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

### PREQUALIFICATION

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

### REQUESTS FOR AUTHORIZATION TO BID

Contractors 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

Technical Questions about downloading these files may be directed to Tim Garman (217)524-1642 or 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?**

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

RETURN WITH BID

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

**Letting June 17, 2005**

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. 83776**
**MCHENRY County**
**Section 95-00090-00-FP (Crystal Lake)**
**Route FAU 126 (Pingree Road)**
**Project M-8003(328)**
**District 1 Construction Funds**

PLEASE MARK THE APPROPRIATE BOX BELOW:

☐ A Bid Bond is included.

☐ A Cashier's Check or a Certified Check is included

Prepared by

Checked by F

(Printed by authority of the State of Illinois)

## INSTRUCTIONS

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

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

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

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

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

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

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

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

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

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

**RETURN WITH BID**

Illinois Department of Transportation

# PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

   _____

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

   **Contract No. 83776**
   **MCHENRY County**
   **Section 95-00090-00-FP (Crystal Lake)**
   **Project M-8003(328)**
   **Route FAU 126 (Pingree Road)**
   **District 1 Construction Funds**

   **The improvement consists of full-depth bituminous pavement reconstruction on the north and south legs of Pingree Road, full-depth bituminous widening and resurfacing on U.S. Route 14 and the south leg of Pingree Road and other work including storm sewers, curb and gutter, traffic signal modernization and landscaping to complete the project in Crystal Lake.**

2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good and workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents shall govern performance and payments.

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, form of contract and contract bond, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.

4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** The undersigned further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bond satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract.

5. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

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

Bank cashier's checks or properly certified checks accompanying proposals shall be made payable to the Treasurer, State of Illinois, when the state is awarding authority; the county treasurer, when a county is the awarding authority; or the city, village, or town treasurer, when a city, village, or town is the awarding authority.

If a combination bid is submitted, the proposal guaranties which accompany the individual proposals making up the combination will be considered as also covering the combination bid.

The amount of the proposal guaranty check is _____ $(  ). If this proposal is accepted and the undersigned shall fail to execute a contract bond as required herein, it is hereby agreed that the amount of the proposal guaranty shall become the property of the State of Illinois, and shall be considered as payment of damages due to delay and other causes suffered by the State because of the failure to execute said contract and contract bond; otherwise, the bid bond shall become void or the proposal guaranty check shall be returned to the undersigned.

**Attach Cashier's Check or Certified Check Here**

In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual proposal. If the guaranty check is placed in another proposal, state below where it may be found.

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

Item _____

Section No. _____

County _____

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

BD 354 (Rev. 11/2001)

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

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

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

**Schedule of Combination Bids**

| Combination No. | Sections Included in Combination | Combination Bid Dollars | Cents |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

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

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

| COUNTY NAME | CODE | DIST | SECTION NUMBER | PROJECT NUMBER | ROUTE |
|---|---|---|---|---|---|
| MCHENRY | 111 | 01 | 95-00090-00-FP (CRYSTAL LAKE) | M-8003/328/000 | FAU 0126 |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| A2000624 | T-ACER PLAT 3 | EACH | 5.000 | X | | | = | | |
| XX002856 | RE-OPTIMIZE TR SIG SY | L SUM | 1.000 | X | | | = | | |
| XX003503 | FLARED END SEC REM | EACH | 2.000 | X | | | = | | |
| XX004852 | BIT DRIVEWAY PAVT SUP | SQ YD | 363.000 | X | | | = | | |
| XX005106 | PVC CASING PIPE, 18 | FOOT | 21.000 | X | | | = | | |
| XX006050 | DRYWL RECON T 1F, CL | EACH | 2.000 | X | | | = | | |
| XX006051 | REMOVING DRYWELLS | EACH | 13.000 | X | | | = | | |
| XX006052 | SAN SEW REMOVAL SPEC | FOOT | 278.000 | X | | | = | | |
| XX006053 | MAINT EX SYS INTERCON | EACH | 1.000 | X | | | = | | |
| XX006054 | CUT & CONN SLOT DRAIN | EACH | 5.000 | X | | | = | | |
| X0321558 | SAN MH ADJ NEW T1F CL | EACH | 4.000 | X | | | = | | |
| X0321720 | WATER MAIN REMOVAL | FOOT | 570.000 | X | | | = | | |
| X0322033 | STORM SEW WM REQ 12 | FOOT | 442.000 | X | | | = | | |
| X0712400 | TEMP PAVEMENT | SQ YD | 200.000 | X | | | = | | |
| X3550400 | BIT BC SUPER 7 | SQ YD | 12,240.000 | X | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|
| X3550515 | BIT BC SUPER 8 3/4 | SQ YD | 2,770.000 | | | X = | | |
| X4066426 | BC SC SUPER "D" N70 | TON | 1,359.000 | | | X = | | |
| X4066548 | P BCSC SUPER "F" N90 | TON | 1,272.000 | | | X = | | |
| X4066616 | BCBC SUP IL-19.0 N70 | TON | 1,731.000 | | | X = | | |
| X4066618 | BCBC SUP IL-19.0 N90 | TON | 374.000 | | | X = | | |
| X4067100 | P LB MM SU IL4.75 N50 | TON | 40.000 | | | X = | | |
| X4080020 | INCID BIT SUR SUP N50 | TON | 86.000 | | | X = | | |
| X6700410 | ENGR FLD OFF A SPL | CAL MO | 7.000 | | | X = | | |
| X7015000 | CHANGEABLE MESSAGE SN | CAL MO | 2.000 | | | X = | | |
| X8050015 | SERV INSTALL POLE MT | EACH | 1.000 | | | X = | | |
| X8730027 | ELCBL C GROUND 6 1C | FOOT | 675.000 | | | X = | | |
| X8730320 | EC C SIGL 20 3C TW SH | FOOT | 330.000 | | | X = | | |
| X8800020 | SH LED 1F 3S MAM | EACH | 2.000 | | | X = | | |
| X8800040 | SH LED 1F 5S BM | EACH | 2.000 | | | X = | | |
| X8800045 | SH LED 1F 5S MAM | EACH | 6.000 | | | X = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| X8800070 | SH LED 2F 5S BM | EACH | 2.000 | X | | | = | | |
| X8810610 | PED SH LED 1F BM | EACH | 4.000 | X | | | = | | |
| X8810620 | PED SH LED 2F BM | EACH | 2.000 | X | | | = | | |
| Z0000990 | AGG FOR TEMP ACCESS | TON | 900.000 | X | | | = | | |
| Z0001050 | AGG SUBGRADE 12 | SQ YD | 16,150.000 | X | | | = | | |
| Z0019500 | DRYWELL | EACH | 22.000 | X | | | = | | |
| Z0019600 | DUST CONTROL WATERING | UNIT | 150.000 | X | | | = | | |
| Z0057000 | SAN SEW 10 | FOOT | 274.000 | X | | | = | | |
| Z0076600 | TRAINEES | HOUR | 1,000.000 | X | 0 | .80 | = | 800 | .00 |
| 20100110 | TREE REMOV 6-15 | UNIT | 40.000 | X | | | = | | |
| 20100500 | TREE REMOV ACRES | ACRE | 0.100 | X | | | = | | |
| 20200100 | EARTH EXCAVATION | CU YD | 17,250.000 | X | | | = | | |
| 20700420 | POROUS GRAN EMB SUBGR | CU YD | 480.000 | X | | | = | | |
| 20800150 | TRENCH BACKFILL | CU YD | 1,754.000 | X | | | = | | |
| 21001000 | GEOTECH FAB F/GR STAB | SQ YD | 1,420.000 | X | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| 21101615 | TOPSOIL F & P 4 | SQ YD | 8,886.000 | X | | | = | | |
| 21301084 | EXPLOR TRENCH 84 | FOOT | 100.000 | X | | | = | | |
| 25000110 | SEEDING CL 1A | ACRE | 0.700 | X | | | = | | |
| 25000400 | NITROGEN FERT NUTR | POUND | 131.000 | X | | | = | | |
| 25000500 | PHOSPHORUS FERT NUTR | POUND | 131.000 | X | | | = | | |
| 25000600 | POTASSIUM FERT NUTR | POUND | 131.000 | X | | | = | | |
| 25100115 | MULCH METHOD 2 | ACRE | 3.800 | X | | | = | | |
| 25100630 | EROSION CONTR BLANKET | SQ YD | 2,760.000 | X | | | = | | |
| 25200110 | SODDING SALT TOLERANT | SQ YD | 6,126.000 | X | | | = | | |
| 25200200 | SUPPLE WATERING | UNIT | 56.000 | X | | | = | | |
| 28000250 | TEMP EROS CONTR SEED | POUND | 373.000 | X | | | = | | |
| 28000300 | TEMP DITCH CHECKS | EACH | 15.000 | X | | | = | | |
| 28000400 | PERIMETER EROS BAR | FOOT | 2,710.000 | X | | | = | | |
| 28000500 | INLET & PIPE PROTECT | EACH | 48.000 | X | | | = | | |
| 40600200 | BIT MATLS PR CT | TON | 10.000 | X | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | UNIT PRICE DOLLARS | UNIT PRICE CENTS | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|
| 40600300 | AGG PR CT | TON | 36.000 X | | = | | |
| 40600895 | CONSTRUC TEST STRIP | EACH | 1.000 X | | = | | |
| 40600980 | BIT SURF REM BUTT JT | SQ YD | 575.000 X | | = | | |
| 42001300 | PROTECTIVE COAT | SQ YD | 3,850.000 X | | = | | |
| 42400100 | PC CONC SIDEWALK 4 | SQ FT | 17,748.000 X | | = | | |
| 42400410 | PC CONC SIDEWALK 8 | SQ FT | 1,062.000 X | | = | | |
| 42400440 | PC CONC SIDEWALK 6 SP | SQ FT | 650.000 X | | = | | |
| 44000007 | BIT SURF REM 2 | SQ YD | 144.000 X | | = | | |
| 44000030 | BIT SURF REM VAR DP | SQ YD | 2,973.000 X | | = | | |
| 44000300 | CURB REM | FOOT | 236.000 X | | = | | |
| 44000500 | COMB CURB GUTTER REM | FOOT | 2,262.000 X | | = | | |
| 44201747 | CL D PATCH T4 8 | SQ YD | 127.000 X | | = | | |
| 44201785 | CL D PATCH T1 12 | SQ YD | 60.000 X | | = | | |
| 44300100 | AREA REF CR CON TREAT | SQ YD | 1,490.000 X | | = | | |
| 44300200 | STRIP REF CR CON TR | FOOT | 5,950.000 X | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|
| 48202600 | BIT SHLD SUPER 8 | SQ YD | 407.000 | | | = | | |
| 54213660 | PRC FLAR END SEC 15 | EACH | 1.000 | | | = | | |
| 550A2320 | SS RG CL A 1 12 | FOOT | 799.000 | | | = | | |
| 550A2330 | SS RG CL A 1 15 | FOOT | 42.000 | | | = | | |
| 550A2520 | SS RG CL A 2 12 | FOOT | 1,155.000 | | | = | | |
| 550A2530 | SS RG CL A 2 15 | FOOT | 89.000 | | | = | | |
| 55100500 | STORM SEWER REM 12 | FOOT | 875.000 | | | = | | |
| 55100700 | STORM SEWER REM 15 | FOOT | 260.000 | | | = | | |
| 55100900 | STORM SEWER REM 18 | FOOT | 130.000 | | | = | | |
| 56103000 | D I WATER MAIN 6 | FOOT | 54.000 | | | = | | |
| 56103200 | D I WATER MAIN 10 | FOOT | 94.000 | | | = | | |
| 56103300 | D I WATER MAIN 12 | FOOT | 563.000 | | | = | | |
| 56105100 | WATER VALVES 10 | EACH | 1.000 | | | = | | |
| 56105200 | WATER VALVES 12 | EACH | 1.000 | | | = | | |
| 56109100 | TAP VALVE & SLEEVE 12 | EACH | 1.000 | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| 56300300 | ADJ WATER SERV LINES | FOOT | 14.000 | X | | | = | | |
| 56400100 | FIRE HYDNTS TO BE MVD | EACH | 1.000 | X | | | = | | |
| 56400300 | FIRE HYDNTS TO BE ADJ | EACH | 1.000 | X | | | = | | |
| 56400500 | FIRE HYDNTS TO BE REM | EACH | 4.000 | X | | | = | | |
| 56400820 | FIRE HYD W/AUX V & VB | EACH | 5.000 | X | | | = | | |
| 56500600 | DOM WAT SER BOX ADJ | EACH | 1.000 | X | | | = | | |
| 60107700 | PIPE UNDERDRAINS 6 | FOOT | 210.000 | X | | | = | | |
| 60201340 | CB TA 4 DIA T24F&G | EACH | 32.000 | X | | | = | | |
| 60208240 | CB TC T24F&G | EACH | 2.000 | X | | | = | | |
| 60218400 | MAN TA 4 DIA T1F CL | EACH | 6.000 | X | | | = | | |
| 60219000 | MAN TA 4 DIA T8G | EACH | 3.000 | X | | | = | | |
| 60237470 | INLETS TA T24F&G | EACH | 4.000 | X | | | = | | |
| 60248900 | VV TA 5 DIA T1F CL | EACH | 3.000 | X | | | = | | |
| 60250500 | CB ADJ NEW T1F CL | EACH | 2.000 | X | | | = | | |
| 60260050 | SAN MAN RECONST | EACH | 2.000 | X | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| 60265900 | VV ADJ NEW T1F CL | EACH | 8.000 | X | | | = | | |
| 60266300 | VV RECONST NEW T1F CL | EACH | 1.000 | X | | | = | | |
| 60266500 | VV REMOVED | EACH | 1.000 | X | | | = | | |
| 60500040 | REMOV MANHOLES | EACH | 2.000 | X | | | = | | |
| 60500050 | REMOV CATCH BAS | EACH | 19.000 | X | | | = | | |
| 60603800 | COMB CC&G TB6.12 | FOOT | 286.000 | X | | | = | | |
| 60605000 | COMB CC&G TB6.24 | FOOT | 4,357.000 | X | | | = | | |
| 63000000 | SPBGR TY A | FOOT | 110.000 | X | | | = | | |
| 70101800 | TRAF CONT & PROT SPL | L SUM | 1.000 | X | | | = | | |
| 70300100 | SHORT-TERM PAVT MKING | FOOT | 490.000 | X | | | = | | |
| 70300210 | TEMP PVT MK LTR & SYM | SQ FT | 458.000 | X | | | = | | |
| 70300220 | TEMP PVT MK LINE 4 | FOOT | 18,653.000 | X | | | = | | |
| 70300240 | TEMP PVT MK LINE 6 | FOOT | 3,300.000 | X | | | = | | |
| 70300260 | TEMP PVT MK LINE 12 | FOOT | 690.000 | X | | | = | | |
| 70300280 | TEMP PVT MK LINE 24 | FOOT | 351.000 | X | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|
| 72000100 | SIGN PANEL T1 | SQ FT | 146.000 | X | | = | | |
| 72000200 | SIGN PANEL T2 | SQ FT | 30.000 | X | | = | | |
| 72400100 | REMOV SIN PAN ASSY TA | EACH | 5.000 | X | | = | | |
| 72400500 | RELOC SIN PAN ASSY TA | EACH | 7.000 | X | | = | | |
| 72900100 | METAL POST TY A | FOOT | 272.000 | X | | = | | |
| 72900200 | METAL POST TY B | FOOT | 175.000 | X | | = | | |
| 78000100 | THPL PVT MK LTR & SYM | SQ FT | 458.000 | X | | = | | |
| 78000200 | THPL PVT MK LINE 4 | FOOT | 11,483.000 | X | | = | | |
| 78000400 | THPL PVT MK LINE 6 | FOOT | 3,300.000 | X | | = | | |
| 78000600 | THPL PVT MK LINE 12 | FOOT | 690.000 | X | | = | | |
| 78000650 | THPL PVT MK LINE 24 | FOOT | 301.000 | X | | = | | |
| 78300100 | PAVT MARKING REMOVAL | SQ FT | 1,770.000 | X | | = | | |
| 81000600 | CON T 2 GALVS | FOOT | 527.000 | X | | = | | |
| 81000700 | CON T 2 1/2 GALVS | FOOT | 55.000 | X | | = | | |
| 81000800 | CON T 3 GALVS | FOOT | 71.000 | X | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| 81001000 | CON T 4 GALVS | FOOT | 31.000 | X | | | = | | |
| 81013100 | CON T 5 PVC | FOOT | 300.000 | X | | | = | | |
| 81018500 | CON P 2 GALVS | FOOT | 292.000 | X | | | = | | |
| 81018900 | CON P 4 GALVS | FOOT | 340.000 | X | | | = | | |
| 81400100 | HANDHOLE | EACH | 4.000 | X | | | = | | |
| 81400200 | HD HANDHOLE | EACH | 4.000 | X | | | = | | |
| 81400300 | DBL HANDHOLE | EACH | 2.000 | X | | | = | | |
| 81500200 | TR & BKFIL F ELECT WK | FOOT | 764.000 | X | | | = | | |
| 85700300 | FAC T5 CAB | EACH | 1.000 | X | | | = | | |
| 86400100 | TRANSCEIVER - FIB OPT | EACH | 1.000 | X | | | = | | |
| 87301215 | ELCBL C SIGNAL 14 2C | FOOT | 1,420.000 | X | | | = | | |
| 87301225 | ELCBL C SIGNAL 14 3C | FOOT | 1,825.000 | X | | | = | | |
| 87301245 | ELCBL C SIGNAL 14 5C | FOOT | 450.000 | X | | | = | | |
| 87301255 | ELCBL C SIGNAL 14 7C | FOOT | 2,460.000 | X | | | = | | |
| 87301305 | ELCBL C LEAD 14 1PR | FOOT | 3,310.000 | X | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| 87301805 | ELCBL C SERV 6 2C | FOOT | 137.000 | X | | | = | | |
| 87502500 | TS POST GALVS 16 | EACH | 4.000 | X | | | = | | |
| 87700190 | S MAA & P 30 | EACH | 1.000 | X | | | = | | |
| 87700210 | S MAA & P 34 | EACH | 1.000 | X | | | = | | |
| 87700240 | S MAA & P 40 | EACH | 1.000 | X | | | = | | |
| 87700260 | S MAA & P 44 | EACH | 1.000 | X | | | = | | |
| 87800100 | CONC FDN TY A | FOOT | 16.000 | X | | | = | | |
| 87800200 | CONC FDN TY D | FOOT | 4.000 | X | | | = | | |
| 87800400 | CONC FDN TY E 30D | FOOT | 27.000 | X | | | = | | |
| 87800415 | CONC FDN TY E 36D | FOOT | 26.000 | X | | | = | | |
| 88200100 | TS BACKPLATE | EACH | 8.000 | X | | | = | | |
| 88500100 | INDUCTIVE LOOP DETECT | EACH | 13.000 | X | | | = | | |
| 88600100 | DET LOOP T1 | FOOT | 1,345.000 | X | | | = | | |
| 88700200 | LIGHT DETECTOR | EACH | 2.000 | X | | | = | | |
| 88700300 | LIGHT DETECTOR AMP | EACH | 1.000 | X | | | = | | |

| ITEM NUMBER | PAY ITEM DESCRIPTION | UNIT OF MEASURE | QUANTITY | | UNIT PRICE DOLLARS | UNIT PRICE CENTS | | TOTAL PRICE DOLLARS | TOTAL PRICE CTS |
|---|---|---|---|---|---|---|---|---|---|
| 88800100 | PED PUSH-BUTTON | EACH | 8.000 | X | | | = | | |
| 89000100 | TEMP TR SIG INSTALL | EACH | 1.000 | X | | | = | | |
| 89502375 | REMOV EX TS EQUIP | EACH | 1.000 | X | | | = | | |
| 89502380 | REMOV EX HANDHOLE | EACH | 8.000 | X | | | = | | |
| 89502385 | REMOV EX CONC FDN | EACH | 9.000 | X | | | = | | |

TOTAL $

NOTE:

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

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

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

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

## RETURN WITH BID

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

### I. GENERAL

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

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

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

### II. ASSURANCES

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

**B. Felons**

1. The Illinois Procurement Code provides:

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

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

**C. Conflicts of Interest**

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

The current salary of the Governor is $150,700.00. Sixty percent of the salary is $90,420.00.

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

**D. Negotiations**

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

**E. Inducements**

1. The Illinois Procurement Code provides:

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

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

**F. Revolving Door Prohibition**

1. The Illinois Procurement Code provides:

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

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

**G. Reporting Anticompetitive Practices**

1. The Illinois Procurement Code provides:

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

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

**H. Confidentiality**

1. The Illinois Procurement Code provides:

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

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

## RETURN WITH BID

**I. Insider Information**

1. The Illinois Procurement Act provides:

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

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

**III. CERTIFICATIONS**

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

**B. Bribery**

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

**C. Educational Loan**

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

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

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

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

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

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

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

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

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

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

**E. International Anti-Boycott**

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

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

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

**F. Drug Free Workplace**

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

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

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

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

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

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

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

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

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

**G. Debt Delinquency**

1. The Illinois Procurement Code provides:

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

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

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

1. The Illinois Procurement Code 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.**

**NA - FEDERAL**

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

## 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:

_____

_____

**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. _____
_____

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 __

---

(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. _____
_____

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 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes ___ No __

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds $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 __

---

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

---

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

---

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

---

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

---

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

---

## RETURN WITH BID/OFFER

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

---

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

---

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

---

### APPLICABLE STATEMENT

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

Completed by: _____
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

**RETURN WITH BID/OFFER**

# 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.

**RETURN WITH BID**

Illinois Department of Transportation

**Contract No. 83776**
**MCHENRY County**
**Section 95-00090-00-FP (Crystal Lake)**
**Project M-8003(328)**
**Route FAU 126 (Pingree Road)**
**District 1 Construction Funds**

**PART I. IDENTIFICATION**

Dept. Human Rights # _____ Duration of Project: _____

Name of Bidder: _____

**PART II. WORKFORCE PROJECTION**

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

TABLE A

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

TABLE C

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

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**

**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. 83776**
**MCHENRY County**
**Section 95-00090-00-FP (Crystal Lake)**
**Project M-8003(328)**
**Route FAU 126 (Pingree Road)**
**District 1 Construction Funds**

PROPOSAL SIGNATURE SHEET

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

Firm Name _____

(IF AN INDIVIDUAL)

Signature of Owner _____

Business Address _____

_____

---

Firm Name _____

By _____

(IF A CO-PARTNERSHIP)

Business Address _____

_____

Name and Address of All Members of the Firm:

_____ _____

---

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A CORPORATION)

_____
Typed or printed name and title of Authorized Representative

Attest _____
Signature

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

Business Address _____

---

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A JOINT VENTURE)

_____
Typed or printed name and title of Authorized Representative

Attest _____
Signature

Business Address _____

_____

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

**RETURN WITH BID**

Illinois Department of Transportation

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

Item No. _____
Letting Date _____

KNOW ALL MEN BY THESE PRESENTS, That We _____

_____

as PRINCIPAL, and _____

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

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

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

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

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

| **PRINCIPAL** | **SURETY** |
|---|---|
| _____ (Company Name) | _____ (Company Name) |
| By: _____ (Signature & Title) | By: _____ (Signature of Attorney-in-Fact) |

**Notary Certification for Principal and Surety**

STATE OF ILLINOIS,
COUNTY OF _____

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

_____and _____

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

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

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

My commission expires _____ _____
Notary Public

In lieu of completing the above section of the Proposal Bid Form, the Principal may file an Electronic Bid Bond. By signing below the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

| _____ | _____ | _____ |
|---|---|---|
| Electronic Bid Bond ID# | Company/Bidder Name | Signature and Title |

# PROPOSAL ENVELOPE

Illinois Department of Transportation

# PROPOSALS

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

| Item No. | Item No. | Item No. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Submitted By:

| Name: |
|---|
| Address: |
| |
| |
| Phone No. |

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

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

**NOTICE**

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

# CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

**NOTICE**

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

**Contract No. 83776**
**MCHENRY County**
**Section 95-00090-00-FP (Crystal Lake)**
**Project M-8003(328)**
**Route FAU 126 (Pingree Road)**
**District 1 Construction Funds**

Illinois Department of Transportation

Illinois Department of Transportation

# NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 o'clock a.m., June 17, 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. 83776**
   **MCHENRY County**
   **Section 95-00090-00-FP (Crystal Lake)**
   **Project M-8003(328)**
   **Route FAU 126 (Pingree Road)**
   **District 1 Construction Funds**

**The improvement consists of full-depth bituminous pavement reconstruction on the north and south legs of Pingree Road, full-depth bituminous widening and resurfacing on U.S. Route 14 and the south leg of Pingree Road and other work including storm sewers, curb and gutter, traffic signal modernization and landscaping to complete the project in Crystal Lake.**

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

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 and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

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

SUPPLEMENTAL SPECIFICATIONS

## RECURRING SPECIAL PROVISIONS

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



## LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

FAU Route 0126 (Pingree Road) at
FAP Route 305 (U.S. Route 14/Northwest Highway)
Section No. 95-00090-00-FP
Project No. M-8003(328)
City of Crystal Lake

## INDEX OF SPECIAL PROVISIONS

# INDEX LOCAL ROADS AND STREETS SPECIAL PROVISIONS

BDE SPECIAL PROVISIONS
For The June 17, 2005 Letting

The following special provisions indicated by an "x" are applicable to this contract and will be included by the Project Development and Implementation Section of the BD&E. An * indicates a new or revised special provision for the letting.

| | File Name | Pg.# | | Special Provision Title | Effective | Revised |
|---|---|---|---|---|---|---|
| | 80099 | | | Accessible Pedestrian Signals (APS) | April 1, 2003 | |
| | 80141 | | | Additional Award Criteria | June 1, 2004 | |
| | 80108 | | | Asbestos Bearing Pad Removal | Nov. 1, 2003 | |
| | 7254I | | | Asbestos Waterproofing Membrane and Asbestos Bituminous Concrete Surface Removal | June 1, 1989 | June 30,1994 |
| | 80128 | | | Authority of Railroad Engineer | July 1, 2004 | |
| | 80065 | | | Bituminous Base Course/Widening Superpave | April 1, 2002 | April 1, 2004 |
| | 80050 | 101 | X | Bituminous Concrete Surface Course | April 1, 2001 | April 1, 2003 |
| | 80142 | 102 | X | Bituminous Equipment, Spreading and Finishing Machine | Jan. 1, 2005 | |
| | 80066 | | | Bridge Deck Construction | April 1, 2002 | April 1, 2004 |
| | 5026I | | | Building Removal-Case I (Non-Friable and Friable Asbestos) | Sept. 1, 1990 | Aug. 1, 2001 |
| | 5048I | | | Building Removal-Case II (Non-Friable Asbestos) | Sept. 1, 1990 | Aug. 1, 2001 |
| | 5049I | | | Building Removal-Case III (Friable Asbestos) | Sept. 1, 1990 | Aug. 1, 2001 |
| | 5053I | | | Building Removal-Case IV (No Asbestos) | Sept. 1, 1990 | Aug. 1, 2001 |
| * | 80118 | | | Butt Joints | April 1, 2004 | April 1, 2005 |
| | 80031 | | | Calcium Chloride Accelerator for Portland Cement Concrete Patching | Jan. 1, 2001 | |
| | 80077 | | | Chair Supports | Nov. 1, 2002 | Nov. 2, 2002 |
| | 80051 | 103 | X | Coarse Aggregate for Trench Backfill, Backfill and Bedding | April 1, 2001 | Nov. 1, 2003 |
| | 80094 | 110 | X | Concrete Admixtures | Jan. 1, 2003 | July 1, 2004 |
| | 80112 | | | Concrete Barrier | Jan. 1, 2004 | April 2, 2004 |
| | 80102 | | | Corrugated Metal Pipe Culverts | Aug. 1, 2003 | July 1, 2004 |
| | 80113 | 115 | X | Curb Ramps for Sidewalk | Jan. 1, 2004 | |
| | 80114 | 118 | X | Curing and Protection of Concrete Construction | Jan. 1, 2004 | |
| | 80029 | 126 | X | Disadvantaged Business Enterprise Participation | Sept. 1, 2000 | June 1, 2004 |
| * | 80144 | | | Elastomeric Bearings | April 1, 2005 | |
| | 31578 | | | Epoxy Coating on Reinforcement | April 1, 1997 | Jan. 1, 2003 |
| | 80041 | | | Epoxy Pavement Marking | Jan. 1, 2001 | Aug. 1, 2003 |
| | 80055 | 134 | X | Erosion and Sediment Control Deficiency Deduction | Aug. 1, 2001 | Nov. 1, 2001 |
| | 80103 | 135 | X | Expansion Joints | Aug. 1, 2003 | |
| * | 80101 | 136 | X | Flagger Vests | April 1, 2003 | April 1, 2005 |
| | 80079 | 137 | X | Freeze-Thaw Rating | Nov. 1, 2002 | |
| | 80072 | | | Furnished Excavation | Aug. 1, 2002 | Nov. 1, 2004 |
| | 80054 | 138 | X | Hand Vibrator | Nov. 1, 2003 | |
| | 80109 | | | Impact Attenuators | Nov. 1, 2003 | |
| | 80110 | | | Impact Attenuators, Temporary | Nov. 1, 2003 | April 1, 2004 |
| | 80104 | 139 | X | Inlet Filters | Aug. 1, 2003 | |
| | 80080 | | | Insertion Lining of Pipe Culverts | Nov. 1, 2002 | Aug. 1, 2003 |
| | 80067 | 141 | X | Light Emitting Diode (LED) Signal Head | April 1, 2002 | Aug. 1, 2003 |
| | 80081 | | | Lime Gradation Requirements | Nov. 1, 2002 | |
| * | 80133 | | | Lime Stabilized Soil Mixture | Nov. 1, 2004 | April 1, 2005 |
| | 80045 | | | Material Transfer Device | June 15, 1999 | March 1, 2001 |
| | 80137 | | | Minimum Lane Width with Lane Closure | Jan. 1, 2005 | |
| | 80138 | 143 | X | Mulching Seeded Areas | Jan. 1, 2005 | |
| | 80082 | | | Multilane Pavement Patching | Nov. 1, 2002 | |
| | 80129 | | | Notched Wedge Longitudinal Joint | July 1, 2004 | |
| | 80069 | | | Organic Zinc-Rich Paint System | Nov. 1, 2001 | Aug. 1, 2003 |
| | 80116 | 144 | X | Partial Payments | Sept. 1, 2003 | |
| | 80013 | | | Pavement and Shoulder Resurfacing | Feb. 1, 2000 | July 1, 2004 |
| | 53600 | | | Pavement Thickness Determination for Payment | April 1, 1999 | Jan. 1, 2004 |
| | 80022 | 145 | X | Payment to Subcontractors | June 1, 2000 | Sept. 1, 2003 |
| | 80130 | 146 | X | Personal Protective Equipment | July 1, 2004 | |
| | 80134 | | | Plastic Blockouts for Guardrail | Nov. 1, 2004 | |
| | 80073 | | | Polymer Modified Emulsified Asphalt | Nov. 1, 2002 | |
| | 80119 | | | Polyurea Pavement Marking | April 1, 2004 | |
| | 80124 | 147 | X | Portable Changeable Message Signs | Nov. 1, 1993 | April 2, 2004 |
| | 80139 | 148 | X | Portland Cement | Jan. 1, 2005 | |

| | File Name | Pg.# | | Special Provision Title | Effective | Revised |
|---|---|---|---|---|---|---|
| | 80083 | 149 | X | Portland Cement Concrete | Nov. 1, 2002 | |
| | 80036 | | | Portland Cement Concrete Patching | Jan. 1, 2001 | Jan. 1, 2004 |
| | 419 | 150 | X | Precast Concrete Products | July 1, 1999 | Nov. 1, 2004 |
| | 80120 | | | Precast, Prestressed Concrete Members | April 1, 2004 | |
| | 80084 | | | Preformed Recycled Rubber Joint Filler | Nov. 1, 2002 | |
| | 80015 | 151 | X | Public Convenience and Safety | Jan. 1, 2000 | |
| * | 80121 | | | PVC Pipeliner | April 1, 2004 | April 1, 2005 |
| | 80122 | | | Railroad, Full-Actuated Controller | April 1, 2004 | |
| | 3426I | | | Railroad Protective Liability Insurance | Dec. 1, 1986 | May 1, 1988 |
| | 80105 | | | Raised Reflective Pavement Markers (Bridge) | Aug. 1, 2003 | |
| | 80011 | 152 | X | RAP for Use in Bituminous Concrete Mixtures | Jan. 1, 2000 | April 1, 2002 |
| | 80032 | | | Remove and Re-Erect Steel Plate Beam Guardrail and Traffic Barrier Terminals | Jan. 1, 2001 | Jan. 1, 2005 |
| | 80085 | | | Sealing Abandoned Water Wells | Nov. 1, 2002 | |
| | 80131 | | | Seeding and Sodding | July 1, 2004 | Nov. 1, 2004 |
| | 80132 | | | Self-Consolidating Concrete for Precast Products | July 1, 2004 | |
| | 80096 | | | Shoulder Rumble Strips | Jan. 1, 2003 | |
| | 80140 | | | Shoulder Stabilization at Guardrail | Jan. 1, 2005 | |
| * | 80135 | | | Soil Modification | Nov. 1, 2004 | April 1, 2005 |
| | 80070 | 156 | X | Stabilized Subbase and Bituminous Shoulders Superpave | April 1, 2002 | July 1, 2004 |
| | 80127 | | | Steel Cost Adjustment | April 2, 2004 | July 1, 2004 |
| | 80086 | 162 | X | Subgrade Preparation | Nov. 1, 2002 | |
| | 80136 | 163 | X | Superpave Bituminous Concrete Mixture IL-4.75 | Nov. 1, 2004 | |
| | 80010 | 167 | X | Superpave Bituminous Concrete Mixtures | Jan. 1, 2000 | April 1, 2004 |
| | 80039 | | | Superpave Bituminous Concrete Mixtures (Low ESAL) | Jan. 1, 2001 | April 1, 2004 |
| | 80075 | | | Surface Testing of Pavements | April 1, 2002 | July 1, 2004 |
| * | 80145 | | | Suspension of Slipformed Parapets | June 11, 2004 | |
| | 80092 | | | Temporary Concrete Barrier | Oct. 1, 2002 | Nov. 1, 2003 |
| | 80087 | 174 | X | Temporary Erosion Control | Nov. 1, 2002 | |
| | 80008 | | | Temporary Module Glare Screen System | Jan. 1, 2000 | |
| | 80106 | | | Temporary Portable Bridge Traffic Signals | Aug. 1, 2003 | |
| | 80098 | | | Traffic Barrier Terminals | Jan. 1, 2003 | |
| | 5729I | 176 | X | Traffic Control Deficiency Deduction | April 1, 1992 | Jan. 1, 2005 |
| | 20338 | 177 | X | Training Special Provisions | Oct. 15, 1975 | |
| | 80107 | 180 | X | Transient Voltage Surge Suppression | Aug. 1, 2003 | |
| | 80123 | | | Truck Bed Release Agent | April 1, 2004 | |
| | 80048 | 182 | X | Weight Control Deficiency Deduction | April 1, 2001 | Aug. 1, 2002 |
| | 80090 | | | Work Zone Public Information Signs | Sept. 1, 2002 | Jan. 1, 2005 |
| | 80125 | | | Work Zone Speed Limit Signs | April 2, 2004 | April 15, 2004 |
| * | 80126 | | | Work Zone Traffic Control | April 2, 2004 | Jan. 2, 2005 |
| | 80097 | 184 | X | Work Zone Traffic Control Devices | Jan. 1, 2003 | Nov. 1, 2004 |
| | 80071 | 186 | X | Working Days | Jan. 1, 2002 | |

