 15%, in the aggregate, of the total distributable income or (ii) an amount in excess of 2 times the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(d) Securities. Nothing in this Section invalidates the provisions of any bond or other security previously offered or to be offered for sale or sold by or for the State of Illinois.

(e) Prior interests. This Section does not affect the validity of any contract made between the State and an officer or employee of the State or member of the General Assembly, his or her spouse, minor child or any combination of those persons if that contract was in existence before his or her election or employment as an officer, member, or employee. The contract is voidable, however, if it cannot be completed within 365 days after the officer, member, or employee takes office or is employed.

The current salary of the Governor is \$177,412.00. Sixty percent of the salary is \$106,447.20.

## RETURN WITH BID

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-13, or that an effective exemption has been issued by the Board of Ethics to any individual subject to the Section 50-13 prohibitions pursuant to the provisions of Section 50-20 of the Code and Executive Order Number 3 (1998). Information concerning the exemption process is available from the Department upon request.

### **D. Negotiations**

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

(a) It is unlawful for any person employed in or on a continual contractual relationship with any of the offices or agencies of State government to participate in contract negotiations on behalf of that office or agency with any firm, partnership, association, or corporation with whom that person has a contract for future employment or is negotiating concerning possible future employment.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-15, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

### **E. Inducements**

1. The Illinois Procurement Code provides:

Section 50-25. Inducement. Any person who offers or pays any money or other valuable thing to any person to induce him or her not to bid for a State contract or as recompense for not having bid on a State contract is guilty of a Class 4 felony. Any person who accepts any money or other valuable thing for not bidding for a State contract or who withholds a bid in consideration of the promise for the payment of money or other valuable thing is guilty of a Class 4 felony.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-25, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

### **F. Revolving Door Prohibition**

1. The Illinois Procurement Code provides:

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

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-30, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

### **G. Reporting Anticompetitive Practices**

1. The Illinois Procurement Code provides:

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

2. The bidder assures the Department that it has not failed to report any relevant facts concerning the practices addressed in Section 50-40 which may involve the contract for which the bid is submitted.

### **H. Confidentiality**

1. The Illinois Procurement Code provides:

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

2. The bidder assures the Department that it has no knowledge of any fact relevant to the practices addressed in Section 50-45 which may involve the contract for which the bid is submitted.

## RETURN WITH BID

### **I. Insider Information**

1. The Illinois Procurement Act provides:

Section 50-50. Insider information. It is unlawful for any current or former elected or appointed State official or State employee to knowingly use confidential information available only by virtue of that office or employment for actual or anticipated gain for themselves or another person.

2. The bidder assures the Department that it has no knowledge of any facts relevant to the practices addressed in Section 50-50 which may involve the contract for which the bid is submitted.

### **III. CERTIFICATIONS**

**A.** The certifications hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous certification, and the surety providing the performance bond shall be responsible for completion of the contract.

### **B. Bribery**

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

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

(2) the business demonstrates to the governmental entity with which it seeks to contract, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 1961.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State shall contain a certification by the contractor that the contractor is not barred from being awarded a contract or subcontract under this Section. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

### **C. Educational Loan**

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

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

2. The bidder, if an individual as opposed to a corporation, partnership or other form of business organization, certifies that the bidder is not in default on an educational loan as provided in Section 3 of the Act.

### **D. Bid-Rigging/Bid Rotating**

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

§ 33E-11. (a) Every bid submitted to and public contract executed pursuant to such bid by the State or a unit of local government shall contain a certification by the prime contractor that the prime contractor is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of this Article. The State and units of local government shall provide the appropriate forms for such certification.

## RETURN WITH BID

(b) A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

A violation of Section 33E-3 would be represented by a conviction of the crime of bid-rigging which, in addition to Class 3 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

A violation of Section 33E-4 would be represented by a conviction of the crime of bid-rotating which, in addition to Class 2 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be permanently barred from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

2. The bidder certifies that it is not barred from contracting with the Department by reason of a violation of either Section 33E-3 or Section 33E-4.

### **E. International Anti-Boycott**

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

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

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

### **F. Drug Free Workplace**

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

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

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

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

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

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

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

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

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

**RETURN WITH BID**

**G. Debt Delinquency**

1. The Illinois Procurement Code provides:

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

The contractor or bidder certifies that it, or any affiliate, is not barred from being awarded a contract under 30 ILCS 500. Section 50-11 prohibits a person from entering into a contract with a State agency if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The contractor further acknowledges that the contracting State agency may declare the contract void if this certification is false or if the contractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

**H. Sarbanes-Oxley Act of 2002**

1. The Illinois Procurement Code provides:

Section 50-60(c).

The contractor certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 for a period of five years prior to the date of the bid or contract. The contractor acknowledges that the contracting agency shall declare the contract void if this certification is false.

**I. Addenda**

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

**J. Section 42 of the Environmental Protection Act**

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

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

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

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The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision to be included in all approved subcontracts. In order to fulfill this requirement, it shall not be necessary that an applicable program sponsor be currently taking or that it will take applications for apprenticeship, training or employment during the performance of the work of this contract.

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

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

## RETURN WITH BID

### **M. Disclosure of Business Operations in Iran**

Section 50-36 of the Illinois Procurement Code, 30ILCS 500/50-36 provides that each bid, offer, or proposal submitted for a State contract shall include a disclosure of whether or not the Company acting as the bidder, 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.

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

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

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

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

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

**TO BE RETURNED WITH BID**

**IV. DISCLOSURES**

**A.** The disclosures hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous disclosure, and the surety providing the performance bond shall be responsible for completion of the contract.

**B. Financial Interests and Conflicts of Interest**

1. Section 50-35 of the Illinois Procurement Code provides that all bids of more than \$10,000 shall be accompanied by disclosure of the financial interests of the bidder. This disclosed information for the successful bidder, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

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

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies. **The forms must be included with each bid or incorporated by reference.**

**C. Disclosure Form Instructions**

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

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

**CERTIFICATION STATEMENT**

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

\_\_\_\_\_  
(Bidding Company)



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

\_\_\_\_\_  
Date

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

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the bidding company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES \_\_\_ NO \_\_\_
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than \$106,447.20? YES \_\_\_ NO \_\_\_
3. Does anyone in your organization receive more than \$106,447.20 of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES \_\_\_ NO \_\_\_
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than \$106,447.20? YES \_\_\_ NO \_\_\_

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

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

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

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

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

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

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

**D. Bidders Submitting More Than One Bid**

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

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

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**ILLINOIS DEPARTMENT  
OF TRANSPORTATION**

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

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

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

**DISCLOSURE OF FINANCIAL INFORMATION**

**1. Disclosure of Financial Information.** The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than \$106,447.20 (60% of the Governor's salary as of 7/1/07). **(Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)**

**FOR INDIVIDUAL (type or print information)**

**NAME:** \_\_\_\_\_

**ADDRESS** \_\_\_\_\_

**Type of ownership/distributable income share:**

stock \_\_\_\_\_ sole proprietorship \_\_\_\_\_ Partnership \_\_\_\_\_ other: (explain on separate sheet):  
% or \$ value of ownership/distributable income share: \_\_\_\_\_

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

(a) State employment, currently or in the previous 3 years, including contractual employment of services. Yes \_\_\_ No \_\_\_

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

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois Toll Highway Authority? Yes \_\_\_ No \_\_\_
2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds \$106,447.20, (60% of the Governor's salary as of 7/1/07) provide the name the State agency for which you are employed and your annual salary. \_\_\_\_\_

**RETURN WITH BID/OFFER**

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds \$106,447.20, (60% of the Governor's salary as of 7/1/07) are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes \_\_\_ No \_\_\_
4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds \$106,447.20, (60% of the Governor's salary as of 7/1/07) are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? Yes \_\_\_ No \_\_\_

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(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 Toll Highway Authority? Yes \_\_\_ No \_\_\_
2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds \$106,447.20, (60 % of the Governor's salary as of 7/1/07) 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 \$106,447.20, (60% of the salary of the Governor as of 7/1/07) are you entitled to receive (i) more then 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes \_\_\_ No \_\_\_
4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds \$106,447.20, (60% of the Governor's salary as of 7/1/07) 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 2 times the salary of the Governor? Yes \_\_\_ No \_\_\_

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(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 \_\_\_

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(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes \_\_\_ No \_\_\_

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(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 \_\_\_

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(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes \_\_\_ No \_\_\_

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(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government. Yes \_\_\_ No \_\_\_

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**RETURN WITH BID/OFFER**

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

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

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

**APPLICABLE STATEMENT**

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

Completed by:  \_\_\_\_\_ Date \_\_\_\_\_  
Signature of Individual or Authorized Representative

**NOT APPLICABLE STATEMENT**

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

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

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

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ILLINOIS DEPARTMENT  
OF TRANSPORTATION

Form B  
Other Contracts &  
Procurement Related Information  
Disclosure

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

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

**DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION**

**1. Identifying Other Contracts & Procurement Related Information.** The BIDDER shall identify whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes \_\_\_ No \_\_\_

If "No" is checked, the bidder only needs to complete the signature box on the bottom of this page.

**2. If "Yes" is checked.** Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

**THE FOLLOWING STATEMENT MUST BE CHECKED**

<input type="checkbox"/>	_____	_____
	Signature of Authorized Representative	Date

## **RETURN WITH BID**

### **SPECIAL NOTICE TO CONTRACTORS**

The following requirements of the Illinois Department of Human Rights' Rules and Regulations are applicable to bidders on all construction contracts advertised by the Illinois Department of Transportation:

#### **CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION**

- (a) All bidders on construction contracts shall complete and submit, along with and as part of their bids, a Bidder's Employee Utilization Form (Form BC-1256) setting forth a projection and breakdown of the total workforce intended to be hired and/or allocated to such contract work by the bidder including a projection of minority and female employee utilization in all job classifications on the contract project.
- (b) The Department of Transportation shall review the Employee Utilization Form, and workforce projections contained therein, of the contract awardee to determine if such projections reflect an underutilization of minority persons and/or women in any job classification in accordance with the Equal Employment Opportunity Clause and Section 7.2 of the Illinois Department of Human Rights' Rules and Regulations for Public Contracts adopted as amended on September 17, 1980. If it is determined that the contract awardee's projections reflect an underutilization of minority persons and/or women in any job classification, it shall be advised in writing of the manner in which it is underutilizing and such awardee shall be considered to be in breach of the contract unless, prior to commencement of work on the contract project, it submits revised satisfactory projections or an acceptable written affirmative action plan to correct such underutilization including a specific timetable geared to the completion stages of the contract.
- (c) The Department of Transportation shall provide to the Department of Human Rights a copy of the contract awardee's Employee Utilization Form, a copy of any required written affirmative action plan, and any written correspondence related thereto. The Department of Human Rights may review and revise any action taken by the Department of Transportation with respect to these requirements.



**RETURN WITH BID**

**Contract No. 60H80  
COOK County  
Section 0303 VB-I  
Route FAU 1321  
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 if revisions are required.

Signature:  \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

Instructions: All tables must include subcontractor personnel in addition to prime contractor personnel.

Table A - Include both the number of employees that would be hired to perform the contract work and the total number currently employed (Table B) that will be allocated to contract work, and include all apprentices and on-the-job trainees. The "Total Employees" column should include all employees including all minorities, apprentices and on-the-job trainees to be employed on the contract work.

Table B - Include all employees currently employed that will be allocated to the contract work including any apprentices and on-the-job trainees currently employed.

Table C - Indicate the racial breakdown of the total apprentices and on-the-job trainees shown in Table A.

**RETURN WITH BID**

**Contract No. 60H80  
COOK County  
Section 0303 VB-I  
Route FAU 1321  
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)  
(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW) Corporate Name \_\_\_\_\_  
By \_\_\_\_\_ Signature of Authorized Representative  
Typed or printed name and title of Authorized Representative \_\_\_\_\_  
Attest \_\_\_\_\_ Signature  
Business Address \_\_\_\_\_  
\_\_\_\_\_

(IF A JOINT VENTURE) Corporate Name \_\_\_\_\_  
By \_\_\_\_\_ Signature of Authorized Representative  
Typed or printed name and title of Authorized Representative \_\_\_\_\_  
Attest \_\_\_\_\_ Signature  
Business Address \_\_\_\_\_  
\_\_\_\_\_

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



Return with Bid

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

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

Letting Date \_\_\_\_\_

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

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

\_\_\_\_\_ as SURETY, are held jointly, severally and firmly bound unto the STATE OF ILLINOIS in the penal sum of 5 percent of the total bid price, or for the amount specified in Article 102.09 of the "Standard Specifications for Road and Bridge Construction" in effect on the date of invitation for bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

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

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

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

In TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by their respective officers this \_\_\_\_\_ day of \_\_\_\_\_ A.D., \_\_\_\_\_.

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

SURETY
\_\_\_\_\_  
(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 \_\_\_\_\_

# PROPOSAL ENVELOPE



# PROPOSALS

for construction work advertised for bids by the  
Illinois Department of Transportation

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

Bidders should use an IDOT proposal envelope or affix this form to the front of a 10" x 13" envelope for the submittal of bids. If proposals are mailed, they should be enclosed in a second or outer envelope addressed to:

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

## **NOTICE**

**Individual bids, including Bid Bond and/or supplemental information if required, should be securely stapled.**

# CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

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## 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. 60H80  
COOK County  
Section 0303 VB-I  
Route FAU 1321  
District 1 Construction Funds**



**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., January 15, 2010. 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. 60H80  
COOK County  
Section 0303 VB-I  
Route FAU 1321  
District 1 Construction Funds**

**Concrete overlay and bridge joint repair for the structure carrying IL Route 19 (Irving Park Road) over the Elgin, Joliet & Eastern Railway Company railroad in Streamwood, Bartlett and Elgin.**

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.  
  
(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the  
Illinois Department of Transportation

Gary Hannig,  
Acting Secretary

INDEX  
 FOR  
 SUPPLEMENTAL SPECIFICATIONS  
 AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2010

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-07) (Revised 1-1-10)

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## STATE OF ILLINOIS

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### SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2007, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAU 1321 (IL 19); Section 0303 VB-I; Cook County; Contract 60H80; and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

ROUTE: FAU 1321 (IL 19)  
SECTION: 0303 VB-I  
COUNTY: Cook  
CONTRACT: 60H80

### LOCATION OF IMPROVEMENT

This improvement will be done at the structure carrying IL 19 (Irving Park Rd) over EJ&E RR, (SN 016-0948) approximately 100 ft E of Rohrssen Rd, in the Villages of Streamwood and Bartlett and the City of Elgin, in Hanover Township, Cook County.

### DESCRIPTION OF IMPROVEMENT

The work consists of the reconstruction of the bridge joints, deck slab repairs, bridge deck hydroscarification, bridge deck latex concrete overlay, substructure repairs, approach slab repairs, resurfacing the approach areas with HMA surface course and all incidental and collateral work necessary to complete the improvement as shown on the plans and described herein.

### 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.

**RESTRICTIVE START DATE**

The Contractor will not be allowed to proceed with any work that requires the bridge to be closed prior to June 21, 2010.

Temporary lane closures for any advance work may be allowed at the discretion of the Engineer.

**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 13, 2010 except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within 5 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.

**RAILROAD PROTECTIVE LIABILITY INSURANCE (5 AND 10) (BDE)**

Effective: December 1, 1986

Revised: January 1, 2006

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications, 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
<b>EJ&amp;E RR under IL 19 w/o Rohrssen Rd. near Elgin.</b>		
Elgin, Joliet and Eastern Railway Co. and Its Parents 17641 S. Ashland Ave. Homewood, IL 60430	-0-	12 trains/day @ 45 mph
DOT/AAR No.: 260527X RR Division: Joliet	RR Mile Post: 39.48 RR Sub-Division: Western Sub.	

For Freight/Passenger Information Contact: John Henriksen Phone: 708-332-3557  
For Insurance Information Contact: Terry Lee Phone: 715-345-2501

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

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

The Contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Engineer evidence that the required insurance has been approved by the railroad(s). The Contractor shall also provide the Engineer with the expiration date of each required policy.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

ICRR REQUIREMENTS



United States Region

John Henriksen  
Manager Public Works

17641 South Ashland Avenue  
Homewood, Illinois 60430-1345  
708 333 3333

Date: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Subject: Right-of-Entry

\_\_\_\_\_ District MP \_\_\_\_\_  
\_\_\_\_\_, IL

Dear Sirs:

Reference is made to your request regarding a Right of Entry Agreement for the purposes relating to \_\_\_\_\_ Railroad Company's tracks and right-of-way near the above-mentioned location.

Enclosed are duplicate original counterparts of a covering Right-of Entry Agreement which has been prepared pursuant to this request. If satisfactory, please arrange to have both counterparts signed on your firm's behalf and return both to the undersigned for formal execution by the Railroad Company. Approval should not be presumed until a fully executed counterpart is returned for your files. To expedite our final acceptance and approval, a check in the stated amount of \$750 made payable to "Illinois Central Railroad Company" and the required evidence(s) of insurance should accompany the return of the documents.

Should you have any questions in these matters, please contact the undersigned at (708) 332-3557.

Sincerely,

United States Region



Paul E. Ladue  
Region Manager  
Contracts and Administration

17641 South Ashland Avenue  
Homewood, Illinois 60430-1345

Date: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Subject: Right-of-Entry

\_\_\_\_\_  
District MP \_\_\_\_\_  
\_\_\_\_\_, IL

Gentlemen:

The Illinois Central 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 Mile Post \_\_\_\_\_, \_\_\_\_\_ Subdivision) for purposes related to \_\_\_\_\_ the Railroad Company's tracks and right-of-way.

Licensee shall pay to the Railroad Company upon execution of this letter 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 Engineering Superintendent or his authorized representative at least three (3) 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 feet (25') of the centerline of the nearest railroad track without the expressed permission of the Railroad Company's Engineering Superintendent 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, the Licensee agrees to indemnify the Railroad Company in accordance with the terms of "Exhibit A - Indemnity" attached hereto and made a part hereof.

The Licensee shall furnish the Railroad Company with a policy or policies of insurance acceptable to the Railroad Company naming the Railroad Company as an insured party and protecting the Railroad Company against any and all liability for personal injury (including death) or property damage directly or indirectly resulting from the granting or exercise of this license and that such insurance be primary as it relates to this letter agreement. Such insurance shall have a minimum combined single limit of \$5,000,000 per occurrence with an aggregate limit of at least \$10,000,000. The insurance policy or policies must not contain any exclusion for work taking place in the vicinity of railroad tracks, and must be furnished to and approved by the Railroad Company prior to entry by the Licensee upon the Railroad Company's property.

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 by written agreement or relinquished by act of the Licensee, this license and permission shall terminate six (6) months from the date of this letter.

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 Engineering Superintendent or his authorized representative, failing in which the Railroad Company may do so at the Licensee's sole cost, risk and expense.

Please indicate your acceptance in the space provided below and return both copies of this letter. A fully executed copy will be transmitted to you for your permanent files.

Yours very truly,

ILLINOIS CENTRAL RAILROAD COMPANY

By: \_\_\_\_\_  
Paul E. Ladue  
Region Director  
Contracts and Administration

ACCEPTED:

\_\_\_\_\_

By: \_\_\_\_\_

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

RN

EXHIBIT "A"

INDEMNITY

Licensee agrees to indemnify and save harmless Railroad Company, its 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 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 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 in whole or in part to the negligence of the Railroad Company, its officers, employees or agents.

It is the intention of the parties hereto that Licensee shall be solely responsible for all such destruction or damage to property or for personal injury to or death of any persons which would not have occurred if the rights granted herein had never been granted or exercised.

~~At the election of the 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.~~

Accepted: \_\_\_\_\_

Print Name: \_\_\_\_\_

SPECIAL PROVISIONS

RELATIVE TO FLAGGING AND OTHER PROTECTION OF RAILROAD TRAFFIC AND FACILITIES DURING CONSTRUCTION ADJACENT AND ABOVE, ON OR ACROSS, THE PROPERTY OF, OR ON, ABOVE AND BENEATH THE TRACKS OF THE ILLINOIS CENTRAL RAILROAD COMPANY

The Grantee, Licensee or Permittee, or any Contractor engaged on its behalf, shall, before entering upon the property of the Railroad for performance of any work, secure permission from the Engineering Superintendent of the Railroad Company or his authorized representative at \_\_\_\_\_ for the occupancy and use of the Railroad's property and shall confer with the Railroad relative to requirements for railroad clearances, operation and general safety regulations. Grantee shall have all employees doing work on CN's property or its subcontractors doing work on CN's property go through Railroad Safety Training at <http://www.e-railsafe.com/>. Railroad Company reserves the right to bar any of Licensee's employees or agents from Railroad Company's property at any time for any reason. Licensee will need to contact Rich Hussey via email at [RICH.HUSSEY@CN.CA](mailto:RICH.HUSSEY@CN.CA) with a copy to [JOHN.HENRIKSEN@CN.CA](mailto:JOHN.HENRIKSEN@CN.CA), to be set up with a vendor number to complete eRailsafe. This email needs to contain Company Name, Address, Telephone Number, Contact Person and IDOT Contract No. If the AAR/DOT Number is available it must be included also.

The Grantee, Licensee or Permittee, or any Contractor engaged on its behalf, shall at all times conduct their work in a manner satisfactory to the Engineering Superintendent 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, permittees or tenants of the Railroad Company, or to interfere with railroad operations.

The Engineering Superintendent of the Railroad Company, or his authorized representative, will at all times have jurisdiction over the safety of railroad operations, and the decision of the Engineering Superintendent or his authorized representative as to procedures which may affect the safety of railroad operations shall be final, and the Grantee, Licensee or Permittee, 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. The Railroad'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's property.

Should any damage occur to Railroad 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 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

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be deemed to include the direct cost of any labor, materials, equipment or contract expense plus the Railroad'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, the Grantee, Licensee, Permittee and/or its Contractor shall make the necessary arrangements with the Railroad 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 upon receipt of bill(s) therefor.

The Grantee, Licensee, Permittee and/or its Contractor shall at no time cross the Railroad'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 the Railroad 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 and the cost thereof shall be reimbursed to the Railroad by the respective Grantee, Licensee, Permittee or Contractor upon receipt of bill(s) therefor. The requirements of the Railroad are as follows:

The services of a flagman will be required during any operation involving direct interference with the Railroad's tracks or traffic, fouling of railroad operating clearances, or reasonable proximity of accidental hazard to railroad traffic, generally when work takes place within twenty-five feet (25') from the nearest rail. Additional flagmen will also be furnished whenever, in the opinion of Railroad's Engineering Superintendent, such protection is needed.

Prior to any digging, trenching or boring activities on Railroad property, or beneath any railroad track, an on-site meeting shall be conducted with the Railroad's Signal Supervisor or Signal Maintainer so as to ascertain, to the extent possible, the location of any buried railroad signal cables in the vicinity of the proposed work. No digging, trenching or boring activities shall be conducted in the proximity of any known buried Railroad signal cables without the Railroad's Signal Maintainer being present.

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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 notify the Railroad Company sufficiently in advance of when the protective services are required. For work activities which require a flagman, Signal Maintainer or other Railroad personnel to be present while said work is being conducted, should the Railroad 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 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's inability or failure to have appropriate Railroad personnel available at the time or on the date requested.

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The rate of pay for the Railroad 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'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 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.

Any digging, trenching or boring on Railroad property shall be conducted in such a manner that any settlement or caving in of the ground surface shall be avoided.

The following temporary clearances are the minimum that must be maintained at all times during any operation:

**Vertical: 23'-0" (7.0 m) above top of highest rail within 8'-0" (2.44 m) of the centerline of any track**

**Horizontal: 8'-6" (2.59 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's Engineering Superintendent 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's property all machinery, equipment, surplus materials, false work, rubbish or temporary buildings, and to leave said property in a condition satisfactory to the Engineering Superintendent of the Railroad Company or his authorized representative.

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Nothing in these Special Provisions shall be construed to place any responsibility on the Railroad for the quality or conduct of the work performed by the Grantee, Licensee, Permittee and/or its Contractor hereunder. Any approval given or supervision exercised by Railroad hereunder, or failure of Railroad 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: \_\_\_\_\_

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## **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:

701301, 701502, 701901

### DETAILS:

Detour Plans  
Temporary Traffic Signal Plan Conditions For Detour  
RRPM (Snow Plow Resistant) – TC11  
District 1 Typical Pavement Markings – TC13  
Arterial Road Information Sign – TC22

### SPECIAL PROVISIONS:

Maintenance of Roadways  
Traffic Control & Protection for Temporary Detour  
Traffic Signal Specification  
Traffic Signal Specification for Detector Replacement And/Or  
Installation On Roadway Grinding, Resurfacing, & Patching  
Operations  
Temporary Information Signing  
Polyurea Pavement Marking (BDE)  
Reflective Sheeting on Channelizing Devices (BDE)  
Truck Mount/Trailer Mounted Attenuators (BDE)  
Personal Protective Equipment

## **TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR**

Effective: September 1, 1995

Revised: January 1, 2007

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

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

**COARSE AGGREGATE FOR HOT-MIX ASPHALT (HMA) (D-1)**

Effective : March 16, 2009

Revise Article 1004.03 of the Standard Specifications to read:

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

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

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Stabilized Subbase or Shoulders	Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag Crushed Concrete  The coarse aggregate for stabilized subbase, if approved by the Engineer, may be produced by blending aggregates according to Article 1004.04(a).
HMA High ESAL Low ESAL	IL-25.0, IL-19.0, or IL-19.0L	Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF)
HMA High ESAL Low ESAL	C Surface IL-12.5,IL-9.5, or IL-9.5L	Gravel (only when used in IL-9.5L) Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag (except when used as leveling binder)

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

(b) Quality. For surface courses and binder courses when used as surface course, the coarse aggregate shall be Class B quality or better.

For Class A (seal or cover coat), other binder courses, and surface course IL-9.5L (Low ESAL), the coarse aggregate shall be Class C quality or better. For All Other courses, the coarse aggregate shall be Class D quality or better.

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

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

1/ CA 16 or CA 13 may be blended with the gradations listed.

2/ CA 6 will not be permitted in the top lift of shoulders.

**FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)**

Effective: May 1, 2007

Revised: May 1, 2009

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

FINE AGGREGATE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	3/8	No. 4	No. 8	No. 16	No. 200
FA 22	100	6/	6/	8±8	2±2

FINE AGGREGATE GRADATIONS (metric)					
Grad No.	Sieve Size and Percent Passing				
	9.5 mm	4.75 mm	2.36 mm	1.16 mm	0.075 mm
FA 22	100	6/	6/	8±8	2±2

6/ For the fine aggregate gradations FA 22, the aggregate producer shall set the midpoint percent passing and a range of ± 10% shall be applied. The midpoint shall not be changed without Department approval.

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

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

**USE OF RAP (DIST 1)**

Effective: January 1, 2007

Revised: July 1, 2009

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

Revise Section 1031 of the Standard Specifications to read:

**“SECTION 1031. RECLAIMED ASPHALT PAVEMENT**

**1031.01 Description.** Reclaimed asphalt pavement (RAP) results from the cold milling or crushing of an existing hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction. The contractor can also request that a processed pile be tested by the Department to determine the aggregate quality as described in Article 1031.04, herein.

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

Prior to milling or removal of an HMA pavement, the Contractor may request the District to provide verification of the existing mix composition to clarify appropriate stockpile.

- (a) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures and represent: 1) the same aggregate quality, but shall be at least C quality; 2) the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag); 3) similar gradation; and 4) similar asphalt binder content. If approved by the Engineer, combined single pass surface/binder millings may be considered “homogenous” with a quality rating dictated by the lowest coarse aggregate quality present in the mixture.
- (b) Conglomerate 5/8. Conglomerate 5/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate 5/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 5/8 in. (16 mm) or smaller screen.
- (c) Conglomerate 3/8. Conglomerate 3/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures.

