



MDOT ENGLISH

- Warranty
- Preventative Maintenance
- Exempt: N
- NHS: Y
- DBE/Percent

ITEM NUMBER

0710 004

**STATE OF MICHIGAN DEPARTMENT OF TRANSPORTATION
PROPOSAL**

0.28 mi of bridge replacement widening, hot mix asphalt paving, culverts, concrete curb and gutter, and guardrail on Parkview Avenue over US-131, Kalamazoo County.

BIDS WILL BE ELECTRONICALLY DOWNLOADED AT 10:30 A.M. LOCAL TIME, ON 10/5/2007

AT: VANWAGONER BLDG, 1ST FLR ONE WEST CONF, 425 W. OTTAWA ST., LANSING, MI 48933

| <u>CONTRACT ID</u> | <u>CONTROL SECTION</u> | <u>PROJECT</u> | <u>FEDERAL NO.</u> | <u>FED. ITEM</u> |
|--------------------|------------------------|----------------|--------------------|------------------|
| 39014-81325 | BRN 39014 | 81325A | BRN 0739(039) | RR6069 |

The bidder has examined the plans, specifications, special provisions, addenda, and related materials in the proposal, as well as the location of the work described in the proposal for this project and is fully informed as to the nature of the work and the conditions relating to its performance and understands that the quantities shown are approximate only and are subject to either increase or decrease.

The bidder hereby proposes to furnish all necessary machinery, tools, apparatus, and other means of construction, do all the work, furnish all the materials except as otherwise specified and, for each unit price, lump sum, or one each named in the itemized bid, to complete the work in strict conformity with the plans therefore and the entire proposal which is incorporated by reference in these pages, and in strict conformity with the requirements of the 2003 Standard Specifications for Construction, Michigan Department of Transportation and such other special provisions and supplemental specifications as may be a part of the proposal for this project.

The bidder further proposes to do such extra work as may be authorized by the Department, prices for which are not included in the itemized bid. Compensation shall be made on the basis agreed upon before such extra work begins.

**NOT FOR
BIDDING
PURPOSES**

The bidder hereby certifies that if it is not prequalified in all classifications required by the advertisement for this project, it has taken such preparatory steps as may be necessary and will within the time specified in Subsection 102.15 of the 2003 Standard Specifications for Construction, designate subcontractor(s) that are fully prequalified in the classification(s) to perform the work.

THE BIDDER UNDERSTANDS AND AGREES THAT THE DEPARTMENT RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS AND NO CONTRACTUAL RELATIONSHIP SHALL EXIST BETWEEN THE BIDDER AND THE DEPARTMENT FOR THE WORK DESCRIBED HEREIN. SUCH TERMS AS A CONTRACT DOCUMENT FORM NO. 101 HAS BEEN FORMALLY EXECUTED BY BOTH THE BIDDER AND THE DEPARTMENT.

The bidder agrees upon submitting this bid that its agents, officers or employees have not directly or indirectly entered into any agreements, participated in any collusion or otherwise taken any action in restraint of the competitive bidding in connection with this proposal for the above project.

Unless the bidder gives MDOT advance written notice MDOT may correspond directly with the insurance agencies concerning questions and problems with insurance certificates, bonds and related materials. It is the obligation of the bidder to monitor the filing of the insurance certificates, bond, and related materials with MDOT and the bidder is responsible for any failure to provide MDOT with the required materials, on a timely basis and in proper form.

Subject to Subsection 102.17 of the 2003 Standard Specifications for Construction, the bidder agrees to pay to the Michigan Department of Transportation the proposal guaranty sum of \$50,000.00 if the bidder fails to provide the required materials and/or execute the contract in accordance with Subsection 102.15 of the 2003 Standard Specifications for Construction within twenty-eight (28) days after being furnished with the necessary contract and bond forms. The Department may, upon request by the bidder based on valid considerations and made prior to expiration of the twenty-eight (28) day period, extend said period of time as the Department may deem appropriate. A written request for return, or cancellation, of the proposal guaranty under Subsection 102.17 of the 2003 Standard Specifications for Construction must be filed with the Department within fifteen (15) days after mailing by the Department of notice that the proposal guaranty is being forfeited. Upon an adverse decision by the Committee or failure to file a timely request for return, or cancellation, of the proposal guaranty, payment shall be made within 20 days after the mailing by the Department of a Final Demand for Payment. If payment is not made within 20 days, the bidder hereby authorizes the Department to withhold said sum from any money which may now, or hereafter, become due and owing by the Department to the bidder.

Kalamazoo TSC

BIDDER INFORMATION

Electronic Bid – consists of Schedule of Items folder and Miscellaneous Data folder. Miscellaneous Data folder contains information regarding the Schedule of Items, Proposal Guaranty, and Designated and Specialty Items.

All Unit Price or LUMP (sum) entries made in the Schedule of Items by the Bidder in the “Unit Price” column must be prepared in accordance with the Special Provision for Electronic Bidding, which is a part of the proposal.

Refer to paragraph eight on the front cover of the proposal, or to the Miscellaneous Data folder in the electronic bid, for the language explaining the proposal guaranty.

Completed bids must be submitted electronically by the 10:30 a.m. deadline on the morning of the letting. Bids cannot be submitted after the 10:30 a.m. letting day deadline.

NOTE: *Any financial or propriety information submitted in response to the bid will become a public record subject to disclosure under the Freedom of Information Act. THE INFORMATION WILL NOT BE TREATED AS CONFIDENTIAL.*

The bid of the apparent low bidder will be reviewed for discrepancies until a bid meeting all requirements is found.

THE RIGHT IS RESERVED TO REJECT ANY OR ALL BIDS

Revised 1/13/06

SCHEDULE OF ITEMS

REVISED:

CONTRACT ID: 39014-81325
 LETTING : 071005
 CALL : 004

PROJECT(S): 81325A

CONTRACTOR : _____

| LINE NO | ITEM DESCRIPTION | APPROX. QUANTITY AND UNITS | UNIT PRICE | | BID AMOUNT | |
|---------|------------------|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |

SECTION 0001 Road Work

IMPORTANT NOTICE:

If the proposal establishes a maximum price for any of the following work items, and if you bid a price higher than that maximum price, your bid will be considered to have quoted the maximum price and your bid total will be adjusted to reflect that maximum price.

If the proposal provides a specified price for any of the following work items, and if you bid a price higher or lower than that specified price, your bid will be considered to have quoted the specified price and your bid total will be adjusted to reflect that specified price.

If your bid is the lowest accepted bid, and if you refuse to accept the award of the contract due to the change in what you quoted as a maximum or specified price, you will forfeit your proposal guaranty.

| | | | | | | |
|------|--|------|--------|---|--|---|
| 0010 | 1000001 Mobilization, Max. _____ \$263200.00 | LUMP | LUMP | | | . |
| 0020 | 1040001 Contractor Staking | LUMP | LUMP | | | . |
| 0030 | 1040020 Staking Plan Errors and Extras, One Person | Hr | 26.000 | . | | . |
| 0040 | 1040021 Staking Plan Errors and Extras, Two Person | Hr | 15.000 | . | | . |
| 0050 | 1040022 Staking Plan Errors and Extras, Three Person | Hr | 10.000 | . | | . |
| 0060 | 2010001 Clearing | Acre | 0.090 | . | | . |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0070 | 2020004 Tree, Rem, 6 inch to 18 inch | 3.000 Ea | . | | . | |
| 0080 | 2030001 Culv, Rem, Less than 24 inch | 5.000 Ea | . | | . | |
| 0090 | 2030005 Culv End, Rem, Less than 24 inch | 2.000 Ea | . | | . | |
| 0100 | 2040006 Curb and Gutter, Rem | 220.000 Ft | . | | . | |
| 0110 | 2040008 Guardrail, Rem | 2,405.000 Ft | . | | . | |
| 0120 | 2040009 Fence, Rem | 1,040.000 Ft | . | | . | |
| 0130 | 2040010 Masonry and Conc Structure, Rem | 5.000 Cyd | . | | . | |
| 0140 | 2040035 Rem and Disposal of Asbestos Materials | 10,000.000 Dlr | 1.00000 | | 10000.00 | |
| 0150 | 2050010 Embankment, CIP | 12,800.000 Cyd | . | | . | |
| 0160 | 2050016 Excavation, Earth | 4,000.000 Cyd | . | | . | |
| 0170 | 2080002 Erosion Control, Check Dam, Stone | 25.000 Ft | . | | . | |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0180 | 2080025 Erosion Control, Silt Fence | 3,008.000 Ft | . | | . | |
| 0190 | 3010002 Subbase, CIP | 3,200.000 Cyd | . | | . | |
| 0200 | 3020016 Aggregate Base, 6 inch | 8,920.000 Syd | . | | . | |
| 0210 | 3070128 Shoulder, Cl II, 6 inch | 802.000 Syd | . | | . | |
| 0220 | 4010000 Culv, Cl A, 12 inch | 293.000 Ft | . | | . | |
| 0230 | 4010831 Culv End Sect, 12 inch | 9.000 Ea | . | | . | |
| 0240 | 4021275 Video Taping Sewer and Culv Pipe | 351.000 Ft | . | | . | |
| 0250 | 5020005 HMA Surface, Rem | 1,740.000 Syd | . | | . | |
| 0260 | 5020009 Edge Trimming | 1,754.000 Ft | . | | . | |
| 0270 | 5020031 HMA, 3C | 1,178.000 Ton | . | | . | |
| 0280 | 5020032 HMA, 4C | 709.000 Ton | . | | . | |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0290 | 5020061 HMA Approach | 138.000 Ton | . | | . | |
| 0300 | 5040005 HMA Quality Initiative | 160.000 Dlr | 1.00000 | | 160.00 | |
| 0310 | 8020010 Curb and Gutter, Bridge Approach | 120.000 Ft | . | | . | |
| 0320 | 8020016 Curb and Gutter, Conc, Det B2 | 211.000 Ft | . | | . | |
| 0330 | 8020056 Shoulder Gutter, Conc, Det 2 | 1.000 Ea | . | | . | |
| 0340 | 8020070 Downspout Header, Conc | 9.000 Ea | . | | . | |
| 0350 | 8020075 Spillway, Conc | 15.000 Ft | . | | . | |
| 0360 | 8050001 Curb, HMA | 2,470.000 Ft | . | | . | |
| 0370 | 8070000 Guardrail, Type B | 2,138.000 Ft | . | | . | |
| 0380 | 8070002 Guardrail, Type T | 425.000 Ft | . | | . | |
| 0390 | 8070023 Guardrail Anch, Bridge, Det T2 | 4.000 Ea | . | | . | |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0400 | 8070027 Guardrail Anch, Bridge, Det T6 | 2.000 Ea | . | | . | |
| 0410 | 8070041 Guardrail Approach Terminal, Type 1T | 4.000 Ea | . | | . | |
| 0420 | 8070042 Guardrail Approach Terminal, Type 2B | 4.000 Ea | . | | . | |
| 0430 | 8070051 Guardrail Departing Terminal, Type T | 2.000 Ea | . | | . | |
| 0440 | 8070080 Guardrail Reflector | 97.000 Ea | . | | . | |
| 0450 | 8080011 Fence, Chain Link, 48 inch | 1,223.000 Ft | . | | . | |
| 0460 | 8100156 Post, Steel, 3 lb | 186.000 Ft | . | | . | |
| 0470 | 8100177 Sign, Type IIIA | 7.000 Sft | . | | . | |
| 0480 | 8100180 Sign, Type IIB | 13.000 Sft | . | | . | |
| 0490 | 8100181 Sign, Type IIIB | 45.000 Sft | . | | . | |
| 0500 | 8100197 Sign, Type III, Erect, Salv | 5.000 Ea | . | | . | |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0510 | 8100201 Sign, Type II, Rem | 1.000 Ea | . | | . | |
| 0520 | 8100202 Sign, Type III, Rem | 11.000 Ea | . | | . | |
| 0530 | 8110015 Pavt Mrkg, Epoxy, 4 inch, White | 2,790.000 Ft | . | | . | |
| 0540 | 8110016 Pavt Mrkg, Epoxy, 4 inch, Yellow | 2,230.000 Ft | . | | . | |
| 0550 | 8110045 Pavt Mrkg, Ovly Cold Plastic, Lt Turn Arrow Sym | 2.000 Ea | . | | . | |
| 0560 | 8110050 Pavt Mrkg, Ovly Cold Plastic, Only | 4.000 Ea | . | | . | |
| 0570 | 8110052 Pavt Mrkg, Ovly Cold Plastic, Rt Turn Arrow Sym | 2.000 Ea | . | | . | |
| 0580 | 8110083 Pavt Mrkg, Sprayable Thermopl, 4 inch, White | 218.000 Ft | . | | . | |
| 0590 | 8110084 Pavt Mrkg, Sprayable Thermopl, 4 inch, Yellow | 3,500.000 Ft | . | | . | |
| 0600 | 8110087 Pavt Mrkg, Sprayable Thermopl, 6 inch, White | 2,820.000 Ft | . | | . | |
| 0610 | 8120005 Barricade, Type III, High Intensity, Lighted, Furn | 20.000 Ea | . | | . | |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0620 | 8120006 Barricade, Type III, High Intensity, Lighted, Oper | 20.000 Ea | . | | . | |
| 0630 | 8120016 Conc Barrier, Temp, Furn | 1,300.000 Ft | . | | . | |
| 0640 | 8120017 Conc Barrier, Temp, Oper | 1,300.000 Ft | . | | . | |
| 0650 | 8120030 Flag Control | LUMP | LUMP | | . | |
| 0660 | 8120035 High Intensity Light, Type B, Furn | 4.000 Ea | . | | . | |
| 0670 | 8120036 High Intensity Light, Type B, Oper | 4.000 Ea | . | | . | |
| 0680 | 8120050 Minor Traf Devices | LUMP | LUMP | | . | |
| 0690 | 8120077 Pavt Mrkg, Longit, 6 inch or Less Width, Rem | 5,020.000 Ft | . | | . | |
| 0700 | 8120090 Pavt Mrkg, Type R, 4 inch, White, Temp | 4,190.000 Ft | . | | . | |
| 0710 | 8120091 Pavt Mrkg, Type R, 4 inch, Yellow, Temp | 1,120.000 Ft | . | | . | |
| 0720 | 8120102 Plastic Drum, High Intensity, Lighted, Furn | 110.000 Ea | . | | . | |

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|---------|---|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0730 | 8120103 Plastic Drum, High Intensity, Lighted, Oper | 110.000 Ea | . | | . | |
| 0740 | 8120110 Sign, Portable, Changeable Message, Furn | 4.000 Ea | . | | . | |
| 0750 | 8120111 Sign, Portable, Changeable Message, Oper | 4.000 Ea | . | | . | |
| 0760 | 8120120 Sign, Type B, Temp, Furn | 1,676.000 Sft | . | | . | |
| 0770 | 8120121 Sign, Type B, Temp, Oper | 1,676.000 Sft | . | | . | |
| 0780 | 8120142 Truck Mounted Attenuator | 2.000 Ea | . | | . | |
| 0790 | 8120153 Ltg for Night Work | LUMP | LUMP | | . | |
| 0800 | 8127050 _ Temp Attenuator, Furn | 4.000 Ea | . | | . | |
| 0810 | 8127050 _ Temp Attenuator, Oper | 4.000 Ea | . | | . | |
| 0820 | 8130010 Riprap, Plain | 36.000 Syd | . | | . | |
| 0830 | 8160053 Slope Restoration, Type C | 10,113.000 Syd | . | | . | |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0840 | 8507051 _ Wrapping Culvert and Sewer Joints | LUMP | LUMP | | | . |
| | SECTION 0001 TOTAL | | | | | . |

SECTION 0002 Bridge Work

| | | | | | | |
|------|--|------|-----------|---|--|---|
| 0850 | 2040020 Structures, Rem (S01 of 39014) | LUMP | LUMP | | | . |
| 0860 | 2060002 Backfill, Structure, CIP | Cyd | 1,943.000 | . | | . |
| 0870 | 2060010 Excavation, Fdn | Cyd | 1,640.000 | . | | . |
| 0880 | 4010402 Culv, Cl A, CSP, 18 inch | Ft | 160.000 | . | | . |
| 0890 | 4010862 Culv End Sect, Metal, 18 inch | Ea | 2.000 | . | | . |
| 0900 | 4040031 Underdrain, Fdn, 4 inch | Ft | 448.000 | . | | . |
| 0910 | 4040111 Underdrain, Outlet Ending, 4 inch | Ea | 8.000 | . | | . |
| 0920 | 5020057 HMA, 5E3 | Ton | 160.000 | . | | . |

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 CALL : 004

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 0930 | 7040002 Steel Sheet Piling, Temp | 889.000 Sft | . | | . | |
| 0940 | 7050002 Pile Driving Equipment, Furn (S01 of 39014) | LUMP | LUMP | | . | |
| 0950 | 7050030 Pile, Steel, Furn and Driven, 12 inch | 1,488.000 Ft | . | | . | |
| 0960 | 7050031 Test Pile, Steel, 12 inch | 4.000 Ea | . | | . | |
| 0970 | 7050039 Pile Point, Steel | 32.000 Ea | . | | . | |
| 0980 | 7060008 Conc Quality Assurance, Structure | 551.000 Cyd | . | | . | |
| 0990 | 7060010 Substructure Conc | 335.000 Cyd | . | | . | |
| 1000 | 7060020 Superstructure Conc | 172.000 Cyd | . | | . | |
| 1010 | 7060022 Superstructure Conc, Form, Finish, and Cure (S01 of 39014) | LUMP | LUMP | | . | |
| 1020 | 7060025 Conc Surface Coating (S01 of 39014) | LUMP | LUMP | | . | |
| 1030 | 7060031 Expansion Joint Device | 116.000 Ft | . | | . | |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 1040 | 7060032 False Decking | 8,486.000 Sft | . | . | . | . |
| 1050 | 7060034 Reinforcement, Steel | 26,108.000 Lb | . | . | . | . |
| 1060 | 7060035 Reinforcement, Steel, Epoxy Coated | 30,443.000 Lb | . | . | . | . |
| 1070 | 7067010 _ Precast Conc Deck Panel | 13,115.000 Sft | . | . | . | . |
| 1080 | 7067011 _ Texturing Conc | 112.000 Syd | . | . | . | . |
| 1090 | 7067021 _ Precast Conc Substructure, Abutment | 110.000 Cyd | . | . | . | . |
| 1100 | 7067021 _ Precast Conc Substructure, Pier | 144.000 Cyd | . | . | . | . |
| 1110 | 7067021 _ Superstructure Conc - Special | 14.000 Cyd | . | . | . | . |
| 1120 | 7067051 _ Deck Post-Tensioning | LUMP | LUMP | . | . | . |
| 1130 | 7067051 _ Precast Deck Panel Instrumentation and Data Collection | LUMP | LUMP | . | . | . |
| 1140 | 7067051 _ Superstructure Conc - Special, Form, Finish, and Cure | LUMP | LUMP | . | . | . |

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|---------|--|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 1150 | 7070001 Structural Steel, Rolled Shape, Furn and Fab | 4,898.000 Lb | . | . | . | . |
| 1160 | 7070002 Structural Steel, Rolled Shape, Erect | 4,898.000 Lb | . | . | . | . |
| 1170 | 7070069 Bearing, Elastomeric, 2 inch | 30.000 Sft | . | . | . | . |
| 1180 | 7070071 Bearing, Elastomeric, 2 1/2 inch | 140.000 Sft | . | . | . | . |
| 1190 | 7080029 Prest Conc I Beam, Furn, 45 inch | 1,711.000 Ft | . | . | . | . |
| 1200 | 7080030 Prest Conc I Beam, Erect, 45 inch | 1,711.000 Ft | . | . | . | . |
| 1210 | 7100003 Joint Waterproofing, Expansion | 189.000 Sft | . | . | . | . |
| 1220 | 7100008 Membrane, Preformed Waterproofing | 13,140.000 Sft | . | . | . | . |
| 1230 | 7110005 Bridge Railing, Aesthetic Parapet Tube | 477.000 Ft | . | . | . | . |
| 1240 | 7120087 Filler Wall Conc | 29.000 Cyd | . | . | . | . |
| 1250 | 7160001 Field Repr of Damaged Coating (S01 of 39014) | LUMP | LUMP | . | . | . |

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|---------|---|----------------------------|------------|-----|------------|-----|
| | | | DOLLARS | CTS | DOLLARS | CTS |
| 1260 | 8100006 Bridge Sign Connection, Conc, Type C | 1.000 Ea | . | | . | |
| 1270 | 8100195 Sign, Type I, Erect, Salv | 1.000 Ea | . | | . | |
| 1280 | 8100200 Sign, Type I, Rem | 1.000 Ea | . | | . | |
| 1290 | 8100320 Bridge Sign Connection, Conc, Type A1 | 2.000 Ea | . | | . | |
| 1300 | 8130015 Slope Paving Header | 182.000 Ft | . | | . | |
| 1310 | 8130020 Slope Paving, Conc | 510.000 Syd | . | | . | |
| 1320 | 8190108 Conduit, Galv Steel, 2 inch | 498.000 Ft | . | | . | |
| 1330 | 8190246 Hh, Heavy Duty Cover | 2.000 Ea | . | | . | |
| | SECTION 0002 TOTAL | | | | . | |
| | TOTAL BID | | | | . | |

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CONTROL SECTION

JOB NUMBER

MICHIGAN PROJECT

LOCATION

TYPE OF WORK

DESCRIPTION

AGREEMENT(S)

AGREEMENT NUMBER(S)

Letting of: October 05, 2007

Notice of Advertisement

10:30 A.M. , Local Time VANWAGONER BLDG, 1ST FLR ONE WEST CONF
425 W. OTTAWA ST., LANSING, MI 48933

| ITEM NO | CONTRACT ID | CONTROL | SEC. | JOB NO. | FEDERAL NO. | FED ITEM | |
|---------|-------------|-------------|------|---------|-------------|---------------|--------|
| 0710 | 004 | 39014-81325 | BRN | 39014 | 81325A | BRN 0739(039) | RR6069 |

0.28 mi of bridge replacement widening, hot mix asphalt paving, culverts, concrete curb and gutter, and guardrail on Parkview Avenue over US-131, Kalamazoo County.

0.00 % DBE PARTICIPATION REQUIRED

Net classification required for this project is
2762 Fa

A mandatory pre-bid meeting will be held at 9:00 a.m. on September 17, 2007, at the Kalamazoo TSC, located at 5372 South 9th Street, Kalamazoo, MI 49009. All prospective bidders must attend in order to be considered eligible to bid.

Estimated pages for plans: 63

See proposal for bidder guaranty information. Completion date is 07/25/08

Plans are available for examination online at
<http://mdotwas1.mdot.state.mi.us/public/eprop/login/>

Dated: 08/27/07

GENERAL REQUIREMENTS FOR RECIPIENTS

Excerpts from USDOT Regulation 49 CFR, Part 26

A. **26.5 What Do The Terms Used In This Part Mean? *(Replaces 23.5 and 23.62)**

Insert the following portions:

Disadvantaged Business Enterprise or DBE means a for-profit small business concern—

(1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and

(2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

Small Business Concern means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in Sec. 26.65(b).

Socially and economically disadvantaged individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is-

(1) Any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis.

(2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(i) “Black Americans,” which includes persons having origins in any of the Black racial groups of Africa;

(ii) “Hispanic Americans,” which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(iii) “Native Americans,” which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

(iv) “Asian-Pacific Americans,” which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(v) “Subcontinent Asian Americans,” which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

(vi) Women;

(vii) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

Tribally-owned concern means any concern at least 51 percent owned by an Indian tribe as defined in this section.

You refers to a recipient, unless a statement in the text of this part or the context requires otherwise (i.e., ‘You must do XYZ’ means that recipients must do XYZ).

B. **26.1 What are the Objectives of this Part? *(Replaces 23.43)**

This part seeks to achieve several objectives:

(a) To ensure nondiscrimination in the award and administration of DOT-assisted contracts in the Department’s highway, transit, and airport financial assistance programs;

(b) To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;

(c) To ensure that the Department's DBE program is narrowly tailored in accordance with applicable law;

- (d) To ensure that only firms that fully meet this part's eligibility standards are permitted to participate as DBEs;
- (e) To help remove barriers to the participation of DBEs in DOT- assisted contracts;
- (f) To assist the development of firms that can compete successfully in the marketplace outside the DBE program; and
- (g) To provide appropriate flexibility to recipients of Federal financial assistance in establishing and providing opportunities for DBEs.

26.3 To Whom Does this Part Apply? **(Replaces 23.43)*

- (a) If you are a recipient of any of the following types of funds, this part applies to you:
 - (1) Federal-aid highway funds authorized under Titles I (other than Part B) and V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), Pub. L. 102-240, 105 Stat. 1914, or Titles I, III, and V of the Transportation Equity Act for the 21st Century (TEA-21), Pub. L. 105-178, 112 Stat. 107.
 - (2) Federal transit funds authorized by Titles I, III, V and VI of ISTEA, Pub. L. 102-240 or by Federal transit laws in Title 49, U.S. Code, or Titles I, III, and V of the TEA-21, Pub. L. 105-178.
 - (3) Airport funds authorized by 49 U.S.C. 47101, et seq.
- (b) [Reserved]
- (c) If you are letting a contract, and that contract is to be performed entirely outside the United States, its territories and possessions, Puerto Rico, Guam, or the Northern Marianas Islands, this part does not apply to the contract.
- (d) If you are letting a contract in which DOT financial assistance does not participate, this part does not apply to the contract.

26.13 What Assurances Must Recipients and Contractors Make? **(Replaces 23.43)*

- (a) Each financial assistance agreement you sign with a DOT operating administration (or a primary recipient) must include the following assurance:

The recipient shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR part 26. The recipient shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 et seq.).

- (b) Each contract you sign with a contractor (and each subcontract the prime contractor signs with a subcontractor) must include the following assurance:

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT- assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

C. 26.55 How is DBE Participation Counted Toward Goals? **(Replaces 23.47)*

- (a) When a DBE participates in a contract, you count only the value of the work actually performed by the DBE toward DBE goals.

(1) Count the entire amount of that portion of a construction contract (or other contract not covered by paragraph (a)(2) of this section) that is performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).

(2) Count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, toward DBE goals, provided you determine the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.

(3) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.

(b) When a DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.

(c) Count expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract.

(1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, you must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

(2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, you must examine similar transactions, particularly those in which DBEs do not participate.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, you must presume that it is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (c)(3) of this section, the DBE may present evidence to rebut this presumption. You may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

(5) Your decisions on commercially useful function matters are subject to review by the concerned operating administration, but are not administratively appealable to DOT.

(d) Use the following factors in determining whether a DBE trucking company is performing a commercially useful function:

(1) The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(5) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.

(6) For purposes of this paragraph (d), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

(e) Count expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:

(1)(i) If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this paragraph (e)(1), a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

(2)(i) If the materials or supplies are purchased from a DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(A) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

(B) A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in this paragraph (e)(2)(ii) if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.

(C) Packers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph (e)(2).

(3) With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided you determine the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals, however.

(f) If a firm is not currently certified as a DBE in accordance with the standards of subpart D of this part at the time of the execution of the contract, do not count the firm's participation toward any DBE goals, except as provided for in Sec. 26.87(i).

(g) Do not count the dollar value of work performed under a contract with a firm after it has ceased to be certified toward your overall goal.

(h) Do not count the participation of a DBE subcontractor toward the prime contractor's DBE achievements or your overall goal until the amount being counted toward the goal has been paid to the DBE.

PRIME CONTRACTOR STATEMENT OF DBE SUBCONTRACTOR PAYMENTS

Information required in accordance with 49 CFR part 26.37 (as detailed in the prompt payment provisions) to monitor the progress of the prime contractor in meeting contractual DBE obligations.

SEE INSTRUCTIONS ON REVERSE

| | | | |
|------------------|--------------|----------------|-------------|
| PRIME CONTRACTOR | LETTING DATE | LETTING ITEM # | CONTRACT ID |
|------------------|--------------|----------------|-------------|

PERIOD COVERED:

| | | |
|--|--|---|
| <input type="checkbox"/> 1st Quarter (October 1 - December 31, 20____) | <input type="checkbox"/> 3rd Quarter (April 1 - June 30, 20____) | <input type="checkbox"/> PROJECT COMPLETION |
| <input type="checkbox"/> 2nd Quarter (January 1 - March 31, 20____) | <input type="checkbox"/> 4th Quarter (July 1 - September 30, 20____) | <input type="checkbox"/> FINAL ESTIMATE |

| CERTIFIED DBE SUBCONTRACTOR | SERVICES/WORK CLASSIFICATION | TOTAL CONTRACT AMOUNT | CUMULATIVE DOLLAR VALUE OF SERVICES COMPLETED | DEDUCTIONS | ACTUAL AMOUNT PAID TO DATE | DBE AUTHORIZED SIGNATURE | DATE |
|--------------------------------|---------------------------------|-----------------------------|--|------------|----------------------------------|-----------------------------|------|
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As the authorized representative of the above prime contractor, I state that, to the best of my knowledge, this information is true and accurate.

| | | |
|---|-------|------|
| CONTRACTORS AUTHORIZED REPRESENTATIVE (Signature) | TITLE | DATE |
|---|-------|------|

FOR MICHIGAN DEPARTMENT OF TRANSPORTATION USE ONLY

COMMENTS:

| | |
|---------------------------------------|------|
| RESIDENT/PROJECT ENGINEER (Signature) | DATE |
|---------------------------------------|------|

INSTRUCTIONS

PRIME CONTRACTOR or AUTHORIZED REPRESENTATIVE:

This statement reports the actual dollar amounts of the project cost earned by and paid to the DBE subcontractor. Complete and submit to the Resident/Project Engineer within 20 days of the end of the quarter, 60 days after project completion, and 20 days after the engineer's submission of the final payment estimate.

For "*Letting Date*", "*Letting Item #*", and "*Contract ID*", use the numbers assigned by MDOT.

For "*Services/Work Classification*", report services performed by the subcontractor, listed by code, as described in Rule 51 of the Administrative Rule governing prequalifications of Bidders for Highway and Transportation Construction Work.

For "*Contract Amount*", report total amount of the contract between the prime contractor and the DBE subcontractor, trucker, or supplier.

For "*Deductions*", report deductions made by the prime contractor to the subcontractor's Cumulative Dollar Value of Services Completed for retainage, bond or other fees, materials, services or equipment provided to the subcontractor according to mutual, prior agreement (documentation of such agreement may be required by MDOT).

For "*Actual Amount Paid to Date*", report cumulative actual payments made to the subcontractor for services completed.

Provide "*DBE Authorized Signature*" for project completion reports only.

Be sure to sign, title and date this statement.

MDOT RESIDENT/PROJECT ENGINEER:

Please complete the "*Comments*" area, sign, date and forward within 7 days of receipt from the prime contractor to:

MDOT Office of Business Development
P.O. Box 30050
Lansing, Michigan 48909
Questions about this form? call Toll-free, 1-866-DBE-1264

ADMINISTRATIVE BOARD RESOLUTION (2005-2)

OF

MAY 1, 1979

(As amended on December 2, 1980; April 7, 1981;
August 18, 1981; May 15, 1984; April 7, 1987;
December 15, 1987; January 5, 1988; May 2, 1989;
September 13, 1996; July 3, 2001; January 18, 2005 and **November 15, 2005**)

**DEPARTMENT OF TRANSPORTATION
CONSTRUCTION AND MAINTENANCE CONTRACTS**

WHEREAS, pursuant to MCL 17.3 and MCL 250.62, the State Administrative Board adopted a resolution on May 1, 1979 to establish certain procedures to be followed in connection with contracts of the Michigan Department of Transportation (Department) for railroad projects and for the construction, improvement, and maintenance of state trunk line highways; and

WHEREAS, that resolution has been modified several times, the last revision having been made by the State Administrative Board January 18, 2005; and

WHEREAS, it is in the public interest to again modify the resolution to eliminate the mandate for retention funds, allowing the Department to use retention funds or other contractual controls at its discretion; and, to make additional revisions and editorial clarifications;

THEREFORE, BE IT RESOLVED by the State Administrative Board of the State of Michigan (Board) as follows:

1. The Department, without obtaining the approval of this Board, in connection with any construction, improvement, or maintenance contract, may contract for extra work or labor, or both, not exceeding \$48,000.00 per contract for contracts having a value of \$800,000.00 or less and not exceeding 6% per contract for contracts having a value over \$800,000.00 under a contract with a private agency authorized by law, and for an amount not exceeding \$800,000.00 under a contract with Boards of County Road Commissioners, Township Boards, and Municipalities of this State, except that each job for extra or additional work or labor, or both, in excess of \$100,000.00 shall require approval of the State Administrative Board.

2. Pursuant to applicable Public Acts, the Department, without obtaining the approval of this Board, is authorized to contract for an amount not exceeding \$25,000.00 for each contract for toilet vault cleaning, use of licensed sanitary landfills, pickup and disposal of refuse, pavement surfacing and patching, rental of equipment for emergency repairs and maintenance operations, curb replacement, maintenance of office equipment, installation of utility services and installation of traffic control devices and, without such approval, may authorize Boards of County Road Commissioners, Township Boards, and Municipalities, under contracts for the maintenance of trunkline highways, to subcontract in amounts not to exceed \$25,000.00 for each subcontract;
3. All agreements by the Department to pay for extra work on either a negotiated price or force account basis in excess of the amounts shown in paragraph 1 must be approved by the Board, after having been approved by the Attorney General as being in compliance with all legal requirements.
4. No extra work which may cause an increase in the contract price in excess of the amount shown in paragraph 1 may be authorized by the Department without prior approval of the Attorney General, and Board, unless extra work costing not more than \$25,000.00 is authorized as necessary to avoid construction delays or increased costs.
5. Department authorizations for extra work, requiring Board approval, given prior to Board approval shall be presented to the Board for subsequent approval or disapproval as quickly as possible, but in no case more than 60 days after the extra work has been authorized by the Department.
6. The Department shall not pay nor agree to pay any disputed claim for extra compensation for work already commenced or completed without approval of the Board.
7. No payments for extra work requiring Board approval shall be made until such Board approval has been obtained.
8. The Department is authorized to balance budgets for extra work recommendations or authorizations previously approved by the Board, by decreasing, in any amount, or increasing, not in excess of 15 percent, the original estimated amount without additional approval by this Board.
9. No payments for increased contract quantities shall be made by the Department unless and until the Board has given prior approval for such payments, except that payments for overruns may be made without Board approval if such payments do not exceed the following per cent of the original contract price: 10 percent on contracts of \$50,000.00 or more; 15 percent on contracts of \$25,000.00 to \$49,999.99; and 25 percent on contracts of less than \$25,000.00.

10. The Department shall assess damages against any contractor who fails to have the job open to traffic or completed by the dates specified in the contract unless the contractor has been excused for such failure by the Department. The Department may, without approval of the Board, extend the time for opening to traffic or completion of the contract because of delays from unforeseen causes beyond the control and without the fault or negligence of the contractor, including and restricted to: acts of God; acts of public enemy; acts of Government, acts of the State or any political subdivision thereof; fires; floods; epidemics; strikes; or extraordinary delays in delivery of materials.

No excusal or waiver of damages, except as above provided, shall be final and binding upon the State unless and until approved by the Board.

11. This resolution shall be made an express part of all construction, improvement, and maintenance contracts entered into by the Department, and the Department's standard and supplemental specifications shall be amended to reflect these requirements.
12. This resolution supercedes all prior versions of this resolution, effective January 1, 2006.

SPECIAL NOTICE INSURANCE

The Contractor, prior to execution of the contract, shall file with the Department a Certificate or Certificates of Insurance in form satisfactory to the Department, showing that he has complied with the insurance requirements set forth in Section 107.10 of the "Standard Specifications Construction", ie., Michigan Department of Transportation, 1304A, annexed hereto.

CERTIFICATE OF INSURANCE FOR CONSTRUCTION AND RECONSTRUCTION OF MICHIGAN DEPARTMENT OF TRANSPORTATION HIGHWAY/AERONAUTICS PROJECTS

Information required by the Federal specifications for Highway construction and/or Act 327, P.A. of 1945 to verify insurance.

INSTRUCTIONS: Complete and return to MDOT, Contract Services Division, P.O. Box 30050, Lansing, MI 48909.
All information must be submitted on Form 1304A. Any other form is invalid.

The subscribing insurance company certifies that insurance of the types and for limits of liability covering the work under contract with MDOT or airport owner has been obtained by the contractor named below.

Such insurance, here certified, is written in accordance with the company's regular policies and endorsements subject to the company's applicable manuals of rules and damage exclusions.

The insurer shall agree to provide the Department, in writing, the following:

1. A 30-day
2. A 10-day prior notice of any cancellation or reduction in coverage for nonpayment of the premium.
3. Immediate notice of Contractor's cancellation or reduction of coverage.

The contractor shall cease operations if any insurance is canceled or reduced, and shall not resume operations until new insurance is in force.

| | | | |
|-----------------|---------|-------|----------|
| NAME OF INSURED | | | |
| ADDRESS | CITY | STATE | ZIP CODE |
| TELEPHONE NO. | FAX NO. | | |

| ALL WORK PERFORMED FOR THE MICHIGAN DEPARTMENT OF TRANSPORTATION OR AIRPORT OWNER AS A PRIME OR SUBCONTRACTOR | | | | | |
|---|---|----------------------------|------------|---|--------------------------|
| TYPE OF INSURANCE | POLICY NUMBER & NAME OF INSURANCE COMPANY (If more than one) | POLICY DATES (MM/DD/YY) | | LIMITS: Each Occurrence: \$1,000,000 Aggregate: \$2,000,000 BODILY INJURY AND PROPERTY DAMAGE LIABILITY | |
| | | EFFECTIVE | EXPIRATION | | |
| General Liability | | | | General Aggregate | \$ |
| Commercial General Liability | | | | Prods. comp/ops Aggregate | \$ |
| Claims Made Occurrence | | | | Personal & Advertising Inj. | \$ |
| \$_____ P.D. Deductible | | | | Each Occurrence | \$ |
| XCU Exclusion | | | | Fire Damage (any one fire) | \$ |
| Contractual Exclusion | | | | Medical Exp. (any one person) | \$ |
| AUTOMOTIVE LIABILITY | | | | Combined Single Limit (Minimum \$2,000,000.00) | \$ |
| Any Auto | | | | Bodily Injury (per person) (Minimum \$500,000.00) | \$ |
| All Owned Autos | | | | Bodily Injury (per accident) (Minimum \$1,000,000.00) | \$ |
| Scheduled Autos | | | | Property Damage (Minimum \$1,000,000.00) | \$ |
| Hired Autos | | | | | |
| Non-Owned Autos | | | | | |
| Garage Liability | | | | | |
| Umbrella | | | | Each Occurrence | \$ |
| | | | | Aggregate | \$ |
| Excess Liability Other Than Umbrella | | | | Each Occurrence | \$ |
| | | | | Aggregate | \$ |
| WORKERS COMPENSATION AND EMPLOYERS LIABILITY | | | | STATUTORY | |
| | | | | \$ | (Each Accident) |
| | | | | \$ | (Disease - Policy Limit) |
| | | | | \$ | (Disease - Each Empl.) |
| Other | | | | | |

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|--|--|-------|----------|
| NAME OF AGENCY | NAME OF INSURANCE COMPANY (If only one for all policies) | | |
| ADDRESS | CITY | STATE | ZIP CODE |
| TELEPHONE NO. | FAX NO. | | |
| AUTHORIZED REPRESENTATIVE SIGNATURE (Required) | 30 | | DATE |

SPECIAL BONDING PROVISION

In addition to the security required by 1905 PA 187, MCLA 570.101 et seq.; MSA 26.321 et seq.; and section 102.16 of the Michigan Department of Transportation “2003 Standard Specifications for Construction” the successful bidder on the project shall furnish a satisfactory lien bond written by the same surety as the standard statutory performance bond, in an amount not less than the total contract price, which additional bond shall secure the payment of all claims:

- (1) Lienable under the terms of said statute.
- (2) Notice of which is not given by subcontractors within the statutory period, but
 - (a) Notice of which is given by subcontractors within sixty (60) days after notice of the payment of the final estimate or post final estimate having been made by the Department of Transportation; or
 - (b) In the case of a supplier to the contractor or a subcontractor, within 120 days after the materials are last furnished.