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

80111 Additional Bidder Responsibility This special provision has been replaced by the BDE Special Provision, "Additional Award Criteria".

43761 Driving Guardrail Posts This special provision has been made obsolete by revising Standard 630201 and issuing the BDE Special Provision, "Shoulder Stabilization at Guardrail".

80091 Underdrain Operations This special provision is no longer required and has been deleted.

The following special provisions are in the 2005 Supplemental Specifications and Recurring Special Provisions:

| File Name | Special Provision Title | New Location | Effective | Revised |
|---|---|---|---|---|
| 80052 | Adjusting Frames and Grates | Sections 602, 603, and 1043 | Aug. 1, 2001 | Nov. 1, 2001 |
| 80093 | Articulated Block Revetment Mat | Sections 285 and 1005 | Jan. 1, 2003 | |
| 80078 | Controlled Aggregate Mixing System | Sections 311, 351, and 481 | Nov. 1, 2002 | |
| 80100 | Epoxy Coatings for Steel Reinforcement | Section 1006 | April 1, 2003 | |
| 80095 | Precast Block Revetment Mat | Sections 285 and 1005 | Jan. 1, 2003 | |
| 80074 | Shoulder Inlets with Curb | Section 610 | Aug. 1, 2002 | |
| 80117 | Stone for Erosion Protection, Sediment Control, and Rockfill | Sections 281 and 1005 | Jan. 1, 2004 | |
| 80088 | Traffic Structures | Sections 1069 and 1077 | Nov. 1, 2002 | |

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

- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

FAU Route 0126 (Pingree Road) at
FAP Route 305 (U.S. Route 14/Northwest Highway)
Section No. 95-00090-00-FP
Project No. M-8003(328)
City of Crystal Lake

# STATE OF ILLINOIS
# SPECIAL PROVISIONS

The following Special Provisions supplement the *Standard Specifications for Road and Bridge Construction*, adopted January 1, 2002; the latest edition of the *Illinois Manual on Uniform Traffic Control Devices for Streets and Highways*; and the *Manual of Test Procedures for Materials* in effect on the date of invitation for bids; the latest edition of the *Standard Specifications for Water and Sewer Main Construction in Illinois*; and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAU Route 0126 (Pingree Road), Section 95-00090-00-FP in the City of Crystal Lake, McHenry County, and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

## LOCATION OF IMPROVEMENT

This improvement is located at the intersection of FAU Route 0126 (Pingree Road) and FAP Route 305 (U.S. Route 14/Northwest Highway), from 1,320 feet north to 900 feet south of the intersection, and 540 feet west to 620 feet east of the intersection, for a total distance of 3,388 feet, within the City of Crystal Lake, McHenry County, Illinois.

## DESCRIPTION OF PROJECT

The work within the scope of this improvement consists of full-depth bituminous pavement reconstruction on the north leg and 240 feet on the south leg of Pingree Road, full-depth bituminous widening and resurfacing on U.S. Route 14 and the south leg of Pingree Road. This project includes storm sewer and drainage structure adjustment and installation, curb and gutter, sidewalk, traffic signal modernization, striping, landscaping, water main and sanitary force main, and other appurtenant work necessary to complete the project in accordance with the plans, Standard Specifications, and these Special Provisions.

## COMMENCEMENT OF WORK

THIS SECTION IS INTENTIONALLY LEFT BLANK

## STATUS OF UTILITIES TO BE ADJUSTED

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

| Name of Utility | Type | Location | Estimated Dates for Start and Completion of Relocation or Adjustments |
|---|---|---|---|
| Comcast Cable Communications<br>Mr. Ted Wyman<br>Right-of-Way Engineer<br>688 Industrial Drive<br>Elmhurst, IL 60126<br>630-600-6349 | Aerial and Underground Cable TV | Underground 195+60 RT to 202+15 RT Aerial on ComEd Poles | Prior to and during construction |
| Commonwealth Edison Company<br>Mr. Mike Lennox<br>123 Energy Avenue<br>Rockford, IL 61109<br>Phone: 815-490-2869 | Aerial Electrical | Various | Prior to and during construction |
| Nicor Gas<br>Mr. Scott Puffer<br>Public Improvement Supervisor<br>300 West Terra Cotta Ave.<br>Crystal Lake, IL 60014-3595 | Underground Natural Gas | Various (12" and 4" mains) | Prior to and during construction |
| SBC<br>Mr. Bruce Gilberts<br>222 W. Jackson<br>Woodstock, IL 60098<br>Phone: 815-337-4361 | Underground Telephone | Various | Prior to and during construction |

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

## COORDINATION WITH UTILITIES

The Contractor shall be responsible for obtaining from each utility company the working schedule for adjusting or relocating their respective facilities.

The Contractor shall be aware that the work of a utility company may not be able to proceed prior to specific items of work performed by the Contractor.

The City will schedule periodic meetings as deemed necessary to facilitate operations of the Contractor and utility companies so work can progress in a reasonable manner and duplication of work is minimized.

Articles 105.07 and 107.31 of the Standard Specifications and the Special Provision for Cooperation with Utilities shall apply.

## SECTION 107 MAINTENANCE OF ROADWAY

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

The work involved in maintaining the existing pavement and shoulders as above specified will be paid for separately at the respective contract unit prices for the various items of work involved unless specified elsewhere in these Special Provisions. Traffic control and protection required for this work shall be paid for as specified in these Special Provisions.

If no such items of work have been provided for in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for as extra work, in accordance with Article 109.04 of the Standard Specifications.

## SECTION 107 PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION

All existing drainage structures are to be kept free of debris resulting from construction operations. All work and material necessary to prevent accumulation of debris in the drainage structures will be considered as incidental to the contract. Any debris in the drainage structures resulting from construction operations shall be removed at the Contractor's own expense, and no extra compensation will be allowed. Should reconstruction or adjustment of a drainage structure be required by the Engineer in the field, the necessary work and payment shall be done in accordance with Section 602 and Article 104.02 respectively of the Standard Specifications.

During construction, if the Contractor's forces encounter or otherwise becomes aware of any sewers, underdrains, or field drains within the right-of-way other than those shown on the plans, they shall inform the Engineer. The Engineer shall direct the work necessary to maintain or replace the facilities in service, and to protect them from damage during construction if maintained. Existing facilities to be maintained that are damaged because of non-compliance with this provision shall be replaced at the Contractor's own expense. Should the Engineer have directed the replacement of a facility, the necessary work and payment shall be done in accordance with Sections 550 and 601 and Article 104.02 respectively of the Standard Specifications.

## SECTION 107.09 KEEPING ROADS OPEN TO TRAFFIC

All roads shall remain open to traffic, except as provided for in the contract, specified on a detour plan, or as directed by the Engineer.

The Contractor may reduce traffic to one lane due to construction only between the hours of 9:00 a.m. and 3:00 p.m. and per the Engineer's approval. The Contractor shall maintain two-way traffic during these restricted hours with the use of signs and flagmen as shown on the traffic control standards.

All lanes of traffic in each direction shall be maintained all evenings between 3:00 p.m. and 9:00 a.m. and all day if no construction activities are being carried out. These restricted lane closure time provisions may be waived at the Engineer's discretion.

## SECTION 201 PROTECTION OF TREES

Extra care shall be exercised when operating equipment around trees or shrubs, including protecting the tree trunks, branches, and roots from damage. All pruning, protection, and replacement in accordance with Section 201 of the Standard Specifications will not be paid for separately but shall be included in the contract.

## 20200100 EARTH EXCAVATION

This work shall be in accordance with Section 202 of the Standard Specifications insofar as applicable and the following provisions.

This work shall include removal of any existing bituminous pavement shown on the plans and cross sections or as directed by the Engineer.

All excess excavated soil not used as embankment, backfill, or topsoil shall be disposed of at off-site locations provided by the Contractor or taken to a location designated by the Engineer. Overhaul will not be paid for but shall be included in the unit price per cubic yard for Earth Excavation.

Embankment shall not be paid for separately but shall be included in the cost of Earth Excavation.

Excavation for the roadway has been computed on the basis of cut and fill to the final grade of the topsoil from existing pre-construction conditions.

Excavation required to provide for topsoil placement has not been included in the quantity for Earth Excavation but shall be included in the cost for Topsoil, Furnish and Place, 4".

Payment shall be based on actual volume of excavation completed without an adjustment in unit price due to an increase or decrease in plan quantity.

Earth moved more than once due to construction staging and/or procedures selected by the Contractor will not be paid for separately but shall be considered included in the cost of Earth Excavation.

An estimated quantity of excavation for undercutting has been included in the quantity of Earth Excavation and is shown on the plans. Undercutting shall only be allowed at the discretion of the Engineer after it is determined that the provision of Section 301 of the Standard Specifications will not yield results to allow timely progress on the project.

No extra compensation shall be allowed due to a reduction in quantity.

This work shall be paid for at the contract unit price per cubic yard for EARTH EXCAVATION.

## 20700420 POROUS GRANULAR EMBANKMENT, SUBGRADE

This work consists of furnishing, placing, and compacting porous granular material to the lines and grades shown on the plans or as directed by the Engineer in accordance with applicable portions of Section 207 of the Standard Specifications. The material shall be used as a bridging layer over soft, pumpy, loose soil and for placing under water and shall conform with Article 1004.06 of the Standard Specifications except the gradation shall be as follows:

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

| Sieve Size | Percent Passing |
|---|---|
| *150 mm (6") | 97±3 |
| *100 mm (4") | 90±10 |
| 50 mm (2") | 45±25 |
| 75 µm (#200) | 5±5 |

2. Gravel, Crushed Gravel and Pit Run Gravel

| Sieve Size | Percent Passing |
|---|---|
| *150 mm (6") | 97±3 |
| *100 mm (4") | 90±10 |
| 50 mm (2") | 55±25 |
| 4.75 mm (#4) | 30±20 |
| 75 µm (#200) | 5±5 |

* For undercut greater than 450 mm (18"), the percent passing the 150 mm (6") sieve may be 90±10 and the 100 mm (4") sieve requirements eliminated.

The porous granular material shall be placed in one lift when the total thickness to be placed is 600 mm (24") or less or as directed by the Engineer. Each lift of the porous granular material shall be rolled with a vibratory roller meeting the requirements of Article 1101.01 of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

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

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

Full-depth subgrade undercut should occur at limits determined by the Engineer. A transition slope to the full depth of undercut shall be made outside the undercut limits at a taper of 1:1 below the proposed subgrade or bottom of the proposed aggregate subgrade when included in the contract.

The Porous Granular Embankment, Subgrade shall be used as field conditions warrant at the time of construction. Payment shall be based on actual volume of Porous Granular Embankment, Subgrade installed without an adjustment in unit price due to an increase or decrease in plan quantity.

This work will be measured for payment in accordance with Article 207.05 of the Standard Specifications. When specified on the contract, the theoretical elevation of the bottom of the aggregate subgrade shall be used to determined the upper limit of Porous Granular Embankment, Subgrade. The volume will be computed by the method of average end areas.

This work shall be paid for at the contract unit price per cubic meter (cubic yard) for POROUS GRANULAR EMBANKMENT, SUBGRADE.

**21001000 GEOTECHNICAL FABRIC FOR GROUND STABILIZATION**

This work shall be in accordance with Section 210 of the Standard Specifications insofar as applicable and the following provision.

Geotechnical fabric for ground stabilization shall be placed at all locations requiring undercut and Porous Granular Embankment, Subgrade.

Payment shall be based on actual area of fabric installed without adjustment in unit price due to an increase or decrease in plan quantity.

**21101615 TOPSOIL FURNISH AND PLACE, 4"**

This item shall be in accordance with Section 211 of the Standard Specifications insofar as applicable and the following provisions.

All topsoil, regardless of origin, shall be in accordance with Article 1081.05 and shall be approved by the Engineer prior to placement.

Plan quantities reflect 4" thick topsoil placement in all disturbed areas not otherwise paved. Excavation for the roadway has been computed on the basis of cut and fill to the final grade of the topsoil. The excavation required to accommodate a nominal 4" thick layer of topsoil has not been included in the pay item Earth Excavation but shall be considered included in this item.

TOPSOIL FURNISH AND PLACE, 4" will be paid for at the contract unit price per square yard.

**21301072 EXPLORATION TRENCH 84" DEPTH**

This item shall consist of excavating a trench at the locations directed by the Engineer for the purpose of locating existing sewers or water mains within the construction limits of the proposed improvement.

The trench shall be deep enough to expose the sewers or water main, and the width of the trench shall be sufficient to allow proper investigation to determine if the sewers or water main need to be adjusted.

The exploration trench shall be backfilled with trench backfill meeting the requirements of the Standard Specifications, the cost of which shall be included in the item of Exploration Trench.

An estimated length of exploration trench has been shown in the summary of quantities to establish a unit price only, and payment shall be based on the actual length of trench explored without a change in unit price due to any adjustment in plan quantities.

This work shall be paid for at the contract unit price per foot for EXPLORATION TRENCH 84" DEPTH, and no extra compensation will be allowed for any delays, inconveniences, or damage sustained by the Contractor in performing the work.

**25100115 MULCH, METHOD 2**

This work shall be done in accordance with Sections 251 of the Standard Specifications insofar as applicable and the following provisions.

This work consists of installing a temporary mulch cover over the areas designated as Temporary Erosion Control Seeding on the Erosion Control Plan. The temporary mulch is to prevent sheet erosion of areas that are to be altered during a later construction stage.

Maintenance of the temporary mulch, including repair to damaged areas, will not be paid for separately but shall be included in the contract unit price per acre for Mulch, Method 2.

This work shall be paid for at the contract unit price per acre for MULCH, METHOD 2.

**SECTION 253 PLANTING TREES AND SHRUBS**

The Engineer will place marking flags furnished by the Contractor at locations of each tree and shrub before delivery of the plant material.

An estimated quantity of trees and shrubs has been shown in the plans. Payment shall be based on actual quantity of each item planted without a change in unit price as a result of adjustment in plan quantities.

## SECTION 280 TEMPORARY EROSION CONTROL

Maintenance of the temporary erosion control systems in accordance with Article 280.05 of the Standard Specifications, including replacement if necessary, shall not be paid for but shall be included in the contract unit price for the installed system.

## 28000250 TEMPORARY EROSION CONTROL SEEDING

This work shall be in accordance with Section 280 of the Standard Specifications and the details in the plans insofar as applicable and the following provisions.

Quantities for seed are included in the plans for one (1) application of seed and Mulch, Method 2. Re-seeding bare areas and maintaining mulch cover will not be paid for but shall be included in the cost of TEMPORARY EROSION CONTROL SEEDING.

## 28000300 TEMPORARY DITCH CHECKS

This work shall be in accordance with Section 280 of the Standard Specifications insofar as applicable and the following provisions.

Aggregate ditch checks and hay or straw bales will not be used for ditch checks. Ditch checks shall be of the urethane foam/geotextile type.

## 28000400 PERIMETER EROSION BARRIER

This work shall be in accordance with Section 280 of the Standard Specifications insofar as applicable and the following provisions.

The barrier shall be a silt filter fence in accordance with Article 1080.02 of the Standard Specifications.

## 28000500 INLET AND PIPE PROTECTION

This work shall be in accordance with Section 280 of the Standard Specifications insofar as applicable and the following provisions.

Inlet and pipe protection shall be of the silt filter fabric type.

## SECTION 406 BITUMINOUS PAVING

This item shall be in accordance with Section 406 of the Standard Specifications insofar as applicable and the following provisions.

To minimize the number of longitudinal joints, only two (2) passes of the paving machine will be allowed per lane width on any single course of material.

This work will not be paid for separately but shall be included in the unit prices for the various bituminous concrete items in the contract.

## 40600200 BITUMINOUS MATERIALS (PRIME COAT)

Prime coat shall meet the specifications of Article 406.06(b) of the Standard Specifications with the following revisions and additions:

Prime coat shall be applied at a rate of 0.1 gallon per square yard. Bituminous material shall be SS-1, unless otherwise required by Article 403.07 of the Standard Specifications.

The Contractor will be required to present a weight ticket of the truckload prior to applying the prime coat. After application the truck shall then be weighed again in order to determine the net weight of prime coat that has been placed. Both tickets shall be stamped by the certified weighmaster.

The Contractor shall erect (to the Engineer's satisfaction) 36" by 36" minimum *FRESH OIL AHEAD* signs prior to the prime coat application, which signs shall remain until the prime coat has adequately cured.

This work shall be paid for at the contract unit price per ton for BITUMINOUS MATERIALS (PRIME COAT).

**40600300 AGGREGATE (PRIME COAT)**

This work shall be done in accordance with Article 406.06(b) of the Standard Specifications insofar as applicable and the following provisions.

The fine aggregate shall be mechanically spread at a uniform rate of 2 pounds per square yard.

**SECTION 420 CURING PORTLAND CEMENT CONCRETE**

This work shall be in accordance with Section 1020 of the Standard Specifications insofar as applicable and the following provisions.

A curing and sealing compound shall be applied to all PCC sidewalk, driveways, and combination concrete curb and gutter.

The curing and sealing compound shall be Sealtight CS-309 or equivalent meeting ASTM C-309-73, Type 1, Class B specification.

The curing and sealing compound shall be applied in a uniform film by a standard-type garden sprayer. The compound shall be applied in two coats when all surface water disappears. The compound shall not be applied when air temperature is below 40° F. or 45° F. and falling.

This work will not be paid for separately but shall be considered included in the item it is applied to.

**42001300 PROTECTIVE COAT**

This work shall conform to the requirements of Articles 420.21 and 1023.01 of the Standard Specifications, except that the protective coat shall be applied in all cases regardless of the calendar date limitations contained in Article 420.21.

PROTECTIVE COAT will be paid for at the contract unit price per square yard.

**SECTION 424 PORTLAND CEMENT CONCRETE SIDEWALK**

This item shall be in accordance with Section 424 of the Standard Specifications insofar as applicable, the details in the plans, and the following provisions:

Curb ramps shall be placed at all location where sidewalk is in line with crosswalks or as directed by the Engineer and shall be constructed in accordance with the details in the plans and the Interim Special Provision No. 04-30.

All sidewalks shall be constructed on a minimum of two (2) inches of Subbase Granular Material, Type C. At locations where the sidewalk is adjacent to the curb and gutter, all voids from the top of subbase to bottom of sidewalk shall be filled with Subbase Granular Material, Type C. The cost of the Subbase Granular Material, Type C shall be included in the cost for the proposed sidewalk.

The sidewalk shall be 4" thick, unless noted otherwise on the plans.

At locations where the proposed sidewalk is to be constructed across trenches, three (3) No. 5 ten-foot-long reinforcement bars shall be placed in the sidewalk centered over the trench. These reinforcement bars shall not be continuous through transverse expansion joints, but shall be stopped three inches short of same. The cost of these reinforcement bars, complete in place, shall be included in the cost for the proposed sidewalk.

The above work will be included in the contract unit price per square foot for PORTLAND CEMENT CONCRETE SIDEWALK of the thickness specified.

PCC SIDEWALK, 6 INCH SPECIAL will be paid for at the contract unit price per square foot, including the width of the integral curb. Reinforcement bars for PCC Sidewalk, 6" Special will not be paid for separately but shall be included in the cost of this item.

**40600980 BITUMINOUS SURFACE REMOVAL - BUTT JOINT**
**44000007 BITUMINOUS SURFACE REMOVAL, 2"**
**44000030 BITUMINOUS SURFACE REMOVAL (VARIABLE DEPTH)**

This work shall be in accordance with the applicable portions of Sections 406 and 440 of the Standard Specifications and shall consists of milling bituminous pavement to the depths, locations, and limits specified in the plans.

If the milling machine cuts too deep or tears out areas of the existing pavement which were to be saved, the voids shall be filled with leveling binder at the Contractor's expense.

Where specified as variable depth, milling depths will vary from 0" to a maximum of 3½".

Temporary ramps at butt joints on roadways open to traffic shall be provided in accordance with 406.18 of the Standard Specifications. This work shall be measured and paid for as Incidental Bituminous Surfacing, Superpave, N50.

Bituminous concrete removed will be measured in place and the area computed in square yards without regard for the number of passes required to remove the surface material.

This item of work will be paid for according to Sections 406 and 440 of the Standard Specifications..

**SECTION 440 SAW CUTTING**

This work shall consist of the full-depth sawing of the existing pavement, curb and gutter, or other existing items with a sawing machine at the locations shown on the plans or as directed by the Engineer.

The Contractor shall machine-saw a perpendicular clean joint between the portion of the item to be removed and that to remain in place to prevent damage to the remaining item. If an additional quantity is damaged or removed, the additional work will not be measured for payment but shall be done at the Contractor's expense.

This item shall not be paid for separately but shall be included in the cost of the item being removed.

**44300100 AREA REFLECTIVE CRACK CONTROL TREATMENT**
**44300200 STRIP REFLECTIVE CRACK CONTROL TREATMENT**

This work shall be in accordance with Section 443 of the Standard Specifications insofar as applicable and the following provisions.

All crack control treatment shall be System A.

## SECTION 550 STORM SEWERS

This work shall be in accordance with Section 550 of the Standard Specifications insofar as applicable and the following provision.

All storm sewers shall be RCCP, Class IV pipe with rubber gasket joints which conforms to ASTM Specification C-361, unless otherwise designated in the plans.

Storm sewer shall be backfilled in accordance with Article 550.07, Method 1 only.

## SECTION 551 STORM SEWER REMOVAL

This work shall be in accordance with Section 551 of the Standard Specifications insofar as applicable and the following provisions.

At all existing storm sewer structures to remain where storm sewers have been removed, the resultant hole shall be securely sealed with concrete or brick masonry.

Trench backfill for this item will not be paid for separately but shall be included in the cost of this item.

Where proposed storm sewer is to be installed in a trench at the same location as that of storm sewer to be removed, excavation and trench backfill will not be paid for both the proposed storm sewer installation and removal of the existing storm sewer operations.

This work will be paid for at the contract unit price per foot for STORM SEWER REMOVAL of the diameter specified, measured as removed, including trench backfill.

## SECTION 561 WATER MAIN

This work shall be in accordance with Section 561 of the Standard Specifications, the Supplemental Specifications for Water Main Improvements, and the *Standard Specifications for Water and Sewer Main Construction in Illinois* insofar as applicable and the following provisions.

Pipe material shall be cement-lined ductile iron Class 52 with push-on joints. Bedding shall be in accordance with Section 208 of the Standard Specifications and special details. A nominal 6' of cover is to be provided between the top of the water main and finished grade.

The pressure and leakage tests for all water main, including water services to the curb stop, will be conducted at a pressure of 125 psi. Tapped plugs with temporary flushing risers may be required for testing the water main. Proper blocking must be in place during testing.

All water mains and appurtenances shall be tested at 125 psi for a two-hour period. There shall be no loss in the 125 psi pressure during the first 10 minutes of the test. At the end of the two-hour period, the residual pressure shall be greater than City pressure, and the volume of water required to pump the section back up to 125 psi shall be in accordance with the following schedule:

| Diameter | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Inches | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 |
| Allowable Leakage Rate | | | | | | | | | | |
| Gal(s)/2 hr./1000 feet | 0.68 | 1.00 | 1.34 | 1.68 | 2.02 | 2.36 | 2.68 | 3.02 | 3.36 | 4.02 |

Note: The table assumes 18' pipe lengths. For 20' lengths, multiply allowable leakage rate by 0.9.

The maximum allowable leakage as recorded by a meter approved by the City Engineer shall be four (4) gallons per inch of diameter per 1000 feet of pipe per 24 hours. Backflow preventers shall be installed as shown in the Standard Water Valve Jumper detail.

All fittings shall be cement-lined ductile iron. Bedding wedges, nominal cover, marking tape, etc., required for water main shall also apply to fittings.

Chlorination of the proposed water main shall be completed as stated in the City of Crystal Lake Water Main Chlorination Specification included herein.

The Contractor will be required to coordinate all water main shutdowns with the City. The City must be notified 48 hours in advance of anticipated water main shutdowns so as to have time to properly notify the residents.

Existing pipelines shall be properly supported during construction of the water main so that cracking and leakage or failure of the existing pipeline does not occur.

All water main shall be encased in a double polyethylene encasement. Each encasement shall be a loose eight (8) millimeter thick polyethylene tube in accordance with ANSI/AWWA C-105/A-21.5, Method A.

All of the above shall be included in and paid for at the contract unit price per foot for DUCTILE IRON WATER MAIN of the diameter specified. Measurement shall be the actual measured length, including all fittings except valves.

**SECTION 561 CITY OF CRYSTAL LAKE WATER MAIN CHLORINATION SPECIFICATIONS**

Disinfection of water mains shall be done in accordance with the *Standard Specifications for Water and Sewer Main Construction in Illinois*.

The City Engineering and Water Departments shall be notified 48 hours in advance for scheduling of any testing, chlorinating, flushing, or sampling.

Only City Water Department personnel may operate water valves on live mains.

The City Water Department opts to take their own set of samples simultaneously with the chlorinating contractor. Therefore, sampling times will be scheduled Monday through Thursday from 8:30 to 11:00 a.m. only.

A water valve jumper is required to maintain pressure on the chlorinated lines during the sampling procedure. For proper installation and requirements, see the Standard Water Valve Jumper Detail.

Water mains shall be flushed with a minimum velocity of 2.5 fps.

The initial chlorine concentration shall be 50 mg/L with a minimum 24-hour residual of 25 mg/L.

The method of chlorine application shall be approved by the City Engineer.

1. Liquid chlorine with chlorinating device with backflow preventer.
2. Chlorine bearing compounds in water.
3. Tablet disinfection.

All new valves and hydrants shall be operated while the line is being chlorinated.

The City Water Department shall determine the location and quantity of corporation stops for flushing and chlorinating.

The final flushing residual in the new chlorinated lines shall be between 0.2 and 1.1 mg/L.

All water samples shall be collected on two (2) consecutive days and pass bacteriological test results. In the event the first set of samples taken two (2) consecutive days apart fail to pass, another set of samples may be taken two (2) days apart (per State specifications). If the second set fails to pass testing, the procedure must be repeated, with the main being re-chlorinated, re-flushed, and resampled.