The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least B quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate 3/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 3/8 in (9.5 mm) or smaller screen.

- (d) Conglomerate Variable Size. Conglomerate variable size RAP shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least B quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate variable size RAP shall be processed prior to testing by crushing and screening to where all RAP is separated into various sizes. All the conglomerate variable size RAP shall pass the 3/4 in. (19 mm) screen and shall be a minimum of two sizes.
- (e) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from Class I, Superpave (High or Low ESAL), HMA (High or Low Esal), or equivalent mixtures. The coarse aggregate in this RAP may be crushed or round but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content.
- (f) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

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

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

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

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

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

- (a) Testing Conglomerate 3/8 and Conglomerate Variable Size. In addition to the requirements above, conglomerate 3/8 and variable size RAP shall be tested for maximum theoretical specific gravity ( $G_{mm}$ ) at a frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).
- (b) Evaluation of Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation and, when applicable  $G_{mm}$ . Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	Homogeneous/ Conglomerate	Conglomerate "D" Quality
1 in. (25 mm)		$\pm 5 \%$
3/4 in. (19mm)		
1/2 in. (12.5mm)	$\pm 8 \%$	$\pm 15 \%$
No. 4 (4.75 mm)	$\pm 6 \%$	$\pm 13 \%$
No. 8 (2.36 mm)	$\pm 5 \%$	
No. 16 (1.18 mm)		$\pm 15 \%$
No. 30 (600 $\mu\text{m}$ )	$\pm 5. \%$	
No. 200 (75 $\mu\text{m}$ )	$\pm 2.0 \%$	$\pm 4.0 \%$
Asphalt Binder	$\pm 0.4 \%$ <sup>1/</sup>	$\pm 0.5 \%$
$G_{mm}$	$\pm 0.02 \%$ <sup>2/</sup>	
$G_{mm}$	$\pm 0.03 \%$ <sup>3/</sup>	

- 1/ The tolerance for conglomerate 3/8 shall be  $\pm 0.3 \%$ .
- 2/ Applies only to conglomerate 3/8. When variation of the  $G_{mm}$  exceeds the  $\pm 0.02 \%$  tolerance, a new conglomerate 3/8 stockpile shall be created which will also require an additional mix design.
- 3/ Applies only to conglomerate variable size. When variation of the  $G_{mm}$  exceeds the  $\pm 0.03$  tolerance, a new conglomerate variable size stockpile shall be created which will also require an additional mix design.

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

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

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

- (a) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) surface mixtures are designated as containing Class B quality coarse aggregate.
- (b) RAP from Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder and IL-9.5L surface mixtures are designated as Class D quality coarse aggregate.
- (c) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
- (d) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

**Aggregate Quality Testing of RAP:**

The processed pile shall have a maximum tonnage of 5,000 tons (4500 metric tons). The pile shall be crushed and screened with 100 percent of the material passing the 3/4 in. (19mm) sieve. The pile shall be tested for AC content and gradation and shall conform to all requirements of Article 1031.03 Testing, herein. Once the uniformity of the gradation and AC content has been established, the Contractor shall obtain a representative sample with district oversight of the sampling. This sample shall be no less than 50 lbs (25 kg) and this sample shall be delivered to a Consultant Lab, prequalified by the Department for extraction testing according to Illinois Modified AASHTO T 164. After the AC has been extracted, the Consultant Lab shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid directly 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.

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

- (a) Coarse Aggregate Size. The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
- (b) Use in HMA Surface Mixtures (High and Low ESAL). RAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be either homogeneous or conglomerate 3/8 or variable size in which the coarse aggregate is Class B quality or better.
- (c) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be homogeneous, conglomerate 5/8, or conglomerate 3/8, conglomerate variable size, in which the coarse aggregate is Class C quality or better.
- (d) Use in Shoulders and Subbase. RAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be homogeneous, conglomerate 5/8, conglomerate 3/8, conglomerate variable size, or conglomerate DQ.

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

Maximum Mixture RAP Percentage

HMA Mixtures <sup>1/3/</sup>		Maximum % Rap	
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30	30/40 <sup>2/</sup>	30	10
50	25/40 <sup>2/ 4/</sup>	15/25 <sup>2/</sup>	10 <sup>4/</sup>
70	25/30 <sup>2/</sup>	10/20 <sup>2/</sup>	10
90	10/15 <sup>2/</sup>	10/15 <sup>2/</sup>	10
105	10/15 <sup>2/</sup>	10/15 <sup>2/</sup>	10

- 1/ For HMA Shoulder and Stabilized Sub-Base (HMA) N-30, the amount of RAP shall not exceed 50% of the mixture.
- 2/ Value of Max % RAP If 3/8 Rap or conglomerate variable size RAP is utilized.
- 3/ When RAP exceeds 20% the AC shall be PG58 -22. However, when RAP exceeds 20% and is used in full depth HMA pavement the AC shall be PG58 -28.
- 4/ Polymerized Leveling Binder, IL-4.75 is 15 %

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

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

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

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

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

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

(a) Drier Drum Plants

- (1) Date, month, year, and time to the nearest minute for each print.
- (2) HMA Mix number assigned by the Department
- (3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons)  
Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton)
- (4) Accumulated dry weight of RAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton)
- (5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
- (6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
- (7) Residual asphalt binder in the RAP material (per size) as a percent of the total mix to the nearest 0.1 unit.
- (8) Aggregate and RAP moisture compensators in percent as set on the control panel (Required when accumulated or individual aggregate and RAP are printed in wet condition).

(b) Batch Plants

- (1) Date, month, year, and time to the nearest minute for each print.
- (2) HMA mix number assigned by the Department.
- (3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram)
- (4) Mineral filler weight to the nearest pound (kilogram).
- (5) Individual RAP Aggregate weight to the nearest pound (kilogram).
- (6) Virgin asphalt binder weight to the nearest pound (kilogram)
- (7) Residual asphalt binder of each RAP size material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request.

The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

**1031.08 RAP in Aggregate Surface Course and Aggregate Shoulders.** The use of RAP in aggregate surface course and aggregate shoulders shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Other". The testing requirements of Article 1031.03 shall not apply.
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5 mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single sized will not be accepted."

## **DECK SLAB REPAIR**

Effective: May 15, 1995

Revised: January 12, 2009

This work shall consist of hot-mix asphalt surface removal, when required, the removal and disposal of all loose and deteriorated concrete from bridge deck and the replacement with new concrete to the original top of deck. The work shall be done according to the applicable requirements of Sections 501, 503 and 1020 of the Standard Specifications and this Special Provision.

Deck slab repairs will be classified as follows:

- (a) Partial-Depth. Partial-depth repairs shall consist of removing the loose and unsound deck concrete, disposing of the concrete removed and replacing with new concrete. The removal may be performed by chipping with power driven hand tools or by hydro-scarification equipment. The depth shall be measured from the top of the concrete deck surface, at least 3/4 in. (20 mm) but not more than 1/2 the concrete deck thickness.
- (b) Full-Depth. Full-depth repairs shall consist of removing concrete full-depth of the deck, disposing of the concrete removed, and replacing with new concrete to the original concrete deck surface. The removal may be performed with power driven hand tools or by hydro-scarification equipment. Full-depth repairs shall be classified for payment as Full-Depth, Type I and Full-Depth, Type II according to the following:

Type I Full-depth patches less than or equal to 5 sq. ft. (0.5 sq m) in area. The minimum dimensions for a patch shall be 1 ft. x 1 ft. (300 mm x 300 mm).

Type II Full-depth patches greater than 5 sq. ft. (0.5 sq. m) in area.

## Materials.

Materials shall be according to Article 1020.02.

Portland cement concrete for partial and full-depth repairs shall be according to Section 1020. Class PP-1, PP-2, PP-3, PP-4, PP-5 or BS concrete shall be used at the Contractor's option. For Class BS concrete, a CA 13, 14, or 16 shall be used. If the BS concrete mixture is used only for full depth repairs, a CA-11 may be used.

In Section 1020, revise the second sentence of Note 10 for Table 1 of Article 1020.04 to read as follows for Class PP concrete: "The bridge deck patching mix design strength shall be increased to 4000 psi (27,500 kPa) compressive or 675 psi (4650 kPa) flexural, and the mixture shall have 72 hours to obtain the required strength."

Grout. The grout for bonding new concrete to old concrete shall be proportioned by weight (mass) and mixed at the job site, or it may be ready-mixed if agitated while at the job site. The bonding grout shall consist of one part portland cement and one part sand, mixed with sufficient water to form a slurry. The bonding grout shall have a consistency allowing it to be scrubbed onto the prepared surface with a stiff brush or broom leaving a thin, uniform coating that will not run or puddle in low spots. Grout that can not be easily and evenly applied or has lost its consistency may be rejected by the Engineer. Grout that is more than two hours old shall not be used.

#### Equipment:

The equipment used shall be subject to the approval of the Engineer and shall meet the following requirements:

- (a) Surface Preparation Equipment. Surface preparation and concrete removal equipment shall be according to the applicable portions of Section 1100 and the following:
  - (1) Sawing Equipment. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.
  - (2) Blast Cleaning Equipment. The blast cleaning may be performed by wet sandblasting, high-pressure waterblasting, shotblasting or abrasive blasting. Blast cleaning equipment shall be capable of removing rust and old concrete from exposed reinforcement bars, and shall have oil traps.
  - (3) Power-Driven Hand Tools. Power-driven hand tools will be permitted including jackhammers lighter than the nominal 45 lb. (20 kg) class. Chipping hammers heavier than a nominal 15 lb. (6.8 kg) class shall not be used for removing concrete from below any reinforcing bar for partial depth repairs or final removal at the boundary of full-depth repairs. Jackhammers or chipping hammers shall not be operated at an angle in excess of 45 degrees measured from the surface of the slab.
  - (4) Hydro-Scarification Equipment. The hydro-scarification equipment shall consist of filtering and pumping units operating with a remote-controlled robotic device. The equipment may use river, stream or lake water. Operation of the equipment shall be performed and supervised by qualified personnel certified by the equipment manufacturer. Evidence of certification shall be presented to the Engineer. The equipment shall be capable of removing concrete to the specified depth and removing rust and concrete particles from exposed reinforcing bars. Hydro-scarification equipment shall be calibrated before being used and shall operate at a minimum of 18,000 psi (124 MPa).

- (b) Concrete Equipment: Equipment for proportioning and mixing the concrete shall be according to Article 1020.03.
- (c) Finishing Equipment: Finishing equipment shall be according to Article 1103.17. Adequate hand tools will be permitted for placing and consolidating concrete in the patch areas and for finishing small patches.

Construction Requirements: Sidewalks, curbs, drains, reinforcement and/or existing transverse and longitudinal joints which are to remain in place shall be protected from damage during removal and cleaning operations. All damage caused by the Contractor shall be corrected, at the Contractor's expense, to the satisfaction of the Engineer.

The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of construction debris into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. Runoff water will not be allowed to constitute a hazard on adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

- (a) Hot-Mix Asphalt Surface Removal.

The hot-mix asphalt surface course and all waterproofing membrane shall be removed and disposed of according to applicable portions of Articles 440.04 and 440.06, except milling equipment will not be allowed if the deck is to receive a waterproofing membrane system. If the overlay or waterproofing membrane contains asbestos fibers, removal shall be in accordance with the Special Provision for "Asbestos Waterproofing Membrane or Asbestos Hot-mix Asphalt Surface Removal". Removal of the hot-mix asphalt surface by the use of radiant or direct heat will not be permitted.

- (b) Surface Preparation:

All loose, disintegrated and unsound concrete shall be removed from portions of the deck slab shown on the plans or as designated by the Engineer. The Engineer will determine the limits of removal as the work progresses.

The Contractor shall take care not to damage reinforcement bars or expansion joints which are to remain in place. Any damage to reinforcement bars or expansion joints shall be corrected at the Contractor's expense. All loose reinforcement bars, as determined by the Engineer, shall be retied at the Contractor's expense.

- (1) Partial-Depth. Areas to be repaired will be determined and marked by the Engineer. A concrete saw shall be used to provide vertical edges approximately 3/4 in. (20 mm) deep around the perimeter of the area to be patched when a concrete overlay is not specified. Where high steel is present, the depth may be reduced as directed by the Engineer. A saw cut will not be required on those boundaries along the face of the curb, parapet or joint or when sharp vertical edges are provided by hydro-scarification.

The loose and unsound concrete shall be removed by chipping, with power driven hand tools or by hydro-scarification equipment. All exposed reinforcing bars and newly exposed concrete shall be thoroughly blast cleaned. Where, in the judgment of the Engineer, the bond between existing concrete and reinforcement steel within the patch area has been destroyed, the concrete adjacent to the bar shall be removed to a depth that will permit new concrete to bond to the entire periphery of the exposed bar. A minimum of 1 in. (25 mm) clearance will be required. The Engineer may require enlarging a designated removal area should inspection indicate deterioration beyond the limits previously designated. In this event, a new saw cut shall be made around the extended area before additional removal is begun. The removal area shall not be enlarged solely to correct debonded reinforcement or deficient lap lengths.

- (2) Full-Depth. Concrete shall be removed as determined by the Engineer within all areas designated for full-depth repair and in all designated areas of partial depth repair in which unsound concrete is found to extend below half the concrete deck thickness. Full depth removal shall be performed according to Article 501.05. Saw cuts shall be made on the top of the deck, except those boundaries along the face of curbs, parapets and joints or where hydro-scarification provided sharp vertical edges. The top saw cut may be omitted if the deck is to receive an overlay.

Forms for full-depth repair may be supported by hangers with adjustable bolts or by blocking from the beams below. When approved by the Engineer, forms for Type 1 patches may be supported by No. 9 wires or other devices attached to the reinforcement bars.

All form work shall be removed after the curing sequence is complete and prior to opening to traffic.

- (3) Reinforcement Treatment. Care shall be exercised during concrete removal to protect the reinforcement bars and structural steel from damage. Any damage to the reinforcement bars or structural steel to remain in place shall be repaired or replaced to the satisfaction of the Engineer at the Contractor's expense. All existing reinforcement bars shall remain in place except as herein provided for corroded bars. Tying of loose bars will be required. Reinforcing bars which have been cut or have lost 25 percent or more of their original cross sectional area shall be supplemented by new in kind reinforcement bars. New bars shall be lapped a minimum of 32 bar diameters to existing bars. An approved mechanical bar splice capable of developing in tension at least 125 percent of the yield strength of the existing bar shall be used when it is not feasible to provide the minimum bar lap. No welding of bars will be permitted.
- (4) Cleaning. Immediately after completion of the concrete removal and reinforcement repairs, the repair areas shall be cleaned of dust and debris. Once the initial cleaning is completed, the repair areas shall be thoroughly blast cleaned to a roughened appearance free from all foreign matter. Particular attention shall be given to removal of concrete fines. Any method of cleaning which does not consistently produce satisfactory results shall be discontinued and replaced by an acceptable method.

All debris, including water, resulting from the blast cleaning shall be confined and shall be immediately and thoroughly removed from all areas of accumulation. If concrete placement does not follow immediately after the final cleaning, the area shall be carefully protected with well-anchored polyethylene sheeting.

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, or other foreign substances which may reduce bond with the concrete. A tight non-scaling coating of rust is not considered objectionable. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning or other methods approved by the Engineer.

(c) Placement & Finishing of Concrete Repair:

(1) Grout Placement. After the repair areas have been cleaned and immediately prior to concrete placement, the grout shall be applied to a dampened surface. A thin layer of grout shall be thoroughly scrubbed into the deck surface. All vertical as well as horizontal surfaces shall receive a thorough, even coating. The rate of grout placement shall be limited so the brushed grout does not dry out before it is covered with concrete. Grout that has become dry and chalky shall be blast cleaned and replaced at the Contractor's expense. No concrete shall be placed over dry grout.

(2) Concrete Placement.

The concrete shall be placed and consolidated according to Article 503.07 and as herein specified. Article 1020.14 shall apply.

When an overlay system is not specified, the patches shall be finished according to Article 503.16 (a), followed by a light brooming.

(d) Curing and Protection.

Concrete patches shall be cured by the Wetted Burlap or Wetted Cotton Mat Method according to Article 1020.13 (a)(3) or Article 1020.13 (a)(5). The curing period shall be 3 days for Class PP-1, PP-2, PP-3, PP-4, and PP-5 concrete. The curing period shall be 7 days for Class BS concrete. In addition to Article 1020.13, when the air temperature is less than 55° F (13° C), the Contractor shall cover the patch according to Article 1020.13 (d)(1) with minimum R12 insulation. Insulation is optional when the air temperature is 55° F. - 90° F (13° C - 32° C). Insulation shall not be placed when the air temperature is greater than 90° F (32° C). A 72-hour minimum drying period shall be required before placing waterproofing or hot-mix asphalt surfacing.

(e) Opening to Traffic.

No traffic will be permitted on a patch until after the specified cure period, and the concrete has obtained a minimum compressive strength of 4000 psi (27.6 MPa) or flexural strength of 675 psi (4.65 MPa).

Construction equipment will be permitted on a patch during the cure period if the concrete has obtained the minimum required strength.

In this instance, the strength specimens shall be cured with the patch.

Method of Measurement.

When specified, hot-mix asphalt surface removal and full or partial depth repairs will be measured for payment and computed in square yards (square meters).

Basis of Payment.

The hot-mix asphalt surface removal will be paid for at the contract unit price per square yard (square meter) for HOT-MIX ASPHALT SURFACE REMOVAL (DECK). Areas removed and replaced up to and including a depth of half the concrete deck thickness will be paid for at the contract unit price per square yard (square meter) for DECK SLAB REPAIR (PARTIAL). Areas requiring removal greater than a depth of half the concrete deck thickness shall be removed and replaced full depth and will be paid for at the contract unit price per square yard (square meter) for DECK SLAB REPAIR (FULL DEPTH, TYPE I) and/or DECK SLAB REPAIR (FULL DEPTH, TYPE II).

When corroded reinforcement bars are encountered in the performance of this work and replacement is required, the Contractor will be paid according to Article 109.04.

No payment will be allowed for removal and replacement of reinforcement bars damaged by the Contractor in the performance of his/her work or for any increases in dimensions needed to provide splices for these replacement bars.

Removal and disposal of asbestos waterproofing and/or asbestos bituminous concrete will be paid for as specified in the Special Provision for "Asbestos Waterproofing Membrane or Asbestos Hot-Mix Asphalt Surface Removal".

**BRIDGE DECK LATEX CONCRETE OVERLAY**

Effective: May 15, 1995

Revised: May 11, 2009

This work shall consist of the preparation of the existing concrete bridge deck and the construction of a latex overlay to the specified thickness. The minimum thickness of the overlay shall be 2 1/4 in. (60 mm).

Materials. Materials shall meet the following Articles of Section 1000:

<u>Item</u>	<u>Section</u>
(a) Latex/Portland Cement Concrete (Note 1) (Note 2)	1020
(b) Grout (Note 3)	
(c) Packaged Rapid Hardening Mortar or Concrete	1018
(d) Concrete Curing Materials	1022.02

Note 1: This item shall include the initial on site technical assistance of the supplier of the latex admixture. Further technical assistance shall be available at the request of the Engineer.

Any cement found to be incompatible in any respect for the latex overlay shall be removed from the work immediately and replaced with compatible cement at the Contractor's expense.

The latex admixture shall be a uniform, homogeneous, non-toxic, film-forming, polymeric emulsion in water to which all stabilizers have been added at the point of manufacture. The latex admixture shall not contain any chlorides and shall contain 46 to 49 percent solids.

The Contractor shall submit a manufacturer's certification that the latex emulsion meets the requirements of FHWA Research Report RD-78-35, Chapter VI. The certificate shall include the date of manufacture of the latex admixture, batch or lot number, quantity represented, manufacturer's name, and the location of the manufacturing plant. The latex emulsion shall be sampled and tested in accordance with RD-78-35, Chapter VII, Certification Program.

The latex admixture shall be packaged and stored in containers and storage facilities which will protect the material from freezing and from temperatures above 85°F (30°C). Additionally, the material shall not be stored in direct sunlight and shall be shaded when stored outside of buildings during moderate temperatures.

Note 2: Cement shall be Type I portland cement. Fine aggregate shall be natural sand and the coarse aggregate shall be crushed stone or crushed gravel. The gradation of the coarse aggregates shall be CA 13, CA 14 or CA 16.

Note 3: Grout. The grout for bonding new concrete to old concrete shall be proportioned by weight (mass) and mixed at the job site, or it may be ready-mixed if agitated while at the job site. The bonding grout shall consist of one part portland cement and two parts sand, mixed with sufficient water to form a slurry. The bonding grout shall have a consistency allowing it to be scrubbed onto the prepared surface with a stiff brush or broom leaving a thin, uniform coating that will not run or puddle in low spots. Grout that can not be easily and evenly applied or has lost its consistency may be rejected by the Engineer. Grout that is more than two hours old shall not be used.

At the option of the Contractor the grout may be applied by mechanical applicators. If this option is chosen, the sand shall be eliminated from the grout mix.

Mixture Design. The latex concrete shall contain the following approximate units of measure or volumes per cubic yard (cubic meter):

Type I Portland Cement	658 lb. (390 kg)
Latex Admixture	24.5 gal (121.3 L)
Coarse Aggregate	42 to 50 percent by weight (mass) of total aggregate
Water (including free moisture on the fine and coarse aggregates)	157 lb. (93.1 kg) maximum

No air entraining admixtures shall be added to the mix.

This mix design is based on a specific gravity of 2.65 for both the fine and the coarse aggregates. The mix will be adjusted by the Engineer to compensate for aggregate specific gravity and moisture.

The latex concrete shall meet the following requirements:

Slump shall be according to Article 1020.07 and 1020.12: 3 to 6 in. (75 to 150 mm)

Air Content shall be according to Article 1020.08 and 1020.12: 7 percent maximum

Water-cement ratio (considering all the nonsolids in the latex admixture as part of the total water) 0.30 to 0.40

Compressive Strength (14 days) 4000 psi (27,500 kPa) minimum

Flexural Strength (14 days) 675 psi (4,650 kPa)

Equipment: The equipment used shall be subject to the approval of the Engineer and shall meet the following requirements:

(a) Surface Preparation Equipment. Surface preparation equipment shall be according to the applicable portions of Section 1100 and the following:

(1) Sawing Equipment. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.

(2) Mechanical Blast Cleaning Equipment. Mechanical blast cleaning may be performed by high-pressure waterblasting or shotblasting. Mechanical blast cleaning equipment shall be capable of removing weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification, and shall have oil traps.

Mechanical high-pressure waterblasting equipment shall be mounted on a wheeled carriage and shall include multiple nozzles mounted on a rotating assembly. The distance between the nozzles and the deck surface shall be kept constant and the wheels shall maintain contact with the deck surface during operation.

(3) Hand-Held Blast Cleaning Equipment. Blast cleaning using hand-held equipment may be performed by high-pressure waterblasting or abrasive blasting. Hand-held blast cleaning equipment shall have oil traps.

Hand-held high-pressure waterblasting equipment that is used in areas inaccessible to mechanical blast cleaning equipment shall have a minimum pressure of 7000 psi (48 MPa).

- (4) Mechanical Scarifying Equipment. Scarifying equipment shall be a power-operated, mechanical scarifier capable of uniformly scarifying or removing the old concrete surface and new patches to the depths required in a satisfactory manner. Other types of removal devices may be used if their operation is suitable and they can be demonstrated to the satisfaction of the Engineer.
- (5) Hydro-Scarification Equipment. The hydro-scarification equipment shall consist of filtering and pumping units operating with a computerized, self-propelled robotic machine with gauges and settings that can be easily verified. The equipment shall use potable water according to Section 1002. Operation of the equipment shall be performed and supervised by qualified personnel certified by the equipment manufacturer. Evidence of certification shall be presented to the Engineer. The equipment shall be capable of removing concrete to the specified depth and be capable of removing rust and old concrete particles from exposed reinforcement bars. The hydro-scarification equipment shall be calibrated before being used and shall operate at a uniform pressure sufficient to remove the specified depth of concrete in a timely manner.
- (6) Vacuum Cleanup Equipment. The equipment shall be equipped with fugitive dust control devices capable of removing wet debris and water all in the same pass. Vacuum equipment shall also be capable of washing the deck with pressurized water prior to the vacuum operation to dislodge all debris and slurry from the deck surface.
- (7) Power-Driven Hand Tools. Power-driven hand tools will be permitted including jackhammers lighter than the nominal 45 lb. (20 kg) class. Jackhammers or chipping hammers shall not be operated at an angle in excess of 45 degrees measured from the surface of the slab.
- (b) Pull-off Test Equipment. Equipment used to perform pull-off testing shall be either approved by the Engineer, or obtained from one of the following approved sources:

James Equipment  
007 Bond Tester  
800-426-6500

Germann Instruments, Inc.  
BOND-TEST Pull-off System  
847-329-9999

SDS Company  
DYNA Pull-off Tester  
805-238-3229

Pull-off test equipment shall include all miscellaneous equipment and materials to perform the test and clean the equipment, as indicated in the Illinois Test procedure 304 and 305 "Pull-off Test (Surface or Overlay Method)". Prior to the start of testing, the Contractor shall submit to the Engineer a technical data sheet and material safety data sheet for the epoxy used to perform the testing. For solvents used to clean the equipment, a material safety data sheet shall be submitted.

- (c) Concrete Equipment: A mobile Portland cement concrete plant shall be used for Latex Concrete and shall be according to Articles 1020.12, 1103.04 and the following:

- (1) The device for proportioning water shall be accurate within one percent.
- (2) The mixer shall be a self-contained, mobile, continuous mixer used in conjunction with volumetric proportioning.
- (3) The mixer shall be calibrated prior to every placement of material or as directed by the Engineer.

(d) Finishing Equipment. Finishing equipment shall be according to Article 503.03.

(e) Mechanical Fogging Equipment. Mechanical fogging equipment shall be according to 1103.17 (k).

Construction Requirements: Sidewalks, curbs, drains, reinforcement and/or existing transverse and longitudinal joints which are to remain in place shall be protected from damage during scarification and cleaning operations. All damage caused by the Contractor shall be corrected, at the Contractor's expense, to the satisfaction of the Engineer.

The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of construction debris into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. Runoff water will not be allowed to constitute a hazard on adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

(a) Deck Preparation:

- (1) Bridge Deck Scarification. The scarification work shall consist of removing the designated concrete deck surface using mechanical or hydro-scarifying equipment as specified. The areas designated shall be scarified uniformly to the depth as specified on the plans. In areas of the deck not accessible to the scarifying equipment, power-driven hand tools will be permitted. Power driven hand tools shall be used for removal around areas to remain in place.

A trial section on the existing deck surface will be designated by the Engineer to demonstrate that the equipment, personnel and methods of operation are capable of producing results satisfactory to the Engineer. The trial section will consist of approximately 30 sq. ft. (3 sq. m).

Once the settings for the equipment are established, they shall not be changed without the permission of the Engineer. The removal shall be verified, as necessary, at least every 16 ft. (5 m) along the cutting path. If sound concrete is being removed below the desired depth, the equipment shall be reset or recalibrated.

If the use of hydro-scarification equipment is specified, the Contractor may use mechanical scarification equipment to remove an initial depth of concrete provided that the last 1/4 in. (6 mm) of removal is accomplished with hydro-scarification equipment. If the Contractor's use of mechanical scarifying equipment results in exposing, snagging, or dislodging the top mat of reinforcing steel, the scarifying shall be stopped immediately and the remaining removal shall be accomplished using the hydro-scarification equipment.

All damage to the existing reinforcement resulting from the Contractor's operation shall be repaired or replaced at the Contractor's expense as directed by the Engineer. Replacement shall include the removal of any additional concrete required to position or splice the new reinforcing steel. Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged or corroded reinforcement. Repairs to existing reinforcement shall be according to the Special Provision for "Deck Slab Repair".

