

**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 downloading and/or ordering CD-ROM's and are 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, signed and notarized, "Affidavit of Availability" (BC 57) to the proper office no later than 4:30 p.m. prevailing time, three (3) days prior to the letting date.

**WHO CAN BID ?**

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

**WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?** When a prospective prime bidder submits a "Request for Authorization to Bid/or Not For Bid Status" (BDE 124INT) he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial.

**ABOUT AUTHORIZATION TO BID:** Firms that have not received an authorization form within a reasonable time of complete and correct original document submittal should contact the department as to status. This is critical in the week before the letting. These documents must be received three days before the letting date. Firms unsure as to authorization status should call the Prequalification Section of the Bureau of Construction at the number listed at the end of these instructions.

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

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

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

**IDOT is not responsible for any e-mail related 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 [garmantr@dot.il.gov](mailto:garmantr@dot.il.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 |
| Electronic plans and proposals               | (217)524-1642 |

**ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS**

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

# 1P

RETURN WITH BID

|                       |
|-----------------------|
| Proposal Submitted By |
| Name                  |
| Address               |
| City                  |

## Letting REVIEW & INSPECTION

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. 68200  
PEORIA County  
Section (72-7)R-3  
Route FAI 74  
Project ACIM-ACBRI-744(233)89  
District 4 Construction Funds

PLEASE MARK THE APPROPRIATE BOX BELOW:

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

Prepared by

F

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 "Request for Proposal Forms and Plans" he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial. If a contractor has requested to bid but has not received a **Proposal Denial and/or Authorization Form**, they should contact the Central Bureau of Construction in advance of the letting date.

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

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

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

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

RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

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

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

**Contract No. 68200  
PEORIA County  
Section (72-7)R-3  
Project ACIM-ACBRI-744(233)89  
Route FAI 74  
District 4 Construction Funds**

**This project consists of reconstruction of Interstate 74 (West Bound Lanes) from West of Sterling Avenue to Nebraska Avenue and the War Memorial Drive interchange including widening and resurfacing of War Memorial Drive from Sterling Avenue to west of University Avenue in Peoria for a total project length of 4.36 miles.**

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.**

BD 354 (Rev. 11/2001)

**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 - 68200

State Job # - C-94-009-02  
 PPS NBR - 4-01814-0200  
 County Name - PEORIA - -  
 Code - 143 - -  
 District - 4 - -  
 Section Number - (72-7)R-3

Project Number  
 ACIM-ACBRI-0744/233/089

Route  
 FAI 74

| Item Number | Pay Item Description  | Unit of Measure | Quantity    | x | Unit Price | = | Total Price |
|-------------|-----------------------|-----------------|-------------|---|------------|---|-------------|
| MX030199    | TEMP PAVEMENT         | SQ M            | 207.000     |   |            |   |             |
| MX030471    | FORM LINER LMSTN SURF | SQ M            | 993.000     |   |            |   |             |
| MX030472    | FORM LINER G & F SURF | SQ M            | 1,988.500   |   |            |   |             |
| MX030473    | FORM LINER PARPT SURF | SQ M            | 140.000     |   |            |   |             |
| MX032083    | GDRL AGG EROS CONT    | M TON           | 1,433.000   |   |            |   |             |
| MX032657    | R&D TEMP CONC BAR     | METER           | 4,484.000   |   |            |   |             |
| MX032894    | SLOTTED VANE DRAIN    | METER           | 81.500      |   |            |   |             |
| MX032929    | ENGINEERED FILL C4    | CU M            | 332.000     |   |            |   |             |
| MX033089    | ENGINEERED FILL C2    | CU M            | 1,899.000   |   |            |   |             |
| MX033109    | DRILL/SET SOLDIER PIL | CU M            | 81.400      |   |            |   |             |
| MX033181    | WATER (DUST CONTROL)  | UNIT            | 1,649.000   |   |            |   |             |
| MX033182    | APPLY DUST SUP AGENTS | UNIT            | 1,625.000   |   |            |   |             |
| MX033183    | SOIL STABILIZERS      | KG              | 110,993.000 |   |            |   |             |
| MX033192    | AGGREGATE SUBBASE     | M TON           | 96,131.000  |   |            |   |             |
| MX033194    | WHITEWASH             | SQ M            | 122,189.000 |   |            |   |             |



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|-------------|-----------------------|-----------------|------------|---|------------|---|-------------|
| MX033206    | TEMP SIGN PANEL OVLAY | SQ M            | 13.320     |   |            |   |             |
| MX033450    | CONC BAR DBL FACE SPL | CU M            | 1,317.900  |   |            |   |             |
| MX033456    | N-INTRU DET POLE 9.1  | EACH            | 1.000      |   |            |   |             |
| MX033460    | WET TEM PM TAP T3 100 | METER           | 835.000    |   |            |   |             |
| MX033462    | REM/DISP TMP C BAR SO | METER           | 2,626.050  |   |            |   |             |
| MX033529    | COMPR FILL MATERIAL   | CU M            | 58.000     |   |            |   |             |
| MX033530    | PART DEPTH PATCH SPL  | SQ M            | 211.000    |   |            |   |             |
| MX402045    | AGG SURF CSE B 200    | SQ M            | 680.000    |   |            |   |             |
| MX406064    | P BCSC SUPER "E" N70  | M TON           | 3,717.000  |   |            |   |             |
| MX406066    | P BCSC SUPER "E" N90  | M TON           | 1,328.000  |   |            |   |             |
| MX406246    | P BCBC SUP IL19.0 N70 | M TON           | 5,575.000  |   |            |   |             |
| MX406248    | P BCBC SUP IL19.0 N90 | M TON           | 1,992.000  |   |            |   |             |
| MX406295    | BCBC SUPER IL19.0L LE | M TON           | 38,811.000 |   |            |   |             |
| MX504002    | F&E PPC B T-BM 1829   | METER           | 1,445.100  |   |            |   |             |
| MX509025    | ALUM RAILING TY H SPL | METER           | 666.000    |   |            |   |             |

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|-------------|-----------------------|-----------------|-----------|---|------------|---|-------------|
| MX637105    | CONC BAR TRANS SPL    | CU M            | 5.700     |   |            |   |             |
| MX637112    | CONC BAR TRANS MOD    | METER           | 19.000    |   |            |   |             |
| MX720100    | TEMP SIGN PANEL ASBLY | SQ M            | 30.030    |   |            |   |             |
| MX721010    | COMP TEMP SIGN OVLAY  | SQ M            | 18.830    |   |            |   |             |
| MX733010    | OSS CAN 2CS 0.90X1.68 | METER           | 7.900     |   |            |   |             |
| MX817055    | EC C XLP USE 3-1C 6   | METER           | 70.000    |   |            |   |             |
| MX871055    | FOCC62.5/125 MM12SM12 | METER           | 2,165.000 |   |            |   |             |
| MX873027    | ELCBL C GROUND 6 1C   | METER           | 113.000   |   |            |   |             |
| MX877019    | STL COMB MAA&P 16.46  | EACH            | 1.000     |   |            |   |             |
| MX877020    | STL COMB MAA&P 16.76  | EACH            | 1.000     |   |            |   |             |
| MX878030    | CONC FDN TY E 900D    | METER           | 23.400    |   |            |   |             |
| MZ017205    | DOWEL BARS 38         | EACH            | 4,106.000 |   |            |   |             |
| MZ021500    | EXPANSION JOINT 75    | METER           | 47.500    |   |            |   |             |
| MZ022800    | FENCE REMOVAL         | METER           | 725.000   |   |            |   |             |
| MZ031105    | MECH ST EARTH RET WL  | SQ M            | 2,141.200 |   |            |   |             |

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|-------------|-----------------------|-----------------|-------------|---|------------|---|-------------|
| MZ031107    | MEC ST EARTH RW CIP F | SQ M            | 2,304.400   |   |            |   |             |
| MZ047300    | PROTECTIVE SHIELD     | SQ M            | 1,444.000   |   |            |   |             |
| M2010110    | TREE REMOV 6-15       | UNIT            | 5,082.000   |   |            |   |             |
| M2010210    | TREE REMOV OVER 15    | UNIT            | 310.000     |   |            |   |             |
| M2010500    | TREE REMOV HECTARES   | HA              | 2.900       |   |            |   |             |
| M2020010    | EARTH EXCAVATION      | CU M            | 153,098.000 |   |            |   |             |
| M2021200    | REM & DISP UNS MATL   | CU M            | 1,178.000   |   |            |   |             |
| M2040800    | FURNISHED EXCAV       | CU M            | 22,127.000  |   |            |   |             |
| M2070220    | POROUS GRAN EMBANK    | CU M            | 16,074.000  |   |            |   |             |
| M2080250    | TRENCH BACKFILL SPL   | CU M            | 1,290.000   |   |            |   |             |
| M2101000    | GEOTECH FAB F/GR STAB | SQ M            | 109,466.500 |   |            |   |             |
| M2113100    | TOPSOIL F & P 100     | SQ M            | 136,894.000 |   |            |   |             |
| M2500210    | SEEDING CL 2A         | HA              | 12.500      |   |            |   |             |
| M2500300    | SEEDING CL 3          | HA              | 0.500       |   |            |   |             |
| M2500350    | SEEDING CL 7          | HA              | 11.500      |   |            |   |             |

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|-------------|-----------------------|-----------------|-----------|---|------------|---|-------------|
| M2500400    | NITROGEN FERT NUTR    | KG              | 1,275.300 |   |            |   |             |
| M2500500    | PHOSPHORUS FERT NUTR  | KG              | 1,275.300 |   |            |   |             |
| M2500600    | POTASSIUM FERT NUTR   | KG              | 1,275.300 |   |            |   |             |
| M2510115    | MULCH METHOD 2        | HA              | 8.500     |   |            |   |             |
| M2510125    | MULCH METHOD 3        | HA              | 12.300    |   |            |   |             |
| M2510630    | EROSION CONTR BLANKET | SQ M            | 4,208.900 |   |            |   |             |
| M2520110    | SODDING SALT TOLERANT | SQ M            | 9,389.000 |   |            |   |             |
| M2520200    | SUPPLE WATERING       | UNIT            | 3,000.000 |   |            |   |             |
| M2800250    | TEMP EROS CONTR SEED  | KG              | 1,026.300 |   |            |   |             |
| M2800400    | PERIMETER EROS BAR    | METER           | 945.000   |   |            |   |             |
| M2800900    | FENCE - EROS CONT     | METER           | 2,350.000 |   |            |   |             |
| M2810103    | STONE RIPRAP CL A2    | SQ M            | 50.000    |   |            |   |             |
| M2810107    | STONE RIPRAP CL A4    | SQ M            | 86.000    |   |            |   |             |
| M2810109    | STONE RIPRAP CL A5    | SQ M            | 1,139.000 |   |            |   |             |
| M2810111    | STONE RIPRAP CL A6    | SQ M            | 59.000    |   |            |   |             |

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|-------------|-----------------------|-----------------|-------------|---|------------|---|-------------|
| M2810125    | STONE RIPRAP CL B3    | SQ M            | 309.000     |   |            |   |             |
| M2820200    | FILTER FABRIC         | SQ M            | 1,448.000   |   |            |   |             |
| M2850400    | ARTICUL BLOCK REV MAT | SQ M            | 2,402.000   |   |            |   |             |
| M3110010    | SUB GRAN MAT A        | M TON           | 4,894.000   |   |            |   |             |
| M3111010    | SUB GRAN MAT B        | M TON           | 252.000     |   |            |   |             |
| M3530240    | PCC BSE CSE 240       | SQ M            | 8,206.000   |   |            |   |             |
| M4060200    | BIT MATLS PR CT       | M TON           | 337.200     |   |            |   |             |
| M4060300    | AGG PR CT             | M TON           | 89.000      |   |            |   |             |
| M4060980    | BIT SURF REM BUTT JT  | SQ M            | 1,754.000   |   |            |   |             |
| M4060985    | BIT SUR RM BUTT JT SP | SQ M            | 611.000     |   |            |   |             |
| M4060990    | TEMPORARY RAMP        | SQ M            | 47.000      |   |            |   |             |
| M4202255    | PCC PVT 250 JOINTED   | SQ M            | 30,984.000  |   |            |   |             |
| M4205050    | BR APPROACH PAVT SPL  | SQ M            | 827.000     |   |            |   |             |
| M4205200    | PROTECTIVE COAT       | SQ M            | 134,667.000 |   |            |   |             |
| M4210290    | CON REINF PCC PVT 290 | SQ M            | 46,265.000  |   |            |   |             |

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| M4214290    | PVT REINFORCEMENT 290 | SQ M            | 46,265.000 |   |            |   |             |
| M4400040    | BIT SURF REM 40       | SQ M            | 13,970.000 |   |            |   |             |
| M4401015    | BIT SUR RM (CM)       | SQ M            | 38,282.000 |   |            |   |             |
| M4402000    | PAVEMENT REM          | SQ M            | 97,777.000 |   |            |   |             |
| M4402040    | COMB CURB GUTTER REM  | METER           | 3,994.000  |   |            |   |             |
| M4402050    | SIDEWALK REM          | SQ M            | 90.000     |   |            |   |             |
| M4402420    | MEDIAN REMOVAL        | SQ M            | 1,329.000  |   |            |   |             |
| M4402530    | PAVED SHLD REMOVAL    | SQ M            | 23,819.000 |   |            |   |             |
| M4405000    | PAVED DITCH REMOVAL   | METER           | 1,293.000  |   |            |   |             |
| M4426225    | CL B PATCH T2 250     | SQ M            | 767.000    |   |            |   |             |
| M4426245    | CL B PATCH T2 350     | SQ M            | 601.000    |   |            |   |             |
| M4429400    | SAW CUTS              | METER           | 2,987.000  |   |            |   |             |
| M4430020    | STRIP REF CR CON TR   | METER           | 2,168.000  |   |            |   |             |
| M4812000    | AGGREGATE SHLDS B     | M TON           | 10,180.000 |   |            |   |             |
| M4820000    | BIT SHOULDERS         | M TON           | 2,683.000  |   |            |   |             |

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| M4830200    | PCC SHOULDERS 200     | SQ M            | 5.000      |   |            |   |             |
| M4830250    | PCC SHOULDERS 250     | SQ M            | 17,597.000 |   |            |   |             |
| M4830290    | PCC SHOULDERS 290     | SQ M            | 25,069.000 |   |            |   |             |
| M5010240    | CONC REM              | CU M            | 698.900    |   |            |   |             |
| M5010430    | CONC HDWL REM         | CU M            | 154.800    |   |            |   |             |
| M5010521    | REM EXIST CULVERTS    | METER           | 47.000     |   |            |   |             |
| M5010522    | PIPE CULVERT REMOV    | METER           | 87.000     |   |            |   |             |
| M5020100    | STRUCTURE EXCAVATION  | CU M            | 14,757.000 |   |            |   |             |
| M5030105    | NEOPRENE EXPAN JT 50  | METER           | 74.600     |   |            |   |             |
| M5030125    | NEOPRENE EXPAN JT 100 | METER           | 51.900     |   |            |   |             |
| M5030350    | CONC STRUCT           | CU M            | 3,194.300  |   |            |   |             |
| M5030360    | CONC SUP-STR          | CU M            | 1,573.500  |   |            |   |             |
| M5030390    | BR DECK GROOVING      | SQ M            | 3,842.000  |   |            |   |             |
| M5030450    | PROTECTIVE COAT       | SQ M            | 4,916.000  |   |            |   |             |
| M5040914    | F&E P P CON I-BM 914  | METER           | 123.400    |   |            |   |             |

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| M5041067    | F&E P P CON I-BM 1067 | METER           | 161.500     |   |            |   |             |
| M5050105    | F & E STRUCT STEEL    | L SUM           | 1.000       |   |            |   |             |
| M5050405    | F & E STRUCT STEEL    | KG              | 4,190.000   |   |            |   |             |
| M5070209    | UNTREATED TIMBER LAG  | SQ M            | 170.000     |   |            |   |             |
| M5070211    | FUR SOLDIER PILES HP  | METER           | 360.000     |   |            |   |             |
| M5080105    | REINFORCEMENT BARS    | KG              | 174,530.000 |   |            |   |             |
| M5080205    | REINF BARS, EPOXY CTD | KG              | 444,590.000 |   |            |   |             |
| M5110100    | SLOPE WALL 100        | SQ M            | 1,425.000   |   |            |   |             |
| M5120100    | F MET PILE SHELL 305  | METER           | 716.000     |   |            |   |             |
| M5120115    | F MET PILE SHELL 356  | METER           | 1,703.000   |   |            |   |             |
| M5120160    | F STL PILE HP310X79   | METER           | 1,491.000   |   |            |   |             |
| M5120315    | DRIVE STL PILE        | METER           | 1,491.000   |   |            |   |             |
| M5120340    | DRIV & FILLING SHELLS | METER           | 2,419.000   |   |            |   |             |
| M5120460    | TEST PIL ST HP310X79  | EACH            | 2.000       |   |            |   |             |
| M5401225    | PCBC 3.6X3.0          | METER           | 55.000      |   |            |   |             |



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| M5403000    | CONC BOX CUL         | CU M            | 1,460.100 |   |            |   |             |
| M5403220    | EXPAN BOLTS M20      | EACH            | 208.000   |   |            |   |             |
| M542E112    | PRC FL-END SEC 300   | EACH            | 16.000    |   |            |   |             |
| M542E116    | PRC FL-END SEC 375   | EACH            | 4.000     |   |            |   |             |
| M542E124    | PRC FL-END SEC 525   | EACH            | 3.000     |   |            |   |             |
| M542E128    | PRC FL-END SEC 600   | EACH            | 5.000     |   |            |   |             |
| M542E136    | PRC FL-END SEC 750   | EACH            | 2.000     |   |            |   |             |
| M542E144    | PRC FL-END SEC 900   | EACH            | 2.000     |   |            |   |             |
| M542E152    | PRC FL-END SEC 1200  | EACH            | 3.000     |   |            |   |             |
| M542G035    | GRAT-C FL END S 600  | EACH            | 4.000     |   |            |   |             |
| M542G045    | GRAT-C FL END S 750  | EACH            | 2.000     |   |            |   |             |
| M542G055    | GRAT-C FL END S 900  | EACH            | 2.000     |   |            |   |             |
| M542G065    | GRAT-C FL END S 1200 | EACH            | 2.000     |   |            |   |             |
| M542Q090    | P CUL CL A 2750 JKD  | METER           | 191.000   |   |            |   |             |
| M5429910    | CONCRETE COLLAR      | CU M            | 1.000     |   |            |   |             |

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|-------------|-----------------------|-----------------|----------|---|------------|---|-------------|
| M5500030    | STORM SEW CL A 1 300  | METER           | 706.500  |   |            |   |             |
| M5500040    | STORM SEW CL A 1 375  | METER           | 51.400   |   |            |   |             |
| M5500050    | STORM SEW CL A 1 450  | METER           | 11.500   |   |            |   |             |
| M5500215    | STORM SEW CL B 1 150  | METER           | 25.500   |   |            |   |             |
| M5500430    | STORM SEW CL A 2 300  | METER           | 836.500  |   |            |   |             |
| M5500440    | STORM SEW CL A 2 375  | METER           | 108.500  |   |            |   |             |
| M5500450    | STORM SEW CL A 2 450  | METER           | 52.000   |   |            |   |             |
| M5500460    | STORM SEW CL A 2 525  | METER           | 107.000  |   |            |   |             |
| M5500465    | STORM SEW CL A 2 600  | METER           | 770.500  |   |            |   |             |
| M5500475    | STORM SEW CL A 2 750  | METER           | 114.500  |   |            |   |             |
| M5500485    | STORM SEW CL A 2 900  | METER           | 49.500   |   |            |   |             |
| M5500500    | STORM SEW CL A 2 1200 | METER           | 264.500  |   |            |   |             |
| M5500830    | STORM SEW CL A 3 300  | METER           | 23.500   |   |            |   |             |
| M5500900    | STORM SEW CL A 3 1200 | METER           | 15.500   |   |            |   |             |
| M5501265    | STORM SEW CL A 4 600  | METER           | 33.500   |   |            |   |             |

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| M5501665    | STORM SEW CL A 5 600 | METER           | 3.500      |   |            |   |             |
| M5510025    | STORM SEWER REM 300  | METER           | 218.000    |   |            |   |             |
| M5510045    | STORM SEWER REM 450  | METER           | 120.000    |   |            |   |             |
| M5510060    | STORM SEWER REM 600  | METER           | 277.000    |   |            |   |             |
| M5510070    | STORM SEWER REM 750  | METER           | 44.000     |   |            |   |             |
| M5510080    | STORM SEWER REM 900  | METER           | 51.000     |   |            |   |             |
| M5510095    | STORM SEWER REM 1200 | METER           | 40.000     |   |            |   |             |
| M552A010    | STORM SEW JKD A 300  | METER           | 15.000     |   |            |   |             |
| M552A045    | STORM SEW JKD A 600  | METER           | 16.500     |   |            |   |             |
| M5870020    | BRIDGE SEAT SEALER   | SQ M            | 155.000    |   |            |   |             |
| M5910100    | GEOCOMPOSITE WALL DR | SQ M            | 181.000    |   |            |   |             |
| M6010080    | FRENCH DRAINS        | CU M            | 137.000    |   |            |   |             |
| M6010605    | PIPE UNDERDRAINS 100 | METER           | 12,581.000 |   |            |   |             |
| M6010610    | PIPE UNDERDRAINS 150 | METER           | 1,502.000  |   |            |   |             |
| M6010705    | PIPE UNDERDRN 100 SP | METER           | 1,034.500  |   |            |   |             |

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| M6021405    | MAN A 1.2D T1F OL    | EACH            | 46.000    |   |            |   |             |
| M6021410    | MAN A 1.2D T1F CL    | EACH            | 5.000     |   |            |   |             |
| M6021445    | MAN A 1.2D T9F&G     | EACH            | 4.000     |   |            |   |             |
| M6021511    | MAN A 1.2D/MI 604101 | EACH            | 2.000     |   |            |   |             |
| M6021605    | MAN A 1.5D T1F OL    | EACH            | 17.000    |   |            |   |             |
| M6021805    | MAN A 1.8D T1F OL    | EACH            | 8.000     |   |            |   |             |
| M6021810    | MAN A 1.8D T1F CL    | EACH            | 1.000     |   |            |   |             |
| M6060010    | CLASS SI CONC OUTLET | CU M            | 14.800    |   |            |   |             |
| M6060270    | CONC GUTTER TA MOD   | METER           | 1,276.200 |   |            |   |             |
| M6060500    | COMB CC&G TB15.30    | METER           | 2,209.200 |   |            |   |             |
| M6060700    | COMB CC&G TB15.60    | METER           | 1,348.100 |   |            |   |             |
| M6061400    | COMB CC&G TB22.30    | METER           | 339.000   |   |            |   |             |
| M6061600    | COMB CC&G TB22.60    | METER           | 447.000   |   |            |   |             |
| M6063090    | COMB CC&G TM SPL     | METER           | 121.900   |   |            |   |             |
| M6063300    | PAVED DITCH TA-15    | METER           | 65.000    |   |            |   |             |

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| M6063600    | CONC MEDIAN SURF 100  | SQ M            | 452.100    |   |            |   |             |
| M6064100    | CONC MED TSB15.30     | SQ M            | 301.700    |   |            |   |             |
| M6064600    | CONC MED TSB22.30     | SQ M            | 335.000    |   |            |   |             |
| M6300100    | SPBGR TY A            | METER           | 1,889.200  |   |            |   |             |
| M6320030    | GUARDRAIL REMOV       | METER           | 1,440.000  |   |            |   |             |
| M6330610    | REM & RE-ERECT SPBGR  | METER           | 556.000    |   |            |   |             |
| M6370120    | CONC BAR DBL FACE MOD | METER           | 129.000    |   |            |   |             |
| M6370140    | CONC BAR SIN FACE MOD | METER           | 452.000    |   |            |   |             |
| M6371055    | CONC BARRIER BASE     | SQ M            | 104.000    |   |            |   |             |
| M6380600    | MOD GLARE SCRNSYS     | METER           | 1,840.000  |   |            |   |             |
| M6420015    | SHOULDER RUMBLE STRIP | METER           | 31,575.700 |   |            |   |             |
| M6640100    | CH LK FENCE 1.2       | METER           | 484.000    |   |            |   |             |
| M6640480    | CH LK GATE 1.2X3.3 SL | EACH            | 2.000      |   |            |   |             |
| M7030100    | SHORT-TERM PAVT MKING | METER           | 987.000    |   |            |   |             |
| M7030220    | TEMP PVT MK LINE 100  | METER           | 3,995.000  |   |            |   |             |

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| M7030240    | TEMP PVT MK LINE 150  | METER           | 500.000    |   |            |   |             |
| M7030520    | PAVT MARK TAPE T3 100 | METER           | 58,141.000 |   |            |   |             |
| M7030540    | PAVT MARK TAPE T3 150 | METER           | 2,541.000  |   |            |   |             |
| M7030550    | PAVT MARK TAPE T3 200 | METER           | 1,088.000  |   |            |   |             |
| M7031000    | WORK ZONE PAVT MK REM | SQ M            | 7,186.000  |   |            |   |             |
| M7040300    | REL TEMP CONC BAR SO  | METER           | 2,134.850  |   |            |   |             |
| M7040400    | TEMP CON BAR (ST OWN) | METER           | 3,306.000  |   |            |   |             |
| M7200100    | SIGN PANEL T1         | SQ M            | 14.000     |   |            |   |             |
| M7200200    | SIGN PANEL T2         | SQ M            | 20.000     |   |            |   |             |
| M7200300    | SIGN PANEL T3         | SQ M            | 262.000    |   |            |   |             |
| M7210105    | SIGN PANEL OVERLAY SP | SQ M            | 51.060     |   |            |   |             |
| M7270100    | STR STL SIN SUP BA    | KG              | 3,450.000  |   |            |   |             |
| M7290100    | METAL POST TY A       | METER           | 8.500      |   |            |   |             |
| M7290200    | METAL POST TY B       | METER           | 17.000     |   |            |   |             |
| M7300100    | WOOD SIN SUPPORT      | METER           | 265.500    |   |            |   |             |

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| M7330050    | OVHD SIN STR-SPAN T1S | METER           | 63.500     |   |            |   |             |
| M7330255    | OSS CAN 3CA 0.90X2.14 | METER           | 22.600     |   |            |   |             |
| M7340100    | CONC FOUNDATION       | CU M            | 11.900     |   |            |   |             |
| M7340200    | DRILL SHAFT CONC FDN  | CU M            | 64.400     |   |            |   |             |
| M7800105    | THPL PVT MK LINE 100  | METER           | 6,015.000  |   |            |   |             |
| M7800115    | THPL PVT MK LINE 150  | METER           | 1,334.000  |   |            |   |             |
| M7800120    | THPL PVT MK LINE 200  | METER           | 2,949.000  |   |            |   |             |
| M7800125    | THPL PVT MK LINE 300  | METER           | 523.000    |   |            |   |             |
| M7800140    | THPL PVT MK LINE 600  | METER           | 151.000    |   |            |   |             |
| M7800600    | EPOXY PVT MK LTR-SYM  | SQ M            | 13.000     |   |            |   |             |
| M7802010    | POLYUREA PM T1 LN 100 | METER           | 34,412.000 |   |            |   |             |
| M7802015    | POLYUREA PM T1 LN 150 | METER           | 4,014.000  |   |            |   |             |
| M7802020    | POLYUREA PM T1 LN 200 | METER           | 4,691.000  |   |            |   |             |
| M7802030    | POLYUREA PM T1 LN 300 | METER           | 425.000    |   |            |   |             |
| M7802060    | POLYUREA PM T1 LN 600 | METER           | 40.000     |   |            |   |             |

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| M8080150    | TEMP WP 15.24 CL4     | EACH            | 10.000    |   |            |   |             |
| M8100240    | CON T 30 PVC          | METER           | 39.000    |   |            |   |             |
| M8100260    | CON T 50 PVC          | METER           | 3,400.000 |   |            |   |             |
| M8100270    | CON T 65 PVC          | METER           | 22.000    |   |            |   |             |
| M8100280    | CON T 75 PVC          | METER           | 4,069.000 |   |            |   |             |
| M8100290    | CON T 90 PVC          | METER           | 130.000   |   |            |   |             |
| M8100300    | CON T 100 PVC         | METER           | 61.000    |   |            |   |             |
| M8101450    | CON P 50 PVC          | METER           | 173.000   |   |            |   |             |
| M8101470    | CON P 75 PVC          | METER           | 17.000    |   |            |   |             |
| M8110130    | CON AT ST 25 GALVS    | METER           | 436.000   |   |            |   |             |
| M8120230    | CON EMB STR 50 PVC    | METER           | 179.000   |   |            |   |             |
| M8120250    | CON EMB STR 75 PVC    | METER           | 494.000   |   |            |   |             |
| M8130120    | JBX SS AS 150X150X100 | EACH            | 46.000    |   |            |   |             |
| M8130415    | JBX SS ES 300X300X200 | EACH            | 13.000    |   |            |   |             |
| M8131500    | JBX NM ES 675X400X300 | EACH            | 3.000     |   |            |   |             |



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 Code - 143 - -  
 District - 4 - -  
 Section Number - (72-7)R-3

Project Number  
 ACIM-ACBRI-0744/233/089

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 FAI 74

| Item Number | Pay Item Description  | Unit of Measure | Quantity   | x | Unit Price | = | Total Price |
|-------------|-----------------------|-----------------|------------|---|------------|---|-------------|
| M8150200    | TR & BKFIL F ELECT WK | METER           | 7,002.500  |   |            |   |             |
| M8150205    | TR & BKFIL ELEC W SPL | METER           | 10.000     |   |            |   |             |
| M8170030    | EC C XLP USE 1C 8     | METER           | 2,927.000  |   |            |   |             |
| M8170040    | EC C XLP USE 1C 6     | METER           | 5,120.000  |   |            |   |             |
| M8170050    | EC C XLP USE 1C 4     | METER           | 4,818.000  |   |            |   |             |
| M8170060    | EC C XLP USE 1C 2     | METER           | 14,439.000 |   |            |   |             |
| M8170070    | EC C XLP USE 1C 1/0   | METER           | 75.000     |   |            |   |             |
| M8170090    | EC C XLP USE 1C 3/0   | METER           | 48.000     |   |            |   |             |
| M8180140    | A CBL 3-1C6 MESS WIRE | METER           | 512.000    |   |            |   |             |
| M8300415    | LT P A 13.5MH 2.4DA   | EACH            | 3.000      |   |            |   |             |
| M8301815    | LP A TB 13.5MH 2.4DA  | EACH            | 32.000     |   |            |   |             |
| M8360100    | LIGHT POLE FDN 600    | METER           | 87.500     |   |            |   |             |
| M8370100    | LT TOWER FDN          | METER           | 205.300    |   |            |   |             |
| M8370110    | LT TOWER FDN SPL      | METER           | 12.500     |   |            |   |             |
| M8731220    | ELCBL C SIGNAL 14 3C  | METER           | 150.000    |   |            |   |             |

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| M8731240    | ELCBL C SIGNAL 14 5C | METER           | 1,535.000 |   |            |   |             |
| M8731250    | ELCBL C SIGNAL 14 7C | METER           | 280.000   |   |            |   |             |
| M8731510    | ELCBL C LEAD 18 3PR  | METER           | 45.000    |   |            |   |             |
| M8731800    | ELCBL C SERV 6 2C    | METER           | 113.000   |   |            |   |             |
| M8750490    | TS POST GALVS 4.25   | EACH            | 1.000     |   |            |   |             |
| M8770025    | S MAA & P 6.70       | EACH            | 1.000     |   |            |   |             |
| M8770730    | STL COMB MAA&P 7.92  | EACH            | 1.000     |   |            |   |             |
| M8770740    | STL COMB MAA&P 9.14  | EACH            | 1.000     |   |            |   |             |
| M8770755    | STL COMB MAA&P 10.97 | EACH            | 1.000     |   |            |   |             |
| M8770765    | STL COMB MAA&P 12.19 | EACH            | 1.000     |   |            |   |             |
| M8770777    | STL COMB MAA&P 14.02 | EACH            | 1.000     |   |            |   |             |
| M8780100    | CONC FDN TY A        | METER           | 1.200     |   |            |   |             |
| M8780200    | CONC FDN TY D        | METER           | 2.400     |   |            |   |             |
| M8780300    | CONC FDN TY E 600D   | METER           | 2.500     |   |            |   |             |
| M8780400    | CONC FDN TY E 750D   | METER           | 6.000     |   |            |   |             |

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| M8860400    | DET LOOP SPL          | METER           | 46.000   |   |            |   |             |
| XX004187    | INSTALL CONTROLLER    | EACH            | 2.000    |   |            |   |             |
| X0322906    | WEEP HOLES CORED      | EACH            | 84.000   |   |            |   |             |
| X0323336    | LED SF RETRO RED BALL | EACH            | 14.000   |   |            |   |             |
| X0323337    | LED SF RETRO GRN BALL | EACH            | 14.000   |   |            |   |             |
| X0323339    | LED SF RETRO W/DW SPL | EACH            | 2.000    |   |            |   |             |
| X0323418    | LED SF RETRO YEL BALL | EACH            | 14.000   |   |            |   |             |
| X0323419    | LED SF RETRO YEL AROW | EACH            | 14.000   |   |            |   |             |
| X0323420    | LED SF RETRO GRN AROW | EACH            | 14.000   |   |            |   |             |
| X0323481    | VIDEO VEH DET 4 CAM   | EACH            | 2.000    |   |            |   |             |
| X0323483    | LED SF RETRO RED AROW | EACH            | 8.000    |   |            |   |             |
| X0323677    | STREET SWEEPING       | hour            | 713.000  |   |            |   |             |
| X0323678    | DUST CONTROL PADS     | EACH            | 4.000    |   |            |   |             |
| X0323778    | DRAINAGE SCUPPERS T1  | EACH            | 6.000    |   |            |   |             |
| X0323779    | DRAINAGE SCUPPERS T2  | EACH            | 12.000   |   |            |   |             |

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| X0323920    | POLE MT EQUIP CAB TB  | EACH            | 1.000    |   |            |   |             |
| X0323959    | FORM LINER MOCKUP     | EACH            | 1.000    |   |            |   |             |
| X0323970    | UNPASS LUMINAIRE IO   | EACH            | 29.000   |   |            |   |             |
| X0323971    | HI-MAST LUMINAIRE IO  | EACH            | 183.000  |   |            |   |             |
| X0323989    | REIN TEMP SN PANEL AS | EACH            | 19.000   |   |            |   |             |
| X0323997    | SIGN SUP PARAPT MT TI | EACH            | 2.000    |   |            |   |             |
| X0324134    | BATT BACKUP SYS/CABNT | EACH            | 3.000    |   |            |   |             |
| X4207500    | CONCRETE PVT WARRANTY | L SUM           | 1.000    |   |            |   |             |
| X6020165    | DR STR T1A SP 1T20F&G | EACH            | 1.000    |   |            |   |             |
| X6700410    | ENGR FLD OFF A SPL    | CAL MO          | 22.000   |   |            |   |             |
| X6700600    | ENGR FIELD LAB SPL    | CAL MO          | 22.000   |   |            |   |             |
| X7011015    | TR C-PROT EXPRESSWAYS | L SUM           | 1.000    |   |            |   |             |
| X7015000    | CHANGEABLE MESSAGE SN | CAL MO          | 72.000   |   |            |   |             |
| X8350100    | LIGHT TOWER (IO)      | EACH            | 34.000   |   |            |   |             |
| X8800020    | SH LED 1F 3S MAM      | EACH            | 16.000   |   |            |   |             |

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| X8800035    | SH LED 1F 3S BM       | EACH            | 9.000     |   |            |   |             |
| X8800038    | SH LED 1F 4S MAM      | EACH            | 1.000     |   |            |   |             |
| X8800040    | SH LED 1F 5S BM       | EACH            | 4.000     |   |            |   |             |
| X8810610    | PED SH LED 1F BM      | EACH            | 6.000     |   |            |   |             |
| Z0002600    | BAR SPLICERS          | EACH            | 250.000   |   |            |   |             |
| Z0013798    | CONSTRUCTION LAYOUT   | L SUM           | 1.000     |   |            |   |             |
| Z0018300    | DRAINAGE STR REPAIR   | EACH            | 24.000    |   |            |   |             |
| Z0029999    | IMPACT ATTENUATOR REM | EACH            | 1.000     |   |            |   |             |
| Z0030130    | IMPACT ATTEN PRD TL3  | EACH            | 1.000     |   |            |   |             |
| Z0030250    | IMP ATTN TEMP NRD TL3 | EACH            | 3.000     |   |            |   |             |
| Z0076600    | TRAINEES              | HOUR            | 5,000.000 |   | 0.800      |   | 4,000.000   |
| 28000300    | TEMP DITCH CHECKS     | EACH            | 47.000    |   |            |   |             |
| 28000500    | INLET & PIPE PROTECT  | EACH            | 265.000   |   |            |   |             |
| 28000510    | INLET FILTERS         | EACH            | 53.000    |   |            |   |             |
| 50100300    | REM EXIST STRUCT N1   | EACH            | 1.000     |   |            |   |             |

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|-------------|-----------------------|-----------------|-----------|---|------------|---|-------------|
| 50100500    | REM EXIST STRUCT N3   | EACH            | 1.000     |   |            |   |             |
| 50104400    | CONC HDWL REM         | EACH            | 32.000    |   |            |   |             |
| 50300310    | ELAST BEARING ASSY T1 | EACH            | 48.000    |   |            |   |             |
| 50300320    | ELAST BEARING ASSY T2 | EACH            | 8.000     |   |            |   |             |
| 50500505    | STUD SHEAR CONNECTORS | EACH            | 1,224.000 |   |            |   |             |
| 51203200    | TEST PILE MET SHELLS  | EACH            | 6.000     |   |            |   |             |
| 51500100    | NAME PLATES           | EACH            | 11.000    |   |            |   |             |
| 60100060    | CONC HDWL FOR P DRAIN | EACH            | 75.000    |   |            |   |             |
| 60234200    | INLETS TA T1F OL      | EACH            | 3.000     |   |            |   |             |
| 60236600    | INLETS TA T9F&G       | EACH            | 2.000     |   |            |   |             |
| 60240210    | INLETS TB T1F OL      | EACH            | 25.000    |   |            |   |             |
| 60240303    | INLETS TB T9F&G       | EACH            | 6.000     |   |            |   |             |
| 60246605    | MED INLET (604101)    | EACH            | 1.000     |   |            |   |             |
| 60246805    | MED INLET (604106)    | EACH            | 1.000     |   |            |   |             |
| 60247130    | DR STR T1 W/1 T20F&G  | EACH            | 15.000    |   |            |   |             |

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|-------------|-----------------------|-----------------|----------|---|------------|---|-------------|
| 60247132    | DR STR T1A W/1 T20F&G | EACH            | 3.000    |   |            |   |             |
| 60247140    | DR STR T2 W/1 T22F&G  | EACH            | 1.000    |   |            |   |             |
| 60255500    | MAN ADJUST            | EACH            | 20.000   |   |            |   |             |
| 60257900    | MAN RECONST           | EACH            | 1.000    |   |            |   |             |
| 60258100    | MAN RECON NEW T1F OL  | EACH            | 1.000    |   |            |   |             |
| 60500040    | REMOV MANHOLES        | EACH            | 8.000    |   |            |   |             |
| 60500050    | REMOV CATCH BAS       | EACH            | 2.000    |   |            |   |             |
| 60500060    | REMOV INLETS          | EACH            | 41.000   |   |            |   |             |
| 61000115    | TY E INLET BOX 610001 | EACH            | 3.000    |   |            |   |             |
| 63100045    | TRAF BAR TERM T2      | EACH            | 2.000    |   |            |   |             |
| 63100085    | TRAF BAR TERM T6      | EACH            | 11.000   |   |            |   |             |
| 63100167    | TR BAR TRM T1 SPL TAN | EACH            | 11.000   |   |            |   |             |
| 63100169    | TR BAR TRM T1 SPL FLR | EACH            | 3.000    |   |            |   |             |
| 66600105    | FUR ERECT ROW MARKERS | EACH            | 26.000   |   |            |   |             |
| 66700205    | PERM SURV MKRS T1     | EACH            | 3.000    |   |            |   |             |

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| 66700305    | PERM SURV MKRS T2     | EACH            | 1.000     |   |            |   |             |
| 67100100    | MOBILIZATION          | L SUM           | 1.000     |   |            |   |             |
| 70101800    | TRAF CONT & PROT SPL  | L SUM           | 1.000     |   |            |   |             |
| 70103817    | TR CONT SURVEILL SPL  | CAL DA          | 425.000   |   |            |   |             |
| 72400100    | REMOV SIN PAN ASSY TA | EACH            | 13.000    |   |            |   |             |
| 72400200    | REMOV SIN PAN ASSY TB | EACH            | 110.000   |   |            |   |             |
| 72400500    | RELOC SIN PAN ASSY TA | EACH            | 7.000     |   |            |   |             |
| 73600100    | REMOV OH SIN STR-SPAN | EACH            | 3.000     |   |            |   |             |
| 73700100    | REM GR-MT SIN SUPPORT | EACH            | 24.000    |   |            |   |             |
| 73700200    | REM CONC FDN-GR MT    | EACH            | 24.000    |   |            |   |             |
| 73700300    | REM CONC FDN-OVHD     | EACH            | 8.000     |   |            |   |             |
| 78100100    | RAISED REFL PAVT MKR  | EACH            | 1,240.000 |   |            |   |             |
| 78200410    | GUARDRAIL MKR TYPE A  | EACH            | 37.000    |   |            |   |             |
| 78200500    | BARRIER WALL MARKERS  | EACH            | 8.000     |   |            |   |             |
| 78201000    | TERMINAL MARKER - DA  | EACH            | 6.000     |   |            |   |             |



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| 78300200    | RAISED REF PVT MK REM | EACH            | 82.000   |   |            |   |             |
| 80400100    | ELECT SERV INSTALL    | EACH            | 3.000    |   |            |   |             |
| 80500200    | SERV INSTALL TY B     | EACH            | 3.000    |   |            |   |             |
| 81400200    | HD HANDHOLE           | EACH            | 3.000    |   |            |   |             |
| 81400400    | CONC HANDHOLE         | EACH            | 20.000   |   |            |   |             |
| 81400500    | CONC HD HANDHOLE      | EACH            | 1.000    |   |            |   |             |
| 81400600    | CONC DBL HANDHOLE     | EACH            | 2.000    |   |            |   |             |
| 82102400    | LUM SV HOR MT 400W    | EACH            | 42.000   |   |            |   |             |
| 82104000    | LUM SV MM 400W        | EACH            | 11.000   |   |            |   |             |
| 82500560    | LT CONT CBRCs 200-480 | EACH            | 1.000    |   |            |   |             |
| 84100110    | REM TEMP LIGHT UNITS  | EACH            | 31.000   |   |            |   |             |
| 84200500    | REM EX LT UNIT SALV   | EACH            | 13.000   |   |            |   |             |
| 84200600    | REM EX LT U NO SALV   | EACH            | 37.000   |   |            |   |             |
| 84200800    | POLE FOUNDATION RM    | EACH            | 50.000   |   |            |   |             |
| 84500110    | REMOV LIGHTING CONTR  | EACH            | 2.000    |   |            |   |             |

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| 85700200    | FAC T4 CAB            | EACH            | 3.000    |   |            |   |             |
| 86301000    | TERMINAL FACILITY     | EACH            | 1.000    |   |            |   |             |
| 86400100    | TRANSCEIVER - FIB OPT | EACH            | 2.000    |   |            |   |             |
| 87900200    | DRILL EX HANDHOLE     | EACH            | 3.000    |   |            |   |             |
| 88200110    | TS BACKPLATE LOUVERED | EACH            | 17.000   |   |            |   |             |
| 88800100    | PED PUSH-BUTTON       | EACH            | 6.000    |   |            |   |             |
| 89000100    | TEMP TR SIG INSTALL   | EACH            | 2.000    |   |            |   |             |
| 89502375    | REMOV EX TS EQUIP     | EACH            | 2.000    |   |            |   |             |
| 89502380    | REMOV EX HANDHOLE     | EACH            | 13.000   |   |            |   |             |
| 89502385    | REMOV EX CONC FDN     | EACH            | 10.000   |   |            |   |             |

**CONTRACT NUMBER**

**68200**

**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 \$150,700.00. Sixty percent of the salary is \$90,420.00.

## 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.

**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.



**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 sign the following certification statement indicating that the information previously submitted by the bidder is, as of the date of signature, current and accurate. The Certification must be signed and dated by a person who is authorized to execute contracts for the bidding company. Before signing this certification, the bidder should carefully review its prior submissions to ensure the Certification is correct. If the Bidder signs 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)

\_\_\_\_\_  
Name of Authorized Representative (type or print)

\_\_\_\_\_  
Title of Authorized Representative (type or print)

\_\_\_\_\_  
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 \$90,420.00? YES \_\_\_ NO \_\_\_
3. Does anyone in your organization receive more than \$90,420.00 of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES \_\_\_ NO \_\_\_
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than \$90,420.00? YES \_\_\_ NO \_\_\_  
(Note: Only one set of forms needs to be completed per person per bid even if a specific individual would require a yes answer to more than one question.)

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

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

**Form B: Identifying Other Contracts & Procurement Related Information** Disclosure Form B must be completed for each bid submitted by the bidding entity. It must be signed by an individual who is authorized to execute contracts for the bidding entity. *Note: Signing the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, signed 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 signature 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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RETURN WITH BID/OFFER

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Financial Information & Potential Conflicts of Interest Disclosure

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

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

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than \$90,420.00 (60% of the Governor's salary as of 7/1/01). (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 \$90,420.00, (60% of the Governor's salary as of 7/1/01) 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 \$90,420.00, (60% of the Governor's salary as of 7/1/01) 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 \$90,420.00, (60% of the Governor's salary as of 7/1/01) are you and your spouse or minor children entitled to receive (i) more than 15% in aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? Yes \_\_\_ No \_\_\_

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

Yes \_\_\_ No \_\_\_

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

- 1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois Toll Highway Authority? Yes \_\_\_ No \_\_\_
  
- 2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds \$90,420.00, (60% of the Governor's salary as of 7/1/01) provide the name of the spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. \_\_\_\_\_

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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 \$90,420.00, (60% of the salary of the Governor as of 7/1/01) 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 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 \$90,420.00, (60% of the Governor's salary as of 7/1/01) are you and your spouse or any minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income from your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor?

Yes \_\_\_ No \_\_\_

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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 State of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years.

Yes \_\_\_ No \_\_\_

---

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

Yes \_\_\_ No \_\_\_

---

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

Yes \_\_\_ No \_\_\_

**RETURN WITH BID/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: \_\_\_\_\_  
Name of Authorized Representative (type or print)

Completed by: \_\_\_\_\_  
Title of Authorized Representative (type or print)

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

**NOT APPLICABLE STATEMENT**

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

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

\_\_\_\_\_  
Name of Authorized Representative (type or print)

\_\_\_\_\_  
Title of Authorized Representative (type or print)

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

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B Other Contracts & Procurement Related Information Disclosure

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

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

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

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

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

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

THE FOLLOWING STATEMENT MUST BE SIGNED

Name of Authorized Representative (type or print)
Title of Authorized Representative (type or print)
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.



**Contract No. 68200**  
**PEORIA County**  
**Section (72-7)R-3**  
**Project ACIM-ACBRI-744(233)89**  
**Route FAI 74**  
**District 4 Construction Funds**

**PART I. IDENTIFICATION**

Dept. Human Rights # \_\_\_\_\_ Duration of Project: \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

**PART II. WORKFORCE PROJECTION**

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

TABLE A

| TOTAL Workforce Projection for Contract |                 |   |                    |   |          |   |               |   |             |   |                     |   |
|---|-----------------|---|--------------------|---|----------|---|---------------|---|-------------|---|---------------------|---|
| JOB CATEGORIES                          | TOTAL EMPLOYEES |   | MINORITY EMPLOYEES |   |          |   |               |   | TRAINEES    |   |                     |   |
|   |                 |   | BLACK              |   | HISPANIC |   | *OTHER MINOR. |   | APPRENTICES |   | ON THE JOB TRAINEES |   |
|   | M               | F | M                  | F | M        | F | M             | F | M           | F | M                   | F |
| OFFICIALS (MANAGERS)                    |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| SUPERVISORS                             |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| FOREMEN                                 |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| CLERICAL                                |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| EQUIPMENT OPERATORS                     |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| MECHANICS                               |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| TRUCK DRIVERS                           |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| IRONWORKERS                             |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| CARPENTERS                              |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| CEMENT MASONS                           |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| ELECTRICIANS                            |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| PIPEFITTERS, PLUMBERS                   |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| PAINTERS                                |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| LABORERS, SEMI-SKILLED                  |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| LABORERS, UNSKILLED                     |                 |   |                    |   |          |   |               |   |             |   |                     |   |
| TOTAL                                   |                 |   |                    |   |          |   |               |   |             |   |                     |   |

TABLE B

| CURRENT EMPLOYEES TO BE ASSIGNED TO CONTRACT |   |                    |   |  |
|--|---|--------------------|---|--|
| TOTAL EMPLOYEES                              |   | MINORITY EMPLOYEES |   |  |
| M  | F | M                  | F |  |
|  |   |                    |   |  |
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|  |   |                    |   |  |
|  |   |                    |   |  |

TABLE C

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

FOR DEPARTMENT USE ONLY

\*Other minorities are defined as Asians (A) or Native Americans (N).  
Please specify race of each employee shown in Other Minorities column.  
**Note: See instructions on the next page**



**RETURN WITH BID**

**Contract No. 68200  
PEORIA County  
Section (72-7)R-3  
Project ACIM-ACBRI-744(233)89  
Route FAI 74  
District 4 Construction Funds**

**PART II. WORKFORCE PROJECTION - continued**

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

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

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

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

**PART III. AFFIRMATIVE ACTION PLAN**

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

Company \_\_\_\_\_ Telephone Number \_\_\_\_\_

Address \_\_\_\_\_

**NOTICE REGARDING SIGNATURE**

The Bidder's signature on the Proposal Signature Sheet will constitute the signing of this form. The following signature block needs to be completed only if revisions are required.

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

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

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

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

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

**RETURN WITH BID**

**ADDITIONAL FEDERAL REQUIREMENTS**

In addition to the Required Contract Provisions for Federal-Aid Construction Contracts (FHWA 1273), all bidders make the following certifications.

- A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.
- B. CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY:
1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause. YES \_\_\_\_\_ NO \_\_\_\_\_
  2. If answer to #1 is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? YES \_\_\_\_\_ NO \_\_\_\_\_

**RETURN WITH BID**

**Contract No. 68200  
PEORIA County  
Section (72-7)R-3  
Project ACIM-ACBRI-744(233)89  
Route FAI 74  
District 4 Construction Funds**

PROPOSAL SIGNATURE SHEET

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

(IF AN INDIVIDUAL) Firm Name \_\_\_\_\_  
Signature of Owner \_\_\_\_\_  
Business Address \_\_\_\_\_  
\_\_\_\_\_

(IF A CO-PARTNERSHIP) Firm Name \_\_\_\_\_  
By \_\_\_\_\_  
Business Address \_\_\_\_\_  
Name and Address of All Members of the Firm: \_\_\_\_\_  
\_\_\_\_\_

(IF A CORPORATION) Corporate Name \_\_\_\_\_  
By \_\_\_\_\_  
Signature of Authorized Representative \_\_\_\_\_  
Typed or printed name and title of Authorized Representative \_\_\_\_\_

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

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 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 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 323  
Illinois Department of Transportation  
2300 South Dirksen Parkway  
Springfield, Illinois 62764

### **NOTICE**

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

# CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

## NOTICE

None of the following material needs to be returned with the bid package unless the special provisions require documentation and/or other information to be submitted.

**Contract No. 68200**  
**PEORIA County**  
**Section (72-7)R-3**  
**Project ACIM-ACBRI-744(233)89**  
**Route FAI 74**  
**District 4 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., April 29, 2005. 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. 68200  
PEORIA County  
Section (72-7)R-3  
Project ACIM-ACBRI-744(233)89  
Route FAI 74  
District 4 Construction Funds**

**This project consists of reconstruction of Interstate 74 (West Bound Lanes) from West of Sterling Avenue to Nebraska Avenue and the War Memorial Drive interchange including widening and resurfacing of War Memorial Drive from Sterling Avenue to west of University Avenue in Peoria for a total project length of 4.36 miles.**

- 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

Timothy W. Martin, Secretary

BD 351 (Rev. 01/2003)

INDEX  
FOR  
SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS  
Adopted March 1, 2005

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-02) (Revised 3-1-05)

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RECURRING SPECIAL PROVISIONS

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

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## 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, 2002, 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 FAI Route 74 (I-74), Project ACIM-ACBRI-074-4(233)089, Section (72-7)R-3 in Peoria County and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

#### LOCATION OF PROJECT

Interstate 74 (WB Lanes) from 1.9 km west of Sterling Avenue interchange to Nebraska Avenue and War Memorial Drive from Sterling Avenue to west of University Avenue.

#### DESCRIPTION OF PROJECT

Reconstruction of I-74 (WB Lanes) from West of Sterling Avenue to Nebraska Avenue and the War Memorial Drive interchange, also includes widening and resurfacing of War Memorial Drive from Sterling Avenue to west of University Avenue and I-74 from the Union Pacific Rail Road to the Sterling Ave. interchange.

#### DATES OF COMPLETION PLUS WORKING DAYS

Effective January 27, 2005

The Contractor shall schedule his/her operations so as to complete implementation of Stage 3-1 traffic control closing the existing I-74 westbound lanes to traffic and directing westbound I-74 to the eastbound lanes no later than 11:59 p.m., April 1, 2006 simultaneously with other Stage 3 Contractors.

The Contractor shall schedule her/his operations so as to complete all work, except work in Plan Set 4 and as specified below, and open all roadways to traffic no later than 11:59 p.m. on November 17, 2006. No lane closures will be allowed on I-74 eastbound and westbound east of Station 142+050 (WB), any ramps or War Memorial Drive subsequent to the November 17, 2006 completion date. The Contractor will be allowed 20 working days after November 17, 2006 to complete work within Plan Set 4, punch list items and any miscellaneous clean-up within Plan Sets 1, 2, and 3.



The Contractor should note that these completion dates are based on an expedited work schedule.

### **FAILURE TO COMPLETE WORK ON TIME**

Effective January 27, 2005

Should the Contractor fail to complete all work on or before the April 1, 2006 completion date as specified in the Special Provision for "Dates of Completion Plus Working Days," or within such extended time allowed by the Department, the Contractor shall be liable to the Department in the amount of \$10,000, not as a penalty but as liquidated and ascertained damages for each calendar day beyond the date of completion or extended time as may be allowed. Such damages may be deducted by the Department from any monies due the Contractor.

Should the Contractor fail to complete all work within Plan Sets 1, 2, and 3 on or before the November 17, 2006 completion date as specified in the Special Provision for "Dates of Completion Plus Working Days", or within such extended time allowed by the Department, the Contractor shall be liable to the Department in the amount of \$10,000, not as a penalty but as liquidated and ascertained damages for each calendar day beyond the date of completion or extended time as may be allowed. Such damages may be deducted by the Department from any monies due the Contractor.

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

A calendar day is every day on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later. Liquidated damages will not be assessed for any day less than twenty-four hours.

Should the Contractor fail to complete all work within Plan Set 4 punch list items, and any miscellaneous cleanup within Plan Sets 1, 2, and 3, within 20 working days after November 17, 2006, Section 108.09 of the Standard Specifications shall apply.

### **COOPERATIVE INCENTIVE PAYMENT PLAN**

Effective January 27, 2005

#### **STAGE 3**

The Contractor and the Department recognize that the prosecution of work by other contractors may not be effectively under the control of the Contractor of this contract. However, it is also recognized and agreed that the nature of the project is such that use of the highway cannot

safely and efficiently begin until all sections are completed and opened to traffic. The Contractor shall be entitled to a cooperative incentive payment should the work and roadways as specified in the Special Provision “Dates of Completion Plus Working Days “ and as specified on Department Contract 68198 be completed and opened to traffic prior to November 17, 2006. This entitlement to a cooperative incentive payment shall not be dependent upon the completion of work within Plan Set 4 of this contract.

The Cooperative Incentive Payment shall be paid at the rate of \$10,000 per calendar day for each day prior to the November 17, 2006 completion date, as indicated in TABLE A. The maximum payment under the cooperative incentive plan will be limited to 30 calendar days.

TABLE A

| <u>Date Completed</u> | <u>Incentive Payment</u> | <u>Date Completed</u> | <u>Liquidated Damages</u> |
|-----------------------|--------------------------|-----------------------|---------------------------|
| November 17, 2006     | *                        | November 17, 2006     | *                         |
| November 16, 2006     | \$10,000                 | November 18, 2006     | \$10,000                  |
| November 15, 2006     | \$20,000                 | November 19, 2006     | \$20,000                  |
| November 14, 2006     | \$30,000                 | November 20, 2006     | \$30,000                  |
| November 13, 2006     | \$40,000                 | November 21, 2006     | \$40,000                  |
| November 12, 2006     | \$50,000                 | November 22, 2006     | \$50,000                  |
| November 11, 2006     | \$60,000                 | November 23, 2006     | \$60,000                  |
| November 10, 2006     | \$70,000                 | November 24, 2006     | \$70,000                  |
| November 9, 2006      | \$80,000                 | November 25, 2006     | \$80,000                  |
| November 8, 2006      | \$90,000                 | November 26, 2006     | \$90,000                  |
| November 7, 2006      | \$100,000                | November 27, 2006     | \$100,000                 |
| November 6, 2006      | \$110,000                | November 28, 2006     | \$110,000                 |
| November 5, 2006      | \$120,000                | November 29, 2006     | \$120,000                 |
| November 4, 2006      | \$130,000                | November 30, 2006     | \$130,000                 |
| November 3, 2006      | \$140,000                | December 1, 2006      | \$140,000                 |
| November 2, 2006      | \$150,000                |                       | **                        |
| November 1, 2006      | \$160,000                |                       |                           |
| October 31, 2006      | \$170,000                |                       |                           |
| October 30, 2006      | \$180,000                |                       |                           |
| October 29, 2006      | \$190,000                |                       |                           |
| October 28, 2006      | \$200,000                |                       |                           |
| October 27, 2006      | \$210,000                |                       |                           |
| October 26, 2006      | \$220,000                |                       |                           |
| October 25, 2006      | \$230,000                |                       |                           |
| October 24, 2006      | \$240,000                |                       |                           |
| October 23, 2006      | \$250,000                |                       |                           |
| October 22, 2006      | \$260,000                |                       |                           |
| October 21, 2006      | \$270,000                |                       |                           |
| October 20, 2006      | \$280,000                |                       |                           |
| October 19, 2006      | \$290,000                |                       |                           |
| October 18, 2006      | \$300,000                |                       |                           |

- \* The Completion Date specified in the contract.
- \*\* The liquidated damages shall be charged until work is completed.

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

Should the Contractor be delayed in the commencement, prosecution or completion of the work for any reason, there shall be no extension of the cooperative incentive payment completion date even though there may be granted an extension of time for completion of the work.

No cooperative incentive will be paid if the Contractor of this contract or Contractors of the other Department contracts specified fails to complete the work and open the roadways before the specified completion date.

Failure by the Contractor to complete all work as specified above before November 17, 2006 shall release and discharge the State, the Department and all of its officers, agents and employees from any and all claims and demands for payment of any incentive amount or damages arising from the refusal to pay an incentive amount.

#### **I-74 MAINLINE PEAK TRAFFIC PERIODS**

Effective January 27, 2005

At the time Contract 68200 is awarded, Contracts 68195, 68196, 68197, 68198, and 68199 will already be in progress to reconstruct the eastbound I-74 pavement. References to Stage 2 in these specifications refer to work within these contracts pursuant to the constraints of their individual and collective special provisions that will limit the nature and timing of work within Contract 68200 that can be concurrently performed before November 18, 2005. References to Stage 3 of these specifications shall refer to concurrent work being performed within Contracts 68198, 68200, and 68201 to reconstruct the westbound I-74 pavement.

Due to the high traffic volumes on the I-74 mainline two eastbound lanes or two westbound lanes shall be open to traffic during the defined applicable I-74 mainline peak traffic period . The peak traffic period for eastbound I-74 traffic is defined as Monday through Friday except legal holidays between the hours of 6:00 a.m. to 8:30 a.m. The peak traffic period for westbound I-74 traffic is defined as Monday through Friday except legal holidays between the hours of 2:30 p.m. to 6:00 p.m.. Legal holidays shall be as defined in Article 107.09 of the Standard Specifications. Any lane less than 3.3 m wide shall be considered obstructed.

The I-74 Mainline Peak Traffic Period restriction that requires two lanes (as opposed to just one lane) in the direction of travel during the defined applicable peak traffic period shall not apply to the following locations for the indicated construction period:

- I-74 eastbound traffic from the approach taper for the western project cross-over to Ramp B-4 during Stage 2 construction while the eastbound lanes and Ramp A-2 are closed to traffic;
- I-74 eastbound traffic from the approach taper for the western project cross-over to Ramp A-2 during Stage 2 construction while the eastbound lanes are closed to traffic and Ramp A-2 is open to traffic;

- I-74 westbound traffic from Ramp B-2 (I-74 westbound exit ramp to War Memorial Drive) to beyond the western project cross-over during Stage 2 construction while the eastbound lanes are closed to traffic;
- I-74 eastbound traffic from Ramp A-1 to Ramp A-2 during Stage 3 construction while the westbound lanes are closed to traffic;
- I-74 westbound traffic from the Ramp A-3 temporary connection (I-74 westbound exit ramp to Sterling Avenue) to across the western project cross-over during Stage 3 construction while the westbound lanes are closed to traffic;
- I-74 westbound traffic from Ramps B-2/B-3/A-3 (I-74 westbound exit ramp to War Memorial Drive/Sterling) to Ramp A-4 during Sub-stage 3-4 construction after I-74 westbound traffic is shifted to the I-74 westbound pavement;
- I-74 eastbound and westbound traffic from the west end of the project to Station 142+050 (WB) while the existing pavement is being patched (Note: I-74 Mainline Peak Traffic Period restrictions apply for all work except patching operations).

Failure to Open Traffic Lanes to Traffic: Should the Contractor fail to completely open traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable to the Department in the amount of \$10,000 for any portion of the first hour lanes are closed or obstructed and \$2,500 every 15 minutes thereafter not as a penalty but as liquidated and ascertained damages. Such damages will be deducted by the Department from the monies due the Contractor. These damages shall apply during the contract time including any extensions of the contract time.

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

## **WORKING RESTRICTIONS – I-74 AND INTERCHANGE RAMPS**

Effective January 27, 2005

### **GENERAL**

The stage construction and traffic control for this contract and other concurrent corridor construction contracts are designed to function as a single unit. The implementation and removal of traffic control must occur simultaneously at times. Any proposed changes to staging must be considered carefully as they may affect the overall project traffic control. Any proposed traffic control changes must be submitted to the Engineer in writing along with documentation of coordination with other contractors. Any request for changes which have not been coordinated with all other project contractors will be rejected. All changes must be approved by the Engineer prior to implementation.

If the Contractor(s) elects to change the proposed staging and/or traffic control plan, the Contractor(s) shall incur all additional costs to facilitate the change. These may include, but are not limited to supplemental excavation, temporary pavement, temporary concrete barrier, temporary sheeting, and temporary signing or striping. No additional payment will be made for any staging or traffic control alterations, modifications or additions initiated by the Contractor(s).

For any change, the number of traffic lanes must not be less than those shown in the Maintenance of Traffic (MOT) plans of Contract 68200 and the above Stage 2 and Stage 3 concurrent corridor contracts for each sub-stage represented within their respective MOT plans.

Any change must provide on and off ramp access equal to or greater than that shown in the plans for each stage or sub-stage at each interchange. For purposes of application within this contract, the Sterling Avenue and War Memorial Drive interchanges with I-74 may be considered as an integrated interchange for purposes of providing full eastbound and westbound traffic access to and from I-74

A minimum of one lane in each direction must be maintained at all times on the I-74 mainline. A minimum lane width of 3.3 m shall be maintained on all I-74 lanes open to traffic with the exception that 3.1 m wide lanes shall be permitted along eastbound and westbound I-74 between Stations 141+650 and 142+241 during Stages 3-1, 3-2 and 3-3. A minimum lane width of 3.6 m shall be maintained on all ramps open to traffic. Lanes shall be clear, unobstructed and free of channelizing devices or other obstacles. See special provision entitled "I-74 Mainline Peak Traffic Periods" for additional working restriction.

Pavements, shoulders, pavement appurtenances and/or the anchorage slabs at mechanically stabilized earth retaining walls shall not be placed until the reinforced soil mass has been placed up to the top of the panel line and allowed to settle for at least thirty (30) calendar days.

Special attention is called to Article 105.08 of the Standard Specifications regarding "Cooperation Between Contractors." At the time Contract 68200 is awarded, Contracts 68195, 68196, 68197, 68198, and 68199 will already be in progress to reconstruct the eastbound I-74 pavement. References to Stage 2 in this specification refers to work within these contracts pursuant to the constraints of their individual and collective special provisions that will limit the nature and timing of work within Contract 68200 that can be concurrently performed before November 18, 2005. References to Stage 3 of this specification shall refer to concurrent work being performed within Contracts 68198, 68200, and 68201 to reconstruct the westbound I-74 pavement.

#### STAGE 2 – I-74 CLOSURE (Award thru October 1, 2005)

In the period between Award and October 1, 2005, when the eastbound lanes are closed to traffic, the Contractor will be allowed to perform work within the constraints listed in Contracts 68195, 68196, 68197, 68198 and 68199 special provisions; as specified elsewhere in the special provisions; and the following constraints:

Ramp access to and from I-74 at the Sterling Avenue, War Memorial Drive, and Gale Avenue interchanges shall be equal to or greater than that shown within the Contract 68197 MOT plans and working restrictions for each stage or sub-stage. Ramps A-1 and A-2 shall be open to traffic and two eastbound I-74 lanes shall be open to traffic east of Ramp A-2 while Ramp B-1 or Ramp B-4 is closed to traffic.

## STAGE 2 – POST I-74 CLOSURE (October 2, 2005 thru November 18, 2005)

In the period between October 2, 2005 and November 18, 2005, after the proposed eastbound lanes are opened to traffic, the Contractor will be allowed to perform work within the constraints listed in Contracts 68195, 68196, 68197, 68198, and 68199 special provisions; as specified elsewhere in the special provisions; and within the following constraints:

A minimum of one lane in the eastbound direction shall be open to traffic at all times on the I-74 mainline from the west project limit to Station 142+050. A minimum of two lanes in the eastbound direction shall be open to traffic at all times on the I-74 mainline from Station 142+050 to the contract limit north of Nebraska Avenue.

A minimum of one lane in the westbound direction shall be open to traffic at all times on the I-74 mainline from the west end of the project to north of Nebraska Avenue. See special provision entitled "I-74 Mainline Peak Traffic Periods." for additional restrictions.

All I-74 ramps except proposed Ramps A-3 and A-4 shall be open to traffic. No lane closures will be permitted on ramps open to traffic.

## STAGE 2 – WINTER SHUTDOWN (November 19, 2005 thru March 31, 2006)

In the period between November 19, 2005 and March 31, 2006, the Contractor will be allowed to perform work within the constraints listed in Contracts 68197 and 68198 special provisions; as specified elsewhere in the special provisions; and within the following constraints:

From November 19, 2005 to March 31, 2006, I-74 lane closures will only be allowed when construction operations are ongoing and workers are present.

The Contractor may implement traffic control directing eastbound I-74 traffic onto the shoulders so as to permit the placement of temporary concrete barrier along the I-74 eastbound lanes between March 1, 2006 and March 31, 2006.

The Contractor shall not implement traffic control closing the existing I-74 eastbound lanes and directing eastbound I-74 traffic to the westbound lanes until April 1, 2006.

A minimum of two lanes in the eastbound direction shall be open to traffic at all times on the I-74 mainline from the west end of the project to the contract limit north of Nebraska Avenue.

A minimum of one lane in the westbound direction shall be open to traffic at all times on the I-74 mainline from the west end of the project to the contract limit north of Nebraska Avenue. See special provision entitled "I-74 Mainline Peak Traffic Periods" for additional restriction.

All ramps to and from I-74 for the Sterling Avenue, War Memorial Drive, and Gale Avenue interchanges, (including Ramp A-4 and Temporary Ramp A-3), shall be open to traffic at all times.

All work on the I-74 mainline from the west end of the project to north of Nebraska Avenue, including all four Sterling Avenue ramps, War Memorial Drive ramps, and the Gale Avenue ramps shall be suspended from 6:00 a.m. November 25, 2005 through 6:00 a.m. January 2, 2006.

During the winter period from November 19, 2005 to March 31, 2006, the Contractor shall maintain construction lane widths that will allow for safe and efficient removal of snow. On non-interstate roadways with 2 or more lanes in each direction, a minimum lane width of 3.1 m shall be maintained at all times through the winter period. On all other non-interstate roadways, a minimum lane width of 3.3 m must be maintained at all times.

All cold milled surfaces shall be overlaid prior to winter shutdown. All manholes shall be adjusted to the elevation of the pavement to ease in plowing snow, and re-adjusted to finished grade in the spring. The initial manhole adjustment will be paid for at the contract unit price and any re-adjustment, as directed by the Engineer, will be paid for in accordance with Article 109.04.

### STAGE 3 – I-74 CLOSURE

In the period following April 1, 2006 while the westbound lanes are closed to traffic, the Contractor will be allowed to perform work within the constraints listed in Contract 68198; as specified elsewhere in the special provisions; and within the following constraints.

The Contractor shall implement Stage 3-1 traffic control closing the existing I-74 westbound lanes to traffic and directing westbound I-74 traffic to the eastbound lanes on April 1, 2006 simultaneously with Contract 68198. See special provision entitled “Dates of Completion Plus Working Days”.

A minimum of one lane in each direction shall be open to traffic at all times on the I-74 mainline from the west end of the project to the contract limit north of Nebraska Avenue, except for closures as herein defined for limited periods to remove and/or set bridge beams.

No lane closures for I-74 eastbound shall be permitted to perform Plan Set 4 patching and resurfacing work from the west end of the project to Station 142+050 between April 1, 2006 and the agreed date of the Stage 3-4 traffic shift. No lane closures for I-74 westbound shall be permitted along the western cross-over and extending west to the west project limits during Stages 3-2 and 3-3.

The Contractor may close all ramps at the War Memorial Drive interchange provided the Sterling interchange ramp(s) that allow similar access between War Memorial Drive and I-74 are open to traffic.

All four of the Sterling Avenue interchange ramps shall be open to traffic at all times.

Removal, delivery, and erection of beams for the structure carrying the War Memorial Drive Ramps B-1 and B-4 over I-74 across any lanes that are open to traffic shall be limited to weekends or between 6:00 p.m. to 6:00 a.m. on weekdays. The Contractor may temporarily stop I-74 traffic for 20 minutes at a time on weekends or between 6:00 p.m. to 6:00 a.m. on weekdays to remove or set beams.

The expense of weekend or nighttime erection or removal shall not be paid for separately and shall be included in the cost of the pay items associated with the work.

Temporarily stopping traffic or closures for the removal or erection of beams will not be permitted at any time during the holiday period for legal holidays as specified in Article 107.09 of the Standard Specifications or other periods specified in the special provision entitled "Special Events."

### STAGE 3—POST I-74 CLOSURE

The Contractor shall implement Stage 3-4 traffic control to shift the westbound I-74 traffic to the new westbound pavement simultaneously with Contract 68198. The date of this traffic shift shall be established by mutual agreement between both contractors. The date shall be no later than 30 days prior to the November 17, 2006 completion date so as to complete the I-74 westbound pavement, ramps, shoulders and median work in Contract 68198 and this contract. The Contractor shall provide ten-(10) calendar day advance notification of the agreed date to IDOT to facilitate public notification, celebration and coordination.

In the period between the agreed date of the westbound traffic shift to the new westbound pavement and November 17, 2006, the Contractor will be allowed to perform work within the constraints listed in Contract 68198; as specified elsewhere within the special provisions; and within the following constraints:

A minimum of one lane in each direction shall be open to traffic at all times on I-74 from the west end of the project to Station 142+050.

A minimum of two lanes in the eastbound direction shall be open to traffic at all times on the I-74 mainline from Station 142+050 to the contract limit north of Nebraska Avenue.

A minimum of two lanes in the westbound direction shall be maintained at all times from the contract limit north of Nebraska Avenue to the exit for Ramp A-3 to Sterling Avenue. In addition, at least one auxiliary lane in the westbound direction shall be open to traffic between Forrest Hill Avenue and the exit Ramp B-2/B-3 to War Memorial Drive.

All ramps at the Sterling Avenue, War Memorial Drive, and Gale Avenue interchanges shall be open to traffic at all times, with the exception that the westbound entrance Ramp B-5 from War Memorial Drive shall be closed through the completion of the westbound I-74 pavement gap.

All work shall be complete except for work in Plan Set 4, punch list and miscellaneous clean up and all roadways opened to traffic no later than 11:59 p.m. on November 17, 2006. No lane closures will be allowed on I-74 eastbound and westbound east of Station 142+050 (WB) or on any ramps subsequent to the November 17, 2006 completion date. See special provision entitled "Dates of Completion Plus Working Days."

### STAGE 3 – I-74 RESURFACING (After April 30, 2007)

In the working days after November 17, 2006, the Contractor will be allowed to perform work included in Plan Set 4 and complete the punch list and miscellaneous clean-up within the following constraints and as specified elsewhere in the special provisions.

All lanes on all roadways and ramps shall be open to traffic at all times and unobstructed except as otherwise specified herein.



Lane closures will be permitted on I-74 eastbound and westbound west of Station 142+050 (WB) to complete work in Plan Set 4, provided that one lane of traffic in each direction shall be open to traffic at all times within the Set 4 work area. See special provision entitled "Mainline Peak Traffic Periods" for additional restriction. See also special provision entitled "Dates of Completion Plus Working Days."

## **WORKING RESTRICTIONS – WAR MEMORIAL DRIVE CORRIDOR**

Effective January 27, 2005

### GENERAL

This special provision addresses working restrictions affecting the War Memorial Drive corridor, including its intersections with Sterling Avenue/Glen Avenue, Scenic Drive/Brandywine Drive, the interchange ramps to and from I-74 and the frontage roadways.

The stage construction and traffic control for the War Memorial Drive corridor is designed to function in conjunction with the I-74 corridor improvements of this contract and other concurrent I-74 contracts to provide traffic continuity as well as reasonable capacity and access to the surrounding commercial land uses. These other concurrent Stage 2 and Stage 3 contracts are as defined within the special provision entitled "Working Restrictions I-74." The implementation and removal of traffic control must occur simultaneously at certain times. Proposed changes to staging must be considered carefully as they may affect the overall project traffic control. Any proposed traffic control changes must be submitted to the Engineer in writing along with documentation of coordination with other contractors. Any request for changes that have not been coordinated with all other project contractors will be rejected. The Engineer must approve all changes prior to implementation.

If the Contractor(s) elects to change the proposed staging and/or traffic control plan, the Contractor(s) shall incur all additional costs to facilitate the change. These may include, but are not limited to supplemental excavation, temporary pavement, temporary concrete barrier, temporary sheeting, and temporary signing or striping. No additional payment will be made for any staging or traffic control alterations, modifications or additions initiated by the Contractor.

Special attention is called to Article 105.08 of the Standard Specifications regarding "Cooperation Between Contractors". Any change must provide on and off ramp access equal to or greater than that shown in the plans for each stage or sub-stage at each interchange. For purposes of application within this contract, the Sterling Avenue and War Memorial Drive interchanges with I-74 may be considered as an integrated interchange for purposes of providing full eastbound and westbound traffic access to and from I-74 and to and from War Memorial Drive.

If the Contractor elects to advance the reconstruction of Scenic Drive from Stage 3 to Pre-stage 3, the following constraints and conditions shall apply:

- No lane reductions along Scenic Drive between the North Mall Entrance and War Memorial Drive shall be permitted unless Ramps A-1 and A-2 are open to traffic.
- All work within Stages 3-1 and 3-2 applicable to the Scenic Drive widening and reconfiguration shall be completed by November 18, 2005.

- Scenic Drive between Sterling Avenue and War Memorial Drive shall have a minimum of one lane open to traffic in each direction at all times. Separate left and right turn lanes along Scenic Drive shall be provided when feasible according to the MOT staging plan.
- The existing light poles along north side of Scenic Drive shall be retained until permanent lighting is installed.
- Proposed temporary signals and pavement markings to support the new lane configuration shall be in place at both the Scenic Drive/North Mall Entrance and the Scenic Drive/War Memorial Drive intersections.
- Finish grading should be completed to provide positive draining slopes at all disturbed areas and the specified vegetative cover shall be applied.
- All entrances to properties along and adjacent to Scenic Drive shall be open and unimpeded during the Holiday Period.
- Failure to Complete the Work on Time. Should the Contractor elect to commence the staged construction of Scenic Drive in 2005 and fail to complete all of the above work prescribed in this provision on or before November 18, 2005, or within such extended time allowed by the Department, the Contractor shall be liable to the Department in the amount of \$10,000 for any portion of each calendar day the Contractor fails to comply, not as a penalty but as liquidated and ascertained damages. Such damages may be deducted by the Department from any monies due the Contractor. A calendar day is every day on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later. Liquidated damages will not be assessed for any day less than twenty-four hours. See special Provision entitled, "Failure to Complete Work on Time."

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

Lane closures will be allowed on War Memorial Drive only when construction operations are ongoing and workers are present, except for closures as herein defined for limited periods to remove and/or set bridge beams, and as required to patch the underlying concrete pavement following removal of the bituminous concrete surface.

A minimum lane width of 3.3 m shall be maintained at all times on all lanes open to traffic for all of the roadways within the War Memorial Drive corridor. A minimum lane width of 3.6 m shall be maintained on all ramps open to traffic. A minimum of one thru lane shall be maintained in each direction of War Memorial Drive at all times, except for closures as herein defined for limited periods to remove and/or set bridge beams. Lanes shall be clear, unobstructed and free of channelizing devices or other obstacles.

Whenever the existing exit ramp from eastbound War Memorial Drive to either eastbound or westbound I-74 or proposed Ramp B-6 is open to traffic, eastbound War Memorial Drive shall have a minimum of two thru lanes open to traffic at all times between Glen Hollow Road and the

exit ramp. In addition, at least one separate left turn lane shall be open to traffic at the Sterling Avenue/Glen Avenue and Scenic Drive/Brandywine Drive intersections.

Whenever the existing entrance ramp to eastbound War Memorial Drive from either westbound or eastbound I-74 or proposed Ramp B-1 is open to traffic, eastbound War Memorial Drive shall have a minimum of two thru lanes open to traffic between the ramp and the Brandywine Drive intersection (east of the project limit).

A minimum of two eastbound lanes of War Memorial Drive shall be open to traffic between on and off ramp terminals whenever both of the above existing or proposed eastbound ramps are open to traffic, except as required to place the final bituminous surface course and pavement markings.

Following closure of the existing exit ramp from eastbound War Memorial Drive to either eastbound or westbound I-74, (after Ramps A-2 and A-4 are open) eastbound War Memorial Drive shall have a minimum of two thru lanes open to traffic at all times throughout the project limits, except for those segments of ongoing work where coldmilling of the existing bituminous surface, patching of the underlying concrete pavement, or storm sewer crossing work is being performed. In addition, the eastbound approach to the Sterling Avenue/Glen Avenue intersection shall have at least one separate left turn lane and a separate right turn lane open to traffic at all times.

Westbound War Memorial Drive between Glen Hollow Drive and the westbound approach to the Scenic Drive intersection at Sta. 39+500 shall have a minimum of two lanes open to traffic at all times. The remaining portions of westbound War Memorial Drive shall have a minimum of two lanes open to traffic at all times, except for those segments of ongoing work where coldmilling of the existing bituminous surface, patching of the underlying concrete pavement, storm sewer crossing work, or placement of the final bituminous course and pavement markings work is being performed. In addition, the westbound War Memorial Drive approach to both the Sterling Avenue/Glen Avenue and Scenic Drive/Brandywine intersections shall have a separate left turn lane open to traffic at all times.

No lane reductions exclusively to facilitate construction of the Dry Run Creek culverts across War Memorial Drive shall be permitted between 6:00 a.m. and 9:00 p.m.

Removal, delivery, and erection of beams for the structure over War Memorial Drive those lanes that are open to traffic shall be limited to weekends or between 9:00 p.m. to 6:00 a.m. on weekdays. The Contractor may temporarily stop war Memorial drive traffic for 20 minutes at a time on weekends or between 9:00 p.m. to 6:00 a.m. on weekdays to remove or set beams.

The expense of weekend or nighttime erection or removal shall not be paid for separately and shall be included in the cost of the pay items associated with the work.

Temporarily stopping traffic or closures for the removal or erection of beams will not be permitted at any time during the holiday period for legal holidays as specified in Article 107.09 of the Standard Specifications or other periods specified in the special provision entitled "Special Events." Access as shown in MOT to Brandywine Drive shall be maintained at all times at its intersection with Glen Avenue and its intersection with War Memorial Drive opposite Scenic Drive.

Northbound Sterling Avenue shall have two left turn lanes, two thru lanes, and a separate right turn lane open to traffic at all times, except as individual lanes are required to be closed to accommodate coldmilling, patching, and placement of the bituminous binder and bituminous surface courses. The left turn lane adjacent to the median shall also be permitted to be closed as an individual lane to reconstruct the adjacent median.

Southbound Sterling Avenue shall have two lanes open to traffic at all times, except as individual lanes are required to be closed to accommodate coldmilling, patching, and placement of the bituminous binder and bituminous surface courses eastbound Glen Avenue shall have one left turn lane, two thru lanes, and a separate right turn lane open to traffic at all times, except as individual lanes are required to be closed to accommodate coldmilling, patching, and placement of the bituminous binder and bituminous surface courses.

Eastbound Glen Avenue shall have two lanes open to traffic at all times, except as individual lanes are required to be closed to accommodate coldmilling, patching, and placement of the bituminous binder and bituminous surface courses.

Scenic Drive, all of the existing frontage roads, and the north entrance to Northwoods Mall from Scenic Drive shall have a minimum of one lane in each direction open to traffic at all times. Separate left and right turn lanes along Scenic Drive shall be provided when feasible according to the MOT staging plan.

No traffic will be permitted on the existing War Memorial Drive pavement after the existing bituminous surface is coldmilled (likely exposing bare concrete), except at intersections until a minimum of 58 mm of bituminous binder course is placed.