Said additional bond shall conform with the terms of 1905 Pa 187, supra, in all respects except the time within which the notice of lien claims must be given, as provided herein.

12/03

**SPECIAL PROVISION
FOR
TAXES**

01/03/96

The contractor shall include, and will be deemed to have included, in its bid and contract price all applicable Michigan Sales and Use Taxes which have been enacted into law as of the date the bid is submitted, including the 2 percent increase in sales and use tax enacted pursuant to ballot Proposal A. To the extent of any conflict, this Special Provision controls over Section 107.01 of the 2003 “Standard Specifications for Construction”.

PROGRESS CLAUSE: The contractor shall not mobilize on the project prior to **April 7, 2008**. The contractor shall submit shop drawings in a timely manner to insure the overall schedule of the project. In no case, shall any work be commenced prior to receipt of formal notice of award by the department.

The project is on an **expedited** schedule. The contractor will be expected to mobilize sufficient manpower and equipment and to work the required overtime to maintain the expedited schedule.

No work shall occur on sundays unless specifically approved by the Engineer.

The contractor shall open all lanes of traffic to there original alignment on US-131 and Parkview Ave on or before **June 27, 2008**. This date shall be considered the Open to Traffic Date.

For purposes of removal of any temporary erosion and sedimentation controls, completion of any unresolved punchlist work, and assurance that final grading and restoration of the project are acceptable, the entire project shall be completed on or before **July 25, 2008**.

The contractor is expected to coordinate all work activities with utility companies within the influence area of the Bridge as described in the Utility Coordination Clause or as directed by the Engineer. No extensions of time will be granted for the lack of coordination by the contractor.

The contractor is expected to coordinate with Western Michigan University as it pertains to the planning, construction, and placement of all precast items on the project or as directed by the Engineer.

No extensions of time will be allowed for increase in contract quantities or extra work unless it can be shown that such increase or extras affect the critical item of work.

No extensions of time will be granted for labor disputes unless it can be shown that such disputes are industry wide.

No extension of time will be granted for delays in delivery of critical materials unless the delay can be shown to be industry wide and the delay affects the critical item of work.

The low bidder(s) for the work covered by this proposal will be required to meet with Department representatives to work out a detailed progress schedule. The schedule for this meeting will be set after the low bidder is determined.

The Contractor shall take into account all seasonal and weather limitations which are described in the Standard Specifications, Supplemental Specifications, and Special Provisions when preparing the Progress Schedule. Placement of bituminous mixtures, concrete items, and restoration items outside of the seasonal limitations, when deemed appropriate, may be approved by the Engineer when the Progress Schedule is submitted for review at the pre-construction meeting. The Contractor is responsible for all means to protect the work from the weather, and shall include these costs in the bid items for the work.

The progress schedule shall include, as a minimum, the controlling items for the completion of the project and the planned dates that these work items will be controlling operations. When specified in the bidding proposal, all open to traffic dates as well as the final project completion date shall be included in progress schedule. The start date of any subsequent controlling item must follow the completion date of the preceding one even through operations may be identified concurrent. Overlapping controlling items will not be allowed.

The low bidder(s) for the work covered by this proposal will also be required to submit a CPM network (arrow diagram) at the preconstruction meeting. The arrow diagram shall be the customary activity-on-arrow type or an approved equal that describes the work activities to be accomplished and their dependency on each other. A sufficient number of activities (tasks) will be required with sufficient detail so the controlling operation can be identified. Notation on each activity arrow shall include a brief work description and activity time duration. **The contractor shall submit an updated CPM network every month for those activities that remain to occur. The Engineer may request that an updated CPM network be submitted more frequently if deemed necessary. Project pay estimates may be delayed if the CPM network is not updated to reflect the progress of the project.**

It should be anticipated that the Department may require up to seven (7) calendar days for review of the proposed progress schedule and CPM network.

The named subcontractor(s) for Designated and/or Specialty Items, as shown in the proposal, is recommended to be at the preconstruction meeting if such items materially affect the work schedule.

The Delivery Engineer will arrange the time and place for the preconstruction meeting.

MICHIGAN
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC

DSN:PTG:BLC

1 of 5

08-01-2007

Description

This work shall consist of pavement removal, complete structure removal, construction of new approaches, new bridge structure, signing, pavement marking, guardrail, miscellaneous drainage work and general earthwork and paving on Parkview Avenue (M Ave) over US Route 131 in Oshtemo Township including reconstruction of the intersection of Parkview Avenue and 12th Street.

General

Traffic shall be maintained according to Sections 103.05, 103.06 and 812 of the 2003 Standard Specifications for Construction, including any Supplemental Specifications, and as specified herein.

1. The Contractor shall notify the Engineer a minimum of 72 hours prior to the implementation of any detours, road closures, and lane closures.

The Contractor shall coordinate his operations with Contractors performing work on other projects within or adjacent to the Construction Influence Area (CIA) as directed by the Engineer. Projects include but are not limited to:

I-94 Freeway Reconstruction – 12th Street to 3500' east of Oakland Avenue – CS 39024
JN's 86055/86166/86174/86633/86634

I-94BL (Stadium Drive) – Minor rehabilitation 11th St. to Oliver – CS 39041 JN 90224

2. MDOT maintenance crews and/or Contract Maintenance Agencies may perform maintenance work within or adjacent to the Construction Influence Area (CIA). The Maintenance Division of MDOT and/or Contract Maintenance Agency will coordinate their operations with the Resident Engineer to minimize the interference to the Contractor. No additional payment will be made to the Contractor for the joint use of the traffic control items.
3. Parkview Avenue over US-131 will be closed for the duration of the project and traffic detoured per the detour route plans.
4. 12th Street will be kept open at Parkview Avenue whenever possible. 12th Street will be closed at the intersection with Parkview Avenue for a duration of seven (7) days maximum as approved by the Engineer and traffic detoured per the detour route plans. 12th Street shall not be closed during the school year.
5. Superstructure removal and erection will be accomplished with short term temporary traffic stoppages on US-131 in accordance with the traffic restrictions below.

6. A single lane closure, left or right, shall be allowed on US-131 for shoulder reconstruction, placement of false decking, and placement and grouting of precast concrete deck panels in accordance with the traffic restrictions below.
7. Pier and abutment removal and construction will be performed with US-131 shoulder closures utilizing temporary concrete barrier.

Construction Influence Area (CIA)

The CIA shall include the right-of-way of the following roadways, within the approximate limits described below:

1. Parkview Ave. beginning west of 11th Street and extending across US 131 to South Drake Rd.
2. 12th Street from south of Parkview Avenue to Parkview Avenue.
3. In addition, the CIA shall include ramps and main-line US 131 for a distance of approximately 1.5 miles on either side of Parkview Ave.
4. Also considered included in the CIA are the advance construction signs and detour signs placed at various locations advising motorists of pending construction activities on the following roads: Parkview Ave., 12th Street, 11th Street, W O N Avenue, Stadium Drive, and Drake Road.

Traffic Restrictions

1. No lane closures will be allowed on US-131 during the Memorial Day, Fourth of July, Easter, Voting Days, Labor Day, Thanksgiving, and Christmas holiday periods, as defined by the Engineer.
2. **Maintain two lanes of traffic in each direction on US-131 as follows:**
 - Monday through Thursday 6:00a.m. to 7:00p.m.**
 - Friday 6:00a.m. to 8:00p.m.**
 - Saturday 10:00a.m. to 7:00p.m.**
 - Sunday 11:00a.m. to 6:00p.m.**
3. Traffic stoppages on US-131 shall be conducted only between the hours of 8:00 p.m. and 6:00 a.m. and shall utilize law enforcement officials. These stoppages will be allowed for a duration of no longer than 15 minutes after which traffic shall be allowed to proceed until such time that traffic has been free flowing at the speed limit for a period of 5 minutes, or until the last vehicles in line during the previous stoppage have proceeded through the zone. Payment for the law enforcement officials shall be included in the pay item "Minor Traf Devices". The contractor shall be responsible for notifying the Engineer 72 hours in advance of any planned closure.
4. The minimum lane width through the construction zone on US-131 shall be 11 ft.
5. All work shall be conducted during day time hours only, with the exception of superstructure removal and erection and as mentioned above. Any additional cost for maintaining traffic during superstructure removal and erection shall be considered included in those pay items. Any other night work may be permitted, at the discretion of the Engineer. However, any additional cost for maintaining traffic shall be borne by the Contractor.

6. Access for construction vehicles between the travel lanes and work areas will be restricted to specific locations. The number of access points and their locations will require the prior approval of the Engineer.
7. The Contractor shall obtain all necessary permits from local governments prior to placing construction signs on Parkview Ave., 12th Street, 11th Street, Stadium Drive, and Drake Road. The costs incurred to obtain these permits shall be considered included in the pay item "Minor Traffic Control Devices".
8. Full temporary intermittent closure of US-131 will be allowed for removal of the existing superstructure and placement of the precast concrete I beams.

Traffic Control Devices

General

1. All traffic control devices and their usage shall conform to revised Part 6 of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), current edition as revised and as specified herein.
2. Traffic on US-131 shall be maintained in accordance with the attached typical sign sequence figures, M0070a, M0990a for a single lane closure, and WZD-100-a. Shoulder closures shall utilize temporary concrete barrier as detailed in the plans to be placed in accordance with Standard Plan R-126-E.

Temporary Signs

1. "TRAFFIC FINES DOUBLE IN WORK ZONE" (R5-18a) and INJURE KILL A WORKER... (R5-18b) signs are included in the quantities to be placed at locations specified in the plans or as designated by the Engineer.
2. "END ROAD WORK" signs shall be placed at the end of the construction zone with the exception of southbound US-131 when it is part of the I-94 construction zone.
3. All diamond-shaped warning signs shall be 48 in. x 48 in. mounted at a 7 ft. minimum bottom height.
4. Distances shown between construction warning, regulatory and guide signs shown on the typicals are approximate and may require field adjustment, as directed by the Engineer.
5. All temporary signs shall be constructed with legends and symbols flush to the signs face and not extending beyond the sign borders or edges.
6. All temporary signs shall be faced with prismatic retroreflective sheeting.
7. All temporary signs that will be in place for more than 14 Days shall be mounted on driven posts.
8. All temporary warning, regulatory, and guide signs not required for an active lane closure shall be either removed, completely covered, or laid down with legs off as directed by the Engineer.

9. Portable Changeable Message Signs shall be placed as directed by the Engineer. The following messages shall be used:

Before Construction:

Message 1:
BRIDGE
WORK

Message 2:
BEGINS
(DATE)

During Construction:

Message 1:
SHOULDER
CLOSURES

Message 2:
EXPECT
TRAFFIC
DELAYS

Or:

Message 1:
LANE
CLOSURES

Message 2:
(DATE)
(TIMES)

Channelizing Devices

Lighted plastic drums with high intensity sheeting channelizing devices shall be used for lane closures unless otherwise specified.

Channelizing device spacing on US-131 shall be as follows unless otherwise directed by the Engineer.

- 90 feet on tangents
- 45 feet on shifts and tapers

Intermixing of different types of channelizing devices within a construction sequence, i.e. shoulder closure, etc. is not permitted.

Type C Lighted Arrow Panels shall be use where lighted arrow panels are called for in the

plans. Locate panels as close as practical to the beginning of the shoulder closure taper.

Temporary and Permanent Pavement Markings

All existing longitudinal pavement markings on US-131 that are removed or obliterated during construction shall be replaced in kind. The Contractor shall be responsible for logging types and locations of existing markings prior to their removal for replacement. Permanent pavement markings if required on US-131 shall be part of this contract and shall be waterborne paint for lane lines and edge lines. Temporary pavement markings type R shall be used on US-131 during construction.

Measurement and Payment

The estimate of quantities for maintaining traffic is based on signing and related traffic control devices for one lane closure, two shoulder closures, posting detour plans, and temporary closure of the US 131. "ROAD WORK AHEAD" (W21-4) signs and "TRAFFIC FINES DOUBLE IN WORK ZONE" signs are included in the MOT estimate. The estimate also includes a maximum of (4) Type C lighted arrow (min 4' by 6') to be in use at any one time. Four (4) changeable message signs are also included in the estimate.

Payment for temporary signs shall be made on the maximum square feet of dissimilar sign legends in use at any one time during the project

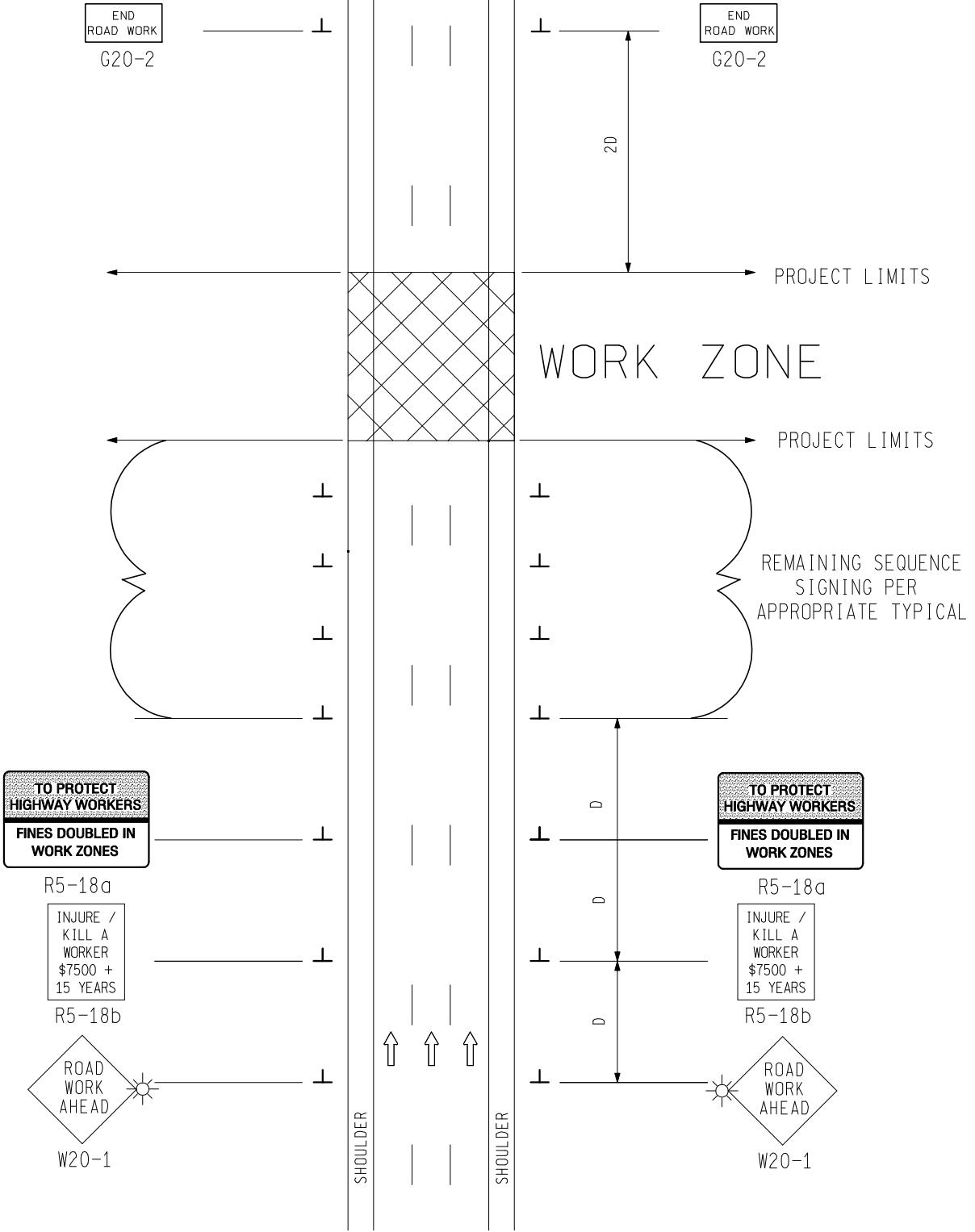
Payment for channelizing devices shall be based on the maximum number of a specific type of device in use at any one time during the project.

Payment for arrow boards and changeable message signs shall be made as four each for use during the entire project duration as necessary.

Payment for temporary and permanent pavement markings shall be made by the linear foot.

Any additional signing or maintaining traffic devices required to expedite the construction shall be at the Contractor's expense.

SIGN PLACEMENT
IS THE SAME FOR
BOTH DIRECTIONS



SIGN = 272 ft x 2 - TYPE B
FOR BOTH DIRECTIONS OF TRAFFIC
W20-1 QUANTITY INCLUDED WITH
APPROPRIATE TYPICAL FOR
SEQUENCE SIGNING

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL ADVANCE SIGNING TREATMENT FOR
LONG, INTERMEDIATE AND SHORT TERM
STATIONARY WORK ZONE OPERATIONS
OF LESS THAN TWO MILES IN LENGTH WHERE
TRAFFIC CONTROL DEVICES MAY REMAIN AT
END OF WORK DAY ON A DIVIDED ROADWAY.

| | | | |
|---|------------|--------|-----------------|
| DRAWN BY: CON:AE:djf | JUNE 2006 | M0070a | SHEET 1 OF 2 |
| CHECKED BY: BMM | PLAN DATE: | | |
| FILE: K:-DCN-TSR-STDS-ENGLISH-MNTTRF-M0070a.dgn | | REV. | 05/10/2006 |

NOT TO SCALE


NOTES

- 30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
- 32. THESE SIGNS SHALL BE LEFT IN PLACE AT THEIR PRESCRIBED LOCATIONS FOR THE DURATION OF THE PROJECT AND UNTIL ALL TEMPORARY TRAFFIC CONTROL HAS BEEN REMOVED.
- 35. THESE SIGNS ARE INTENDED TO BE USED WITHIN THE LIMITS OF THE TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY OTHER TEMPORARY SEQUENCE SIGNING EXCEPT AS SHOWN.

SIGN SIZES

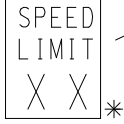
| | | |
|--------|---|-----------|
| G20-2 | - | 48" x 24" |
| R5-18a | - | 96" x 60" |
| R5-18b | - | 48" x 60" |
| W20-1 | - | 48" x 48" |

NOT TO SCALE

| | | | |
|---|---|-----------|------------|
|  TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL | TYPICAL ADVANCE SIGNING TREATMENT FOR LONG, INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS OF LESS THAN TWO MILES IN LENGTH WHERE TRAFFIC CONTROL DEVICES MAY REMAIN AT END OF WORK DAY ON A DIVIDED ROADWAY. | | |
| | DRAWN BY: CON:AE:djf | JUNE 2006 | M0070a |
| CHECKED BY: BMM | PLAN DATE: | | |
| FILE: K:-DGN-TSR-STD5-ENGLISH-MNTTRF-M0070a.dgn | | REV. | 05/10/2006 |

END ROAD WORK

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.



R2-1



R2-1



R2-1a

PLACE ADDITIONAL SUPPLEMENTAL SETS OF SPEED LIMIT SIGNS THROUGHOUT THE WORK AREA AS DEPICTED ON TYPICAL M0100a.



R2-1a



R2-1



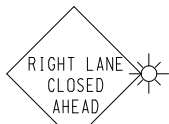
R5-18c



W4-2



W3-5b



W20-5



W20-1

SHOULDER



SHOULDER



END ROAD WORK

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.



R2-1



R2-1



R2-1a

PLACE ADDITIONAL SUPPLEMENTAL SETS OF SPEED LIMIT SIGNS THROUGHOUT THE WORK AREA AS DEPICTED ON TYPICAL M0100a.



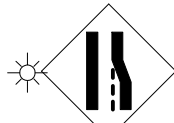
R2-1a



R2-1



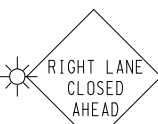
R5-18c



W4-2



W3-5b



W20-5



W20-1

KEY

- • • CHANNELIZING DEVICES
- ← LIGHTED ARROW PANEL
- ☀ TYPE A WARNING FLASHER (REQUIRED)
- ⇒ TRAFFIC FLOW
- * LEGEND REFLECTS SPEED LIMIT BEYOND WORK AREA

SIGN = 280 f+2 - TYPE B PLUS ADDITIONAL SPEED LIMIT SIGNING THROUGHOUT WORK AREA

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON A FREEWAY USING REDUCED SPEED LIMIT WHERE WORKERS PRESENT

DRAWN BY: CON:AE:djf

JUNE 2006

M0990a

SHEET

CHECKED BY: BMM

PLAN DATE:

1 OF 2

FILE: K:-DCN-TSR-STDS-ENGLISH-MNTTRF-M0990a.dgn

REV. 09/18/2006

NOT TO SCALE


NOTES

11. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
AND LENGTH OF LONGITUDINAL BUFFERS
L = MINIMUM LENGTH OF TAPER
SEE **M0020a** FOR "D" AND "L" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4D. THE SPACING OF CHANNELIZING DEVICES SHOULD NOT EXCEED 45 FEET WHEN USED FOR TAPER CHANNELIZATION, AND SHOULD NOT EXCEED 90 FEET WHEN USED FOR TANGENT CHANNELIZATION.
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. THE TYPE A WARNING FLASHER SHOWN ON THE WARNING SIGNS SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE 2005 EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.
26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 RECTANGULAR REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

| | | | |
|---|--|-------------------------|---------------|
|  TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL | TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON A FREEWAY USING REDUCED SPEED LIMIT WHERE WORKERS PRESENT | | |
| | DRAWN BY: CON:AE:djf CHECKED BY: BMM | JUNE 2006 PLAN DATE: | M0990a |
| FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0990a.dgn REV. 09/18/2006 | | | |

SIGN MATERIAL SELECTION TABLE

| SIGN SIZE | SIGN MATERIAL TYPE | | |
|--------------------------|--------------------|---------|----------|
| | TYPE I | TYPE II | TYPE III |
| ≤ 36" X 36" | | X | X |
| >36" X 36" ≤ 96" TO WIDE | | X | |
| > 96" WIDE TO 144" WIDE | X | X | |
| > 144" WIDE | X | | |

TYPE I ALUMINUM EXTRUSION
 TYPE II PLYWOOD
 TYPE III ALUMINUM SHEET

ROUNDING OF CORNERS IS NOT REQUIRED FOR TYPE I OR II SIGNS.
 VERTICAL JOINTS ARE NOT PERMITTED.
 HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE NOT PERMITTED.


POST SIZE REQUIREMENTS TABLE

| SIGN AREA (ft ²) | POST TYPE | | |
|---------------------------------|-----------------|----------------------|--------------|
| | U-CHANNEL STEEL | SQUARE TUBULAR STEEL | WOOD |
| ≤9 | 1 - 3 lb/ft* | 1 - 2" 12 or 14 GA* | N/A |
| 9 ≤ 20 | 2 - 3 lb/ft | 2 - 2" 12 or 14 GA | 1 - 4" X 6"* |
| > 20 ≤ 30 | N/A | N/A | 2 - 4" X 6" |
| > 30 ≤ 60 | N/A | N/A | 2 - 6" X 8" |
| > 60 ≤ 84 | N/A | N/A | 3 - 6" X 8" |

*SIGNS 4 FEET AND GREATER IN WIDTH REQUIRE 2 POSTS.
 SIGNS GREATER THAN 8 FEET IN WIDTH REQUIRE 2 OR 3 WOOD
 POSTS DEPENDING ON AREA OF SIGN.
 A MAXIMUM OF 2 POSTS WITHIN A 7' PATH IS PERMITTED.

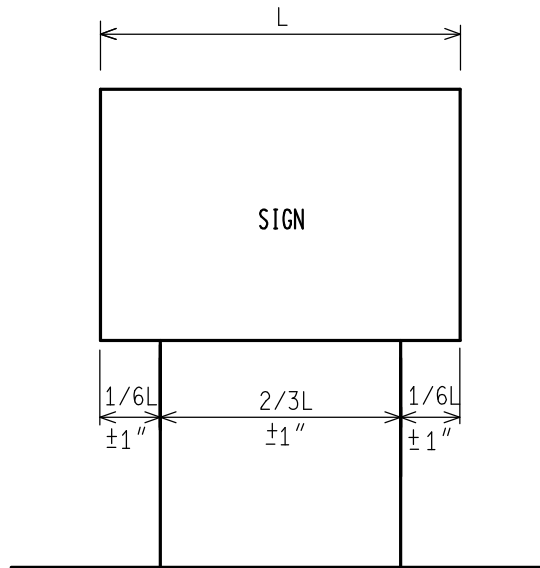
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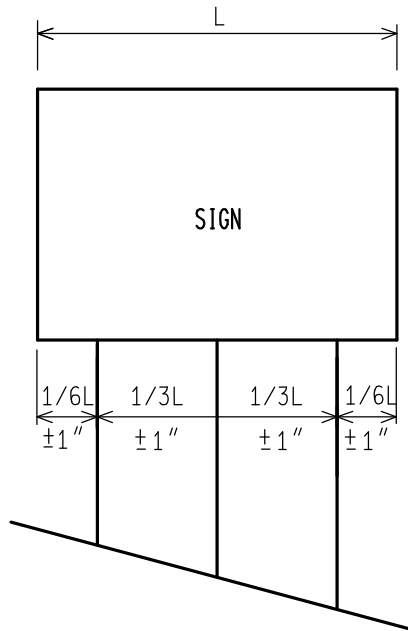
| | | | |
|---|---|--|------------------|
|  Michigan Department of Transportation PREPARED BY TRAFFIC AND SAFETY SUPPORT AREA DRAWN BY: CON/ECH CHECKED BY: AUG | _____ ENGINEER OF DELIVERY _____ ENGINEER OF DEVELOPMENT PENDING _____ FHWA APPROVAL DATE | MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS | |
| | 8/2006 PLAN DATE | WZD-100-A | SHEET 1 of 11 |

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

2 POST SIGN SUPPORT SPACING



3 POST SIGN SUPPORT SPACING

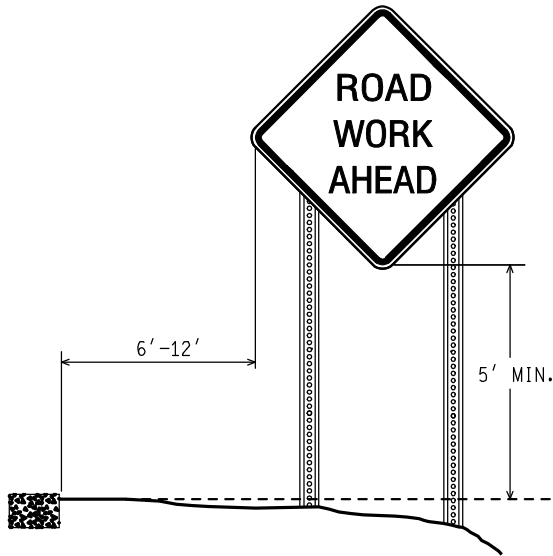


* FOR ALL 11' AND 12' LONG SIGNS ON 3 WOOD SUPPORTS, SPREAD POSTS SO AS TO HAVE A 8' MIN. TO 9' MAX. DISTANCE BETWEEN OUTSIDE POSTS.

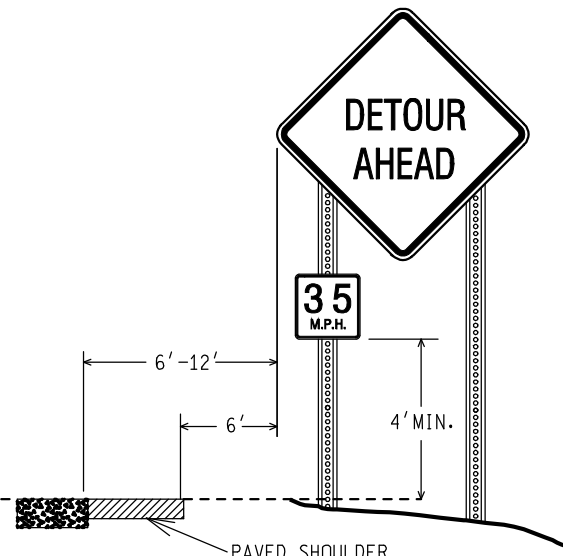
NOT TO SCALE

| | | | | |
|--|-------------------------------|---------------------|---------------------------------------|------------------|
| MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN | PENDING FHWA APPROVAL DATE | 8/2006 PLAN DATE | <h3 style="margin: 0;">WZD-100-A</h3> | SHEET 2 of 11 |
| File:PW/Doc/RD/T&S/Typ/Dev/Sign MainTraf D/WZD-100-A Rev. 8/21/06 ECH | | | | |

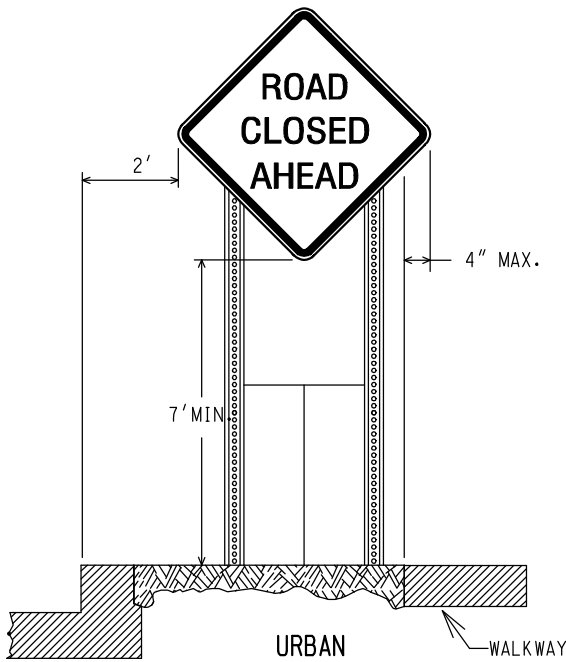
NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



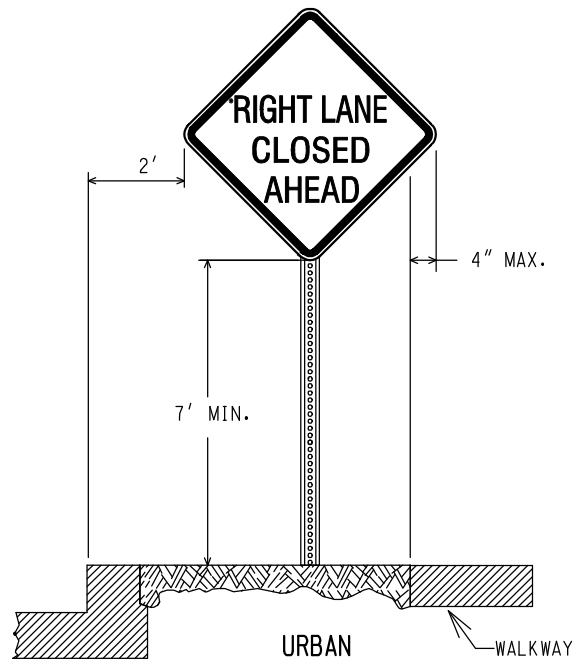
RURAL



RURAL WITH ADVISORY SPEED PLATE



(CURBED AREAS OR WHERE WALKWAYS ARE PRESENT)



(CURBED AREAS OR WHERE WALKWAYS ARE PRESENT)

BOTTOM HEIGHT AND OFFSET

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

PENDING
FHWA APPROVAL DATE

8/2006

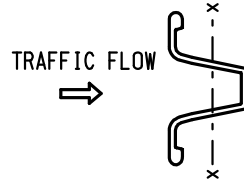
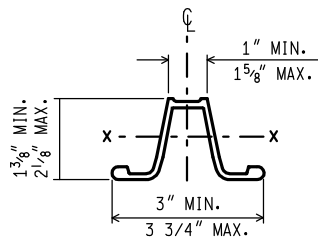
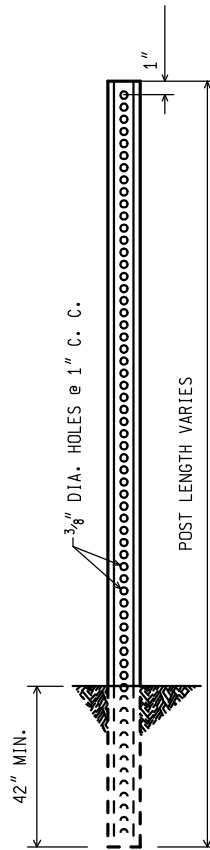
WZD-100-A

SHEET
3 of 11

File:PW/Doc/RD/T&S/Typ/Dev/Sign MainTraf D/WZD-100-A Rev. 8/21/06 ECH
46

PLAN DATE

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



WEIGHT = 3 lbs/ft
 SECT. MOD. X.-X. = 0.31 CUBIC INCHES MIN.

3 lb. U - CHANNEL STEEL POST (NO SPLICE)

MOUNT SIGN ON OPEN FACE OF
 U - CHANNEL STEEL POST

NOT TO SCALE

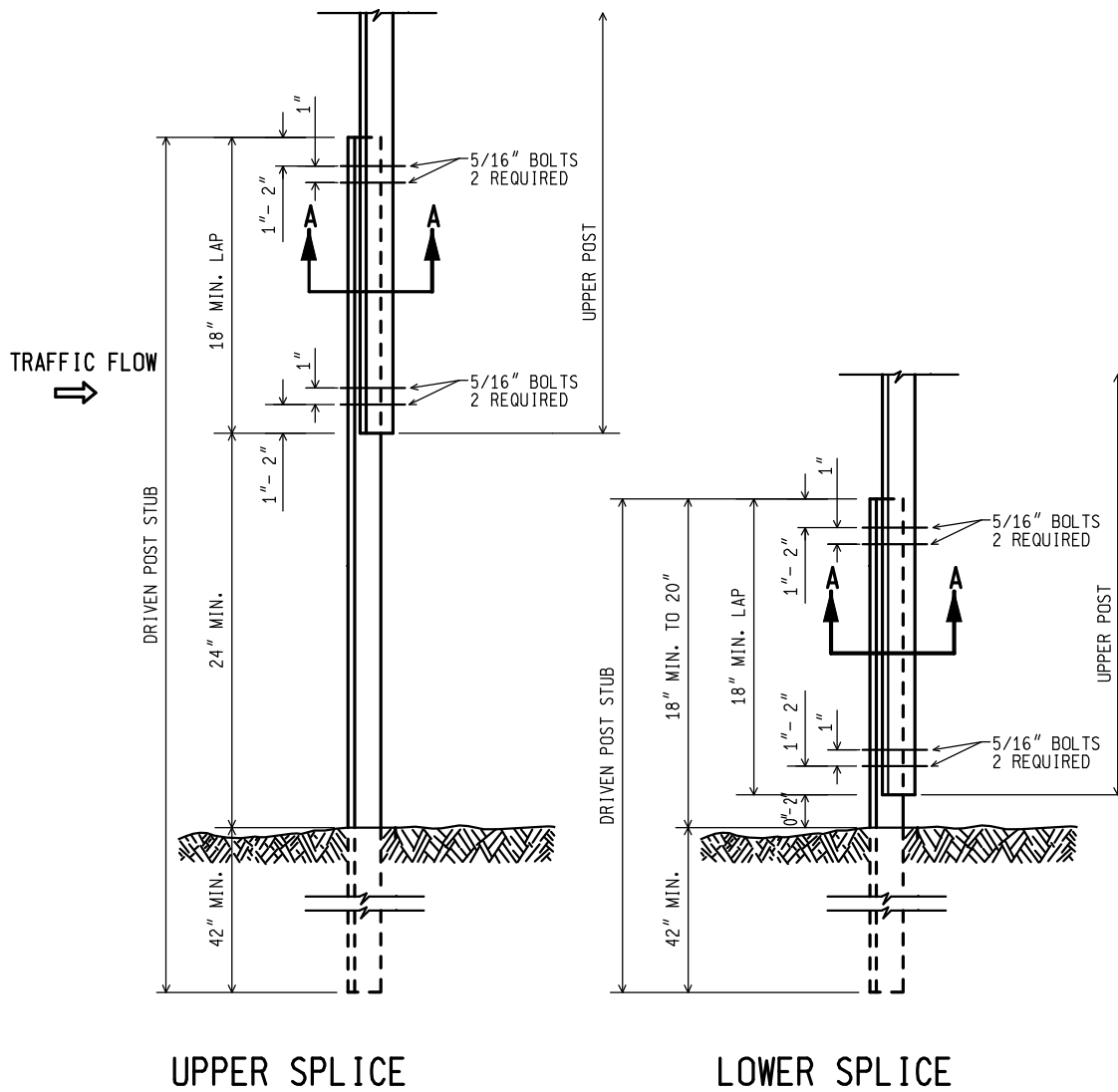
MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

PENDING
 FHWA APPROVAL DATE

8/2006
 PLAN DATE

WZD-100-A

SHEET
 4 of 11



**3 lb. U - CHANNEL STEEL POST
(WITH SPLICE)**

MOUNT SIGN ON OPEN FACE OF
UPPER U - CHANNEL STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

PENDING
FHWA APPROVAL DATE

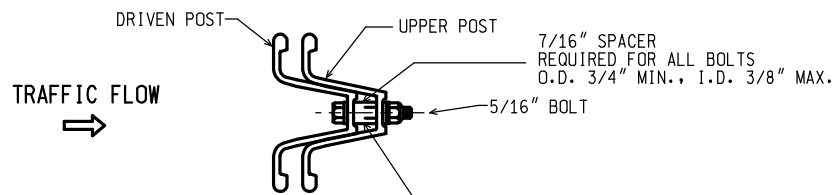
8/2006
PLAN DATE

WZD-100-A

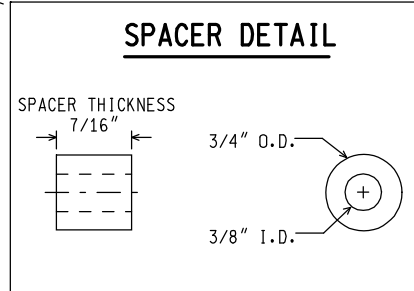
SHEET
5 of 11

File:PW/Doc/RD/T&S/Typ/Dev/Sign MainTraf D/WZD-100-A Rev. 8/21/06 ECH

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



SECTION A-A



NOTES:

1. THE SPACER THICKNESS SHALL BE 1/16" LESS THAN THE GAP BETWEEN THE POST WHEN POSITIONED IN THE UNBOLTED CONFIGURATION.
2. THE EXTERIOR BOLT (CLOSEST TO LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN A PREPUNCHED HOLE 1" to 2" FROM THE END OF THE LAP.
3. THE INTERIOR BOLT (FARTHEST FROM LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN THE NEXT PREPUNCHED HOLE.
4. THE DRIVEN POST SHALL ALWAYS BE MOUNTED IN FRONT OF THE UPPER POST WITH RESPECT TO THE ADJACENT ONCOMING TRAFFIC, REGARDLESS OF THE DIRECTION THE SIGN IS FACING.
5. THE SPLICE LAP SHALL BE FASTENED BY FOUR-5/16" DIA. GALVANIZED A449 BOLTS (SAE J429 GRADE 5) OR GALVANIZED A325 BOLTS.