After hydro-scarification the deck shall be vacuum cleaned in a timely manner before the water and debris are allowed to dry and re-solidify to the deck. The uses of alternative cleaning and debris removal methods to minimize driving heavy vacuum equipment over exposed deck reinforcement may be used subject to the approval of the Engineer.

- (2) Deck Patching. After bridge deck scarification, all designated patching, except as note below, shall be completed according to the Special Provision for "Deck Slab Repair". All full depth patching shall be completed prior to final surface preparation. When hydro-scarification is specified, partial depth patches may be fill with overlay material at the time of overlay placement.

All patches placed prior to overlay placement shall be struck off and then roughened with a suitable stiff bristled broom or wire brush to provide a rough texture designed to promote bonding of the overlay. Hand finishing of the patch surface shall be kept to a minimum to prevent overworking of the surface.

After scarification, the deck shall be thoroughly cleaned of broken concrete and other debris. The Engineer will sound the scarified deck and all remaining unsound areas will be marked for additional removal and/or repairs as applicable. If the bottom mat of reinforcement is exposed, that area shall be defined as a full depth repair.

In areas where hydro-scarification is specified, No separate payment for partial depth patching will be made regardless of whether it was detailed in the plans or not. Just prior to performing hydro-scarification, the deck shall be sounded, with unsound areas marked on the deck to assist the hydro-scarification process in performing the partial depth removal simultaneously with the hydro-scarification operation. If in the opinion of the Engineer additional removal is required after the hydro-scarification process, which could not have been anticipated or accounted for by normal modifications to the scarification process (such as modifying the dwell time or Nozzle pressure), such removal shall be paid for according to Article 109.04. Any removal required or made below the specified depth for scarification of the bridge deck, which does not result in full depth patching, shall be filled with the overlay material at the time of the overlay placement.

- (3) Final Surface Preparation. Final surface preparation shall consist of the operation of mechanical blast cleaning equipment to remove any weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification. Any areas determined by the Engineer to be inaccessible to mechanical equipment shall be thoroughly blast cleaned with hand-held equipment.

When hydro-scarification equipment is used for concrete removal, the deck surface need not be blast cleaned with mechanical equipment unless the spoils from the scarification operation are allowed to dry and re-solidify on the deck surface.

Final surface preparation shall also include the cleaning of all dust, debris, and concrete fines from the deck surface including vertical faces of curbs, previously placed adjacent overlays, barrier walls up to a height of 1 in. (25 mm) above the overlay, depressions, and beneath reinforcement bars. Hand-held high-pressure waterblasting equipment shall be used for this operation.

If mechanical scarification is used to produce the final deck surface texture, surface pull-off testing will be required. After the final surface preparation has been completed and before placement of the overlay, the prepared deck surface will be tested by the Engineer according to the Illinois Test Procedure 304 "Pull-off Test (Surface Method)". The Contractor shall provide the test equipment.

- a. Start-up Testing. Prior to the first overlay placement, the Engineer will evaluate the blast cleaning method. The start-up area shall be a minimum of 600 sq. ft. (56 sq. m). After the area has been prepared, six random test locations will be determined by the Engineer, and tested according to the Illinois Test Procedure 304 "Pull-off Test (Surface Method)".

The average of the six tests shall be a minimum of 175 psi (1,207 kPa) and each individual test shall have a minimum strength of 160 psi (1,103 kPa). If the criteria are not met, the Contractor shall adjust the blast cleaning method. Start-up testing will be repeated until satisfactory results are attained.

Once an acceptable surface preparation method is established, it shall be continued for the balance of the work. The Contractor may, with the permission of the Engineer, change the surface preparation method, in which case, additional start-up testing will be required.

- b. Lot Testing. After start-up testing has been completed, the following testing frequency will be used. For each structure, each stage will be divided into lots of not more than 4500 sq. ft. (420 sq. m). Three random test locations will be determined by the Engineer for each lot, and tested according to the Illinois Test Procedure 304 "Pull-off Test (Surface Method)".

The average of the three tests shall be a minimum of 175 psi (1,207 kPa) and each individual test shall have a minimum strength of 160 psi (1,103 kPa). In the case of a failing individual test or a failing average of three tests, the Engineer will determine the area that requires additional surface preparation by the Contractor. Additional test locations will be determined by the Engineer.

In addition to start-up and lot testing, the Department may require surface pull-off testing of areas inaccessible to mechanical blast cleaning equipment and blast cleaned with hand-held equipment. The Engineer shall determine each test location, and each individual test shall have a minimum strength of 175 psi (1,207 kPa).

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, and other foreign substances which may reduce bond with the concrete. A tight non-scaling coating of rust is not considered objectionable. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning or other methods approved by the Engineer. All loose reinforcement bars, as determined by the Engineer, shall be retied at the Contractor's expense.

All dust, concrete fines, debris, including water, resulting from the surface preparation shall be confined and shall be immediately and thoroughly removed from all areas of accumulation. If concrete placement does not follow immediately after the final cleaning, the area shall be carefully protected with well-anchored white polyethylene sheeting.

- (b) Pre-placement Procedure. Prior to placing the overlay, the Engineer will inspect the deck surface. All contaminated areas shall be blast cleaned again at the Contractor's expense.

Before placing the overlay, the finishing machine shall be operated over the full length of bridge segment to be overlaid to check support rails for deflection and confirm the minimum overlay thickness. All necessary adjustments shall be made and another check performed, unless otherwise directed by the Engineer.

- (c) Placement Procedure: Concrete placement shall be according to Article 503.07 and the following:

- (1) Bonding Methods. The Contractor shall prepare the deck prior to overlay placement by one of the following methods unless restricted as specified on the plans:

- a. Grout Method. The deck shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition for at least 12 hours before placement of the grout is started. Any excess water shall be removed by compressed air or by vacuuming prior to grout placement. Water shall not be applied to the deck surface within one hour before or at any time during placement of the grout. Immediately before placing the overlay mixture, the exposed area shall be thoroughly covered with a thin layer of grout. The grout shall be thoroughly scrubbed into the surface. All vertical as well as horizontal surfaces shall receive a thorough, even coating. The rate of grout placement shall be limited so the brushed grout does not dry out before it is covered with the concrete.

Grout that is allowed to become dry and chalky shall be blast cleaned and replaced at the Contractor's expense. No concrete shall be placed over dry grout.

- b. Direct Bond Method. The deck shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition with water for at least 12 hours before placement of the overlay. Any excess water shall be removed by compressed air or by vacuuming prior to the beginning of overlay placement.

Water shall not be applied to the deck surface within one hour before or at any time during placement of the overlay.

- (2) Overlay Placement. Placement of the concrete shall be a continuous operation throughout the pour. The overlay shall be placed as close to its final position as possible and then mechanically consolidated and screeded to final grade. All fogging, finishing, and texturing shall be according to Article 503.16.

Internal vibration will be required along edges, adjacent to bulkheads, and where the overlay thickness exceeds 3 in. (75 mm). Internal vibration along the longitudinal edges of a pour will be required with a minimum of 2 hand-held vibrators, one on each edge of the pour. Hand finishing will be required along the edges of the pour and shall be done from sidewalks, curbs or work bridges.

A construction dam or bulkhead shall be installed in case of a delay of 30 minutes or more in the concrete placement operation.

All construction joints shall be formed. When required by the Engineer the previously placed overlay shall be sawed full-depth to a straight and vertical edge before fresh concrete is placed. The Engineer will determine the extent of the removal. When longitudinal joints are not shown on the plans, the locations shall be subject to approval by the Engineer and shall not be located in the wheel paths.

The Contractor shall stencil the date of construction (month and year) and the letters LX into the overlay before it takes its final set. The stencil shall be located in a conspicuous location, as determined by the Engineer, for each stage of construction. This location shall be outside of the grooving where possible and within 3 ft. (1 m) of an abutment joint. The characters shall be 3 to 4 in. (75 mm to 100 mm) in height, 1/4 in. (5 mm) in depth and face the centerline of the roadway.

- (3) Limitations of Operations:

(a) Weather Limitations. Temperature control for concrete placement shall be according to 1020.14(b). The concrete protection from low air temperatures during the curing period shall be according to Article 1020.13(d). Concrete shall not be placed when rain is expected during the working period. If night placement is required, illumination and placement procedures will be subject to the approval of the Engineer. No additional compensation will be allowed if night work is required.

(b) Other Limitations. Mobile concrete mixers, truck mixers, concrete pumps, or other heavy equipment will not be permitted on any portion of the deck where the top reinforcing mat has been exposed. Conveyors, buggy ramps and pump piping shall be installed in a way that will not displace undercut reinforcement bars. Air compressors may be operated on the deck only if located directly over a pier and supported off undercut reinforcement bars. Compressors will not be allowed to travel over undercut reinforcement bars.

Concrete removal may proceed during final cleaning and concrete placement on adjacent portions of the deck, provided the removal does not interfere in any way with the cleaning or placement operations.

If water or contaminants from the hydro-scarification flow into the area of final cleaning or concrete placement, hydro-scarification shall be suspended until the concrete has been placed and has cured a minimum of 24 hours. No concrete shall be removed within 6 ft. (1.8 m) of a newly-placed overlay until the concrete has obtained a minimum compressive strength of 3000 psi (20,700 kPa) or flexural strength of 600 psi (4,150 kPa).

(4) Curing.

Curing. The minimum curing time shall be 48 hours of wet cure followed by 48 hours of dry cure. The wet cure shall be according to Article 1020.13(a)(5) Wetted Cotton Mat Method except that the cotton mats may be pre-dampened to minimize adhesion of the cotton mats to the overlay. Excess water shall not be allowed to drip from the cotton mats onto the overlay during placement of the mats. After the wet cure is completed all layers of covering materials shall be removed to allow for the dry cure.

If the ambient temperature falls below 50°F (10°C) during either the wet or dry curing periods, the time below 50°F (10°C) will not be included in the 96 hour curing period. If there is sufficient rain to wet the surface of the overlay for more than one hour of the dry cure period, the wet time will not be included in the 48 hour dry cure period.

(5) Opening to Traffic.

No traffic or construction equipment will be permitted on the overlay until after the specified cure period and the concrete has obtained a minimum compressive strength of 4000 psi (27,500 kPa) or flexural strength of 675 psi (4,650 kPa) unless permitted by the Engineer.

(6) Overlay Testing. The Engineer reserves the right to conduct pull-off tests on the overlay to determine if any areas are not bonded to the underlying concrete, and at a time determined by the Engineer. The overlay will be tested according to the Illinois Test procedure 305 "Pull-off Test (Overlay Method)", and the Contractor shall provide the test equipment. Each individual test shall have a minimum strength of 150 psi (1,034 kPa). Unacceptable test results will require removal and replacement of the overlay at the Contractor's expense, and the locations will be determined by the Engineer. When removing portions of an overlay, the saw cut shall be a minimum depth of 1 in. (25 mm).

If the overlay is to remain in place, all core holes due to testing shall be filled with a rapid set mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used, and the material shall be struck-off flush with the adjacent material.

For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume; or a packaged rapid set mortar shall be used. For a rapid set concrete mixture, a packaged rapid set mortar shall be combined with coarse aggregate according to the manufacturer's instructions; or a packaged rapid set concrete shall be used. Mixing of a rapid set mortar or concrete shall be according to the manufacturer's instructions.

Method of Measurement. The areas of mechanical and/or hydro scarification on the bridge deck will be measured for payment in square yards (square meters). No additional payment will be made for multiple passes of the equipment required to achieve the specified scarification depth.

The concrete overlay will be measured for payment in square yards (square meters).

When Bridge Deck Hydro-Scarification is specified, the additional concrete placed with the overlay, required to fill all depressions below the specified thickness will be measured for payment in cubic yards (cubic meters). The volume will be determined by subtracting the theoretical volume of the overlay from the ticketed volume of overlay delivered minus the volume estimated by the Engineer left in the last truck at the end of the overlay placement. The theoretical cubic yard (cubic meter) quantity for the overlay will be determined by multiplying the plan surface area of the overlay times the specified thickness of the overlay.

Basis of Payment. Concrete scarification of the bridge deck using mechanical scarification equipment will be paid for at the contract unit price per square yard (square meter) for CONCRETE BRIDGE DECK SCARIFICATION of the depth specified. Concrete scarification of the bridge deck using hydro-scarification equipment will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK HYDRO-SCARIFICATION of the depth specified.

Latex concrete overlay will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK LATEX CONCRETE OVERLAY, of the thickness specified. When hydro-scarification is specified, the additional volume of overlay required to fill all depressions below the specified thickness will be paid for at the Contractor's actual material cost for the latex concrete per cubic yard (cubic meter) plus 15 percent.

When mechanical scarification is specified, additional partial depth patches poured monolithically with the overlay will be paid for at the contract unit price bid per square yard (square meter) for DECK SLAB REPAIR (PARTIAL).

When the Engineer conducts pull-off tests on the overlay and they are acceptable, Contractor expenses incurred due to testing and for filling core holes will be paid according to Article 109.04. Unacceptable pull-off tests will be at the Contractor's expense.

When specified on the plans, the Contractor has the option of choosing the type of overlay. The options will be limited to those specified in the plans and will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK CONCRETE OVERLAY OPTION, of the thickness specified.

Overlay material placed off the deck in abutment backwalls, and/or other locations will not be measured for payment but will be included in the pay item involved.

**STRUCTURAL REPAIR OF CONCRETE**

Effective: March 15, 2006

Revised: May 11, 2009

Description. This work shall consist of structurally repairing concrete.

Materials. Materials shall be according to the following.

Item	Article/Section
(a) Portland Cement Concrete (Note 1) .....	1020
(b) R1 or R2 Mortar (Note2)	
(c) Normal Weight Concrete (Note 3)	
(d) Shotcrete (High Performance) (Note 4)	
(e) Reinforcement Bars .....	1006.10
(f) Anchor Bolts .....	1006.09
(g) Water .....	1002
(h) Curing Compound (Type I) .....	1022
(i) Cotton Mats .....	1022.02
(j) Protective Coat .....	1023.01
(k) Epoxy (Note 5) .....	1025
(l) Mechanical Bar Splicers (Note 6)	

Note 1. The concrete shall be Class SI, except the cement factor shall be a minimum 6.65 cwt/cu. yd. (395 kg/cu. m), the coarse aggregate shall be a CA 16, and the strength shall be a minimum 4000 psi (27,500 kPa) compressive or 675 psi (4650 kPa) flexural at 14 days. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump, but the cement factor shall not be reduced. This cement factor restriction shall also apply if a water-reducing admixture is used.

Note 2. The R1 or R2 mortar shall be from the Department's approved list of Packaged, Dry, Rapid Hardening, Cementitious Materials for Concrete Repairs with coarse aggregate added. The amount of coarse aggregate added to the R1 or R2 Mortar shall be per the manufacturer's recommendations. The coarse aggregate gradation shall be CA 16 from an Aggregate Gradation Control System source or a packaged aggregate meeting Article 1004.02 with a maximum size of 1/2 in. (12.5 mm). The R1 or R2 Mortar and coarse aggregate mixture shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer's recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump.

Note 3. The packaged concrete mixture shall be from the Department's approved list of Packaged, Dry, Formed, Concrete Repair Mixtures. The materials and preparation of aggregate shall be according to ASTM C 387.

Proportioning shall be according to ASTM C 387, except the minimum cement factor shall be 6.65 cwt/cu. yd. (395 kg/cu. m). Cement replacement with fly ash or ground granulated blast-furnace slag shall be according to Section 1020. The coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). The packaged concrete mixture shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer's recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump.

- Note 4. A packaged, pre-blended, and dry combination of materials, for the wet-mix shotcrete method shall be provided according to ASTM C 1480. An accelerator is prohibited, except the shotcrete may be modified at the nozzle with a non-chloride accelerator for overhead applications. The shotcrete shall be Type FA, Grade FR, and Class I. The fibers shall be Type III synthetic according to ASTM C 1116.

The 7 and 28 day compressive strength requirements in ASTM C 1480 shall not apply. Instead the shotcrete shall obtain a minimum compressive strength of 4000 psi (27,500 kPa) at 14 days.

The packaged shotcrete shall be limited to the following proportions:

The cement and finely divided minerals shall be 6.05 cwt/cu. yd. (360 kg/cu. m) to 7.50 cwt/cu. yd. (445 kg/cu. m), and the cement shall not be below 4.70 cwt/cu. yd. (279 kg/cu. m).

Class F fly ash is optional and the maximum shall be 15 percent by weight (mass) of cement.

Class C fly ash is optional and the maximum shall be 20 percent by weight (mass) of cement.

Ground granulated blast-furnace slag is optional and the maximum shall be 25 percent by weight (mass) of cement.

Microsilica is required and shall be a minimum of 5 percent by weight (mass) of cement, and a maximum of 10 percent. As an alternative to microsilica, high-reactivity metakaolin may be used at a minimum of 5 percent by weight (mass) of cement, and a maximum of 10 percent.

Fly ash shall not be used in combination with ground granulated blast-furnace slag. Class F fly ash shall not be used in combination with Class C fly ash. Microsilica shall not be used in combination with high-reactivity metakaolin. A finely divided mineral shall not be used in combination with a blended hydraulic cement, except for microsilica or high-reactivity metakaolin.

The water/cement ratio shall be a maximum of 0.42.

The air content as shot shall be 4.0 – 8.0 percent.

Note 5. In addition ASTM C 881, Type IV, Grade 2 or 3, Class A, B, or C may be used.

Note 6. Mechanical bar splicers shall be from the approved list of Mechanical Reinforcing Bar Splicers / Coupler Systems, and shall be capable of developing in tension at least 125 percent of the yield strength of the existing reinforcement bar.

Equipment. Equipment shall be according to Article 503.03 and the following.

Chipping Hammer – The chipping hammer for removing concrete shall be a light-duty pneumatic or electric tool with a 15 lb. (7 kg) maximum class or less.

Blast Cleaning Equipment – Blast cleaning equipment for concrete surface preparation shall be the abrasive type, and the equipment shall have oil traps.

Hydrodemolition Equipment – Hydrodemolition equipment for removing concrete shall be calibrated, and shall use water according to Section 1002.

High Performance Shotcrete Equipment – The batching, mixing, pumping, hose, nozzle, and auxiliary equipment shall be for the wet-mix shotcrete method, and shall meet the requirements of ACI 506R.

#### Construction Requirements

General. The repair methods shall be either formed concrete repair or shotcrete. The repair method shall be selected by the Contractor with the following rules.

- (a) Rule 1. For formed concrete repair, a subsequent patch to repair the placement point after initial concrete placement will not be allowed. As an example, this may occur in a vertical location located at the top of the repair.
- (b) Rule 2. Formed concrete repair shall not be used for overhead applications.
- (c) Rule 3. Shotcrete shall not be used for column repairs greater than 4 in. (100 mm) in depth, or any repair location greater than 8 in. (205 mm) in depth. The only exception to this rule would be for a horizontal application, where the shotcrete may be placed from above in one lift.
- (d) Rule 4. If formed concrete repair is used for locations that have reinforcement with less than 0.75 in. (19 mm) of concrete cover, the concrete mixture shall contain fly ash or ground granulated blast-furnace slag at the maximum cement replacement allowed.

Temporary Shoring or Cribbing. When a temporary shoring or cribbing support system is required, the Contractor shall provide details and computations, prepared and sealed by an Illinois licensed Structural Engineer, to the Department for review and approval. When ever possible the support system shall be installed prior to starting the associated concrete removal. If no system is specified, but during the course of removal the need for temporary shoring or cribbing becomes apparent or is directed by the Engineer due to a structural concern, the Contractor shall not proceed with any further removal work until an appropriate and approved support system is installed.

Concrete Removal. The Contractor shall provide ladders or other appropriate equipment for the Engineer to mark the removal areas. Repair configurations will be kept simple, and squared corners will be preferred. The repair perimeter shall be sawed a depth of 1/2 in. (13 mm) or less, as required to avoid cutting the reinforcement. Any cut reinforcement shall be repaired or replaced at the expense of the Contractor. If the concrete is broken or removed beyond the limits of the initial saw cut, the new repair perimeter shall be recut. The areas to be repaired shall have all loose, unsound concrete removed completely by the use of chipping hammers, hydrodemolition equipment, or other methods approved by the Engineer. The concrete removal shall extend along the reinforcement bar until the reinforcement is free of bond inhibiting corrosion. The outermost layer of reinforcement bar within the repair area shall be undercut to a depth of 3/4 in. (19 mm) or the diameter of the reinforcement bar, whichever value is larger. The underlying transverse reinforcement bar shall also be undercut as previously described, unless the reinforcement is not corroded, and the reinforcement bar is encased and well bonded to the surrounding concrete.

If sound concrete is encountered before existing reinforcement bars are exposed, further removal of concrete shall not be performed unless the minimum repair depth is not met.

The repair depth shall be a minimum of 1 in. (25 mm). The substrate profile shall be  $\pm 1/16$  in. ( $\pm 1.5$  mm). The perimeter of the repair area shall have a vertical face.

If a repair is located at the ground line, any excavation required below the ground line to complete the repair shall be included in this work.

The Contractor shall have a maximum of 14 calendar days to complete each repair location with concrete or shotcrete, once concrete removal has started for the repair.

The Engineer shall be notified of concrete removal that exceeds 6 in. (150 mm) in depth, one fourth the cross section of a structural member, more than half the vertical column reinforcement is exposed in a cross section, more than 6 consecutive reinforcement bars are exposed in any direction, within 1.5 in. (38 mm) of a bearing area, or other structural concern. Excessive deterioration or removal may require further evaluation of the structure or installation of temporary shoring and cribbing support system.

Surface Preparation. Prior to placing the concrete or shotcrete, the Contractor shall prepare the repair area and exposed reinforcement by blast cleaning. The blast cleaning shall provide a surface that is free of oil, dirt, and loose material.

If a succeeding layer of shotcrete is to be applied, the initial shotcrete surface and remaining exposed reinforcement shall be free of curing compound, oil, dirt, loose material, rebound (i.e. shotcrete material leaner than the original mixture which ricochets off the receiving surface), and overspray. Preparation may be by lightly brushing or blast cleaning if the previous shotcrete surface is less than 36 hours old. If more than 36 hours old, the surface shall be prepared by blast cleaning.

The repair area and perimeter vertical face shall have a rough surface. Care shall be taken to ensure the perimeter sawcut is roughened. Just prior to concrete or shotcrete placement, saturate the repair area with water to a saturated surface-dry condition. Any standing water shall be removed.

Concrete or shotcrete placement shall be done within 3 calendar days of the surface preparation or the repair area shall be prepared again.

Reinforcement. Exposed reinforcement bars shall be cleaned of concrete and corrosion by blast cleaning. After cleaning, all exposed reinforcement shall be carefully evaluated to determine if replacement or additional reinforcement bars are required.

Reinforcing bars that have been cut or have lost 25 percent or more of their original cross sectional area shall be supplemented by new in kind reinforcement bars. New bars shall be lapped a minimum of 32 bar diameters to existing bars. A mechanical bar splicer shall be used when it is not feasible to provide the minimum bar lap. No welding of bars shall be performed.

Intersecting reinforcement bars shall be tightly secured to each other using 0.006 in. (1.6 mm) or heavier gauge tie wire, and shall be adequately supported to minimize movement during concrete placement or application of shotcrete.

For reinforcement bar locations with less than 0.75 in. (19 mm) of cover, protective coat shall be applied to the completed repair. The application of the protective coat shall be according to Article 503.19, 2nd paragraph, except blast cleaning shall be performed to remove curing compound.

The Contractor shall anchor the new concrete to the existing concrete with 3/4 in. (19 mm) diameter hook bolts for all repair areas where the depth of concrete removal is greater than 8 in. (205 mm) and there is no existing reinforcement extending into the repair area. The hook bolts shall be spaced at 15 in. (380 mm) maximum centers both vertically and horizontally, and shall be a minimum of 12 in. (305 mm) away from the perimeter of the repair. The hook bolts shall be installed according to Section 584.

Repair Methods. All repair areas shall be inspected and approved by the Engineer prior to placement of the concrete or application of the shotcrete.

- (a) Formed Concrete Repair. Falsework shall be according to Article 503.05. Forms shall be according to Article 503.06. Formwork shall provide a smooth and uniform concrete finish, and shall approximately match the existing concrete structure. Formwork shall be mortar tight and closely fitted where they adjoin the existing concrete surface to prevent leakage. Air vents may be provided to reduce voids and improve surface appearance. The Contractor may use exterior mechanical vibration, as approved by the Engineer, to release air pockets that may be entrapped.

The concrete for formed concrete repair shall be a Class SI Concrete, or a packaged R1 or R2 Mortar with coarse aggregate added, or a packaged Normal Weight Concrete at the Contractor's option. The concrete shall be placed and consolidated according to Article 503.07. The concrete shall not be placed when frost is present on the surface of the repair area, or the surface temperature of the repair area is less than 40 °F (4 °C). All repaired members shall be restored as close as practicable to their original dimensions.

Curing shall be done according to Article 1020.13.

If temperatures below 45°F (7°C) are forecast during the curing period, protection methods shall be used. Protection Method I according to Article 1020.13(d)(1), or Protection Method II according to Article 1020.13(d)(2) shall be used during the curing period.

The surfaces of the completed repair shall be finished according to Article 503.15.

- (b) Shotcrete. Shotcrete shall be tested by the Engineer for air content according to Illinois Modified AASHTO T 152. Obtain the sample in a damp, non-absorbent container from the discharge end of the nozzle.

For compressive strength of shotcrete, a 18 x 18 x 3.5 in. (457 x 457 x 89 mm) test panel shall be shot by the Contractor for testing by the Engineer. A steel form test panel shall have a minimum thickness of 3/16 in. (5 mm) for the bottom and sides. A wood form test panel shall have a minimum 3/4 in. (19 mm) thick bottom, and a minimum 1.5 in. (38 mm) thickness for the sides. The test panel shall be cured according to Article 1020.13 (a) (3) or (5) while stored at the jobsite and during delivery to the laboratory. After delivery to the laboratory for testing, curing and testing shall be according to ASTM C 1140.

The method of alignment control (i.e. ground wires, guide strips, depth gages, depth probes, and formwork) to ensure the specified shotcrete thickness and reinforcing bar cover is obtained shall be according to ACI 506R. Ground wires shall be removed after completion of cutting operations. Guide strips and formwork shall be of dimensions and a configuration that do not prevent proper application of shotcrete. Metal depth gauges shall be cut 1/4 in. (6 mm) below the finished surface. All repaired members shall be restored as close as practicable to their original dimensions.

For air temperature limits when applying shotcrete in cold weather, the first paragraph of Article 1020.14(b) shall apply. For hot weather, shotcrete shall not be applied when the air temperature is greater than 90°F (32°C). The applied shotcrete shall have a minimum temperature of 50°F (10°C) and a maximum temperature of 90°F (32°C). The shotcrete shall not be applied during periods of rain unless protective covers or enclosures are installed. The shotcrete shall not be applied when frost is present on the surface of the repair area, or the surface temperature of the repair area is less than 40°F (4°C). If necessary, lighting shall be provided to provide a clear view of the shooting area.

The shotcrete shall be applied according to ACI 506R, and shall be done in a manner that does not result in cold joints, laminations, sandy areas, voids, sags, or separations. In addition, the shotcrete shall be applied in a manner that results in maximum densification of the shotcrete. Shotcrete which is identified as being unacceptable while still plastic shall be removed and re-applied.

The nozzle shall normally be at a distance of 2 to 5 ft. (0.6 to 1.5 m) from the receiving surface, and shall be oriented at right angles to the receiving surface. Exceptions to this requirement will be permitted to fill corners, encase large diameter reinforcing bars, or as approved by the Engineer.