The Contractor shall complete placement of a minimum of 58 mm of bituminous binder on the exposed coldmilled surface (bare concrete) at intersections; or at pavement subject to wheel load along War Memorial Drive within 3 calendar days of beginning bituminous surface removal at the respective locations.

**Failure to Open Traffic Lanes to Traffic:** Should the Contractor fail to place bituminous binder on the exposed coldmilled surface (bare concrete) at intersections within 3 calendar days or at mainline War Memorial Drive immediately after cold milling operation in accordance with the limitations specified above, the Contractor shall be liable to the Department in the amount of \$10,000 for any portion of each calendar day not as a penalty but as liquidated and ascertained damages. Such damages will be deducted by the Department from the monies due the Contractor. These damages shall apply during the contract time including any extensions of the contract time. A calendar day is every day on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later.

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

### PRE-STAGE 3– WINTER SHUTDOWN (November 19, 2005 thru March 31, 2006)

In the period between November 19, 2005 and March 31, 2006, the Contractor will be allowed to perform work within the following constraints:

All work on War Memorial Drive and other roadways within its corridor shall be suspended from 6:00 a.m. November 25, 2005 through 6:00 a.m. January 2, 2006 (hereinafter referred to as the Pre-stage 3 Holiday Period).

From November 19, 2005 to March 31, 2006, War Memorial Drive Corridor individual lane closures will only be allowed when construction operations are ongoing and workers are present.

During the winter period from November 19, 2005 to March 31, 2006, the Contractor shall maintain construction lane widths that will allow for safe and efficient removal of snow. A minimum lane width of 3.3 m shall be maintained at all times through the winter period.

All cold milled surfaces shall be overlaid prior to the winter shutdown. All manholes shall be adjusted to the elevation of the pavement to ease in plowing snow, and re-adjusted to finished grade in the spring. The initial manhole adjustment will be paid for at the contract unit price and any re-adjustment, as directed by the Engineer, will be paid for in accordance with Article 109.04.

All existing ramps to and from War Memorial Drive to and from I-74 shall be open to traffic at all times. The Contractor shall not implement traffic control to close the existing War Memorial Drive interchange ramps to and from I-74 until April 1, 2006.

If the Contractor elects to submit a viable traffic control plan to facilitate an early ramp closure, upon approval by the Engineer the Contractor shall be permitted to close the portion of the existing ramp leading from eastbound and westbound I-74 to West War Memorial Drive after January 8, 2006. Conditions of the advanced ramp closure are as follows:

- The portion of the ramp presently signed to Scenic Drive remains open to traffic,
- Temporary information signing, crossover preparation, and traffic control is installed at the Contractor's expense to direct the above ramp's traffic to War Memorial Drive, and
- Temporary Ramp A-3 from westbound I-74 to Sterling Avenue is open to traffic at all times.

### STAGE 3 COMPLETION

All work shall be complete on all roadways within the War Memorial Drive corridor except for punch list and miscellaneous clean up, and all roadways shall be opened to traffic no later than 11:59 p.m. on November 17, 2006. No lane closures will be allowed on War Memorial Drive, Sterling Avenue, Glen Avenue, Scenic Drive or on any ramps to and from I-74 subsequent to the November 17, 2006 completion date. See special provision entitled "Dates of Completion Plus Working Days".

## **SPECIAL EVENTS**

Effective December 5, 2004

### **IHSA BASKETBALL TOURNAMENTS**

The IHSA Boy's Basketball Tournaments are tentatively scheduled for the following dates:

March 10-11, 2006

March 9-10, 2007

The Contractor shall be responsible for verifying the actual dates.

In addition to the requirements of Article 107.09, construction operations shall not impede or interfere with any traffic as noted herein during the 2006 and 2007 IHSA Boy's Basketball Tournaments. Two I-74 lanes in each direction and the War Memorial Drive interchange ramps with I-74 shall be open to traffic at all times during the tournaments.

### **BRADLEY UNIVERSITY PARENT'S WEEKEND**

The Bradley University Parent's Weekend is tentatively scheduled for the following dates:

April 7-9, 2006

October 27-29, 2006

The Contractor shall be responsible for verifying the actual dates.

In addition to the requirements of Article 107.09, construction operations shall not impede or interfere with any traffic as noted herein during Bradley University Parent's weekends. The I-74 eastbound and westbound University exit ramps shall be open to traffic at all times during the Parent's weekends.

### **BRADLEY MOVE IN**

The Bradley University Move In is tentatively scheduled for the following dates:

August 20, 2005

January 15, 2006

August 19, 2006

The Contractor shall be responsible for verifying the actual dates.

In addition to the requirements of Article 107.09, construction operations shall not impede or interfere with any traffic as noted herein during Bradley University Move In.

## **COOPERATION WITH OTHER CONTRACTORS**

Effective December 27, 2004

Contract 69195 for the reconstruction of the Riverfront Drive interchange in East Peoria was let on April 25, 2003 and has a completion date of October 1, 2005.

Contract 69196 for the reconstruction of I-74 from Monroe Street to the Illinois River was let on June 11, 2004 and has a completion date of November 18, 2005.

Contract 68197 for the reconstruction of I-74 eastbound lanes from west of Sterling Avenue to north of Nebraska Avenue was let on June 11, 2004 and has a completion date of November 18, 2005.

Contract 68198 for the reconstruction of I-74 from north of Nebraska Avenue to Monroe Street was let on June 11, 2004 and has a completion date of November 17, 2006.

Contract 68199 for the reconstruction of I-74 eastbound lanes from TP&W Railroad to East of Pinecrest Drive in East Peoria was let on June 11, 2004 and has a completion date of November 18, 2005.

Contract 68201 for the reconstruction of I-74 westbound lanes from TP&W Railroad to East of Pinecrest Drive in East Peoria is tentatively scheduled to be let on June 17, 2005 and is scheduled for completion by November 17, 2006.

Contract 68226 for supplying Intelligent Transportation System (ITS) elements for the reconstruction of I-74 in Peoria and East Peoria was let on January 17, 2003.

Contract 68228 for supplying precast bridge bollards & luminaires for decorative lighting of the structures on I-74 was let on January 18, 2002 and has a completion date of October 31, 2005.

Contract 68231 for supplying high mast light poles on I-74 was let on July 30, 2004.

Contract 68308 for temporary informational signing for the reconstruction of I-74 in Peoria and East Peoria was let on March 7, 2003 and has a completion date of November 30, 2006.

Contract 68408 for supplying luminaries on I-74 was let on July 30, 2004.

## **TRAFFIC CONTROL PLAN**

Effective January 27, 2004

Traffic control shall be in accordance with the applicable sections of the "Standard Specifications for Road and Bridge Construction," the applicable guidelines contained in the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways," these Special Provisions, and any special details and Highway Standards contained herein and in the plans.

Special attention is called to Section 701 and Articles 107.09 and 107.14 of the "Standard Specifications for Road and Bridge Construction" and the following Highway Standards relating to traffic control:

|               |               |               |               |
|---------------|---------------|---------------|---------------|
| <b>701101</b> | <b>701106</b> | <b>701400</b> | <b>701401</b> |
| <b>701406</b> | <b>701411</b> | <b>701416</b> | <b>701421</b> |
| <b>701426</b> | <b>701446</b> | <b>701501</b> | <b>701601</b> |
| <b>701701</b> | <b>702001</b> | <b>704001</b> |               |

The governing factor in the execution and staging of work for this project is to provide the motoring public with the safest possible travel conditions through the construction zone. The Contractor shall arrange his/her operations to keep the closing of lanes and/or ramps to a minimum.

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices. Special attention shall be given to existing warning signs and guide signs during all construction operations. Warning signs and existing guide signs with down arrows shall be kept consistent with the barricade placement at all times. The Contractor shall immediately remove, completely cover or turn from the motorist's view all signs that are inconsistent with lane assignment patterns.

The Contractor shall coordinate all traffic control work on this project with adjoining contracts, including barricade placement necessary to provide a uniform traffic detour pattern. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the Engineer.

Existing temporary lighting and/or permanent lighting along the I-74 mainline and ramps that are under traffic shall remain operational until the proposed permanent lighting is operational. Proposed permanent or temporary lighting along a roadway or ramp shall be operational when any lanes of the proposed roadway or ramp (including temporary ramp cross-overs) are opened to traffic. The proposed temporary lighting along Ramp A-1 and Ramp A-4 of this contract shall be placed prior to opening Ramp A-1 to traffic for Stage 2-A2 of the Contract 68197 MOT Staging Plans. See special provision entitled "Coordination with Other Contractors."

The Contractor will notify the Engineer in writing ten calendar days prior to any activities that will disrupt normal traffic flow including road closures, lane closures, closures for setting or removing bridge beams and lane shifts.

The Contractor will notify the Engineer in writing ten calendar days prior to activities that will reduce any vertical or horizontal clearances.

The Contractor shall maintain a minimum vertical clearance of 4.39 over I-74 mainline and ramp traffic.

Traffic Control Surveillance (Special) is required on this contract.

On I-74 and ramps, where edge of pavement drop offs are in excess of 75 mm (3"), the Contractor will be required to keep the adjacent lane or shoulder closed or install temporary concrete barrier along the drop off at his/her expense.

When a segment of I-74 is closed to traffic, contractor trucks and other vehicles shall not enter and exit from lanes open to mainline I-74 traffic when access is available from the adjacent interchange(s).

When access to an area is not available except from the mainline I-74 traffic, contractor trucks and other vehicles will be permitted to enter and/or leave the I-74 mainline traffic at locations permitted by the Engineer provided such locations do not pose a safety hazard or disruption to mainline I-74 traffic.



A flagger will be required at locations where trucks and other vehicles are entering and/or leaving the I-74 mainline or ramp traffic. A pair of 1.2 m (48 in.) signs shall be located 450 m (1500 ft) in advance stating "TRUCKS ENTERING (LEAVING) ON RIGHT (LEFT)". In addition, if two or more I-74 lanes are open to traffic, a pair of 1.2 m (48 in.) signs shall be located 300 m (1000 ft) in advance stating "MERGE RIGHT (LEFT)" signs. All required warning signs and flaggers shall be at the Contractor's expense.

At road closure locations where Type III barricades are installed in a manner that will not allow Contractor access to the project without relocation of one or more of the barricades, the arrangement of the barricades at the beginning of each work day may be relocated, when approved by the Engineer, in the manner shown on Highway Standard 702001 for Road Closed to Through Traffic. "Road Closed" signs (R11-2), supplemented by "Except Authorized Vehicles" signs (R3-I101), shall be mounted on both the near-right and far-left barricade(s). At the end of each workday the barricades shall be returned to their in-line positions. This work will be considered included in the contract, and no extra compensation will be allowed.

If the Contractor elects to gap the permanent and/or temporary guardrail or concrete barrier at locations not shown on the plans, any additional guardrail, concrete barrier, impact attenuator(s) or other approved end treatment(s), including relocation and/or removal, shall be at the Contractor's expense. The Engineer shall approve the location of gaps in guardrail or concrete barrier not shown on the plans.

Temporary concrete barrier shall be in place to separate opposing I-74 mainline traffic at locations prior to permitting opposing traffic on the roadway.

The Contractor shall install construction traffic control devices in locations where they do not block or impede other traffic control devices, or sidewalks. Changeable message signs shall be placed to notify affected motorists seven calendar days in advance of closures and detours required for construction.

The Contractor is advised that the Department has restrictions on the movement of oversized loads at night and on weekends. The Contractor may be required to stage loads in the Peoria area during daylight hours. The Contractor may be required to use additional escort vehicles when transporting oversized loads from the staging area to the job site at night. The Contractor may contract Steven Todd at (217) 785-8967 regarding requirements for transporting oversized loads. No additional compensation will be considered because of these requirements.

Business and Private Access: The Contractor shall maintain access to all approaches, driveways, roadways and frontage roads along War Memorial Drive at all times unless otherwise noted in the Maintenance of Traffic plans or otherwise directed by the Engineer. It may be possible to close some entrances for construction during off-peak or non-business hours. Prior to any entrance closure, the Contractor shall secure the property owners or tenants approval in writing and provide a copy to the Engineer. Temporary construction access shall not exceed 10 consecutive calendar days unless approved in writing by the property owners or tenants and the Engineer.

**PROCEDURE FOR SUBMITTAL AND RESPONSE TO PLAN QUESTIONS**  
**February 3, 2005**

**General**

Contractors are reminded to read the Working Restrictions and Incentive/Disincentive special provisions of each contract. These items vary between contracts even when combination bidding is possible.

**Utilities**

Utility permits issued after the plans were sent to the Contractors will be available for review at the District Four Headquarters in Peoria, Illinois. This information is intended to provide Contractors current data regarding the utility relocation progress that was not available at the time the plans were sent to Contractors.

**Contractor questions**

Questions regarding clarification of the contract plans, special provisions, and contract documents will be answered by the department to those contractors who supply an e-mail address.

Contractors are requested to submit contract plan and special provision related questions to IDOT, District 4 at the following e-mail address: [D4I-74Questions@dot.il.gov](mailto:D4I-74Questions@dot.il.gov)

Questions may also be mailed to the Illinois Department of Transportation, District 4 at 401 Main St., Peoria, IL 61602-1111. Attn: Rich Dotson. Please include a telephone number, fax number, mailing address, and contact person with all questions.

**Questions must be received on or before May 23, 2005.** Any questions received after May 23, 2005 will not be addressed due to time constraints. A response to submitted questions will be provided on June 3, 2005 by e-mail to all contractors who have provided an e-mail address. All contractors interested in bidding on either of the two (2) I-74 contracts on the June 17, 2005 letting are requested to supply an e-mail address to be used as a contact to receive question responses. This e-mail address may be sent to:

[D4I-74Question@dot.il.gov](mailto:D4I-74Question@dot.il.gov)

**QUESTION AND COMMENT SHEET**

Route: FAI 74 (I-74)

Sections: (72-7)R-3

County: Peoria

Job No.: D-94-009-02

Contract No.: 68200

Project Description: Stage III contract for reconstruction of Westbound lanes of I-74 in Peoria from just west of Sterling Avenue to just west of Nebraska Avenue, construction of the War Memorial Drive interchange and widening and resurfacing on War Memorial Drive.

Return Address: Illinois Department of Transportation Attn: Rich Dotson  
401 Main Street  
Peoria, Illinois 61602-1111

Comments From: \_\_\_\_\_  
(Address) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(Phone Number) \_\_\_\_\_  
(Fax Number) \_\_\_\_\_  
(e-mail address) \_\_\_\_\_

Comments or Questions:  
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For more comments attach additional sheets.  
Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Name (Printed): \_\_\_\_\_

## **PRECAST DRAINAGE STRUCTURES**

Effective: June 11, 2005

Drainage structures shown in the plans to be precast, including but not limited to Manholes, Type A, 2.1m and 2.4m Diameter and Precast Drainage Structures, that are not covered by the Highway Standards or plan details shall be designed by the Contractor. Shop drawings detailing reinforcement shall be signed and sealed by a Structural Engineer and submitted to the Resident Engineer for the Departments records. The cost of this work will not be paid for separately, but shall be included in the cost of the drainage item.

## **TEMPORARY PAVEMENT**

Effective October 1, 1995

Revised January 29, 2004

This item shall include all material, labor, and equipment necessary to construct temporary pavement in accordance with applicable sections of the Standard Specifications except as herein specified.

The Contractor shall have the option of constructing temporary pavement made of (A)100mm Aggregate Base Course, Type B; 200mm Bituminous Base Course; and 38mm Bit. Conc. Surface Course, Superpave, Mix E, N 90 or (B) 100mm Aggregate Base Course, Type B; 215mm PCC Base Course.

Plan typical sections show option "A"

Bituminous Base Course shall be placed in accordance with applicable portions of Article 355, Material for bituminous base course shall be Superpave Binder Course 19.0 in accordance with Article 406 and the special provision "Superpave Bituminous Concrete Mixtures", PCC base course shall be in accordance with Article 353.

Method of Measurement. Temporary pavement shall be measured for payment in place and the area computed in square meters.

Basis of Payment. This work will be paid for at the contract unit price per square meter for TEMPORARY PAVEMENT which price shall be payment in full for all materials, labor, and equipment including bituminous and aggregate prime coat necessary to perform the work as herein specified.

Removal for Temporary Pavement will be paid for separately in accordance with Article 440 of the Standard Specifications.

## **AGGREGATE SURFACE COURSE, TYPE B, 200MM**

Effective November 12, 2004

Description. This work shall consist of furnishing and placing a Type B, 200mm surface course of aggregate as described in Article 402 of the Standard Specifications and as indicated on the plans.

Method of Measurement. As described in Article 402.12 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per square meter. The unit price bid for Aggregate Surface Course, Type B, shall include constructing, maintaining, and removing temporary access and the utilization or disposal of the removed material.

### **BITUMINOUS SURFACE REMOVAL, 40 MM**

Effective March 1, 1993

Revised January 3, 2000

Description. This work shall consist of removing a portion of the existing bituminous concrete surface course in accordance with the applicable portions of Section 440 of the Standard Specifications, this special provision, details in the plans and as directed by the Engineer. The cold milled salvaged aggregate resulting from this operation shall become the property of the Contractor.

Equipment. The machine used for milling and planing shall be a self-propelled grinding machine having a minimum 3.6 m (12-foot) wide drum at least 710 mm (28 inches) in diameter. The grinding machine shall be capable of accurately and automatically establishing profile grades by referencing from either the existing pavement or from an independent grade control and shall have a positive means for controlling cross slope elevations. It shall also have an effective means for removing excess material from the surface and for preventing dust resulting from the operation from escaping into the air.

The cutting teeth used in the milling operation shall be the GTE AM722, or an approved equivalent. When the teeth become worn so that they do not produce a uniform surface texture, they shall all be changed at the same time (as a unit). Occasionally, individual teeth may be changed if they lock up or break, but this method shall not be used to avoid changing the set of teeth as a unit.

The moldboard is critical in obtaining the desired surface texture. It shall be straight, true, and free of excessive nicks or wear, and it shall be replaced as necessary to uniformly produce the required surface texture. Gouging of the pavement by more than 6 mm (1/4 inch) shall be sufficient cause to require replacement of all teeth.

Occasional gouges, due to deteriorated pavement condition, or separation of lifts will not be cause to replace all teeth. The Engineer will be the sole judge of the cause of the pavement gouging and the corrective work required. Corrective work due to negligence or poor workmanship shall be at the Contractor's expense.

### Construction Requirements

General. The temperature at which the work is performed, the nature and condition of the equipment, and the manner of performing the work shall be such that the milled and planed surface is not torn, gouged, shoved, or otherwise injured by the grinding operation. Sufficient cutting passes shall be made so that all irregularities or high spots are eliminated.

Weather conditions, when milling work is performed, must be such that short term or temporary pavement markings can be placed the day the surface is milled in accordance with Section 703 "Work Zone Pavement Markings."

An automatic grade control device shall be used when milling mainline pavement and shall be capable of controlling the elevation of the drum relative to either a preset grade control stringline or a grade reference device traveling on the adjacent pavement surface. The automatic grade control device may be utilized only on one side of the machine with an automatic slope control device controlling the opposite side. The traveling grade reference device shall not be less than 9 m (30 feet) in length. When milling cross roads, turn lanes, intersections, crossovers, or other miscellaneous areas, the Engineer may permit the matching shoe. The Contractor, at his option, may also substitute an approved 1.8 m (6' wide) machine for areas other than mainline pavement.

The Contractor shall mill 40 mm (1.5 inch) at the centerline, except when the milling at the outer edge of the lane would exceed 40 mm (1.5 inches); then the Contractor shall reduce the cut at the centerline to provide the maximum cut of 40 mm (1.5 inches) at the edge of pavement. If deemed necessary, the Contractor may reduce the cross slope from normal 1.5% to 1%. A drawing labeled "Bituminous Surface Removal" is included in the plans.

Surface tests will be performed in accordance with Article 407.09(a) of the Standard Specifications. The longitudinal profile will be taken 0.9 m (3 ft.) from and parallel to each edge of pavement and 0.9 m (3 ft.) from and parallel to the centerline on each side. If a shadow area is found at the 0.9 m (3 ft.) points the pavement smoothness tester will be moved sufficient distance either side to measure the Contractor's milling efforts. Any surface variations exceeding the tolerance of Table 1 of Article 407.09 shall be corrected by reprofiling at no additional expense to the Department. In addition, the Contractor shall be responsible for refilling with approved Class I Bituminous mixtures any area that lowered the pavement profile as a result of faulty milling operations if directed by the Engineer. The Contractor shall be responsible for providing the pavement smoothness tester described elsewhere to retest the pavement profile obtained.

If the milling depth is intended to expose the original concrete pavement, then additional hand or machine work may be necessary to remove any remaining veneer of bituminous pavement which may be left in place behind the milling machine. Such work will be at the direction of the Engineer and at no extra cost to the Department.

The Contractor shall provide a 3 m (10 foot) straightedge equipped with a carpenter's level or a 2.1 m (7 foot) electronic straightedge to check the cross slope of the roadway at regular intervals as directed by the Engineer.

Surface Texture. Each tooth on the cutting drum shall produce a series of discontinuous longitudinal striations. There shall be 16 to 20 striations (tooth marks) for each tooth for each 1.8 m (6 feet) in the longitudinal direction, and each striation shall be 43 +/- 5 mm (1.7 inches +/- 0.2 inch) in length after the area is planed by the moldboard. Thus, the planed length between each pair of striations shall be 58 +/- 5 mm (2.3 inches +/- 0.2 inch). There shall be 80 to 96 rows of discontinuous longitudinal striations for each 1.5 m (5 feet) in the transverse dimension. The areas between the striations in both the longitudinal and transverse directions shall be flat topped and co-planer. The moldboard shall be used to cut this plane; and any time the operation fails to produce this flat plane interspersed with a uniform pattern of discontinuous longitudinal striations, the operation shall be stopped and the cause determined and corrected before recommencing. Other similar patterns of uniform discontinuous longitudinal striations interspersed on a flat plane may be approved by the Engineer. The drawing titled "Bituminous Surface Removal" showing the desired surface texture is included in the plans.

The start-up milling speed shall be limited to a maximum of 15 m (50 foot) per minute. The Contractor shall limit his operations to this speed to demonstrate his ability to obtain the striations and rideability as described above. If the Contractor is able to demonstrate that he can consistently obtain the desired striations and rideability at a greater speed he will be permitted to run at the increased speed.

Cleanup. After cold milling a traffic lane and before opening the lane to traffic, the pavement shall be swept by a mechanical broom to prevent compaction of the cuttings onto the pavement. All loose material shall be removed from the roadway. Before the prime coat is placed, the pavement shall be cleaned of all foreign material to the satisfaction of the Engineer.

This cleanup work shall be considered included in the contract unit price per square meter (square yard) for BITUMINOUS SURFACE REMOVAL of the depth specified, and no additional compensation will be allowed.

Method of Measurement.

- (a) Contract Quantities. The requirements for the use of Contract Quantities shall be Article 202.07(a) of the Standard Specifications.
- (b) Measured Quantities. Cold milling and planning will be measured and the area computed in square meters (square yards) of surface.

Areas not milled (shadowed areas) due to rutting in the existing pavement surface will be included in the area measured for payment.

Basis of Payment. The cold milling and planning will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS SURFACE REMOVAL of the depth specified. Payment as specified will include variations in depth of cuts due to rutting, super elevations, and pavement crown and no additional compensation will be allowed.

**BITUMINOUS SURFACE REMOVAL, VARIABLE DEPTH**

Effective February 5, 1993

Revised January 3, 2000

Add the following to Article 440.03:

Weather conditions, when milling work is performed, must be such that short term or temporary pavement markings can be placed the day the surface is milled in accordance with Section 703 "Work Zone Pavement Markings."

The cutting teeth used in the milling operation shall be the GTE AM722, or an approved equivalent. When the teeth become worn so that they do not produce a uniform surface texture, they shall all be changed at the same time (as a unit). Occasionally, individual teeth may be changed if they lock up or break, but this method shall not be used to avoid changing the set of teeth as a unit.

The moldboard is critical in obtaining the desired surface texture. It shall be straight, true, and free of excessive nicks or wear, and it shall be replaced as necessary to uniformly produce the required surface texture. Gouging of the pavement by more than 6 mm (1/4 inch) shall be sufficient cause to require replacement of all teeth, occasional gouges, due to deteriorated pavement condition, or separation of lifts will not be cause to replace all teeth. The Engineer will be the sole judge of the cause of the pavement gouging and the corrective work required. Corrective work due to negligence or poor workmanship will be at the Contractor's expense.

The Contractor shall mill 38 mm at the centerline, except when the milling at the outer edge of the lane would exceed 40 mm (1.5 inches); then the Contractor shall reduce the cut at the centerline to provide the maximum cut of 40 mm (1.5 inches) at the edge of pavement. If deemed necessary, the Contractor may reduce the cross slope from normal to 1.5% to 1%. A drawing labeled "Bituminous Surface Removal" is included in the plans.

An automatic grade control device shall be used when milling mainline pavement and shall be capable of controlling the elevation of the drum relative to either a preset grade control string line or a grade reference device traveling on the adjacent pavement surface. The automatic grade control device may be utilized on only one side of the machine with an automatic slope control device controlling the opposite side. The traveling grade reference device shall not be less than 9 m (30 feet) in length for rural areas. For urban areas, a device not less than 6 m (20 feet) in length will be required. When milling cross roads, turn lanes, intersections, crossovers, or other miscellaneous areas, the Engineer may permit the use of a matching shoe.

Surface tests will be performed according to Article 407.09(a) of the Standard Specifications. The profile will be taken 0.9 m (3 ft.) from and parallel to each edge of pavement and 0.9 m (3 ft.) from and parallel to the centerline on each side. If a shadow area is found at the 0.9 m (3 ft.) points, the pavement smoothness tester will be moved sufficient distance either side to measure the Contractor's milling efforts. If any (milled) surface variations found to be over 6 mm in 3 m (1/4" in 10'), then the roadway shall be re-profiled at no additional cost. In addition, the Contractor shall be responsible for refilling, with approved Class I bituminous mixtures, any area that lowered the pavement profile as a result of his faulty milling operations if directed by the Engineer. The Contractor shall be responsible for providing the pavement smoothness tester described elsewhere to retest the pavement profile obtained.

If the milling depth is intended to expose the original concrete pavement, then additional hand or machine work may be necessary to remove any remaining veneer of bituminous pavement which may be left in place behind the milling machine. Such work will be at the direction of the Engineer and at no extra cost to the State.

The Contractor shall provide a 3 m (10 foot) straightedge equipped with a carpenter's level or a 2.1 m (7 foot) electronic straightedge to check the cross slope of the roadway at regular intervals as directed by the Engineer.

Surface Texture: Each tooth on the cutting drum shall produce a series of discontinuous longitudinal striations. There shall be 16 to 20 striations (tooth marks) for each tooth for each 1.8 m (6 feet) in the longitudinal direction, and each striation shall be 43 +/- 5 mm (1.7 inches +/- 0.2 inch) in length after the area is planed by the moldboard. Thus, the planed length between each pair of striations shall be 58 +/- 5 mm (2.3 inches +/- 0.2 inch). There shall be 80 to 96 rows of discontinuous longitudinal striations for each 1.5 m (5 feet) in the transverse dimension.



The areas between the striations in both the longitudinal and transverse directions shall be flat topped and coplaner. The moldboard shall be used to cut this plane; and any time the operation fails to produce this flat plane interspersed with a uniform pattern of discontinuous longitudinal striations, the operation shall be stopped and the cause determined and corrected before recommencing. Other similar patterns of uniform discontinuous longitudinal striations interspersed on a flat plane may be approved by the Engineer. A drawing entitled "Bituminous Surface Removal" showing the desired surface texture is included in the plans.

The startup milling speed shall be limited to a maximum of 15 m (50 foot) per minute. The Contractor shall limit his operations to this speed to demonstrate his ability to obtain the striations and rideability as described above. If the Contractor is able to demonstrate that he can consistently obtain the desired striations and rideability at a greater speed he will be permitted to run at the increased speed.

Cleanup: After cold milling a traffic lane and before opening the lane to traffic, the pavement shall be swept by a self-propelled street sweeper with power vacuum capability to prevent compaction of the cuttings onto the pavement. All loose material shall be removed from the roadway. Before the prime coat is placed, the pavement shall be cleaned of all foreign material to the satisfaction of the Engineer.

This cleanup work shall be considered included in the contract unit price per square meter (square yard) for BITUMINOUS SURFACE REMOVAL of the depth specified, and no additional compensation will be allowed.

#### Method of Measurement

(a) Contract Quantities. The requirements for the use of Contract Quantities shall be Article 202.07(a) of the Standard Specifications.

(b) Measured Quantities. Cold milling and planing will be measured and the area computed in square meters (square yards) of surface.

Areas not milled (shadow areas) due to rutting in the existing pavement surface will be included in the area measured for payment.

Basis of Payment: The cold milling and planning will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS SURFACE REMOVAL of the depth specified. Payment as specified will include variations in depth of cuts due to rutting, super elevations, and pavement crown and no additional compensation will be allowed.

#### **CLASS B PATCHES, TYPE II, 250 MM & 350 MM**

Effective January 1, 1999

Revised October 1, 2003

This work shall consist of pavement patching in accordance with applicable portions of Section 442 of the Standard Specifications except as herein specified.

The patching mixture as specified in the Special Provision titled Portland Cement Concrete Patching shall be either Class PP-2, PP-3, or PP-4.

### **REMOVAL OF EXISTING STRUCTURES NO. 1**

Effective November 12, 2004

Description. This Work shall consist of the removal of existing superstructure, substructure and all its appurtenances for SN 072-0027 (Structure No. 1). The structure is a four span bridge consisting of steel beams with a non-composite concrete deck, three five-column piers on piles and two pile bent abutments. Removal shall be accomplished in accordance with Section 501 of the Standard Specifications and as described in the Plans. Slope walls for this structure shall be removed as part of this item.

Basis of Payment. This Work will be paid for at the contract unit price each for REMOVAL OF EXISTING STRUCTURES NO 1, the cost of which shall include all preparation, labor, equipment, tools, materials, disposal, cleanup and all necessary work specified and included to complete the item and no additional compensation will be allowed.

### **REMOVAL OF EXISTING STRUCTURES NO. 3**

Effective November 12, 2004

Description. This Work shall consist of the removal of existing superstructure and substructure for SN 072-0026 (Structure No. 3). The structure is a four span bridge consisting of steel beams with a non-composite concrete deck, three six-column piers on spread footings and two pile bent abutments. Removal shall be accomplished in accordance with Section 501 of the Standard Specifications and as described in the Plans. Slope walls for this structure shall be removed as part of this item and no additional compensation will be allowed.

Basis of Payment. This work will be paid for at the contract unit price each for REMOVAL OF EXISTING STRUCTURES NO 3, the cost of which shall include all preparation, labor, equipment, tools, materials, disposal, cleanup and all necessary work specified and included to complete the Item and no additional compensation will be allowed.

### **CONCRETE HEADWALL REMOVAL**

Effective November 12, 2004

Description. This Work shall consist of the complete and removal and satisfactory disposal of concrete headwalls, including wing walls, footings, aprons and other items not considered included with the barrel of the existing box culverts (Structure Number 072-2032), near Station 143+300 as shown on the plans. The work also includes the removal of similar headwalls near Station 142+242m, 55 Lt; and Station 39+847, 66m Lt (War Memorial Drive). All works shall be done in accordance with the applicable portions of Section 501 of the Standard Specifications, unless otherwise modified herein.

The Contractor shall dispose of the removed portions in a manner approved by the Engineer, and shall not damage any portions of the existing culvert to remain in place. Any damage to the existing culvert shall be repaired or replaced by the Contractor at his/her expense.

Method of Measurement. Concrete headwall removal will be measured in cubic meter, removed and disposed.

Basis of Payment. This work shall be paid for at the contract unit price per cubic meter for CONCRETE HEADWALL REMOVAL at the location specified herein. The unit price shall include all preparation, labor, equipment, tools, materials, disposal, cleanup and all necessary work specified and included to complete the Item.

### **REMOVE EXISTING CULVERTS**

Effective November 12, 2004

Description. This work shall consist of the removal of existing concrete culverts at various locations as shown on the plans and shall be done in accordance with the applicable portions of Section 501 of the Standard Specifications, unless otherwise modified herein.

The above work shall include the removal of the culvert barrel, along with the headwall, wingwalls and footings.

Method of Measurement. REMOVE EXISTING CULVERTS shall be measured in place per meter of existing culvert to be removed and disposed, as measured along the flowline of the culvert between the outside faces of the upstream and downstream headwalls.

Basis of Payment. This work shall be paid for at the contract unit price per meter for REMOVE EXISTING CULVERTS. The removal of the headwall, wingwalls and footings will not be paid for separately, but shall be included in the unit price per meter for REMOVE EXISTING CULVERTS. The unit price shall include all preparation, labor, equipment, tools, materials, disposal, cleanup and all necessary work specified and included to complete the Item.

### **DRAINAGE STRUCTURE REPAIR**

Effective: February 2, 2004

Revised: July 12, 2004

Description. This work shall consist of constructing concrete plugs to patch existing openings in drainage structures at locations and to the dimensions shown in the plans. All works shall be in accordance with section 503 of the Standard Specifications and plan details.

Basis of Payment. This work will be paid for at the contract unit price each for DRAINAGE STRUCTURE REPAIR. The unit price shall include all labor, equipment, tools, materials, and disposal necessary to complete the work.

### **PIPE CULVERTS, CLASS A, 2750 MM (JACKED)**

Effective November 12, 2004

**Description:** This work shall consist of the jacking two 2.75 meter diameter culverts (called 2.74 meter diameter on plans) beneath War Memorial Drive at Dry Run Creek. The new culverts will be jacked on either side of an existing box culvert. The ends of the pipes and box will be formed into a single concrete headwall at each end of the culvert. The horizontal offset from the outside face of the existing box and the jacked pipe shall be 0.915 meter (based on a 0.250-meter pipe wall thickness). The construction of the headwall is paid for separately and is detailed in the structural plans for structure number 072-2504.

A possible location of the jacking pit was identified as the area between the War Memorial Drive and the frontage road approximately at the ramp pavement removal area. This location will provide a backstop for jacking operations both beneath War Memorial Drive and the Mall/Hotel Frontage Road.

In general, there is insufficient right-of-way at the downstream end of the culvert to perform the jacking operation from that location. Another jacking location may be selected by the contractor at no additional compensation.

**Materials:** Materials will conform to Section 552.02 of the Standard Specifications.

**Traffic Control:** Two lanes of traffic will be maintained in each direction on War Memorial Drive. In addition, two-way traffic shall be maintained on the Mall/Hotel Frontage Road at all times. No open cutting shall be permitted inside of the shoulder lines.

The Contractor's work area will be properly shielded from traffic on War Memorial Drive and the Mall/Hotel Frontage Road. Equipment and materials, within the clearzones for these two roadways, will be separated from traffic by the use of temporary concrete barrier. The barrier ends will be adequately shielded by energy absorption devices. All other traffic control devices and appurtenances will be in accordance with IDOT Standards.

## **CONSTRUCTION REQUIREMENTS**

**General.** Storm sewers, of the type and size specified, shall be jacked in a continuous operation. The construction may be accomplished by jacking the storm sewer, or if the Contractor elects, a metal liner of sufficient strength and size first, then the storm sewer installed inside the liner. If the liner is used, it shall remain in place to support the embankment, and the voids between the liner and the sewer pipe shall be completely filled with sand or grout mixture as approved by the Engineer. The diameter of the metal liner, if used, shall not exceed the outside diameter of the storm sewer by more than 150 mm (6 in.).

The Contractor may shorten the length of storm sewer to be jacked by open cutting and sheeting, shoring or bracing the excavation outside the roadway limits. If continuous jacking operation cannot be maintained, the Contractor shall take the necessary precautions for not allowing the jacked pipe to freeze in place.

All sheeting, bracing, jacking frame, guide rails, backstop, shields, sleeves and other materials necessary for the complete installation of the storm 532 sewer shall be of sufficient strength to support the loads that are to be imposed on them.

The types, sizes and number of jacks, jacking pit and other equipment used shall be such as to exert sufficient force to overcome the greatest resistance to be encountered, considering both weight of the pipe or liner and the friction on its exterior surface. Lubricants, if required, may be used to decrease the frictional resistance on the exterior surface of the pipe being jacked. Suitable lubricants may be applied directly to the surface or through 13 mm (1/2 in.) nipples through holes drilled in the cutting shield at the lead pipe.

Care shall be taken in arranging the jacking equipment and struts to ensure that thrust is applied parallel with the centerline of the pipe or liner or as approved by the Engineer. A jacking head or collar shall be used to apply pressure from the jack to the pipe or liner. Pressure applied with the metal of the jack in direct contact with concrete pipe will not be permitted.

A cutting edge at least 13 mm (1/2 in.) greater in diameter than the pipe or liner being jacked shall be provided for the leading pipe or liner. The upper half of the cutting edge shall project beyond the pipe or liner end to support the embankment. Excavation within the jacked pipe or liner shall be performed in such a manner as to not increase the excavated diameter larger than the pipe or liner being jacked. Excavation shall not be carried beyond the end of the cutting edge of the pipe or liner. Any holes provided in the lead pipe to attach the cutting edge shall be properly filled with plug and mastic as approved by the Engineer after completion of the jacking operation and removal of cutting edge.

**Joints.** Joints will conform to Section 552.05 of the Standard Specifications.

**Accuracy of Placement.** Accuracy of Placement shall conform to Section 552.06 of the Standard Specifications.

**Obstructions.** Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, old wingwalls etc.) that cannot be removed with normal earth drilling procedures but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction. Lost tools or equipment in the excavation as a result of the Contractor's operation shall not be defined as obstructions and shall be removed at the Contractor's expense.

**SBC Utility Coordination:** There is a buried SBC telephone line from 41m Lt. Sta. 39+950 to 45m Lt. Sta. 39+970 located above the proposed push pit for the pipe culverts to be installed along the existing box culvert. SBC wants to support this line during construction and keep it in place. This will require cooperation between SBC and the contractor.

**Method of Measurement:** Storm sewers jacked in place of 2.75-meter (2.74-meter) diameter will be measured for payment in meters (feet) in place.

Excavation in rock will be measured for payment as specified in Article 502.14.

Obstruction mitigation shall be paid for according to Article 109.04 of the Standard Specifications.

**Basis of Payment:** This work will be paid for at the contract unit price per meter for STORM SEWERS JACKED IN PLACE, of the diameter specified, which price shall include the storm sewer, metal liner if used, including backfilling all voids between the storm sewer and metal liner, all other materials and equipment necessary to install the storm sewer and all excavation except excavation in rock and obstruction mitigation.

Utility coordination is included in the cost for STORM SEWERS JACKED IN PLACE and no individual payment will be included.

**DRAINAGE STRUCTURES, TYPE 1A WITH ONE TYPE 20 FRAME AND GRATE**  
**DRAINAGE STRUCTURES, TYPE 1A, SPECIAL WITH ONE TYPE 20 FRAME AND GRATE**

Effective: August 27, 2003

Revised July 26, 2004

Description. This work shall consist of the construction of Drainage Structures Type 1A to the dimensions specified and to the depths specified in the plan details. The structure shall include all labor equipment and materials necessary including the type 20 frame and grate. All work shall be in accordance with the applicable Section 602 of the Standard Specifications, applicable Highway Standards and the plan details.

Basis of Payment. This Work shall be paid for at the contract unit price each for DRAINAGE STRUCTURES, TYPE 1A WITH ONE TYPE 20 FRAME AND GRATE, and DRAINAGE STRUCTURES, TYPE 1A, SPECIAL WITH ONE TYPE 20 FRAME AND GRATE. The unit price shall include all labor, equipment, tools, materials, and disposal necessary to complete the work.

**COMBINATION CONCRETE CURB AND GUTTER, TYPE M (SPECIAL)**

Effective November 12, 2004

Description. This work shall consist of constructing a mountable curb and gutter of dimensions herein specified, and at the locations indicated on the plans. The work shall be in accordance with Article 606 of the Standard Specifications, unless otherwise indicate.

Standard Drawing 606001 shall be modified to include the following dimensions within the "Table of Dimensions Mountable Curb," for use in this work:

| Type    | A   | B   | C  | D   | R1 | R2 |
|---------|-----|-----|----|-----|----|----|
| M-15.65 | 625 | 150 | 50 | 150 | 50 | NA |

The symbols are as defined in the standard drawing. The dimensions are millimeters.

Method of Measurement. Combination concrete curb and gutter, type M (special) will be measured as a combination concrete curb and gutter per Article 606.13 of the Standard Specifications.

Basis of Payment. This work shall be paid at the contract unit price per meter for COMBINATION CONCRETE CURB AND GUTTER, TYPE M (SPECIAL). Payment shall be in accordance with a combination concrete curb and gutter as described in Article 606.14 of the Standard Specification.

**OVERHEAD SIGN STRUCTURES – SPECIAL**

Effective June 28, 2004

Description. This item shall apply to Overhead Sign Structure-Span, Cantilever and Bridge Mounted (Special) and shall conform to the requirements of Section 733, "Overhead Sign Structures" of the Standard Specifications, as modified herein, and as shown on the plans.

OVERHEAD SIGN STRUCTURE-SPAN, TYPE I-S (1.22M x 1.37M)

OVERHEAD SIGN STRUCTURE-CANTILEVER, TYPE II-C-S (0.90M x 1.68M)

The Overhead Sign Structure-Span, Type I-S are located at W.B. F.A.I. Route 74, Stations 143+798, 144+154, and 144+540. The Overhead Sign Structure-Cantilever, Type II-C-S is located at W.B. F.A.I. Route 74, Station 143+740. The sign structures consist of a steel truss and steel post support(s). The structural steel shall be according to the materials specification shown on the plans and applicable portions of Section 1094 of the Standard Specifications.

Painting. Paint shall be applied to the Overhead Sign Structure-Span and Overhead Sign Structure-Cantilever steel members according to the special provision "Surface Preparation and Painting of Galvanized Steel Traffic Structures".

Method of Measurement. The sign structure shall be measured according to Article 733.10 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per meter for OVERHEAD SIGN STRUCTURE-SPAN or OVERHEAD SIGN STRUCTURE-CANTILEVER, of the type, width and depth specified. The price shall include furnishing, fabricating, painting and erecting the Overhead Sign Structures as specified in this special provision.

**LED SIGNAL FACE RETROFIT, GREEN ARROW**

Effective November 12, 2004

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The LED signal indications shall be installed in the existing 12" signal heads. The lens, reflector, lamp, and socket shall be removed from the existing signal heads and delivered to the City of Peoria Traffic Operations Center located at 3505 Dries Ln., Peoria IL.

The LED signal indications shall be equipped with spade connectors and connected to the traffic signal head terminal block. Splicing into the existing socket wires will not be allowed.

All necessary hardware shall be provided by the Contractor to accommodate the installation of the LED signal faces into the existing signal heads. There will be no additional compensation.

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

|          |                                   |
|----------|-----------------------------------|
| GELcore  | <u>Model DR6-GCAAN-21A</u>        |
| Dialight | <u>Model 432-2374-001 (3 Row)</u> |

The LED assembly shall conform to the following minimum specifications:

Lens. 12" Diameter, Green Tinted or Clear, Hard Coated for Abrasion Resistance, UV Stabilized Dome, Designed to Evenly Distribute Light Across the Entire Face of the Lens to

Provide a Uniform Illuminance Across the Face of The LED, Provide a Wide Angle For Viewing, And Eliminate any "Dotty" or Grainy Appearance

LEDS. Interconnected to minimize the effect of single LED failures, Nominal Wattage: 7 W or less, Nominal Wavelength: 505 -508nm, Shall Have a Full Profile Arrow Indication (No Outlined or 2 Row Indications)

Product Warranty. 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40 to 74C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40 to 74C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

Basis of Payment.

The above work will be paid for at the contract unit price each for LED SIGNAL FACE RETROFIT, GREEN ARROW and shall be payment in full for providing and installing the LED sections described above, complete.

### **LED SIGNAL FACE RETROFIT, GREEN BALL**

Effective November 12, 2004

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The LED signal indications shall be installed in the existing 12" signal heads. The lens, reflector, lamp, and socket shall be removed from the existing signal heads and delivered to the City of Peoria Traffic Operations Center located at 3505 Dries Ln., Peoria IL.

The LED signal faces shall be equipped with spade connectors to connect to the traffic signal head terminal block. Splicing into the existing socket wires will not be allowed.

All necessary hardware shall be provided by the Contractor to accommodate the installation of the LED signal faces into the existing signal heads. There will be no additional compensation.

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:



GELcore Model DR6-GTFB-20A (Tinted Lens)  
or DR6-GCFB-20A (Clear)

Dialight Model 433-2220-001 (Tinted Lens)

The LED assembly shall conform to the following minimum specifications:

Lens. 12" Diameter, Hard Coated for Abrasion Resistance, UV Stabilized Dome, Designed to Evenly Distribute Light Across the Entire Face of the Lens to Provide a Uniform Illuminance Across the Face of The LED, Provide a Wide Angle For Viewing, And Eliminate "Dotty" or Grainy Appearance.

LEDS. Interconnected to minimize the effect of single LED failures, Nominal Wattage : 14 W or less, Nominal Wavelength : 505 - 508nm

Minimum Luminous Intensity (cd): 678

Product Warranty. 5-Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40 to 74C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40 to 74C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD Part 2.

Basis of Payment.

The above work will be paid for at the contract unit price each for LED SIGNAL FACE RETROFIT, GREEN BALL and shall be payment in full for providing and installing the LED sections described above, complete.

### **LED SIGNAL FACE RETROFIT, RED ARROW**

Effective November 12, 2004

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The LED signal indications shall be installed in the existing 12" signal heads. The lens, reflector, lamp, and socket shall be removed from the existing signal heads delivered to the City of Peoria Traffic Operations Center located at 3505 Dries Ln., Peoria IL.

The LED signal faces shall be equipped with spade connectors to connect to the traffic signal head terminal block. Splicing into the existing socket wires will not be allowed.

All necessary hardware shall be provided by the Contractor to accommodate the installation of the LED signal faces into the existing signal heads. There will be no additional compensation.

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

|          |                                   |
|----------|-----------------------------------|
| GELcore  | <u>Model DR6-RTAAN-21A</u>        |
| Dialight | <u>Model 432-1314-001 (3-Row)</u> |

The LED assembly shall conform to the following minimum specifications:

Lens. 12" Diameter, Red, Hard Coated for Abrasion Resistance, UV Stabilized Dome, Designed to Evenly Distribute Light Across the Entire Face of the Lens to Provide a Uniform Illuminance Across the Face of The LED, Provide a Wide Angle For Viewing, And Eliminate any "Dotty" or Grainy Appearance.

LEDS. Interconnected to minimize the effect of single LED failures, Nominal Wattage: 6.5W or less, Nominal Wavelength: 622 -626nm, Shall Have a Full Profile Arrow Indication (No Outlined or 2 Row Indications).

Product Warranty. 5-Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40 to 74C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40 to 74C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STS Part 2.

Basis of Payment.

The above work will be paid for at the contract unit price each for LED SIGNAL FACE RETROFIT, RED ARROW and shall be payment in full for providing and installing the LED sections described above, complete.

### **LED SIGNAL FACE RETROFIT, RED BALL**

Effective November 12, 2004

This work shall be in accordance with Section 880 and 1078 of the Standard Specifications except as modified herein.

The LED signal indications shall be installed in the existing 12" signal heads. The lens, reflector, lamp, and socket shall be removed from the existing signal heads and the delivered to the City of Peoria Traffic Operations Center located at 3505 Dries Ln., Peoria IL.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block. Splicing into the existing socket wires will not be allowed.

All necessary hardware shall be provided by the Contractor to accommodate the installation of the LED signal faces into the existing signal heads. There will be no additional compensation for hardware.

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore                      Model DR6-RTFB-20A

Dialight                      Model DURALED 433-1210-003

The LED assembly shall conform to the following minimum specifications:

Lens. 12" Diameter, Red, Hard Coated for Abrasion Resistance, UV Stabilized Dome, Designed to Evenly Distribute Light Across the Entire Face of the Lens to Provide a Uniform Illuminance Across the Face of The LED, Provide a Wide Angle For Viewing, And Eliminate any "Dotty" or Grainy Appearance.

LEDS. Interconnected to minimize the effect of single LED failures, Nominal Wattage : 10 W or less, Nominal Wavelength : 622-626nm

Minimum Luminous Intensity (cd): 339

Product Warranty. 5-Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40 to 74C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40 to 74C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD PART 2.

Basis of Payment.

The above work will be paid for at the contract unit price each for LED SIGNAL FACE RETROFIT, RED BALL, and shall be payment in full for providing and installing the LED sections described above, complete.

## **LED SIGNAL FACE RETROFIT, YELLOW ARROW**

Effective November 12, 2004

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The LED signal indications shall be installed in the existing 12" signal heads. The lens, reflector, lamp, and socket shall be removed from the existing signal heads delivered to the City of Peoria Traffic Operations Center located at 3505 Dries Ln., Peoria IL.

The LED signal faces shall be equipped with spade connectors to connect to the traffic signal head terminal block. Splicing into the existing socket wires will not be allowed.

All necessary hardware shall be provided by the Contractor to accommodate the installation of the LED signal faces into the existing signal heads. There will be no additional compensation.

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

|          |                                   |
|----------|-----------------------------------|
| GELcore  | <u>Model DR6-YTAAN-21A</u>        |
| Dialight | <u>Model 431-3334-001 (3 Row)</u> |

The LED assembly shall conform to the following minimum specifications:

Lens. 12" Diameter, Clear or Yellow, Hard Coated for Abrasion Resistance, UV Stabilized Dome, Designed to Evenly Distribute Light Across the Entire Face of the Lens to Provide a Uniform Illuminance Across the Face of The LED, Provide a Wide Angle For Viewing, And Eliminate any "Dotty" or Grainy Appearance.

LEDS. Interconnected to minimize the effect of single LED failures, Nominal Wattage: 11 W or less, Nominal Wavelength: 590-592nm, Shall Have a Full Profile Arrow Indication (No Outlined or 2 Row Indications).

Product Warranty. 5-Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of 40 to 74C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40 to 74C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STS Part 2.

Basis of Payment.

The above work will be paid for at the contract unit price each for LED SIGNAL FACE RETROFIT, YELLOW ARROW and shall be payment in full for providing and installing the LED sections described above, complete.

### **LED SIGNAL FACE RETROFIT, YELLOW BALL**

Effective November 12, 2004

This work shall be in accordance with Section 880 and 1078 of the Standard Specifications except as modified herein.

The LED signal indications shall be installed in the existing 12" signal heads. The lens, reflector, lamp, and socket shall be removed from the existing signal heads and the delivered to the City of Peoria Traffic Operations Center located at 3505 Dries Ln., Peoria IL.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block. Splicing into the existing socket wires will not be allowed.

All necessary hardware shall be provided by the Contractor to accommodate the installation of the LED signal faces into the existing signal heads. There will be no additional compensation for hardware.

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore                    Model DR6-YTFB-20A

Dialight                    Model DURALED 433-3230-001

The LED assembly shall conform to the following minimum specifications:

Lens. 12" Diameter, Clear or Yellow, Hard Coated for Abrasion Resistance, UV Stabilized Dome, Designed to Evenly Distribute Light Across the Entire Face of the Lens to Provide a Uniform Illuminance Across the Face of The LED, Provide a Wide Angle For Viewing, And Eliminate any "Dotty" and Grainy Appearance.

LEDS. Interconnected to minimize the effect of single LED failures, Nominal Wattage : 22 W or less,

Nominal Wavelength: 590-592nm

Minimum Luminous Intensity (cd): 678

Product Warranty. 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of 40 to 74C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40 to 74C, except for when its terms are in conflict with the terms contained in this special provision. In such cases, this special provision shall supercede the contrary ITE specification.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD PART 2.

#### Basis of Payment.

The above work will be paid for at the contract unit price each for LED SIGNAL FACE RETROFIT, YELLOW BALL, and shall be payment in full for providing and installing the LED sections described above, complete.

### **LED SIGNAL FACE RETROFIT, WALK/DON'T WALK SPECIAL**

Effective November 12, 2004

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The single 16" LED signal face with a walk/don't walk indication (Hand/Walking Person International Symbols) shall be retrofitted into the existing 16" pedestrian signal head. All lenses shall be returned to the City of Peoria, Traffic Operations Center located at 3505 Dries Lane, Peoria.

The wiring from the new pedestrian heads to the existing terminal blocks shall be continuous. Splicing into the existing wiring will not be allowed.

The LED signal face shall have the international Hand symbol (Upraised Hand - Color: Portland Orange, Walking Person - Color: White). Only outlined indications will be allowed.

The following models are approved by the Department for use provided that they meet the minimum specification list below:

GELcore      Model PS7-CFL3-01A  
(Outline Hand and Outline Person Overlay)

Dialight      Model 430-6471-001 (Filled Hand/Outlined Person - Overlay) or 430-6774-001474-001 (Outline Hand and Outline Person Side by Side)

The LED assembly must conform to the following minimum specifications:

Lens. 16" x 17" (Nominal), Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS. Interconnected to minimize the effect of single LED failures, Nominal Wattage: 7 W or less

Product Warranty. 5-Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40 to 74C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40 to 74C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

Basis of Payment.

The above work will be paid for at the contract unit price each for LED SIGNAL FACE RETROFIT, WALK/DON'T WALK SPECIAL and shall be payment in full for retrofitting the new LED section into the existing pedestrian traffic signal head and includes all labor, materials, and equipment required to provide and install the LED modules described above, complete.

**LUMINAIRE, SODIUM VAPOR, MULTI-MOUNT, 400 WATT**

Effective June 28, 2002

Revised: December 21, 2003

Description

This work shall consist of furnishing and installing a luminaire including branch circuit/extension, pole wire as applicable, lamp, fuseholders, mounting hardware, fusing, and surge protection.

Materials

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

| <u>Item</u>                              | <u>Article/Section</u> |
|--|------------------------|
| (a) Luminaire .....                      | 1067.01                |
| (b) Wire in the Pole.....                | 1066.09                |
| (c) Fuseholder & Fuses.....              | 1065.01                |
| (d) Lamps .....                          | 1067.02                |
| (e) Fasteners and Hardware.....          | 1088.03                |
| (f) Lightning Protection – Lighting..... | 1065.02                |

Construction Requirements

Each luminaire shall be installed according to the luminaire manufacturer's recommendations and according to Specifications 821.03 and 821.04.

Ballast

The ballast shall be High Pressure Sodium Regulator and shall comply with the requirements of Article 1067.01, Item (5), c, and a. General, of the Standard Specifications except replace

"Ballast shall not be noisy. Noticeable noisy ballasts, as determined by the Engineer, shall be replaced at the Contractor's expense." with "The noise level of the luminaire shall be 35db, or less 'A' weight. Noticeable noisy luminaires, as determined by the Engineer, shall be tested for compliance, and if over 35db, 'A' weight will be rejected. Rejected luminaires shall be replaced at the Contractor's expense.

#### Photometric Performance

1. Unless otherwise indicated, the light distribution shall be medium, Non cut-off, Type III (M-N-III), as defined in the "American National Standard Practice for Roadway Lighting" by the "American National Standard Institute" (ANSI).
2. Unless otherwise indicated, the beam of maximum candlepower for luminaires specified or shown to have "medium" distribution shall be at 75 degrees from horizontal  $\pm$  2 degrees. Submittal information shall identify this angle.
3. The luminaire photometric performance shall produce results equal to or better than those listed in the applicable Photometry Performance Table included in these Special Provisions. Submittal information shall include computer calculations based on the controlling given conditions that demonstrate achievement of all listed performance requirements. The computer calculations shall be done in accordance with I.E.S. recommendations and the submitted calculations shall include point-by-point illuminance, luminance and veiling luminance as well as listings of all indicated averages and ratios. The program used to perform the calculations shall be identified on the submittal.
4. In addition to computer printouts of photometric performance, submittal information shall include:
  - a) Descriptive literature.
  - b) Isofoot-candle chart of horizontal foot-candles.
  - c) Utilization curve.
  - d) Isocandela diagram.
  - e) Luminaire classification per ANSI designation.
  - f) Candlepower values per IESNA.
  - g) Candlepower tables is to be provided on 88.9mm (3.5") diskette in the I.E.S. format.

#### Luminaire Submittal Data

1. Ignitor performance for ballasts.
2. Total ballast losses in watts and percent input.
3. A lamp watt-voltage trace.
4. Regulation data.
5. Lamp current crest factor.
6. Power factor.
7. A table of ballast characteristics showing input amperes, watts and power factor, output volts, amperes, watts at high line, low line and line and a table of crest factors and regulation over the range of values required to produce the lamp volt trace.

#### Independent Testing

Luminaires shall be tested in accordance with Article 1067.01 (7) of the Standard Specifications.



STATE OF ILLINOIS  
 IDOT DISTRICT 4  
 LUMINANCE PERFORMANCE TABLE  
 (400 WATT, MULTI-MOUNT LUMINAIRE)

| <b>GIVEN CONDITIONS</b> |  |             |
|-------------------------|--|-------------|
| ROADWAY DATA            | Pavement Width                           | 14.4 Meters |
|                         | Number of Lanes                          | 4           |
|                         | I.E.S. Surface Classification            | R3          |
|                         | Q-Zero Value                             | .07         |
| LIGHT POLE DATA         | Mounting Height                          | 15.0M       |
|                         | Mast Arm Length                          | Tenon_Mount |
|                         | Pole Set-Back From Edge of Pavement      | 9.0 Meters  |
| LUMINAIRE DATA          | Lamp Type                                | HPS         |
|                         | Lamp Lumens                              | 50000       |
|                         | I.E.S. Vertical Distribution             | Medium      |
|                         | I.E.S. Control of Distribution           | Non cutoff  |
|                         | I.E.S. Lateral Distribution              | III         |
|                         | Total Light Loss Factor                  | 0.90        |
| LAYOUT DATA             | Spacing (same side of the roadway)       | 74 Meters   |
|                         | Configuration                            | Stagger     |
|                         | Luminaire Overhang over edge of pavement | -9.0 Meters |

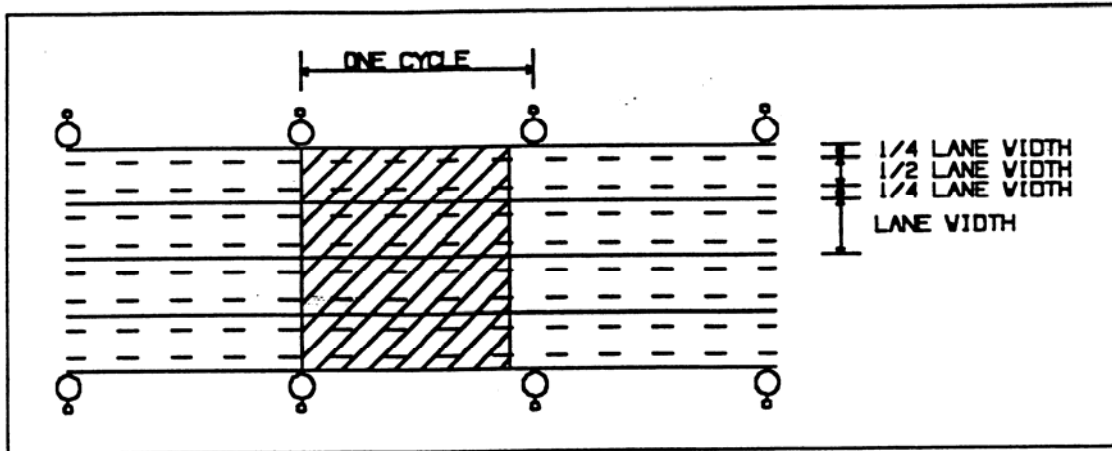
NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

| <b>PERFORMANCE REQUIREMENTS</b> |  |  |
|---------------------------------|--|--|
|---------------------------------|--|--|

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

|              |   |                        |
|--------------|---|------------------------|
| ILLUMINATION | Average Horizontal Illumination, $E_{AVE}$  | 1.08 F.C.              |
|              | Uniformity Ratio, $E_{AVE}/E_{MIN}$         | 3:1                    |
| LUMINANCE    | Average Luminance, $L_{AVE}$                | 0.60 Cd/m <sup>2</sup> |
|              | Uniformity Ratio, $L_{AVE}/L_{MIN}$         | 3.5:1                  |
|              | Uniformity Ratio, $L_{MAX}/L_{MIN}$         | 6:1                    |
|              | Max. Veiling Luminance Ratio, $L_V/L_{AVE}$ | 0.3:1                  |

CALCULATION AREA



MEASUREMENT PARAMETERS

- |    |  |  |
|----|--|--|
| 1. | Observer eye height:                                   | 1.45 meters above grade.   |
| 2. | Line of sight of observer:                             | Downward one degree below horizontal; parallel to the edges of each lane (2 lines per lane). |
| 3. | Lighting system to be measured:                        | Smooth and level, at least 10 mounting heights long.   |
| 4. | Number of points per line:                             | At least 10, not more than 5 meters (16.4 Ft.) apart.  |
| 5. | Area covered by calculation:                           | All points between two luminaires on one side of roadway (see above figure).                 |
| 6. | Calculation point location to contributing luminaires: | At least one luminaire behind, and at least three ahead of calculation point (P).            |

GENERAL NOTES

1. Unless otherwise indicated, luminaire tilt shall be zero degrees.
2. Calculations shall be performed in conformance with I.E.S. recommended procedures.

Basis of Payment

This work will be paid for at the contract unit price each for LUMINAIRE, SODIUM VAPOR, MULTI- MOUNT, 400 WATT.

**INSTALL CONTROLLER**

Effective: October 28, 2002

Revised: November 15, 2004

Description.

This item shall consist of installing a lighting controller, as specified herein. The lighting controller will be furnished by the City of Peoria. The controller shall be picked up from Dries Lane Facility located at 3505 North Dries Lane, Peoria, Illinois 61604. It shall be the responsibility of the Contractor to transport the lighting controller from the facility to the job site.

Inspection and Acceptance.

The Contractor shall examine the lighting controller in the presence of the Engineer. After the Contractor accepts the lighting controller, the Contractor shall be held responsible for the operating condition of the lighting controller.

Transportation.

The Contractor shall transport, handle and install the lighting controller in complete conformance with the City of Peoria recommendations and as directed by the Engineer.

Construction Requirements.

The construction and installation shall be according to Article 825.03 (a) and Article 825.03 (c) of the Standard Specifications. The lighting controller installation shall be according to the details, location, and orientation shown on the plans. The Contractor shall confirm the orientation of the lighting controller, and its door side, with the Engineer, prior to installation.

Basis of Payment.

This work will be paid for at the contract unit price each for INSTALL CONTROLLER.

**SLOTTED VANE DRAIN**

Effective: February 6, 2003

This work shall consist of furnishing all materials, labor and equipment necessary to construct the Slotted Vane Drain as described herein and as shown in the plan details.

Material. Materials shall meet the requirements of the following;

- a) Portland Cement Concrete.....Section 1020
- b) Cast Gray Iron.....ASTM A-48-83 and applicable portions of Section 1006
- c) Pipe.....SDR-35 PVC and applicable portions of Section 1040
- d) Reinforcement.....Section 1006

Method of Measurement. The furnishing and installation of the slotted vane drain will be measured for payment in meters, of drain in place.

Basis of Payment. This work will be paid for at the contract unit price per meter for SLOTTED VANE DRAIN, which price shall include all materials, labor and equipment to construct the slotted vane drain at the locations show, and to the plan details.

## **FENCE REMOVAL**

Effective: June 15, 2002

Revised October 1, 2003

Description. This work shall consist of the removal and satisfactory disposal of existing fence, regardless of fence material type, at locations shown in the plans or as directed by the Engineer.

Construction Requirements. All postholes shall be backfilled and compacted to the satisfaction of the Engineer. Materials resulting from the removal of the existing fences shall be disposed of as specified in Article 202.03 of the Standard Specifications.

Method of Measurement. Fence removal shall be measured for payment in meters, along the top of the fence from center to center of the end posts.

Basis of Payment. This work will be paid for at the contract unit price per meter for FENCE REMOVAL for which said price shall include all equipment, labor, and materials necessary to complete the work as described herein and as shown in the plans.

## **WEEP HOLES CORED**

Effective; August 29, 2003 Revised November 19, 2004

This work shall consist of providing all material and labor necessary for core drilling 75 mm diameter holes into the concrete flume walls or culvert walls, cleaning out the drillings and other loose material, and the secure installation of a 'capsule' of FA-1 aggregate material wrapped in a geotextile filter fabric into the core drilled hole.

Geotextile fabric shall meet the requirements of applicable portions of section 1080 and section 282 of the Standard Specifications. Material weight of 200 grams per square meter will be allowed in accordance with the Standard Specifications. The fabric shall be tied securely with an approved elastic material. Fabric shall overlap to prevent leakage of the FA-1 material.

Coring and the installation of the 'capsule' of FA-1 shall be in accordance with the applicable details and construction notes indicated on the plans, and/or as approved by the Engineer.

This work will be paid for at the contract unit price each for WEEP HOLES CORED.

## **ENGINEERED FILL, CLASS 2**

## **ENGINEERED FILL, CLASS 4**

Effective Feb. 17, 2002 Revised November 16, 2004

This work consists of providing engineered fill consisting of lightweight, cellular concrete at the locations shown in the plans, in accordance with the details in the plans and these special provisions.

The subcontractor that does this work must provide documentation that he or she has satisfactorily completed at least five other installations of cellular concrete of no less than 2000 cubic meters each.

The specialized batching, mixing and placing equipment shall be automated. The batch plant scales shall be inspected and calibrated by a reputable scale servicing company. Bulk cement shall be weighed on a scale, which shall operate within a tolerance of 1 –1/2 percent of the weight of the cement per batch.

Within 15 calendar days after execution of the contract, the Contractor shall submit the following:

Manufacturer’s specifications, catalog cuts, and other engineering data needed to demonstrate compliance with specified requirements. These shall include test reports by test laboratories.

Materials. The materials shall meet the following requirements:

Cement. The Portland cement shall comply with Article 1001.00 – 1001.06 of the Standard Specifications. Pozzolans and other cementitious materials may only be used when specifically approved by the manufacturer of the engineered fill and the Engineer.

Water. Water shall be potable and shall meet the requirements of Section 1002 of the Standard Specifications.

Concrete Admixtures. Concrete admixtures may be used only when approved by the manufacturer of the engineered fill and the Engineer. The concrete admixtures shall meet the requirements of Article 1021.01 – 1021.04 of the Standard Specifications.

Engineered Fill. The engineered fill shall have the following properties:

|   | <u>Class 2</u>              | <u>Class 4</u>              |
|---|-----------------------------|-----------------------------|
| Cast Density ASTM C138  | 384 – 481 kg/m <sup>3</sup> | 577 – 673 kg/m <sup>3</sup> |
| Minimum Compressive Strength @<br>28 days ASTM C495 – Modified  | 276 kPa                     | 827 kPa                     |
| Freeze – Thaw Resistance<br>(min. cycles @ relative E = 70%)<br>per ASTM C666 – Modified              | N/A                         | 300 cycles                  |
| Coefficient of Permeability (cm/sec)<br>Per ASTM D2434  |                             |                             |
| @ 17.2 kPa  | 1.3 X 10 <sup>-3</sup>      | 4.4 X 10 <sup>-6</sup>      |
| @ 124 kPa   | 1.2 X 10 <sup>-4</sup>      | 3.1 X 10 <sup>-7</sup>      |
| Water Absorption<br>Long term immersion as % of<br>cast density (120) days per<br>ASTM C796- Modified | 20% max.                    | 14% max.                    |

Prior to installation of the engineered fill, the ground surface shall be cleared of debris, sharp objects and trees. Tree stumps shall be either removed or cut to the level of the ground surface. All wheel tracks or ruts in excess of 75 mm in depth shall be graded smooth or otherwise filled with soil to provide a reasonably smooth surface. Loose soil resulting from excavation or sloughing of the sides of the excavation shall be removed or compacted using a vibratory plate compactor or other suitable means prior to engineered fill placement.

If required in the plans, a geotechnical fabric for ground stabilization shall be placed in accordance with Section 210 of the Standard Specifications, "Fabric for Ground Stabilization."

If a geomembrane liner is required in the plans, this work shall be done in accordance with special provision for "Geo-membrane Impermeable Liner."

Installation. The engineered fill shall be placed in accordance with the installation procedures provided by the manufacturer of the engineered fill. Each lift of the engineered fill shall be placed to a maximum depth of 0.6-meter (2 feet).

There shall be no standing water in the area to be filled. If necessary, de-watering shall be continuous during the time the engineered fill is constructed.

If any items are to be encased in the fill, the items shall be set to the final location both horizontally and vertically prior to installation of the engineered fill.

Mixing of the engineered fill and placing shall be done as follows:

Only automated proportioning, mixing and placing equipment certified by the manufacturer of the engineered fill shall be used. After mixing, the material shall be promptly placed in the final location.

The plant shall be equipped with an automatic batch counter and automatic timer to account for the foam in the mixer.

The engineered fill shall be placed in lifts as recommended by the manufacturer. The material shall be placed in such a way to prevent segregation. Intermediate lifts may be placed horizontal. Only the top lift must be sloped to grade.

The final surface of the engineered fill shall be within 30 mm of the plan elevation.

It is the contractor's responsibility to maintain the Engineered Fill location and position against shifting, flotation or movement until sufficient overburden can be placed on top the Engineered Fill. Should the Engineered Fill shift or lift off of the underlying soil, the contractor shall remove and replace the Engineered Fill at his own expense.

Temperature Requirements. The air temperature shall not be less than 1.7 degrees C at the time of placement. The temperature of the engineered fill mixture at the point of discharge shall not be below 7.2 degrees C nor greater than 35 degrees C.

Testing. During placement of the initial batches, the density shall be checked and adjustments made to obtain the specified cast density at the point of placement. Density of the mix shall only be adjusted by increasing or decreasing the foam.

Four test specimens shall be obtained for each 230 cubic meters of engineered fill placed or for each four hours of placing.

The specimens shall be tested in accordance with ASTM C495 except:

The test specimens shall be 6" X 12" cylinders. The specimens shall be covered immediately to prevent damage and loss of moisture.

The specimens shall be moist cured for 7 days prior to a 28-day compressive strength test. Do not oven dry test specimens.

Specimens may be tested at any age to monitor the compressive strength. At least 2 specimens from each series should be tested at 28 days. The manufacturer may require special handling and testing techniques of the engineered fill.

#### METHOD OF MEASUREMENT.

Contract Quantities. When the project is constructed essentially to the lines, grades or dimensions shown on the plans and the Contractor and the Engineer have agreed in writing that the plan quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract and payment will be made for the various items involved except that if errors are discovered after work has been started, appropriate adjustments will be made.

When the plans have been altered or when disagreement exists, between the contractor and the engineer, as to the accuracy of the plan quantities, either party shall, before any work is started, which would affect the measurement, have the right to require in writing and thereby cause the quantities involved to be measured as hereinafter specified.

Measured Quantities. Engineered fill will be measured in its final position and the volume in cubic metes computed by method of average end areas shall not exceed the neat lines shown in the plans unless ordered in writing by the Engineer.

Basis of Payment. This work will be paid for at the contract until price per cubic meter for ENGINEERED FILL, CLASS 2 and ENGINEERED FILL, CLASS 4.

Geo-technical fabric and geo-membrane, if specified, shall be paid for separately.

#### **COMPRESSIBLE FILL MATERIAL**

Effective December 10, 2004

Description. This work shall consist of placing and loosely compacting rubber tire chips and/or shredded rubber tire fill in accordance with this specification in reasonably close conformity with the lines, grades, thickness and typical cross sections, as shown on the plans.

Materials. The compressible fill material shall be made from scrap tires which shall be shredded into the Type B designation. The material shall be produced by a shearing or cutting process. Tire particles produced by a hammer mill will not be allowed. The tire particles shall be free on

any contaminates such as oil, gasoline, diesel, grease, etc. that could leach into the ground water. In no case shall the tire particles contain the remains of tires that have been subjected to a fire. Type B tire particles will be a cell enclosed in geotextile fabric.

Tire particles which have become contaminated and/or otherwise deemed unacceptable by the Engineer as a result of the activities of this contract shall be removed or processed as directed by the Engineer at no additional cost.

The gradation shall be measured in accordance with the following table. Any tire particle shall contain no more than one (1) side wall. Free loose metal not encased in rubber shall not exceed one (1) percent by mass.

| Type B Grading | %        |
|----------------|----------|
| 300 mm (12")   | 100 min. |
| 200 mm ( 8")   | 75 min.  |
| 37.5 mm(1.5")  | 25 max.  |
| 4.75 mm(No.4)  | 1 max.   |

Sample size = 11.4 kg (25 lb) min.

The tire particles shall be well graded, with no pockets of either fine or coarse tire particles. Segregation of large or fine particles will not be allowed.

The tire particle cell shall be enclosed in a layer of geotextile as shown on the plans. The geotextile shall meet the requirements of Article 1080.02 of the Standard Specifications, and shall be installed with a minimum 450 mm (18 inch) overlap. Holes or tears in geotextile shall be repaired or replaced as directed by the Engineer. Payment for the geotextile shall be considered included in the pay item Compressible Fill Material.

Material Storage. Tire particles shall be stored in an area acceptable to the Engineer.

Equipment. The machinery, tools and equipment necessary for proper execution of the work shall be on the project site and approved by the Engineer prior to the beginning of construction operations for this Item. All machinery, tools and equipment used shall be maintained in a satisfactory working condition.

Construction Methods. It is the primary requirement of this specification to provide a fill with tire particles as noted on the plans. It shall be the responsibility of the Contractor to regulate the sequence of his work, to provide the depths as shown on the plans, maintain the work and rework the courses as necessary to meet these requirements.

Subgrade Preparation. The subgrade that will underlie the tire particle course shall meet the grade tolerance indicated on the drawings. Tire particle courses will not be placed on frozen ground.

Shaping and Compacting. Each lift of a tire particle cell shall be placed in 600 mm lifts with minimal compaction, unless otherwise directed by the Engineer.



The surface of each layer shall be maintained during compaction operations in such a manner that a uniform texture is produced and the tire particles are firmly keyed together. A tolerance of 75 mm (3 inches) above or 75 mm (3 inches) below the required grade and cross section will be allowed.

After the fill has been completed and final grade elevations have been achieved, a minimum of 30 days shall have lapsed for tire consolidation before final cover is placed.

Method of Measurement. The tire particle course placed as compressible fill material in accordance with the widths and thickness shown on the plans and compacted as specified will be measured by the cubic meter in place.

Basis of Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the contract unit price bid for "Compressible Fill Material", of the type specified. This price shall be full compensation for furnishing and installing geotextile fabric; for furnishing and hauling shredded tires; placing, compacting, reworking, removal and reprocessing if needed; re-compacting if needed; and for all labor, tools, equipment and incidentals necessary to complete the work. Payment for soil excavation and soil removal for the fill material shall be included in the pay item COMPRESSIBLE FILL MATERIAL.

#### **FABRIC REINFORCED ELASTOMERIC MAT**

Effective: July 14, 2000

Revised: January 24, 2005

Description. This work shall consist of furnishing and installing the fabric reinforced elastomeric mat as shown on the plans and as directed by the Engineer.

Materials. The elastomeric material requirements for the reinforced mat shall be according to the following:

The Elastomer Compound for the mat shall be according to AASHTO M 251 for Polychloroprene "50 duro", except the tensile strength shall be 10.3 MPa (1500 psi) minimum or it shall be (EPDM) ethylene propylene diene monomer according to Article 1052.02 of the Standard Specifications.

The composite of the fabric and elastomer shall have a minimum tensile strength of 122.6 x 122.6 N/mm (700 x 700 lb/in) according to ASTM D 378.

The minimum elongation at ultimate tensile strength shall be 30 percent according to ASTM D 412.

The minimum thickness of the reinforced mat shall be 3mm (1/8 in.).

The reinforced mat shall be waterproofed as detailed on the plans with an approved waterproofing material.

Method of Measurement. The fabric reinforced elastomeric mat and all hardware necessary to install the mat including adhesive and waterproofing material will not be measured for payment

but shall be included in the MECHANICALLY STABILIZED EARTH RETAINING WALL pay item.

### **UTILITY COORDINATION**

Effective December 20, 2004

Description: A GPSD Manhole is located at Sta. 11+036, 32m Lt. (Ramp B-3 Baseline). This manhole is located at the toe of slope of the new ditching and riprap. This manhole needs to be adjusted, by GPSD forces, and coordinated with the contractor.

This item will not be measured for payment, but considered included in the contract price.

### **PRESTAGE SITE CONSTRUCTION MEETINGS**

Effective June 1, 1992

This work shall consist of meetings with all concerned parties prior to each construction stage. The meetings shall be set up and conducted by the Contractor and shall include all Subcontractors connected with the particular stage. The Department's project staff and all concerned parties, as directed by the Engineer, shall be invited to attend.

The meetings are intended to help improve the coordination and quality of construction, personnel safety on the project site, and safety of the traveling public.

At each meeting, the Contractor shall indicate the current construction schedule for the particular stage, discuss maintenance of traffic, traffic control, project site personnel safety, compliance with the plans and specifications including quality construction, and all other pertinent subjects. Minutes of the meetings will be taken by the Resident Engineer and distributed to those persons in attendance.

The prestage site construction meetings will not be paid for separately but shall be included in the cost of the traffic control item(s) in the contract.

### **REMOVAL OF ABANDONED UNDERGROUND UTILITIES**

Effective January 15, 1996      Revised November 21, 1996

This work shall be completed in accordance with Article 105.07 of the Standard Specifications and the items outlined herein:

The cost of removal of abandoned or to be abandoned underground utilities shown on the plans are the responsibility of the owner. The Contractor shall make arrangements with the utility owner for removal and payment. The utility owner is listed in the plans under Status of Utilities.

Prior to removal of the abandoned facility, the owner shall be notified so that representatives can be present during the removal operation.

If an unknown abandoned utility is encountered, the Contractor will be paid for any removal required by the Engineer as extra work in accordance with Article 109.04 of the Standard Specifications.

**BORROW AND FURNISHED EXCAVATION**

Effective March 7, 2000

Revised October 15, 2001

Add the following to the requirements of Article 204:

“Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both sides and top with a minimum of 900mm (3 feet) of non-restricted soil not considered detrimental in terms of erosion potential or excess volume change. A restricted soil is defined as having any one of the following properties:”

- A grain size distribution with less than 35% passing the number 75um (#200) sieve.
- A plasticity index of less than 12.
- A liquid limit in excess of 50.

“All restricted and non-restricted embankment materials shall have the following minimum strengths for the indicated moistures:”

| <b>Immediate Bearing Value</b> | <b><u>Shear Strength At 95% Density *</u></b> | <b><u>Moisture</u></b> |
|--------------------------------|---|------------------------|
| 3.0                            | 50 Kpa (1000 PSF)                             | 120%                   |
| 4.0                            | 62 Kpa (1300 PSF)                             | 110%                   |

\*Granular Soils  $\phi=35^\circ$

**EMBANKMENT (RESTRICTIONS)**

Effective January 21, 2005

Add the following to the requirements of Article 205.04(a):

Gravel, crushed stone or soils having less than 35% passing the number 200 sieve and other materials as allowed by Article 202.03 of the standard specifications are further restricted. These further restricted materials are also limited to the interior of the embankment and shall have a minimum cover of 1 m (3') of non-restricted soil (see “Borrow and Furnished Excavation” Special Provision). Alternating layers of further restricted material and cohesive soil will not be permitted. The further restricted materials may only be incorporated into the embankment by using one of the following procedures:

- a. The further restricted materials shall be placed in 4” lifts and disked with the underlying lift material until a uniform and homogenous material is formed having more than 35% passing the number 200 sieve.

- b. Sand, gravel or crushed stone embankment when placed on the existing ground surface will be drained using a 3 m (10') by 3m (10') french drain consisting of nonwoven geotechnical fabric with 0.3 m (12") of B-3 riprap. This shall be constructed on both sides of the embankment at the toe of the foreslope spaced 46 m (150') apart. At locations requiring a French drain the 1m (3') cohesive cap shall not be installed within the 3m by 3m riprap area. If the Engineer determines that the existing ground is a granular free draining soil, the french drain may be deleted.
- c. Sand, gravel or crushed stone embankment when placed on top of a cohesive embankment will be drained with a permanent 100 mm (4") underdrain system. The underdrain system shall consist of a longitudinal underdrain on both sides of the embankment and transverse underdrains spaced at 75 m (250') centers. The underdrain shall consist of a 0.6 m (2') deep by 0.3 m (1') wide trench, backfilled with FA4 sand and a 100 mm (4") diameter underdrain. In addition, both sides of the embankment will have a 150 mm (6") diameter pipe drain which will drain the underdrain system and outletted into a permanent drainage structure or outletted by a headwall at the toe of the embankment.

The above work will not be paid for separately but shall be included in the cost of Earth Excavation, Furnished Excavation, or Borrow Excavation.

#### **EMBANKMENT**

Effective: July 1, 1990

Revised: January 22, 2002

Revise the third paragraph of Article 205.05 of the Standard Specifications to read:

All embankment shall be constructed with not more than 110% of optimum moisture content, determined according to AASHTO T 99 (Method C). The 110% of optimum moisture limit may be waived in free draining granular material when approved by the Engineer.

The Contractor may, at his option, add a drying agent to lower the moisture content as specified above. The drying agent must be approved by the Engineer prior to use. Extra compensation will not be allowed for the use of a drying agent but will be considered included in the cost of the various items of excavation.

#### **PROOF ROLLING**

Effective April 23, 2004

This work shall consist of proof rolling the embankment with a fully loaded tandem axle dump truck and driver at the direction of the Engineer. The truck shall travel the subgrade in all of the proposed lanes of traffic in the presence of the Engineer.

This work will not be paid for separately, but considered included in the various earthwork pay items.

### **SUBGRADE TREATMENT**

Effective July 1, 1990

Revised October 1, 1999

Revise the third paragraph of Article 301.03 of the Standard Specifications to read:

In cut sections, the Contractor responsible for the rough grading shall take the following steps in an effort to obtain not less than 95% of the standard laboratory density in the subgrade and not more than 110% of the optimum moisture for the top 300 mm (1 ft.) of the subgrade.

### **SUBBASE GRANULAR MATERIAL**

Effective: November 5, 2004

This work shall be in accordance with Section 311 of the Standard Specifications and as specified herein.

All Subbase Granular Material shall have a minimum IBR of 40.