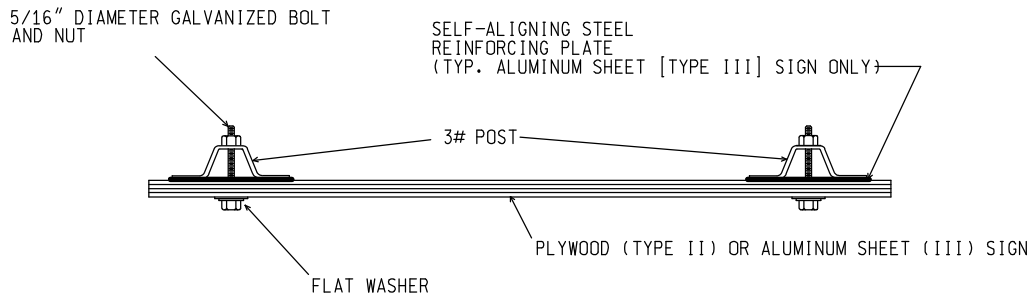
3 lb. U - CHANNEL STEEL POST
(WITH SPLICE)

NOT TO SCALE

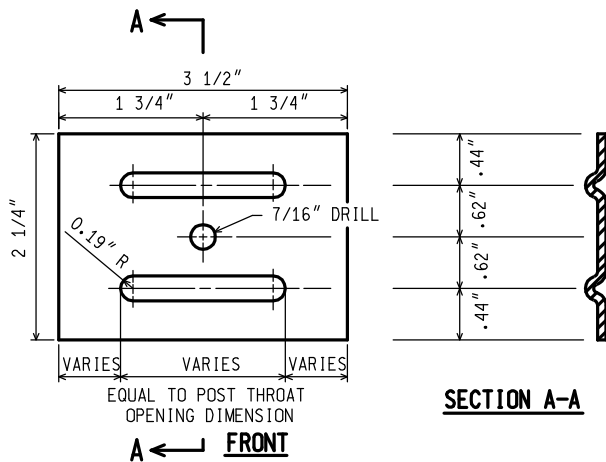
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| MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN | PENDING | 8/2006 | WZD-100-A | SHEET 6 of 11 |
| | FHWA APPROVAL DATE | | | |

File:PW/Doc/RD/T&S/Typ/Dev/Sign MainTraf D/WZD-100-A Rev. 8/21/06 ECH 40

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SIGN TO 3 lb. POST CONNECTION



NOTES: (FOR STEEL SIGN REINF' PLATE)

1. MATERIAL: 12 GAUGE CARBON STEEL.
2. TOLERANCE ON ALL DIMENSIONS $\pm 0.0625"$
3. FINISH-AFTER STAMPING AND PUNCHING, GALVANIZE ACCORDING TO CURRENT SPECIFICATIONS FOR ZINC (HOT GALVANIZE) COATINGS ON PRODUCTS FABRICATED FROM PLATES OR STRIPS

STEEL SIGN REINFORCING PLATE
REQUIRED FOR TYPE III SIGNS ONLY

3 lb. U - CHANNEL STEEL POST SIGN CONNECTION

NOT TO SCALE

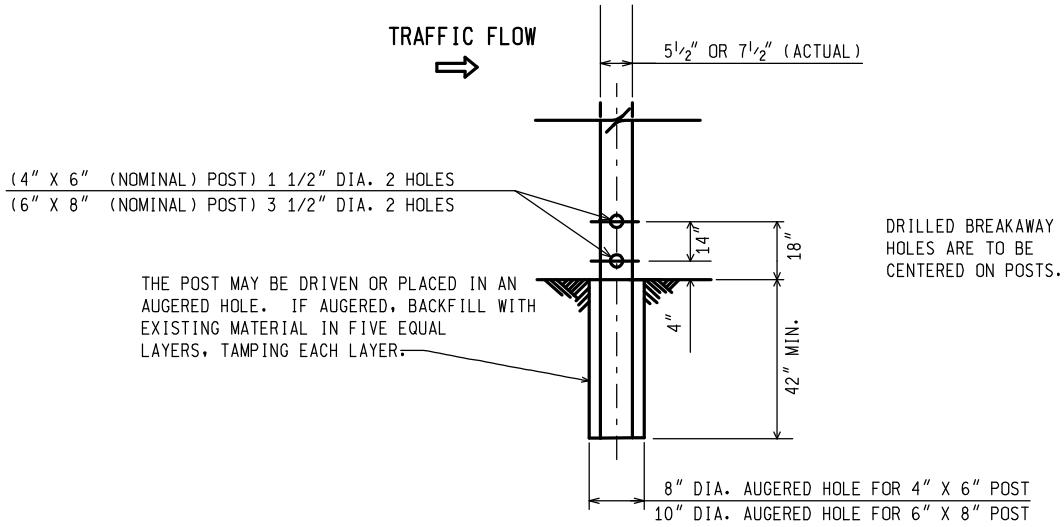
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

PENDING
FHWA APPROVAL DATE

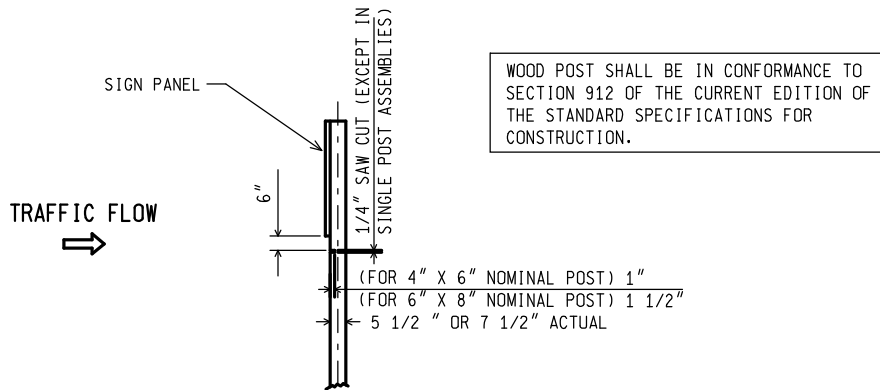
8/2006
PLAN DATE

WZD-100-A

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7 of 11



**WOOD POST BREAKAWAY HOLES/
 DIRECT EMBEDMENT DETAILS**



**SAW CUT DETAIL
 (MULTIPLE POST INSTALLATIONS)**

WOOD POST DETAILS

NOT TO SCALE

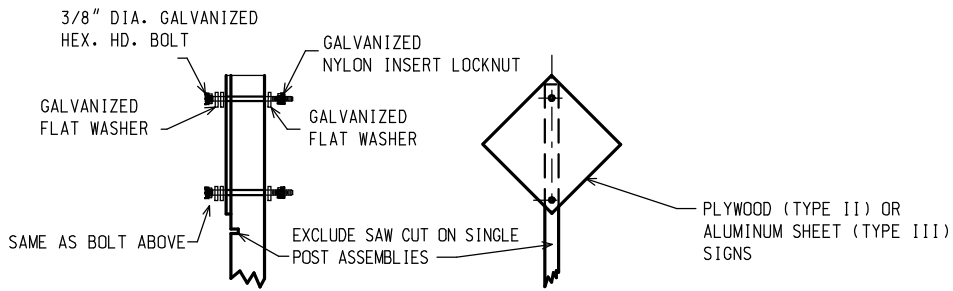
MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

PENDING
 FHWA APPROVAL DATE

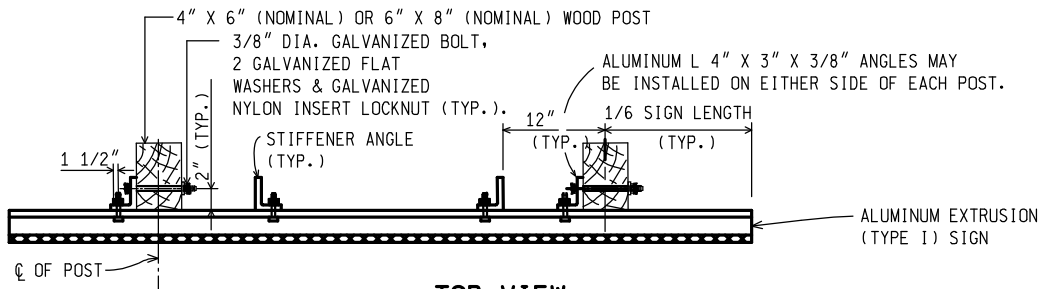
8/2006
 PLAN DATE

WZD-100-A

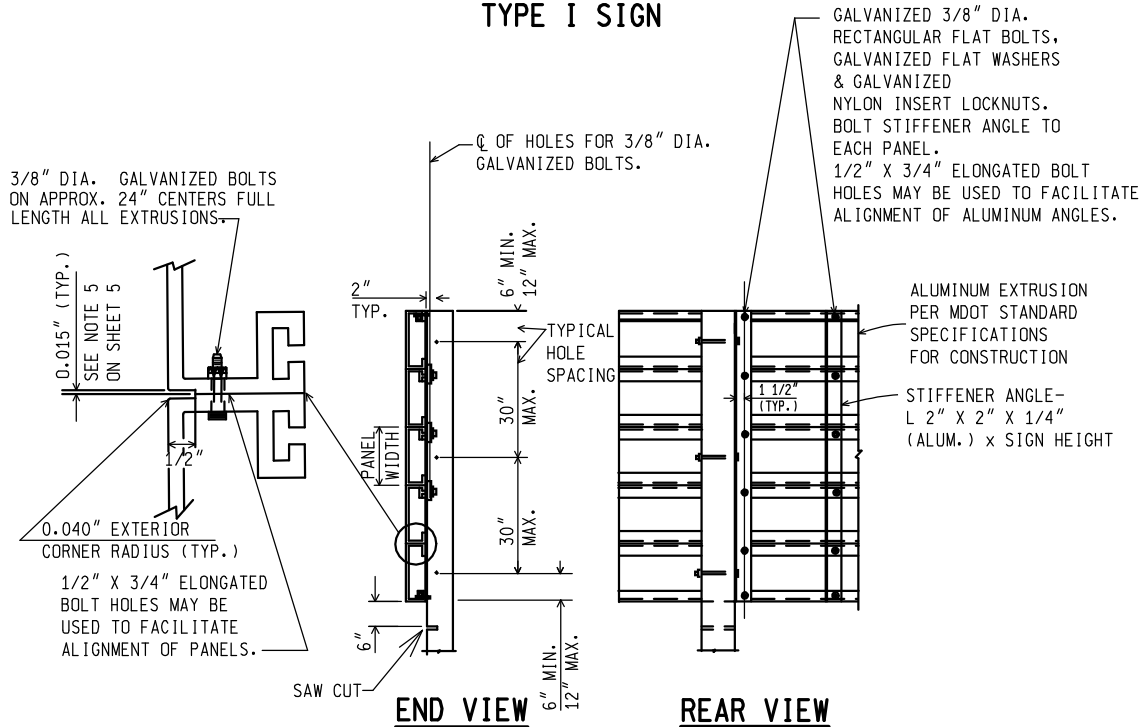
SHEET
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TYPE II AND TYPE III SIGNS



**TOP VIEW
 TYPE I SIGN**



TYPE I SIGN - ERECTION DETAILS

WOOD POST CONNECTIONS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

PENDING
 FHWA APPROVAL DATE

8/2006

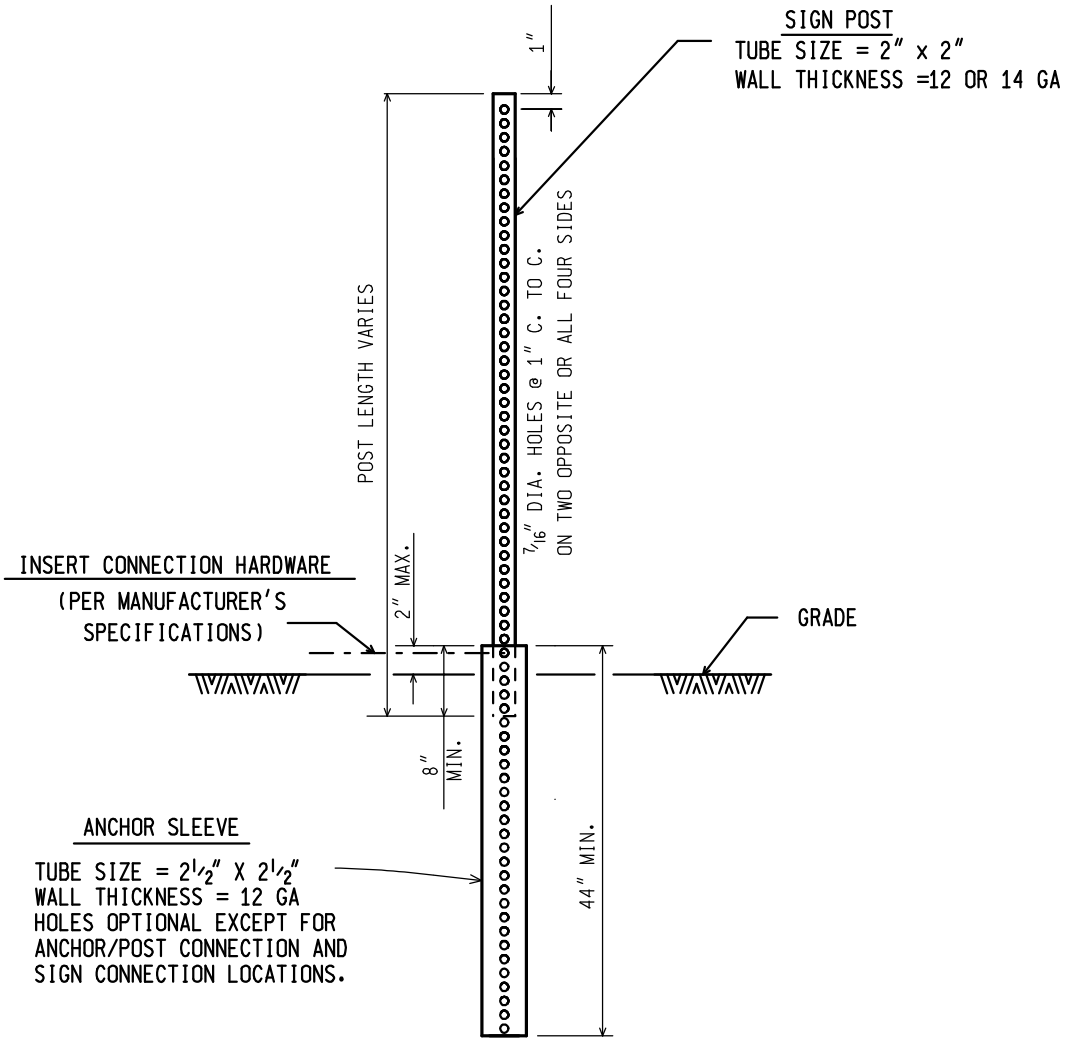
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PLAN DATE

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SQUARE TUBULAR STEEL POST

NOT TO SCALE

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 BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

PENDING
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8/2006

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PLAN DATE

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GENERAL NOTES:

1. A MAXIMUM OF TWO POSTS WITHIN A 7 FOOT PATH IS PERMITTED.
2. ALL SIGN POSTS SHALL COMPLY WITH NCHRP 350.
3. ALL POSTS SHALL BE EMBEDDED A MINIMUM OF 42".
4. BRACING OF POST IS NOT PERMITTED.
5. SIGN SHALL BE LEVEL, AND UPRIGHT FOR THE DURATION OF INSTALLATION.
6. ERECT POSTS SO THE SIGN FACE AND SUPPORTS DO NOT VARY FROM PLUMB BY MORE THAN 3/16" IN 3'. PROVIDE A CENTER-TO-CENTER DISTANCE BETWEEN POSTS WITHIN 2 PERCENT OF PLAN DISTANCE.
7. NO MORE THAN ONE SPLICE PER POST, AS SHOWN, WILL BE PERMITTED.
8. POST TYPES SHALL NOT BE MIXED WITHIN A SIGN SUPPORT INSTALLATION.
9. NO VERTICAL JOINTS ARE PERMITTED IN SIGN. NO HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE PERMITTED IN SIGN
10. REMOVE SIGN POSTS AND/OR POST STUBS IN THEIR ENTIRETY WHEN NO LONGER REQUIRED.
11. ALL LABOR, MATERIALS, AND EQUIPMENT, INCLUDING TEMPORARY SUPPORTS REQUIRED TO INSTALL, MAINTAIN, RELOCATE, COVER, AND/OR REMOVE THE TEMPORARY SIGN, INCLUDING SUPPORTS, ARE CONSIDERED TO BE INCLUDED IN THE COST OF THE TEMPORARY SIGN.
12. SAW CUTS IN WOOD POSTS ARE TO BE PARALLEL TO THE BOTTOM OF THE SIGN.
13. POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE TOP OF SIGN.

NOT TO SCALE

| | | | | |
|--|-------------------------------|---------------------|-----------|-------------------|
| MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN | PENDING FHWA APPROVAL DATE | 8/2006 PLAN DATE | WZD-100-A | SHEET 11 of 11 |
| File:PW/Doc/RD/T&S/Typ/Dev/Sign MainTraf D/WZD-100-A Rev. 8/21/06 ECH | | | | |

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MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PROMPT PAYMENT

FIN:CRR

1 of 2

C&T:APPR:JAR:DBP:12-27-05

The following is added to Section 109 of the Standard Specifications for Construction.

109.10 Prompt Payment. The prime Contractor agrees to pay each subcontractor for the satisfactory completion of work associated with the subcontract no later than ten (10) calendar days from the receipt of each payment the prime Contractor receives from the Department. Any delay or postponement of payment from this time frame may occur only upon receipt of written approval from the Engineer. This requirement is also applicable to all sub-tier subcontractors and shall be made a part of all subcontract agreements.

This prompt payment provision is a requirement of 49 CFR 26.29 and does not confer third-party beneficiary right or other direct right to a subcontractor against the Department. This provision applies to both DBE and non-DBE subcontractors.

- A. **Satisfactory Completion.** Satisfactory completion is defined for the purpose of this prompt payment provision as when:
1. the Engineer finds the work completed in accordance with the contract, plans and specifications;
 2. all required paperwork, including material certifications, payrolls, etc., has been received and approved by the Engineer; and,
 3. the Engineer has inspected and approved the work and has determined the final quantities.
- B. **Non-Payment Claims.** All notifications of failure to meet prompt payment provisions shall be referred by the subcontractor to the prime Contractor and must be made in writing within thirty (30) calendar days of the date the payment was to be received. **The subcontractor has the option of submitting a lien claim to the MDOT Contract Services Division in order to notify the project Surety of the non-payment issue. It is the responsibility of the Surety to ensure that all legitimate payments are made.**

The prime Contractor must include in all subcontract agreements notice to subcontractors of their right to prompt payment, and of the Department's prohibiting prime Contractors from holding retainage from subcontractors under 49 CFR 26.29.

The prime Contractor must include in all subcontracts, language providing that the Contractor and Subcontractor will use an approved alternative dispute resolution process to resolve prompt

payment differences. The arbitration of the dispute will be handled through a member of the American Arbitration Association, 1 Town Square, Southfield, Michigan (248-352-5500), or another third party agreed to by both the prime Contractor and the subcontractor. The parties must agree on a mediator or arbitrator within twenty five (25) calendar days after a written complaint has been sent by the subcontractor. The cost of mediation or arbitration will be borne by the parties involved or as determined by the mediator. Qualified costs of mediation, for certified DBE's, will be paid by the Department based on current procedures. The DBE must contact the Small Business Liaison Section for information on current procedures and to receive reimbursement.

Copies of all documents related to prompt payment claims will be provided to the Engineer to be included in the project files.

Continued failure of the prime Contractor to comply with prompt payment provisions may result in sanctions, which shall be applied progressively. Sanctions may include, but are not limited to: a review of the firm by representatives of the Department as appropriate for the type of work performed by the prime Contractor; reduction of prequalification ratings; and/or withdrawal of bidding privileges.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEXTURING CONCRETE

DES:LML

1 of 3

C&T:APPR:JAR:JFS:11-06-03

a. Description. Construct textured and colored concrete surfaces on bridge barrier railing to match the specific patterns detailed on the plans and as described in this special provision. The limits for texturing concrete are as shown on the plans.

b. Materials. Use materials meeting the following.

1. **Concrete Mix Design** - Use Grade D concrete for the bridge barrier railing as specified in Section 706 of the Standard Specifications for Construction. Do not use high range water reducing admixtures in the concrete mix. Use coarse aggregate and fine aggregate each produced from one source. Do not use slag course aggregate. If natural gravel is used, clay-ironstone particle content must not exceed 0.1 percent. Use only one brand and type of cement manufactured by one mill for all surface pours of a structure, unless authorized by the Engineer.
2. **Form Liners** - Use smooth, custom formed elastomeric form liners to produce the following concrete textures. All pattern details and locations are detailed on the plans.

A. Simulated post-and-rail pattern for use on bridge barrier railing.

Prior to placing any form liners, submit shop drawings to the Engineer for approval. Shop drawings must detail the form liner pattern and geometry; show the complete pattern layout for the entire length of the bridge barrier railing; and indicate where each of the patterns begin and end.

3. **Form Release Agents** - Use only form release agents that are compatible with the liners. Obtain written certification from the manufacturer that the product is compatible and is non-reacting and non-staining. Use a single product for the entire project.
4. **Curing Compound** - Textured surfaces will receive a protective color coating. Subsection 706.03.N.3 of the standard specifications prohibits the use of curing compound on structural concrete that is to receive a protective color coating. If the Engineer waives this prohibition and allows the application of curing compound, use curing compound that conforms to subsection 903.06.B and as recommended by the coloring agent manufacturer to ensure compatibility with the color/coating system used. Use the same curing method and materials for the entire barrier face including the non-textured portions.

c. Construction Methods.

1. **Test Sections** - Unless directed otherwise by the Engineer, construct a test section before constructing the textured portions of railings to demonstrate the quality of the textured concrete including the concrete mix design, quality of forming, joint control, and consolidation technique. Obtain the Engineer's approval for the location of the test sections.

If the Engineer determines the test section is not satisfactory, adjust construction technique, and cast an additional section. Once each test section is approved by the Engineer, use this section as a measure of the quality and finish of the remaining texture work. Construct test sections for each of the following patterns and locations.

A. Simulated post-and-rail pattern on bridge barrier railing.

A test section is not required for the portions of concrete textured with a double bevel pattern.

2. **Placing Forms** - Do not place form liner horizontal splices within the textured area; carefully match vertical splices. Visible seams or conspicuous form marks will not be allowed. Bevel the top and bottom edge of the form liner at 45 degrees angle to produce a 3/4-inch bevel on the corners of the formed concrete. Configure the liner so that the contours do not cause the concrete to be locked into the liner.

Thoroughly clean form liners and cant strips according to the manufacturer's recommendations and to the satisfaction of the Engineer prior to each reuse.

Handle forms and form liners according to the manufacturer's recommendations for storage, fastening liners to the forms, stripping the lined forms from the concrete, and cleaning and reconditioning liners.

Damage or wear that affects the finished appearance of the concrete will be cause for rejection and replacement of the liner. All costs associated with replacement of damaged or worn liners will be borne by the Contractor.

Apply release agent according to the manufacturer's recommendations. Remove excess release agent to prevent staining of the concrete surface.

Locate form ties at the high point of the rustication (texturing) so they will be in the recess of the concrete. Use form ties designed so that all material can be disengaged and removed without spalling or damaging the concrete. Finish form tie holes according to subsection 706.03.R.1 of the standard specifications.

3. **Additional Surface Coating** - Paint the slab fascia, fascia beam, parapet railing and non-textured portions of the walls according to the Special Provision for Concrete Surface Coating included in the contract documents.

d. Measurement and Payment. The completed work, as described, will be paid for at the contract unit price for the following contract items (pay items).

Contract Item (Pay Item)

Pay Unit

Texturing Conc.....Square Yard

All work required to construct the concrete items prior to texturing will be measured and paid according to the standard specifications for the associated items of work.

All work and materials required to texture the concrete surfaces, including the test sections, will be paid for as **Texturing Conc** except that Concrete Grade D used for this work will be measured and paid as Superstructure Conc or as Bridge Railing, Aesthetic Parapet Tube.

Application of additional concrete surface coating as described in section (c.3) of this special provision will be paid for separately.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
WRAPPING CULVERT AND SEWER JOINTS

GND:DAP

1 of 1

C&T:APPR:DMG:EMB:06-15-05

a. Description. This work shall consist of completely wrapping all culvert and sewer joints with a geotextile blanket on pipe with diameters of 24 inches or less.

b. Materials. The geotextile blanket shall be a nonwoven geotextile meeting the requirements of Section 910 of the Standard Specifications for Construction.

c. Construction. The geotextile blanket shall be a minimum of 24 inches wide and centered on the joint. The ends of the geotextile blanket shall overlap a minimum of 12 inches.

d. Measurement and Payment. The completed work as described will be paid for at the contract unit price for the following contract item (pay item):

| Contract Item (Pay Item) | Pay Unit |
|--|-----------------|
| Wrapping Culvert and Sewer Joints..... | Lump Sum |

Payment for **Wrapping Culvert and Sewer Joints** shall include all labor, equipment and materials necessary to completely wrap the pipe joints as described herein.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONCRETE SURFACE COATINGS

C&T:DEB

1 of 3

C&T:APPR:JFS:JAR:02-10-04
REVISED:02-21-07

a. Description. Furnish and apply an acrylic based concrete surface coating to concrete structures, including but not limited to barriers, fascias, cheekwalls, piers and substructure locations as specified on the plans. Conform to the Standard Specifications for Construction except as modified herein.

b. Materials. Select the acrylic based concrete surface coating from the list of products listed below. On any single structure, use the same product for all areas to be coated with a specified color. Do not mix colors or products from more than one source.

For this project, furnish and apply a smooth textured color(s) matching Federal Standard 595b according to the following schedule:

Parapet railing, abutments and piers..... Color # 33617 (light tan)
Concrete beams.....Color # 30372 (dark tan)

or other colors as approved by the Engineer

Submit color samples to the Engineer for review and approval. If required by the Engineer, complete a test section to demonstrate the final color prior to application of the coating to the structure.

| <u>Company</u> | <u>Product</u> |
|-------------------|-----------------------|
| Carboline Company | Carbocrylic 600 |
| ChemMasters | Colorcoat |
| ChemMasters | Colorlastic |
| Conspec | Permacoat |
| ICI Dulux Paints | Decra-Flex 300 |
| Sika Corporation | Elastocolor |
| Sika Corporation | Sikagard 550W Elastic |
| Sonneborn | Super Color Coat |
| Tamms Industries | Tammolastic |
| Thoro | Thorocoat |
| Thoro | Thorolastic |

c. Construction.

- 1. Surface Preparation** – All concrete to be coated must be tested for the presence of moisture after surface preparation has been completed and prior to application of the coating. Testing shall be in accordance with ASTM D4263. A 2 foot x 2 foot sheet (4mil) of

transparent polyethylene shall be taped to the concrete surface to be coated. All edges will be sealed with tape that will stick to the concrete substrate and not allow the infiltration of air. The plastic sheet will be left in place a minimum of two hours to detect the presence of moisture in the concrete. There shall be no moisture visible on the polyethylene sheet after the minimum period of time has elapsed. This will be verified by the Engineer before application of the coating begins. Alternate methods to detect moisture shall be approved by the Engineer. This test should be performed a minimum of once every 100 feet on barriers, walls etc., and a minimum of once on columns, piers, etc. Prepare the surface, including removing fins and projections and filling surface voids and cracks (if required), according to manufacturer’s recommendations, except as modified by this specification.

The surface to be coated must be dry and free from all contamination including, but not limited to, dirt, form release agents, oil, grease, laitance, loose material and curing compounds. Clean surface by low-pressure water cleaning, steam cleaning, or abrasive blasting (followed by oil-free compressed air cleaning) or by combination to achieve an acceptable cleaned surface. When low-pressure water cleaning, or steam cleaning are used, the concrete surface profile (CSP) shall be CSP 1 in accordance with the International Concrete Repair Institute Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays (Guideline No. 03732). When abrasive blasting is used, the concrete surface profile shall be CSP 3. Low-pressure water or steam-cleaning primarily removes water soluble contaminants. Aged concrete with contaminants such as hardened curing compound may require light abrasive blasting to completely remove the curing compound. Since many curing compounds contain wax, even well adhered residue shall be removed prior to coating to ensure a good bond between the surface coating and the concrete.

When low pressure water cleaning, or steam cleaning is used, the power washer must deliver 3000 - 4500 psi and utilize a 15° or smaller nozzle tip held perpendicular to the surface being cleaned. When using light abrasive blasting to remove contaminants on new construction, be careful not to remove excessive concrete material.

2. **Visual Inspection** – Check surface cleanliness by lightly rubbing with a dark cloth or by pressing translucent adhesive tape onto the concrete surface in the presence of the Engineer. An acceptable level of residual dust can be agreed upon by the Engineer and the contractor. Perform a water drop test in the presence of the Engineer prior to coating the concrete surface to detect for the presence of any hydrophobic contaminants. Hydrophobic contaminants include materials such as form release agents, curing compounds, oil, grease, wax, and resins. If contaminants are detected, as evidenced by a lack of rapid absorption of the water drop into the concrete, remove the contaminants and perform the tests again until no contaminants are detected.

3. **Application** - Apply two coats of the acrylic based concrete surface coating. Apply each coat to provide the minimum wet film thickness as recommended by the manufacturer.

d. Measurement and Payment. The completed work as described will be paid for at the contract unit price for the following contract item (pay item):

| Contract Item (Pay Item) | Pay Unit |
|--|-----------------|
| Conc Surface Coating (Structure No.) | Lump Sum |

Payment for **Conc Surface Coating (Structure No.)** includes all labor, equipment, and materials to prepare the substrate concrete surface, conduct the visual inspection and apply the primer (if required) and two top coats of surface coating. No additional payment will be made for the test section.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PRECAST CONCRETE SUBSTRUCTURE

DES:PAG

1 of 8

C&T:APPR:EMB:SJC:03-08-07

a. Description. This work shall consist of the manufacture of structural precast concrete substructure units and the storage, transportation and the erection of these elements including grouting in place. The elements covered under this Special Provision are the precast columns, the precast pier caps and the precast stub abutments. Work shall be performed in accordance with this Special Provision and Sections 706 and 708 of the Standard Specifications for Construction where applicable.

b. Materials

1. **Concrete.** In accordance with the requirements listed in Section 701 of the Standard Specifications for Construction. The concrete shall be Grade S2. The concrete compressive strength shall be as shown on the plans.
2. **Reinforcement Bars.** In accordance with the requirements listed in Section 905 of the Standard Specifications for Construction.
3. **Grout.** In accordance with the Special Provision for Non-Shrink Grout.

c. Fabrication Requirements.

1. **Plant Certification.** Use plants certified according to the Prestressed Concrete Institute for Straight Strand Concrete Members, Category B3.
2. **Shop Plans.** Submit shop plans according to subsection 708.03.A.2 of the Standard Specifications for Construction and the requirements herein:
 - A. The shop plans shall detail the lifting and erection details including details for lifting hardware and adjustment procedures. The Contractor is responsible for the arrangement of all lifting and handling devices. Where lifting locations deviate from those shown on the contract plans the Contractor shall submit design calculations sealed by an Engineer registered in the state of Michigan.
 - B. At least 45 working days prior to erection, the Contractor shall submit a geometry control plan that indicates the proposed means and methods of element erection. The geometry control plan shall indicate the measures that will be implemented to achieve the finished elevations.
3. **Forms.** Use metal forms. However, wood forms may be used for bulkheads if desired. In addition to the requirements of subsection 706.03.D of the Standard Specifications for Construction, the forms used to cast the elements shall be capable of:

- A. Producing the elements within the tolerances specified in Section c.12 of this special provision.
- B. Accommodating blockouts, openings and protrusions.
- C. Stripping without damage to the concrete.

Where section of forms are joined, on the exterior face of the element, an offset in excess of 1/16 inch for flat surfaces and 1/8 inch for corners and bends will not be permitted. Metal forms surface treatment shall be in accordance with subsection 706.03.D.3.f. of the Standard Specifications for Construction. End headers shall be maintained to provide a smooth casting surface.

- 4. **Fabrication.** Reinforcing steel shall be fabricated and placed according to the plans and the Standard Specifications for Construction. Any conflict or interference with the proper location of reinforcing or blockouts shall be promptly resolved and corrections made as directed by the Engineer.

A positive means of holding the corrugated grout ducts or inserts in their correct position shall be provided in all cases and shall be indicated on the shop plans.

All substructure elements shall be marked where they will not be exposed after erection with a unique identification, approved by the Engineer, at the time of form removal. This identification shall be used to identify each unit in the shop plans and calculations and any other document pertaining to the fabrication and erection of precast elements.

- 5. **Placing Concrete.** Concrete shall not be deposited into forms until the entire set up of the forms, reinforcements, corrugated grout ducts, and other embedded items has been thoroughly inspected and checked.

During conveying, placement, and initial set, the concrete shall be protected against undue drying or rise in temperature and inclement weather. The placing of concrete will also not be permitted until the Engineer is satisfied that adequate measures, and protection, are available to prevent weather damage during conveying and placement.

Special care shall be taken to plan the sequence of placing concrete so as to assure that voids do not occur within the concrete in areas where air is likely to be entrapped within the forms or in areas where flow of the plastic concrete is constrained by embedded items.

Hauling and placing equipment shall be of a size and design that will permit the placing of concrete within the time limits set in subsection 706.03.H of the Standard Specifications for Construction. Concrete shall be placed in horizontal layers not more than 1.5 feet thick except as hereinafter provided. When less than a complete layer is placed in one operation, it shall be terminated in a vertical bulkhead.

Belt conveyors shall be horizontal or at a slope which will not cause excessive segregation or loss of ingredients. An approved device shall be used at the discharge end of a belt conveyor to prevent aggregate segregation. Mortar shall not be allowed to

adhere to the return length of the belt. Concrete shall be discharged into a hopper or through a baffle.

No construction joints will be permitted within an element except as detailed on the plans.

6. **Vibration.** All concrete shall be consolidated by means of high frequency internal vibrators in accordance with subsection 706.03H.1 of the Standard Specifications for Construction.

The use of external vibrators for consolidating concrete will be permitted and may be required when the concrete is inaccessible for adequate consolidation. When external vibration is used, the forms shall be constructed sufficiently rigid to resist displacement or damage. Vibrating of concrete shall be done with care and in such a manner as to avoid displacement of reinforcing, corrugated grout ducts, and other embedded items.

7. **Removal of Forms.** Weight supporting forms shall remain in-place until the concrete has reached the compressive strength specified in subsection 706.03.O of the Standard Specifications for Construction for form removal.

Care shall be exercised in removing the forms to prevent spalling and chipping of the concrete.

8. **Test Samples.** Concrete testing shall be in accordance with the subsection 708.03.A .7 of the Standard Specifications for Construction.
9. **Curing Concrete.** Curing shall be in accordance with subsection 708.03.A.11 of the Standard Specifications for Construction.

Finishing Concrete. All surfaces of the elements shall be finished as described in subsection 706.03.R.1 of the Standard Specifications for Construction.

10. **Surface Preparation at Cast-in-Place Joints.** The element surfaces in contact with secondary cast-in-place concrete pours (concrete diaphragm, backwall and top of abutments at slope walls) and non-shrink grout (column/footing and column/pier cap joints) shall be prepared as specified below.

After the segment concrete has hardened, the cement paste shall be removed to create a prepared surface. The surface shall be prepared by washing with water under pressure and by sandblasting to expose clean, well bonded aggregate.

To facilitate the removal of the cement paste, the element form in this area may be thoroughly covered with a surface retarder. When the surface retarder is applied directly to the fresh concrete surface, its application shall be completed within 30 minutes after concrete placement.

The surface retarder shall be a ready-to-use liquid compound that delays the set of a concrete surface, and shall be approved by the Engineer in advance of beginning of the

work. It shall produce results satisfactory to the Engineer and will be evaluated by tests performed by the Engineer, and on the manufacturer's data recommendations.

The prepared surface of the element shall be wetted a minimum of three hours before application of the new concrete. The surface shall be maintained in a dampened condition during that period. One hour before placing the new concrete, any excess water shall be removed and the surface shall be allowed to dry. At the time of placement, the surface shall be saturated surface dry (SSD) with no visible moisture or darkening of the bond surface.

At the option of the Contractor, immediately before placing the new concrete, the prepared surface shall be covered with a thin coat of mortar. The mortar shall be composed of 1 part portland cement and 1 part sand, and sufficient water to produce a thick fluid. All joint surfaces shall receive a thorough, even coating applied by hand scrubbing. No concrete shall be placed over dry mortar. Mortar that is allowed to become dry shall be removed and replaced at the Contractor's expense.

11. **Fabrication Tolerances.** Fabrication tolerances shall not exceed the following:

- A. Stub Abutment and Pier Cap Length (Transverse direction of the bridge): ± 1 inch.
- B. Stub Abutment and Pier Cap Length Width (Longitudinal direction of the bridge): $\pm 1/8$ in/ft or ± 1 inch, whichever is smaller.
- C. Stub Abutment and Pier Cap Depth: $\pm 1/8$ in/ft or $\pm 1/2$ inch, whichever is smaller.
- D. Column Height: $\pm 1/4$ inch.
- E. Column Diameter: $\pm 1/8$ inch.
- F. Corrugated grout duct location: $\pm 1/8$ inch.

d. Review and Repair of Damaged or Defective Elements

1. **Defects.** Isolated defects are defects or damage that occurs randomly and infrequently, as determined by the Engineer.

Recurring defects are defects or damages of the same general type and nature, which continue to be found in the same general location of the elements at an unacceptable frequency, as determined by the Engineer.

All elements cast will be jointly inspected by the Engineer, the Contractor, and the Contractor's Engineer after casting, after moving to storage from the casting machine, and before and after erection. All element defects shall be identified and categorized during this inspection. The Contractor and the Contractor's Engineer shall examine the defects and propose to the Engineer, in writing:

- A. The measures that the Contractor shall take to prevent recurring defects in future elements.
- B. The method of repair of all defects discovered as a result of the inspection as required herein.

If recurring defects continue following implementation of the Contractor's preventive measures, or as detected at any time during the construction, the Engineer will instruct the Contractor, in writing, to cease operations producing such defective elements. The Contractor and the Contractor's Engineer shall examine the defects and propose to the Engineer, in writing:

- A. The measures the Contractor shall take to prevent recurring defects in future elements; and,
- B. The method of repair of all defects discovered as a result of the inspection as required herein.

The Engineer will determine what constitutes damage or defect, whether the damage or defect is isolated or recurring, and will categorize the damage or defects. Three categories of defects are recognized by the Engineer for this purpose:

- A. **Cosmetic.** Cosmetic defects or damages are those which do not affect the ability of the element to resist construction or service loads or reduces the life expectancy of the structure. This category of defect includes superficial discontinuities such as cracks, small spalls or honeycombed areas, or any defect that does not extend beyond the centerline of any reinforcing steel.