For any exception, the nozzle shall never be oriented more than 45 degrees from the surface. Care shall be taken to keep the front face of the reinforcement bar clean during shooting operations. Shotcrete shall be built up from behind the reinforcement bar. Accumulations of rebound and overspray shall be continuously removed prior to application of new shotcrete. Rebound material shall not be incorporated in the work.

Whenever possible, shotcrete shall be applied to the full thickness in a single layer. The maximum thickness shall be 4 in. (100 mm) unless the shotcrete is applied from above on a horizontal surface, or a thicker application is approved by the Engineer. When two or more layers are required, the minimum number shall be used and shall be done in a manner without sagging or separation. A flash coat (i.e. a thin layer of up to 1/4 in. (6 mm) applied shotcrete) may be used as the final lift for overhead applications.

Prior to application of a succeeding layer of shotcrete, the initial layer of shotcrete shall be prepared according to the surface preparation and reinforcement bar cleaning requirements. Upon completion of the surface preparation and reinforcement bar treatment, water shall be applied according to the surface preparation requirements unless the surface is moist. The second layer of shotcrete shall then be applied within 30 minutes.

Shotcrete shall be cut back to line and grade using trowels, cutting rods, screeds or other suitable devices. The shotcrete shall be allowed to stiffen sufficiently before cutting. Cutting shall not cause cracks or delaminations in the shotcrete. For depressions, cut material may be used for small areas. Rebound material shall not be incorporated in the work. For the final finish, a wood float shall be used to approximately match the existing concrete texture. All repaired members shall be restored as close as practicable to their original dimensions.

Contractor operations for curing shall be continuous with shotcrete placement and finishing operations. The Engineer may require modification of operations to ensure satisfactory results are obtained. Cotton mats shall be applied according to Article 1020.13(a)(5) except the exposed layer of shotcrete shall be covered within 10 minutes after finishing, and wet curing shall begin immediately. As an alternative to this method, Type I curing compound shall be applied according to Article 1020.13(a)(4) within 10 minutes and moist curing with cotton mats shall begin within 3 hours. For overhead applications where the final shotcrete layer has been applied, the Contractor has the option to use Type I curing compound in lieu of the cotton mats. Note 5 of the Index Table in Article 1020.13 shall apply to the membrane curing method. The curing compound shall be applied according to Article 1020.13(a)(4).

When a shotcrete layer is to be covered by a succeeding shotcrete layer within 36 hours, the repair area shall be protected with intermittent hand fogging, or wet curing with either burlap or cotton mats shall begin within 10 minutes. Intermittent hand fogging may be used only for the first hour. Thereafter, wet curing with burlap or cotton mats shall be used until the succeeding shotcrete layer is applied. Intermittent hand fogging may be extended to the first hour and a half if the succeeding shotcrete layer is applied by the end of this time.

The curing period shall be for 7 days, except when there is a succeeding layer of shotcrete. In this instance, the initial shotcrete layer shall be cured until the surface preparation and reinforcement bar treatment is started.

If temperatures below 45°F (7°C) are forecast during the curing period, protection methods shall be used. Protection Method I according to Article 1020.13(d)(1), or Protection Method II according to Article 1020.13(d)(2) shall be used during the curing period

Inspection of Completed Work. The Contractor shall provide ladders or other appropriate equipment for the Engineer to inspect the repaired areas. After curing but no sooner than 28 days after placement of concrete or shooting of shotcrete, the repair shall be examined for conformance with original dimensions, cracks, voids, and delaminations. Sounding for delaminations will be done with a hammer or by other methods determined by the Engineer.

The repaired area shall be removed and replaced, as determined by the Engineer, for nonconformance with original dimensions, surface cracks greater than 0.01 in. (0.25 mm) in width, map cracking with a crack spacing in any direction of 18 in. (0.45 m) or less, voids, or delaminations.

If a nonconforming repair is allowed to remain in place, cracks 0.01 in. (0.25 mm) or less shall be repaired with epoxy according to Section 590. For cracks less than 0.007 in. (2 mm), the epoxy may be applied to the surface of the crack. Voids shall be repaired according to Article 503.15.

Publications and Personnel Requirements. The Contractor shall provide a current copy of ACI 506R to the Engineer a minimum of one week prior to start of construction.

The shotcrete personnel who perform the work shall have current American Concrete Institute (ACI) nozzle men certification for vertical wet and overhead wet applications, except one individual may be in training. This individual shall be adequately supervised by a certified ACI nozzle men as determined by the Engineer. A copy of the nozzle men certificate(s) shall be given to the Engineer.

Method of Measurement. This work will be measured for payment in place and the area computed in square feet (square meters). For a repair at a corner, both sides will be measured.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 IN. (125 MM), STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 IN. (125 MM).

When not specified to be paid for elsewhere, the work to design, install, and remove the temporary shoring and cribbing will be paid for according to Article 109.04.

With the exception of reinforcement damaged by the Contractor during removal, the furnishing and installation of supplemental reinforcement bars, mechanical bar splicers, hook bolts, and protective coat will be paid according to Article 109.04.

## **APPROACH SLAB REPAIR**

Effective: March 13, 1997

Revised: Sept. 25, 2009

### Description.

This work shall consist of hot-mix asphalt surface removal, when required, the removal and disposal of all loose and deteriorated concrete and the replacement with new concrete to the original top of approach slab. The work shall be done according to the applicable requirements of Sections 501, 503 and 1020 of the Standard Specifications and this Special Provision.

Approach slab repairs will be classified as follows:

- (a) Partial-Depth. Partial-depth repairs shall consist of removing the loose and unsound approach slab concrete, disposing of the concrete removed and replacing with new concrete. The removal may be performed by chipping with power driven hand tools or by hydro-equipment. The depth shall be measured from the original concrete surface, at least 3/4 inch (20 mm) but not more than 5 1/2 inches (140 mm) unless otherwise specified on the plans.
- (b) Full-Depth. Full-depth repairs shall consist of removing concrete full-depth of the slab, disposing of the concrete removed, and replacing with new concrete to the original approach slab surface. The removal may be performed with power driven hand tools or by hydro-equipment.

### Materials.

All materials shall be according to Article 1020.02.

Portland cement concrete for partial and full-depth repairs shall be according to Section 1020. Class PP-1, PP-2, PP-3, or PP-4 concrete shall be used at the Contractor's option.

Grout. The grout for bonding new concrete to old concrete shall be proportioned by mass (weight) and mixed at the job site, or it may be ready-mixed if agitated while at the job site. The bonding grout shall consist of one part portland cement and one part sand, mixed with sufficient water to form a slurry. The bonding grout shall have a consistency allowing it to be scrubbed onto the prepared surface with a stiff brush or broom leaving a thin, uniform coating that will not run or puddle in low spots. Grout that can not be easily and evenly applied or has lost its consistency may be rejected by the Engineer. Grout that is more than two hours old shall not be used.

### Equipment:

The equipment used shall be subject to the approval of the Engineer and shall meet the following requirements:

- (a) Surface Preparation Equipment. Surface preparation and concrete removal equipment shall comply with the applicable portions of Section 1100 of the Standard Specifications and the following:
  - (1) Sawing Equipment. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.

- (2) Blast Cleaning Equipment. The blast cleaning may be performed by wet sandblasting, high-pressure waterblasting, abrasive blasting, or other methods approved by the Engineer. Blast cleaning equipment shall be capable of removing rust and old concrete from exposed reinforcement bars. Oil traps will be required.
  - (3) Power-Driven Hand Tools. Power-driven hand tools will be permitted including jackhammers lighter than the nominal 45 pound (20 kg.) class. Chipping hammers heavier than a nominal 15 pound (6.8 kg.) class shall not be used for removing concrete from below any reinforcing bar for partial depth repairs or final removal at the boundary of full-depth repairs. Jackhammers or chipping hammers shall not be operated at an angle in excess of 45 degrees measured from the surface of the slab.
  - (4) Hydro-Scarification Systems. The hydro-scarification equipment shall consist of filtering and pumping units operating with a remote-controlled robotic device. The equipment may use river, stream or lake water. Operation of the equipment shall be performed and supervised by qualified personnel certified by the equipment manufacturer. Evidence of certification shall be presented to the Engineer. The equipment shall be capable of removing concrete to the specified depth and removing rust and concrete particles from exposed reinforcing bars. Hydro-scarification equipment shall be calibrated before being used and shall operate at a minimum of 18,000 psi (124 MPa).
- (b) Concrete Equipment: Equipment for proportioning and mixing the concrete shall comply with the applicable requirements of Section 1103 of the Standard Specifications.
- (c) Placing and Finishing Equipment: Placing and finishing equipment shall be according to Article 1103.17 of the Standard Specifications. Adequate hand tools will be permitted for placing and consolidating concrete in the patch areas and for finishing small patches.

Construction Requirements:

Sidewalks, curbs, drains, reinforcement and/or existing transverse and longitudinal joints which are to remain in place shall be protected from damage during removal and cleaning operations. All damage caused by the Contractor shall be corrected, at the Contractor's expense, to the satisfaction of the Engineer.

The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of construction debris into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. Runoff water will not be allowed to constitute a hazard on adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

(a) Hot-Mix Asphalt Surface Removal.

The hot-mix asphalt surface course shall be removed and disposed of according to applicable portions of Articles 440.04 and 440.06 of the Standard Specifications. If the overlay contains asbestos fibers, removal shall be according to the Special Provision for "Asbestos Waterproofing Membrane or Asbestos Bituminous Concrete Surface Removal". Removal of the hot-mix asphalt surface by the use of radiant or direct heat will not be permitted.

(b) Surface Preparation:

All loose, disintegrated and unsound concrete shall be removed from portions of the approach slab shown on the plans or as designated by the Engineer. The Engineer will determine the limits of removal as the work progresses.

The Contractor shall take care not to damage reinforcement bars or expansion joints which are to remain in place. Any damage to reinforcement bars or expansion joints shall be corrected at the Contractor's expense. All loose reinforcement bars, as determined by the Engineer, shall be retied at the Contractor's expense.

- (1) Partial-Depth. Areas to be repaired will be determined and marked by the Engineer. A concrete saw shall be used to provide vertical edges approximately 3/4 inch (20 mm) deep around the perimeter of the area to be patched when an overlay is not specified. Where high steel is present, the depth may be reduced as directed by the Engineer. A saw cut will not be required on those boundaries along the face of the curb, parapet or joint or when sharp vertical edges are provided by hydro-scarification.

The loose and unsound concrete shall be removed by chipping, with power driven hand tools or by hydro-equipment. All exposed reinforcing bars and newly exposed concrete shall be thoroughly blast cleaned. Where, in the judgment of the Engineer, the bond between existing concrete and reinforcement steel within the patch area has been destroyed, the concrete adjacent to the bar shall be removed to a depth that will permit new concrete to bond to the entire periphery of the exposed bar. A minimum of 1 inch (25 mm) clearance will be required. The Engineer may require enlarging a designated removal area should inspection indicate deterioration beyond the limits previously designated. In this event, a new saw cut shall be made around the extended area before additional removal is begun. The removal area shall not be enlarged solely to correct debonded reinforcement or deficient lap lengths.

- (2) Full-Depth. Concrete shall be removed as determined by the Engineer within all areas designated for full-depth repair and in all designated areas of partial depth repair in which unsound concrete is found to extend below a depth of 5 1/2 inches (140 mm) unless otherwise specified on the plans. Full depth removal shall be performed according to Article 501.05 of the Standard Specifications. A concrete saw shall be used to provide vertical edges approximately 3/4 inch (20 mm) deep around the perimeter of the area to be patched when an overlay is not specified. A saw cut will not be required on those boundaries along the face of the curb, parapet or joint or when sharp vertical edges are provided by hydro-scarification. The saw cut may be omitted if the deck is to receive an overlay.

All voids under full depth repair areas shall be filled with a suitable material that meets the approval of the Engineer.

- (3) Reinforcement Treatment. Care shall be exercised during concrete removal to protect the reinforcement bars from damage. Any damage to the reinforcement bars to remain in place shall be repaired or replaced to the satisfaction of the Engineer at the Contractor's expense.

All existing reinforcement bars shall remain in place except as herein provided for corroded bars. Tying of loose bars will be required. Any existing reinforcement bars which have a loss of more than 25% of their cross section through corrosion shall be replaced in kind with new steel as directed by the Engineer. No welding of bars will be permitted and new bars shall be lapped a minimum of 32 bar diameters to existing bars. An approved "squeeze type" mechanical bar splicer capable of developing in tension at least 125 percent of the yield strength of the existing bar shall be used when it is not feasible to provide the minimum bar lap.

- (4) Cleaning. Immediately after completion of the concrete removal and reinforcement repairs, the repair areas shall be cleaned of dust and debris. Once the initial cleaning is completed, the repair areas shall be thoroughly blast cleaned to a roughened appearance free from all foreign matter. Particular attention shall be given to removal of concrete fines. Any method of cleaning which does not consistently produce satisfactory results shall be discontinued and replaced by an acceptable method. All debris, including water, resulting from the blast cleaning shall be confined and shall be immediately and thoroughly removed from all areas of accumulation. If concrete placement does not follow immediately after the final cleaning, the area shall be carefully protected with well-anchored polyethylene sheeting.

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, or other foreign substances which may reduce bond with the concrete. A tight non-scaling coating of rust is not considered objectionable. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning or other methods approved by the Engineer.

(c) Placement & Finishing of Concrete Repair:

- (1) Grout Placement. After the repair areas have been cleaned and immediately prior to concrete placement, the grout shall be applied to a dampened surface. A thin layer of grout shall be thoroughly scrubbed into the deck surface. All vertical as well as horizontal surfaces shall receive a thorough, even coating. The rate of grout placement shall be limited so the brushed grout does not dry out before it is covered with concrete. Grout that has become dry and chalky shall be blast cleaned and replaced at the Contractor's expense. No concrete shall be placed over dry grout.

(2) Concrete Placement.

The concrete shall be placed and compacted according to Article 503.07 of the Standard Specifications and as herein specified. Article 1020.14 shall apply, except for the requirement to use an approved retarding admixture when the plastic concrete reaches 85 °F (30 °C ).

When an overlay system is not specified, the patches shall be finished according to Article 503.16 of the Standard Specifications, followed by a light brooming.

(d) Curing.

Concrete patches shall be cured by the Wetted Burlap Method according to Article 1020.13 (a)(3), and the curing period shall be 72 hours. In addition to Article 1020.13, when the air temperature is less than 55 °F (13 °C), the Contractor shall cover the patch with minimum R12 insulation. Insulation is optional when the air temperature is 55 °F – 90 °F (13 °C – 32 °C). Insulation shall not be placed when the air temperature is greater than 90 °F (32 °C). A 72-hour minimum drying period shall be required before placing waterproofing or hot-mix asphalt surfacing.

(e) Opening to Traffic.

No traffic or construction equipment will be permitted on the repairs until after the specified cure period and the concrete has obtained a minimum compressive strength of 4000 psi (27.6 MPa) or flexural strength of 675 psi (4.65 MPa) unless permitted by the Engineer.

Construction equipment will be permitted on a patch during the cure period if the concrete has obtained the minimum required strength. In this instance, the strength specimens shall be cured with the patch.

Method of Measurement.

When specified, hot-mix asphalt surface removal and full or partial depth repairs will be measured for payment and computed in square yards (square meters).

Basis of Payment.

The hot-mix asphalt surface removal will be paid for at the contract unit price per square yard (square meter) for HOT-MIX ASPHALT SURFACE REMOVAL (DECK). Areas removed and replaced up to and including a depth of 5 1/2 inches (140 mm) or as specified will be paid for at the contract unit price per square yard (square meter) for APPROACH SLAB REPAIR (PARTIAL DEPTH). Areas requiring removal greater than a depth of 5 1/2 inches (140 mm) shall be removed and replaced full depth and will be paid for at the contract unit price per square yard (square meter) for APPROACH SLAB REPAIR (FULL DEPTH).

When corroded reinforcement bars are encountered in the performance of this work and replacement is required, the Contractor will be paid according to Article 109.04 of the Standard Specifications.

No payment will be allowed for removal and replacement of reinforcement bars damaged by the Contractor in the performance of his/her work or for any increases in dimensions needed to provide splices for these replacement bars.

Removal and disposal of asbestos waterproofing and/or asbestos hot-mix asphalt will be paid for as specified in the Special Provision for “Asbestos Waterproofing Membrane or Asbestos Bituminous Concrete Surface Removal”.

## **TRAFFIC SIGNAL SPECIFICATIONS**

Effective: May 22, 2002

Revised: January 1, 2007

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

### **SECTION 720 SIGNING**

#### **MAST ARM SIGN PANELS.**

Add the following to Section 720.02 of the Standard Specifications:

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by the District Sign Shops. Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware are acceptable based upon the Department's approval.

### **DIVISION 800 ELECTRICAL**

#### **INSPECTION OF ELECTRICAL SYSTEMS.**

Add the following to Article 801.10 of the Standard Specifications:

All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier facilities prior to field installation, at no extra cost to this contract. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be new, built, tested and approved by the controller equipment vendor, in the vendor's District One facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

#### **DAMAGE TO TRAFFIC SIGNAL SYSTEM.**

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any damaged equipment or equipment not operating properly from any cause whatsoever shall be repaired with new equipment provided by the Contractor at no additional cost to the Contract and or owner of the traffic signal system, all as approved by the Engineer. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed.

## **RESTORATION OF WORK AREA.**

Add to Section 801 of the Standard Specifications:

Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, trench and backfill, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

## **SUBMITTALS.**

Revise Article 801.05 of the Standard Specifications to read:

The Contractor shall provide:

- a. All material approval requests shall be submitted at the preconstruction meeting, including major traffic signal items listed in the table in Article 801.05..
- b. All material or equipment which are similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
- c. Seven (7) copies of a letter from the Traffic Signal Contractor on company letterhead listing the contract number or permit number, project location/limits, pay item description, pay code number, manufacturer's name and model numbers of the proposed equipment and stating that the proposed equipment meets all contract requirements. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approvable.
- d. Seven (7) copies of shop drawings for mast arm poles and assemblies, including combination mast arm poles, are required. A minimum of two (2) copies of all other material catalog cuts are required. Submittals for equipment and materials shall be complete. Partial or incomplete submittals will be returned without review.
- e. Certain non-standard mast arm poles and assemblies will require additional review from IDOT's Central Office. Examples include ornamental/decorative and non-standard length mast arm pole assemblies. The Contractor shall account for the additional review time in his schedule.
- f. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of the letter, material catalog cuts and mast arm poles and assemblies drawings.
- g. Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.
- h. After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Information Only'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified.

The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.

- i. All submitted items reviewed and marked 'APPROVED AS NOTED', or 'DISAPPROVED' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify contract compliance at no additional cost to the contract.
- j. Exceptions, Deviations and Substitutions. In general, exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

### **MAINTENANCE AND RESPONSIBILITY.**

Revise Article 801.11 of the Standard Specifications to read:

- a) Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which they are located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," shall become the full responsibility of the Contractor. The Contractor shall supply the engineer and the Department's Electrical Maintenance Contractor a 24-hour emergency contact name and telephone number.
- b) When the project has a pay item for "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," the Contractor must notify both the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.

- c) Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. See additional requirements in these specifications under Inductive Loop Detector.
- d) The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.
- e) The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Department, the Department's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The District's Electrical Maintenance Contractor may inspect any signaling device on the Department's highway system at any time without notification.

#### **TRAFFIC SIGNAL INSPECTION (TURN-ON).**

Revise Article 801.15(b) of the Standard Specifications to read:

It is the intent to have all electric work completed and equipment field tested by the vendor prior to the Department's "turn-on" field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two (2) hours to complete, the inspection shall be canceled and the Contractor will be required to reschedule at another date. The maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Department's facsimile number is (847) 705-4089.

The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Preemption (EVP) is included in the project. The Contractor must notify the SCAT Consultant of the turn-on schedule, as well as stage changes and phase changes during construction.

The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and turn-on of the traffic signal installation. The Contractor shall be responsible to provide a police officer to direct traffic at the time of testing.

The Contractor shall provide a representative from the control equipment vendor's office to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons. Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The Agency that is responsible for the maintenance of each traffic signal installation will assume the maintenance upon successful completion of this inspection.

The District requires the following from the Contractor at traffic signal turn-ons.

1. One set of signal plans of record with field revisions marked in red ink.
2. Notification from the Contractor and the equipment vendor of satisfactory field testing.
3. A knowledgeable representative of the controller equipment supplier shall be required at the traffic signal turn-on. The representative shall be knowledgeable of the cabinet design and controller functions.
4. A copy of the approved material letter.
5. One (1) copy of the operation and service manuals of the signal controller and associated control equipment.
6. Five (5) copies 11" x 17" (280 mm X 430 mm) of the cabinet wiring diagrams.
7. The controller manufacturer shall supply a printed form, not to exceed 11" x 17" (280 mm X 430 mm) for recording the traffic signal controller's timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and Detector Switching; and any other functions programmable from the keyboard. The form shall include a location, date, manufacturer's name, controller model and software version. The form shall be approved by the Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on." If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the final inspection. The Contractor shall notify the Electrical Maintenance Contractor to inspect all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of \$500 per month per incident.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements shall be subject to removal and disposal at the Contractor's expense.

### **LOCATING UNDERGROUND FACILITIES.**

Revise Section 803 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities the local Counties or Municipalities may need to be contacted, in the City of Chicago contact D.I.G.G.E.R. at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123.

### **ELECTRIC SERVICE INSTALLATION.**

Revise Section 805 of the Standard Specifications to read:

#### **Description.**

This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details" and applicable portions of the Specifications.

#### **General.**

The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company. The service agreement and sketch shall be submitted for signature to the Traffic Program's engineer.

Materials.

- a. General. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.
- b. Enclosures.
  - a. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080-inch (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14-inches (350 mm) high, 9-inches (225 mm) wide and 8-inches (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.
  - b. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125-inch (3.175 mm) thick, the top 0.250-inch (6.350 mm) thick and the bottom 0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel .075-inch (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40-inches (1000 mm) high, 16-inches (400 mm) wide and 15-inches (375 mm) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.
- c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of -40C to +85C. The surge protector shall be UL 1449 Listed.
- d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

- e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.
- f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.
- g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.
- h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 feet (3.0m) in length, and 3/4 inch (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation.

- a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.
- b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.
- c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment.

The service installation shall be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The type A foundation which includes the ground rod shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 inch (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility companies shall be approved by the engineer and paid for as an addition to the contract according to Article 109.05 of the Standard Specifications.

## **GROUNDING OF TRAFFIC SIGNAL SYSTEMS.**

### General.

All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See IDOT District One Traffic Signal detail plan sheets for additional information.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations where measured resistance exceeds 25 ohms. Ground rods are included in the applicable foundation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

- (a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.
- (b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications.
  - 1. Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.
  - 2. Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A Listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points.
  - 3. All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.
  - 4. Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.
- (c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, listed pressure connectors, listed clamps or other approved listed means.

## **HANDHOLES.**

Add the following to Section 814 of the Standard Specifications:

All handholes shall be concrete, poured in place, with inside dimensions of 21-1/2 inches (549mm) minimum. Frames and lid openings shall match this dimension. The cover of the handhole frame shall be labeled "Traffic Signals" with legible raised letters.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (15.875mm) diameter stainless bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 12 inches (300mm).

All conduits shall enter the handhole at a depth of 30 inches (760mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 1/2 inch (12.7 mm) diameter with two 90 degree bends and extend into the handhole at least 6 inches (150 mm). Hooks shall be placed a minimum of 12 inches (300 mm) below the lid or lower if additional space is required.

## **FIBER OPTIC TRACER CABLE.**

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. The tracer cable will be allowed to be spliced at the handholes only. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable splice shall use a Western Union Splice soldered with resin core flux. All exposed surfaces of the solder shall be smooth. Splices shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with WCSMW 30/100 heat shrink tube, minimum length 4 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.

The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per foot (meter), which price shall include all associated labor and material for installation.

**GROUNDING CABLE.**

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add to Article 817.02 (b) of the Standard Specifications:

Unless otherwise noted on the Plans, traffic signal grounding conductor shall be one conductor, #6 gauge copper, with a green color coded XLP jacket.

The traffic signal grounding conductor shall be bonded, using a Listed grounding connector (Burdy type KC/K2C, as applicable, or approved equal), to all proposed and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding conductor shall be bonded to all proposed and existing pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system and noted herein and detailed on the plans. Bonding to existing handhole frames and covers shall be paid for separately.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.

Grounding cable shall be measured in place for payment in foot (meter). Payment shall be at the contract unit price for ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6, 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds, grounding connectors, and other hardware.

**RAILROAD INTERCONNECT CABLE.**

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add to Article 817.02 of the Standard Specifications:

The railroad interconnect cable shall be three conductor stranded #14 copper cable in a clear polyester binder, shielded with #36 AWG tinned copper braid with 85% coverage, and insulated with .016" polyethylene (black, blue, red). The jacket shall be black 0.045 PVC or polyethylene.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.

This work shall be paid for at the contract unit price per foot (meter) for ELECTRIC CABLE IN CONDUIT, RAILROAD, NO. 14 3C, which price shall be payment in full for furnishing, installing, and making all electrical connections in the traffic signal controller cabinet. Connections in the railroad controller cabinet shall be performed by railroad personnel.

**MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.**

Revise Section 850 of the Standard Specifications to read:

The energy charges for the operation of the traffic signal installation shall be paid for by others. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof.

The Contractor shall have on staff electricians with IMSA Level II certification to provide signal maintenance.

This item shall include maintenance of all traffic signal equipment at the intersection, including emergency vehicle pre-emption equipment, master controllers, uninterruptible power supply (UPS and batteries), telephone service installations, communication cables and conduits to adjacent intersections.

The maintenance shall be according to District One revised Article 801.11 and the following contained herein.

The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to ensure that they are functioning properly. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs.

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. The Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24 hour telephone number for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications.

The Contractor shall respond to all emergency calls from the Department or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the contract. The Contractor may institute action to recover damages from a responsible third party.

If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the State's Electrical Maintenance Contractor perform the maintenance work required. The State's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

Basis of Payment.

This work shall be paid for at the contract unit price each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

**TRAFFIC ACTUATED CONTROLLER.**

Add the following to Article 857.02 of the Standard Specifications:

Controllers shall be NEMA TS2 Type 1, Econolite ASC/2S-1000 or Eagle/Siemens M41 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment manufacturers will be allowed. The controller shall be the most recent model and software version supplied by the manufacturer at the time of the approval. The traffic signal controller shall provide features to inhibit simultaneous display of a circular yellow ball and a yellow arrow display. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being skipped during program changes and after all preemption events.

**MASTER CONTROLLER.**

Revise Articles 860.02 - Materials and 860.03 - Installation of the Standard Specifications to read:

Only controllers supplied by one of the District approved closed loop equipment manufacturers will be allowed. Only NEMA TS 2 Type 1 Eagle/Siemens and Econolite closed loop systems shall be supplied. The latest model and software version of master controller shall be supplied.

Functional requirements in addition to those in Section 863 of the Standard Specification include:

The system commands shall consist of, as a minimum, six (6) cycle lengths, five (5) offsets, three (3) splits, and four (4) special functions. The system commands shall also include commands for free or coordinated operation.

Traffic Responsive operation shall consist of the real time acquisition of system detector data, data validation, and the scaling of acquired volumes and occupancies in a deterministic fashion so as to cause the selection and implementation of the most suitable traffic plan.

Upon request by the Engineer, each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support.

Each set shall consist of software on CD, DVD, or other suitable media approved by the Engineer, and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for use in monitoring the system.

The approved manufacturer of equipment shall loan the District one master controller and two intersection controllers of the most recent models and the newest software version to be used for instructional purposes in addition to the equipment to be supplied for the Contract.

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District One staff. This telephone line may be coupled with a DSL line and a phone filter to isolate the dial-up line. An E911 address is required.