### **PROTECTION OF FRAMES AND LIDS OF UTILITY STRUCTURES**

Effective March 6, 1991

Revised September 29, 2000

This work shall consist of protecting frames and lids of utility structures in the pavement after the adjacent bituminous surface has been removed to the required depth by cold milling or by hand methods.

After the area has been swept clean and before the lane is opened to traffic, a hot bituminous mixture shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 1.2 m (4 feet) around the entire surface of the casting. Cold mix or milled material will not be permitted. This mixture shall remain in place until the day surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary bituminous mixture shall be removed and disposed of by the Contractor as specified in Article 202.03 of the Standard Specifications.

The temporary bituminous tapers and their removal shall be considered included in the contract unit price per square meter (square yard) for BITUMINOUS SURFACE REMOVAL of the depth specified, and no additional compensation will be allowed.

### **REFLECTIVE CRACK CONTROL TREATMENT**

Effective March 1, 1996

Revised March 1, 1997

Revise the 2nd and 3rd sentences of Article 443.01 to read as follows:

“Area reflective crack control treatment shall be System A. Strip reflective crack control treatment shall be System A.”

Add the following paragraph to Article 443.04:

“If rain is imminent, the Contractor is to apply a fog coat prime and a fine aggregate blotter, as directed by the Engineer, to all area crack control fabric that has been placed but not overlaid. This work shall be completed in accordance with Article 406.06, and will be paid for in accordance with Article 109.04.”

Add the following paragraph to Article 443.05:

“The bituminous concrete leveling binder, binder course, or surface course mixture placement on the crack control treatment shall be completed within two working days of the time the crack control is installed.

Reflective crack control treatment placed more than two working days in advance of the overlay placement will be inspected by the Engineer prior to placing the overlay. Any corrective work required by the Engineer shall be completed by the Contractor at no cost to the Department.”

Revise the first sentence of Article 443.06 to read as follows:

“The area to be covered with fabric shall be sprayed uniformly with asphalt binder at a rate of 0.8 to 1.3 L/m<sup>2</sup> (0.20 to 0.30 gal/sq yd) as directed by the Engineer.

Add after the first paragraph of Article 443.06:

“If the asphalt cement binder bleeds through the fabric under traffic, then a fine aggregate blotter shall be applied as directed by the Engineer and paid for in accordance with Article 109.04.

After reflective crack control placement and prior to the bituminous overlay placement, the Contractor shall furnish, erect and maintain SLIPPERY WHEN WET signs at such locations when required during wet weather. The cost of this work shall be included in the unit prices bid and no additional compensation will be allowed.”

## **BITUMINOUS SHOULDER RESURFACING CONSTRUCTED SIMULTANEOUSLY WITH MAINLINE PAVING**

Effective January 22, 2001

Revised April 29, 2005

If the Department allows resurfacing bituminous shoulders simultaneously with the mainline pavement resurfacing, a roller meeting the requirements of Article 482.06 shall be required. This roller will be in addition to any rollers required for compaction of the mainline roadway resurfacing. This additional roller will not be paid for separately, but shall be included in the contract unit price bid for the mainline bituminous material being placed.

## **CONCRETE HEADWALL REMOVAL**

Effective July 1, 1990

This work shall consist of the removal of existing concrete headwalls at various locations as shown on the plans and shall be done in accordance with the applicable portions of Section 501 of the Standard Specifications.

The above work shall include the removal of the first section of pipe with the headwall. The removal of the first section of pipe will not be paid for separately, but shall be included in the unit price each for CONCRETE HEADWALL REMOVAL, and no additional compensation will be allowed due to the various sizes of pipes and headwalls.

### **GUARDRAIL AGGREGATE EROSION CONTROL**

Effective February 1, 1993

Revised May 1, 1995

This work shall consist of furnishing, placing, and shaping crushed aggregate placed around and behind guardrail posts in accordance with plan details.

Method of Measurement: The aggregate for constructing the Guardrail Aggregate Erosion Control will be measured in metric tons (tons).

The Geotextile Fabric will not be measured for payment.

Basis of Payment: Guardrail Aggregate Erosion Control will be paid for at the contract unit price per metric ton (ton) for GUARDRAIL AGGREGATE EROSION CONTROL measured as specified herein. The Geotextile Fabric will not be measured for payment, but shall be included in the cost per metric ton (ton) for GUARDRAIL AGGREGATE EROSION CONTROL.

### **PERMANENT SURVEY MARKER, TYPE 1, BRIDGE PLACEMENT**

Effective July 1, 1990

Revised September 1, 1997

This work shall consist of furnishing and installing a Permanent Survey Marker as shown on the plans and as specified herein. The survey marker shall be placed in either the abutment seat or in the top of the wingwall. The survey marker shall be located in the same corner as the Bridge Name Plate as shown on the current Standard for Name Plate for Bridges. If the survey marker is to be located on the abutment seat of the structure, it shall be placed in a location with at least 2.4 m (8'-0") vertical clearance directly above the survey marker, if possible.

After installation, the Contractor shall stamp the elevation provided by the Engineer in the face of the survey marker. The Engineer shall provide the District Chief of Surveys with the elevation and location of the marker.

This work will be paid for at the contract unit price each for PERMANENT SURVEY MARKER, TYPE I.

### **PERMANENT SURVEY TIES**

Effective April 1, 1991

Revised July 1, 1994

This work shall consist of furnishing and installing a permanent survey tie at the locations shown in the plans and in accordance with the Detail for Permanent Survey Ties included in the plans.

The Class SI concrete used in the permanent survey ties shall be in accordance with Section 503 of the Standard Specifications. The reinforcement bars used shall be in accordance with Section 508 of the Standard Specifications.

### **SPEEDING PENALTY**

Effective: January 21, 2005

For traffic control standards containing Illinois Sign Standard R2-I106. The dollar amount to be placed on the sign is \$375. Therefore, the sign shall read "\$375 FINE MINIMUM."

The cost of this work shall be included in the cost of the traffic control standard.

### **THERMOPLASTIC PAVEMENT MARKING EQUIPMENT**

Effective July 1, 1990

Revised October 29, 1996

In lieu of the truck-mounted application equipment required for placing lane and edge lines on freeways by Section 780 of the Standard Specifications, the Contractor may utilize a smaller, self-propelled unit which is capable of maintaining a continuous operating speed of at least 5 km/h (3 MPH). Any such unit shall have a capacity of at least 500 pounds of molten thermoplastic and 80 kg (150 pounds) of beads. The unit shall have at least 4 automobile or truck-sized wheels. The operator shall be positioned on the unit and not on a sulky. The unit shall be capable of applying continuous or broken line without straddling the line. Nursing shall be accomplished without the nurse vehicle encroaching on a through traffic lane. All other requirements of Section 780 shall apply.

If the Contractor elects to use the above stated equipment, he shall only apply the pavement markings while utilizing a lane closure in accordance with Traffic Control and Protection Standard 701406. An arrowboard will be required. Standard 701406 will not be paid for separately but shall be considered included in the cost of the various thermoplastic pavement-marking items.

### **TRENCH AND BACKFILL, SPECIAL FOR CONDUIT INSTALLATION BENEATH BITUMINOUS SHOULDERS**

Effective March 21, 1994

Revised October 29, 1996

This work shall consist of constructing a trench beneath the bituminous paved shoulder and backfilling it.

The trench shall be constructed in accordance with and at the locations specified in the plans or as directed by the Engineer. The sides of the trench shall be saw-cut through the full depth of the bituminous shoulder material.

The trench shall be not less than 600 mm (24") in depth. The width shall be as required to accommodate the appropriate number of conduits required at each specified location. The bottom of the trench shall be tamped and the trench inspected by the Engineer before the conduits are placed in the trench.

All trenches shall be backfilled as soon as possible after the installation of the conduits. The trench shall be backfilled in accordance with Section 208 of the Standard Specifications. Cinders, rocks, or other deleterious materials will not be permitted in the backfilling material.



Backfilling materials shall be deposited in the trench in layers not to exceed 150 mm (6") in depth, and shall be thoroughly compacted with a mechanical tamper before the next layer is deposited in the trench.

Bituminous surfacing shall be used to restore the shoulders to the existing grade. The bituminous material shall be compacted and finished as directed by the Engineer.

This work will be paid for at the contract unit price per meter (foot), measured in place along a line perpendicular to the roadway centerline and between the edge of pavement and the outside edge of the shoulders, for TRENCH AND BACKFILL, SPECIAL. The price for this item shall include the cost of all excavation, furnishing, and placing all backfill material, the disposal of surplus material, and the bituminous surfacing.

### **TERMINAL FACILITY**

Effective March 21, 1994

Revised September 1, 1997

This item shall consist of furnishing and installing a loop terminal facility at the location indicated on the plans, or as directed by the Engineer.

The terminal facility shall be provided and wired as shown on the plans. The metal moisture-proof mounting box shall have a keyed entry and shall be mounted on a 102 mm x 152 mm x 1.83 m (4" x 6" x 6') or 102 mm x 102 mm x 1.83 mm (4" x 4" x 6') treated wood post (as directed by the Engineer) meeting the requirements of Section 1007 of the Standard Specifications. The treated wood post shall be installed at the location indicated on the plans or as directed by the Engineer. The P.V.C. conduit will be of the same type used in P.V.C. Conduit in Trench.

The #18 multi-pair twisted shielded wire loop leads shall be placed in the box to provide slack as necessary to connect to the terminal strip. The two lead wires from each loop shall be connected to their respective terminals on the terminal strip.

The metal moisture-proof mounting box shall be fastened to the treated wood post through at least two lugs with 38 mm (1-1/2") #8 round head wood screws. The metal moisture-proof mounting box shall be attached with a reducing adapter to the vertical section of P.V.C. conduit. The P.V.C. conduit shall be held in place against the treated wood post with a clamp located approximately 229 mm (9") above the ground line.

Care should be taken during the backfilling of the trench to not put excessive pressure on the conduit and cause a separation of conduit and reducing adapter.

This work will be paid for at the contract unit price each for TERMINAL FACILITY, which price shall be payment in full for all necessary labor, equipment, backfilling, disposal of surplus materials, and furnishing all materials for completion of the facility.

**ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18**

Effective March 21, 1994

Revised October 15, 2001

This work shall consist of furnishing and installing loop detector lead-in cables of interconnect cables of the number of pairs specified in the conduit in accordance with the requirements of Section 873 of the Standard Specifications and the following exceptions or additions:

Each end of the cable shall be identified with wire markers as directed by the Engineer.

The drain wire of each pair shall be grounded to chassis ground in the terminal facility junction box for surge suppression.

The electrical values of the cable shall be metered by the Contractor, in the presence of the Engineer, after they are spliced to the detector loop. Acceptance of the cable as metered will be determined by the Engineer.

This work will be paid for at the contract unit price per meter (foot) for ELECTRICAL CABLE IN CONDUIT, LEAD-IN, NO. 18, 1-PAIR or ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 18, 3-PAIR, which price shall be payment in full for furnishing the material and making all electrical connections and installing the cable complete, measured as specified.

**DETECTOR LOOP, SPECIAL FOR TRAFFIC COUNTERS**

Effective March 21, 1994

Revised October 15, 2001

This work shall consist of furnishing, installing, and testing detector loops in the pavement in conformance with the requirements of the plans, Section 886 of the Standard Specifications for Type I Detector Loops with the following exceptions:

If the saw slot was dry cut, water does not have to be used in the cleaning of the sawed slot. The slot may be cleaned by air pressure alone. If water is used, all water must be cleaned from slots by compressed air before wire installation.

Drilled holes shall be made at all corners to prevent sharp bends in the wire. Diagonal saw cuts shall not be used. The diameter of the holes shall be 32 mm (1-1/4"). The sharp corners where the drilled holes intersect the saw slots shall be knocked off with a chisel.

The resistance shall be a minimum of 100 megohms above ground under any conditions of weather or moisture. The loop and lead-in circuit shall have an inductance between 50 and 350 microhenries, 175 microhenries nominal. The quality factor (Q) shall be greater than 5. The Contractor shall provide the necessary instruments and do all the testing in the presence of the Engineer, and shall provide a copy of test results.

Each detector lead-in shall be installed in a separate P.V.C. conduit as shown in the plans. This conduit extends from the edge of pavement to the nearest gulfbox or terminal facility. The lead-in wires from each loop shall be twisted a minimum of 5 turns per 305 mm (12").

Detector loops shall be centered in traffic lanes unless designated otherwise on the plans or by the Engineer. Traffic lanes shall be referred to by number as shown on the plans, and loop

wires shall be color-coded accordingly. Color code shall be: Lane #1 - red, Lane #2 - white, Lane #3 - green, and Lane #4 - blue.

At all locations where pavement joints that are not doweled or pavement separation cracks (including areas where bituminous pavement abuts concrete pavement) are encountered by the slots sawed for the placement of the detector loops or lead-ins, a cored expansion hole shall be made per Standard 886001. The cored expansion holes are included in this pay item and no additional compensation will be made.

This work will be paid for at the contract unit price per meter (foot) of DETECTOR LOOP, SPECIAL of the type specified, measured along the sawed slot in the pavement containing the loops and lead-in, rather than the actual length of wire in the slot, which price shall be payment in full for furnishing, installing, and testing the detector loop complete in place.

### **GRANULAR AGGREGATE COURSES**

Effective February 19, 1992

Revised October 1, 1999

Revise the first sentence in the fifth paragraph of Article 1004.04(c) to read: "For granular aggregate courses--base, subbase, and shoulder except subbase Types B and C--gradation CA 6 or CA 10 may be used."

### **RAP MATERIALS - CRUSHED STEEL SLAG**

Effective April 1, 1997

Add the following to Article 1004.07 of the Standard Specifications: RAP containing crushed steel slag will be permitted in Bituminous Mixtures C and D as final top lift only.

### **MULTIPLE CONCRETE PLANTS**

Effective December 18, 2003

**Use of Multiple Plants in the Same Construction Item.** The Contractor has the option to simultaneously use central-mixed, truck-mixed, or shrink-mixed concrete from more than one plant, in the same construction item. However, the following criteria shall be met:

- (a) For each plant the cement, fly ash, ground granulated blast-furnace slag, micro silica, and high-reactivity metakaolin shall be the same material and from the same source. This requirement may not be changed by Articles 1001.04, 1010.03, 1014.02, 1015.02, and 1016.02.
- (b) For each plant the fine aggregate shall be the same material and from the same source. This requirement may not be changed by Article 1003.02 (d).
- (c) For each plant the coarse aggregate shall be the same material and from the same source. This requirement may not be changed by Article 1004.02 (e).
- (d) For each plant the admixtures shall be the same material and from the same source.
- (e) For each plant the mix design material proportions and water/cement ratio shall be the same. 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.

- (f) The maximum slump difference between deliveries of concrete shall be 19 mm (0.75 in.) 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 test subsequent deliveries of concrete. For each day, the first three truck loads of delivered concrete from each plant shall be tested for slump. Thereafter, when a specified test frequency for slump is to be performed, it shall be conducted for each plant at the same time.
- (g) The maximum air content difference between deliveries of concrete shall be 0.9 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 test subsequent deliveries of concrete. For each day, the first three truck loads of delivered concrete from each plant shall be tested for air content. Thereafter, when a specified test frequency for air content is to be performed, it shall be conducted for each plant at the same time.
- (h) Compressive strength tests shall be performed and taken at the jobsite for each plant. When a specified compressive strength is to be performed, it shall be conducted for each plant at the same time. The difference between plants for their compressive strength mean shall not exceed 2070 kPa (300 psi). The compressive strength standard deviation for each plant shall not exceed 3450 kPa (500 psi). The mean and standard deviation requirements shall apply to any point of time for testing.
- (i) 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.

If the Contractor does not consistently meet all criteria for providing uniform concrete during construction, the Engineer will either shut down delivery from a plant or require the Contractor to take additional corrective action. If the Engineer allows additional corrective action and it is unsuccessful, delivery from a plant will be shut down.

## **SELF-CONSOLIDATING CONCRETE FOR CAST-IN-PLACE CONCRETE ITEMS**

Effective April 9, 2004

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. A self-consolidating admixture system may be used for cast-in-place concrete items when approved by the Engineer. The design and testing of a self-consolidating concrete mixture shall be according to Section 1020 of the Standard Specifications except as modified herein.

Materials. Materials shall conform to the following requirements:

- (1) Cement. The minimum cement factor shall be according to Article 1020.04 or as specified. The maximum cement factor shall be 418 kg/cu m (7.05 cwt/cu yd). The cement factor shall not be reduced if a water-reducing, retarding, or high range water-reducing admixture is used.

- (2) Water-Cement Ratio. The maximum allowable water/cement ratio shall be according to Article 1020.04 or 0.42, whichever is lower.
- (3) Slump Flow. The allowable slump flow range shall be 510 mm (20 in.) minimum to 760 mm (30 in.) maximum.
- (4) Visual Stability Index (VSI). The VSI shall be a maximum of 1.
- (5) Fine Aggregate. The fine aggregate proportion shall not exceed 50 % mass (weight) of the total aggregate used.
- (6) Coarse Aggregate. The allowable coarse aggregate gradations shall be CA 7, CA 11, CA 13, CA 14, CA 16, or a blend of these gradations.

All mix designs will be created by the Department in cooperation with the admixture supplier.

Self-Consolidating Concrete Trial Batch. A trial batch for the self-consolidating concrete mix design shall be scheduled a minimum of 21 calendar days prior to anticipated use, and shall be performed in the presence of the Engineer.

A minimum 1 cubic meter (1 cubic yard) trial batch shall be produced. The mixture will be evaluated by the Department for compressive strength, air content, slump flow, and visual stability index. The mixture shall be required to consolidate without vibration. The Contractor shall provide the labor, equipment, and materials to test the concrete. If necessary, the Contractor shall be responsible for disposal of the concrete according to Article 202.03.

For the trial batch, the slump flow shall be within  $\pm 20$  mm (0.75 in.) and the air content within  $\pm 0.5$  percent of the mix design target values. The values shall also be within specification limits. The visual stability index shall be a maximum of 1. Strength shall be determined by the Contractor at 3, 7, and 14 days. At the Contractor's option, strength may be determined for additional days. Each day's strength shall be determined as the average of a minimum of two cylinder breaks. The Contractor shall perform tests according to Illinois Modified AASHTO T 22, T 23, T 141, and T 152, except all specimen molds and test containers shall be filled in one lift without vibration, rodding, or tapping. The slump flow and visual stability index shall be done per the Department's test method.

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 and a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a flowable concrete that does not require mechanical vibration.

- (a) The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F.
- (b) The viscosity modifying admixture will be evaluated according to the test methods referenced in AASHTO M 194, and shall comply with the following physical requirements.

- (1) For initial and final set times, the allowable deviation of the test concrete from the reference concrete shall not be more than 1.0 hour earlier or 1.5 hours later.
- (2) For compressive and flexural strengths, the test concrete shall be a minimum of 90 percent of the reference concrete at 3, 7, and 28 days.
- (3) The length change of the test concrete shall be a maximum 135 percent of the reference concrete. However, if the length change of the reference concrete is less than 0.030 percent, the length change of the test concrete shall be a maximum 0.010 percentage units greater than the reference concrete.
- (4) The relative durability factor of the test concrete shall be a minimum 80 percent.

Mixing Procedures for Ready-Mix Suppliers. It may be necessary to alter batching sequences to incorporate the SCC admixture. Batching procedures will be established by the admixture supplier and approved by the Department.

Article 1020.11 (d)(2) for transit mixed concrete will be modified to increase the number of mixing revolutions at the plant from 70 revolutions to 100 revolutions minimum. Central-mixed plants may require additional mixing time for SCC batches if the desired initial flow is not evident at the jobsite. The additional mixing time will be determined by the Engineer.

At the start of a contract and in the absence of previous experience with the particular mix design, additional resources may be needed for supervision of all aspects of initial production of SCC.

Since the quality of freshly mixed concrete may fluctuate at the beginning of production, it is recommended that workability tests should be conducted by the producer on every load, until consistent and compliant results are obtained. Subsequently, every delivered batch should be visually checked before transportation to site, and routine testing carried out to the specified frequency as per the QC/QA specifications.

Careful and diligent monitoring of aggregate moisture content is paramount to the success of batching consistent SCC. More frequent adjustment of mix proportions, particularly water content, may need to be made, depending on the results from monitoring aggregate moisture content.

Delivery and Transportation. Depending on the size of the concrete structure to be produced in SCC, production capacity, journey time, and placing capability need to be balanced. Unexpected production stops can result in consistency variations that adversely affect the end result. Placing is faster, especially if a pump is used, but it is still essential to make sure that delivery and placing can be completed within the workability-retention (self-compactability) time of the concrete.

Concrete Placement and Formwork: Formwork should be built to ensure fluid concrete will not be lost through large gaps or openings. For forms in excess of 3m in height, the full hydrostatic head pressure of the concrete should be taken into consideration. This may require modification of the formwork design.

To limit the potential for mix segregation, the maximum distance of horizontal flow from point of discharge is 10m. This distance may be extended if the contractor can demonstrate that greater distances can be poured without adverse effects on the quality of the mix or the aesthetics of the finish.

Curing: SCC tends to dry faster than conventional concrete because there is little or no bleed water at the surface. Therefore, initial curing should be commenced as soon as practicable after placing in order to minimize the risk of shrinkage cracking.

## **ALKALI-SILICA REACTION (ASR) MITIGATION**

Effective April 9, 2004

### Description.

Mix Design Material Selection Requirements Based on Fine Aggregate Alkali-Silica Reactivity. This specification applies to all cast-in-place concrete.

#### Fine Aggregate or Fine Aggregate Blend has an expansion less than 0.10% per ASTM C 1260

Option 1: No maximum alkali content shall apply to the cement or finely divided minerals, but the coarse aggregate or coarse aggregate blend shall have an expansion equal to or less than 0.10% per ASTM C 1260.

Option 2: No maximum alkali content shall apply to the cement, but the coarse aggregate or coarse aggregate blend shall have an expansion equal to or less than 0.20% per ASTM C 1260, and each finely divided mineral used shall have a maximum alkali content of 1.50%.

#### Fine Aggregate or Fine Aggregate Blend has an expansion of 0.10% to 0.20% per ASTM C 1260

Option 1: No maximum alkali content shall apply to the cement, but the coarse aggregate or coarse aggregate blend shall have an expansion equal to or less than 0.10% per ASTM C 1260, and each finely divided mineral used shall have a maximum alkali content of 1.50%.

Option 2: No maximum alkali content shall apply to the cement, but the coarse aggregate or coarse aggregate blend shall have an expansion equal to or less than 0.20% per ASTM C 1260, and each finely divided mineral used shall have a maximum alkali content of 1.00%.

#### Fine Aggregate or Fine Aggregate Blend has an expansion greater than 0.20% but does not exceed 0.30% per ASTM C 1260

Option 1: No maximum alkali content shall apply to the cement, but the coarse aggregate or coarse aggregate blend shall have an expansion equal to or less than 0.10% per ASTM C 1260, and ground granulated blast-furnace slag with a maximum alkali content of 1.00% shall be used. The ground granulated blast-furnace slag shall replace 25% of the cement factor at 1:1. In lieu of ground granulated blast-furnace slag, Class F fly ash may be used if it has a maximum alkali content of 1.00%. The Class F fly ash shall replace 15% of the cement factor at 1.5:1.

Option 2: A maximum alkali content of 0.60% shall apply to the cement, the coarse aggregate or coarse aggregate blend shall have an expansion equal to or less than 0.20% per ASTM C 1260, and ground granulated blast-furnace slag with a maximum alkali content of 1.00% shall be used. The ground granulated blast-furnace slag shall replace 25% of the cement factor at 1:1. In lieu of ground granulated blast-furnace slag, Class F fly ash may be used if it has a maximum alkali content of 1.00%. The Class F fly ash shall replace 15% of the cement factor at 1.5:1.

### **Unacceptable Aggregate Alkali-Silica Reactivity**

No fine aggregate or fine aggregate blend with an expansion greater than 0.30% per ASTM C 1260 shall be used. No coarse aggregate or coarse aggregate blend with an expansion greater than 0.20% per ASTM C 1260 shall be used.

### **Department Testing for Alkali-Silica Reactivity**

No placing of concrete shall begin before the Department has completed testing to determine the ASTM C 1260 expansion for each aggregate. For an aggregate blend, the expansion will be calculated as follows:

Aggregate Blend Expansion =  $(a/100 \times A) + (b/100 \times B) + (c/100 \times C) +$

Where: a, b, c ... = percent of aggregate blend; A, B, C ... = aggregate ASTM C1260 expansion

**Basis of Payment.** No additional compensation will be directly provided, but shall be considered to be included in the unit prices of the associated pay items.

### **DUST CONTROL**

Effective: March 8, 2002

#### **Description**

This work shall consist of implementing dust control measures as outlined in a project Dust Control Plan. Work shall be governed by the project Dust Control Plan to be submitted by the Contractor, the applicable sections of Article 107.36 of the Standard Specifications, and modifications as contained herein.

The Contractor is responsible for the control of dust at all times during the duration of this contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays. This work shall be considered complete after the completion of all permanent erosion control measures required for the contract, and after all temporary and permanent seeding has taken place.

Work on this contract shall be conducted in a manner that will not result in excessive particulate matter emissions, nuisance dust conditions, or PM 10 (particulate matter with an aerodynamic diameter less than or equal to 10 microns).

The Dust Control Plan shall include legible copies of the product literature and Material Safety Data Sheets for dust suppression agents and stabilizers the contractor proposes to use. The Dust Control Plan shall involve the implementation of control measures before, during and after



conducting any dust generating operation. These controls must be in place on non-working days and after working hours, not just while work is being done on the site. The Dust Control Plan must contain information specific to the project site, proposed work, and dust control measures to be implemented. A copy of the Dust Control Plan must be available on the project site at all times.

The Dust Control Plan must contain, at a minimum, all of the following information:

- Name, address and phone number of the person(s) responsible for the dust generating operation and for the submittal and implementation of the Dust Control Plan.
- A drawing specifying the site boundaries of the entire project with areas to be disturbed, the locations of the nearest public roads, and all planned exit and entrance locations to the site from paved public roadways.
- Control measures to be applied to all actual and potential fugitive dust sources, before, during and after conducting any dust generating operation, including non-work hours and on-work days.
- Dust suppressants to be applied, including product specifications, material data safety sheets, and label instructions that include method, frequency and intensity of applications. Information on the environmental impacts and approval or certifications related to the appropriate and safe use for ground applications.
- A contingency plan consisting of at least one contingency measure for each activity occurring on the site in case the primary control measures prove inadequate.

The contractor shall submit two copies of the dust control plan that outlines in detail the measures to be implemented by the Contractor complying with this section, including prevention, cleanup, and other measures at least 30 days before beginning any dust generating activity. The Contractor shall not begin any dust generating activities until the Engineer approves the Dust Control Plan in writing.

## Materials

### 1. Dust Suppression Agents

Water shall meet the requirements of Article 1002 of the Standard Specifications. Calcium Chloride shall conform to the requirements of Article 1013.01 of the Standard Specifications. Other commercially available dust suppression agents may be substituted for calcium chloride subject to the approval of the Engineer. Dust suppression agents shall be water-soluble, non-toxic, non-reactive, non-volatile, and non-foaming.

2. Soil stabilizers shall consist of hydraulic mulch or chemical mulch meeting the requirements of Article 1081.06 (a)(2) and (3).

3. Covers for stockpiles shall be commercially available plastic tarps.

## Construction Methods

The use of petroleum products for dust control is prohibited.

Wet suppression or use of dust suppression agents shall be used to provide temporary control of dust on haul roads and other active work areas. Several applications per day may be

necessary to control dust depending upon meteorological conditions and work activity. The contractor shall apply dust suppression on a routine basis as necessary or as directed by the Engineer, to control dust.

Wet suppression consists of the application of water or a wetting agent in solution with water. Wetting agents shall not be applied directly to live plant material.

Wet suppression equipment shall consist of sprinkler pipelines, tanks, tank trucks, or other devices approved by the Engineer, capable of providing regulated flow, uniform spray, and positive shut off.

Calcium chloride dust suppression agents may be used in lieu of wet suppression, and shall be used to control dust instead of wet suppression when freezing conditions exist. Calcium chloride shall be uniformly applied by a mechanical spreader at a rate of 2.2 kg per square meter (1 ½ pounds per square yard) or its equivalent liquid, unless otherwise directed by the Engineer. Calcium chloride shall not be applied directly to live plant material.

Calcium Chloride must not be stored outdoors without an impermeable cover. Storage must be on an impermeable surface such as paved asphalt or appropriately treated concrete of sufficient thickness to avoid exfiltration. Storage should be as airtight as possible to limit the calcium chloride's absorbing moisture from the air. No storage facilities will be allowed within 30 meters of a freshwater wetland. Positive drainage must be maintained on all treated surfaces. Ditches, culverts and other structures must be kept clean to ensure proper drainage and to limit the amount of water infiltrating earth surfaces and thereby leaching out chlorides. If calcium chloride is applied dry or, if during dry periods, crystals are seen on the road surface, the road should be wetted sufficiently to dissolve the calcium chloride. Wetting should be limited to an amount, which will sufficiently cause the calcium chloride to penetrate the surface but not to the point of causing any runoff from the road surface.

Other approved dust suppression agents shall be applied and used as per the manufacturer's instructions.

Haul truck cargo areas shall be securely covered during material transport on public roadways.

#### Public Roadway Dust Control

Trackout, including carryout and spillage of material that adheres to the exterior surfaces of or are spilled from motor vehicles and /or equipment and subsequently fall onto a paved public roadway must be controlled at all times. Control of trackout can be accomplished using the control measures described below:

- Gravel Pads: This shall consist of a stabilized gravel construction pad placed at points where construction vehicles are entering onto paved public roadways. The gravel pads purpose is to remove mud and dirt from the tires of vehicles leaving the construction site. The gravel pad shall consist of 1" to 3" diameter washed, well-graded gravel or crushed rock. The gravel pad should be at least 10 meters wide by 15 meters long, and a minimum of 150 mm deep.
- Grizzly A-Device: This item shall consist of pipes, rails or grates used to dislodge mud, dirt and debris from the tires and undercarriage of motor vehicles prior to leaving the work site.

Gravel pads and/or Grizzly A-Devices must be routinely cleaned and maintained so that performance meets the satisfaction of the Engineer. Clean up of carryout and spillage is required immediately if it extends a cumulative distance of 15 meters or more. If the extent of carryout is less than 15 meters, clean up at the end of the day is permissible. Cleanup of paved surfaces shall be by wet spray power vacuum street sweeper. Dry power sweeping is prohibited.

#### Control of earthwork dust

During batch drop operation (i.e. earthwork with front-end loader, clamshell bucket, or backhoe) the free drop height of excavated or aggregate material shall be reduced as practical to minimize the generation of dust.

To prevent spills during transport, freeboard space shall be maintained between the material load and the top of the truck cargo bed rail.

#### Control of dust on stockpiles and inactive work areas

The contractor shall use the following methods to control dust and wind erosion of stockpiles and inactive areas of disturbed soil:

Wet suppression or dust suppression agents shall be used during active stockpile load-in, load-out, and maintenance activities.

Soil stabilizers shall be applied to the surface of inactive stockpiles and other inactive areas of disturbed soil. Final grading and seeding of inactive areas shall occur as soon as possible.

Plastic tarps may be used on small stockpiles, secured with sandbags or an equivalent method to prevent the cover from being dislodged by the wind. The contractor shall repair or replace the covers whenever damaged or dislodged at no additional cost.

#### Method of Measurement

The application of water for dust suppression will be measured in units of 1000 L applied, determined by use of tanks of known capacity or by satisfactory installed meters. All measuring devices shall be furnished by the contractor and approved by the Engineer.

Calcium chloride and other approved dust suppression agents shall be mixed with water at the rate specified by the manufacturer and measured for payment in units of 1000 L of solution applied.

The application of soil stabilizers shall be measured by weight (kilogram) of soil stabilizer added to water to form a solution in accordance with the manufacturer's recommendation.

Street sweeping by wet spray power vacuum street sweeper will be measured per hour and shall consist of actual time spent sweeping.

Construction of gravel pads or Grizzly A-Devices shall be measured on an each basis. Maintenance of these devices will not be measured or paid for separately.

All other dust control measures specified in this section will be considered as included in the cost of the various earthwork pay items and will not be measured for payment.

#### Basis of Payment

Water will be paid for at the contract unit price per unit for WATER (DUST CONTROL).

The application of dust suppression agents shall be paid for at the contract unit price per unit for APPLY DUST SUPPRESSION AGENTS.

Soil stabilizers will be paid for at the contract unit price per kilogram for SOIL STABILIZERS.

Street sweeping will be paid for at the contract unit price per hour for STREET SWEEPING.

Gravel pads and Grizzly A-Devices will be paid for at the contract unit price each for DUST CONTROL PADS.

#### **COMPLIANCE WITH LOCAL LAWS, ORDINANCES AND REGULATIONS (CITY OF PEORIA)**

Effective May 16, 2002

Revised September 2, 2003

This project is located within the City of Peoria. The Contractor is advised to coordinate with the City of Peoria to determine the requirements for the construction of parking lots, placement of trailers, material storage, staging areas, work areas outside the right-of-way.

The Contractor may contact the City of Peoria Planning and Growth Management Department, which is located in Room 402 of the Twin Towers Mall at (309) 494-8600, to discuss proposed improvements located outside the right-of-way. The City of Peoria holds One Stop meetings on Mondays at 1:30 p.m. in City Hall Room 400 or 404 where Contractors can present their proposed improvements which are located outside the right-of-way to the appropriate departments. Contractors should contact the Planning and Growth Department to be placed on the One Stop meeting agenda.

The storage or staging of any materials or equipment on the public right of way outside of the I-74 access control limits must be coordinated with the City of Peoria. The Contractor shall contact Gene Hewitt (494-8816) with the City of Peoria prior to the start of any work involving staging/storage of equipment and/or materials in these areas.

#### **OVERSIZED LOADS**

Effective May 17, 2002

Revised July 17, 2003

The Contractor is advised that the Department has restrictions on the movement of oversized loads at night and on weekends. The Contractor may be required to stage loads in the Peoria area during daylight hours. The Contractor may be required to use additional escort vehicles when transporting oversized loads from the staging area to the job site at night. The Contractor may contact Permits Unit at (217) 785-8967 regarding requirements for transporting oversized loads. No additional compensation will be considered because of these requirements.

## **EQUIPMENT OPERATIONS**

Effective July 10, 2002

The Contractor is advised that the Federal Aviation Administration (FAA) has guidelines related to the height of objects in the vicinity of airport runways. Due to the proximity of the Greater Peoria Airport, booms for cranes and similar equipment that are utilized on the project shall not exceed the maximum allowable heights stipulated by the FAA.

When performance of the work requires such equipment, the contractor shall comply with all applicable FAA requirements. The contractor shall submit completed [FAA Form 7460-1, "Notice of Proposed Construction or Alteration"](#) to the [Air Traffic Division of the FAA Regional Office](#) if the height of the equipment exceeds the limitations outlined in Title 14 of the Code of Federal Regulations CFR [Part 77](#).

For additional information and copies of Form 7460-1, the contractor may contact:

Federal Aviation Administration  
Great Lakes Regional Office  
Air Traffic Division, AGL-520  
2300 East Devon Avenue  
Des Plaines, IL 60018  
847-294-7568

Forms are also available on the FAA website: [www.faa.gov/ats/ata/ata400/oeaaa.html](http://www.faa.gov/ats/ata/ata400/oeaaa.html)

A listing of the documents which may be applicable is as follows:

- Title 14 of the Code of Federal Regulations CFR [Part 77](#)
- [FAA Form 7460-1, Notice of Proposed Construction or Alteration](#)
- [Instructions for completing the FAA Form 7460-1](#)

## **COORDINATION MEETINGS**

Effective April 19, 2002

Revised November 19, 2002

The Contractor will be required to participate in weekly coordination meetings with Department staff and other attendees deemed appropriate by the Department.

## **RIGHT OF WAY RESTRICTIONS**

Effective February 5, 2002

The Contractor will be required to secure and provide parking off the public right-of-way for worker's vehicles.

## **NOISE RESTRICTIONS (RESIDENTIAL ONLY)**

Effective January 31, 2002

Revised March 15, 2002

Special attention is called to Article 107.35 of the Standard Specifications. Several residences are located in close proximity to the work site. Construction will be permitted 24 hours a day.

However, in no case will pavement breaking or pile driving be allowed between 10 P.M. and 6 A.M.

### **UTILITY REMOVAL**

Effective January 15, 2004

Certain abandoned utility facilities cannot be removed until the I-74 or ramp lanes have been closed to traffic. When the Contractor has removed the overburden of pavement and/or earth and encounters the abandoned utility facility, he/she shall notify the owner of the facility. The Owner of the facility has 48 hours to remove the abandoned facility during which time no claim will be considered due to delay.

The Owner of the abandoned facility may contract with the Contractor for the removal of the abandoned facility. If the Contractor and the Utility Owner contract for the removal of the abandoned facility, no claims will be considered because of delay due to the removal of the facility.

### **FORMAL PARTNERING**

Effective March 24, 2003

The Department desires to utilize a formal Partnering program with the Contractor for this project.

### **PROGRESS SCHEDULE**

Effective September 1, 2001

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

Requirements. The software shall be Primavera SureTrak 3.0 Project Manager, published by Primavera Systems, Inc.

Format. The schedule format shall contain the following:

- (a) Project Name: (Optional).
- (b) Template: Construction.
- (c) Type: SureTrak: Native file format for stand-alone contracts.
- (d) Planning Unit: Days (calendar/working).
- (e) Number/Version: Original or updated number.

- (f) Start Date: Not later than ten days after execution of the contract.
- (g) Must Finish Date: Completion date for completion date contracts.
- (h) Project Title: Contract number.
- (i) Company Name: Contractor's name.

Calendars.

- (a) Completion Date Contracts. The base calendar shall show the proposed working days of the week and the proposed number of work hours per day.
- (b) Working Days Contracts. The base calendar shall show the distribution of working days according to the following table:

| MONTH     | WORKING DAYS |
|-----------|--------------|
| MAY       | 15           |
| JUNE      | 17           |
| JULY      | 17           |
| AUGUST    | 17           |
| SEPTEMBER | 16           |
| OCTOBER   | 16           |
| NOVEMBER  | 14           |

The number of days shown above shall not be exceeded. The proposed number of hours to be worked per day shall also be shown. No work shall be shown during the period of December 1 and April 30.

Schedule Development. The detailed schedule shall incorporate the entire contract time. The minimum number of activities shown on the schedule shall represent the work incorporating the pay items whose aggregate contract value constitutes 80 percent of the total contract value. These pay items shall be determined by starting with the pay item with the largest individual contract value and adding subsequent pay item contract values in descending order until 80 percent of the contract value has been attained. Any additional activities required to complete the contract beyond 95 percent and any additional activities required to maintain the continuity of the schedule logic shall also be shown.

The schedule shall be limited exclusively to Finish-to-Start (FS) relationships with no lead or lag duration between schedule activities. Start-to-Start (SS), Start-to-Finish (SF) or Finish-to-Finish (FF) relationships will not be allowed. Activity constraints shall not be used without the approval of the Engineer.

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

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

- (b) A description of the work represented by the activity (maximum forty-five characters). The use of descriptions referring to a percentage of a multi-element item (i.e., construct deck 50%) shall not be used. Separate activities shall be included to represent different elements of multi-element items (i.e., forms, reinforcing, concrete, etc.). Multiple activities with the same work description shall include a location as part of the description.
- (c) Proposed activity duration shall be shown in whole days. The Contractor shall provide production rates to justify the activity duration. Schedule duration shall be contiguous and not interruptible.

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

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

Tabular Reports.

- (a) The following tabular reports will be required with each schedule submission:
  - (1) Classic Gantt
  - (2) Pert with Time Scale
- (b) The heading of each tabular report shall include, but not be limited to, the project name, contract number, Contractor name, report date, data date, report title and page number.
- (c) Each of the tabular reports shall also contain the following minimum information for each activity.
  - (1) Activity ID
  - (2) Activity Description
  - (3) Original Duration (calendar day/working day)
  - (4) Remaining Duration (calendar day/working day)
  - (5) Activity Description
  - (6) Early Start Date
  - (7) Late Start Date
  - (8) Early Finish Date
  - (9) Late Finish Date



(10) Percent Complete

(11) Total Float

(12) Work performed by DBE Subcontractors and Trainees shall be shown in the Gantt Report.

(d) Reports shall be printed in color on 8.5 in. x 14 in. (minimum) size sheets. The Classic Gantt shall show all columns, bars, column headings at the top, time scale at the top and shall show relationships.

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

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

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

Four copies of each schedule submission shall be printed in color on 8.5 in. x 14 in. (minimum) size sheets showing all columns, bars, column headings at the top, time scale at the top and showing relationships.

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

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

## **PROSECUTION OF WORK**

Effective April 19, 2002

In order to assure the timely completion of the work involved in this project, it may be necessary for the Contractor to work extended work hours. Any expenses incurred by the Contractor in order to comply with this special provision will not be paid for separately, but shall be included in the contract price.

## **SIGN FACE**

Effective July 3, 2002

### Materials

Use of sign face materials shall conform with Section 1091 of the Standard Specifications except as follows:

On fully access-controlled sections of highway (freeways or expressways) all reflectorized signs, and supplemental panels, except green and yellow guide signs and blue general service signs shall be fabricated using faces of Type A or AP retroreflective sheeting. Green guide sign faces and blue general service sign faces shall be fabricated using Type A retroreflective sheeting. Yellow guide sign faces shall be Type AA prismatic retroreflective sheeting.

All borders, legends, shields and such features on supplemental panels which may be attached to the green and yellow guide signs and blue general service signs shall be fabricated with Type AA prismatic retroreflective sheeting produced by the same manufacturer of the sign facing. This shall apply to the mainline, ramp, crossroad interchange approach directional signing, route markers, and all signs within the interchange.

Type A retroreflective sheeting shall be used on the face, border, and legend of new bridge-mounted street name signs.

All Type A retroreflective sheeting and Types AA and AP prismatic retroreflective sheeting shall be in accordance with IDOT material specifications T-14-01 and T-36-01, respectively.

## **REPLACEMENT OF UNSUITABLE MATERIAL**

Effective June 21, 2002

Revised August 22, 2002

Delete the third sentence of the last paragraph of Article 202.03 of the Standard Specifications and insert:

If unsuitable material is present at or below the finished grade on I-74 mainline and ramp PCC pavements, it shall be removed and replaced with Aggregate Subbase, according to the special provision entitled "Extended Life Pavement (30 Year)".

If unsuitable material is present at or below the finished grade on the roadways other than the I-74 mainline and ramp PCC pavements, it shall be removed and replaced with subbase granular material Type A or Type B, according to Section 311 of the Standard Specifications.

## **TRENCH BACKFILL, SPECIAL**

Effective January 1, 2002

Revised July 24, 2003

Description. This work shall consist of furnishing fine aggregate or controlled low-strength material (CLSM) at the contractor's option, except when CLSM is specified in the plans, for backfilling material for all trenches made in the subgrade of the proposed improvement and all trenches outside of the subgrade where the inner edge of the trench is closer than 600 mm (2 ft) to the edge of the proposed pavement, stabilized sub-base, shoulder, curb, or sidewalk.

This work also includes the disposal of the surplus excavated material which is replaced by the trench backfill. Such disposal shall be made according to Article 202.03.

When trench backfill is used, this work will be completed in accordance with Article 208 of the Standard Specifications, except it shall be measured and paid as specified herein.

When CLSM is used or specified, this work shall be completed in accordance with the following:

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

| Item   | Article/Section                    |      |
|--|------------------------------------|------|
| (a) Portland Cement, Type 1.....                 |                                    | 1001 |
| (b) Water .....                                  |                                    | 1002 |
| (c) Fine Aggregate–FA 1 or 2 Sand (Note 1) ..... | 1003.01(a), 1003.01(c), 1003.04(b) |      |
| (d) Fly Ash .....                                | 1010.02, 1010.03                   |      |
| (e) Admixtures (Note 2) .....                    | 1021.01                            |      |

Note 1: Blending fine aggregate materials will not be permitted.

Note 2: The air-entraining admixture may be in powder form. Prior to approval, a CLSM air-entraining admixture shall be evaluated in a field or laboratory experimental pour. The Engineer will verify the experiment. The department will maintain an Approved Air-Entraining Admixtures for CLSM list.

Equipment. Equipment shall be according to the following Articles of Section 1100 – Equipment:

| Item   | Article/Section  |         |
|--|------------------|---------|
| (a) Concrete Mixers .....                        |                  | 1103.01 |
| (b) Batching and Weighing Equipment .....        | 1103.02, 1103.03 |         |
| (c) Mobile Portland Cement Concrete Plants ..... | 1103.04          |         |
| (d) Water Supply Equipment.....                  | 1103.11          |         |

Proportioning. When CLSM is used for trench backfill, the mix shall be District 4 Mix A or B and yield approximately one cubic meter (cubic yard).

|  | District 4 Mix A  | District 4 Mix B  |
|--|-------------------|-------------------|
| Portland Cement                        | 56 kg (94 lb)     | 15 kg (25 lb)     |
| Fly Ash – Class C or F                 | -                 | 74 kg (125 lb)    |
| Fine Aggregate – Saturated Surface Dry | 1602 kg (2700 lb) | 1483 kg (2500 lb) |
| Water                                  | 143 (29 gal)      | 143 (29 gal)      |
| Air Content                            | 15-25%            | 15-25%            |
| Darafill or equivalent                 | 1 pouch           | 1 pouch           |

Mix Design. A contractor may submit their own mix design and may propose alternate fine aggregate materials, fine aggregate gradations, or material proportions.

The mix design shall meet the following criteria.

Mix Design Criteria

Flow  $\geq$  178 mm (7 in.)

Air Content 0 – 25%

Dynamic Cone Penetrometer (DCP) at 3 days  $\leq$  39 mm/blow (1.5 in./blow)

Compressive Strength at 28 and 180 days  $\geq$  207 kPa (30 psi) to  $<$  1034 kPa (150 psi)

The mix design shall include the following information:

- (1) Source of materials.
- (2) Gradation of fine aggregate.
- (3) Absolute volumes, specific gravities, unit weights, and any other values used in the mix design process.
- (4) Type and proposed dosage of admixtures.
- (5) Target flow and air content.
- (6) Test data indicating compressive strength at 28 and 180 days.

If the Contractor submits a mix design, which has not been previously verified by the Department, a trial batch shall be required. The trial batch shall be scheduled a minimum of 30 calendar days prior to anticipated use, and shall be performed in the presence of the Engineer. A minimum of 0.75 cu m (1 cu yd) trial batch shall be produced and placed off site. The trial batch shall be produced with the equipment and methods intended for construction. The trial batch will be evaluated for temperature, flow, air content, DCP, and 28 day compressive strength by the Engineer.

Verification of the mix design will include the trial batch test results, field observations (i.e. flowability and solid suspension), and other criteria as determined by the Engineer. The Contractor will be notified in writing of verification. Verification of a mix design by the Engineer shall in no manner be construed as acceptance of any CLSM produced.

Test Methods. Sampling the freshly mixed flowable fill shall be performed according to Illinois Modified AASHTO T 141, except the elapsed time for obtaining the composite sample shall not exceed two minutes. The flow test shall start within five minutes of obtaining the composite sample. The molding of strength test specimens shall start within ten minutes of obtaining the composite sample.

The temperature test shall be according to Illinois Modified ASTM C 1064.

The flow test shall consist of filling a 76 mm (3 in.) inside diameter by 152 mm (6 in.) long plastic cylinder. The maximum variation from the normal inside diameter and length shall be 3 mm (1/8 in.). The plastic cylinder shall be smooth, rigid and open at both ends. The test method shall consist of placing the cylinder on a flat, level, firm surface which is free of vibration or other disturbances. The cylinder shall be firmly held in place and filled in one lift. The top of the cylinder shall be struck off to form a level surface while holding the cylinder in place. The cylinder shall be pulled straight up, and the approximate diameter of the mixture's spread shall be measured.

The air content test shall be according to Illinois Modified AASHTO T 121 or Illinois Modified AASHTO T 152, except the bowl shall be filled in one lift without vibration, rodding, or tapping.

The DCP test shall be according to the Department's test method. The compressive strength test shall be according to Illinois Modified AASHTO T 22, except neoprene caps shall be used for compressive testing. Strength is defined as the average of two or more cylinder breaks. The 152 mm x 305 mm (6 in. x 12 in.) cylinders shall be made according to Illinois Modified AASHTO T 23, except the cylinders shall be filled in one lift without vibration, rodding, or tapping. When bleed water appears at the top of the mold after a few minutes, the mold shall be refilled. The curing method shall be modified by not removing the covered specimen from the mold until the time of testing. The cylinders shall be stored in a shaded area with a controlled temperature of 16 °C to 27 °C (60 °F to 80 °F).

Mixing and Mix Adjustments. The mix shall be produced according to Section 1020 of the Standard Specifications. Sufficient mixing capacity shall be provided to permit the placement without interruption. The mixer drum shall be emptied prior to initial batch to ensure that no additional cement fines are incorporated into the mix.

The Engineer reserves the right to adjust the proportion of materials in the field for flowability, to maintain solid suspension of the mix, and other criteria. No additional compensation will be paid to the Contractor for a mix adjustment.

### CONSTRUCTION REQUIREMENTS

Placement. The mix shall not be placed on frozen ground, in standing water, or during wet weather conditions. Mixing and placing shall begin only if the air temperature is 2 °C (35 °F) minimum and rising. At time of placement, the material temperature shall be 5 °C (40 °F) minimum. Mixing and placing shall stop when the air temperature is 5 °C (40 °F) and falling.

The mix shall be placed directly from the chute into the space to be filled. Other placement methods may be approved by the Engineer if the mix design is appropriate.

When backfilling against structures, the mix shall be placed in layers to prevent damage by lateral pressures. Side slopes shall be stepped or serrated to prevent wedging action of the backfill against the structure. Each layer shall be allowed to harden prior to placing the next layer.

When backfilling pipe culverts or storm sewers, the mix shall be distributed evenly on each side of the pipe to prevent movement. To prevent uplift of the pipe, the first layer shall stop at one-fourth the height of the pipe. After settlement of the first layer, as determined by the Engineer, the second layer shall stop at one-half the height of the pipe. After settlement of the second layer, as determined by the Engineer, the remainder of the trench shall be filled. A mix may be placed in a single layer for portland cement pipes.

The mix shall not be exposed to freezing temperatures or wet weather conditions during the first 24 hours after placement.

Applied Load. The mix may be subjected to loading upon approval by the Engineer, or when a penetration of 39 mm/blow or less has been obtained with the DCP test.

Method of Measurement. Regardless of whether trench backfill or CLSM is used, this work shall be measured in accordance with Article 208.03 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per cubic meter (cubic yard) for TRENCH BACKFILL, SPECIAL

### **GEOTECHNICAL FABRIC FOR GROUND STABILIZATION**

Effective March 1, 2002

The fabric shall be a woven geotextile fabric conforming to Article 1080.02 of the Standard Specifications.

### **SUB-BASE GRANULAR MATERIAL, TYPE A AND SUB-BASE GRANULAR MATERIAL, TYPE B**

Effective October 15, 2001 Revised June 10, 2002

This work shall consist of the construction of Sub-Base Granular Material, Type A or Sub-Base Granular Material, Type B of depths specified in the plans in accordance with applicable portions of Section 311 of the Standard Specifications with the following exception: The three-day drying period specified in Article 301.03(b) will be waived under the conditions outlined herein.

To avoid project delays due to wet subgrade, the Engineer will determine the depth of removal and replacement prior to excavation of the work area. In addition, the Contractor shall only excavate in one day the same area, which can be replaced with Sub-Base Granular Material, to finish grade, in the same day.

This work will be paid for at the contract unit price per metric ton for SUB-BASE GRANULAR MATERIAL, TYPE A or SUB-BASE GRANULAR MATERIAL, TYPE B for which the price shall be payment in full for all material, labor and equipment necessary to complete the work.

### **EXISTING BITUMINOUS MIXES CONTAINING STEEL SLAG**

Effective April 21, 2004

The Contractor is reminded to verify the existence of bituminous surface course mixes that may contain steel slag prior to removal and recycling. Much of the bituminous to be milled or otherwise removed within the project limits contains steel slag. The use of RAP containing steel slag shall be in accordance with the Standard Specifications and Special Provisions.

### **EXTENDED LIFE PAVEMENT (30 YEAR)**

Effective June 21, 2001 Revised February 4, 2003

The requirements of this special provision are only applicable to I-74 mainline and ramp Portland Cement Concrete pavements.

Description. This work shall consist of constructing an extended life Portland cement concrete pavement, shoulders, and gutter, curb, and median, according to Section 420 for Portland Cement Concrete Pavement (PCCP), Section 421 for Continuously Reinforced Portland

Cement Concrete Pavement (CRCP), Section 483 for Portland Cement Concrete Shoulders, and Section 606 for Concrete Gutter, Curb, Median, and Paved Ditch, of the Standard Specifications for Road and Bridge Construction, except as follows:

Definitions.

Aggregate Subbase – The aggregate above the subgrade and below the aggregate subbase cap.

Aggregate Subbase Cap – The 75 mm (3 in.) of aggregate above the aggregate subbase and below the base.

Base – The Superpave IL-19.0L placed over the aggregate subbase cap and immediately below the pavement.

Materials. Materials shall be according to Article 420.02 for PCCP, 421.02 for CRCP, and 483.02 for PCC Shoulders, of the Standard Specifications except:

The freeze-thaw rating expansion limit for coarse aggregate shall be a maximum 0.040 percent according to Illinois Modified AASHTO T 161, Procedure B.

Equipment. Equipment shall be according to Article 420.03 for PCCP, 421.03 for CRCP, and 483.03 for PCC Shoulders, of the Standard Specifications, except:

The Contractor shall submit to the Engineer, for approval before paving, the proposed internal type vibrator spacing for the paver. The Contractor shall also provide the proposed operating frequencies for a paving speed greater than or equal to 0.9 m (3 ft.) per minute, and for a paving speed less than 0.9 m (3 ft.) per minute.

Base. The base shall be constructed according to Section 312 of the Standard Specification, except that the material used shall be Superpave IL-19.0L.

Embankment. The embankment shall be constructed according to Section 205 of the Standard Specifications, except that the embankment shall be compacted to not less than 95 percent of the maximum dry density determined according to AASHTO T 99. The embankment shall not be compacted at a moisture content in excess of 110 percent of the optimum moisture content determined according to AASHTO T 99.

All material that is proposed for use in embankment construction must be approved by the Engineer. The proposed material shall have a Standard Dry Density of not less than 1450 kg/m<sup>3</sup> (90 lb./ft<sup>3</sup>) when tested according to AASHTO T 99 and shall not have an organic content greater than 10 percent when tested according to AASHTO T 194. Soils that demonstrate the following properties shall be restricted to the interior of the embankment:

- a. A grain size distribution with less than 35% passing the 75 µm (#200) sieve.
- b. A plasticity index (PI) of less than 12.
- c. A liquid limit (LL) in excess of 50.

Such soils shall be covered on the sides and top of the embankment by a minimum of 900 mm (3 ft.) of soil not characterized by any of the items a, b or c above. Other materials which may be considered by the Engineer as having the potential for erosion or excess volume change shall not be used in the 3 ft. (900 mm) cover on the sides or the top of the embankment.

Subgrade. The subgrade shall be constructed according to Section 301 of the Standard Specifications. The compaction moisture content in the upper 200 mm (8 in.) shall not exceed 110 percent of the soil optimum moisture content, obtained according to AASHTO T 99.

Aggregate Subbase. This work shall consist of furnishing, transporting, and placing Aggregate Subbase, Type C, as specified in Section 311 of the Standard Specifications, except:

The quality requirement in Article 1004.04(b) shall not apply.

The material shall be classified as Category III in the Aggregate Gradation Control System (AGCS), and shall meet the following gradation requirements:

1. Crushed Stone, Crushed Slag, and Crushed Concrete

| <u>Sieve Size</u> | <u>Percent Passing</u> |
|-------------------|------------------------|
| 200 mm (8 in.)    | 100                    |
| 150 mm (6 in.)    | 97±3                   |
| 100 mm (4 in.)    | 90±10                  |
| 50 mm (2 in.)     | 45±25                  |
| 75 µm (#200)      | 5±5                    |

2. Crushed Gravel

| <u>Sieve Size</u> | <u>Percent Passing</u> |
|-------------------|------------------------|
| 150 mm (6 in.)    | 100                    |
| 100 mm (4 in.)    | 90±10                  |
| 50 mm (2 in.)     | 55±25                  |
| 4.75 mm (#4)      | 30±20                  |
| 75 µm (#200)      | 5±5                    |

The aggregate subbase shall be well-graded from coarse to fine. Aggregate subbase that is gap-graded or single-sized will not be accepted.

The aggregate shall be placed to the thickness specified in one lift. When aggregate meeting the Aggregate Subbase requirements is used to replace unstable material, the Aggregate Subbase may be placed simultaneously with the material for subgrade replacement, when the total thickness to be placed is 600 mm (24 in.) or less. The Aggregate Subbase (and subgrade replacement material, if any) shall be rolled with a vibratory roller meeting the requirements of Article 1101.01 of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

Aggregate Subbase Cap. This work shall consist of furnishing, transporting, and placing an Aggregate Subbase, Type C, as a cap as specified in Section 311 of the Standard Specifications, except the material gradation shall be CA 6. The lift thickness shall be 75 mm



(3 in.), nominal. Reclaimed Asphalt Pavement (RAP) meeting Article 1004.07 of the Standard Specifications and having 100% passing the 37.5mm (1-1/2inches) sieve and well graded down through the fines may also be used as capping aggregate. RAP shall not contain steel slag or other expansive material. The results of the Department's tests on the RAP material will be the determining factor for consideration as expansive.

Placing Concrete Pavement. Placement shall be according to Article 421.05 of the Standard Specifications except that, if the shoulder and mainline pavements are of different reinforcement designs, they shall not be placed in a single operation.

Concrete Mixture Temperature. Article 1020.14 of the Standard Specifications shall apply except that, prior to paving, the Contractor shall indicate to the Engineer how the concrete mixture temperature will be controlled. If the mixture temperature exceeds the value stated in Article 1020.14, production of additional mix shall stop until action to reduce mixture temperature is taken or conditions causing elevated temperatures change. The Engineer will allow the Contractor to deliver concrete mixture en route to the paving site.

Curing. Curing of the pavement shall be according to Article 1020.13 of the Standard Specifications, except:

Method 4 shall be completed within 10 minutes after tining.

The curing period shall be 7 days minimum.

Opening to Traffic. The pavement shall not be opened to public traffic or construction vehicles before the minimum curing period is completed.

Method of Measurement. The method of measurement for aggregate subbase shall be as follows:

(a) Contract Quantities. Contract quantities shall be in accordance with Article 202.07(a).

(b) Measured Quantities. Aggregate subbase will be measured for payment in metric tons (tons) according to Article 311.08 (b).

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for AGGREGATE SUBBASE, including the Aggregate Subbase Cap.

All other items will be measured and paid for according to the appropriate section of the Standard Specifications.

## **WHITEWASHING BITUMINOUS CONCRETE BASE OR SUBBASE**

Effective October 1, 2001

Revised November 21, 2002

Description. This work shall consist of furnishing, preparing, and applying an aqueous solution of white pigment in a uniform coat to the top of the bituminous concrete base or subbase prior to placing the portland cement concrete (PCC) pavement reinforcement or load transfer devices. This work shall be according to the Standard Specifications for Road and Bridge Construction and as follows:

Materials. White pigmented materials shall meet the following requirements:

Hydrated Lime ..... 1012.01  
Calcium Carbonate Pigments ..... (Note 1)

Note 1. ASTM D-1199, Type GC or PC, Grade II or finer. Other materials or grades may be used with the approval of the Engineer provided the resulting coating is bright white and uniform in nature. By-product lime will not be allowed.

Equipment. Equipment shall be capable of mixing, continuously agitating, and applying the prepared solution in a uniform manner.

Construction Requirements. If the PCC pavement or shoulders will be placed between the dates of May 15 and October 15, the top of the bituminous concrete base or subbase shall be whitewashed. All milling, patching, overlaying, and cleaning shall be completed prior to whitewashing. No work shall be started if local conditions indicate that rain is imminent.

The whitewash mixture shall be prepared by mixing water and white pigment at a ratio of 2 parts water to 1 part pigment by weight until smooth in consistency and free of lumps. If sufficient coating can be demonstrated, the ratio may be increased up to 3 parts water to 1 part pigment by weight with the approval of the Engineer. After mixing, the mixture shall be continually agitated either mechanically or by continuously circulating the mixture until applied.

The mixture shall be applied in a uniform manner at a rate of 0.35 liters per square meter (0.075 gallons per square yard) to coat over 95 percent of the area with a thin, white film. If the coating is insufficient, additional material shall be applied. If sufficient application can be demonstrated at lower rates, they may be allowed with the approval of the Engineer. Application shall be by spraying, distributor truck, or water truck or other methods approved by the Engineer. All methods shall produce a uniform coating free of streaks and spills. If a truck is used to apply the mixture, a medium to long nap carpet, weighted sufficiently, shall be dragged behind the spray bar to ensure uniform application. The carpet shall be pre-wetted with the coating mixture slightly before application. Excessive materials shall not be applied. Thick films from spills or over-application shall be removed by broom or other means that does not damage the bituminous concrete base or subbase. Reapplication of whitewash may be required prior to placement of the reinforcing steel or load transfer devices as directed by the Engineer.

Once the whitewash mixture is placed, traffic shall be kept to a minimum on the bituminous concrete base or subbase. The whitewash shall be maintained until placement of the PCC pavement and shoulders.

Method of Measurement. Whitewashing the bituminous concrete base or subbase will be measured for payment in place and the area computed in square meters (square yards). The width for measurement will be the width of concrete pavement and shoulders to be placed. The length for measurement will be as shown on the plans or as directed by the Engineer. The white pigment and water for the whitewash mixture will not be measured for payment.

Basis of Payment. This work will be paid for at the contract unit price per square meter (square yard).

## **PAVEMENT REINFORCEMENT**

Effective June 7, 2002

Revised November 7, 2002

All tie bars, reinforcement, and chair supports in I-74 mainline and ramp pavements, shoulders, gutters and curb and gutter and bridge approach pavement shall be epoxy coated in accordance with Article 420.02 of the Standard Specifications.

For work outside the limits of bridge approach pavement on all roadways other than the I-74 mainline and ramps, all references to epoxy coating in the Highway Standards and Standard Specifications for reinforcement, tie bars and chair supports will not apply for pavement, shoulders, curb, gutter, combination curb and gutter and median.

## **WARRANTY FOR CONCRETE PAVEMENTS (BDE)**

Effective January 1, 2000

Revised September 4, 2003

### Description

This work shall consist of providing a warranty for concrete pavement constructed on the I-74 mainline and the I-74 ramps with the following pay items Portland Cement Concrete Pavement 250mm (Jointed); Continuously Reinforced Portland Cement Concrete Pavement 290mm; Pavement Reinforcement 290mm. The warranty will include the concrete pavement and joints between the mainline pavement and adjacent structures, such as shoulders, curb and gutter, tapers, and ramps if the adjacent structures are like items. The pavement has been designed for a 30 year design life. Current traffic information is shown on the plans.

The Contractor warrants that all work completed under the above contract pay items, including all materials and workmanship furnished by the Contractor and subcontractors, shall comply with the contract, and that the work shall be free from defects or failures for a period of 5 years after commencement of the warranty period. The Contractor does not warrant the work against failures due to design defects (including unanticipated significant increases in traffic volume), due to the Department's routine maintenance operations, or due to the occurrence of acts of nature that the finished work was not designed to withstand.

The Contractor guarantees that after receipt of notice from the Department as provided herein, he/she shall perform the warranty work as specified in the notice in accordance with the warranty work actions specified herein including all necessary incidental work to complete the action and restore the complete facility, and damage to adjoining structures caused by failure of the warranted work, including but not limited to removal, engineering, material procurement, reinstallation, or replacement at the Contractor's cost and expense. The Department's remedies under this warranty are not exclusive but are in addition to any other remedies provided by this contract or law. The additional obligations undertaken by the Contractor to provide this express warranty and to perform in accordance herewith shall be secured by a performance and payment bond provided by the Contractor in a form furnished by the Department, and said bond to remain in full force and effect for the duration of the warranty period.

## Definitions

**Conflict Resolution Team (CRT).** A three-member team responsible for resolving disputes between the Department and the Contractor regarding any claims of non-compliance of the warranty requirements.

**Preventive Maintenance.** Any activity on the pavement surface to extend the pavement life or prevent the development of higher distress levels. This includes joint and crack sealing and bump grinding.

**Routine Maintenance.** Any activity to maintain the right-of-way which is not part of the pavement structure. This includes snow removal, de-icing, anti-icing, repairs to safety appurtenances, drainage structures, pavement markings and markers, mowing, and sign maintenance.

**Warranty Bond.** A bond that guarantees the concrete pavement installed under the contract, against defects in materials and/or workmanship or preventive maintenance needs which may develop after the Warranty Period Start Date for the specified warranty period. The warranty bond shall be in force continuously from the date of the first Warranty Period Start Date until release from the warranty on the last warranted section.

**Warranty Period.** A 5-year duration initiating on the Warranty Period Start Date.

**Warranty Period Start Date.** The date the Engineer approves the request for commencement of the warranty period will constitute the start date for the warranty period for the project or stage of construction.

**Warranty Work.** Corrective action taken to bring the concrete pavement into compliance for release of the warranty bond. If corrective action is required, the entire section or sections will be repaired.

**Working Days.** Any calendar day between May 1 and November 30 inclusive except Saturdays, Sundays, or legal holidays observed by the Contractor's entire workforce in Illinois.

## Commencement of Warranty Period

Unless the Contractor requests warranty commencement as herein provided, the Warranty Period Start Date shall be the date of final inspection. The Contractor may request the warranty commence when the pavement or stage of construction is substantially completed. For the request to be approved, substantial completion means that all pavement lane markings (temporary or permanent), abutting shoulder and/or curb and gutter, and safety items such as guardrail must be installed, and the pavement is opened to continuous traffic. The date the Engineer approves the request is then the Warranty Period Start Date for the pavement or stage of construction.

Commencement of warranty does not relieve the Contractor of any remaining or contractual obligations. Approval of the Warranty Period Start Date shall not be construed as final acceptance of the work of the contract not subject to approval.

Warranty Bond

The Contractor shall furnish the Department a performance and payment bond with good and sufficient sureties in the full amount of \$967,000.00 as the penal sum. The surety shall be acceptable to the Department, shall waive notice of any changes and extensions of time, and shall submit its bond on the form furnished by the Department. The bond will ensure completion of required warranty work, including payments for all labor, equipment, materials, and closure periods used to remediate any warranted pavement distresses. If there are multiple Warranty Period Start Dates, the warranty bond shall be in effect from the Warranty Period Start Date on the first stage of construction until the release from the warranty period on the last stage.

The warranted concrete pavement will be measured according to specific parameters, as defined in the table entitled “Warranted Pavement Distresses.” At the end of the warranty period and remedy of any distress occurring within the warranty period, the Contractor will be released, in writing, from further warranty work or responsibility under this contract, provided all previous warranty work under this contract has been completed and approved by the Department.

Warranty Requirements

The Department will notify the Contractor of the need for corrective action. The Contractor shall perform corrective action promptly as defined in the notification. The notification will provide for a requested start date for performance of corrective action covered by the notice, and for a number of working days estimated to complete the corrective action. The Department and Contractor may agree upon a start date and reasonable period of performance to define prompt completion.

The Contractor shall provide the designated warranty work for each section for the extent and severity parameters in the following table. The distress parameters are defined in SHRP’s “Distress Identification Manual for the Long-Term Pavement Performance Project” (SHRP-P-338).

**Warranted Pavement Distresses**

| PARAMETER                           |   | EXTENT                       | SEVERITY         | WARRANTY WORK   |
|-------------------------------------|---|------------------------------|------------------|---|
| Cracking                            | Transverse  | 10 lin. ft.                  | Moderate         | Patch <sup>1/</sup>   |
|                                     |   | Any within section           | High             |   |
|                                     | Longitudinal  | 10 lin. ft.                  | Moderate         | Patch Full Length of Distressed Lane  |
|                                     |   | Any within section           | High             |   |
|                                     | Corner Breaks   | Any within section           | Moderate         | Patch <sup>1/</sup>   |
| Any within section                  |   | High                         |                  |   |
| International Roughness Index (IRI) | Roughness Index   | Within section <sup>2/</sup> | Avg. 150 in./mi. | Pavement Grinding   |
| Spalling                            | Longitudinal Joints, Transverse Joints & High Steel <sup>3/</sup> | 10 lin. ft.                  | Moderate         | Partial-Depth Patch 150% of Distressed Area using Polymer Concrete or Approved Equivalent |
|                                     |   | Any within section           | High             |   |

|                                 |                    |                     |   |
|---------------------------------|--------------------|---------------------|---|
| Scaling                         | 50 sq. ft.         | All severity levels | Patch 150% Length and Full Width of Distressed Lane <sup>1/</sup> |
| Patch/Patch Deterioration       | 100 sq. ft.        | Moderate            | Patch <sup>1/</sup>   |
|                                 | Any within section | High                |   |
| Punchouts; in CRC pavement Only | Any within section | Moderate            | Patch <sup>1/</sup>   |
|                                 | Any within section | High                |   |

- 1/ Patching shall be full-lane width and full-depth according to Section 442. Class A patches shall be used for CRC pavement and Class B patches shall be used for jointed concrete pavement.
- 2/ IRI shall be measured in each wheelpath using ¼ car model then averaged for section.
- 3/ High Steel Spalling is defined as cracking, breaking, chipping, or fraying of the slab directly over reinforcing steel in Continuously Reinforced Concrete (CRC) pavement.

If the Contractor disputes the Department's request for corrective action and the Contractor and the Department are not able to resolve the matter between themselves, either party may seek resolution of the dispute by the Conflict Resolution Team (CRT). If the Contractor fails to promptly complete the warranty work specified in the notice or as specified by the CRT, or otherwise breaches its obligations under this provision, the Department may declare the Contractor to be in default, and may proceed to terminate the rights of the Contractor and to cause the completion of the work in the manner approved in Article 108.10 of the Standard Specifications. The Contractor agrees to indemnify and hold harmless the Department on account of a default, including but not limited to the cost and expense of any future warranty work required.

The Contractor may undertake preventive maintenance at his/her discretion. Preventive maintenance and warranty work shall be coordinated with the Department and performed at no cost to the Department. Prior to proceeding with any work, the Contractor shall obtain a permit from the Department. The Department may restrict the time of work according to the traffic needs of the facility.

Evaluation of the warranted concrete pavement will be in 0.10-mile (0.16-km) sections. Warranty work by the Contractor shall be approved by the Department and meet the same requirements of the original warranted pavement specified herein. Replacing any pavement shall be full-lane width to a depth not to exceed the warranted pavement. The warranty work is warranted for the remainder of the warranty period.

#### Rights and Responsibilities of the Department

The Department:

- a. Is responsible for notifying the Contractor, in writing, of any required warranty work.
- b. Reserves the right to approve the date(s) and time(s) requested by the Contractor to perform preventive maintenance and warranty work.

- c. Reserves the right to approve all materials and methods used in preventive maintenance and warranty work.
- d. Reserves the right to determine if warranty work performed by the Contractor meets the contract requirements.
- e. Reserves the right to perform, or have performed, routine maintenance during the warranty period. This routine maintenance will not relieve the Contractor from meeting the warranty requirement of this Special Provision.
- f. Reserves the right to perform or have performed, any emergency repairs deemed necessary by the Department. Any such emergency repairs undertaken will not relieve the Contractor from meeting the warranty requirements of this Special Provision. The Department shall document the emergency repair.

#### Rights and Responsibilities of the Contractor

##### The Contractor:

- a. Shall unconditionally warrant to the Department that the concrete pavement shall be free of defects in materials and workmanship as defined by the warranty requirements as set forth above, for a period of five years from the concrete pavement Warranty Period Start Date.
- b. Shall submit the Warranty Bond to the Department on a form furnished by the Department prior to the Warranty Period Start Date.
- c. Is responsible for insuring that all warranty work described herein is performed. If warranty work or preventive maintenance performed by the Contractor necessitates a corrective action to restore pavement markings, adjacent lanes, roadway shoulders, etc., then such corrective action to those areas shall be the responsibility of the Contractor.
- d. Shall retain all records for a period of 1 year beyond the end of the warranty period or completion of any warranted repairs, whichever is later.
- e. Is responsible for replacing all temporary repairs, resulting from the concrete pavement being in non-compliance with the warranty requirements, with Department approved materials and methods.
- f. Has the right to perform preventive maintenance. The Contractor shall submit a permit form and a written course of action proposing preventive maintenance. Approval of the Department must be obtained prior to the anticipated commencement of any preventive maintenance.
- g. Shall submit a permit form and a written course of action proposing appropriate corrective measures for the needed warranty work. Approval by the Department must be obtained prior to the anticipated commencement of any warranty work.

- h. Shall follow all traffic control and work zone safety requirements of the contract when any preventive maintenance or warranty work is performed.
- i. Shall complete all warranty work and preventive maintenance in a neat and uniform manner and shall meet the requirements specified in the contract.
- j. Is required to supply to the Department original documentation pursuant to Section 107 of the Standard Specifications in effect at the time this contract was awarded that all insurance required by the contract is in effect during the period(s) that any warranty work is being performed.
- k. Is responsible for all costs of all repairs to the concrete pavement resulting from deficiencies in materials or workmanship.

### Conflict Resolution Team

The responsibility of the Conflict Resolution Team (CRT) is to provide a decision on disputes between the Department and the Contractor regarding the pavement distress experienced, the extent and severity thereof, and the warranty work required to be performed in accordance with the warranty requirements. The CRT will also mediate disputes related to unanticipated significant increases in traffic. It is the intention of the parties that the CRT be assembled with the full cooperation of both parties, and that the Contractor and Department will devote their full attention to the prompt consideration of the matter by the CRT. Neither party shall neglect its obligation of good faith hereunder nor shall unreasonable delay be imposed that would hinder the prompt decision of the CRT. The decision of the CRT shall be final and binding on the Contractor and Department.

The CRT will consist of three members:

- a. One selected, provided, and compensated by the Department.
- b. One selected, provided, and compensated by the Contractor.
- c. One qualified third party, mutually selected by the Department and the Contractor. Compensation for the third party member will be equally shared by the Department and the Contractor.

### Basis of Payment

This work will be paid for at the lump sum price for CONCRETE PAVEMENT WARRANTY. Payment will be made at the commencement of the warranty period, after the Warranty Bond form has been submitted. *(as a separate bid item)*

### **METRIC PAVEMENT DIMENSIONS**

Effective March 1, 2002

The Contractor shall construct all proposed pavements, shoulders and other appurtenances to the metric dimensions shown on the plans. English dimensions shown on the plans shall not be used for construction.



**TYPE A FINAL FINISH OF PORTLAND CEMENT CONCRETE PAVEMENT WITH VARIABLY SPACED TINING**

Effective August 9, 2001

Revised December 18, 2003

Type A final finish on Portland Cement Concrete Pavement shall be in accordance with Article 420.11 (e)(1), except as modified herein.

“The 10 ft (3 m) metal comb shall consist of a single line of tempered spring steel tines variable spaced between 9/16 inch (14 mm) and 3-1/16 inches (78 mm) as shown in the table below, securely mounted in a suitable head. The tines shall be flat and have a size and stiffness sufficient to produce a groove of the specified dimensions in the plastic concrete without tearing of the pavement edge or surface. The Contractor shall modify the equipment or operations if an acceptable pavement or surface is not produced. The mechanically operated metal comb shall be attached to an exclusive piece of equipment, which is mechanically self-propelled and capable of traversing the entire pavement width being placed in a single pass. The artificial turf carpet drag may be attached to this piece of equipment provided a surface texture is produced satisfactory to the Engineer. The tining device shall be operated so as to produce a pattern of grooves at a 1:6 skew across the pavement, variably spaced between 9/16 inch (14 mm) and 2-1/8 inches (54 mm), 1/8 inch to 3/16 inch (3 to 5 mm) deep and 1/10 to 1/8 inch (2.5 to 3.2 mm) wide. No other operation will be permitted with this equipment. Separate passes will be required for the turf dragging operation and the tining operation.”

Metal Comb Tine Spacing (Metric, Center to Center of Tines, mm):

|    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 34 | 36 | 47 | 54 | 48 | 43 | 32 | 31 | 27 | 36 | 29 | 46 |
| 21 | 43 | 23 | 42 | 52 | 24 | 48 | 25 | 40 | 34 | 27 | 26 |
| 25 | 27 | 20 | 37 | 38 | 52 | 53 | 45 | 37 | 43 | 53 | 14 |
| 27 | 37 | 42 | 41 | 29 | 43 | 14 | 45 | 44 | 30 | 37 | 33 |
| 40 | 28 | 31 | 50 | 34 | 45 | 15 | 20 | 45 | 50 | 16 | 53 |
| 51 | 29 | 25 | 18 | 16 | 53 | 18 | 38 | 51 | 40 | 17 | 45 |
| 49 | 50 | 39 | 51 | 36 | 36 | 38 | 46 | 29 | 38 | 50 | 24 |
| 33 |    |    |    |    |    |    |    |    |    |    |    |

Metal Comb Tine Spacing (English, Center to Center of Tines, In):

|          |          |          |          |          |          |         |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|----------|
| 1-11/32" | 1-13/32" | 1-27/32" | 2-1/8"   | 1-7/8"   | 1-11/16" | 1-1/4"  | 1-7/32"  | 1-1/16"  | 1-13/32" | 1-5/32"  | 1-13/16" |
| 13/16"   | 1-11/16" | 29/32"   | 1-21/32" | 2-1/16"  | 15/16"   | 1-7/8"  | 31/32"   | 1-9/16"  | 1-11/32" | 1-1/16"  | 1-1/32"  |
| 31/32"   | 1-1/16"  | 25/32"   | 1-15/32" | 1-1/2"   | 2-1/16"  | 2-3/32" | 1-25/32" | 1-15/32" | 1-11/16" | 2-3/32"  | 9/16"    |
| 1-1/16"  | 1-15/32" | 1-21/32" | 1-5/8"   | 1-5/32"  | 1-11/16" | 9/16"   | 1-25/32" | 1-23/32" | 1-3/16"  | 1-15/32" | 1-5/16"  |
| 1-9/16"  | 1-3/32"  | 1-7/32"  | 1-31/32" | 1-11/32" | 1-25/32" | 19/32"  | 25/32"   | 1-25/32" | 1-31/32" | 5/8"     | 2-3/32"  |
| 2"       | 1-5/32"  | 31/32"   | 23/32"   | 5/8"     | 2-3/32"  | 23/32"  | 1-1/2"   | 2"       | 1-9/16"  | 21/32"   | 1-25/32" |
| 1-15/16" | 1-31/32" | 1-17/32" | 2"       | 1-13/32" | 1-13/32" | 1-1/2"  | 1-13/16" | 1-5/32"  | 1-1/2"   | 1-31/32" | 15/16"   |
| 1-15/16" |          |          |          |          |          |         |          |          |          |          |          |

**BRIDGE APPROACH PAVEMENT (SPECIAL)**

Effective October 18, 2002

Revised October 31, 2003

This work shall be performed in accordance with Section 420 of the Standard Specifications except as modified herein.

Expansion joints shall be constructed in accordance with the requirements the special provisions entitled "Expansion Joints 75 mm" and/or "Expansion Joints 100 mm".

Bridge approach pavement (special) shall be measured in accordance with the requirements for bridge approach pavement given in Article 420.22 of the Standard Specifications.

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

The unit price bid for Bridge Approach Pavement (Special) shall include tie bars, polyethylene bond breaker, granular base, reinforcement bars, the concrete pad (including reinforcement and excavation), concrete median (including reinforcement), concrete parapets (including reinforcement), concrete median barrier (including reinforcement), concrete sidewalk (including reinforcement), and all other items necessary to complete this item of work.

### **EXPANSION JOINT 75 MM (3")**

Effective September 8, 2003

Revised November 7, 2003

This work shall be performed in accordance with Section 420 of the Standard Specifications except as modified herein.

Expansion joints will be measured in place along the centerline of the joint including the adjacent curb, gutter, shoulder, solid median or median surface when the expansion joint continues through these features. Grass medians, concrete median barrier or the length of the concrete pad, when required, shall not be included in the measured length of the expansion joint.

This work will be paid at the contract unit price per meter (foot) for EXPANSION JOINT 75 MM (3").

When required, tie bars, preformed joint filler, polyethylene bond breaker, granular base, reinforcement bars, dowel bars, concrete pad (including reinforcement and excavation), and all other items necessary to complete this item of work shall be included in the unit price bid for Expansion Joint 75 mm (3").

### **LONGITUDINAL CONSTRUCTION JOINTS**

Effective October 14, 2003

Contractors shall provide holes along longitudinal construction joints in proposed pavements, shoulders, concrete median barriers and related appurtenances for the installation of tie bars in accordance with Article 420.10 (b) of the Standard Specifications where adjacent work is to be constructed by others. The holes shall be temporarily plugged to the satisfaction of the Engineer.

Subsequent Contractors shall remove temporary plugs from holes along longitudinal construction joints in pavements, shoulders, concrete median barriers and related appurtenances constructed by others and furnish and install tie bars in accordance Article 420.10 (b) of the Standard Specifications.

This work will not be paid for separately, but shall be considered as included in the contract unit price bid for the pavement, shoulder, concrete median barrier and related appurtenances items.

### **CHAIR SUPPORTS**

Effective November 1, 2002

Revised November 4, 2003

Revise the fourth and fifth paragraphs of Article 421.06(a) to read:

“Pavement reinforcement shall be supported on epoxy coated steel chair supports at the depth below the pavement surface as indicated on the plans. The Contractor shall submit prints of shop drawings showing details of chair supports and their spacing to the Engineer and obtain the Engineer’s approval before any fabrication is begun.

The chair supports shall possess the necessary rigidity and be spaced at intervals close enough to hold the reinforcement at the proper depth and position. However, the spacing of the chair supports shall not exceed 900 mm (3 ft) transversely or 1.2 m (4 ft) longitudinally. The chair supports shall be fabricated with sand plates.”

### **JOINTS BETWEEN EXISTING AND PROPOSED PAVEMENTS AND APPURTENANCES**

Effective April 23, 2004

All materials, equipment and labor required to construct construction, expansion and fiberboard joints between existing pavements, shoulders, concrete median barriers, structures and related appurtenances; and proposed pavements, shoulders, concrete median barriers, structures and related appurtenances will not be paid for separately, but shall be considered as included in the contract unit price bid for the pavement, shoulder, concrete median barrier, structures and related appurtenances items.