Cosmetic defects of other types and causes may also be designated by the Engineer.

Repair of cosmetic defects shall be made in such a manner that the aesthetics and the integrity of the element is restored.

- B. **Structural.** This category of defect shall include any defect that will impair the ability of the element to adequately resist construction or service loads or reduce the life expectancy of the structure. Any defect or damage that extends beyond the centerline of any reinforcing steel is considered a structural defect.

Examples of such defects include cracks, large spalls and honeycombed areas, major segregation or breakage of concrete; however, structural defects of other types and causes may be designated by the Engineer.

The Contractor's Engineer shall be responsible for construction load analysis, service load analysis, and life expectancy determinations.

Repair of structural defects shall be such that the structural integrity of the element shall be completely restored to a condition to be expected had the defect or damage not occurred.

- C. **Rejectable.** A rejectable defect is any defect or damage, as determined by the Engineer, which will impair the ability of the element to adequately resist service loads or construction loads, or will reduce the life expectancy of the structure and which cannot be successfully repaired such that the structural integrity is completely restored. Any element with a rejectable defect will be deemed unacceptable and shall be removed from the work and replaced at no additional cost.

Damaged or defective elements may also be rejected by the Engineer for the following reasons:

- 1) Failure of the Contractor's Engineer to approve proposed repair procedures.
- 2) Failure of the Contractor to execute the repair according to the Contractor's Engineer's approved procedure.
- 3) Rejection of the proposed repair procedure or repair by the Engineer.
- 4) Failure of the Contractor to provide the required certification or demonstration that the repair was successful and that the defect no longer exists, as required below.
- 5) Failure of the Contractor to eliminate recurring defects.
- 6) Determination by the Engineer that the work or materials used in the work does not meet other requirements of the Contract Documents and is not acceptable.

Elements with cosmetic defects will be paid for according to the contract price. However, such payment is subject to review by the Engineer, and failure of the Contractor to prosecute the required repairs properly and in a timely manner shall be cause for withholding of payments sufficient to protect the Owner's interests.

Elements with structural defects will not be paid for until the repair procedure is complete and the element is certified or demonstrated to be free of structural defect as required.

2. **Repairs.** Cosmetic repairs shall only be made following procedures prepared by the Contractor, submitted in writing to and approved by the Engineer.

Structural repairs shall be made following procedures prepared by the Contractor. The repair procedure shall be signed and sealed by the Contractor's Engineer, shall be submitted in writing to the Engineer, and shall include the following minimum information:

- A. A detailed description and sketch of the defect.
- B. The magnitude and type of the most critical construction loading and service life condition to which the defective area will be subjected.
- C. Detailed reinforcement requirements, material types, surface treatments, curing methods and general repair procedures proposed. The procedure shall clearly indicate the areas that are required to be repaired before erection, and those areas to be repaired after erection.

- D. The specific nondestructive testing method and procedure by which the Contractor shall demonstrate to the Engineer that the defect no longer exists and the element has been restored to a condition to be expected had the defect or damage not occurred.

In lieu of physical demonstration, on a case-by-case basis, the Engineer may allow the Contractor to substitute a written certification by the Contractor's Engineer that the repair has been performed satisfactorily and that the defect no longer exists.

This work shall not be the basis for any request for extension of time or additional compensation.

e. Handling and Erection of Elements. The Contractor shall be responsible for proper handling, lifting, storing, transporting and erection of all elements so that they may be placed without damage.

Elements shall be stored, lifted and/or moved in a manner to prevent torsion and other undue stress. When moving a segment, lift it by the loop devices detailed on the plans, unless an alternate lifting device and procedures are approved by the Engineer. Apply equal loads to all lifting devices. Elements may be moved for storage or placement after the curing has been completed and after a flexural strength of 425 psi (or 3000 psi compression) has been achieved. The Contractor may alter the mix design and move the elements earlier provided a flexural strength of 425 psi (or 3000 psi compression) has been achieved and provided that the curing time is interrupted by no more than two hours. Lifting locations are indicated on the plans. Elements shall be supported in a manner that will minimize warping.

The Contractor shall inspect each element visually for evidence of damage or defect before, during and after critical operations and as often as necessary to ensure adequate quality control. The Contractor shall immediately bring all such evidence of damage or defect to the attention of the Engineer. The extent and frequency of inspection by the Engineer for quality assurance is the Engineer's prerogative. Elements may be inspected at any time during construction as deemed necessary by the Engineer to monitor compliance with this specification. Prior to shipment and upon arrival at the erection site, each element shall be inspected for damage. During transport, the elements shall be fully secured against shifting. Upon arrival at the erection site, each element shall again be inspected.

If any damage has occurred during shipment, the Contractor shall immediately notify the Engineer. Erection of such damaged elements into the structure shall not proceed without authorization from the Engineer.

The Contractor shall develop his method of construction in a manner that is also to be consistent with the overall bridge design. The Contractor shall be solely responsible for design, fabrication, assembly and operation of all equipment to be used for handling and erecting elements.

No extra payment will be made to the Contractor for any cost incurred in modifying the permanent structure due to temporary loading induced by the Contractor's handling and erection equipment or his erection scheme.

The elements shall be erected on non-metallic shim stacks or using other support devices approved by the Engineer to achieve the proper installed element geometry and grout pad thickness.

f. Measurement and Payment. The completed work as described will be measured and paid for using the following contract items (pay items):

| Contract Item (Pay Item) | Pay Unit |
|---|-----------------|
| Precast Concrete Substructure, Abutment | Cubic Yard |
| Precast Concrete Substructure, Pier | Cubic Yard |

Payment for **Precast Concrete Substructure, Abutment** and **Precast Concrete Substructure, Pier** shall be full compensation for furnishing and erecting the substructure units including all the equipment, tools, labor and incidental items required to complete the work. The volume shall be the number of cubic yards computed from the lines and dimensions shown on the plans. The volume shall be calculated with no subtraction of bevels, grout ducts, anchorages and other forming hardware.

Reinforcing steel, corrugated grout ducts, and all other embedded components of the precast concrete substructure elements are included in pay items.

The pay items shall include shimming and grouting of the substructure units as described in the Special Provision for Non-Shrink Grout.

No additional payment will be made for extra concrete and reinforcing steel necessitated by approved modifications to the elements, joints, or structure for the purposes of the Contractor's construction methods.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**CLEANING AND COATING OF GALVANIZED
BRIDGE RAILING**

C&T:BDB

1 of 1

C&T:APPR:JAR:EMB:01-30-03

a. Materials. All work and material shall be in accordance with Sections 707, 711, 715, 716 and 915 of the Standard Specifications for Construction with the following exceptions:

1. Omit the intermediate coat.
2. The top coat shall be a black urethane (Federal Standard No. 595b, color number 17038).

b. Measurement and Payment. Repair of damaged galvanizing and the coating of galvanized bridge railing, will be included in pay item for furnishing the galvanized component.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SUPERSTRUCTURE CONCRETE - SPECIAL

DES:PAG

1 of 1

C&T:APPR:EMB:DBP:07-24-07

a. Description. This work shall consist of the construction of Portland cement concrete for cast-in-place deck as shown on the contract plans in conformance with the provisions of the applicable specifications. This work shall be performed in accordance with this Special Provision and Sections 701 and 706 of the Standard Specifications for Construction where applicable.

b. Materials. Use materials to meet subsection 706.02 of the Standard Specifications for Construction. Minimum compressive strengths of concrete are as shown on the contract plans.

c. Measurement and Payment. The completed work as described will be measured and paid for using the following contract items (pays items):

| Contract Item (Pay Item) | Pay Unit |
|--|-----------------|
| Superstructure Conc – Special | Cubic Yard |
| Superstructure Conc – Special, Form, Finish, And Cure (Structure No.) | Lump Sum |

Payment for **Superstructure Concrete – Special** shall be full compensation for cast-in-place superstructure concrete including all the equipment, tools, labor and incidental items required to complete the work. Payment for fabrication and erection of the deck panels, at the compressive strengths as shown on the plans are included in the **Precast Concrete Deck Panel** pay item as described in the Special Provision for Precast Concrete Deck Panels.

Unless otherwise stated, pay quantities for the pay items listed will be computed from the lines and dimensions shown on the plans. The volume of concrete will be calculated with no subtraction of the steel reinforcement volume.

Superstructure Conc – Special, Form, Finish, and Cure includes designing, fabricating, furnishing, erecting, and removing the forms, and furnishing and installing Styrofoam when required.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PRECAST CONCRETE DECK PANELS

DES:PAG

1 of 10

C&T:APPR:EMB:DBP:07-25-07

a. Description

1. **General.** This work shall consist of the manufacture of structural precast concrete deck panels and the storage, transportation and the erection of these panels onto the structure. The final structure shall conform to the lines, levels and grades shown on the contract plans in conformance with the provisions of the applicable specifications. This work shall be performed in accordance with this Special Provision, the Special Provision for Superstructure Concrete - Special, and Sections 706 and 708 of the Standard Specifications for Construction where applicable.

2. **Contractor Proposed Options.** The Contractor may propose, for consideration by the Engineer, variations from the construction and erection schemes shown in the contract plans.

Options for construction details covered by this section are limited to the following:

- A. Segment lengths may be reduced or increased from those detailed.
- B. Optional post-tensioning systems or layouts, provided that optional systems meet the requirements specified herein and the requirements set out under the Special Provision for Panel Post-Tensioning.

3. **Restrictions to Contractor Proposed Options.** Any redesign or modification with regard to method of superstructure construction or post tensioning differing in any respect from the structure as designed and detailed on the plans shall comply with the following:

- A. The Contractor demonstrates that any proposed option or modification meets the design criteria noted on the plans and the specifications.
- B. Stressing blocks for any optional or modified permanent prestressing system's anchorages shall only be located within the panels. Stressing blocks for any temporary prestressing system anchorages may be located within the panels, in external systems temporarily anchored to the panels and removed after use, or a combination of any of the above methods. All construction added outside the panels for temporary prestressing shall be subsequently removed to restore the panels to the designed cross-section shown on the plans or as approved by the Engineer.

b. Materials

1. **Concrete.** In accordance with the requirements listed in the Special Provision for Superstructure Concrete – Special.

2. **Reinforcement Bars.** In accordance with Section 905 of the Standard Specifications for Construction.

3. **Post-Tensioning Steel, Ducts, Anchorages and Grout.** In accordance with the Special Provisions for Panel Post-Tensioning and Non-Shrink Grout.

c. Fabrication Requirements

1. **Plant Certification.** If fabricator elects to prestress the panels, they must be certified according to the Prestressed Concrete Institute for Prestressed Straight Strand Concrete Members, Category B3.

2. **Shop Plans.** Submit shop plans according to subsection 708.03.A.2 and the requirements herein:

A. The shop plans shall detail the lifting and erection details including details for lifting hardware and adjustment procedures. The Contractor is responsible for the arrangement of all lifting and handling devices. Where lifting locations deviate from those shown on the contract plans the Contractor shall submit design calculations sealed by an engineer registered in Michigan.

B. At least 45 working days prior to erection, the Contractor shall submit a geometry control plan that indicates the proposed means and methods of element erection. The geometry control plan shall indicate the measures that will be implemented to achieve the finished elevations.

3. **Forms.** Use metal forms. However, wood forms may be used for bulkheads if desired. In addition to the requirements of subsection 706.03.D of the Standard Specifications for Construction, the forms used to cast the concrete panels shall be capable of:

A. Producing the panels within the tolerances specified in subsection c.14.

B. Accommodating blockouts, openings and protrusions.

C. Stripping without damage to the concrete.

Where section of forms are joined, on the exterior face of the panel, an offset in excess of 1/16 inch for flat surfaces and 1/8 inch for corners and bends will not be permitted.

Metal forms surface treatment shall be in accordance with subsection 706.03.D.3.f. of the Standard Specifications for Construction. End headers shall be maintained to provide a smooth casting surface.

All form surfaces for casting members shall be constructed and maintained to provide panel tolerances in accordance with subsection c.14 contained herein.

4. **Casting Segments.** Casting bed and forms shall be structurally adequate to support the panels without settlement or distortion. The casting bed shall be designed for a method and the hardware needed to adjust and maintain grade and alignment. Details for hardware and adjustment procedure shall be included in the shop plans for the casting bed. Grading

of the fascia form and the top portion of each panel shall take into consideration the relative position of the member in the structure.

5. Fabrication. Reinforcing steel shall be fabricated and placed according to the plans and Standard Specifications. Any conflict or interference with the proper location of ducts and/or reinforcing or blockouts shall be promptly resolved and corrections made as directed by the Engineer. No reinforcing steel shall be cut and removed to permit proper alignment of the ducts for the longitudinal post-tensioning. Any bar that cannot be fabricated to clear the ducts for the longitudinal post-tensioning shall be replaced by additional bars with adequate lap lengths and shall be submitted to the Engineer for approval.

All panels shall be marked on the underside with a unique identification, approved by the Engineer, at the time of form removal. This identification shall be used to identify each panel, post-tensioning details and calculations and any other document pertaining to the fabrication and erection of precast concrete panels.

A positive means of holding the ducts for the longitudinal post-tensioning in their correct position shall be provided in all cases and shall be indicated on the shop drawings submitted for approval. The duct shall be supported at intervals specified in the Special Provision for Panel Post-Tensioning or as shown on the plans, and shall be securely fastened to prevent movement during placement of concrete.

The Contractor shall submit method to achieve proper duct alignment to the Engineer for approval. Taping or gluing the ends of the ducts in place shall not be permitted.

Embedded ducts and anchorage devices for the longitudinal tendons shall be placed in accordance with the Special Provision for Panel Post-Tensioning.

After installation in the forms, the end of the ducts shall at all times be sealed to prevent entry of water and debris. Following each pour of concrete, the Contractor will be required to demonstrate that all empty ducts are free of water and are unobstructed and undamaged. Immediately prior to installation of the prestressing steel, the Contractor shall again demonstrate, to the satisfaction of the Engineer, that all ducts are unobstructed and that they are free of water and debris.

6. Placing Concrete. Concrete shall not be deposited into forms until the entire set up of the forms, reinforcements, ducts, inserts, and anchorages has been thoroughly inspected and checked.

During conveying, placement, and initial set, the concrete shall be protected against undue drying or rise in temperature and inclement weather. The placing of concrete will also not be permitted until the Engineer is satisfied that adequate measures, and protection, are available to prevent weather damage during conveying and placement.

Special care shall be taken to plan the sequence of placing concrete so as to assure that voids do not occur within the concrete in areas where air is likely to be entrapped within the forms or in areas where flow of the plastic concrete is constrained by embedded items.

Hauling and placing equipment shall be of a size and design that will permit the placing of concrete within the time limits set in subsection 706.03.H of the Standard Specifications for Construction.

Belt conveyors shall be horizontal or at a slope which will not cause excessive segregation or loss of ingredients. Concrete shall be protected against undue drying or rise in temperature. An approved device shall be used at the discharge end of a belt conveyor to prevent aggregate segregation. Mortar shall not be allowed to adhere to the return length of the belt. Concrete shall be discharged into a hopper or through a baffle.

No construction joints will be permitted within a panel except as detailed on the plans.

7. Vibration. All concrete shall be consolidated by means of high frequency internal vibrators in accordance with subsection 706.03.H.1 of the Standard Specifications for Construction.

The use of external vibrators for consolidating concrete will be permitted and may be required when the concrete is inaccessible for adequate consolidation. When external vibration is used, the forms shall be constructed sufficiently rigid to resist displacement or damage. Vibrating of concrete shall be done with care and in such a manner as to avoid displacement of reinforcing, ducts, and other embedded items.

8. Removal of Forms. Weight supporting forms shall remain in-place until the concrete has reached the compressive strength specified in subsection 706.03.O of the Standard Specifications for Construction for form removal.

Care shall be exercised in removing the forms to prevent spalling and chipping of the concrete.

9. Test Samples. Concrete testing shall be in accordance with the subsection 708.03.A.7 of the Standard Specifications for Construction.

10. Curing Concrete. Curing shall be in accordance with subsection 708.03.A.11 of the Standard Specifications for Construction.

11. Finishing Concrete. All surfaces of the panels, except the top surface of panels, shall be finished as described in subsection 706.03.R.1 of the Standard Specifications for Construction.

12. Finish for Top Surface of Panels. As soon as the concrete has been placed and vibrated in a section of sufficient width to permit working, the surface shall be approximately leveled, struck off and screeded such that a slight excess of concrete is carried ahead of the screed to insure filling of all low spots. The screed shall be designed rigid enough to hold true to shape. A hydraulically driven, bare steel tube rotating in the opposite direction of travel may be used if heavy enough to prevent undue distortion.

The longitudinal screed shall be moved back and forth across the concrete while resting on the upper surface of the bulkheads. The surface of the concrete shall be screeded a sufficient number of times, and at such intervals to produce a uniform surface, true to grade and free of voids. The surface then shall be broom finished or similar

Only minimum hand finishing will be permitted and when the Engineer deems the slab surface is being overworked, all hand finishing will be stopped.

Only minimal amounts of water will be allowed to aid in the finishing process when evaporation rates affect the quality of the finish. A fog spray may be used to help retard surface evaporation, but shall not change the water-cement ratio at the deck surface.

13. Segment Surface Preparation at Cast-in-Place Joints. The panel surfaces in contact with secondary cast-in-place concrete pours (at the diaphragms, longitudinal closure pour, and abutments) shall be prepared as specified below.

After the panel concrete has hardened, the cement paste shall be removed to create a prepared surface. The surface shall be prepared by washing with water under pressure and by sandblasting to expose clean, well bonded aggregate.

To facilitate the removal of the cement paste, the panel bulkhead and/or the exposed panel surface may be thoroughly covered with a surface retarder. When the surface retarder is applied directly to the fresh concrete surface, its application shall be completed within 30 minutes after concrete placement.

The surface retarder shall be a ready-to-use liquid compound that delays the set of a concrete surface, and shall be approved by the Engineer in advance of beginning of the work. It shall produce results satisfactory to the Engineer and will be evaluated by tests performed by the Engineer, and on the manufacturer's data recommendations.

The prepared surface of the panel shall be wetted a minimum of three hours before application of the new concrete. The surface shall be maintained in a dampened condition during that period. One hour before placing the new concrete, any excess water shall be removed and the surface shall be allowed to dry. At the time of placement, the surface shall be saturated surface dry (SSD) with no visible moisture or darkening of the bond surface.

At the option of the Contractor, immediately before placing the new concrete, the prepared surface shall be covered with a thin coat of mortar. The mortar shall be composed of one part portland cement and one part sand, and sufficient water to produce a thick fluid. All joint surfaces shall receive a thorough, even coating applied by hand scrubbing. No concrete shall be placed over dry mortar. Mortar that is allowed to become dry shall be removed and replaced at the Contractor's expense.

14. Fabrication Tolerances. Fabrication tolerances shall not exceed the following:

- A. Length (Transverse direction of the bridge): $\pm 1/16$ in/ft, or $\pm 3/4$ in. whichever is smaller.
- B. Width, not cumulative (Longitudinal direction of the bridge): $\pm 1/8$ in/ft or $\pm 3/4$ in. whichever is smaller.
- C. Depth (overall): $\pm 1/8$ in.
- D. Grade of form edge and fascia: $\pm 1/8$ in. in 10 ft.

E. Tendon hole/duct location: $\pm 1/8$ in.

d. Review and Repair of Damaged or Defective Segments

1. **Defects.** Isolated defects are defects or damage that occurs randomly and infrequently, as determined by the Engineer.

Recurring defects are defects or damages of the same general type and nature, which continue to be found in the same general location of the panels at an unacceptable frequency, as determined by the Engineer.

As a minimum, the first five panels cast will be jointly inspected by the Engineer, the Contractor, and the Contractor's Engineer after casting, after moving to storage from the casting machine, and before and after erection. All panel defects shall be identified and categorized during this inspection. The Contractor and the Contractor's Engineer shall examine the defects and propose to the Engineer, in writing:

- A. The measures that the Contractor shall take to prevent recurring defects in future panels.
- B. The method of repair of all defects discovered as a result of the inspection as required herein.

If recurring defects continue following implementation of the Contractor's preventive measures, or as detected at any time during the construction, the Engineer will instruct the Contractor, in writing, to cease operations producing such defective panels. The Contractor and the Contractor's Engineer shall examine the defects and propose to the Engineer, in writing:

- C. The measures the Contractor shall take to prevent recurring defects in future panels; and,
- D. The method of repair of all defects discovered as a result of the inspection as required herein.

The Engineer will determine what constitutes damage or defect, whether the damage or defect is isolated or recurring, and will categorize the damage or defects. Three categories of defects are recognized by the Engineer for this purpose:

- E. **Cosmetic.** Cosmetic defects or damages are those which do not affect the ability of the panel to resist construction or service loads or reduces the life expectancy of the structure. This category of defect includes superficial discontinuities such as cracks, small spalls or honeycombed areas, or any defect that does not extend beyond the centerline of any reinforcing steel, or to any elements of the post-tensioning system.

Cosmetic defects of other types and causes may also be designated by the Engineer.

Repair of cosmetic defects shall be made in such a manner that the aesthetics and the integrity of the panels is restored.

- F. **Structural.** This category of defect shall include any defect that will impair the ability of the panel to adequately resist construction or service loads or reduce the life expectancy of the structure. Any defect or damage that extends beyond the centerline of any reinforcing steel or into any element of the post-tensioning system or occurs in the deck portion of the panel is considered a structural defect.

Examples of such defects include cracks, large spalls and honeycombed areas, major segregation or breakage of concrete; however, structural defects of other types and causes may be designated by the Engineer.

The Contractor's Engineer shall be responsible for construction load analysis, service load analysis, and life expectancy determinations.

Repair of structural defects shall be such that the structural integrity of the panel shall be completely restored to a condition to be expected had the defect or damage not occurred.

- G. **Rejectable.** A rejectable defect is any defect or damage, as determined by the Engineer, which will impair the ability of the panel to adequately resist service loads or construction loads, or will reduce the life expectancy of the structure and which cannot be successfully repaired such that the structural integrity is completely restored. Any panel with a rejectable defect will be deemed unacceptable and shall be removed from the work and replaced at no additional cost.

Damaged or defective panels may also be rejected by the Engineer for the following reasons:

- (1) Failure of the Contractor's Engineer to approve proposed repair procedures.
- (2) Failure of the Contractor to execute the repair according to the Contractor's Engineer's approved procedure.
- (3) Rejection of the proposed repair procedure or repair by the Engineer.
- (4) Failure of the Contractor to provide the required certification or demonstration that the repair was successful and that the defect no longer exists, as required below.
- (5) Failure of the Contractor to eliminate recurring defects
- (6) Determination by the Engineer that the work or materials used in the work does not meet other requirements of the Contract Documents and is not acceptable.

Segments with cosmetic defects will be paid for according to the contract price. However, such payment is subject to review by the Engineer, and failure of the Contractor to prosecute the required repairs properly and in a timely manner shall be cause for withholding of payments sufficient to protect the Owner's interests.

Segments with structural defects will not be paid for until the repair procedure is complete and the panel is certified or demonstrated to be free of structural defect as required.

2. **Repairs.** Cosmetic repairs shall only be made following procedures prepared by the Contractor, submitted in writing to and approved by the Engineer. The Contractor's repair procedure shall identify those areas required to be repaired prior to post-tensioning, and those that must be repaired after post-tensioning.

Structural repairs shall be made following procedures prepared by the Contractor. The repair procedure shall be signed and sealed by the Contractor's Engineer, shall be submitted in writing to the Engineer, and shall include the following minimum information:

- A. A detailed description and sketch of the defect.
- B. The magnitude and type of the most critical construction loading and service life condition to which the defective area will be subjected.
- C. Detailed reinforcement requirements, material types, surface treatments, curing methods and general repair procedures proposed. The procedure shall clearly indicate those areas required to be repaired before erection, and those areas to be repaired after erection.
- D. The specific nondestructive testing method and procedure by which the Contractor shall demonstrate to the Engineer that the defect no longer exists and the panel has been restored to a condition to be expected had the defect or damage not occurred.

In lieu of physical demonstration, on a case-by-case basis, the Engineer may allow the Contractor to substitute a written certification by the Contractor's Engineer that the repair has been performed satisfactorily and that the defect no longer exists.

This work shall not be the basis for any request for extension of time or additional compensation.

e. Handling of Segments. The Contractor (Fabricator) shall be responsible for proper handling, lifting, storing, transporting and erection of all panels so that they may be placed in the structure without damage. A handling scheme is shown on the plans for the Contractor's convenience only.

Segments shall be maintained in an upright position at all times and shall be stored, lifted and/or moved in a manner to prevent torsion and other undue stress. When moving a segment, lift it by the loop devices detailed on the plans, unless an alternate lifting device and procedures are approved by the engineer. Apply equal loads to all lifting devices. Elements shall not be moved from the casting yard until the full 28 day strength requirements have been attained, and shall be supported in a manner that will minimize warping.

The Contractor shall inspect each panel visually for evidence of damage or defect before, during and after critical operations and as often as necessary to ensure adequate quality control. The Contractor shall immediately bring all such evidence of damage or defect to the attention of the Engineer. The extent and frequency of inspection by the Engineer for quality assurance is the

Engineer's prerogative. Panels may be inspected at any time during construction as deemed necessary by the Engineer to monitor compliance with this specification.

Prior to shipment, each panel shall be inspected for damage. The faces of all joints shall be thoroughly cleaned of laitance, bond breaking compound and any other foreign material by abrasive blasting. Blasting may be supplemented by detergent washing as necessary. During transport, firm support at the bearing locations noted on the plans for support during storage shall be provided and the panels shall be fully secured against shifting. The support devices shall allow free rotation of the panel at each support point and free torsional rotation (twist) of the panel at all but one of the support points. Upon arrival at the erection site, each panel shall again be inspected.

If any damage has occurred during shipment, the Contractor shall immediately notify the Engineer. Erection of such damaged panels into the structure shall not proceed without authorization from the Engineer.

f. Erection

1. **General.** An erection scheme for erecting panels is shown in the plans for the Contractor's convenience only. The erection scheme is a concept only, consistent with the overall bridge design. It is presented to aid the Contractor in developing his method of construction that is also to be consistent with the overall bridge design. The Contractor shall be solely responsible for design, fabrication, assembly and operation of all equipment to be used for handling and erecting panels.

No extra payment will be made to the Contractor for any cost incurred in modifying the permanent structure due to temporary loading induced by the Contractor's handling and erection equipment or his erection scheme.

The panels shall be erected on non-metallic shim stacks with a low coefficient of friction or using other support devices approved by the Engineer to achieve the proper haunch thickness and grades. The Contractor shall survey the top flange elevations and calculate the required haunches. The survey results and haunch thicknesses shall be submitted to the Engineer for approval prior to proceeding with the panel erection.

2. **Age of Precast Segments at Time of Erection.** Precast panels shall not be erected until they have reached the age of 28 days and have obtained the minimum specified strength in the plans.

3. **Tolerances.** The following tolerances shall apply to erection of superstructure panels:

- A. The maximum differential between the outside face of adjacent panels in the erected position shall not exceed 1/8 inch.
- B. Transversely, the angular deviation from the theoretical slope difference between two successive panel joints shall not exceed 0.001 Rad.
- C. Longitudinally, the angular deviation from the theoretical slope change between two successive panels shall not exceed 0.003 Rad.

- D. The horizontal and vertical position of the first panel to be erected shall be within 3/8 inch of the required longitudinal alignment, grade and cross-slope.
- E. The longitudinal position of the end panels shall be within 1/2 inch of its theoretical positions shown on the plans.

g. Measurement and Payment. The completed work as measured will be paid for at the contract unit price for the following pay item:

| Contract Item (Pay Item) | Pay Unit |
|-----------------------------------|-----------------|
| Precast Concrete Deck Panel | Square Foot |

Payment for Precast Concrete Deck Panel shall be full compensation for furnishing and erecting the deck panels including all the equipment, tools, labor and incidental items required to complete the work.

Reinforcing steel and all other embedded components of the precast deck panels are included in pay item with the exception of the post-tensioning hardware and the grouting of the post-tensioning system which is included in the **Deck Post Tensioning** pay item as described in the Special Provision for Panel Post-Tensioning.

No additional payment will be made for extra concrete, reinforcing steel and prestressing necessitated by approved modifications to the panels, joints, or structure for the purposes of the Contractor's construction methods.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PANEL POST-TENSIONING

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a. Description.

1. **General.** This work shall consist of furnishing, installing, stressing and grouting prestressing steel in accordance with the details shown on the plans and the requirements of these Specifications.

It shall also include the furnishing and installing of any appurtenant items necessary for the particular post-tensioning system used, including but not limited to, anchorage assemblies, additional reinforcing bars required to resist stresses caused by anchorage assemblies, ducts, vents, inlets, outlets, and grout used for pressure grouting of the ducts.

2. **Contractor Proposed Options.** The Contractor may propose for consideration certain variations from the prestressing systems shown in the plans.

3. **Restrictions to Contractor Proposed Option.** Any post-tensioning system proposed by the Contractor shall comply with the following:

A. Materials and devices used in the post-tensioning system shall conform to the requirements of the following Materials Section of this Specification.

B. The net compressive stress in the concrete after all losses is at least as large as that provided by the system shown on the Plans.

C. The distribution of individual tendons or bars at each section generally conforms to the distribution shown on the Plans.

D. The ultimate strength of the structure with the proposed post-tensioning system shall meet the requirements of Section 9 of the AASHTO Standard Specifications for Highway Bridges, Seventeenth Edition, 2002 and all applicable interims; and shall be equivalent to the ultimate strength provided by the original design.

E. Stresses in the concrete and prestressing steel at all sections and at all stages of construction meet the requirements of the Design Criteria noted on the Plans.

F. Compliance with all the provisions of the Design Criteria, as noted on the plans.

G. The Contractor fully redesigns and details, as required, all the elements where the alternate post-tensioning system is proposed to be used.

H. The Contractor submits complete shop drawings including the post-tensioning scheme and system, reinforcing steel, concrete cover, and design calculations (including short and long term prestress losses) for the Engineer's review.

b. Working Drawings. The Contractor shall submit detailed working drawings in accordance with Section 104.02 of the Standard Specifications for Construction that include, but are not limited to:

1. A complete description of, and details covering, each of the post-tensioning systems to be used for permanent tendons. This shall include:

A. Designation of the specific prestressing steel, anchorage devices, bar couplers, duct material and accessory items.

B. Properties of each of the components of the post-tensioning system.

C. Details covering assembly of each type of post-tensioning tendon.

D. Equipment to be used in the post-tensioning sequence.

E. Procedure and sequence of operations for post-tensioning and securing tendons.

F. Procedure for releasing the prestressing steel elements.

G. Parameters to be used to calculate the typical tendon force such as; expected friction coefficients, anchor set and prestress steel relaxation curves.

H. Details of block-outs or recesses in the concrete for anchorages, couplers or stressing. It shall be the manufacturer's responsibility to verify the suitability and make modifications as required to the block-outs and recesses shown on the Contract Plans for the actual post-tensioning system proposed.

2. A table detailing the prestressing jacking sequence, jacking forces and initial elongations of each tendon at each stage of erection for all post-tensioning.

3. Complete details of the anchorage system for post-tensioning including certified copies of the reports covering tests performed on post-tensioning anchorage devices as required in Section c. Materials, and details for any reinforcing steel needed due to stresses imposed in the concrete by anchorage plates.

4. For the operation of grouting post-tensioning tendons, the materials and proportions for grout, details of equipment for mixing and placing grout and methods of mixing and placing grout.

5. Calculations to substantiate the post-tensioning system and procedures to be use including stress-strain curves typical of the prestressing steel to be furnished, required jacking forces, elongations of tendons during tensioning, and seating losses. These calculations shall show a typical tendon force after applying the expected friction coefficient, and anticipated losses including anchor set losses. Elongation calculations shall be revised when necessary to properly reflect the modulus of elasticity and nominal area as furnished by the Manufacturer for the lot of steel being tensioned. Elongation calculations shall also be adjusted, as necessary, based upon the actual coefficient of friction measured and calculated by an in-place friction test.

6. Complete details of the apparatus and method to be used by the Contractor for the test required by Section c.8, including the proposed tendons to be tested.

c. Materials.

1. **General.** The materials to be incorporated into work covered by this section shall conform to the requirements set out herein.

2. **Prestressing Steel.**

A. **Strand.** Unless otherwise noted on the plans, strand shall be uncoated, Grade 270 (1860), low-relaxation seven-wire strand conforming to the requirements of AASHTO M203 (ASTM A416). Prestressing steel tendons are 0.60 inch diameter, 7-wire strand, at 0.74 pounds/feet.

B. **Threaded-Bar.** Unless otherwise noted on the plans, prestress bars shall be uncoated, Grade 150 (1035), high strength deformed thread bars conforming to the requirements of AASHTO M275 (ASTM A722), Type II. All nuts shall be spherical hex nuts conforming to the requirements of ASTM A536. All nuts and bars shall be epoxy coated in accordance with ASTM A775. Fabrication and job-site handling shall be in accordance with ASTM D3963.

3. **Threaded-Bar Couplers.** Thread-bar couplers shall meet the requirements of AASHTO M275 (ASTM A722). Fabrication and job-site handling shall be in accordance with ASTM D3963. Bar couplers shall be used only at locations specifically shown on the plans or approved by the Engineer. A bar coupler shall develop at least 96 percent of the required strength of the bar with a minimum elongation of two percent when tested in the unbonded condition in 10 foot gauge lengths, without failure either of the coupler or the thread-bar.

Testing of couplers shall be performed using samples of the prestressing bar to be used on the project. The test specimen shall be assembled in an unbonded state and, in testing, the anticipated set shall not be exceeded.

Only threaded type couplers shall be used with post-tensioning thread bars. Post tensioning thread-bars shall be threaded into the coupler to $\frac{1}{2}$ the length of the coupler $\pm \frac{1}{4}$ inch so that when two bars are coupled in a coupler, the length of each bar positively engaged in the coupler shall be half the coupler's length within the acceptable tolerances.

4. **Post-Tensioning Anchorages.** All prestressing steel shall be secured at the ends by means of permanent type anchoring devices. Post-tensioning anchorages shall develop at least 96 percent of the minimum specified ultimate tensile strength of the prestressing steel. The anchorages shall accommodate protective, permanent non-metallic grout caps fastened to the anchor plate. Dead end or non-stressing type anchorages that do not entirely encapsulate the strand with duct and grout will not be permitted.

Testing of anchorage devices shall be performed in accordance with Article 10.3.2.3 of the AASHTO LRFD Bridge Construction Specifications, 2nd Edition, 2004 and 2005 interims using samples representing the type of prestressing steel and concrete strength to be used on the project. The test specimen shall be assembled in an unbonded state and, in testing, the anticipated anchor set shall not be exceeded. Certified copies of Mill test reports for the

anchorage system shall be supplied to the Engineer. The anchorage system shall be so arranged that the prestressing force in the tendon may be verified prior to the removal of the stressing equipment.

The Engineer will immediately stop the use of two part wedges that show any sign of slippage or failure to grip the tendon without exceeding the anticipated set, and require the use of acceptable alternative three part wedges for anchoring post-tensioning strands at no additional cost to the Department.

For tendon anchorages, the design and furnishing of any reinforcement (in addition to the reinforcement shown on the plans) which is needed to resist bursting and splitting stresses imposed on the concrete by the proposed anchorage system shall be the responsibility of the Contractor and is included in the pay item. It shall be the responsibility of the manufacturer to review and approve any local zone reinforcement detailed on the Plans for suitability with the proposed anchorages and concrete strength to be used on the project.

The testing requirements specified in the above referenced shall be performed at no cost to the Department. Incorporating any additional confinement reinforcement or modifications to existing reinforcement required for satisfactory performance of the anchorage devices in the structure shall result in no additional cost to the Department.

5. Ducts.

A. General. All duct material shall be sufficiently rigid to withstand loads imposed during placing of concrete and internal pressure during grouting while maintaining its shape, remaining in proper alignment and remaining watertight.

The duct system, including splices and joints, shall effectively sealed and bonded to prevent entrance of cement paste or water into the system and shall effectively contain pressurized grout during grouting of the tendon. The duct system shall also be capable of withstanding water pressure during flushing of a duct in the event the grouting operation is aborted.

The interior diameter of ducts for single strand, bar or wire tendons shall be at least $\frac{1}{4}$ inch greater than the nominal diameter of the tendon. The interior diameter of ducts shall be large enough to cause the duct to have an interior area not less than 2.5 times the net area of the prestress steel when tendons consisting of more than one strand, bar or wire are placed by the pull-through method.

B. Material Properties. Ducts shall be corrugated plastic made of high-density polyethylene (conforming to the requirements of ASTM D3350, cell classification 345464A) or high-density polypropylene (conforming to the requirements of ASTM D4101, cell classification PP0340D4454 to PP040B65884) material.

The plastic material shall not react with concrete or enhance corrosion of prestress steel and shall be free of water-soluble chloride. Corrugated plastic duct shall be corrugated with a spiral having a pitch not less than $\frac{1}{10}$ of the radius of the duct. The minimum wall thickness shall be 0.08 inches \pm 0.01 inches.

Corrugated plastic duct shall be designed so that a force equal to 40 percent of the ultimate tensile strength of the tendon will be transferred through the duct into the surrounding concrete in a length of 2 foot 6 inches. Twelve static pull out tests shall be conducted to determine compliance of a duct with the force transfer requirement. If ten of these tests exceed the specified force transfer, the duct is acceptable. The Contractor shall provide to the Engineer certified test reports verifying that the duct meets specification requirements in regard to force transfer.

C. **Shipping and Storage of Ducts.** Furnish duct with end caps to seal the duct interior from contamination. Ship in bundles which are capped and covered during shipping and storage. Protect ducts against ultraviolet degradation, crushing, excessive bending, dirt contamination and corrosive elements during transportation, storage and handling. Do not remove end caps supplied with the duct until the duct is incorporated into the bridge component. Store duct in a location that is dry and protected from the sun. Storage must be on a raised platform and completely covered to prevent contamination. If necessary, wash duct before use to remove any contamination.

6. Mechanical Couplers and Heat Shrink Sleeve. Construct mechanical couplers with stainless steel, plastic or a combination of these materials. Use plastic resins meeting the requirements for plastic ducts to construct plastic couplers. Use ASTM A 240 Type 316 stainless steel to make metallic components. Furnish and install heat shrink sleeves manufactured specifically for the size of the duct being coupled consisting of an irradiated and cross linked high density polyethylene backing for external applications and linear-density polyethylene for internal applications. Ensure the heat shrink sleeves have an adhesive layer that will withstand 150° F operating temperature and meet the requirements of the following table and install the heat shrink sleeves using procedures and methods in accordance with the manufacturer's recommendations.

| Property | Test Method | Minimum Requirements |
|-----------------------------------|-------------|----------------------|
| Minimum Fully Recovered Thickness | | 92 mils |
| Peel Strength | ASTM D 1000 | 29 pli |
| Softening Point | ASTM E 28 | 162°F |
| Lap Shear | DIN 30 672M | 87 psi |
| Tensile Strength | ASTM D 638 | 2,900 psi |
| Hardness | ASTM D 2240 | 46 Shore D |
| Water Absorption | ASTM D 570 | Less than 0.05% |

7. Inlets, Outlets, Valves and Plugs. Provide permanent grout inlets, outlets, and threaded plugs made of ASTM A 240 Type 316 stainless steel, nylon or polyolefin materials. For products made from nylon a cell class of S-PA0141 (weather resistant) is required. Products made from polyolefin shall contain antioxidant(s) with a minimum Oxidation Induction Time

(OIT) according to ASTM D 3895 of not less than 20 minutes. Test the remolded finished polyolefin material for stress crack resistance using ASTM F 2136 at an applied stress of 348 psi resulting in a minimum failure time of 3 hours. All inlets and outlets shall be equipped with pressure rated mechanical shut-off valves or plugs. Inlets, outlets, valves and plugs shall be rated for a minimum pressure rating of 150 psi. Use inlets and outlets with a minimum inside diameter of 3/4 inch for strand and 3/8 inch for thread-bar tendons and four-strand duct. Temporary items, not part of the permanent structure, may be made of any suitable material.