The cabinet shall be provided with an Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date.

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum and shall be capable of speeds to 38,400 or above as technology allows. The controller, when installed in an Ethernet topology, may operate non-serial communications.

The cabinet shall be equipped with a 9600 baud, auto dial/auto answer modem. It shall be a US robotics 33.6K baud rate or equal.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the Administrative Support Manager in the District One Business Services Section at (847) 705-4011 to request a phone line installation.

A follow-up fax transmittal to the Administrative Support Manager (847-705-4712) with all required information pertaining to the phone installation is required from the Contractor as soon as possible or within one week after the initial request has been made. A copy of this fax transmittal must also be faxed by the Contractor to the Traffic Signal Systems Engineer at (847) 705-4089. The required information to be supplied on the fax shall include (but not limited to): A street address for the new traffic signal controller (or nearby address); a nearby existing telephone number; what type of telephone service is needed; the name and number of the Contractor's employee for the telephone company to contact regarding site work and questions.

The usual time frame for the activation of the phone line is 4-6 weeks after the Business Services Section has received the Contractor supplied fax. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor in anticipation of this time frame. On jobs which include roadway widening in which the conduit cannot be installed until this widening is completed, the Contractor will be allowed to delay the phone line installation request to the Business Services Section until a point in time that is 4-6 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the Administrative Support Manager with an expected installation date considering the 4-6 week processing time.

The telephone line shall be installed and activated one month before the system final inspection.

All costs associated with the telephone line installation and activation (not including the Contract specified conduit installation between the point of telephone service and the traffic signal controller cabinet) shall be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number not a Contractor phone number).

### **FIBER OPTIC CABLE.**

Add the following to Articles 871.01, 872.02, 871.04, and 871.05 of the Standard Specifications:

This work shall consist of furnishing and installing Fiber Optical cable in conduit with all accessories and connectors according to Section 871 of the Standard Specifications. The cable shall be of the type, size, and the number of fiber specified.

The control cabinet distribution enclosure shall be CSC FTWO12KST-W/O 12 Port Fiber Wall Enclosure or an approved equivalent. The fiber optic cable shall provide six fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of 13.0 feet (4m) of extra cable length shall be provided for the controller cabinet. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Fiber Optic cable may be gel filled or have an approved water blocking tape.

#### **Basis of Payment.**

The work shall be paid for at the contract unit price for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F, per foot (meter) for the cable in place, including distribution enclosure and all connectors.

### **CONCRETE FOUNDATIONS.**

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, except all anchor bolts shall be hot dipped galvanized the full length of the anchor bolt including the hook.

Concrete Foundations, Type "A" for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "District One Standard Traffic Signal Design Details." All Type "A" foundations shall be a minimum depth of 48 inches (1.22 m).

Concrete Foundations, Type "C" for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS) cabinet installations shall be a minimum of 48 inches (1.22 m) long and 31 inches (790 mm) wide. All Type "C" foundations shall be a minimum depth of 48 inches (1.22 m). An integral concrete pad to support the UPS cabinet shall be constructed a minimum of 20 inches (510 mm) long and a minimum depth of 10 inches (250 mm). The concrete apron in front of the Type IV or V cabinet shall be 36 in. x 48 in. x 5 in. (910 mm X 1220 mm X 130 mm).

The concrete apron in front of the UPS cabinet shall be 36 in. x 31 in. x 5 in. (910 mm X 790 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type “D” for Traffic Signal Cabinets shall be a minimum of 48 inches (1.22 m) long and 31 inches (790 mm) wide. All Type “D” foundations shall be a minimum depth of 48 inches (1.22 m). The concrete apron shall be 36 in. x 48 in. x 5 in. (910 mm X 1220 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type “E” for Mast Arm and Combination Mast Arm Poles shall meet the following requirements:

Table 1  
 DESIGN TABLE FOR MAST ARM FOUNDATIONS

MAST ARM LENGTH	FOUNDATION DEPTH*	FOUNDATION DIAMETER	SPIRAL DIAMETER	QUANTITY OF NO. 15 (NO. 5) BARS
Less than 9.1m (30')	10'-0" (3.0m)	30" (750mm)	24" (600mm)	8
Greater than or equal to 9.1m (30') and less than 12.2m (40')	13'-6" (4.1m)	30" (750mm)	24" (600mm)	8
	11'-0" (3.4m)	36" (900mm)	30" (750mm)	12
Greater than or equal to 12.2m (40') and less than 15.2m (50')	13'-0" (4.0m)	36" (900mm)	30" (750mm)	12
Greater than or equal to 15.2m (50') and up to 16.8m (55')	15'-0" (4.6m)	36" (900mm)	30" (750mm)	12

Foundation depths specified are for sites which have cohesive soils (clayey, silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive strength of (Qu)>1.0 tsf (100kPa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.

Concrete Foundations, Type “E” for Combination Mast Arm Poles shall be 36 inch (900 mm) diameter, regardless of mast arm length. Foundations used for Combination Mast Arm Poles shall provide an extra 2-1/2 inch (65 mm) raceway.

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation.

**DETECTOR LOOP.**

Revise Section 886 of the Standard Specifications to read:

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4424 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

Loop detectors shall be installed according to the requirements of the "District One Standard Traffic Signal Design Details." Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit 250W175C water proof tag, or an approved equal, secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 100 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be more than 5.

- (a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb and handhole shall be cut with a 1/4 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark location of each loop lead-in.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 1/8 inch (3 mm) below the pavement surface, if installed above the surface the overlap shall be removed immediately.

Detector loop measurements shall include the saw cut and the length of the loop lead-in to the edge of pavement. The lead-in wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. Unit duct, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.

- (b) Preformed. This work shall consist of furnishing and installing a rubberized heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:

Preformed detector loops shall be installed in new pavement constructed of Portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be extended to a temporary enclosure near the proposed handhole location with ends capped and sealed against moisture and other contaminants.

Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. Non-metallic coilable duct, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.

Preformed detector loops shall be factory assembled. Homeruns and interconnects shall be pre-wired and shall be an integral part of the loop assembly. The loop configurations and homerun lengths shall be assembled for the specific application.

The loop and homerun shall be constructed using 11/16 inch (17.2 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating. Hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in the hose except where necessary to connect homeruns or interconnects to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be heavy duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum of four turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to insure complete moisture blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6.5 feet of extra cable in the handhole.

Basis of Payment.

This work shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP as specified in the plans, which price shall be payment in full for furnishing and installing the detector loop and all related connections for proper operation.

**EMERGENCY VEHICLE PRIORITY SYSTEM.**

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, maximum 6 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signaled by a flashing indication at the rate specified by Section 4D-11 of the "Manual on Uniform Traffic Control Devices." The stopped pre-empted movements shall be signaled 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  $\pm$ 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

Basis of Payment.

The work shall be paid for at the contract unit price each for furnishing and installing LIGHT DETECTOR and LIGHT DETECTOR AMPLIFIER. Furnishing and installing the confirmation beacon shall be included in the cost of the Light Detector. The preemption detector amplifier shall be paid for on a basis of (1) one each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

**RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM.**

Description.

This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
  - a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
  - b. Proposed signal timing plan for the new or modified intersection(s) shall be forwarded to IDOT for review prior to implementation.
  - c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.
2. The following deliverables shall be provided for LEVEL I Re-Optimization.
  - a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
  - b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
  - a. Traffic counts shall be taken at the subject intersection after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
  - b. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
  - c. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.
2. The following deliverables shall be provided for LEVEL II Re-Optimization.
  - a. Consultant shall furnish to IDOT one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
    - (1) Brief description of the project
    - (2) Printed copies of the analysis output from Synchro (or other appropriate, approved optimization software file)
    - (3) Printed copies of the traffic counts conducted at the subject intersection
  - b. Consultant shall furnish to IDOT two (2) CDs for the optimized system. The CDs shall include the following elements:
    - (1) Electronic copy of the technical memorandum in PDF format
    - (2) Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system
    - (3) Traffic counts conducted at the subject intersection
    - (4) New or updated intersection graphic display file for the subject intersection

- (5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

**Basis of Payment.**

This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid.

**OPTIMIZE TRAFFIC SIGNAL SYSTEM.**

**Description.**

This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system.
2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday.

The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.

3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
  4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.
  5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.
  6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
  7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.
- (b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.
1. Consultant shall furnish to IDOT one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

Cover Page in color showing a System Map
<b>Figures</b> <ol style="list-style-type: none"> <li>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.</li> <li>2. General location map in color – showing signal system location in the metropolitan area.</li> <li>3. Detail system location map in color – showing cross street names and local controller addresses.</li> <li>4. Controller sequence – showing controller phase sequence diagrams.</li> </ol>
<b>Table of Contents</b>
<b>Tab 1: Final Report</b> <ol style="list-style-type: none"> <li>1. Project Overview</li> <li>2. System and Location Description (Project specific)</li> <li>3. Methodology</li> <li>4. Data Collection</li> <li>5. Data Analysis and Timing Plan Development</li> <li>6. Implementation           <ol style="list-style-type: none"> <li>a. Traffic Responsive Programming (Table of TRP vs. TOD Operation)</li> </ol> </li> <li>7. Evaluation           <ol style="list-style-type: none"> <li>a. Speed and Delay runs</li> </ol> </li> </ol>
<b>Tab 2. Turning Movement Counts</b> <ol style="list-style-type: none"> <li>1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)</li> </ol>

<p><b>Tab 3. Synchro Analysis</b></p> <ol style="list-style-type: none"><li>1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings.</li><li>2. Midday: same as AM</li><li>3. PM: same as AM</li></ol>
<p><b>Tab 4: Speed and Delay Studies</b></p> <ol style="list-style-type: none"><li>1. Summary of before and after runs results in two (2) tables showing travel time and delay time.</li><li>2. Plot of the before and after runs diagram for each direction and time period.</li></ol>
<p><b>Tab 5: Electronic Files</b></p> <ol style="list-style-type: none"><li>1. Two (2) CDs for the optimized system. The CDs shall include the following elements:<ol style="list-style-type: none"><li>a. Electronic copy of the SCAT Report in PDF format</li><li>b. Copies of the Synchro files for the optimized system</li><li>c. Traffic counts for the optimized system</li><li>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.</li></ol></li></ol>

**Basis of Payment.**

The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

**TEMPORARY TRAFFIC SIGNAL TIMINGS.**

**Description.**

This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Closed Loop Traffic signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMINGS.

- (a) Consultant shall attend temporary traffic signal inspection (turn-on) and conduct on-site implementation of the traffic signal timings. Make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
- (b) Consultant shall provide monthly observation of traffic signal operations in the field.
- (c) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.

- (d) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.

Basis of Payment.

The work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMINGS, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation.

**TEMPORARY TRAFFIC SIGNAL INSTALLATION.**

Revise Section 890 of the Standard Specifications to read:

General.

Only an approved equipment vendor will be allowed to assemble the temporary traffic signal cabinet. Also, an approved equipment vendor shall assemble and test a temporary railroad traffic signal cabinet. (Refer to the "Inspection of Controller and Cabinet" specification). A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Construction Requirements.

(a) Controllers.

1. Only controllers supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS1 or TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption.
2. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.

- (b) Cabinets. All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4 inch (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

- (c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 807 of the Standard Specifications and shall meet the requirements of the District 1 Traffic Signal Specifications for "Grounding of Traffic Signal Systems".
- (d) Traffic Signal Heads. All traffic signal sections and pedestrian signal sections shall be 12 inches (300 mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. The Contractor shall furnish enough extra cable length to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.
- (e) Interconnect.
1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.
  2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the item Temporary Traffic Signal Installation. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.
  3. Temporary wireless interconnect, compete. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This item shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:
    - a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio

- b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
- c. Antennas (Omni Directional or Yagi Directional)
- d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
- e. Brackets, Mounting Hardware, and Accessories Required for Installation
- f. RS232 Data Cable for Connection from the radio to the local or master controller
- g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in this item.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the manufacturers recommendations.

The following radio equipment is currently approved for use in Region One/District One: Encon Model 5100 and Intuicom Communicator II.

- (f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz  $\pm$ 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.
- (g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. All approaches shall have vehicular detection provided by Video Vehicle Detection System as shown on the plans or as directed by the Engineer.

- The microwave vehicle sensor or video vehicle detection system shall be approved by IDOT before furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.
- (h) Signs. All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.
- (i) Energy Charges. The electrical utility energy charges for the operation of the traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.
- (j) Maintenance. Maintenance shall meet the requirements of the Traffic Specifications and District Specifications for "Maintenance of Existing Traffic Signal Installation." Maintenance of temporary signals and of the existing signals shall be included to the cost of this item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. Maintenance responsibility of the existing signals shall be included to the item Temporary Traffic Signal Installation(s). In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic (847) 705-4424 for an inspection of the installation(s).
- (k) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District 1 Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the above requirements for "Temporary Traffic Signal Installation". In addition all electric cable shall be aurally suspended, at a minimum height of 18 feet (5.5m), on temporary wood poles (Class 5 or better) of 45 feet (13.7 m), minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection may be used in place of the detector loops as approved by the Engineer.

(l) Temporary Portable Traffic Signal for Bridge Projects.

1. Unless otherwise directed by the Engineer, temporary portable traffic signals shall be restricted to use on roadways of less than 8000 ADT that have limited access to electric utility service, shall not be installed on projects where the estimated need exceeds ten (10) weeks, and shall not be in operation during the period of November through March. The Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract if the bridge project or Engineer requires temporary traffic signals to remain in operation into any part of period of November through March. If, in the opinion of the engineer, the reliability and safety of the temporary portable traffic signal is not similar to that of a temporary span wire traffic signal installation, the Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract.
2. The controller and LED signal displays shall meet the above requirements for "Temporary Traffic Signal Installation".
3. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.
4. General.
  - a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.
  - b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.
  - c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.
  - d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.
  - e. All portable traffic signal units shall be interconnected using hardwire communication cable.

Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.

- f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV of the Manual on Uniform Traffic Control Devices (MUTCD). The signal system shall be designed to continuously operate over an ambient temperature range between -30 °F (-34 °C) and 120 °F (48 °C). When not being utilized to inform and direct traffic, portable signals shall be treated as nonoperating equipment according to Article 701.11.
- g. Basis of Payment. This work will be paid for according to Article 701.20(c).

Basis of Payment.

This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION. The price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, all material required, the installation and complete removal of the temporary traffic signal.

**REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT.**

Add the following to Article 895.05 of the Standard Specifications:

The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within 30 days of removing it from the traffic signal installation. The Contractor shall provide 5 copies of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. He shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned with these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time he takes maintenance of the signal installation until the acceptance of a receipt drawn by the State's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications.

### **TRAFFIC SIGNAL PAINTING.**

#### Description.

This work shall include surface preparation, powder type painted finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All work associated with applying the painted finish shall be performed at the manufacturing facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts.

#### Surface Preparation.

All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

#### Painted Finish.

All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 degrees F for a minimum one (1) hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 degrees F.

The finish paint color shall be one of the manufacturer's standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Traffic signal heads, pedestrian signal heads and controller cabinets are not included in this pay item.

Any damage to the finish after leaving the manufacturer's facility shall be repaired to the satisfaction of the Engineer using a method approvable by the Engineer and manufacturer. If while at the manufacturer's facility the finish is damaged, the finish shall be re-applied.

#### Warranty.

The Contractor shall furnish in writing to the Engineer, the paint manufacturer's standard warranty and certification that the paint system has been properly applied.

#### Packaging.

Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment.

This work shall be paid for at the contract unit price each for PAINT NEW MAST ARM POLE, UNDER 40 FEET (12.19 METER); PAINT NEW MAST ARM POLE, 40 FEET (12.19 METER) AND OVER; PAINT NEW COMBINATION MAST ARM POLE, UNDER 40 FEET (12.19 METER); PAINT NEW COMBINATION MAST ARM POLE, 40 FEET (12.19 METER) AND OVER; or TRAFFIC SIGNAL POST of any height, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

**DIVISION 1000 MATERIALS**

**PEDESTRIAN PUSH-BUTTON.**

Revise Article 1074.02 of the Standard Specifications to read:

- (a) General. Push-button assemblies shall be ADA compliant, highly vandal resistant, be pressure activated with minimal movement and cannot be stuck in a closed or constant call position. A red LED and audible tone shall be provided for confirmation of an actuation call.
- (b) Housing. The push-button housing shall be solid 6061 aluminum and powder coated yellow, unless otherwise noted on the plans.
- (c) Actuator. The actuator shall be stainless steel with a solid state electronic Piezo switch rated for a minimum of 20 million cycles with no moving plunger or moving electrical contacts. The operating voltage shall be 12-24 V AC/DC.
- (d) Pedestrian Station. Stations shall be designed to be mounted directly to a post, mast arm pole or wood pole. The station shall be aluminum and accept a 3-inch round push button assembly and 5 X 7 ¾ -inch R10-3b or R10-3d sign. A larger station will be necessary to accommodate the sign, R10-3e, for a count-down pedestrian signal.

**CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.**

Add the following to Article 1074.03 of the Standard Specifications:

- (a) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.
- (b)(5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- (b) (6) Controller Harness – Provide a TS2 Type 2 “A” wired harness in addition to the TS2 Type 1 harness.
- (b) (7) Surge Protection – EDCO Model 1210 IRS with failure indicator.
- (b) (8) BIU – Containment screw required.
- (b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
- (b) (10) Switch Guards – All switches shall be guarded.
- (b) (11) Heating – Two (2) porcelain light receptacles with cage protection controlled by both a wall switch and a thermostat or a thermostatically controlled 150 watt strip heater.

- (b) (12) Plan & Wiring Diagrams – 12” x 16” (3.05mm x 4.06mm) moisture sealed container attached to door.
- (b) (13) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
- (b) (14) Field Wiring Labels – All field wiring shall be labeled.
- (b) (15) Field Wiring Termination – Approved channel lugs required.
- (b) (16) Power Panel – Provide a nonconductive shield.
- (b) (17) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
- (b) (18) Police Door – Provide wiring and termination for plug in manual phase advance switch.
- (b) (19) Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

**RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET.**

Add the following to Article 857.02 of the Standard Specifications:

Controller shall comply with Article 1073.01 as amended in these Traffic Signal Special Provisions.

Controller Cabinet and Peripheral Equipment shall comply with Article 1074.03 as amended in these Traffic Signal Special Provisions.

Add the following to Articles 1073.01 (c) (2) and 1074.03 (a) (5) (e) of the Standard Specifications:

Controllers and cabinets shall be new and NEMA TS2 Type 1 design.

A method of monitoring and/or providing redundancy to the railroad preemptor input to the controller shall be included as a component of the Railroad, Full Actuated Controller and Cabinet installation and be verified by the traffic signal equipment supplier prior to installation.

Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment supplier. The equipment shall be tested and approved in the equipment supplier’s District One facility prior to field installation.

**ELECTRIC CABLE.**

Delete “or stranded, and No. 12 or” from the last sentence of Article 1076.04 (a) of the Standard Specifications.

**MAST ARM ASSEMBLY AND POLE.**

Add the following to Article 1077.03 (a) of the Standard Specifications:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization.

This work shall consist of furnishing and installing a galvanized steel or extruded aluminum shroud for protection of the mast arm pole base plate similar to the dimensions detailed in the "District One Standard Traffic Signal Design Details." The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall allow air to circulate throughout the mast arm but not allow infestation of insects or other animals. The shroud shall be constructed, installed and designed not to be hazardous to probing fingers and feet. All mounting hardware shall be stainless steel. The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

### **TRAFFIC SIGNAL POST.**

Add the following to Article 1077.01 (b) of the Standard Specifications:

All posts and bases shall be steel and hot dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization.

### **SIGNAL HEADS.**

Add the following to Section 1078 of the Standard Specifications to read:

All signal and pedestrian heads shall provide 12" (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signal and/or pedestrian heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

Pedestrian signal heads shall be furnished with the international symbolic "Walking Person" and "Upraised Palm" lenses. Egg crate sun shields are not permitted.

Signal heads shall be positioned according to the "District One Standard Traffic Signal Design Details."

### **SIGNAL HEAD, BACKPLATE.**

Delete 1<sup>st</sup> sentence of Article 1078.03 of the Standard Specifications and add "All backplates shall be aluminum and louvered".

### **INDUCTIVE LOOP DETECTOR.**

Add the following to Article 1079.01 of the Standard Specifications:

Contracts requiring new cabinets shall provide for card mounted detector amplifiers. Loop amplifiers shall provide LCD displays with loop frequency, inductance, and change of inductance readings.

## **ILLUMINATED SIGN, LIGHT EMITTING DIODE.**

Revise Sections 891 of the Standard Specifications to read:

### **Description.**

This work shall consist of furnishing and installing an illuminated sign with light emitting diodes.

### **General.**

The light emitting diode (LED) blank out signs shall be manufactured by National Sign & Signal Company, or an approved equal and consist of a weatherproof housing and door, LEDs and transformers.

#### **(a) Display.**

1. The LED blank out sign shall provide the correct symbol and color for "NO LEFT TURN" OR "NO RIGHT TURN" indicated in accordance with the requirements of the "Manual on Uniform Traffic Control Devices". The message shall be formed by rows of LEDs.
2. The message shall be clearly legible. The message shall be highly visible, anywhere and under any lighting conditions, within a 15 degree cone centered about the optic axis.

The sign face shall be 24 inches (600 mm) by 24 inches (600 mm). The sign face shall be completely illegible when not illuminated. No symbol shall be seen under any ambient light condition when not illuminated.

3. All LEDs shall be T-1 3/4 (5mm) and have an expected lamplife of 100,000 hours. Operating wavelengths will be Red-626nm, Amber-590nm, and Bluish/Green-505nm. Transformers shall be rated for the line voltage with Class A insulation and weatherproofing. The sign shall be designed for operation over a range of temperatures from -35F to +165 F (-37C to +75C).
4. The LED module shall include the message plate, high intensity LEDs and LED drive electronics. Door panels shall be flat black and electrical connections shall be made via barrier-type terminal strip. All fasteners and hardware shall be corrosion resistant stainless steel.

#### **(b) Housing.**

1. The housing shall be constructed of extruded aluminum. All corners and seams shall be heli-arc welded to provide a weatherproof seal around the entire case. Hinges shall be continuous full-length stainless steel. Signs shall have stainless steel hardware and provide tool free access to the interior of the sign. Doors shall be 0.125-inch thick extruded aluminum with a 3/16-inch x 1-inch neoprene gasket and sun hood. The sign face shall have a polycarbonate, matte clear, lexan face plate. Drainage shall be provided by four drain holes at the corners of the housing. The finish on the sign housing shall include two coats of exterior enamel applied after the surface is acid-etched and primed with zinc-chromate primer.

2. Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and brackets specified herein.

Basis of Payment.

This work shall be paid for at the unit price each for ILLUMINATED SIGN, L.E.D.

**GROUNDING EXISTING HANDHOLE FRAME AND COVER.**

Description.

This work shall consist of all materials and labor required to bond the equipment grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details" and applicable portions of the Specifications.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Bumdy 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 contaminants. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

The grounding cable shall be paid for separately.

Method of Measurement.

Units measured for payment will be counted on a per handhole basis, regardless of the type of handhole and its location.

Basis of Payment.

This work shall be paid for at the contract unit price each for GROUNDING EXISTING HANDHOLE FRAME AND COVER which shall be payment in full for grounding the handhole complete.

**UNIT DUCT.**

All installations of Unit Duct shall be included in the contract and not paid for separately. Polyethylene unit duct shall be used for detector loop raceways to the handholes. On temporary traffic signal installations with detector loops, polyethylene unit duct shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans. Unit duct shall meet the requirements of NEC Article 343.

**UNINTERRUPTIBLE POWER SUPPLY (UPS).**

Description.

This work shall consist of furnishing and installing an uninterruptible power supply (UPS).

The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of six hours.

The UPS shall include, but not be limited to the following: inverter/charger, power transfer relay, batteries, battery cabinet, a separate manually operated non-electronic bypass switch, and all necessary hardware and interconnect wiring according to the plans. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption. The transfer from utility power to battery power and visa versa shall not interfere with the normal operation of traffic controller, conflict monitor/malfunction management unit, or any other peripheral devices within the traffic controller assembly.

The UPS shall be designed for outdoor applications, and shall meet the environmental requirements of, "NEMA Standards Publication No. TS 2 – Traffic Controller Assemblies", except as modified herein.

#### Materials.

The UPS shall be line interactive and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection's normal traffic signal operating connected load, plus 20 percent (20%). The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 700 W/VA active output capacity, with 90 percent minimum inverter efficiency).

The maximum transfer time from loss of utility power to switchover to battery backed inverter power shall be 65 milliseconds.

The UPS shall have a minimum of three (3) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans. Contact closures shall be energized whenever the unit:

- Switches to battery power. Contact shall be labeled or marked "On Batt".
- Has been connected to battery power for two (2) hours. Contact shall be labeled or marked "Timer".
- Has an inverter/charger failure. Contact shall be labeled or marked "UPS Fail".

Operating temperature for the inverter/charger, power transfer relay, and manual bypass switch shall be -35 to 165 °F (-37 to +74 °C).

Both the power transfer relay and manual bypass switch shall be rated at 240 VAC/30 amps, minimum.

The UPS shall use a temperature-compensated battery charging system. The charging system shall compensate over a range of 1.4 – 2.2 mV/°F (2.5 - 4.0 mV/°C) per cell. The temperature sensor shall be external to the inverter/charger unit. The temperature sensor shall come with 6.5 ft (2 m) of wire.

Batteries shall not be recharged when battery temperature exceeds  $122\text{ }^{\circ}\text{F} \pm 5\text{ }^{\circ}\text{F}$  ( $50\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ ).

The UPS shall bypass the utility line power whenever the utility line voltage is outside of the following voltage range: 85 VAC to 135 VAC ( $\pm 2\text{ VAC}$ ).

When utilizing battery power, the UPS output voltage shall be between 110 and 125 VAC, pure sine wave output,  $\leq 3$  percent THD,  $60\text{ Hz} \pm 3\text{ Hz}$ .

The UPS shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

When the utility line power has been restored at above  $90\text{ VAC} \pm 2\text{ VAC}$  for more than 30 seconds, the UPS shall dropout of battery backup mode and return to utility line mode.

When the utility line power has been restored at below  $130\text{ VAC} \pm 2\text{ VAC}$  for more than 30 seconds, the UPS shall dropout of battery backup mode and return to utility line mode.

The UPS shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service.

In the event of inverter/charger failure, the power transfer relay shall revert to the NC state, where utility line power is reconnected to the cabinet. In the event of an UPS fault condition, the UPS shall always revert back to utility line power.

Recharge time for the battery, from "protective low-cutoff" to 80 percent or more of full battery charge capacity, shall not exceed twenty hours.

The manual bypass switch shall be wired to provide power to the UPS when the switch is set to manual bypass.

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, service receptacles, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

As the battery reserve capacity reaches 50 percent, the intersection shall automatically be placed in all-red flash. The UPS shall allow the controller to automatically resume normal operation after the power has been restored. The UPS shall log an alarm in the controller for each time it is activated.

A blue LED indicator light shall be mounted on the front of the traffic signal cabinet or on the side of the UPS cabinet facing traffic and shall turn on to indicate when the cabinet power has been disrupted and the UPS is in operation. The light shall be a minimum 1 in. (25 mm) diameter, be viewable from the driving lanes, and able to be seen from 200 ft (60 m) away.

All 24 volt and 48 volt systems shall include an external or internal component that monitors battery charging to ensure that every battery in the string is fully charged. The device shall compensate for the effects of adding a new battery to an existing battery system by ensuring that the charge voltage is spread equally across all batteries.

Mounting/Configuration.

The inverter/charger unit shall be rack or shelf-mounted.

All interconnect wiring provided between the power transfer relay, manual bypass switch, and cabinet terminal service block shall be at least 6.5 ft (2 m) of #10 AWG wire.