### **FOUNDATION REMOVAL**

Effective January 28, 2003

Description. This work shall consist of the removal and disposal of billboard foundation(s). The billboard foundation(s) are described as follows:

{Insert location & describe}

Materials that are removed shall become the property of the Contractor and shall be removed and disposed of according to the requirements of Article 202.03 of the Standard Specifications.

Existing structures shall be removed at least 300 mm (1 foot) below the proposed elevation of the proposed improvement.

Basis of Payment. This work will be paid for at the contract unit price each for FOUNDATION REMOVAL which price shall be payment in full for removal and disposal of the billboard foundation including any excavation necessary to remove the foundation.

## **SPECIAL EXCAVATION**

Effective October 15, 2001

Revised November 7, 2002

Description: Special excavation shall consist of the removal of all existing structures as defined herein.

This work shall include the removal of temporary pavements constructed on this contract when shown on the plans or as directed by the Engineer.

Special excavation shall not be interpreted to include rock excavation, the adjustment, reconstruction or filling of existing catch basins, manholes, inlets, or valve vaults.

Estimated quantities of pavement removal, sidewalk removal, driveway pavement removal, curb removal, curb removal special, and curb and gutter removals are provided in the plans for information only. Some thicknesses are shown for some items; however, most are not known. Estimates of other items included in this pay item have not been made.

Contract unit pay items specifying "removal and replacement" are not covered by this special provision.

Definition of Structures: For the purpose of this Specification, structures shall be interpreted to mean all types of pavement surfaces (including base and surface courses), curbs, gutters, combination curb and gutters, medians, median surfaces, bridge approach pavements, sidewalks, driveways, concrete steps, concrete or masonry walls or foundations, underground drainage, street car rails, ties and ballast, sign foundations and all other existing structures of a similar nature, the removal of which is called for on the plans or required in the execution of work included in the contract.

### Construction Requirements for Special Excavation

Classification: Special excavation shall include all materials that are encountered, except rock excavation. Rock excavation, when encountered, will be classified in accordance with Article 202.04.

All existing structures, in which the tops are less than 75 mm below the sub-grade of the proposed improvement, shall be removed to a depth of not less than 75 mm below sub-grade, with the exception of pavement (including base course and surface course), curbs, gutters, combination curb and gutters, medians, sidewalks and driveways thus occurring shall be removed to their full depth. Payment will not be made for earth excavation used for replacement beyond the depth of 75 mm below the sub-grade of the proposed improvement or beyond the full depth of the structures just enumerated. However, should the Engineer deem it necessary, in order to construct a stable sub-grade or embankment, the existing structures will be removed to a greater depth. Payment for such replacement will be made to the depth ordered by the Engineer.

In removing driveway pavement, sidewalk, pavement, curb, gutter and combination curb and gutter, provisions shall be made for satisfactory transition between replacements and the portion remaining in place. The contractor shall saw cut a joint between the portion of the driveway

pavement, sidewalk, pavement and curb and gutter to be removed and that to be left in place in order to prevent the surface from spalling when the concrete is broken out. This work shall be done in such a manner that a straight joint will be secured.

When the plans provide for the removal of existing concrete, brick, or flagstone sidewalks or driveways, located so that they do not interfere with the construction work, they shall not be removed until contractor is prepared and ready to proceed with their reconstruction.

Replacement and Embankment: If the removal of existing structures necessitates excavation below the elevation of the subgrade of the proposed improvement, such excavation shall be replaced with suitable material. The material for all replacement and embankments shall conform to, and shall be placed and compacted in accordance with Articles 205.05 and 205.06.

Disposal of Material: The removal and disposal of all material of whatever nature, and such objectionable material as tin cans, old iron, automobile bodies, etc., that have been piled, scattered or dumped along the roadway, which it is necessary to remove for the construction of the improvement and which reasonably cannot be measured to determine the actual volume, shall be considered as included in the unit price per cubic meter for Special Excavation. All excavated material shall be disposed of as provided in Article 202.03.

#### Method of Measurement.

(a). Contract Quantities: When the project is constructed essentially to the lines, grades or dimensions shown on the plans and the Contractor and the Engineer have agreed in writing that the plans' quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract for the various items involved, except that if errors are discovered after work has been started, appropriate adjustments will be made.

When the plans have been altered or when disagreement exists between the Contractor and the Engineer as to the accuracy of the plan quantities either party shall, before any work is started which would affect the measurement, have the right to request in writing and thereby cause the quantities involved to be measured as hereinafter specified.

(b). Measured Quantities. Special Excavation will be measured for payment in cubic meter , the total volume being the sum of the volume of material between the elevation of the surface of the ground, or the tops of structures as they existed prior to starting the work and the elevation of the subgrade or the finished earth grade.

These volumes will be determined by the Engineer by the method of average end areas, by taking cross sections at such intervals as may be necessary, supplemented by actual measurements in the field to determine the excavated volume of structures.

Basis of Payment. Special excavation will be paid for at the contract unit price per cubic meter for SPECIAL EXCAVATION, measured as specified herein, which price shall include payment in full for performing all excavation, except rock excavation, the removal, transportation and disposal of all materials and existing structures as required herein; and all other work required under the general heading of Earthwork for which no payment item is included in the contract. No additional compensation will be allowed for overhaul.

When the contract does not contain a unit price for Rock Excavation, and such excavation is encountered, it will be paid for in accordance with Article 109.04.

### **PARTIAL DEPTH PATCHING (SPECIAL)**

Effective October 18, 2004

This work shall include all labor, equipment, and materials required to mill out the existing bituminous surface course and replacement with bituminous material at the locations given in the plans. The removal shall be done with a cold milling machine of sufficient size and weight capable of removing the existing bituminous surface course to a depth of 40 mm (1 ½") in a single operation. After cold milling the existing bituminous surface course, all loose material shall be removed, and the milled area cleaned with a mechanical sweeper or vacuum to the satisfaction of the Engineer. The replacement bituminous material shall be a SUPERPAVE Binder material for pavements to be resurfaced.

Prior to placement of the bituminous material, the milled area shall be primed in accordance with Article 406.06 of the Standard Specifications using an RC-70 or MC-30 bituminous material. The prime shall be applied at the rate of 0.5 L/square meter (0.10 gal./sq.yd.) by means of a mechanical or hand held sprayer, and shall be placed on all surfaces of the milled trench.

The bituminous binder course mixture shall conform to Section 406 of the Standard Specifications and the Special Provision entitled, "SUPERPAVE Bituminous Concrete Mixtures". Placement shall be in a single lift. Placement of the bituminous material shall match the profile of the existing pavement after final compaction. Compaction shall be to the satisfaction of the Engineer.

Roller Requirements: Compaction shall be accomplished using a roller that conforms to the applicable sections of Article 1101.01 of the Standard Specifications. A vibratory roller will not be permitted for this operation.

Sequence of Operations: The Contractor shall perform this work as described prior to placement of the final lift of bituminous.

The Contractor shall fill all areas opened by cold milling in a day with placement of bituminous material in the same day. No open trench will be allowed to remain overnight.

This work will be paid for at the contract unit price per square meter (square yard) for PARTIAL DEPTH PATCHING (SPECIAL).

### **FINAL FINISH OF PORTLAND CEMENT CONCRETE SHOULDERS**

Effective December 17, 2003

Revise the third sentence of the fourth paragraph of Article 483.06 to read as follows:

“When a Type A finish is specified for the adjacent pavement, a Type A finish shall be used on the PCC shoulders. At the Contractor’s option, the Type A final finish on the shoulders shall be according to Article 420.11(e)(1) of the Standard Specifications or the special provision entitled “Type A Final Finish Of Portland Cement Concrete Pavement With Variably Spaced Tining”. The Contractor shall use the same method on all shoulders with a Type A finish.

When a Type B finish is specified for the adjacent pavement, a Type B finish shall be used on the PCC shoulders. The Type B final finish on the shoulders shall be according to Article 420.11(e)(2) of the Standard Specifications.”

## **MECHANICALLY STABILIZED EARTH RETAINING WALLS WITH CIP FACING**

Effective: May 6, 2002

Revised: October 28, 2003

**Description.** This work shall consist of preparing the design, furnishing the materials, and constructing the mechanically stabilized earth (MSE) wall with a cast in place (CIP) concrete facing to the lines, grades and dimensions shown in the contract plans and as directed by the Engineer.

**General.** The MSE wall with CIP facing consists of a sacrificial fascia, permanent CIP facing, a soil reinforcing system and select fill. The soil reinforcement shall have sufficient strength, quantity, and pullout resistance, beyond the failure surface within the select fill, as required by design. The material, fabrication, and construction shall comply with this Special Provision and the requirements specified by the supplier of the wall system selected by the Contractor for use on the project.

The MSE retaining wall shall be one of the following pre-approved wall systems:

MSE Plus: SSL Construction Products  
Reinforced Earth: The Reinforced Earth Company  
Retained Earth: Foster Geotechnical

Pre-approval of the wall system does not include material acceptance at the jobsite.

**Submittals.** The wall system supplier shall submit complete design calculations and shop drawings for the sacrificial fascia MSE wall system to the Department for review and approval no later than 90 days prior to beginning construction of the wall. The contractor shall provide separate shop drawings for the CIP facing design to the Department for review and approval. All submittals shall be sealed by an Illinois Licensed Structural Engineer and shall include all details, dimensions, quantities and cross sections necessary to construct the wall and shall include, but not be limited to the following items:

Sacrificial fascia MSE wall shop drawings:

- (a) Plan, elevation and cross section sheet(s) for each wall showing the following:
  - (1) A plan view of the wall indicating the offsets from the construction centerline to the face of the wall at all changes in horizontal alignment. The plan view shall show the limits of soil reinforcement and stations where changes in length and/or size of

reinforcement occur. The centerline shall be shown for all drainage structures or pipes behind or passing through and/or under the wall.

- (2) An elevation view of the wall indicating the elevations of the top of the sacrificial fascia. These elevations shall be at or above the top of exposed CIP facing line shown on the contract plans. This view shall show the elevations of the bottom of the sacrificial fascia, all steps in the base of the wall and the finished grade line. Each sacrificial fascia type, the number, size and length of soil reinforcement connected to the sacrificial fascia and CIP facing shall be designated. The equivalent uniform applied bearing pressure shall be shown for each designed wall section.
  - (3) A listing of the summary of quantities shall be provided on the elevation sheet of each wall.
  - (4) Typical cross section(s) showing the limits of the reinforced select fill volume included within the wall system, soil reinforcement, embankment material placed behind the select fill, sacrificial fascia, CIP facing, and their relationship to the right-of-way limits, excavation cut slopes, existing ground conditions and the finished grade line.
  - (5) All general notes required for constructing the wall.
- (b) All details for any concrete leveling pads, when required by the contractor, shall be shown. The bottom of the sacrificial fascia shall be located at or below the theoretical bottom of CIP facing line shown on the contract plans. The theoretical bottom of CIP facing line shall be 1.1 m ( 3.5 ft.) below finished grade line at the front face of the wall, unless otherwise shown on the plans.
  - (c) All details of the sacrificial fascia and soil reinforcement placement around all appurtenances located behind, on top of, or passing through the soil reinforced wall volume such as parapets with anchorage slabs, foundations, and utilities etc. shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular system shall also be submitted for approval.
  - (d) The details for the connection between the CIP facing, sacrificial fascia, and soil reinforcement shall be shown. These connections must be detailed to extend past the rear row of reinforcement bars in the CIP concrete facing by at least 25 mm (1 in.). The shop drawing must also show these connections can be extended in the field when the as built distance between the sacrificial fascia and the rear row of reinforcement is larger than 25 mm (1 in.). Any temporary connection between the CIP facing forming system and the sacrificial fascia or soil reinforcement must be shown and approved on the sacrificial fascia MSE wall shop drawings.

CIP concrete facing shop drawings:

- (a) The top of the CIP facing shall not be stepped but shall be placed parallel to the top of exposed CIP facing line shown on the contract plans. Any sacrificial fascia extending above this pour shall be cut flush with the top of the CIP facing.



- (b) Complete CIP concrete facing diagrams shall be shown indicating the elevations of all break points along the top and bottom of the facing, details of any steps, reinforcement sizes and spacing, expansion and construction joint locations and details. The facing thickness and reinforcement cover shall also be shown in cross section and a table summarizing the total concrete and bar quantities. The bottom of the CIP facing must be located at or below the theoretical bottom of CIP facing shown on the contract plans.
- (c) All details of the CIP facing placement around all appurtenances located behind, on top of, or passing through the soil reinforced wall volume such as parapets with anchorage slabs, foundations, and utilities etc. shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular system shall also be submitted for approval.
- (d) When specified on the contract plans, all details of architectural CIP facing treatment, including color, texture and form liners shall be shown.

The initial submittal shall include three sets of sacrificial fascia MSE shop drawings and one set of calculations. One set of drawings will be returned to the Contractor with any corrections indicated. After approval, the Contractor shall furnish the Engineer with eight sets of corrected plan prints and one mylar set of plans for distribution by the Department. No work or ordering of materials for the structure shall be done until the submittal has been approved by the Engineer. The shop drawings for the CIP concrete facing shall follow the same submittal process as noted above.

**Materials.** The MSE walls with CIP facing shall conform to the supplier's standards as previously approved by the Department, and the following:

- (a) The soil reinforcing system, which includes the soil reinforcement, CIP facing embeds and all connection devices, shall be according to the following:

Inextensible Soil Reinforcement. Steel reinforcement shall be either epoxy coated or galvanized. Epoxy coatings shall be according to Article 1006.10(b)(2), except the minimum thickness of epoxy coating shall be 457 microns (18 mils). No bend test will be required. Galvanizing shall be according to AASHTO M 232 or AASHTO M 111 as applicable.

|  |                                    |
|--|------------------------------------|
| Mesh and Loop Facing and Fascia Embeds | AASHTO M 32M /M 32 and M 55M/M 55  |
| Strips                                 | AASHTO M 223M/M 223 Grade 450 (65) |
| Tie Strip Facing and Fascia Embeds     | AASHTO M 270M/M 270 Grade 345 (50) |

Extensible Soil Reinforcement. Geosynthetic reinforcement shall be monolithically fabricated from virgin high density polyethylene (HDPE) resins having the following properties verified by mill certifications:

| <u>Property</u>       | <u>Value</u>  | <u>Test</u>              |
|-----------------------|---------------|--------------------------|
| Melt Flow Rate (g/cm) | 0.060 – 0.150 | ASTM D 1238, Procedure B |
| Density (g/cu m)      | 0.941 – 0.965 | ASTM D 792               |
| CARBON BLACK2% (min)  | ASTM D 421B   |                          |

CIP facing and sacrificial fascia embed/connection devices used with geosynthetic soil reinforcement shall be manufactured from virgin or recycled polyvinyl chloride having the following properties:

| <u>Property</u>                         | <u>Value</u> | <u>Test</u> |
|---|--------------|-------------|
| Heat Deflection Temperature (°F)        | 155 - 164    | ASTM D 658  |
| Notched IZOD 1/8 inch @ 73°F (ft-lb/in) | 4 – 12       | ASTM D 256  |
| Coefficient of Linear Exp. (in/in/°F)   | 3.5 – 4.5    | ASTM D 696  |
| Hardness, Shore D                       | 79           | ASTM D 2240 |

(b) The select fill, defined as the material placed in the reinforced volume behind the wall, shall be according to the following:

(1) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 6 thru CA 16 may be used. If an epoxy coated or geosynthetic reinforcing is used, the coarse aggregate gradations shall be limited to CA 12 thru CA 16. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.

Other aggregate gradations may be used provided the maximum aggregate size is 38 mm (1 ½ in.), the maximum material passing the 425 µm (#40) sieve is 60 percent, and the maximum material passing the 75 µm (#200) sieve is 15 percent.

(2) Select Fill Quality. The coarse or fine aggregate shall be Class C quality or better except that a maximum of 15 percent of the material can be finer than the # 200 sieve.

(3) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to ASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236.

(4) Select Fill and Steel Reinforcing. When steel reinforcing is used, the select fill shall meet the following requirements.

- a. The pH shall be 5.0 to 10.0 according to AASHTO T 289.
- b. The resistivity shall be greater than 3000 ohm centimeters according to AASHTO T 288.
- c. The chlorides shall be less than 100 parts per million according to AASHTO T 291 or ASTM D 4327. For either test, the sample shall be prepared according to AASHTO T 291.
- d. The sulfates shall be less than 200 parts per million according to AASHTO T 291 or ASTM D 4327. For either test, the sample shall be prepared according to AASHTO T 291.
- e. The organic content shall be a maximum 1.0 percent according to ASHTO T 267.

(5) Select Fill and Geosynthetic Reinforcing. When geosynthetic reinforcing is used, the select fill pH shall be 4.5 to 9.0 according to AASHTO T 289.

(6) Test Frequency. Prior to start of construction, a sample of select fill material shall be submitted to the Department for testing and approval. Thereafter, the minimum

frequency of sampling and testing at the jobsite will be one per 15,500 cubic meters (20,000 cubic yards) of select fill material.

- (c) The geosynthetic fabric used as part of the sacrificial fascia shall be either a non-woven needle punch polyester or polypropylene or a woven monofilament polypropylene with a minimum non-sewn lap of 300 mm (12 in.) where necessary.
- (d) The embankment material behind the select fill shall be according to Section 202 and/or Section 204. An embankment unit weight of 1921 kg/cubic meter (120 lbs/cubic foot) and an effective friction angle of 30 degrees shall be used in the wall system design, unless otherwise indicated on the plans.
- (e) Portland cement concrete and epoxy coated reinforcement bars for the CIP facing shall be according to Section 503.

**Design Criteria.** The design shall be according to the applicable portions of the AASHTO Design Specifications for Mechanically Stabilized Earth Walls and for Reinforced Concrete, except as modified herein. The wall supplier shall be responsible for all internal stability aspects of the wall design and shall supply the Department with computations for each designed wall section. The analyses of settlement, bearing capacity and overall slope stability will be the responsibility of the Department.

External loads, such as those applied through structure foundations, from traffic or railroads, slope surcharge etc., shall be accounted for in the internal stability design. The presence of all appurtenances behind, in front of, mounted upon, or passing through the wall volume such as drainage structures, utilities, structure foundation elements or other items shall be accounted for in the internal stability design of the wall. The design shall also account for loads caused by any connection from the CIP facing forming system to the sacrificial fascia or soil reinforcement.

The design of the soil reinforcing system shall be according to the applicable AASHTO Design Specifications for "Inextensible" steel or "Extensible" geogrid reinforcement criteria. The reduced section of the soil reinforcing system shall be sized to allowable stress levels at the end of a 75 year design life.

Steel soil reinforcing systems shall be protected by either galvanizing or epoxy coating. The design life for epoxy shall be 16 years. The Corrosion protection for the balance of the 75 year total design life shall be provided using a sacrificial steel thickness computed for all exposed surfaces according to the applicable AASHTO Design Specifications.

Geogrid soil reinforcing systems shall be designed to account for the strength reduction due to long-term creep, chemical and biological degradation, as well as installation damage.

The factor of safety for pullout resistance in the select fill shall not be less than 1.5, based on the pullout resistance at 13 mm (1/2 inch) deformation. Typical design procedures and details, once accepted by the Department, shall be followed. All wall system changes shall be submitted in advance to the Department for approval.

The sacrificial fascia and its connection to the soil reinforcement shall be sized for a minimum design life of 3 years. The CIP facing connection to the soil reinforcement shall be sized for a design life of 75 years.

All soil reinforcement elements shall be directly connected to the CIP facing and shall have an allowable pullout capacity, from the concrete facing, based on the maximum tensile loading occurring in the soil reinforcement. The soil reinforcements maximum vertical center to center spacing shall be 500 mm (20 in.) and in the horizontal direction, the clear distance between the edge of one soil reinforcement to the next must not exceed 760 mm (2.5 ft.).

The design constraints for the CIP facing shall include the following minimums; thickness of the concrete facing, bar clearances, reinforcement bar size and spacing as shown on the contract plans. The maximum distance between expansion joints shall be 9 m (30 ft.) unless noted otherwise in the contract plans. The CIP shall also be designed assuming 100 percent of the horizontal earth pressure occurring at the internal failure surface is applied to the applied to the facing in addition to all other external applied surcharge loadings.

Construction. The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include any costs related to this technical assistance in the unit price bid for this item.

The foundation soils supporting the structure shall be graded for a width equal to or exceeding the length of the soil reinforcement. Prior to wall construction, the foundation shall be compacted with a smooth wheel vibratory roller. Any foundation soils found to be unsuitable shall be removed and replaced, as directed by the Engineer, and shall be paid for separately according to Section 202.

As select fill material is placed behind a sacrificial fascia element, the sacrificial fascia element shall be maintained in its proper inclined position according to the supplier specifications and as approved by the Engineer. Vertical tolerances and horizontal alignment tolerances shall not exceed 19 mm (3/4 in.) when measured along a 3 m (10 ft.) straight edge. The maximum allowable offset in any sacrificial fascia element joint shall be 19 mm (3/4 in.). The overall vertical tolerance of the wall, (plumbness from top to bottom) shall not exceed 13 mm per 3 m (1/2 in. per 10 ft.) of wall height. The sacrificial fascia shall be erected to insure that it is located within 75 mm (3 in.) from the nominal contract plan offset at any location to insure proper CIP facing concrete cover and soil reinforcement anchorage.

The select fill and embankment placement shall closely follow the erection of each lift of sacrificial fascia. At each soil reinforcement level, the fill material should be roughly leveled and compacted before placing and attaching the soil reinforcing system. The soil reinforcement and the maximum lift thickness shall be placed according to the supplier's recommended procedures except, the lifts for select fill shall not exceed 255 mm (10 in.) loose measurement or as approved by the Engineer.

If a fine aggregate is used for the select fill, the maximum lift thickness placed within the zone 1 m (3 ft) behind the sacrificial fascia shall be reduced to 125 mm (5 in.). As an alternative, a coarse aggregate can be used for this zone without a reduced lift thickness.

Embankment shall be constructed according to Section 205.

At the end of each day's operations, the Contractor shall shape the last level of select fill to permit runoff of rainwater away from the wall face. Select fill shall be compacted according to the project specifications for embankment except the minimum required compaction shall be 95 percent of maximum density as determined by AASHTO T-99. Select fill compaction shall be accomplished without disturbance or distortion of soil reinforcing system and sacrificial fascia. Compaction in a strip 1 m (3 ft.) wide adjacent to the backside of the sacrificial fascia shall be achieved using a minimum of 3 passes of a light weight mechanical tamper, roller or vibratory system.

The CIP facing shall not be placed until all sacrificial fascia elements, within the limits of the pour, have been erected and allowed to settle for at least thirty calendar days, unless otherwise indicated on the plans.

**Method of Measurement.** Mechanically Stabilized Earth Wall with CIP facing will be measured for payment in square meters (square feet). The wall will be measured from the top of exposed CIP facing line to the theoretical bottom of CIP facing line for the length of the wall as shown on the contract plans.

**Basis of Payment.** This work, including placement of the select fill within the soil reinforced wall volume shown on the approved shop drawings, sacrificial fascia, soil reinforcing system, CIP facing and accessories will be paid for at the contract unit price per square meter (square foot) for MECHANICALLY STABILIZED EARTH RETAINING WALL WITH CIP FACING.

Concrete appurtenances such as anchorage slabs, parapets, abutment caps, etc. will not be included in this work, but will be paid for as specified elsewhere in this contract, unless otherwise noted on the plans.

All excavation necessary to construct the MSE wall shall be paid for as STRUCTURE EXCAVATION according to Section 502.

Embankment placed outside of the select fill volume will be measured and paid for according to Section 202 and/or 204 as applicable.

## **FORM LINER LIMESTONE SURFACE, FORM LINER GRID & FIN SURFACE, FORM LINER PARAPET SURFACE**

Effective February 5, 2002

Revised April 26, 2004

### **Description of Work**

This work shall consist of designing, developing, furnishing and installing form liners and forming concrete using form liners to achieve the various concrete treatments as shown in the drawings and specifications. Form lined surfaces shall include areas of retaining walls, abutments, piers, and parapets as shown in details in the plans. Work shall comply with Section 503 of the Standard Specifications and as specified herein.

### **Fabricator Requirements**

The following form liner manufacturers have been pre-approved to provide the listed pattern for the limestone surface form liner. Only the following manufacturers and patterns will be permitted to supply the limestone pattern form liners:

- a) Custom Rock International, St. Paul, MN. (Jim Rogers, 1-800-637-2447)  
Pattern No. 1118 - Form Liner Limestone Surface
- b) Increte Systems, Odessa, FL. (Irina Haas, 800-752-4626)  
Pattern No. 99999-S - Form Liner Limestone Surface

Manufacturers other than those listed above may provide the grid and fin and the parapet form liners. It should be noted that the grid and fin pattern detailed in the plans is not a stock pattern; the manufacturer will be required to produce a liner to the details shown in the plans. All manufacturers of form liners shall adhere to the provisions listed herein and in the plans.

#### Shop Drawings

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

1. Individual form liner pattern descriptions, dimensions, and sequencing of form liner sections. Include details showing typical cross sections, joints, corners, step footings, stone relief, stone size, pitch/working line, mortar joint and bed depths, joint locations, end and edge treatments, and any other special conditions.
2. Elevation views of the form liner panel layouts for the limestone and grid and fin textures showing the full length and height of the structures including the footings with each form liner panel outlined. The arrangement of the form liner panels shall provide a continuous pattern without visual disruption.
3. The shop drawings shall depict a sufficient number of different, individual form sections and their proposed orientation and arrangement such that the proposed limestone wall's appearance will be free from a repetition of a distinguishable pattern.

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

#### Materials

Form liners shall be of high quality, highly reusable and capable of withstanding anticipated concrete pour pressures without causing leakage or causing physical defects. Form liners shall attach easily to pour-in-place forms and be removable without causing concrete surface damage or weakness in the substrate. Liners used for the limestone and grid and fin textures shall be made from high-strength elastomeric urethane material which shall not compress more than 6mm when poured at a rate of 3 vertical meters per hour. Form release agents shall be non-staining, non-residual, non-reactive and shall not contribute to the degradation of the form liner material. Forms for smooth faced surfaces shall be plastic coated or metal to provide a smooth surface free of any impression or pattern.

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

#### Cast Concrete Mockup

The Contractor shall provide a cast concrete mockup containing the limestone and grid and fin patterns and smooth form liner surface. The mockup shall be a minimum of 10 square meters

in size. The mockup shall be constructed at or near the project location. The form liner manufacturer's technical representative shall be on-site for technical supervision during the installation and removal operations. The mockup shall include examples of each condition required for construction i.e. liner joints, construction joints, expansion joints, steps, corners, etc.

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

#### Installation

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

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

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

The finish on all form lined surfaces is to be of the highest quality, architectural-grade finish, so that patching or rubbing of the finished surface shall not be needed. "Architectural-grade finish" is defined as follows: the finished surface shall be smooth and free of air holes and voids; the surface shall contain less than 2% (by area) of voids in any 1 square meter area; the maximum allowable area of any void shall be 0.3 square centimeters; and the maximum depth of any void shall be 2mm. All form lined seams shall be tight in order to eliminate any visual evidence of the seam. Patching or rubbing of the finished surface is specifically prohibited as a means to meet the requirements of the architectural-grade finish. The Contractor shall employ consolidation methods to achieve the architectural-grade finish through the use of internal and external vibration methods or the use of self consolidating concrete (SCC), which is known to be capable of providing the specified finish.

Internal vibration shall be achieved with a vibrator of appropriate size, the highest frequency and low to moderate amplitude. Concrete placement shall be in lifts not to exceed 450mm. Internal vibrator operation shall be at appropriate intervals and depths and withdrawn slowly enough to assure the minimum amount of surface air voids and the best possible finish without causing segregation. Any use of external form vibrators must be approved by the form liner manufacturer. Any use of SCC shall be in accordance with the Special Provision "Self Consolidating Concrete" and shall be coordinated with the District's Bureau of Materials.

No additional compensation will be directly provided for any methods or materials used to achieve the architectural-grade finish, but shall be considered to be included in the unit prices of the associated pay items. Failure to meet any requirements of this Special Provision shall be cause for rejection and replacement of the structure.

#### Guidelines for Use of Form Liners to Achieve Desired Architectural Results

Form liners are being used on this project to achieve very specific architectural results. The Contractor shall not deviate from the guidelines contained herein unless authorized by the Engineer in writing. Following is a list of each project element containing a form lined surface and the intended application of each form liner type to be used.

Bridge Parapets – The vertical face(s) of bridge parapets shall be formed using smooth faced form liner material as shown on the plans.

Bridge Piers – The elliptical faces of bridge piers below the precast bollard shall be formed using smooth faced form liner material. The smooth surface shall extend from 300mm below proposed grade to the top of the pier.

Bridge Abutments – Grid and fin and limestone rustications shall be placed on bridge abutments as per the details shown in the plans. The proposed limestone wall's appearance shall be free from a repetition of a distinguishable pattern. The elliptical face of the abutment below precast bollards shall be formed using smooth faced form liner material as per the details shown in the plans.

Retaining Walls – Limestone and grid and fin rustications shall be placed on retaining walls as per the details shown in the plans. The proposed limestone wall's appearance shall be free from a repetition of a distinguishable pattern. Smooth faced border strips and crash surfaces shall be formed using smooth faced form liner material and placed as per the details shown in the plans. The vertical face(s) of retaining wall parapets shall be formed using smooth faced form liner material as specified on the plans.

#### Method of Measurement

This work shall be measured and paid for in place and the area computed in square meters of actual concrete surface area formed with concrete form liners. The pay limits of form lined concrete surface shall be as follows. In computing the area for payment, no deductions will be made for omissions for access doors on vaulted abutments.

Bridge Parapets – The pay area shall be the actual measured area in square meters of the vertical face(s) of the bridge parapet with form lined surface.



Bridge Piers – The smooth form lined surface on the bollard area of bridge piers will not be measured for payment, but shall be considered included in the cost of CONCRETE STRUCTURES.

Bridge Abutments – The pay area for limestone form liners shall be the actual cast area of form lined surface measured in place in square meters. The pay area for grid and fin form liners on abutment faces shall be the actual cast area of grid and fin form lined surface plus the actual measured area of smooth faced form lined surfaces, measured in square meters.

Retaining Walls – The pay area for limestone surface shall be the actual cast area of limestone surface plus the actual area of any adjacent smooth form lined horizontal cap and crash barrier faces measured in square meters. The pay area for grid and fin surface shall be the actual cast area of grid and fin surface plus the actual area of any adjacent smooth form lined border strips and crash barrier faces measured in square meters. The pay area for parapet surface shall be the actual measured area in square meters of the vertical face(s) of the parapet with form lined surface.

Add "No deductions will be made for the volume of concrete displaced by limestone or grid and fin form lined surfaces." after the last sentence of the first paragraph of Article 503.21 (b) of the Standard Specifications.

Cast concrete form liner mockups will be measured for payment on an each basis. Required adjustments or corrections needed to address mockup comments and the cost of additional mockups, if required, will not be paid for separately, but shall be included in the contract unit price each for this item.

#### Basis of Payment

Smooth form lined surfaces on the parapets will be paid for at the contract unit price per square meter for FORM LINER PARAPET SURFACE. Limestone form lined surfaces and adjacent smooth form lined horizontal cap and smooth formed crash barrier surfaces will be paid for at the contract unit price per square meter for FORM LINER LIMESTONE SURFACE. Grid and fin form lined surfaces and adjacent smooth form lined border, crash barrier, and bollard surfaces will be paid for at the contract unit price per square meter for FORM LINER GRID AND FIN SURFACE. For all form lined surfaces, the unit price bid shall include all design, material, hardware, labor, delivery, storage, installation, and use of limestone, grid and fin, and parapet patterns as specified in this special provision. Cast concrete form liner mockups will be paid for at the contract unit price each for FORM LINER MOCKUP. The unit price bid shall include all labor and material costs associated with forming, pouring, and disposal of a satisfactory cast concrete mockup panel to the requirements included herein.

### **INSTALL BOLLARD AND LUMINAIRES**

Effective February 5, 2002

Revised October 30, 2003

#### **1. Description**

This work shall consist of receiving, assembling, and installing all precast concrete Bollards and Bollard Luminaires as shown on the plans. The work includes but is not limited to required submittals, unloading, storing, placing, aligning, drilling, grouting, fastening, and all other miscellaneous work required for complete installation. The work shall also consist of furnishing

and installing silicone joint sealer, and furnishing, transporting, and installing flexible metallic conduit and setscrew connectors. Included in this item is coordination with the Bollard and Bollard Luminaire Fabricator for delivery and installation requirements. All work shall conform to the IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2002 and as specified herein.

## General

### 1.1 Related Documents

- (a) Drawings and general provisions of the Contract.

### 1.2 Definitions

- (a) Fabricator: Fabricator (supplier) of Bollard and Bollard Luminaire.
- (b) Contractor: The general contractor(s) awarded a highway construction contract, includes responsibility for Bollard and Bollard Luminaire installation.
- (c) Engineer: IDOT's designated representative.
- (d) Bollard: Disengaged or Engaged Bollard including Bollard Base and steel connection assembly.
- (e) Engaged: Bollard location requiring an interruption of the concrete parapet.
- (f) Disengaged: Bollard location outside the limits of the concrete deck.
- (g) Unit: Precast concrete unit: Engaged Bollard, Disengaged Bollard or Bollard Base.
- (h) Bollard Luminaire: Metal luminaire to be installed atop each precast bollard. Includes all electrical components required for complete, fully functional luminaire.

### 1.3 Work Under Separate Contract

Bollard and Bollard Luminaire fabrication and delivery will be conducted by others.

### 1.4 Performance Requirements

- (a) Bollards and Bollard Luminaires shall be installed per Fabricator's design and instruction, capable of withstanding design loads within limits and under conditions indicated.
  - (1) Refer to drawings and general notes for load requirements.
  - (2) Refer to Fabricator's approved Shop Drawings to be provided by Engineer.
- (b) Bollards and Bollard Luminaires shall be installed, as shown in the plans, in alignment with the pier or abutment below. Bollards shall be installed true, plumb and in correct alignment with respect to the bridge parapet. Bollard Luminaires shall be installed in correct alignment with respect to the Bollard below.
- (c) Performance Submittals
  - (1) Product Data: Submit product data for each type of product indicated:
    - (i) Silicone Joint Sealer
    - (ii) Grout and Grouting materials

## 2. Materials

### 2.1 Grout Materials: Provide grout materials that meet the specifications as noted below:

- (a) Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C 1107, of consistency suitable for application.
- (b) Epoxy Grout: The contractor shall use a sealed glass capsule or a sealed glass adhesive cartridge that has been previously tested and given prior approval by the Department, containing premeasured amounts of the adhesive chemical.

### 2.2 Silicone Joint Sealer shall conform to the requirements of Special Provision entitled "Silicone Joint Sealer At Bollards".

**2.3** Liquid-tight flexible metallic conduit shall conform to the requirements of SECTION 1088.01 in the Standard Specifications.

**3. Shop Drawings**

**3.1** These drawings shall include the following:

- (a) Detail installation of Bollards and Bollard Luminaires including plans, elevations, dimensions, as all necessary information to fully describe the installation.
- (b) Sequence of installation operation.
- (c) Lifting methods and devices.
- (d) Locations and details of anchorage devices to be embedded in other construction.

**3.2** Obtain copy of Fabricator's, final, approved Shop Drawings and include with Shop Drawing submittal.

**4. Quality Assurance/Quality Control**

**4.1** The Contractor will be held responsible for any damage to the units and bollard luminaires during the Contractor handling and installation. The Contractor shall comply with the applicable guidelines of the most recent State of Illinois Department of Transportation, Bureau of Materials and Physical Research, Springfield, POLICY MEMORANDUM: QUALITY CONTROL/QUALITY ASSURANCE PROGRAM FOR PRECAST CONCRETE PRODUCTS.

- (a) Cracks or Fractures. These are considered cause for rejection if they pass through the unit. A single end crack that does not extend into the unit is not a cause for rejection. Any crack having a surface width of 0.25 mm or more and more than 0.3 m in length, regardless of position in the unit, is considered cause for rejection.
- (b) Chipped or Damaged Ends: This is considered cause for rejection if the damage is 25 mm or more into an edge and has a length of more than 10 percent of the end circumference or perimeter. Small chips may be properly patched and accepted, subject to approval by the Engineer.

**4.2** Coordination:

- (a) Other items to be attached to the bollards include:
  - (1) Bollard Luminaire. Coordinate with installation information to assure proper compatibility and sequencing between all interconnecting components.

**5. Delivery, Storage, and Handling**

**5.1** The Contractor shall supply the Engineer with a delivery schedule for each Bollard and Bollard Luminaire within 6 weeks of contract award. The contractor shall supply the delivery schedule to the Fabricator upon approval. It shall be the responsibility of the contractor to coordinate delivery with the Fabricator.

- (a) Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor.
- (b) A minimum of 4 Bollards per delivery is required.
- (c) Bollards and Bollard Luminaires shall be stored in such a manner as to prevent staining, discoloration, or other damage.

- (d) Obtain Fabricator's recommendations for the handling of Bollards and Bollard Luminaires. Lift and support only at designated lifting and supporting points as shown on the Fabricator's approved Shop Drawings.
- (e) Inspection and Acceptance: The Contractor shall examine and document the condition of the Bollards and Bollard Luminaires, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for any repairs or replacements required due to any change in condition caused by site handling, storage and installation.

**6. Installation**

**6.1** Examine substrates and conditions for compliance with requirements for installation tolerances, true and level bearing surfaces, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

**6.2** Install precast concrete Bollard Assemblies:

- (a) Establish and verify proper alignment and positioning of anchorage devices to ensure accurate installation of Bollards.
- (b) Provide temporary supports and bracing as required to maintain position, stability, and alignment as units are being permanently connected.
- (c) Anchor precast concrete units in position by bolting, welding, grouting, or as otherwise indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring and grouting are completed.
- (d) Protect precast concrete units and adjacent construction from damage by installation operations and provide noncombustible shields as required.
- (e) Repair damaged metal surfaces by cleaning and applying a coat of zinc rich, galvanized repair paint to galvanized surfaces.
- (f) Grouting Connections and Joints: After precast concrete units and flexible metallic conduit have been placed and secured, grout open spaces at connections, and joints as follows:
  - (1) Joints shall be grouted using nonmetallic, nonshrink grout as follows: Provide forms or other approved method to retain grout in place until hard enough to support itself. Pack spaces with stiff grout material, tamping until voids are completely filled. Place grout to finish smooth, level, and plumb with adjacent concrete surfaces. Keep grouted joints damp for not less than 24 hours after initial set. Promptly remove grout material from exposed surfaces before it hardens. Exposed grout surfaces shall be finished to match adjacent surface of precast concrete.
  - (2) Anchor rods shall be grouted using a sealed glass capsule or a sealed glass adhesive cartridge according to the manufacturer's recommendations and procedures.

**6.3** Install Bollard Luminaire: Provide complete installation of Bollard Luminaires to make a safe, complete and fully operative installation.

- (a) Protect precast Bollard units from damage or staining, due to Bollard Luminaire installation operations.
- (b) Install all components and accessories furnished with each luminaire including all electrical components, wiring and lamps. Permanent wiring and connections to the final mainline circuits will be performed by the Contractor(s) whose contract includes the mainline circuitry.
- (c) Verify proper alignment and positioning with Bollard below and anchor Bollard Luminaire in position as indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring is completed.

- (d) Test each luminaire for proper connection and operation using a mobile generator. Inspect each installed fixture for damage and replace damaged fixtures, components and surfaces.

**7. Repairs and Cleaning**

- 7.1** Repair as necessary exposed exterior surfaces of Bollards and Bollard Luminaires to match color, texture, and uniformity of surrounding material as subject to approval by Engineer.
- 7.2** Cracks shall be repaired according to the provisions of Article 590 of the IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2002 with the following exceptions:
  - (a) The concrete surface should not be drilled for grout injection.
  - (b) The concrete surface should not be chipped. Loose materials and dirt should be removed before grouting in such a way that will leave the least noticeable repair.
- 7.3** Chipped or damaged ends shall be repaired using an approved commercial patch mix or grout applied as recommended by the manufacturer.
- 7.4** All repairs are subject to approval by the Engineer. Remove and replace damaged Bollards and Bollard Luminaires if repairs do not comply with requirements.
- 7.5** Clean exposed surfaces of Bollards and Bollard Luminaires after installation to remove weld marks, other markings, dirt, stains, etc.
  - (a) Wash and rinse according to Fabricator's written recommendations. Protect other work from staining or damage due to cleaning operations.
  - (b) Do not use cleaning materials or processes that could change the appearance of exposed finishes.

**8. Basis of Payment**

This work will be paid for at the contract unit price per each for INSTALL BOLLARD AND LUMINAIRES, which price shall include all material, hardware, storage, and labor required for complete installation of Bollards, Silicone Joint Sealer, Flexible Metallic Conduit and Setscrew Connectors, and Bollard Luminaires as specified herein.

**SILICONE JOINT SEALER AT BOLLARDS**

Effective October 30, 2003

Revised May 6, 2004

Description. This work shall consist of furnishing all labor, equipment, technical assistance and materials necessary to install the silicone joint sealer between the bollards and the bridge as shown on the plans and as specified herein.

Materials:

- (a) Silicone Joint Sealer. The silicone joint sealer shall be rapid cure, self-leveling, cold applied, two component silicone sealant. The sealant, upon curing, shall demonstrate resilience, flexibility and resistance to moisture and puncture. The sealant shall also demonstrate excellent adhesion to portland cement concrete, polymer concrete and steel over a range of temperatures from -34 to 54°C (-30 to 130°F) while maintaining a watertight seal. The sealant shall not contain any solvents or diluents that cause shrinkage or expansion during curing. Acid cure sealants are not acceptable. The date of manufacture shall be provided with each lot. Materials twelve months old or older from the date of manufacture will not be accepted. The manufacturer shall certify that the sealant

meets or exceeds the following test requirements before installation begins. The Department reserves the right to test representative samples from material proposed for use.

Physical Properties:

Each component as supplied:

|                               |                            |
|-------------------------------|----------------------------|
| Specific Gravity (ASTM D1475) | 1.3-1.4                    |
| Extrusion Rate (MIL-5-8802)   | 200 - 550 grams per minute |
| Flow                          | Self-leveling              |

|  |       |
|--|-------|
| Durometer Hardness, Shore (ASTM D 2240)<br>"00" (0° and 25°C ± 1°C (32°F and 77±3°F.)) | 40-80 |
|--|-------|

|   |  |
|---|--|
| Ozone and U.V. (ASTM C 793)<br>Resistance | No chalking, cracking or<br>bond loss after 5,000 hours. |
|---|--|

After Mixing:

|                                   |                        |
|-----------------------------------|------------------------|
| Tack Free Time (ASTM C679)        | 60 minutes max.        |
| Joint Cure Rate (% of total cure) | 50% within 4 - 6 hours |
| 75% within 24 hours               |                        |
| 100% within 48 - 160 hours        |                        |

Upon Complete Cure: (ASTM D-3569<sup>1</sup>)

|   |  |
|---|--|
| Joint Elongation (adhesion to<br>concrete/steel/polymer concrete) | 600% min                               |
| Joint Modulus   | 21-83 kPa (3-12 psi) @ 100% elongation |

<sup>1</sup>Modified; Sample cured 2 days at 25±1°C (77±2°F) 50±5% relative humidity

- (b) Backer Rod. The backer rod shall conform to ASTM D5249, Type 3 and shall be gray in color.

**CONSTRUCTION REQUIREMENTS**

General. Technical assistance provided by the manufacturer during surface preparation and installation shall be furnished at no additional cost to the Department. The Contractor shall furnish the Engineer with the manufacturer's written product information, installation procedures, and instructional video at least two weeks prior to installation. The Contractor, the manufacturer's representative, and the Engineer shall meet to review and clarify installation procedures, and requirements prior to starting the work. A technical representative must be present for the start of surface preparations and installation for at least one day. The Contractor shall contact the manufacturer at least two weeks prior to installation.

When placing the silicone against concrete, the concrete surface shall be dry. For newly placed concrete, the concrete shall be fully cured and allowed to dry out a minimum of 7 additional days prior to placement of the silicone. Cold, wet, inclement weather will require an extended drying time.

(a) Surface Preparation:

- (1) Sandblasting. Both faces of the joint shall be sandblasted. A separate pass for each face for the full length of the joint and to the design depth of the center of the backer rod will be required. The nozzle shall be held at an angle of 30-90 degrees to the joint face, at a distance of 25-50 mm (1 - 2 in.).

For portland cement concrete and polymer concrete surfaces, sandblasting will be considered acceptable when both joint faces have a roughened surface with clean, exposed aggregate. The surface shall be free of foreign matter or plastic residue.

For steel surfaces, sandblasting will be considered acceptable when the steel surfaces have been cleaned to an SSPC-SP10 degree of cleanliness.

After sandblasting is completed, the joint shall be cleaned of debris using compressed air with a minimum pressure of 620 kPa (90 psi). The air compressor shall be equipped with traps to prevent the inclusion of water and/or oil in the air line.

- (2) Priming. This operation will immediately follow sandblasting and cleaning and will only be permitted to proceed with the air and substrate temperatures are at least 5°C (41°F) and rising. Sandblasting, priming and sealing must be performed on the same day. The entire sandblasted surface shall be primed using a brush applied primer. The primer shall be allowed to dry a minimum of one hour or more until it is thoroughly dry, whichever is longer, before proceeding. For steel surfaces, the minimum drying time shall be extended to 90 minutes when the substrate temperature is below 15°C (60°F).

For portland cement concrete and polymer concrete, the primer shall be in according to the manufacturer's recommendations. For steel surfaces, the primer shall be a rust inhibiting primer recommended by the sealant manufacturer.

The primer shall be supplied in original containers and shall have a "use-by" date clearly marked on them. Only primer, freshly poured from the original container into clean pails will be permitted. The primer must be used immediately. All primer left in the pail after priming shall be disposed of and shall not be reused.

(b) Joint Installation:

- (1) Backer Rod Placement. The backer rod shall be installed to a uniform depth as specified on the plans and as recommended by the manufacturer. All splices in the backer rod shall be taped to prevent material loss during sealing. The backer rod shall be installed to within 3 mm (1/8 in.) tolerance prior to sealing.
- (2) Sealant Placement. The thickness above the center of the backer rod shall be one-half of the bonding surface thickness. Sealant placement will only be permitted when the air and substrate temperatures are above 5°C (41°F) and 2.8°C (5°F) above the dew point. The joint must be kept clean and dry during sealing. If the joint becomes wet and/or dirty during sealing, the operation will be halted until the joint has been restored to a clean and dry state.

Sealing shall be performed using a pneumatic gun approved by the sealant manufacturer. Prior to sealing, the gun shall be inspected to insure that it is in proper working order and that it is being operated at the recommended air pressure.

The gun must demonstrate proper mixing action before sealant will be allowed into the joint. Unmixed sealant will not be permitted in the joint. All unmixed sealant found in the joint will be removed and replaced at the Contractors expense.

After the Engineer has determined that the pneumatic gun is functioning properly, the joint shall be sealed to the thickness and depth as shown on the plans. The sealant must be allowed to achieve initial set before opening the joint to traffic.

End of seal treatment at vertical faces of curbs, sidewalks or parapets shall be as recommended by the manufacturer and as shown on the plans.

Sealant placed incorrectly shall be removed and replaced by the Contractor at no additional cost to the Department.

- (3) Field Testing. A minimum of one joint per bridge per joint configuration will be tested by the Engineer by performing a Pull Test. The sealant shall be allowed to cure for a minimum of 24 hours before testing. The locations for the tests will be determined by the Engineer. The tests will be performed per the manufacture's written instructions. As part of the test, the depth and thickness of the sealant will be verified. All joint system installations failing to meet the specifications shall be removed and replaced, by the Contractor, to the satisfaction of the Engineer at no additional cost to the Department. In addition, the "Pull Test" is a destructive test, the Contractor shall repair the joint after completion of the test per the manufacturer's written instructions at no additional cost to the Department.

Basis of Payment. The silicone joint sealer will not be paid for separately, but shall be considered as included in the cost of Install Bollard and Luminaires

## **SURFACE PREPARATION AND PAINTING OF GALVANIZED STEEL TRAFFIC STRUCTURES**

Effective: July 3, 2002

Revised: May 4, 2004

Surface Preparation. Galvanized steel surfaces to be painted (the exterior surfaces of all members and any other surfaces so indicted in the plans or specification) shall be clean and free of oil, grease, and other foreign substances. Surface preparation shall include, but not be limited to the following:

- Absolutely no water quenching or chromate conversion coating is allowed of the galvanized surface that is to be painted, as they will interfere with the adhesion of the paint coatings to the zinc surface.
- Surface preparation necessary to provide adequate adhesion of the coating shall be performed according to ASTM D 6386.



- Zinc high spots shall be removed by cleaning with hand or power tools as described in SSPC-SP2 or SP3. The zinc should be removed until it is level with the surrounding area, taking care that the base coating is not removed by the cleaning methods. After cleaning, the surface shall be inspected for conformance to the required zinc thickness in accordance with ASTM A 123 utilizing a magnetic or eddy current type thickness instrument in accordance with ASTM E 376. Any item falling below the required zinc thickness, before or after removal of any high spots, shall be repaired in accordance with practice ASTM A 780.
- All galvanized steel surfaces that are to be painted shall be checked for the presence of chromate conversion coating according to ASTM D 6386 Appendix X1. Surfaces where chromate conversion coating is found shall be cleaned according to the same appendix and blown down with clean, compressed air according to ASTM D 6386 Section 6.1.
- All galvanized steel surfaces that are to be painted shall be checked for the presence of wet storage stain. Surfaces where wet storage stain is found shall be cleaned, rinsed and completely dried according to ASTM D 6386 Section 6.2.
- All galvanized steel surfaces that are to be painted shall be cleaned according to SSPC-SP1 (Solvent Cleaning) with a non-hydrocarbon cleaner. After cleaning, all chemicals shall be thoroughly rinsed from the surface with a suitable solvent. The steel shall be allowed to completely dry prior to coating application.
- Following cleaning as outlined above, all galvanized steel surfaces that are to be painted shall be prepared according to SSPC-SP7 (abrasive sweep or brush blasting). Particle size should be in the 8 mils to 20 mils (200  $\mu$ m to 500  $\mu$ m) range. Materials that can be used are aluminum/magnesium silicate, soft mineral sands with a Mohs hardness of 5 or less, corundum, limestone, and organic media such as corncobs or walnut shells. The purpose of the sweep blasting is to deform not to remove the galvanized metal. Any area falling below the required zinc thickness, before or after the sweep blasting, shall be repaired in accordance with ASTM A 780. Sweep blasting of zinc shall not be less than 110 square meters per hour using these types of abrasives. Substrate shall be maintained at a temperature greater than 5 degrees Celsius above the dew point temperature. After brush blasting, surfaces shall be blown down with clean, compressed air. The formation of zinc oxide on the blasted surface will begin very quickly; consequently the paint coating should be applied immediately, within 60 minutes, after brush blasting.
- Following cleaning and surface preparation, thickness readings shall verify the acceptable thickness of the galvanizing according to AASHTO M 111/ASTM A 123.

Shop Conditions. The surfaces to be painted after surface preparation shall remain free of moisture and other contaminants. The Contractor shall control the operations to insure that dust, dirt, or moisture does not come in contact with surfaces prepared or painted that day. In addition to the manufacturer's written instructions for surface preparation and painting, the following conditions shall apply (when in conflict, the most restrictive conditions shall govern):

The minimum steel and air temperatures shall be 10° C (50° F). The maximum steel and air temperatures shall be 37° C (100° F) and 32° C (90° F) respectively. Painting shall not be applied to steel that is at a temperature that will cause blistering, porosity, or be otherwise

detrimental to the life of the painted surfaces. Painting shall not be applied when the steel surface temperature is less than 3° C (5° F) above the dew point. Painting shall not be applied to wet, damp, or frosted surfaces. Paint shall not be applied when the relative humidity is above 85%. Work accomplished under unfavorable weather conditions shall be considered unacceptable and complete re-cleaning and painting of these areas shall be required at no additional cost to the Department.

Paint Requirements. The areas of galvanized steel to be painted shall receive one primer coat, one finish coat and a second clear finish coat with the dry film thickness (DFT) of each coat measured according to SSPC-PA2 and conforming to the following:

- prime coat having a DFT such as the following or an approved equal:
  - Carboguard 888, polyamide epoxy primer (3 - 5 mils) – Carboline Company (Herman Rodriguez 847-289-3767)
  - ZRU Primer, moisture cured zinc rich urethane (2 - 5 mils) – Freda Inc. (Richard Milheim 800-348-4621)
  - KL3200, Kolor-Poxy Red, polyamide epoxy primer (3 - 5 mils) – PPG/Keeler & Long (Wayne Bell Jr. 724-272-5040)
  - Macropoxy 646, polyamide epoxy primer, (4 - 6 mils) – Sherwin-Williams (Vince Thomas 312-371-0709)
- semi gloss finish coat matching Munsell Color N1 Black and having a DFT such as the following or an approved equal:
  - Carbothane 133 HB (satin), aliphatic acrylic-polyester polyurethane (3 - 5 mils) – Carboline
  - I2 Topcoat (semi gloss), aliphatic polyurethane (2.5 - 5 mils) – Freda Inc.
  - KLN2-Series (semi gloss), neothane hi-solids urethane (2.5 - 5 mils) – PPG/Keeler & Long
  - Acrolon 218HS (semi gloss), polyester mod acrylic polyurethane (3 - 5 mils) – Sherwin-Williams
- clear, semi gloss second finish coat having a DFT such as the following or an approved equal:
  - Carbothane Clear Coat (satin), aliphatic acrylic polyurethane (1 - 2 mils) – Carboline
  - I2 Topcoat (semi gloss), aliphatic polyurethane (1.5 - 5 mils) – Freda Inc
  - KLN25227 (semi gloss), neothane hi-solids urethane (2.5 - 5 mils) – PPG/Keeler & Long
  - Diamond-Clad Clear (SGB65T115 Series), waterbased acrylic polyurethane (1 - 2 mils) – Sherwin-Williams

As an alternative to the paint system outlined above, the areas of galvanized steel to be painted shall receive one coat of a polyamide epoxy primer and one finish coat with the dry film thickness (DFT) of each coat measured according to SSPC-PA2 and conforming to the following:

- prime coat having a DFT such as the following or an approved equal:
  - Carboguard 888, polyamide epoxy primer (3 - 5 mils) – Carboline Company
  - Corafon ADS High Build Epoxy, polyamide epoxy (2.5 - 6 mils) – PPG/Keeler & Long
  - Macropoxy 646, polyamide epoxy primer (4 - 6 mils) – Sherwin-Williams

- finish coat matching Munsell Color N1 Black and having a DFT such as the following or an approved equal:
  - Carboxane 2000 (gloss), modified siloxane hybrid (3 - 7 mils) – Carboline
  - Corafon ADS (semi gloss), fluoropolymer (1.5 - 3 mils) – PPG/Keeler & Long
  - Polysiloxane XLE (gloss), epoxy siloxane (3 - 7 mils) – Sherwin-Williams

All cleaning, preparation for painting and painting shall be done in the same shop to ensure single source responsibility of the entire coating system. Also, all paint materials shall be from a single source to ensure compatibility and samples of components submitted for approval by the Department, before use.

In addition, sequence of operation shall be submitted describing the procedure used in preparing the galvanized surface, the brand names of the paint to be used, and certification that the paint that is used is compatible with galvanized surfaces.

Paint storage, mixing, and application shall satisfy this specification and the paint manufacturer's written instructions and product data sheets. In the event of a conflict the Contractor shall advise the Engineer and comply with the Engineer's written resolution. Until a resolution is provided, the most restrictive conditions shall apply.

- a) Paint Storage and Mixing. All paint shall be stored according to the manufacturer's published instructions, including handling, storage and application temperatures, and shelf life. All coatings shall be supplied in sealed containers bearing the manufacturer's name, product designation, batch number and mixing instructions. Leaking containers shall not be used.

Mixing shall be according to the manufacturer's instructions. Thinning shall be performed only with the type approved, and to the extent allowed by the manufacturer's written instructions. In no case shall thinning cause the coating to exceed the local Volatile Organic Compound (VOC) emission restrictions. For multiple component paints, only complete kits shall be mixed and used. Partial kit mixing is not allowed.

The ingredients shall be thoroughly power mixed in their original containers before use or combining with other paint system components. Mixing shall break up all lumps, completely disperse pigment and result in a uniform composition. Mixed paint shall be examined for uniformity and to verify that no unmixed pigment remains in the container.

Multiple component coatings shall not be used beyond the manufacturer-specified pot life.

Paint that contains either skinning that cannot be readily mixed back into the paint for a uniform composition, or partial hardening due to improper or prolonged storage will be rejected.

The Engineer reserves the right to field sample and analyze previously approved individual components and/or mixed material. If the paint does not meet requirements due to excessive thinning or other problems, any defective coating applied shall be removed and replaced as directed by the Engineer.

- b) **Application Methods.** Unless prohibited by the coating manufacturer's written instructions, paint may be applied by spray, rollers, or brushes. If applied with conventional or airless spray methods, paint shall form a uniform layer by overlapping the edges of the spray pattern.

The painters shall monitor the wet film thickness of each coat during application. The desired range of wet film thickness shall be calculated based on the solids volume and the amount of vehicle and thinner added.

When brushes or rollers are used to apply the coating, additional applications according to manufacturer's recommendations may be required to achieve the specified thickness per layer.

- c) **Recoating and Film Continuity.** Paint shall be considered dry for recoating based upon the time/temperature/humidity criteria provided in the manufacturer's instructions and when the next coat can be applied without film irregularities such as lifting, wrinkling, or loss of previous coat adhesion. Contaminated surfaces shall be cleaned prior to application.

Painting shall be done in a professional manner. Each coat of paint shall form a continuous film of uniform thickness, free of defects including, but not limited to, runs, sags, overspray, dryspray, pinholes, and voids. Runs shall be brushed out immediately during application.

Construction Requirements. The contact surfaces of splice flange connections (mating flange faces and areas under splice bolt heads and nuts) shall be free of paint prior to assembly. If white rust is visible on the mating flange surfaces, the steel shall be prepared by hand wire brushing or brush-off blasting according to SSPC-SP7. Power wire brushing is not allowed.

After field erection, the following areas shall be prepared by cleaning according to SSPC-SP1 (Solvent Cleaning) with a non-hydrocarbon cleaner, tie- or wash-coated if applicable, and then painted or touched up with the paint specified for shop application (the prime and two finish coats or the alternate two coat system):

- exposed unpainted areas at bolted connections
- areas where the shop paint has been damaged
- any other unpainted, exposed areas as directed by the Engineer.

Quality Control. The Contractor shall conduct a quality control program that ensures that the work accomplished complies with these specifications. The quality control program shall consist of:

- Qualified personnel to manage the program and conduct quality control tests.
- Proper quality measuring instruments.
- Quality Control Plan.
- Condition and quality recording procedures.

The personnel managing the quality control program shall have experience and knowledge of industrial coatings and the measurements needed to assure quality work. The personnel performing the quality control tests shall be trained in the use of the quality control instruments. These personnel shall not perform surface preparation and painting. Painters shall perform wet film thickness measurements. The Contractor shall supply all necessary equipment to perform quality control testing of shop conditions, equipment, surface preparation, and profile and paint film thickness. The Contractor's personnel in accordance with the equipment manufacturer's recommendations shall calibrate these instruments.

The Contractor shall implement a Quality Control Plan approved by the Engineer including a schedule of required measurements and tests as outlined herein, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings. The Contractor shall supply and use forms approved by the Engineer to record the results of quality control tests. These reports shall be available at the work site for review by the Engineer. The purpose of the quality control program is to assist the Contractor in the proper performance of the work. Quality control tests performed by the Contractor will not be used as the sole basis for acceptance of the work.

Warranty. The Contractor shall unconditionally warrant to the Illinois Department of Transportation (IDOT) that all surface preparation and painting of galvanized steel traffic structures work completed under all the contract pay items for OVERHEAD SIGN STRUCTURE, including all materials and workmanship furnished by the Contractor and subcontractors, shall comply with the Contract, and that the surface preparation and painting system applied be free of defects, as hereinafter defined for a period of 10 years after the Warranty Period Start Date. The Contractor shall secure all appropriate documentation from the paint manufacturer and the paint applicator as required to support the warranty.

The work associated with the above stated pay items shall be accomplished according to all contract documents and the provisions outlined in this Special Provision. Acceptance by the Engineer, of any portion of the work during the original contract for surface preparation and painting, will not relieve the Contractor of the requirements of this warranty.

The Contractor guarantees that after receipt of notice from the Department as provided herein, he/she shall perform the warranty work specified in the notice in accordance with the original specifications including all necessary incidental work to complete the work and restore the complete facility. The Department's remedies under this warranty are not exclusive but are in addition to any other remedies provided by this contract or law.

Definitions:

Warranty Period. A 10-year duration initiating on the Warranty Period Start Date.

Warranty Period Start Date. The date the Engineer and Contractor document and execute the final inspection will constitute the start date for the warranty period for the project. Under Contracts where the surface preparation and painting of more than one structure is to be warranted under this item, the Warranty Period Start Date shall be the date the final inspection is executed for the last structure to be painted.

Warranted Distress. The surface preparation and painting will be considered distressed if an occurrence of visible rust or rust breakthrough, paint blistering, flaking and checking, cracking or loss of color are discovered during the Warranty Period. "Distressed" is defined more specifically as follows:

- a) Rust: Any one area of at least 0.36 square meters (0.6 m x 0.6 m) that is Grade 6 or worse as defined by ASTM D 610-01.
- b) Blistering: More than a few #4 blisters as defined by ASTM D 714-87(2000).
- c) Flaking and Checking: Any one area of at least 0.36 square meters (0.6 m x 0.6 m) with 10% or more of that area showing evidence of flaking or checking as defined by ASTM D 772-86(2000) and D 660-93(2000).
- d) Cracking: Evidence of at least No. 8 cracking as defined by ASTM D 661-93(2000).
- e) Color Retention: A change in the black color greater than 8 Delta E Units.

Warranty Work. Corrective action taken to bring the Warranted Distress into compliance. If corrective action is required for more than 40% of the structure during the warranty period, the paint system for the entire structure or structures shall be removed and replaced as directed by the Department.

Working Days. Any calendar day between May 1 and November 30 inclusive except Saturdays, Sundays, or legal holidays observed by the Contractor's entire workforce in Illinois.

Conflict Resolution Team (CRT). A three-member team responsible for resolving disputes between the Department and the Contractor regarding any claims of non-compliance of the warranty requirements.

Commencement of Warranty Period. At the final inspection according to Article 105.13, the Engineer and Contractor shall review the surface preparation and painting for compliance with the contract, including any written documentation from the Contractor required by the contract.

The Engineer and the Contractor shall document and execute the final inspection on a form furnished by the Department when the surface preparation and painting of the structure(s) is determined by the Engineer to be in compliance with the Contract. This date is then the Warranty Period Start Date.

Acceptance by the Engineer of work that used material from deficient lots, or otherwise accepted per Article 105.03, will not relieve the Contractor of meeting the warranty requirements for the surface preparation and painting of the structure(s).

At the end of the 10-year Warranty Period and remedy of any distress occurring within the Warranty Period, the Contractor will be released, in writing, from further Warranty Work, provided all previous Warranty Work has been completed and approved by the Engineer.

Warranty Requirements. During the warranty period, the Contractor may monitor the warranted work using non-destructive procedures. All laboratories and equipment used for independent testing shall be approved by the Department.

The Department will notify the Contractor of the need for Warranty Work. If the Contractor disputes the Department's request for Warranty Work written notification of the dispute shall be provided to the Department within 30 days. However, any dispute by the Contractor shall be based on the appraisals and technical merit of a NACE Certified Inspector. If the Contractor and the Department are not able to resolve the matter between them, either party may seek resolution of the dispute by the Conflict Resolution Team (CRT). The Department will provide final notification to the Contractor within 14 days of receipt of the CRT's final judgment.

The Contractor shall perform Warranty Work promptly as defined in the notification. The notification will provide a requested start date for performance of Warranty Work covered by the notice, and a number of working days estimated to complete the Warranty Work. The Department and the Contractor may agree upon a start date and a reasonable period of performance to define prompt completion.

If the Contractor fails to promptly complete the warranty work specified in the notice or as specified by the CRT, or otherwise breaches its obligations under this provision, the Department may declare the Contractor to be in default, and may proceed to terminate the rights of the Contractor and to cause the completion of the work in the manner approved in Article 108.10 of the Standard Specifications. The Contractor agrees to indemnify and hold harmless the Department on account of default, including but not limited to the cost and expense of any future warranty work required.

The Contractor shall repair all distressed areas, identified by the Engineer, according to the original painting specifications. A repair procedure shall be submitted in writing to the Engineer for review and approval prior to commencing any work. All paint repair work will be done the same season as the inspection, unless the seasonal limitations stated in the painting specifications prevents the completion that season. In this case, the corrective work will be completed the following season. The Engineer shall be allowed full inspection of all operations and provided safe access to the areas being repaired.

The Contractor may perform preventative action with the approval of the Department, at no cost to the Department. Prior to proceeding with any work, the Contractor shall obtain a permit from the Department. A Traffic Control Plan shall be submitted and approved by the Department prior to any lane closures. The Department may restrict the time of work according to the traffic needs surrounding the structure.

Evaluation of the warranted work will be accomplished on a per structure basis. Warranty work by the Contractor shall be approved by the Department and meet the same requirements of the original warranted work specified herein.

If warranty work or elective preventative action performed by the Contractor necessitates a corrective action to the structure, then such corrective action to those areas shall be the responsibility of the Contractor.

The Department may perform routine maintenance during the warranty such as washing, applying de-icing chemicals, repairs to safety appurtenances, etc. Such work shall not relieve the Contractor of their responsibilities as specified herein.

Rights and Responsibilities of the Department. The rights and responsibilities of the Department are as follows:

- a. Is responsible for notifying the Contractor, in writing, of any required warranty work.
- b. Reserves the right to approve the date(s) and time(s) requested by the Contractor to perform preventative maintenance and warranty work.
- c. Reserves the right to approve all materials and methods used in preventative maintenance and warranty work.
- d. Reserves the right to determine if warranty work performed by the Contractor meets the contract requirements.
- e. Reserves the right to perform, or have performed, routine maintenance during the warranty period. This routine maintenance will not relieve the Contractor from meeting the warranty requirement of this Special Provision.
- f. Shall document the condition of the paint system prior to and after any warranty work.

Rights and Responsibilities of the Contractor. The rights and responsibilities of the Contractor are as follows:

Shall unconditionally warrant to the Department that the surface preparation and painting of the galvanized steel shall be free of defects in materials and workmanship as defined by the warranty requirements as set forth above, for a period of 10 years from the Warranty Period Start Date for the project.

- a. Shall submit to the Department the warranty on forms furnished by the Department, prior to the Warranty Period Start Date.
- b. Is responsible for performing all warranty work, including, but not limited to, traffic control, obtaining railroad liability insurance where applicable at no additional cost to the Department.
- c. Shall retain all records for a period of 1 year beyond the end of the Warranty Period or the completion of any warranted repairs, whichever ever is later.
- d. Is responsible for replacing all temporary repairs, resulting from the painting system being in non-compliance with the warranty requirements, with Department approved materials and methods.
- e. Shall follow all traffic control and work zone safety requirements of the contract when any warranty work is performed.



- f. Shall complete all warranty work in a neat and uniform manner and shall meet the requirements specified in the contract.
- g. Is required to supply to the Department original documentation pursuant to Section 107 of the Standard Specifications that all insurance required by the contract is in effect during the period(s) that any warranty work is being performed.
- h. Shall notify the Department and shall submit a written course of action proposing appropriate corrective measures for the needed warranty work. Approval by the Department must be obtained prior to the anticipated commencement of any warranty work.

Conflict Resolution Team. The sole responsibility of the Conflict Resolution Team (CRT) is to provide a decision on disputed matters between the Department and the Contractor regarding the interpretation of non-compliance of the warranty requirements. It is the intention of the parties that the CRT be assembled with the full cooperation of both parties, and that the Contractor and Department will devote their full attention to the prompt consideration of the matter by the CRT. Neither party shall neglect its obligation of good faith hereunder nor shall unreasonable delay be imposed that would hinder the prompt decision of the CRT. The decision of the CRT shall be final and binding on the Contractor and Department.

The CRT will consist of three members:

- a. One selected, provided and compensated by the Department.
- b. One selected, provided and compensated by the Contractor.
- c. One third party, mutually selected by the Department and the Contractor. Compensation for the third party member will be equally shared by the Department and the Contractor.

The team members will be identified in writing at the preconstruction meeting and will be knowledgeable in the terms and conditions of this warranty, as well as the methods used to determine paint system distress. Changes to the team membership will be made in writing for the warranty period.

Basis of Payment. The cost of all surface preparation, galvanizing, painting, warranty and all other work described herein shall be considered as included in the unit price bid for the applicable pay items covering the traffic structure items to be galvanized and painted, according to the Standard Specifications.

**ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

**1 OF 2**

**WARRANTY**

**PAINT QUALITY**

THIS WARRANTY, made by \_\_\_\_\_  
(Contractor)  
of \_\_\_\_\_ hereinafter called "Warrantor",  
in favor of the Illinois Department of Transportation, hereinafter called "Department";

WITNESSETH:

RECITALS:

1. The Department has contracted for the surface preparation and painting of galvanized steel overhead sign structures included in the Interstate 74 Reconstruction Project (structures over I-74 and the ramps and arterial streets associated with the interchanges) in Peoria and Tazewell Counties, Illinois.

Under the provision of Contract No. \_\_\_\_\_, pertaining in part to painting of galvanized steel, entered into by

\_\_\_\_\_, and the Department,  
(Contractor)

the \_\_\_\_\_ is required  
(Contractor)

to furnish the Department a written warranty for the paint system warranting against defect as stated in said contract for a period(s) of ten years from the date(s) of final inspection by the Engineer, of \_\_\_\_\_'s work under said contract.

(Contractor)

**ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

**2 OF 2**

**WARRANTY**

**PAINT QUALITY**

NOW, THEREFORE, in consideration of the foregoing, Warrantor hereby agrees and warrants that in every case in which any defect, as described in Contract No. \_\_\_\_\_, occurs within said ten years period(s), Warrantor shall, forthwith upon receipt of written notice of such defect, repair said defective area.

It is expressly understood and agreed that the warranty and obligations herein set forth are made and undertaken by warrantor to and for the benefit of the Department.

IN WITNESS WHEREOF, Warrantor have set his/her hands as of this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
(Contractor)

ATTEST:

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

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

\_\_\_\_\_

## **GALVANIZED STEEL TRAFFIC STRUCTURES**

Effective January 14, 2004

General: All steel overhead sign structures, both span and cantilever, shall be finished with a duplex finishing system. The sign structures shall be hot dipped galvanized in accordance with AASHTO M111 and then the exterior of all the members shall be painted as specified in the Special Provision "*Surface Preparation and Painting of Galvanized Steel Traffic Structures*".

Absolutely no water quenching or chromate conversion coating is allowed of the galvanized surface that is to be painted, as they will interfere with the adhesion of the paint coatings to the zinc surface.

Basis of Payment. The cost of all galvanizing, surface preparation, painting, warranty and all other work described in AASHTO M111 and the Special Provision "*Surface Preparation and Painting of Galvanized Steel Traffic Structures*" shall be considered as included in the unit price bid for the applicable pay items covering the traffic structures.

## **ALUMINUM RAILING, TYPE H, SPECIAL ALUMINUM RAILING, TYPE L, SPECIAL**

Effective February 5, 2002

Revised July 24, 2003

### **1. Description**

This work shall consist of furnishing, and installing Aluminum Railing on concrete bridge parapets and elsewhere as shown on the plans. The work includes but is not limited to, coordination, submittals, materials, fabrication, finishing, transportation, installation, and all other miscellaneous elements required for complete provision of the Railing. All work shall conform to the IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2002, and as specified herein.

### **2. General**

#### **2.1 Related Documents**

Drawings and general provisions of the Contract and SECTION 509: METAL RAILINGS of the IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2002 except as noted otherwise.

### **3. Materials**

#### **3.1 Finishes**

- (a) All exposed Aluminum Rail materials shall be given an anodic oxide coating, dyed black (Munsell Number N1), conforming to the requirements of ASTM designation B 580, Type B, Architectural Class I.
- (b) The exposed heads and nuts of all hot-dip galvanized anchor rods shall be spot painted using an approved paint system to match finish color. The surface to be painted shall first be cleaned with an approved solvent.
- (c) Any damage to the coatings shall be repaired promptly in accordance with the manufacturer's recommendations or replaced with undamaged components. Repairs shall be subject to approval by the Engineer. Finish all damaged, cut or other uncoated surfaces, subject to approval by the Engineer, with high performance finish coat, compatible with anodic oxide coating system, to match finish color.

### **3.2 Submittals**

- (a) Product Data: Submit product data for each type of product indicated:
  - (1) Aluminum Components
  - (2) Fasteners
  - (3) Finish Systems - including factory and field applied systems.
- (b) Material Certifications: Submit material certifications signed by manufacturers certifying that each of the following items complies with requirements:
  - (1) Aluminum Components
  - (2) Fasteners
  - (3) Finish Systems - including factory and field applied systems.

### **4. Method of Measurement**

#### Measured Quantities:

ALUMINUM RAILING, TYPE H, SPECIAL and ALUMINUM RAILING, TYPE L, SPECIAL will be measured per installed meter. The length paid for shall be the overall length along the top of the rail through all posts and gaps. Railing installed on a curve or grade will be measured along the curve or grade.

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

This item shall be paid for at the contract unit price per meter for ALUMINUM RAILING, TYPE H, SPECIAL or ALUMINUM RAILING, TYPE L, SPECIAL, which price shall include all material, hardware, labor, transportation, cleaning and finishing as specified in this special provision.

## **STORM SEWER REMOVAL**

Effective April 22, 2004

Trench backfill material for storm sewer removal will not be paid for separately, but shall be considered as included in the contract unit price bid for Storm Sewer Removal of the diameter specified.

## **PIPE UNDERDRAIN**

Effective August 1, 2003

Revised June 11, 2005

This work shall be according to Section 601 of the Standard Specifications and plan details except as modified herein:

### **BACKFILL FOR UNDERDRAINS OR BEDDING**

FA 4 or FM 4 meeting the following gradations shall be used for backfilling the underdrain trench:

| <b>Sieve Size</b> | <b>Percent Passing</b> |                    |
|-------------------|------------------------|--------------------|
|                   | <b><u>FA 4</u></b>     | <b><u>FM 4</u></b> |
| 3/8" (9.5 mm)     | 100                    | 100                |
| No. 4 (4.75 mm)   |                        | 97 ± 3             |
| No. 8 (2.36 mm)   |                        | 5 ± 5              |
| No. 10 (2 mm)     | 21% max                |                    |
| No. 16 (1.18 mm)  | 5 ± 5                  | 2 ± 2              |
| No. 200 (75)      | 2% max                 | 2% max             |

Only natural sands and gravel shall be used.

#### PIPE UNDERDRAIN

A pipe slot of 1.75mm± 0.25mm shall be used. The number of slots and the slot length may be manipulated to maintain the inlet flow specified in AASHTO M 252-96 as long as it does not compromise any other requirements specified in AASHTO M 252-96. No fabric envelope for the pipe underdrain or the trench shall be used. The District may conduct a number of Ploog Washer tests, using this pipe with random samples of the backfill material. The loss of fines through the pipe slot in the Ploog Washer tests shall not exceed 4%.

#### PIPE UNDERDRAIN, 150 MM

The pipe underdrains shall be encased in a nonwoven fabric envelope for pipe underdrains in accordance Section 1080 of the Standard Specifications. A knitted or woven fabric will not be permitted. If the pipe slot of 1.75 mm ± 0.25 mm can be produced in the 150 mm sized pipe underdrain, the nonwoven fabric envelope shall be deleted.

#### SEQUENCE OF PIPE UNDERDRAIN INSTALLATION

The Contractor shall install the Pipe Underdrain for the Extended Life PCC Pavement as shown in the Project Standard for Sub-Surface Drains with the following exception. The Contractor will be permitted to install the Pipe Underdrain after placement of the Bituminous Binder Course provided the Pipe Underdrain trench is backfilled to the satisfaction of the Engineer. If the Contractor fails to backfill the Pipe Underdrain adequately to provide a smooth base for the Extended Life PCC Pavement the installation method shall return to the method as shown on the Project Standard for Sub-Surface Drains.

In the event the Pipe Underdrain installation is deformed or crushed during construction, the damaged areas shall be removed and replaced to the satisfaction of the Engineer. No additional compensation will be allowed for repair of Pipe Underdrain damaged as a result of the Contractor's operations.

## CONNECTION OF PIPE DRAINS AND UNDERDRAINS TO DRAINAGE STRUCTURES

Effective February 6, 2003

When required, pipe drains and underdrains shall be connected to existing and proposed drainage structures. The Contractor shall exercise proper care so as not damage drainage structures when cutting holes for pipe drains or underdrains. Pipe drains and underdrains shall be grouted in place. The method and materials used to cut holes in drainage structures and grout pipes shall be approved by the Engineer.

Pipe underdrains shall be placed a minimum of 200 mm (8 in.) above the top of the highest pipe in a drainage structure.

This work will not be paid for separately, but shall be considered as included in the contract unit price bid for the associated pipe drain or pipe underdrain items.

## PIPE UNDERDRAIN REMOVAL

Effective March 12, 2003

Revised July 24, 2003

This work shall consist of removing and disposing of existing pipe underdrains located adjacent to the edge of I-74 mainline and ramp pavements. This work shall include removal and disposal of pipe underdrain outlets and concrete headwalls for pipe underdrains. Any excavation made by the Contractor for the removal shall be replaced. The excavated space shall be filled with material satisfactory to the Engineer and placed according to Section 205 of the Standard Specifications by and at the expense of the Contractor. Materials resulting from the removal of the existing underdrain and headwalls shall be disposed of in accordance with Article 202.03 of the Standard Specifications. The upstream end of existing pipe underdrains that are to remain shall be plugged. This work will not be paid for separately, but shall be considered as included in the contract unit price bid for Earth Excavation.

## DRAINAGE STRUCTURES STANDARD

Effective April 23, 2004

All references to Drainage Structures Type 1, 2 & 3 "Standard 602101" shall be construed to mean "I-74 Project Standard 602102-I74".

## CONCRETE BARRIER

Effective February 3, 2003

Revised June 11, 2005

**Description.** This work shall consist of constructing a concrete barrier and, when required, a concrete barrier base.

**Materials.** Materials for concrete barrier and concrete base shall conform to the requirements of the following Articles of Section 1000 - Materials:

|     | Item                             | Article/Section |
|-----|----------------------------------|-----------------|
| (a) | Portland Cement Concrete.....    | 1020            |
| (b) | Welded Wire Fabric (Note 1)..... | 1006.10(a)(c)   |

|     |  |                   |
|-----|--|-------------------|
| (c) | Reinforcement Bars (Note 2) .....      | 1006.10(a)(b)     |
| (d) | Protective Coat.....                   | 1023              |
| (e) | Non-Shrink Grout .....                 | 1024              |
| (f) | Poured Joint Sealer.....               | 1050              |
| (g) | Preformed Fiberboard .....             | 1051.04           |
| (h) | Preformed Expansion Joint Filler ..... | 1051.08 – 1051.09 |

Note 1. Welded wire fabric shall be 150 mm x 150 mm, 5.7 mm diameter (6 in. x 6 in., W4 x W4) weighing approximately 2.83 kg/sq m (58 lb/100 sq ft).

Note 2. Reinforcement bars shall be Grade 400 (Grade 60). All tie bars, dowel bars, reinforcement bars and chair supports shall be epoxy coated.

### CONSTRUCTION REQUIREMENTS

**General.** Concrete barrier shall be constructed according to the applicable portions of Section 503 of the Standard Specifications and details as shown in the plans.

Cast-in-place barrier shall be used. Precast barrier will not be permitted.

**Concrete Barrier Base.** The concrete barrier base shall be constructed separate from the barrier and portland cement concrete shoulder or pavement. The concrete base shall be constructed according to Articles 483.01 to 483.10 of the Standard Specifications.

**Portland Cement Concrete Shoulder Base.** When portland cement concrete shoulder is used as a base for the barrier, the shoulder shall be constructed separate from the barrier. The portland cement concrete shoulder shall be constructed according to Section 483 of the Standard Specifications.

**Anchoring.** Barrier shall be anchored to the base by the methods shown on the plans. Dowel bars used to secure concrete barrier to the base shall be No. 25 (No. 8) deformed reinforcement bars of a length necessary to obtain the minimum embedment shown on the plans. Dowel bars shall be on 1.2 m (4 ft) centers and staggered side to side. Dowel bars placed subsequent to concrete base shall be set in grout in drilled or preformed holes to the satisfaction of the Engineer. . When necessary to permit traffic to use temporary crossovers or ramps, dowel bars shall be drilled and set at the time of barrier construction.

As shown on the plans, the concrete barrier base or concrete barrier shall be tied to the lower shoulder or pavement on one side of the barrier. The side of barrier tied to the adjacent shoulder or pavement shall only be switched at an expansion joint in the barrier base and/or concrete barrier. A fiberboard bond breaker shall be placed along the other side of the concrete barrier base or concrete barrier. The fiberboard bond breaker joint shall be sealed as shown in the plans with hot poured joint sealer.

**Concrete Barrier.** Where the horizontal alignment of the concrete barrier is curved, the barrier shall be constructed either on the curved alignment or on cords not more than 3 m (10 ft) in length.



In lieu of welded wire fabric reinforcement in the concrete barrier, the Contractor may elect to use No. 15 (No. 4) deformed horizontal reinforcement bars on 225 mm (9 in.) centers and No. 15 (No. 4) deformed vertical reinforcement bars on 750 mm (2 ft 6 in.) centers. (The vertical bars may be omitted if the wall is slip formed.) The reinforcement bars shall be lapped a minimum of 325 mm (13 in.). If the Contractor elects to use reinforcement bars in lieu of welded wire fabric, the reinforcement bars will not be measured for payment, but shall be considered included in the contract unit price bid for concrete barrier items.

**Slipforming.** When slip form methods are used, the machine shall be approved by the Engineer. Barriers having dimensions outside the tolerance limits will be rejected and shall be removed and replaced.