8. Sampling and Testing. All testing shall be done in accordance with ASTM Specifications.

The following samples of materials and devices selected at locations designated by the Engineer shall be furnished by the Contractor at his expense.

- A. Three samples of seven foot long prestressing wire or bar for each size from each heat number or production Lot Heat.
- B. Three samples of five foot long prestressing strand for each size from each heat number or production Lot Heat.
- C. If bar couplers are to be used, three samples with two specimens each consisting of four foot lengths of the specific prestressing bar coupled with a bar coupler from the materials to be used on the project.
- D. One unit of each prestress anchorage to be used on the project.

Samples shall be furnished at least one month in advance of the time they are to be incorporated into the work.

The Engineer reserves the right to reject any material or device which is obviously defective or was damaged subsequent to testing.

9. Manufacturer's Lots. The manufacturer of prestressing steel, post-tensioning anchorages and bar couplers shall assign an individual number to each Lot heat of strand, wire, bar or devices at the time of manufacture. Each reel, coil, bundle or package shipped to the project shall be identified by tag or other acceptable means as to Manufacturer's Lot heat number. The Contractor shall be responsible for establishing and maintaining a procedure by which all prestressing materials and devices can be continuously identified with the Manufacturer's Lot heat number. Items which at any time cannot be positively identified as to Lot number shall not be incorporated into the work.

Low-relaxation strand shall be clearly identified as required by AASHTO M203 (ASTM A416). Any strand not so identified will not be acceptable.

The Contractor shall furnish manufacturer's certified reports covering the Mill tests required by this Specification for Prestressed Wire, strand or bar. A certified Mill test report stating the ultimate tensile, yield strength, elongation and composition of the steel shall be furnished for each lot heat of prestressing steel. When requested, typical stress-strain curves for prestressing steel shall be furnished. A certified Mill test report stating strength when tested using the heat type of prestressing steel to be used in the work shall be furnished for each Lot of post-tensioning anchorage devices. Certified Mill test reports shall be submitted to the engineer with all samples for acceptance testing as stated above.

10. **Testing of Prestressing Tendons by the Contractor.**

A. **General.** The Contractor shall perform certain testing of prestressing tendons as specified herein.

B. **In-place Friction Test of Tendons.** For the purpose of accurately determining the friction loss in stressing draped tendons, prior to stressing any draped tendons, the Contractor shall test, in place, a representative draped tendon of each size and type as selected by the Engineer. If deemed necessary by the Engineer to accurately establish friction loss, the Contractor shall perform tests on additional tendons selected by the Engineer.

The test procedure shall consist of stressing the tendon at an anchor assembly with a load cell at the dead end. The test specimen shall be tensioned to 80 percent of ultimate in 10 increments. For each increment, the gauge pressure, elongation and load cell forces shall be recorded. The data shall be furnished to the Engineer. The theoretical elongations and post-tensioning forces shown on the post-tensioning shop drawings shall be re-evaluated by the Contractor using the results of the tests and corrected as necessary. Revisions to the theoretical elongations shall be submitted to the Engineer for evaluation and approval. The apparatus and methods used to perform the tests shall be proposed by the Contractor and is subject to the approval of the Engineer.

Friction testing shall also be performed on any banana nose jack fittings to establish actual loss values prior to production stressing. Stressing and elongation values shall be adjusted as necessary and approved by the Engineer.

11. **Grout for Post-Tensioning System.** Grout used in this project shall meet the requirements of Section 702.02.c of the Standard Specifications for Construction for low expansive Type E-1 grout.

d. Construction Requirements.

1. **Post-Tensioning Personnel.** All individuals installing, stressing or grouting the post-tensioning system (which includes supports, ducts, grout tubes, prestressing steel, and anchorages) shall be certified as having successfully completed the requirements for Level 1 or Level 2 Certification in PTI's (Post –Tensioning Institute) Training and Certification of Field Personnel for Bonded Post-Tensioning program.

The post-tensioning supplier shall furnish to the job site a qualified technician with at least 5 years of experience with the installation of the supplied post-tensioning systems as an advisor in the appropriate use of the post-tensioning systems. The technician shall be certified as having completed the requirements for Level 2 Certification in PTI's Training and Certification of Field Personnel for Bonded Post-Tensioning program. The technician is to be employed by the post-tensioning supplier and included in the cost of the post-tensioning. The technician shall be on site to inspect the installed post-tensioning components prior to grouting the panel joints and he shall be on site to observe and advise during all stressing and grouting activities.

2. Protection of Prestressing Steel. All prestressing steel shall be protected against physical damage at all times from manufacture to grouting or encasing in concrete. Prestressing steel that has sustained physical damage at any time shall be rejected. Any reel that is found to contain broken wires shall be rejected and the reel replaced.

Prestressing steel shall be packaged in containers or shipping forms for protection of the steel against physical damage and corrosion during shipping and storage. A corrosion inhibitor, which prevents rust or other results of corrosion, shall be placed in the package or form, or shall be incorporated in a corrosion inhibitor carrier type packaging material. Only after submittal to and approval by the Engineer, may a corrosion inhibitor be applied directly to the steel. The corrosion inhibitor shall have no deleterious effect on the steel or concrete or bond strength of steel to concrete. The inhibitor shall be water-soluble. The corrosion inhibitor, the amount and time of initial application and the frequency of reapplication shall be subject to the approval of the Engineer. Packaging or forms damaged from any cause shall be immediately replaced or restored to original condition.

The prestressing steel shall be stored in a manner which will at all times prevent the packing material from becoming saturated with water and allow a free flow of air around the packages. If the useful life of the corrosion inhibitor in the package expires, it shall immediately be rejuvenated or replaced.

At the time the prestressing steel is installed in the work, it shall be free from loose rust, loose mill scale, dirt, paint, oil, grease or other deleterious material. Removal of tightly adhering rust or mill scale will not be required. Prestressing steel which has experienced rusting to the extent that it exhibits pits visible to the naked eye shall not be used in the work.

The shipping package or form shall be clearly marked with the heat number and with statement that the package contains high-strength prestressing steel, and care is to be used in handling. The type and amount of corrosion inhibitor used, the date when placed, safety orders and instructions for use shall also be marked on the package or form.

When the plans provide for prestressing steel to be installed in one unit with a length of prestressing steel left projecting to be threaded into another unit during erection, all of the prestressing steel shall be protected from corrosion from immediately after it is installed in the first unit until the tendon is grouted in the second unit as provided below.

All anchorages, end fittings, couplers, and exposed tendons that will not be encased in concrete or grout in the completed work shall be permanently protected against corrosion.

When corrosion protection of in-place prestressing steel is required, a corrosion inhibitor that prevents rust or other results of corrosion shall be applied directly to the prestressing steel. The corrosion inhibitor shall have no deleterious effect on the prestressing steel or grout or bonding of the prestressing steel to the grout. The inhibitor shall be water soluble. The corrosion inhibitor, the amount and time of initial application, and the frequency of reapplication shall be subject to the Engineer's approval.

The corrosion inhibitor shall consist of a vapor phase inhibitor (VPI) powder conforming to the provisions of Federal Specification MIL-P-3420F-87 or as otherwise approved by the Engineer.

3. Placement of Ducts. The ducts shall be rigidly supported at the proper locations in the forms by ties to reinforcing steel that are adequate to prevent displacement during concrete

placement. Supplementary support bars shall be used where needed to maintain proper alignment of the duct. Hold-down ties to the forms shall be used when the buoyancy of the ducts in the fluid concrete would lift the reinforcing steel.

Internal ducts shall be rigidly supported by ties to reinforcing steel at a maximum spacing of two feet. Any additional mild reinforcing required to support post-tensioning ducts shall be supplied by the Contractor at no expense to the Department. The tolerance on the location of the tendons shall be plus or minus $\frac{1}{4}$ inch at any point.

Joints between sections of duct shall be coupled with positive connections that do not result in angle changes at the joints. The connections shall be sealed with heat-shrink wrapping to prevent the intrusion of cement paste.

After placing of ducts and reinforcement and forming is complete, an inspection shall be made to locate possible duct damage. All unintentional holes or openings in the duct shall be repaired prior to concrete placing.

Grout openings and vents shall be securely anchored to the duct and either to the forms or to reinforcing steel to prevent displacement during concrete-placing operations.

After installation in the forms, the ends of ducts shall at all times be sealed to prevent entry of water and debris.

All ducts or anchorage assemblies for permanent post-tensioning shall be provided with vent pipes or other suitable connections at each end and at each side of couplers for the injection of grout after post-tensioning. Where freezing conditions can be anticipated prior to grouting, drains shall be installed at the low points of all tendons to prevent the accumulation of water.

Vents shall be $\frac{1}{2}$ inch minimum diameter plastic pipe. All connections to ducts shall be made with metallic or plastic structural fasteners. Waterproof tape shall be used at all connections including vent and grouting pipes. Plastic components, if selected and approved, shall not react with the concrete or enhance corrosion of the post-tensioning steel, and shall be free of water soluble chlorides.

The vents shall be mortar tight, taped as necessary, and shall provide means for injection of grout through the vents and for sealing the vents. Ends of plastic vents shall be removed to the surface of the concrete after the grout has set.

All grout injection and vent pipes shall be fitted with positive mechanical shut-off valves. Vents and injection pipes shall be fitted with valves, caps or other devices capable of withstanding the pumping pressures.

All end anchorages shall be protected with a permanent non-metallic grout cap fastened to the anchor plate.

4. Placement of Anchorage Hardware. The Contractor is responsible for the proper placement of all materials according to the design documents of the engineer of record and the requirements stipulated by the anchorage device supplier. The Contractor shall exercise all due care and attention in the placement of anchorage hardware, reinforcement, concrete, and consolidation of concrete in anchorage zones. Modifications to the local zone details verified under provisions of Article 5.10.9.7.3, AASHTO LRFD Bridge Design Specifications, 3rd Edition;

and by testing as specified herein shall be approved by both the Engineer and the anchorage device supplier.

5. Tolerances. The tolerance on the installed location of the tendons shall be plus or minus $\frac{1}{4}$ inch at any point.

The entrance and exit angles of tendon paths at anchorages and/or at faces of concrete shall be within ± 3 degrees ($\pm 5\%$) of desired angle measured in any direction.

Angle changes at duct joints shall not be greater than ± 3 degrees ($\pm 5\%$) in any direction.

Anchorage shall be located within $\pm \frac{1}{4}$ inch of desired position laterally and ± 1 inch along the tendon except that minimum cover requirements to ends of cut off tendons and anchor components must be maintained.

Position anchorage confinement reinforcement in the form of spirals, multiple U shaped bars or links, to start within $\frac{1}{2}$ inch of the back of the main anchor plate, providing the anchorage is to be encased or sealed later in the construction, and properly center around the duct.

6. Preparation of Ducts. The operation of each vent shall be tested by blowing dry, oil-free air into the duct system and opening and closing each vent in turn.

All ducts shall be clean and free of deleterious materials that would impair bonding or interfere with grouting procedures.

Flushing of the ducts with water shall not be allowed unless approved by the Engineer. If flushing is required, the duct shall be dry a minimum of 6 hours prior to the start of grout placement. The ducts shall be dry prior to grouting. If inadvertent water is suspected in the ducts, the ducts shall be blown out with oil-free compressed air until all moisture is removed from the prestressing steel and the inside surfaces of the duct.

7. Placement of Prestressing Steel. Prior to installation of ducts, the Contractor shall determine the most suitable method of feeding prestressing steel into the ducts.

When the prestressing steel is installed after the concrete has been placed, the Contractor shall demonstrate to the satisfaction of the Engineer that the ducts are free of water and debris immediately prior to installation of the steel. The total number of strands in an individual tendon may be pulled into the duct as a unit, or the individual strand may be pulled or pushed through the duct. Anchorage devices or block-out templates for anchorages shall be set and held so that their axis coincides with the axis of the tendon and anchor plates are normal in all directions to the tendon.

8. Protection of Steel after Installation. Prestressing steel installed in members prior to placing and curing of the panel joint grout, or installed in the duct but not grouted within 15 days, shall be continuously protected against rust or other corrosion by means of a corrosion inhibitor placed in the ducts or directly applied to the steel. The prestressing steel shall be so protected until grouted or encased in concrete. Prestressing steel installed and tensioned in members after placing and curing of the panel joint grout and grouted within 15 days will not require the use of a corrosion inhibitor described herein, and rust that may form during the interval between tendon installation and grouting will not be cause for rejection of the steel.

After tendons are placed in ducts, the openings at the ends of the ducts shall be sealed to prevent entry of moisture and debris.

In all cases, tendons and ducts shall be thoroughly blown dry with oil-free compressed air immediately prior to sealing or capping of the anchorages. In addition, all grout ports and vents shall remain plugged, sealed or otherwise capped, and all duct connections shall be sealed.

Whenever electric welding is performed on or near members containing prestressing steel, the welding ground shall be attached directly to the steel being welded. All prestressing steel and hardware shall be protected from weld spatter or other damage.

9. Post-Tensioning Operations.

A. Stress in Tendons. The design of the structure is based on the assumed friction and wobble coefficient shown in the plans. The post-tensioning forces shown are theoretical and do not include losses in the system or thermal affects.

All post-tensioning shall be tensioned by means of hydraulic jacks so that the force of the prestressing steel shall not be less than the value shown on the approved working drawings.

Permanent force and permanent stress will be considered as the force and stress remaining in the prestressing steel after all losses, including creep and shrinkage of concrete, elastic shortening of concrete, relaxation of steel, thermal affect, losses in post-tensioned prestressing steel due to sequence of stressing friction and take-up of anchorages, and all other losses peculiar to the method or system of prestressing have taken place or have been provided for in an approve stressing plan.

B. Stressing Jacks. Each jack used to stress tendons shall be equipped with a pressure gauge having an accurate reading dial at least 6 inch in diameter for determining the jack pressure. The pressure gauge must be installed at or near the stressing ram. Prior to use for stressing on the project, each jack and its gauge shall be calibrated as a unit by a testing laboratory approved by the Engineer.

Calibration shall be done with the cylinder extension approximately in the position that it will be when applying the final jacking force and with the jacking assembly in an identical configuration to that which will be used at the job site (i.e., same length hydraulic lines). Certified calibration calculations and a calibration chart, both in English (metric) units of measure, shall be furnished to the Inspector for each jack.

Recalibration of each jack shall be done at six month intervals and at other times when requested by the Engineer. At the option of the Contractor, calibrations subsequent to the initial laboratory calibration may be accomplished by the use of a master gauge.

The master gauge shall be calibrated at the same time as the initial calibration of the jacks, and shall be part of the unit for each jack. The data recorded during the initial calibrations shall be furnished to the Engineer for use in the field. The master gauge shall be supplied by the Contractor in a protective waterproof container capable of protecting the calibration of the master gauge during shipment. The Contractor shall provide a quick-attach coupler next to the permanent gauge in the hydraulic lines which enables the quick and easy installation of the master gauge to verify the

permanent gauge readings. The master gauge shall remain in the possession of the Engineer for the duration of the project.

If a jack is repaired or modified, the jack shall be recalibrated by the approved testing laboratory. No extra compensation will be allowed for the initial or subsequent jack calibrations or for the use and required calibration of a master gauge.

C. Stressing of Tendons. Post-tensioning forces shall not be applied until the panel concrete and the grout in the panel joints have attained the specified compressive strength as evidenced by tests on representative samples. These samples shall be stored under the same conditions as the panel concrete and the grout in the panel joints in order to accurately represent the curing condition of the deck system.

A record of gauge pressures and tendon elongations for each tendon shall be provided by the Contractor for review and approval by the Engineer. Elongations shall be measured to an accuracy of 1/16 inch. Stressing tails of post-tensioned tendons shall not be cut off until the stressing records have been approved.

The stress in tendons during tensioning shall be determined by the gauge or load cell ratings and shall be verified with the measured elongations. Calculations of anticipated elongations shall utilize the modulus of elasticity, based on nominal area, as furnished by the Manufacturer for the lot of steel being tensioned, or as determined by a bench test of strands used in the work.

All tendons shall be tensioned to a preliminary force to eliminate any take-up in the tensioning system before elongation readings are started. This preliminary force shall be 20 percent of the final jacking force. The initial force shall be measured by a dynamometer, or by other approved method, so that its amount can be used as a check against elongation as computed and as measured. Each strand shall be marked prior to final stressing to permit measurement of elongation and to ensure that all anchor wedges set properly. The elongation in the tendon shall be measured before and after release of the jack in order to determine the actual anchor set.

It is anticipated that there may be discrepancy in the indicated stress between jack gauge pressure and elongation. In such event, the load used as indicated by the gauge pressure shall produce a slight overstress rather than understress. When a discrepancy between gauge pressure and elongation of more than 5 percent in tendons over 50 feet long or 7 percent in tendons of 50 feet or less in length occurs, the entire operation shall be carefully checked and the source of error determined and corrected before proceeding further. When provisional ducts are provided for addition of prestressing force in the event of an apparent force deficiency in tendons over 50 feet long, the discrepancy between the force indicated by gauge pressure and elongation may be increased to 7 percent before investigation into the source of the error.

In the event that individual strand wires in a tendon break during the tensioning operation, the tendon shall be removed and replaced. Previously tensioned strands shall not be allowed.

Prestressing steel shall be cut using an abrasive saw within $\frac{3}{4}$ inch away from the anchoring device. Flame cutting of prestressing steel is not allowed.

A record of the following post-tensioning operations shall be kept for each tendon installed:

- (1) Project name, number
- (2) Contractor and/or subcontractor
- (3) Tendon location, size and type
- (4) Date tendon was first installed in ducts
- (5) Coil/reel number for strands or wires and heat number for bars and wire
- (6) Assumed and actual cross-sectional area
- (7) Assumed and actual modulus of elasticity
- (8) Date stressed
- (9) Jack and gauge numbers per end of tendon
- (10) Required jacking force
- (11) Gage pressures
- (12) Elongations
- (13) Anchor sets
- (14) Stressing sequence
- (15) Stressing mode
- (16) Witnesses to stressing operation (Contractor and Inspector)
- (17) Date grouted, days from stressing to grouting, grouting pressure applied, and injection end
- (18) Record of any other relevant information.

D. Protection of Tendons. Within four hours after stressing and prior to grouting, tendons shall be protected against corrosion or harmful effects of debris by temporarily plugging or sealing all openings and vents; cleaning rust and other debris from all metal surfaces that will be covered by the grout cap; and placing the grout cap, including a seal, over a wedge plate until the tendon is grouted.

10. Grouting of Tendons.

A. General. After post-tensioning and anchoring of a tendon has been completed and accepted, the annular space between the prestressing steel and the duct shall be grouted in accordance with this specification. In the interval between the post-tensioning and grouting operations, the prestressing steel shall be protected as previously specified. Immediately after post-tensioning, all grout vents of each tendon shall be temporarily sealed with plugs to prevent entrance of air or water and left in place until just prior to tendon grouting.

At least six weeks before grouting commences, the Contractor shall submit to the Engineer for review and approval a "Grouting Operation Plan". Written approval of the plan is required before grouting occurs. Any adjustments to the plan as a result of trials or mock-ups shall be incorporated.

The Grouting Operation Plan shall address the following:

- (1) Names of grouting crew and Supervisor
- (2) Experience of crewmembers and Supervisor
- (3) Training to be provided or undertaken prior to operations
- (4) Type of equipment to be used, including capacity in relation to demand
- (5) Working condition of equipment, back-up and spare parts
- (6) Types, brands and certifications of materials
- (7) Identity of independent testing laboratory for certification of materials
- (8) General grouting procedure
- (9) Duct pressure test and repair procedures
- (10) Production of grout fluidity, on-site flow testing, adjustments and controls
- (11) Estimate of grout required per tendon or group of tendons
- (12) Method of controlling rate of flow and filling of ducts
- (13) Locations, types and sizes of inlet and outlet vents
- (14) Means of sealing and protecting tendons and ducts prior to grouting
- (15) Grout mixing and pumping procedures
- (16) Tendon or groups of tendons to be grouted in one operation
- (17) Direction of grouting and sequence of using inlets and closing vents
- (18) Procedures for handling blockages, including flushing of ducts
- (19) Procedures for possible post grouting repairs
- (20) Procedure for controlling w/c ratio, and for ensuring that the water used is acceptable
- (21) Contractor's QC forms that are to be signed daily by Grout Supervisor

Before grouting operations begin a joint meeting of the Contractor, contractors grouting crew, grout manufacturer's field representative and the Engineer will be conducted to discuss the grouting operation plan, required testing, corrective procedures and any other issues requested by the Engineer.

The grout manufacturer's field representative shall be on site to witness the initial grouting operation and to provide technical assistance to the grouting crew.

B. Equipment. The grouting equipment shall include a mixer capable of continuous mechanical mixing that will produce a grout free of lumps and undispersed cement, a grout pump, and standby flushing equipment with water supply. The equipment shall be able to pump the mixed grout in a manner that will comply with all requirements.

Accessory equipment that will provide for accurate solid and liquid measures shall be provided to batch all materials.

The pump shall be a positive displacement type and be able to produce an outlet pressure of at least 150 psi. The pump should have seals adequate to prevent introduction of oil, air, or other foreign substance into the grout, and to prevent loss of grout or water.

A pressure gauge having a full-scale reading of no greater than 300 psi shall be placed at some point in the grout line between the pump outlet and the duct inlet.

The grouting equipment shall contain a screen having clear openings of 0.125 inches maximum size to screen the grout prior to its introduction into the grout pump. If a grout with aggregate or a thixotropic additive is used, a screen opening of 0.187 inches is satisfactory. This screen shall be easily accessible for inspection and cleaning.

The grouting equipment shall utilize gravity feed to the pump inlet from a hopper attached to and directly over it. The hopper must be kept at least partially full of grout at all times during the pumping operations to prevent air from being drawn into the post-tensioning duct.

Under normal conditions, the grouting equipment shall be capable of continuously grouting the largest tendon on the project in no more than 20 minutes.

During grouting operations provide a stand-by grout mixer and pump.

Provide vacuum grouting equipment at the job site, concurrently with all pressure grouting operations, consisting of the following:

- (1) Volumeter for the measurement of void volume.
- (2) Vacuum pump with a minimum capacity of 10 cfm and equipped with flow-meter capable of measuring amount of grout being injected.
- (3) Manual colloidal mixers and/or dissolvers (manual high speed shear mixers), for voids less than 5 gallons in volume.
- (4) Standard colloidal mixers, for voids 5 gallons and greater in volume.

C. Duct Pressure Test. After stressing of the tendon, an air pressure test shall be performed on each complete duct system.

The air pressure test shall involve pressurizing the complete duct system to 25 psig with dry, oil-free air, and monitoring the pressure in the system for a period of 5 minutes. If the pressure loss during this 5 minute period exceeds 10 percent, all sources of leakage shall be identified, and measures shall be taken to reduce or

eliminate the identified leaks, such that upon repeating the pressure test, the pressure loss is limited to less than 10 percent in 5 minutes.

D. Mixing Grout. Water shall be added to the mixer first, followed by the cement grout. Grout shall be mixed in accordance with the Manufacturer's instructions using a colloidal mixer to obtain homogeneous mixture. A fluidity test shall be performed on the mixed grout prior to beginning the injection process. Target flow rates as a function of mixer type used and ambient temperatures shall be obtained from the grout Manufacturer. The grouting process shall not be started until the proper grout properties have been obtained.

The grout shall be mixed until a uniformly blended mixture is obtained and shall be continuously agitated until it is introduced into the group pump. Batches of grout shall be placed within 30 minutes of adding cement. No water shall be added to the grout to modify its consistency after the initial mixing operation is completed.

During grouting operations the fluidity of the grout must be strictly maintained within the limits established by the grout manufacturer. A target fluidity rate will be established by the manufacturer's representative, based on ambient weather conditions. Perform fluidity test for each tendon to be grouted and maintain the correct water to cementitious ratio. Do not use grout which tests outside the allowable flow rates.

Prior to grouting empty ducts condition the grout materials as required to limit the grout temperature at the inlet end of the grout hose to 90°F. Prior to performing repair grouting operations, condition the grout materials to limit the grout temperature at the inlet end of the grout hose to 85°F. Check the temperature of the grout at the inlet end of the grout hose hourly.

At the beginning of each days grouting operation, perform a wick induced bleed test. If zero bleed is not achieved at the end of the required time period, do not begin grouting of any new or additional tendons until the grouting operations have been adjusted and further testing shows the grout meets the specified requirements.

E. Placing Grout. All grout vent openings shall be open when grouting starts. The injection and ejection vents shall be equipped with positive shut-off valves. Grout shall be allowed to flow from the first vent after the inlet pipe until any entrapped air has been removed and a minimum of one gallon of grout has exited the vent, at which time the vent should be capped or otherwise closed. Remaining vents shall be closed in sequence in the same manner.

The pumping pressure at the tendon inlet shall not exceed 145 psi., however, normal operations shall be performed at 75 psi.

If the actual grouting pressure exceeds the maximum recommended pumping pressure, grout may be injected at any vent that has been or is ready to be capped, as long as a one-way flow of grout is maintained. If this procedure is used, the vent that is to be used for injection shall be fitted with a positive shutoff.

When one-way flow of grout cannot be maintained, the grout shall be immediately flushed out of the duct with water. The water pump shall be available on-site for this

purpose as part of the standard flushing equipment. The flushing pressure shall not exceed the grouting pressures listed herein.

Grout shall be pumped through the duct and continuously wasted at the outlet pipe until no visible slugs of water or air are ejected and the efflux time of the ejected grout, as measured by a flow cone test, if used, is not less than that of the injected grout. To ensure that the tendon remains filled with grout, the outlet shall then be closed and the pumping pressure allowed to build a minimum of 75 psi before the inlet vent is closed. Plugs, caps, or valves thus required shall not be removed or opened until the grout has set.

After the grout has set, pipes used as injection or vent ports shall be cut off. Plastic pipes shall be cut off flush with the surface of the concrete.

F. Temperature Considerations. Grouting shall not occur when air temperatures are below 32 degrees F or concrete temperatures are below 40 degrees F. Ducts shall be kept free of water to avoid damage due to freezing. The temperature of the concrete or air surrounding the tendon shall be maintained at 35 degrees F or above from the time of grouting until the compressive strength of the grout, as determined from tests on 2 inch cubes cured under the same conditions as the in-place grout, exceeds 800 psi. The grout temperature shall not fall below 40 degrees F.

Under hot weather conditions, grouting shall take place early in the morning when daily temperatures are lowest. The grout temperature shall not be above 85°F during mixing or pumping. If necessary, the mixing water and grout shall be cooled.

G. Post-Grouting Operations and Inspection. Do not remove or open inlets and outlets until the grout has cured for 48 hours. Perform inspections within one hour after the removal of the inlet/outlet. After the grout has cured, remove all outlets located at anchorages and high points along the tendon to facilitate inspection. Depending on the geometry of the grout inlets, drilling may be required to penetrate to the inner surface of the trumpet or duct. Use drilling equipment that will automatically shut-off when steel is encountered. Unless grout caps are determined to have voids by sounding, do not drill into the cap. Perform inspections in the presence of the Engineer using endoscopes or probes. Within four hours of completion of the inspections, fill all duct and anchorage voids using the volumetric measuring vacuum grouting process.

Seal and repair all anchorage and inlet/outlet voids that are produced by drilling for inspection purposes with an approved epoxy grout. Use an injection tube to extend to the bottom of the drilled holes for backfilling with epoxy.

For vent ports on external tendons, saddles, vent hoses and all other hardware shall be removed and the holes in the ducts shall be sealed using a heat shrink repair sleeve. The heat shrink repair sleeve shall extend a minimum of six inches beyond the vent opening in the duct in both directions. All heat shrink repair materials and procedures shall be approved by the Engineer prior to use.

If tendon grouting operations were prematurely terminated prior to completely filling the tendon, drill into the duct and explore the voided areas with an endoscope. Probing is not allowed. Determine the location and extent of all voided areas. Install grout inlets as needed and fill the voids using volumetric measuring vacuum grouting equipment.

All miscellaneous material (tie wire, duct tape, etc.) used for sealing grout inlet or vent connections shall be removed prior to carrying out further work to protect end anchorages. End anchorage protection shall be installed as described herein.

Provide a grouting report signed by the Contractor and/or the Subcontractor within 72 hours of each grouting operation for review by the Engineer. Report the theoretical quantity of grout anticipated as compared to the actual quantity of grout used to fill the duct. Notify the Engineer immediately of shortages or overages. Information to be noted in the records must include but not necessarily be limited to the following: identification of the tendon; date grouted; number of days from tendon installation to grouting; type of grout; injection end and applied grouting pressure, ratio of actual to theoretical grout quantity; summary of any problems encountered and corrective action taken.

11. Protection of Post-Tensioning Anchorages. All anchorages shall be protected by multi level protection system consist of grout cap, one coat of epoxy bonding compound and approved epoxy grout or reinforced secondary concrete pour (abutment backwall pour).

A permanent, non-corroding grout cap shall be used to cover all anchorages. The permanent grout cap shall completely encapsulate the anchorage wedge plate, and shall attach directly to the anchor plate. A suitable gasket shall be used to prevent moisture intrusion behind the grout cap. Any bolts or fixtures used to secure the permanent grout cap to the anchorage shall have a minimum cover of one inch and shall be of stainless steel or other rust-free material as approved by the Engineer. The permanent grout cap shall remain in place at all times following grouting of the tendon.

Prior to applying grouting or casting the secondary pour, all exposed anchorages, grout caps, block-out reinforcement and other metal or non-metal accessories or components shall be cleaned of rust, misplaced mortar, grout and other such materials

Immediately following cleaning operations, the entire surface of the anchorage recess or area to be covered by the epoxy grout or concrete, all metal and concrete shall be thoroughly dried and uniformly coated with an epoxy bonding compound meeting the requirements of AASHTO Specification M-235, Class III. The epoxy shall be applied in a manner and thickness as recommended by the manufacturer.

Immediately following application of the epoxy-bonding compound, the anchorage shall be completely encased with an approved epoxy grout or a secondary pour (abutment backwall pour). The concrete or epoxy grout shall be placed within the time limits specified by the epoxy bonding compound manufacturer. The epoxy grout shall exhibit no shrinkage, and shall contain no aluminum powder, iron particles, chlorides, sulfites, fluorides or nitrates.

e. Measurement and Payment. The completed work as described will be measured and paid for using the following pay item:

| Contract Item (Pay Item) | Pay Unit |
|---------------------------------|-----------------|
| Deck Post-Tensioning | Lump Sum |

Payment for Deck Post Tensioning shall include furnishing, installing, stressing and grouting of the post-tensioning in accordance with this specification.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PRECAST DECK PANEL INSTRUMENTATION AND DATA COLLECTION

C&T:SCK

1 of 3

C&T:APPR:RJZ:EMB:08-03-07

a. Description. This work includes furnishing all labor, materials, and equipment necessary to properly install housing and hardware for the instrumentation and data collection devices. In addition, the contractor shall coordinate work activities with the Western Michigan University (WMU) research team involving instrumentation placement, data collection, load testing, and all other related activities needed to monitor the performance of the bridge deck precast panels.

b. Materials. The following list of materials shall conform as specified in the current Standard Specifications for Construction and as outlined herein.

| | |
|---|-----|
| 3/4 inch diameter (Dayton F-5 or equivalent) galvanized ferrule inserts | 908 |
| 3/4 inch diameter galvanized threaded rod | 908 |
| Steel plate, galvanized..... | 908 |
| Conduit, Schedule 40 PVC, 3 inch..... | 918 |
| Electrical wire and cable | 918 |

The 12 inch x 12 inch x 6 inch PVC junction boxes (Allied Moulded Products P/N AMJB12126 or equivalent) shall meet NEMA type 4x requirements.

Electrical cable shall be UL listed, AWG gauge, single conductor annealed copper insulated with high-heat and moisture resistant PVC, jacketed with abrasion, moisture, gasoline and oil resistant nylon, of the size indicated on the plans. Cable shall be Type USE, RHH, or RHW suitable for operations at 600 volts or less in wet or dry locations, including direct burial in the earth. Wire shall meet or exceed all applicable ASTM specifications, UL standard 44 (for RHH or RHW), UL standard 854 (for USE), Federal Specification J-C 30, IPCEA specifications, and requirements of Current State of Michigan Electrical Code. Wire in conduit shall be THHW or XHHW.

Electrical materials and equipment shall be new and be the standard products of manufacturers regularly engaged in the production of such materials. Material and equipment shall be the manufacturer's latest standard design and shall be free from all defects and imperfections that might affect the serviceability of the finished product. Manufacturer's trade names and equipment specified indicate the quality and description only. Comparable products of other manufacturers of the same quality and equal to that specified may be accepted. Should the cost of alternate or substitute equipment proposed by the Contractor require redesign, all costs incurred shall be borne by the Contractor, and the redesign approved by the Engineer prior to construction. The Contractor shall remain responsible for a complete and functional system.

c. Construction. The contractor shall coordinate the installation of the instrumentation and data collection devices with the fabricator and Western Michigan University (WMU) personnel as specified herein. All electrical work shall comply with Section 819 of the Standard Specifications for Construction, the latest applicable rules of the Construction Code Commission of the State of Michigan, the NEC, the special provision, and local codes as their jurisdiction applies.

1. REQUIREMENTS DURING FABRICATION: Coordinate the manufacturing of the precast deck panels with Dr. Sherif Yehia at WMU (269-276-3218) by providing a minimum of two weeks notification, and allow for the following work on 28 precast deck panels identified on the plans:

A. Provide access to WMU staff for installation of embedded instrumentation on the precast deck panel reinforcement, and allow sufficient time for routing and securing instrumentation cabling prior to casting concrete. It is anticipated that this task will require 2 to 4 hours per panel to complete the installation.

B. Provide access to WMU staff for data collection before casting and before storage.

C. Allow WMU staff to sample the deck panel concrete during placement.

The instrumentation and securing devices shall be provided by WMU. The contractor shall provide and install two Dayton F-5 or equivalent galvanized ferrule 3/4 inch diameter inserts per precast deck panel at spacing identified in the plans for all of the precast deck panels.

2. REQUIREMENTS DURING ERECTION OF PRECAST DECK PANELS: The Contractor shall coordinate activities related to the precast deck panel installation with Dr. Sherif Yehia at WMU (269-276-3218) by providing a minimum of 2 weeks notification and provide the following:

A. Install junction boxes, main panel boxes (supplied by WMU), conduit, cables, and wiring after the post tensioning operations are completed. Modify the boxes as needed to accommodate conduits and cables. A licensed electrician is required for electrical connections and cable splicing.

B. Install three inch Schedule 40 PVC conduit runs with supports and connections as shown on the plans and route instrumentation cables (supplied by WMU) from each deck panel junction box to the main panel locations.

C. Install two 110V/10A permanent GFCI electric outlets inside one main panel box, and conduit for supply connection as shown on the plans. Arrange for supply connection and meter installation with the utility company.

D. Install two phone lines inside one main panel box, and route to the main line and arrange for connection by the telecommunication utility company.

E. Install the main panels (supplied by WMU) on the pier cap of Pier 3 facing the slope paving, as shown in the plans.

F. Send a copy of the post tensioning report to Dr. Sherif Yehia at WMU (fax number 269-276-3218).

3. **REQUIREMENTS AFTER CONSTRUCTION:** The Contractor shall provide a minimum of 2 weeks notification to Dr. Sherif Yehia at WMU (269-276-3218) and allow for load testing operations by WMU prior to opening the structure to traffic. It is anticipated that the load testing will require up to 3 days.

d. **Measurement and Payment.** The completed work as described will be measured and paid for using the following contact item (pay item):

| Contract Item (Pay Item) | Pay Unit |
|--|-----------------|
| Precast Deck Panel Instrumentation and Data Collection | Lump Sum |

Payment for **Precast Deck Panel Instrumentation and Data Collection** includes all the necessary labor, materials and equipment necessary to properly install and connect external junction boxes, wiring, panels, conduit, and electrical and phone lines, and coordination with the electric and phone utility companies. Payment includes an allowance for up to 10 percent overrun on quantities listed herein and on the plans. Items not specifically mentioned in the Standard Specifications for Construction or noted on the plans, but which are obviously necessary to make a complete working installation, shall be included. Payment will be made only when the Engineer has verified proper installation. No additional compensation will be given for any delays in operations or equipment use for providing access and coordination with WMU.

Concrete and steel reinforcement work will be paid for separately.

The following list of materials is provided for **information only**.

| ITEM | QUANTITY |
|--|----------|
| Conduit, Schedule 40 PVC, 3 inch | 750 Foot |
| Coupling, Schedule 40 PVC, 3 inch | 84 Each |
| U bolt 1/2 inch x 4 inch x 5 1/2 inch | 20 Each |
| NEMA 4x 12 inch x 12 inch x 6 inch PVC junction box | 28 Each |
| 3/4 inch diameter galvanized ferrule inserts (Dayton F5 or equivalent) | 96 Each |
| 1/2 inch diameter galvanized ferrule inserts (Dayton F5 or equivalent) | 12 Each |
| 3/4 inch diameter galvanized threaded rod, nut and washer, 7 inch | 40 Each |
| 3/4 inch diameter galvanized threaded rod, nut and washer, 2 inch | 56 Each |
| Steel plate, galvanized, 12 inch x 4 inch x 1/2 inch | 20 Each |
| 600 v Electrical wiring, 12 AWG | 100 Foot |
| Electrical Outlet box, duplex GFCI receptacle | 1 Each |
| Electrical conduit, galvanized steel | 100 Foot |
| Phone line and jack (2 outlet) | 2 Each |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
BRIDGE SIGN CONNECTION, CONC, TYPE A1

T&S:AU

1 of 1

C&T:APPR:EMB:SJC:05-24-05

a. Description. Furnish, fabricate, and erect bridge sign connection supports according to the Plans, the Standard Specifications for Construction, and Department Sign Support Typical Plans VIII-800AE

b. Materials. Use materials meeting the requirements of subsection 810.02 of the Standard Specifications for Construction, unless otherwise specified on Department Sign Support Typical Plans VIII-800AE.

c. Construction. Construct in accordance with subsection 707.03 & 810.03 of the Standard Specifications for Construction, unless otherwise specified on Department Sign Support Typical Plans VIII-800AE.

d. Measurement and Payment. The completed work as described will be measured and paid for at the contract unit price using the following contract items (pay items).

| Contract Item (Pay Item) | Pay Unit |
|---|-----------------|
| Bridge Sign Connection, Conc, Type A1 | Each |

Payment for **Bridge Sign Connection, Conc, Type A1** includes all costs for furnishing, fabricating and installing the item according to the Plans; the Standard Specifications for Construction; and Department Sign Support Typical Plans VIII-800AE. Providing dimensional information will be included in the payment for the item being fabricated. Payment will be according to subsection 810.04.C.1 of the Standard Specifications for Construction.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SLOPE RESTORATION, NON-FREEWAY

LAN:JBI

1 of 3

C&T:APPR:DMG:EMB:11-08-02
REVISED:10-05-05

a. Description. This work consists of preparing all manicured lawns and slopes on non-freeway projects designated for slope restoration on the plans or by the Engineer, and applying topsoil, fertilizer, seed, and mulch with mulch anchor, mulch blanket or high velocity mulch blanket to those areas. Turf establishment shall be in accordance with Section 816 of the Standard Specifications for Construction and Standard Plan R-100 Series, except as modified herein or otherwise directed by the Engineer.

b. Materials. The materials and application rates specified in Sections 816 and 917 of the Standard Specifications for Construction apply unless modified by this special provision or otherwise directed by the Engineer.