Relay contact wiring provided for each set of NO/NC relay contact closure terminals shall be 6.5 ft (2 m) of #18 AWG wire.

Battery Cabinet.

Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish.

The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

The manually bypass switch shall be installed inside the traffic signal cabinet.

No more than three batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

A minimum of three shelves shall be provided. Each shelf shall support a load of 132 lb (60 kg) minimum.

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

The battery cabinet shall be ventilated through the use of louvered vents, filters, and one thermostatically controlled fan. The cabinet fan shall not be energized when the traffic signals are on UPS power.

The battery cabinet shall have provisions for an external generator connection.

The UPS with battery cabinet shall come with all bolts, conduits and bushings, gaskets, shelves, and hardware needed for mounting. A warning sticker shall be placed on the outside of the cabinet indicating that there is an uninterruptible power supply inside the cabinet.

Maintenance, Displays, Controls, and Diagnostics.

The UPS shall include a display and/or meter to indicate current battery charge status and conditions.

The UPS shall have lightning surge protection compliant with IEEE/ANSI C.62.41.

The UPS shall be equipped with an integral system to prevent battery from destructive discharge and overcharge.

The UPS hardware and batteries shall be easily replaced without requiring any special tools or devices.

The UPS shall include a resettable front-panel event counter display to indicate the number of times the UPS was activated. The total number of hours the unit has operated on battery power shall be available from the controller unit or UPS unit.

The UPS shall be equipped with an RS-232 port.

The UPS shall include tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.

The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate (Hubbell model HBL4716C or approved equal). Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.

The manufacturer shall include two sets of equipment lists, operation and maintenance manuals, board-level schematic and wiring diagrams of the UPS, and battery data sheets. The manufacturer shall include any software needed to monitor, diagnose, and operate the UPS. The manufacturer shall include any required cables to connect the UPS to a laptop computer.

#### Battery System.

Individual batteries shall be 12 V type, 65 amp-hour minimum capacity at 20 hours, and shall be easily replaced and commercially available off the shelf.

The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four batteries shall be provided.

All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic leadcalcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.

Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.

The batteries shall be provided with appropriate interconnect wiring and corrosion resistant mounting trays and/or brackets appropriate for the cabinet into which they will be installed.

Batteries shall indicate maximum recharge data and recharging cycles.

Battery interconnect wiring shall be via a modular harness. Batteries shall be shipped with positive and negative terminals pre-wired with red and black cabling that terminates into a typical power-pole style connector. The harness shall be equipped with mating power-pole style connectors for the batteries and a single, insulated plug-in style connection to the inverter/charger unit. The harness shall allow batteries to be quickly and easily connected in any order and shall be keyed and wired to ensure proper polarity and circuit configuration.

Battery terminals shall be covered and insulated so as to prevent accidental shorting.

#### Warranty.

The warranty for an uninterruptible power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years from the date the traffic signal and UPS are placed into service.

#### Installation.

When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

#### Basis of Payment.

This work will be paid for at the contract unit price per each for UNINTERRUPTABLE POWER SUPPLY.

### **SIGNAL HEAD, LIGHT EMITTING DIODE.**

#### Description.

This work shall consist of furnishing and installing a traffic signal head or pedestrian signal head with light emitting diodes (LED) of the type specified in the plan or retrofitting an existing traffic signal head with a traffic signal module or pedestrian signal module with LEDs as specified in the plans.

#### General.

LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Sections 880 and 881 and Articles 1078.01 and 1078.02 of the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2007, and amended herein:

1. The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH] or show signs of entrance of moisture or contaminants within the first 60 months of the date of delivery shall be replaced or repaired.

The manufacturer's written warranty for the LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the State.

2. Each module shall consist of an assembly that utilizes LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections.

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:
  - a. 12 inch (300 mm) circular, multi-section
  - b. 12 inch (300 mm) arrow, multi-section
  - c. 12 inch (300 mm) pedestrian, 2 sections
2. The maximum weight of a module shall be 4 lbs. (1.8 kg).
3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
4. Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.
5. The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.
6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.
7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

1. The minimum initial luminous intensity values for the modules shall conform to the values in Table 1 of the VTCSH (2005) for circular signal indications, and as stated in Table 3 of these specifications for arrow and pedestrian indications at 25°C.
2. The modules shall meet or exceed the illumination values stated in Article 1078.01(3)c of the "Standard Specifications for Road and Bridge Construction," Adopted January 1, 2007 for circular signal indications, and Table 3 of these specifications for arrow and pedestrian indications, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.

3. The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Section 4.2 of the VTCSH (2005).
4. The LEDs utilized in the modules shall be AlInGaP technology for red, yellow, Portland orange (pedestrian) and white (pedestrian) indications, and GaN for green indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40°C to +74°C.

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.
2. LED modules will have EPA Energy Star compliance ratings, if applicable to that shape, size and color.
3. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.
4. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).
5. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.
6. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
7. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.
2. Retrofit modules can be manufactured under this specification for the following faces:
  - a. 12 inch (300 mm) circular, multi-section
  - b. 12 inch (300 mm) arrow, multi-section
  - c. 12 inch (300 mm) pedestrian, 2 sections
3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.
4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).
5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.
  7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.
- (e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.
1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) for arrow indications.
  2. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.
- (f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.
1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.
- (g) The following specification requirements apply to the 12 inch (300 mm) Pedestrian module only. All general specifications apply unless specifically superseded in this section.
1. Each pedestrian signal LED module shall provide the ability to actuate the solid upraised hand and the solid walking person on one 12 inch (300mm) section.
  2. Two (2) pedestrian sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man.
  3. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).

Basis of Payment.

This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, of the type specified, which price shall be payment in full for furnishing the equipment described above including signal head, LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

Pedestrian head(s) shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified and of the particular kind of material when specified.

The type specified will indicate the number of faces and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for SIGNAL HEAD, LED of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of faces and the method of mounting.

**TABLES**

Table 2 Maximum Power Consumption (in Watts)

	Red		Yellow		Green	
	25°C	74°C	25°C	74°C	25°C	74°C
12 inch (300 mm) circular	11	17	22	25	15	15
12 inch (300 mm) arrow	9	12	10	12	11	11
Pedestrian Indication	Hand-Portland Orange		Person-White			
	6.2		6.3			

Table 3 Minimum Initial & Maintained Intensities for Arrow and Pedestrian Indications (in cd/m<sup>2</sup>)

	Red	Yellow	Green
Arrow Indication	5,500	11,000	11,000

**PEDESTRIAN COUNTDOWN SIGNAL HEAD, LIGHT EMITTING DIODE.**

Description.

This work shall consist of furnishing and installing a pedestrian countdown signal head, with light emitting diodes (LED) of the type specified in the plan.

Pedestrian Countdown Signal Head, Light Emitting Diode, shall conform fully to the SIGNAL HEAD, LIGHT EMITTING DIODE specification, with the following modifications:

(a) Application.

1. Pedestrian Countdown Signal Heads, shall not be used at signalized intersections where traffic signals and railroad warning devices are interconnected.
2. All pedestrian signals at an intersection shall be the same type and have the same display. No mixing of countdown and other types of pedestrian traffic signals will be permitted.

(b) General.

1. The module shall operate in one mode: Clearance Cycle Countdown Mode Only.

The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. Module shall not have user accessible switches or controls for modification of cycle.

2. At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.
3. The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.
4. The module shall allow for consecutive cycles without displaying the steady Upraised Hand.
5. The module shall recognize preemption events and temporarily modify the crossing cycle accordingly.
6. If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.
7. If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.
8. The next cycle, following the preemption event, shall use the correct, initially programmed values.
9. If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.
10. The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.
11. The countdown numerals shall be two (2) "7 segment" digits forming the time display utilizing two rows of LEDs.
12. The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules," or applicable successor ITE specifications, except as modified herein.
13. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
14. In the event of a power outage, light output from the LED modules shall cease instantaneously.

15. The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.
16. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(c) Pedestrian Countdown Signal Heads.

1. Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for single units with the housings glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.
2. Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 inches (229mm) in height and easily identified from a distance of 120 feet (36.6m).

(d) Electrical.

1. Maximum power consumption for LED modules is 29 watts.
2. The measured chromaticity shall remain unchanged over the input line voltage range listed of 80 VAC to 135 VAC.

Basis of Payment.

This item shall be paid for at the contract unit price each for PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, of the type specified, which shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

**TRAFFIC SIGNAL SPECIFICATIONS FOR DETECTOR REPLACEMENT AND/OR INSTALLATION ON ROADWAY GRINDING, RESURFACING, & PATCHING OPERATIONS**

Effective: October 1, 1999

Revised: January 1, 2007

The following Traffic Signal Special Provisions and the "District 1 Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction."

The intent of this Special Provision is to prescribe the materials and construction methods commonly used to replace traffic signal detector loops and replace magnetic signal detectors with detector loops during roadway resurfacing, grinding and patching operations. Loop detector replacement will not require the transfer of traffic signal maintenance from the District Electrical Maintenance Contractor to this contract's electrical contractor.

Replacement of magnetic detector will require wiring revisions inside the control cabinet and therefore the transfer of maintenance will be required. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer.

The work to be provided under this contract consists of furnishing and installing all traffic signal work as specified on the Plans and as specified herein in a manner acceptable and approved by the Engineer.

NOTIFICATION OF INTENT TO WORK. Contracts such as pavement grinding or patching which result in the destruction of traffic signal detection require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the detection removal, the Contractor shall notify the:

- Traffic Signal Maintenance and Operations Engineer at (847)705-4424
- IDOT Electrical Maintenance Contractor at (773) 287-7600

at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection.

Failure to provide proper notification may require the District's Electrical Maintenance Contractor to be called to investigate complaints of inadequate traffic signal timing. All costs associated with these expenses will be paid for by the Contractor at no additional expense to the Department according to Section 109 of the "Standard Specifications."

#### ACCEPTANCE OF MATERIAL.

The Contractor shall provide:

1. All material approval requests shall be submitted a minimum of seven (7) days prior to the delivery of equipment to the job site, or within 30 consecutive calendar days after the contract is awarded, or within 15 consecutive calendar days after the preconstruction meeting, whichever is first.
2. Seven (7) copies of a letter listing the manufacturer's name and model numbers of the proposed equipment shall be supplied. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approved. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.
3. One (1) copy of material catalog cuts.
4. The contract number, permit number or intersection location must be on each sheet of the letter and material catalog cuts as required in items 2 and 3.

#### INSPECTION OF CONSTRUCTION.

When the road is open to traffic, except as otherwise provided in Section 801 and 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Traffic Signal Maintenance and Operations Engineer at (847)705-4424 a minimum of seven (7) working days prior to the time of the requested inspection.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on." If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer.

If this work is not completed in time, the Department reserves the right to have the work completed by others at the Contractor's expense.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements will be subject to removal and disposal at the Contractor's expense.

RESTORATION OF WORK AREA. Restoration of the traffic signal work area shall be incidental to the related pay item such as foundation, conduit, handhole, trench and backfill, etc., and no extra compensation shall be allowed. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced as shown in the plans or in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded.

REMOVAL, DISPOSAL AND SALVAGE OF EXISTING TRAFFIC SIGNAL EQUIPMENT. This item shall be incidental to this contract. All material and equipment removed shall become the property of the Contractor and disposed of by the Contractor outside the State's right-of-way. No additional compensation shall be provided to the Contractor for removal, disposal or salvage expense for the work in this contract.

DETECTOR LOOP REPLACEMENT. This work shall consist of replacing existing detector loops which are destroyed during grinding, resurfacing, or patching operations.

If damage to the detector loop is unavoidable, replacement of the existing detection system will be necessary. This work shall be completed by an approved Electrical Contractor as directed by the Engineer.

Replacement of the loops shall be accomplished in the following manner: The Engineer shall mark the location of the replacement loops. The Traffic Signal Maintenance and Operations Engineer shall be called to approve loop locations prior to the cutting of the pavement. The Contractor may reuse the existing conduit (duct) located between the existing handhole and the pavement if it hasn't been damaged. All burrs shall be removed from the edges of the existing conduit which may cause damage to the new detector loop during installation. If the existing conduit is damaged beyond repair, or if it cannot be located, or if additional conduits are required to provide one lead-in duct for each proposed loop; the Contractor shall be required to drill through the existing pavement into the appropriate handhole, and install 25 mm (1") unit duct conduit. This work and the required materials shall not be paid for separately but shall be included in the pay item Detector Loop Replacement. Upon establishment of the duct, the loop may be cut, installed, sealed and spliced to the twisted-shielded controller cable in the handhole.

Detector loop measurements shall include the saw-cut and the length of the loop lead-in leading to the edge of pavement. Unit duct, splicing, trench and backfill, and drilling of pavement or handholes shall be incidental to detector loop quantities.

All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement or the curb shall be cut with a 6.3 mm (1/4") deep x 100 mm (4") saw-cut to mark location of each loop lead-in.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Traffic Signal Maintenance and Operations Engineer (847)705-4424 to inspect and approve the layout.

Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details." Saw-cuts from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit 250W175C water proof tag or approved equal secured to each wire with nylon ties. The lead-in wire, including all necessary connections for proper operation, from the edge of pavement to the handhole, shall be incidental to the price of the detector loop.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 3 mm (1/8") below the pavement surface, if installed above the surface the overlap shall be removed immediately.

Round loop(s) 1.8 m (six foot) diameter may be substituted for 1.8 m (six foot) by 1.8 m (six foot) square loop(s) and shall be paid for as 7.2 m (24 feet) of detector loop.

Resistance to ground shall be a minimum of 100 megohms under any conditions of weather or moisture.

Heat shrink splices shall be used according to the "District 1 Standard Traffic Signal Design Details."

Drilling handholes, sawing the pavement, furnishing and installing unit-duct to the appropriate handhole, cable splicing to provide a fully operable detector loop, testing and all trench and backfill shall be included in this item.

Detector loop replacement shall be measured along the sawed slot in the pavement containing the loop and lead-in, rather than the actual length of the wire in the slot.

Basis of Payment. Detector Loop Replacement shall be paid for at the contract unit price per foot (meter) of DETECTOR LOOP REPLACEMENT.

MAGNETIC DETECTOR REMOVAL AND DETECTOR LOOP INSTALLATION. This work shall consist of the removal of existing magnetic detectors, magnetic detector lead-in cable and magnetic detection amplifiers and related control equipment wiring, installation of detector lead-in cable, detector loops, detector amplifiers and related equipment wiring. The detector loop, cable, and amplifier shall be installed according to the applicable portions of the "Standard Specifications" and the applicable portions of the Special Provision for "Detector Loop Replacement." All drilling of handholes, furnishing and installing unit duct, cable splicing, trench and backfill, removal of equipment, and pulling cable from conduit shall be included in this item.

**Basis of Payment.** Magnetic Detector Removal and Detector Loop Installation shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I, per each for INDUCTIVE LOOP DETECTOR, and foot (meter) for ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR.

### **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:

	<u>Item</u>	<u>Article/Section</u>
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.

**ALKALI-SILICA REACTION FOR CAST-IN-PLACE CONCRETE (BDE)**

Effective: August 1, 2007

Revised: January 1, 2009

Description. This special provision is intended to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The special provision is not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate or sodium formate. The special provision shall not apply to the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy. The special provision shall also not apply to precast products or precast prestressed products.

Aggregate Expansion Values. Each coarse and fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II cement having a total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates and 0.03 percent to limestone or dolomite fine aggregates (manufactured stone sand); however the Department reserves the right to perform the ASTM C 1260 test.

Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

AGGREGATE GROUPS			
Coarse Aggregate or Coarse Aggregate Blend  ASTM C 1260 Expansion	Fine Aggregate or Fine Aggregate Blend  ASTM C 1260 Expansion		
	$\leq 0.16\%$	$> 0.16\% - 0.27\%$	$> 0.27\%$
$\leq 0.16\%$	Group I	Group II	Group III
$> 0.16\% - 0.27\%$	Group II	Group II	Group III
$> 0.27\%$	Group III	Group III	Group IV

Mixture Options. Based upon the aggregate group, the following mixture options shall be used; however, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

- Group I - Mixture options are not applicable. Use any cement or finely divided mineral.
- Group II - Mixture options 1, 2, 3, 4, or 5 shall be used.
- Group III - Mixture options 1, 2 and 3 combined, 4, or 5 shall be used.
- Group IV - Mixture options 1, 2 and 4 combined, or 5 shall be used.

For Class PP-3 concrete the mixture options are not applicable, and any cement may be used with the specified finely divided minerals.

- a) Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

$$\text{Weighted Expansion Value} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots$$

Where: a, b, c... = percentage of aggregate in the blend;  
A, B, C...= expansion value for that aggregate.

- b) Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. The replacement ratio is defined as "finely divided mineral:portland cement".

- 1) Class F Fly Ash. For Class PV, BS, MS, DS, SC, and SI concrete and cement aggregate mixture II (CAM II), Class F fly ash shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

- 2) Class C Fly Ash. For Class PV, MS, SC, and SI Concrete, Class C fly ash with 18 percent to less than 26.5 percent calcium oxide content, and less than 2.0 percent loss on ignition, shall replace 20 percent of the portland cement at a minimum replacement ratio of 1:1; or at a minimum replacement ratio of 1.25:1 if the loss on ignition is 2.0 percent or greater. Class C fly ash with less than 18 percent calcium oxide content shall replace 20 percent of the portland cement at a minimum replacement ratio of 1.25:1.

For Class PP-1, RR, BS, and DS concrete and CAM II, Class C fly ash with less than 26.5 percent calcium oxide content shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

- 3) Ground Granulated Blast-Furnace Slag. For Class PV, BS, MS, SI, DS, and SC concrete, ground granulated blast-furnace slag shall replace 25 percent of the portland cement at a minimum replacement ratio of 1:1.

For Class PP-1 and RR concrete, ground granulated blast-furnace slag shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

For Class PP-2, ground granulated blast-furnace slag shall replace 25 to 30 percent of the portland cement at a minimum replacement ratio of 1:1.

- 4) Microsilica or High Reactivity Metakaolin. Microsilica solids or high reactivity metakaolin shall be added to the mixture at a minimum 25 lb/cu yd (15 kg/cu m) or 27 lb/cu yd (16 kg/cu m) respectively.
- c) Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ) of 0.60 percent. When aggregate in Group II is involved, any finely divided mineral may be used with a portland cement.
- d) Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ) of 0.45 percent. When aggregate in Group II or III is involved, any finely divided mineral may be used with a portland cement.
- e) Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is  $\leq 0.16$  percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly. For latex concrete, the ASTM C 1567 test shall be performed without the latex. The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ), a new ASTM C 1567 test will not be required.

Testing. If an individual aggregate has an ASTM C 1260 expansion value  $> 0.16$  percent, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The ASTM C 1293 test shall be performed with Type I or II cement having a total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container or wick of absorbent material, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 or 1567 test result. The Engineer will not accept the result if the precision and bias for the test methods are not met.

The laboratory performing the ASTM C 1567 test shall either be accredited by the AASHTO Materials Reference Laboratory (AMRL) for ASTM C 227 under Portland Cement Concrete or Aggregate; or shall be inspected for Hydraulic Cement - Physical Tests by the Cement and Concrete Reference Laboratory (CCRL) and shall be approved by the Department. The laboratory performing the ASTM C 1293 test shall be inspected for Portland Cement Concrete by CCRL and shall be approved by the Department.

**APPROVAL OF PROPOSED BORROW AREAS, USE AREAS, AND/OR WASTE AREAS  
INSIDE ILLINOIS STATE BORDERS (BDE)**

Effective: November 1, 2008

Revise the title of Article 107.22 of the Standard Specifications to read:

**“107.22 Approval of Proposed Borrow Areas, Use Areas, and/or Waste Areas Inside  
Illinois State Borders.”**

Add the following sentence to the end of the first paragraph of Article 107.22 of the Standard Specifications:

“Proposed borrow areas, use areas, and/or waste areas outside of Illinois shall comply with Article 107.01.”

**CEMENT (BDE)**

Effective: January 1, 2007

Revised: April 1, 2009

Revise Section 1001 of the Standard Specifications to read:

**“SECTION 1001. CEMENT**

**1001.01 Cement Types.** Cement shall be according to the following.

- (a) Portland Cement. Acceptance of portland cement shall be according to the current Bureau of Materials and Physical Research’s Policy Memorandum, “Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants”.

Portland cement shall be according to ASTM C 150, and shall meet the standard physical and chemical requirements. Type I or Type II may be used for cast-in-place, precast, and precast prestressed concrete. Type III may be used according to Article 1020.04, or when approved by the Engineer. All other cements referenced in ASTM C 150 may be used when approved by the Engineer.

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. The total of all inorganic processing additions shall be a maximum of 4.0 percent by weight (mass) of the cement. However, a cement kiln dust inorganic processing addition shall be limited to a maximum of 1.0 percent. Organic processing additions shall be limited to grinding aids that improve the flowability of cement, reduce pack set, and improve grinding efficiency. Inorganic processing additions shall be limited to granulated blast-furnace slag according to the chemical requirements of AASHTO M 302, Class C fly ash according to the chemical requirements of AASHTO M 295, and cement kiln dust.

- (b) Portland-Pozzolan Cement. Acceptance of portland-pozzolan cement shall be according to the current Bureau of Materials and Physical Research’s Policy Memorandum, “Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants”.

Portland-pozzolan cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type IP may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The pozzolan constituent for Type IP shall be a maximum of 21 percent of the weight (mass) of the portland-pozzolan cement.

For cast-in-place construction, portland-pozzolan cement shall not be used in concrete mixtures when the air temperature is below 40 °F (4 °C) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above. Inorganic processing additions shall be limited to cement kiln dust at a maximum of 1.0 percent.

- (c) Portland Blast-Furnace Slag Cement. Acceptance of portland blast-furnace slag cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland blast-furnace slag cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type IS portland blast-furnace slag cement may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The blast-furnace slag constituent for Type IS shall be a maximum of 25 percent of the weight (mass) of the portland blast-furnace slag cement.

For cast-in-place construction, portland blast-furnace slag cement shall not be used in concrete mixtures when the air temperature is below 40 °F (4 °C) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above. Inorganic processing additions shall be limited to cement kiln dust at a maximum of 1.0 percent.

- (d) Rapid Hardening Cement. Rapid hardening cement shall be used according to Article 1020.04 or when approved by the Engineer. The cement shall be on the Department's current "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs", and shall be according to the following.

(1) The cement shall have a maximum final set of 25 minutes, according to Illinois Modified ASTM C 191.

- (2) The cement shall have a minimum compressive strength of 2000 psi (13,800 kPa) at 3.0 hours, 3200 psi (22,100 kPa) at 6.0 hours, and 4000 psi (27,600 kPa) at 24.0 hours, according to Illinois Modified ASTM C 109.
  - (3) The cement shall have a maximum drying shrinkage of 0.050 percent at seven days, according to Illinois Modified ASTM C 596.
  - (4) The cement shall have a maximum expansion of 0.020 percent at 14 days, according to Illinois Modified ASTM C 1038.
  - (5) The cement shall have a minimum 80 percent relative dynamic modulus of elasticity; and shall not have a weight (mass) gain in excess of 0.15 percent or a weight (mass) loss in excess of 1.0 percent, after 100 cycles, according to AASHTO T 161, Procedure B.
- (e) Calcium Aluminate Cement. Calcium aluminate cement shall be used only where specified by the Engineer. The cement shall meet the standard physical requirements for Type I cement according to ASTM C 150, except the time of setting shall not apply. The chemical requirements shall be determined according to ASTM C 114 and shall be as follows: minimum 38 percent aluminum oxide ( $Al_2O_3$ ), maximum 42 percent calcium oxide (CaO), maximum 1 percent magnesium oxide (MgO), maximum 0.4 percent sulfur trioxide ( $SO_3$ ), maximum 1 percent loss on ignition, and maximum 3.5 percent insoluble residue.

**1001.02 Uniformity of Color.** Cement contained in single loads or in shipments of several loads to the same project shall not have visible differences in color.

**1001.03 Mixing Brands and Types.** Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall not be mixed or used alternately in the same item of construction unless approved by the Engineer.

**1001.04 Storage.** Cement shall be stored and protected against damage, such as dampness which may cause partial set or hardened lumps. Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall be kept separate.”

## **CONCRETE ADMIXTURES (BDE)**

Effective: January 1, 2003

Revised: April 1, 2009

Replace the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

“(b) Admixtures. The use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted when approved by the Engineer. Admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(12). The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted when determining an admixture dosage from this list.

The dosage shall be within the range indicated on the approved list unless the influence by other admixtures, jobsite conditions (such as a very short haul time), or other circumstances warrant a dosage outside the range. The Engineer shall be notified when a dosage is proposed outside the range. To determine an admixture dosage, air temperature, concrete temperature, cement source and quantity, finely divided mineral sources(s) and quantity, influence of other admixtures, haul time, placement conditions, and other factors as appropriate shall be considered. The Engineer may request the Contractor to have a batch of concrete mixed in the lab or field to verify the admixture dosage is correct. An admixture dosage or combination of admixture dosages shall not delay the initial set of concrete by more than one hour. When a retarding admixture is required or appropriate for a bridge deck or bridge deck overlay pour, the initial set time shall be delayed until the deflections due to the concrete dead load are no longer a concern for inducing cracks in the completed work. However, a retarding admixture shall not be used to further extend the pour time and justify the alteration of a bridge deck pour sequence.

When determining water in admixtures for water/cement ratio, the Contractor shall calculate 70 percent of the admixture dosage as water, except a value of 50 percent shall be used for a latex admixture used in bridge deck latex concrete overlays.”

Revise Section 1021 of the Standard Specifications to read:

#### **“SECTION 1021. CONCRETE ADMIXTURES**

**1021.01 General.** Admixtures shall be furnished in liquid form ready for use. The admixtures shall be delivered in the manufacturer's original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer and trade name of the material. Containers shall be readily identifiable as to manufacturer and trade name of the material they contain.

Corrosion inhibitors will be maintained on the Department's Approved List of Corrosion Inhibitors. All other concrete admixture products will be maintained on the Department's Approved List of Concrete Admixtures. For the admixture submittal, a report prepared by an independent laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) for Portland Cement Concrete shall be provided. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications. However, for corrosion inhibitors the ASTM G 109 test information specified in ASTM C 1582 is not required to be from an independent lab. All other information in ASTM C 1582 shall be from an independent lab.

Tests shall be conducted using materials and methods specified on a "test" concrete and a "reference" concrete, together with a certification that no changes have been made in the formulation of the material since the performance of the tests. Per the manufacturer's option, the cement content for all required tests shall either be according to applicable specifications or 5.65 cwt/cu yd (335 kg/cu m). Compressive strength test results for six months and one year will not be required.

Prior to the approval of an admixture, the Engineer reserves the right to request a sample for testing.

The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to AASHTO T 161, Procedure B. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The test and reference concrete mixture shall contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

The manufacturer shall include in the submittal the following admixture information: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and the manufacturing range for pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM C 494. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to ASTM C 260.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, and 1021.07, the pH allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to ASTM C 494.

When test results are more than seven years old, the manufacturer shall re-submit the infrared spectrophotometer trace and the report prepared by an independent laboratory accredited by AASHTO.

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass).

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material.

**1021.02 Air-Entraining Admixtures.** Air-entraining admixtures shall be according to AASHTO M 154.

**1021.03 Retarding and Water-Reducing Admixtures.** The admixture shall be according to the following.

- (a) The retarding admixture shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) The water-reducing admixture shall be according to AASHTO M 194, Type A.

- (c) The high range water-reducing admixture shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

**1021.04 Accelerating Admixtures.** The admixture shall be according to AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating).

**1021.05 Self-Consolidating Admixtures.** The self-consolidating admixture system shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete mixture that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

The high range water-reducing admixture shall be according to AASHTO M 194, Type F.