The vertical centerline of the barrier shall not vary from the proposed centerline by more than 75 mm (3in.) nor by more than 13 mm in 3 m (1/2 in. in 10 ft). All surfaces shall be checked with a 3 m (10 ft) straightedge as the concrete exits the slipform mold. Surface irregularities greater than 10 mm in 3 m (3/8 in. in 10 ft) shall be corrected immediately. Continued variations in the barrier surface exceeding 6 mm in 3 m (1/4 in. in 10 ft) will not be permitted and remedial action shall immediately be taken to correct problem. Any deformations or bulges remaining after the initial set shall be removed by grinding after the concrete has hardened. All holes and honeycomb shall be patched immediately.

**Finishing.** The surface of concrete barrier shall be finished according to Article 503.16(a).

#### **Joints.**

(a) Construction Joints. Construction joints shall be formed with the use of a smooth header and the reinforcement shall be continuous through the joint. Construction joints shall be constructed in the barrier whenever there is an interruption in the pour of more than 30 minutes.

(b) Expansion Joints. Expansion joints in the adjacent pavement/shoulder that is tied to the base or barrier shall be continued through both the base and the barrier and shall be similar in opening to the type of joint adjoining it. At locations where barrier abuts a rigid structure, a 50 mm (2 in.) preformed expansion joint filler conforming to the shape of the barrier and the structure shall be installed between the barrier and the structure as shown on the plans. Concrete nails or other suitable methods shall be used to hold the expansion joint filler in place.

When dowel bars are required for expansion joints, a light coating of oil shall be uniformly applied to dowel bars prior to placing concrete.

(c) Contraction Joints. Contraction joints in the barrier and the base shall be aligned with contraction joints in the adjacent concrete pavement or shoulder on the side the barrier base is tied to the concrete pavement or shoulder and at uniform intervals with a maximum spacing of 6.0 m (20 ft). Contraction joints shall be formed by a groove 3 mm (1/8 in.) wide by 25 mm (1 in.) deep either formed in the plastic concrete or sawed after the concrete has set. The reinforcement shall be continuous through the joints.

**Protective Coat.** When required, the top and vertical surfaces of the barrier exposed to traffic shall receive a protective coat. The application of the protective coat shall be according to Article 420.21.

**Method of Measurement.** This work will be measured as follows:

(a) Contract Quantities. The requirements for the use of contract quantities shall be according to Article 202.07(a).

(b) Measured Quantities. Concrete barrier base will be measured for payment in square meters (square yards) in place. Furnishing and placing tie bars will not be measured for payment, but shall be considered included in the contract unit price bid for concrete barrier base.

When the shoulder is widened to provide a base for the concrete barrier, the widened shoulder will be measured in accordance with Article 483.11 as portland cement concrete shoulder.

Concrete barrier, single face (modified) will be measured for payment in meters (feet) in place, along the face of the barrier. Furnishing and placing reinforcement bars and bar splicers, dowel bars and the thickened portland cement concrete shoulder, when required, will not be measured for payment, but shall be considered included in the contract unit price bid for concrete barrier, single face (modified).

Concrete barrier, double face (modified) and concrete barrier transition (modified) will be measured for payment in meters (feet) in place, along the centerline of the barrier. Furnishing and placing welded wire fabric, reinforcement bars and dowel bars will not be measured for payment, but shall be considered included in the contract unit price bid for concrete barrier, double face (modified) or concrete barrier transition (modified).

Concrete barrier, double face (special) and concrete barrier transition (special) will be measured for payment in cubic meters (cubic yards) in place. No deductions shall be made for conduits, junction boxes, inlets or other similar appurtenances that are embedded in the concrete barrier or base. Furnishing and placing welded wire fabric and tie bars will not be measured for payment, but shall be considered included in the contract unit price bid for concrete barrier, double face (special) and concrete barrier transition (special).

Protective coat will be measured for payment according to Article 420.22(b).

When an overhead sign or high mast light tower is located in the median, the foundation will not be measured for payment as concrete barrier or concrete barrier base, but shall be paid for separately.

Construction, expansion and contraction joints as outlined herein and shown on the plans will not be measured for payment, but shall be considered included in the contract unit price bid for concrete barrier items.

**Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for CONCRETE BARRIER BASE; CONCRETE BARRIER, DOUBLE FACE (MODIFIED); CONCRETE BARRIER TRANSITION (MODIFIED); or CONCRETE BARRIER, SINGLE FACE (MODIFIED); at the contract unit price per cubic meter (cubic yard) for CONCRETE BARRIER, DOUBLE FACE (SPECIAL); or CONCRETE BARRIER TRANSITION (SPECIAL).

Protective coat will be paid for according to Article 420.23.

## **SHOULDER RUMBLE STRIPS**

Effective: January 1, 2003

Revised: March 10, 2003

Delete the third paragraph of Article 482.06 of the Standard Specifications.

Delete the last two sentences of the fourth paragraph of Article 483.06 of the Standard Specifications.

Add the following to the Standard Specifications:

### **“SECTION 642. SHOULDER RUMBLE STRIPS**

**642.01 Description.** This work shall consist of constructing rumble strips in shoulders.

**642.02 Equipment.** The equipment shall be a self-propelled milling machine with a rotary-type cutting head(s). The cutting head(s) shall be suspended from the machine such that it can align itself with the slope of the shoulder and any irregularities in the shoulder surface. The teeth of the cutting head(s) shall be arranged to provide a smooth cut, with no more than a 3 mm (1/8 in.) difference between peaks and valleys.

Prior to commencement of the work, the Contractor shall demonstrate, to the satisfaction of the Engineer, the ability of the equipment to achieve the desired results without damaging the shoulder.

### **CONSTRUCTION REQUIREMENTS**

**642.03 General.** The rumble strips shall be cut to the dimensions shown on the plans. Guides shall be used to ensure consistent alignment, spacing and depth.

Rumble strips shall be omitted within the limits of structures, entrances, side roads, entrance ramps and exit ramps. In portland cement concrete shoulders, rumble strips shall not be placed within 150 mm (6 in.) of transverse joints.

Cuttings resulting from this operation shall be disposed of according to Article 202.03 of the Standard Specifications and the shoulders shall be vacuumed clean.

**642.04 Method of Measurement.** This work will be measured for payment in meters (feet) along the edge of pavement. Measurement will include both the cut and uncut sections of the shoulder rumble strips with exceptions for bridge decks, approach pavements, turn lanes, entrances and other sections where shoulder rumble strips have been omitted.

**642.05 Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for SHOULDER RUMBLE STRIPS.”

**ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL)**

Effective November 21, 2002

Revised July 17, 2003

This item shall consist of furnishing and maintaining an Engineer's Field Office as specified in Article 670.01 of the Standard Specifications and herein.

The field office shall have a ceiling height of not less than 2m (7 ft) and a floor space of not less than 185 sq m (2000 sq ft). The office shall be provided with sufficient heat, natural or artificial light and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

1. Adequate all weather parking space shall be available to accommodate a minimum of twenty vehicles.
2. Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office.
3. Solid waste disposal consisting of ten waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service. Weekly garbage pick up service shall be provided.
4. The Contractor shall provide the following equipment and furniture meeting the approval of the Engineer.
  - a. Eight desks with minimum working surface 1.8m x 1.2m (72 in. x 48 in.) each.
  - b. Two desks with minimum working surface 1.1 m x 750 mm (42 in. x 30 in.) with height adjustment of 585 to 750 mm (23 in. to 30 in.) for computer use.
  - c. Ten non-folding office chairs on wheels with upholstered seats, arm rests and backs.
  - d. Three 4-post drafting tables with minimum top size of 950mm x 1.2m (37-½ in. x 48 in.). The top shall be basswood or equivalent and capable of being tilted through an angle of 50 degrees. Three adjustable height drafting stools with upholstered seats and backs shall also be provided.
  - e. Three freestanding file cabinets with locks, legal size, four drawers, with an Underwriter's Laboratories insulated file device 350 degrees one hour rating.
  - f. Fifteen folding chairs or stackable chairs.
  - g. One equipment cabinet with lock of minimum dimension of 1100mm (44 in.) x 600mm (24in.) x 750mm (30 in.) deep. The walls shall be of steel with a 2mm 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 office in a manner to prevent theft of the entire cabinet.
  - h. One office-style refrigerator with a minimum size of 0.4 cubic meters (16 cu ft) with a freezer unit.

- i. Four electric desk type tape printing calculators and four pocket scientific notation calculators with a 1000 hour battery life.
  - j. Five telephones, including at least two cordless phones, and three telephone answering machines (or voice mail feature on 3 phone lines). One telephone shall have speaker phone capability. Six telephone lines shall be provided including one for the fax machine and two for modems. Additional features on the three voice lines shall include caller ID and 3-way calling.
  - k. One photocopy machine (including maintenance and operating supplies) capable of copying field books. Supply paper and trays for 215mm x 280mm (8-1/2 in. x 11 in.); 215mm x 355mm (8-1/2 in. x 14 in.); and 280mm x 430mm (11 in. x 17 in.) sizes. The copier shall be complete with automatic feed and sorter.
  - l. One telecommunication fax machine, including maintenance and operating supplies. The fax machine shall use plain paper. One table for the fax machine.
  - m. One electric water cooler dispenser.
  - n. One first-aid cabinet, fully equipped.
  - o. Two dry-erase marker boards minimum size 700 mm x 1.0 m (28 in. x 40 in.) with markers and erasers.
  - p. Four bulletin boards minimum size 700 mm x 1.0 m (28 in. x 40 in.)
  - q. One microwave oven.
  - r. One conference table or group of tables which can be arranged together to create a table that will seat at least 15 people.
  - s. One storage cabinet minimum size 450 mm (18 in.) wide x 300 mm deep (12 in.) x 1500 mm (60 in.) with four adjustable shelves.
  - t. Bookshelves - A minimum of 300mm (12 in.) deep and a minimum total available length of 30 m (100 ft).
5. The office space shall be maintained and kept in a clean condition, and free of insects and rodents, at all times. The Contractor shall provide janitorial and/or cleaning service a minimum of once a week. Windows should be cleaned as directed by the Engineer. Maintenance shall include, but not be limited to, paper towels, soap, toilet paper, and other necessary supplies. No additional compensation will be allowed for providing this service, but it shall be included in the item ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL).
6. An electronic security system that will respond to any breach of exterior doors and windows with an on-site alarm shall be provided. The Contractor shall be responsible for security of the field office building and is liable for damages incurred as a result of vandalism, theft, and other criminal activities. Broken windows shall be replaced at no additional cost.

7. The Contractor will be responsible for systems maintenance and repairs, which shall include the heating, cooling, sanitary, and water distribution systems and light bulb replacements.
8. Fire extinguishers meeting the local municipalities' requirements shall be provided.
9. Window shades or blinds shall be provided for all windows, as directed by the Engineer.
10. The Contractor shall be responsible for snow removal from parking areas and sidewalks surrounding the building.
11. The Contractor shall pay the cost of any building or equipment inspections by the local municipality. The Contractor shall also pay all costs to comply with the maintenance type inspection findings.
12. The Contractor shall provide one subscription to high speed or broadband internet service. The Engineer will install this service on his (or his consultant's) desktop computer for use in the field office.

Basis of Payment. The building, fully equipped as specified herein and accepted by the Engineer, will be paid for on a monthly basis until the building is released by the Engineer. The Contractor will be paid the contract bid price each month, provided the building is maintained, equipped, and utilities furnished. The building, fully equipped and maintained as specified herein, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE, TYPE A, (SPECIAL). This price shall include all utility costs and shall reflect the salvage value of the building, equipment and furniture which becomes the property of the Contractor after release by the Engineer, except that the Department will pay that portion of each monthly long distance telephone bill in excess of \$50.

The Contractor shall be responsible for the repair and maintenance of the field office. No extra payment will be made for systems maintenance, repairs or for damages incurred as a result of vandalism, theft or other criminal activities.

#### **ENGINEER'S FIELD LABORATORY (SPECIAL)**

Effective December 2, 2002

Revised July 17, 2003

This item shall consist of furnishing and maintaining an Engineer's Field Laboratory as specified in Article 670.01 of the Standard Specifications and herein.

The field laboratory shall have a ceiling height of not less than 2 m (7 ft) and a floor space of not less than 35 sq m (380 sq ft). The laboratory shall be provided with sufficient heat, natural and artificial light and air conditioning. Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office. Doors and windows shall be equipped with locks approved by the Engineer.

The Engineer's Field Laboratory shall be equipped with an electronic security system that will respond to any breach of exterior doors and windows with an on-site alarm will be provided.

The Contractor shall be responsible for the security of the field office building and is liable for damages incurred as a result of vandalism, theft, and other criminal activities. Broken windows shall be replaced at no additional cost.

The Contractor will be responsible for systems maintenance and repairs, which shall include the heating, cooling, sanitary, and water distribution systems and light bulb replacements.

Windows shall be equipped with exterior screens to allow adequate ventilation. Window shades or blinds shall be provided for all windows, as directed by the Engineer.

Fire extinguishers meeting the local municipalities' requirements shall be provided.

The Contractor shall be responsible for snow removal from parking areas and sidewalks surrounding the building.

The Contractor shall pay the cost of any building or equipment inspections by the local municipality. The Contractor shall also pay all costs to comply with the maintenance type inspection findings.

The lab space shall be maintained and kept in a clean condition, and free of insects and rodents, at all times. The Contractor shall provide janitorial and/or cleaning service a minimum of once a week. Windows should be cleaned as directed by the Engineer. Maintenance shall include, but not be limited to, paper towels, soap, toilet paper, and other necessary supplies. No additional compensation will be allowed for providing this service, but it shall be included in the item ENGINEER'S FIELD LABORATORY (SPECIAL).

In addition, the following equipment and furniture meeting the approval of the Engineer shall be furnished:

- (a) Four desks with minimum working surface 1.8 m x 1.2 m (72 in. x 48 in.) each and five non-folding chairs with upholstered seats, arm rests and backs
- (b) One microwave oven
- (c) One microwavable tray
- (d) One free standing four drawer legal size file cabinet with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating
- (e) Two pocket scientific notation calculators with a 1000 hour battery life
- (f) One cordless telephone with an answering machine or voice mail, caller ID, and 3-way calling (for exclusive use by the Engineer)
- (g) One first-aid cabinet fully equipped
- (h) One service sink and water supply for testing purposes

- (i) One work bench 900 mm x 3 m x 900 mm (3 ft x 10 ft x 36 in.) high with drawers and cabinets below and three 110 volt, 20 amp outlets above the bench
- (j) A digital scale of at least 11.5 kg (25 lb) capacity sensitive to 0.1 g (0.003 oz)
- (k) Cleaning supplies as necessary
- (l) A uniform, rigid foundation, such as provided by a cube of concrete weighing not less than 90 kg (200 lb), for use when performing soil proctor tests
- (m) One photocopy machine with automatic feed capable of reproducing prints up to legal size [ 215 mm x 355 mm (8 1/2 in. x 14 in.)], including maintenance and reproduction paper
- (n) One plain paper telecommunication fax machine, including maintenance and operating supplies
- (o) One electric water cooler dispenser
- (p) Bookshelves a minimum of 300mm (12 in.) deep and a minimum total available length of 10 m (30 ft)
- (q) One equipment cabinet of minimum inside dimension of 1500 mm (60 in.) high x 900 mm (36 in.) wide x 750 mm (30 in.) deep
- (r) Four folding chairs
- (s) One office-style refrigerator with a minimum size of 0.4 cubic meters (16 cu ft) with a freezer unit
- (t) One dry-erase marker board minimum size 700 mm x 1.0 m (28 in. x 40 in.) with markers and erasers
- (u) One bulletin board minimum size 700 mm x 1.0 m (28 in. x 40 in.)
- (v) A cabinet or vault shall be provided for the nuclear density equipment which shall have a suitable barrier system of concrete, steel, lead, or other radiation barrier material and shall remain at the job site. It shall have a dimension capable of holding two nuclear gauges being stored at the job site and shall have a lock for security to prevent intruders from gaining access to the equipment. All walls and doors of the unit shall be sufficient thickness to prevent any radiation leakage from the equipment should a malfunction occur which would allow this leakage

**Basis of Payment.** The building, fully equipped as specified herein and accepted by the Engineer, will be paid for on a monthly basis until the building is released by the Engineer. The Contractor will be paid the contract bid price each month, provided the building is maintained, equipped, and utilities furnished. The building, fully equipped and maintained as specified herein, will be paid for at the contract unit price per calendar month or fraction thereof for



ENGINEER'S FIELD LABORATORY (SPECIAL). This price shall include all utility costs and shall reflect the salvage value of the building, equipment and furniture which becomes the property of the Contractor after release by the Engineer, except that the Department will pay that portion of each monthly long distance telephone bill in excess of \$50.

The Contractor shall be responsible for the repair and maintenance of the field lab. No extra payment will be made for systems maintenance, repairs or for damages incurred as a result of vandalism, theft or other criminal activities.

**TRAFFIC CONTROL AND PROTECTION (SPECIAL)**

Effective April 19, 2002

Revised November 26, 2002

This work shall consist of furnishing, installing, maintaining, relocating and removal of all traffic control required for the purpose of regulating, warning or directing traffic for construction activities on all streets other than the I-74 mainline or ramps. This work shall be done in accordance with Article 107.14 and Section 701 of the Standard Specifications, the staging details and notes in the plans, applicable Highway Standards, the Special Provisions and as specified herein.

The plan details present a suggested means for implementing the necessary traffic control for this project. The plans do not attempt to detail or define all construction conditions which may require installation of traffic controls. The Contractor may revise or modify the traffic control as shown in the plans with the written permission of the Engineer. The cost of any traffic control devices that must remain upon completion of the contract shall be included in this work.

Existing regulatory traffic signing shall be relocated as needed for each stage of construction. In addition, the contractor shall furnish and install temporary regulatory signing at the locations shown in the plans. The Contractor shall maintain all temporarily relocated/furnished signs until the new permanent signing has been installed. The temporary relocation and maintenance of any regulatory or warning traffic signs will not be paid for separately but shall be governed by Article 107.25 of the Standard Specifications. The Contractor shall not be responsible for maintaining temporary signs after completion of this contract.

Method of Measurement:

All traffic control and protection required by this provision will be measured for payment on a lump sum basis. All traffic control necessary to construct the work shown in the plans shall be considered included in the cost bid for this item. No additional payment will be made for any alterations, modifications, or additions necessary to construct the various work items shown in the plans.

Basis of Payment:

Work required by this provision will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL). There will be no adjustment of payment allowed for any change in value of work items associated with this item.

The furnishing and installation of temporary regulatory signing at the locations indicated in the plans will not be paid for separately, but shall be considered included in the cost of TRAFFIC CONTROL AND PROTECTION (SPECIAL).

Temporary pavement markings will be measured and paid for according to Section 703 and Section 780.

Pavement marking removal will be measured and paid for according to Section 703 and Section 783.

Prismatic reflectors will be measured and paid for according to Section 782.

### **TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)**

Effective April 19, 2002

Revised April 21, 2004

This work shall consist of furnishing, installing, maintaining, relocating and removal of all traffic control required for the purpose of regulating, warning or directing traffic for construction activities on the I-74 mainline and ramps. This work shall be done in accordance with Article 107.14 and Section 701 of the Standard Specifications, the staging details and notes in the plans, applicable Highway Standards, the Special Provisions and as specified herein.

The plan details present a suggested means for implementing the necessary traffic control for this project. The plans do not attempt to detail or define all construction conditions which may require installation of traffic controls. The Contractor may revise or modify the traffic control as shown in the plans with the written permission of the Engineer. The cost of any traffic control devices that must remain upon completion of the contract shall be included in this work.

Existing regulatory traffic signing shall be relocated as needed for each stage of construction. In addition, the contractor shall furnish and install temporary regulatory signing at the locations shown in the plans. The Contractor shall maintain all temporarily relocated signs until the new permanent signing has been installed. The temporary relocation and maintenance of any regulatory or warning traffic signs will not be paid for separately but shall be governed by Article 107.25 of the Standard Specifications. The Contractor shall not be responsible for maintaining temporary signs after completion of this contract.

#### Method of Measurement:

All traffic control and protection required by this provision will be measured for payment on a lump sum basis. All traffic control necessary to construct the mainline and ramp work shown in the plans shall be considered included in the cost bid for this item. No additional payment will be made for any alterations, modifications, or additions necessary to construct the various work items shown in the plans.

#### Basis of Payment:

Work required by this provision will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS). There will be no adjustment of payment allowed for any change in value of work items associated with this item.

The furnishing and installation of temporary regulatory signing at the locations indicated in the plans will not be paid for separately, but shall be considered included in the cost of TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS).

Temporary pavement markings will be measured and paid for according to Section 703 and Section 780.

Pavement marking removal will be measured and paid for according to Section 703 and Section 783.

Prismatic reflectors will be measured and paid for according to Section 782.

### **TRAFFIC CONTROL SURVEILLANCE (SPECIAL)**

Effective May 6, 2002

Revised February 10, 2003

The contractor shall provide a traffic control supervisor for each day lane closures are used on the project, in accordance with contract provisions and as directed by the Engineer.

The traffic control supervisor shall be certified as a TC work site supervisor by the American Traffic Safety Services Association (ATYSSA), the National Safety Council (SSC), or the Association of General Contractors (AGC). A copy of the traffic control supervisor's certification shall be provided to the engineer at the project pre-construction conference.

The contractor shall, at the pre-construction conference, designate a traffic control supervisor who shall be responsible for and perform the traffic control management. The traffic control supervisor shall either be an employee of the contractor other than the superintendent, or an employee of a firm which has a subcontract for overall traffic control management of the project. The traffic control supervisor shall be responsible for the management of the traffic control operations of the project, including those of the contractor, subcontractor and suppliers. The primary responsibility of the traffic control supervisor shall be the traffic control management of this project.

The traffic control supervisor shall have the authority needed to effectively require modifications and maintenance of traffic controls. This includes having the authority necessary to obtain and use all labor, equipment, and materials needed to provide and maintain traffic control in routine and emergency situations.

Traffic control management by the traffic control supervisor includes, but is not limited to:

1. Ensuring that traffic control devices are functioning as required. This includes the repair or replacement of all signs, barricades and other traffic devices that become damaged, moved, or destroyed, or lights that cease to function properly, and barricade weights that are damaged or otherwise fail to stabilize barricades.
2. Providing sufficient surveillance of signs, barricades and other traffic control devices on a 24-hour a day basis. Making sure traffic control devices are inspected every calendar day that traffic control devices are in use. Routine surveillance inspections are required on a four hour interval and recorded on the form furnished by the Engineer on a daily basis. The complete form shall be submitted to the Engineer on the first working day after the inspection.

3. The traffic control supervisor will be on the project full time every working day, "on call" at all times, and available within 45 minutes of notification, at other than normal working hours. The contractor shall give to the engineer the names, addresses and telephone numbers of at least three individuals (one of which is the traffic control supervisor) responsible to provide and ensure immediate attention to the traffic control management.
4. Preparing, revising, and submitting the changes to the traffic control plan as required.
5. Directing and supervising all project flaggers.
6. Coordinating all traffic control operations, including those of subcontractors and suppliers.
7. Coordinating project activities, which require lane closures, with adjacent projects.
8. Coordinating project activities with appropriate police and fire control agencies.
9. Maintaining a project traffic control diary, which shall become a part of the department's project records.
10. Overseeing all requirements covered by the plans and specifications which contribute to the convenience, safety, and orderly movement of traffic.
11. Establishing contact with local and state law enforcement agencies affected by construction before work begins. Establishing communication so that any accidents will be reviewed daily by the traffic control supervisor to determine if changes in traffic control are necessary. These accidents will also be reported daily to the Engineer.
12. Providing sufficient surveillance of all portable changeable message (PCM) signs to ensure the following:
  - a) Correct and current information is always provided
  - b) Proper placement of PCM signs
  - c) PCM signs are turned off when messages are no longer necessary.
13. Ensuring that work zone speed limits are properly installed.
14. Maintaining constant communication with project personnel, law enforcement agencies, and the District Communications Center. As part of this requirement, the traffic control supervisor will be required to have a cellular telephone.

Payment for Traffic Control Supervisor will be paid for at the contract unit price per calendar day for TRAFFIC CONTROL SURVEILLANCE (SPECIAL).

#### **WORK ZONE PUBLIC INFORMATION SIGNS**

Effective: September 1, 2002

Revised: April 22, 2004

Description. This work shall consist of furnishing, erecting, maintaining, and removing work zone public information signs. The signs shall be erected as shown on the plans and according to Article 702.05(a) of the Standard Specifications.

Camera-ready artwork for the signs will be provided to sign manufacturing companies upon request by contacting the Central Bureau of Operations at 217-782-2076. The sign number is W21-I116-6048.

Basis of Payment. This work will not be paid for separately but shall be considered as included in the cost of the Traffic Control And Protection (Expressway).

### **TRAFFIC CONTROL STANDARDS**

Effective April 21, 2004

Revised May 6, 2004

Subsequent to the preparation of the Maintenance of Traffic plans, several Traffic Control Highway Standards and Traffic Control Project Standards were revised. Signs that are shown on Traffic Control Highway Standards and/or Traffic Control Project Standards shall take precedence over signs shown on the maintenance of traffic plans.

### **TRAFFIC CHANNELIZING POSTS**

Effective October 1, 2001

Revised January 16, 2002

Traffic channelizing posts shall be placed at the locations shown on the plans or as directed by the Engineer, and shall be done in accordance with the details in the plans and applicable portions of Section 702 of the Standard Specifications and Standards and Highway Standards 702001.

Traffic channelizing post (600 mm (24")) shall be yellow with amber reflectors and shall include a black base. It shall be of a hinged, self-recovering design, as manufactured by Safe-Hit, or an approved equal.

Reflective sheeting shall be Hi Intensity and shall be material from the list of qualified reflective sheeting products maintained by the Bureau of Material & Physical Research.

The base shall be placed on the adhesive material with sufficient pressure to firmly seat it in place, minimum load of 100 pounds (or as directed by manufacture). The adhesive shall be Butyl as manufactured by Safe-Hit, or an approved equal.

This work shall be paid for at the contract unit price each for TRAFFIC CHANNELIZING POST, which price shall be payment in full for all material, labor, and equipment necessary to perform the work.

### **CHANGEABLE MESSAGE SIGN**

Effective May 21, 2002

Revised April 21, 2004

#### **Description**

This work consists of furnishing, placing, and maintaining a temporary changeable message sign at the locations shown on the plans or as directed by the Engineer. Signs will be used per the physical display and operational requirements described for Portable Changeable Message Signs in the Manual of Uniform Traffic Control Devices (MUTCD).

## **Materials**

The portable changeable message sign shall have materials in accordance with the following.

### **Trailer**

The sign shall be mounted on a trailer that shall be painted orange. The trailer shall have a single axle and a fixed height tow ring and adjustable height ball or tow ring hitches. The trailer shall come equipped with leveling jacks of adequate strength to conveniently adjust the trailer orientation. These leveling jacks shall be affixed in such a manner that they may be readily placed and locked in a horizontal position for traveling without necessitating the use of tools. The trailer and sign assembly, when stationary and supported properly with the leveling jacks, shall withstand AASHTO rated 160 KPH wind gusts. The trailer shall be equipped with a rain tight locked housing for the keyboard, terminal and control panel.

### **Display Panel and Housing**

The display panel and housing assembly shall be weather-tight to protect from panel elements. All nuts, bolts, washers, and other fasteners shall be of a corrosive resistant material. The display panel shall be 100% solid state with no moving parts or switches. All panels shall be identical and mutually interchangeable with all other panels. No field hardware or programming modifications shall be required to exchange or replace individual display panels.

The message matrix panel background and frame shall be painted black. Each message matrix panel shall provide a glare screen for each message line to aid against sun glare for non-reflective type signs. Servicing of all message matrix panel components shall be accomplished from the front of the message matrix panel. When raised in the upright position, the display panel and housing shall have a minimum height of 2.1 m (7 ft) from the bottom of the panel to the ground. The unit shall have an accessible mechanism to easily raise and lower the display panel and housing assembly with a locking device in order to ensure that the assembly will remain in place in the lowered or raised position.

### **Message Matrix**

The message matrix display shall have minimum overall dimensions of 1.5 m by 2.4 m (5 ft by 8 ft) and maximum overall dimensions of 2.1 m by 3.1 m (7 ft by 12 ft). The message matrix display panel shall contain three separate lines and be capable of displaying a minimum of eight characters in each of the three lines at a time. Each message line shall provide for a nominal character height of 457 mm (18 in) and the ability to provide variable graphic and symbol sizes. Whenever the sign is displaying messages, it shall be considered a traffic control device and for all other times, when there is no message displayed, it shall be considered equipment.

The message matrix display shall be constructed using amber, 590 nm (nominal wavelength), wide-angle LED's, with a viewing angle of 22 degrees. The LED's shall be capable of 3.5 candelas of light per LED at 30 ma of current, shall be rated for 100,000 hours service life, and shall have an operating temperature of - 9 degrees C. to + 74 degrees C. Each pixel shall contain a minimum of 4 LED's. The message matrix display shall be visible from 400 m (1/4 mile) under both daylight and nighttime conditions and shall include an automatic dimming feature specifically for nighttime operation. The display letters shall be legible from 250 m (750 ft).

### Power Source.

The electrical power for operation of the sign shall be supplied by a 12 VDC power source or a 110 VAC or a 120 VAC power source. Operating power shall be obtained from a power source mounted on the trailer on which the unit is mounted unless an adaptable 110 VAC or 120 VAC power source is available. Regardless of the power source, the supply of electrical energy shall be capable of operating the sign panel as required below.

(1) Solar Power Array/Battery Charging System. The solar power array shall contain a photovoltaic unit mounted at the top of the sign case that is designed to provide a minimum of 12 and preferably 20 days of continuous operation with minimum sunlight and minimum on-site maintenance. The power supply battery shall be capable of automatic recharge and equipped with a battery controller in order to prevent overcharging and over-discharging. An external battery level indicator shall also be provided.

A 110 VAC battery charging system shall be available as a backup and may be utilized when 110 VAC service is available at the site. A current meter for monitoring the charging process and an electrical receptacle mounted on the control pedestal shall be included. In addition, the onboard sign controller shall monitor the battery voltage and the presence of the 110 VAC line voltage shall be indicated on the sign panel. The system shall be capable of completely charging the battery pack within 24 hours.

The system shall control the regulation and distribution of the power to the sign. In addition, it shall regulate the solar charging the 12 VDC batteries. The system shall automatically disconnect the battery pack from the solar array when the batteries attain a fully charged state. When the sign is consuming power and the batteries are discharging, the system shall enable the solar arrays to provide a full charge from the solar array. This operation shall be designed to insure a maximum charge on the batteries when the sign is in full operation without overcharging the battery supply. The circuitry of the system shall be fully functional over the range of 0 to 95 %, non-condensing humidity and over the temperature range of - 20 degrees C. to + 75 degrees C.

(2) Diesel Powered System. The unit shall be powered by an air-cooled variable speed diesel engine. The engine shall be capable of operating not less than 24 hours without refueling and shall have a minimum 25 gallon capacity fuel tank with a fuel cut-off valve at the tank, a muffled exhaust system, and a steel fabricated security cage that encloses both the engine and a 24 volt alternator.

(3) A/C Powered System. A 110 or 120 volt A/C power service shall power the unit. The unit shall be equipped with ground fault interrupt ring circuit breakers. All A/C power adaptations shall be accomplished with UL approved equipment and methods.

### Sign Controller

An onboard sign controller that contains the message memory as well as the sign operating software for the sign shall control the message matrix display panel. The sign controller shall operate over the range of 0 to 95% non-condensing humidity conditions, over the temperature range of -20 degrees C. to +75 degrees C. The sign controller shall be capable of storing a minimum of 100 programmed messages for instant recall that can be entered from the sign

keyboard panel or remotely via an RS232 port. Remote control shall be possible over the RS232C control port via a modem interface cable. The data rate of this channel shall support operation in the 1.2 KB to 9.6 KB rate. The integral communication software on the sign controller shall be able to recognize its own address in received messages and shall reject all other addresses. The RS232 hardware and software shall be capable of operation with all of the types of communication modems (i.e., Spread-spectrum, Cellular, Fiber-Optic, Microwave, ISDN, and Twisted Pair) designated for use in this contract. Payment for the modem and interface cable shall be included in this bid item.

The RS232 channel shall permit the programming, uploading and downloading of all necessary data to permit 100 % remote functionality of the sign. Message memory shall be retained during power interruptions or failures of indefinite length and the sign controller shall be capable of operating the sign system in the event that the keyboard controller is disconnected. The protocol at the RS232 port shall be fully documented and provided to the Engineer. The protocol shall include operations, which allow the selection of pre-programmed messages stored at the sign, upload/download the sign message library from the central site to the sign, and control of all auxiliary functions, such as timing and sequencing messages. In addition, the protocol shall include functions to retrieve sign status such as current messages, failure states, etc. The manufacturer shall provide a minimum of sixteen hours of telephone consultation to the Equipment Integrator or any party designated by the Engineer on all aspects of the protocol use and application.

The sign controller and control panel shall be housed in a weather, dust, and vandal-proof, lockable cabinet. The computer keyboard shall be equipped with a security lockout feature to prevent unauthorized use of the sign controller. The sign controller shall be capable of displaying a representation of the message that will be displayed on the sign panel. The sign controller shall also be capable of being programmed to accept messages created by an operator via an alphanumeric keyboard and able to flash any six messages in sequence with an adjustable flash rate from one to ten seconds. The sign controller shall be capable of displaying up to six messages in a cyclical sequence and shall be capable of creating a minimum of 25 program sequences.

#### Sign Operating Software

The sign operating software shall be supplied with the unit via an install disk and shall include an operations manual. The sign operating software shall be Windows-based and allow the operator to interact with the sign system through software residing in the sign controller. This software shall be accessible locally through the sign control panel/keyboard and remotely using a RS-232 control port. The local software shall be user friendly and shall require operator confirmation prior to allowing a change to any sign operating parameter or message. The sign operating software shall contain a password entry system and limit access to the sign to unauthorized persons. The sign operating software shall provide the following additional capabilities:

- Remote and local control of LED brightness (minimum 7 levels)
- Automatic (based on local photocell measurements) control of LED brightness
- Enable/Disable cellular communications
- Sign status including battery post voltage, 110 VAC service indicator, low voltage indicator, and photocell ambient light level



- Accurate internal clock with automatic daylight savings time

The following sign editing features shall also be programmable:

- Create, edit, review, and delete messages
- Create, edit, review, and delete message schedules
- Create, edit, review, and delete message sequences
- Programmable flash rate for messages.

## **Construction Requirements**

### **Installation and Testing**

The Contractor shall prepare a shop drawing submittal, which will include copies of descriptive literature for every component to be included in with the portable changeable message sign. Upon request, as part of the shop drawing process, the Contractor may be required to perform a field demonstration of the unit at a particular site which would be selected to approximate the conditions under which the sign will need to operate for the project. During this demonstration, the unit must prove that it can meet all of the functional requirements defined in this specification. The Engineer has the right to reject the material if the demonstration fails to prove that the device is compliant, in the opinion of the Engineer. The shop drawing submittal must be approved by the Engineer prior to any testing or installation of the portable changeable message sign in the field.

For portable changeable message signs associated with the Intelligent Transportation System (ITS) Element, a cellular modem shall be installed, activated, and tested in the portable changeable message sign. Since the modem requires the activation of service from a utility company, such as the cellular service provider, the Contractor shall make all necessary arrangements with the provider to activate the service both at the portable changeable message sign and at the operations center. For those portable changeable message signs using cellular modems and designated for use with the ITS Element, the Contractor shall activate cellular service for the unit when it is delivered to the project job site. The cellular service shall be maintained and remain in effect for the duration of the contract by the Contractor, regardless if the unit is deployed in the field at any given time.

Portable changeable message sign shall be furnished, installed, and placed at those locations shown on the plans or at locations designated by the Engineer. The trailer wheels shall be removed and the unit shall be positioned to maximize the viewing angle and visibility to the roadway. Once initially installed in the field, each portable changeable message sign will be subject to an Operational Stand-alone Test. This test shall verify that the unit is fully operational and properly programmed with an initial message library to be provided by the Engineer.

The portable changeable message sign shall be housed at the project job site and shall be installed and functional prior to performing any work requiring the use of the sign. The signs shall remain at the project job site, fully functional, until all items of work are complete. In addition, the Engineer shall have access to the portable changeable message signs at the project job site for the purpose of altering messages.

### Operations and Maintenance

The Contractor shall be responsible for maintenance, repair, and continuous operation of the portable changeable message sign until progress of work no longer requires their use, as determined by the Engineer. The Contractor is required to provide all preventive maintenance efforts deemed necessary to achieve uninterrupted service. If service is interrupted for any cause and not restored within 24 hours, the Engineer shall cause such work to be performed as may be necessary to provide this service. The cost of such work shall be borne by the Contractor or deducted from current or future compensation due to the Contractor. In addition, full compensation for multiple daily setup and takedown operations throughout the project limits and approaches, as directed by the Engineer, shall be considered and included in the contract unit price paid for portable changeable message sign, and no additional compensation will be allowed for these associated operations.

As a minimum, the Contractor shall field check each portable changeable message sign at least once per week, while it is deployed in the field. The Contractor shall make all necessary adjustments or repairs to the portable changeable message sign that are found necessary during the field inspection. This field check shall include inspection of battery electrolyte levels, cleaning and tightening battery cable harnesses and testing the portable changeable message sign to ensure that all pixels are operational and that the unit is fully operational. The Contractor shall also inspect the placement of traffic control devices around the sign (such as cones, drums, signs etc.) for conformance with the traffic control and construction plans and details. If such traffic control devices are missing or not in place the Contractor shall replace the devices in accordance with the contract documents. This inspection and replacement, if required, shall be considered included in this bid item and shall not be considered for additional compensation.

### **Method of Measurement**

This work will be measured per calendar month for each sign, furnished, placed, and maintained in accordance with the plans, specifications and as approved by the Engineer. Transportation of the sign to the location and removal of the sign are considered included in this work and will not be paid for separately.

### **Basis of Payment**

When portable changeable message signs are shown on the Standard, this work will not be paid for separately but shall be considered as included in the cost of the Traffic Control and Protection (Expressways).

For all other portable changeable message signs, this work will be paid for at the contract unit price per calendar month for each sign as CHANGEABLE MESSAGE SIGN.

### **IMPACT ATTENUATOR REMOVAL**

Effective November 26, 2004

**Description.** This work shall consist of the maintenance, removal and disposal of existing impact attenuators.

**Maintenance.** All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

**Method of Measurement.** This work will be measured for payment as each, where each is defined as one complete installation.

**Basis of Payment.** Impact attenuators will be paid at the contract unit price each for IMPACT ATTENUATOR REMOVAL.

### **TYPE III TEMPORARY TAPE FOR WET CONDITIONS**

Effective October 26, 2001

Revised January 02, 2002

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

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

When Wet Temporary Pavement Marking Tape, Type III is specified in the contract other than on a Standard, the work will be paid for at the contract unit price per meter (foot) for WET TEMPORARY PAVEMENT MARKING TAPE, TYPE III of the line width specified.

### **TEMPORARY PAVEMENT MARKINGS**

Effective March 12, 2003

Replace the second paragraph of Article 703.05 of the Standard Specifications with:

“Type I, Type II or Type III pavement marking tape or paint shall be used at the option of the contractor, except as otherwise specified herein.

Paint temporary pavement markings shall only be used on existing surfaces that will be removed or resurfaced in this contract or a subsequent contract. No paint temporary pavement markings shall be placed on permanent surfaces.

Type III pavement marking tape or paint shall only be used when the temporary pavement markings will be in place from November 1<sup>st</sup> to April 1<sup>st</sup> and at locations where temporary markings will be in place for more than 14 calendar days unless otherwise directed by the Engineer.

When Type III pavement marking tape is placed on permanent surfaces, it will be measured for payment as Pavement Marking Tape, Type III. When the Type III pavement marking tape is used at the Contractor’s option, it will be paid for as Temporary Pavement Markings.”

## TEMPORARY CONCRETE BARRIER

Effective August 29, 2003

Revised September 11, 2003

Revise Section 704 of the Standard Specifications to read:

**Description.** This work shall consist of furnishing, placing, maintaining, relocating, removing and disposing of precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer.

**Materials.** Materials shall meet the requirements of the following Articles of Section 1000 - Materials:

- | Item | Article/Section                            |
|------|--|
| (a)  | Portland Cement Concrete 1020              |
| (b)  | Reinforcement Bars (Note 1) 1006.10(a)(b)  |
| (c)  | Connecting Pins and Anchoring Pins 1006.09 |
| (d)  | Connecting Loop Bars (Note 2)              |
| (e)  | Rapid Set Mortar (Note 3)                  |

Note 1. Reinforcement bars shall be Grade 400 (Grade 60).

Note 2. Connecting loop bars shall be smooth bars conforming to the requirements of ASTM A 36.

Note 3. Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs. 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. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

### Construction Requirements

**General.** Precast concrete barrier produced after October 1, 2002 shall meet National Cooperative Highway Research Program (NCHRP) Report 350, Category 3, Test Level 3 requirements and have the F shape. Precast concrete barrier shall be constructed according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products", applicable portions of Sections 504 and 1020, and to the details shown on the plans.

Precast units shall not be removed from the casting beds until a flexural strength of 2,000 kPa (300 psi) or a compressive strength of 10,000 kPa (1400 psi) is attained. When the concrete has attained a compressive strength according to Article 1020.04, and not prior to four days after casting, the units may be loaded, shipped and used.

**Installation.** F shape barrier units shall be seated on bare, clean pavement or paved shoulder and pinned together in a smooth, continuous line at the exact locations provided by the Engineer. The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six anchoring pins and protected with an accepted NCHRP 350 crashworthy device as shown on the plans. The NCHRP 350 crashworthy device shall be Test Level 3 unless shown otherwise shown on the plans.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

**New Jersey Shape Barrier.** New Jersey shape barrier produced prior to October 1, 2002 according to earlier Department standards, may be used until January 1, 2008.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six dowel bars and protected with an accepted NCHRP 350 crashworthy device as shown on the plans. The NCHRP 350 crashworthy device shall be Test Level 3 unless shown otherwise shown on the plans.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

**Barrier Reflectors.** Barrier reflectors shall be mounted on all temporary concrete barriers when:

1. Less than a 3 m wide shoulder is provided adjacent to traffic on the mainline
2. Less than a 1.8 m wide shoulder is provided adjacent to traffic on ramps
3. Less than 1.8 m wide area is provided adjacent to traffic on arterial roadways.

When traffic is located on one side of the temporary concrete barrier, monodirectional reflectors shall be mounted at on top of the barrier and monodirectional reflectors shall be mounted on the traffic side of the barrier about 300 mm below the reflectors mounted on top of the barrier.

When traffic is located on both sides of the temporary concrete barrier, bidirectional reflectors should be mounted on the top of the barrier and a monodirectional reflectors shall be mounted on each side of the barrier about 300 mm below the reflectors mounted on top of the barrier. At locations with glare screen mounted on the barrier, monodirectional reflector shall be mounted on each face of the barrier at the top in lieu of the bidirectional reflector on the top of the barrier.

When the posted speed is 45 MPH or more, the reflectors shall be placed at 30 m centers. When the posted speed is less than 45 MPH, the reflectors shall be placed at 15 m centers.

**Temporary Pavement Markings.** When the edge of the traffic lane is within 300 mm (1') of the concrete barrier, a 200 mm (8") wide painted pavement marking line shall be placed on the lower sloped surface of the barrier in lieu of the edge line. Any pavement marking lines on barriers that conflict with the traffic control shall be obliterated.

**Temporary Concrete Barrier.** This work shall consist of furnishing, placing and maintaining of precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer. The barrier shall remain the property of the Contractor. Removal of barrier shall be paid for separately as Remove Temporary Concrete Barrier.

**Temporary Concrete Barrier (State Owned).** The Temporary Concrete Barrier shall be obtained by the Contractor from the Peoria West Maintenance Storage Yard at 6500 W Rte 150 (Contact IDOT at 309-691-7812). This work shall consist of picking up, delivering barrier to the work site, placing and maintaining of precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer. When required, the Contractor shall provide styrofoam pads as shown in the plans. Removal of barrier shall be paid for separately as Remove Temporary Concrete Barrier, State Owned or as Removal and Disposal of Temporary Concrete Barrier (State Owned).

**Temporary Concrete Barrier (Special).** This work shall consist of furnishing, placing and maintaining precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer. The barrier shall become the property of the State. All temporary concrete barrier shall be new F-shape barrier constructed in accordance with the Material and Construction Requirements listed above. Removal of barrier shall be paid for separately as Remove Temporary Concrete Barrier, State Owned.

**Temporary Concrete Barrier (To Remain Permanently).** This work shall consist of furnishing, placing and maintaining (throughout the duration of the contract) of precast concrete barrier at permanent locations as shown on the plans and as directed by the Engineer. The barrier shall become the property of the State. All temporary concrete barrier shall be new F-shape barrier constructed in accordance with the Material and Construction Requirements listed above.

**Relocate Temporary Concrete Barrier.** This work shall consist of relocating contractor owned precast concrete barrier as shown on the plans or as directed by the Engineer.

**Relocate Temporary Concrete Barrier (State Owned).** This work shall consist of relocating state owned precast concrete barrier as shown on the plans or as directed by the Engineer.

**Remove Temporary Concrete Barrier.** When no longer required by the contract, temporary concrete barrier at locations shown on the plans or as directed by the Engineer shall be removed. When styrofoam pads have been placed under the barrier, styrofoam pads shall be disposed of as provided in Article 202.03 of the Standard Specifications.

**Remove Temporary Concrete Barrier, State Owned.** When no longer required by the contract, temporary concrete barrier, including connecting pins, at locations shown on the plans or as directed by the Engineer shall be removed and returned by the Contractor to the Peoria

West Maintenance Storage Yard at 6500 W Rte 150 (Contact IDOT at 309-691-7812). When styrofoam pads have been placed under the barrier, styrofoam pads shall be disposed of as provided in Article 202.03 of the Standard Specifications.

**Removal and Disposal of Temporary Concrete Barrier (State Owned).** When no longer required by the contract, temporary concrete barrier including connecting pins and styrofoam pads, at locations shown on the plans or as directed by the Engineer shall be removed and disposed of as provided in Article 202.03 of the Standard Specifications.

**Method of Measurement.** All temporary concrete barrier items will be measured for payment in meters (feet) in place along the centerline of the barrier.

**Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER; TEMPORARY CONCRETE BARRIER (STATE OWNED), TEMPORARY CONCRETE BARRIER (SPECIAL); TEMPORARY CONCRETE BARRIER (TO REMAIN PERMANENTLY); RELOCATE TEMPORARY CONCRETE BARRIER; RELOCATE TEMPORARY CONCRETE BARRIER (STATE OWNED); REMOVE TEMPORARY CONCRETE BARRIER, REMOVE TEMPORARY CONCRETE BARRIER, STATE OWNED; REMOVAL AND DISPOSAL OF TEMPORARY CONCRETE BARRIER (STATE OWNED)

Reflectors mounted on temporary concrete barrier will not be measured for payment and shall be included in the cost of pay items associated with temporary concrete barrier. Impact attenuators and temporary paint pavement markings will be paid for separately.”

## **TEMPORARY SIGN PANEL ASSEMBLY**

Effective June 19, 2002

Revised June 16, 2003

This work shall consist furnishing, fabricating, and installing temporary sign panels, complete with sign faces, legend, and associated supplemental panels, with supports and attachment hardware as may be required.

This work shall include maintaining the sign installation through the duration of the contract.

This work shall also include removal when removal of the temporary sign panel assembly is indicated in the plans.

All signs used for temporary traffic control shall meet the approval of the Engineer.

Temporary Sign Panels. The reflective sheeting shall be mounted on rigid materials such as sheet aluminum meeting Article 1090.02 of the Standard Specifications or exterior grade plywood which meets Article 1090.04 of the Standard Specifications.

Reflective Sheeting. Reflective sheeting for red, silver/white, yellow, and orange sign faces shall be in accordance with Article 1084.02 (b) of the Standard Specifications. Other sign face reflective sheeting shall conform to Article 1091 of the Standard Specifications. Reflective sheeting for legends, borders, shields, and supplemental panels shall be Type A or Type AP and conform to Article 1092 of the Standard Specifications.

Legend size of temporary sign panels which are to be attached to existing sign panels shall conform to the sizes of comparable legends on the existing sign panel which is being supplemented. The legend size of independently mounted signs shall conform to letter and number sizes as prescribed in the Manual of Uniform Traffic Control Devices.

Sign Panel Installation. Temporary Sign Panel Assemblies shall be attached as extensions to existing sign panels, attached to existing overhead sign supports or installed on temporary wood sign supports as represented in the plans. Temporary Sign Panel Assemblies shall be installed in conformance with Article 720.04 of the Standard Specifications or as directed by the Engineer.

Temporary Wood Sign Supports. Sign supports shall be in accordance with Article 702.05 (a) of the Standard Specifications except as modified herein:

The size of wood posts shall be 100 x 150 mm (4 x 6 in.). All 100 mm (4 in.) by 150 mm (6 in.) wood posts shall be modified to satisfy the breakaway requirements by drilling 38 mm (1 1/2 in.) diameter holes in the 150 mm (6 in.) face centered at 100 mm (4 in.) and 450 mm (18 in.) above the ground line and perpendicular to the centerline of the roadway.

Method of Measurement. Temporary Sign Panel Assembly will be measured for payment in square meters of total supplemental sign surface to be installed as computed pursuant to Article 720.03 of the Standard Specifications.

Removal of the Temporary Sign Panel Assembly, or a portion thereof, if required during the course of the contract shall be in accordance with Article 724 of the Standard Specifications except that the cost for removal shall be included in the cost of Temporary Sign Panel Assembly.

Basis of Payment. This work will be paid for at the contract unit price per square meter for TEMPORARY SIGN PANEL ASSEMBLY which price shall be payment in full for all labor, materials, and equipment required to furnish and install sign panels, posts and supports, maintain the sign assembly through the duration of the contract, and remove the sign panel assembly when applicable. Short-term opaque coverings of temporary sign panels or partial legends placed for the convenience of the Contractor which are not shown on the staged MOT Signing Plans shall not be paid separately. If a subsequent relocation of the Temporary Sign Panel Assembly is required, it shall be paid for as Reinstall Temporary Sign Panel Assembly.

## **TEMPORARY SIGN PANEL OVERLAY**

Effective June 19, 2002

Revised November 5, 2002

This work shall consist of furnishing, fabricating, and installing temporary sign panel overlays by attaching them onto an existing sign face which will not be used as a permanent sign at the conclusion of the construction project.

This work shall include maintaining the sign installation through the duration of the contract.

This work shall also include removal when removal of the temporary sign panel overlay is indicated in the plans.



The sign sizes shown on the plans shall be verified in the field by the Contractor. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans.

All signs used for temporary traffic control shall meet the approval of the Engineer.

Sign Panels. The reflective sheeting shall be mounted on sheet aluminum, 2 mm. (0.08 in.) thick, meeting Article 1090.02 of Standard Specifications.

Reflective Sheeting. Reflective sheeting for red, silver/white, yellow, and orange sign faces shall be in accordance with Article 1084.02 (b) of the Standard Specifications. Reflective sheeting for legends, borders, and shields shall be Type A or AP and conform to Article 1092 of the Standard Specifications.

Installation. The installation of the Temporary Sign Panel Overlay shall be in accordance with Article 721.03 of the Standard Specifications except the existing sign shall not be stripped of its existing legend prior to attachment of the Temporary Sign Panel Overlay. Durable clamps which meet the approval of the Engineer may also be used to secure the Temporary Sign Panel Overlay to the existing sign panel in lieu of rivets if at least three common edges are present and the clamps do not obscure the new message.

Method of Measurement. Temporary Sign Panel Overlay will be measured for payment in square meters. The area used for measurement shall be the actual area of the Temporary Sign Panel Overlay.

Removal of the Temporary Sign Panel Overlay, when necessary, shall be included in the cost of the Temporary Sign Panel Overlay.

Basis of Payment. This work will be paid for at the contract unit price per square meter for TEMPORARY SIGN PANEL OVERLAY.

## **SIGN PANEL OVERLAY, SPECIAL**

Effective: July 3, 2002

Revised: May 10, 2004

Description of Work. This work consists of furnishing, installing and maintaining temporary Sign Panel Overlay, Special to cover new or existing sign panels or portions thereof. This work also includes the removal and disposal of temporary Sign Panel Overlays, Special as shown on the plans, including those installed by others.

Materials. Sign Panel Overlay, Special shall consist of a sheet aluminum sign base conforming to Article 1090.02 of the Standard Specifications. Multiple Type 2 sign panels shall be used for installations requiring overlay areas of more than 2.22 square meters. The surface of the sign base facing traffic shall be painted to the satisfaction of the engineer with a flat black paint.

The sizes of the Sign Panel Overlay, Special that are shown on the plans shall be verified in the field by the Contractor. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans.

Installation, Maintenance, and Removal. The Sign Panel Overlay, Special shall be installed flush to existing sign panels that are scheduled for ultimate removal using either 6.35 mm diameter rivets or bolts spaced at 600 mm centers.

When Sign Panel Overlay, Special is to be attached to new permanent signs or to existing signs that will remain, 6.35 mm diameter stainless steel bolts shall be used, spaced no greater than 600 mm on center. A 9.52 mm long stainless steel spacer shall be provided around each bolt to separate the face of the underlying sign from the back of the temporary covering. The drilled bolt holes in any underlying permanent sign shall be located to avoid the Type AA Prismatic Retroreflective Sheeting whenever feasible. When found necessary, drilled holes shall be centered within prismatic cells.

The installation may be done either in a sign shop or in the field. The extent of coverage over the underlying sign panel or its legend shall be approved by the Engineer. The Sign Panel Overlay, Special shall be maintained by the Contractor throughout the duration of the contract. The Sign Panel Overlay, Special shall be removed without further damaging the underlying sign.

The Contractor may choose to temporarily remove, store, and reinstall a sign panel that is shown on the plans as fully covered by the Sign Panel Overlay, Special pay item in lieu of furnishing, installing, maintaining, removing, and disposing of the temporary sign cover.

Method of Measurement. The Sign Panel Overlay, Special shall be measured for payment in square meters. The area used for measurement shall be the actual area of sign panel overlay installed or the area of a designated fully covered sign panel that the contractor chooses to remove instead of cover.

Basis of Payment. This work will be paid for at the contract unit price per square meter for SIGN PANEL OVERLAY, SPECIAL. Removal of the temporary Sign Panel Overlay, Special shall not be paid for separately, but shall be included in the cost of this item (even when the overlay was initially installed by others). Replacement of any sign panel hardware broken during the work described herein shall be included in the cost of this item.

## **COMPOSITE TEMPORARY SIGN OVERLAY**

Effective: July 3, 2002

Revised: May 04, 2004

Description of Work. This work consists of furnishing, installing and maintaining Composite Temporary Sign Overlays, complete as a combination of a sheet aluminum sign base and reflectorized sheeting elements, attached to new or existing sign panels. This work also includes the removal and disposal of Composite Temporary Sign Overlays as shown on the plans, including those installed by others.

Materials. The sheet aluminum sign base shall comply with Article 1090.02 of the Standard Specifications. Multiple Type 2 sign panels shall be used for installations requiring overlay areas of more than 2.22 square meters.

The sign face component of the reflectorized sheeting shall be Type A Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-14-01, except

where black legends are to be used. In those cases where black legends are used, the sign face component shall be Type AA Prismatic Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-36-01.

Non-black legends, borders, shields and supplemental panels used for Composite Temporary Sign Overlays placed onto overhead signs shall be Type AA Prismatic Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-36-01. Non-black legends, borders, shields, and supplemental panels used on the Composite Temporary Sign Overlays placed onto all other signs shall be Type A Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-14-01.

Black legends and borders, and black legends and borders on shields and supplemental panels used on Composite Temporary Sign Overlays shall be Opaque Silk Screen Ink - Black (Single Component, Low odor) conforming to IDOT material specification T-14-01.

The sign sizes shown on the plans shall be verified in the field by the Contractor. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans. The replacement legend shall be the same size and shall be spaced the same as the existing sign. The Contractor shall be responsible for the correct sizing and spacing of any revised legend according to the general freeway signing practices. All Composite Temporary Sign Overlays shall meet the approval of the Engineer.

The Composite Temporary Sign Overlay shall be fabricated in a sign shop and may be applied to the new or existing sign either in the sign shop or in the field.

Installation, Maintenance and Removal. Composite Temporary Sign Overlays with retroreflectorized sign face, borders, shields and legends shall be attached flush to existing sign panels that are scheduled for ultimate removal using either 6.35 mm diameter rivets or bolts spaced at 600 mm centers.

When the Composite Temporary Sign Overlays are to be attached to new permanent signs or to existing signs that will remain, 6.35 mm diameter stainless steel bolts shall be used. A 9.52 mm long stainless steel spacer shall be provided around each bolt to separate the face of the underlying sign from the back of the temporary sign. The drilled bolt holes in any underlying permanent sign shall be located to avoid the Type AA Prismatic Retroreflective Sheeting whenever feasible. When found necessary, drilled holes shall be centered within prismatic cells. Bolt spacing shall not exceed 600 mm on center. The Composite Temporary Sign Overlays shall be maintained throughout the duration of the contract by the Contractor.

Guarantee. The Composite Temporary Sign Overlay shall meet the guarantee requirements for retroreflective and prismatic retroreflective sheeting for highway signs prescribed in T-14-01 and T-36-01, respectively. The Composite Temporary Sign Overlay shall be removed without further damaging the underlying sign. When the Composite Temporary Sign Overlay does not perform in accordance with its guarantee, the manufacturer shall provide all labor and materials to restore the Composite Temporary Sign Overlay or to restore the underlying sign to its level of effectiveness which existed prior to the installation of the Composite Temporary Sign Overlay.

Method of Measurement. The Composite Temporary Sign Overlay shall be measured for payment in square meters. The area used for measurement shall be the actual area of Composite Temporary Sign Overlay installed.

Basis of Payment. This work will be paid for at the contract unit price per square meter for COMPOSITE TEMPORARY SIGN OVERLAY. Removal of Composite Temporary Sign Overlays shall not be paid for separately, but shall be included in the cost of this item (even when the overlay was initially installed by others). Short-term opaque coverings of Composite Temporary Sign Overlays placed for the convenience of the Contractor which are not shown on the staged MOT Signing Plans shall not be paid separately. Replacement of any sign panel hardware broken during the work described herein shall be included in the cost of this item.

## **REINSTALL TEMPORARY SIGN PANEL ASSEMBLY**

Effective June 19, 2002

Description. This work shall consist of temporarily reinstalling a previously removed existing sign panel or sign panel assembly with its supports at the location shown on the plans. This work shall include the furnishing, mounting, and installation of the signs on supports as specified herein.

This work shall also include storage of the signs as required and maintaining the sign panel assembly through the duration of its installation.

This work shall also include removal when removal of the temporary sign panel assembly is indicated in the plans.

This item does not include the temporary relocation of existing regulatory signing which is included as part of Article 107.25 of the Standard Specifications.

Sign Supports. Sign supports shall be in accordance with Article 702.05 (a) of the Standard Specifications except as modified herein:

The size of wood posts, when used, shall be 100 x 150 mm (4 x 6 in.). All 100 mm (4 in.) by 150 mm (6 in.) wood posts shall be modified to satisfy the breakaway requirements by drilling 38 mm (1 ½ in.) diameter holes through the 150 mm (6 in.) face centered at 100 mm (4 in.) and 450 mm (18 in.) above the groundline and perpendicular to the centerline of the roadway.

Removal. Removal shall be performed in accordance with the provisions of Articles 724.02 and 724.03 of the Standard Specifications.

Method of Measurement. Reinstall Temporary Sign Panel Assembly will be measured for payment each. All sign panels which are mounted as a group shall be considered as a single assembly (as defined in Article 720.03 of the Standard Specifications.) The Contractor shall be entitled to payment each time the sign panel assembly is relocated as shown on the plans or as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price each for REINSTALL TEMPORARY SIGN PANEL ASSEMBLY, which price shall be payment in full for all labor, materials, and equipment required to transport the existing sign panel(s) to the temporary plan location, furnish and install sign supports, mount the existing panel(s) on the supports, maintain the sign assembly through the duration of the contract, and remove the sign panel assembly when applicable. Any alteration of the sign face to present a different message shall be paid for separately.

**REMOVE SIGN PANEL ASSEMBLY  
REMOVE OVERHEAD SIGN STRUCTURE**

Effective January 15, 2004

Upon permanent removal, existing IDOT owned Overhead, Ground Mounted, and Regulatory and Warning sign panels shall be transported to the Illinois Department of Transportation, District Four, Bureau of Operations, Traffic Operations Building located at 5826 North Knoxville Avenue, Peoria, Illinois. The Contractor should contact the Traffic Operations Building (309-693-5175) for delivery instructions.

Existing City of Peoria owned Regulatory and Warning sign panels that are permanently removed shall be transported to the City of Peoria Traffic Operations Center located at 3505 Dries Lane, Peoria, Illinois. The Contractor should contact the City of Peoria, Department of Public Works (309-494-8850) for delivery instructions.

Transport and delivery of permanently removed sign panels shall not be paid for separately, but shall be included in the associated sign removal pay item, Remove Sign Panel Assembly - Type A, Remove Sign Panel Assembly - Type B, or Remove Overhead Sign Structure.

Overhead sign structural components, and all other mounting hardware, channels, posts, and foundations shall be become the property of the Contractor and shall be removed and disposed of according to the requirements of Article 202.03 of the Standard Specifications. Transport and disposal of overhead sign structural components, and all other mounting hardware, channels, posts, and foundations shall not be paid for separately, but shall be included in the associated sign removal pay item, Remove Sign Panel Assembly - Type A, Remove Sign Panel Assembly - Type B, or Remove Overhead Sign Structure.

**SIGN SUPPORT, PARAPET MOUNTED, TYPE 1**

Effective February 11, 2003

Description of Work. This work shall consist of furnishing, fabricating and installing sign supports mounted on concrete bridge parapets, retaining wall parapets and anchor slab barriers as shown on the plans.

Materials. Materials shall be according to the Article 727.02 of the Standard Specifications, except as modified herein or as shown on the plans.

Shims shall be according to AASHTO M270M Grade 250 and shall be hot dipped galvanized.

Fabric bearing pad shall be according to Article 1082.01 of the Standard Specifications.

General. The Contractor shall field measure the parapet, subject to approval by the Engineer, before fabricating sign support. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans.

The steel sign supports shall be fabricated and inspected according to Articles 505.03 through 505.05 of the Standard Specifications.

All fabrication shall be completed and ready for assembly before galvanizing. No punching or drilling shall be permitted after galvanizing.

Basis of Payment. This work will be paid for at the contract unit price each for SIGN SUPPORT, PARAPET MOUNTED, TYPE 1, which price shall be payment in full for all labor, materials (including the anchor bolts), transportation, and equipment required as specified in this provision.

## **ROADWAY LIGHTING - GENERAL ELECTRICAL REQUIREMENTS**

Effective June 28, 2002

Revised July 30, 2003

Responsibility for Operating Lighting Systems - The scope of work shall include the assumption of responsibility for the continuing operation of existing, temporary or other lighting systems affected by the work as may be specified elsewhere herein. Existing lighting systems, when depicted on the plans, are intended only to indicate the general nature of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact nature of systems to be maintained.

The Contractor shall conduct an inventory of all existing lighting equipment which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. This inventory shall be reviewed with and approved by the Engineer. A record of the inventory shall be submitted to the Engineer. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition.

Pre-Installation Inspection of Electrical Equipment - No uninspected equipment or material shall be delivered to the job site or incorporated in the work. After submitted equipment and/or materials receive approval, the Contractor shall prepare the equipment and/or materials for inspection by the Engineer prior to incorporation in the work. The Contractor shall request the inspection no less than seven (7) days prior to the desired inspection date. The Engineer will tag material and equipment that has been inspected and allow its delivery to the job site. Certain items such as conduit, wire, duct, anchor bolts, screw foundations, manhole and handhole covers and junction boxes will be inspected and may be tested by the District. Certain items such as control cabinets may be inspected by the Engineer at the Contractors or manufacturer's shop, and these items shall not be delivered to the job site without inspection approval. Other items such as poles, luminaires and other above-ground items, unless otherwise indicated, may be inspected by the Engineer at the site. It shall be the Contractor's responsibility to arrange inspection activities with the Engineer prior to installation.

Except where otherwise noted, these requirements will not be paid for separately but will be considered included in the various work items of the contract and no additional compensation will be allowed.

**ROADWAY LIGHTING - MATERIALS FOR ELECTRICAL WORK**

Effective: June 28, 2002

Revised: February 05, 2003

Submittals - The table below indicates materials for which submittals must be made. The table is by no means an all-inclusive table and the Engineer reserves the right to request documentation on any material provided for the contract. The Contractor shall supplement this table as required to assure that review and Engineer approval are obtained for all specified materials and equipment.

| Pay Item                            |                    | Catalog Cuts | Certifications | Warranty |
|-------------------------------------|--------------------|--------------|----------------|----------|
| Electric Cable                      |                    | Yes          | Yes            |          |
| Aerial Cable                        | Cable              | Yes          | Yes            |          |
|                                     | Mounting Hardware  | Yes          |                |          |
| Ground Rod                          | Ground rod         | Yes          |                |          |
|                                     | Copper wire        | Yes          |                |          |
| Trench and Backfill (Warning tape)  |                    | Yes          |                |          |
| Conduit, P.V.C.                     |                    | Yes          | Yes            |          |
| Rigid Steel Conduit                 | Conduit            | Yes          |                |          |
|                                     | Fittings           | Yes          |                |          |
| Junction Box                        |                    | Yes          | Yes            |          |
| Lighting Controller                 | Cabinet            | Yes          | Yes            |          |
|                                     | Circuit Breakers   | Yes          | Yes            |          |
|                                     | Photo cell         | Yes          | Yes            |          |
|                                     | Contactors         | Yes          | Yes            |          |
|                                     | Paint              | Yes          | Yes            |          |
|                                     | Controls           | Yes          | Yes            |          |
| Light Pole Foundation               | Anchor Bolts       | Yes          | Yes            |          |
|                                     | PVC Raceways       | Yes          |                |          |
|                                     | Reinforcement Bars | Yes          | Yes            |          |
| Accident Reference Marker           |                    | Yes          |                |          |
| Light Pole                          |                    | Yes          | Yes            | Yes      |
| Wood Pole                           |                    | Yes          | Yes            |          |
| Splicing Materials                  |                    | Yes          |                |          |
| Electrical Tape                     |                    | Yes          |                |          |
| Fuses and Fuse Holder               |                    | Yes          |                |          |
| Lighting Unit Identification Decals |                    | Yes          |                |          |
| Wiring Identification Markers       |                    | Yes          |                |          |
| Pole Wire                           |                    | Yes          |                |          |
| Lamps                               |                    | Yes          |                |          |
| Breakaway Device                    |                    | Yes          |                |          |

**ROADWAY LIGHTING - FASTENERS AND HARDWARE FOR ELECTRICAL WORK**

Effective: June 28, 2002

Fasteners used to mount conduit supports, boxes and other items attached to the structure shall be suitable for the weight supported and shall be compatible with the structure material, i.e.

wood screws shall be used for wood, toggle bolts shall be used for hollow masonry, expansion bolts or power-set studs shall be used for solid masonry or concrete and clamps shall be used for structural steel.

Expansion anchors shall not be less than 9.65mm (3/8-inch) trade size and shall extend at least 50.8mm (2 inches) into the masonry or concrete.

Power-set anchors shall not be less than 9.65mm (3/8-inch) trade size and shall extend at least 50.8mm (2 inches) into the masonry or concrete.

Unless otherwise indicated, all steel hardware (nuts, bolts and the like) shall be stainless steel.

Unless otherwise indicated, screws for pole handhole covers, covers on cast metal boxes, doors on transformer bases and other such applications shall be stainless steel and treated with anti-seize paste unless otherwise indicated, hardware for stainless steel boxes and other stainless steel items shall be stainless steel. All screws shall be treated with anti-seize paste.

Except where otherwise noted these requirements will not be paid for separately but will be considered included in the various work items of the contract and no additional compensation will be allowed.

**LUMINAIRE, 400 WATT, SODIUM VAPOR, FULL-CUTOFF**

Effective: June 28, 2002

Revised: December 17, 2003

Description. This work shall consist of furnishing and installing a luminaire including branch circuit/extension, pole wire as applicable, lamp, fuseholders, mounting hardware, fusing, and surge protection.

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

| <u>Item</u>                              | <u>Article/Section</u> |
|--|------------------------|
| (a) Luminaire .....                      | 1067.01                |
| (b) Wire in the Pole.....                | 1066.09                |
| (c) Fuseholder & Fuses.....              | 1065.01                |
| (d) Lamps .....                          | 1067.02                |
| (e) Fasteners and Hardware.....          | 1088.03                |
| (f) Lightning Protection – Lighting..... | 1065.02                |

Construction Requirements

Each luminaire shall be installed according to the luminaire manufacturer's recommendations and according to Specifications 821.03 and 821.04.

Ballast

The ballast shall be High Pressure Sodium Regulator (Magnetic Regulator) and shall comply with the requirements of Article 1067.01(5) of the Standard Specifications for Road and Bridge Construction except replace "Ballast shall not be noisy. Noticeable noisy ballasts, as determined by the Engineer, shall be replaced at the Contractor's expense." with "The noise level of the



luminaire shall be 35db, or less 'A' weight. Noticeable noisy luminaires, as determined by the Engineer, shall be tested for compliance, and if over 35db, 'A' weight will be rejected. Rejected luminaires shall be replaced at the Contractor's expense.

#### Photometric Performance

1. Unless otherwise indicated, the light distribution shall be medium, Full cut-off, Type III (M-C-III), as defined in the "American National Standard Practice for Roadway Lighting" by the "American National Standard Institute" (ANSI).
2. Unless otherwise indicated, the beam of maximum candlepower for luminaires specified or shown to have "medium" distribution shall be at 70 degrees from horizontal  $\pm$  2 degrees for 250 watts, and 67 degrees from horizontal  $\pm$  2 degrees for 400 watts. Submittal information shall identify this angle.
3. The luminaire photometric performance shall produce results equal to or better than those listed in the applicable Photometry Performance Table included in these Special Provisions. Submittal information shall include computer calculations based on the controlling given conditions that demonstrate achievement of all listed performance requirements. The computer calculations shall be done in accordance with I.E.S. recommendations and the submitted calculations shall include point-by-point illuminance, luminance and veiling luminance as well as listings of all indicated averages and ratios. The program used to perform the calculations shall be identified on the submittal.
4. In addition to computer printouts of photometric performance, submittal information shall include:
  - a) Descriptive literature.
  - b) Isofoot-candle chart of horizontal foot-candles.
  - c) Utilization curve.
  - d) Isocandela diagram.
  - e) Luminaire classification per ANSI designation.
  - f) Candlepower values per IESNA.
  - g) Candlepower tables is to be provided on 88.9mm (3.5") diskette in the I.E.S. format.

#### Luminaire Submittal Data

1. Ignitor performance for ballasts.
2. Total ballast losses in watts and percent input.
3. A lamp watt-voltage trace.
4. Regulation data.
5. Lamp current crest factor.
6. Power factor.
7. A table of ballast characteristics showing input amperes, watts and power factor, output volts, amperes, watts at high line, low line and line and a table of crest factors and regulation over the range of values required to produce the lamp volt trace.

Independent Testing. Luminaires shall be tested in accordance with Article 1067.01 (7) of the Standard Specifications for Road and Bridge Construction.

STATE OF ILLINOIS  
 IDOT DISTRICT 4  
 LUMINANCE PERFORMANCE TABLE  
 (400 WATT LUMINAIRE)

| <b>GIVEN CONDITIONS</b> |  |             |
|-------------------------|--|-------------|
| ROADWAY DATA            | Pavement Width                           | 28 Meters   |
|                         | Number of Lanes                          | 6           |
|                         | I.E.S. Surface Classification            | R3          |
|                         | Q-Zero Value                             | .07         |
| LIGHT POLE DATA         | Mounting Height                          | 13.72M      |
|                         | Mast Arm Length                          | 2.44        |
|                         | Pole Set-Back From Edge of Pavement      | 1.22        |
| LUMINAIRE DATA          | Lamp Type                                | HPS         |
|                         | Lamp Lumens                              | 51000       |
|                         | I.E.S. Vertical Distribution             | Medium      |
|                         | I.E.S. Control of Distribution           | Full cutoff |
|                         | I.E.S. Lateral Distribution              | III         |
|                         | Total Light Loss Factor                  | 0.60        |
| LAYOUT DATA             | Spacing (same side of the roadway)       | 43 Meters   |
|                         | Configuration                            | Stagger     |
|                         | Luminaire Overhang over edge of pavement | 1.22 Meters |

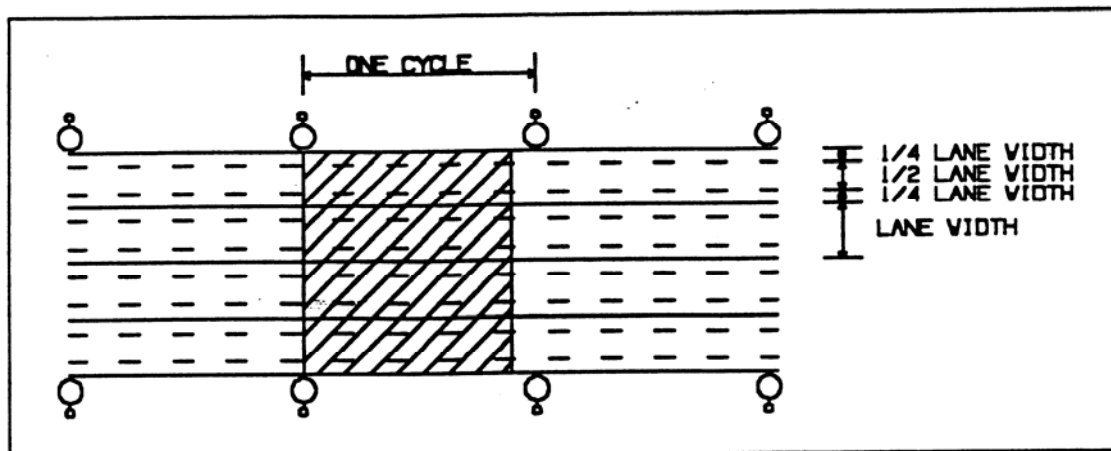
NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

| <b>PERFORMANCE REQUIREMENTS</b> |  |  |
|---------------------------------|--|--|
|---------------------------------|--|--|

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

|              |   |                        |
|--------------|---|------------------------|
| ILLUMINATION | Average Horizontal Illumination, $E_{AVE}$  | 2.04 F.C.              |
|              | Uniformity Ratio, $E_{AVE}/E_{MIN}$         | 3:1                    |
| LUMINANCE    | Average Luminance, $L_{AVE}$                | 1.44 Cd/m <sup>2</sup> |
|              | Uniformity Ratio, $L_{AVE}/L_{MIN}$         | 3:1                    |
|              | Uniformity Ratio, $L_{MAX}/L_{MIN}$         | 5:1                    |
|              | Max. Veiling Luminance Ratio, $L_V/L_{AVE}$ | 0.3:1                  |

CALCULATION AREA



MEASUREMENT PARAMETERS

- |   |  |
|---|--|
| 1. Observer eye height:                                   | 1.45 meters above grade.   |
| 2. Line of sight of observer:                             | Downward one degree below horizontal; parallel to the edges of each lane (2 lines per lane). |
| 3. Lighting system to be measured:                        | Smooth and level, at least 10 mounting heights long.   |
| 4. Number of points per line:                             | At least 10, not more than 5 meters (16.4 Ft.) apart.  |
| 5. Area covered by calculation:                           | All points between two luminaires on one side of roadway (see above figure).                 |
| 6. Calculation point location to contributing luminaires: | At least one luminaire behind, and at least three ahead of calculation point (P).            |

GENERAL NOTES

1. Unless otherwise indicated, luminaire tilt shall be zero degrees.
3. Calculations shall be performed in conformance with I.E.S. recommended procedures.

Basis of Payment. This work will be paid for at the contract unit price each for LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 400 WATT.

## **HIGH MAST LUMINAIRE, (INSTALL ONLY)**

Effective: October 23, 2002

Revised: April 26, 2004

### Description

This work shall consist of receiving, assembling, and installing a High Mast Luminaire and Lamp as shown on the plans. The work includes but is not limited to required submittals, unloading, storing, and all other miscellaneous work required for complete installation. Included in this item is coordination with the Luminaire Supply Contractor for delivery and installation requirements. All work shall conform to the Standard Specifications and as specified herein.

### General

#### RELATED DOCUMENTS

Drawings and general provisions of the Contract.

#### DEFINITIONS

- Supply Contractor: Supplier of the High Mast Luminaire.
- Contractor: The general contractor(s) awarded a highway construction contract, includes responsibility for High Mast Luminaire installation.
- Engineer: IDOT's designated representative.
- High Mast Luminaire: High pressure sodium luminaire to be installed on a high mast tower ring. Includes all electrical components required for complete, fully functional luminaire.

#### WORK UNDER SEPARATE CONTRACT

High Mast luminaires will be furnished and delivered by others.

### Delivery, Storage, and Handling

The Contractor shall supply the Engineer with a delivery schedule for the high mast luminaires within 6 weeks of contract award. The Contractor shall supply the delivery schedule to the Supply Contractor upon approval. It shall be the responsibility of the Contractor to coordinate delivery with the Supply Contractor.

- a) Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor at no additional cost to the contract.
- b) A minimum of 24 Luminaires per delivery is required.
- c) The Luminaires shall be stored in such a manner as to prevent damage.
- d) Obtain and follow the Manufacturer's recommendations for the handling and installation of the Luminaires.

### Inspection and Acceptance

The Contractor shall examine and document the condition of the Luminaires, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for fully functional luminaires as well as any repairs or replacements required due to any change in condition caused by site handling, storage, and installation.

### Installation

- a) Install all components and accessories furnished with each luminaire including all electrical components, wiring and lamps.
- b) Each luminaire shall be mounted as indicated and as required for permanent lighting installation.
- c) Unless otherwise indicated, each luminaire shall be set in a plane parallel to the roadway.
- d) The installation shall be complete with shields (where specified), fusing and connection to the applicable lighting feeder circuits.

### Repair and Cleaning

All repairs are subject to approval by the Engineer. The Contractor shall:

- a) Remove and replace damaged Luminaires if repairs do not comply with requirements.
- b) Clean exposed surfaces of the Luminaires after installation to remove dirt, stains, and other markings.
- c) Do not use cleaning materials or processes that could change the appearance of exposed finishes.

### Basis of Payment

This work will be paid for at the contract unit price per each for HIGH MAST LUMINAIRE, (INSTALL ONLY), which price shall include all material, hardware, storage, and labor required for complete installation of the High Mast Luminaires, as shown on the contract plans and as specified herein.

## **UNDERPASS LUMINAIRE, (INSTALL ONLY)**

Effective: October 23, 2002

Revised: April 26, 2004

### Description

This work shall consist of receiving, assembling, and installing an Underpass Luminaire and lamp as shown on the plans. The work includes but is not limited to luminaire hanger assembly, required submittals, unloading, storing, and all other miscellaneous work required for complete installation. Included in this item is coordination with the Luminaire Supply Contractor for delivery and installation requirements. All work shall conform to the Standard Specifications and as specified herein.

## General

### RELATED DOCUMENTS

Drawings and general provisions of the Contract.

### DEFINITIONS

Supply Contractor: Supplier of the Underpass Luminaires.

Contractor: The general contractor(s) awarded a highway construction contract, includes responsibility for Underpass Luminaire installation.

Engineer: IDOT's designated representative.

Underpass Luminaire: High pressure sodium underpass luminaire to be installed as shown on the contract plans. Includes all electrical components required for complete, fully functional luminaire.

### WORK UNDER SEPARATE CONTRACT

Underpass Luminaires will be furnished and delivered by others.

### Delivery, Storage, and Handling

The Contractor shall supply the Engineer with a delivery schedule for the Underpass Luminaires within 6 weeks of contract award. The Contractor shall supply the delivery schedule to the Supply Contractor upon approval. It shall be the responsibility of the Contractor to coordinate delivery with the Supply Contractor.

- a) Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor at no additional cost to the contract.
- b) A minimum of 10 Luminaires per delivery is required.
- c) The Luminaires shall be stored in such a manner as to prevent damage.
- d) Obtain and follow the Manufacturer's recommendations for the handling installation of the Luminaires.

### Inspection and Acceptance

The Contractor shall examine and document the condition of the Luminaires, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for fully functional luminaire as well as any repairs or replacements required due to any change in condition caused by site handling, storage and installation.

### Installation

Install all components and accessories furnished with each luminaire including all electrical components, wiring and lamps.

- a) Each luminaire shall be mounted as indicated and as required for permanent lighting installation.
- b) Each luminaire shall be set in a plane parallel to the roadway.
- c) The installation shall be complete with fusing and connection to the applicable lighting feeder circuits.

#### Repair and Cleaning

All repairs are subject to approval by the Engineer. The Contractor shall:

Remove and replace damaged Luminaires if repairs do not comply with requirements.

Clean exposed surfaces of the Luminaires after installation to remove dirt, stains, and other markings.

Do not use cleaning materials or processes that could change the appearance of exposed finishes.

#### Basis of Payment

This work will be paid for at the contract unit price per each for UNDERPASS LUMINAIRE, (INSTALL ONLY), which price shall include all material, hardware, storage, and labor required for complete installation of the Underpass Luminaire, as shown on the contract plans and as specified herein.

### **LIGHT TOWER, INSTALL ONLY**

Effective: June 28, 2002

Revised: April 26, 2004

#### Description

This work shall consist of receiving, assembling, and installing a light tower complete with internal, integral motorized lowering mechanism, luminaire ring, pole top hood, internal electric power cables, lightning rod, luminaire counter-weight (when applicable), and all appurtenances required for a complete operating unit and installing it on a concrete foundation. The work includes but is not limited to required submittals, unloading, storing, and all other miscellaneous work required for complete installation. Included in this item is coordination with the light tower Supply Contractor for delivery and installation requirements. All work shall conform to the Standard Specifications and as specified herein.

#### General

##### **RELATED DOCUMENTS**

Drawings and general provisions of the Contract.

##### **DEFINITIONS**

Supply Contractor: Supplier of the Light Towers.

Contractor: The general contractor(s) awarded a highway construction contract, includes responsibility for Light Tower installation.