Chlorine Requirements to Produce 50 mg/L
Concentration in 100 Feet of Pipe—By Diameter

| Pipe Size (Inches) | 100% Chlorine (Pound) | 1% Chlorine Solution (Gallons) |
|---|---|---|
| 4 | 0.027 | 0.33 |
| 6 | 0.061 | 0.73 |
| 8 | 0.108 | 1.30 |
| 10 | 0.170 | 2.04 |
| 12 | 0.240 | 2.88 |

Number of 5-Grain Hypochlorite Tablets Required
for a Dosage of 50 mg/L per Length of Pipe Section

| Pipe Size (Inches) | Length of Pipe Section (Feet) | | | | |
|---|---|---|---|---|---|
| | Up to 13 | 18 | 20 | 30 | 40 |
| 2 | 1 | 1 | 1 | 1 | 1 |
| 4 | 1 | 1 | 2 | 2 | 2 |
| 6 | 2 | 2 | 3 | 3 | 4 |
| 8 | 2 | 3 | 5 | 5 | 6 |
| 10 | 3 | 5 | 7 | 7 | 9 |
| 12 | 5 | 6 | 10 | 10 | 14 |

**56105100 WATER VALVES, 10"**
**56105200 WATER VALVES, 12"**

This work shall be done in accordance with Section 561 of the Standard Specifications, the Supplemental Specifications for Water Main Improvements, and the *Standard Specifications for Water and Sewer Main Construction in Illinois* insofar as applicable and the following provisions.

All water valves shall be Mueller A-2360 resilient wedge gate valves. Gate valves shall conform to ANSI/AWWA C-515-99 latest revision. Gate valves shall have mechanical joints and shall open to the left. All nuts and bolts shall be stainless steel (American Flow Control, Clow, Mueller, Kennedy, U.S. Pipe & Foundry, or approval equal).

This work shall be paid for at the contract unit price per each for WATER VALVES of the size specified.

**56109100 TAPPING VALVES AND SLEEVES, 12"**

This work shall consist of furnishing and installing tapping valves and sleeves in accordance with the Supplemental Specifications for Water Main Improvements.

Tapping valves shall be Mueller T-2360-16 Resilient Wedge Tapping Valves or City-approved equal.

Tapping sleeves shall be Mueller H-615 Mechanical Joint Tapping Sleeves or City-approved equal.

This work will be paid for at the contract unit price each for TAPPING VALVES AND SLEEVES of the size specified. This price shall include the cost of all materials, fittings, adaptors, joint materials, blocking, and all labor and equipment necessary to make a complete and finished installation.

**56300300 ADJUSTING WATER SERVICE LINES**

This work shall be in accordance with Sections 562 and 563 of the Standard Specifications and the Supplemental Specifications for Water Main Improvements insofar as applicable, the details in the plans, and the following provisions.

Water service line material shall be Type K copper tubing. A nominal six (6) feet of cover is to be provided between the top of the water service and finished grade.

Mueller compression connections or City-approved equal shall be used to connect proposed water services to existing water services, except where proposed water services are connected to existing lead water services, wherein a Ford compression connection or City-approved equal shall be used.

The City must be notified 48 hours in advance of this work so as to have time to properly notify residents.

An Illinois licensed plumber will be required to be present during and to inspect all proposed water service line connections to existing water service lines and water mains.

All adjustments in the line or grade of the existing water service shall be approved by the Engineer.

All materials, labor, and equipment necessary to adjust the water service shall be on hand before shutdown and cutting of the existing service. The Contractor shall take every precaution to hold the interruption of service to a minimum.

Adequate precautions shall be taken to prevent contaminants from entering the existing service. The inside surfaces of all new materials used in the adjustment shall be cleaned of all foreign material and swabbed with a solution of efficient bactericide before assembly. The adjusted section shall then be flushed.

An estimated length of water service adjustment has been shown in the plans. Payment shall be based on actual length of water service adjustment required without a change in unit price due to adjustment in plan quantities.

Trench backfill for this item will not be paid for separately but will be included in the unit price for Adjusting Water Service Lines.

This work will be paid for at the contract unit price per foot for ADJUSTING WATER SERVICE LINES. This price shall include the cost of all materials, copper tubing, fittings, adaptors, joint materials, service clamps, tapping, blocking, removal and disposal of existing services, and all work and equipment necessary to make a complete installation, including disposal of removed materials and trench backfill.

**56400300 FIRE HYDRANTS TO BE ADJUSTED**

This work shall be in accordance with Section 564 of the Standard Specifications insofar as applicable and the following provisions.

This work shall consist of adjusting fire hydrants to an elevation that will provide 24 inches, (± 4 inches) between the hose nozzles and the proposed finished elevation.

Adjustment of the hydrants will be accomplished by inserting barrel spool and stem extension pieces into the hydrant. Materials used for this work shall conform to AWWA Standard C502.

If an auxiliary valve has been installed to serve the hydrant, its valve box shall be adjusted so that its cover is flush with the proposed finished ground elevation.

The work shall be performed in a manner approved by the City.

This work will be paid for at the contract unit price each for FIRE HYDRANTS TO BE ADJUSTED, which price will be payment in full for all material, equipment, and labor required to make a completed installation including the adjusting of the auxiliary valve box.

**56400500 FIRE HYDRANT TO BE REMOVED**

This work shall be done in accordance with Section 564 of the Standard Specifications insofar as applicable and the following provisions.

This work consists of the removal of existing fire hydrants, auxiliary valves, thrust blocks, lead-in mains, and fittings at locations shown on the plans or as directed by the Engineer. The existing fire hydrants shall not be removed until the new adjacent fire hydrants have been installed, tested, and approved.

Trench backfill for this item will not be paid for separately but shall be included in the cost of this item. Capping of the remaining pipe shall be included in this item.

The removed fire hydrants shall be delivered to the City as directed by the Engineer. Delivery shall be included in the cost of this item.

This work will be paid for at the contract unit price each for FIRE HYDRANTS TO BE REMOVED.

**56400820 FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX**

This work shall consist of furnishing and installing new fire hydrants with auxiliary valve and valve box in accordance with Section 564 of the Standard Specifications, the Supplemental Specifications for Water Main Improvements, and the *Standard Specifications for Water and Sewer Main Construction in Illinois* insofar as applicable, details in the plans, or as directed by the Engineer.

Fire hydrants shall be Mueller Super Centurion 250 A-423 5¼" barrel or approved equal. Fire hydrant auxiliary 6" gate valves shall be Mueller A-2360 resilient wedge or approved equal. Valve boxes shall include a valve-box stabilizer. Installation of tie rods between auxiliary valve and the water main will be included in this item.

Direct connection of the auxiliary valve to the water main tee may be required as directed by the Engineer and approved by the City.

This work will be paid for at the contract unit price each for FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX, which price shall include all labor, equipment, and materials for a complete installation including

auxiliary valve and cast-iron valve box and adjusting the barrel length so as to provide 18 to 24 inches between the pump nozzle and ground.

**56500600 DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED**

This work shall be in accordance with Sections 565 and 602 of the Standard Specifications and the details in the plans insofar as applicable and the following provisions.

This work shall consist of adjusting existing water service boxes so the top surface of the box is set to the proposed finished elevation.

The Contractor shall take sufficient precautions while adjusting the water service boxes to ensure that they are not damaged or otherwise made inoperable. Any water service box damaged by the Contractor due to his negligence shall be replaced by him at his expense.

At time of adjustment, the Contractor shall clean out all water service boxes of foreign material and ensure that a valve wrench can be properly seated on the valve operating nut.

The work shall be performed in a manner approved by the City.

An estimated number of domestic water service boxes to be adjusted has been shown in the Summary of Quantities. Payment shall be based on actual number of domestic water service boxes adjusted without a change in unit price because of adjustment in plan quantities.

This work will be paid for at the contract unit price each for DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED.

**60107700 PIPE UNDERDRAINS, 6"**

This work shall be in accordance with Section 601 of the Standard Specifications and the detail in the plan insofar as applicable and the following provisions.

The pipe underdrains shall be perforated polyvinyl chloride (PVC) pipe meeting Article 1040.09 of the Standard Specifications.

Bedding material surrounding the pipe and within three (3) inches of the outside edge of the pipe shall be CA 16 aggregate and shall be completely wrapped in one layer of geotechnical fabric.

The pipe underdrains shall be installed at all locations as shown on the plans. The pipe underdrain inverts shall be at a depth of four (4) feet below the top of curb at the catch basin, unless noted otherwise, so as to drain the pavement subbase. The underdrain shall have a minimum slope of one percent (1%). The upstream end of the pipe shall be capped with a material matching the pipe material.

This work shall be measured for payment in feet of pipe installed.

This work shall be paid for at the contract unit price per foot for PIPE UNDERDRAINS, 6", which price shall include the cost of excavating, disposing of surplus material, furnishing and installing the pipe, fabric, and bedding, and backfilling with CA 16 trench backfill material.

## SECTION 602 CLOSED LIDS

All frames with closed lids to be furnished as part of this contract for construction, adjustment, or reconstruction of any manhole or valve vault shall have cast into the lid one of the following words:

All lids to be used on drainage structures shall bear the word *STORM.*

All lids to be used on sanitary sewer structures shall bear the word *SANITARY* and shall be of the self-sealing and bolt-down type with concealed pick holes and O-ring seals.

All lids to be used on water system structures shall bear the word *WATER.*

## SECTION 602 STORM SEWER STRUCTURES

All new storm sewer structures shall be constructed using precast reinforced concrete risers. Final adjustment shall be made using precast adjusting rings. A maximum of eight (8) inches of adjusting rings will be permitted. At locations where Type 8 grates are to be installed on a flat slab top, a minimum of four (4) inches of adjusting rings shall be used in order to allow for topsoil placement over the flat top. Cost of the above shall be included in the unit price for the various storm sewer structures in the contract.

## SECTION 602 ADJUSTMENT AND RECONSTRUCTION OF STRUCTURES

This work shall be in accordance with Section 602 of the Standard Specifications insofar as applicable and the following provisions.

All adjustments shall be made by using precast reinforced concrete, high-density polyethylene plastic, or recycled rubber adjustment rings. A maximum of 8" of adjusting rings will be permitted.

When new frame and grates or lids are called for with the adjustment or reconstruction, the cost for furnishing and installing the new frame and grate or lid shall be included in the cost for adjusting or reconstructing the structure. Existing frames and grates or lids shall be delivered to the City as directed by the Engineer. Delivery shall be included in the cost of the item being adjusted or reconstructed.

Structures which are to be reconstructed shall be reconstructed to the depth approved by the Engineer.

## 60260050 SANITARY MANHOLES TO BE RECONSTRUCTED

This work shall be in accordance with Section 602 of the Standard Specifications and Section 8 of the Supplemental Specifications for Sanitary Sewer Improvements insofar as applicable, the details in the plans, and the following provisions.

All adjustments shall be made by using precast reinforced concrete adjustment rings. A maximum of 8" of adjusting rings will be permitted. Chimney seals shall be provided at all locations.

When new frame and grates or lids are called for with the reconstruction, the cost for furnishing and installing the new frame and lid shall be included in the cost for reconstructing the structure. Existing frames and lids shall be delivered to the City as directed by the Engineer. Delivery shall be included in the cost of the item being reconstructed.

Structures which are to be reconstructed shall be reconstructed to the depth approved by the Engineer.

At sanitary manholes for force mains, the proposed sanitary sewer force main shall extend into the manhole and upturn 90° as detailed in the plans.

The pipe opening in the manhole shall have a gasket-type water-stop collar that provides a flexible watertight pipe-to-manhole seal meeting ASTM C-923.

This work will be paid for at the contract unit price each for SANITARY MANHOLES TO BE RECONSTRUCTED, which price shall include all labor, equipment, and materials, including excavation and backfill, for a complete reconstruction.

**60266500 VALVE VAULTS TO BE REMOVED**

This work shall be done in accordance with Section 605 of the Standard Specifications insofar as applicable and the following provisions.

This work shall consist of all work necessary to remove the existing valve vault at the locations shown on the plans or as directed by the Engineer. This work shall include the removal of the valve and capping the existing water main where directed by the Engineer. Valves shall be delivered to the City as directed by the Engineer.

This work will be paid for at the contract unit price per each for VALVE VAULTS TO BE REMOVED.

**60603800 COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12**
**60605000 COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24**

This work shall be in accordance with Section 606 of the Standard Specifications and Standard Drawing 606001 with the following exceptions.

Combination concrete curb and gutter shall have nominal concrete flag thicknesses of 11" on Pingree Road and 13" on U.S. Route 14 to match the sum total thickness of bituminous surface, binder, and base courses, less the ¼" difference of surface course above the gutter flag.

A formless curb machine shall be used to place all combination concrete curb and gutter except radii 30 feet or less and shall be used in accordance with Article 606.04 of the Standard Specifications.

One-inch transverse expansion joints shall be placed at all radius points of the proposed concrete curb and gutter and at approximate 100-foot intervals between the above, as determined by the Engineer. Providing and installing these joints shall be included in the cost for the curb and gutter.

Expansion joint filler material shall be 1" thick and shall be installed so as to be a minimum of ½" lower than the finished gutter sections.

All expansion and contraction joints shall be sealed in accordance with Section 420 of the Standard Specifications.

At locations where the proposed curb and gutter is to be constructed across trenches or within three feet of the close edge of any trench, two (2) No. 4 reinforcement bars shall be placed in the proposed gutter. These reinforcement bars shall not be continuous through transverse expansion joints, but shall be stopped 3" short of same. Cost of these reinforcement bars, complete in place, shall be included in the cost for the curb and gutter.

A "W" shall be stamped into the concrete curb face at all water service locations. This work will be included in the cost of the combination concrete curb and gutter.

Gutter inlets and outlets will not be paid for separately but shall be included in the cost of the combination concrete curb and gutter, measured for payment in feet along the flow line of the gutter.

This work will be paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER of the type specified, which price shall be payment in full for all necessary labor, materials, and equipment including excavation, Class SI concrete, expansion joint filler, and reinforcement for a complete installation.

## SECTION 701 TRAFFIC CONTROL PLAN

Traffic Control shall be in accordance with the applicable sections of the Standard Specifications, the Supplemental Specifications, the *Illinois Manual on Uniform Traffic Control Devices for Streets and Highways*, any special details and Highway Standards contained in the plans, and the special provisions contained herein.

Special attention is called to Articles 105.05, and 107.09, and to Sections 701 and 702 of the Standard Specifications, and to the following Highway Standards, Details, Recurring Special Provisions, and Special Provisions contained herein relating to traffic control.

The Contractor shall contact the Engineer at least 72 hours in advance of beginning work.

**Standards**

701006, 701201, 701301, 701306, 701606, 701701, 702001

**Details**

Construction Staging and Detour Plan
Traffic Control and Protection for Side Roads, Intersections and Driveways (TC 10)

**Special Provisions**

Work Zone Traffic Control (Lump-Sum Payment)
Maintenance of Roadway
Keeping Roads Open to Traffic

| | |
|---|---|
| LRS 3 | Construction Zone Traffic Control |
| LRS 4 | Flaggers in Work Zones |
| ISP 04-08 | Traffic Control Deficiency Deduction |
| 80097 | Work Zone Traffic Control Devices (BDE) |

## SECTION 701 WORK ZONE TRAFFIC CONTROL (LUMP-SUM PAYMENT)

The Standard Specification for Section 701, Work Zone Traffic Control shall apply, except as modified herein.

Specific traffic control plan details and special provisions have been prepared for this contract.

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

All traffic control and protection will be paid for at the contract lump-sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL). This price shall be payment in full for all labor, materials, transportation, handling, and incidental work necessary to furnish, install, maintain, and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

Short-term pavement marking and temporary pavement marking will be paid for separately.

## SECTION 703 TEMPORARY PAVEMENT MARKING

This work shall be in accordance with Section 703 of the Standard Specifications insofar as applicable and the following provisions.

This item of work shall consist of placing pavement markings in accordance with the staging plans and as directed by the Engineer.

The markings are to be installed to properly channelize and maintain traffic control during construction of this project. Temporary paint pavement marking will not be applied to the final bituminous surface course.

This work will be paid for at the contract unit price per foot of applied line for TEMPORARY PAVEMENT MARKING LINE of the width specified, and per square foot for TEMPORARY PAVEMENT MARKING - LETTERS AND SYMBOLS.

## 78300100 PAVEMENT MARKING REMOVAL

This work shall be in accordance with Section 783 of the Standard Specifications insofar as applicable and the following provisions.

This work shall consist of removing existing and/or temporary pavement marking (excluding tape) that has been installed to control traffic and is in conflict with proposed markings required for traffic control during stage construction. Markings shall be removed as required by the plans or as directed by the Engineer.

Pavement markings that fall in areas that are to be removed or overlaid need not be removed if they do not conflict with redirected traffic movements.

The pavement markings shall be removed to the fullest extent possible from the pavement by a method that does not materially damage the surface or texture of the pavement. Any damage to the pavement caused by pavement marking removal shall be repaired by the Contractor at his expense by methods acceptable to the Engineer.

Residue from this pavement marking removal operation shall be promptly cleaned from the traffic lanes in a manner acceptable to the Engineer.

This work will be measured for payment in square feet of marking actually removed, regardless of the marking line width.

This work will be paid for at the contract unit price per square foot for PAVEMENT MARKING REMOVAL, which price shall be payment in full for all equipment, labor, and material required to perform this work.

## X0321588 SANITARY MANHOLES TO BE ADJUSTED WITH NEW TYPE 1 FRAME, CLOSED LID

This work shall be in accordance with Section 602 of the Standard Specifications insofar as applicable, the detail in the plans, and the following provisions.

This item consists of the adjustment of sanitary manhole frames and lids to proposed grade.

All adjustments shall be made by using precast reinforced concrete adjustment rings. A maximum of 8" of adjusting rings will be permitted.

This work will be paid for at the contract unit price each for SANITARY MANHOLES TO BE ADJUSTED WITH NEW TYPE 1 FRAME, CLOSED LID, which price shall include the frame with lid, excavation, and backfill.

**X0321720 WATER MAIN REMOVAL**

This work shall be in accordance with Sections 551 and 561 of the Standard Specifications insofar as applicable and the following provisions.

This work shall consist of the removal of portions of the existing water main and capping of the portions that are to remain in place. This work shall be performed at locations shown on the plans or as directed by the Engineer.

Water main removal shall end either at a joint or at a location where the existing pipe has been saw cut so as to provide a smooth, even surface and to allow a watertight joint. The existing water main shall be capped at all locations where removal is specified. The valves that control the existing water distribution system may not be adequate to completely shut down the system, and the Contractor should expect some residual pressure to be present when the cap is installed.

Adequate precautions shall be taken to prevent contaminants from entering the existing main.

If the excavation required for the removal operation falls within a paved area (existing or proposed), it shall be backfilled with trench backfill. Trench backfill will **not** be measured for payment but shall be considered included in the contract unit price per foot for water main removal.

This work will be paid for at the contract unit price per foot for WATER MAIN REMOVAL measured as removed, which price shall include excavation, capping of existing water mains that remain in place, and backfill as herein specified.

**X0322033 STORM SEWER (WATER MAIN REQUIREMENTS) 12 INCH**

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

Pipe materials shall meet the requirements of Sections 40 and 41-2.01 of the *Standard Specifications for Water and Sewer Main Construction in Illinois*, except PVC pipe will not be allowed. Water main shall be ductile iron pipe, Class 52.

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

**TEMPORARY PAVEMENT**

This work shall be done in accordance with Sections 406 and 440 of the Standard Specifications insofar as applicable, the Special Provision for "Superpave Bituminous Concrete Mixtures", and the following provisions.

This work shall include the placement and removal of temporary pavement at the locations shown on the plans or as directed by the Engineer.

The temporary pavement shall consist of Bituminous Concrete Binder Course, Superpave, IL-19 N70 (6½") and Bituminous Concrete Surface Course, Superpave, Mix D, N70 (1½").

Any excavation or embankment required to place or remove the temporary pavement in accordance with these plans shall be included in the cost per square yard of Temporary Pavement.

This work shall be paid for at the contract unit price per square yard for TEMPORARY PAVEMENT of the thickness specified, which price shall include all labor, equipment, and materials necessary to construct and remove this item.

**X4080020 INCIDENTAL BITUMINOUS SURFACING, SUPERPAVE N50**

This work shall be in accordance with Section 408 of the Standard Specifications insofar as applicable, the Special Provision for "Superpave Bituminous Concrete Mixtures", and the following provisions.

Revise Article 408.02 to read: "The bituminous mixture for the incidental bituminous surfacing shall meet the requirements of "Bituminous Concrete Binder Course, Superpave, IL 19, N50".

This item is to be used as: temporary bituminous ramps during stage construction; temporary patches on all sewer and water main trenches; temporary bituminous ramps placed around protruding frames and lids prior to the placement of the final bituminous concrete surface course; or as directed by the Engineer.

This work will be paid for at the contract unit price per ton for INCIDENTAL BITUMINOUS SURFACING, SUPERPAVE, N50, which price shall include removal of the item as directed by the Engineer.

**X6700410 ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL)**

This item shall be in accordance with Section 670 of the Standard Specifications insofar as applicable and the following provisions.

Addition:

Revise paragraph (i) by adding this second sentence, "The automatic telephone answering system shall have the capability of answering the phone when unattended with a 30-minute minimum recording capability."

(n) A portable cellular telephone, Motorola Model StarTac 6500 or approved equal with one (1) additional battery pack and charger. The Contractor shall be responsible for all activation fees and the first 500 minutes of air time per month.

The building, fully equipped, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL), which price shall include the above-noted additions.

**Penalty.** Failure by the Contractor to meet the specified occupancy date for any field office or field laboratory shall be grounds for assessment of a penalty of $100 per day for each calendar day thereafter that such facility remains incomplete in any respect. Failure by the Contractor to equip, heat, cool, power, supply or clean the field office shall be grounds for assessment of a penalty of $100 per day for each calendar day that the field office remains incomplete after receipt of written notification from the Engineer. Such penalty shall be deducted from monies due or to become due the Contractor under the Contract.

This item will be paid for at the contract unit price per calendar month for ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL).

**X7015000 CHANGEABLE MESSAGE SIGN**

This work shall be in accordance with the Special Provision for "Portable Changeable Message Sign" and the following.

Changeable message signs shall be placed at locations shown in the plans or directed by the Engineer. The message signs shall be placed outside traffic lanes but within existing public right-of-way and shall not obstruct visibility or pedestrian movements.

The message signs shall be placed 14 days in advance of initial start-up. The message signs shall be relocated and re-programmed as project work and staging progresses, as shown in the plans, or directed by the Engineer.

Furnishing, placing, and maintaining of Portable Changeable Message Signs shall be paid for per calendar month for each sign as CHANGEABLE MESSAGE SIGN. Relocating and re-programming the message signs shall not be paid for but shall be included in the cost of this item.

**XX003503 FLARED END SECTION REMOVAL**

The work shall be in accordance with Section 551 of the Standard Specifications insofar as applicable and the following provisions.

This work consists of the removal and disposal of flared end sections at locations shown on plan and as directed by the Engineer.

This work will be paid for at the contract unit price each for FLARED END SECTION REMOVAL, regardless of material or size, which price will include all labor, material, and equipment for a complete removal.

**XX004852 BITUMINOUS DRIVEWAY PAVEMENT, SUPERPAVE**

This work consists of the construction of bituminous driveway pavements on a prepared subgrade in accordance with Sections 355 and 406 of the Standard Specifications and special provisions for "Superpave Bituminous Concrete Mixtures and Bituminous Base Course/Widening Superpave" insofar as applicable and as detailed on the plans.

Materials to be included and placed for this work shall consist of the following:

Three (3) inches of a Subbase Granular Material, Type C, gradation CA 6
Seven (7) inches of Bituminous Base Course Superpave
Two (2) inches of Bituminous Concrete Binder Course, Superpave, IL-19, N50
Two (2) inches of Bituminous Concrete Surface Course, Superpave, Mix C, N50

This work shall be measured in place and the area computed in square yards, complete.

This work will be paid for at the contract unit price per square yard for BITUMINOUS DRIVEWAY PAVEMENT, SUPERPAVE, which price shall include all labor, equipment, and materials to provide a complete and finished driveway.

Removal of existing bituminous driveway pavement and excavation will be measured and paid for as EARTH EXCAVATION.

**XX005106 PVC CASING PIPE, 18"**

This work shall be in accordance with the Supplemental Specifications for Water Main Improvements insofar as applicable and the following provisions.

This work shall consist of placing casing pipe in trench to provide a sealed carrier pipe between other utilities and the water main.

The casing pipe material shall be polyvinyl chloride (PVC) meeting ASTM F-679 or ASTM D-3034, as applicable, Type 1, and having an SDR of 26. The casing pipe shall have an inside diameter as specified on the plans.

The Contractor may install larger-diameter pipe than called for above, if he believes it would be beneficial to sand fill placement or pipe stability. The payment item shall remain the same. "Cascade" type spacers shall be used for installation of the water main.

This work will be paid for at the contract unit price per foot for PVC CASING PIPE of the diameter specified, measured in place. The price shall include the cost of all materials, pipe, fittings, joint materials, blocking, spacers, sand, bulkheads, and all work and equipment necessary to make a completed and finished installation.

Water or sewer main installed within the casing pipe shall be paid for separately, as set forth hereinbefore.

**Z0000990 AGGREGATE FOR TEMPORARY ACCESS**

The Contractor shall maintain ingress and egress to all abutting properties during construction operations. Temporary driveways, temporary sidewalks, and temporary roads shall be constructed of aggregate to the dimensions determined by the Engineer.

This work shall be done in accordance with Articles 107.09, 301.04, and 1004.04 of the Standard Specifications with the exception that the materials shall be limited to **crushed gravel, crushed stone, or crushed concrete**. The plasticity index requirements and the requirements for adding water at the central mixing plant will be waived.

After the temporary driveways, temporary sidewalks, and temporary roads have served their purpose, the suitable aggregate shall be removed, and at the direction and approval of the Engineer, utilized for other purposes such as embankment construction or other driveway aprons.

This work will be paid for at the contract unit price per ton for AGGREGATE FOR TEMPORARY ACCESS, which price shall be payment in full for furnishing, transporting, placing, maintaining and removing, reusing, or disposing of the aggregate, as herein specified and as directed by the Engineer.

Payment for aggregate will be determined by weight tickets and will be paid for its initial use only, regardless of the number of times the aggregate is moved.

**Z0001050 AGGREGATE SUBGRADE, 12"**

Effective: May 1, 1990
Revised: July 1, 1999

This work shall be done in accordance with the applicable portions of Section 207 of the Standard Specifications. The material shall conform with Article 1004.06 of the Standard Specifications except as follows:

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

| Sieve Size | Percent Passing |
|---|---|
| *150 mm (6") | 97±3 |
| *100 mm (4") | 90±10 |
| 50 mm (2") | 45±25 |
| 75 µm (#200) | 5±5 |

2. Gravel, Crushed Gravel and Pit Run Gravel

| Sieve Size | Percent Passing |
|---|---|
| *150 mm (6") | 97±3 |
| *100 mm (4") | 90±10 |
| 50 mm (2") | 55±25 |
| 4.75 mm (#4) | 30±20 |
| 75 µm (#200) | 5±5 |

3. Crushed Concrete with Bituminous Materials**

| Sieve Size | Percent Passing |
|---|---|
| *150 mm (6") | 97±3 |
| 100 mm (*4") | 90±10 |
| 50 mm (2") | 45±25 |
| 4.75 mm (#4) | 20±20 |
| 75 µm (#200) | 5±5 |

* For undercut greater than 450 mm (18") the percent passing the 150 mm (6") sieve may be 90±10 and the 100 mm (4") sieve requirements eliminated.

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

The aggregate subgrade shall be placed in two lifts consisting of a 225 mm (9") and variable nominal thickness lower lift and a 75 mm (3") nominal thickness top lift of capping aggregate having a gradation of CA 6. Reclaimed Asphalt Pavement (RAP) meeting Article 1004.07 of the Standard Specifications and having 100% passing the 75 mm (3") sieve and well-graded down through 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. A vibratory roller meeting the requirements of Article 1101.01 of the Standard Specifications shall be used to roll each lift of material to obtain the desired keying or interlock and necessary compaction. The Engineer will verify that adequate keying has been obtained.

When a recommended remedial treatment for unstable subgrades is included in the contract, the lower lift of Aggregate Subgrade may be placed simultaneously with the material for Porous Granular Embankment, Subgrade when the total thickness to be placed is 600 mm (24") or less.

**Method of Measurement.**

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

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

**Basis of Payment.** This work will be paid for at the contract unit price per square meter for AGGREGATE SUBGRADE, 12", which price shall include the capping aggregate.

**Z0019500 DRY WELL**

This work shall be in accordance with Section 602 of the Standard Specifications insofar as applicable, the details in the plans, and the following provisions.

Dry wells shall be constructed at locations shown on the plans, as shown in the details, and as directed by the Engineer.

This work will be paid for at the contract unit price each for DRY WELL of the diameter specified and with the type of frame and grate or frame and lid specified, which price shall include all labor, material, equipment, frames, lids, flat slab tops, excavation, backfill, and filter fabric for a complete installation.

**Z0019600 DUST CONTROL WATERING**

This work shall consist of the exclusive control of dust resulting from construction operations and is not intended for use in the compaction of earth embankments.

Dust shall be controlled by the uniform application of sprinkled water and shall be applied only when directed by and in a manner meeting the approval of the Engineer.

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

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

This work will be paid for at the contract unit price per unit as DUST CONTROL WATERING.

**Z0057000 SANITARY SEWER 10"**

This work shall be in accordance with the Supplemental Specifications for Sanitary Sewer Improvements insofar as applicable, the details in the plans, and the following provisions.

This work consists of the installation of a new ductile iron sanitary force main that will connect to an existing sanitary force main. The Contractor shall provide adequate means to maintain flows of that normally carried by the existing force main during construction and connection of the proposed force main. Operation of the pump station shall be coordinated with and approved by the City during the connection of the new force main and the existing force main.

Sanitary sewer pipe shall be cement-lined ductile iron Class 52 and shall conform to AWWA C-151 (ANSI A21.51), "Ductile Iron Pipe, Centrifugally Cast, for Water," latest revision. Joints between new pipe material shall be rubber-gasket push-on type and shall conform to AWWA C-111 (ANSI A21.11), "Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings," latest revision. Joints between existing pipe material and the new ductile iron pipe shall be made by means of a mission coupling (ASTM C-594) or as directed by the Engineer. Bedding shall be in accordance with Section 208 of the Standard Specifications and special details.

Sanitary sewer shall be backfilled in accordance with Article 550.07, Method 1 only.

Existing pipelines shall be properly supported during construction of the sanitary sewer so that cracking and leakage or failure of the existing pipeline does not occur.

All sanitary sewer shall be encased in a double polyethylene encasement. Each encasement shall be a loose eight (8) millimeter thick polyethylene tube in accordance with ANSI/AWWA A-21.5/C-105, Method A.

This work will be paid for at the contract unit price per foot for SANITARY SEWER, 10". This price shall include the cost of all pipe, fittings, adaptors, joint materials, bedding, blocking, and all other material, work, and equipment necessary to make a complete installation.

**DRY WELLS TO BE RECONSTRUCTED WITH NEW TYPE 1 FRAME, CLOSED LID**

This work shall be in accordance with Section 602 of the Standard Specifications insofar as applicable, the details in the plans, and the following provisions.

All adjustments shall be made by using precast reinforced concrete adjustment rings. A maximum of 8" of adjusting rings will be permitted.

The cost for furnishing and installing the new frame and lid shall be included in the cost for reconstructing the structure. Existing frames and grates or lids shall be delivered to the City as directed by the Engineer. Delivery shall be included in the cost of the item being reconstructed.