1. Seeding mixture as called for on the plans.
2. Fertilizer, Chemical Nutrient, Class A shall be used on this project.
3. Topsoil Surface, Furnished or Salvaged, 4 inch shall be used on this project. Topsoil shall be free of all stones one inch in diameter or greater.
4. Mulch and Mulch Anchoring, Mulch Blanket and High Velocity Mulch Blanket shall be used on this project.
5. Permanent Turf Reinforcement Mat shall consist of a dense web of three-dimensional, UV stable synthetic fibers, thickness $\frac{3}{4}$ inch minimum, porosity greater than 90 percent and weight .70 lbs per square yard. Sustained channel velocity shall be at a rate of 8 feet per second during a 48 hour period in a non-vegetated condition.

c. Construction. Construction methods shall be in accordance to subsection 816.03 of the Standard Specifications for Construction. Begin this work as soon as possible after final grading of the areas designated for slope restoration but no later than the maximum time frames stated in subsection 208.03 of the Standard Specifications for Construction. It may be necessary, as directed by the Engineer, to place materials by hand.

Prior to placing topsoil, shape, compact and assure all areas to be seeded are weed free. Place topsoil to the minimum depth indicated above, to meet proposed finished grade. Remove any stones greater than or equal to 1 inch in diameter. If the area being restored requires more than the minimum depth of topsoil to meet finished grade, this additional depth must be filled using topsoil or, at the Contractor's option, embankment. Furnishing and placing this additional material is included in this item of work.

Topsoil shall be weed and weed seed free and friable prior to placing seed. Remove all stones from the topsoil greater than 1 inch in diameter. Apply seed mixture and fertilizer to prepared soil surface. Seed shall be incorporated into top $\frac{1}{2}$ inch of topsoil.

Mulch shall be applied at a rate of 2 tons per acre. Place Mulch Anchoring over the mulch at a rate specified in subsection 816.03.F of the Standard Specifications for Construction. Mulch

Blanket and High Velocity Mulch Blanket shall be placed in accordance to subsection 816.03.H of the Standard Specifications for Construction and as shown on Standard Plan R-100 Series.

Areas constructed with the Permanent Turf Reinforcement Mat shall be filled with seed, topsoil and fertilizer mix. Additional mulching is not required.

If an area washes out after this work has been properly completed and approved by the Engineer, make the required corrections to prevent future washouts and replace the topsoil, fertilizer, seed and mulch. This replacement will be paid for as additional work using the applicable contract items.

If an area washes out for reasons attributable to the Contractor's activity or failure to take proper precautions, replacement shall be at the Contractor's expense.

The Engineer will inspect the seeded turf to ensure the end product is well established, weed free, in a vigorous growing condition, and contains the species called for in the seeding mixture.

If weeds are determined by the Engineer to cover more than ten percent of the total area of slope restoration, the Contractor shall provide weed control in accordance to subsection 816.03.J of the Standard Specifications for Construction. Weed control shall be at the Contractor's expense with no additional charges to the project for materials, labor or equipment.

d. Measurement and Payment. The completed work as described will be paid for at the contract unit price for the following contract item (pay item):

| Contract Item (Pay Item) | Pay Unit |
|---------------------------------|-----------------|
| Slope Restoration, Type _____ | Square Yard |

Payment for **Slope Restoration, Type A** shall be placed in all other areas not described in the other types of Slope Restoration and will be measured by area in square yard in place. All materials, labor and equipment required to install **Slope Restoration, Type A** which includes Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; Mulch and Mulch Anchoring will not be paid for separately but shall be included in the contract unit price bid for **Slope Restoration, Type A**.

Payment for **Slope Restoration, Type B** shall be placed parallel (6 feet) from the shoulders of the roadway, and in areas that have a 1-on-3 slope, and in any ditch with a grade of less than 1.5%, or as directed by the Engineer. **Slope Restoration, Type B** will be measured by area in square yard in place. All materials, labor and equipment required to install **Slope Restoration, Type B** which includes Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; and Mulch Blanket will not be paid for separately but shall be considered included in the contract unit price bid for **Slope Restoration, Type B**.

Payment for **Slope Restoration, Type C** shall be placed in areas that have a 1-on-2 slope or steeper, any ditch with a grade of 1.5% to 3%, or as directed by the Engineer. **Slope Restoration, Type C** will be measured by area in square yards in place. All materials, labor and equipment required to install **Slope Restoration, Type C** which includes Topsoil, Furnished or Salvaged;

Fertilizer, Chemical Nutrient, Class A; Seeding mixture; and High Velocity Mulch Blanket will not be paid for separately but shall be considered as included in the contract unit price bid for **Slope Restoration, Type C**.

Payment for **Slope Restoration, Type D** shall be placed in areas with the reinforced slope that have a 1-on-2 slope or steeper, any ditch with a grade steeper than 3%, or as directed by the Engineer. All slopes shall be covered with the Permanent Turf Reinforcement Mat. **Slope Restoration, Type D** will be measured by area in square yards in place. All materials, labor and equipment required to install **Slope Restoration, Type D** which includes Permanent Reinforcement Mat, Topsoil, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; and Seeding, Mixture; will not be paid for separately, but shall be considered as included in the contract unit price bid for **Slope Restoration, Type D**.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY CONCRETE BARRIER ENDING, DETAIL

T&S:CT

1 of 7

C&T:APPR:MSB:DBP:08-20-07

a. Description. This work shall consist of furnishing, installing, operating, maintaining, repairing, and removing Temporary Concrete Barrier Ending, Detail 1 - 5 as indicated on the plans, proposal, and/or as directed by the Engineer. The type of Temporary Concrete Barrier Ending shall be as detailed in Standard Plan R-126 Series, Placement of Temporary Concrete Barrier.

b. Materials. The concrete end sections detailed in Standard Plan R-52 Series, Temporary Concrete Barrier, shall conform to the applicable specifications and requirements for Temporary Concrete Barrier as stated in Section 812 of the Standard Specifications for Construction.

Construct concrete attenuator base pads, foundations, anchor blocks, or backup units using Grade S1 concrete unless otherwise directed by the Engineer.

The following attenuation systems are approved for use on a temporary basis:

1. Sand Module Attenuator
2. Quad Guard
3. Quad Guard Elite
4. Quad Guard LMC
5. REACT 350
6. TAU-II
7. Absorb 350
8. TRACC
9. SCI 100 GM
10. Triton CET
11. Quest

Other attenuation systems which meet NCHRP 350, Test Level 3 (TL-3) criteria and have FHWA approval may be used as determined by the Engineer.

The 24 inch square attenuator object marker sign shall be made of 0.040 inch thick aluminum. The yellow stripes on the attenuator object marker sign shall meet ASTM D4956 specifications for Type IX retroreflective sheeting.

Attenuator transition assemblies, transition panels, end panels, and other miscellaneous accessories required for proper installation shall meet manufacturer's specifications.

Sand module attenuators shall be manufactured by Energy Absorption Systems or Traffix. Other sand module attenuators which meet NCHRP 350, TL-3 requirements and have FHWA approval may be acceptable as determined by the Engineer. All modules in any one installation shall be from the same manufacturer. Mixing of different types of modules will not be permitted.

The sand used for filling sand module attenuators shall conform to the gradation and moisture content specified by the manufacturer.

All impact attenuator devices must be constructed of materials specified by the manufacturer. Applicable criteria from Standard Plan Series R-49, R-52, R-54, and R-126 shall apply.

Use existing guardrail beam elements and guardrail approach terminals for reconstructing guardrail provided these materials are reusable in their present condition. Existing guardrail posts in good condition, as determined by the Engineer, may be re-used for reconstructing guardrail. New guardrail panels, posts, bolts, reflectorized washers, and other pertinent fittings must be furnished and installed by the Contractor if the existing materials are not reusable.

New guardrail beam elements and associated hardware shall conform to the requirements specified in subsection 908.12 of the Standard Specifications for Construction.

New guardrail posts furnished for the work must be the same type as existing posts, and shall meet the requirements of Section 912 (for wood) or 908 (for steel) of the Standard Specifications for Construction.

c. Design Information. The design speed for all details (Standard Plan R-126 Series) is equal to the posted work zone speed.

d. Construction. The Temporary Concrete Barrier Ending shall be placed according to the Standard Plan R-126 Series:

1. **Detail 1** - The Contractor shall place the sloped Temporary Concrete Barrier Ending Section the same as indicated for Temporary Concrete Barrier Placement.
2. **Detail 2** - Impact attenuation systems shall be installed according to manufacturer's specifications and requirements.

If the lateral offset from the edge of the approaching traffic lane to the toe (near edge) of the Temporary Concrete Barrier is 6 feet - 6 inches or more, any of the attenuation systems listed in Section (b) of this Special Provision may be used.

If the lateral offset from the edge of the approaching traffic lane to the toe (near edge) of the Temporary Concrete Barrier is less than 6 feet - 6 inches, a sand module attenuator can not be used. Instead, a narrow crash cushion attenuation system shall be used. The width of the crash cushion attenuator system shall be as narrow as possible while still shielding the blunt end of the Temporary Concrete Barrier.

Sand module attenuators shall consist of 12 individual sand modules arranged and oriented as shown on the layout diagram titled "Sand Module Impact Attenuator (Temporary)" dated 07/27/07, unless otherwise directed by the Engineer. Sand module attenuators are to be installed at specific sites as shown on the plans and/or as directed by the Engineer.

Attenuation systems shall be placed on a concrete, HMA, or compacted aggregate surface according to manufacturer's specifications. If necessary, construct the appropriate base

pad, foundation, anchor block, and backup unit per manufacturer's specifications.

Install the unit and connect the unit to the backup and to the front anchoring system as required for proper installation of the system.

Attachments to the attenuator (appurtenances) approved by the attenuator manufacturer may be installed per manufacturer's specifications. Do not attach unapproved appurtenances to the attenuator.

The Contractor shall furnish and install an object marker, with alternating black and yellow stripes, to the nose of the attenuator. The object marker shall be constructed as shown on the diagram titled "Impact Attenuator Object Marker" dated 12/14/05. The black 3 inch and yellow 3 inch stripes shall slope downward at a 45 degree angle. Attach object marker to the nose of the attenuator with two 5/16 inch diameter hex bolts, nuts, and washers (preferred method), or other method approved by the attenuator manufacturer.

At the time the attenuator is installed, an employee trained by the manufacturer in the proper installation of the impact attenuator system supplied for the project must be present.

Install attenuator transition assemblies, transition panels, end panels, and other miscellaneous accessories required for proper connection to concrete barrier. These items shall be installed per manufacturer's specifications.

The Contractor shall provide written certification that the attenuator was installed according to the plans, manufacturer's specifications and guidelines, and this Special Provision.

If temporary anchors are used in new pavement or existing pavement (which will remain in place), these anchors must be removed to a minimum of 1 inch below final pavement grade and backfilled with an epoxy material approved by the Engineer. Temporary anchors in temporary pavement may be removed flush with the paved surface.

Concrete pads may contain steel reinforcement. The Contractor is required to use equipment which can drill or core through steel reinforcement to obtain the proper depth for the concrete anchors used to attach the attenuator to the concrete surface.

Cable anchorages and backups shall be placed for proper attenuator alignment. The Contractor shall be required to respond within 24 hours of notification by the Engineer concerning replacement, repair, or realignment of the attenuator. If the Contractor fails to respond or the necessary work is not completed within 48 hours, the Engineer may have the work completed by others and charged to the Contractor.

3. **Detail 3** - The Temporary Concrete Barrier sections which extend through and make contact with the guardrail must be standard, full height sections. Sloped Temporary Concrete Barrier sections shall not be used.
4. **Detail 4** - Impact attenuation systems shall be installed according to manufacturer's specifications and requirements.

The offset between the toe of the existing concrete barrier wall and the attenuator shall be

as specified in Standard Plan R-126 Series, Detail 4.

If the lateral offset from the edge of the approaching traffic lane to the toe (near edge) of the existing concrete barrier is 8 feet or more, any of the attenuation systems listed in Section (b) of this Special Provision may be used.

If the lateral offset from the edge of the approaching traffic lane to the toe (near edge) of the existing concrete barrier is less than 8 feet, a sand module attenuator can not be used. Instead, a narrow crash cushion attenuation system shall be used. The width of the crash cushion attenuator system shall be as narrow as possible while still shielding the blunt end of the Temporary Concrete Barrier.

Sand module attenuators shall consist of 12 individual sand modules arranged and oriented as shown on the layout diagram titled "Sand Module Impact Attenuator (Temporary)" dated 07/27/07, unless otherwise directed by the Engineer. Sand module attenuators are to be installed at specific sites as shown on the plans and/or as directed by the Engineer.

Attenuation systems shall be placed on a concrete, HMA, or compacted aggregate surface according to manufacturer's specifications. If necessary, construct the appropriate base pad, foundation, anchor block, and backup unit per manufacturer's specifications.

Install the unit and connect the unit to the backup and to the front anchoring system as required for proper installation of the system.

Attachments to the attenuator (appurtenances) approved by the attenuator manufacturer may be installed per manufacturer's specifications. Do not attach unapproved appurtenances to the attenuator.

The Contractor shall furnish and install an object marker, with alternating black and yellow stripes, to the nose of the attenuator. The object marker shall be constructed as shown on the diagram titled "Impact Attenuator Object Marker" dated 12/14/05. The black 3 inch and yellow 3 inch stripes shall slope downward at a 45 degree angle. Attach object marker to the nose of the attenuator with two 5/16 inch diameter hex bolts, nuts, and washers (preferred method), or other method approved by the attenuator manufacturer.

At the time the attenuator is installed, an employee trained by the manufacturer in the proper installation of the impact attenuator system supplied for the project must be present.

Install attenuator transition assemblies, transition panels, end panels, and other miscellaneous accessories required for proper connection to concrete barrier. These items shall be installed per manufacturer's specifications.

The Contractor shall provide written certification that the attenuator was installed according to the plans, manufacturer's specifications and guidelines, and this Special Provision.

If temporary anchors are used in new pavement or existing pavement (which will remain in place), these anchors must be removed to a minimum of 1 inch below final pavement grade and backfilled with an epoxy material approved by the Engineer. Temporary anchors in temporary pavement may be removed flush with the paved surface.

Concrete pads may contain steel reinforcement. The Contractor is required to use equipment which can drill or core through steel reinforcement to obtain the proper depth for the concrete anchors used to attach the attenuator to the concrete surface.

Cable anchorages and backups shall be placed for proper attenuator alignment. The Contractor shall be required to respond within 24 hours of notification by the Engineer concerning replacement, repair, or realignment of the attenuator. If the Contractor fails to respond or the necessary work is not completed within 48 hours, the Engineer may have the work completed by others and charged to the Contractor.

5. **Detail 5** - Impact attenuation systems shall be installed according to manufacturer's specifications and requirements.

Any of the attenuation systems listed in Section (b) of this Special Provision may be used.

Sand module attenuators shall consist of 12 individual sand modules arranged and oriented as shown on the layout diagram titled "Sand Module Impact Attenuator (Temporary)" dated 07/27/07, unless otherwise directed by the Engineer. Sand module attenuators are to be installed at specific sites as shown on the plans and/or as directed by the Engineer.

Attenuation systems shall be placed on a concrete, HMA, or compacted aggregate surface according to manufacturer's specifications. If necessary, construct the appropriate base pad, foundation, anchor block, and backup unit per manufacturer's specifications.

Install the unit and connect the unit to the backup and to the front anchoring system as required for proper installation of the system.

Attachments to the attenuator (appurtenances) approved by the attenuator manufacturer may be installed per manufacturer's specifications. Do not attach unapproved appurtenances to the attenuator.

An object marker, with alternating black and yellow stripes, shall be attached to the nose of the attenuator. The object marker shall be constructed as shown on the diagram titled "Impact Attenuator Object Marker" dated 12/14/05. The black 3 inch and yellow 3 inch stripes shall slope downward at a 45 degree angle. Attach object marker to the nose of the attenuator with two 5/16 inch diameter hex bolts, nuts, and washers (preferred method), or other method approved by the attenuator manufacturer.

Install attenuator transition assemblies, transition panels, end panels, and other miscellaneous accessories required for proper connection to concrete barrier. These items shall be installed per manufacturer's specifications.

At the time the attenuator is installed, an employee trained by the manufacturer in the proper installation of the impact attenuator system supplied for the project must be present. The Contractor shall also provide written certification that the attenuator was installed according to manufacturer's specifications.

If temporary anchors are used in new pavement or existing pavement (which will remain in place), these anchors must be removed to a minimum of 1 inch below final pavement grade and backfilled with an epoxy material approved by the Engineer. Temporary anchors in temporary pavement may be removed flush with the paved surface.

Concrete pads may contain steel reinforcement. The Contractor is required to use equipment which can drill or core through steel reinforcement to obtain the proper depth for the concrete anchors used to attach the attenuator to the concrete surface.

Cable anchorages and backups shall be placed for proper attenuator alignment.

The Contractor shall be required to respond within 24 hours of notification by the Engineer concerning replacement, repair, or realignment of the attenuator. If the Contractor fails to respond or the necessary work is not completed within 48 hours, the Engineer may have the work completed by others and charged to the Contractor.

e. Measurement and Payment. The completed work as described will be measured and paid for using the following contract items (pay items):

1. Temporary Concrete Barrier Ending, Details 1 and 3, will be paid for the same as "Temporary Concrete Barrier" as detailed in subsection 812.04 of the Standard Specifications for Construction.
2. Additional payment will not be provided for removing and replacing guardrail panels, posts, or associated hardware as specified in Temporary Concrete Barrier Ending, Detail 3.
3. Damage compensation will be paid for as detailed in subsection 812.04 of the Standard Specifications for Construction.
4. Temporary Concrete Barrier Ending, Details 2, 4, and 5 will be measured and paid for using the following contract item (pay item):

| Contract Item (Pay Item) | PayUnit |
|---------------------------------|----------------|
| Temp Attenuator, Furn..... | Each |
| Temp Attenuator, Oper..... | Each |

Payment for **Temp Attenuator, Furn** includes all materials, labor, and equipment required to:

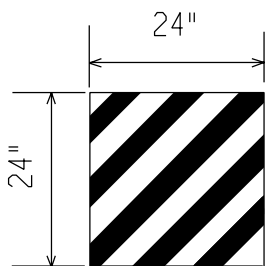
- A. Furnish and deliver an attenuator, as specified in Sections (b) and (d) of this Special Provision or as directed by the Engineer to the job site.
- B. Construct attenuator base pads, foundations, anchor blocks, and backup units as necessary.
- C. Install the attenuator (including all hardware and appurtenances).
- D. Connect the unit to the backup and to the front anchoring system as required. Furnish and install all necessary transition assemblies, transition panels, end panels, and other miscellaneous accessories required for proper connection to concrete barrier.
- E. Provide a trained installer on site during installation.
- F. Furnish and install an object marker to the nose of the attenuator.

Payment for **Temp Attenuator, Oper** includes all materials, labor, and equipment required to:

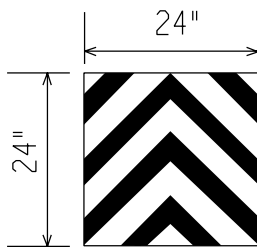
- G. Realign and/or repair the attenuator as required during construction.
- H. Relocate the attenuator as required during construction. This includes:
 - (1) Removing the attenuator from its existing location.
 - (2) Removing any attenuator base pads, foundations, anchor blocks and backups units from the existing location as determined by the Engineer.
 - (3) Constructing new attenuator base pads, foundations, anchor blocks, and backups as necessary at the new location.
 - (4) Transporting and reinstalling the attenuator per manufacturer's specifications at the new location.
 - (5) Providing a trained installer on site during attenuator removal and reinstallation.
- I. Remove and dispose the attenuator when no longer required or as directed by the Engineer.
- J. Remove and dispose attenuator base pads, foundations, anchor blocks, backups, and associated hardware as necessary.

All damage to Temporary Concrete Barrier Endings as a result of Contractor's equipment and/or operations shall be repaired or replaced at the Contractor's expense.

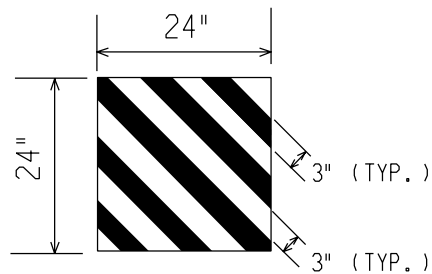
USE APPROPRIATE SIGN ACCORDING TO CONDITIONS



Traffic Passing
on Left



Traffic Passing
on Both Sides



Traffic Passing
on Right

NOTES:

1. ALTERNATE BLACK 3-INCH AND YELLOW 3-INCH STRIPES AT A 45-DEGREE ANGLE.
2. THE YELLOW STRIPES SHALL MEET ASTM D4956 SPECIFICATIONS FOR TYPE IX RETROREFLECTIVE SHEETING.
3. THE OBJECT MARKER SHALL BE MADE OF 0.040-INCH THICK ALUMINUM.
4. ATTACH OBJECT MARKER TO ATTENUATOR NOSE WITH TWO 5/16-INCH DIAMETER HEX BOLTS, NUTS AND WASHERS (PREFERRED METHOD) OR OTHER METHOD APPROVED BY THE ATTENUATOR MANUFACTURER.

PW:DOC/RD/TS/TYP/SIGNS/STD HWY SIGNS/SPECIAL PROJECTS.dgn 12/14/05 SCT



PREPARED
BY
TRAFFIC & SAFETY

DRAWN BY: SCT

CHECKED BY: CT

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ENGINEER OF TRAFFIC AND SAFETY

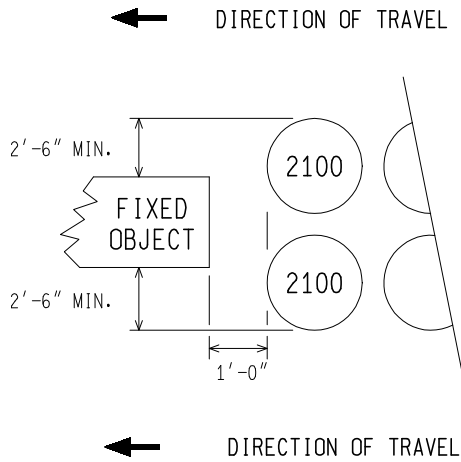
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS TYPICAL PLAN FOR

IMPACT ATTENUATOR OBJECT MARKER

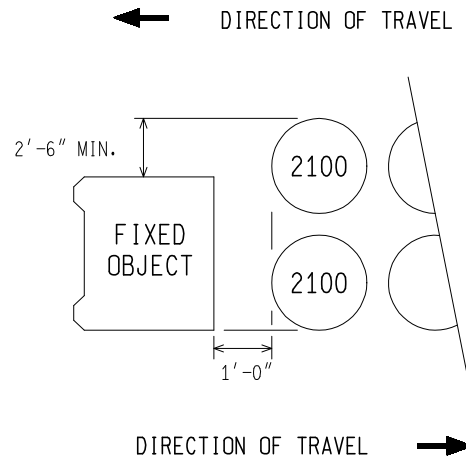
12/14/05
PLAN DATE

SHEET
1 of 1

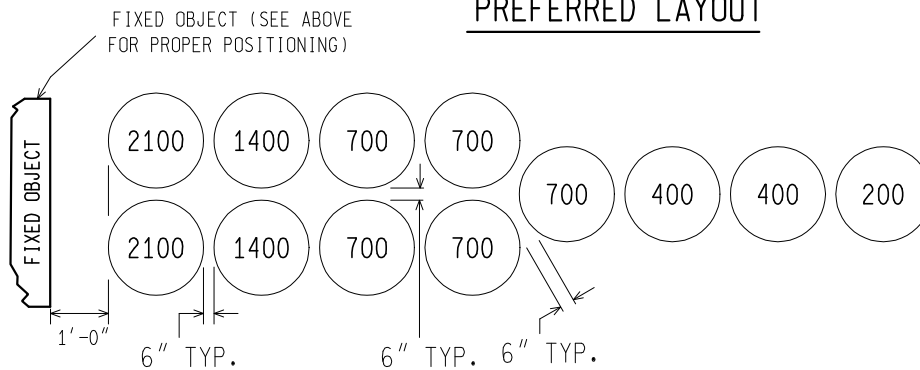
DIRECTIONAL TRAFFIC



BIDIRECTIONAL TRAFFIC



PREFERRED LAYOUT



NOTES:

1. (xxx) INDICATES MODULE LOCATION AND WEIGHT OF SAND IN POUNDS(LBS) FOR EACH MODULE.
2. EACH MODULE SHALL CONTAIN AMOUNT OF SAND INDICATED.
3. BIDIRECTIONAL ATTENUATOR ARRAYS MAY BE ANGLED TOWARD APPROACHING TRAFFIC AS INDICATED BY REGION TRAFFIC & SAFETY ENGINEER. AMOUNT OF ANGLE NOT TO EXCEED 10 DEGREES.

PW:DOC/RD/TS/TYP/GEOM/SAND MODULE IMPACT ATTENUATOR (TEMP).dgn 9/20/2006 JT



PREPARED
BY
TRAFFIC & SAFETY

DRAWN BY: JT
CHECKED BY: CT

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ENGINEER OF TRAFFIC AND SAFETY

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS TYPICAL PLAN FOR
**SAND MODULE IMPACT
ATTENUATOR (TEMPORARY)**

07/27/07
PLAN DATE

SHEET
1 of 1

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONTRACTOR PERFORMANCE EVALUATIONS

C&T:JJG

1 of 2

C&T:APPR:BJO:RRV:10-02-06
FHWA:APPR:10-03-06

a. Description. Project management staff will evaluate the Contractor's performance on this project and the evaluation may be used as a basis for modifying the prequalification ratings of the Contractor. An evaluation may be issued during the course of a project (interim) and will be issued after completion of a project (final). The criteria described in the Contractor Performance Evaluation Form (Form 1182) will be applied to make the evaluation. This form is available through the Michigan Department of Transportation (MDOT) Contractor's Service Center web site at www.mdot.state.mi.us/contractors/ or by contacting the Engineering Print Unit at 517- 322-1676. Any action to modify the Contractor's prequalification ratings will be taken in accordance with the duly promulgated prequalification rules.

If an interim contractor performance evaluation is issued and regardless of whether the Contractor requests a meeting to discuss a Contractor Performance Evaluation, project management staff may require the Contractor to submit a performance improvement plan to address needs identified in the Contractor Performance Evaluation and to attend a meeting to discuss the improvement plan. After the meeting is held, the project management staff may approve the plan or require changes to the plan. The Contractor shall resubmit the plan if changes are required. The Contractor shall be required to immediately implement approved performance improvement plans. If the Contractor does not implement the plan immediately, MDOT will consider the contractor to be in non-compliance and will take action as described under Section c of this special provision.

Within 21 days of the receipt of a final Contractor Performance Evaluation, the Contractor may make a written request to meet with project management staff to review the evaluation. After a requested meeting is held, the Department shall give the Contractor written notice of any revisions to the final Contractor Performance Evaluation or if the evaluation will remain unchanged. If the meeting is not requested within the 21 days of receipt, the final Contractor Performance Evaluation will not be subject to later contest or appeal.

b. Appeals.

1. Appeal of Evaluation- Within 14 days after the date that a Contractor receives the written notice as described above, a Contractor may file a written appeal of any rating of 7 or below, to the Engineer. The written appeal shall contain documentation supporting the Contractor's position that the rating is not warranted. The Contractor may request to appear before a Performance Evaluation Appeal Panel. If a timely written appeal is not filed, the evaluation will not be subject to later contest or appeal. Interim Contractor Performance Evaluations cannot be appealed.

2. Appeal of Performance Improvement Plan- Within 14 days after the date that a performance improvement plan is approved and sent to the Contractor, the Contractor may file a written appeal of that plan to the Engineer and request to appear before a Performance Evaluation Appeal Panel. Documentation must include the reasons for the appeal. If a timely written appeal is not filed, the performance improvement plan becomes final and will not be subject to later contest or appeal.

An appeal filed by a Contractor shall be considered by a Contractor Performance Evaluation Appeal Panel. The panel shall be composed of three licensed professional Engineers from the Department (following the format of a Central Office Review Panel) who were not directly involved in the management of the project. This panel will review appeals on all Contractor Performance Evaluations for this project. The Contractor and the Engineer will be required to submit supporting documentation relevant to the appeal and will attend a formal appeal hearing. Upon concluding its review, the panel will confirm or modify the Contractor Performance Evaluation. The panel will, within 30 days, send the Contractor and Engineer written notice of its decision along with a copy of the modified Contractor Performance Evaluation if applicable. The original or modified Contractor Performance Evaluation is final and constitutes the Department's decision; it is not subject to further contest or appeal.

c. Non-Compliance. If a Contractor fails to honor a request by project management staff to submit a performance improvement plan or to meet to discuss it, or if a Contractor fails to carry out an approved performance improvement plan, that failure may be used as a basis for modifying the prequalification ratings of the Contractor. Any action to modify the Contractor's prequalification ratings will be taken in accordance with the duly promulgated prequalification rules.

d. Subcontractors. For purposes of this Special Provision, the word "Contractor" includes subcontractors. Project management staff will evaluate the performance of subcontractors in accordance with this Special Provision.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
ELECTRONIC BIDDING

CSD:CRR

1 of 3

C&T:APPR:DBP:JJG:02-03-06
FHWA:APPR:02-03-06

The following deletions and additions are made to Sections 101 and 102 of the Standard Specifications for Construction.

Delete the word “written” in the definition for proposal of subsection 101.03, on page 9 of the Standard Specifications for Construction and replace with “electronically submitted.”

Delete the word “written” in the definition for proposal form of subsection 101.03, on page 9 of the Standard Specifications for Construction and replace with “electronically submitted.”

Add the following definitions to subsection 101.03 of the Standard Specifications for Construction:

Trns*Port Expedite. AASHTOWare software used for the electronic preparation and submission of bid documents.

Bid_Express. On-line information service for transportation bidding allowing on-line, secure bid submission.

Computer-Generated Bid Documents. An electronic bid document prepared using Trns*Port Expedite software for secure transfer through Bid_Express to MDOT which includes the Schedule of Items and Designated and Specialty Items, if applicable.

Schedule of Items. A section of the computer-generated electronic bid document in which items of work, pay units, and estimated quantities are identified by MDOT. Bidders provide the unit price for items of work in this section.

Designated and Specialty Items. A section of the computer-generated electronic bid document in which the bidder may use to identify a designated company(ies) for either subcontract work or specialty work, as required for the project.

Delete subsection 102.02.F, on page 13 of the Standard Specifications for Construction and replace with the following:

Date, time and place for the electronic submittal and downloading of proposals; and

Delete subsection 102.05, on page 14 of the Standard Specifications for Construction, in its entirety and replace with the following:

The proposal shall be prepared using Trns*Port Expedite software. The Bidder shall specify a unit price for each item, except where a lump sum is called for. Prices for lump sum items shall be entered only in the bid amount column.

The proposal shall be submitted by an authorized representative of the Bidder through Trns*Port Expedite for secure transfer through Bid_Express to MDOT. Authorized representatives of the Bidder are those individuals designated under "Persons Authorized to Execute Contracts" on the MDOT *Prequalification Application* form. This form must be properly completed and submitted in accordance with the Bureau of Finance and Administration's *Classification and Rating of Bidders* procedures. The bidder shall create and obtain a timely approval of a digital ID from Bid Express and MDOT.

Delete subsection 102.06.A.2, A.3, and A.4, on page 15 of the Standard Specifications for Construction. Replace subsection 102.06.A.3 and 102.06.A.4, on page 15 of the Standard Specifications for Construction with the following:

3. The proposal is not electronically submitted by an authorized representative of the Bidder who has been designated in writing in accordance with subsection 102.05.
4. The Bidder, except as otherwise provided in this subsection, is not prequalified or has insufficient prequalification for the category(ies) of work specified as necessary for purposes of submitting a bid.

Delete subsection 102.06.B.1, on page 15 of the Standard Specifications for Construction.

Delete subsection 102.07, on page 16 of the Standard Specifications for Construction and replace with the following:

The proposal shall be submitted by the Bidder through Trns*Port Expedite for secure transfer through Bid_Express to MDOT. All proposals must be submitted through Trns*Port Expedite for transfer through Bid_Express to MDOT prior to the time specified in the advertisement.

Delete subsection 102.08, on page 16 of the Standard Specifications for Construction and replace with the following:

A proposal may be withdrawn or revised prior to the time specified in the advertisement. The last proposal submitted, identified by date and time, will be the only proposal considered.

Delete subsection 102.09, on page 17 of the Standard Specifications for Construction and replace with the following:

Downloading of Proposals. Proposals will be downloaded and the total amount of each proposal will be displayed on MDOT's website as "As Submitted" bid results. In the event a bid submitted through Bid_Express is not received by MDOT, and the bidder has a system-

generated receipt of bid submission, the bid may be accepted after the deadline established for bid submission, in accordance with the procedure established by the Department and pending an investigation of the cause of submission failure. These situations will be handled on a case-by-case basis.

Delete the word “written” in the second sentence of the first paragraph of subsection 102.13, on page 19 of the Standard Specifications for Construction and replace with the word “entered.”

Delete the first sentence of subsection 102.15, on page 20 of the Standard Specifications for Construction and replace with the following:

The Department will provide the contract and bond forms to the determined lowest Bidder, at the address on file with the Department.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CRITICAL PATH METHOD NETWORK SCHEDULE

C&T:JTL

1 of 6

C&T:APPR:JDC:PAL:07-24-02
FHWA:APPR:08-12-02

a. Description. In addition to the progress schedule provisions contained within this contract, the low bidder(s) for the work covered by the contract proposal will be required to submit a Critical Path Method Network Schedule (CPM Schedule) to the Engineer for approval. When approved, the CPM Schedule replaces and becomes the Progress Schedule. The CPM schedule shall contain all work under the contract including, but not limited to, the activities of subcontractors, vendors, MDOT, suppliers, permitting agencies, utility companies, and other Contract-related activities and the submittal and approval of plans and working drawings. The Contractor shall ensure that the schedule submitted meets specified overall contract and milestone dates. Milestone dates are dates within the contract that require some specific action by the Contractor. Examples of milestone dates include, but are not limited to, open to traffic dates.

b. Preparation of Initial Schedule. Prior to award, the Contractor shall submit a progress schedule on regulation form.

Within 15 calendar days of contract award, the Contractor shall submit a detailed initial schedule for the Engineer's approval. The schedule shall meet the requirements set forth in the contract.

Within seven (7) calendar days of the Contractor's submittal, the Engineer will review the schedule and provide the Contractor, in writing, corrections, questions, or comments to resolve before approval of the schedule. The Contractor must make all corrections and resolve all questions and comments within 30 calendar days of contract award for the Engineer to approve the schedule. If the schedule is not approved within 30 calendar days of contract award, the Department may withhold all or part of contract payments until the schedule is approved.

The approval of the schedule by the Engineer in no way attests to the validity of the assumptions, logic constraints, dependency relationships, resource allocations, manpower and equipment, or any other factor that went into the preparation of the CPM schedule. The Contractor is and shall remain solely responsible for the planning and execution of work in order to meet project milestones or contract completion dates and to conform to the contract plans and specifications.

Schedule Requirements. CPM Schedules shall be submitted using the standard activity-on-node or PERT diagramming method to describe all work activities to be accomplished and their independencies. The schedule shall include all subcontractor, vendor, supplier, and Department contract-related activities. A sufficient number of activities (tasks) will be required with sufficient detail so that the controlling operation (critical path) may be identified. The work activities shall also be correlated on the diagram to the proposed sequence of construction operations included in the staging for the project. Notation on each activity shall include a brief work description and activity time duration.

Additional Requirements:

1. Each schedule activity shall be given a unique ID
2. Each schedule activity shall be given a unique description that includes the stage or phase of work and the type or nature of work.
3. Only start-to-start, finish-to-finish and finish-to-start relationships will be allowed. All logic shall show how the given activity is dependent on its preceding activities.
4. Duration (working days): No activity will have duration greater than 20 working days unless approved by the Engineer. Activities that will be allowed to exceed 20 working days include, but are not limited to, working drawing approvals or other activities not under the control of the Contractor. If requested by the Engineer, the Contractor shall explain the reasonableness of activity time durations. Such explanation may include, but not be limited to, estimated activity manpower, unit quantities, production rates, and equipment to be mobilized.
5. Procurement and Submittals: Separate procurement into at least two activities, fabrication and delivery. When the procurement also requires a submittal to and approval by the Department, such as shop drawings, ensure that these separate activities are shown in the schedule logic. Ensure all work activities that require a submittal are preceded by submittal and approval activities.
6. Constraints: Use contractual constraints in the schedule logic. Other constraints may be allowed when identified by the Contractor and approved by the Engineer.
7. Float: Float is defined in subsection 101.03 of the standard specifications.
8. The activities are to be described so that the work is readily identifiable and the progress on each activities can be readily measured. For each activity, the Contractor shall identify the work force involved by trade, subcontractor, equipment, work location and duration of activities in work days.
9. The Contractor shall also provide the following information: workdays per week, holidays, number of shifts per day and number of hours per shift.
10. Activity codes: Activities shall be identified by codes to reflect the following information related to an activity or other method as approved by the Engineer that is compatible with the computerized sort requirements below:

Stage/Phase
Area/Location
11. Computer capability: The CPM Schedule must be processed through a computer and be compatible with the format section contained within this special provision. It is the Contractor's responsibility to ascertain with the Engineer the software compatibility.

d. Initial Schedule Submittal Requirements. Provide one reproducible original and three copies of each of the following to the Engineer for approval for both the initially submitted schedule and all updates:

1. A computer generated sequential activity-on-node diagram. Ensure that the diagram network is legible and easily understandable.
2. Computerized sorts by:
 - Activity ID
 - Predecessor/Successor sort
 - Total float
 - Early start
 - Resource responsibility
 - Area/Early start sort
3. 60-day look ahead bar charts by early start

e. Schedule Updates. The Contractor shall update the CPM Schedule monthly to show current progress. The update shall be submitted to the Engineer regardless of any unresolved requests for extension of time during this period. The update will include:

1. Dates of activities' actual start and completion
2. The percentage of each work activity remaining for activities started but not complete as of the update date.
3. Narrative report which includes a listing of monthly progress, the activities that define the critical path, and any changes to the path of critical activities from previous update, sources of delay, any potential problems, requested logic changes, and work planned for the next month.
4. If requested by the Engineer, the update submittal may include:
 - Predecessor/Successor sort
 - Total float sort
 - Responsibility/Early start sort
 - Area/Early start sort
5. Fagnet or logic diagram for all requested logic changes, including but not limited to, any of the events as addressed in subsection 102.14 of the standard specifications.
6. Updated logic diagram and time scale/logic diagram as required by the Engineer.
7. Regular job site progress meetings with the Engineer will be required to verify CPM Schedule accuracy. Update as required to reflect actual work modifications and progress and to document approved Contract modifications.