Engineer: IDOT's designated representative.

Light Tower: High Mast complete with internal, integral motorized lowering mechanism, luminaire ring, pole top hood, internal electric power cables, lightning rod, luminaire counterweight (when applicable), electrical disconnecting and protection equipment, grounding system, concrete work pad (where applicable), and all appurtenances required for a complete operating unit.

#### WORK UNDER SEPARATE CONTRACT

Light Towers will be furnished and delivered by others.

#### Delivery, Storage, and Handling

The Contractor shall supply the Engineer with a delivery schedule for the light towers within 6 weeks of contract award. The contractor shall supply the delivery schedule to the Supply Contractor upon approval. It shall be the responsibility of the contractor to coordinate delivery with the Supply Contractor.

- a) Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor.
- b) A minimum of 4 Light Towers per delivery is required.
- c) The light Towers shall be stored in such a manner as to prevent staining, discoloration, or other damage.
- d) Obtain and follow the Manufacturer's recommendations for the handling and installation of the Light Towers.
- e) Inspection and Acceptance: The Contractor shall examine and document the condition of the Light Towers, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for fully functional towers as well as for any repairs or replacements required due to any change in condition caused by site handling, storage and installation.

#### Installation

Each lighting tower shall be assembled and installed upon its foundation in accordance with the manufacturer's recommendations and under the supervision of a representative of the manufacturer. The manufacturer shall provide certification, signed by the supervising representative, that each tower has been properly installed.

Prior to installation, the tower and all its components shall be inspected by the contractor, with the help of the manufacturer's representative in the presence of the Engineer. Any parts found to be defective shall be repaired or replaced.

The pole shall be set plumb on the foundation and fastened to the anchor bolts with double nuts and washers. Flat washers shall be installed below and above the base plate of the pole. Lock-washers shall be installed on top of the top flat washer. The nuts shall be tightened in compliance with torque specifications recommended by the manufacturer of the lighting unit.



The space between the finished top of the foundation and the bottom of the base plate of the pole shall be enclosed with an expanded metal screen made of stainless steel. The mesh of the screen shall be 6.00 mm (0.250 inch) or less as approved by the Engineer. The screen shall be held in place with bands made of stainless steel. At least two bands shall be installed around the tower base plate. The bands shall be held tight by a ratchet-type device. Grouting shall not be used to enclose the above described space.

#### Light Tower Identification

Each light tower shall be labeled by the Contractor as indicated in the plans and in accordance with the provisions of Article 1069.02 of the Standard Specifications to correspond to actual circuiting, and as designated by the Engineer. The materials for tower identification shall be furnished by the Supply Contractor in accordance with the provisions of Article 1069.02 of the Standard Specifications except as modified below:

The letters and numerals for all light towers shall be white, screened on black

The letters and numerals for the median-mounted light towers shall correspond to the "18 m and less mounting height"

#### Method of Measurement

The Light Tower will be measured by the unit "Each", complete. All related apparatus, wiring and testing shall be included.

#### Basis of Payment

This work shall be paid for at the contract unit price each for LIGHT TOWER, INSTALL ONLY, of the mounting height and luminaire mounting positions indicated, which shall be payment in full for installing the light tower complete as described in these specifications.

### **LIGHT TOWER FOUNDATION (SPECIAL)**

Effective: November 5, 2002

Revised: November 24, 2003

#### Description

This item shall consist of furnishing materials and labor to construct a light tower foundation in place integral with barrier wall, in locations shown on the Contract Drawings and as directed by the Engineer, and in compliance with the applicable sections of the Standard Specifications.

#### General Requirements

The foundation shall be constructed in accordance with the provisions of article 837 of the Standard Specification, as amended herein, the details included in the plans and as directed by the Engineer.

#### Materials

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

| <u>Item</u>         | <u>Article/Section</u>            |
|---------------------|-----------------------------------|
| (a)<br>Concrete     | Portland Cement<br>1020           |
| (b)                 | Reinforcement Bars<br>1006.10     |
| (c)                 | Conduit<br>1088.01                |
| (d)<br>Rod Assembly | Light Tower Anchor<br>1070.03     |
| (e)                 | Grounding for lighting<br>1087.01 |

Construction Requirements

The top portion of the foundation shall be integrated with a portion of barrier wall as one monolithic structure, as shown on the plans and as directed by the Engineer. The length of the wall section shall be constructed as detailed on the plans. Any required sheeting, cribbing or other associated work required to complete the foundation work shall be included in this pay item.

The foundation shall be cast-in-place and allowed to cure for at least 10 days minimum before the light tower is erected. If soil condition require the use of a liner to form the hole, the liner shall be withdrawn as the concrete is deposited. The top of the foundation shall be constructed level so that no shims or other leveling devices will be needed.

The steel reinforcement, the raceway conduits and the anchor bolts shall be secured in place to each other and properly positioned in the augured hole so that at time of pouring of concrete mixture in place the above said components retain their proper positions. Special attention shall be paid to the positioning of the anchor bolts. It is of utmost importance that the anchor bolts project above the top of the foundation, and after placement of the concrete, remain in a perfectly vertical position.

Expansion couplings as detailed in the plans shall be used at the expansion joints at either end of the foundation.

Coordination

The Contractor shall verify and fully coordinate the proposed foundation's anchor bolt circle with the high mast tower Manufacturer's anchor bolt circle.

Method of Measurement

The foundation shall be a vertical measurement for payment in meter(s) of the foundation in place, from the bottom of the foundation to the top of the barrier wall which shall include the longitudinal portion of the barrier wall which is integral to the foundation as shown on the plans, and, as directed by the Engineer

Basis of Payment

This work will be paid for at the contract unit price per meter for LIGHT TOWER FOUNDATION (SPECIAL), which shall be payment in full for the work shown on the plans and as specified herein.

**POLE FOUNDATION, REMOVED**

Effective January 15, 2004

**Description.**

This work shall consist of the removal and disposal of existing light pole foundation. This work shall also include the backfilling of the excavated areas.

**Construction Requirements.**

The removal of the pole foundation shall be in accordance with Article 842.05 of the Standard Specifications.

**Basis of Payment.**

This work will be paid for at the contract unit price each for POLE FOUNDATION, REMOVED.

**CONCRETE DOUBLE HANDHOLE**

Effective January 1, 2002

Revised June 6, 2002

This work shall consist of furnishing the materials and constructing a handhole in accordance with the applicable Articles of Section 814 and 1059 of the Standard Specifications with the following modifications:

The lift ring for the cover shall consist of a solid closed ring of stainless steel at least 10mm (3/8 inch) in diameter. The lift ring shall be attached to the cover by a loop of stainless steel at least 10 mm (3/8 inch) in diameter. The lift ring and loop shall be recessed in the cover.

The lid shall be marked with the legend "ELECTRIC".

Pre-cast handholes are not allowed.

All surplus materials shall be disposed of by the Contractor outside the job limits.

Basis of Payment: This work will be paid for at the contract unit price each for CONCRETE DOUBLE HANDHOLE, which price shall be payment in full for all labor, materials, and equipment required to provide the handhole described above as well as any necessary excavating, backfilling, disposal of unsuitable materials, and furnishing all materials within the limits of the handhole.

**CONCRETE HANDHOLE**

Effective January 1, 2002

Revised June 6, 2002

This work shall consist of furnishing the materials and constructing a handhole in accordance with the applicable Articles of Section 814 and 1088 of the Standard Specifications with the following modifications:

The lift ring for the cover shall consist of a solid closed ring of stainless steel at least 10mm (3/8 inch) in diameter. The lift ring shall be attached to the cover by a loop of stainless steel at least 10 mm (3/8 inch) in diameter. The lift ring and loop shall be recessed in the cover.

The lid shall be marked with the legend "ELECTRIC".

Pre-cast handholes are not allowed.

All surplus materials shall be disposed of by the Contractor outside the job limits.

Basis of Payment: This work will be paid for at the contract unit price each for CONCRETE HANDHOLE, which price shall be payment in full for all labor, materials, and equipment required to provide the handhole described above as well as any necessary excavating, backfilling, disposal of unsuitable materials, and furnishing all materials within the limits of the handhole.

### **SERVICE INSTALLATION, TYPE B**

Effective January 1, 2002

Revised January 5, 2004

This work shall be in accordance with Section 805 and 1086 of the Standard Specifications except as modified herein.

The service installation shall include furnishing and installing a wood service pole or post and associated appurtenances.

Galvanized steel conduit shall be used for the service riser. The use of PVC conduit will not be allowed.

A rain tight hub assembly (myers type) shall be used when conduit enters the switch from the top of the disconnect.

The service disconnect enclosure shall be a stainless steel, weatherproof NEMA 4X enclosure that meets the following specifications:

60-Ampere (250 V) Minimum Fused Disconnect Switch: Unless indicated otherwise on the plan sheets, the fused disconnect switch shall be single-throw, three-wire (two poles, two fuses, and solid neutral). The switch shall provide for locking the blades in either the "On" or "Off" position with one or two padlocks and for locking the cover in the closed position. The disconnect switch and fuse rating shall be rated at the voltage and amperage required to comply with utility company and equipment requirements. All fuses shall be provided with the disconnect installation.

The Department will furnish all padlocks.

Basis of Payment:

This work will be paid for at the contract unit price each for SERVICE INSTALLATION, TYPE B which shall be payment in full for all labor, equipment, and materials required to provide the electrical service installation described above, complete.

**FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F**

Effective January 1, 2002

Revised June 24, 2002

This work shall be in accordance with Section 871 and 1076 of the Standard Specifications except as modified herein.

The fiber optic cable shall be a 24-fiber cable that includes 12 multi-mode fibers and 12 single mode fibers.

Six multi-mode fibers and six single mode fibers shall be terminated in each traffic signal cabinet. All terminated fibers shall be clearly labeled. Any necessary fiber optic cables, connectors, and hardware shall be included in this work to provide the terminated fibers at each intersection as specified.

The single mode fibers shall be left uncut (if possible) and intact for future use.

Article 815.03(d) calls for cable marking tape to be installed as part of "trench and backfill for electrical work". This requirement is waived and the following section shall apply:

12 Ga., stranded THHN, insulated orange tracer cable is to be pulled into all conduits that contain fiber optic cable. This work shall be done at the same time the fiber optic cable is pulled. There will be no additional compensation for this work.

The contractor shall notify Eric Howald, I.D.O.T. Traffic Signal Systems Engineer, at (309) 671-4481 before proceeding with the fiber optic installation.

The amount of slack cable listed in Article 873.03 shall be revised as follows:

| <u>Location</u>    | <u>Length of Slack Cable</u> |      |
|--------------------|------------------------------|------|
|                    | Meters                       | Feet |
| Gulfbox            | 2.0                          | 6.0  |
| Junction Box       | 2.0                          | 6.0  |
| Handhole           | 5.0                          | 16.0 |
| Double Handhole    | 11.0                         | 36.0 |
| Controller Cabinet | 4.0                          | 13.0 |

The fiber optic cable shall be clearly marked in each handhole and cabinet with a brightly colored (orange or yellow) weather resistant marker securely attached to the cable.

Basis Of Payment:

This work will be paid for at the contract unit price per meter FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F, and shall be payment in full for all labor, equipment, and materials required to provide, test, and install the fiber optic cable described above, complete.

**FULL ACTUATED CONTROLLER AND TYPES IV & V CABINETS (ECONOLITE)**

Effective January 1, 2002

Revised April 28, 2004

This work shall be in accordance with Sections 857, 1073, and 1074 of the Standard Specifications except as modified herein.

The traffic signal cabinet shall have a NEMA TS-2 back panel. The cabinet shall include a malfunction management unit to allow enhanced fault monitoring capabilities. The malfunction management unit shall be an EDI model MMU-16E and shall include the EECOM diagnostic software.

The controller shall be a NEMA TS-2 Type 2 controller.

The cabinet and controller shall be compatible with the existing Econolite closed loop system and Aries remote monitoring software.

The malfunction management unit shall be equipped with the latest software and firmware revisions. The cabinet shall be equipped with a plexi-glass shield that covers the power panel which houses the mercury bus relay, line filter, circuit breakers, and other electrical components.

All traffic signal cabinets shall be equipped with a sixteen load switch back panel to accommodate future expansion.

The cabinet shall be equipped with a plexi-glass shield that covers the thermostat and a fluorescent lighting assembly that turns on when the door is opened. The fluorescent lighting assembly shall be equipped with a cold weather ballast and mounted in a location that will not interfere with cabinet maintenance.

The cabinet shall be furnished with a compact heater strip to be used for moisture reduction during cold weather. The heater shall be thermostatically controlled, operate at 120 volts, have a minimum wattage of 150 watts, a maximum wattage of 250 watts, have a shield to protect service personnel and equipment from damaging heat, be separately fused, and be mounted where it does not interfere with a person working in the cabinet.

For cabinets that are equipped with vehicle detector rack and amplifiers: All vehicle detector loops shall be wired to separate detector amplifiers. All vehicle detectors shall be rack mounted. The detector amplifiers shall be wired to provide a constant call in the event of a detector amplifier failure. The detector rack shall be wired to provide a constant call when the detector amplifier is removed. The detector rack shall be powered by the use of a bus interface unit.

The cabinet or controller shall be equipped with a fiber optic interface panel, any fiber optic modems that are needed, and a twenty-four fiber wall-mountable interconnect center. The cabinet shall also be equipped with any and all other components necessary to provide for a complete and functional fiber optic telemetry.

The cabinet shall be equipped with toggle switch guards for all switches located on the door to prevent accidental switching.

The cabinet shall be equipped with additional surge protection for the controller, malfunction management unit, and detector amplifiers, and/or video detection system. The surge protector shall be a Transtector model ACP100BWN3 and shall be included in addition to an EDCO SHA-1210 IRS protector. The EDCO SHA-1210 IRS surge protector is to be provided in accordance with Article 1074.03 (a)(4)a and shall be wired to provide surge protection for the controller, malfunction management unit, and detector amplifiers. The Transtector surge suppressor may be wired to the equipment protected power terminals of the EDCO SHA-1210 IRS unit provided that the controller, MMU, and detection system are protected.

The Contractor shall set up each cabinet in his or her shop for inspection by the Engineer. All phases that are utilized shall be hooked up to a light board to provide observation for each signal indication. The Engineer shall be notified when the set up is complete so that all pertinent timings may be entered into the each traffic signal controller. The facility shall be subject to a seven day burn-in period before installation will be allowed.

**Basis of Payment:**

This work will be paid for at the contract unit price each for FULL ACTUATED CONTROLLER AND TYPE IV CABINET or FULL ACTUATED CONTROLLER AND TYPE V CABINET and shall be payment in full for all labor, materials, and equipment required to provide, test, and install the equipment described above, complete.

**LOCATION OF UNDERGROUND STATE MAINTAINED FACILITIES**

Effective January 1, 2002

Revised January 5, 2004

The Contractor shall be responsible to locate existing IDOT electrical facilities prior to performing any work at his/her own expense if required. The Contractor shall also be liable for any damage to IDOT facilities resulting from inaccurate locating.

The Contractor may obtain, on request, plans for the existing electrical facilities from the Department.

The Contractor shall also be responsible for locating and providing protection for IDOT facilities during all phases of construction. If at any time, the facilities are damaged, the Contractor shall immediately notify the Department and make all necessary arrangements for repair to the satisfaction of the Engineer. This work shall be included in the contract bid price.

**PEDESTRIAN PUSHBUTTON**

Effective January 1, 2002

Revised February 11, 2002

This work shall be in accordance with Section 1074 of the Standard Specifications except as modified herein.

All pedestrian pushbuttons shall have a round case and be equipped with a 50mm (2") diameter mushroom head for easy access.

The pedestrian pushbuttons shall be of polycarbonate construction and shall have a black housing and a yellow button. The pushbutton shall utilize a solid state switch or reed relay.

The following models are approved for use within District 4: Polara, Model MPBP/BY or a Bumblebee Round Pushbutton.

The pedestrian pushbutton installation shall include all crossing signs and hardware required to mount the pedestrian pushbutton. All hardware shall be of stainless steel construction. All bolts shall be 1/4" Hex Head and no self tapping/drilling screws will be allowed.

The following pedestrian pushbutton signs currently meet Department Specifications: Pelco, Models SF-1013-08, SF-1014-08 or approved equivalent

Basis of Payment:

This work will be paid for at the contract unit price each for PEDESTRIAN PUSHBUTTON and shall be payment in full for all labor, equipment, and materials required to supply and install the pedestrian pushbuttons described above, complete.

**PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED**  
**PEDESTRIAN SIGNAL HEAD, LED, 2-FACE, BRACKET MOUNTED**

Effective January 1, 2002

Revised January 5, 2004

This work shall be in accordance with Section 881 and 1078 of the Standard Specifications except as modified herein.

The pedestrian signal heads shall consist of a single 300mm (12") polycarbonate section and shall be equipped with an overlaid LED indication (Walking Person/Upraised Hand).

The traffic signal head shall have a black finish with black doors and tunnel visors.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block.

The LED assembly for the walking man/hand indication shall meet or exceed the following minimum specifications:

The LED signal faces shall have the international Walk symbol (Walking Person - Color: Lunar White) and Don't Walk symbol (Upraised Hand - Color: Portland Orange). Only filled indications will be allowed.

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications list below:

|          |  |
|----------|--|
| GELcore  | Model PS6-CFL1-01A (Filled Walking Person/Upraised Hand Overlay  |
| Dialight | Model 430-6772-001 (Filled Walking Person/Upraised Hand Overlay) |

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") x 300mm (12"), Hard Coated for Abrasion Resistance, UV Stabilized Dome



LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage White: 8 W or less, Nominal Wattage Orange: 9 W or less, Nominal Wavelength Orange: 605nm, Minimum

Product Warranty: 5 Year Replacement

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

Basis of Payment:

This work will be paid for at the contract unit prices each for PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED or PEDESTRIAN SIGNAL HEAD, LED, 2-FACE, BRACKET MOUNTED and will be payment in full for all labor, equipment, and materials required to provide and install the new pedestrian traffic signal heads equipped with LED indications described above, complete.

**SIGNAL HEAD, LED (PEORIA)**

Effective January 1, 2002

Revised January 5, 2004

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The traffic signal heads shall consist of 300mm (12") polycarbonate sections and shall be equipped with LED assemblies for all red bulb, yellow bulb, green bulb, red arrow, yellow arrow, and green arrow indications.

The traffic signal heads shall have a black finish with black doors and tunnel visors.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block.

The LED assemblies for the red, yellow, and green solid and arrow indications shall meet or exceed the following minimum specifications:

RED LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore                    Model DR6-RTFB-20A

Dialight                    Model DURALED 433-1210-003

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Red, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS: Interconnected to minimize the effect of single LED failures, Nominal Wattage : 12 W or less,  
Nominal Wavelength : 622-626nm

Minimum Luminous Intensity (cd): 339

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD PART 2.

#### YELLOW LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore                    Model DR6-YTFB-20A

Dialight                    Model DURALED 433-3230-001

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Clear or Yellow, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS: Interconnected to minimize the effect of single LED failures, Nominal Wattage : 32 W or less,  
Nominal Wavelength : 590-592nm

Minimum Luminous Intensity (cd): 678

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C, except for when its terms are in conflict with the terms contained in this special provision. In such cases, this special provision shall supercede the contrary ITE specification.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD PART 2.

### GREEN LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore Model DR6-GTFB-20A (Tinted Lens) or DR6-GCFB-20A (Clear)

Dialight Model 433-2220-001 (Tinted Lens)

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage : 12 W or less, Nominal Wavelength : 505 - 508nm

Minimum Luminous Intensity (cd): 678

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD Part 2

### GREEN ARROW LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore                    Model DR6-GCAAN-21A  
Dialight                    Model 432-2374-001 (3 Row)

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS: Interconnected to minimize the effect of single LED failures, Nominal Wattage: 11 W or less,  
Nominal Wavelength: 505 -508nm, Shall Have a Full Profile Arrow Indication (No Outlined or 2 Row Indications)

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

### YELLOW ARROW LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore                    Model DR6-YTAAN-21A  
Dialight                    Model 431-3334-001 (3 Row)

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Clear or Yellow, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS: Interconnected to minimize the effect of single LED failures, Nominal Wattage: 12 W or less,  
Nominal Wavelength: 590-592nm, Shall Have a Full Profile Arrow Indication (No Outlined or 2 Row Indications)

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C, except for when its terms are in conflict with the terms contained in this special provision. In such cases, this special provision shall supercede the contrary ITE specification.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STS Part 2.

#### YELLOW/GREEN BI-MODAL ARROW

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

|          |                                      |
|----------|--------------------------------------|
| GELcore  | Model DR6-ECA6-01A (Outline Profile) |
| Dialight | Model 430-6370-001                   |

#### The LED assembly must conform to the following minimum specifications:

Lens : 12" Diameter, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage: 10 W Green, 10 W Yellow or less, Nominal Wavelength: 505 -508 nm Green, 590-592 nm Yellow

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of 40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

Basis of Payment:

This work will be paid for at the contract unit prices each for SIGNAL HEAD, LED of the type specified and shall be payment in full for all labor, materials, and equipment required to provide and install the traffic signal heads described above, complete.

**STEEL COMBINATION MAST ARM ASSEMBLY AND POLE**

Effective January 1, 2002

Revised January 5, 2004

This work shall consist of furnishing a Steel Mast Arm Assembly and Pole of the arm length specified on the plans and installing it on a concrete foundation. This work shall be in accordance with the applicable Articles of Sections 877 and 1077 of the Standard Specifications with the following modification:

Mast Arms and Poles shall be capable of supporting the number of signal faces (with backplates where indicated), signs, and appurtenances as shown on the plans.

All combination poles shall be equipped with a 3.66m (12') truss style luminaire arm and shall have a 45 ft. luminaire mounting height unless specified otherwise on the plans.

All combination mast arms shall conform to the minimum loading requirements of Standard 877011-01 or the loading shown on the plan sheets - whichever is greater.

Basis of Payment

This work will be paid for at the contract unit price each for STEEL COMBINATION MAST ARM ASSEMBLY AND POLE of the signal arm length specified.

**VIDEO VEHICLE DETECTION SYSTEM, 4 CAMERA (ECONOLITE)**

Effective January 1, 2002

Revised January 6, 2004

The video detection system shall be an Econolite Autoscope Solo Pro II (4 Camera System) to allow integration into the proposed Econolite controller and cabinet.

The video vehicle detection system shall include all necessary electric cable, electrical junction boxes, electrical and coaxial surge suppression, hardware, software, programming, and any camera brackets that are required for installation. These items should be taken into consideration and shall be included in the bid price for VIDEO VEHICLE DETECTION, 4 CAMERA.

A 250 mm (10") color video monitor shall be included for each installation (one monitor to be placed in each cabinet) to allow for the setup and monitoring of the video detection system. Any hardware and/or software that may be required for focusing or zooming the cameras shall be included as well.

All vehicle video detection systems shall be equipped with the latest software or firmware revisions.

The video vehicle system shall be configured and installed to NEMA TS2 Standards (use of the SDLC port and BIU). Installation conforming to NEMA TS1 standards will not be allowed.

The minimum requirements for a video vehicle detection system are listed below:

## 1.0 General

This Specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device.

### 1.1 System Hardware

The system shall consist of four video cameras and an automatic control unit (ACU). The ACU shall consist of one (1) mini-hub TS-2, one (1) four camera communications panel, and all other components required for a complete and fully functional system. The ACU shall process all detected calls and shall be equipped with the latest firmware revisions.

### 1.2 System Software

The system shall be able to detect either approaching or receding vehicles in multiple traffic lanes. A minimum of 24 detection zones shall be user-definable per camera. The user shall be able to modify and delete previously defined detection zones. The software shall provide remote access operation and shall be the latest revision.

## 2.0 Functional Capabilities

### 2.1 Real-Time Detection

2.2 The ACU shall be capable of simultaneously processing information from up to four (4) video sources. The video shall be digitized and analyzed at a rate of 30 times per second.

2.3 The system shall be able to detect the presence of vehicles in a minimum of 96 detection zones within the combined field of view of the image sensors.

## 3.0 Vehicle Detection

### 3.1 Detection Zone Placement

The video detection system shall provide flexible detection zone placement anywhere and at any orientation within the combined field of view of the image sensors. In addition, detection zones shall have the capability of implementing logical functions including AND and OR.

### 3.2 Optimal Detection

The video detection system shall reliably detect vehicle presence when the image sensor is mounted 10m (30 ft.) or higher above the roadway, when the image sensor is

adjacent to the desired coverage area, and when the length of the detection area or field of view (FOV) is not greater than ten (10) times the mounting height of the image sensor. The image sensor shall not be required to be mounted directly over the roadway. A single image sensor, placed at the proper mounting height with the proper lens, shall be able to monitor six (6) to eight (8) traffic lanes simultaneously.

### 3.3 Detection Performance

Overall performance of the video detection system shall be comparable to inductive loops. Using standard image sensor optics and in the absence of occlusion, the system shall be able to detect vehicle presence with 98% accuracy under normal conditions, (days & night) and 96% accuracy under adverse conditions (fog, rain, snow). The ACU shall output a constant call for each enabled detector output channel if a loss of video signal occurs in any camera.

The ACU shall be capable of processing a minimum of twenty detector zones placed anywhere in the field of view of the camera.

### 4.0 ACU Hardware

#### 4.1 ACU Mounting

The ACU shall be shelf or rack mountable. Nominal outside dimensions excluding connectors shall not exceed 180mm (7.25") x 475mm (19") x 260mm (10.5") (H x W x D).

#### 4.2 ACU Environmental

The ACU shall be designed to operate reliably in the adverse environment found in the typical roadside traffic cabinet. It shall meet the environmental requirements set forth by the NEMA (National Electrical Manufacturers Association) TS1 and TS2 standards as well as the environmental requirements for Type 170 and Type 179 controllers. The minimum operating temperature range shall be from -35 to +74 degrees C at 0% to 95% relative humidity, non-condensing.

### 5.0 ACU Electrical

5.1 The ACU shall be modular in design and provide processing capability equivalent to the Intel Pentium microprocessor. The bus connections used to interconnect the modules of the ACU shall be gold-plated DIN connectors.

5.2 The ACU shall be powered by 89 - 135 VAC, 60 Hz, single phase, and draw 0.25 amps, or by 190 - 270 VAC, 50 Hz, single phase and draw 0.12 amps. If a rack mountable ACU is supplied, it shall be capable of operating from 10 to 28 VDC. The power supply shall automatically adapt to the input power level. Surge ratings shall be as set forth in the NEMA TS1 and TS2 specifications.

5.3 Serial communications to a remote computer equipped with remote monitoring software shall be through an RS-232 serial port. A 9-pin "D" subminiature connector on the front of the ACU shall be used for serial communications.



- 5.4 The ACU shall be equipped with a NEMA TS2 RS-485 SDLC interface for communicating input and output information. Front panel LEDs shall provide status information when communications are open.
- 5.5 The ACU and/or camera hookup panel shall be equipped with four RS-170 (B&W)/NTSC (color) composite video inputs for coaxial camera connections or , so that signals from four image sensors can be processed in real-time.
- 5.6 The ACU shall be equipped with a port to provide communications to a computer running the remote access software.
- 5.7 The ACU and/or camera hookup panels used for a rack mountable ACU shall be equipped with a video output port.
- 5.8 The ACU shall be equipped with viewable front panel detection LED indications.
- 6.0 Camera
- 6.1 The video detection system shall use medium resolution, monochrome or color, image sensors as the video source for real-time vehicle detection. As a minimum, each image sensor shall provide the following capabilities:
  - a. Images shall be produced with a CCD sensing element with horizontal resolution of at least 450 lines and vertical resolution of at least 350 lines.
  - b. Useable video and resolvable features in the video image shall be produced when those features have luminance levels as low as 0.1 lux at night.
  - c. Useable video and resolvable features in the video image shall be produced when those features have luminance levels as high as 10,000 lux during the day.
  - d. Automatic gain, automatic iris, and absolute black reference controls shall be furnished.
  - e. An optical filter and appropriate electronic circuitry shall be included in the image sensor to suppress "blooming" effects at night.
- 6.2 The image sensor shall be equipped with an integrated zoom lens with zoom and focus capabilities that can be changed using either configuration computer software or hand-held controller.
- 6.3 The image sensor and lens assembly shall be housed in an environmental enclosure that provides the following capabilities:
  - a. The enclosure shall be waterproof and dust-tight to NEMA-4 specifications.
  - b. The enclosure shall allow the image sensor to operate satisfactorily over an ambient temperature range from -34C to +74C while exposed to precipitation as well as direct sunlight.

- c. The enclosure shall allow the image sensor horizon to be rotated in the field during installation.
  - d. The enclosure shall include a provision at the rear of the enclosure for connection of power and video signal cables fabricated at the factory. Input power to the environmental enclosure shall be either 115 VAC 60 Hertz or 24 VAC/DC 60 Hertz.
  - e. A heater shall be at the front of the enclosure to prevent the formation of ice and condensation in cold weather, as well as to assure proper operation of the lens' iris mechanism. The heater shall not interfere with the operation of the image sensor electronics, and it shall not cause interference with the video signal.
  - f. The enclosure shall be light-colored and shall include a sun shield to minimize solar heating. The front edge of the sunshield shall protrude beyond the front edge of the environmental enclosure and shall include provision to divert water flow to the sides of the sunshield. The amount of overhang of the sun shield shall be adjustable to prevent direct sunlight from entering the lens or hitting the faceplate.
  - g. The total weight of the image sensor in the environmental enclosure with sunshield shall be less than 2.7 kg (6 pounds).
  - h. When operating in the environmental enclosure with power and video signal cables connected, the image sensor shall meet FCC class B requirements for electromagnetic interference emissions.
- 6.4 The video output of the image sensor shall be isolated from earth ground. All video connections from the image sensor to the video interface panel shall also be isolated from earth ground.
- 6.5 The video output, communication, and power to the image sensor shall include transient protection to prevent damage to the sensor due to transient voltages occurring on the cable leading from the image sensor to other field locations.
- 6.6 A galvanized steel junction box shall be available as an option with each image sensor for installation on the structure used for image sensor mounting. The junction box shall contain a terminal block for terminating power to the image sensor and connection points for cables from the image sensor and from the ACU.
- 6.7 A video interface panel shall be included for installation inside of the traffic cabinet. The panel shall provide twisted pair connection points a transient suppressor for each image sensor. The shield side of the cable connection at the transient suppressor shall be connected to earth ground via the transient suppressor.

If the twisted pair used to connect the video signal from the image sensor to the ACU is to be routed through a conduit containing unbundled AC power cables, a video isolation amplifier shall be installed in addition to the video interface panel if interference is present. There will be no additional compensation for providing the video isolation

amplifier if necessitated by the presence of video interference. The isolation amplifier shall buffer the video signal and provide transient suppression. The isolation amplifier shall have a minimum common mode rejection ratio at 60 Hz of 100 dB.

6.8 The image sensor shall be connected to the ACU such that the video signal originating from the image sensor is not attenuated more than 3 dB when measured at the ACU. When the connection between the image sensor and the ACU is twisted pair cable, the cable used shall be a low loss cable suited for outdoor installation.

6.9 Each Autoscope Solo Pro Camera II shall be equipped with an integral video compression card to facilitate video transmission, reduce the load on the detection processor, and improve video streaming throughput at all baud rates. The Hardware Video Compression option installs a coprocessor card with a wavelet CODEC for faster streaming video back to a remote location or TOC.

#### 7.0 Software

7.1 The system shall include the remote access software that is used to setup and configure the video detection system. The software shall be of the latest revision.

7.2 All necessary cable, adapters, and other equipment shall be included with the system.

7.3 One (1) Econolite Industrial 56K modem and serial cable shall be included with each video detection system to facilitate remote communications with the equipment.

#### 8.0 Installation and Training

8.1 The supplier of the video detection system shall supervise the installation and testing of the video and video vehicle detection equipment. A factory certified representative from the supplier shall be on-site during installation.

8.2 A maximum of one day of training shall be provided to personnel of the contracting agency in the operation, setup and maintenance of the video detection system. Instruction and materials shall be provided for a maximum of six persons and shall be conducted at a location selected by the contracting agency. The contracting agency shall be responsible for any travel, room and board expenses for its own personnel.

#### 9.0 Warranty, Maintenance, and Support

9.1 The video detection system shall be warranted by its supplier for a minimum of two (2) years from date of turn-on. This warranty shall cover all material defects and shall also provide all parts and labor as well as unlimited technical support.

9.2 Ongoing software support by the supplier shall include updates of the ACU and supervisor software. These updates shall be provided free of charge during the warranty period.

9.3 The supplier shall maintain a program for technical support and software updates following expiration of the warranty period. This program shall be made available to the contracting agency in the form of a separate agreement for continuing support.

Basis of Payment:

This work shall be paid for at the contract unit price each for VIDEO VEHICLE DETECTION, 4 CAMERA. which price shall be payment in full for all labor, equipment, and materials required to provide, test, and install the video vehicle detection system described above, complete.

**TRAFFIC SIGNAL HEADS**

Effective November 21, 2002

Revised December 18, 2002

Where two or more single face signal heads are mounted on the same post or pole, the Contractor shall use a terminal compartment and brackets as detailed in Standard 880006 (Traffic Signal Mounting Details). Any additional costs shall be included in the pay item for the traffic signal head as specified in the plan.

**BATTERY BACKUP SYSTEM WITH CABINET**

Effective August 27, 2003

Revised January 5, 2004

The following models of Battery Backup Systems are approved for use within District Four:

Alpha Novus 1000 TP

Techpower Development M-E 700

Techpower Development M-E 1000

The Contractor shall be responsible for providing Battery Backup Systems that are sized appropriately for intersection load. The total system load shall not exceed the manufacturer's specifications.

GENERAL REQUIREMENTS: The Battery Back-up System (BBS) 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. The BBS shall provide reliable emergency power to a traffic signal in the event of a power failure or interruption. The transfer from utility power to battery power and vice 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 BBS shall provide power for full run-time operation for an "LED-only" intersection (all colors red, yellow, and green) or flashing mode operation for an intersection using Red LED's. As the battery reserve capacity reaches 50%, the intersection shall automatically be placed in all-red flash. The BBS shall allow the controller to automatically resume normal operation after the power has been restored. The BBS shall log an alarm in the controller for each time it is activated.

All Battery Backup Systems shall include four batteries.

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

The BBS shall conform to the following specifications:

#### OPERATION

The BBS shall be on line and provide voltage regulation and power conditioning when utilizing utility power.

The BBS shall provide a minimum two (2) hours of full run-time operation and four (4) hours all-red flash operation for an "LED-only" intersection (minimum 700W/1000VA active output capacity, with 80% minimum inverter efficiency).

The maximum transfer time from loss of utility power to switchover to battery backed inverter power shall be 150 milliseconds.

The BBS shall provide the user with 4-sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel-mounted terminal block, rated at a minimum 120V/1A, and labeled so as to identify each contact. For typical configuration, see the plan detail sheet.

A first set of NO and NC contact closures shall be energized whenever the unit switches to battery power. Contact shall be labeled or marked "On Batt."

The second set of NO and NC contact closures shall be energized whenever the battery approaches approximately 40% of remaining useful capacity. Contact shall be labeled or marked "Low Batt."

The third set of NO and NC contact closures shall be energized two hours after the unit switches to battery power. Contact shall be labeled or marked "Timer."

The fourth set of NO and NC contact closures shall be energized in the event of inverter/charger failure, battery failure or complete battery discharge. Contact shall be labeled or marked "BBS Fail or Status."

A surge suppression unit shall be provided for the output power if available as an option by the BBS manufacturer.

Operating temperature for both the inverter/power transfer relay and manual bypass switch shall be -37 °C to +74 °C.

The Power Transfer Relay shall be rated at 240VAC/30AMPS minimum and Manual Bypass Switch shall be rated at 240VAC/20 amps, minimum.

The BBS shall use a temperature-compensated battery charging system. The charging system shall compensate over a range of 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 2 meters (6'6") of wire.

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

BBS shall bypass the utility line power whenever the utility line voltage is outside of the following voltage range: 100VAC to 130VAC ( $\pm 2\text{VAC}$ ).

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

BBS shall be compatible with Illinois DOT's 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  $105\text{ VAC} \pm 2\text{ VAC}$  for more than 30 seconds, the BBS shall dropout of battery backup mode and return to utility line mode.

When the utility line power has been restored at below  $125\text{VAC} \pm 2\text{ VAC}$  for more than 30 seconds, the BBS shall dropout of battery backup mode and return to utility line mode.

BBS 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, battery failure or complete battery discharge, the power transfer relay shall revert to the NC state, where utility line power is reconnected to the cabinet. The BBS shall always revert back to utility line power and shall be designed to revert back to utility line power in the event of a BBS fault condition.

Recharge time for the battery, from "protective low-cutoff" to 80% or more of full battery charge capacity, shall not exceed twenty (20) hours.

When the intersection is in battery operation, the BBS shall bypass all internal cabinet lights, ventilation fans, and service receptacles.

A blue LED indicator light shall be mounted on the front of the traffic signal cabinet or on the side of the BBS cabinet facing traffic and shall turn on to indicate when the cabinet power has been disrupted and the BBS is in operation. The light shall be a minimum 1" diameter, be viewable from the driving lanes, and shall be large enough and visible enough to be seen from 200 ft. away.

All 36 volt and 48 volt systems shall include an external component that monitors battery charging to ensure that every battery in the string is fully charged. The device shall compensate for the effects of adding a new battery to an existing battery system by ensuring that the charge voltage is spread equally across all batteries. All cables, harnesses, cards, and other components that are required to provide the functionality described above shall be included in the unit bid price for the battery backup system. The following products are currently approved for use within District 4: Alpha Technologies: AlphaGuard with Charge Management Technology Module and Approved Equivalent

## MOUNTING AND CONFIGURATION

### GENERAL

Inverter/Charger Unit shall be rack or shelf-mounted.

(Reserved).

All interconnect wiring provided between Power Transfer Relay, Bypass Switch and Cabinet Terminal Service Block shall be no greater than two (2) meters (6'6") of #10 AWG wire.

Relay contact wiring provided for each set of NO/NC relay contact closure terminals shall be #18 AWG wire.

All necessary hardware for mounting (shelf angles, rack, etc) shall be included in the bid price of the BBS. The swing-trays shall be screwed to the Type IV or Type V NEMA cabinets using continuous stainless steel or aluminum piano hinge. All bolts/fasteners and washers shall meet the following requirements:

### EXTERNAL BATTERY CABINET

The external cabinet shall be a rated NEMA Type 3R Cabinet.

Inverter/Charger and Power Transfer Relay shall be installed inside the external battery cabinet and the manually operated Bypass Switch shall be installed inside the existing Traffic Signal Cabinet.

Batteries shall be housed in the external cabinet which shall be NEMA Standard rated cabinet mounted to the side of the Type IV or Type V Cabinet (see plan sheets for details). This external battery cabinet shall conform to the IDOT Standard Specifications for traffic signal cabinets for the construction and finish of the cabinet.

The external battery cabinet shall mount to the Type IV or Type V NEMA Cabinet with a minimum of four (4) bolts to the satisfaction of the Engineer.

The dimensions of the external battery cabinet shall be large enough to house the BBS components and four batteries, however, the maximum dimensions shall not exceed those shown on each individual plan sheet for each location.

The cabinet shall include heater mats for each battery shelf.

A warning sticker shall be placed on the outside of the cabinet indicating that there is an Uninterruptable Power Supply inside the cabinet.

The external battery cabinet shall be ventilated through the use of louvered vents (2), filters, and one thermostatically controlled fan as per NEMA TS 2 Specifications. The cabinet shall include a cleanable or replaceable cabinet filter.

External battery cabinet fan shall be AC operated from the same line output of the Manual Bypass Switch that supplies power to the Type IV or Type V Cabinet.

The BBS with external battery cabinet shall come with all bolts, conduits and bushings, gaskets, shelves, and hardware needed for mounting. The external battery cabinet shall have a hinged door opening to the entire cabinet. The cabinet shall include a bottom constructed from the same material as the cabinet.

The external cabinet shall be equipped with a power receptacle to accommodate the inverter/charger. The receptacle shall be wired to the line output of the manual bypass switch.

#### MAINTENANCE, DISPLAYS, CONTROLS AND DIAGNOSTICS

The BBS shall include a display and /or meter to indicate current battery charge status and conditions.

The BBS shall have lightning surge protection compliant with IEEE/ANSI C.62.41.

The BBS shall be equipped with an integral system to prevent battery from destructive discharge and overcharge.

The BBS and batteries shall be easily replaced with all needed hardware and shall not require any special tools for installation.

The BBS shall be equipped with an RS-232 port.

The BBS shall include a resettable front-panel event counter display to indicate the number of times the BBS was activated and a front-panel hour meter to display the total number of hours the unit has operated on battery power.

Manufacturer shall include two (2) sets of equipment lists, operation and maintenance manuals, and board-level schematic and wiring diagrams of the BBS, and the battery data sheets. Manufacturer shall include any software needed to monitor, diagnose, and operate the BBS. The manufacturer shall include any required cables to connect to a laptop computer.

The BBS shall include a data cable for the serial connection to the RS232 port and diagnostic software if it is available as an option with the unit.

Two copies of the owner/maintenance manuals shall be provided with the BBS.

#### BATTERY SYSTEM

Individual batteries shall be 12V type and shall be easily replaced and commercially available off the shelf.

The batteries shall be premium gel type with a 5 year full replacement warranty.

Batteries used for BBS shall consist of a minimum of four (4) to eight (8) batteries with a cumulative minimum rated capacity of 240 amp-hours.

Batteries shall be deep cycle, completely sealed, silver alloy VRLA (Valve Regulated Lead Acid) requiring no maintenance with maximum run time.



Batteries shall be certified by the manufacturer to operate over a temperature range of – 40°C to +71°C.

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 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. Harness shall be equipped with mating power-pole style connectors for batteries and a single, insulated plug-in style connection to inverter/charger unit. 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.

## QUALITY ASSURANCE

BBS shall be manufactured in accordance with a manufacturer quality assurance (QA) program. The QA program shall include two types of quality assurance: (1) Design quality assurance and (2) Production quality assurance. The production quality assurance shall include statistically controlled routine tests to ensure minimum performance levels of BBS units built to meet this specification and a documented process of how problems are to be resolved.

QA process and test results documentation shall be kept on file for a minimum period of seven years.

Battery Backup System designs not satisfying design qualification testing and the production quality assurance testing performance requirements described below shall not be labeled, advertised, or sold as conforming to this specification.

## DESIGN QUALIFICATION TESTING

The manufacturer, or an independent testing lab hired by the manufacturer, shall perform design Qualification Testing on new BBS designs, and when a major design change has been implemented on an existing design. A major design change is defined as a design change (electrical or physical) which changes any of the performance characteristics of the system, or results in a different circuit configuration.

**Burn In.** The sample systems shall be energized for a minimum of 5 hours, with full load of 700 watts, at temperatures of +74°C and -37°C., excluding batteries, before performing any design qualification testing.

Any failure of the BBS, which renders the unit non-compliant with the specification after burn-in, shall be cause for rejection.

For Operational Testing, all specifications may be measured including, but not limited to:

Run time while in battery backup mode, at full load.

Proper operation of all relay contact closures (“On-Batt”, “Low-Batt”, “Timer” and “BBS-Fail”).

Inverter output voltage, frequency, harmonic distortion, and efficiency, when in battery backup mode.

All utility mode – battery backup mode transfer voltage levels. See BBS Spec 1.8, 1.11 and 1.12.

Power transfer time from loss of utility power to switchover to battery backed inverter power.

Backfeed voltage to utility when in battery backup mode.

IEEE/ANSI C.62.41 compliance.

Battery charging time.

Event counter and runtime meter accuracy.

#### PRODUCTION QUALITY CONTROL TESTING

Production Quality Control tests shall consist of all of the above listed tests and shall be performed on each new system prior to shipment. Failure to meet requirements of any of these tests shall be cause for rejection. The manufacturer shall retain test results for seven years.

Each BBS shall be given a minimum 100-hour burn-in period to catch any premature failures.

Each system shall be visually inspected for any exterior physical damage or assembly anomalies. Any defects shall be cause for rejection.

#### WARRANTY

Manufacturers shall provide a minimum two (2) year factory-repair warranty for parts and labor on the BBS from date of acceptance by the State. Batteries shall be warranted for full replacement for five (5) years from date of purchase. The warranty shall be included in the total bid price of the BBS.

The Contractor shall furnish a warranty certificate for each Battery Backup System that includes the equipment description and details, serial numbers, effective dates, and the details of the warranty regarding materials and labor. The warranty period shall begin on the date of installation and the warranty certificate shall reflect this date.

Basis of Payment: The above work will be paid for at the contract unit price each for BATTERY BACKUP SYSTEM WITH CABINET shall be payment in full for all labor, materials, and equipment required to provide, install, and test the battery backup system described above, complete.

## **GROUNDING OF TRAFFIC SIGNAL STRUCTURES**

Effective August 27, 2003

Revised September 4, 2003

This work shall be in accordance with the applicable Articles of Sections 807, 817 and 1066 of the Standard Specifications except for the following modifications:

This work shall consist of furnishing and installing a grounding wire to connect all traffic signal posts, poles, cabinets and exposed metallic conduits. The proposed ground wire shall be an insulated #6 XLP green copper conductor. This wire shall be bonded to all items and their associated ground rods utilizing listed grounding connector mechanical lugs and bolts. This wire may be made continuous by splicing in the adjacent handholes with compression lugs. Split bolts shall not be allowed.

The grounding wire shall be bonded to the grounded conductor at the service disconnect per the NEC.

When the lighting system is supplied by the same source as the signals, the lighting ground conductor may be utilized to provide the required signal equipment ground. All signal poles that are part of a lighting system shall be considered grounded as required by this provision.

All clamps, hardware, and other materials required shall be included in the bid price.

### Basis of Payment:

This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 6 which price shall be payment in full for all labor, materials, and equipment required to provide the grounding system described above.

## **TRAFFIC SIGNAL POST, GALVANIZED STEEL**

Effective December 9, 2003

This work shall be in accordance with Sections 875, 878 and 1077 of the Standard Specifications except as modified herein.

The traffic signal post base shall be attached to the foundation with four 20mm (3/4") x 450mm (18") galvanized anchor bolts. The post base shall be a square assembly constructed from cast iron with a galvanized finish. The base shall be designed for use with a steel post. The base shall be secured to the foundation using galvanized nuts and galvanized steel flat washers that have a minimum thickness of 6 mm (1/4") and are trapezoidal in shape. The washers shall be sized so as to completely capture the mounting flanges of the traffic signal base. Round washers are not acceptable.

## **STEEL MAST ARM ASSEMBLY AND POLE**

Effective January 1, 2002      Revised January 5, 2004

This work shall consist of furnishing a Steel Mast Arm Assembly and Pole of the arm length specified on the plans and installing it on a concrete foundation. This work shall be in

accordance with the applicable Articles of Sections 877 and 1077 of the Standard Specifications with the following modification:

Mast Arms and Poles shall be capable of supporting the number of signal faces (with backplates where indicated), signs, and appurtenances as shown on the plans.

All mast arms shall conform to the minimum loading requirements of Standard 877001-01 or the loading shown on the plan sheets - whichever is greater.

Basis of Payment:

This work will be paid for at the contract unit price each for STEEL MAST ARM ASSEMBLY AND POLE of the signal arm length specified.

**TEMPORARY TRAFFIC SIGNAL INSTALLATION**

Effective January 10, 2004

The Contractor shall make all necessary adjustments to the temporary traffic signal heads in order to place the heads over the center of the respective lanes. The adjustments shall be done in accordance with the proposed construction staging and shall be approved by the Engineer. This work shall be included in the cost of the Temporary Traffic Signal Installation and will not be paid for separately.

**ELECTRICAL MATERIAL SUBMITTAL REQUIREMENTS**

Effective January 20, 2004

This work shall be in accordance with Section 801 of the Standard Specifications except as modified herein.

A detailed listing of submittal requirements should be included in the plan sheets or special provisions. In the event that the listing is not provided in the plans, the Engineer will provide a detailed listing to the Contractor immediately upon contract award that defines the requirements for a complete submittal.

The Contractor shall submit to the Engineer, for approval, all shop, working, or layout drawings pertaining to the construction of the work, as may be required, and prior to the approval of such plans or drawings, any work done or materials ordered shall be at the Contractor's risk.

The Contractor shall submit a complete set of drawings within ten (10) business days after contract execution. The submittal shall conform to all requirements contained in the Engineer's listing. The Contractor shall submit complete manufacturer's product data (for standard products and components) and detailed shop drawings (for fabricated equipment). Submittals for equipment and materials shall be complete in every aspect. Pay items that have multiple items shall have all submittal material for each item or group of items covered by a particular specification, grouped together and the applicable pay item identified. A partial submittal will be returned without review unless prior written permission is obtained from the Department.

The Contractor and/or Subcontractor shall thoroughly review all submittal material and affix his/her stamp of approval and signature prior to giving the submittal package to the Engineer. The Contractor shall provide a total of ten (10) copies of the submittal to the Engineer.

Receipt of the submittal information will be construed as the Contractor's assurance that the submittal has been reviewed and attests to the submittal's accuracy and conformance to the requirements of the contract. Any deviations to the contract shall be called out in the submittal. Illegible print, incompleteness, inaccuracy, or lack of coordination will be grounds for rejection. Equipment or material installed prior to approval by the Engineer, will be subject to removal and replacement at the Contractor's expense.

On catalog cut sheets that depict different model numbers or equipment options, the options and model number shall be clearly indicated on the drawings. All equipment that is to be supplied shall be clearly marked on the submittals.

Traffic signal structure drawings shall conform to the loading requirements shown in the highway standard or the plan sheets - whichever is greater. All traffic signal heads and signs that are to be installed on the mast arm assembly shall be accounted for and shown on the mast arm drawing loading detail. The luminaire arm length and luminaire mounting height shall match the requirement shown on the plan sheets and special provisions and shall be clearly indicated on the submittal. Pre-approved drawings should be used where-ever possible to reduce the amount of time needed to process the submittal.

All light pole drawings shall conform to the loading requirements shown in the highway standard or the plan sheets - whichever is greater. The light pole drawings must take into account all traffic signal heads, video cameras, signs, or other appurtenances that will be mounted to the light pole. Compliance with the following items shall be noted on the light pole drawings: light poles shall be designed in accordance with AASHTO 2001 requirements; light poles shall be designed for a 50 year design life; and light poles shall be designed in accordance with the applicable loading requirements contained within the standard specifications.

All davit arm light poles shall conform to the standard loading specifications in Article 1069.01 (b) (1) which states "The pole shall be designed and manufactured to withstand loadings of up to and including a 34 kg (75lb) luminaire having an effective projected area of 0.15 sq. m (1.6 sq. ft) on a single 4.5 m (15 ft) arm, and withstand loadings of up to and including the same luminaire on each of two 3.6 m (12 ft) arms (twin) oriented at any angle from 45 to 180 degrees apart."

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.

The Engineer will require a minimum of 30 calendar days for review after receipt of the submittal by the Department. The review may involve rejection, revision, or resubmittal, in which case, the time may increase if the drawings do not meet contract requirements or do not contain sufficient

detail. The written approval of the Engineer is required before proceeding with the work represented by the drawings. Approval by the Engineer shall not confer upon the Department any responsibility for the accuracy of the drawings. The Contractor shall bear all risk and costs for work delay caused by nonapproval of the drawings.

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 (or Revised)", "Rejected", 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, or layout drawings by the Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.

All submitted items reviewed and marked "Approved As Noted (or Revised)", or "Rejected" are to be resubmitted in their entirety to verify contract compliance at no additional cost to the state unless otherwise indicated within the submittal comments.

The Contractor shall submit new catalog cut sheets and drawings for all items that were reviewed and marked "Approved As Noted (or Revised)", or "Rejected" within ten (10) business days upon receipt of the rejected items. The revised catalog cuts shall show all required revisions and address all issues that caused the original submittal to be rejected or revised.

## **GROUNDING OF ITS SUBSYSTEMS**

Effective July 30, 2002

Revised November 21, 2003

The grounding of ITS subsystems shall meet the requirements of Section 807 of the Standard Specifications. In addition, amend Article 807.01 of the Standard Specifications to include:

General. All ITS subsystems (closed-circuit television camera surveillance system, changeable message sign system, system detector stations, etc.), associated equipment, and appurtenances shall be properly grounded in strict conformance with the National Electric Code (NEC), the National Electrical Safety Code (NESC), and as shown on the plans.

The grounding electrode system shall include a ground rod installed with each concrete foundation for all grounding applications.

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.

The equipment-grounding conductor shall be green color-coded. The following is in addition to Section 801.14 of the Standard Specifications:

- (1) Equipment grounding conductors shall be XLP insulated No. 6, unless otherwise noted on the Plans, and bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The Earth shall not be used as the equipment-grounding conductor.

- (2) Equipment connectors shall be bonded and grounded, using a Listed grounding conductor, to all CCTV, CMS, and detector pole cabinets, handholes, and other metallic enclosures throughout the ITS subsystems, except where noted herein. A Listed electrical joint compound shall be applied to all conductor terminations, connector threads, and contact points.
- (3) All metallic and non-metallic raceways containing ITS 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) 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.

Testing shall be according to Section 801.11 of the Standard Specifications. An additional ground rod will be required at locations where measured resistance exceeds 25 ohms.

Basis of Payment. Except where noted, the GROUNDING OF ITS SUBSYSTEMS will not be paid for directly but shall be considered as included in the various items of work associated with ITS and shall be included in the unit prices for these items. Ground rods are included in the applicable foundation pay item. If the equipment-grounding conductor is installed in conduit, it is paid for separately as ELECTRICAL CABLE IN CONDUIT, GROUNDING, NO. 6 1C.

## **POLE MOUNTED EQUIPMENT CABINET, TYPE B**

Effective August 30, 2002

Revised April 23, 2003

Description. This work consists of furnishing and installing a pole mounted equipment cabinet and peripheral equipment at locations indicated in the Plans. These cabinets will be utilized to house critical electrical, optical, and communications equipment as defined in other contract pay items.

Materials. Materials shall be in accordance to the following specifications.

General. Equipment cabinets shall be mounted and anchored on the poles and structures at locations indicated in the Plans. These cabinets will have a housing that shall include, but not be limited to, miscellaneous items such as video transmitters, receiver/drivers, modems, etc. as defined by other pay items. In addition, all mounting hardware and brackets required to install the equipment cabinet on the pole shall be stainless steel and provided. The mounting heights and pole diameters shall be as specified in the Plans.

The Type B cabinet shall be a stainless steel NEMA 4X Single Door Enclosure , with nominal outside dimensions of approximately 30 in (762 mm) high X 24 in (610 mm) wide X 12 in (305 mm) deep. It shall also be furnished with two adjustable height shelves. The cabinet shall also have a Corbin #2 dead bolt lock or equal. The key shall be removable in the lock position only. Four keys shall be supplied for each lock, and all equipment cabinet locks shall be keyed the same.

Cabinet details and wiring diagrams shall be as shown on the Plans. Circuit #1 shall terminate in a GFI duplex receptacle, protected by a 15 Amp circuit breaker. Circuit #2 shall terminate in a single duplex-grounded receptacle, protected by a 15 Amp circuit breaker. A 6-receptacle power strip shall be connected to the output of the duplex receptacle and shall be utilized to power the electronic equipment in the cabinet. Circuit #3 shall have a 15 Amp circuit breaker and shall be connected to the internal cabinet lighting. All cables shall be labeled utilizing marking tags.

Surge Protector. A surge protector shall protect each leg of the primary power feed. This surge protector shall be installed as a precautionary measure against possible damage resulting from voltage surges on all incoming power lines. The 120V AC single phase surge protector shall incorporate a series choke and shall have a maximum clamp voltage of 340 V at 20 kA with a 5 ns response.

In addition, the surge protector shall have the capability of removing high energy surges and shall block high speed transients. The surge protector shall comply with the following specifications:

Peak Current: 20,000 amps (8 X 20 us wave shape)  
Occurrences: 20 times at peak current  
Minimum Series Inductance: 200 microHenrys  
Continuous Series Current: 50A  
Temperature Range: -40° F to 185° F (-40° C to +85° C)

Radio interference filter. A radio interference suppressor shall be installed in series with the line between the surge protector and the circuit breakers. The suppressor shall provide a minimum attenuation of 50 dB over a frequency range of 200 KHz to 75 MHz. The suppressor shall be hermetically sealed in a substantial metal case filled with a suitable insulation compound and shall be capable of passing 50 Amperes of continuous current.

Fluorescent light. The cabinet shall be equipped with an fluorescent lamp assembly. The lamp shall use a 15-watt bulb. The lamp shall have an override switch and shall normally activate whenever the associated door is open. The fixture shall be equipped with cold-weather ballast.

Construction Requirements. The Contractor shall prepare and submit shop drawings that detail all of the components to be supplied, along with associated mounting hardware for the pole mounted equipment cabinet type B. The shop drawings must be approved by the Engineer prior to any testing or installation of the completed cabinet in the field.

The Engineer reserves the right to inspect and/or factory test any completed cabinet assemblies prior to shipment of the material to the project site. Any deviations from these specifications that are identified during such testing shall be corrected prior to delivery of the assembly to the project site.

The AC power service to be run to the equipment cabinet shall be terminated. The cost of providing the AC power service connection is included in other bid items as designated in the Plans. In addition, the cabinet shall be connected to an adequate ground following the Standard Specifications. Power service shall be activated and the Contractor shall perform tests to verify that proper line service is being obtained.



The Contractor shall terminate any inbound and outbound fiber optic, telephone, or wireless antenna leads in the equipment cabinet as shown in the Plans. The Contractor shall terminate any twisted pair communication cable on the termination panel in the equipment cabinet as shown in the Plans. Lugs shall be installed at the end of each conductor suitable for connection to the barrier terminal blocks.

Basis of Payment. This work shall be paid for at the contract unit price each for POLE MOUNTED EQUIPMENT CABINET, TYPE B, and shall include all equipment, material and labor detailed in the specifications and as shown on the Plans.

### **ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C**

Effective June 12, 2002

Revised September 5, 2003

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

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

Unless otherwise noted on the Plans, the grounding conductor shall be one conductor, #6 AWG copper, with a XLP jacket with green insulation.

The grounding conductor shall be bonded, using a Listed grounding connector (Burndy type KC/K2C, as applicable, or approved equal), to all proposed and existing closed-circuit television cameras, dynamic or changeable message signs, and inductive and non-intrusive detector station cabinet locations. The grounding conductor shall be bonded to all proposed and existing cabinets and other metallic enclosures throughout the wiring system and noted herein and detailed on the plans.

Revise Section 817.05 of the Standard Specifications to read:

Method of Measurement. The grounding cable shall be measured for payment in feet (meters) in place.

Basis of Payment. This work will be paid for at the contract unit price per feet (meters) for ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6, 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds, and other listed connectors and hardware.

### **NONINTRUSIVE DETECTOR POLE**

Effective June 21, 2002

Revised February 25, 2004

Description. This work shall consist of furnishing and installing a pole, base plate, transformer breakaway base, anchor bolts, and all miscellaneous hardware required to complete the installation of a nonintrusive detector pole, in accordance with the Standard Specifications, as shown on the Plans, and as hereinafter provided. Each nonintrusive detector pole will support a Microwave Detector Special, and a yagi directional communications antenna, and their associated mounting adaptors. The Microwave Detector Special, yagi directional antenna,

mounting adaptors, and associated equipment shall be provided, furnished, installed, and paid for under a separate item, and is included in a separate contract.

### Materials.

General. The nonintrusive detector pole shall be galvanized steel and furnished and delivered conforming to the details as shown on the Plans. The poles shall be designed and constructed in accordance with the requirements and recommendations of the latest addition of AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals". The pole shall be designed to support a Microwave Detector Special load of up to 25 lb (11 kg), and 5.3 square feet (0.50 square meters) of area exposed to the wind. The pole shall be designed to support a microwave dish load of nominal 15 lb (6.5 kg), and 0.8 square feet (0.07 square meters) of area exposed to the wind. Maximum fully loaded deflection at the top of the pole with the Microwave Detector Special and microwave dish mounted shall not exceed 1.5% of the pole height based upon a wind velocity of 90 mph (144 km/hr) with a 1.3 gust factor, or 0.5% of the pole height based upon a wind velocity of 40 mph (64 km/hr) with a 1.3 gust factor.

Pole Components. The pole shall be constructed of materials having sufficient rigidity using normal pole shaft ranking techniques so that with all material completely installed and in-place as shown on the Plans, the centerline of the shaft shall appear straight and vertical. Upon the completion of the manufacturing process, the pole shafts shall be round and constructed per the specified length. All pole shafts shall have a J-hook at the top of each pole to provide strain relief for the cables and grommets shall also be provided to prevent cable damage. In addition, any and all fasteners and other attachment hardware used on the pole shaft shall be stainless steel unless otherwise approved by the Engineer.

After welding and before galvanizing the exterior surfaces of each steel pole, the pole shall be thoroughly cleaned and free of all loose rust and mill scale, dirt, oil, or grease and any other foreign substances. Galvanizing of the non-intrusive detector pole shall be in accordance with Standard Specifications and shall be tight, free from rough areas or slag, and shall present a uniform appearance.

A base plate shall be provided with a bolt circle for the specified pole height. The base plate and bolt center dimensions shall be adjusted per the result of manufacturer calculations. The base plate casting to be attached to the pole shaft shall be clean, smooth, and with all details well defined and true to pattern. Base plates shall be firmly attached to the pole shaft by welding or another approved method at the discretion of the Engineer. Four base plate anchor bolts shall be installed with each pole as shown on the Plans and is included with each pole.

A cast iron frangible transformer-type base shall be provided with a base plate and bolt circle for the specified pole height. The transformer base and bolt center dimensions shall be adjusted per the result of manufacturer calculations. The transformer bases shall be robotic welded, breakaway approved, and fatigue tested. The transformer base shall be installed with each pole as shown on the Plans and is included with each pole.

A raceway hole as well as reinforced hand holes no less than 3 in. (76 mm) by 5 in. (127 mm) shall also be provided. The hand holes shall include an access cover that is mounted to the pole by two ¼ in. (6.35 mm) stainless steel bolts. The bolts shall have hex heads with 20

threads per in. (0.8 threads per mm) and be  $\frac{3}{4}$  in. (19.05 mm) long to secure the door to the pole. In addition, a grounding lug (bolt – hex head), complete with mounting hardware (nut and washer) shall be provided inside the pole. This grounding lug shall be accessible from the hand hole and mounted by welding, directly opposite the hand hole on the inside of the wall of the pole.

The non-intrusive detector pole shall be designed to be free of harmful harmonic motion and vibrations and the Certificate of Compliance shall specifically address this requirement.

Surface Finish. Galvanized steel poles shall be galvanized including the handhole, handhole door, base plate, mounting plate and all other elements welded to the shaft according to AASHTO M 111.

Identification. The pole shall be identified and labeled with external markings as specified in Article 1069.02 of the Standard Specifications and as shown on the Plans. The wall thickness of each pole shaft, alloy number, the shaft length, the manufacturer, and the date, shall all be indicated on a manufacturer's plate attached to each pole shaft near the base.

#### Construction Requirements.

General. The Contractor shall furnish a Certificate of Compliance to the Engineer for approval showing structural calculations covering the poles and including compliance with the details shown on the Plans, the specifications in these Special Provisions, and the foregoing AASHTO performance requirements. The Certificate of Compliance shall be complete and submitted with the materials list, and shall include information relative to all specified requirements suitable for verification of compliance. The pole furnished shall match the general appearance illustrated in the Plans.

The nonintrusive detector poles and hardware shall be packaged during shipment to protect all surfaces from being scratched, marred, chipped, or damaged in any way. The packaging of the poles by bundle by the Contractor is acceptable. However, each bundle shall contain a maximum of four poles. Prior to installation, the Engineer will inspect the poles and all its components and any parts found to be damaged or defective shall be replaced at no additional cost.

The Contractor shall assemble pole components at the site before erection. The poles shall be without defect. Poles deemed unacceptable by the Engineer shall be removed from the jobsite and replaced at no additional cost. Components shall be made electrically continuous from the top of the pole to the base and grounding rod. The Contractor shall install the nonintrusive detector pole on a new concrete foundation provided under a separate pay item Concrete Foundation, Type E 900 mm and as shown on the Plans. The pole shall be set plumb with the use of leveling nuts. The pole shall be set with proper orientation of the access handhole. The Contractor shall avoid contact of dissimilar metals in erecting the pole. Any concern of trapped moisture or potential corrosion cell shall be resolved to the satisfaction of the Engineer.

The Contractor shall furnish and install all required items, such as anchor bolts, screws, wire nuts, grommets, tape connectors, electrical nuts, etc., in order to make the proposed nonintrusive detector pole system complete from the bottom to the top of the pole. Rust, corrosion, and anti-seize protection shall be provided at all threaded assemblies by coating the mating surfaces with an approved compound.

The Contractor shall be responsible for furnishing pole mounting equipment and hardware that is of adequate strength and compatible for the pole it supports. This shall include but not limited to the foundation, anchor rods, anchor bolts, and miscellaneous hardware.

The nonintrusive detector pole shall be located away from the traveled way at a certain distance as shown in the Plans or as directed by the Engineer.

Warranty. The Contractor shall warranty all materials and workmanship including labor for a period of two years after the completion and acceptance of the installation, unless other warranty requirements prevail. The warranty period shall begin when the Contractor completes all construction obligations related to this item and when the components for this item have been accepted, which shall be documented as the final completion date in the construction status report. The warranty shall warrant and guarantee repair of the component parts of the pole furnished by the Contractor that prove to be defective in workmanship and materials during the first two years of operation as defined and noted above at no additional cost to the Department.

The Engineer will notify the Contractor that a warranted item needs repair. The Contractor shall acknowledge the notification within 24 hours and replace or correct any part or parts of materials and equipment that are found defective within the two-year in-service warranty period. All items needing repair shall be returned to the Department in two weeks from the date of receipt at the Contractor's facility or replaced in-kind by the Contractor, and the Contractor shall be responsible for any return shipping costs. No compensation will be made to the Contractor for such replacements or corrections.

The Contractor shall provide a warranty certificate for this item and its related components to the Department. The Department reserves the right to transfer this service to other parties who may be contracted with in order to provide overall maintenance of this item.

Basis of Payment. NONINTRUSIVE DETECTOR POLE, at the height specified, will be paid for at the contract unit price each, which shall be payment in full for furnishing and installing each pole and all materials including poles, fittings, identification plaque, and all hardware necessary to completely install the nonintrusive detector pole, and for all labor, tools, equipment, transportation, and required items necessary to complete this work.

#### **BITUMINOUS CONCRETE SURFACE COURSE (BDE)**

Effective: April 1, 2001

Revised: April 1, 2003

Replace the fourth paragraph of Article 406.23(b) of the Standard Specifications with the following:

"Mixture for cracks, joints, flangeways, leveling binder (machine method), leveling binder (hand method) and binder course in excess of 103 percent of the quantity specified by the Engineer will not be measured for payment.

Surface course mixture in excess of 103 percent of adjusted plan quantity will not be measured for payment. The adjusted plan quantity for surface course mixtures will be calculated as follows:

Adjusted Plan Quantity = C x quantity shown on the plans or as specified by the Engineer.

where C =      metric:  $C = \frac{G_{mb} \times 24.99}{U}$               English:  $C = \frac{G_{mb} \times 46.8}{U}$

and where:

$G_{mb}$  = average bulk specific gravity from approved mix design.

U = Unit weight of surface course shown on the plans in kg/sq m/25 mm (lb/sq yd/in.), used to estimate plan quantity.

24.99 = metric constant.

46.8 = English constant.

If project circumstances warrant a new surface course mix design, the above equations shall be used to calculate the adjusted plan quantity for each mix design using its respective average bulk specific gravity.”

### **BITUMINOUS EQUIPMENT, SPREADING AND FINISHING MACHINE (BDE)**

Effective: January 1, 2005

Revise the fourth paragraph of Article 1102.03 of the Standard Specifications to read:

“The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to uniformly place a non-segregated mixture in front of the screed. The distribution system shall have chain curtains, deflector plates, and/or other devices designed and built by the paver manufacturer to prevent segregation during distribution of the mixture from the hopper to the paver screed. The Contractor shall submit a written certification that the devices recommended by; the paver manufacturer to prevent segregation have been installed and are operational. Prior to paving, the Contractor, in the presence of the Engineer, shall visually inspect paver parts specifically identified by the manufacturer for excessive wear and the need for replacement. The Contractor shall supply a completed check list to the Engineer noting the condition of the parts. Worn parts shall be replaced. The Engineer may require an additional inspection prior to the placement of a surface course or at other times throughout the work.”

### **BRIDGE DECK CONSTRUCTION (BDE)**

Effective: April 1, 2002

Revised: April 1, 2004

Add the following to Article 503.03 of the Standard Specifications:

“(h). Fogging Equipment.....1103.17(k)”

Add the following after the first sentence of the second paragraph to Article 503.07 of the Standard Specifications:

“When placing Class BD concrete, the discharge end of the pump shall have attached an “S” shaped flexible or rigid conduit, a 90 degree elbow with a minimum of 3 m (10 ft) of flexible conduit placed parallel to the deck, or a similar configuration approved by the Engineer.”

Add the following after the second sentence of the ninth paragraph of Article 503.07 of the Standard Specifications:

“When consolidating concrete in bridge decks, the vibrator shall be vertically inserted into the concrete for 3 - 5 seconds, or for a period of time determined by the Engineer.”

Add the following after the first paragraph of Article 503.17 of the Standard Specifications:

“For the bridge deck pour, fogging equipment shall be in operation unless the evaporation rate is less than 0.5 kg/sq m/hour (0.1 lb/sq ft/hour) and the Engineer gives permission to turn off the equipment. The evaporation rate shall be determined according to the figure in the Portland Cement Association’s publication, “Design and Control of Concrete Mixtures” (refer to the section on plastic shrinkage cracking). The Contractor shall provide temperature, relative humidity, and wind speed measuring equipment.

The fogging equipment shall be adjusted to adequately cover the entire width of the pour.

If there is a delay of more than ten minutes during bridge deck placement, wet burlap shall be used to protect the concrete until operations resume.

Concrete placement operations shall be coordinated to limit the distance between the point of concrete placement and concrete covered with cotton mats for curing. The distance shall not exceed 10.5 m (35 ft). For bridge deck widths greater than 15 m (50 ft), the distance shall not exceed 7.5 m (25 ft).”

Add the following to the end of the first paragraph of Article 503.17(b) of the Standard Specifications to read:

“The concrete in these areas shall be struck off during the deck pour and excess material from the finishing machine shall not be incorporated.”

In the Coarse Aggregate Gradation table of Article 1004.01(c) of the Standard Specifications revise the percent passing the 12.5 mm (1/2 in.) sieve for gradation CA 7 to “45±15<sup>4/ 9/”</sup>.

In the Coarse Aggregate Gradation table of Article 1004.01(c) of the Standard Specifications revise the percent passing the 12.5 mm (1/2 in.) sieve for gradation CA 11 to “45±15<sup>6/ 9/”</sup>.

Add the following to the Coarse Aggregate Gradation table of the Standard Specifications:

“9/ When Class BD concrete is to be pumped, the coarse aggregate gradation shall have a minimum of 45 percent passing the 12.5 mm (1/2 in.) sieve. The Contractor may combine two or more coarse aggregate sizes, consisting of CA-7, CA-11, CA-13, CA-14, and CA-16, provided a CA-7 or CA-11 is included in the blend.”

Revise Article 1020.05(d) of the Standard Specifications to read:

“(d)Class BD Concrete. The maximum mortar factor shall be 0.86.”

Add the following to Article 1103.17 of the Standard Specifications:

“(k) Fogging Equipment. Fogging equipment shall consist of a mechanically operated, pressurized system using a triple headed nozzle or an equivalent nozzle. The fogging nozzle shall be capable of producing a fine fog mist that will increase the relative humidity of the air just above the fresh concrete surface without accumulating any water on the concrete. The fogging equipment shall be mounted behind the roller and pan of finishing machine or on a separate foot bridge. Controls shall be designed to vary the volume of water flow, be easily accessible and immediately shut off the water when in the off position. Hand held fogging equipment will not be allowed.”

**BUTT JOINTS (BDE)**

Effective: April 1, 2004

Revised: April 1, 2005

Revise Article 406.18 of the Standard Specifications to read:

“**406.18 Butt Joints.** Butt joints shall be constructed according to the details shown on the plans. The surface removal shall be performed according to Section 440. Construction of butt joints shall not begin prior to beginning general operations on the project.

When butt joints are to be constructed under traffic, temporary ramps shall be constructed and maintained at both the upstream and downstream ends of the surface removal areas immediately upon completion of the surface removal operation. The temporary ramps shall be constructed by the following methods.

- (a) Temporary Bituminous Ramps. Temporary bituminous ramps shall have a minimum taper rate of 1:40 (V:H). The bituminous material used shall meet the approval of the Engineer. Cold-milled bituminous tailings will not be acceptable.
- (b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 55 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the rubber ramp shall have a maximum thickness of 6 mm (1/4 in.) and the trailing edge shall match the height of the adjacent pavement  $\pm$  6 mm (1/4 in.).

The rubber material shall conform to the following.

| Property                    | Test Method | Requirement             |
|-----------------------------|-------------|-------------------------|
| Durometer Hardness, Shore A | ASTM D 2240 | 80 $\pm$ 10             |
| Tensile Strength            | ASTM D 412  | 5500 kPa (800 psi) min. |
| Elongation, percent         | ASTM D 412  | 100 min.                |
| Specific Gravity            | ASTM D 297  | 1.1-1.3                 |
| Brittleness                 | ASTM D 746  | -40 °C (-40 °F)         |

The rubber ramps shall be installed according to the manufacturer's specifications and fastened with the anchors provided. Rubber ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary bituminous ramps at the Contractor's expense.

The temporary ramps shall be removed just prior to placing the proposed surface course. If work is suspended for the winter season prior to completion of surface course construction, precut butt joints shall be filled to the elevation of the existing pavement surface with compacted bituminous concrete surface course or binder course."

**COARSE AGGREGATE FOR TRENCH BACKFILL, BACKFILL AND BEDDING (BDE)**

Effective: April 1, 2001

Revised: November 1, 2003

Revise Article 208.02 of the Standard Specifications to read:

**"208.02 Materials.** Materials shall be according to the following Articles of Section 1000 – Materials:

- (a) Fine Aggregate (Note 1)..... 1003.04
- (b) Coarse Aggregate (Note 2) ..... 1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer."

Revise the first sentence of the second paragraph of subparagraph (b) in Article 208.03 of the Standard Specifications to read:

"Any material meeting the requirements of Articles 1003.04 or 1004.06 which has been excavated from the trenches shall be used for backfilling the trenches."

Add the following to the end of Article 542.02 of the Standard Specifications:

- "(bb) Fine Aggregate (Note 1)..... 1003.04
- (cc) Coarse Aggregate (Note 2) ..... 1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer."

Revise the first and second sentences of the second paragraph of subparagraph (a) of Article 542.04 of the Standard Specifications to read:

"The unstable and unsuitable material shall be removed to a depth determined by the Engineer and for a width of one diameter (or equivalent diameter) of the pipe on each side of the pipe culvert, and replaced with aggregate. Rock shall be removed to an elevation 300 mm (1 ft) lower than the bottom of the pipe or to a depth equal to 40 mm/m



(1/2 in./ft) of ultimate fill height over the top of the pipe culvert, whichever is the greater depth, and for a width as specified in (b) below, and replaced with aggregate."

Revise the second paragraph of subparagraph (c) of Article 542.04 of the Standard Specifications to read:

"Well compacted aggregate, at least 100 mm (4 in.) in depth below the pipe culvert, shall be placed the entire width of the trench and for the length of the pipe culvert, except well compacted impervious material shall be used for the outer 1 m (3 ft) at each end of the pipe. When the trench has been widened by the removal and replacement of unstable or unsuitable material, the foundation material shall be placed for a width not less than the above specified widths on each side of the pipe. The aggregate and impervious material shall be approved by the Engineer and shall be compacted to the Engineer's satisfaction by mechanical means."

Revise subparagraph (e) of Article 542.04 of the Standard Specifications to read:

"(e) Backfilling. As soon as the condition of the pipe culvert will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation of the center of the pipe. The aggregate shall be placed longitudinally along the pipe culvert, except at the outer 1 m (3 ft) at each end of the culvert which shall be backfilled with impervious material. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate and impervious material shall be placed in 200 mm (8 in.) layers, loose measurement. When using PVC, PE, or corrugated metal pipe, the aggregate shall be continued to a height of at least 300 mm (1 ft) above the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means. When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

When using PVC, PE, or corrugated metal pipe a minimum of 300 mm (1 ft) of cover from the top of the pipe to the top of the subgrade will be required.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench shall be backfilled with select material, from excavation or borrow, free from large or frozen lumps, clods or rock, meeting the approval of the Engineer. The material shall be placed in layers not exceeding 200 mm (8 in.) in depth, loose measurement and compacted to 95 percent of the standard laboratory density. Compaction shall be obtained by use of mechanical tampers or with approved vibratory compactors. Before compacting, each layer shall be wetted or dried to bring the moisture content within the limits of 80 to 110 percent of optimum moisture content determined according to AASHTO T 99 (Method C). All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the culvert. The filling of the trench shall be carried on simultaneously on both sides of the pipe. The Contractor may, at his/her expense, backfill the entire trench with aggregate in lieu of select material. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means.

The backfill material for all trenches and excavations made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk shall be according to Section 208. The trench backfill material shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When the trench has been widened for the removal and replacement of unstable or unsuitable material, the backfilling with aggregate and impervious material, will be required for a width of at least the specified widths on each side of the pipe. The remaining width of each layer may be backfilled with select material. Each 200 mm (8 in.) layer for the entire trench width shall be completed before beginning the placement of the next layer."

Revise subparagraph (b) of Article 542.05 of the Standard Specifications to read:

"(b) Embankment. Embankment extending to an elevation of 300 mm (1 ft) over the top of the pipe shall be constructed according to Article 542.04(f), except the material up to the elevation of the center of the pipe and extending to a width of at least 450 mm (18 in.) on each side of the pipe, exclusive of the outer 1 m (3 ft) at each end of the pipe, shall consist of aggregate. At the outer 1 m (3 ft) at each end of the culvert, impervious material shall be used."

Add the following paragraph after the first paragraph of Article 542.10 of the Standard Specifications:

"Trench backfill will be measured for payment according to Article 208.03."

Add the following paragraph after the third paragraph of Article 542.11 of the Standard Specifications:

"Trench backfill will be paid for according to Article 208.04."

Add the following to of Article 550.02 of the Standard Specifications:

"(m) Fine Aggregate (Note 2)..... 1003.04  
(n) Coarse Aggregate (Note 3)..... 1004.06

Note 2. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 3. The coarse aggregate shall be wet to the satisfaction of the Engineer."

Revise the first two sentences of the third paragraph of Article 550.04 of the Standard Specifications to read:

"Well compacted, aggregate bedding material at least 100 mm (4 in.) in depth below the pipe, shall be placed for the entire width of the trench and length of the pipe. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means."

Revise Article 550.07 of the Standard Specifications to read:

**"550.07 Backfilling.** As soon as the condition of the pipe will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation of the center of the pipe. The aggregate shall be placed longitudinally along the pipe. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate backfill material shall be placed in 200 mm (8 in.) layers, loose measurement and compacted to the satisfaction of the Engineer by mechanical means. When using PVC pipe, the aggregate shall be continued to a height of at least 300 mm (12 in.) above the top of the pipe.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench and excavation shall be backfilled to the natural line or finished surface as rapidly as the condition of the sewer will permit. The backfill material shall consist of suitable excavated material from the trench or of trench backfill as herein specified. All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the sewer and shall be compacted to the satisfaction of the Engineer by mechanical means. The filling of the trench shall be carried on simultaneously on both sides of the pipe.

The backfill material for trenches and excavation made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk shall be according to Section 208. The backfill material shall be compacted to 85 percent of standard lab density by mechanical means.

All backfill material up to a height of 300 mm (1 ft) above the pipe shall be deposited in uniform layers not exceeding 200 mm (8 in.) thick, loose measurement. The material in each layer shall be compacted to the satisfaction of the Engineer by mechanical means. The backfilling above this height shall be done according to Method 1, 2 or 3 as described below, with the following exceptions.

When trench backfill or excavated material meeting the requirements of Section 208 is required above the first 300 mm (1 ft) of the pipe, the layers shall not exceed 200 mm (8 in.). Gradations CA6 or CA10 shall not be used with Method 2 or Method 3.

Method 1. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be compacted to the satisfaction of the Engineer by mechanical means.

Method 2. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be either inundated or deposited in water.

Method 3. The trench shall be backfilled with loose material, and settlement secured by introducing water through holes jetted into the backfill to a point approximately 600 mm (2 ft) above the top of the pipe. The holes shall be spaced as directed by the Engineer but shall be no farther than 2 m (6 ft) apart.

The water shall be injected at a pressure just sufficient to sink the holes at a moderate rate of speed. The pressure shall be such that the water will not cut cavities in the backfill material nor overflow the surface. If water does overflow the surface, it shall be drained into the jetted holes by means of shallow trenches.

Water shall be injected as long as it will be absorbed by the backfill material and until samples taken from test holes in the trench show a satisfactory moisture content. The Contractor shall bore the test holes not more than 15 m (50 ft) apart and at such other locations in the trench designated by the Engineer. As soon as the watersoaking has been completed, all holes shall be filled with soil and compacted by ramming with a tool approved by the Engineer.

Backfill material which has been watersoaked shall be allowed to settle and dry for at least 10 days before any surface course or pavement is constructed on it. The length of time may be altered, if deemed desirable, by the Engineer. Where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk, the provisions of this paragraph shall also apply.

At the end of the settling and drying period, the crusted top of the backfill material shall be scarified and, if necessary, sufficient backfill material added, as specified in Method 1, to complete the backfilling operations.

The method used for backfilling and compacting the backfill material shall be the choice of the Contractor. If the method used does not produce results satisfactory to the Engineer, the Contractor will be required to alter or change the method being used so the resultant backfill will be satisfactory to the Engineer. Should the Contractor be required to alter or change the method being used, no additional compensation will be allowed for altering or changing the method.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides firmly in place without caving or settlement. This bracing shall be removed as soon as practicable. Any depressions which may develop within the area involved in the construction operation due to settlement of the backfilling material shall be filled in a manner approved by the Engineer.

When the Contractor constructs the trench with sloped or benched sides according to Article 550.04, backfilling for the full width of the excavation shall be as specified, except no additional compensation will be allowed for trench backfill material required outside the vertical limits of the specified trench width.