Structures which are to be reconstructed shall be reconstructed to the depth approved by the Engineer.

This work will be paid for at the contract unit price each for DRY WELLS TO BE RECONSTRUCTED WITH NEW TYPE 1 FRAME, CLOSED LID, which price shall include all labor, equipment, and materials including frames, lids, flat slab tops, adjusting rings, seals, excavation, and backfill for a complete reconstruction.

**REMOVING DRY WELLS**

This work shall be in accordance with Section 605 of the Standard Specifications insofar as applicable and the following provisions.

This work consists of removing existing dry wells from service. The tops of all existing dry wells shall be removed to the lowest elevation of either three (3) inches below the earth subgrade of the proposed improvement or to the invert of the lowest inlet/outlet connection. The remaining structure shall be filled with Coarse Aggregate Gradation CA 3 and overlaid with filter fabric. The resultant hole shall be graded with embankment to the subgrade elevation.

Frames, grates, and lids as applicable shall be delivered to the City. The cost of delivery and the cost to dispose of all removed materials shall be included in the cost of this item.

This work will be paid for at the contract unit price each for REMOVING DRY WELLS, which price shall include removing and disposing of the existing structure, filling, placement of filter fabric, and backfilling.

**SANITARY SEWER REMOVAL (SPECIAL)**

This work shall be in accordance with Section 551 of the Standard Specifications and the Supplemental Specifications for Sanitary Sewer Improvements insofar as applicable and the following provisions.

This work shall consist of the removal of portions of the existing sanitary sewer force main. This work shall be performed at locations shown on the plans or as directed by the Engineer.

Excavation for the removal of the sanitary sewer shall be backfilled with trench backfill. Trench backfill will not be measured for payment but shall be considered included in the contract unit price per foot for Sanitary Sewer Removal (Special).

The Contractor shall be aware that the force main may be out of service for a maximum of two (2) hours during an off-peak period. The Contractor shall provide a detailed schedule for removal of the sanitary sewer force main. The Contractor shall have available, prior to removing the force main from service, adequate means to convey the sanitary sewage at the peak flow rate, should the two-hour shutdown be exceeded for any reason.

Operation of the pump station shall be coordinated with and approved by the City.

This work will be paid for at the contract unit price per foot for SANITARY SEWER REMOVAL (SPECIAL), measured as removed, which price shall include all excavation, removal, and disposal of pipe and trench backfill. Emergency conveyance of sewage, if used, shall not be paid for but shall be considered included in the cost of this item.

**CUT AND CONNECT SLOTTED DRAIN**

This work shall be in accordance with Section 542 of the Standard Specifications insofar as applicable, the details in the plans, and the following provisions.

The existing slotted drainpipe shall be cut at a location that will accommodate a coupling device, 45° elbow, and the required clearance on the manhole section. The cut location shall be changed if pipe damage or joints are observed; then the cut location shall remove these materials.

The coupling band, 45° elbow, and any pipe extensions required in the installation shall be of a material that matches the existing pipe and the requirements of Article 542.02.

Trenching and coring into the proposed drainage structure shall be in accordance with the details shown in the plans.

This work will be measured and paid for at the contract unit price per each for CUT AND CONNECT SLOTTED DRAIN, which price shall include all work, equipment, and materials including excavation, saw cuts, coupling devices, pipe material, coring, and backfilling required to provide a complete and installation.

## COMPLETION DATE PLUS GUARANTEED WORKING DAYS

*Revise Special Provision to read as follows:*

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

"When a completion date plus guaranteed working days is specified, the Contractor shall bring the project to substantial completion for most contract items and safely open all roadways to traffic (on the bituminous binder course, at a minimum) by 11:59 PM on **October 31, 2005,** except as specified herein. Work for contract items not affecting the safe opening of the roadway to traffic may be continued during the following construction season, but must be completed by 11:59 PM on **June 15, 2006,** except as specified herein. Erosion control measures must remain in place and be maintained as directed by the Engineer until successful turf establishment is achieved.

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

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

Illinois Department of Transportation

# Storm Water Pollution Prevention Plan

Route **FAU 0126 (PINGREE ROAD)** Marked

Section **95-00090-00-FP** Project No. **M-8003(328)**

County **McHENRY**

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.

James R Lenzini
Signature

July 23, 2004
Date

Project Manager
Title

## 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 SCOPE OF THIS PROJECT ALONG PINGREE ROAD AND U.S. ROUTE 14 (FAP 305/NORTHWEST HIGHWAY) INCLUDES RECONSTRUCTION OF FULL-DEPTH BITUMINOUS PAVEMENT INCLUDING CURB AND GUTTER; ROADWAY WIDENING FOR AUXILIARY LANE ADDITIONS; ROADWAY PROFILE MODIFICATIONS; BITUMINOUS RESURFACING; SEWER AND WATER MAIN CONSTRUCTION; SIDEWALK; LANDSCAPING; AND UTILITY ADJUSTMENTS.**

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):

1. **INSTALLATION OF TEMPORARY EROSION CONTROL SYSTEMS**
2. **ISOLATED TREE REMOVAL AND CLEARING AS SHOWN ON THE PLANS. TREES TO REMAIN WILL BE PROTECTED FROM DAMAGE**
3. **PAVEMENT REMOVAL WITHIN PROJECT LIMITS**
4. **EXCAVATION AND EMBANKMENT WITHIN PROJECT LIMITS FOR PROPOSED RECONSTRUCTION AND WIDENING, AND CONSTRUCT SWALES**
5. **INSTALLATION OF WATER MAIN, STORM SEWER, AND SANITARY SEWER**
6. **CONSTRUCTION OF BITUMINOUS PAVEMENT, CURB AND GUTTER, AND SIDEWALK**
7. **FINAL GRADING, PERMANENT SEEDING, AND SODDING**
8. **REMOVAL OF TEMPORARY EROSION CONTROL SYSTEMS AFTER FINAL SITE STABILIZATION**

c. The total area of the construction site is estimated to be 7.96 acres.

The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is 7.40 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):

1. **THE PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS WILL ENSURE THAT EXISTING VEGETATION IS PRESERVED WHERE ATTAINABLE AND DISTURBED PORTIONS OF THE SITE WILL BE STABILIZED.**
2. **STABILIZATION PRACTICES SHALL INCLUDE TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SODDING, AND TREE PROTECTION.**
3. **STABILIZATION MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE IN DISTURBED PORTIONS OF THE SITE.**
4. **BARE AND SPARSELY-VEGETATED ERODABLE AREAS WITHIN THE PROJECT SITE SHALL BE TEMPORARILY SEEDED AT THE COMMENCEMENT OF CONSTRUCTION IF NO GRADING OR OTHER DISTURBANCE IS EXPECTED WITHIN 14 DAYS.**

(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):

1. **WHERE WATER WOULD DRAIN AWAY FROM THE PROJECT SITE, TEMPORARY DITCH CHECKS, INLET AND PIPE PROTECTION, AND PERIMETER EROSION BARRIER SHALL BE INSTALLED PER THE PLAN AND AS DIRECTED BY THE ENGINEER.**
2. **TEMPORARY DITCH CHECKS WILL BE UTILIZED IN PROPOSED SWALES WITHIN THE PROJECT SITE TO RESTRAIN RUNOFF AND SILTATION AND REDUCE FLOW RATES THROUGH THE SITE.**
3. **STONE RIPRAP WITH FILTER FABRIC WILL BE USED AT THE OUTFALLS OF CULVERT END SECTIONS TO PREVENT SCOURING AT THE END OF PIPES AND PREVENT DOWNSTREAM EROSION.**

**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):

1. **TWO (2) EXISTING DETENTION BASINS WITH DRY WELL OUTFALLS HAVE BEEN CONSTRUCTED TO ACCOMMODATE INCREASED STORMWATER RUNOFF RESULTING FROM THE PROPOSED ROADWAY WIDENING OF PINGREE ROAD FROM CONGRESS PARKWAY TO U.S. ROUTE 14 (NORTHWEST HIGHWAY).**
2. **PROPOSED DRY WELLS ALONG PINGREE ROAD, SOUTH OF U.S. ROUTE 14 WILL BE USED AS DETENTION AND OUTFALLS FOR STORM WATER RUNOFF.**
3. **PROPOSED DRY WELLS ALONG U.S. ROUTE 14 WILL REPLACE EXISTING DRYWELLS REMOVED IN CONSTRUCTION OF THE AUXILIARY TURN LANES.**
4. **ADDITIONAL PROPOSED DRY WELLS ALONG U.S. ROUTE 14 WILL BE USED AS DETENTION AND OUTFALLS FOR THE INCREASED IMPERVIOUS AREA RESULTING FROM CONSTRUCTION OF THE AUXILIARY TURN LANES.**

**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:

1. **ALL MANAGEMENT PRACTICES, CONTROLS, AND OTHER PROVISIONS PROVIDED IN THIS PLAN ARE IN ACCORDANCE WITH IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.**
2. **IDOT HIGHWAY STANDARDS**
3. **ILLINOIS URBAN MANUAL**
4. **BUREAU OF DESIGN AND ENVIRONMENT MANUAL**

**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):

**DURING CONSTRUCTION, THE CONTRACTOR SHALL:**

- **CLEAN AND GRADE THE WORK AREA TO ELIMINATE CONCENTRATION OF RUNOFF**
- **COVER THE OPEN ENDS OF PIPES IN TRENCHES AT THE CLOSE OF EACH WORKING DAY**
- **MAINTAIN OR REPLACE EROSION AND SEDIMENT CONTROL DEVICES**

**PRIOR TO ANY LANDSCAPING OR RESTORATION WORK, THE CONTRACTOR SHALL:**

- **REMOVE AND DISPOSE OF SILT RETAINED BY THE TEMPORARY DITCH CHECKS**
- **REINSTALL OR REPLACE TEMPORARY DITCH CHECKS AFTER CLEANING**

## 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).

**ONLY KNOWN SOURCES OF NON-STORM WATER DISCHARGE WITHIN THE PROJECT LIMITS WILL BE FROM CONSTRUCTION ACTIVITIES RELATED TO SOD WATERING, DUST CONTROL WATERING, AND WATER MAIN FLUSHING.**

Illinois Department of Transportation

## 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 **FAU 0126 (PINGREE ROAD)** Marked _____

Section **95-00090-00-FP** Project No. **M-8003(328)**

County **McHENRY**

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.

_____ Signature

_____ Date

_____ Title

_____ Name of Firm

_____ Street Address

_____ City _____ State

_____ Zip Code

_____ Telephone Number

**TRAFFIC SIGNAL SPECIFICATIONS**
Effective: January 1, 2002 Revised: May 22, 2002

These Traffic Signal Special Provisions and the "District 1 Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

## SECTION 720 SIGNING

### MAST ARM SIGN PANELS.

Add the following to Section 720.02 of the Standard Specifications:

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

## SECTION 800 ELECTRICAL

### INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Section 802.01 of the Standard Specifications:

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

### DAMAGE TO TRAFFIC SIGNAL SYSTEM.

Revise Section 802.02 of the Standard Specifications to read:

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

## RESTORATION OF WORK AREA.

Add to Section 802 of the Standard Specifications:

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

## SUBMITTALS.

Revise Section 802.04 of the Standard Specifications to read:

The Contractor shall provide:

a. All material approval requests shall be submitted a minimum of seven (7) days prior to the delivery of equipment to the job site, or within 30 consecutive calendar days after the contract is awarded, or within 15 consecutive calendar days after the preconstruction meeting, whichever is first.
b. Seven (7) copies of a letter from the Traffic Signal Contractor listing the manufacturer's name and model numbers of the proposed equipment and stating that the proposed equipment meets all contract requirements. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approvable. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.
c. One (1) copy of material catalog cuts.
d. Seven (7) copies of mast arm poles and assemblies.
e. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of the letter, material catalog cuts and mast arm poles and assemblies drawings as required in items b, c and d.
f. Exceptions, Deviations and Substitutions. In general, exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

## MAINTENANCE AND RESPONSIBILITY.

Revise Section 802.07 of the Standard Specifications to read:

a) Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which they are located. Once the Contractor has begun any work on any portion of the project all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation", "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation", shall

become the full responsibility of the Contractor. The Contractor shall supply the engineer and the Department's Electrical Maintenance Contractor a 24-hour emergency contact name and telephone number.

b) When the project has a pay item for "Maintenance of Existing Traffic Signal Installation", "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation", the Contractor must notify both the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4139 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.

c) Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4139 and the Department's Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. See additional requirements in these specifications under Inductive Loop Detector.

d) The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

e) The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Department, the Department's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The District's Electrical Maintenance Contractor may inspect any signalizing device on the Department's highway system at any time without notification.

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

Revise Section 802.10 of the Standard Specifications to read:

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

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4139 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Department's facsimile number is (847) 705-4089.

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

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

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

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

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

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

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

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

**LOCATING UNDERGROUND FACILITIES.**

Revise Section 803.00 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District 1 Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

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

**ELECTRIC SERVICE INSTALLATION.**

Revise Section 805.00 of the Standard Specifications to read:

Description. This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the "District 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications.

Materials.

a. General. The completed control panel shall be constructed in accordance with UL Std. 508, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

b. Enclosures.

1. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 2.03 mm (0.080-inch) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 350 mm (14-inches) high, 225 mm (9-inches) wide and 200 mm (8-inches) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.

2. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 3.175 mm (0.125-inch) thick, the top 6.350 mm (0.250-inch) thick and the bottom 12.70 mm (0.500-inch) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel 1.91 mm (.075-inch) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 1000 mm (40-inches high), 400 mm (16-inches) wide and 375 mm (15-inches) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.

c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of –40C to +85C. The surge protector shall be UL 1449 Listed.

d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, otherwise noted on the plans, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.

f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be

sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.

h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 3.0 meters (10') in length, and 20mm (3/4") in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation

a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.

c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

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

**GROUNDING OF TRAFFIC SIGNAL SYSTEMS.**

Revise Section 807.00 of the Standard Specifications to read:

General. All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See IDOT District 1 Traffic Signal detail plan sheet for additional information.

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

Testing shall be according to Section 801.11.

a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.

b) The equipment grounding conductor shall be green color coded. The following is in addition to 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 equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.

   2) Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. A Listed electrical joint compound shall be applied to all conductors terminations, connector threads and contact points.

   3) All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.

c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, listed pressure connectors, listed clamps or other approved listed means.

**HANDHOLES.**

Add the following to Section 814.00 of the Standard Specifications:

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

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

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

All conduits shall enter the handhole at a depth of (760 mm) 30" except for the conduits for detector loops when the handhole is less than (1.52 m) 5' from the detector loop.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 9.525 mm (3/8") diameter and extend into the handhole at least 150 mm (6 inches). Hooks shall be placed a minimum of 300 mm (12 inches) below the lid or lower if additional space is required.

**FIBER OPTIC TRACER CABLE.**

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

Add to Section 817.03 of the Standard Specifications:

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

Revise Section 817.05 of the Standard Specifications to read:

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

**GROUNDING CABLE.**

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

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

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

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

Revise Section 817.05 of the Standard Specifications to read:

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

## RAILROAD INTERCONNECT CABLE.

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

Add to Section 817.02 of the Standard Specifications:

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

Revise Section 817.05 of the Standard Specifications to read:

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

## MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Revise Section 850.00 of the Standard Specifications to read:

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

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

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

The maintenance shall be according to District 1 revised Article 802.07 and the following contained herein.

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

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. At approaches where a yellow flashing indication is necessary, as directed by the Engineer, stop signs will not be required. The Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a

sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

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

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

The Contractor shall respond to all emergency calls from the Department or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the State. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the State's Electrical Maintenance Contractor perform the maintenance work required. The State's

Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

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

**TRAFFIC ACTUATED CONTROLLER.**

Add the following to Section 857.00 of the Standard Specifications:

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

By December 31, 2002, the controller shall provide a background timer which will prevent phases from being skipped during program changes.

**MASTER CONTROLLER.**

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

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

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

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

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

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum.

The cabinet shall be provided with a Siecor CAC 3000, or equivalent, Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date. The CAC 3000 shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor.

The cabinet shall provide a caller identification unit with 50 number memory.

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

Each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support. Each set shall consist of software on suitable media (CD, 3 1/2" or 5 1/4" floppy disks as requested by the Engineer), and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for his use in monitoring the system.

The Contractor shall be required to setup graphic displays and all software parameters for every intersection to be interconnected under this Contract, including complete viewing and control capabilities from IDOT remote monitor.

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

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District 1 staff.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the Administrative Support Manager in the District 1 Business Services Section at (847) 705-4011 to request a phone line installation.

A follow-up fax transmittal to the Administrative Support Manager (847-705-4712) with all required information pertaining to the phone installation is required from the Contractor as soon as possible or within one week after the initial request has been made. A copy of this fax transmittal must also be faxed by the Contractor to the Traffic Signal Systems Engineer at (847) 705-4089. The required information to be supplied on the fax shall include (but not limited to):

A street address for the new traffic signal controller (or nearby address); a nearby existing telephone number; what type of telephone service is needed; the name and number of the Contractor's employee for the telephone company to contact regarding site work and questions.

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

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

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

**FIBER OPTIC CABLE.**

Revise Section 871.00 of the Standard Specifications to read:

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

The control cabinet distribution enclosure shall be 3M Model 8173 or an approved equivalent. The fiber optic cable shall provide six fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of (4m) 13.0' of slack cable shall be provided for the controller cabinet. The controller cabinet slack cable shall be stored as directed by the Engineer.

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

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

**CONCRETE FOUNDATIONS.**

Add the following to Section 878.03 of the Standard Specifications:

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

Concrete Foundations, Type "A" for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "District 1 Standard Traffic Signal Design Details." All Type "A" foundations shall be a minimum depth of 1.22 m (48").

Concrete Foundations, Type "D" for Traffic Signal Cabinets shall be a minimum of 1.22 m (48") long and 790 mm (31") wide. All Type "D" foundations shall be a minimum depth of 1.22 m (48"). The concrete apron shall be 910 mm X 1220 mm X 130 mm (36"x48"x5"). Anchor bolts shall provide bolt spacing as required by the manufacturer.
Concrete Foundations, Type "E" for Mast Arm and Combination Mast Arm Poles shall meet the following requirements:

DESIGN TABLE FOR 750 mm (30-INCH) DIAMETER FOUNDATION
FOR ALL MAST ARMS 4.26M (14 FEET) TO 16.76M (55 FEET)
AND ALL COMBINATION POLES (DESIGN DEPTH IS 4.57 m [15 FEET])

| | TYPE OF SOIL DESCRIPTION | DESIGN DEPTH OF FOUNDATION | | TYPE OF SOIL DESCRIPTION | DESIGN DEPTH OF FOUNDATION |
|---|---|---|---|---|---|
| 1. | SOFT CLAY | 5.33 m(17' – 6") | *4. | LOOSE SAND | 3.05 m(10' – 0") |
| 2. | MEDIUM CLAY | 3.81 m(12' – 6") | *5. | MEDIUM SAND | 2.74 m(9' – 0") |
| 3. | STIFF CLAY | 2.59 m(8' – 6") | *6. | DENSE SAND | 2.44 m(8' – 0") |

* WATER TABLE ASSUMED BELOW DEPTHS SPECIFIED

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation. Foundations used for Roadway Lighting shall provide an extra 65 mm (2-1/2 inch) duct.

**DETECTOR LOOP.**

Revise Section 886 of the Standard Specifications to read:

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4139 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the portland cement concrete surface, using the same notification process as above.

Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details". Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

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

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

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

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

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

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

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

Preformed detector loops shall be installed in new pavement constructed of portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be protected to the satisfaction of the Engineer.

Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole.

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

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

**EMERGENCY VEHICLE PRIORITY SYSTEM.**

Revise Section 887.00 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding.

The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District 1 Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 150 watt Par 38 flood lamp for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4E-5 of the "Manual On Uniform Traffic Control Devices." The stopped pre-empted movements shall be signalized by a continuous indication.

All light operated systems shall operate at a uniform rate of 14.035 Hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

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

**TEMPORARY TRAFFIC SIGNAL INSTALLATION.**

Revise Section 890.00 of the Standard Specifications to read:

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

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

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

Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 807 of the Standard Specifications and shall meet the requirements of the District 1 Traffic Signal Specifications for "Grounding of Traffic Signal Systems".

All traffic signal sections and pedestrian signal sections shall be 300 mm (12 inches). The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. The Contractor shall furnish enough cable slack to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.

The existing system interconnect is to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be incidental to the item Temporary Traffic Signal Installation.

All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be incidental to the item Temporary Traffic Signal Installation.

All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. Minor cross streets shall have vehicular detection provided by Microwave Vehicle Sensors or Video Vehicle Detection System as shown on the plans or as directed by the Engineer. The microwave vehicle sensor or video vehicle detection system shall be approved by IDOT before furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system.

All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.

The energy charges for the operation of the traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.

All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.

Maintenance shall meet the requirements of the Traffic Specifications and District Specifications for "Maintenance of Existing Traffic Signal Installation." Maintenance of temporary signals and of the existing signals shall be incidental to the cost of this item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. Maintenance responsibility of the existing signals shall be incidental to the item Temporary Traffic Signal Installation(s). In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic (847) 705-4139 for an inspection of the installation(s).

Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District 1 Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the above requirements for "Temporary Traffic Signal Installation". In addition all electric cable shall be aerially suspended, at a minimum height of 5.5m (18 feet), on temporary wood poles (Class 5 or better) of 13.7 m (45 feet), minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection may be used in place of the detector loops as approved by the Engineer.

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

**REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT.**

Add the following to Section 895.05 of the Standard Specifications:

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

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

for the condition of the traffic signal equipment from the time he takes maintenance of the signal installation until the acceptance of a receipt drawn by the State's Electrical Maintenance Contractor indicating the items have been returned in good condition.

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

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

## SECTION 1000 MATERIALS

**PEDESTRIAN PUSH-BUTTON.**

Add the following to Section 1074.02 (b) and (d) of the Standard Specifications to read:

(b) Push-button assemblies shall be a cast aluminum alloy Pelco Push-button station, or an approved equivalent.
(d) The assembly shall provide ADA push-buttons with one of the following signs: SF-1017, 1018 or 1020 - 5" x 7¾" (127 mm x 197 mm).

**CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.**

Revise Section 1074.03 of the Standard Specifications to read:

Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.

- Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- Surge Protection – EDCO Model 1210 IRS with failure indicator.
- BIU – Containment screw required.
- Transfer Relays – Solid state or mechanical flash relays are acceptable.
- Switch Guards – All switches shall be guarded.
- Heating – Two (2) porcelain light receptacles with cage protection controlled by both a wall switch and a thermostat.
- Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
- Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channel (16) of vehicular operation.
- Field Wiring Labels – All field wiring shall be labeled.
- Field Wiring Termination – Approved channel lugs required.
- Power Panel – Provide a nonconductive shield.
- Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
- Police Door – Provide wiring and termination for plug in manual phase advance switch.
- Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

**TRAFFIC ACTUATED CONTROLLER AND CABINET INTERCONNECTED WITH RAILROADS.**

Add the following to Section 1074.03 of the Standard Specifications to read:

Cabinets shall be new and NEMA TS2 Type 1 design. In addition to the aforementioned District One equipment specifications, the following shall apply to railroad interconnected equipment:

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

Pedestrian clearance during railroad pre-emption shall be limited to a flashing don't walk interval in length to the vehicle yellow clearance interval and shall time concurrently with the vehicle yellow clearance.

The controller shall provide for immediate track clearance green re-service upon receipt of each subsequent pre-empt demand. During this re-service all normal vehicle clearance intervals, including red revert, will be respected.

The terminal facility shall be wired so as to provide supervision of all essential pre-emption components. This wiring shall cause the facility to transfer to or remain in flashing operation in the event any critical component is missing, not connected or failed. Interface relays shall be wired so as to be in the energized state during normal (non-pre-empt) operation. Failure of a relay coil shall open the supervision loop and cause the intersection to transfer to flashing operation. Each critical element such as controller harnesses and interface relays shall be wired to form a series loop which must be complete for normal operation.

A method of supervising the 3 conductor cable interconnecting the traffic and railroad facilities shall provide flashing operation during failed cable conditions. Upon detection of a failed railroad interconnect the controller shall provide one (1) track clearance green interval and shall enter flashing operation at end of track clearance yellow interval. Such flashing operation must be manually reset. The supervision circuit shall, within reason, be capable of detecting failure of the supervision circuit components themselves, and shall provide fail-safe operation upon such failure.

The interconnect to railroad facility shall be such that demand for pre-emption begins when the railroad flashers begin to flash and ends when railroad gates begin to rise.

An IDOT approved method of controller security shall be implemented to assure data integrity and to preclude changes to critical data. The method shall include a means for the controller to continuously verify controller/cabinet CRC match. The CRC will be developed based on pre-emptor entries, unit data (including phases in use, sequence and ring structure, etc.), overlap assignment and timing, firmware version, and any special memory content necessary to proper operation. Where data is stored in a data module a spare data module shall be provided to the Engineer.

A test switch shall be provided in the railroad circuit to initiate pre-emption. See cabinet specifications.

**ELECTRIC CABLE.**

Delete "or stranded, and No. 12 or" from the last sentence of Section 1076.04 (a) of the Standard Specifications.

**MAST ARM ASSEMBLY AND POLE.**

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

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

This work shall consist of furnishing and installing a galvanized steel or extruded aluminum shroud for protection of the mast arm pole base plate similar to the dimensions detailed in the "District 1 Standard Traffic Signal Design Details." The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall allow air to circulate throughout the mast arm but not allow manifestation of insects or critters. The shroud shall be constructed, installed and designed not to be hazardous to probing fingers and feet. All mounting hardware shall be stainless steel. The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

**TRAFFIC SIGNAL POST.**

Add the following to Section 1077.03 (b) of the Standard Specifications:

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

**SIGNAL HEADS.**

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

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

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

Signal heads shall be positioned according to the "District 1 Standard Traffic Signal Design Details."

**SIGNAL HEAD, BACKPLATE.**

Delete 1st sentence of 1078.03 of the Standard Specifications and add "All backplates shall be aluminum and louvered".

## INDUCTIVE LOOP DETECTOR.

Add the following to Section 1079.01 of the Standard Specifications:

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

## ILLUMINATED SIGN, LIGHT EMITTING DIODE.

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

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

Display. The LED blank out sign shall provide the correct symbol and color for "NO LEFT TURN" OR "NO RIGHT TURN" indicated in accordance with the requirements of the "Manual on Uniform Traffic Control Devices". The message shall be formed by rows of LEDs.

The message shall be clearly legible. The message shall be highly visible, anywhere and under any lighting conditions, within a 15 degree cone centered about the optic axis.
The sign face shall be 24 inches (600 mm) by 24 inches (600 mm). The sign face shall be completely illegible when not illuminated. No symbol shall be seen under any ambient light condition when not illuminated.

All LEDs shall be T-1 ¾ (5mm) and have an expected lamplife of 100,000 hours. Operating wavelengths will be Red-626nm, Amber-590nm, and Bluish/Green-505nm. Transformers shall be rated for the line voltage with Class A insulation and weatherproofing. The sign shall be designed for operation over a range of temperatures from –35F to +165 F (-37C to +75C).

The LED module shall include the message plate, high intensity LEDs and LED drive electronics. Door panels shall be flat black and electrical connections shall be made via barrier-type terminal strip. All fasteners and hardware shall be corrosion resistant stainless steel.

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

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

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

## GROUNDING EXISTING HANDHOLE FRAME AND COVER.

Description. This work shall consist of all materials and labor required to bond the equipment grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "District 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Burndy type YGHA or approved equal). The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

Welding preparation for the stainless steel bolt hex-head to the frame and to the cover shall include thoroughly cleaning the contact and weldment area of all rust, dirt and contaminates. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

The grounding cable shall be paid for separately.

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

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

## RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

This work shall consist of providing a revised Signal Coordination and Timing (SCAT) Report and implementing optimized timings to an existing previously optimized closed loop traffic signal system. This work is required due to the addition of a signalized intersection to an existing system or a modification of an existing signalized intersection which affects the quality of an existing system's operation. MAINTENANCE OF THE SUBJECT INTERSECTION SHALL NOT BE ACCEPTED BY THE DEPARTMENT UNTIL THIS WORK IS COMPLETED.

After the new signalized intersection is added or the existing signal is modified, the traffic signal system shall be re-optimized by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District 1 of the Illinois Department of Transportation. The Contractor shall contact the Area Traffic Signal Operations Engineer at (708) 705-4139 for a listing of approved Consultants.

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

Traffic counts shall be taken at the subject intersection a minimum of 30 days after the traffic signals are approved for operation by the Area Traffic signal Operations Engineer. Seven day/twenty-four hour automatic traffic recorder counts will be required and manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m. and 3:30 p.m. to 6:30 p.m. on typical weekday from midday Monday to midday Friday, and if necessary, on the weekend. Additional manual turning movement counts may be necessary if heavy traffic flows exist during off peak hours. The turning movement counts shall identify cars, heavy vehicles, buses, and pedestrian movements.

A Capacity Analysis shall be conducted at the subject intersection to determine its level of service and degree of saturation. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system with minor adjustments if necessary. Changes to the cycle lengths and offsets for the entire system may be required due to the addition/modification of the subject intersection. Both volume and occupancy shall be considered when developing the re-optimized timing program. Signal system optimization analyses shall be conducted utilizing SYNCHRO, PASSER II, TRANSYT 7F, SIGNAL 2000 or other appropriate approved computer software.

If the system is being re-optimized due to the addition of a signalized intersection, all the intersections shall be re-addressed according to the current standard of District One. The proposed signal timing plan shall be forwarded to IDOT for review prior to implementation. The timing plan shall include a traffic responsive program and a time-of-day program which may be used as a back-up system. After downloading the system timings, the Consultant shall make fine tuning adjustments to the timing in the field to alleviate observed adverse operating conditions and to enhance operations.

The Consultant shall furnish to IDOT an original and two copies of the revised SCAT Report for the re-optimized system. The report shall contain the following: turning movement and automatic traffic recorder counts, capacity analyses for each count period, computer optimization analysis for each count period, proposed implementation plans and summaries including system description, analysis methodology, method of effectiveness comparison results and special recommendations and/or observations. The new report shall follow the format of the old report and shall incorporate all data from the old report which remains unchanged. Copies of the entire database including intersection displays and any other displays which the system software allows shall be furnished to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

Basis of Payment. This work shall be paid for at the contract unit price per lump sum for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein.

UNIT DUCT.

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

**SIGNAL HEAD, LIGHT EMITTING DIODE.**

a) General:

1) Signal Head, Light Emitting Diode (LED), 1 Face, (All Section Quantities), (All Mounting Types) shall meet the requirements of Sections 880 and 881 and Articles 1078.01 and 1078.02 of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2002, with the following modifications:

2) All signal and pedestrian heads shall be 300 mm (12") glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black) or galvanized. A corrosive resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

3) The optical unit of all traffic signal and pedestrian head sections shall be light emitting diodes (LEDs) instead of incandescent bulbs. Each signal head shall conform fully to the "Interim Purchase Specification of the Institute of Transportation Engineers (ITE) for LED Vehicle Traffic Signal Modules" published July, 1998, or applicable successor ITE specification.

4) The lens of each signal indication shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating applied to provide abrasion resistance.