The Department may withhold all or part of the Contract payments if the schedule update is not submitted within 14 days of the date due.

f. Schedule Revisions. The Contractor will revise the CPM Schedule for the following: delay in completion of the project or contractual milestones; actual prosecution of the work which is, as determined by the Engineer, significantly different than that represented on the schedule; or the addition, deletion, or revision of activities required by contract modification. Time extensions will only be granted for Department-caused delays that affect specifically approved milestone dates, open to traffic date, or overall Contract completion date, except as otherwise expressly authorized in the contract. Include support documentation.

g. Schedule Revisions to Utility Work. The Engineer shall be provided with ten (10) days notice, with a copy of the notice to the utility company, when revisions in the schedule of work affect operations of a utility unless previous arrangements have been made with the utility company involved or there are other contract requirements that supercede this requirement.

h. Format. In addition to the above requirements, all CPM Schedules shall be submitted on a 3.5 inch floppy disk in accordance with one of the following formats. In lieu of the format requirements, the Contractor may submit for the Department's use, during the life of the project, one complete copy of the scheduling software used for this contract. Submittal shall be in accordance with the copyright requirements for the applicable software.

1. **Standard Electronic Media Format** is a standard ASCII text file containing the data elements below, in the order specified. This file can be created using any text editor or word processing application (i.e., MS-Word, WordPerfect, Notepad, or Write) but must be saved as an ASCII file.

The **first line** will provide a descriptive header describing the submittal and containing:

Control Section
Job Number
Contractor name
Data as-of-date
Report date

The next line will be **blank**, followed by multiple data lines.

Each **data line** will contain one record pertaining to one task of the job. Separate data fields by a comma. Fields within each task line are as follows:

(Note that the term "task" is synonymous with "activity." Leave fields that are not required blank.)

- A. Task number (Job number followed by a hyphen followed by this task's unique four-digit task number. This is the Preceding Event Activity Code).
- B. Description of task, milestone or hammock, blank if this record is a constraint
- C. Calendar (see attached list)
- D. Duration of task, blank for constraints

- E. Task number of the next task (succeeding event) - leave blank if this record is not a constraint or hammock
- F. Type of constraint (FS, SS, SF, HAM) - leave blank if this record is not a constraint or hammock. A hammock is a special type of constraint that groups several tasks together. The hammock starts with the first task in the group and finishes with the finish of the last task. (F = Finish, S = Start)
- G. Delay, if required
- H. Original "baseline" start date
- I. Original "baseline" finish date
- J. Current (forecast) start date (early start)
- K. Current (forecast) finish date (early finish)
- L. Estimated completion date (if different from early start + current duration)
- M. Late start date
- N. Late finish date
- O. Actual start date
- P. Actual finish date

Example - each line contains the following:

Task number (preceding event), description, calendar, duration, next task number (succeeding event), constraint type, delay, baseline start, baseline finish, estimated completion date, late start, late finish, actual start, actual finish, total float.

2. **Export Files:** If the Contractor chooses to use a package with export capabilities, it shall include all items listed in section (h.1) Standard Media Format above in a text or ASCII-type file.
3. **Michigan Department of Transportation (MDOT) Calendars:** The Contractor's calendar shall be based on a 4-, 5-, or 6-day work week in accordance with the attached MDOT calendars unless otherwise superseded by the contract requirements.

i. Measurement and Payment. The Contractor's cost to provide this information and software to the Michigan Department of Transportation will not be paid for separately, but shall be included in costs for other pay items.

MDOT 4-, 5-, and 6-Day Calendars:

| Calendar | Description | Start | Finish |
|-----------------|-----------------------------------|------------------|------------------|
| 1 | Std - Apr 16 - Nov 15 - 4 day | Apr 16 | Nov 15 |
| 2 | LP - Bit Stab - 4 day | May 15 | Oct 15 |
| 3 | UP - Bit Stab - 4 day | Jun 01 | Oct 01 |
| 4 | LP S of M-46 - Bit Pave - 4 day | May 05 | Nov 15 |
| 5 | LP N of M-46 - Bit Pave - 4 day | May 15 | Nov 01 |
| 6 | UP - Bit Pave - 4 day | June 01 | Oct 15 |
| 7 | LP - Bit Seal Coat - 4 day | Jun 01 | Sep 15 |
| 8 | UP - Bit Seal Coat - 4 day | Jun 15 | Sep 01 |
| 9 | Tree Planting - Deciduous - 4 day | Mar 01 Oct 01 | May 15 Nov 15 |
| 10 | Tree Planting - Evergreen - 4 day | Mar 01 | Jun 01 |
| 11 | South LP - Restoration - 4 day | May 01 | Oct 10 |
| 12 | North LP - Restoration - 4 day | May 01 | Oct 01 |
| 13 | UP - Restoration - 4 day | May 01 | Sep 20 |
| 14 | Full Year - Winter Work - 4 day | Jan 01 | Dec 31 |
| 21 | Std - Apr 16 - Nov 15 - 5 day | Apr 16 | Nov 15 |
| 22 | LP - Bit Stab - 5 day | May 15 | Oct 15 |
| 23 | Up - Bit Stab - 5 day | Jun 01 | Oct 01 |
| 24 | LP S of M-46 - Bit Pave - 5 day | May 05 | Nov 15 |
| 25 | LP N of M-46 - Bit Pave - 5 day | May 15 | Nov 01 |
| 26 | UP - Bit Pave - 5 day | Jun 01 | Oct 15 |
| 27 | LP - Bit Seal Coat - 5 day | Jun 01 | Sep 15 |
| 28 | UP - Bit Seal Coat - 5 day | Jun 15 | Sep 01 |
| 29 | Tree Planting - Deciduous - 5 day | Mar 01 Oct 01 | May 01 Nov 15 |
| 30 | Tree Planting - Evergreen - 5 day | Mar 01 | Jun 01 |
| 31 | South LP - Restoration - 5 day | May 01 | Oct 10 |
| 32 | North LP - Restoration - 5 day | May 01 | Oct 01 |
| 33 | UP - Restoration - 5 day | May 01 | Sep 20 |
| 34 | Full Year - Winter Work - 5 day | Jan 01 | Dec 31 |
| 35 | Full Year - Expedited - 6 day | Jan 01 | Dec 31 |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SUBCONTRACTS

FIN:CRR

1 of 1

C&T:APPR:GCT:JAR:07-28-05
FHWA:APPR:08-01-05

The following deletions and additions are made to Sections 104, 108, and 109 of the Standard Specifications for Construction.

Delete the word “approved” in the second sentence of the fourth paragraph of subsection 104.01.B, on page 32 of the Standard Specifications for Construction.

Delete the third, fourth, and fifth paragraphs of subsection 108.01, on page 80 of the Standard Specifications for Construction, in their entirety and replace with the following:

The Contractor shall not subcontract any portion of the contract, other than the furnishing of necessary materials, except as provided for in the Department’s procedures for subcontracting. Subcontracting any portion of the work shall not relieve the Contractor of full responsibility for the performance of the contract. The Contractor shall not sell or assign any portion of the contract without the written consent of the Michigan Department of Transportation.

Any bonds furnished by the Subcontractor shall not reduce the Contractor’s bonding requirements.

No subcontract will be issued unless the Subcontractor is prequalified by the Department to perform the classification of work proposed, when applicable. The Contractor shall submit the subcontract cover page and line items to the Transportation Service Center responsible for the administration of the contract, prior to the start of the work associated with the subcontract. It is understood and agreed that the Department’s prequalification of the Subcontractor is for the benefit of the Department and is not for the benefit of the Contractor or any other person. The Department’s prequalification is not a guarantee or warranty of the Subcontractor’s ability to perform or complete the work subcontracted. The prime Contractor shall certify, on MDOT Form 1386, prior to MDOT acceptance of the project, that all subcontracting requirements have been met. The Contractor shall itemize the name of each Subcontractor, dollar amount of each subcontract, as well as the actual amount paid for each subcontract.

Delete the words “an approved” in the last sentence of the last paragraph of subsection 108.01, on page 81 of the Standard Specifications for Construction and replace with the word “a”.

Delete the word “approved” in the first sentence of subsection 109.07.G, on page 109 of the Standard Specifications for Construction.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SCALE INSPECTIONS

C&T:JFS

1 of 2

C&T:APPR:DMG:DBP:06-12-07

FHWA:APPR:06-29-07

Delete subsection 104.01.E, on pages 33 and 34 of the 2003 Standard Specifications for Construction, in its entirety and replace with the following.

E. Authority to Inspect Scales. The Department maintains the right to inspect or verify all scale systems, private scale inspectors, and inspection agencies. Any failure to conform to requirements set forth in this specification shall be corrected immediately.

The private scale inspector and inspection agency must be currently registered under the Department of Agriculture's Voluntary Serviceperson Registration Program in Michigan.

For portable scales supplying materials solely to Department projects, the Engineer may give tentative interim approval. The approval would be based on verification truckloads weighed on other scales that bear an official seal placed in the current calendar year. The Contractor shall secure a scale inspection from a private scale inspector or inspection agency, at the Contractor's own expense, within a period of time, as approved by the Engineer.

Scale systems, other than as described in subsection 601.03, shall be inspected according to the *Weights and Measures Act of 1964 (Act No. 283, Public Acts of 1964, as amended)*. Scale systems described in subsection 601.03 shall be inspected according to the current edition of the National Ready Mixed Concrete Association (NRMCA) *Certification of Ready Mixed Concrete Production Facilities Quality Control Manual*.

Permanent scale systems are defined as weighing devices that have not been moved from a given location within the past six months. Portable scales that remain in one location for more than six months are considered permanent installations. The owner of any permanent scale system shall be responsible for the scheduling of inspection, calibration, and working order of the weighing system.

For permanent scale systems, the Department will consider scale inspections conducted by a private scale inspection agency or the Department of Agriculture valid for one year, except for concrete plants which will be according to subsections 601.03.A and B certification, of the Standard Specifications of Construction. If the Department of Agriculture has not reinspected the scale, the scale owner shall be required to obtain a scale inspection through a private scale inspection agency. The scale owner shall provide to the Engineer written verification that the scale system has been inspected, according to this specification, prior to providing material to state and federally funded

projects. The scale owner shall furnish a copy of the current scale inspection certification report to the Region Materials Supervisor.

All costs incurred in the inspection of scale systems shall be the responsibility of the Contractor and no additional compensation shall be allowed. Claims by the Contractor for delays and inconveniences due to these operations will not be considered.

Delete subsection 109.01.G, on pages 97 and 98 of the 2003 Standard Specifications for Construction, in its entirety and replace with the following.

G. Measuring Weight on Scales. Platform, belt conveyor, and surge bin scales shall conform to the requirements of the *Weights and Measures Act of 1964 (Act No. 283, Public Acts of 1964, as amended)*.

When a printout system is employed on a platform or a surge bin scale, it shall be equipped with a printer that shall print and identify all of the following information on a triplicate ticket for each truckload:

1. Project number;
2. Contractor's name;
3. Type of material being weighed;
4. Time;
5. Date;
6. Sequential ticket number (may be preprinted on a ticket);
7. Gross weight;
8. Tare weight
9. Net weight;
10. Net accumulated jobs daily total.

The information shall be labeled so that each ticket can be readily understood. The system shall be interlocked to allow printing only when the scale has come to a complete rest.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**OBTAINING REQUIRED NPDES PERMITS FOR
STORAGE AREAS, DISPOSAL AREAS AND BORROW AREAS**

C&T:DMG

1 of 2

C&T:APPR:TWK:JAR:07-24-06
FHWA:APPR:08-10-06

a. Description. The Contractor shall be responsible to ensure a National Pollutant Discharge Elimination System (NPDES) Permit for storage areas, disposal areas and borrow areas as well as other earth disturbance activities located outside of the Michigan Department of Transportation's right-of-way is obtained in accordance with the Clean Water Act of 1972 (CWA) prior to commencing any activities regulated by the CWA.

In accordance with the CWA, construction activities disturbing 5 acres or more, with a point source discharge to the waters of the state are required to have a Notice of Coverage (NOC) submitted to the Michigan Department of Environmental Quality (MDEQ) to obtain NPDES coverage under R 323.2190 (Permit by Rule). Prior to submitting the NOC, a Soil Erosion and Sedimentation Control (SESC) Permit must be obtained from the county or municipal enforcing agency in accordance with Part 91, Soil Erosion and Sedimentation Control, of PA 451 of 1994, the Natural Resources and Environmental Protection Act (NREPA). Once the SESC Permit has been obtained, the landowner or recorded easement holder must submit a completed NOC form to the MDEQ along with the required attachments (location map, a copy of the SESC Permit and \$400.00 fee) to the address on the NOC form. Copies of the NOC form are available from the Water Bureau of the MDEQ.

Under Permit by Rule, the construction permittee is defined as "A person who is deemed to have a national permit pursuant to the provisions of R 323.2190 and who **owns or holds a recorded easement on the property where a construction activity is located**, is constructing in Public Right of Way in accordance with sections 13, 14, 15, and 16 of Act 368 of the Public Acts of 1925, as amended, being §§247.183, 247.184, 247.185, and 247.186 of the Michigan Compiled laws, or is the Authorized Public Agency if a construction activity is carried out by the Authorized Public Agency." If the Contractor does not own or hold a recorded easement on the property, the property owner must apply for coverage. If the owner of the property is applying on behalf of the Contractor, a copy of the property owner consent agreement shall be included with the NOC form and can be substituted for the easement document. The consent agreement must contain verbiage describing the party responsible for restoration of the areas upon vacating by the Contractor.

The Contractor shall submit a site plan, a copy of the recorded easement document or deed if owned and the NPDES permit to the Engineer for review a minimum of seven days prior to mobilization of storage areas, the expected date of excavation of a borrow area or expected date of disposal. This review by the Engineer does not relieve the Contractor of any responsibilities required by law. The Contractor shall not commence activities which require NPDES permits until they have received written approval from the Engineer.

Submittal of the NOC is not required for regulated construction activities that disturb 1 to 5 acres. These sites have automatic coverage under Permit by Rule if they have obtained coverage (SESC Permit) in accordance with Part 91, Soil Erosion and Sedimentation Control, of NREPA. Although there are no application requirements, the landowner or easement holder still must comply with the requirements of Permit by Rule.

The Contractor must maintain proper soil erosion and sedimentation control measures associated with those areas, including ingress and egress from the Department's right-of-way and shall be responsible for any fines or penalties occurring from the failure to maintain and operate those controls.

Contractor storage areas, disposal areas, borrow areas, and haul roads located within MDOT's right of way will be considered included in the Department's permit application. Site plans for storage areas, disposal areas, and borrow areas within the right-of-way must be submitted to the Engineer for review and approval a minimum of seven days prior to expected use. Although covered under the Department's permit, the Contractor shall be responsible for all costs to install and maintain required soil erosion and sedimentation control measures. Any fines or penalties resulting from the Contractor's failure to maintain and operate those controls are the full responsibility of the Contractor.

The Contractor shall be aware that the NOC within MDOT's right-of-way is intended for **storm water only** and does not allow the discharge of process water. An example of process water is that used in cleaning equipment. All process water from Contractor activities within MDOT's right-of-way must be contained as to not discharge and mix with the storm water runoff. The process water shall, as a minimum, be contained in a lined storage area. The liner shall consist of a two-foot minimum clay liner or a 40 mil non-permeable synthetic liner. The storage area shall be a two-celled system. The first cell will allow any particulates to settle while the second cell will receive the overflow of effluent from the first. It may be required to pump and haul the effluent to a licensed wastewater treatment facility. Complete chemical and biological testing results must be taken of the effluent and submitted to the MDEQ if the Contractor intends to discharge to the ground water. Discharges will not be allowed until a copy of a ground water discharge exemption is granted from the MDEQ and is provided to the Engineer. The storage area shall be constructed such that all surface water runoff is diverted away from the storage area. If the processed water is not contained in a lined storage area, a ground water discharge permit may be required prior to commencing plant operations.

b. Measurement and Payment. All work necessary to obtain required NPDES permits for storage areas, disposal areas and borrow areas, including but not limited to, excavation, embankment, permit fees, liners, testing and all other labor and materials, is considered to be included in payment for Mobilization of the project.

MICHIGAN DEPARTMENT
OF
TRANSPORTATION

SPECIAL PROVISION
FOR
INDEMNIFICATION, DAMAGE LIABILITY AND INSURANCE

FIN:JDM

1 of 1

C&T:APPR:KB:DBP:07-18-07

FHWA:APPR:07-25-07

Add the following, after the first paragraph, to subsection 107.10.C.4 of the Standard Specifications for Construction:

In lieu of the Owners Protective Liability, the Contractor shall add to their Bodily Injury and Property Damage Policy:

a. Additional Insured:

The Bodily Injury and Property Damage Policy shall name as additional insured the State, the Department, and the Commission and all agents and employees thereof and, where indicated by the identity of the contracting parties, the protection shall be extended to all participating political subdivisions and public corporations.

b. Per Project Aggregate

The Bodily Injury and Property Damage Policy shall be endorsed with an endorsement that provides the General Aggregate Limit to each designated construction project.

c. Umbrella Policy

An umbrella policy with a \$2,000,000 limit shall be provided.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RETAINAGE

FIN:CRR

1 of 1

C&T:APPR:GCT:DBP:11-14-05
FHWA:APPR:11-18-05

The following deletion is made to Section 109 of the Standard Specifications for Construction.

Delete from subsection 109.06.A, on pages 102 and 103 of the Standard Specifications for Construction, all of subsections 109.06.A.2, 109.06.A.3, and 109.06.A.4, leaving the last paragraph following 109.06.A.4.f.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
ON-THE-JOB TRAINING PROGRAM

SBL:LST

1 of 1

C&T:APPR:DBP:GCT:08-30-05
FHWA:APPR:09-08-05

a. Description. Michigan Department of Transportation's (MDOT's) program to meet the requirements of the Federal-Aid Highway Act of 1970 and 23 CFR (Code of Federal Regulations) Part 230, Subpart A. The objective is to develop skill improvement programs to provide opportunities for unskilled workers, particularly minorities, women, and disadvantaged persons, to acquire training in the skilled construction trades.

b. Trainee Assignment. MDOT's Small Business Liaison Section will allocate training assignments to prequalified Contractors based on the past contract volume of federal-aid work performed with MDOT. MDOT will notify each Contractor who has met the volume of work threshold at the beginning of each calendar year and advise them of the number of trainees they are expected to support.

c. Program Requirements. Contractors found to have reached the level(s), as identified in the MDOT On-The-Job Training (OJT) program document, are required to fulfill all of the requirements of the OJT program at no additional cost to the Department.

The Contractors are required to pay the trainees in accordance with the following schedule:

- 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
- 90 percent for the last quarter of the training period
- Full fringe benefits will be paid during the entire training period

The OJT program document is available through the MDOT Contractor's Service Center website at www.michigan.gov/mdot/0,1607,7-151-9625_21539,00.html, Disadvantaged Business Enterprise Section.

Contractors should notify the Project Engineer at the preconstruction meeting if they intend to utilize trainees on the project.

d. Non-Compliance. Failure to comply with the OJT program provisions or complete a training assignment may result in the Contractor being found in non-compliance. Failure to resolve the non-compliance may be used as a basis for modifying the prequalification ratings of the Contractor. Any action to modify the Contractor's prequalification ratings will be taken in accordance with the duly promulgated prequalification rules.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**NON-COMPLIANCE WITH SOIL EROSION AND SEDIMENTATION CONTROL
REQUIREMENTS**

C&T:DMG

1 of 2

C&T:APPR:JAR:TWK:08-02-06
FHWA:APPR:08-11-06

a. Description. This special provision establishes negative adjustments related to the failure to properly install and maintain soil erosion and sedimentation control (SESC) measures and the conditions under which these adjustments will be determined and applied. Nothing in this special provision modifies section 107 of the Standard Specifications for Construction,

Delays to the project as a result of the Contractor conducting corrective actions for SESC do not constitute a valid reason for an extension of time.

Deficiencies with SESC measures must be corrected in the time frame stated herein. For those deficiencies not corrected within the stated time frame, the Engineer will make a negative adjustment to the contract as stated herein.

b. Construction. The Contractor must install all temporary erosion control measures identified on the plans and as directed by the Engineer for an impacted area of the project prior to the start of any earth disturbance including, but not limited to, clearing, grading and excavation in that area. The Engineer will inspect these measures every seven days and within 24 hours of precipitation events which result in off-site runoff. Deficiencies will be documented on the National Pollutant Discharge Elimination System (NPDES) Inspection Report (Form 1126).

If at any time during the project, including the time during the seasonal suspension, the Engineer documents deficient SESC measures, the Engineer will provide written notification with instructions for corrective action to the Contractor. The time frame for completion of these corrective actions will be specified in the notification and will be discussed with the Contractor as necessary.

Deficiencies are defined as one or more of the following:

1. failure to install or construct SESC measures shown on the plans or as directed by the Engineer;
2. failure to maintain the measures;
3. failure to conduct earth change activities in a manner consistent with all applicable environmental permit requirements;
4. failure to comply with the time limitations or the area limitations stated in subsections 208.03.B and 208.03.C, respectively, of the Standard Specifications for Construction.

SESC deficiencies are either emergency or non-emergency and the time frame for corrective action is determined accordingly. Sedimentation of a drainage structure or waters of the state or loss of support of the roadbed impacting public safety constitutes an emergency and corrective

actions must be completed within 24 hours of notification. Non-emergency deficiencies must be corrected within five calendar days of notification.

For those emergency corrective actions not completed within 24 hours of notification, the Contractor will be assessed \$100.00 per hour for every hour the deficiency remains uncorrected after the initial 24 hours of notification. For those non-emergency corrective actions not completed within five calendar days, the Contractor will be assessed \$500.00 per day for every day the deficiency remains uncorrected after the initial five days of notification.

If it is not practicable to complete the non-emergency corrective actions within five calendar days, the Contractor must document the reasons and propose a corrective action plan to the Engineer within five days of notification. The corrective action plan must contain the Contractor's course of action and a time frame for completion. If the reasons and the corrective action plan are acceptable to the Engineer, the Contractor will be allowed to proceed with the plan as proposed without incurring a negative adjustment. If the approved corrective action plan is not completed as proposed, the Contractor will be assessed \$1000.00 per calendar day for every day the deficiency remains uncorrected after the time frame is exceeded in the approved corrective action plan.

The Contractor is required to correct, in the timeframe stated herein, all other emergency or non-emergency SESC deficiencies documented anywhere else on the project during completion of the approved corrective action plan.

c. Measurement and Payment. The Engineer will make the necessary monetary adjustment to the contract amount based on the length of time the Contractor allows the deficiencies to remain uncorrected after the time allowance stated herein and as described to cover any costs incurred by the department as a result of SESC violations.

All costs associated with corrective actions required due to the Contractor's failure to properly install or maintain soil erosion and sedimentation control measures on this project will be borne by the Contractor.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CULVERT CLASSES TABLE 401-1

DES:PGF

1 of 1

C&T:APPR:RDT:DBP:02-22-06
FHWA:APPR:03-01-06

Delete Table 401-1, Pipe Alternates for Culvert Classes, on page 184 of the Standard Specifications for Construction, and replace with the following:

Table 401-1 Pipe Alternates for Culvert Classes

| Type of Pipe Depth of Cover in feet (a) | Class A Culvert 0 to 10 (l) | Class B Culvert >10 to 16 | Class C Culvert >16 to 23 | Class D Culvert >23 to 33 (i) | Class E Culvert 0 to 3 (b) | Class F Drive Culvert (c) |
|--|-----------------------------------|---------------------------------|---------------------------------|-------------------------------------|----------------------------------|---------------------------------|
| Reinforced Concrete Pipe (d) | II | III | IV | V | IV | II |
| Nonreinforced Concrete Pipe (e) | 1 | 3 | No | No | No | 1,3 (f) |
| Corrugated and Spiral Ribbed Al-Alloy Pipe (j) | Yes | Yes | Yes | Yes | No | Yes |
| Corrugated and Spiral Ribbed Steel Pipe (j) | Yes | Yes | Yes | Yes | No | Yes |
| Smooth-Lined Corrugated Plastic Pipe (CPE) (g)(j) | Yes (h) | Yes (k) | No | No | No | Yes (h) |

- a. Cover, including the pavement structure is defined as the height of fill above the top of the pipe.
- b. Class E culvert applies when the culvert is beneath the influence of proposed pavement and the depth of cover is 3 feet or less.
- c. Class F culvert applies for driveway culverts (residential and commercial).
- d. Roman numerals refer to class of reinforced concrete pipe, AASHTO M 170.
- e. Arabic numerals refer to the class of nonreinforced concrete pipe, AASHTO M 86.
- f. Nonreinforced concrete pipe Class 1 is allowed for Class F culverts with a depth of cover up to 10 feet. Nonreinforced concrete pipe Class 3 is allowed for Class F culverts with a depth of cover greater than 10 feet but less than or equal to 16 feet.
- g. CPE must conform to AASHTO M 294, Type S polyethylene pipe.
- h. Permitted only for 36-inch diameter pipe and under for CPE pipes.
- i. Special design is required for depths of cover greater than 33 feet.
- j. Minimum cover 2 feet when the culvert is outside the influence of proposed pavement (measured from top of pipe to final grade).
- k. Permitted only for 12 to 24-inch diameter CPE pipes. Refer to the Class B Plastic Pipe Qualified Products List for approved manufacturers and products.
- l. Class A culvert applies when the culvert is outside the influence of proposed pavement or is beneath the influence of proposed pavement and the depth of cover is greater than 3 feet but less than or equal to 10 feet.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
VIDEO TAPING SEWER AND CULVERT PIPE

DES:PGF

1 of 1

C&T:APPR:RDT:DBP:01-26-06
FHWA:APPR:02-07-06

Delete the last sentence in the paragraph of subsection 401.03.O, Video Inspection, on page 191 of the Standard Specifications for Construction and replace with the following:

Video inspection is not required for driveway culverts; culvert extensions less than 50 feet; new culverts less than 50 feet; or the extension of existing catch basin leads less than 20 feet.

Delete the last sentence in the first paragraph of subsection 402.03.K, Video Inspection of Sewer Pipe, on page 199 of the Standard Specifications for Construction and replace with the following:

Video inspection is not required for the extension of existing catch basin leads less than 20 feet.

Delete the pay item “Video Taping Sewer and Culv Pipe, ___ inch” in subsection 402.04, on page 202 of the Standard Specifications for Construction and replace with the following:

| Contract Item (Pay Item) | Pay Unit |
|--|-----------------|
| Video Taping Sewer and Culv Pipe | .Foot |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PRICE ADJUSTMENTS ON ASPHALT BINDER

C&T:TRC

1 of 4

C&T:APPR:JWB:MJB:01-14-05
FHWA:APPR:01-14-05

Original samples of asphalt binders will be taken daily prior to incorporation into the mixture. The original samples will be used for Asphalt Binder Certification Verification.

When two or more certification verification samples of a specific PG binder grade, taken on consecutive days of production, fall within the ranges shown below, the contract unit price for the HMA mixture containing the out of specification binder shall be reduced by the percentage shown for the days of production represented by the samples.

When multiple tests on a binder sample are out of specification, the price reductions will not be cumulative. The greatest price reduction on any test will apply. If the price reduction is 50 percent, the days of production will be evaluated by the Engineer. If the Engineer determines that removal is warranted, the Contractor shall remove and replace the pavement at no additional cost to MDOT.

On MDOT projects that have only one day of HMA mix production and paving, two certification verification samples will be taken and tested to determine if there are any price adjustments. The standard check tests will be performed if the potential for price adjustments exist.

If any of the following three situations occur:

- The asphalt binder supplier is not on the approved certifier's list.
- Less than the minimum grade of binder, as specified by the contract, is used in the mix.
- A daily binder sample is not taken, or the specified one pint sample tin is less than three quarters full.

The Engineer will evaluate the days of production and require the Contractor to remove and replace the pavement at no additional cost to MDOT, or if the pavement is not removed, a 50 percent reduction in the contract unit price shall be imposed on the HMA mixture containing the non-specification binder:

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONCRETE QUALITY ASSURANCE PAY FACTOR

C&T:JAR

1 of 1

C&T:APPR:JFS:TS:08-02-04
FHWA: APPR 08-20-04

a. Description. The following information is added to subsection 605.03.D of the standard specifications

2. Calculate the pay factor for each lot, in decimal form, as follows:

$$PF = (0.20(PWL) - 18) \div 100$$

where :

PF = Pay factor used in determining the pay adjustment (decimal form).

PWL = Percent within limits determined by the procedure in Section 106

3. Apply the pay factor to each contract item in the lot to determine the pay adjustment for each item as follows:

$$ADJ = PF (\text{quantity}) (\text{price})$$

where:

ADJ = Lot pay adjustment for the contract item

quantity = Quantity of item placed in the lot

price = Contract unit price bid for the contract item

4. If a lot is comprised of more than one critical concrete QA item or is comprised of critical and non-critical concrete QA items, calculate the pay adjustment for each item in the lot separately as follows:
- a. Critical concrete QA items - Use the pay factor, the contract unit price for the item and the quantity of the item included in the lot.
 - b. Non-critical concrete QA items - Use either the pay factor or zero, whichever is less, the contract unit price for the item, and the quantity of the non-critical concrete QA item included in the lot.

**Dynamic Shear Rheometer
Original Material**

| % Reduction | Spec. Range (kPa) |
|-------------|-------------------|
| 2.5 | 0.98 - <1.00 |
| 5 | 0.93 - <0.98 |
| 10 | 0.88 - <0.93 |
| 15 | 0.83 - <0.88 |
| 20 | 0.78 - <0.83 |
| 30 | 0.73 - <0.78 |
| 40 | 0.68 - <0.73 |
| 50 | less than 0.68 |

**Dynamic Shear Rheometer
RTFO Material**

| % Reduction | Spec. Range (kPa) |
|-------------|-------------------|
| 2.5 | 2.08 - <2.20 |
| 5 | 1.98 - <2.08 |
| 10 | 1.88 - <1.98 |
| 15 | 1.78 - <1.88 |
| 20 | 1.68 - <1.78 |
| 30 | 1.58 - <1.68 |
| 40 | 1.48 - <1.58 |
| 50 | less than 1.48 |

**Dynamic Shear Rheometer
PAV Material**

| % Reduction | Spec. Range (kPa) |
|-------------|----------------------|
| 2.5 | >5000 - 5350 |
| 5 | >5350 - 5600 |
| 10 | >5600 - 5850 |
| 15 | >5850 - 6100 |
| 20 | >6100 - 6350 |
| 30 | >6350 - 6600 |
| 40 | >6600 - 6850 |
| 50 | greater than 6850 |

**Bending Beam Rheometer
Stiffness**

| % Reduction | Spec. Range (MPa) |
|-------------|----------------------|
| 2.5 | >300 - 309 |
| 5 | >309 - 324 |
| 10 | >324 - 339 |
| 15 | >339 - 351 |
| 20 | >351 - 369 |
| 30 | >369 - 384 |
| 40 | >384 - 399 |
| 50 | greater than 399 |

**Bending Beam Rheometer
M-Value**

| % Reduction | Spec. Range |
|-------------|-----------------|
| 2.5 | 0.292 - <0.300 |
| 5 | 0.285 - <0.292 |
| 10 | 0.270 - <0.285 |
| 15 | 0.255 - <0.270 |
| 20 | 0.240 - <0.255 |
| 30 | 0.225 - <0.240 |
| 40 | 0.210 - <0.225 |
| 50 | less than 0.210 |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**PRACTICAL TARGET DENSITY
ON HMA SHOULDERS**

HCY:KMK

1 of 2

C&T:APPR:CJB:DBP:06-07-07
FHWA:APPR:06-08-07

a. Description. If an area of inadequate base conditions is shown on the plans (may be identified by exclusion of vibratory rollers), or identified by the Contractor prior to or during the paving operation, a density frequency curve shall be run to determine the roller pattern and number of passes to obtain maximum density. Inadequate base conditions may include underlying materials that are not stable or an inadequate pavement structure. Inadequate pavement structure is defined as placing the HMA on a base where the top 6 inches of the underlying material has a Weighted Structural number less than 0.76 anywhere within the resurfacing limits of the shoulder. See Table 1: Table of Coefficients and method of computation listed below. The Contractor shall immediately contact the Project Engineer and provide location(s) and evidence (hand auger boring or exposed soil layers) of inadequate base conditions for areas not shown in the plans. If the area is unstable as a result of the Contractor's construction operations, other than compactive effort, the area shall be excluded from this special provision. If the area is unstable due to the compactive effort required to obtain maximum in place density then this special provision will apply, providing the Engineer concurs with the Contractor's findings and agrees to the limits of each area.

b. Construction. The Contractor shall run and document a density frequency curve to determine the roller pattern and number of passes to achieve the maximum density in locations of inadequate base conditions. The Engineer shall be given the opportunity to witness and document the density frequency curve. A density frequency curve is defined as the measurement and documentation of each pass of the finished roller until the in place density results indicate a decrease in value. The previous recording will be deemed the optimal density. After the initial determination the Contractor shall verify and document the density frequency curve at 1000 foot intervals in continual locations and at individual locations less than 1000 foot long in those locations where inadequate base conditions have been identified. Density tests shall begin 100 feet from the beginning of the inadequate base limits. The Contractor shall perform density tests using an approved non-nuclear gauge (per the manufacturer's recommended procedures) or a nuclear density gauge in the 60 second mode with the JMF Gmm. Longitudinal locations shall be as specified above with the transverse locations randomly selected as outline in section A-12 of the *Materials Quality Assurance Procedures Manual*. The transverse location shall not be within 5 inches of the free edge. The Contractor shall mark each location with a 2 inch diameter paint dot. If the in place density result is less than 90 percent the Contractor shall take 5 additional tests at 100 foot intervals at the same transverse offset as the previous result. If more than 2 of the 5 tests are less than 90 percent the Contractor shall stop production and review their operating procedures and notify the Engineer. Production can resume upon approval of the Engineer. The Contractor shall document all results and submit to the Engineer daily or immediately upon request.

c. Field Placed Material (Density) QA. The Engineer shall randomly select three QA core locations from the previously marked locations used for density testing for each day of HMA production. The Contractor shall notify the Engineer in advance of coring to ensure that MDOT has a representative to witness the coring operation and take immediate possession of the 6 inch core. The Engineer shall complete the density testing within four calendar days after taking possession of the core. If any of the core density results vary by more than 3 percent of the recorded nuclear density gauge reading at that location the Contractor shall review their testing procedures. If the in place density is less than 90 percent the Engineer shall evaluate the entire pavement section within the area for approval or recommend another action that may include an alternate design of the pavement section. The Engineer shall document the decision.

d. Measurement and Payment. No additional payment will be made for additional testing required to determine if pavement is eligible for practical target density and documenting the control density of the shoulders. If the proposal includes the Special Provision for Furnishing and Placing HMA mixture or Superpave Hot Mix Asphalt Percent Within Limits (PWL), then the paved shoulder areas that use this practical target density special provision will not be subject to incentive or disincentive of the contract unit price for HMA mixture. If the Contractor is paving a mainline pass in conjunction with the adjacent shoulder and a random core location falls within the shoulder area the core will be excluded from the calculations regarding incentive and disincentive for density. Another core for pay will be taken by randomly adjusting the core location transversely to fall within the non-excluded shoulder

Table 1: Table of Coefficients

| Material | Coefficient |
|---------------------------------|-------------|
| Constructed HMA | 0.42 |
| Constructed HMA Base | 0.30 |
| Existing HMA | 0.25 |
| Crush and Shape HMA | 0.20 |
| Severely deteriorated shoulders | 0.15 |
| Aggregate | 0.14 |
| Subbase | 0.10 |
| Loam | 0.05 |
| Clay | 0.03 |

Weighted Structural number = the summation of each layer thickness in inches x material coefficient for top 6 inches of material underlying the HMA to be placed. Measurements shall be rounded to the nearest 1/2 inch and determined by coring/auguring or exposure of the shoulder section.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SUPERPAVE HMA MIXTURES

C&T:JWB

1 of 6

C&T:APPR:EHR:CJB:09-25-06
FHWA:APPR:10-02-06

a. Description. This work shall consist of furnishing a HMA mixture using Superpave Mixture Design Methods. The HMA mixture will be provided according to the requirements of the standard specifications except where modified herein.

b. Mix Design. The HMA mixture design will be provided by the Contractor. The design will be submitted and evaluated according to the Procedures Manual for Mix Design Processing.

c. Recycled Mixtures. The Contractor may substitute Reclaimed Asphalt Pavement (RAP) for a portion of the new materials required to produce HMA mixture. The mixture will be designed and produced to meet all of the criteria herein.

d. Materials. The mixture will consist of aggregates of the highest quality available to meet the minimum specifications herein. Tables 1-6 and 10 provide the required aggregate properties, Tables 7-8 provide the Mix Design Criteria and Volumetric Properties and Table 9 provides the Superpave Gyratory Compactor (SGC) compaction criteria. Criteria specified below apply to the combined aggregate blend. For mixture design purposes, top and leveling courses are defined as the mixture layers within 4 inches of the surface; the base course is defined as all layers below 4 inches of the surface. For mixture layers which fall within the 4 inch threshold, the following rule should apply: If less than 25 percent of a mixture layer is within 4 inches of the surface, the mixture layer should be considered to be a base course. For projects that specify a mix type E03, the Contractor may choose to use a mix type 13A according to the requirements of the standard specifications.

e. Measurement and Payment.

| Contract Items (Pay Item) | Pay Unit |
|----------------------------------|-----------------|
| HMA, 5 E _ | Ton |
| HMA, 4 E _ | Ton |
| HMA, 3 E _ | Ton |
| HMA, 2 E _ | Ton |

The mixture designation, E _ , is determined by the ESALs (million) on the design lane over the design life. This number is to be used when determining Mix Design Properties from Tables 1 thru 6, and Tables 8 and 9.

Table 1: Crush Minimum Criteria

| Estimated Traffic (million ESAL) | Mix Type | Top & Leveling Courses | Base Course |
|-------------------------------------|----------|---------------------------|----------------|
| < 0.3 | E03 | 55/- | - |
| < 1.0 | E1 | 65/- | - |
| < 3.0 | E3 | 75/- | 50/- |
| < 10 | E10 | 85/80 | 60/- |
| < 30 | E30 | 95/90 | 80/75 |
| <100 | E50 | 100/100 | 95/90 |

Note: "85/80" denotes that 85 percent of the coarse aggregate has one fractured face and 80 percent has two fractured faces.

Table 2: Fine Aggregate Angularity Minimum Criteria

| Estimated Traffic (million ESAL) | Mix Type | Top & Leveling Courses | Base Course |
|-------------------------------------|----------|---------------------------|----------------|
| < 0.3 | E03 | - | - |
| < 1.0 | E1 | 40 | - |
| < 3.0 | E3 | 40(1) | 40(1) |
| < 10 | E10 | 45 | 40 |
| < 30 | E30 | 45 | 40 |
| <100 | E50 | 45 | 45 |

(1) For an E3 mixture type that enters the restricted zone as defined in Table 10, the minimum criteria shall be 43.