Whenever excavation is made for installing sewer pipe across earth shoulders or private property, the topsoil disturbed by excavation operations shall be replaced as nearly as possible

in its original position, and the whole area involved in the construction operations shall be left in a neat and presentable condition.

When using any PVC pipe, the pipe shall be backfilled with aggregate to 300 mm (1 ft) over the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means.

When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

Deflection Testing for Storm Sewers. All PVC storm sewers will be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted.

For PVC storm sewers with diameters 600 mm (24 in.) or smaller, a mandrel drag shall be used for deflection testing. For PVC storm sewers with diameters over 600 mm (24 in.), deflection measurements other than by a mandrel drag shall be used.

Where the mandrel is used, the mandrel shall be furnished by the Contractor and pulled by hand through the pipeline with a suitable rope or cable connected to each end. Winching or other means of forcing the deflection gauge through the pipeline will not be allowed.

The mandrel shall be of a shape similar to that of a true circle enabling the gauge to pass through a satisfactory pipeline with little or no resistance. The mandrel shall be of a design to prevent it from tipping from side to side and to prevent debris build-up from occurring between the channels of the adjacent fins or legs during operation. Each end of the core of the mandrel shall have fasteners to which the pulling cables can be attached. The mandrel shall have 9, various sized fins or legs of appropriate dimension for various diameter pipes. Each fin or leg shall have a permanent marking that states its designated pipe size and percent of deflection allowable.

The outside diameter of the mandrel shall be 95 percent of the base inside diameter, where the base inside diameter is:

For all PVC pipe (as defined using ASTM D 3034 methodology):

If the pipe is found to have a deflection greater than specified, that pipe section shall be removed, replaced, and retested."

Revise subparagraph (c) of Article 1003.04 of the Standard Specifications to read:

"(c) Gradation. The fine aggregate gradation shall be as follows:

| Backfill, bedding and trench backfill for pipe culverts and storm sewers FA 1, FA 2, FA 6, or FA 21  
| Porous granular embankment and backfill, french drains, and sand backfill for  
| underdrains FA 1, FA 2, or FA20 (Note 1)

Note 1: For FA 1, FA 2, and FA 20 the percent passing the 75 m (No. 200) sieve shall be  $2 \pm 2$ ."

Revise the title of Article 1004.06 of the Standard Specifications to read:

**"Coarse Aggregate for Blotter, Embankment, Backfill, Trench Backfill, French Drains, and Bedding."**

Add the following to the end of subparagraph (c) of Article 1004.06 of the Standard Specifications:

"Backfill, bedding, and trench backfill for pipe culverts and storm sewers CA 6, CA 10, and CA 18"

### **CONCRETE ADMIXTURES (BDE)**

Effective: January 1, 2003

Revised: July 1, 2004

Revise Article 1020.05(b) of the Standard Specifications to read:

“(b) Admixtures. Except as specified, the use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted only when approved in writing by the Engineer. The Department will maintain an Approved List of Concrete Admixtures. When the Department permits the use of a calcium chloride accelerator, it shall be according to Article 442.02, Note 5.

When the atmosphere or concrete temperature is 18 °C (65 °F) or higher, a retarding admixture meeting the requirements of Article 1021.03 shall be used in the Class BD Concrete and portland cement concrete bridge deck overlays. The amount of retarding admixture to be used will be determined by the Engineer. The proportions of the ingredients of the concrete shall be the same as without the retarding admixture except that the amount of mixing water shall be reduced, as may be necessary, in order to maintain the consistency of the concrete as required. In addition, a high range water-reducing admixture shall be used in Class BD Concrete. The amount of high range water-reducing admixture will be determined by the Engineer. At the option of the Contractor, a water-reducing admixture may be used. Type I cement shall be used.

For Class PC and PS Concrete, a retarding admixture may be added to the concrete mixture when the concrete temperature is 18 °C (65 °F) or higher. Other admixtures may be used when approved by the Engineer, or if specified by the contract. If an accelerating admixture is permitted by the Engineer, it shall be the non-chloride type.

At the Contractor's option, admixtures in addition to an air-entraining admixture may be used for Class PP-1 concrete. The accelerator shall be the non-chloride type. If a water-reducing or retarding admixture is used, the cement factor may be reduced a maximum 18 kg/cu m (0.30 hundredweight/cu yd). If a high range water-reducing admixture is used, the cement factor may be reduced a maximum 36 kg/cu m (0.60 hundredweight/cu yd). Cement factor reductions shall not be cumulative when using multiple admixtures. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

If Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 concrete, a water-reducing or high range water-reducing admixture shall be used. However, the cement factor shall not be reduced if a water-reducing, retarding, or high range water-reducing admixture is used. In addition, an accelerator shall not be used.

For Class PP-2 or PP-3 concrete, a non-chloride accelerator followed by a high range water-reducing admixture shall be used, in addition to the air-entraining admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-2 or PP-3 concrete, the Contractor has the option to use a water-reducing admixture. A retarding admixture shall not be used unless approved by the Engineer. A water-reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

When the air temperature is less than 13 °C (55 °F) for Class PP-1 or PP-2 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture. An accelerator shall not be used. For stationary or truck mixed concrete, a retarding admixture shall be used to allow for haul time. The Contractor has the option to use a mobile portland cement concrete plant according to Article 1103.04, but a retarding admixture shall not be used unless approved by the Engineer. A water-reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

If the Department specifies a calcium chloride accelerator for Class PP-1 concrete, the maximum chloride dosage shall be 1.0 L (1.0 quart) of solution per 45 kg (100 lb) of cement. The dosage may be increased to a maximum 2.0 L (2.0 quarts) per 45 kg (100 lb) of cement if approved by the Engineer. If the Department specifies a calcium chloride accelerator for Class PP-2 concrete, the maximum chloride dosage shall be 1.3 L (1.3 quarts) of solution per 45 kg (100 lb) of cement. The dosage may be increased to a maximum 2.6 L (2.6 quarts) per 45 kg (100 lb) of cement if approved by the Engineer.

For Class PV, MS, SI, RR, SC and SH concrete, at the option of the Contractor, or when specified by the Engineer, a water-reducing admixture or a retarding admixture may be used. The amount of water-reducing admixture or retarding admixture permitted will be determined by the Engineer. The air-entraining admixture and other admixtures shall be added to the concrete separately, and shall be permitted to intermingle only after they have separately entered the concrete batch. The sequence, method and equipment for adding the admixtures shall be approved by the Engineer. The water-reducing admixture shall not delay the initial set of the concrete by more than one hour. Type I cement shall be used.

When a water-reducing admixture is added, a cement factor reduction of up to 18 kg/cu m (0.30 hundredweight/cu yd), from the concrete designed for a specific slump without the admixture, will be permitted for Class PV, MS, SI, RR, SC and SH concrete.

When an approved high range water-reducing admixture is used, a cement factor reduction of up to 36 kg/cu m (0.60 hundredweight/cu yd), from a specific water cement/ratio without the admixture, will be permitted based on a 14 percent minimum water reduction. This is applicable to Class PV, MS, SI, RR, SC and SH concrete. A cement factor below 320 kg/cu m (5.35 hundredweight/cu yd) will not be permitted for Class PV, MS, SI, RR, SC and SH concrete. A cement factor reduction will not be allowed for concrete placed underwater. Cement factor reductions shall not be cumulative when using multiple admixtures.

For use of admixtures to control concrete temperature, refer to Articles 1020.14(a) and 1020.14(b).

The maximum slumps given in Table 1 may be increased to 175 mm (7 in.) when a high range water-reducing admixture is used for all classes of concrete except Class PV and PP.”

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 may 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 to the satisfaction of the Engineer as to manufacturer and trade name of the material they contain.

Prior to inclusion of a product on the Department's Approved List of Concrete Admixtures, the manufacturer shall submit a report prepared by an independent laboratory accredited by the AASHTO Accreditation Program. 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.

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 335 kg/cu m (5.65 cwt/cu yd). Compressive strength test results for six months and one year will not be required.

In addition to the report, 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 335 kg/cu m (5.65 cwt/cu yd). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by the AASHTO Accreditation Program.

Prior to the approval of an admixture, the Engineer may conduct all or part of the applicable tests on a sample that is representative of the material to be furnished. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 335 kg/cu m (5.65 cwt/cu yd). For freeze-thaw testing, the Department will perform the test according to Illinois Modified AASHTO T 161, Procedure B.



The manufacturer shall include in the submittal the following information according to ASTM C 494; the average and manufacturing range of specific gravity, the average and manufacturing range of solids in the solution, and the average and manufacturing range of pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

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 the AASHTO Accreditation Program.

All admixtures, except chloride-based accelerators, shall contain no more than 0.3 percent chloride by mass (weight).

**1021.02 Air-Entraining Admixtures.** Air-entraining admixtures shall conform to the requirements of AASHTO M 154.

If the manufacturer certifies that the air-entraining admixture is an aqueous solution of Vinsol resin that has been neutralized with sodium hydroxide (caustic soda), testing for compliance with the requirements may be waived by the Engineer. In the certification, the manufacturer shall show complete information with respect to the formulation of the solution, including the number of parts of Vinsol resin to each part of sodium hydroxide. Before the approval of its use is granted, the Engineer will test the solution for its air-entraining quality in comparison with a solution prepared and kept for that purpose.

**1021.03 Retarding and Water-Reducing Admixtures.** The admixture shall comply with the following requirements:

- (a) The retarding admixture shall comply with the requirements of AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) The water-reducing admixture shall comply with the requirements of AASHTO M 194, Type A.
- (c) The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

When a Type F or Type G high range water-reducing admixture is used, water-cement ratios shall be a minimum of 0.32.

Type F or Type G admixtures may be used, subject to the following restrictions:

For Class MS, SI, RR, SC and SH concrete, the water-cement ratio shall be a maximum of 0.44.

The Type F or Type G admixture shall be added at the jobsite unless otherwise directed by the Engineer. The initial slump shall be a minimum of 40 mm (1 1/2 in.) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.

When a Type F or Type G admixture is used, retempering with water or with a Type G admixture will not be allowed. An additional dosage of a Type F admixture, not to exceed 40 percent of the original dosage, may be used to retemper concrete once, provided set time is not unduly affected. A second retempering with a Type F admixture may be used for all classes of concrete except Class PP and SC, provided that the dosage does not exceed the dosage used for the first retempering, and provided that the set time is not unduly affected. No further retempering will be allowed.

Air tests shall be performed after the addition of the Type F or Type G admixture.

**1021.04 Set Accelerating Admixtures.** The admixture shall comply with the requirements of AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating)”

**CURING AND PROTECTION OF CONCRETE CONSTRUCTION (BDE)**

Effective: January 1, 2004

Revise the second and third sentences of the eleventh paragraph of Article 503.06 of the Standard Specifications to read:

“Forms on substructure units shall remain in place at least 24 hours. The method of form removal shall not result in damage to the concrete.”

Delete the twentieth paragraph of Article 503.22 of the Standard Specifications.

Revise the “Unit Price Adjustments” table of Article 503.22 of the Standard Specifications to read:

| “UNIT PRICE ADJUSTMENTS  |                                  |
|--|----------------------------------|
| Type of Construction   | Percent Adjustment in Unit Price |
| For concrete in substructures, culverts (having a waterway opening of more than 1 sq m (10 sq ft)), pump houses, and retaining walls (except concrete pilings, footings and foundation seals): |                                  |
| When protected by:   |                                  |
| Protection Method II   | 115%                             |
| Protection Method I  | 110%                             |
| For concrete in superstructures:   |                                  |
| When protected by:   |                                  |
| Protection Method II   | 123%                             |
| Protection Method I  | 115%                             |
| For concrete in footings:  |                                  |
| When protected by:   |                                  |
| Protection Method I, II or III   | 107%                             |
| For concrete in slope walls:   |                                  |
| When protected by:   |                                  |
| Protection Method I  | 107%”                            |

Delete the fourth paragraph of Article 504.05(a) of the Standard Specifications.

Revise the second and third sentences of the fifth paragraph of Article 504.05(a) of the Standard Specifications to read:

“All test specimens shall be cured with the units according to Article 1020.13.”

Revise the first paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“Curing and Low Air Temperature Protection. The curing and protection for precast, prestressed concrete members shall be according to Article 1020.13 and this Article.”

Revise the first sentence of the second paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“For curing, air vents shall be in place, and shall be so arranged that no water can enter the void tubes during the curing of the members.”

Revise the first sentence of the third paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“As soon as each member is finished, the concrete shall be covered with curing material according to Article 1020.13.”

Revise the eighth paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“The prestressing force shall not be transferred to any member before the concrete has attained the compressive strength of 28,000 kPa (4000 psi) or other higher compressive release strength specified on the plans, as determined from tests of 150 mm (6 in.) by 300 mm (12 in.) cylinders cured with the member according to Article 1020.13. Members shall not be shipped until 28-day strengths have been attained and members have a yard age of at least 4 days.”

Delete the third paragraph of Article 512.03(a) of the Standard Specifications.

Delete the last sentence of the second paragraph of Article 512.04(d) of the Standard Specifications.

Revise the “Index Table of Curing and Protection of Concrete Construction” table of Article 1020.13 of the Standard Specifications to read:

| “INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION |  |                    |   |
|--|--|--------------------|---|
| TYPE OF CONSTRUCTION   | CURING METHODS                             | CURING PERIOD DAYS | LOW AIR TEMPERATURE PROTECTION METHODS  |
| <b>Cast-in-Place Concrete:</b> <sup>11/</sup>                  |  |                    |   |
| Pavement   |  |                    |   |
| Shoulder   | 1020.13(a)(1)(2)(3)(4)(5) <sup>3/ 5/</sup> | 3                  | 1020.13(c)  |
| Base Course  |  |                    |   |
| Base Course Widening   | 1020.13(a)(1)(2)(3)(4)(5) <sup>1/ 2/</sup> | 3                  | 1020.13(c)  |
| Driveway   |  |                    |   |
| Median   |  |                    |   |
| Curb   |  |                    |   |
| Gutter   | 1020.13(a)(1)(2)(3)(4)(5) <sup>4/ 5/</sup> | 3                  | 1020.13(c) <sup>16/</sup>   |
| Curb and Gutter  |  |                    |   |
| Sidewalk   |  |                    |   |
| Slope Wall   |  |                    |   |
| Paved Ditch  |  |                    |   |
| Catch Basin  |  |                    |   |
| Manhole  | 1020.13(a)(1)(2)(3)(4)(5) <sup>4/</sup>    | 3                  | 1020.13(c)  |
| Inlet  |  |                    |   |
| Valve Vault  |  |                    |   |
| Pavement Patching  | 1020.13(a)(1)(2)(3)(4)(5) <sup>2/</sup>    | 3 <sup>12/</sup>   | 1020.13(c)  |
| Pavement Replacement   | 1020.13(a)(1)(2)(3)(4)(5) <sup>1/ 2/</sup> | 3                  | 442.06(h) and 1020.13(c)  |
| Railroad Crossing  | 1020.13(a)(3)(5)                           | 1                  | 1020.13(c)  |
| Piles  | 1020.13(a)(3)(5)                           | 7                  | 1020.13(e)(1)(2)(3)   |
| Footings   |  |                    |   |
| Foundation Seals   | 1020.13(a)(1)(2)(3)(4)(5) <sup>4/ 6/</sup> | 7                  | 1020.13(e)(1)(2)(3)   |
| Substructure   | 1020.13(a)(1)(2)(3)(4)(5) <sup>1/ 7/</sup> | 7                  | 1020.13(e)(1)(2)(3)   |
| Superstructure (except deck)                                   | 1020.13(a)(1)(2)(3)(5) <sup>8/</sup>       | 7                  | 1020.13(e)(1)(2)  |
| Deck   | 1020.13(a)(5)                              | 7                  | 1020.13(e)(1)(2) <sup>17/</sup>   |
| Retaining Walls  | 1020.13(a)(1)(2)(3)(4)(5) <sup>1/ 7/</sup> | 7                  | 1020.13(e)(1)(2)  |
| Pump Houses  | 1020.13(a)(1)(2)(3)(4)(5) <sup>1/</sup>    | 7                  | 1020.13(e)(1)(2)  |
| Culverts   | 1020.13(a)(1)(2)(3)(4)(5) <sup>4/ 6/</sup> | 7                  | 1020.13(e)(1)(2) <sup>18/</sup>   |
| Other Incidental Concrete                                      | 1020.13(a)(1)(2)(3)(5)                     | 3                  | 1020.13(c)  |
| <b>Precast Concrete:</b> <sup>11/</sup>                        |  |                    |   |
| Bridge Beams   |  |                    |   |
| Piles  |  |                    |   |
| Bridge Slabs   | 1020.13(a)(3)(5) <sup>9/ 10/</sup>         | As required.       | <sup>13/</sup> 504.06(c)(6), 1020.13(e)(2) <sup>19/</sup>                               |
| Nelson Type Structural Member                                  |  |                    |   |
| All Other Precast Items  | 1020.13(a)(3)(4)(5) <sup>2/ 9/ 10/</sup>   | As required.       | <sup>14/</sup> 504.06(c)(6), 1020.13(e)(2) <sup>19/</sup>                               |
| <b>Precast, Prestressed Concrete:</b> <sup>11/</sup>           |  |                    |   |
| All Items  | 1020.13(a)(3)(5) <sup>9/ 10/</sup>         | Until strand       | 504.06(c)(6), 1020.13(e)(2) <sup>19/</sup><br>tensioning is<br>released. <sup>15/</sup> |

Notes-General:

- 1/ Type I, membrane curing only
- 2/ Type II, membrane curing only
- 3/ Type III, membrane curing only
- 4/ Type I, II and III membrane curing
- 5/ Membrane curing will not be permitted between November 1 and April 15.
- 6/ The use of water to inundate footings, foundation seals or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 7 °C ( 45 °F) or higher.
- 7/ Asphalt Emulsion for Waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.
- 8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09 (b), and meets the material requirements of Article 1022.07.
- 9/ Steam curing (heat and moisture) is acceptable and shall be accomplished by the method specified in Article 504.06(c)(6).
- 10/ A moist room according to AASHTO M 201 is acceptable for curing.
- 11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.
- 12/ Curing maintained only until opening strength is attained, with a maximum curing period of three days.
- 13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 15/ The producer has the option to continue curing after strand release.
- 16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(e)(1).
- 17/ When Article 1020.13(e)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(e)(1).
- 18/ For culverts having a waterway opening of 1 sq m (10 sq ft) or less, the culverts may be protected according to Article 1020.13(e)(3).
- 19/ The seven day protection period in the first paragraph of Article 1020.13(e)(2) shall not apply. The protection period shall end when curing is finished. For the third paragraph of Article 1020.13(e)(2), the decrease in temperature shall be according to Article 504.06(c)(6)."

Add the following to Article 1020.13(a) of the Standard Specifications:

“(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 1.2 m (4 ft) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3).”

Revise the first paragraph of Article 1020.13(c) of the Standard Specifications to read:

“Protection of Portland Cement Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 0 °C (32 °F), or lower, or if the actual temperature drops to 0 °C (32 °F), or lower, concrete less than 72 hours old shall be provided at least the following protection.”

Delete Article 1020.13(d) and Articles 1020.13(d)(1),(2),(3),(4) of the Standard Specifications.

Revise the first five paragraphs of Article 1020.13(e) of the Standard Specifications to read:

“Protection of Portland Cement Concrete Structures From Low Air Temperatures. When the official National Weather Service Forecast for the construction area predicts a low below 7 °C (45 °F), or if the actual temperature drops below 7 °C (45 °F), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. If winter construction is specified, the Contractor shall proceed with the construction, including concrete, excavation, pile driving, steel erection and all

appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced by the Contractor at his/her own expense.”

Add the following at the end of the third paragraph of Article 1020.13(e)(1) of the Standard Specifications:

“The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period.”

Revise the second sentence of the first paragraph of Article 1020.13(e)(2) of the Standard Specifications to read:

“The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period.”

Delete the last sentence of the first paragraph of Article 1020.13(e)(3) of the Standard Specifications.

Add the following Article to Section 1022 of the Standard Specifications:

**“1022.06 Cotton Mats.** Cotton mats shall consist of a cotton fill material, minimum 400 g/sq m (11.8 oz/sq yd), covered with unsized cloth or burlap, minimum 200 g/sq m (5.9 oz/sq yd), and be tufted or stitched to maintain stability.

Cotton mats shall be in a condition satisfactory to the Engineer. Any tears or holes in the mats shall be repaired.

Add the following Article to Section 1022 of the Standard Specifications:

**“1022.07 Linseed Oil Emulsion Curing Compound.** Linseed oil emulsion curing compound shall be composed of a blend of boiled linseed oil and high viscosity, heavy bodied linseed oil emulsified in a water solution. The curing compound shall meet the requirements of a Type I, II, or III according to Article 1022.01, except the drying time requirement will be waived. The oil phase shall be 50 ± 4 percent by volume. The oil phase shall consist of 80 percent by mass (weight) boiled linseed oil and 20 percent by mass (weight ) Z-8 viscosity linseed oil. The water phase shall be 50 ± 4 percent by volume.”

Revise Article 1020.14 of the Standard Specifications to read:

**“1020.14 Temperature Control for Placement.** Temperature control for concrete placement shall conform to the following requirements:

- (a) Temperature Control other than Structures. The temperature of concrete immediately before placing, shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F).

Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

Plastic concrete temperatures up to 35 °C (96 °F), as placed, may be permitted provided job site conditions permit placement and finishing without excessive use of water on and/or overworking of the surface. The occurrence within 24 hours of unusual surface distress shall be cause to revert to a maximum 32 °C (90 °F) plastic concrete temperature.

Concrete shall not be placed when the air temperature is below 5 °C (40 °F) and falling or below 2 °C (35 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

For pavement patching, refer to Article 442.06(e) for additional information on temperature control for placement.

- (b) Temperature Control for Structures. The temperature of concrete as placed in the forms shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits. When insulated forms are used, the temperature of the concrete mixture shall not exceed 25 °C (80 °F). If the Engineer determines that heat of hydration might cause excessive temperatures in the concrete, the concrete shall be placed at a temperature between 10 °C (50 °F) and 15 °C (60 °F), per the Engineer's instructions. When concrete is placed in contact with previously placed concrete, the temperature of the concrete may be increased as required to offset anticipated heat loss.

Concrete shall not be placed when the air temperature is below 7 °C (45 °F) and falling or below 4 °C (40 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.



When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

- (c) Temperature. The concrete temperature shall be determined according to ASTM C 1064."

### **DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (DBE)**

Effective: September 1, 2000

Revised: June 1, 2004

**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. 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. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the DBE Directory or most recent addendum.

**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 federally-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

**OVERALL GOAL SET FOR THE DEPARTMENT.** As a requirement of compliance with 49 CFR part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE firms performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

**CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR.** This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of

unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 21.00% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

- (a) The bidder documents that firmly committed DBE participation has been obtained to meet the goal; or
- (b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

**DBE LOCATOR REFERENCES.** Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at [www.dot.state.il.us](http://www.dot.state.il.us).

**BIDDING PROCEDURES.** Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid nonresponsive.

- (a) In order to assure the timely award of the contract, the as-read low bidder must submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement, the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the as-read low bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement, and the bid will be declared nonresponsive. In the event the bid is declared nonresponsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.

- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:
- (1) The name and address of each DBE to be used;
  - (2) A description, including pay item numbers, of the commercially useful work to be done by each DBE;
  - (3) The price to be paid to each DBE for the identified work specifically stating the quantity, unit price and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
  - (4) A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and
  - (5) If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).
- (d) The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

**CALCULATING DBE PARTICIPATION.** The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR part 26.55(c) on

questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100% goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100% 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% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.
- (d) DBE as a trucker: 100% 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 full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.
- (e) DBE as a material supplier:
  - (1) 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
  - (2) 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
  - (3) 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors

are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

- (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
- (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.  
  
b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors 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 contractor'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 contractor'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 Contractor has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.
- (c) The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten (10) 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 nonresponsive.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal.

- (a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (b) All work indicated for performance by an approved DBE shall be performed, managed and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.
- (c) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for

such work or material, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the District Engineer. If full and final payment has not been made to the DBE, the Report shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

- (d) The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

### **EPOXY PAVEMENT MARKING (BDE)**

Effective: January 1, 200

Revised: August 1, 2003

Revise Article 1095.04(b) of the Standard Specifications to read:

“(b) The Epoxide Value (WPE) of Component A shall be tested according to ASTM D 1652 on a pigment free basis. The WPE shall not vary more than plus or minus 50 units of the qualification samples.”

Revise Article 1095.04(c) of the Standard Specifications to read:

“(c) The Total Amine Value of Component B shall be tested according to ASTM D 2074. The Total Amine Value shall not vary more than plus or minus 50 units of the qualification samples.”

Revise Article 1095.04(g) of the Standard Specifications to read:

“(g) The epoxy pavement marking material, when mixed in the proper mix ratio and applied at 0.35 mm to 0.41 mm (14 to 16 mils) wet film thickness and with the proper saturation of glass spheres, shall exhibit a dry no pick-up time of twenty minutes or less when tested according to ASTM D 711.”

Revise Article 1095.04(m) of the Standard Specifications to read:

“(m) The glass beads meet the requirements of Article 1095.07 and the following:

- (1) 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.



| Sieve Size | U.S. Standard Sieve Number | % Passing (by weight) |
|------------|----------------------------|-----------------------|
| 1.70 mm    | 12                         | 95-100                |
| 1.40 mm    | 14                         | 75-95                 |
| 1.18 mm    | 16                         | 10-47                 |
| 1.00 mm    | 18                         | 0-7                   |
| 850 µm     | 20                         | 0-5                   |

(2) The second drop glass beads shall be Type B.”

Revise the second sentence of the first paragraph of Article 1095.04(n) of the Standard Specifications to read:

“Subject the coated panel for 75 hours to accelerated weathering using the light and water exposure apparatus (fluorescent UV – condensation type) as specified in ASTM G 53 (equipped with UVB-313 lamps).”

#### **EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)**

Effective: August 1, 2001

Revised: November 1, 2001

When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, he/she will direct the Contractor in writing to correct the deficiency. The Contractor shall then correct the deficiency within 24 hours. The deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for Construction Site Activities.

If the Contractor fails to correct the deficiency(s) within 24 hours, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The time period will begin with the initial written notification to the Contractor and end with the Engineer's acceptance of the corrected work. The per calendar day deduction will be either \$1000.00 or 0.05 percent of the awarded contract value, whichever is greater.

If the Contractor fails to respond, the Engineer may correct the deficiencies and deduct the cost from monies due or which may become due the Contractor. This corrective action shall in no way relieve the Contractor of his/her contractual requirements or responsibilities.

#### **EXPANSION JOINTS (BDE)**

Effective: August 1, 2003

Add the following paragraph after the second paragraph of Article 420.10(e) of the Standard Specifications:

“After the dowel bars are oiled, plastic expansion caps shall be secured to the bars maintaining a minimum expansion gap of 50 mm (2 in.) between the end of the bar and the end of the cap. The caps shall fit snugly on the bar and the closed end shall be watertight. For expansion joints formed using dowel bar basket assemblies, the caps shall be installed on the alternating free ends of the bars. For expansion joints formed using a construction header, the caps shall be installed on the exposed end of each bar once the header has been removed and the joint filler material has been installed.”

### **FLAGGER VESTS (BDE)**

Effective: April 1, 2003

Revised: April 1, 2005

Revise the first sentence of Article 701.04(c)(1) of the Standard Specifications to read:

“The flagger shall be stationed to the satisfaction of the Engineer and be equipped with a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments and approved flagger traffic control signs conforming to Standard 702001 and Article 702.05(e).”

Revise Article 701.04(c)(6) of the Standard Specifications to read:

“(6) Nighttime Flagging. The flagger station shall be lit by additional overhead lighting other than streetlights. The flagger shall be equipped with a fluorescent orange, fluorescent yellow/green, or a combination of fluorescent orange and fluorescent yellow/green garment meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 3 garments.”

### **FREEZE-THAW RATING (BDE)**

Effective: November 1, 2002

Revise the first sentence of Article 1004.02(f) of the Standard Specifications to read:

“When coarse aggregate is used to produce portland cement concrete for base course, base course widening, pavement, driveway pavement, sidewalk, shoulders, curb, gutter, combination curb and gutter, median, paved ditch or their repair using concrete, the gradation permitted will be determined from the results of the Department’s Freeze-Thaw Test.”

### **HAND VIBRATOR (BDE)**

Effective: November 1, 2003

Add the following paragraph to Article 1103.17(a) of the Standard Specifications:

“The vibrator shall have a non-metallic head for areas containing epoxy coated reinforcement. The head shall be coated by the manufacturer. The hardness of the

non-metallic head shall be less than the epoxy coated reinforcement, resulting in no damage to the epoxy coating. Slip-on covers will not be allowed.”

**IMPACT ATTENUATORS (BDE)**

Effective: November 1, 2003

Description. This work shall consist of furnishing and installing impact attenuators of the category and test level specified.

Materials. Materials shall meet the requirements of the impact attenuator manufacturer and the following:

| Item   | Article/Section           |
|--|---------------------------|
| (a) Fine Aggregate (Note 1).....                               | 1003.01                   |
| (b) Steel Posts, Structural Shapes, and Plates .....           | 1006.04                   |
| (c) Rail Elements, End Section Plates, and Splice Plates ..... | 1006.25                   |
| (d) Bolts, Nuts, Washers and Hardware .....                    | 1006.25                   |
| (e) Hollow Structural Tubing .....                             | 1006.27(b)                |
| (f) Wood Posts and Wood Blockouts.....                         | 1007.01, 1007.02, 1007.06 |
| (g) Preservative Treatment.....                                | 1007.12                   |

Note 1. Fine aggregate shall be FA-1 or FA-2, Class A quality. The sand shall be unbagged and shall have a maximum moisture content of five percent.

**CONSTRUCTION REQUIREMENTS**

General. Impact attenuators shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 for the test level specified and shall be on the Department’s approved list. Fully redirective and partially redirective attenuators shall also be designed for bi-directional impacts.

Installation. Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer’s specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage. For sand modules, the perimeter of each module and the specified mass (weight) of sand in each module shall be painted on the surface of the base.

Impact attenuators shall be installed according to the manufacturer’s specifications and include all necessary transitions between the impact attenuator and the item to which it is attached.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

**Basis of Payment.** This work, will be paid for at the contract unit price per each for IMPACT ATTENUATORS (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS (SEVERE USE, NARROW); IMPACT ATTENUATORS (SEVERE USE, WIDE); IMPACT ATTENUATORS (PARTIALLY REDIRECTIVE); or IMPACT ATTENUATORS (NON-REDIRECTIVE), of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

**IMPACT ATTENUATORS, TEMPORARY (BDE)**

Effective: November 1, 2003

Revised: April 1, 2004

**Description.** This work shall consist of furnishing, installing, maintaining, and removing temporary impact attenuators of the category and test level specified.

**Materials.** Materials shall meet the requirements of the impact attenuator manufacturer and the following:

| Item   | Article/Section           |
|--|---------------------------|
| (a) Fine Aggregate (Note 1).....                               | 1003.01                   |
| (b) Steel Posts, Structural Shapes, and Plates .....           | 1006.04                   |
| (c) Rail Elements, End Section Plates, and Splice Plates ..... | 1006.25                   |
| (d) Bolts, Nuts, Washers and Hardware .....                    | 1006.25                   |
| (e) Hollow Structural Tubing .....                             | 1006.27(b)                |
| (f) Wood Posts and Wood Blockouts .....                        | 1007.01, 1007.02, 1007.06 |
| (g) Preservative Treatment.....                                | 1007.12                   |
| (h) Rapid Set Mortar (Note 2)                                  |                           |

Note 1. Fine aggregate shall be FA-1 or FA-2, Class A quality. The sand shall be unbagged and shall have a maximum moisture content of five percent.

Note 2. Rapid set mortar shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs. 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. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

**CONSTRUCTION REQUIREMENTS**

**General.** Impact Attenuators shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 for the test level specified and shall be on the Department's approved list.

**Installation.** Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer's specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage.

Impact attenuators shall be installed according to the manufacturer's specifications and include all necessary transitions between the impact attenuator and the item to which it is attached.

When water filled attenuators are used between November 1 and April 15, they shall contain anti-freeze according to the manufacturer's recommendations.

Markings. Sand module impact attenuators shall be striped with alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes. There shall be at least two of each stripe on each module.

Other types of impact attenuators shall have a terminal marker applied to their nose and reflectors along their sides.

Maintenance. All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

Relocate. When relocation of temporary impact attenuators is specified, they shall be removed, relocated and reinstalled at the new location. The reinstallation requirements shall be the same as those for a new installation.

Removal. When the Engineer determines the temporary impact attenuators are no longer required, the installation shall be dismantled with all hardware becoming the property of the Contractor.

Surplus material shall be disposed of according to Article 202.03. Anti-freeze, when present, shall be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement, the anchor holes shall be repaired with rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

**INLET FILTERS (BDE)**

Effective: August 1, 2003

Add the following to Article 280.02 of the Standard Specifications:

“(k) Inlet Filters..... 1081.15(h)”

Add the following paragraph after the first paragraph of Article 280.04(c) of the Standard Specifications:

“When specified, drainage structures shall be protected with inlet filters. Inlet filters shall be installed either directly on the drainage structure or under the grate of the drainage structure resting on the lip of the frame. The fabric bag shall hang down into the drainage structure. Prior to ordering materials, the Contractor shall determine the size and shape of the various drainage structures being protected.”

Revise Article 280.07(d) of the Standard Specifications to read:

“(d) Inlet and Pipe Protection. This work will be paid for at the contract unit price per each for INLET AND PIPE PROTECTION.

Protection of drainage structures with inlet filters will be paid for at the contract unit price per each for INLET FILTERS.”

Add the following to Article 1081.15 of the Standard Specifications:

“(h) Inlet Filters. An inlet filter shall consist of a steel frame with a two piece geotextile fabric bag attached with a stainless steel band and locking cap that is suspended from the frame. A clean, used bag and a used steel frame in good condition meeting the approval of the Engineer may be substituted for new materials. Materials for the inlet filter assembly shall conform to the following requirements:

(1) Frame Construction. Steel shall conform to Article 1006.04.

Frames designed to fit under a grate shall include an overflow feature that is welded to the frame’s ring. The overflow feature shall be designed to allow full flow of water into the structure when the filter bag is full. The dimensions of the frame shall allow the drainage structure grate to fit into the inlet filter assembly frame opening. The assembly frame shall rest on the inside lip of the drainage structure frame for the full variety of existing and proposed drainage structure frames that are present on this contract. The inlet filter assembly frame shall not cause the drainage structure grate to extend higher than 6 mm (1/4 in.) above the drainage structure frame.

(2) Grate Lock. When the inlet is located in a traffic lane, a grate lock shall be used to secure the grate to the frame. The grate lock shall conform to the manufacturer’s requirements for materials and installation.

(3) Geotextile Fabric Bag. The sediment bag shall be constructed of an inner filter bag and an outer reinforcement bag.

- a. Inner Filter Bag. The inner filter bag shall be constructed of a polypropylene geotextile fabric with a minimum silt and debris capacity of 0.06 cu m (2.0 cu ft). The bag shall conform to the following requirements:

| Inner Filter Bag        |             |                               |
|-------------------------|-------------|-------------------------------|
| Material Property       | Test Method | Minimum Avg. Roll Value       |
| Grab Tensile Strength   | ASTM D 4632 | 45 kg (100 lb)                |
| Grab Tensile Elongation | ASTM D 4632 | 50%                           |
| Puncture Strength       | ASTM D 4833 | 29 kg (65 lb)                 |
| Trapezoidal Tear        | ASTM D 4533 | 20 kg (45 lb)                 |
| UV Resistance           | ASTM D 4355 | 70% at 500 hours              |
| Actual Open Size        | ASTM D 1420 | 212 µm (No. 70 sieve US)      |
| Permittivity            | ASTM D 4491 | 2.0/sec                       |
| Water Flow Rate         | ASTM D 4491 | 5900 Lpm/sq m (145 gpm/sq ft) |

- b. Outer Reinforcement Bag. The outer reinforcement bag shall be constructed of polyester mesh material that conforms to the following requirements:

| Outer Reinforcement Bag |             |                                  |
|-------------------------|-------------|----------------------------------|
| Material Property       | Test Method | Value                            |
| Content                 | ASTM D 629  | Polyester                        |
| Weight                  | ASTM D 3776 | 155 g/sq m (4.55 oz/sq yd) ±15%  |
| Whales (holes)          | ASTM D 3887 | 7.5 ± 2 holes/25 mm (1 in.)      |
| Chorses (holes)         | ASTM D 3887 | 15.5 ± 2holes/25 mm (1 in.)      |
| Instronball Burst       | ASTM D 3887 | 830 kPa (120 psi) min.           |
| Thickness               | ASTM D 1777 | 1.0 ± 0.1 mm (0.040 ± 0.005 in.) |

- (4) Certification. The manufacturer shall furnish a certification with each shipment of inlet filters, stating the amount of product furnished, and that the material complies with these requirements.”

**MULCHING SEEDED AREAS (BDE)**

Effective: January 1, 2005

Delete Article 251.02(a) of the Standard Specifications.

Add the following to Article 251.02 of the Standard Specifications:

“(h) Compost ..... 1081.05(b)”

Delete Article 251.03(b)(1) of the Standard Specifications.

Add the following to Article 251.03 of the Standard Specifications:

“(d) Method 4. This method shall consist of applying compost combined with a performance additive designed to bind/stabilize the compost. The compost/performance additive mixture shall be applied to the surface of the slope using a pneumatic blower at a depth of 50 mm (2 in.)”

Revise the first sentence of the first paragraph of Article 251.06(b) of the Standard Specifications to read:

“Mulch Methods 1, 2, 3, and 4 will be measured for payment in hectares (acres) of surface area mulched.”

Revise Article 251.07 of the Standard Specifications to read:

**“251.07 Basis of Payment.** This work will be paid for at the contract unit price per hectare (acre) for MULCH, METHOD 1; MULCH, METHOD 2; MULCH, METHOD 3; or MULCH, METHOD 4; and at the contract unit price per square meter (square yard) for EROSION CONTROL BLANKET or HEAVY DUTY EROSION CONTROL BLANKET.”

Add the following after the second paragraph of Article 1081.05(b) of the Standard Specifications:

“Chemical Compost Binder. Chemical compost binder shall be a commercially available product specifically recommended by the manufacturer for use as a compost stabilizer.

The compost binder shall be nonstaining and nontoxic to vegetation and the environment. It shall disperse evenly and rapidly and remain in suspension when agitated in water.

Prior to use of the compost binder, the Contractor shall submit a notarized certification by the manufacturer stating that it meets these requirements. Chemical compost binder shall be packaged, stored, and shipped according to the manufacturer's recommendations with the net quantity plainly shown on each package or container.”

#### **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.

#### **NOTCHED WEDGE LONGITUDINAL JOINT (BDE)**

Effective: July 1, 2004

Description. This work shall consist of constructing a notched wedge longitudinal joint between successive passes of bituminous concrete binder course that is placed in 57 mm (2 1/4 in.) or greater lifts on pavement that is open to traffic.



The notched wedge longitudinal joint shall consist of a 25 to 38 mm (1 to 1 1/2 in.) vertical notch at the centerline or lane line, a 230 to 300 mm (9 to 12 in.) uniform taper extending into the open lane, and a second 25 to 38 mm (1 to 1 1/2 in.) vertical notch (see Figure 1).

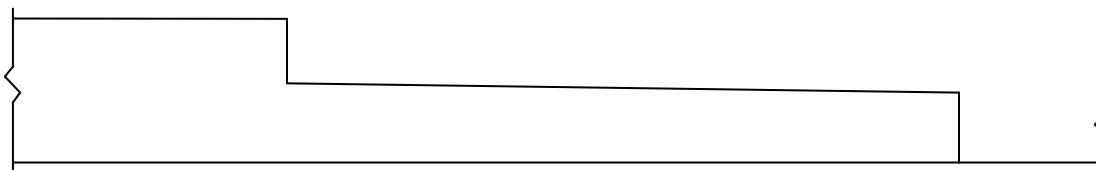


Figure 1

Equipment. Equipment shall meet the following requirements:

- a) Strike Off Device. The strike off device shall produce the notches and wedge of the joint and shall be adjustable. The device shall be attached to the paver and shall not restrict operation of the main screed.
- b) Wedge Roller. The wedge roller shall have a minimum diameter of 300 mm (12 in.), a minimum weight of 9 N/mm (50 lb/in.) of width, and a width equal to the wedge. The roller shall be attached to the paver.

#### CONSTRUCTION REQUIREMENTS

Joint Construction. The notched wedge longitudinal joint shall be formed by the strike off device on the paver. The wedge shall then be compacted by the joint roller.

Compaction. Initial compaction of the wedge shall be as close to final density as possible. Final density requirements of the entire binder mat, including the wedge, shall remain unchanged.

Prime Coat. Immediately prior to placing the adjacent lift of binder, the bituminous material specified for the mainline prime coat shall be applied to the entire face of the notched wedge longitudinal joint. The material shall be uniformly applied at a rate of 0.2 to 0.5 L/sq m (0.05 to 0.1 gal/sq yd).

Method of Measurement. The notched wedge longitudinal joint will not be measured for payment.

The prime coat will be measured for payment according to Article 406.23 of the Standard Specifications.

Basis of Payment. The work of constructing the notched wedge longitudinal joint will not be paid for separately but shall be considered as included in the cost of the bituminous concrete binder course being constructed.

The prime coat will be paid for according to Article 406.24 of the Standard Specifications.

**PARTIAL PAYMENTS (BDE)**

Effective: September 1, 2003

Revise Article 109.07 of the Standard Specifications to read:

**“109.07 Partial Payments.** Partial payments will be made as follows:

- (a) Progress Payments. At least once each month, the Engineer will make a written estimate of the amount of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1000.00 will be approved for payment other than the final payment.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved. Furthermore, progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

- (b) Material Allowances. At the discretion of the Department, payment may be made for materials, prior to their use in the work, when satisfactory evidence is presented by the Contractor. Satisfactory evidence includes justification for the allowance (to expedite the work, meet project schedules, regional or national material shortages, etc.), documentation of material and transportation costs, and evidence that such material is properly stored on the project or at a secure location acceptable and accessible to the Department.

Material allowances will be considered only for nonperishable materials when the cost, including transportation, exceeds \$10,000 and such materials are not expected to be utilized within 60 days of the request for the allowance. For contracts valued under \$500,000, the minimum \$10,000 requirement may be met by combining the principal (material) product of no more than two contract items. An exception to this two item limitation may be considered for any contract regardless of value for items in which material (products) are similar except for type and/or size.

Material allowances shall not exceed the value of the contract items in which used and shall not include the cost of installation or related markups. Amounts paid by the Department for material allowances will be deducted from estimates due the Contractor as the material is used. Two-sided copies of the Contractor's cancelled checks for materials and transportation must be furnished to the Department within 60 days of payment of the allowances or the amounts will be reclaimed by the Department.”

**PAVEMENT AND SHOULDER RESURFACING (BDE)**

Effective: February 1, 2000

Revised: July 1, 2004

Revise Article 406.20 of the Standard Specifications to read:

**“406.20 Resurfacing Sequence.** The resurfacing operations shall satisfy the following requirements:

- (a) Before paving in a lane, the adjacent lane and its shoulder must be at the same elevation.
- (b) Each lift of resurfacing shall be completed, including shoulders, before the next lift is begun.
- (c) Elevation differences between lanes shall be eliminated within twelve calendar days.

Revise the first paragraph of Article 406.23 of the Standard Specifications to read:

**“406.23 Method of Measurement.** This work will be measured for payment according to the following:”

Revise the first sentence of the ninth paragraph of Article 406.23 of the Standard Specifications to read:

“When a Superpave Binder and Surface Course mixture is used on shoulders and is placed simultaneously with the traffic lane as specified in Section 482, the quantity of bituminous mixture placed on the traffic lane that will be paid for will be limited to a calculated tonnage based upon actual mat width and length, plan thickness or a revised thickness authorized by the Engineer, and design mix weight per millimeter (inch) of thickness.”

Delete the tenth paragraph of Article 406.23 of the Standard Specifications.

Revise the second paragraph of Article 482.06 of the Standard Specifications to read:

“On pavement and shoulder resurfacing projects, the resurfacing sequence shall be according to Article 406.20. When the Superpave mixture option is used, the shoulders may be placed, at the Contractor’s option, simultaneously with the adjacent traffic lane for both the binder and surface courses, provided the specified density, thickness and cross slope of both the pavement and shoulder can be satisfactorily obtained.”

## **PAVEMENT THICKNESS DETERMINATION FOR PAYMENT (BDE)**

Effective: April 1, 1999

Revised: January 1, 2004

Description. This work shall consist of determining pavement thickness for payment for full depth bituminous concrete and all pcc pavements. Pavement pay items that individually contain at least 840 sq m (1000 sq yd) of contiguous pavement will be subject to this Special Provision with the following exclusions: temporary pavements; variable width pavement; radius returns and side streets less than 125 m (400 ft) in length; and turn lanes of constant width less than 125 m (400 ft) in length. The areas of pavement excluded from the pay adjustment as described in this Special Provision will be cored according to Article 407.10 of the Standard Specifications. Temporary pavements are defined as pavements constructed and removed under this contract.

Materials. Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials For Concrete Repairs. Coarse aggregate may be added to the mortar if allowed by the manufacturer's instructions on the package. Mixing shall be according to the manufacture's recommendations.

Equipment. Cores shall be taken utilizing an approved coring machine. The cores shall have a diameter of 50 mm (2 in.). The cores shall be measured utilizing an approved measuring device.

### CONSTRUCTION REQUIREMENTS

Tolerance in Thickness. Determination of the pavement thickness shall be performed after the pavement surface tests and all corrective grinding are complete according to Article 407.09 of the Standard Specifications. Adjustments made in the contract unit price for pavement thickness will be in addition to and independent of those made for the Profile Index.

The pavement will be divided into approximately equal lots of not more than 1500 m (5000 ft) in length. When the length of a continuous strip of pavement is less than 1500 m (5000 ft), these short lengths of pavement, ramps, turn lanes, and other short sections of continuous pavement shall be grouped together to form lots of approximately 1500 m (5000 ft) in length. Short segments between structures will be measured continuously with the structure segments omitted. Each lot will be subdivided into ten equal sublots. The width of a subplot and lot will be the width from the pavement edge to the adjacent lane line, from one lane line to the next, or between pavement edges for single-lane pavements.

Fifty millimeter (Two inch) cores shall be taken from the pavement by the Contractor at random locations selected by the Engineer. When computing the thickness of a lot, one core will be taken per subplot. Core locations will be specified by the Engineer prior to beginning the coring operations.

The Contractor and the Engineer shall witness the coring operations, the measurement, and recording of the cores. Core measurements will be determined immediately upon removal from the core bit and prior to moving to the next core location. Upon concurrence of the length, the core samples may be discarded.

Patching Holes. Upon completion of coring, all core holes 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 pavement.

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.

Deficient Sublot. When the thickness of the core in a subplot is deficient by more than ten percent of plan thickness, the Contractor will have the option of taking three additional cores selected at random by the Engineer within the same subplot at the Contractor's expense. The thickness of the additional three cores will be averaged with the original core thickness. When

the average thickness shows the subplot to be deficient by ten percent or less, no additional action is necessary. If the Contractor chooses not to take additional cores, the pavement in the subplot shall be removed and replaced at the Contractor's expense. When additional cores are taken and the average thickness of the additional cores show the subplot to be deficient by more than ten percent, the pavement in that subplot shall be removed and replaced at the Contractor's expense. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing such thin pavement to remain in place. For Bituminous Concrete Pavement (Full Depth) allowed to remain in place, additional lift(s) may be placed, at the Contractor's expense, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The material thickness(es), areas to be overlaid, and method of placement used for additional lift(s) will be approved by the Engineer. When the thin pavement is removed and replaced or additional lifts are placed, the replacement pavement will be retested for thickness at the Contractor's expense. When the thin pavement is left in place and no additional lift(s) are placed, no payment will be made for the deficient pavement subplot. The thickness of the original core taken in the subplot will be used in determining the payment for the entire lot and no adjustment to the pay factor will be made for any corrective action taken.

Deficient Lot. After analyzing the cores, the Percent Within Limits will be calculated. A lot of pavement represented by the Percent Within Limits (PWL) of 60 percent or less, shall be removed and replaced at the Contractor's expense. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing such pavement to remain in place. For Bituminous Concrete Pavement (Full Depth), allowed to remain in place, additional lift(s) may be placed, at the Contractor's expense, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The material, thickness(es), areas to be overlaid and method of placement used for the additional lift(s) will be approved by the Engineer. After either corrective action, the Contractor shall core the lot according to the "Coring Procedures" at no additional cost to the Department. The PWL will then be recalculated for the lot, however, the pay factor for the lot will be a maximum of 100 percent. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing, the lot to remain in place. When the lot is left in place and no additional lifts are placed the pay factor for the lot will be based on the calculated PWL.

Right of Discovery. When the Engineer has reason to believe the random core selection process will not accurately represent the true conditions of the work, he/she may order cores in addition to those specified. The additional cores shall be taken at specific locations determined by the Engineer. The Engineer will provide notice to the Contractor containing an explanation of the reasons for his/her action. These additional cores and locations will be determined prior to commencement of coring operations. When the additional cores show the pavement to be deficient by more than ten percent, additional cores shall be taken at locations determined by the Engineer to determine the limits of the deficient pavement area. The deficient pavement area will be defined as the area between two acceptable cores. An acceptable core is a core with a thickness of 90 percent or more of plan thickness. The defined pavement area shall be removed and replaced at the Contractor's expense. When requested by the Contractor, the Engineer, at his/her option, may permit in writing such thin pavement to remain in place. On Bituminous Concrete Pavement (Full Depth) allowed to remain in place, additional lift(s) may be placed to bring the deficient pavement to plan thickness when the Engineer determines that grade control conditions will permit such lift(s). The material, thickness(es), areas to be overlaid and method of placement for the additional lift(s) will be approved by the Engineer. When the thin pavement is removed and replaced or additional lifts are placed, the replacement pavement

will be retested for thickness at the Contractor's expense. When the thin pavement is left in place and no additional lift(s) are placed, no payment will be made for the deficient pavement. When the additional cores show the pavement to be deficient by ten percent or less the additional cores will be paid for according to Article 109.04. When the additional cores show the pavement to be deficient by more than ten percent the additional cores taken in the deficient area shall be at the Contractor's expense.

Profile Index Adjustment. After any section of pavement is removed and replaced or any additional lifts are added, the corrected areas shall be tested for pavement smoothness and any necessary Profile Index adjustments and/or corrections will be made based on these final profile readings. Such surface testing shall be performed at the Contractor's expense.

Core Analysis. Cores will be analyzed according to the following:

(a) Definition:

- $x_i$  = Individual values (core lengths) under consideration
- $n$  = Number of individual values under consideration  
(10 per lot)
- $\bar{x}$  = Average of the values under consideration
- LSL = Lower Specification Limit (LSL = 0.98 plan thickness for pavement)
- $Q_L$  = Lower Quality Index
- $S$  = Sample Standard Deviation
- PWL = Percent Within Limits

Determine  $\bar{x}$  for the lot to the nearest two decimal places.

Compute the sample standard deviation to the nearest three decimal places using:

$$S = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}} \quad \text{where} \quad \sum (x_i - \bar{x})^2 = (x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \dots + (x_{10} - \bar{x})^2$$

Determine the Lower Quality Index to the nearest two decimal places using:

$$Q_L = \frac{(\bar{x} - LSL)}{S}$$

Determine the percentage that will fall above the Lower Specification Limit (LSL) by going to the attached Table and utilizing calculated  $Q_L$ . Read the appropriate PWL value from the Table. For  $Q_L$  values less than zero the value shown in the table must be subtracted from 100 to obtain PWL.

Pay Adjustment. The following pay adjustment equation will be used to determine (to the nearest two decimal places) the pay factor for each lot.

Pay Factor (PF) in percent =  $55 + 0.5 (PWL)$

If  $\bar{x}$  for a lot is less than the plan thickness, the maximum pay factor for that lot will be 100 percent.

Total Payment. The payment will be based on the appropriate pay items in Sections 407, 420, and 421. The final payment will be adjusted according to the following equation:

$$| \text{Total Payment} = \text{TPF}[\text{CUP} (\text{TOTPAVT} - \text{DEFPAVT})]$$

TPF = Total Pay Factor

CUP = Contract Unit Price

| TOTPAVT = Area of Pavement Subject to Coring

DEFPAVT = Area of Deficient Pavement

The TPF for the entire pavement will be the average of the PF for all the lots, however, not more than 102 percent of plan quantity will be paid.

Deficient pavement is defined as an area of pavement represented by a subplot deficient by more than 10 percent which is left in place with no additional thickness added.

All work involved in determining the total payment will be included in the contract unit prices of the pay items involved.

| Percent Within Limits            |                             |                                  |                             |                                  |                             |                                  |                             |
|----------------------------------|-----------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------------------|
| Quality Index (Q <sub>L</sub> )* | Percent Within Limits (PWL) | Quality Index (Q <sub>L</sub> )* | Percent Within Limits (PWL) | Quality Index (Q <sub>L</sub> )* | Percent Within Limits (PWL) | Quality Index (Q <sub>L</sub> )* | Percent Within Limits (PWL) |
| 0.00                             | 50.00                       | 0.40                             | 65.07                       | 0.80                             | 78.43                       | 1.20                             | 88.76                       |
| 0.01                             | 50.38                       | 0.41                             | 65.43                       | 0.81                             | 78.72                       | 1.21                             | 88.97                       |
| 0.02                             | 50.77                       | 0.42                             | 65.79                       | 0.82                             | 79.02                       | 1.22                             | 89.17                       |
| 0.03                             | 51.15                       | 0.43                             | 66.15                       | 0.83                             | 79.31                       | 1.23                             | 89.38                       |
| 0.04                             | 51.54                       | 0.44                             | 66.51                       | 0.84                             | 79.61                       | 1.24                             | 89.58                       |
| 0.05                             | 51.92                       | 0.45                             | 66.87                       | 0.85                             | 79.90                       | 1.25                             | 89.79                       |
| 0.06                             | 52.30                       | 0.46                             | 67.22                       | 0.86                             | 80.19                       | 1.26                             | 89.99                       |
| 0.07                             | 52.69                       | 0.47                             | 67.57                       | 0.87                             | 80.47                       | 1.27                             | 90.19                       |
| 0.08                             | 53.07                       | 0.48                             | 67.93                       | 0.88                             | 80.76                       | 1.28                             | 90.38                       |
| 0.09                             | 53.46                       | 0.49                             | 68.28                       | 0.89                             | 81.04                       | 1.29                             | 90.58                       |
| 0.10                             | 53.84                       | 0.50                             | 68.63                       | 0.90                             | 81.33                       | 1.30                             | 90.78                       |
| 0.11                             | 54.22                       | 0.51                             | 68.98                       | 0.91                             | 81.61                       | 1.31                             | 90.96                       |
| 0.12                             | 54.60                       | 0.52                             | 69.32                       | 0.92                             | 81.88                       | 1.32                             | 91.15                       |
| 0.13                             | 54.99                       | 0.53                             | 69.67                       | 0.93                             | 82.16                       | 1.33                             | 91.33                       |
| 0.14                             | 55.37                       | 0.54                             | 70.01                       | 0.94                             | 82.43                       | 1.34                             | 91.52                       |
| 0.15                             | 55.75                       | 0.55                             | 70.36                       | 0.95                             | 82.71                       | 1.35                             | 91.70                       |
| 0.16                             | 56.13                       | 0.56                             | 70.70                       | 0.96                             | 82.97                       | 1.36                             | 91.87                       |
| 0.17                             | 56.51                       | 0.57                             | 71.04                       | 0.97                             | 83.24                       | 1.37                             | 92.04                       |
| 0.18                             | 56.89                       | 0.58                             | 71.38                       | 0.98                             | 83.50                       | 1.38                             | 92.22                       |
| 0.19                             | 57.27                       | 0.59                             | 71.72                       | 0.99                             | 83.77                       | 1.39                             | 92.39                       |
| 0.20                             | 57.65                       | 0.60                             | 72.06                       | 1.00                             | 84.03                       | 1.40                             | 92.56                       |
| 0.21                             | 58.03                       | 0.61                             | 72.39                       | 1.01                             | 84.28                       | 1.41                             | 92.72                       |
| 0.22                             | 58.40                       | 0.62                             | 72.72                       | 1.02                             | 84.53                       | 1.42                             | 92.88                       |
| 0.23                             | 58.78                       | 0.63                             | 73.06                       | 1.03                             | 84.79                       | 1.43                             | 93.05                       |
| 0.24                             | 59.15                       | 0.64                             | 73.39                       | 1.04                             | 85.04                       | 1.44                             | 93.21                       |
| 0.25                             | 59.53                       | 0.65                             | 73.72                       | 1.05                             | 85.29                       | 1.45                             | 93.37                       |
| 0.26                             | 59.90                       | 0.66                             | 74.04                       | 1.06                             | 85.53                       | 1.46                             | 93.52                       |
| 0.27                             | 60.28                       | 0.67                             | 74.36                       | 1.07                             | 85.77                       | 1.47                             | 93.67                       |
| 0.28                             | 60.65                       | 0.68                             | 74.69                       | 1.08                             | 86.02                       | 1.48                             | 93.83                       |
| 0.29                             | 61.03                       | 0.69                             | 75.01                       | 1.09                             | 86.26                       | 1.49                             | 93.98                       |
| 0.30                             | 61.40                       | 0.70                             | 75.33                       | 1.10                             | 86.50                       | 1.50                             | 94.13                       |
| 0.31                             | 61.77                       | 0.71                             | 75.64                       | 1.11                             | 86.73                       | 1.51                             | 94.27                       |
| 0.32                             | 62.14                       | 0.72                             | 75.96                       | 1.12                             | 86.96                       | 1.52                             | 94.41                       |
| 0.33                             | 62.51                       | 0.73                             | 76.27                       | 1.13                             | 87.20                       | 1.53                             | 94.54                       |
| 0.34                             | 62.88                       | 0.74                             | 76.59                       | 1.14                             | 87.43                       | 1.54                             | 94.68                       |
| 0.35                             | 63.25                       | 0.75                             | 76.90                       | 1.15                             | 87.66                       | 1.55                             | 94.82                       |
| 0.36                             | 63.61                       | 0.76                             | 77.21                       | 1.16                             | 87.88                       | 1.56                             | 94.95                       |
| 0.37                             | 63.98                       | 0.77                             | 77.51                       | 1.17                             | 88.10                       | 1.57                             | 95.08                       |
| 0.38                             | 64.34                       | 0.78                             | 77.82                       | 1.18                             | 88.32                       | 1.58                             | 95.20                       |
| 0.39                             | 64.71                       | 0.79                             | 78.12                       | 1.19                             | 88.54                       | 1.59                             | 95.33                       |

\*For Q<sub>L</sub> values less than zero, subtract the table value from 100 to obtain PWL



| Percent Within Limits (continued) |                             |                                  |                             |                                  |                             |
|-----------------------------------|-----------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------------------|
| Quality Index (Q <sub>L</sub> )*  | Percent Within Limits (PWL) | Quality Index (Q <sub>L</sub> )* | Percent Within Limits (PWL) | Quality Index (Q <sub>L</sub> )* | Percent Within Limits (PWL) |
| 1.60                              | 95.46                       | 2.00                             | 98.83                       | 2.40                             | 99.89                       |
| 1.61                              | 95.58                       | 2.01                             | 98.88                       | 2.41                             | 99.90                       |
| 1.62                              | 95.70                       | 2.02                             | 98.92                       | 2.42                             | 99.91                       |
| 1.63                              | 95.81                       | 2.03                             | 98.97                       | 2.43                             | 99.91                       |
| 1.64                              | 95.93                       | 2.04                             | 99.01                       | 2.44                             | 99.92                       |
| 1.65                              | 96.05                       | 2.05                             | 99.06                       | 2.45                             | 99.93                       |
| 1.66                              | 96.16                       | 2.06                             | 99.10                       | 2.46                             | 99.94                       |
| 1.67                              | 96.27                       | 2.07                             | 99.14                       | 2.47                             | 99.94                       |
| 1.68                              | 96.37                       | 2.08                             | 99.18                       | 2.48                             | 99.95                       |
| 1.69                              | 96.48                       | 2.09                             | 99.22                       | 2.49                             | 99.95                       |
| 1.70                              | 96.59                       | 2.10                             | 99.26                       | 2.50                             | 99.96                       |
| 1.71                              | 96.69                       | 2.11                             | 99.29                       | 2.51                             | 99.96                       |
| 1.72                              | 96.78                       | 2.12                             | 99.32                       | 2.52                             | 99.97                       |
| 1.73                              | 96.88                       | 2.13                             | 99.36                       | 2.53                             | 99.97                       |
| 1.74                              | 96.97                       | 2.14                             | 99.39                       | 2.54                             | 99.98                       |
| 1.75                              | 97.07                       | 2.15                             | 99.42                       | 2.55                             | 99.98                       |
| 1.76                              | 97.16                       | 2.16                             | 99.45                       | 2.56                             | 99.98                       |
| 1.77                              | 97.25                       | 2.17                             | 99.48                       | 2.57                             | 99.98                       |
| 1.78                              | 97.33                       | 2.18                             | 99.50                       | 2.58                             | 99.99                       |
| 1.79                              | 97.42                       | 2.19                             | 99.53                       | 2.59                             | 99.99                       |
| 1.80                              | 97.51                       | 2.20                             | 99.56                       | 2.60                             | 99.99                       |
| 1.81                              | 97.59                       | 2.21                             | 99.58                       | 2.61                             | 99.99                       |
| 1.82                              | 97.67                       | 2.22                             | 99.61                       | 2.62                             | 99.99                       |
| 1.83                              | 97.75                       | 2.23                             | 99.63                       | 2.63                             | 100.00                      |
| 1.84                              | 97.83                       | 2.22                             | 99.66                       | 2.64                             | 100.00                      |
| 1.85                              | 97.91                       | 2.25                             | 99.68                       | ≥ 2.65                           | 100.00                      |
| 1.86                              | 97.98                       | 2.26                             | 99.70                       |                                  |                             |
| 1.87                              | 98.05                       | 2.27                             | 99.72                       |                                  |                             |
| 1.88                              | 98.11                       | 2.28                             | 99.73                       |                                  |                             |
| 1.89                              | 98.18                       | 2.29                             | 99.75                       |                                  |                             |
| 1.90                              | 98.25                       | 2.30                             | 99.77                       |                                  |                             |
| 1.91                              | 98.31                       | 2.31                             | 99.78                       |                                  |                             |
| 1.92                              | 98.37                       | 2.32                             | 99.80                       |                                  |                             |
| 1.93                              | 98.44                       | 2.33                             | 99.81                       |                                  |                             |
| 1.94                              | 98.50                       | 2.34                             | 99.83                       |                                  |                             |
| 1.95                              | 98.56                       | 2.35                             | 99.84                       |                                  |                             |
| 1.96                              | 98.61                       | 2.36                             | 99.85                       |                                  |                             |
| 1.97                              | 98.67                       | 2.37                             | 99.86                       |                                  |                             |
| 1.98                              | 98.72                       | 2.38                             | 99.87                       |                                  |                             |
| 1.99                              | 98.78                       | 2.39                             | 99.88                       |                                  |                             |

\*For Q<sub>L</sub> values less than zero, subtract the table value from 100 to obtain PWL

## **PAYMENTS TO SUBCONTRACTORS (BDE)**

Effective: June 1, 2000

Revised: September 1, 2003

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 no later than 30 days from the receipt of each payment made to the Contractor.

State law addresses the timing of payments to be made to subcontractors. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, generally requires that when a Contractor receives any payment from the Department, the Contractor is required to make corresponding, proportional payments to each subcontractor performing work within 15 calendar days after receipt of the state payment. Section 7 of the State Prompt Payment Act further provides that interest in the amount of 2% per month, in addition to the payment due, shall be paid to any subcontractor 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 throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

As progress payments are made to the Contractor in accordance with Article 109.07 of the Standard Specifications for Road and Bridge Construction, the Contractor shall make a corresponding partial payment within 15 calendar days to each subcontractor in proportion to the work satisfactorily completed by each subcontractor. The proportionate amount of partial payment due to each subcontractor 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 shall be paid in full within 15 calendar days after the subcontractor's work has been satisfactorily completed. The Contractor shall hold no retainage from the subcontractors.

This Special Provision does not create any rights in favor of any subcontractor against the State of Illinois or authorize any cause of action against the State of Illinois on account of any payment, nonpayment, delayed payment or interest claimed by application of the State Prompt Payment Act. The Department will neither determine the reasonableness of any cause for delay of payment nor enforce any claim to payment, including interest. Moreover, the Department will not approve any delay or postponement of the 15 day requirement. State law creates 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 in accordance with the Public Construction Bond Act, 30 ILCS 550.

## **PERSONAL PROTECTIVE EQUIPMENT (BDE)**

Effective: July 1, 2004

All personnel, excluding flaggers, working outside of a vehicle (car or truck) within 7.6 m (25 ft) of pavement open to traffic shall wear a fluorescent orange, fluorescent yellow/green or a

combination of fluorescent orange and fluorescent yellow/.green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments. Other types of garments may be substituted for the vest as long as the garments have manufacturers tags identifying them as meeting the ANSI Class 2 requirement.

### **PLASTIC BLOCKOUTS FOR GUARDRAIL (BDE)**

Effective: November 1, 2004

Add the following to Article 630.02 of the Standard Specifications:

“(h) Plastic Blockouts (Note 1.)

Note 1. Plastic blockouts, 150 mm (6 in.) deep, may be used in lieu of 150 mm (6 in.) deep wood block-outs for steel plate beam guardrail. The plastic blockouts shall be on the Department’s approved list.”

### **POLYUREA PAVEMENT MARKING (BDE)**

Effective: April 1, 2004

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 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 0.35 to 0.41 mm (14 to 16 mils) 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 50 °C (122 °F) and four hours of condensation at 40 °C (104 °F). 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 0.35 to 0.41 mm (14 to 16 mils) 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 100 x 100 x 50 mm (4 x 4 x 2 in.) 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 24,100 kPa (3500 psi). A 50 mm (2 in.) square film of the mixed polyurea shall be applied to the brushed surface and allowed to cure for 72 hours at room temperature. A 50 mm (2 in.) 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 50 mm (2 in.) 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 0.35 to 0.41 mm (14 to 16 mils) 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 0.35 to 0.41 mm (14 to 16 mils) 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:

| Sieve Size | U.S. Standard Sieve Number | % Passing (By Weight) |
|------------|----------------------------|-----------------------|
| 1.70 mm    | 12                         | 95-100                |
| 1.40 mm    | 14                         | 75-95                 |
| 1.18 mm    | 16                         | 10-47                 |
| 1.00 mm    | 18                         | 0-7                   |
| 850 µm     | 20                         | 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) of sulfuric acid. Adding 5.7 ml (0.2 oz) of concentrated acid into the water shall make the one percent acid solution. This test shall be performed by taking a 25 x 50 mm (1 x 2 in.) 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 66 °C (150 °F) 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:

| Sieve Size | U.S. Standard Sieve Number | % Passing (By Weight) |
|------------|----------------------------|-----------------------|
| 850 µm     | 20                         | 100                   |
| 600 µm     | 30                         | 75-95                 |
| 300 µm     | 50                         | 15-35                 |
| 150 µm     | 100                        | 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 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 25 °C (77 °F).

- (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 12.7 mm (1/2 in.) 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 22.7 kg (50 lb) 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 50 mm (2 in.) 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 1 x 1 m (38 x 38 in.), contain 910 kg (2000 lb) 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 1/2 L (1 pt) 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 1/2 L (1 pt) 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 5.7 to 11.4 L/min (1.5 to 3 gal/min) to compensate for a typical range of application speeds of 10 to 13 km/h (6 to 8 mph). 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 415 L (110 gal) 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  $\pm 2.8$  °C ( $\pm 5$  °F) 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 PCC 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 0.4 mm (15 mils) according to the manufacturer's installation instructions. On new bituminous course surfaces the pavement markings shall be applied at a minimum uniform wet thickness of 0.5 mm (20 mils). 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 4 °C (40 °F) 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 50 mm (2 in.) from a longitudinal crack or joint. Edge lines shall be approximately 50 mm (2 in.) from the edge of pavement. The finished center and lane lines shall be straight, with the lateral deviation of any 3 m (10 ft) line not to exceed 25 mm (1 in.).

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 in place, in meters (feet). 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 meter (foot) 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 (BDE)**

Effective: January 1, 2005

Replace the first sentence of the second paragraph of Article 1001.01 of the Standard Specifications with the following:

“For portland cement according to ASTM C 150, the addition of up to 5.0 percent limestone by mass (weight) to the cement will not be permitted. Also, the total of all organic processing additions shall not exceed 1.0 percent by mass (weight) of the cement and the total of all inorganic processing additions shall not exceed 4.0 percent by mass (weight) of the cement.”

**PORTLAND CEMENT CONCRETE (BDE)**

Effective: November 1, 2002

Add the following paragraph after the fourth paragraph of Article 1103.01(b) of the Standard Specifications:

“The truck mixer shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Add the following paragraph after the first paragraph of Article 1103.01(c) of the Standard Specifications:

“The truck agitator shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Add the following paragraph after the first paragraph of Article 1103.01(d) of the Standard Specifications:

“The nonagitator truck shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Revise the first sentence of the first paragraph of Article 1103.02 of the Standard Specifications to read:

“The plant shall be approved before production begins according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

**PORTLAND CEMENT CONCRETE PATCHING (BDE)**

Effective: January 1, 2001

Revised: January 1, 2004

Revise Note 1 of Article 442.02 of the Standard Specifications, to read:

"Note 1. When patching ramp pavements and two lane pavements with two way traffic, Class PP-2, PP-3, or PP-4 concrete shall be used for Class A, Class B and Class C patching. For all other pavements, Class PP-1, PP-2, PP-3, or PP-4 concrete shall be used, at the Contractor's option, for Class A, Class B and Class C patching."

Delete Note 2 of Article 442.02 of the Standard Specifications.

Add the following to Article 442.02 of the Standard Specifications:

"(l) Calcium Chloride (Note 5)..... 1013.01

Note 5. The calcium chloride accelerator, when permitted by the Department, shall be Type L (Liquid) with a minimum of 32.0 percent by mass (weight) of calcium chloride."

Revise the first paragraph of Article 442.06(e) of the Standard Specifications to read:

"(e) Concrete Placement. For Class A, Class B and Class C Patches, concrete shall be placed according to Article 420.07 and governed by the limitations set forth in Article 1020.14, except that the maximum temperature of the mixed concrete immediately before placing shall be 35 °C (96 °F), the required use of an approved retarding admixture when the plastic concrete reaches 30 °C (85 °F) shall not apply."

Revise the first paragraph of Article 442.06(h) of the Standard Specifications to read:

"(h) Curing and Protection. In addition to Article 1020.13, when the air temperature is less than 13 °C (55 °F), the Contractor shall cover the patch with minimum R12 insulation until opening strength is reached. Insulation is optional when the air temperature is 13 °C - 35 °C (55 °F - 96 °F). Insulation shall not be placed when the air temperature is greater than 35 °C (96 °F)."

Revise the second paragraph of Article 701.05(e)(1)d.1. of the Standard Specifications to read:

"No open holes, broken pavement, or partially filled holes shall remain overnight for bituminous patching or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used. The only exception is conditions beyond the control of the Contractor."

Revise Article 701.05(e)(2)b. of the Standard Specifications to read:

"b. Strength Tests. For patches constructed with Class PP-1, PP-2, PP-3, or PP-4 concrete, the pavement may be opened to traffic when test specimens cured with the patches have obtained a minimum flexural strength of 4150 kPa (600 psi) or a minimum compressive strength of 22,100 kPa (3200 psi) according to Article 1020.09.

For patches constructed with Class PP-2, PP-3, or PP-4 concrete which can obtain a minimum flexural strength of 4150 kPa (600 psi) or a minimum of compressive strength of 22,100 kPa (3200 psi) in 16 hours, the pavement may be opened to traffic at a lower opening strength. The specimens cured with the

patches shall have obtained a minimum flexural strength of 2050 kPa (300 psi) or a minimum compressive strength of 11,000 kPa (1600 psi) according to Article 1020.09, to permit opening pavement to traffic.

With the approval of the Engineer, concrete strength may be determined according to AASHTO T 276. The strength-maturity relationship shall be developed from concrete which has an air content near the upper specification limit. The strength-maturity relationship shall be re-established if the mix design or materials are changed."

Revise Article 701.05(e)(2)c. of the Standard Specifications to read:

- "c. Construction Operations. For Class PP-2, PP-3, or PP-4 concrete used on ramp pavements and two lane pavements with two way traffic, or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used for other pavements, Contractor construction operations shall be performed in a manner which allows the patches to be opened the same day and before nightfall. If patches are not opened before nightfall, the additional traffic control shall be at the Contractor's expense. Any time patches cannot be opened before nightfall, the Contractor shall change subsequent construction operations or the mix design. The changes shall be at no additional cost to the Department."

Revise Table 1 of Article 1020.04 of the Standard Specifications by replacing Class PP concrete with the following:

| "TABLE 1. CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA |  |                                 |  |  |
|---|--|---------------------------------|--|--|
| Class of Concrete   | Use  | Specification Section Reference | Cement Factor<br>kg/cu m (cwt/cu yd)   | Max.<br>Water/Cement<br>Ratio<br>kg/kg (lb/lb) |
| PP-1  | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442                             | Type I Cement<br>385 to 445 (6.50 to 7.50)<br>Type III Cement<br>365 to 425 (6.20 to 7.20) | 0.44   |
| PP-2  | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442                             | Type I Cement<br>435 (7.35)  | 0.38   |
| PP-3  | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442                             | Type III Cement<br>435 (7.35)  | 0.35   |
| PP-4  | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442                             | Rapid Hardening Cement<br>355 to 370 (6.00 to 6.25)  | 0.50   |

For PP-1, the Contractor has the option to replace the Type I Cement with Class C fly ash or ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 15 percent by mass (weight), at a minimum replacement ratio of 1.5:1.

For PP-2, the Contractor has the option to replace the Type I cement with ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 30 percent by mass (weight), at a minimum replacement ratio of 1:1.

For PP-3, in addition to the cement, 60 kg/cu m (100 lb/cu yd) of ground granulated blast-furnace slag and 30 kg/cu m (50 lb/cu yd) of microsilica are required. For an air temperature greater than 30 °C (85 °F), the Contractor has the option to replace the Type III cement with Type I cement.

For PP-4, the cement shall be from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs".

| TABLE 1. (CONT'D) CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA |                 |  |   |                |                                       |
|---|-----------------|--|---|----------------|---------------------------------------|
| Class of Concrete   | Slump, mm (in.) | Mix Design Compressive Strength, kPa (psi) | Mix Design Flexural Strength, kPa (psi) | Air Content, % | Coarse Aggregate Gradations Permitted |
|   |                 | Hours                                      | Hours                                   |                |                                       |
|   |                 | 48   | 48                                      |                |                                       |
| PP – 1  | 100 (4) Max     | 22,100 (3200)                              | 4150 (600)                              | 4.0 – 7.0      | CA-7, CA-11, CA-13, CA14, or CA-16    |
| PP – 2  | 150 (6) Max     | 22,100 (3200)                              | 4150 (600)                              | 4.0 – 6.0      | CA-7, CA-11, CA-13, CA14, or CA-16    |
| PP – 3  | 100 (4) Max     | 22,100 (3200)                              | 4150 (600)                              | 4.0 – 6.0      | CA-7, CA-11, CA-13, CA14, or CA-16    |
| PP – 4  | 150 (6) Max     | 22,100 (3200)                              | 4150 (600)                              | 4.0 – 6.0      | CA-7, CA-11, CA-13, CA14, or CA-16    |

For PP-1, PP-2, PP-3 or PP-4; only CA-13, CA-14, or CA-16 may be used for bridge deck patching. In addition, the mix design strength at 48 hours shall be increased to 27,500 kPa (4,000 psi) compressive or 4,650 kPa (675 psi) flexural for bridge deck patching.

For PP-1, the slump may be increased to 150 mm (6 in.) Max if a high range water-reducing admixture is used."

Delete Article 1020.05(g) of the Standard Specifications.

**PRECAST CONCRETE PRODUCTS (BDE)**

Effective: July 1, 1999

Revised: November 1, 2004

Product Approval. Precast concrete products shall be produced according to the Department's current Policy Memorandum, "Quality Control/Quality Assurance Program for Precast Concrete Products". The Policy Memorandum applies to precast concrete products listed under the Products Key of the "Approved List of Certified Precast Concrete Producers".

Precast Concrete Box Culverts. Add the following sentence to the end of the fourth paragraph of Article 540.06:

“After installation, the interior and exterior joint gap between precast concrete box culvert sections shall not exceed 38 mm (1 1/2 in.)”

Portland Cement Replacement. For precast concrete products using Class PC concrete or other mixtures, portland cement replacement with fly ash or ground granulated blast-furnace (GGBF) slag shall be governed by the AASHTO or ASTM standard specification referenced in the Standard Specifications.

For all other precast concrete products using Class PC concrete or other mixtures, portland cement replacement with fly ash or GGBF slag shall be approved by the Engineer. Class F fly ash shall not exceed 15 percent by mass (weight) of the total portland cement and Class F fly ash. Class C fly ash shall not exceed 20 percent by mass (weight) of the total portland cement and Class C fly ash. GGBF slag shall not exceed 25 percent by mass (weight) of the total portland cement and GGBF slag.

Concrete mix designs, for precast concrete products, shall not consist of portland cement, fly ash and GGBF slag.

Ready-Mixed Concrete. Delete the last paragraph of Article 1020.11(a) of the Standard Specifications.

Shipping. When a precast concrete product has attained the specified strength, the earliest the product may be loaded, shipped, and used is on the fifth calendar day. The first calendar day shall be the date casting was completed.

Acceptance. Products which have been lot or piece inspected and approved by the Department prior to July 1, 1999, will be accepted for use on this contract.

**PREFORMED RECYCLED RUBBER JOINT FILLER (BDE)**

Effective: November 1, 2002

Revise Article 503.02(c) of the Standard Specifications to read:

“(c) Prefomed Expansion Joint Filler ..... 1051”

Revise Article 637.02(d) of the Standard Specifications to read:

“(d) Prefomed Expansion Joint Filler ..... 1051”

Add the following Article to Section 1051 of the Standard Specifications:

“1051.10 Prefomed Recycled Rubber Joint Filler. Prefomed recycled rubber joint filler shall consist of ground tire rubber, free of steel and fabric, combined with ground scrap or waste polyethylene. It shall not have a strong hydrocarbon or rancid odor and shall meet the physical property requirements of ASTM D 1752. Water absorption by volume shall not exceed 5.0 percent.”

**RAP FOR USE IN BITUMINOUS CONCRETE MIXTURES (BDE)**

Effective: January 1, 2000

Revised: April 1, 2002

Revise Article 1004.07 to read:

**“1004.07 RAP Materials.** RAP is reclaimed asphalt pavement resulting from cold milling or crushing of an existing dense graded hot-mix asphalt pavement. RAP must originate from routes or airfields under federal, state or local agency jurisdiction. The Contractor shall supply documentation that the RAP meets these requirements.

(a) Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP will be allowed on top of the pile after the pile has been sealed.

(1) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only and represent the same aggregate quality, but shall be at least C quality or better, the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag), similar gradation and similar AC 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. Homogenous stockpiles shall meet the requirements of Article 1004.07(d). Homogeneous RAP stockpiles not meeting these requirements may be processed (crushing and screening) and retested.

(2) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only. The coarse aggregate in this RAP shall be crushed aggregate only and may represent more than one aggregate type and/or quality but shall be at least C quality or better. This RAP may have an inconsistent gradation and/or asphalt cement content prior to processing. All conglomerate RAP shall be processed prior to testing by crushing to where all RAP shall pass the 16 mm (5/8 in.) or smaller screen. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate RAP stockpiles shall meet the requirements of Article 1004.07(d).

(3) Conglomerate “D” Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP containing coarse aggregate (crushed or round) that is at least D quality or better. This RAP may have an inconsistent gradation and/or asphalt content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate DQ RAP shall meet the requirements of Article 1004.07(d).

Reclaimed Superpave Low ESAL IL-9.5L surface mixtures shall only be placed in conglomerate DQ RAP stockpiles due to the potential for rounded aggregate.

(4) Other. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as “Other”. “Other” RAP stockpiles shall not be used in any of the Department’s bituminous mixtures.

- (b) Use. The allowable use of a RAP stockpile shall be set by the lowest quality of coarse aggregate in the RAP stockpile. Class I/Superpave surface mixtures are designated as containing Class B quality coarse aggregate only. Superpave Low ESAL IL-19.0L binder and IL-9.5L surface mixtures are designated as Class C quality coarse aggregate only. Class I/Superpave binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate only. Bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate only. Any mixture not listed above shall have the designated quality determined by the Department.

RAP containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in Class I/Superpave (including Low ESAL) surface mixtures only. RAP stockpiles for use in Class I/Superpave mixtures (including Low ESAL), base course, base course widening and Class B mixtures shall be either homogeneous or conglomerate RAP stockpiles except conglomerate RAP stockpiles shall not be used in Superpave surface mixture Ndesign 50 or greater. RAP for use in bituminous aggregate mixtures (BAM) shoulders and BAM stabilized subbase shall be from homogeneous, conglomerate, or conglomerate DQ stockpiles.

Additionally, RAP used in Class I/Superpave surface mixtures shall originate from milled or crushed mixtures only, in which the coarse aggregate is of Class B quality or better. RAP stockpiles for use in Class I/Superpave (including Low ESAL) binder mixes as well as base course, base course widening and Class B mixtures shall originate from milled or processed surface mixture, binder mixture, or a combination of both mixtures uniformly blended to the satisfaction of the Engineer, in which the coarse aggregate is of Class C quality or better.

- (c) Contaminants. RAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.
- (d) Testing. All 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 450 metric tons (500 tons) for the first 1800 metric tons (2,000 tons) and one sample per 1800 metric tons (2,000 tons) thereafter. A minimum of five tests shall be required for stockpiles less than 3600 metric tons (4,000 tons).

For testing existing stockpiles, 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 extract representative samples throughout the pile for testing.

Before extraction, each field sample shall be split to 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.