5) Each pedestrian signal LED module shall provide the ability to actuate the outlined upraised hand and the outlined walking person on one 12-inch (300mm) section. Two (2) sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).

6) The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

7) In the event of a power outage, light output from the LED modules shall cease instantaneously.

8) In addition to conforming with the requirements for circular LED signal modules, LED arrow indication modules shall meet existing specifications stated in the ITE Standard: "Vehicle Traffic Control Signal Heads," section 9.01. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs. The LEDs shall be spread evenly across the illuminated portion of the arrow area.

9) The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Section 4.1.1 of the Interim Purchase Specification of the ITE for LED Vehicle Traffic Signal Modules within the first 60 months of the date of delivery shall be replaced or repaired. The manufacturer's written warranty for the

LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the State.

10) Each module shall consist of an assembly that utilizes LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections.

11) The LEDs utilized in the modules shall be AlInGaP technology for red, yellow, Portland orange (pedestrian) and white (pedestrian) indications, and GaN for green indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40°C to +74°C.

12) The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

b) Electrical

1) Maximum power consumption for LED modules is per Table 1.

2) LED modules will have EPA Energy Star compliance ratings, if applicable to that shape, size and color.

3) The modules shall operate from a 60 HZ ±3 HZ AC line over a voltage ranging from 95 volts to 135 volts. The fluctuations of line voltage shall have no visible effect on the luminous intensity of the indications.

4) Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

5) The LED signal module shall have a power factor of 0.90 or greater.

6) Total harmonic distortion (current and voltage) induced into an AC power line by a LED signal module shall not exceed 20 percent.

7) The signal module on-board circuitry shall include voltage surge protection to withstand high-repetition noise transients as stated in Section 2.1.6 of NEMA Standard TS-2, 1992.

8) The LED circuitry shall prevent perceptible flicker to the unaided eye over the voltage range specified above.

9) All wiring and terminal blocks shall meet the requirements of Section 13.02 of the ITE Publication: Equipment and Material Standards, Chapter 2 (Vehicle Traffic Control Signal Heads).

10) The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

11) When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.

12) The modules and associated on-board circuitry must meet Class A emission limits referred in Federal Communications Commission (FCC) Title 47, SubPart B, Section 15 regulations concerning the emission of electronic noise.

c) Photometric Requirements

1) The minimum initial luminous intensity values for the modules shall be as stated in Table 2 and/or Table 4 at 25°C.

2) The modules shall meet or exceed the illumination values as shown in Table 3 and/or Table 4, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.

3) The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Table 5, throughout the useful life over the operating temperature range.

d) Environmental Requirements

1) The LED signal module shall be rated for use in the operating temperature range of -40°C (-40°F) to +74°C (+165°F). The modules shall meet all specifications throughout this range.

2) The LED signal module shall be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991 for Type 4 enclosures to protect all internal components.

e) Construction

1) The LED signal module shall be a single, self-contained device, not requiring on-site assembly for installation. The power supply for the module shall be integral to the unit.

2) The circuit board and power supply shall be contained inside the module.

3) The assembly and manufacturing process for the LED signal assembly shall be designed to assure all internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

f) Materials

1) Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.

2) Enclosures containing either the power supply or electronic components of the signal module shall be made of UL94VO flame retardant materials. The lens of the signal module is excluded from this requirement.

g) Traffic Signal and Pedestrian LED Module Identification

1) Each module shall have the manufacturer's name, trademark, model number, serial number, date of manufacture (month-year), and lot number as identification permanently marked on the back of the module.

2) The following operating characteristics shall be permanently marked on the back of the module: rated voltage and rated power in Watts and Volt-Ampere.

3) Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 25.4 mm (one inch) in diameter. Additionally, the color shall be written out in 12.7mm (½ in) letters next to the symbol.

4) If a specific mounting orientation is required, each module shall have prominent and permanent marking(s) for correct indexing and orientation within a signal housing. The markings shall consist of an up arrow, or the word "UP" or "TOP".

h) Traffic Signal LED Module

1) Modules can be manufactured under this specification for the following faces:

a 300 mm (12-inch) circular, multi-section
b 300 mm (12-inch) arrow, multi-section
c 300 mm (12-inch) pedestrian, 2 sections

2) The maximum weight of a module shall be 1.8 kg (4 lbs.).

3) Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

i) Retrofit Traffic Signal Module

1) The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superceded in this section.

2) Retrofit modules can be manufactured under this specification for the following faces:

a 300 mm (12-inch) circular, multi-section
b 300 mm (12-inch) arrow, multi-section
c 300 mm (12-inch) pedestrian, 2 sections

3) The module shall fit into existing traffic signal section housings built to the specifications detailed in ITE Publication: Equipment and Material Standards, Chapter (Vehicle Traffic Control Signal Heads).

4) Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.

5) The maximum weight of a Retrofit module shall be 1.8 kg (4 lbs.).

6) Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

7) The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

j) Two secured, color coded, 600 V, 20 AWG minimum, jacketed wires, conforming to the National Electric Code, rated for service at +105°C, are to be provided for electrical connection for each LED signal module. Conductors for modules, including Retrofit modules, shall be 39.4-inches (1m) in length, with quick disconnect terminals attached.

ens

1) The lens of the module shall be tinted and integral to the unit, convex with a smooth outer surface and made of plastic.

2) The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

3) The LED signal module lens shall be UV stabilized and shall be capable of withstanding ultraviolet (direct sunlight) exposure for a minimum period of 60 months without exhibiting evidence of deterioration.

4) The polymeric lens shall have a surface coating or chemical surface treatment to provide front surface abrasion resistance.

l) The following specification requirements apply to the 12-inch (300 mm) arrow module only. All general specifications apply unless specifically superceded in this section.

1) The arrow module shall meet specifications stated in Section 9.01 of the ITE Publication: Equipment and Material Standards, Chapter 2 (Vehicle Traffic Control Signal Heads) for arrow indications.

2) The LEDs shall be spread evenly across the illuminated portion of the arrow area.

)The following specification requirements apply to the 12-inch (300 mm) PV module only. All general specifications apply unless specifically superceded in this section.

1) The module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

2) The LEDs shall be spread evenly across the module.

Basis of Payment. This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, of the type specified, which price shall be payment in full for furnishing the equipment described above including signal head, LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

Pedestrian head(s) shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified and of the particular kind of material when specified.

The type specified will indicate the number of faces and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for SIGNAL HEAD, LED of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting )ardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of faces and the method of mounting.

TABLES

Table 1 Maximum Power Consumption (in Watts)

| | Red | | Yellow | | Green | |
|---|---|---|---|---|---|---|
| Temperature | 25°C | 74°C | 25°C | 74°C | 25°C | 74°C |
| 300 mm (12-inch) circular | 11 | 17 | 22 | 25 | 15 | 15 |
| 300 mm (12-inch)arrow | 9 | 12 | 10 | 12 | 11 | 11 |
| | Hand–Portland Orange | | Person-White | | | |
| Pedestrian Indication | 6.2 | | 6.3 | | | |

Table 2 Minimum Initial Intensities for Circular Indications (in cd)

| | 300 mm (12-inch) | | |
|---|---|---|---|
| Angle(v,h) | Red | Yellow | Green |
| 2.5, ±2.5 | 399 | 798 | 798 |
| 2.5, ±7.5 | 295 | 589 | 589 |
| 2.5, ±12.5 | 166 | 333 | 333 |
| 2.5, ±17.5 | 90 | 181 | 181 |
| 7.5, ±2.5 | 266 | 532 | 532 |
| 7.5, ±7.5 | 238 | 475 | 475 |
| 7.5, ±12.5 | 171 | 342 | 342 |
| 7.5, ±17. | 105 | 209 | 209 |
| 7.5, ±22.5 | 45 | 90 | 90 |
| 7.5, ±27.5 | 19 | 38 | 38 |
| 12.5, ±2.5 | 59 | 119 | 119 |
| 12.5, ±7.5 | 57 | 114 | 114 |
| 12.5, ±12.5 | 52 | 105 | 105 |
| 12.5, ±17.5 | 40 | 81 | 81 |
| 12.5, ±22.5 | 26 | 52 | 52 |
| 12.5, ±27.5 | 19 | 38 | 38 |
| 17.5, ±2.5 | 26 | 52 | 52 |
| 17.5, ±7.5 | 26 | 52 | 52 |
| 17.5, ±12.5 | 26 | 52 | 52 |
| 17.5, ±17.5 | 26 | 52 | 52 |
| 17.5, ±22.5 | 24 | 48 | 48 |
| 17.5, ±27.5 | 19 | 38 | 38 |

Table 3 Maintained Minimum Intensities for Circular Indications (in cd)

| | 300 mm (12-inch) | | |
|---|---|---|---|
| Angle(v,h) | Red | Yellow | Green |
| 2.5, ±2.5 | 339 | 678 | 678 |
| 2.5, ±7.5 | 251 | 501 | 501 |
| 2.5, ±12.5 | 141 | 283 | 283 |
| 2.5, ±17.5 | 77 | 154 | 154 |
| 7.5, ±2.5 | 226 | 452 | 452 |
| 7.5, ±7.5 | 202 | 404 | 404 |
| 7.5, ±12.5 | 145 | 291 | 291 |
| 7.5, ±17. | 89 | 178 | 178 |
| 7.5, ±22.5 | 38 | 77 | 77 |
| 7.5, ±27.5 | 16 | 32 | 32 |
| 12.5, ±2.5 | 50 | 101 | 101 |
| 12.5, ±7.5 | 48 | 97 | 97 |
| 12.5, ±12.5 | 44 | 89 | 89 |
| 12.5, ±17.5 | 34 | 69 | 69 |
| 12.5, ±22.5 | 22 | 44 | 44 |
| 12.5, ±27.5 | 16 | 32 | 32 |
| 17.5, ±2.5 | 22 | 44 | 44 |
| 17.5, ±7.5 | 22 | 44 | 44 |
| 17.5, ±12.5 | 22 | 44 | 44 |
| 17.5, ±17.5 | 22 | 44 | 44 |
| 17.5, ±22.5 | 20 | 41 | 41 |
| 17.5, ±27.5 | 16 | 32 | 32 |

Table 4 Minimum Initial & Maintained Intensities for Arrow and Pedestrian Indications (in cd/m2)

| | Red | Yellow | Green |
|---|---|---|---|
| Arrow Indication | 5,500 | 11,000 | 11,000 |

Table 5 Chromaticity Standards (CIE Chart) Section 8.04 of

| | |
|---|---|
| Red | Y: not greater than 0.308, or less than 0.998 – x |
| Yellow | Y: not less than 0.411, nor less than 0.995 - x, |
| Green | Y: Not less than 0.506 -.519x, nor less than 0.150 + 1.068x, nor more than 0.730 - x |

## MAINTAIN EXISTING SYSTEM INTERCONNECT

This work shall be in accordance with Section 850 of the Standard Specifications insofar as applicable, the special provision for "Maintenance of Existing Traffic Signal Installation", and the following provision.

The Contractor shall be responsible for the proper operation and maintenance of all existing system interconnect equipment located within the limits of this improvement.

An existing system interconnect schematic is included in the plans for information only, and is intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. It is the Contractor's responsibility to determine the exact condition of the interconnect equipment and systems to be maintained.

The Contractor shall pull back the existing interconnect cable from its conduit in accordance with the plans and as directed by the Engineer. The Contractor shall protect the interconnect cable for later re-installation to the permanent traffic signal controller, as shown on the plans.

Interconnect cable damaged by this work shall not be reused for re-installation. Damaged cable shall be replaced at the Contractor's expense and shall be installed continuous without splices from terminal point to terminal point.

Interconnect cables matching the existing fiberoptic and tracer cables shall be installed for temporary signal operation between the temporary controller cabinet and the ends of the existing cables. Temporary interconnect cable shall be routed by aerial installation to the temporary signal controller, and shall be supported by span wire on wooden pole locations as shown on the plans.

Aerial cable, temporary wood poles, span wire, temporary interconnect cable, splices, and connections to the temporary signal controller shall not be measured for payment, but shall be considered included in this work.

This work will be paid for at the contract lump sum price for MAINTAIN EXISTING SYSTEM INTERCONNECT, which price shall include all work as described herein.

HAMPTON, LENZINI AND RENWICK, INC.

SUPPLEMENTAL SPECIFICATIONS
FOR
SANITARY SEWER IMPROVEMENTS

## SECTION 1. GENERAL REQUIREMENTS

1.1 **SCOPE.** This work shall consist of furnishing and installing sanitary sewers, house services, and other required appurtenances of the size, material, and class as shown on the plans or specified.

1.2 **MATERIAL INSPECTION AND CERTIFICATION.** The manufacturer of any materials to be incorporated in the improvement shall, upon request, furnish a sworn statement that all of the tests and inspections have been made and that the product involved has been manufactured in compliance with the applicable specifications. Said statement shall be furnished the Engineer at time of shipment of materials.

Upon request of the Engineer, manufacturers shall furnish all facilities necessary to test their product for compliance with the appropriate specification. All testing of materials shall be done by the manufacturer and witnessed by the Engineer.

1.3 **MATERIAL DELIVERY.** Proper implements, tools, and facilities shall be provided and used by the Contractor for unloading and distributing materials along the line of the work.

All sewer, pipe, and fittings shall be carefully lowered to the ground, with suitable equipment, in a manner to prevent damage. Pipe materials shall not be dropped, dumped, or dragged.

Any pipe or fitting damaged in transportation or handling, shall be rejected and immediately removed from the job site.

1.4 **RESPONSIBILITY FOR SAFE STORAGE.** The Contractor shall be responsible for the safe storage of material furnished by or to him and intended for the work. He shall take all necessary precautions to prevent damage to materials, equipment, and work.

1.5 **UNDERGROUND STRUCTURES.** The Contractor shall proceed with caution in the excavation and preparation of the trench so that exact locations of underground structures may be determined. When required by the Engineer, the Contractor shall make such excavations as necessary to determine the location of existing underground structures.

Adequate protection and maintenance of all underground structures and other obstructions encountered in the progress of the work shall be furnished by the Contractor. Any structures which are disturbed or otherwise damaged by the Contractor shall be restored in an approved manner.

1.6 **UNDERGROUND UTILITIES.** The Engineers have endeavored to locate subsurface utilities from field surveys and available records. Known utilities are shown on the plans or notice given of their presence. While the work was carefully done, the accuracy of the information cannot be guaranteed. Wherever necessary to determine the exact location of existing pipes, valves, or other underground structures, the Contractor may make any examinations that he determines desirable in advance of the work. No added compensation will be paid for this type of exploration.

In excavating trenches and laying pipe, all existing utilities including water pipes and services, sewer pipes and services, gas pipes and services, electric or telephone transmission pole lines, cable or conduits shall be protected, supported, maintained in service, and restored to the condition in which

they were found, all at no extra renumeration. Where any utility facility is endangered or damaged by the work, the utility management shall be notified by the Contractor, and the Contractor shall cooperate with the utility and pay the cost of protection and repairs if damage occurs.

1.7 **EXCAVATING.** All sanitary sewers and house services shall be installed in open-cut trenches to the depth and in the locations shown on the plan except as otherwise provided herein. The Contractor shall do all excavation of whatever substances encountered to the required depths. In the event excavation is carried to a depth greater than required, the trench shall be brought back to the required grade with a granular stone base material approved by the Engineer.

Excavated materials shall be deposited along the side of the trench nearest the center of the public right-of-way, unless required for good reason to be placed elsewhere. Care shall be taken to preserve property corners, trees, shrubbery, and existing improvements which are not to be removed. All excavated material shall be piled in a manner that will not endanger the work and will avoid obstruction of sidewalks, driveways, manholes, valves, fire hydrants, gutters, and natural watercourses.

Where rock in either ledge or boulder formation is encountered, it shall be removed below grade and replaced with a well compacted cushion of crushed stone having a thickness under the pipe of not less than 200 mm (8").

Where trees, existing walks, water mains, sewers, sewer and water house services, public utilities, or any other obstacle not to be removed are encountered in the trenching work, the excavation shall be made in tunnel without damage to said obstacle.

Surplus excavated material and construction debris shall be disposed of by the Contractor. Such materials shall be loaded and trucked away from the site of the work as soon as practical and in a manner to eliminate the storage of such surplus in the streets and parkways of the improvement.

1.8 **DEWATERING TRENCH.** The Contractor shall provide and use effective and satisfactory methods to lower the groundwater table to a safe plane below the bottom of the work. No pipe shall be laid or jointed unless the trench is completely dewatered.

Water pumped or drained from the work shall be disposed of in a manner that will not damage adjacent private property, other work under construction, street pavements, or other municipal property. No water shall be discharged into sanitary sewers. No water containing settleable solids shall be discharged into storm sewers.

1.9 **BRACING AND SHEETING.** Open-cut trenches shall be sheeted and braced as required to prevent shifting of installed sewers, prevent damage to structures and adjacent property, and avoid delays to the improvement. Trenches in pavements or in close proximity to improved streets or roadways shall be sheeted or braced in a substantial and effective manner. Sheeting may be removed after the backfill has been completed to such elevation as to permit its safe removal. Sheeting and bracing left in place must be removed for a distance of 900 mm (3') below the established street grade.

1.10 **TRENCH JETTING.** When required by the Engineer, water shall be introduced into the backfill by jetting methods to a point approximately 600 mm (2') above the top of the sewer pipe to accelerate settlement of backfill. The jetting shall continue at intervals of approximately 1.8 m (6') for the entire length of the trench.

1.11 **SITE CLEAN-UP.** During construction, the Contractor shall keep the site of the work and adjacent premises free from material, debris, and rubbish. The Contractor shall furnish men and equipment as necessary to remove objectionable material, debris, and rubbish from completed portions of the work.

Upon completion of the work, the Contractor shall clean up the entire improvement site to the satisfaction of the Owner. All roadway ditches filled or partly filled with excavated material shall be cleaned and regraded to an acceptable gradient. Surplus materials around hydrants, trees, bushes, fences, etc., shall be removed by hand and disposed of off site. All trenches shall be filled and graded as necessary.

**1.12 TREE PROTECTION.** All trees within the limits of the improvement that are not scheduled for removal shall be protected by wooden tree guards. Tree guards shall be a minimum of 1.8 m (6') high and of a minimum 50 mm (2") nominal thickness. All tree guards shall be securely strapped to the trees.

Any tree damaged in the course of the work shall be properly pruned or trimmed and painted with an approved commercial tree dressing.

**1.13 BASIS OF PAYMENT.** The preceding paragraphs apply to all items to be incorporated into the improvement. Their cost shall be incidental to and included in the contract unit prices for the various construction items as set forth in the following sections.

## SECTION 2. SANITARY SEWERS

**2.1 DESCRIPTION.** This work shall consist of furnishing and installing sanitary sewers of the required material, size, and strength together with the necessary fittings and jointing materials complete as specified herein and in conformance with the detailed plans.

**2.2 MATERIALS.** Unless otherwise specified, all materials shall conform to the standards listed below.

| | | |
|---|---|---|
| (a) | ASTM C-14 | Concrete Sewer Pipe |
| (b) | ASTM C-76 | Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe |
| (c) | ASTM C-361 | Reinforced Concrete Low-Head Pressure Pipe |
| (d) | ASTM C-425 | Compression Joints for Vitrified Clay Bell and Fittings |
| (e) | ASTM C-428 | Asbestos-Cement Nonpressure Sewer Pipe |
| (f) | ASTM C-443 | Joints for Circular Concrete Sewer and Culvert Pipe, Using Flexible, Watertight, Rubber-Type Gaskets |
| (g) | ASTM C-507 | Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe |
| (h) | ASTM C-700 | Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated |
| (i) | ASTM D-1788 | Rigid Acrylonitrile-Butadiene-Styrene (ABS) Plastics |
| (j) | ASTM D-1869 | Rubber Rings for Asbestos-Cement Pipe |
| (k) | ASTM D-2321 | Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe |
| (l) | ASTM D-2680 | Acrylonitrile-Butadiene-Styrene (ABS) Composite Sewer Piping |
| (m) | ASTM D-2751 | Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings |
| (n) | AWWA C-104 | Cement-Mortar Lining for Cast-iron Pipe and Fittings |
| (o) | AWWA C-106 | Cast-iron Pipe Centrifugally Cast in Metal Molds |
| (p) | AWWA C-110 | Cast-iron and Ductile-iron Fittings |
| (q) | AWWA C-111 | Rubber Gasket Joints for Cast-iron Pressure Pipe and Fittings |
| (r) | AWWA C-151 | Ductile-iron Pipe, Centrifugally Cast in Metal Molds, or Sand-Lined Molds |
| (s) | ASTM D-3034 | Polyvinyl Chloride (PVC) Sewer Pipe |
| (t) | ASTM D-3212 | Gasket-Type Joints for PVC Pipe |

Sanitary sewers shall be constructed of the materials shown on the plans or specified. Where alternate materials are provided, sanitary sewers shall be constructed of the pipe material selected by the Owner at the time of contract award.

2.3 **CONCRETE SEWER PIPE.** All concrete sewer pipe shall be of the size and class shown on the plans or specified.

Pipe shall be manufactured with tongue-and-groove joints designed for use with an "O" ring gasket. The tongue of each pipe shall be constructed with a preformed groove of sufficient depth to hold the gasket securely in place while making the joint and provide proper compression in the gasket when pipe joining is completed. The gasket shall be the sole element depended upon to make the joint watertight.

Pipe shall be manufactured in lengths of not more than 4.9 m (16') and not less than 2.3 m (7½') except where special short lengths are required. Lifting holes will not be permitted in the pipe.

When house service connections are required in concrete pipe, a formed taper opening of sufficient diameter to securely hold a service bell section shall be constructed in the pipe wall. The formed opening shall be of a depth to allow 6 mm to 13 mm (¼" to ½") of concrete to remain on the inside of the pipe. This thin section of concrete shall be left in place until actual service connection is made in the field.

2.4 **CLAY SEWER PIPE.** All clay sewer pipe shall be extra strength and of the size shown on the plans or specified.

House sewer stubs shall be sealed utilizing clay plugs manufactured with a joint similar to the main line sewer. Design and installation of the plug or cap shall be such that its removal will not cause damage to the pipe or stub in which it is installed.

2.5 **POLYVINYL CHLORIDE (PVC) SEWER PIPE.** All PVC sewers shall have SDR-26 wall thickness and cell classification 12454-B. Installation shall be in accordance with ASTM D-2321. Sewer size shall be as shown on the plans or specified.

All sewer fittings shall be factory-manufactured and of a strength equal to the main line sewer.

House sewer stubs shall be sealed utilizing end caps or plugs manufactured with a joint similar to the main line sewer. Design and installation of the plug or cap shall be such that its removal will not cause damage to the pipe or stub in which it is installed.

Couplings shall have the same strength as the pipe which they join. The rubber gasket shall be of the oil-resistant type.

2.6 **CAST & DUCTILE-IRON SEWER PIPE.** All cast or ductile-iron sewer pipe shall be of the size and class shown on the plans or specified.

The interior surface of iron pipe and fittings shall be lined with cement mortar, finished so that the Hazen-Williams friction factor will not be less than 140.

2.7 **TRUSS SEWER PIPE.** All truss sewer pipe shall be as manufactured by Armco Steel Corporation and of the size shown on the plans or specified.

Pipe 100 mm and 150 mm (4" and 6") nominal internal diameter shall be of solid wall design. Pipe 200 mm through 375 mm (8" through 15") nominal internal diameter shall be of truss wall design.

All fittings shall be of solid, truss, or combination wall design. Caps shall be of solid ABS material and be of such design that installation of the cap and its removal will not damage the pipe or stub in which it is installed. All pipe couplings shall be of solid wall design and have the same joint as the pipe line.

All joints shall be chemical-welded and be made up in accordance with the manufacturer's recommended procedures.

All field fabrication shall be in accordance with the manufacturer's recommendations.

## CONSTRUCTION METHOD

**2.8 EXCAVATION AND FOUNDATION.** The trench shall be excavated so the flow line of the finished sewer will be at the depth and grade established by the Engineer. The Contractor shall be responsible for the excavation of all materials encountered to these depths.

The trench for the sanitary sewer shall be excavated with vertical walls and be at least 300 mm (12") and not more than 460 mm (18") wider than the external diameter of the sewer pipe.

The pipe shall be bed in a foundation of crushed gravel or crushed stone meeting a CA-6 gradation. The bedding shall be of the class specified in the Special Provisions and shall be placed to the dimensions shown on the plan details. Bedding beneath the pipe shall be compacted by mechanical means prior to placing the pipe.

Prior to laying pipe, the bedding material shall be shaped to provide continuous support for the pipe barrel. Under no circumstances will pipe be laid on blocks or wedges. Where pipe with a bell or hub is used, cross trenches shall be excavated to prevent non-uniform loading at joints. The cross trenches shall not be more than 50 mm (2") wider than the width of the bell or hub. If the excavation is carried to a depth deeper than necessary, the foundation shall be brought to the proper elevation by placing additional bedding material.

Where a firm foundation is not encountered at the established grade due to soft, spongy, or other unsuitable soil, additional material will be removed for the full trench width as directed by the Engineer or shown on the plans. The trench foundation will then be brought to grade by placing stone underlay as specified hereinafter.

**2.9 LAYING SEWER PIPE.** Pipelaying shall commence at the lowest point of the sewer and progress upstream toward the high end.

Before the pipe is lowered into the trench, it shall be cleaned and inspected to ensure no broken or defective pipe is installed. If any defective pipe is found after being installed, it shall be removed and replaced with a new pipe.

All pipe shall be laid with the spigot ends pointing in the direction of flow and to the line and grade established by the Engineer to form a straight and uniform invert. During handling, the pipe shall be protected against damage.

Prior to jointing pipe, the ends to be joined shall be thoroughly cleaned of foreign material and lubricated or primed as recommended by the pipe manufacturer. The pipe shall then be joined and adjusted in a manner to obtain the degree of watertightness required.

Care shall be taken when joining pipe to ensure that the joints are not damaged. Pipe shall be pushed together by applying a steady and uniform pressure to the bell end of the pipe being laid. Under no conditions will pipe be jointed by stabbing one pipe into the other or by shoving the pipe home with a backhoe bucket. All pipe 375 mm (15") in diameter or larger shall be assembled by use of a "come-along", cable and winch assembly, or other means approved by the Engineer.

If a "come-along" is utilized, it shall be secured sufficiently far back on the sewer to assure that no pipe is disjointed in the jointing operation.

After installing a pipe, additional bedding material shall be placed and compacted to provide continuous barrel support throughout the length of the sewer.

Line and grade of sewers shall be established by means of centerline batter boards or laser beam unless other means are approved by the Engineer prior to construction. Batter boards shall be set at intervals of not greater than 7.5 m (25'). A visual check of batter boards shall be maintained by sighting over a series of not less than three consecutive batter boards in line and on the same gradient. Any work built to incorrect grade shall be removed and rebuilt to the correct grade.

Open ends of sewers shall be effectively sealed off upon stoppage of work to prevent groundwater, sand, dirt, or other foreign matter from entering the sewer.

**2.10 BACKFILLING.** All trenches and excavations shall be backfilled immediately after the pipe is laid. Under no circumstances shall water be permitted to rise in unbackfilled trenches after the pipe has been placed.

Backfill up to a level of 0.3 m (1') over the top of the pipe shall be with selected earthen materials no larger than 75 mm (3") in its greatest dimension. In the event this material is not readily available at all locations, the Contractor shall provide suitably conditioned soil or an approved material for this purpose. Select material shall be placed in equal layers on both sides of the pipe and compacted. Each layer of material so placed shall not exceed 150 mm (6") in depth until the top of the pipe is covered. Additional select material required to cover the pipe to a compacted depth of 0.3 m (1') may be placed in one lift. All select materials shall be compacted to 85% standard laboratory density. No frozen material shall be used as selected backfill.

The remaining backfill required for the trench may be placed by mechanical means. Backfill so placed shall be deposited in the trench in a manner to avoid impact and uneven loading of the sewer pipe. Large chunks of earth shall be broken up or placed on top of the spoil bank. Debris and rock having any dimension greater than 150 mm (6") shall be considered unsuitable for backfilling and disposed of in an approved manner. During mechanical placement of backfill, care shall be exercised to assure that pipes are not disjointed due to the kneading action of the backfill being placed.

**2.11 HOUSE SERVICE WYES.** Sewer wyes shall be provided for each lot fronting on the improvement or at the locations indicated on the plan.

The Contractor shall maintain an accurate record of the location of all wye branches by measuring the distance between the wye branch and the centerline of barrel of the nearest downstream manhole.

The recorded measurements shall be furnished the Engineer on completion of each day's work for permanent record of the governing agency. In the event the Contractor is negligent in making the required measurements, the wye locations will be determined by television inspection at the Contractor's expense, including engineering supervision.

**2.12 CONNECTING TO EXISTING FACILITIES.** Before making any connection to an existing sewer or manhole, the Contractor shall take all necessary precautions to avoid a disruption or failure of the existing facility.

If a connection is being made to an existing manhole, the Contractor shall place a protective bulkhead above the manhole invert to prevent damage to the invert and clogging of the sewer.

The cost of making connections to existing facilities shall be considered as incidental to and included in the contract unit price for sanitary sewers unless otherwise specified.

**2.13 MANHOLE INVERTS.** All sewer pipe shall be laid through manholes so as to provide a smooth and uniform invert.

The Contractor may provide pre-manufactured inverts or cut the top half out of the pipe after installation. All cutting on the job shall be done with a power-driven saw. Sawing of pipe shall be done prior to completing the manhole invert and poured benches.

Where wye or tee connections are required in a manhole, the Contractor shall provide fittings or butt-joint to the through pipe. If a butt joint is utilized, the spigot end of the lateral pipe shall be saw cut at an angle to provide a close proximity of inverts being joined. After the invert of the manhole is poured, the wall of the main sewer shall be broken out by hand methods to fit the opening of the lateral sewer and form a smooth transition.

At manholes where the main sewer turns, the Contractor shall provide long radius bends or elbows as required to carry the sewer through the manhole. The Contractor may provide pre-cut or job-cut sections as outlined above.

**2.14 SEWER TESTING.** The Engineer, with the assistance of the Contractor, shall test and inspect for alignment and infiltration all sanitary sewers and related structures installed within the improvement.

The Contractor shall notify the Engineer when the work is ready for testing and inspection. Personnel for reading meters, gauges, and other measuring devices will be furnished by the Engineer. All other labor, equipment, and materials shall be furnished by the Contractor.

Whenever possible, infiltration tests shall be made when the groundwater level is above the top of the sewer. The tests shall be made by measuring the infiltration flow of water over or through a gauging device set in the invert of the sewer a known distance from a temporary bulkhead or other limiting point of infiltration.

The gauging device shall be in place 24 hours prior to making the test. If the groundwater level at the time of test is below the top of the sewer, the sewer shall be tested for infiltration by pumping water into the ground over the length of sewer being tested so as to raise the groundwater level to at least 0.6 m (2') above the top of the sewer. This condition shall be maintained for the time necessary to perform the infiltration test.

If the Contractor is unable to raise the groundwater to the level specified above, or, if in the opinion of the Engineer the trench soil has a low degree of imperviousness, the sewer shall be tested by means of an exfiltration or air test as set forth below.