The viscosity modifying admixture shall be according to ASTM C 494, Type S (specific performance).

**1021.06 Rheology-Controlling Admixture.** The rheology-controlling admixture shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. The rheology-controlling admixture shall be according to ASTM C 494, Type S (specific performance).

**1021.07 Corrosion Inhibitor.** The corrosion inhibitor shall be according to one of the following.

- (a) Calcium Nitrite. The corrosion inhibitor shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution, and shall comply with the requirements of AASHTO M 194, Type C (accelerating).
- (b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582.”

## **CONCRETE MIX DESIGNS (BDE)**

Effective: April 1, 2009

Add the following to Article 1020.05(c) of the Standard Specifications:

“(5) Performance Based Finely Divided Mineral Combination. For Class PV and SI concrete a performance based finely divided mineral combination may be used. The minimum cement factor, maximum cement factor, and water cement ratio of Article 1020.04 shall be replaced with the values below, and the performance based finely divided mineral combination herein is an alternative to Articles 1020.05(c)(1), (c)(2), (c)(3), and (c)(4). The mix design shall meet the following requirements and the Engineer may request a trial batch.

- a. The mixture shall contain a minimum of 375 lbs/cu yd (222 kg/cu m) of portland cement. For a blended cement, a sufficient amount shall be used to obtain the required 375 lbs/cu yd (222 kg/cu m) of portland cement in the mixture.

For example, a blended cement stated to have 20 percent finely divided mineral, ignoring any ASTM C 595 tolerance on the 20 percent, would require a minimum of 469 lbs/cu yd (278 kg/cu m) of material in the mixture. When the mixture is designed for cement content from 375 lbs/cu yd (222 kg/cu m) to 400 lbs/cu yd (237 kg/cu m), the total of organic processing additions, inorganic processing additions, and limestone addition in the cement shall not exceed 5.0 percent.

- b. The mixture shall contain a maximum of two finely divided minerals. The finely divided mineral in a blended cement shall count toward the total number of finely divided minerals allowed. The finely divided mineral(s) shall constitute a maximum of 35.0 percent of the total cement plus finely divided mineral(s). 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 5.0 percent. The finely divided mineral in the blended cement shall apply to the maximum 35.0 percent, and shall be determined as discussed in a. above for determining portland cement in blended cement.
- c. For central mixed Class PV and SI concrete, the mixture shall contain a minimum of 535 lbs/cu yd (320 kg/cu m) of cement and finely divided mineral(s) summed together, and a water-reducing admixture shall be used. The value shall be 565 lbs/cu yd (335 kg/cu m) without a water-reducing admixture.

For truck mixed or shrink mixed Class PV and SI concrete, the mixture shall contain a minimum of 575 lbs/cu yd (345 kg/cu m) of cement and finely divided mineral(s) summed together, and a water-reducing admixture shall be used. The value shall be 605 lbs/cu yd (360 kg/cu m) without a water-reducing admixture.

- d. The mixture shall contain a maximum of 705 lbs/cu yd (418 kg/cu m) of cement and finely divided mineral(s) summed together.
- e. The mixture shall have a water/cement ratio of 0.32 – 0.44.
- f. The mixture shall not be used for placement underwater.
- g. The combination of cement and finely divided mineral(s) shall have an ASTM C 1567 expansion value  $\leq 0.16$  percent, and shall be performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly.

If during the two year time period the Contractor needs to replace the portland cement, and the replacement portland cement has an equal or lower total equivalent alkali content ( $\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$ ), a new ASTM C 1567 test will not be required.

However, replacement of a blended cement with another cement will require a new ASTM C 1567 test.”

**CONSTRUCTION AIR QUALITY - DIESEL VEHICLE EMISSIONS CONTROL (BDE)**

Effective: April 1, 2009

Revised: July 1, 2009

Diesel Vehicle Emissions Control. The reduction of construction air emissions shall be accomplished by using cleaner burning diesel fuel. The term “equipment” refers to any and all diesel fuel powered devices rated at 50 hp and above, to be used on the project site in excess of seven calendar days over the course of the construction period on the project site (including any “rental” equipment).

All equipment on the jobsite, with engine ratings of 50 hp and above, shall be required to: use Ultra Low Sulfur Diesel fuel (ULSD) exclusively (15 ppm sulfur content or less).

Diesel powered equipment in non-compliance will not be allowed to be used on the project site, and is also subject to a notice of non-compliance as outlined below.

The Contractor shall submit copies of monthly summary reports and include certified copies of the ULSD diesel fuel delivery slips for diesel fuel delivered to the jobsite for the reporting time period, noting the quantity of diesel fuel used.

If any diesel powered equipment is found to be in non-compliance with any portion of this specification, the Engineer will issue the Contractor a notice of non-compliance and identify an appropriate period of time, as outlined below under environmental deficiency deduction, in which to bring the equipment into compliance or remove it from the project site.

Any costs associated with bringing any diesel powered equipment into compliance with these diesel vehicle emissions controls 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 also not be grounds for a claim.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists, he/she will notify the Contractor in writing, and direct the Contractor to correct the deficiency within a specified time period. The specified time-period, which begins upon Contractor notification, will be from 1/2 hour to 24 hours long, based on the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge regarding the time period.

The deficiency will be based on lack of repair, maintenance and diesel vehicle emissions control.

If the Contractor fails to correct the deficiency within the specified time frame, 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.

If a Contractor or subcontractor accumulates three environmental deficiency deductions 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 contract time, waiver of penalties, or be grounds for any claim.

### **CONSTRUCTION AIR QUALITY - IDLING RESTRICTIONS (BDE)**

Effective: April 1, 2009

Idling Restrictions. The Contractor shall establish truck-staging areas for all diesel powered vehicles that are waiting to load or unload material at the jobsite. Staging areas shall be located where the diesel emissions from the equipment will have a minimum impact on adjacent sensitive receptors. The Department will review the selection of staging areas, whether within or outside the existing highway right-of-way, to avoid locations near sensitive areas or populations to the extent possible. Sensitive receptors include, but are not limited to, hospitals, schools, residences, motels, hotels, daycare facilities, elderly housing and convalescent facilities. Diesel powered engines shall also be located as far away as possible from fresh air intakes, air conditioners, and windows. The Engineer will approve staging areas before implementation.

Diesel powered vehicle operators may not cause or allow the motor vehicle, when it is not in motion, to idle for more than a total of 10 minutes within any 60 minute period, except under any of the following circumstances:

- 1) The motor vehicle has a gross vehicle weight rating of less than 8000 lb (3630 kg).
- 2) The motor vehicle idles while forced to remain motionless because of on-highway traffic, an official traffic control device or signal, or at the direction of a law enforcement official.
- 3) The motor vehicle idles when operating defrosters, heaters, air conditioners, or other equipment solely to prevent a safety or health emergency.
- 4) A police, fire, ambulance, public safety, other emergency or law enforcement motor vehicle, or any motor vehicle used in an emergency capacity, idles while in an emergency or training mode and not for the convenience of the vehicle operator.
- 5) The primary propulsion engine idles for maintenance, servicing, repairing, or diagnostic purposes if idling is necessary for such activity.
- 6) A motor vehicle idles as part of a government inspection to verify that all equipment is in good working order, provided idling is required as part of the inspection.
- 7) When idling of the motor vehicle is required to operate auxiliary equipment to accomplish the intended use of the vehicle (such as loading, unloading, mixing, or processing cargo; controlling cargo temperature; construction operations, lumbering operations; oil or gas well servicing; or farming operations), provided that this exemption does not apply when the vehicle is idling solely for cabin comfort or to operate non-essential equipment such as air conditioning, heating, microwave ovens, or televisions.
- 8) When the motor vehicle idles due to mechanical difficulties over which the operator has no control.
- 9) The outdoor temperature is less than 32 °F (0 °C) or greater than 80 °F (26 °C).

When the outdoor temperature is greater than or equal to 32 °F (0 °C) or less than or equal to 80 °F (26 °C), a person who operates a motor vehicle operating on diesel fuel shall not cause or allow the motor vehicle to idle for a period greater than 30 minutes in any 60 minute period while waiting to weigh, load, or unload cargo or freight, unless the vehicle is in a line of vehicles that regularly and periodically moves forward.

The above requirements do not prohibit the operation of an auxiliary power unit or generator set as an alternative to idling the main engine of a motor vehicle operating on diesel fuel.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists based on non-compliance with the idling restrictions, he/she will notify the Contractor, and direct the Contractor to correct the deficiency.

If the Contractor fails to correct the deficiency a monetary deduction will be imposed. The monetary deduction will be \$1,000.00 for each deficiency identified.

### **DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)**

Effective: September 1, 2000

Revised: January 1, 2010

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. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 0.0% 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 forth 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 may consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at [www.dot.il.gov](http://www.dot.il.gov).

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement. The failure of the bidder to comply will render the bid not responsive.

- (a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.
- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:
  - (1) The names and addresses of DBE firms that will participate in the contract;

- (2) A description, including pay item numbers, of the work each DBE will perform;
- (3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
- (4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;
- (5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,
- (6) If the contract goal is not met, evidence of good faith efforts.

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 the good faith efforts of the bidder 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 commits 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 commit 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 and 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 why good faith efforts have not been found.
- (c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after 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 issue of whether an adequate good faith effort was made to meet the contract goal. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

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 it 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 or supplies obtained from a DBE manufacturer.
  - (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

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.

- (a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.

- (b) The Contractor must notify and obtain written approval from the Department's Bureau of Small Business Enterprises prior to replacing a DBE or making any change in the participation of a DBE. Approval for replacement will be granted only if it is demonstrated that the DBE is unable or unwilling to perform. The Contractor must make every good faith effort to find another certified DBE subcontractor to substitute for the original DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the original DBE, to the extent needed to meet the contract goal.
- (c) Any deviation from the DBE condition-of-award or contract specifications must be approved, in writing, by the Department. 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.
- (d) 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 reasonably 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) 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.
- (f) If the commitment of work is in the form of additional tasks assigned to an existing subcontract, then a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.
- (g) All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan.

The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau of Small Business Enterprises and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau of Small Business Enterprises will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

- (h) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (j) of this part.
- (i) 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.
- (j) Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department.

**ENGINEER'S FIELD OFFICE TYPE A (BDE)**

Effective: April 1, 2007

Revised: August 1, 2008

Revise Article 670.02 of the Standard Specifications to read:

**"670.02 Engineer's Field Office Type A.** Type A field offices shall have a minimum ceiling height of 7 ft (2 m) and a minimum floor space 450 sq ft (42 sq m).

The office shall be provided with sufficient heat, natural and artificial light, and air conditioning.

The office shall have an electronic security system that will respond to any breach of exterior doors and windows. Doors and windows shall be equipped with locks. Doors shall also be equipped with dead bolt locks or other secondary locking device.

Windows shall be equipped with exterior screens to allow adequate ventilation. All windows shall be equipped with interior shades, curtains, or blinds. Adequate all-weather parking space shall be available to accommodate a minimum of ten vehicles.

Suitable on-site sanitary facilities meeting Federal, State, and local health department requirements shall be provided, maintained clean and in good working condition, and shall be stocked with lavatory and sanitary supplies at all times.

Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office where available. Solid waste disposal consisting of two waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

In addition, the following furniture and equipment shall be furnished.

- (a) Four desks with minimum working surface 42 x 30 in. (1.1 m x 750 mm) each and five non-folding chairs with upholstered seats and backs.
- (b) One desk with minimum working surface 48 x 72 in. (1.2 x 1.8 m) with height adjustment of 23 to 30 in. (585 to 750 mm).
- (c) One four-post drafting table with minimum top size of 37 1/2 x 48 in. (950 mm x 1.2 m). The top shall be basswood or equivalent and capable of being tilted through an angle of 50 degrees. An adjustable height drafting stool with upholstered seat and back shall also be provided.
- (d) Two free standing four drawer legal size file cabinet with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating.
- (e) One 6 ft (1.8 m) folding table with six folding chairs.
- (f) One equipment cabinet of minimum inside dimension of 44 in. (1100 mm) high x 24 in. (600 mm) wide x 30 in. (750 mm) deep with lock. The walls shall be of steel with a 3/32 in. (2 mm) minimum thickness with concealed hinges and enclosed lock constructed in such a manner as to prevent entry by force. The cabinet assembly shall be permanently attached to a structural element of the field office in a manner to prevent theft of the entire cabinet.
- (g) One refrigerator with a minimum size of 16 cu ft (0.45 cu m) with a freezer unit.
- (h) One electric desk type tape printing calculator.

- (i) A minimum of two communication paths. The configuration shall include:
  - (1) Internet Connection. An internet service connection using telephone DSL, cable broadband, or CDMA wireless technology. Additionally, an 802.11g/N wireless router shall be provided, which will allow connection by the Engineer and up to four Department staff.
  - (2) Telephone Lines. Three separate telephone lines.
- (j) One plain paper copy machine capable of reproducing prints up to 11 x 17 in. (280 x 432 mm) with an automatic feed tray capable of storing 30 sheets of paper. Letter size and 11 x 17 in. (280 x 432 mm) paper shall be provided.
- (k) One plain paper fax machine with paper.
- (l) Two telephones, with touch tone, where available, and a digital telephone answering machine, for exclusive use by the Engineer.
- (m) One electric water cooler dispenser.
- (n) One first-aid cabinet fully equipped.
- (o) One microwave oven, 1 cu ft (0.03 cu m) minimum capacity.
- (p) One fire-proof safe, 0.5 cu ft (0.01 cu m) minimum capacity.
- (q) One electric paper shredder.
- (r) One post mounted rain gauge, located on the project site for each 5 miles (8 km) of project length.”

Revise the first sentence of the first paragraph of Article 670.07 of the Standard Specifications to read:

“The building or buildings fully equipped as specified will be paid for on a monthly basis until the building or buildings are released by the Engineer.”

Revise the last sentence of the first paragraph of Article 670.07 of the Standard Specifications to read:

“This price shall include all utility costs and shall reflect the salvage value of the building or buildings, equipment, and furniture which become the property of the Contractor after release by the Engineer, except that the Department will pay that portion of the monthly long distance telephone bills that, when combined, exceed \$150.”

#### **EQUIPMENT RENTAL RATES (BDE)**

Effective: August 2, 2007

Revised: January 2, 2008

Replace the second and third paragraphs of Article 105.07(b)(4)a. of the Standard Specifications with the following:

“Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).”

Replace Article 109.04(b)(4) of the Standard Specifications with the following:

“(4) Equipment. Equipment used for extra work shall be authorized by the Engineer. The equipment shall be specifically described, be of suitable size and capacity for the work to be performed, and be in good operating condition. For such equipment, the Contractor will be paid as follows.

- a. Contractor Owned Equipment. Contractor owned equipment will be paid for by the hour using the applicable FHWA hourly rate from the “Equipment Watch Rental Rate Blue Book” (Blue Book) in effect when the force account work begins. The FHWA hourly rate is calculated as follows.

FHWA hourly rate = (monthly rate/176) x (model year adj.) x (Illinois adj.) + EOC  
Where: EOC = Estimated Operating Costs per hour (from the Blue Book)

The time allowed will be the actual time the equipment is operating on the extra work. For the time required to move the equipment to and from the site of the extra work and any authorized idle (standby) time, payment will be made at the following hourly rate: 0.5 x (FHWA hourly rate - EOC).

All time allowed shall fall within the working hours authorized for the extra work.

The rates above include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profits, insurance, and all incidentals. The rates do not include labor.

The Contractor shall submit to the Engineer sufficient information for each piece of equipment and its attachments to enable the Engineer to determine the proper equipment category. If a rate is not established in the Blue Book for a particular piece of equipment, the Engineer will establish a rate for that piece of equipment that is consistent with its cost and use in the industry.

- b. Rented Equipment. Whenever it is necessary for the Contractor to rent equipment to perform extra work, the rental and transportation costs of the equipment plus five percent for overhead will be paid. In no case shall the rental rates exceed those of established distributors or equipment rental agencies.

All prices shall be agreed to in writing before the equipment is used.”

#### **HOT-MIX ASPHALT – ANTI-STRIPPING ADDITIVE (BDE)**

Effective: November 1, 2009

Revise the first and second paragraphs of Article 1030.04(c) of the Standard Specifications to read:

“(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283. To be considered acceptable by the Department as a mixture not susceptible to stripping, the conditioned to unconditioned split tensile strength ratio (TSR) shall be equal to or greater than 0.85 for 6 in. (150 mm) specimens. Mixtures, either with or without an additive, with TSRs less than 0.85 for 6 in. (150 mm) specimens will be considered unacceptable. Also, the conditioned tensile strength for mixtures containing an anti-strip additive shall not be lower than the original conditioned tensile strength determined for the same mixture without the anti-strip additive.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option.”

### **HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)**

Effective: January 1, 2010

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 2 in. (50 mm), from each pavement edge. (i.e. for a 4 in. (100 mm) lift the near edge of the density gauge or core barrel shall be within 4 in. (100 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-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%”

**HOT-MIX ASPHALT – DROP-OFFS (BDE)**

Effective: January 1, 2010

Revise the third paragraph of Article 701.07 of the Standard Specifications to read:

“At locations where construction operations result in a differential in elevation exceeding 3 in. (75 mm) between the edge of pavement or edge of shoulder within 3 ft (900 mm) of the edge of the pavement and the earth or aggregate shoulders, Type I or II barricades or vertical panels shall be placed at 100 ft (30 m) centers on roadways where the posted speed limit is 45 mph or greater and at 50 ft (15 m) centers on roadways where the posted speed limit is less than 45 mph.”

**HOT-MIX ASPHALT – PLANT TEST FREQUENCY (BDE)**

Effective: April 1, 2008

Revised: January 1, 2010

Revise the table in Article 1030.05(d)(2)a. of the Standard Specifications to read:

"Parameter	Frequency of Tests		Test Method See Manual of Test Procedures for Materials
	High ESAL Mixture Low ESAL Mixture	Frequency of Tests All Other Mixtures	
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 $\geq$ 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	Day's production $\geq$ 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)		
Maximum Specific Gravity of Mixture	Day's production $\geq$ 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  $\mu$ m) 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 plants if control problems are evident.”

**HOT-MIX ASPHALT – QC/QA ACCEPTANCE CRITERIA (BDE)**

Effective: January 1, 2010

Revise Article 1030.05(f)(3) of the Standard Specifications to read:

“(3) Department assurance tests for voids, field VMA, and density.”

**HOT-MIX ASPHALT – TRANSPORTATION (BDE)**

Effective: April 1, 2008

Revise Article 1030.08 of the Standard Specifications to read:

**“1030.08 Transportation.** Vehicles used in transporting HMA shall have clean and tight beds. The beds shall be sprayed with asphalt release agents from the Department’s approved list. In lieu of a release agent, the Contractor may use a light spray of water with a light scatter of manufactured sand (FA 20 or FA 21) evenly distributed over the bed of the vehicle. After spraying, the bed of the vehicle shall be in a completely raised position and it shall remain in this position until all excess asphalt release agent or water has been drained.

When the air temperature is below 60 °F (15 °C), the bed, including the end, endgate, sides and bottom shall be insulated with fiberboard, plywood or other approved insulating material and shall have a thickness of not less than 3/4 in (20 mm). When the insulation is placed inside the bed, the insulation shall be covered with sheet steel approved by the Engineer. Each vehicle shall be equipped with a cover of canvas or other suitable material meeting the approval of the Engineer which shall be used if any one of the following conditions is present.

- (a) Ambient air temperature is below 60 °F (15 °C).
- (b) The weather is inclement.
- (c) The temperature of the HMA immediately behind the paver screed is below 250 °F (120 °C).

The cover shall extend down over the sides and ends of the bed for a distance of approximately 12 in. (300 mm) and shall be fastened securely. The covering shall be rolled back before the load is dumped into the finishing machine.”

**LIQUIDATED DAMAGES (BDE)**

Effective: April 1, 2009

Revise the table in Article 108.09 of the Standard Specifications to read:

“Schedule of Deductions for Each Day of Overrun in Contract Time			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
\$ 0	\$ 100,000	\$ 375	\$ 500
100,000	500,000	625	875
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,125	1,550
3,000,000	5,000,000	1,425	1,950
5,000,000	10,000,000	1,700	2,350
10,000,000	And over	3,325	4,650”

### **MULTILANE PAVEMENT PATCHING (BDE)**

Effective: November 1, 2002

Pavement broken and holes opened for patching shall be completed prior to weekend or holiday periods. Should delays of any type or for any reason prevent the completion of the work, temporary patches shall be constructed. Material able to support the average daily traffic and meeting the approval of the Engineer shall be used for the temporary patches. The cost of furnishing, placing, maintaining, removing and disposing of the temporary work, including traffic control, shall be the responsibility of the Contractor.

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

Effective: April 1, 2007

Revised: November 1, 2009

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

“(a) National Pollutant Discharge Elimination System (NPDES) / Erosion and Sediment Control Deficiency Deduction When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, or the Contractor’s activities represents a violation of the Department’s NPDES permits, the Engineer will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 1 week based on the urgency of the situation and the nature of the work effort required. The Engineer will be the sole judge.

A deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the Department’s NPDES permits. A deficiency may also be applied to situations where corrective action is not an option such as the failure to participate in a jobsite inspection of the project, failure to install required measures prior to initiating earth moving operations, disregard of concrete washout requirements, or other disregard of the NPDES permit.

If the Contractor fails to correct a deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or portion of a calendar day until the deficiency is corrected to the satisfaction of the Engineer. The calendar day(s) will begin with notification to the Contractor and end with the Engineer’s acceptance of the correction. The base value of the daily monetary deduction is \$1000.00 and will be applied to each location for which a deficiency exists. The value of the deficiency deduction assessed for each infraction will be determined by multiplying the base value by a Gravity Adjustment Factor provided in Table A. Except for failure to participate in a required jobsite inspection of the project prior to initiating earthmoving operations which will be based on the total acreage of planned disturbance at the following multipliers: <5 Acres: 1; 5-10 Acres: 2; >10-25 Acres: 3; >25 Acres: 5. For those deficiencies where corrective action was not an option, the monetary deduction will be immediate and will be valued at one calendar day multiplied by a Gravity Adjustment Factor.

Table A Deficiency Deduction Gravity Adjustment Factors				
Types of Violations	Soil Disturbed and Not Permanently Stabilized At Time of Violation			
	< 5 Acres	5 - 10 Acres	>10 - 25 Acres	> 25 Acres
Failure to Install or Properly Maintain BMP	0.1 - 0.5	0.2 - 1.0	0.5 - 2.5	1.0 - 5
Careless Destruction of BMP	0.2 - 1	0.5 - 2.5	1.0 - 5.	1.0 - 5
Intrusion into Protected Resource	1.0 - 5	1.0 - 5	2.0 - 10	2.0 - 10
Failure to properly manage Chemicals, Concrete Washouts or Residuals, Litter or other Wastes	0.2 - 1	0.2 - 1	0.5 - 2.5	1.0 - 5
Improper Vehicle and Equipment Maintenance, Fueling or Cleaning	0.1 - 0.5	0.2 - 1	0.2 - 1	0.5 - 2.5
Failure to Provide or Update Written or Graphic Plans Required by SWPPP	0.2 - 1	0.5 - 2.5	1.0 - 5	1.0 - 5
Failure to comply with Other Provisions of the NPDES Permit	0.1 - 0.5	0.2 - 1	0.2 - 1	0.5 - 2.5"

**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.”

**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.

#### **PERSONAL PROTECTIVE EQUIPMENT (BDE)**

Effective: November 1, 2008

Revise the first sentence of Article 701.12 of the Standard Specifications to read:

“All personnel on foot, excluding flaggers, within the highway right-of-way shall wear a fluorescent orange, fluorescent yellow/green, or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of ANSI/ISEA 107-2004 for Conspicuity Class 2 garments.”

#### **POLYUREA PAVEMENT MARKING (BDE)**

Effective: April 1, 2004

Revised: January 1, 2009

Description. This work shall consist of furnishing and applying pavement marking lines.

The type of polyurea pavement marking applied will be determined by the type of reflective media used.

Polyurea Pavement Marking Type I shall use glass beads as a reflective media. Polyurea Pavement Marking Type II shall use a combination of composite reflective elements and glass beads as a reflective media.

Polyurea-based liquid pavement markings shall only be applied by Contractors on the list of Approved Polyurea Contractors maintained by the Engineer of Operations and in effect on the date of advertisement for bids.

Materials. Materials shall meet the following requirements:

- (a) Polyurea Pavement Marking. The polyurea pavement marking material shall consist of 100 percent solid two part system formulated and designed to provide a simple volumetric mixing ratio of two components (must be two or three volumes of Part A to one volume of Part B). No volatile or polluting solvents or fillers will be allowed.
- (b) Pigmentation. The pigment content by weight (mass) of component A shall be determined by low temperature ashing according to ASTM D 3723. The pigment content shall not vary more than  $\pm$  two percent from the pigment content of the original qualified paint.

White Pigment shall be Titanium Dioxide meeting ASTM D 476 Type II, Rutile.

Yellow Pigment shall be an Organic Yellow and contain no heavy metals.

- (c) Environmental. Upon heating to application temperature, the material shall not exude fumes which are toxic or injurious to persons or property.
- (d) Daylight Reflectance. The daylight directional reflectance of the cured polyurea material (without reflective media) shall be a minimum of 80 percent (white) and 50 percent (yellow) relative to magnesium oxide when tested using a color spectrophotometer with a 45 degrees circumferential /zero degrees geometry, illuminant C, and two degrees observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm. In addition, the color of the yellow polyurea shall visually match Color Number 33538 of Federal Standard 595a with chromaticity limits as follows:

X	0.490	0.475	0.485	0.539
Y	0.470	0.438	0.425	0.456

- (e) Weathering Resistance. The polyurea marking material, when mixed in the proper ratio and applied at 14 to 16 mils (0.35 to 0.41 mm) wet film thickness to an aluminum alloy panel (Federal Test Std. No. 141, Method 2013) and allowed to cure for 72 hours at room temperature, shall be subjected to accelerated weathering for 75 hours. The accelerated weathering shall be completed by using the light and water exposure apparatus (fluorescent UV - condensation type) and tested according to ASTM G 53.

The cycle shall consist of four hours UV exposure at 122 °F (50 °C) and four hours of condensation at 104 °F (40 °C). UVB 313 bulbs shall be used. At the end of the exposure period, the material shall show no substantial change in color or gloss.

- (f) Dry Time. The polyurea pavement marking material, when mixed in the proper ratio and applied at 14 to 16 mils (0.35 to 0.41 mm) wet film thickness and with the proper saturation of reflective media, shall exhibit a no-tracking time of ten minutes or less when tested according to ASTM D 711.
- (g) Adhesion. The catalyzed polyurea pavement marking materials when applied to a 4 x 4 x 2 in. (100 x 100 x 50 mm) concrete block, shall have a degree of adhesion which results in a 100 percent concrete failure in the performance of this test.

The concrete block shall be brushed on one side and have a minimum strength of 3500 psi (24,100 kPa). A 2 in. (50 mm) square film of the mixed polyurea shall be applied to the brushed surface and allowed to cure for 72 hours at room temperature. A 2 in. (50 mm) square cube shall be affixed to the surface of the polyurea by means of an epoxy glue. After the glue has cured for 24 hours, the polyurea specimen shall be placed on a dynamic testing machine in such a fashion so that the specimen block is in a fixed position and the 2 in. (50 mm) cube (glued to the polyurea surface) is attached to the dynamometer head. Direct upward pressure shall be slowly applied until the polyurea system fails. The location of the break and the amount of concrete failure shall be recorded.