All of the extraction results shall be compiled and averaged for asphalt content and gradation. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

| Parameter         | Homogeneous /<br>Conglomerate | Conglomerate "D"<br>Quality |
|-------------------|-------------------------------|-----------------------------|
| 25 mm (1 in.)     |                               | ± 5%                        |
| 12.5 mm (1/2 in.) | ± 8%                          | ± 15%                       |
| 4.75 mm (No. 4)   | ± 6%                          | ± 13%                       |
| 2.36 mm (No. 8)   | ± 5%                          |                             |
| 1.18 mm (No. 16)  |                               | ± 15%                       |
| 600 μm (No. 30)   | ± 5%                          |                             |
| 75 μm (No. 200)   | ± 2.0%                        | ± 4.0%                      |
| AC                | ± 0.4%                        | ± 0.5%                      |

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt content test results fall outside the appropriate tolerances, the RAP will not be allowed to be used in the Department's bituminous concrete mixtures unless the RAP representing the failing tests is removed from the stockpile to the satisfaction of the Engineer. 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)".

- (e) Designs. At the Contractor's option, bituminous concrete mixtures may be constructed utilizing RAP material meeting the above detailed requirements. The amount of RAP included in the mixture shall not exceed the percentages specified in the plans.

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 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.

- (f) Production. The coarse aggregate in all RAP used shall be equal to or less than the nominal maximum size requirement for the bituminous 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.

**REMOVE AND RE-ERECT STEEL PLATE BEAM GUARDRAIL AND TRAFFIC BARRIER TERMINALS (BDE)**

Effective: January 1, 2001

Revised: January 1, 2005

Description. This work shall consist of replacing existing steel block-outs with wood or plastic block-outs during the removal and re-erection of steel plate beam guardrail and traffic barrier terminals.

Wood block-outs shall be according to the current standard applicable to the type of guardrail or terminal section being re-erected. Plastic blockouts shall be on the Department's approved list.

The existing steel posts may be drilled to match the bolt pattern shown on standard 630001 for the block-out or a new steel post shall be provided.

All existing "C" posts shall be removed and new posts shall be provided.

Basis of Payment. This work will not be paid for separately but shall be included in the contract unit price per meter (foot) for REMOVE AND RE-ERECT STEEL PLATE BEAM GUARDRAIL, of the type specified, and at the contract unit price each for REMOVE AND RE-ERECT TRAFFIC BARRIER TERMINALS, of the type specified.

**SEEDING AND SODDING (BDE)**

Effective: July 1, 2004

Revised: November 1, 2004

Revise Class 1A and 2A seeding mixtures shown in Table 1 of Article 250.07 of the Standard Specifications to read:

| "Table 1 - SEEDING MIXTURES             |                        |                         |
|---|------------------------|-------------------------|
| Class – Type                            | Seeds                  | kg/hectare<br>(lb/acre) |
| 1A Salt Tolerant<br>Lawn Mixture 7/     | Bluegrass              | 70 (60)                 |
|   | Perennial Ryegrass     | 20 (20)                 |
|   | Audubon Red Fescue     | 20 (20)                 |
|   | Rescue 911 Hard Fescue | 20 (20)                 |
|   | Fults Salt Grass*      | 70 (60)                 |
| 2A Salt Tolerant<br>Roadside Mixture 7/ | Alta Fescue or Ky 31   | 70 (60)                 |
|   | Perennial Ryegrass     | 20 (20)                 |
|   | Audubon Red Fescue     | 20 (30)                 |
|   | Rescue 911 Hard Fescue | 20 (30)                 |
|   | Fults Salt Grass 1/    | 70 (60)"                |

Revise Note 7 of Article 250.07 of the Standard Specifications to read:

“Note 7. In Districts 1 through 6, the planting times shall be April 1 to June 15 and August 1 to November 1. In Districts 7 through 9, the planting times shall be March 1 to June 1 and August 1 to November 15. Seeding may be performed outside these dates provided the Contractor guarantees a minimum of 75 percent coverage over the entire seeded area(s) after one growing season. The guarantee shall be submitted to the Engineer in writing prior to performing the work. After one growing season, areas not sustaining 75 percent growth shall be interseeded or reseeded, as determined by the Engineer, at the Contractor’s expense.”

Add the following sentence to Article 252.04 of the Standard Specifications:

“Sod shall not be placed during the months of July and August.”

Revise the first paragraph of Article 252.08 of the Standard Specifications to read:

“**252.08 Sod Watering.** Within two hours after the sod has been placed, water shall be applied at a rate of 25 L/sq m (5 gal/sq yd). Additional water shall be applied every other day at a rate of 15 L/sq m (3 gal/sq yd) for a total of 15 additional waterings. During periods exceeding 26 °C (80 °F) or subnormal rainfall, the schedule of additional waterings may be altered with the approval of the Engineer.”

Revise Article 252.09 of the Standard Specifications to read:

“**252.09 Supplemental Watering.** During periods exceeding 26 °C (80 °F) or subnormal rainfall, supplemental watering may be required after the initial and additional waterings. Supplemental watering shall be performed when directed by the Engineer. Water shall be applied at the rate specified by the Engineer within 24 hours of notice.”

Revise the first and third paragraphs of Article 252.12 of the Standard Specifications to read:

“**252.12 Method of Measurement.** Sodding will be measured for payment in place and the area computed in square meters (square yards). To be acceptable for final payment, the sod shall be growing in place for a minimum of 30 days in a live, healthy condition. When directed by the Engineer, any defective or unacceptable sod shall be removed, replaced and watered by the Contractor at his/her own expense.”

“Supplemental watering will be measured for payment in units of 1000 L (1000 gal) of water applied on the sodded areas. Waterings performed in addition to those required by Article 252.08 or after the 30 day establishment period will be considered as supplemental watering.”

Replace the first paragraph of Article 252.13 of the Standard Specifications with the following:

“**252.13 Basis of Payment.** Sodding will be paid for at the contract unit price per square meter (square yard) for SODDING or SODDING, SALT TOLERANT according to the following schedule.

(a) Initial Payment. Upon placement of sod, 25 percent of the pay item will be paid.

(b) Final Payment. Upon acceptance of sod, the remaining 75 percent of the pay item will be paid.”

Revise Article 1081.03(b) of the Standard Specifications to read:

“(b) Salt Tolerant Sod.

| Variety                    | Percent by Weight |
|----------------------------|-------------------|
| Buffalo Grass              | 30%               |
| Buchloe Dactyloides        |                   |
| Amigo Fineleaf Tall Fescue | 20%               |
| Audubon Red Fescue         | 15%               |
| Rescue 911 Hard Fescue     | 15%               |
| Rugby Kentucky Bluegrass   | 5%                |
| Fults Pucinnellia Distans  | 15%”              |

Revise Table II of Article 1081.04(c)(6) of the Standard Specifications to read:

| TABLE II                    |                                 |                              |                                       |                            |   |         |
|-----------------------------|---------------------------------|------------------------------|---------------------------------------|----------------------------|---|---------|
| Variety of Seeds            | Hard Seed<br>Percent<br>Maximum | Purity<br>Percent<br>Minimum | Pure, Live<br>Seed Percent<br>Minimum | Weed<br>Percent<br>Maximum | Secondary   | Remarks |
|                             |                                 |                              |                                       |                            | Noxious Weeds<br>No. per kg (oz)<br>Max. Permitted* |         |
| Alfalfa                     | 20                              | 92                           | 89                                    | 0.50                       | 211 (6)   | 1/      |
| Brome Grass                 | -                               | 90                           | 75                                    | 0.50                       | 175 (5)   | -       |
| Clover, Alsike              | 15                              | 92                           | 87                                    | 0.30                       | 211 (6)   | 2/      |
| Clover, Crimson             | 15                              | 92                           | 83                                    | 0.50                       | 211 (6)   | -       |
| Clover, Ladino              | 15                              | 92                           | 87                                    | 0.30                       | 211 (6)   | -       |
| Clover, Red                 | 20                              | 92                           | 87                                    | 0.30                       | 211 (6)   | -       |
| Clover, White Dutch         | 30                              | 92                           | 87                                    | 0.30                       | 211 (6)   | 3/      |
| Audubon Red Fescue          | 0                               | 97                           | 82                                    | 0.10                       | 105 (3)   | -       |
| Fescue, Alta or Ky. 31      | -                               | 97                           | 82                                    | 1.00                       | 105 (3)   | -       |
| Fescue, Creeping Red        | -                               | 97                           | 82                                    | 1.00                       | 105 (3)   | -       |
| Fults Salt Grass            | 0                               | 98                           | 85                                    | 0.10                       | 70 (2)  | -       |
| Kentucky Bluegrass          | -                               | 97                           | 80                                    | 0.30                       | 247 (7)   | 5/      |
| Lespedeza, Korean           | 20                              | 92                           | 84                                    | 0.50                       | 211 (6)   | 3/      |
| Oats                        | -                               | 92                           | 88                                    | 0.50                       | 70 (2)  | 4/      |
| Orchard Grass               | -                               | 90                           | 78                                    | 1.50                       | 175 (5)   | 4/      |
| Redtop                      | -                               | 90                           | 78                                    | 1.80                       | 175 (5)   | 4/      |
| Ryegrass, Perennial, Annual | -                               | 97                           | 85                                    | 0.30                       | 175 (5)   | 4/      |
| Rye, Grain, Winter          | -                               | 92                           | 83                                    | 0.50                       | 70 (2)  | 4/      |
| Rescue 911 Hard Fescue      | 0                               | 97                           | 82                                    | 0.10                       | 105 (3)   | -       |
| Timothy                     | -                               | 92                           | 84                                    | 0.50                       | 175 (5)   | 4/      |
| Vetch, Crown                | 30                              | 92                           | 67                                    | 1.00                       | 211 (6)   | 3/ & 6/ |
| Vetch, Spring               | 30                              | 92                           | 88                                    | 1.00                       | 70 (2)  | 4/      |
| Vetch, Winter               | 15                              | 92                           | 83                                    | 1.00                       | 105 (3)   | 4/      |
| Wheat, hard Red Winter      | -                               | 92                           | 89                                    | 0.50                       | 70 (2)  | 4/      |

**SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)**

Effective: July 1, 2004

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for precast concrete products. The design and testing of a self-consolidating concrete mixture shall be according to Section 1020 of the Standard Specifications except as modified herein.

Materials. Materials shall conform to the following requirements:

- (a) 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 flowable concrete that does not require mechanical vibration.

The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F.

The viscosity modifying admixture will be evaluated according to the test methods and mix design proportions referenced in AASHTO M 194, except the following physical requirements shall be met:

- (1) For initial and final set times, the allowable deviation of the test concrete from the reference concrete shall not be more than 1.0 hour earlier or 1.5 hours later.
  - (2) For compressive and flexural strengths, the test concrete shall be a minimum of 90 percent of the reference concrete at 3, 7 and 28 days.
  - (3) The length change of the test concrete shall be a maximum 135 percent of the reference concrete. However, if the length change of the reference concrete is less than 0.030 percent, the length change of the test concrete shall be a maximum 0.010 percentage units greater than the reference concrete.
  - (4) The relative durability factor of the test concrete shall be a minimum 80 percent.
- (b) Fine Aggregate. A fine aggregate used alone in the mix design shall not have an expansion greater than 0.30 percent per ASTM C 1260. For a blend of two or more fine aggregates, the resulting blend shall not have an expansion greater than 0.30 percent.

The aggregate blend expansion will be calculated as follows:

$$\text{Aggregate Blend Expansion} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots \text{etc.}$$

Where: a, b, c, ... = percent of aggregate blend

A, B, C, ... = aggregate expansion according to ASTM C 1260

Mix Design Criteria. The slump requirements of Article 1020.04 of the Standard Specifications shall not apply. In addition, the allowable coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. The fine aggregate proportion shall be a maximum 50 percent by mass (weight) of the total aggregate used.

Trail Batch. A minimum 1 cu m (1 cu yd) trial batch shall be produced. The mixture will be evaluated for air content, slump flow, visual stability index, compressive strength, passing ability, and static/dynamic segregation resistance.

The trial batch shall be scheduled and performed in the presence of the Engineer. Testing shall be performed per the Department's test method or as approved by the Engineer.

For the trial batch, the air content shall be within the top half of the allowable specification range. The slump flow range shall be 510 mm (20 in.) minimum to 710 mm (28 in.) maximum. The visual stability index shall be a maximum of 1. Strength shall be determined at 28 days. At the Contractor's option, strength may be determined for additional days.

Passing ability and static/dynamic segregation resistance shall be determined by tests selected by the Contractor and approved by the Engineer. The visual stability index shall not be used as the sole criteria for evaluating static segregation resistance.

After an acceptable mixture has been batched and tested, the mixture shall also be evaluated for robustness. Robustness shall be evaluated by varying the dosage of the self-consolidating admixture system and water separately. Additional trial batches may be necessary to accomplish this.

When necessary, the trial batches shall be disposed of according to Article 202.03 of the Standard Specifications.

Quality Control. Once testing is completed and acceptable results have been attained, production test frequencies and allowable test ranges for slump flow, visual stability index, passing ability, and static/dynamic segregation resistance shall be proposed. The production test frequencies and allowable test ranges will be approved by the Engineer.

The slump flow range shall be  $\pm 50$  mm ( $\pm 2$  in.) of the target value, and within the overall range of 510 mm (20 in.) minimum to 710 mm (28 in.) maximum. The visual stability index shall be a maximum of 1. The approved test ranges for passing ability and static/dynamic segregation resistance will be based on recommended guidelines determined by the Engineer.

### **STABILIZED SUBBASE AND BITUMINOUS SHOULDERS SUPERPAVE (BDE)**

Effective: April 1, 2002

Revised: July 1, 2004

Description. This work shall consist of constructing stabilized subbase and bituminous shoulders Superpave according to Sections 312 and 482 respectively, of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures" except as modified herein.

Revise Article 312.03(b) of the Standard Specifications to read:

"(b) RAP Material (Note 3)"

Revise Note 2 of Article 312.03 of the Standard Specifications to read:

“Note 2. Gradation CA 6, CA 10, or CA 12 shall be used.”

Revise Note 3 of Article 312.03 of the Standard Specifications to read:

"Note 3. RAP shall meet the requirements of the special provision "RAP for Use in Bituminous Concrete Mixtures". RAP containing steel slag shall be permitted for use in top-lift surface mixtures only."

Revise Note 4 of Article 312.03 of the Standard Specifications to read:

"Note 4. Unless otherwise specified on the plans, the bituminous material shall be performance graded asphalt cement, PG58-22. When more than 15 percent RAP is used, a softer PG binder may be required as determined by the Engineer."

Revise Article 312.06 of the Standard Specifications to read:

**"312.06 Mixture Design.** The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have completed the course, "Superpave Mix Design Upgrade". The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below:

- AASHTO MP 2 Standard Specification for Superpave Volumetric Mix Design
- AASHTO R 30 Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)
- AASHTO PP 28 Standard Practice for Designing Superpave HMA
- AASHTO T 209 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
- AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

(a) Job Mix Formula (JMF). The JMF shall be according to the following limits:

| <u>Ingredient</u>   | <u>Percent by Dry Weight</u> |
|---------------------|------------------------------|
| Aggregate.....      | 94.0 to 96.0                 |
| Asphalt Cement..... | 4.0 to 6.0*                  |
| Dust/AC Ratio ..... | 1.4                          |

\*Upper limit may be raised for the lower or top lifts if the Contractor elects to use a highly absorptive coarse and/or fine aggregate requiring more than six percent asphalt. The additional asphalt shall be furnished at no cost to the Department.

When RAP material is being used, the JMF shall be according to the following limits:

| <u>Ingredient</u>                  | <u>Percent by Dry Weight</u> |
|------------------------------------|------------------------------|
| Virgin Aggregate(s) .....          | 46.0 to 96.0                 |
| RAP Material(s) (Note 1) .....     | 0 to 50                      |
| Mineral Filler (if required) ..... | 0 to 5.0                     |
| Asphalt Cement.....                | 4.0 to 7.0                   |
| Dust/AC Ratio .....                | 1.4                          |

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Volumetric Requirements.

| Design Compactive Effort | Design Air Voids Target (%) |
|--------------------------|-----------------------------|
| $N_{DES} = 30$           | 2.0                         |

(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 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

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. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 312.08 of the Standard Specifications to read:

**"312.08 Mixture Production.** When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 35



seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

- (a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".
- (b) Required Tests. Testing for stabilized subbase and bituminous shoulders shall be conducted to control the production of the bituminous mixture using the test methods identified and performed at a frequency not less than indicated in the following table.

| Parameter  | Frequency of Tests<br>Non-Class I Mixtures  | Test Method   |
|--|---|---|
| Aggregate Gradation<br><br>Hot bins for batch and continuous plants.<br><br>Individual cold-feeds or combined belt-feed for drier-drum plants.<br><br>(% passing sieves:<br>12.5 mm (1/2 In.),<br>4.75 mm (No. 4),<br>75 µm (No. 200)) | 1 gradation per day of production.<br><br>The first day of production shall be washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix.<br><br>The dry gradation and the washed ignition oven test results shall be plotted on the same control chart. | Illinois Procedure (See Manual of Test Procedures for Materials). |
| Asphalt Content by ignition oven (Note 1.)   | 1 per day   | Illinois-Modified AASHTO T 308                                    |

| Air Voids                                |           |                                |
|--|-----------|--------------------------------|
| Bulk Specific Gravity of Gyratory Sample | 1 per day | Illinois-Modified AASHTO T 312 |
| Maximum Specific Gravity of Mixture      | 1 per day | Illinois-Modified AASHTO T 209 |

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC 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 AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

- (c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures except air voids shall be plotted on the control charts within the following control limits:

| Air Void Control Limits |                 |
|-------------------------|-----------------|
| Mixture                 | Individual Test |
| Shoulders               | ± 1.2 %         |
| Others                  | ± 1.2 %"        |

Replace the first paragraph of Article 312.10 of the Standard Specifications with the following:

**“312.10 Placing and Compacting.** After the subgrade has been compacted and is acceptable to the Engineer, the bituminous aggregate mixture shall be spread upon it with a mechanical spreader. The maximum compacted thickness of each lift shall be 150 mm (6 in.) provided the required density is obtained. The minimum compacted thickness of each lift shall be according to the following table:

| Nominal Maximum Aggregate Size of Mixture | Minimum Compacted Lift Thickness |
|---|----------------------------------|
| CA 12 – 12.5 mm (1/2 in.)                 | 38 mm (1 1/2 in.)                |
| CA 10 - 19 mm (3/4 in.)                   | 57 mm (2 1/4 in.)                |
| CA 6 – 25 mm (1 in.)                      | 76 mm (3 in.)                    |

The surface of each lift shall be clean and dry before succeeding lifts are placed.”

Revise Article 482.02 of the Standard Specifications to read:

“**482.02 Materials.** Materials shall meet the requirements of Article 312.03. For the top lift, the aggregate used shall meet the gradation requirements for a CA 10 or CA 12. Blending of aggregates to meet these gradation requirements will be permitted.”

Revise the first paragraph of Article 482.04 of the Standard Specifications to read:

“**482.04 General.** For pavement and shoulder resurfacing projects, Superpave binder and surface course mixtures may be used in lieu of bituminous aggregate mixture for the resurfacing of shoulders, at the option of the Contractor, or shall be used when specified on the plans.”

Revise Article 482.04(c) of the Standard Specifications to read:

“(c) Mixture Production .....312.08”

Revise Article 482.05 of the Standard Specifications to read:

“**482.05 Composition of Bituminous Aggregate Mixture.** The composition of the mixture shall be according to Article 312.06, except that the amount of asphalt cement used in the top lift shall be increased up to 0.5 percent more than that required in the lower lifts. For resurfacing projects when the Superpave binder and surface course mixtures option is used, the asphalt cement used in the top lift shall not be increased. Superpave mixtures used on the top lift of such shoulders shall meet the gradation requirements of the special provision “Superpave Bituminous Concrete Mixtures”.

For shoulder and strip construction, the composition of the Superpave binder and surface course shall be the same as that specified for the mainline pavement.”

In the following locations of Section 482 of the Standard Specifications, change “Class I” to “Superpave”:

- the second paragraph of Article 482.04
- the first sentence of the second paragraph of Article 482.06
- the first sentence of the fourth paragraph of Article 482.06
- the second sentence of the fourth paragraph of Article 482.06
- the first sentence of the third paragraph of Article 482.08(b)

Revise the first paragraph of Article 482.06 of the Standard Specifications to read:

“**482.06 Placing and Compacting.** This work shall be according to Article 312.10. The mechanical spreader for the top lift of shoulders shall meet the requirements of Article 1102.03 when the shoulder width is 3 m (10 ft) or greater.”

Revise Article 482.09 of the Standard Specifications to read:

**"482.09 Basis of Payment.** When bituminous shoulders are constructed along the edges of the completed pavement structure, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS SHOULDERS SUPERPAVE of the thickness specified. The specified thickness shall be the thickness shown on the plans at the edge of the pavement.

On pavement and shoulder resurfacing projects, the shoulder resurfacing will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS SHOULDERS SUPERPAVE.

The construction of shoulder strips for resurfacing pavements will be paid according to the special provision, "Superpave Bituminous Concrete Mixtures".

### **SUBGRADE PREPARATION (BDE)**

Effective: November 1, 2002

Revise the tenth paragraph of Article 301.03 of the Standard Specifications to read:

"Equipment of such weight, or used in such a way as to cause a rut in the finished subgrade of 13 mm (1/2 in.) or more in depth, shall be removed from the work or the rutting otherwise prevented."

### **SUPERPAVE BITUMINOUS CONCRETE MIXTURES (BDE)**

Effective: January 1, 2000

Revised: April 1, 2004

Description. This work shall consist of designing, producing and constructing Superpave bituminous concrete mixtures using Illinois Modified Strategic Highway Research Program (SHRP) Superpave criteria. This work shall be according to Sections 406 and 407 of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as follows.

#### Materials.

- (a) Fine Aggregate Blend Requirement. The Contractor may be required to provide FA 20 manufactured sand to meet the design requirements. For mixtures with  $N_{design} \geq 90$ , at least 50 percent of the required fine aggregate fraction shall consist of either stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation.
- (b) Reclaimed Asphalt Pavement (RAP). If the Contractor is allowed to use more than 15 percent RAP, as specified in the plans, a softer performance-graded binder may be required as determined by the Engineer.

RAP shall meet the requirements of the special provision, "RAP for Use in Bituminous Concrete Mixtures".

RAP will not be permitted in mixtures containing polymer modifiers.

RAP containing steel slag will be permitted for use in top-lift surface mixtures only.

- (c) Bituminous Material. The asphalt cement (AC) shall be performance-graded (PG) or polymer modified performance-graded (SBS-PG or SBR-PG) meeting the requirements of Article 1009.05 of the Standard Specifications for the grade specified on the plans.

The following additional guidelines shall be used if a polymer modified asphalt is specified:

- (1) The polymer modified asphalt cement shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. Polymer modified asphalt cement shall be placed in an empty tank and shall not be blended with other asphalt cements.
- (2) The mixture shall be designed using a mixing temperature of  $163 \pm 3$  °C ( $325 \pm 5$  °F) and a gyratory compaction temperature of  $152 \pm 3$  °C ( $305 \pm 5$  °F).
- (3) Pneumatic-tired rollers will not be allowed unless otherwise specified by the Engineer. A vibratory roller meeting the requirements of Article 406.16 of the Standard Specifications shall be required in the absence of the pneumatic-tired roller.

Laboratory Equipment.

- (a) Superpave Gyratory Compactor. The superpave gyratory compactor (SGC) shall be used for all QC/QA testing.
- (b) Ignition Oven. The ignition oven shall be used to determine the AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC 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 AC content.

Mixture Design. The Contractor shall submit mix designs, for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, "Superpave Mix Design Upgrade". Articles 406.10 and 406.13 of the Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

|              |  |
|--------------|--|
| AASHTO MP 2  | Standard Specification for Superpave Volumetric Mix Design                     |
| AASHTO R 30  | Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)            |
| AASHTO PP 28 | Standard Practice for Designing Superpave HMA                                  |
| AASHTO T 209 | Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures |

AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

(a) Mixture Composition. The ingredients of the bituminous mixture shall be combined in such proportions as to produce a mixture conforming to the composition limits by weight. The gradation mixture specified on the plans shall produce a mixture falling within the limits specified in Table 1.

| TABLE 1. MIXTURE COMPOSITION (% PASSING) <sup>1/</sup> |            |                  |            |                  |                          |                  |                         |                  |
|--|------------|------------------|------------|------------------|--------------------------|------------------|-------------------------|------------------|
| Sieve Size   | IL-25.0 mm |                  | IL-19.0 mm |                  | IL-12.5 mm <sup>4/</sup> |                  | IL-9.5 mm <sup>4/</sup> |                  |
|  | min        | max              | min        | max              | Min                      | max              | min                     | max              |
| 37.5 mm (1 1/2 in.)                                    |            | 100              |            |                  |                          |                  |                         |                  |
| 25 mm (1 in.)  | 90         | 100              |            | 100              |                          |                  |                         |                  |
| 19 mm (3/4 in.)  |            | 90               | 82         | 100              |                          | 100              |                         |                  |
| 12.5 mm (1/2 in.)                                      | 45         | 75               | 50         | 85               | 90                       | 100              |                         | 100              |
| 9.5 mm (3/8 in.)                                       |            |                  |            |                  |                          | 89               | 90                      | 100              |
| 4.75 mm (#4)   | 24         | 42 <sup>2/</sup> | 24         | 50 <sup>2/</sup> | 28                       | 65               | 28                      | 65               |
| 2.36 mm (#8)   | 16         | 31               | 20         | 36               | 28                       | 48 <sup>3/</sup> | 28                      | 48 <sup>3/</sup> |
| 1.18 mm (#16)  | 10         | 22               | 10         | 25               | 10                       | 32               | 10                      | 32               |
| 600 μm (#30)   |            |                  |            |                  |                          |                  |                         |                  |
| 300 μm (#50)   | 4          | 12               | 4          | 12               | 4                        | 15               | 4                       | 15               |
| 150 μm (#100)  | 3          | 9                | 3          | 9                | 3                        | 10               | 3                       | 10               |
| 75 μm (#200)   | 3          | 6                | 3          | 6                | 4                        | 6                | 4                       | 6                |

1/ Based on percent of total aggregate weight.

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

3/ The mixture composition shall not exceed 40 percent passing the 2.36 mm (#8) sieve for surface courses with Ndesign ≥ 90.

- 4/ The mixture composition for surface courses shall be according to IL-12.5 mm or IL-9.5 mm, unless otherwise specified by the Engineer.

One of the above gradations shall be used for leveling binder as specified in the plans and according to Article 406.04 of the Standard Specifications.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

- (b) Dust/AC Ratio for Superpave. The ratio of material passing the 75  $\mu\text{m}$  (#200) sieve to total asphalt cement shall not exceed 1.0 for mixture design (based on total weight of mixture).
- (c) Volumetric Requirements. The target value for the air voids of the hot mix asphalt (HMA) shall be 4.0 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix and shall conform to the requirements listed in Table 2.

| <b>TABLE 2. VOLUMETRIC REQUIREMENTS</b> |  |                |                |               |   |
|---|--|----------------|----------------|---------------|---|
| <b>Ndesign</b>                          | <b>Voids in the Mineral Aggregate (VMA), % minimum</b> |                |                |               | <b>Voids Filled with Asphalt (VFA), %</b> |
|   | <b>IL-25.0</b>   | <b>IL-19.0</b> | <b>IL-12.5</b> | <b>IL-9.5</b> |   |
| <b>50</b>                               | 12.0   | 13.0           | 14.0           | 15            | 65 - 78                                   |
| <b>70</b>                               |  |                |                |               | 65 - 75                                   |
| <b>90</b>                               |  |                |                |               |   |
| <b>105</b>                              |  |                |                |               |   |

- (d) 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 T 283 using 4 in. Marshall bricks. To be considered acceptable by the Department as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSRs) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSRs less than 0.75 will be considered unacceptable.

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. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Department. The method of application shall be according to Article 406.12 of the Standard Specifications.

Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".

Required Plant Tests. Testing shall be conducted to control the production of the bituminous mixture. The Contractor shall use the test methods identified to perform the following mixture tests at a frequency not less than that indicated in Table 3.

| TABLE 3. REQUIRED PLANT TESTS for SUPERPAVE   |   |  |
|---|---|--|
| Parameter   | Frequency of Tests  | Test Method  |
| Aggregate Gradation<br><br>Hot bins for batch and continuous plants<br><br>Individual cold-feeds or combined belt-feed for drier drum plants.<br><br>(% passing sieves:<br>12.5 mm (1/2 in.),<br>4.75 mm (No. 4),<br>2.36 mm (No. 8),<br>600 µm (No. 30),<br>75 µm (No. 200)) | 1 dry gradation per day of production (either morning or afternoon sample).<br><br>And<br><br>1 washed ignition oven test on the mix per day of production (conduct in afternoon if dry gradation is conducted in the morning or vice versa).<br><br>NOTE. The order in which the above tests are conducted shall alternate from the previous production day (example: a dry gradation conducted in the morning will be conducted in the afternoon on the next production day and so forth).<br><br>The dry gradation and washed ignition oven test results shall be plotted on the same control chart. | Illinois Procedure (See Manual of Test Procedures for Materials).                                |
| Asphalt Content by Ignition Oven (Note 1.)  | 1 per half day of production  | Illinois Modified AASHTO T 308   |
| Air Voids   | Bulk Specific Gravity of Gyratory Sample  | 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   | Illinois Modified AASHTO T 209   |

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC 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 AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.2 and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resuming production.



During production, mixtures containing an anti-stripping additive will be tested by the Department for stripping according to Illinois Modified T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

Construction Requirements

Lift Thickness.

- (a) Binder and Surface Courses. The minimum compacted lift thickness for constructing bituminous concrete binder and surface courses shall be according to Table 4:

| <b>TABLE 4 – MINIMUM COMPACTED LIFT THICKNESS</b> |                     |
|---|---------------------|
| Mixture   | Thickness, mm (in.) |
| IL-9.5  | 32 (1 1/4)          |
| IL-12.5   | 38 (1 1/2)          |
| IL-19.0   | 57 (2 1/4)          |
| IL-25.0   | 76 (3)              |

- (b) Leveling Binder. Mixtures used for leveling binder shall be as follows:

| <b>TABLE 5 – LEVELING BINDER</b>                        |                   |
|---|-------------------|
| Nominal, Compacted, Leveling Binder Thickness, mm (in.) | Mixture           |
| ≤ 32 (1 1/4)  | IL-9.5            |
| 32 (1 1/4) to 50 (2)                                    | IL 9.5 or IL-12.5 |

Density requirements shall apply for leveling binder when the nominal, compacted thickness is 32 mm (1 1/4 in.) or greater for IL-9.5 mixtures and 38 mm (1 1/2 in.) or greater for IL-12.5 mixtures.

- (c) Full-Depth Pavement. The compacted thickness of the initial lift of binder course shall be 100 mm (4 in.). The compacted thickness of succeeding lifts shall meet the minimums specified in Table 4 but not exceed 100 mm (4 in.).

If a vibratory roller is used for breakdown, the compacted thickness of the binder lifts, excluding the top lift, may be increased to 150 mm (6 in.) provided the required density is obtained.

- (d) Bituminous Patching. The minimum compacted lift thickness for constructing bituminous patches shall be according to Table 4.

Control Charts/Limits. Control charts/limits shall be according to QC/QA Class I requirements, except density shall be plotted on the control charts within the following control limits:

| <b>TABLE 6. DENSITY CONTROL LIMITS</b> |              |                 |
|--|--------------|-----------------|
| Mixture                                | Parameter    | Individual Test |
| 12.5 mm / 9.5 mm                       | Ndesign ≥ 90 | 92.0 – 96.0%    |
| 12.5 mm / 9.5 mm                       | Ndesign < 90 | 92.5 – 97.4%    |
| 19.0 mm / 25.0 mm                      | Ndesign ≥ 90 | 93.0 – 96.0%    |
| 19.0 mm / 25.0 mm                      | Ndesign < 90 | 93.0 – 97.4%    |

**Basis of Payment.** On resurfacing projects, this work will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, LEVELING BINDER (HAND METHOD), SUPERPAVE, of the Ndesign specified, LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On resurfacing projects in which polymer modifiers are required, this work will be paid for at the contract unit price per metric ton (ton) for POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, POLYMERIZED LEVELING BINDER (HAND METHOD), SUPERPAVE, of the Ndesign specified, POLYMERIZED LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and POLYMERIZED BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On full-depth pavement projects, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE PAVEMENT, (FULL-DEPTH), SUPERPAVE, of the thickness specified.

On projects where widening is constructed and the entire pavement is then resurfaced, the binder for the widening will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition, Ndesign, and thickness specified. The surface and binder used to resurface the entire pavement will be paid for according to the paragraphs above for resurfacing projects.

**SUPERPAVE BITUMINOUS CONCRETE MIXTURES (LOW ESAL) (BDE)**

Effective: January 1, 2001

Revised: April 1, 2004

**Description.** This work shall consist of constructing Bituminous Concrete Surface Course Superpave IL-9.5L and/or Bituminous Concrete Binder Course Superpave IL-19.0L according to Section 406 of the Standard Specifications and the special provision "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as modified herein.

**Materials.**

- (a) Coarse Aggregate. Coarse aggregate for the IL-19.0L shall meet the requirements of a Class I Type 3 binder course and the gradation specified below. For the IL-9.5L mixture, the coarse aggregate shall meet the requirements of a Class I Type 3 surface course except that gravel and Class C Quality, or better, aggregate may be used.

- (b) Reclaimed Asphalt Pavement (RAP). RAP shall meet the requirements of the special provision, "RAP for Use in Bituminous Concrete Mixtures".

RAP containing steel slag will be permitted for use in top-lift surface mixtures only.

- (c) Bituminous Material. The asphalt cement (AC), unless otherwise specified on the plans, shall be performance-graded (PG) 58-22. The AC shall meet the requirements of Article 1009.05 of the Standard Specifications for the grade specified.

If the Contractor is allowed to use more than 15 percent RAP, a softer PG binder may be required, as determined by the Engineer.

#### Laboratory Equipment.

- (a) Superpave Gyratory Compactor. The superpave gyratory compactor (SGC) shall be used for all laboratory mixture compaction.
- (b) Ignition Oven. The ignition oven shall be used for determination of AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors, which exceed 1.5 percent. If the calibration factor exceeds 1.5 percent other IDOT approved methods shall be utilized for determination of AC content.

Mixture Design. The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, "Superpave Mix Design Upgrade". Articles 406.10 and 406.13 of the Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

|              |   |
|--------------|---|
| AASHTO MP 2  | Standard Specification for Superpave Volumetric Mix Design  |
| AASHTO R 30  | Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)   |
| AASHTO PP 28 | Standard Practice for Designing Superpave HMA   |
| AASHTO T 209 | Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures  |
| AASHTO T 312 | Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor |
| AASHTO T 308 | Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method                                       |

(a) Mixture Composition. The job mix formula (JMF) shall fall within the following limits:

| Sieve             | Percent Passing                        |  |
|-------------------|--|--|
|                   | 9.5L                                   | 19.0L                                  |
| 25.0 mm (1 in.)   |  | 100                                    |
| 19.0 mm (3/4 in.) |  | 95-100                                 |
| 12.5 mm (1/2 in.) | 100                                    |  |
| 9.5 mm (3/8 in.)  | 95 – 100                               |  |
| 4.75 mm (#4)      | 52 – 80                                | 38-65                                  |
| 2.36 mm (#8)      | 38 – 65                                |  |
| 600 µm (#30)      | < 50% of the percentage passing the #4 | < 50% of the percentage passing the #4 |
| 75 µm (#200)      | 4.0 – 8.0                              | 3.0 – 7.0                              |
|                   |  |  |
| AC%               | 4.0 – 8.0                              | 4.0 – 8.0                              |
| RAP Materials     | Maximum 30% (or as shown on the plans) | Maximum 30%                            |
| #200:AC ratio     | 1.0 max. design                        | 1.0 max. design                        |

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Volumetric Requirements.

| Mix      | Design Compactive Effort | Design Air Voids Target (%) | VMA (Voids in the Mineral Aggregate) (min.) | VFA (Voids Filled with Asphalt) |
|----------|--------------------------|-----------------------------|---|---------------------------------|
| IL 9.5L  | N <sub>DES</sub> = 30    | 3.0%                        | 14.0%                                       | 70 - 80%                        |
| IL 19.0L | N <sub>DES</sub> = 30    | 4.0%                        | 13.0%                                       | N/A                             |

(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 shall be made on the basis of tests performed according to Illinois Modified T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSRs) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSRs less than 0.75 will be considered unacceptable.

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. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those, which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications.

Personnel. The QC Manager and Level I technician shall have successfully completed the Department's "Superpave Field Control Course".

Required Tests. Testing shall be conducted to control the production of the bituminous mixture. The Contractor shall use the test methods identified to perform the following mixture tests at a frequency not less than that indicated in Table 3.

| <b>TABLE 3. Required Plant Tests for Superpave (Low ESAL)</b>  |   |   |
|--|---|---|
| <b>Parameter</b>   | <b>Frequency of Tests</b>   | <b>Test Method</b>  |
| Aggregate Gradation<br><br>Hot bins for batch and continuous plants.<br><br>Individual cold-feeds or combined belt-feed for drier drum plants.<br><br>(% passing sieves:<br>12.5 mm (1/2 in.),<br>4.75 mm (No. 4),<br>2.36 mm (No. 8),<br>600 µm (No. 30),<br>75 µm (No. 200)) | 1 dry gradation per day of production (either morning or afternoon sample).<br><br>and<br><br>1 washed ignition oven test on the mix per day of production (conduct in afternoon if dry gradation is conducted in the morning or vice versa).<br><br>NOTE: The order in which the above tests are conducted shall alternate from the previous production day (example: a dry gradation conducted in the morning will be conducted in the afternoon on the next production day and so forth).<br><br>The dry gradation and washed ignition oven test results shall be plotted on the same control chart. | Illinois Procedure (See Manual of Test Procedures for Materials).   |
| Asphalt Content by Ignition Oven (Note 1.)   | 1 per half day of production  | Illinois Modified AASHTO T 308  |
| Air Voids  | Bulk Specific Gravity of Gyratory Sample.<br><br>Maximum Specific Gravity of Mixture  | 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day).<br><br>Illinois Modified AASHTO T 312<br><br>Illinois Modified AASHTO T 209 |

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC 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 AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.2, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, any mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

Control Charts/Limits. Control charts/limits shall be according to QC/QA Class I requirements, except density shall be plotted on the control charts within the following control limits:

| TABLE 4. Density Control Limits |                 |
|---------------------------------|-----------------|
| Mixture                         | Individual Test |
| IL-9.5L                         | 92.5 – 97.4%    |
| IL-19.0L                        | 93.0 – 97.4 %   |

Construction Requirements

Placing. The minimum compacted thickness of each lift shall be according to the following table:

| Mixture  | Minimum Compacted Lift Thickness, mm (in.) |
|----------|--|
| IL-9.5L  | 32 (1 1/4)                                 |
| IL-19.0L | 57 (2 1/4)                                 |

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS CONCRETE SURFACE COURSE SUPERPAVE IL-9.5L (Low ESAL), or BITUMINOUS CONCRETE BINDER COURSE SUPERPAVE IL-19.0L (Low ESAL).

**SURFACE TESTING OF PAVEMENTS (BDE)**

Effective: April 1, 2002

Revised: July 1, 2004

**Bituminous Concrete Overlays**

Revise Article 406.03(k) of the Standard Specifications to read:

“(k) Pavement Surface Test Equipment .....1101.10”

Revise Article 406.21 of the Standard Specifications to read:

**“406.21 Surface Tests.** The finished surface of the pavement shall be tested for smoothness within 24 hours and before the pavement is opened to traffic. All objects and debris shall be removed from the pavement surface prior to testing. Testing shall be performed in the presence of the Engineer.

(a) Test Sections/Equipment.

(1) High-Speed Mainline Pavement. High-speed mainline pavement shall consist of pavements, ramps and loops with a posted speed greater than 75 km/hr (45 mph). These sections shall be tested using a California Profilograph or an approved equivalent.

(2) Low-Speed Mainline Pavement. Low-speed mainline pavement shall consist of pavements, ramps and loops with a posted speed of 75 km/hr (45 mph) or less. These sections shall be tested using a California Profilograph or an approved equivalent.

(3) Miscellaneous Pavement. Miscellaneous pavement shall consist of:

- a. pavement on horizontal curves with a centerline radius of curvature of less than or equal to 300 m (1000 ft) and pavement within the superelevation transition of such curves;
- b. the first or last 4.5 m (15 ft) of a pavement section where the Contractor is not responsible for the adjoining surface;
- c. intersections;
- d. variable width pavements;
- e. side street returns;
- f. crossovers;
- g. connector pavement from mainline pavement expansion joint to the bridge approach pavement;
- h. bridge approach pavement; and
- i. other miscellaneous pavement surfaces (i.e. a turn lane) as determined by the Engineer.

Miscellaneous pavement shall be tested using a 5 m (16 ft) straightedge set to a 10 mm (3/8 in.) tolerance.

(b) Lots/Sublots. Mainline pavement test sections will be divided into lots and sublots.

(1) Lots. A lot will be defined as a continuous strip of pavement 1600 m (1 mile) long and one lane wide. When the length of a continuous strip of pavement is less than 1600 m (1 mile), that pavement will be included in an adjacent lot. Structures will be omitted when measuring pavement length.

(2) Sublots. Lots will be divided into 160 m (0.1 mile) sublots. A partial subplot resulting from an interruption in the pavement will be subject to the same evaluation as a whole subplot.

(c) Testing Procedure. One wheel track shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to the edge of the lane away from traffic. A guide shall be used to maintain the proper distance.

The profile trace generated shall have stationing indicated every 150 m (500 ft) at a minimum. Both ends of the profile trace shall be labeled with the following information: contract number, beginning and ending stationing, which direction is up on the trace, which direction the profilograph was pushed, and the profilograph operator name(s). The top portion of the Department supplied form, "Profilograph Report of Pavement Smoothness" shall be completed and secured around the trace roll.

Although surface testing of intermediate lifts will not be required, they may be performed at the Contractor's option. When this option is chosen, the testing shall be performed and the profile traces shall be generated as described above.

The Engineer may perform his/her own testing at any time for monitoring and comparison purposes.

- (d) Trace Reduction and Bump Locating Procedure. All traces shall be reduced. Traces produced by a mechanical recorder shall be reduced using an electronic scanner and computer software. This software shall calculate the profile index of each subplot in mm/km (in./mile) and indicate any high points (bumps) in excess of 8 mm (0.30 in.) with a line intersecting the profile on the printout. Computerized recorders shall provide the same information.

The profile index of each track, average profile index of each subplot, average profile index of the lot and locations of bumps shall be recorded on the form.

All traces and reports shall be provided to the Engineer for the project file.

The Engineer will use the results of the testing to evaluate paving methods and equipment. If the average profile index of a lot exceeds 635 mm/km (40.0 in./mile) for high-speed mainline pavement or 1025 mm/km (65.0 in./mile) for low-speed mainline pavement, the paving operation will be suspended until corrective action is taken by the Contractor.

- (e) Corrective Work. All bumps in excess of 8 mm (0.30 in.) in a length of 8 m (25 ft) or less shall be corrected. If the bump is greater than 13 mm (0.50 in.), the pavement shall be removed and replaced to the satisfaction of the Engineer at the Contractor's expense. The minimum length of pavement to be removed shall be 900 mm (3 ft).
- (1) High-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 475 (30.0) to 635 (40.0) mm/km (in./mile) including bumps, shall be corrected to reduce the profile index to 475 mm/km (30.0 in./mile) or less on each trace. Any subplot having a profile index greater than 635 mm/km (40.0 in./mile) including bumps, shall be corrected to reduce the profile index to 475 mm/km (30.0 in./mile) or less on each trace, or replaced at the Contractor's option.
- (2) Low-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 710 (45.0) to 1025 (65.0) mm/km (in./mile) including bumps, shall be corrected to reduce the profile index to 710 mm/km (45.0 in./mile) or less on each trace. Any subplot having a profile index greater than 1025 mm/km (65.0 in./mile)



including bumps, shall be corrected to reduce the profile index to 710 mm/km (45.0 in./mile) or less on each trace, or replaced at the Contractor's option.

- (3) Miscellaneous Pavement. Surface variations which exceed the 10 mm (3/8 in.) tolerance will be marked by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed using either an approved grinding device consisting of multiple saws or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area squared normal to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the subplot(s) shall be retested. The Contractor shall furnish the profilograph tracing(s) and the completed form(s) to the Engineer within two working days after corrections are made. If the profile index and/or bumps still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at the Contractor's expense.

- (f) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each subplot of mainline pavement, per the Smoothness Assessment Schedule. Assessments will be based on the average profile index of each subplot prior to performing any corrective work unless the Contractor has chosen to remove and replace the subplot. For subplots that are replaced, assessments will be based on the profile index determined after replacement.

Assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein.

| SMOOTHNESS ASSESSMENT SCHEDULE (Bituminous Concrete Overlays)             |  |                           |
|---|--|---------------------------|
| High-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Low-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Assessment<br>per subplot |
| 95 (6.0) or less  | 240 (15.0) or less   | +\$150.00                 |
| >95 (6.0) to 160 (10.0)   | >240 (15.0) to 400 (25.0)  | +\$80.00                  |
| >160 (10.0) to 475 (30.0)   | >400 (25.0) to 710 (45.0)  | +\$0.00                   |
| >475 (30.0) to 635 (40.0)   | >710 (45.0) to 1025 (65.0)   | +\$0.00                   |
| Greater than 635 (40.0)   | Greater than 1025 (65.0)   | -\$300.00                 |

Smoothness assessments will not be applied to miscellaneous pavement sections.”

**Bituminous Concrete Pavement (Full-Depth)**

Revise Article 407.09 of the Standard Specifications to read:

**“407.09 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.21 except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to each lane edge.”

| SMOOTHNESS ASSESSMENT SCHEDULE (Full-Depth Bituminous)                    |  |                           |
|---|--|---------------------------|
| High-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Low-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Assessment<br>per subplot |
| 95 (6.0) or less  |  | +\$800.00                 |
| >95 (6.0) to 175 (11.0)   | 240 (15.0) or less   | +\$550.00                 |
| >175 (11.0) to 270 (17.0)   | >240 (15.0) to 400 (25.0)  | +\$350.00                 |
| >270 (17.0) to 475 (30.0)   | >400 (25.0) to 710 (45.0)  | +\$0.00                   |
| >475 (30.0) to 635 (40.0)   | >710 (45.0) to 1025 (65.0)   | +\$0.00                   |
| Greater than 635 (40.0)   | Greater than 1025 (65.0)   | -\$500.00                 |

Delete the fourth paragraph of Article 407.13 of the Standard Specifications.

**Portland Cement Concrete Pavement**

Revise Article 420.12 of the Standard Specifications to read:

**“420.12 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.21 except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to each lane edge.

Membrane curing damaged during testing shall be repaired as directed by the Engineer at the Contractor’s expense.

No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to ground areas according to Article 420.21 at the Contractor’s expense.”

For pavement that is corrected by removal and replacement, the minimum length to be removed shall meet the requirements of either Class A or Class B patching.

| SMOOTHNESS ASSESSMENT SCHEDULE (PCC)                                      |  |                           |
|---|--|---------------------------|
| High-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Low-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Assessment<br>per subplot |
| 95 (6.0) or less  |  | +\$1200.00                |
| >95 (6.0) to 175 (11.0)   | 240 (15.0) or less   | +\$950.00                 |
| >175 (11.0) to 270 (17.0)   | >240 (15.0) to 400 (25.0)  | +\$600.00                 |
| >270 (17.0) to 475 (30.0)   | >400 (25.0) to 710 (45.0)  | +\$0.00                   |
| >475 (30.0) to 635 (40.0)   | >710 (45.0) to 1025 (65.0)   | +\$0.00                   |
| Greater than 635 (40.0)   | Greater than 1025 (65.0)   | -\$750.00                 |

Delete the sixth paragraph of Article 420.23 of the Standard Specifications.

### Testing Equipment

Revise Article 1101.10 of the Standard Specifications to read:

**“1101.10 Pavement Surface Test Equipment.** Required surface testing and analysis equipment and their jobsite transportation shall be provided by the Contractor.

- (a) 5 m (16 ft) Straightedge. The 5 m (16 ft) straightedge shall consist of a metal I-beam mounted between two wheels spaced 5 m (16 ft) between the axles. Scratcher bolts which can be easily and accurately adjusted, shall be set at the 1/4, 1/2, and 3/4 points between the axles. A handle suitable for pushing and guiding shall be attached to the straightedge. The straightedge shall meet the approval of the Engineer.
- (b) California Profilograph. The California Profilograph or approved equivalent shall consist of a frame 8 m (25 ft) in length supported upon multiple wheels at either end. The profile shall be recorded from the vertical movement of a wheel attached to the frame at mid point. All traces from pavement sections tested with a California Profilograph or approved equivalent shall be recorded on paper with scales of 300:1 longitudinally and 1:1 vertically. Data filters for an automated California Profilograph shall be set according to the parameters outlined in California Test 526, except the blanking band shall be set to 0.0 mm (0.00 in.).
  - (1) Calibration. The Contractor shall demonstrate to the Engineer that the testing equipment has proper tire pressure inflation, trueness of tire travel, and is calibrated for vertical displacement and horizontal distance. This calibration shall consist of the following:
    - a. A 150 to 300 m (500 to 1000 ft) long calibration test section shall be located on the project. This test section should be relatively straight and flat. The profilograph shall be calibrated for longitudinal distance on this test section to the satisfaction of the Engineer.

- b. Longitudinal calibration consists of pushing, at walking speed (approximately 5 km/hr (3 mph)), the profilograph over the pre-measured test section and determining the chart scale factor. To calculate the chart scale factor, divide the pre-measured test distance, in millimeters (inches), by the length of the profile trace from this test section, in millimeters (inches). This factor should be  $300 \pm 0.5$ . If the profilograph produces charts with a different scale factor, adjustment of the profilograph shall be made to bring the scale factor to the tolerance specified above.
- c. Vertical calibration consists of placing the center recording wheel of the profilograph on a base plate and recording the base elevation. Two plates, 13 mm (0.5 in.) thick each, are added under the center wheel, one at a time, and the change in elevation noted. The two plates are removed, one at a time, and the change in elevation noted. Each step in the process shall show a change in height of  $13 \text{ mm} \pm 1.0 \text{ mm}$  ( $0.5 \text{ in.} \pm 0.01 \text{ in.}$ ). If the profilograph produces results not conforming to the above limits, it shall be adjusted to the tolerance specified.
- d. The automatic trace reduction capability of a machine so equipped shall be checked by comparing the machine's results to the results obtained through manual trace reduction using California Test 526 with a 0.0 mm (0.00 in.) blanking band. The comparison shall be made with the trace obtained on the pre-measured test section. The results of the comparison shall not differ by more than 30 mm/km (2.0 in./mile).
- e. All calibration traces and calculations shall be submitted to the Engineer for the project file.

The Engineer may retest the pavement at any time to verify the accuracy of the equipment.

- (2) Trace Analysis. The Contractor shall reduce/evaluate these traces using a 0.0 mm (0.00 in.) blanking band and determine a profile index in mm/km (in./mile) for each section of finished pavement surface. If the Contractor's profilograph is equipped with a computerized recorder, the trace produced will be evaluated without further reduction. If the profilograph has a mechanical recorder, the Contractor shall provide an electronic scanner, a computer, and software to reduce the trace. All analysis equipment (electronic scanner, computerized recorder, etc.) shall be able to accept 0.0 mm (0.00 in.) for the blanking band."

### **SUSPENSION OF SLIPFORMED PARAPETS (BDE)**

Effective: June 11, 2004

The slipforming option, as stated in Article 503.17(e)(1) of the Standard Specifications will not be allowed on this project.

## **TEMPORARY EROSION CONTROL (BDE)**

Effective: November 1, 2002

Revise the fifth sentence of the third paragraph of Article 280.04(a) of the Standard Specifications to read:

“This work may be constructed of hay or straw bales, extruded UV resistant high density polyethylene panels, erosion control blanket, mulch barrier, aggregate barriers, excavation, seeding, or mulch used separately or in combination, as approved, by the Engineer.”

Add the following paragraphs after the fifth paragraph of Article 280.04(a) of the Standard Specifications.

“A ditch check constructed of extruded, UV resistant, high density polyethylene panels, “M” pins and erosion control blanket shall consist of the following materials:

Extruded, UV resistant, high density polyethylene panels shall have a minimum height of 250 mm (10 in.) and minimum length of 1.0 m (39.4 in.). The panels shall have a 51 mm (2 in.) lip along the bottom of the panel. Each panel shall have a single rib thickness of 4 mm (5/32 in.) with a 12 mm (1/2 in.) distance between the ribs. The panels shall have an average apparent opening size equal to 4.75 mm (No. 4) sieve, with an average of 30 percent open area. The tensile strength of each panel shall be 26.27 kN/m (1800 lb/ft) in the machine direction and 7.3 kN/m (500 lb/ft) in the transverse direction when tested according to ASTM D 4595.

“M” pins shall be at least 76 mm (3 in.) by 686 mm (27 in.), constructed out of deformed grade C1008 D3.5 rod (0.211 in. diameter). The rod shall have a minimum tensile strength of 55 MPa (8000 psi).

Erosion control blanket shall conform to Article 251.04.

A section of erosion control blanket shall be placed transverse to the flowline direction of the ditch prior to the construction of the polyethylene ditch check. The length of the section shall extend from the top of one side of the ditch to the top of the opposite side of the ditch, while the width of the section shall be one roll width of the blanket. The upstream edge of the erosion control blanket shall be secured in a 100 mm (4 in.) trench. The blanket shall be secured in the trench with 200 mm (8 in.) staples placed at 300 mm (1 ft) intervals along the edge before the trench is backfilled. Once the upstream edge of the blanket is secured, the downstream edge shall be secured with 200 mm (8 in.) staples placed at 300 mm (1 ft) intervals along the edge. The polyethylene ditch check shall be installed in the middle of the erosion control blanket, with the lip of each panel facing outward.

The ditch check shall consist of two panels placed back to back forming a single row. Placement of the first two panels shall be at the toe of the backslope or sideslope, with the panels extending across the bottom of the ditch. Subsequent panels shall extend both across the bottom of the ditch and up the opposite sideslope, as well as up the original backslope or sideslope at the distance determined by the Engineer.

The M pins shall be driven through the panel lips to secure the panels to the ground. M pins shall be installed in the center of the panels with adjacent panels overlapping the ends a minimum of 50 mm (2 in.). The pins shall be placed through both sets of panels at each overlap. They shall be installed at an interval of three M pins per one meter (39 in.) length of ditch check. The panels shall be wedged into the M pins at the top to ensure firm contact between the entire bottom of the panels and the soil."

## **TEMPORARY MODULE GLARE SCREEN SYSTEM (BDE)**

Effective: January 1, 2000

Description. This work consists of furnishing, installing, and maintaining a temporary modular glare screen system on top of temporary barrier according to the modular glare screen system manufacturer's specifications. The temporary modular glare screen system shall consist of modular base units attached to the top of concrete barrier rail with blades evenly spaced and securely mounted to base units.

### Materials.

(a) Specifications. The modular base units and glare screen blades shall be compatible so the base unit and blades can be securely attached to each other. The base unit and blades shall be supplied from the same manufacturer.

The length of individual modular base units shall be a maximum of 3.05 m (10') or no longer than the nominal 3.05 m (10') length of the individual temporary concrete barrier sections. The width of the modular base units shall be a maximum width of 150 mm (6") or no wider than the top of the temporary concrete barrier rail.

The glare screen blades shall be FHWA highway green in color and made of impact resistant non-metallic high-density plastic material. The blades shall have a height from 600 mm (24") to 750 mm (30") and a width from 150 mm (6") to 225 mm (9"). The same uniform sized blades shall be used throughout the project.

(b) Producers. The following modular glare screen systems may be used:

(1) Carsonite Modular Guidance System

Carsonite International  
1301 Hot Springs Road  
Carson City, NV 89706  
Phone: (800) 327-9647

(2) Safe-Hit Glare System

Safe-Hit Corporation  
1390 W. Winton Avenue  
Building 11  
Hayward, CA 94545  
Phone: (800) 537-8958

- (3) FlexStake Glare Screen  
FlexStake, Inc.  
2348 Bruner Lane SE  
Ft. Myers, FL 33912  
Phone: (800) 348-9839

Installation. The contractor shall install the temporary modular glare screen system according to the manufacturer's instructions. The temporary modular glare screen system shall be installed so that it is centered along the longitudinal axis length to the top of the concrete barrier rail and is flush with the rail so that the modular base unit does not extend over the joints between the concrete barrier sections. The glare screen blades shall be installed so the combination of blade width and spacing provide for a minimum 22-degree sight cut-off angle.

The contractor shall, at their own expense, maintain and repair the temporary modular glare screen system throughout the duration of the project.

Method of Measurement. The temporary modular glare screen system will be measured for payment in meters (feet) in place, measured along the centerline of the modular glare screen system.

Basis of Payment. The installation, maintenance, and removal of the temporary modular glare screen system will be paid at the contract unit price per meter (foot) for MODULAR GLARE SCREEN SYSTEM.

#### **TRAFFIC BARRIER TERMINALS (BDE)**

Effective: January 1, 2003

Revise Article 631.05 of the Standard Specifications to read:

**"631.05 Traffic Barrier Terminal, Type 5 and Type 5A.** The face of the guardrail shall be installed flush with the face of the bridge rail or parapet."

Revise Article 631.06 of the Standard Specifications to read:

**"631.06 Traffic Barrier Terminal, Type 6.** When attaching the end shoe to concrete constructed with forms and with a thickness of 300 mm (12 in.) or less, the holes may be formed, core drilled or an approved 20 mm (3/4 in.) cast-in-place insert may be used.

When attaching the end shoe to concrete constructed with forms and with a thickness greater than 300 mm (12 in.), an approved M20 (3/4 in.) bolt with an approved expansion device may be used in lieu of formed or core drilled holes.

When attaching the end shoe to concrete constructed by slipforming, the holes shall be core drilled.

The tapered, parapet, wood block out shall be used on all appurtenances with a sloped face.

When no bridge approach curb is present, Type B concrete curb shall be constructed as shown on the plans according to Section 606.”

Revise Article 631.07 of the Standard Specifications to read:

“**631.07 Traffic Barrier Terminal, Type 6B.** Attachment of the end shoe to concrete shall be according to Article 631.06 except the tapered, parapet, wood block out will not be required.”

Delete the third and fourth paragraphs of Article 631.11 of the Standard Specifications.

Add the following paragraph to the end of Article 631.11 of the Standard Specifications:

“Construction of the Type B concrete curb for TRAFFIC BARRIER TERMINAL, TYPE 6 will be paid for according to Article 606.14.”

### **TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)**

Effective: April 1, 1992

Revised: January 1, 2005

To ensure a prompt response to incidents involving the integrity of work zone traffic control, the Contractor shall provide a telephone number where a responsible individual can be contacted 24 hours-a-day.

When the Engineer is notified, or determines a traffic control deficiency exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 12 hours based upon the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge.

A deficiency may be any lack of repair, maintenance, or non-compliance with the traffic control plan. A deficiency may also be applied to situations where corrective action is not an option such as the use of non-certified flaggers for short term operations; working with lane closures beyond the time allowed in the contract; or failure to perform required contract obligations such as traffic control surveillance.

If the Contractor fails to correct a deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with notification to the Contractor and end with the Engineer's acceptance of the correction. The daily monetary deduction will be either \$1,000 or 0.05 percent of the awarded contract value, whichever is greater. For those deficiencies where corrective action was not an option this monetary deduction will be immediate.

In addition, if the Contractor fails to respond, the Engineer may correct the deficiency and the cost thereof will be deducted from monies due or which may become due the Contractor. This corrective action will in no way relieve the Contractor of his/her contractual requirements or responsibilities.



## **TRAINING SPECIAL PROVISIONS**

This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 10. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor

and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

**TRANSIENT VOLTAGE SURGE SUPPRESSION (BDE)**

Effective: August 1, 2003

Revise the first paragraph of Article 1074.03(a)(4) of the Standard Specifications to read:

“(4) Transient Voltage Surge Suppression. The cabinet shall be provided with transient voltage surge suppression. Transient surge suppression unit leads shall be kept as short as possible and ground shall be made directly to the cabinet wall or ground plate as near as possible to the object being grounded. All transient surge suppression units shall be tested and certified as meeting this specification by an independent testing laboratory. One copy of each of the full testing report shall be submitted to the Engineer.”

Revise Article 1074.03(a)(4)a. of the Standard Specifications to read:

- “a. Surge Suppressor. The suppressor protecting the solid state controller, conflict monitor, and detection equipment shall consist of two stages: stage one which shall include a controller cabinet AC power protection assembly and stage two which shall include AC circuit protection.

The design of the stage one suppressor shall be modular and it shall be installed in such a way that it may be removed and replaced with the intersection under power and in flashing operation. It shall have a permanently mounted and wired base and a removable circuit package. The stage one suppressor shall have two LED failure indicators for power ‘on’ and suppression ‘failure’ and shall meet the following properties:

| Stage One Suppressor               |                                   |
|------------------------------------|-----------------------------------|
| Properties                         | Criteria                          |
| “Plug-in” suppression module       | 12 pin connector assembly         |
| Clamp voltage                      | 250 V at 20,000 A typical         |
| Response time                      | Less than 5 nanoseconds           |
| Maximum continuous service current | 15 A at 120 VAC 60 Hz             |
| High frequency noise attenuation   | At least 50 dB at 100,000 Hz      |
| Operating temperature              | -40 °C (-40 °F) to 85 °C (185 °F) |

If the controller assembly includes a system telemetry module or remote intersection monitor, the status of the stage one suppressor shall be continuously and remotely monitored by an appropriate alarm circuit.

The stage two, high speed, solid state, transient suppressor shall protect the system from transient over voltage without affecting power at the load. It shall suppress transients of either polarity and from either direction (source or load). The suppressor shall have a visual "on" indicator lamp when the unit is operating normally. It shall also have a UL plastic enclosure, a four position terminal strip for power connection, and it shall utilize silicon avalanche diode technology. The stage two suppressor shall meet the following properties:

| Stage Two Suppressor                        |                                   |
|---|-----------------------------------|
| Properties                                  | Criteria                          |
| Nominal service voltage                     | 120 V at 50/60 Hz                 |
| Maximum voltage protection level            | ±330 V                            |
| Minimum voltage protection level            | ±220 V ±5%                        |
| Minimum surge current rating                | 700 A                             |
| Stand by power                              | Less than 0.5 Watts               |
| Hot to neutral leakage current at 120 V RMS | Less than 5µA                     |
| Maximum response time                       | 5 nanoseconds                     |
| Operating and Storage temperature           | -20 °C (-4 °F) to 50 °C (122 °F)" |

**TRUCK BED RELEASE AGENT (BDE)**

Effective: April 1, 2004

Add the following sentence after the third sentence of the first paragraph of Article 406.14 of the Standard Specifications.

"In addition to the release agent, the Contractor may use a light scatter of manufactured sand (FA 20 or FA 21) evenly distributed over the bed of the vehicle."

**WEIGHT CONTROL DEFICIENCY DEDUCTION**

Effective: April 1, 2001

Revised: August 1, 2002

The Contractor shall provide accurate weights of materials delivered to the contract for incorporation into the work (whether temporary or permanent) and for which the basis of payment is by weight. These weights shall be documented on delivery tickets which shall identify the source of the material, type of material, the date and time the material was loaded, the contract number, the net weight, the tare weight when applicable and the identification of the transporting vehicle. For aggregates, the Contractor shall have the driver of the vehicle furnish or establish an acceptable alternative to provide the contract number and a copy of the material order to the source for each load. The source is defined as that facility that produces the final material product that is to be incorporated into the contract pay items.

The Department will conduct random, independent vehicle weight checks for material sources according to the procedures outlined in the Documentation Section Policy Statement of the Department's Construction Manual and hereby incorporated by reference. The results of the independent weight checks shall be applicable to all contracts containing this Special Provision. Should the vehicle weight check for a source result in the net weight of material on the vehicle exceeding the net weight of material shown on the delivery ticket by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. No adjustment in pay quantity will be made. Should the vehicle weight check for a source result in the net weight of material shown on the delivery ticket exceeding the net weight of material on the vehicle by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. The Engineer will adjust the net weight shown on the delivery ticket to the checked delivered net weight as determined by the independent vehicle weight check.

The Engineer will also adjust the method of measurement for all contracts for subsequent deliveries of all materials from the source based on the independent weight check. The net weight of all materials delivered to all contracts containing this Special Provision from this source, for which the basis of payment is by weight, will be adjusted by applying a correction factor "A" as determined by the following formula:

$$A = 1.0 - \left( \frac{B - C}{B} \right); \text{ Where } A \leq 1.0; \left( \frac{B - C}{C} \right) > 0.50\% \text{ (0.70\% for aggregates)}$$

Where A = Adjustment factor  
B = Net weight shown on delivery ticket  
C = Net weight determined from independent weight check

The adjustment factor will be applied as follows:

$$\text{Adjusted Net Weight} = A \times \text{Delivery Ticket Net Weight}$$

The adjustment factor will be imposed until the cause of the deficient weight is identified and corrected by the Contractor to the satisfaction of the Engineer. If the cause of the deficient weight is not identified and corrected within seven (7) calendar days, the source shall cease delivery of all materials to all contracts containing this Special Provision for which the basis of payment is by weight.

Should the Contractor elect to challenge the results of the independent weight check, the Engineer will continue to document the weight of material for which the adjustment factor would be applied. However, provided the Contractor furnishes the Engineer with written documentation that the source scale has been calibrated within seven (7) calendar days after the date of the independent weight check, adjustments in the weight of material paid for will not be applied unless the scale calibration demonstrates that the source scale was not within the specified Department of Agriculture tolerance.

At the Contractor's option, the vehicle may be weighed on a second independent Department of Agriculture certified scale to verify the accuracy of the scale used for the independent weight check.

## **WORK ZONE TRAFFIC CONTROL DEVICES (BDE)**

Effective: January 1, 2003

Revised: November 1, 2004

Add the following to Article 702.01 of the Standard Specifications:

“All devices and combinations of devices shall meet the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350 for their respective categories. The categories are as follows:

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, flexible delineators and plastic drums with no attachments. Category 1 devices shall be crash tested and accepted or may be self-certified by the manufacturer.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include drums and vertical panels with lights, barricades and portable sign supports. Category 2 devices shall be crash tested and accepted for Test Level 3.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions, truck mounted attenuators and other devices not meeting the definitions of Category 1 or 2. Category 3 devices shall be crash tested and accepted for either Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as arrow boards, changeable message signs, temporary traffic signals and area lighting supports. Currently, there is no implementation date set for this category and it is exempt from the NCHRP 350 compliance requirement.

The Contractor shall provide a manufacturer's self-certification letter for each Category 1 device and an FHWA acceptance letter for each Category 2 and Category 3 device used on the contract. The letters shall state the device meets the NCHRP 350 requirements for its respective category and test level, and shall include a detail drawing of the device.”

Delete the third, fourth and fifth paragraphs of Article 702.03(b) of the Standard Specifications.

Delete the third sentence of the first paragraph of Article 702.03(c) of the Standard Specifications.

Revise the first sentence of the first paragraph of Article 702.03(e) of the Standard Specifications to read:

“Drums shall be nonmetallic and have alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes.”

Add the following to Article 702.03 of the Standard Specifications:

“(h) Vertical Barricades. Vertical barricades may be used in lieu of cones, drums or Type II barricades to channelize traffic.”

Delete the fourth paragraph of Article 702.05(a) of the Standard Specifications.

Revise the sixth paragraph of Article 702.05(a) of the Standard Specifications to read:

“When the work operations exceed four days, all signs shall be post mounted unless the signs are located on the pavement or define a moving or intermittent operation. When approved by the Engineer, a temporary sign stand may be used to support a sign at 1.2 m (5 ft) minimum where posts are impractical. Longitudinal dimensions shown on the plans for the placement of signs may be increased up to 30 m (100 ft) to avoid obstacles, hazards or to improve sight distance, when approved by the Engineer. “ROAD CONSTRUCTION AHEAD” signs will also be required on side roads located within the limits of the mainline “ROAD CONSTRUCTION AHEAD” signs.”

Delete all references to “Type 1A barricades” and “wing barricades” throughout Section 702 of the Standard Specifications.

### **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.

### **STEEL COST ADJUSTMENT (BDE)**

Effective: April 2, 2004

Revised: July 1, 2004

Description. At the bidder’s option, a steel cost adjustment will be made to provide additional compensation to the Contractor or a credit to the Department for fluctuations in steel prices. The bidder must indicate on the attached form whether or not steel cost adjustments will be part of this contract. This attached form shall be submitted with the bid. Failure to submit the form shall make this contract exempt of steel cost adjustments.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

Metal Piling (excluding temporary sheet piling)  
Structural Steel  
Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), frames and grates, and other miscellaneous items will be subject to a steel cost adjustment when the pay item they are used in has a contract value of \$10,000 or greater.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

- (a) Evidence that increased or decreased steel costs have been passed on to the Contractor.
- (b) The dates and quantity of steel, in kg (lb), shipped from the mill to the fabricator.
- (c) The quantity of steel, in kg (lb), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$$SCA = Q \times D$$

Where: SCA = steel cost adjustment, in dollars  
Q = quantity of steel incorporated into the work, in kg (lb)  
D = price factor, in dollars per kg (lb)

$$D = CBP_M - CBP_L$$

Where:  $CBP_M$  = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the American Metal Market (AMM) for the day the steel is shipped from the mill. The indices will be converted from dollars per ton to dollars per kg (lb).

$CBP_L$  = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the AMM for the day the contract is let. The indices will be converted from dollars per ton to dollars per kg (lb).

The unit masses (weights) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the  $CBP_M$  will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.



Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the  $CBP_L$  and  $CBP_M$  in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(CBP_L - CBP_M) \div CBP_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the steel items are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

**Attachment**

| Item  | Unit Mass (Weight)            |
|---|-------------------------------|
| Metal Piling (excluding temporary sheet piling)                                   |                               |
| Furnishing Metal Pile Shells 305 mm (12 in.), 3.80 mm (0.179 in.) wall thickness) | 34 kg/m (23 lb/ft)            |
| Furnishing Metal Pile Shells 305 mm (12 in.), 6.35 mm (0.250 in.) wall thickness) | 48 kg/m (32 lb/ft)            |
| Furnishing Metal Pile Shells 356 mm (14 in.), 6.35 mm (0.250 in.) wall thickness) | 55 kg/m (37 lb/ft)            |
| Other piling  | See plans                     |
| Structural Steel  | See plans for weights         |
| Reinforcing Steel   | See plans for weights         |
| Dowel Bars and Tie Bars   | 3 kg (6 lb) each              |
| Mesh Reinforcement  | 310 kg/sq m (63 lb/100 sq ft) |
| Guardrail   |                               |
| Steel Plate Beam Guardrail, Type A w/steel posts                                  | 30 kg/m (20 lb/ft)            |
| Steel Plate Beam Guardrail, Type B w/steel posts                                  | 45 kg/m (30 lb/ft)            |
| Steel Plate Beam Guardrail, Types A and B w/wood posts                            | 12 kg/m (8 lb/ft)             |
| Steel Plate Beam Guardrail, Type 2  | 140 kg (305 lb) each          |
| Steel Plate Beam Guardrail, Type 6  | 570 kg (1260 lb) each         |
| Traffic Barrier Terminal, Type 1 Special (Tangent)                                | 330 kg (730 lb) each          |
| Traffic Barrier Terminal, Type 1 Special (Flared)                                 | 185 kg (410 lb) each          |
| Steel Traffic Signal and Light Poles, Towers and Mast Arms                        |                               |
| Traffic Signal Post   | 16 kg/m (11 lb/ft)            |
| Light Pole, Tenon Mount and Twin Mount, 9 m – 12 m (30 - 40 ft)                   | 21 kg/m (14 lb/ft)            |
| Light Pole, Tenon Mount and Twin Mount, 13.5 m – 16.5 m (45 - 55 ft)              | 31 kg/m (21 lb/ft)            |
| Light Pole w/Mast Arm, 9 m – 15.2 m (30 - 50 ft)                                  | 19 kg/m (13 lb/ft)            |
| Light Pole w/Mast Arm, 16.5 m – 18 m (55 - 60 ft)                                 | 28 kg/m (19 lb/ft)            |
| Light Tower w/Luminaire Mount, 24 m – 33.5 m (80 - 110 ft)                        | 46 kg/m (31 lb/ft)            |
| Light Tower w/Luminaire Mount, 36.5 m – 42.5 m (120 - 140 ft)                     | 97 kg/m (65 lb/ft)            |
| Light Tower w/Luminaire Mount, 45.5 m – 48.5 m (150 - 160 ft)                     | 119 kg/m (80 lb/ft)           |
| Metal Railings (excluding wire fence)   |                               |
| Steel Railing, Type SM  | 95 kg/m (64 lb/ft)            |
| Steel Railing, Type S-1   | 58 kg/m (39 lb/ft)            |
| Steel Railing, Type T-1   | 79 kg/m (53 lb/ft)            |
| Steel Bridge Rail   | 77 kg/m (52 lb/ft)            |
| Frames and Grates   |                               |
| Frame   | 115 kg (250 lb)               |
| Lids and Grates   | 70 kg (150 lb)                |

**RETURN WITH BID**

**ILLINOIS DEPARTMENT  
OF TRANSPORTATION**

**OPTION FOR  
STEEL COST ADJUSTMENT**

The bidder shall submit this form with his/her bid. Failure to submit the form shall make this contract exempt of steel cost adjustments. After award, this form, when submitted shall become part of the contract.

**Contract No.:** \_\_\_\_\_

**Company Name:** \_\_\_\_\_

**Contractor's Option:**

Is your company opting to include this special provision as part of the contract plans?

Yes  No

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_



Storm Water Pollution Prevention Plan

Route FAI Route 74  
Section (72-7)R-3  
County Peoria

Marked I-74  
Project No. D-94-009-02

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

*John E. Cooney*  
Signature  
REGIONAL ENGINEER  
Title

2-10-05  
Date

1. Site Description

- a. The following is a description of the construction activity which is the subject of this plan (use additional pages, as necessary):

The work consists of reconstructing the Westbound FAI I-74 pavement at locations shown in the plans. War Memorial Drive will be widened and resurfaced. Access ramps will be constructed at Sterling Avenue and the War Memorial Drive and Gale Avenue interchanges will be reconstructed. In addition to pavement reconstruction, the improvements include earth excavation and embankment, the construction of retaining walls (SN 072-8618, 072-8619), removal and replacement of existing SN 072-2032 (twin box culverts beneath I-74), removal and replacement of existing SN 072-2030 (twin box culverts beneath ramp B-3), the extension of an existing box culvert, construction of parallel culverts beneath War Memorial Drive, the removal and replacement of a box culvert (SN 072-2005), construction of noise walls, removal and replacement of pavement underdrain system, realignment of Dry Run Creek, pipe culverts, storm sewers, drainage ditch construction and realignment, construction of median and ramp crossovers, guardrail, tree removal, lighting, traffic control signals, signing, and miscellaneous items pertaining to this work.

- b. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading (use additional pages, as necessary):  
Sequence of Construction as follows:

- 1. Clearing and Tree Removal
- 2. Erosion Control and Inlet Protection
- 3. Removal and Demolition
- 4. Underground Utilities and Storm Sewer
- 5. Excavation and Rough Grading
- 6. Roadway, Ramp and Structure Construction
- 7. Final Grading and Seeding

- c. The total area of the construction site is estimated to be 208.1 acres.

The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is \_\_\_\_\_ acres.

- d. The estimated runoff coefficients of the various areas of the site after construction activities are completed are contained in the project drainage study which is hereby incorporated by reference in this plan. Information describing the soils at the site is contained either in the Soils Report for the project, which is hereby incorporated by reference, or in an attachment to this plan.
- e. The design/project report, hydraulic report, or plan documents, hereby incorporated by reference, contain site map(s) indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of major soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water.
- f. The names of receiving water(s) and areal extent of wetland acreage at the site are in the design/project report or plan documents which are incorporated by reference as a part of this plan.

## 2. Controls

This section of the plan addresses the various controls that will be implemented for each of the major construction activities described in 1.b. above. For each measure discussed, the contractor that will be responsible for its implementation is indicated. Each such contractor has signed the required certification on forms which are attached to, and a part of, this plan:

### a. Erosion and Sediment Controls

- (i) **Stabilization Practices.** Provided below is a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided in 2.a.(i).(A) and 2.b., stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased on all disturbed portions of the site where construction activity will not occur for a period of 21 or more calendar days.

- (A) where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

Description of Stabilization Practices (use additional pages, as necessary):

The intent of the stabilization practices is to provide permanent seeding, erosion control blanket, and mulch on areas disturbed as soon as possible. Temporary seeding for erosion control will be placed as soon as possible on disturbed areas, and enhanced with temporary seeding, until permanent controls can be installed. Articulated Block Mat and temporary ditch checks will be constructed in ditch bottoms to stabilized ditch bottoms and prevent erosion.

- (ii) **Structural Practices.** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

Description of Structural Practices (use additional pages, as necessary):

Perimeter Erosion Barrier (silt fence) will be used in all areas where runoff from disturbed areas has the potential to travel offsite or into swales, ditches, ponds, wetlands, or other natural water bodies. Temporary ditch checks will be placed within proposed drainage swales and ditches as shown on the plans.

Inlet and Pipe Protection will be used on all drainage structures where runoff from disturbed areas is collected.

Perimeter Erosion Barrier (silt fence) shall be constructed at the toes of all temporary stockpiles.

Temporary measures to remain in place until permanent measures are taken and/or vegetation has been established.

**b. Storm Water Management**

Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

(i) Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on site; and sequential systems (which combine several practices). **The practices selected for implementation were determined on the basis of the technical guidance in Section 10-300 (Design Considerations) in Chapter 10 (Erosion and Sedimentation Control) of the Illinois Department of Transportation Drainage Manual. If practices other than those discussed in Section 10-300 are selected for implementation or if practices are applied to situations different from those covered in Section 10-300, the technical basis for such decisions will be explained below.**

(ii) Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions, such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of Storm Water Management Controls (use additional pages, as necessary):

Riprap will be placed at culvert inlets and outlets at the locations shown on the plans to dissipate velocity and provide channel and storm sewer stability. Riprap will be placed in ditches at the locations shown on the plans to provide channel stability.

Where feasible, infield areas of ramps will be used as vegetated swales and infiltration areas for storm water prior to being collected by subsurface drainage system.

The Engineer may add additional temporary measures to fit field conditions.

**c. Other Controls**

- (i) **Waste Disposal.** No solid materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.
- (ii) The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

**d. Approved State or Local Plans**

The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

Not Applicable.



### 3. Maintenance

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, erosion and sediment control measures and other protective measures identified in this plan (use additional pages, as necessary):

Maintenance of erosion control items will be as described in Section 280 of the Standard Specifications, including additional temporary seeding for erosion control when necessary and cleaning of silt as required due to field conditions and repairing damage as it occurs.

### 4. Inspections

Qualified personnel shall inspect disturbed areas of the construction site which have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

- a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.
- b. Based on the results of the inspection, the description of potential pollutant sources identified in section 1 above and pollution prevention measures identified in section 2 above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within 7 calendar days following the inspection.
- c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section 4.b. shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.
- d. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer or Resident Technician shall complete and file an "Incidence of Noncompliance" (ION) report for the identified violation. The Resident Engineer or Resident Technician shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The report of noncompliance shall be mailed to the following address:

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Attn: Compliance Assurance Section  
1021 North Grand East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

## **5. Non-Storm Water Discharges**

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge. (Use additional pages as necessary to describe non-storm water discharges and applicable pollution control measures).

Non-storm water discharges shall be directed to erosion control facilities prior to discharging from the site. Erosion control facilities shall be perimeter erosion barrier, inlet and pipe protection, ditch checks or sediment basins. If existing erosion control facilities are not present at the proposed point of non-storm water discharge, then erosion facilities shall be constructed, as approved by the engineer, prior to the release of a non-storm water discharge.

Erosion control facilities are required for the following non-storm water discharges:

- Vehicle Wash Down Water
- Pavement Cleaning
- Water for Dust Control
- Water for Seeding and Landscaping Purposes



### Contractor Certification Statement

This certification statement is a part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with NPDES Permit No. ILR10, issued by the Illinois Environmental Protection Agency on May 14, 1998.

**Project Information:**

|         |                     |             |                    |
|---------|---------------------|-------------|--------------------|
| Route   | <u>FAI Route 74</u> | Marked      | <u>I-74</u>        |
| Section | <u>(72-7)R-3</u>    | Project No. | <u>D-94-009-02</u> |
| County  | <u>Peoria</u>       |             |                    |

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

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|------------------|--|-------|--|
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| Signature        |  | Date  |  |
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| Title            |  |       |  |
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| Name of Firm     |  |       |  |
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| Telephone Number |  |       |  |
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**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

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**ATTACHMENTS**

- A. Employment Preference for Appalachian Contracts  
(included in Appalachian contracts only)

**I. GENERAL**

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4 and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

- a. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or
- b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

**II. NONDISCRIMINATION**

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60 (and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job-training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above

agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employees referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish which such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any

evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to

the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or quailifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

### III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

### IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

#### 1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the

contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

## 2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or

disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the question, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

## 3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any cost reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## 4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

### a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not

be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits

Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which cases such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV. 2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainee's and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.



8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall; upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

**V. STATEMENTS AND PAYROLLS**

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan

or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period).

The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V.

This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U/S. C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for

inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

## **VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR**

1. On all federal-aid contracts on the national highway system, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

- a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.
- b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.
- c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

## **VII. SUBLETTING OR ASSIGNING THE CONTRACT**

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

- a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a

whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract.

Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

## **VIII. SAFETY: ACCIDENT PREVENTION**

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

## **IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification,

distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

**NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS**

18 U.S.C. 1020 reads as follows:

*“Whoever, being an officer, agent or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or*

*Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or*

*Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;*

*Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both.”*

**X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more).

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of

any communication from the Director, Office of Federal Activities, EPA indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

**XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled

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"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded from Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Primary Covered Transactions**

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and
- d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

### **2. Instructions for Certification - Lower Tier Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealing.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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**Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion-Lower Tier Covered Transactions:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

## **MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS**

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision

### **NOTICE**

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at <http://www.dot.il.gov/desenv/delett.html>.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at <http://www.dot.il.gov/desenv/subsc.html>.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.