The exfiltration test will be conducted on each manhole within the project prior to testing the sewer. The sewer shall be tested in sections not exceeding 600 m (2,000') in length or as determined by providing a minimum 0.6 (2') head of water at the upper manhole and a 1.2 m (4') water depth at the midpoint of the section being tested, whichever is shorter.

Manholes shall be tested by plugging both the inlet and outlet and filling the manhole to a depth of 1.8 m (6') or top of concrete, whichever is less. After filling the manhole, a minimum one (1) hour soaking period will be required prior to start of the actual test. After one (1) hour, the manhole shall be refilled to the specified level and after an additional one (1) hour period, the difference in surface elevation measured and converted into gallons per hour of manhole leakage. Each manhole in the project is to be tested in this manner when an exfiltration test is conducted.

After completion of manhole testing, sections of the pipe line shall be tested in lengths as determined above. The lower end of the section to be tested shall be adequately plugged and the line filled with water to the specified level. The water shall stand in the pipe a minimum of four (4) hours prior to

testing to allow maximum absorption into the pipeline material and trapped air to escape. The water in the upper manhole shall then be raised to the predetermined level, and after one (1) hour the difference in surface elevation measured and converted into liters (gallons) per hour of line leakage.

Manhole and line leakage in progressive 600 m (2,000') increments shall then be added to determine compliance with the allowable amount of leakage.

The amount of infiltration or exfiltration for any section of sewer shall not exceed the following limits in liters (gallons) per day per millimeter (inch) of pipe diameter per kilometer (mile) of sewer:

(a) Infiltration . . . . . 18.5 liters/day (200 gpd)
(b) Exfiltration . . . . . 22.2 liters/day (240 gpd)

In computing the length of sewer contributing infiltration or exfiltration, the length of any house connection will be included. Sewer shall be tested in sections not exceeding 600 m (2,000') in length in the upper reaches of the system with nominal 600 m (2,000') sections added as the testing progresses downstream. If any section of sewer is known to have excessive infiltration or exfiltration, it shall be tested by itself regardless of how short the section may be. When infiltration or exfiltration occurs in excess of the allowable amount, defects shall be located and repaired at the expense of the Contractor.

In place of the infiltration or exfiltration test specified above, the Contractor may use a low pressure air test to determine the adequacy of the sewer. If the air test is used, the sewer line to be tested shall be flushed and cleaned prior to testing to remove all debris and to wet the interior surface of the pipe. Plugs shall be inserted in the sewer to isolate the sewer, including laterals. All plugs shall be well braced to prevent blowout during the test procedure. No personnel shall be in manholes or pits where plugs are installed when pressure is on the pipeline.

Air shall be added to the sewer section being tested until the internal pressure of the line is raised to approximately 28 kPa (4.0 psi) gauge. After obtaining this pressure, the pressure in the line will be allowed to stabilize. Once pressure stabilization has been achieved, the line pressure can be reduced to 24 kPa (3.5 psi) gauge and the test started. A pressure drop of no more than 7 kPa (1.0 psi) gauge for the computed test time will be allowed for the section of sewer being tested. Any sewer section with a pressure drop of more than 7 kPa (1.0 psi) gauge will be considered as failing the test.

All required test time for the sewer air pressure test shall be computed by the Engineer in accordance with the requirements of ASTM C828-78.

Alignment of the sewer will be checked by directing a light beam through the sewer pipe between manholes as directed by the Engineer. If the light is not visible between manholes, or if an extreme bend in the line is apparent, the Contractor shall reconstruct the sewer or the unacceptable portion thereof as directed by the Engineer. A light with sufficient intensity and all personnel required shall be furnished by the Contractor.

**2.15 TELEVISION INSPECTION OF COMPLETED SEWERS.** All sewers which fail to meet two successive tests as outlined under Article 2.14 shall be inspected by closed-circuit television to determine the specific location, nature, and extent of the defective sewer. In addition, any sewer that is installed in nonconformity with the plans and specifications or the established line and grade shall be subject to television inspection.

The Engineer, with the approval of the Owner, will arrange for the TV inspection of sections of the sewer not meeting the requirements of the plans and specifications as outlined above.

All corrective work required as a result of the TV inspection shall be done by the Contractor without delay. Upon completion of the corrective work, the sewer shall be retested, and further inspection of the work made as necessary.

The entire cost of closed-circuit television inspection, including the Engineer's supervisory cost, shall be paid for by the Contractor. If the costs are not paid for directly by the Contractor, they shall be deducted from the contract amounts due for completed work.

Television inspection will not be required on sewers which, upon testing and visual inspection, are found to be in conformance with the plans and specifications.

**2.16 RELATION TO WATER MAINS.** Insofar as applicable, the provisions set forth in the *Illinois Standards for Sewage Works*, Illinois Environmental Protection Agency, are made a part hereof by reference and shall be adhered to in maintaining horizontal and vertical clearances with water mains paralleling or crossing the sewer lines to be installed under this contract. The following horizontal and vertical separations are to be maintained.

A. **Horizontal and Vertical Separation.** Whenever possible, a sewer must be at least ten feet horizontally from any existing or proposed water main.

Should location conditions exist which would prevent a lateral separation of 3.1 m (10'), a sewer may be closer than 3.1 m (10') to a water main provided that the water main invert is at least 460 mm (18") above the crown of the sewer and is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint cast-iron pipe, asbestos-cement pressure pipe, or prestressed concrete pipe and be pressure tested to assure watertightness before backfilling.

B. **Water-Sewer Line Crossings.** Sewers crossing water mains shall be laid to provide a minimum vertical distance of 460 mm (18") between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main.

When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods must be specified.

1. The sewer shall be designed and constructed equal to water pipe and shall be pressure tested to assure watertightness prior to backfilling.

2. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends 3.1 m (10') on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved for use in water main construction as set forth in the "Technical Policy Statements" of the Agency's Division of Public Water Supplies.

C. **Sewer Manhole Separation from Water Main.** No water pipe shall pass through or come into contact with any part of a sewer manhole.

**2.17 METHOD OF MEASUREMENT.** Sanitary sewers of the different types and diameters will be measured by the meter (foot) in place including that portion passing through manholes.

2.18 **BASIS OF PAYMENT.** The work as outlined in Section 2 will be paid for at the contract unit price per meter (foot) for SANITARY SEWER of the diameter, class, and type measured as specified. This price shall include the cost of all pipe, wyes, fittings, adaptors, joint materials, bedding, blocking, and all other materials, work, and equipment necessary to make a complete installation.

Stone underlay authorized by the Engineer will be measured and paid for as provided in Section 6 - Stone Underlay.

## SECTION 3. CASING PIPE

3.1 **DESCRIPTION.** This work shall consist of furnishing and installing casing pipe of the required material, size, and class as specified and in conformance with the detailed plans.

3.2 **MATERIALS.** Casing pipe shall be either steel pipe with welded steel joints, reinforced concrete pipe, or galvanized corrugated metal pipe as specified or as approved by the Engineer where optional materials are permitted by the plans and specifications. Material used shall be new and conform to the following standard specifications unless otherwise specified. Mill rejects will not be allowed.

| | | |
|---|---|---|
| (a) | ASTM A-139 | Grade B Welded and Seamless Steel Pipe |
| (b) | API 5L | Grade B Line Pipe |
| (c) | ASTM C-76 | Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe |
| (d) | AASHTO M-36 | Zinc Coated (Galvanized) Corrugated Iron or Steel Culverts, and Underdrains |
| (e) | AASHTO M-167 | Structural Plate for Pipe, Pipe Arches, and Arches |

### CONSTRUCTION METHOD

3.3 **INSTALLATION.** Casing pipe of the type specified shall be installed in accordance with the following.

(a) **Auger and Jacking.** Steel casing pipe and corrugated metal pipe of the size and thickness specified. Steel casing pipe shall be butt-joined and welded all around. Corrugated metal pipe shall be jointed by means of internal connecting bands.

(b) **Tunnel and Jacking.** Concrete pipe and corrugated metal pipe of the size and thickness specified. Concrete pipe joints shall be composed of rubber "O" rings with a minimum 13 mm (½") cushioning spacer placed between each pipe. Cushioning material shall be of either braided jute or plywood. Upon completion of the push, all internal joint spaces shall be filled with Portland cement mortar. At the option of the Contractor, the outside joint may be filled with bentonite clay. Corrugated metal pipe shall be joined as in (a) above.

Casing pipe shall be installed to the line and grade shown on the plans. If required, the outside of the casing shall be lubricated with bentonite clay. The lead pipe of the casing shall be provided with an approved tunneling shield. The work shall be kept dewatered until the carrier pipe has been installed and tested.

The work of installing the casing pipe shall be done by a Contractor who is fully experienced and equipped for this specialized construction and is approved by the Engineer and other supervisory authorities.

The casing size and thickness shown on the plans or specified is the minimum acceptable. If the Contractor elects to use a casing of greater size or thickness, the additional cost of providing same will be incidental to and included in the contract unit price for this item.

3.4 **SANITARY SEWER INSTALLATION.** After completion of the casing pipe, the sanitary sewer shall be installed through the casing on guide rails or on pipe skids in a manner which will provide for continuous and smooth installation of the sanitary sewer without obstructions of any kind. Sewer pipe shall be jointed and installed from one end in a manner to keep the entire pipe line under compression during the installation.

After completion of installation and testing of the sanitary sewer, the annular space between the casing and the sanitary sewer shall be filled with dry sand blown in by approved methods. The casing pipe shall be sealed by constructing masonry bulkheads at each end to preclude entrance of foreign material into the casing.

3.5 **JACKING PITS.** Jacking pits shall be tight sheeted and braced on all sides. Sheeting shall be of adequate strength to withstand all surcharge loads to be imposed on it and shall be cut off 1.2 m (4') above existing ground to preclude persons falling into the excavation. In lieu of the 1.2 m (4') cut-off height on sheeting, the Contractor may erect a 1.2 m (4') high fence around the excavation. Lights and warning signs as necessary shall be erected around all jacking pits.

The reaction block for the jacking mechanism shall be adequately designed to distribute the loads to the soil without excessive soil deflection and in a manner to avoid any disturbance of adjacent structures or utilities.

Hydraulic jacks and jacking frame shall be designed to apply a uniform pressure over the entire circumferential area of the pipes being jacked.

Upon completion of the jacking operation, pipe bedding within the jacking pit shall be in accordance with the special plan details and/or Special Provisions.

3.6 **RAILROAD CROSSING.** Railroad crossings shall be in accordance with the easement, license and/or accepted grant of the railroad to the Owner and said conditions are made a part of these specifications by references. Additional requirements, as set forth in the A.R.E.A. Committee I Specifications for Pipe Line Crossings Under Railway Tracks, shall govern, except as otherwise shown on the plans or modified herein.

The railway company shall be notified a reasonable time in advance prior to commencing construction. Flagmen may be required to protect train operations during the time the pipe is installed underneath the main line tracks. The Railroad shall be consulted in this matter, and any costs involved shall be at the Contractor's expense and incidental to the construction.

The Contractor shall be responsible for the cost of special insurance required by the Railroad and costs incurred in repairing damage to Railroad property due to the Contractor's operations or negligence. All to be incidental to and included in the contract unit price.

3.7 **HIGHWAY OR STREET CROSSINGS.** Highway or street crossings shall be in accordance with the permit issued by the responsible highway department, and said permit is made a part of these specifications by reference.

The Contractor shall be responsible for obtaining any highway or street bond required by the Highway Department. The cost of the bond shall be incidental to and included in the contract unit price for the items of this section.

3.8 **ALTERNATE METHODS OF CONSTRUCTION.** Alternate methods of construction meeting all conditions set forth herein will be considered and shall be subject to the approval of the Engineer, Owner, Railroad, and Highway agencies involved.

Compensation for any alternate construction method will be at the contract unit price for casing pipe as set forth in the Proposal. No extra compensation will be allowed for additional work incurred because of the alternative method of construction.

### COMPENSATION

**3.9 METHOD OF MEASUREMENT.** Casing pipe shall be measured for payment in meters (feet) along the centerline of the completed pipe from end to end of casing installed. Under no circumstance will the pay length exceed the staked length.

**3.10 BASIS OF PAYMENT.** The work as outlined in Section 3 will be paid for at the contract unit price per meter (foot) for CASING PIPE, AUGER and JACK or CASING PIPE, TUNNEL and JACK of the diameter and thickness specified, measured in place unless otherwise specified. The price shall include the cost of all materials, pipe, fittings, joint materials, blocking, skids, sand, bulkheads, and all work and equipment necessary to make a complete and finished installation.

Sanitary sewer installed within the casing pipe shall be paid for at the contract unit price for SANITARY SEWER as set forth under Section 2.

## SECTION 4. SANITARY SEWER INSTALLED BY BORING AND JACKING

**4.1 DESCRIPTION.** This work shall consist of boring a hole of sufficient size to install the proposed sanitary sewer under pavements and structures as shown on the plans or authorized by the Engineer.

**4.2 BORING.** The Contractor shall furnish an auger of sufficient size and power to excavate a hole through whatever earthen material is encountered. If rock material of such density that the auger cannot break through is encountered, the auger shall be withdrawn and the rock grubbed out by hand, or another location for the boring shall be selected.

Ends of the boring shall be limited to a maximum distance of 1.8 m (6') from the pavement edge or back of curb, as the case may be. The boring shall be made so the sanitary sewer installed within the hole will be to the line and grade established by the Engineer. Errors in alignment shall be resolved by either boring another hole or tunneling back along the misaligned boring a sufficient distance to correct the error.

The provisions of Section 3.5 shall apply to this section insofar as applicable.

**4.3 SANITARY SEWER INSTALLATION.** After completion of the boring, the sanitary sewer shall be installed through the bore from one end and in a manner to keep the entire pipe line under compression during installation. A suitable cap shall be placed over the end of pipe first entering the boring to preclude entrance of dirt and other objectionable foreign materials.

**4.4 BACKFILLING.** After completion of the sanitary sewer installation, the annular space between the boring walls and the sanitary sewer shall be filled with dry sand blown in by approved methods. Abandoned borings shall also be filled by the same method.

### COMPENSATION

**4.5 METHOD OF MEASUREMENT.** Boring and jacking shall be measured in meters (feet) along the centerline and from end to end of completed boring. In no case shall the pay length of boring be in excess of pavement width or back-to-back of curb width plus 3.6 m (12'), unless otherwise specified.

4.6 **BASIS OF PAYMENT.** The work as outlined in Section 4 will be paid for at the contract unit price per meter (foot) for BORING and JACKING for sanitary sewer of the size specified. This price shall include the cost of all materials, equipment, and the work necessary to make a complete and finished installation.

Payment will be made only for the boring that is utilized. Inaccurate bores will be at the Contractor's expense.

Sanitary sewer installed within the boring shall be paid for at the contract unit price for SANITARY SEWER as set forth under Section 2.

## SECTION 5. HOUSE SERVICES

5.1 **DESCRIPTION.** This work shall consist of furnishing and installing sanitary sewer house services of the type and size specified and in conformance with the detailed plans.

5.2 **MATERIALS AND INSTALLATION.** All work and materials in connection with this section shall be in conformance with Section 2, Sanitary Sewers insofar as applicable.

House services shall be of the same material as the main line sewer unless otherwise specified. In the case of concrete main line sewers, the materials to be utilized for house services shall be specified.

House services shall extend from the main line sewer wye branch or service riser at approximate right angles and ascend on a uniform slope of not less than 2% to the street right-of-way line or as otherwise shown on the plans. House service stubs shall be provided for each lot fronting on the improvement at the locations indicated on the plan.

The depth of the house service at the front lot line shall not be less than 2.6 m (8-ductile-iron') except where the main line sewer is of insufficient depth. When there is not adequate depth, the house service shall be installed at a uniform slope of 1%.

House service risers shall be installed on all wyes that are deeper than 3.1 m (10'). Risers shall extend upward to an elevation that is approximately 3.1 m (10') below finished grade and be installed as shown on the detailed plan or as otherwise specified.

5.3 **SERVICE RISER BLOCKING.** All wyes where risers are required shall be blocked and supported by placement of low grade concrete to the dimensions shown on the plans.

Concrete shall be mixed using three (3) parts bedding material, two (2) parts sand, and one (1) part cement. Only enough water will be added to make a damp mix that can be thoroughly tamped in place.

5.4 **SERVICE LOCATION MARKERS AND RECORDS.** The end of all house service or riser stubs shall be monumented by placing a 50 mm x 50 mm (2" x 2") wooden marker vertically above the end of each installation. The marker shall extend from the invert of the stub to an elevation approximately 0.3 m (1') below finished ground grade.

The Contractor shall maintain an accurate record of the exact location of the end of all house service or riser stubs installed. Each stub end shall be accurately tied to two (2) existing monuments by measuring the horizontal distance between the monuments and a point directly above the end of the stub. The recorded measurements shall be furnished the Engineer on completion of each sewer line

for permanent record of the governing agency. In the event the Contractor is negligent in making the required measurements, final payment will be withheld until stub ends are accurately located.

### COMPENSATION

**5.5** **METHOD OF MEASUREMENT.** House services and house service risers shall be measured in meters (feet) along the service centerline and from the main line wye bell to the end of the completed service or riser. In the event the riser and service are installed at the same time, the riser measurement shall terminate at the bell end of the last pipe prior to the bend connection with the service. All pipe laid beyond the dimensional limitations set forth on the plans will be at the Contractor's expense.

**5.6** **BASIS OF PAYMENT.** The work as outlined in Section 5 will be paid for at the contract unit price per meter (foot) for HOUSE SERVICE or HOUSE SERVICE RISER of the diameter, class, and type measured as specified. This price shall include the cost of all pipe, fittings, adaptors, joint materials, bedding, blocking, and all other materials, work, and equipment necessary to make a complete installation.

## SECTION 6. STONE UNDERLAY

**6.1** **DESCRIPTION.** This work shall consist of furnishing and placing crushed stone in those locations where soft, spongy, or other unsuitable material is encountered.

**6.2** **MATERIALS.** Aggregate shall be crushed stone or crushed gravel conforming to gradation CA-1.

**6.3** **EXCAVATION.** The unsuitable material will be excavated for the full width of the trench and to a depth of 200 mm (8") deeper than bedding material unless otherwise specified. Excavated material shall be handled in a manner that will place it in the uppermost area of the backfilled trench.

**6.4** **STONE PLACEMENT.** Stone shall be placed to the required depth in the trench in a manner that is not injurious to sewer pipe already installed. After striking the stone off, it shall be compacted by mechanical means prior to placing sewer bedding material.

In the event the Contractor undercuts the trench to a greater depth than specified, he shall provide the stone required for the area so undercut.

### COMPENSATION

**6.5** **METHOD OF MEASUREMENT.** Stone underlay shall be measured in meters (feet) along the centerline of the trench in which installed.

Measurement for stone underlay will be made only in those locations where the Engineer directs that it be utilized. If the Contractor elects to use underlay in other areas or to greater depths than specified, he shall do so at his own expense.

**6.6** **BASIS OF PAYMENT.** The work as outlined in Section 6 will be paid for at the contract unit price per meter (foot) for STONE UNDERLAY of the depth specified. This price shall cover excavation and disposal of unsuitable material, furnishing and placing crushed stone, and the required compaction.

## SECTION 7. TIGHT SHEETING

7.1 **DESCRIPTION.** This work shall consist of providing continuous tight sheeting on both sides of the trench in those locations shown on the plan or where directed by the Engineer.

7.2 **MATERIALS.** Sheeting can be either metal or wood, but in either case, shall be of sufficient strength to withstand all loads to be imposed on it. The Contractor will be responsible for providing material of adequate strength and design to carry imposed loads.

7.3 **INSTALLATION.** Sheeting shall be installed by driving each sheet before trench excavation or as excavation progresses. Sheets shall be driven so as to form tight joints with each other and, if necessary, keyed tight with wedges. Sheeting shall be tongued and grooved where necessary to obtain the required results.

All sheeting shall extend from the pipe invert to a point 0.9 m (3') above the existing ground line. Sheeting shall remain in place until the backfilling operation has progressed to a point where the possibility of a cave-in is eliminated and shall then be withdrawn for re-use. In the event the condition of the trench requires the sheeting to be driven to a depth below the pipe invert, the sheeting shall be cut off at an elevation 0.3 m (1') above the top of the pipe with the bottom portion of sheeting being left in place.

Wales and cross struts of adequate size shall be installed at spacings necessary to properly carry all loads imposed on the sheeting. Increase in trench width required due to the bracing shall be considered as part of this item and shall be included in the unit price. Design of all bracing and sheeting will be the responsibility of the Contractor.

All bracing and sheeting shall be removed in a manner that will not be injurious to the pipe or its supporting materials.

### COMPENSATION

7.4 **METHOD OF MEASUREMENT.** Tight sheeting shall be measured in meters (feet) based on the measured centerline length of trench in which it is installed. The unit price per meter (foot) of trench shall include the cost of installing sheeting and removing same from both sides of the trench.

7.5 **BASIS OF PAYMENT.** The work as outlined in Section 7 will be paid for at the contract unit price per meter (foot) for TIGHT SHEETING. This price shall include all costs of furnishing, installing, and removing tight sheeting as described herein.

## SECTION 8. SANITARY MANHOLES

8.1 **DESCRIPTION.** This work shall consist of providing and installing manholes with cast-iron steps together with the necessary cast-iron frames and lids on sewer lines where shown on the plans or directed by the Engineer. The work shall be in conformance with Section 602 of the Standard Specifications insofar as applicable and the following provisions.

8.2 **MATERIALS.** Manholes shall be constructed using only precast reinforced concrete manhole sections.

8.3 **JOINTS.** All joints between manhole sections are to be tongue-and-groove and shall be sealed by means of an "O" ring gasket or a 25 mm (1") butyl joint sealant in rope form meeting the requirements of ASTM C-443.

Each pipe opening in the manhole shall have a flexible watertight pipe to manhole seal meeting ASTM C-923 similar in design to either the flexible manhole sleeve as manufactured by Lock Joint Pipe/Interpace Corporation or the "Press Wedge II" seal by Press-Seal Gasket Corporation.

8.4 **FRAME AND LID.** The frame and lid shall be of self-sealing design and of the bolt-down type. The lid shall have a concealed pickhole and have the word SANITARY cast in the top side.

The total length of the manhole structure shall be such that not more than 150 mm (6") of adjusting rings are necessary to set the frame at the required finished elevation. All joints between the last manhole section and the frame are to be of watertight construction.

8.5 **BASIS OF PAYMENT.** This work will be paid for at the contract unit price each for MANHOLES, TYPE A, SANITARY of the diameter specified and with the specified frame and lid, which price shall include cast-iron steps and all excavation, backfill, and other work as necessary to make a completed installation.

HAMPTON, LENZINI AND RENWICK, INC.

SUPPLEMENTAL SPECIFICATIONS
FOR
WATER MAIN IMPROVEMENTS

## SECTION 1. GENERAL REQUIREMENTS

1.1 **SCOPE.** This work shall consist of furnishing and installing water mains, valves, fire hydrants, service stubs, and other required appurtenances of the size, class, and type shown on the plans or specified.

1.2 **MATERIAL INSPECTION AND CERTIFICATION.** The manufacturer of any materials to be incorporated in the improvement shall, upon request, furnish a sworn statement that all of the tests and inspections have been made and that the product involved has been manufactured in compliance with the applicable specifications thereto. Said statement shall be furnished the Engineer at time of shipment of materials.

Upon request of the Engineer, manufacturers shall furnish all facilities necessary to test their product for compliance with the appropriate specifications. All testing of materials shall be done by the manufacturer and witnessed by the Engineer.

1.3 **MATERIAL DELIVERY.** Proper implements, tools, and facilities shall be provided and used by the Contractor for unloading and distributing materials along the line of the work.

All pipe, fittings, valves, hydrants, and accessories shall be carefully lowered to the ground by means of a derrick, ropes, or other suitable equipment in a manner to prevent damage. Under no circumstances shall water main materials be dropped or dumped.

1.4 **RESPONSIBILITY FOR SAFE STORAGE.** The Contractor shall be responsible for the safe storage of material furnished by or to him, accepted by him and intended for the work.

1.5 **UNDERGROUND STRUCTURES.** The Contractor shall proceed with caution in the excavation and preparation of the trench so the exact locations of underground structures may be determined. When required by the Engineer, the Contractor shall make such excavations as necessary to determine the location of existing underground structures. Adequate protection and maintenance of all underground structures and other obstructions encountered in the progress of the work shall be furnished by the Contractor. Any structures which are disturbed or otherwise damaged by the Contractor shall be restored in an approved manner.

1.6 **UNDERGROUND UTILITIES.** The Engineers have endeavored to locate subsurface obstructions from field surveys and available records. Known structures are shown on the plans or notice given of their presence. While the work was carefully done, the accuracy of the information cannot be guaranteed. Invert elevations of sanitary and storm sewers have been obtained from the field surveys and, where possible, elevations are shown on the plans. Wherever the Contractor deems it necessary to determine the exact location of existing pipe, valves, or other underground structures, the Contractor may make any examinations he determines desirable in advance of the work. No added compensation will be paid for this type of exploration.

In excavating trenches and laying pipe, all existing utilities including water pipes and services, sewer pipes and services, gas pipes and services, electric or telephone transmission pole lines, cables or conduits shall be protected, supported, maintained in service and restored to the condition in which they were found, all at no extra renumeration. Where any utility facility, including service connections, is endangered or damaged by the work, the utility management shall be notified by the Contractor and

the Contractor shall cooperate with the utility and pay the cost of protection and repairs if damage occurs.

1.7 **EXCAVATION**. All of the water mains, fire hydrants, gate valves, and house services shall be installed in open-cut trenches to the depth and in the locations shown on the plan except as otherwise provided herein. The Contractor shall do all excavation of whatever substances encountered to the required depths. In the event excavation is carried to a depth greater than required, the trench shall be brought back to the required grade with a granular material approved by the Engineer.

Excavated materials shall be deposited along the side of trench nearest the center of the public right of way unless required for good reason to be placed elsewhere. Care shall be taken to preserve property corners, trees, shrubbery, and existing improvements which are not to be removed. All excavated material shall be piled in a manner that will not endanger the work and will avoid obstruction of sidewalks, driveways, gutters, and natural watercourses.

When a firm foundation is not found to exist for the bottom of the trench at the required depth due to soft, spongy, or other unsuitable soil, such unsuitable soil shall be removed for the full width of the trench or tunnel and replaced with well-compacted crushed stone approved by the Engineer.

Where rock in either ledge or boulder formation is encountered, it shall be removed below grade and replaced with a well-compacted cushion of crushed stone having a thickness under the pipe of not less than 150 mm (6").

When trees, existing walks, water mains, sewers, sewer and water house services, public utilities, or any other obstacle not to be removed are encountered in the trenching work, the excavation shall be made in tunnel without damage to said obstacle.

Surplus excavated material and construction debris shall be disposed of by the Contractor. Such materials shall be loaded and trucked away from the site as soon as practical and in a manner to eliminate the storage of such surplus in the streets and parkways of the improvement.

1.8 **DEWATERING TRENCH**. The Contractor shall provide and use effective and satisfactory methods to lower the ground water table to a safe plane below the bottom of the work. No pipe shall be laid or jointed unless the trench is completely dewatered.

Water pumped or drained from the work shall be disposed of in a manner that will not damage adjacent private property, other work under construction, street pavements, or other municipal property. No water shall be discharged into sanitary sewers. No water containing settleable solids shall be discharged into storm sewers.

1.9 **BRACING AND SHEETING**. Open cut trenches shall be sheeted and braced as required to prevent shifting of installed pipe, prevent damage to structures and adjacent property and avoid delays to the improvement. Trenches in pavements or in close proximity to improved streets or roadways shall be sheeted or braced in a substantial and effective manner. Sheeting may be removed after the backfill has been completed to such elevation as to permit its safe removal. Sheeting and bracing left in place must be removed for a distance of 900 mm (3') below the established street grade.

1.10 **TRENCH JETTING**. When required by the Engineer, water shall be introduced into the backfill by jetting methods to a point approximately 600 mm (2') above the top of the water pipe to accelerate settlement of backfill. The jetting shall continue at intervals of approximately 1.8 meters (6') for the entire length of the trench.

1.11 **SITE CLEAN-UP**. During construction, the Contractor shall keep the site of the work and adjacent premises free from material, debris, and rubbish. The Contractor shall furnish men and equipment

as necessary to remove objectionable material, debris, and rubbish from completed portions of the work.

Upon completion of the work, the Contractor shall clean up the entire improvement site to the satisfaction of the Owner. All roadway ditches filled or partly filled with excavated material shall be cleaned out and regraded to an acceptable gradient.

Surplus materials around trees, bushes, fences, etc., shall be removed by hand and disposed of. All trenches shall be filled and graded as necessary.

1.12 **TREE PROTECTION.** All trees within the limits of the improvement that are not scheduled for removal shall be protected by wooden tree guards. Tree guards shall be a minimum of 1.8 meters (6') high and of a minimum 50 mm (2") nominal thickness. All tree guards shall be securely strapped to the trees.

Any tree damaged in the course of the work shall be properly pruned or trimmed and painted with an approved commercial tree dressing.

1.13 **BASIS OF PAYMENT.** The preceding paragraphs apply to all items to be incorporated into the improvement. Their cost shall be incidental to and included in the contract unit prices for the various construction items as set forth in the following sections.

## SECTION 2. WATER MAIN

2.1 **DESCRIPTION.** This work shall consist of furnishing and installing water mains of the required material, size, and class together with the necessary fittings, jointing materials, and blocking, complete as specified herein, and in conformance with the detailed plans.

2.2 **MATERIALS.** Unless otherwise specified, all materials shall conform to the current AWWA Standards listed below.

(a) C-104 Cement-Mortar Lining for Cast Iron Pipe and Fittings

(b) C-106 Cast Iron Pipe Centrifugally Cast in Metal Molds

(c) C-110 Gray Iron and Ductile-iron Fittings

(d) C-111 Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings

(e) C-151 Ductile-iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds

Water mains shall be constructed of the materials shown on the plans or specified. Where alternate materials are provided, water mains shall be constructed of the pipe material selected by the Owner at the time of contract award.

2.3 **CAST-IRON PIPE.** All cast-iron pipe, unless otherwise specified, shall be Class 150 centrifugally cast pipe designed for maximum working pressure of 1,035 kPa (150 psi) and of a thickness class as specified. All pipe shall be made in standard 4.8 m (16'), 5.5 m (18') or 6.1 m (20') lengths and shall have a standard thickness cement lining on the inside.

2.4 **CAST AND DUCTILE-IRON FITTINGS.** Unless otherwise specified, all fittings shall be mechanical or push-on joint with sockets at all openings. Fittings shall be designed for a minimum working

pressure of 1,725 kPa (250 psi) and be cement-lined. The cost of all fittings shall be incidental to the Water Main unit price.

Fittings set forth on the plans are for guidance purposes only and are considered a minimum requirement. The Contractor shall provide all fittings required to make a completed installation.

2.5 **DUCTILE-IRON PIPE.** All ductile-iron pipe, unless otherwise specified, shall be designed for a maximum working pressure of 1,035 kPa (150 psi) and of a thickness class as specified. All pipe shall be made in standard 5.5 m (18') or 6.1 m (20') lengths and shall have a standard thickness cement lining on the inside.