- (h) Hardness. The polyurea pavement marking materials when tested according to ASTM D 2240, shall have a shore D hardness of between 70 and 100. Films shall be cast on a rigid substrate at 14 to 16 mils (0.35 to 0.41 mm) in thickness and allowed to cure at room temperature for 72 hours before testing.
- (i) Abrasion. The abrasion resistance shall be evaluated according to ASTM D 4060 using a Taber Abrader with a 1,000 gram load and CS 17 wheels. The duration of the test shall be 1,000 cycles. The loss shall be calculated by difference and be less than 120 mgs. The tests shall be run on cured samples of polyurea material which have been applied at a film thickness of 14 to 16 mils (0.35 to 0.41 mm) to code S-16 stainless steel plates. The films shall be allowed to cure at room temperature for at least 72 hours and not more than 96 hours before testing.
- (j) Reflective Media. The reflective media shall meet the following requirements:

- (1) Type I - The glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications and the following requirements:
  - a. First Drop Glass Beads. The first drop glass beads shall be tested by the standard visual method of large glass spheres adopted by the Department. The beads shall have a silane coating and meet the following sieve requirements:

U.S. Standard Sieve Number	Sieve Size	% Passing By Weight (mass)
12	1.70 mm	95-100
14	1.40 mm	75-95
16	1.18 mm	10-47
18	1.00 mm	0-7
20	850 µm	0-5

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B.

(2) Type II - The combination of microcrystalline ceramic elements and glass beads shall meet the following requirements:

a. First Drop Glass Beads. The first drop glass beads shall meet the following requirements:

1. Composition. The elements shall be composed of a titania opacified ceramic core having clear and or yellow tinted microcrystalline ceramic beads embedded to the outer surface.
2. Index of Refraction. All microcrystalline reflective elements embedded to the outer surface shall have an index of refraction of 1.8 when tested by the immersion method.
3. Acid Resistance. A sample of microcrystalline ceramic beads supplied by the manufacturer, shall show resistance to corrosion of their surface after exposure to a one percent solution (by weight (mass)) of sulfuric acid. Adding 0.2 oz (5.7 ml) of concentrated acid into the water shall make the one percent acid solution. This test shall be performed by taking a 1 x 2 in. (25 x 50 mm) sample and adhering it to the bottom of a glass tray and placing just enough acid solution to completely immerse the sample. The tray shall be covered with a piece of glass to prevent evaporation and allow the sample to be exposed for 24 hours under these conditions. The acid solution shall be decanted (do not rinse, touch, or otherwise disturb the bead surfaces) and the sample dried while adhered to the glass tray in a 150 °F (66 °C) oven for approximately 15 minutes. Microscope examination (20X) shall show no white (corroded) layer on the entire surface.

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B or the following manufacturer's specification:

1. Sieve Analysis. The glass beads shall meet the following sieve requirements:

U.S. Standard Sieve Number	Sieve Size	% Passing By Weight (mass)
20	850 μm	100
30	600 μm	75-95
50	300 μm	15-35
100	150 μm	0-5

The manufacturer of the glass beads shall certify that the treatment of the glass beads meets the requirements of the polyurea manufacturer.

2. Imperfections. The surface of the glass beads shall be free of pits and scratches.

The glass beads shall be spherical in shape and shall contain a maximum of 20 percent by weight (mass) of irregular shapes when tested by the standard method using a vibratile inclined glass plate as adopted by the Department.

3. Index of Refraction. The index of refraction of the glass beads shall be a minimum of 1.50 when tested by the immersion method at 77 °F (25 °C).
- (k) Packaging. Microcrystalline ceramic reflective elements and glass beads shall be delivered in approved moisture proof bags or weather resistant bulk boxes. Each carton shall be legibly marked with the manufacturer, specifications and type, lot number, and the month and year the microcrystalline ceramic reflective elements and/or glass beads were packaged. The letters and numbers used in the stencils shall be a minimum of 1/2 in. (12.7 mm) in height.
- (1) Moisture Proof Bags. Moisture proof bags shall consist of at least five ply paper construction unless otherwise specified. Each bag shall contain 50 lb (22.7 kg) net.
  - (2) Bulk Weather Resistance Boxes. Bulk weather resistance boxes shall conform to Federal Specification PPP-8-640D Class II or latest revision. Boxes are to be weather resistant, triple wall, fluted, corrugated-fiber board. Cartons shall be strapped with two metal straps. Straps shall surround the outside perimeter of the carton. The first strap shall be located approximately 2 in. (50 mm) from the bottom of the carton and the second strap shall be placed approximately in the middle of the carton. All cartons shall be shrink wrapped for protection from moisture. Cartons shall be lined with a minimum 4 mil polyester bag and meet Interstate Commerce Commission requirements. Cartons shall be approximately 38 x 38 in. (1 x 1 m), contain 2000 lb (910 kg) of microcrystalline ceramic reflective elements and/or glass beads and be supported on a wooden pallet with fiber straps.
- (l) Packaging. The material shall be shipped to the job site in substantial containers and shall be plainly marked with the manufacturer's name and address, the name and color of the material, date of manufacture, and batch number.
- (m) Verification. Prior to approval and use of the polyurea pavement marking materials, the manufacturer shall submit a notarized certification of an independent laboratory, together with the results of all tests, stating these materials meet the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, brand name of polyurea and date of manufacture. The certification shall be accompanied by one 1 pt (1/2 L) samples each of Part A and Part B. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B.
- After approval by the Department, certification by the polyurea manufacturer shall be submitted for each batch used. New independent laboratory certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer.
- (n) Acceptance samples. Acceptance samples shall consist of one 1 pt (1/2 L) samples of Part A and Part B, of each lot of paint. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B.

The samples shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state the formulation for the lot represented is essentially identical to that used for qualification testing. All, acceptance samples will be taken by a representative of the Department. The polyurea pavement marking materials shall not be used until tests are completed and they have met the requirements as set forth herein.

- (o) Material Retainage. The manufacturer shall retain the test sample for a minimum of 18 months.

Equipment. The polyurea pavement marking compounds shall be applied through equipment specifically designed to apply two component liquid materials, glass beads and/or reflective elements in a continuous and skip-line pattern. The two-component liquid materials shall be applied after being accurately metered and then mixed with a static mix tube or airless impingement mixing guns. The static mixing tube or impingement mixing guns shall accommodate plural component material systems that have a volumetric ratio of 2 to 1 or 3 to 1. This equipment shall produce the required amount of heat at the mixing head and gun tip and maintain those temperatures within the tolerances specified. The guns shall have the capacity to deliver materials from approximately 1.5 to 3 gal/min (5.7 to 11.4 L/min) to compensate for a typical range of application speeds of 6 to 8 mph (10 to 13 km/h). The accessories such as spray tip, mix chamber, and rod diameter shall be selected according to the manufacturer's specifications to achieve proper mixing and an acceptable spray pattern. The application equipment shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. This equipment shall also have as an integral part of the gun carriage, a high pressure air spray capable of cleaning the pavement immediately prior to making application.

The equipment shall be capable of spraying both yellow and white polyurea, according to the manufacturer's recommended proportions and be mounted on a truck of sufficient size and stability with an adequate power source to produce lines of uniform dimensions and prevent application failure. The truck shall have at least two polyurea tanks each of 110 gal (415 L) minimum capacity and be equipped with hydraulic systems and agitators. It shall be capable of placing stripes on the left and right sides and placing two lines on a three-line system simultaneously with either line in a solid or intermittent pattern, in yellow or white, and applying the appropriate reflective media according to manufacturer's recommendations. All guns shall be in full view of operations at all times. The equipment shall have a metering device to register the accumulated installed quantities for each gun, each day. Each vehicle shall include at least one operator who shall be a technical expert in equipment operations and polyurea application techniques. Certification of equipment shall be provided at the pre-construction conference.

The mobile applicator shall include the following features:

- (a) Material Reservoirs. The applicator shall provide individual material reservoirs, or space for the storage of Part A and Part B of the resin composition.
- (b) Heating Equipment. The applicator shall be equipped with heating equipment of sufficient capacity to maintain the individual resin components at the manufacturer's recommended temperature of  $\pm 5$  °F ( $\pm 2.8$  °C) for spray application.

- (c) Dispensing Equipment. The applicator shall be equipped with glass bead and/or reflective element dispensing equipment. The applicator shall be capable of applying the glass beads and/or reflective elements at a rate and combination indicated by the manufacturer.
- (d) Volumetric Usage. The applicator shall be equipped with metering devices or pressure gauges on the proportioning pumps as well as stroke counters to monitor volumetric usage. Metering devices or pressure gauges and stroke counters shall be visible to the Engineer.
- (e) Pavement Marking Placement. The applicator shall be equipped with all the necessary spray equipment, mixers, compressors and other appurtenances to allow for the placement of reflectorized pavement markings in a simultaneous sequence of operations.

The Contractor shall provide an accurate temperature-measuring device(s) that shall be capable of measuring the pavement temperature prior to application of the material, the material temperature at the gun tip and the material temperature prior to mixing.

#### CONSTRUCTION REQUIREMENTS

General. The pavement shall be cleaned by a method approved by the Engineer to remove all dirt, grease, glaze, or any other material that would reduce the adhesion of the markings with minimum or no damage to the pavement surface. New portland cement concrete pavements shall be air-blast-cleaned to remove all latents.

Widths, lengths, and shapes of the cleaned surface shall be of sufficient size to include the full area of the specified pavement marking to be placed.

The cleaning operation shall be a continuous moving operation process with minimum interruption to traffic.

Markings shall be applied to the cleaned surfaces on the same calendar day. If this cannot be accomplished, the surface shall be re-cleaned prior to applying the markings. No markings shall be applied until the Engineer approves the cleaning.

The pavement markings shall be applied to the cleaned road surface, during conditions of dry weather and subsequently dry pavement surfaces at a minimum uniform wet thickness of 15 mils (0.4 mm) according to the manufacturer's installation instructions. On new hot-mix asphalt (HMA) surfaces the pavement markings shall be applied at a minimum uniform wet thickness of 20 mils (0.5 mm). The application of and combination of reflective media (glass beads and/or reflective elements) shall be applied at a rate specified by the manufacturer. At the time of installation the pavement surface temperature and the ambient temperature shall be above 40 °F (4 °C) and rising. The pavement markings shall not be applied if the pavement shows any visible signs of moisture or it is anticipated that damage causing moisture, such as rain showers, may occur during the installation and set periods. The Engineer will determine the atmospheric conditions and pavement surface conditions that produce satisfactory results.

Using the application equipment, the pavement markings shall be applied in the following manner, as a simultaneous operation:

- (a) The surface shall be air-blasted to remove any dirt and residue.
- (b) The resin shall be mixed and heated according to manufacturer's recommendations and sprayed onto the pavement surface.

The edge of the center line or lane line shall be offset a minimum distance of 2 in. (50 mm) from a longitudinal crack or joint. Edge lines shall be approximately 2 in. (50 mm) from the edge of pavement. The finished center and lane lines shall be straight, with the lateral deviation of any 10 ft (3 m) line not to exceed 1 in. (25 mm).

Notification. The Contractor shall notify the Engineer 72 hours prior to the placement of the markings in order that he/she can be present during the operation. At the time of notification, the Contractor shall provide the Engineer the manufacturer and lot numbers of polyurea and reflective media that will be used.

Inspection. The polyurea pavement markings will be inspected following installation according to Article 780.10 of the Standard Specifications, except, no later than December 15, and inspected following a winter performance period that extends 180 days from December 15.

Method of Measurement. This work will be measured for payment as follows:

- (a) Contract Quantities. The requirements for the use of contract quantities shall be according to Article 202.07(a).
- (b) Measured Quantities. Lines will be measured for payment in place in feet (meters). Double yellow lines will be measured as two separate lines.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for POLYUREA PAVEMENT MARKING TYPE I – LINE of the line width specified or for POLYUREA PAVEMENT MARKING TYPE II – LINE of the line width specified.

## **PORTLAND CEMENT CONCRETE PLANTS (BDE)**

Effective: January 1, 2007

Add the following to Article 1020.11(a) of the Standard Specifications.

- “(9) Use of Multiple Plants in the Same Construction Item. The Contractor may simultaneously use central-mixed, truck-mixed, and shrink-mixed concrete from more than one plant, for the same construction item, on the same day, and in the same pour. However, the following criteria shall be met.
- a. Each plant shall use the same cement, finely divided minerals, aggregates, admixtures, and fibers.
  - b. Each plant shall use the same mix design. However, material proportions may be altered slightly in the field to meet slump and air content criteria.

Field water adjustments shall not result in a difference that exceeds 0.02 between plants for water/cement ratio. The required cement factor for central-mixed concrete shall be increased to match truck-mixed or shrink-mixed concrete, if the latter two types of mixed concrete are used in the same pour.

- c. The maximum slump difference between deliveries of concrete shall be 3/4 in. (19 mm) when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the slump difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for slump by the Contractor. Thereafter, when a specified test frequency for slump is to be performed, it shall be conducted for each plant at the same time.
- d. The maximum air content difference between deliveries of concrete shall be 1.5 percent when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the air content difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for air content by the Contractor. Thereafter, when a specified test frequency for air content is to be performed, it shall be conducted for each plant at the same time.
- e. Strength tests shall be performed and taken at the jobsite for each plant. When a specified strength test is to be performed, it shall be conducted for each plant at the same time. The difference between plants for their mean strength shall not exceed 450 psi (3100 kPa) compressive and 80 psi (550 kPa) flexural. The strength standard deviation for each plant shall not exceed 650 psi (4480 kPa) compressive and 110 psi (760 kPa) flexural. The mean and standard deviation requirements shall apply to the test of record. If the strength difference requirements are exceeded, the Contractor shall take corrective action.
- f. The maximum haul time difference between deliveries of concrete shall be 15 minutes. If the difference is exceeded, but haul time is within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and check subsequent deliveries of concrete until the haul time difference is corrected.”

#### **RAISED REFLECTIVE PAVEMENT MARKERS (BDE)**

Effective: November 1, 2009

Revise the first sentence of the second paragraph of Article 781.03 of the Standard Specifications to read:

“The pavement shall be cut to match the bottom contour of the marker using a concrete saw fitted with 18 and 20 in. (450 and 500 mm) diameter blades.”

**REFLECTIVE SHEETING ON CHANNELIZING DEVICES (BDE)**

Effective: April 1, 2007

Revised: November 1, 2008

Revise the seventh paragraph of Article 1106.02 of the Standard Specifications to read:

“At the time of manufacturing, the retroreflective prismatic sheeting used on channelizing devices shall meet or exceed the initial minimum coefficient of retroreflection as specified in the following table. Measurements shall be conducted according to ASTM E 810, without averaging. Sheeting used on cones, drums and flexible delineators shall be reboundable as tested according to ASTM D 4956. Prestriped sheeting for rigid substrates on barricades shall be white and orange. **The sheeting shall be uniform in color and devoid of streaks throughout the length of each roll. The color shall conform to the latest appropriate standard color tolerance chart issued by the U.S. Department of Transportation, Federal Highway Administration, and to the daytime and nighttime color requirements of ASTM D 4956.**

Initial Minimum Coefficient of Retroreflection candelas/foot candle/sq ft (candelas/lux/sq m) of material				
Observation Angle (deg.)	Entrance Angle (deg.)	White	Orange	Fluorescent Orange
0.2	-4	365	160	150
0.2	+30	175	80	70
0.5	-4	245	100	95
0.5	+30	100	50	40”

Revise the first sentence of the first paragraph of Article 1106.02(c) of the Standard Specifications to read:

“Barricades and vertical panels shall have alternating white and orange stripes sloping downward at 45 degrees toward the side on which traffic will pass.”

Revise the third sentence of the first paragraph of Article 1106.02(d) of the Standard Specifications to read:

“The bottom panels shall be 8 x 24 in. (200 x 600 mm) with alternating white and orange stripes sloping downward at 45 degrees toward the side on which traffic will pass.”

**REINFORCEMENT BARS - STORAGE AND PROTECTION (BDE)**

Effective: August 1, 2008

Revised: April 1, 2009

Revise Article 508.03 of the Standard Specifications to read:

**“508.03 Storage and Protection.** Reinforcement bars shall be stored off the ground using platforms, skids, or other supports; and shall be protected from mechanical injury and from deterioration by exposure. Epoxy coated bars shall be stored on wooden or padded steel cribbing and all systems for handling shall have padded contact areas. The bars or bundles shall not be dragged or dropped.

When epoxy coated bars are stored in a manner where they will be exposed to the weather more than 60 days prior to use, they shall be protected from deterioration such as that caused by sunlight, salt spray, and weather exposure. The protection shall consist of covering with opaque polyethylene sheeting or other suitable opaque material. The covering shall be secured and allow for air circulation around the bars to minimize condensation under the cover.

Covering of the epoxy coated bars will not be required when the bars are installed and tied, or when they are partially incorporated into the concrete.”

**SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)**

Effective: April 2, 2005

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting in accordance with Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor’s work.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

**TRUCK MOUNTED/TRAILER MOUNTED ATTENUATORS (BDE)**

Effective: January 1, 2010

Revise Article 701.03(k) of the Standard Specifications to read:

“(k) Truck Mounted/Trailer Mounted Attenuators ..... 1106.02”

Revise Article 701.15(h) of the Standard Specifications to read:

“(h) Truck Mounted/Trailer Mounted Attenuators (TMA). TMA units shall have a roll ahead distance in the event of an impact. The TMA shall be between 100 and 200 ft (30 and 60 m) behind the vehicle ahead or the workers. This distance may be extended by the Engineer.

TMA host vehicles shall have the parking brake engaged when stationary.

The driver and passengers of the TMA host vehicle should exit the vehicle if the TMA is to remain stationary for 15 minutes or more in duration.”

Revise Article 1106.02(g) of the Standard Specifications to read:

“(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be a NCHRP 350 approved unit for Test Level 3. Test Level 2 may be used as directed by the Engineer for normal posted speeds less than or equal to 45 mph.”

## **ILLINOIS DEPARTMENT OF LABOR**

### **PREVAILING WAGES FOR COOK COUNTY EFFECTIVE DECEMBER 2009**

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at <http://www.state.il.us/agency/idol/> or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.

# Cook County Prevailing Wage for December 2009

Trade Name	RG	TYP	C	Base	FRMAN	*M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
=====	==	===	=	=====	=====	=====	===	===	=====	=====	=====	=====
ASBESTOS ABT-GEN		ALL		35.200	35.700	1.5	1.5	2.0	9.130	8.370	0.000	0.400
ASBESTOS ABT-MEC		BLD		31.540	0.000	1.5	1.5	2.0	9.670	9.610	0.000	0.520
BOILERMAKER		BLD		43.020	46.890	2.0	2.0	2.0	6.720	9.890	0.000	0.350
BRICK MASON		BLD		39.030	42.930	1.5	1.5	2.0	8.800	10.67	0.000	0.740
CARPENTER		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
CEMENT MASON		ALL		41.850	43.850	1.5	1.5	2.0	8.600	9.810	0.000	0.220
CERAMIC TILE FNSHER		BLD		33.600	0.000	2.0	1.5	2.0	6.950	8.020	0.000	0.540
COMM. ELECT.		BLD		36.440	38.940	1.5	1.5	2.0	7.650	7.750	0.000	0.700
ELECTRIC PWR EQMT OP		ALL		39.850	46.430	1.5	1.5	2.0	9.870	12.40	0.000	0.300
ELECTRIC PWR GRNDMAN		ALL		31.080	46.430	1.5	1.5	2.0	7.700	9.680	0.000	0.240
ELECTRIC PWR LINEMAN		ALL		39.850	46.430	1.5	1.5	2.0	9.870	12.40	0.000	0.300
ELECTRICIAN		ALL		40.400	43.000	1.5	1.5	2.0	11.33	9.420	0.000	0.750
ELEVATOR CONSTRUCTOR		BLD		44.930	50.550	2.0	2.0	2.0	9.525	8.210	2.700	0.000
FENCE ERECTOR		ALL		30.700	32.200	1.5	1.5	2.0	7.950	8.430	0.000	0.500
GLAZIER		BLD		37.000	38.500	1.5	1.5	2.0	7.340	12.05	0.000	0.740
HT/FROST INSULATOR		BLD		42.050	44.550	1.5	1.5	2.0	9.670	10.81	0.000	0.520
IRON WORKER		ALL		40.750	42.750	2.0	2.0	2.0	10.95	15.99	0.000	0.300
LABORER		ALL		35.200	35.950	1.5	1.5	2.0	9.130	8.370	0.000	0.400
LATHER		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
MACHINIST		BLD		42.770	44.770	1.5	1.5	2.0	7.750	8.690	0.650	0.000
MARBLE FINISHERS		ALL		28.650	0.000	1.5	1.5	2.0	7.920	9.970	0.000	0.550
MARBLE MASON		BLD		38.030	41.830	1.5	1.5	2.0	8.000	9.970	0.000	0.550
MATERIAL TESTER I		ALL		25.200	0.000	1.5	1.5	2.0	9.130	8.370	0.000	0.400
MATERIALS TESTER II		ALL		30.200	0.000	1.5	1.5	2.0	9.130	8.370	0.000	0.400
MILLWRIGHT		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
OPERATING ENGINEER		BLD 1		45.100	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD 2		43.800	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD 3		41.250	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD 4		39.500	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD 5		48.850	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD 6		46.100	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD 7		48.100	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		FLT 1		49.800	49.800	1.5	1.5	2.0	10.35	7.050	1.900	1.000
OPERATING ENGINEER		FLT 2		48.300	49.800	1.5	1.5	2.0	10.35	7.050	1.900	1.000
OPERATING ENGINEER		FLT 3		43.000	49.800	1.5	1.5	2.0	10.35	7.050	1.900	1.000
OPERATING ENGINEER		FLT 4		35.750	49.800	1.5	1.5	2.0	10.35	7.050	1.900	1.000
OPERATING ENGINEER		HWY 1		43.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY 2		42.750	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY 3		40.700	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY 4		39.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY 5		38.100	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY 6		46.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY 7		44.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
ORNAMNTL IRON WORKER		ALL		39.200	41.450	2.0	2.0	2.0	8.700	13.79	0.000	0.500
PAINTER		ALL		38.000	42.750	1.5	1.5	1.5	8.350	9.400	0.000	0.670
PAINTER SIGNS		BLD		30.820	34.600	1.5	1.5	1.5	2.600	2.470	0.000	0.000
PILEDRIIVER		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
PIPEFITTER		BLD		43.150	46.150	1.5	1.5	2.0	7.660	9.550	0.000	1.570
PLASTERER		BLD		38.550	40.860	1.5	1.5	2.0	9.000	9.690	0.000	0.450
PLUMBER		BLD		44.000	46.000	1.5	1.5	2.0	9.860	7.090	0.000	1.030
ROOFER		BLD		37.000	40.000	1.5	1.5	2.0	7.250	5.270	0.000	0.330
SHEETMETAL WORKER		BLD		40.460	43.700	1.5	1.5	2.0	9.580	12.35	0.000	0.610
SIGN HANGER		BLD		28.210	29.060	1.5	1.5	2.0	4.450	2.880	0.000	0.000
SPRINKLER FITTER		BLD		40.500	42.500	1.5	1.5	2.0	8.500	6.850	0.000	0.500
STEEL ERECTOR		ALL		40.750	42.750	2.0	2.0	2.0	10.95	15.99	0.000	0.300
STONE MASON		BLD		39.030	42.930	1.5	1.5	2.0	8.800	10.67	0.000	0.740
TERRAZZO FINISHER		BLD		35.150	0.000	1.5	1.5	2.0	6.950	10.57	0.000	0.380
TERRAZZO MASON		BLD		39.010	42.010	1.5	1.5	2.0	6.950	11.91	0.000	0.510

TILE MASON		BLD		40.490	44.490	2.0	1.5	2.0	6.950	9.730	0.000	0.610
TRAFFIC SAFETY WRKR		HWY		24.300	25.900	1.5	1.5	2.0	3.780	1.875	0.000	0.000
TRUCK DRIVER	E	ALL	1	30.700	31.350	1.5	1.5	2.0	6.750	5.450	0.000	0.150
TRUCK DRIVER	E	ALL	2	30.950	31.350	1.5	1.5	2.0	6.750	5.450	0.000	0.150
TRUCK DRIVER	E	ALL	3	31.150	31.350	1.5	1.5	2.0	6.750	5.450	0.000	0.150
TRUCK DRIVER	E	ALL	4	31.350	31.350	1.5	1.5	2.0	6.750	5.450	0.000	0.150
TRUCK DRIVER	W	ALL	1	32.550	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W	ALL	2	32.700	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W	ALL	3	32.900	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W	ALL	4	33.100	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TUCKPOINTER		BLD		39.200	40.200	1.5	1.5	2.0	7.830	10.25	0.000	0.770

Legend:

M-F>8 (Overtime is required for any hour greater than 8 worked each day, Monday through Friday.)

OSA (Overtime is required for every hour worked on Saturday)

OSH (Overtime is required for every hour worked on Sunday and Holidays)

H/W (Health & Welfare Insurance)

Pensn (Pension)

Vac (Vacation)

Trng (Training)

## Explanations

### COOK COUNTY

TRUCK DRIVERS (WEST) - That part of the county West of Barrington Road.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial/Decoration Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration such as the day after Thanksgiving for Veterans Day. If in doubt, please check with IDOL.

### EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

### CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

#### COMMUNICATIONS ELECTRICIAN

Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment, and residential purposes, including but not limited to, communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit, such that the employees covered hereby can complete any job in full.

#### MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone,

granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

#### OPERATING ENGINEER - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Conveyor (Truck Mounted); Concrete Paver Over 27E cu. ft; Concrete Paver 27E cu. ft. and Under; Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, One, Two and Three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes-Screw Type Pumps; Gypsum Bulker and Pump; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-Form Paver; Straddle Buggies; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators; Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches; Bobcats (up to and including ¾ cu yd.) .

Class 4. Bobcats and/or other Skid Steer Loaders (other than bobcats up to and including ¾ cu yd.); Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall .

## Class 7. Mechanics.

### OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines: ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower Cranes of all types: Creter Crane: Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dowell Machine with Air Compressor; Dredges; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Hydraulic Backhoes; Backhoes with shear attachments; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Trenching Machine; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole Drills (Tunnel Shaft); Underground Boring and/or Mining Machines 5 ft. in diameter and over tunnel, etc; Underground Boring and/or Mining Machines under 5 ft. in diameter; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (Less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; All Locomotives, Dinky; Off-Road Hauling Units (including articulating)/2 ton capacity or more; Non Self-Loading Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Scoops - Tractor Drawn; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper; Scraper - Prime Mover in Tandem (Regardless of Size); Tank Car Heater; Tractors, Push, Pulling Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Fireman on Boilers; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than Asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper-Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Hydro- Blaster; Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Tractaire; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. Bobcats (all); Brick Forklifts; Oilers.

Class 6. Field Mechanics and Field Welders

Class 7. Gradall and machines of like nature.

#### OPERATING ENGINEER - FLOATING

Class 1. Craft Foreman; Diver/Wet Tender; and Engineer (hydraulic dredge).

Class 2. Crane/Backhoe Operator; 70 Ton or over Tug Operator; Mechanic/Welder; Assistant Engineer (Hydraulic Dredge); Leverman (Hydraulic Dredge); Diver Tender; Friction and Lattice Boom Cranes.

Class 3. Deck Equipment Operator, Machineryman; Maintenance of Crane (over 50 ton capacity); Tug/Launch Operator; Loader/Dozer and like equipment on Barge; and Deck Machinery, etc.

Class 4. Deck Equipment Operator, Machineryman/Fireman (4 Equipment Units or More); Off Road Trucks (2 ton capacity or more); Deck Hand, Tug Engineer, Crane Maintenance 50 Ton Capacity and Under or Backhoe Weighing 115,000 pounds or less; and Assistant Tug Operator.

#### TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

#### TRAFFIC SAFETY

Work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane markings, and the installation and removal of temporary road signs.

#### TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST & WEST

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; TEamsters Unskilled dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or

similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

#### LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.