2.6 **STEEL RODS, TURNBUCKLES, BOLTS, and WASHERS.** Steel rods shall be S.A.E. 1020 or other steel meeting the approval of the Engineer. Turnbuckles shall be drop-forged and conform in dimensions and weights to the latest "Manual of the American Institute of Steel Construction". Bolts shall be U.S. Standard. Washers may be cast, malleable, or cut steel.

## CONSTRUCTION METHOD

2.7 **EXCAVATION AND FOUNDATION.** Unless otherwise specified, the trench shall be excavated to a depth which will provide 1.7 m (5-1/2') of cover between the top of the water main and the established finished roadway grade or natural ground, whichever is deeper. The trench for the water main shall be excavated with vertical walls and be at least 225 mm (9") and not more than 380 mm (15") wider than the external diameter of the water main.

Pipe bedding shall normally be Type 3 unless the Special Provision requires Type 4 or 5. The above bedding types will be as follows:

(a) **Type 2.** The pipe shall be laid on a flat bottom trench. Backfill shall be select materials tamped in place as specified under Article 2.9.

(b) **Type 3.** The pipe shall be laid on a minimum of 100 mm (4") compacted selected materials extending the full width of the trench bottom. The remaining backfill shall be select materials tamped in place.

(c) **Type 4.** The pipe shall be laid on a bedding of compacted sand or crushed stone extending the full width of the trench bottom. The bedding shall be placed to a minimum depth of 1/8 the pipe diameter or 100 mm (4"), whichever is greater. The remaining backfill shall be select materials tamped in place as specified under Article 2.9.

(d) **Type 5.** The pipe shall be laid on a minimum 100 mm (4") compacted thickness bedding of sand or crushed stone extending the full width of the trench bottom. The bedding material shall then be placed in 150 mm (6") compacted lifts to the top of the pipe for the full width of the trench. The remaining backfill shall be select materials placed as specified under Article 2.9.

Prior to laying pipe, the trench bottom or bedding material shall be shaped to provide continuous support for the pipe barrel. Under no circumstances will the pipe be laid on blocks or wedges. Where pipe with a bell or coupling is used, cross trenches shall be excavated to prevent non-uniform loading at joints. The cross trenches shall not be more than 50 mm (2") wider than the width of the bell or hub.

If the excavation is carried to a depth deeper than necessary, the foundation shall be brought to the proper elevation by placing bedding material.

2.8 **LAYING WATER MAIN.** All pipe and fittings shall be carefully examined for cracks and other defects just prior to lowering into the trench for installation in final position. Defective pipe or fittings shall be marked and laid aside so as to not be mistakenly used in the improvement. All defective materials shall be removed from the project site upon conclusion of the work day on which they are discovered.

Before lowering pipe and fittings into the trench, all dirt and foreign matter shall be removed from the pipe interior. After lowering the pipe into the trench and prior to joining the pipe, the bottom man shall check the joint being made to assure both ends are free of foreign materials picked up during the lowering operation.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell of the previously installed pipe and forced home. The pipe shall then be installed to the line and grade established by the Engineer. A tolerance of 50 mm (2") in both horizontal and vertical alignment shall be allowed per pipe length on straight runs. The pipe shall be secured in place by tamping approved backfill material around the pipe except at the bell end. Every precaution shall be taken to prevent foreign material from entering the open end of the installed pipe prior to installing the next pipe.

If, for any reason there is a stoppage in the pipe-laying operation, the open end of the last installed pipe shall be sealed by means of a watertight plug. If, upon commencement of work there is water in the trench, the plug shall remain in place until the trench is completely dewatered.

Proper implements, tools, and facilities satisfactory to the Engineer shall be provided and used by the Contractor for efficient execution of the work. All pipe, fittings, and accessories shall be handled by suitable equipment in a manner to prevent damage to the materials. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.

2.9 **BACKFILLING.** All trenches and excavation shall be backfilled to the natural line or finished surface as soon as conditions will permit. The backfill material shall consist of the excavated material or trench backfill, except no materials will be allowed which may have any detrimental effect on the pipe, fittings, or other appurtenances.

Except at locations where trench backfill is required, backfill up to a level of 300 mm (1') over the top of the pipe shall be with selected earthen materials no larger than 75 mm (3") in its greatest dimension. In the event this material is not readily available at all locations, the Contractor shall provide suitable conditioned soil or an approved material for this purpose. Select material shall be placed in equal layers on both sides of the pipe and compacted. Each layer of material so placed shall not exceed 150 mm (6") in depth until the top of the pipe is covered. Additional select material required to cover the pipe to a compacted depth of 300 mm (1') may be placed in one lift. All select materials shall be compacted to the satisfaction of the Engineer. No frozen material shall be used as selected backfill. The remaining backfill required for the trench may be placed by mechanical means. Backfill so placed shall be deposited in the trench in a manner to avoid impact and uneven loading of the water main. Large chunks of earth shall be broken up or placed on top of the spoil bank. Debris and rock having any dimension greater than 150 mm (6") shall be considered unsuitable for backfilling and disposed of in an approved manner. After settlement has taken place, the trenches shall be refilled and graded to a finished condition acceptable to the Engineer and the municipality.

2.10 **MECHANICAL JOINTS.** Mechanical joints shall be installed according to the manufacturer's specifications. The pipe bells, spigot ends of pipe, and pipe gaskets shall be clean and free from particles of sand, dirt, or other objectionable matter during jointing. Pipe bolts shall be drawn up uniformly by turning diametrically opposite bolt nuts simultaneously in a manner that the joint gland and rubber gasket are brought to bearing and final seating without warp or eccentricity.

2.11 **PUSH-ON JOINTS.** Push-on joints shall be installed according to the manufacturer's specifications. The pipe bells, spigot ends of pipe, and pipe gaskets shall be clean and free from particles of sand,

dirt, or other objectionable matter during jointing. Pipe shall be assembled by means of a ratchet jack type tool or other approved method. Jointing by the so-called "stabbing" of the pipe spigot into the coupling will not be permitted.

Field cut pipe shall be conditioned so that it may be used to make up the next joint. The outside of the cut end shall be tapered back 3 mm (1/8") at an angle of about 30 degrees with the centerline of the pipe by means of a coarse file or portable grinder to remove any sharp, rough edges which otherwise might injure the gasket.

2.12 **THRUST BLOCKING AND ANCHORAGE.** All cast-iron tees and bends shall be anchored in poured concrete thrust blocks which shall be keyed into solid ground under the respective fittings to a depth of not less than 75 mm (3") and shall extend to solid ground backing in the direction of the thrust, unless otherwise shown, or specified on the plans. Concrete blocking shall extend to a point above the horizontal pipe diameter and in a manner to secure the pipelines from lateral thrust displacement and ensure ability to caulk or tighten all the joints. Concrete blocking shall consist of SI concrete with minimum moisture content to enable tamping in place and molding. Blocking dimensions will be as shown on the plans or as determined in the field by the Engineer. Fittings at ends of pipelines shall be blocked or harnessed with suitable ties to the pipeline in a manner to permanently anchor the same in place. Plugs shall be blocked in a manner which will facilitate their removal and subsequent extension of the water mains.

Metal harnesses of adequate strength to prevent movement may be used instead of concrete blocking, if permitted by the Engineer. Steel rods or clamps shall be galvanized or otherwise rustproof treated, as approved by the Engineer. The cost of metal harnesses shall be incidental to the construction and included in the contract unit price for pipe.

2.13 **CONNECTIONS TO EXISTING WATER MAINS.** Before making any connection to existing water mains, the Contractor shall have all necessary tools, materials, pipe, and fittings on hand, and sufficient experienced workmen available to preclude any unnecessary delay in making the connection due to adverse conditions or mishap. The actual work of cutting into a main or removal of a fitting shall not be done until all measurements, necessary pipe assembly, and other specified provisions have been completed.

If the connection requires shutting down the existing main, the Contractor shall make the necessary arrangements with the municipal water department to accomplish same. In addition, all users to be affected shall be notified 24 hours in advance of water main shutdown.

Temporary blocking capable of withstanding the service pressure shall be provided for all existing valves, fittings, and pipe that could be affected by the new connection.

The cost of making connections to existing water mains shall be considered as incidental to and included in the contract unit price for water main unless otherwise specified.

2.14 **HOUSE SANITARY SEWER AND WATER SERVICES.** At all locations where the water main crosses house services, adequate precautions shall be taken by the Contractor to prevent unnecessary and lengthy shutdown of the service. Wherever possible, the water main shall be constructed so as to not damage the services or interfere with their future operation. Any service that is damaged shall be repaired with new material in such a manner that future operation will not be impaired. All work in connection with house services shall conform to the ordinances and requirements of the municipality in which the improvement is being made.

Change or adjustment in the line or grade of the pipeline to clear obstructions shall be approved by the Engineer. All materials and work required for this purpose and for tunneling, repairing, and

reinforcing sewer crossings shall be furnished by the Contractor and shall be incidental to and included in the contract unit price for water main, unless otherwise specified.

In those instances where house services require adjustment, the work shall be done under the requirements of the Standard Specifications and paid for as specified.

**2.15 HYDROSTATIC TEST.** All newly laid water main, fittings, valves, and hydrants shall meet the requirements of the following hydrostatic tests before being accepted by the municipality.

(a) **Pressure Test.** After completion of the water main, as previously outlined, the main shall be filled with water and the air allowed to escape through hydrants, air release valves, blow-offs, etc. When the main is free of air, the water pressure shall be raised to 860 kPa (125 psi) by the addition of water through a force pump and other apparatus. The test pressure shall be **maintained** for a one-hour period by the addition of water through the pump.

The pipeline, all valves, fittings, and hydrants shall be carefully examined during the pressure test to determine if there are any defective pipe, fittings, hydrants, or leaking joints. All defective materials shall be removed and replaced with sound material and all leaks repaired. The test shall then be repeated until the required results are achieved.

(b) **Leakage Test.** After satisfactory completion of the pressure test, a leakage test shall be conducted. The water pressure in the main shall be raised to a minimum pressure of 825 kPa (120 psi), unless otherwise specified, by the addition of water to the main. The test pressure shall be **maintained** in the main for a two (2) hour period. The allowable amount of make-up water to maintain the specified test pressure shall not exceed the following rates for each 300 m (1,000') of pipe.

LEAKAGE IN LPH (GPH) FOR EACH 300 m (1,000') OF PIPE

| | Pipe Size - Millimeters (Inches) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test Pressure kPa (psi) | 150 mm (6") | 200 mm (8") | 250 mm (10") | 300 mm (12") | 350 mm (14") | 400 mm (16") | 450 mm (18") | 500 mm (20") | 600 mm (24") |
| 690 (100) | 1.7 (0.45) | 2.3 (0.60) | 2.8 (0.75) | 3.4 (0.90) | 4.0 (1.05) | 4.5 (1.20) | 5.1 (1.35) | 5.7 (1.50) | 6.8 (1.80) |
| 760 (110) | 1.8 (0.47) | 2.4 (0.63) | 3.0 (0.79) | 3.6 (0.94) | 4.2 (1.10) | 4.8 (1.26) | 5.3 (1.41) | 5.9 (1.57) | 7.2 (1.89) |
| 825 (120) | 1.9 (0.49) | 2.5 (0.66) | 3.1 (0.82) | 3.7 (0.99) | 4.4 (1.15) | 5.0 (1.31) | 5.6 (1.48) | 6.2 (1.64) | 7.5 (1.97) |
| 895 (130) | 1.9 (0.51) | 2.6 (0.68) | 3.2 (0.85) | 3.9 (1.03) | 4.5 (1.20) | 5.2 (1.37) | 5.8 (1.54) | 6.5 (1.71) | 7.8 (2.05) |
| 965 (140) | 2.0 (0.53) | 2.7 (0.71) | 3.4 (0.89) | 4.0 (1.06) | 4.7 (1.24) | 5.4 (1.42) | 6.1 (1.60) | 6.7 (1.78) | 8.1 (2.13) |
| 1,035 (150) | 2.1 (0.55) | 2.8 (0.74) | 3.5 (0.92) | 4.2 (1.10) | 4.9 (1.29) | 5.6 (1.47) | 6.2 (1.65) | 7.0 (1.84) | 8.4 (2.21) |

In order to make the above tests, the Contractor shall furnish all apparatus, piping, hose, pump, and pressure tank, gauges properly calibrated, a clean barrel or drum to hold water, and a 20-liter (five-gallon) graduated container calibrated into liters (tenths of a gallon or into one-half (1/2) pints). The municipality in which the work is being done reserves the right to use their own tanks and gauges when considered necessary to check the Contractor's equipment for accuracy.

The above specified tests shall be made on sections not exceeding 600 m (2,000') in length. Mains which fail to meet the requirements of the initial test shall be repaired and retested until all the

requirements have been met. All tests shall be made through 25 mm (1") corporation cocks tapped into the main.

The cost of all labor, materials, and equipment necessary to make the tests shall be incidental to and included in the contract unit price for water main.

2.16 **WATER MAIN DISINFECTION.** Prior to chlorination and after completion of the pressure test, each pipeline construction section shall be flushed at a minimum water velocity of 0.8 mps (2.5 fps) in a manner and for such length of time as the Engineer may require to effectively clear the mains, valves, hydrant leads, and fittings. Temporary flushing risers shall be provided at the termini of all water mains to assure flushing of the dead ends. All mains and accessories shall be chlorinated under the supervision of the municipality by the use of either chlorine gas or H.T.H. hypochlorite compound as directed. A solution of proper chlorine concentration shall be prepared with clean tap water and pumped into the section of main to be chlorinated by means of 25 mm (1") corporation cocks inserted in the top of the new main. In order that the sterilization solution will make proper contact with all interior surfaces, corporation cocks shall be inserted in the top of the new main at the beginning of each pipeline extension and at the ends of any such extension where means of bleeding off water is not available. Chlorine solution shall be applied at both ends of such extension.

The valve controlling water flow from the existing distribution system into the new work shall be opened sufficiently to assure a slow rate of flow into the new pipeline. After regulating the flow from observations at the bleed-off point, the chlorine shall be pumped into the new main at a uniformly proportionate rate until the water in the pipeline has a chlorine content of 50 to 100 ppm and until a heavy chlorine concentration at the bleed-off point is evident.

The Contractor shall exercise every precaution to prevent the chlorine solution from backing up or flowing beyond the limits of the new pipeline extension into the existing distribution system. All valves and hydrants within the limits of the section being chlorinated shall be operated during the application of the chlorine solution. All terminal valves except the feed-in valve shall be kept closed.

On completion of the chlorination process, the feed-in valve shall be tightly shut off and the treated water retained in the line at least 24 hours or longer as may be directed by the Engineer. After 24-hour retention in the pipeline, the residual chlorine at the extremities of the section shall be not less than 25 ppm.

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipelines as directed by the Engineer until the replacement water is chlorine-free or has a residual of less than 0.2 ppm, whereafter samples for testing and analysis shall be taken from a sterile metal pipe connection with sampling cock attached to the 25 mm (1") corporation cocks in the new line. Quality of water shall meet the requirements of the Illinois Environmental Protection Agency for drinking water for at least two (2) consecutive days, with a minimum of 24 hours between samples, before placing the new pipeline or section in service.

Should the initial chlorine treatment fail the approved laboratory analysis of the sampled water, chlorination shall be repeated until approved water quality is obtained from the new pipeline extensions or sections.

The cost of all labor, materials, and equipment necessary to flush and chlorinate the water main shall be incidental to and included in the contract unit price for Water Main.

2.17 **RELATION TO SEWERS.** Insofar as applicable, the provisions set forth in paragraph 212 F of the Technical Policy Statements of the Division of Public Water Supplies, Illinois Environmental Protection Agency, are made a part hereof by reference and shall be adhered to in maintaining horizontal and

vertical clearances with sewers paralleling or crossing the pipelines to be installed under this contract. The following horizontal and vertical separations are to be maintained.

A. **Horizontal Separation.** Whenever possible, a water main must be laid at least ten feet horizontally from any existing or proposed drain or sewer line.

Should local conditions exist which would prevent a lateral separation of 3.1 m (10'), a water main may be laid closer than 3.1 m (10') to a storm or sanitary sewer, provided that the water main invert is at least 460 mm (18") above the crown of the sewer and is either in a separate trench or in the same trench on an undisturbed earth shelf location to one side of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint cast or ductile-iron pipe, prestressed concrete pipe, or PVC pipe meeting water main standards and, before backfilling, be pressure tested to the maximum possible expected surcharge head to assure watertightness.

B. **Vertical Separation.** Whenever water mains must cross house sewers, storm sewers, or sanitary sewers, the water main shall be laid at such an elevation that the invert of the water main is 460 mm (18") above the crown of the sewer measured as the normal distance between the two pipes.

The vertical separation must be maintained for that portion of the water main located within 3.1 m (10') horizontally of any sewer crossed.

If it is impossible to obtain the proper vertical separation as described above, or if it is necessary for the water main to pass under a sewer, both the water main and sewer must be constructed of slip-on or mechanical joint cast-iron pipe, prestressed concrete pipe, or PVC pipe meeting water main standards. All pipe must extend on each side of the crossing until the normal distance from the water main to the sewer is at least 3.1 m (10').

In making such crossings, center a length of water main pipe over the sewer to be crossed so the joints will be equidistant from the sewer and as remote therefrom as possible. Where a water main must cross under a sewer, a vertical separation of 460 mm (18") between the invert of the sewer and the crown of the water main shall be maintained, along with means to support the larger-sized sewer lines to prevent their settling and breaking the water main.

C. **Water Service Lines.** The horizontal and vertical separation between water service lines and all sanitary sewers, storm sewers, or any drain must be the same as for water mains, as detailed in A and B above, except that when minimum horizontal and vertical separation cannot be maintained, water pipe of the types described in A and B above must be used for both water and sewer service lines.

**2.18 METHOD OF MEASUREMENT.** Water main shall be measured for payment in meters (feet) along the centerline of the completed water main from center to center of fittings.

**2.19 BASIS OF PAYMENT.** The work as outlined in Section 2 will be paid for at the contract unit price per meter (foot) for WATER MAIN of the diameter and class specified, measured in place unless otherwise specified. This price shall include the cost of all materials, pipe, fittings, adaptors, joint materials, blocking, and all work and equipment necessary to make a complete and finished installation.

## SECTION 3. WATER MAIN ADJUSTMENT

3.1 **DESCRIPTION.** This work shall consist of adjusting existing water mains where they are in conflict with new improvements. The work shall be in accordance with Section 2, Water Main, insofar as applicable, and the detailed plans.

3.2 **MATERIALS.** All materials used in adjusting water mains shall be new cast or ductile iron and in conformance with the current AWWA Standards set forth in Section 2.2.

3.3 **CONSTRUCTION.** All adjustments in the line or grade of the existing water main shall be approved by the Engineer.

All materials, labor, and equipment necessary to adjust the water main shall be on hand before shutdown and cutting of the existing main. The Contractor shall take every precaution to hold the interruption of service to a minimum.

A minimum clearance of 460 mm (18") shall be maintained between the adjusted main and the improvement for which the adjustment is made.

Adequate precautions shall be taken to prevent contaminants from entering the existing main. The inside surfaces of all new materials used in the adjustment shall be cleaned of all foreign material and swabbed with a solution of efficient bactericide before assembly. The adjusted section shall then be flushed utilizing available fire hydrants.

Pipe removed in this work shall be salvaged and delivered to the municipal yards and shall remain the property of the municipality unless otherwise provided.

3.4 **BASIS OF PAYMENT.** The work as outlined in Section 3 will be paid for at the contract unit price each for WATER MAIN TO BE ADJUSTED. This price shall include the cost of all materials, pipe, fittings, adaptors, joint materials, blocking, removal and disposal of existing main, and all work and equipment necessary to make a complete and finished installation.

## SECTION 4. CASING PIPE

4.1 **DESCRIPTION.** This work shall consist of furnishing and installing casing pipe of the required material, size, and class as specified and in conformance with the detailed plans.

4.2 **MATERIALS.** Casing pipe shall be either steel pipe with welded steel joints, reinforced concrete pipe, or galvanized corrugated metal pipe as specified or as approved by the Engineer where optional materials are permitted by the plans and specifications. Material used shall be new and conform to the following Standard Specifications unless otherwise specified. Mill rejects will not be allowed.

| | |
|---|---|
| (a) ASTM A-139, Grade B | Welded and Seamless Steel Pipe |
| (b) API 5L, Grade B | Line Pipe |
| (c) ASTM C-76 | Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe |
| (d) AASHTO M-36 | Zinc-Coated (Galvanized) Corrugated Iron or Steel Culverts and Underdrains. |
| (e) AASHTO M-167 | Structural Plate Pipe, Pipe Arches, and Arches |

**4.3 INSTALLATION.** Casing pipe of the type specified shall be installed in accordance with the following:

(a) **Auger and Jacking.** Steel casing pipe and corrugated metal pipe of the size and thickness specified. Steel casing pipe shall be butt-joined and welded all around. Corrugated metal pipe shall be jointed by means of internal connecting bands.

(b) **Tunnel and Jacking.** Concrete pipe and corrugated metal pipe of the size and thickness specified. Concrete pipe joints shall be composed of rubber "O" rings with a minimum 13 mm (1/2") cushioning spacer placed between each pipe. Cushioning material shall be of either braided jute or plywood. Upon completion of the push, all internal joint spaces shall be filled with Portland Cement mortar. At the option of the Contractor, the outside joint may be filled with bentonite clay. Corrugated metal pipe shall be joined as in (a) above.

Casing pipe shall be installed to the line and grade shown on the plans. If required, the outside of the casing shall be lubricated with bentonite clay. The lead pipe of the casing shall be provided with an approved tunneling shield. The work shall be kept dewatered until the carrier pipe has been installed and tested.

The work of installing the casing pipe shall be done by a Contractor who is fully experienced and equipped for this specialized construction and is approved by the Engineer and/or other supervisory authorities.

**4.4 WATER MAIN INSTALLATION.** After completion of the casing pipe, the water main shall be installed through the same on guide rails or on pipe skids in a manner which will provide for continuous and smooth installation of the water main without obstructions of any kind. Water main shall be jointed and installed from one end in a manner to keep the entire pipeline under compression during installation.

After completion of installation and testing of the water main, the annular space between the casing and the water main shall be filled with dry sand blown in by approved methods. The casing pipe shall be sealed by constructing masonry bulkheads at each end to preclude entrance of foreign material into the casing which might prevent ready removal of the water main at some future date.

**4.5 JACKING PITS.** Jacking pits shall be tight sheeted and braced on all sides. Sheeting shall be of adequate strength to withstand all surcharge loads to be imposed on it and shall be cut off 1.2 m (4') above existing ground. In lieu of the 1.2 m (4') cut-off height on sheeting, the Contractor may erect a 1.2 m (4') high fence around the excavation. Lights and warning signs as necessary shall be erected around all jacking pits.

The reaction block for the jacking mechanism shall be adequately designed to distribute the loads to the soil without excessive soil deflection and in a manner to avoid any disturbance of adjacent structures or utilities.

Hydraulic jacks and jacking frame shall be designed to apply a uniform pressure over the entire circumferential area of the pipes being jacked.

Upon completion of the jacking operation, pipe bedding within the jacking pit shall be placed in accordance with the special plan details and/or Special Provisions.

**4.6 RAILROAD CROSSING.** Railway crossings shall be in accordance with the easement, license and/or accepted grant of the railroad to the Owner and said conditions are made a part of these specifications by references. Additional requirements as set forth in the A.R.E.A. Committee I

Specifications for pipeline crossings under railway tracks shall govern, except as otherwise shown on the plans or modified herein.

The railway company shall be notified a reasonable time prior to commencing construction. Flagmen may be required to protect train operations during the time the pipe is installed underneath the main line tracks. The railroad shall be consulted on this matter, and any costs involved shall be at the Contractor's expense and incidental to the construction.

The Contractor shall be responsible for the cost of special insurance required by the railroad and costs incurred in repairing damage to railroad property due to the Contractor's operations or negligence. All to be incidental to and included in the contract unit price.

4.7 **HIGHWAY CROSSING.** Highway crossings shall be in accordance with the permit issued by the responsible highway department, and said permit is made a part of these specifications by references.

The Contractor shall be responsible for obtaining the Highway Bond required by the highway department, the cost of which shall be incidental to and included in the contract unit price for the items of this section.

4.8 **ALTERNATE METHODS OF CONSTRUCTION.** Alternate methods of construction meeting all conditions set forth herein will be considered and will be subject to the approval of the Engineer, the Owner, the railroad, and highway agencies involved.

Compensation for any alternate construction method will be at the contract unit price for casing pipe as set forth in the proposal. No extra compensation will be allowed for additional work incurred because of the alternative method of construction.

**COMPENSATION**

4.9 **METHOD OF MEASUREMENT.** Casing pipe shall be measured for payment in meters (feet) along the centerline of the completed pipe from end to end of casing installed. Under no circumstance will the pay length exceed the staked length.

4.10 **BASIS OF PAYMENT.** The work as outlined in Section 4 will be paid for at the contract unit price per meter (foot) for CASING PIPE, AUGER AND JACK or CASING PIPE, TUNNEL AND JACK of the diameter and thickness specified, measured in place unless so otherwise specified.

The price shall include the cost of all materials, pipe, fittings, joint materials, blocking, skids, sand, bulkheads, and all work and equipment necessary to make a completed and finished installation.

Water main installed within the casing pipe shall be paid for at the contract unit price for WATER MAIN as set forth under Section 2.

## SECTION 5. WATER MAIN INSTALLED BY BORING & JACKING

5.1 **DESCRIPTION.** This work shall consist of boring a hole of sufficient size to install the proposed water main under pavement and structures as shown on the plans or authorized by the Engineer.

5.2 **BORING.** The Contractor shall furnish an auger of sufficient size and power to excavate a hole through whatever earthen material is encountered. If rock material of such density that the auger cannot break through is encountered, the auger shall be withdrawn and the rock grubbed out by hand, or another location for the boring shall be selected.

Ends of the boring shall be limited to a maximum distance of 1.8 m (6') from the pavement edge or back of curb as the case may be. The boring shall be within 0.3 m (1') both vertically and horizontally of that shown on the plan or staked by the Engineer. Errors in alignment shall be resolved by either boring another hole or tunneling back along the misaligned boring a sufficient distance to correct the error.

The provisions of Section 4.5 shall apply to this section insofar as applicable.

**5.3 WATER MAIN INSTALLATION.** After completion of the boring, the water main shall be installed through same from one end and in a manner to keep the entire pipeline under compression during installation. A suitable cap shall be placed over the end of pipe first entering the boring to preclude entrance of dirt and other objectionable foreign materials.

**5.4 BACKFILLING.** After completion of the water main installation, the annular space between the boring walls and the water main shall be filled with dry sand blown in by approved methods. Abandoned borings shall also be filled by the same method.

**5.5 METHOD OF MEASUREMENT.** Boring and jacking shall be measured in meters (feet) along the centerline and from end-to-end of completed boring. In no case shall the pay length of boring be in excess of pavement width or back-to-back of curb plus 3.6 m (12'), unless so otherwise specified.

**5.6 BASIS OF PAYMENT.** The work as outlined in Section 5 will be paid for at the contract unit price per meter (foot) for BORING AND JACKING for water main of the size specified. This price shall include the cost of all materials, equipment, and the work necessary to make a complete and finished installation.

Payment will be made only for the boring that is utilized. Inaccurate bores will be at the Contractor's expense.

Water main installed within the bore shall be paid for at the contract unit price for WATER MAIN, as set forth under Section 2.

## SECTION 6. VALVES

**6.1 DESCRIPTION.** This work shall consist of furnishing and installing valves of the required material, size, and class together with the necessary fittings, jointing materials, and blocking completed as specified herein and in conformance with the detailed plans.

**6.2 MATERIALS.** All materials shall conform to the current AWWA Standards as set forth below, unless otherwise specified.

(a) C-500 Gate Valves for Ordinary Water Works Service
(b) C-504 Rubber-Seated Butterfly Valves
(c) C-509 Resilient Seated Gate Valves for Water Systems

Valves shall be of the make allowed in the municipality in which the improvement is being installed and as set forth in special provisions.

**6.3 GATE VALVES.** All gate valves shall be of the standard cast-iron body, bronze mounted, double gate type. All gate valves shall close by turning the stems in a clockwise direction. Stems shall be non-rising type with 50 mm (2") square operating nut, unless otherwise specified or shown on the plans. All valves shall be mechanical joint with either stuffing box and packing gland or "O" ring stem seal as specified in the Special Provisions or as approved by the Engineer.

6.4 **BUTTERFLY VALVES.** Butterfly valves shall be Class 150 B. Valve bodies shall be either cast iron or cast steel or fabricated steel. Valve shafts shall be solid one piece 18-8 stainless steel, Type 302, 303, 304, or 316. Valves shall be 90-degree seating with valve seats of natural gum rubber compound and shall be provided with adjustable mechanical stop to prevent overtravel of the valve disc in the open and closed position. Disc materials shall be as called for in the Special Provisions.

Valves shall be equipped with totally enclosed worm gear reducer and bevel gear attachment with 50 mm (2") square operating nut. Operators shall be capable of seating and unseating the valves under the most adverse conditions (opening against the full design pressure and velocity as specified into a dry system downstream). Operators shall be equipped with a device to hold the valve in a fixed position for an extended period of time.

Where shown or specified on the plans, butterfly valves shall be furnished with handwheel operators and right-hand or left-hand reducers as indicated so that the operators are in the position shown. Valves which are constructed with segmental retainers or means of adjusting the valve seat for tightness, shall be installed so that such retainers or adjusting means is in the position as indicated on the drawings. All valve operators shall close the valve by turning in a clockwise direction.

6.5 **RESILIENT SEATED GATE VALVES.** All materials shall conform to the current AWWA Standard C-509, Resilient Seated Gate Valves for Water Systems. All gate valves shall be designed for a 1,380 kPa (200 psi) working pressure and tested to a minimum 2,415 kPa (350 psi) hydrostatic pressure. All valves shall have bronze non-rising stems with "O" ring seals. The valves shall close by turning a 50 mm (2") square operating nut in a clockwise direction. All valves shall be furnished with mechanical joints.

6.6 **INSERTING VALVES.** Inserting valves shall be Mueller or approved equal. The valve shall be installed under pressure, without interruption of service and consist of a two-part cast-iron sleeve and valve body. Valve mechanism shall conform to AWWA Standard Specifications for Gate Valves and shall be cast-iron body, bronze mounted, double disc gate type. Valve stems shall be non-rising type with 50 mm (2") square operating nut and have stuffing box and packing gland or "O" ring seal as specified in the Special Provisions. Valves shall close by turning the stem in a clockwise direction and be designed for a maximum working pressure of 1,035 kPa (150 psi).

6.7 **TAPPING SLEEVES AND VALVE.** Tapping sleeves and valves shall be Mueller or approved equal and have mechanical joints sized for the existing cast-iron pipe. Tapping valves shall conform to AWWA Standard Specifications for Gate Valves, insofar as applicable, and shall be of the standard cast-iron body, bronze mounted, double disc gate type. Valve stems shall be non-rising type with 50 mm (2") square operating nut and have stuffing box and packing gland or "O" ring seal as specified in the Special Provisions. Valves shall close by turning the stems in a clockwise direction. The valve shall have an American Standard 555 N (125-pound) flange on the inlet end and a standard mechanical joint hub on the outlet end. Valve seat opening shall permit full diameter cuts to be made.

6.8 **AIR RELEASE VALVES.** Air release valves shall be "APCO 200A" or approved equal. Valves shall be furnished with 25 mm (1") threaded inlet connection and 13 mm (1/2") threaded outlet.

6.9 **VALVE BOXES.** Valve boxes shall be cast iron of the quality, pattern, and workmanship of Clow No. F-2450 or equal. The valve boxes shall consist of a base, center section, top section, and cover and shall extend 1.2 m to 1.8 m (50" to 70").

| | |
|---|---|
| Base Section: | |
| Valve sizes 150 mm (6") and 200 mm (8") | Clow F-2465 No. 6 or equal |
| Valve sizes 250 mm (10") and larger | Clow F-2484 No. 160 or equal |
| Center Section | Clow F-2460 No. 64 or equal |
| Top Section | Clow F-2455 No. 56 or equal |
| Cover | Clow F-2494 or equal |

## INSTALLATION

**6.10 MAIN LINE VALVE INSTALLATION.** Mechanical joint valves shall be installed in the pipelines at the locations shown on the plans.

Valves shall be housed in Standard Type A valve vaults or cast-iron valve boxes in accordance with the requirements shown on the plans and proposal. Where valve boxes are used, the same shall be set vertically and be centered over the operating nuts of the valves with the cover of the valve box set flush with the adjoining ground level.

Where valves are provided with valve vaults, the valves shall be centered in the vaults. On pipelines of 200 mm (8") or less in diameter, the connecting pipe nipples shall be not over 1.8 m (6') in length for cast or ductile-iron mains.

When cast-iron valve boxes are required, their cost shall be incidental to and included in the contract unit price for the type of valve being installed.

When valve vaults are required, they shall be paid for at the contract unit price for VALVE VAULT.

**6.11 AIR RELEASE VALVE INSTALLATION.** Air release valves shall be installed as called for on the plan at high points in the water main to preclude entrapment of air in the main.

The air release valve shall be connected to the main by means of a 25 mm (1") Mueller corporation cock installed in the top of main, together with a pipe nipple, tee, 13 mm (1/2") smooth nose sample cock, outlet pipe with check valve, fittings, and bronze screen as shown on the plan.

The air release valve shall be housed in a standard valve vault which shall be filled with crushed limestone, commercial grade number 2, to the spring line of the water main passing through the vault. The outlet of the exhaust piping leading from the valve shall be at an elevation approximating the top of the vault masonry and shall be located to one side of the vault to permit ease of entry into the vault.

The cost of the vault shall be paid for as a VALVE VAULT with the crushed stone, tapping the main, and other equipment listed herein being paid for at the contract unit price for the air release valve.

## COMPENSATION

**6.12 BASIS OF PAYMENT.** The work as outlined in Section 6 will be paid for at the contract unit price each for GATE VALVE, BUTTERFLY VALVE, INSERTING VALVE, TAPPING SLEEVE AND VALVE and AIR RELEASE VALVE of the size, and class specified. This price shall include the cost of all materials, fittings, adaptors, joint materials, main tapping, blocking, and all work and equipment necessary to make a complete and finished installation.

## SECTION 7. FIRE HYDRANTS

**7.1 DESCRIPTION.** This work shall consist of furnishing and installing fire hydrants as specified herein and in conformance with the detailed plans.

**7.2 MATERIALS.** All fire hydrants shall conform to AWWA Standard C-502 unless otherwise specified and shall be of the make allowed in the municipality the improvement is being installed in and as set forth in the Special Provisions.

**7.3 INSTALLATION.** Fire hydrants shall be connected with the water mains by means of cast- or ductile-iron pipe having an internal diameter of 150 mm (6") and of the type and quality specified. The joint at the hydrant shall be a mechanical joint or a flanged bolted connection in conformity with the standard adopted and in use by each specific municipality.

Each hydrant shall rest on a substantial concrete block foundation with a surface area sufficient to prevent settlement of said hydrant.

There shall be placed for a depth of at least 380 mm (15") below the drip valve to a plane 300 mm (12") above the drip valve crushed stone conforming to gradation CA-3. Approximately one-third (1/3) cubic meters (yards) of crushed stone shall be placed for each hydrant. On top of said crushed stone shall be placed a sheet of 6 mil thickness VisQueen (polyethylene) to prevent infiltration of the earth backfill into the crushed stone. Hardwood or masonry blocking shall be placed between each hydrant and the undisturbed earth end of the trench to prevent the hydrant from being blown off of the connection pipe during testing and until the backfill is sufficiently compacted to serve such purposes. Each hydrant shall be set in a true vertical position and at such height so that the center of the hose or steamer connection will be 460 mm to 600 mm (18" to 24") above finished grade at the hydrant or as shown on the plan. Minimum length of hydrants shall be for 1.8 m (6') depth of trench. The top of the valve box for the auxiliary hydrant valve shall be set 13 mm (1/2") above finished grade of the parkway where the hydrant is located.

Care shall be used where hydrant connections are to be made to be sure that the trench depth is such that the hydrant will be at the proper grade when connected to said main without the use of special offset fittings.

If hydrant extension sections are required to achieve the specified hydrant exposure, their cost shall be incidental to and included in the contract unit price for fire hydrants.

**7.4 BASIS OF PAYMENT.** The work as outlined in Section 7 will be paid for at the contract unit price each for FIRE HYDRANTS as specified. This price shall include the cost of fittings, joint materials, blocking, drainage bed, and all materials, work, and equipment necessary to make a complete and finished installation.

Where auxiliary gate valves and cast-iron valve boxes are called for on the plans, the cost for furnishing and installing same shall be incidental to and included in the contract unit price for fire hydrants. Auxiliary gate valves and cast-iron valve boxes shall be in accordance with Section 6 of this Supplemental Specification, insofar as applicable.

Hydrant leads shall be paid for at the contract unit price for 150 mm (6") water main of the class specified.

## SECTION 8. COPPER WATER SERVICE STUBS

**8.1 DESCRIPTION.** This work shall consist of furnishing and installing copper water tubing, corporation stops, curb stops, and curb boxes of the size specified and in conformance with the detailed plans.

**8.2 MATERIALS.** All materials shall conform to the following standards unless so otherwise specified.

(a) Copper Water Tubing, Type K, AWWA Specification 7S-CR

| Nominal Pipe Size | Outside Diameter | kg per m (lb. per foot) |
|---|---|---|
| 20 mm (¾") | 22 mm (0.875") | 0.954 kg (0.641#) |
| 25 mm (1") | 29 mm (1.125") | 1.249 kg (0.839#) |
| 30 mm (1¼") | 35 mm (1.375") | 1.548 kg (1.040#) |
| 40 mm (1½") | 41 mm (1.625") | 2.024 kg (1.360#) |
| 50 mm (2") | 54 mm (2.125") | 3.066 kg (2.060#) |

(b) Corporation stops shall be Mueller or equal #H-15010.

(c) Curb stops shall be Mueller or equal #H-15200 inverted key, round way, combined cap, and tee.

(d) Curb boxes shall be adjustable cast-iron type, 75 mm (3") shaft Mueller or equal, size 7, #H-10346.

(e) Terminal markers, 50 mm x 50 mm (2" x 2") post 1.2 m (4') long with white painted top.

8.3 **INSTALLATION**. Copper services shall be installed in open cut trenches 1.7 m (5-1/2') feet below the centerline elevation of the proposed roadway and shall extend at right angles from the street main to the terminal point. Maximum trench width for installation of the copper services shall be 460 mm (18").

All taps shall be made after completion of the hydrostatic test and disinfection of the water main and shall be at an angle of 45 degrees above the horizontal diameter of the water main.

From the connection with the corporation stop, the service line shall be bent down in a manner to form a reverse curve from the top of the stop to the bottom of the service trench and in a manner to provide a reasonable amount of slack or extra length in the service line. The corporation stop and service shall then be blocked up with CA-3 coarse aggregate in a manner to relieve all stress in the connection with the water main. No splicing of the water service beneath the roadway will be allowed. All fittings shall be flanged compression type.

A cast-iron adjustable curb box shall be centered on and set vertically over the curb stop at the terminal end of each service with the cover of said box set flush with the finished parkway surface. Next to the cast-iron box shall be set a 1.2 m (4') long 50 mm x 50 mm (2" x 2") post with one foot painted white and exposed above the ground.

All work in connection with the house water service stubs shall conform to the ordinances and regulation of the municipality in which the improvement is located.

8.4 **RECORD OF LOCATIONS**. The Contractor shall reference and keep an accurate record of the location of both ends of each house service installed. Said measurement shall be made as directed by the Engineer, and the complete record shall be given to the Engineer upon completion of the work.

## COMPENSATION

8.5 **METHOD OF MEASUREMENT**. House water services shall be measured for payment in meters (feet) of copper at the unit price each for corporation stops and at the unit price each for curb stops and cast-iron boxes. The pay length of copper shall be determined by measuring from the point of connection with the main to the center of the curb stop.

8.6 **BASIS OF PAYMENT**. The work as outlined in Section 8 will be paid for at the contract unit price per meter (foot) for COPPER WATER SERVICE of the diameter specified, at the contract unit price each for CORPORATION STOP of the size specified, and at the contract unit price each for CURB STOP AND BOX of the size specified. These prices shall include the cost of all copper tubing, fittings, corporation stop, curb stop, cast-iron curb box, service clamps, if necessary, tapping, blocking, and all materials, work, and equipment necessary to make a complete and finished installation.

## 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."

80050

## 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 placement of the surface course or at other times throughout the work."

80142

## 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 μm (No. 200) sieve shall be 2 ± 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" |

80051

**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)"

80094

## CURB RAMPS FOR SIDEWALK (BDE)

Effective: January 1, 2004

Description. This work shall consist of constructing sidewalk curb ramps with detectable warnings in compliance with the Americans with Disabilities Act, Accessibility Guidelines (ADAAG). Work shall be according to Section 424 of the Standard Specifications except as modified herein.

The detectable warnings shall consist of an area of truncated domes that provide both visual and tactile cues to pedestrians who are about to enter into traffic. The warning area shall begin 150 mm (6 in.) from the back of the curb and continue 600 mm (2 ft) in the direction of pedestrian travel for the entire width of the walking surface.

The detectable warnings shall also present a contrast in color from the adjacent sidewalk. This shall be accomplished by constructing the warning area, plus the 150 mm (6 in.) area between the warning area and the back of curb, out of concrete that is integrally colored red. However if the sidewalk is brick or of some dark color, the contrast requirement shall be achieved with normal (grey), Class SI concrete.

Materials. Materials for the detectable warning area of the curb ramps shall meet the following requirements.

a) Integrally Colored Concrete. Integrally colored concrete shall be according to Section 1020 of the Standard Specification for Class SI concrete except as follows.

| | |
|---|---|
| Article 1020.04 | The allowable water/cement ratio range shall be 0.40 minimum to 0.44 maximum. |
| Article 1020.04 | The allowable slump range shall be 75 mm (3 in.) minimum to 125 mm (5 in.) maximum. |
| Article 1020.04 | The allowable coarse aggregate gradations shall be CA 11, CA 13, CA 14, and CA 16. |
| Article 1020.05(b) | A calcium chloride accelerating admixture shall not be used. |
| Article 1020.05(b) | The cement factor shall not be reduced if a water-reducing or high range water-reducing admixture is used. |
| Article 1020.05(c) | Fly ash shall not be used. |
| Article 1020.05(k) | Ground granulated blast-furnace slag shall not be used. |
| Article 1020.11 | Pigment for integrally colored concrete shall be added to the concrete and mixed per the Manufacturer's recommendation. |

Article 1020.13 The curing method shall be Type I membrane curing.

Article 1020.13. The protection method shall be according to Article 1020.13(e)(1) and the protection period shall be 96 hours. No material, including the insulating material, shall be placed in direct contact with the concrete surface.

(b) Pigment for Integrally Colored Concrete. The pigment shall meet the requirements of ASTM C 979, match color number 30166 of Federal Standard 595, and be on the Department's Approved List of Pigments for Integrally Colored Concrete.

(c) Release Agent for Concrete Stamping Tools. The release agent shall be according to the stamping tool manufacturer's recommendations and the following: it shall be a clear liquid that will evaporate, it shall not harm the concrete, and it shall allow the application of Type I membrane curing.

Equipment. Equipment for the detectable warning area of the curb ramps shall meet the following requirements.

(a) Concrete Stamps. Sufficient numbers and sizes of stamps shall be furnished to cover the various widths of the curb ramps. The stamps shall have an air opening at the top of each truncated dome recess; and shall be rigid enough to evenly distribute the force exerted during tamping.

(b) Tamper. The tamper shall be according to the concrete stamp manufacturer's recommendations.

## CONSTRUCTION REQUIREMENTS

Stamping. The concrete shall be placed and finished according to Article 424.06 except the area to be stamped shall not be brushed. When the bleed water has been absorbed, stamping shall begin. The entire width of the curb ramp shall be stamped at the same time. A single stamp or a combination of stamps may be used.

Prior to placing the stamp on the concrete, the stamp shall be coated with the release agent. When recommended by the manufacturer, the release agent shall also be applied to the concrete surface. Once the stamp has been placed on the ramp, it shall remain down until the stamping is complete.

The entire area of the stamp shall be tamped with a short, slow, repetitive action such that the concrete is caused to move up and into the dome recesses of the stamp. Tamping shall continue until mortar has come through the air openings in the stamp. Stepping or walking on the stamp will not be allowed. The base elevation of the domes shall be even with the adjacent sidewalk surface; the stamp shall not be forced down into the concrete.

When stamping is complete, the stamp shall be removed and the concrete cured.

Upon completion of curing, or after cold weather protection if required, the protruding mortar tip on the top of each dome shall be removed and the dome rubbed or ground smooth.

80113

## 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 |
| **Cast-in-Place Concrete:** [11/] | | | |
| Pavement<br>Shoulder | 1020.13(a)(1)(2)(3)(4)(5)[3/ 5/] | 3 | 1020.13(c) |
| Base Course<br>Base Course Widening | 1020.13(a)(1)(2)(3)(4)(5)[1/ 2/] | 3 | 1020.13(c) |
| Driveway<br>Median<br>Curb<br>Gutter<br>Curb and Gutter<br>Sidewalk<br>Slope Wall | 1020.13(a)(1)(2)(3)(4)(5)[4/ 5/] | 3 | 1020.13(c)[16/] |
| Paved Ditch<br>Catch Basin<br>Manhole<br>Inlet<br>Valve Vault | 1020.13(a)(1)(2)(3)(4)(5)[4/] | 3 | 1020.13(c) |
| Pavement Patching | 1020.13(a)(1)(2)(3)(4)(5)[2/] | 3[12/] | 1020.13(c) |
| Pavement Replacement | 1020.13(a)(1)(2)(3)(4)(5)[1/ 2/] | 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<br>Foundation Seals | 1020.13(a)(1)(2)(3)(4)(5)[4/6/] | 7 | 1020.13(e)(1)(2)(3) |
| Substructure | 1020.13(a)(1)(2)(3)(4)(5)[1/7/] | 7 | 1020.13(e)(1)(2)(3) |
| Superstructure (except deck) | 1020.13(a)(1)(2)(3)(5)[8/] | 7 | 1020.13(e)(1)(2) |
| Deck | 1020.13(a)(5) | 7 | 1020.13(e)(1)(2)[17/] |
| Retaining Walls | 1020.13(a)(1)(2)(3)(4)(5)[1/7/] | 7 | 1020.13(e)(1)(2) |
| Pump Houses | 1020.13(a)(1)(2)(3)(4)(5)[1/] | 7 | 1020.13(e)(1)(2) |
| Culverts | 1020.13(a)(1)(2)(3)(4)(5)[4/6/] | 7 | 1020.13(e)(1)(2)[18/] |
| Other Incidental Concrete | 1020.13(a)(1)(2)(3)(5) | 3 | 1020.13(c) |
| **Precast Concrete:** [11/] | | | |
| Bridge Beams<br>Piles<br>Bridge Slabs<br>Nelson Type Structural Member | 1020.13(a)(3)(5)[9/10/] | As required.[13/] | 504.06(c)(6), 1020.13(e)(2)[19/] |
| All Other Precast Items | 1020.13(a)(3)(4)(5)[2/9/10/] | As required.[14/] | 504.06(c)(6), 1020.13(e)(2)[19/] |
| **Precast, Prestressed Concrete:** [11/] | | | |
| All Items | 1020.13(a)(3)(5)[9/10/] | Until strand tensioning is released.[15/] | 504.06(c)(6), 1020.13(e)(2)[19/] |

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."

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## DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

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 35.0% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will 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.

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 contact. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.

(e) DBE as a material supplier:

(1) 60% 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.

80029

## 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.

80055

**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 snuggly 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."

80103

**FLAGGER VESTS (BDE)**

Effective: April 1, 2003

Revise the first sentence of Article Ø1.04(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 107-99 for Conspicuity Class 2 garments and approved flagger traffic control signs conforming to Standard Ø2001 and Article Ø2.05(e)."

Revise Article Ø1.04(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 or fluorescent orange and fluorescent yellow/green garment meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-99 for Conspicuity Class 2 garments."

80101

**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."

80079

**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."

80054

**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."

80104

## LIGHT EMITTING DIODE (LED) SIGNAL HEAD (BDE)

Effective: April 1, 2002
Revised: August 1, 2003

Add the following paragraph to the end of Article 802.03 of the Standard Specifications:

"The warranty for light emitting diode (LED) modules, including the maintained minimum luminous intensities, shall cover a minimum of 60 months from the date of delivery."

Revise Article 880.01 of the Standard Specifications to read:

"**880.01 Description.** This work shall consist of furnishing and installing a conventional signal head, optically programmed signal head or light emitting diode (LED) signal head."

Revise Article 880.02(a) of the Standard Specifications to read:

"(a) Signal Heads....1078.01"

Revise the first sentence of the first paragraph of Article 880.03 of the Standard Specifications to read:

"The signal head shall be installed on a post, bracket, span wire or mast arm as shown on the plans."

Revise the first paragraph of Article 880.04 of the Standard Specifications to read:

"**880.04 Basis of Payment.** This work will be paid for at the contract unit price each for SIGNAL HEAD, OPTICALLY PROGRAMMED SIGNAL HEAD, or SIGNAL HEAD, LED of the type specified and of the material type when specified."

Revise Article 1078.01 of the Standard Specifications to read:

"**1078.01 Signal Head, Optically Programmed Signal Head and Light Emitting Diode (LED) Signal Head.**"

Add the following to Article 1078.01(c) of the Standard Specifications:

"(3) The LED signal section shall be according to the following:

a. General Requirements. The LED signal head shall meet the requirements of the Institute of Transportation Engineers (ITE) interim LED purchase specification, "Vehicle Traffic Control Signal Heads, Part 2: LED Vehicle Traffic Signal Modules", or applicable successor ITE specifications, except as modified herein. The LEDs utilized in the modules shall not be Aluminum Gallium Arsenide (AlGaAs) material technology.

b. Physical and Mechanical Requirements. The power supply for the LED module shall be integrated with the unit.

c. Photometric Requirements. The candlepower values for yellow 300 mm (12 in.) circular modules shall be equal to the corresponding values for green 300 mm (12 in.) circular modules as listed in Table 1 of Section 4 of the aforementioned ITE specification based on normal use in traffic signal operation over the operating temperature range.

The illuminated portion of the arrow module shall be uniformly and completely dispersed with the LEDs.

d. Electrical Requirements. When applicable to the particular module type, the LED signal module shall be EPA Energy Star qualified. For yellow 300 mm (12 in.) circular and arrow modules, the wattage requirements shall be as follows:

| Module Type | Maximum Watts (W) at 74 °C (165 °F) | Nominal Watts (W) at 25 °C (77 °F) |
|---|---|---|
| 300 mm (12 in.) Yellow Circular | 25 | 22 |
| 300 mm (12 in.) Yellow Arrow | 12 | 10 |

The individual LEDs shall be wired such that a catastrophic loss or the failure of one LED will result in the loss of not more than 5 percent of the signal module light output.

e. Warranty. The LED modules shall be warrantied according to Article 802.03. The maintained minimum intensities for 300 mm (12 in.) arrow modules throughout the warranty period under the operating temperature and voltage range, and at the end of the warranty period shall not be less than the following values:

| Module Type | Maintained Minimum Intensities (cd/sq m) |
|---|---|
| Red Arrow | 5,000 |
| Yellow Arrow | 11,000 |
| Green Arrow | 11,000" |

80067

**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."

**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."

## 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.

80022

## 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.

80130

## PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)

Effective: November 1, 1993
Revised: April 2, 2004

Description. This work shall consist of furnishing, placing, and maintaining changeable message sign(s) at the locations(s) shown on the plans or as directed by the Engineer.

The sign(s) shall be trailer mounted. The message panel shall be at least 2.1 m (7 ft) above the pavement, present a level appearance, and be capable of displaying up to eight characters in each of three lines at a time. Character height shall be 450 mm (18 in.).

The message panel shall be of either a bulb matrix or disc matrix design controlled by an onboard computer capable of storing a minimum of 99 programmed messages for instant recall. The computer shall be capable of being programmed to accept messages created by the operator via an alpha-numeric keyboard and able to flash any six messages in sequence. The message panel shall also be capable of being controlled by a computer from a remote location via a cellular linkage. The Contractor shall supply the modem, the cellular phone, and the necessary software to run the sign from a remote computer at a location designated by the Engineer. The Contractor shall promptly program and/or reprogram the computer to provide the messages as directed by the Engineer.

The message panel shall be visible from 400 m (1/4 mile) under both day and night conditions. The letters shall be legible from 250 m (750 ft).

The sign shall include automatic dimming for nighttime operation and a power supply capable of providing 24 hours of uninterrupted service.

The Contractor shall provide all preventive maintenance efforts s(he) deems necessary to achieve uninterrupted service. If service is interrupted for any cause and not restored within 24 hours, the Engineer will 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 the Contractor.

When the sign(s) are displaying messages, they shall be considered a traffic control device. At all times when no message is displayed, they shall be considered equipment.

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 Standard.

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.

80124

**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."

80139

## 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"."

80083

## 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.

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**Public Convenience and Safety (BDE)**

Effective: January 1, 2000

Add the following paragraph after the fourth paragraph of Article 107.09 of the Standard Specifications.

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

80015

## 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 / Conglomerate | Conglomerate "D" 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.

80011

## 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:

| Ingredient | Percent by Dry Weight |
|---|---|
| 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:

| Ingredient | Percent by Dry Weight |
|---|---|
| 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 seives:<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<br><br>Bulk Specific Gravity of Gyratory Sample<br><br>Maximum Specific Gravity of Mixture | <br><br>1 per day<br><br>1 per 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 1.6, 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"."

80070

**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."

80086

## SUPERPAVE BITUMINOUS CONCRETE MIXTURE IL-4.75 (BDE)

Effective: November 1, 2004

Description. This work shall consist of constructing bituminous concrete surface course or leveling binder with a Superpave, IL-4.75 mixture. Work shall be 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) Fine Aggregate. The fine aggregate shall be at least 50 percent manufactured sand meeting FA 20 gradation. The manufactured sand shall be stone sand, slag sand, steel slag sand, or combinations thereof. When used as leveling binder, steel slag sand will not be permitted.

The fine aggregate quality shall be Class B. The total minus 75 μm (No. 200) material in the mixture shall be free from organic impurities.

(b) Reclaimed Asphalt Pavement (RAP). RAP will not be permitted.

(c) Bituminous Material. The asphalt cement (AC) shall conform to Article 1009.05 of the Standard Specifications for SBS PG76-28 or SBR PG76-28, except the elastic recovery shall be a minimum of 80.

The AC shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. It shall be placed in an empty tank and not blended with other asphalt cements.

(d) Mineral Filler. Mineral filler shall conform to the requirements of Article 1011.01 of the Standard Specifications, except it shall not be collected dust.

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 PP 2 Standard Practice for Short and Long Term Aging of Hot Mix Asphalt (HMA)

AASHTO PP 19 Standard Practice for Volumetric Analysis of Compacted 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 305 Standard Method of Test for Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures.

AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

(a) Mixture Composition. The job mix formula (JMF) shall conform to the following:

| Sieve | Percent Passing |
|---|---|
| 12.5 mm (1/2 in.) | 100 |
| 9.5 mm (3/8 in.) | 100 |
| 4.75 mm (No. 4) | 90-100 |
| 2.36 mm (No. 8) | 70-90 |
| 1.18 mm (No. 16) | 50-65 |
| 600 µm (No. 30) | 35-55 |
| 300 µm (No. 50) | 15-30 |
| 150 µm (No. 100) | 10-18 |
| 75 µm (No. 200) | 8-10 |
| | |
| AC Content | 8% to 10% |

(b) Volumetric Requirements.

| Volumetric Parameter | Requirement |
|---|---|
| Design Air Voids | 2.5 % at Ndesign 50 |
| Voids in the Mineral Aggregate (VMA) | 19.0% minimum |
| Voids Filled with Asphalt (VFA) | 87-95% |
| Maximum Draindown | 0.3% |

(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. 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 for 4 in. specimens or 0.85 for 6 in. specimens. Mixtures having TSRs less than these, either with or without an additive, will be considered unacceptable.

When 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.

Mixture Production. Plant modifications may be required to accommodate the addition of higher percentages of mineral filler as required by the JMF.

During production, mineral filler shall not be stored in the same silo as collected dust. This may require the wasting of any previously collected baghouse fines prior to production of the IL-4.75 mixture. Only dust collected during the production of IL-4.75 may be returned directly to the IL-4.75 mixture. Any additional minus 75 µm (No. 200) material needed to produce the IL-4.75 shall be mineral filler.

The mixture shall be produced within the temperature range recommended by the asphalt cement producer; but not less than 155 °C (310 °F).

The amount of moisture remaining in the finished mixture shall be less than 0.3 percent based on the weight of the test sample after drying.

Mixtures containing steel slag sand or aggregate having absorptions ≥ 2.5 percent shall have a silo storage plus haul time of not less than 1.5 hours.

Control Charts/Limits. Control charts/limits and testing frequency shall be according to QC/QA requirements for Class I mixtures except as follows:

| Parameter | Individual Test | Moving Average |
|---|---|---|
| % Passing | | |
| 1.18 mm (No. 16) | ± 4% | ± 3% |
| 75 μm mm (No. 200) | ± 1.0% | ± 0.8% |
| Asphalt Content | ± 0.2% | ± 0.1% |
| Air Voids | ± 1.0% (of design) | ± 0.8% (of design) |
| Density | 93.5 - 97.4% | |

## CONSTRUCTION REQUIREMENTS

Placement. The mixture shall be placed on a dry, clean surface when the air temperature in the shade is 10 °C (50 °F) or above. The mixture temperature shall be 155 °C (310 °F) or above and shall be measured in the truck just prior to placement.

When used as leveling binder, the mixture shall be overlayed within five days of being placed.

Lift Thickness.

(a) Surface Course. The minimum and maximum compacted lift thickness for the IL-4.75 mixture shall be 19 mm (3/4 in.) and 32 mm (1 1/4 in.) respectively.

(b) Leveling Binder. Density requirements for IL-4.75 mixture shall apply when the nominal , compacted thickness is 19 mm (3/4 in.) or greater.

Compaction. The compaction operation shall start immediately after the mixture has been placed. The Contractor shall provide a minimum of two steel-wheeled tandem rollers for breakdown ($T_B$) and one finish steel-wheeled roller ($T_F$) meeting the requirements of Article 406.16(a) and 1101.01(e) of the Standard Specifications except the minimum compression for all of the rollers shall be 49 N/mm (280 lb/in.) of roller width. Pneumatic-tired and vibratory rollers will not be permitted.

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for POLYMERIZED LEVELING BINDER (MACHINE METHOD), SUPERPAVE, IL-4.75, N50; and POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, IL-4.75, N50.

## 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 Ndesign $\geq$ 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)[1/] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sieve Size | IL-25.0 mm | | IL-19.0 mm | | IL-12.5 mm[4/] | | IL-9.5 mm[4/] | |
| | 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[2/] | 24 | 50[2/] | 28 | 65 | 28 | 65 |
| 2.36 mm (#8) | 16 | 31 | 20 | 36 | 28 | 48[3/] | 28 | 48[3/] |
| 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 μm (#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.

**TABLE 2. VOLUMETRIC REQUIREMENTS**

| | Voids in the Mineral Aggregate (VMA), % minimum | | | | Voids Filled with Asphalt (VFA), % |
|---|---|---|---|---|---|
| Ndesign | IL-25.0 | IL-19.0 | IL-12.5 | IL-9.5 | |
| 50 | 12.0 | 13.0 | 14.0 | 15 | 65 - 78 |
| 70 | | | | | 65 - 75 |
| 90 | | | | | |
| 105 | | | | | |

(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) | Illinois Modified AASHTO T 312 |
| | 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:

| TABLE 4 – MINIMUM COMPACTED LIFT THICKNESS | |
|---|---|
| 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:

| TABLE 5 – LEVELING BINDER | |
|---|---|
| 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:

| TABLE 6. DENSITY CONTROL LIMITS | | |
|---|---|---|
| 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.

80010

## 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."

80087

## 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.

5729I

**TRAINING SPECIAL PROVISIONS (BDE)** This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 2 . In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather then clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

20338

## 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 bn' 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)" |

80107m

## WEIGHT CONTROL DEFICIENCY DEDUCTION (BDE)

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:

$$A = 1.0 - \left(\frac{B-C}{B}\right); \text{ Where } A \le 1.0; \left(\frac{B-C}{C}\right) > 0.50\% \text{ (0.70\% for aggregates)}$$

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:

Adjusted Net Weight = A x 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.

80048

## 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.

80097

**WORKING DAYS (BDE)**

Effective: January 1, 2002

The Contractor shall complete the work within * working days.

80071

* June 15, 2006 plus 10 working days

# REQUIRED CONTRACT PROVISIONS
# FEDERAL-AID CONSTRUCTION CONTRACTS



## I. GENERAL

1. These contract provisions shall apply to all word performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4 and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

a. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

## II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60 (and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job-training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above

agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employees referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish which such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to

the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or quailifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

**III. NONSEGREGATED FACILITIES**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term “segregated facilities” means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

**IV. PAYMENT OF PREDETERMINED MINIMUM WAGE**

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter “the wage determination”) which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the

contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or



disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the question, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advised the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any cost reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not

be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which cases such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:
Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV. 2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainee's and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall; upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

**V. STATEMENTS AND PAYROLLS**

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period).

The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V.

This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all suncontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U/S. C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for

inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

**VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR**

1. On all federal-aid contracts on the national highway system, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on /Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

**VII. SUBLETTING OR ASSIGNING THE CONTRACT**

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in he 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 form 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 an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible,""lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded from Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Primary Covered Transactions**

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**2. Instructions for Certification - Lower Tier Covered Transactions**:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tie participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealing.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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**Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion-Lower Tier Covered Transactions**:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

**MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS**

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision

**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.