Table 3: Sand Equivalent Minimum Criteria

| Estimated Traffic (million ESAL) | Mix Type | Top & Leveling Courses | Base Course |
|-------------------------------------|----------|---------------------------|----------------|
| < 0.3 | E03 | 40 | 40 |
| < 1.0 | E1 | 40 | 40 |
| < 3.0 | E3 | 40 | 40 |
| < 10 | E10 | 45 | 45 |
| < 30 | E30 | 45 | 45 |
| | | | |

| | | | |
|------|-----|----|----|
| <100 | E50 | 50 | 50 |
|------|-----|----|----|

Table 4: L.A. Abrasion Maximum Criteria

| Estimated Traffic (million ESAL) | Mix Type | Top & Leveling Courses | Base Course |
|-------------------------------------|----------|---------------------------|----------------|
| < 0.3 | E03 | 45 | 45 |
| < 1.0 | E1 | 40 | 45 |
| <3.0 | E3 | 35 | 40 |
| < 10 | E10 | 35 | 40 |
| < 30 | E30 | 35 | 35 |
| <100 | E50 | 35 | 35 |

Table 5: Soft Particles Maximum Criteria

| Estimated Traffic (million ESAL) | Mix Type | Top & Leveling Courses | Base Course |
|-------------------------------------|----------|---------------------------|----------------|
| < 0.3 | E03 | 10.0 | 10.0 |
| < 1.0 | E1 | 10.0 | 10.0 |
| < 3.0 | E3 | 5.0 | 5.0 |
| < 10 | E10 | 5.0 | 5.0 |
| < 30 | E30 | 3.0 | 4.5 |
| <100 | E50 | 3.0 | 4.5 |

Note: "Soft Particles Maximum" is the sum of the shale, siltstone, ochre, coal, clay-ironstone and particles which are structurally weak or are found to be non-durable in service.

Table 6: Flat and Elongated Particles Maximum Criteria

| Estimated Traffic (million ESAL) | Mix Type | Top & Leveling Courses | Base Course |
|-------------------------------------|----------|---------------------------|----------------|
| < 0.3 | E03 | - | - |
| < 1.0 | E1 | - | - |
| < 3.0 | E3 | 10 | 10 |
| < 10 | E10 | 10 | 10 |
| < 30 | E30 | 10 | 10 |
| <100 | E50 | 10 | 10 |

Note: Maximum 10% by weight with a 1 to 5 aspect ratio.

Table 7: Superpave Mix Design Criteria

| Design Parameter | Mixture Number | | | |
|---|-----------------|-------|-------|-------|
| | 5 | 4 | 3 | 2 |
| Percent of Maximum Specific Gravity (%G _{mm}) at the design number of gyrations, (N _d) (See Note) | 96.00 % (1) | | | |
| %G _{mm} at the initial number of gyrations, (N _i) | See Table 9 | | | |
| %G _{mm} at the maximum number of gyrations, (N _m) | ≤98.00 % | | | |
| VMA min % at N _d (based on aggregate bulk specific gravity, (G _{sb})) | 15.00 | 14.00 | 13.00 | 12.00 |
| VFA at N _d | See Table 8 (2) | | | |
| Fines to effective asphalt binder ratio (P _{No200} /P _{be}) | 0.60 - 1.40 | | | |
| Tensile strength ratio (TSR) | 80 % min | | | |
| <p>(1) For mixtures meeting the definition for base course: Mixtures shall be designed to 96.00% of Maximum Specific Gravity (%G_{mm}) at the design number of gyrations, (N_d). During field production Percent of Maximum Specific Gravity (%G_{mm}) at the design number of gyrations, (N_d) shall be increased to 97.00%.</p> <p>(2) For base course mixtures the maximum criteria limits do not apply.</p> | | | | |

Table 8: VFA Minimum and Maximum Criteria

| Estimated Traffic (million ESAL) | Mix Type | Top Course | Leveling & Base Courses |
|---|----------|------------|-------------------------|
| < 0.3 | E03 | 70-80 | 70-80 |
| < 1.0 | E1 | 65-78 | 65-78 |
| < 3.0 | E3 | 65-78 | 65-78 |
| < 10 | E10 | 65-78(1) | 65-75 |
| < 30 | E30 | 65-78(1) | 65-75 |
| <100 | E50 | 65-78(1) | 65-75 |
| (1) For mixture Number 5, the specified VFA range shall be 73% - 76%. | | | |

Table 9: Superpave Gyrotory Compactor (SGC) Compaction Criteria

| Estimated Traffic (million ESAL) | Mix Type | %G _{mm} at (N _i) | Number of Gyration | | |
|----------------------------------|----------|---------------------------------------|--------------------|----------------|----------------|
| | | | N _i | N _d | N _m |
| < 0.3 | E03 | ≤ 91.50% | 7 | 68 | 104 |
| < 1.0 | E1 | ≤ 90.50% | 7 | 76 | 117 |
| < 3.0 | E3 | ≤ 90.50% | 7 | 86 | 134 |
| < 10 | E10 | ≤ 89.00% | 8 | 96 | 152 |
| < 30 | E30 | ≤ 89.00% | 8 | 109 | 174 |
| <100 | E50 | ≤ 89.00% | 9 | 126 | 204 |

Note: Compact all mixture specimens fabricated in the SGC to N_m. Use height data provided by the SGC to calculate volumetric properties at N_i and N_d.

Table 10: Aggregate Gradation Requirements

| Standard Sieve | Percent Passing Criteria (<i>control points</i>) | | | |
|---|--|-------------|-------------|-------------|
| | Mixture Number | | | |
| | 5 | 4 | 3 | 2 |
| 1½ inch | | | | 100 |
| 1 inch | | | 100 | 90 – 100 |
| ¾ inch | | 100 | 90 – 100 | 90 max |
| ½ inch | 100 | 90 – 100 | 90 max | |
| ⅜ inch | 90 – 100 | 90 max | | |
| No. 4 | 90 max | | | |
| No. 8 | 32 – 67 | 28 – 58 | 23 – 49 | 19 – 45 |
| No. 16 | | | | |
| No. 30 | | | | |
| No. 50 | | | | |
| No. 100 | | | | |
| No. 200 | 2.0 - 10.0 | 2.0 - 10.0 | 2.0 - 8.0 | 1.0 - 7.0 |
| Sieve | Restricted Zone (see note) | | | |
| No. 4 | | | | 39.5 |
| No. 8 | 47.2 | 39.1 | 34.6 | 26.8 - 30.8 |
| No. 16 | 31.6 - 37.6 | 25.6 - 31.6 | 22.3 - 28.3 | 18.1 - 24.1 |
| No. 30 | 23.5 - 27.5 | 19.1 - 23.1 | 16.7 - 20.7 | 13.6 - 17.6 |
| No. 50 | 18.7 | 15.5 | 13.7 | 11.4 |
| <p>Note: The final gradation blend must pass between the control points established. The following conditions must be satisfied in order for the final gradation blend to enter the restricted zone:</p> <ol style="list-style-type: none"> 1. Mixture types E03, E1, E10, E30 and E50 may enter the restricted zone provided the final gradation blend enters from above the maximum density line. 2. Mixture type E3 may enter the restricted zone provided the final gradation blend enters from above the maximum density line and the fine aggregate angularity of the final blend is a minimum of 43. <p>If these criteria are satisfied, acceptance criteria and associated incentive/disincentive or pay adjustment tied to this gradation restricted zone requirement which may be included in other contract documents, do not apply. Otherwise, final gradation blend has to be outside of the area bounded by the limits set for the restricted zone.</p> | | | | |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RECYCLED HOT MIX ASPHALT MIXTURE

C&T:GMM

1 of 1

C&T:APPR:JAR:MF:12-19-01
FHWA:APPR:08-06-02

Add the following subsection to Section 501.02.A.2 of the standard specifications.

c. Reclaimed Asphalt Pavement (RAP) Percentages and Binder Grade Selection. The method for determining the binder grade in hot mix asphalt (HMA) mixtures incorporating RAP is divided into three categories designated Tier 1, Tier 2 and Tier 3. Each tier has a range of percentages that represent the contribution of the RAP binder toward the total binder, by weight. The tiers identified below apply to both Superpave and Marshall mixtures with the following exception: **Superpave mixture types E3, E3 High Stress and E10 used as leveling or top course shall be limited to a maximum of 17% RAP binder by weight of the total binder in the mixture. Superpave Mixture types E10 High Stress, and all E30 and E50 mixtures used as leveling or top course shall be limited to a maximum of 14% RAP binder by weight of the total binder in the mixture.**

Tier 1 (0% to 17% RAP binder by weight of the total binder in the mixture)

No binder grade adjustment is made to compensate for the stiffness of the asphalt binder in the RAP.

Tier 2 (18% to 27% RAP binder by weight of the total binder in the mixture)

The selected binder grade for the asphalt binder is one grade lower for the high temperature than the binder grade required for the specified project mixture type. For example, if the specified binder grade for the mixture type is PG58-28, the required grade for the binder in the recycled mixture would be a PG52-28.

The asphalt binder grade can also be selected using a blending chart for high and low temperatures. The Contractor shall supply the blending chart and the RAP test data used in determining the binder selection.

Tier 3 (\geq 28% RAP binder by weight of the total binder in the mixture)

The binder grade for the asphalt binder is selected using a blending chart for high and low temperatures. The Contractor shall supply the blending chart and the RAP test data used in determining the binder selection.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
MARSHALL HOT MIX ASPHALT MIXTURE

C&T:JWB

1 of 2

C&T:APPR:EHR:CJB:09-25-06
FHWA:APPR:10-02-06

a. Description. Furnish hot mix asphalt (HMA) mixture, designed using Marshall Mixture Design Methods, according to the requirements of the Standard Specifications for Construction except as modified by this special provision.

b. Mix Design. Submit the mix design for evaluation according to the Department's Hot Mix Asphalt Procedures Manual. Use a 50 blow Marshall hammer when compacting mixtures for developing Marshall mix designs.

c. Recycled Mixtures. Substituting reclaimed asphalt pavement (RAP) for a portion of the new material required to produce HMA mixture is allowed provided that the mixture is designed and produced to meet all criteria specified herein. RAP materials must conform to the Standard Specifications for Construction.

d. Materials. Table 1 provides the mix design criteria and volumetric properties. Table 2 provides the required aggregate properties. Use aggregates of the highest quality available to meet the minimum specifications. Use the mixture designation number shown in the contract item name when determining mix design properties from Tables 1 and 2.

e. Measurement and Payment. The completed work as described will be paid for at the contract unit price for the following contract item (pay item):

Contract Item (Pay Item)**Pay Unit**HMA, (type)..... Ton**Table 1: Mix Design Criteria and Volumetric Properties**

| | Mixture No. | | | | |
|---|-------------|-------|-------|-------|-------|
| | 2C | 3C | 4C | 13A | 36A |
| Target Air Void, % (a) | 3.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| VMA (min) (b) | 11.00 | 13.00 | 14.00 | 14.00 | 15.00 |
| VFA | 65-78 | 65-78 | 65-78 | 65-78 | 65-78 |
| Fines to Binder Ratio (max) (c) | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Flow (0.01 inch) | 8 -16 | 8 -16 | 8 -16 | 8 -16 | 8 -16 |
| Stability (min), lbs | 1200 | 1200 | 1200 | 900 | 900 |
| a. Lower target air voids by 1.00% if used in a separate shoulder paving operation. Consider reducing air void targets to 3.00% for lower traffic volume roadways when designing 13A and 36A mixtures for local agency use. b. VMA calculated using Gsb of the combined aggregates. c. Ratio of the weight of aggregate passing the No. 200 sieve to total asphalt binder content by weight; including fines and binder contributed by RAP. | | | | | |

Table 2: Aggregate Properties

| | Mixture No. | | | | |
|--|---|---------|---------|-------|--------|
| | 2C | 3C | 4C | 13A | 36A |
| | Percent Passing Indicated Sieve or Property Limit | | | | |
| 1 ½ inch | 100 | | | | |
| 1 inch | 91-100 | 100 | | | |
| ¾ inch | 90 max. | 91-100 | 100 | 100 | |
| ½ inch | 78 max. | 90 max. | 91-100 | 75-95 | 100 |
| ⅜ inch | 70 max. | 77 max. | 90 max. | 60-90 | 92-100 |
| No. 4 | 52 max. | 57 max. | 67 max. | 45-80 | 65-90 |
| No. 8 | 15-40 | 15-45 | 15-52 | 30-65 | 55-75 |
| No. 16 | 30 max. | 33 max. | 37 max. | 20-50 | |
| No. 30 | 22 max. | 25 max. | 27 max. | 15-40 | 25-45 |
| No. 50 | 17 max. | 19 max. | 20 max. | 10-25 | |
| No. 100 | 15 max. | 15 max. | 15 max. | 5-15 | |
| No. 200 | 3-6 | 3-6 | 3-6 | 3-6 | 3-10 |
| Crushed (min), % (MTM 117) | 90 | 90 | 90 | 25 | 60 |
| Soft Particle (max), % (a) | 12.0 | 12.0 | 8.0 | 8.0 | 8.0 |
| Angularity Index (min) (b) | 4.0 | 4.0 | 4.0 | 2.5 | 3.0 |
| L.A. Abrasion (max), % loss (c) | 40 | 40 | 40 | 40 | 40 |
| Sand Ratio (max) (d) | - | - | - | 50 | 50 |
| <p>a. The sum of the shale, siltstone, structurally weak, and clay-ironstone particles must not exceed 8.0 percent for aggregates used in top course. The sum of the shale, siltstone, structurally weak, and clay-ironstone particles must not exceed 12.0 percent for aggregates used in base and leveling courses.</p> <p>b. The fine aggregate angularity of blended aggregates, determined by MTM 118, must meet the minimum requirement. In mixtures containing RAP, the required minimum fine aggregate angularity must be met by the virgin material. NAA fine aggregate angularity must be reported for information only and must include the fine material contributed by RAP if present in the mixture.</p> <p>c. Los Angeles abrasion maximum loss must be met for the composite mixture, however, each individual aggregate must be less than 50</p> <p>d. Sand ratio for 13A and 36A no more than 50% of the material passing the No. 4 sieve is allowed to pass the No. 30 Sieve.</p> | | | | | |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**PAVEMENT ACCEPTANCE FOR
HOT MIX ASPHALT**

C&T:SCB

1 of 2

C&T:APPR:DLS:MF:09-07-01
FHWA:APPR:08-06-02

a. Description. This specification defines the requirements for pavement acceptance that are in addition to those specified in Section 502 of the standard specifications.

b. Definitions. For purposes of this special provision, the following definitions will apply:

Broken Aggregate - Visually cracked aggregate resulting from excessive compaction effort.

Crack - A visible fissure of varying length and orientation in the HMA that occurs partially or completely through one or more courses.

Flushing - A shiny or reflective condition that appears on the HMA surface when asphalt binder collects in the voids that can be tacky, when touched, at high pavement temperatures.

Pavement - The completed HMA courses including all driving lanes and shoulders.

Pavement Edge - The extremity boundaries of the pavement.

Rutting - A depression or displacement of the HMA surface that occurs either in a longitudinal direction or over a localized area.

Segregation - A HMA surface that exhibits a non-uniform distribution of coarse or fine aggregate in the mixture.

Roller Cracking - High density surface map-cracking that appears immediately after rolling.

c. Acceptance Criteria. The Department will inspect the base and leveling courses within twelve hours of placement or prior to placement of a subsequent course whichever occurs sooner. Inspection of the top course will occur within twenty-four hours of placement. The pavement will be accepted within these time frames unless corrective action is required. In the event that corrective action is necessary, pavement acceptance will only occur after the Contractor has taken corrective action and the Engineer has determined that the pavement is in conformance with the contract plans and specifications.

d. Corrective Action. Appropriate corrective action, as described in Table 1, may consist of: 1) remedial treatment such as crack or surface sealing or 2) replacement in kind. A contract payment adjustment of up to one hundred percent of the bid price may also be considered for corrective action if mutually agreed to by the Engineer and the Contractor. The Engineer may consult with department technical staff in the Construction and Technology Division to implement the corrective actions described in Table 1.

Table 1: Acceptance Factors and Corrective Action

| Acceptance Factors (a) | Length | Extent (b) | Severity | Corrective Action (c) |
|---|---------|----------------------------------|--|------------------------------------|
| Segregation | n/a | >215 ft ² / 328 ft LL | High (d) | Replace |
| Rutting | n/a | >32 ft long | > 1/4 inch average depth over the length of occurrence | Replace |
| Broken Aggregate | n/a | >215 ft ² / 328 ft LL | > 100 stones/11 ft ² | Not eligible for density incentive |
| Flushing | n/a | >108 ft ² / 328 ft LL | high (e) | Replace |
| Edge of Paved Shoulder | > 33 ft | visible ledges | > 3 inches | Trim |
| Crack (f) | any | any | all | Seal (g) |
| n/a = not applicable LL = lane length (a) Acceptance factors apply to all courses except for Broken Aggregate and Flushing which apply to the top course only. (b) Extent is calculated by summing all locations within the length specified. (c) The appropriate corrective action is dependent on the factor's extent and severity and most importantly on the pavement's intended service life. (d) Segregation severity will be determined using department procedures that include photographs. (e) Flushing must be severe enough to significantly effect surface friction (Friction Number < 35). (f) Roller cracking is not subject to corrective action. (g) Other corrective action may be required as crack frequency increases. | | | | |

e. Measurement and Payment. All costs for the work required to repair or replace any defects in construction quality, when caused by the Contractor, are the responsibility of the Contractor. No time extensions will be granted to the Contractor for any required repair work to meet the requirements of this special provision. Any incentive payments will only apply to original work item quantities. Quantities required for corrective action will not be eligible for incentive payments.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**CONTROLLING UNIFORMITY IN HOT MIX ASPHALT PAVEMENT
DURING PAVING OPERATIONS**

C&T:MJB

1 of 2

C&T:APPR:MF:GMM:08-29-01
FHWA:APPR:08-06-02

a. Description. All work shall be done according to the standard specifications, except as modified herein. This special provision shall be used to help assist the Contractor and Engineer in identifying segregation and taking corrective action to eliminate segregation when it is present in the hot mix asphalt pavements. This special provision requires the use of a nuclear density gauge and the MDOT MBITSEG2 computer program to assist in locating segregated areas.

b. Terminology Used.

Segregation - Areas of Hot Mix Asphalt Pavement exhibiting non-uniform distribution of coarse and fine aggregate particles that are visually identifiable or can be identified by other methods.

Heavy Segregation - An area showing stone against stone, with little or no matrix visible.

Medium Segregation - An area showing significantly more stone than surrounding pavement with a lack of matrix.

c. Equipment. Nuclear Density Gauge provided by the Contractor.

MBITSEG2 Excel or Quattro Pro computer program provided by the Department.

d. Quality Control of Contractors Construction Process. Hot Mix Asphalt Pavement materials shall be produced, transported, placed and compacted with the proper construction processes to provide uniform volumetric properties throughout the entire cross section of pavement. When heavy segregation is identified visually in the pavement by the Contractor or the Engineer, a set of six to fifteen one minute nuclear density measurements shall be taken by the Contractor in the segregated area, a similar set of readings shall also be taken in an adjacent non segregated area. The mean value of the density of the two areas shall be compared using MDOT's MBITSEG2 computer program. When it is determined that corrective action is needed, the Contractor shall implement corrective actions immediately and report them to the Engineer before the next day's paving begins. The Contractor shall also provide, in writing, the actions that will be taken to eliminate segregation. The Contractor, with the Engineer, shall closely monitor the in-place pavement when paving resumes. If, once paving resumes, heavy segregation is identified, the Contractor shall stop production and a complete evaluation of the manufacturing and paving process shall be completed. This evaluation shall follow the troubleshooting guide and suggested changes according to the equipment manufacturer's recommendations or the guide manual *AASHTO Segregation Causes and Cures For Hot Mix Asphalt*.

The Engineer reserves the right to independently monitor the uniformity in hot mix asphalt pavement and require that the Contractor take corrective action if segregation is identified.

e. Measurement & Payment. No additional compensation will be made for corrective action required or operational changes to prevent segregation. This work will be considered as included in other contract items.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**FURNISHING AND PLACING MARSHALL HMA MIXTURE
(WITH SAMPLING BEHIND THE PAVER)**

C&T:JWB

1 of 10

C&T APPR:KPK:CJB:08-02-06
FHWA:APPR:08-21-06

a. Description. This special provision sets forth the quality control and quality assurance procedures that will be followed for acceptance of and payment for hot mix asphalt (HMA) mixtures. Except as modified by this or other contract documents, the Standard Specifications for Construction shall apply. In cases where this special provision may conflict with another special provision or supplemental specification, this special provision will prevail.

1. **Terminology.**

Quality Control (QC) - All activities that have to do with making the quality of a product what it should be: including training, materials sampling and testing, project oversight and documentation.

Quality Assurance (QA) - All activities that have to do with making sure the quality of a product is what it should be: including materials sampling and testing, construction inspection, and review of Contractor quality control documentation.

HMA Mix Design - The selection and proportioning of aggregate(s), mineral filler (if required), reclaimed asphalt pavement (RAP), and asphalt binder such that the specified mixture design criteria are met. Laboratory evaluation is required to determine if the stated mix design complies with specifications.

Job Mix Formula (JMF) - A HMA mixture for a specific project. This may include adjustments to the mix design to optimize the field application.

Target Value - A JMF parameter value that may be adjusted, if approved by the Engineer, to account for changes in the physical properties of the mixture.

JMF Adjustment - The Contractor may propose an adjustment to the JMF based on QC and/or QA test results. The proposed JMF must meet the requirements of the special provision for Marshall Hot Mix Asphalt Mixtures included in this proposal. When approved by the Engineer, a JMF adjustment may be applied retroactively to one lot, for parameters with target values.

Voids in Mineral Aggregate (VMA) - The volume of void space between the aggregate particles of a compacted paving mixture that includes the air voids and the asphalt binder including the absorbed asphalt binder, expressed as a percent of the total volume of mixture.

Effective Specific Gravity (G_{se}) - The ratio of the oven dry weight in air of a unit volume of an aggregate (excluding voids permeable to asphalt) at a stated temperature to the weight of an equal volume of water at a stated temperature.

Bulk Specific Gravity of Aggregate (G_{sb}) - The ratio of the oven dry weight in air of a unit volume of an aggregate at a stated temperature to the weight of an equal volume of water at a stated temperature.

Maximum Specific Gravity of Mixture (G_{mm}) - The ratio of the weight in air of a unit volume of an uncompacted HMA paving mixture at a stated temperature to the weight of an equal volume of water at a stated temperature.

Lot - HMA mixture produced and placed under this special provision is evaluated on a lot-by-lot basis. A lot is made up of a discrete tonnage of one mixture. Each lot is made up of three sublots. These sublots will be of approximately equal size, from a minimum of 750 tons, up to a maximum of 1500 tons. The subplot size shall be approved by the Engineer prior to the start of production. The Contractor may request a change in the subplot size during production based upon the Contractor's ability to produce a mixture that meets the specification contained within the contract documents and upon approval of the Engineer.

If only one or two sublots are included in a lot at the end of production, they will be combined with the previous lot using the same mix and this combined lot will be evaluated based on all subplot samples.

Initial Production Lot - All testing for the initial production lot must be completed prior to any further mixture production, unless prior approval is received from the Engineer. The Contractor will be allowed to continue production if all the QA test results for this lot are within the single test and lot average tolerances specified in Table 2 and no JMF changes are requested.

Lot Average Test Result - The average of all subplot QA test results, for a specific parameter, for the lot. Test results for any subplot removed from the project will not be used in calculating a lot average. However, the replacement material will be tested and the results included in the lot average.

Trial Run - With prior approval of the Engineer, the Contractor may produce and test the mixture(s) to be used on this project prior to placing the mixture(s). The testing frequency will be as specified in this special provision. Requests for JMF adjustments and subplot increment changes may be made based on the trial run test results. All costs associated with the trial run, including materials and testing will be borne by the Contractor.

Process Quality Control Targets - These targets are established by the Contractor, based on initial production lot test results (and from any approved trial run), for air voids, VMA, asphalt binder content and G_{mm} . QC tolerances will be applied to these established targets to determine the need for production changes, including stopping production, to control the quality of the product. Process quality control targets must be reported to the Engineer prior to the end of placement of the second lot.

Rounding of Numbers - Rounding of numerical data will follow ASTM E 29, Rounding Method as described in the *HMA Production Manual*.

Random Sampling - Except as modified herein, QA sample locations will be determined as outlined in Section A-12 of the *Materials Quality Assurance Procedures Manual*.

- A. Prior to the pre-production meeting, the Engineer will generate three columns of random numbers using a computer spreadsheet program or a calculator. The random numbers will be used for the longitudinal and the transverse measurement for determining the core location and the HMA mixture sample location. An excess amount of random numbers will be generated to take into account overruns or any situation where another random number is required.
 - B. At the pre-production meeting, each page that lists random numbers with the numbers covered by a separate sheet of paper will be presented to be signed by the HMA-QC Plan Administrator and the Engineer.
 - C. The original signed list will be placed in the project file and a copy will be provided to the field inspector for the project.
 - D. When the project is completed, a copy of the list of random numbers will be provided to the Contractor upon request.
2. **Sampling and Testing Procedures.** In addition to the requirements of the Standard Specifications for Construction and the *HMA Production Manual*, the following sampling and testing procedures are to be followed in completing this work.

ASTM

- D 1559-89 Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus (Section 4.5)
- D 2172 Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
- D 2041 Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- D 2726 Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens
- C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
- C 117 Test Method for Materials finer than 75- μm (no. 200) Sieve in Mineral Aggregates by Washing
- E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

MTM (Michigan Test Method)

- 311 Determining Aggregate Gradation for Bituminous Mixture
- 117 Determining Percentage of Crushed Particles in Aggregates
- 118 Measuring Fine Aggregate Angularity
- 110 Determining Deleterious and Objectionable Particles in Aggregates
- 319 Determination of Asphalt Content from Asphalt Paving Mixtures by the Ignition Method
- 313 Sampling Bituminous Mixtures
- 324 Sampling HMA Mixtures from Behind the Paver

b. Equipment. All equipment requirements in Section 502 of the Standard Specifications for Construction shall apply.

c. Quality Control. The Engineer will not sample or test for quality control or assist in controlling the Contractor's production or placement operations. The Contractor will be responsible for establishing a Quality Control Plan that contains all of the elements listed in Section 503 of the Standard Specification for Construction.

In order to be used in making the decision for the Retest and Appeal Process (section e.), a QC sample shall be obtained using a random sampling procedure. Each test report associated with the sample must include an identifier to allow all test reports to be linked to a specific lot or subplot within the project. Non-random QC HMA (loose) samples can also be taken.

The Contractor shall maintain daily control charts and have them available for review at the plant at all times. Copies of these control charts shall be provided to the Engineer if requested. All test results shall be plotted and used in quality control decisions. When corrective action is necessary, the Contractor shall notify the Engineer in writing of the specific action taken. Failure to take corrective action as required will result in negative adjustment to the unit price for HMA Mixture as described in section (g) of this special provision.

1. **HMA Mixture (Loose) Gradation.** The Contractor shall test the mixture gradation for all sieve sizes reported on the JMF.
2. **HMA Mixture (Loose) Volumetrics.** If the difference between the established process quality control targets and the QC test results exceed the single test or running average of five tolerances shown in Table 1, the Contractor will immediately notify the Engineer, follow the QCP and necessary corrective action(s), if any, shall be implemented.

If the next QC test for that mixture again exceeds a QC tolerance, production shall stop and the Contractor shall immediately notify the Engineer. The Engineer will evaluate the Contractor's proposal for bringing production back into specification and either request further investigation or concur with the Contractor's proposal and allow production to restart.

d. Quality Assurance.

1. **Pavement Density.** The Engineer will identify four (4) core sample locations for each subplot based on longitudinal and transverse measurements. The Engineer will mark each core location with a two-inch diameter paint dot which represents the center of the core. The Contractor shall drill a 6-inch core sample at each core location. The Contractor shall notify the Engineer sufficiently in advance of coring to ensure that MDOT has a representative to witness the coring operation and take immediate possession of the cores. The core samples shall be taken after final rolling and at the completion of a subplot.

As an option, when mutually agreed to by the Engineer and Contractor, the core samples shall be taken after the completion of a lot, prior to traffic staging changes, or at another time that is independent of paving operations. The Contractor shall provide traffic control as required in the special provision for maintaining traffic.

Cores shall not be taken within the segments in which mixture sampling from behind the paver is conducted, hand patching areas or driveways. If the center of the core is less than 5 inches from either edge of pavement, select another transverse random number and move the core to the new location. Core samples shall not be damaged during removal from the roadway. If, for any reason, a core is damaged or determined not to be representative at the time of coring, the Engineer will evaluate and document the problem and determine if re-coring is necessary.

The minimum core thickness for each mixture type is:

| HMA Mixture No. | Minimum Core Thickness |
|-----------------|------------------------|
| 2 | 2¼ inch |
| 3 | 1½ inch |
| 4 | 1⅝ inch |
| 13 | 1¼ inch |
| 36 | 1⅝ inch |

Cores shall be measured at the time they are extracted from the pavement. Any core disqualified based on minimum thickness criteria will be discarded and a new core location selected by the Engineer. If more than 50 percent of the cores in a lot are disqualified, production shall stop. Production will not be allowed to continue until the Engineer has confirmed that the paving operation is meeting the contract application rate. The Engineer shall take immediate possession of cores after they are removed from the pavement by the Contractor. The Engineer will maintain continual custody of the cores until they are tested.

All previous pavement, base aggregate or bond coat material shall be sawed off the bottom of the core samples by the Engineer.

The Contractor will be allowed to take up to 4 informational cores per subplot for quality control. These cores must be no closer than 2 feet center to center from the MDOT quality assurance (QA) core locations. The size of the Contractor's core must be 5 inches or less in diameter. Any additional informational cores will require the approval of the Engineer.

The core holes shall be filled with hot mixture, and thoroughly compacted as part of the coring operation. The method of filling holes and obtaining compaction shall be agreed upon prior to production.

Pavement density acceptance testing will be completed by the Engineer within four (4) work days after the Engineer has taken possession of the cores at the project site. Testing will be in accordance with ASTM D 2726. The Engineer's tests results on the compacted HMA mixture will be used as a basis of acceptance and payment.

- Plant Produced Material (Mixture) QA Sampling and Testing.** Location of QA sample sites within each subplot will be by a random process managed by the Engineer. Immediately after the Engineer acquires the samples, fill the voids with HMA.

The Engineer will sample the mixture in accordance with MTM 324, collecting two independent 20,000-gram samples at each sample site. These are the QA and appeal samples. The Engineer will assign an identifier to each sample consisting of contract ID, mixture, lot and subplot, and deliver the samples to the MDOT Region HMA laboratory. All QA samples will be tested for acceptance.

If the average of the subplot QA test results meets the lot average tolerance of Table 2, then the HMA will be accepted for the lot. If these criteria are not satisfied, the HMA price adjustments detailed in section g and Table 3 of this Special Provision will be applied.

Plant produced material acceptance testing will be completed by the Engineer within four (4) calendar days after the Engineer has taken the samples from the project site. The Engineer will conduct the following tests:

- A. Maximum Specific Gravity, G_{mm} (MTM 314)
 - B. Bulk Compacted Density, N_{max} (ASTM D 1559, paragraph 4.5)
 - C. Air Voids, (calculated)
 - D. Voids in Mineral Aggregate, VMA (calculated)
 - E. Composition of the Mixture - Asphalt binder content, gradation (ASTM C 136, C 117) and crushed particle content (MTM 117) are based on vacuum extraction (MTM 325).
3. **Daily Asphalt Binder Certification Verification Samples.** Obtain the asphalt binder sample, correctly label the sample container, and complete a Sample Identification (Bituminous Material, Form 1923B dated 02/03). The form must be filled out correctly and completely, and signed before the sample is given to the Engineer. The daily asphalt binder sample must be taken from a sampling spigot located on the pipeline supplying asphalt binder to the plant, in a position between the asphalt binder pump and the point where the asphalt binder enters the mixture. Personnel safety is critical in selecting the position of the sampling spigot. Give the binder sample and completed Form 1923B to the Engineer.

Collect the daily asphalt binder sample in a one-pint (16 ounce), slip top, seamless ointment tin. The tin must be at least three quarters full. Three one-ping containers must be obtained if the binder being sampled has the "P" designation (e.g., PG 70-28P). One of these three containers must be marked with the letter "R", designating it as a referee sample. This is described in the special provision for Polymer Modified Performance Grade Binders included in the contract documents. All containers must be labeled in a legible format with the following information:

- MDOT control section and job number
- Binder grade
- Binder supplier certifier number
- Supplier name, city and state
- Date Sampled
- Mix type

The Engineer may request to witness the sampling of the asphalt binder upon any visit to the HMA plant. The Engineer will complete Form 1923B (02/03) for the witness sample. The witness sample will become the daily asphalt binder sample of record. Any other binder sample taken that same day will be discarded.

The Engineer may request a copy of the MDOT Binder Certification Documents. These copies must be presented to the Engineer when the respective daily binder samples and Form 1923B (02/03) forms are picked up at the plant. The Engineer will review these documents and communicate any problems that may arise. The Engineer will deliver the certification documents to the MDOT Construction and Technology Central Laboratory.

e. Retest and Appeal Process for Plant Produced Material (Mixture). At the Engineer’s request, the MDOT Construction and Technology Central Laboratory may perform appeal testing on all or part of the remaining subplot appeal samples. A request may be made by the Contractor to the Engineer to determine if appeal testing is warranted. This request must be made within two working days of receipt, by the Contractor, of the results of all MDOT testing. Quality control test results must be within the lot averages of Table 2 to be considered. All appeal samples will be properly identified and sent to the MDOT Construction and Technology Central Laboratory for testing. Using the same test method option, the appeal sample will be tested for all QA parameters. All test data will be delivered to the Engineer. All appeal results will replace original QA test results.

f. Project Documentation. The format of all test reports and quality control charts to be submitted by the Contractor will be approved by the Engineer before mixture production is allowed to commence. Suggested formats of reports and charts are available from the Engineer. Project documentation to be provided by the Contractor shall include, but may not be limited to, the following:

1. **Lot Basis.** Control charts of all test data must be current (data should be plotted as soon as the test is complete) and available for review by the Engineer.
2. **Project Summation.** Control charts for all test data indicating individual test values, lot averages, and the running average of five (5).

g. Measurement and Payment. The completed work as described will be paid for at the contract unit price for the following contract item (pay item):

| Contract Item (Pay Item) | Pay Unit |
|---------------------------------|-----------------|
| HMA Quality Initiative | Dollar |

HMA Mixture will be paid for according to the Standard Specifications for Construction except as modified by this special provision. **HMA Quality Initiative** will be calculated for each lot and adjustments to the **HMA Mixture** contract unit price will be applied to each lot or subplot as detailed below.

1. **HMA Quality Initiative.** If **HMA Quality Initiative** (HMAQI) is not included in the contract as a pay item, there will be no payment for this item of work. Provided that the lot is not subject to any unit price adjustments as discussed in section (g.2) of this special provision, the Contractor is eligible for **HMA Quality Initiative** as follows.

The Contractor will receive additional payment, up to four (4) percent of the contract unit price for **HMA Mixture** if a minimum of 75 percent of the lot cores densities are greater than 94.0 percent of the G_{mm} .

2. **HMA Mixture Unit Price Adjustment.** Adjustments to the contract unit price for **HMA Mixture** will be calculated for each of four (4) sets of criteria. The largest adjustment allowable in each case will be imposed and unit price adjustments will be applied cumulatively (pavement density + HMA + failure to suspend operations) to the affected tonnage. Each of the unit price adjustments is detailed below.

- A. **Pavement Density.** Based on pavement cores tested by the Engineer either a 10 percent or a 25 percent adjustment in the **HMA Mixture** contract unit price may be imposed. The following criteria will be used and only the highest calculated pavement density price adjustment will be applied.
- (1) A negative 10 percent adjustment in the **HMA Mixture** contract unit price will be imposed if either the lot average pavement density is less than 92.0 percent but equal to or greater than 91.0 percent or the conditions of column (1) of the Pavement Density Core Table (Table 4) are satisfied.
 - (2) A negative 25 percent adjustment in the **HMA Mixture** contract unit price will be imposed if either the lot average pavement density is less than 91.0 percent but equal to or greater than 90.0 percent or the conditions of column (2) of the Pavement Density Core Table (Table 4) are satisfied.
- B. **Hot Mix Asphalt Mixture.** If, for asphalt binder content, air voids, G_{mm} or VMA, the difference between the lot average and the JMF is within the lot average tolerance shown in Table 2, no adjustment will be made to the unit price for **HMA Mixture** under this criteria.
- If the lot average tolerance is exceeded for one or more parameter, a negative adjustment will be made to the contract unit price for **HMA Mixture** in accordance with Table 3. Only the largest of the four possible pay adjustments for this set of criteria will be assessed. This price adjustment is applied to the entire lot tonnage.
- C. **Failure to Suspend Operations.** If, at any time during production, testing shows that a deviation has occurred which requires production to be suspended and the Contractor continues to operate, the subplot in production at the time shutdown should have occurred, and any subsequent tonnage, will be subject to a negative 25 percent unit price adjustment until testing shows that specification material is again being produced.
3. **Removal.** The cost of the mixture removed and the removal cost will be borne by the Contractor. Removal decisions will be applied to individual sublots.
- A. If, for other than the initial production lot of base course, pavement density for any subplot (average of subplot cores) is less than 90.0 percent, the Contractor shall remove and replace the subplot.
 - B. If the total contract unit price adjustment applied to a subplot is 60 percent or more, the subplot will be evaluated by the Engineer. If the Engineer determines that removal is warranted, the Contractor shall remove and replace the subplot.
 - C. The Engineer reserves the right to evaluate any subplot whose test results for asphalt binder content, G_{mm} , VMA, or air voids, exceed the single test tolerances shown in Table 2. If the Engineer determines that the in-place mixture will not perform in accordance with normal standards, the Contractor shall remove and replace the subplot.

Table 1: HMA Quality Control Testing Tolerances (+ or -) From Process Quality Control Targets

| Parameter | Single Test | Running Average of Five |
|---|-----------------|-------------------------|
| Air Voids | 1.00% | 0.50% |
| Voids in Mineral Aggregate (VMA) * | 1.20% | 0.60% |
| Maximum Specific Gravity (G_{mm}) * | 0.019 | 0.010 |
| Asphalt Binder Content * | 0.50% | 0.30% |
| Crushed Particle Content * | 15.0% | 10.0% |
| Aggregate Gradation * | | |
| Sieve Size | Percent Passing | |
| No.8 | 5.00% | 2.50% |
| No.200 | 1.40% | 0.70% |
| * Parameters with Target Values | | |

Table 2: HMA Quality Assurance Testing Tolerances (+ or -) from JMF

| Parameter | Single Test | Lot Average |
|--|-------------|-------------|
| Air Voids | 1.00% | 0.60% |
| Voids in Mineral Aggregate (VMA) * | 1.20% | 0.75%** |
| Maximum Specific Gravity (G_{mm}) * | 0.019 | 0.012 |
| Asphalt Binder Content * | 0.50% | 0.35% |
| * Parameters with Target Values | | |
| ** Or Less determined by VMA Value from the special provision for Marshall HMA Mixtures. | | |

Table 3: HMA Mixture Pay Adjustments

| Parameter (lot average) | Deviation (d) | Negative Unit Price Adjustment (%) |
|---|-------------------|------------------------------------|
| Asphalt Binder Content (deviation from JMF) | 0.35 < d ≤ 0.55 | 10 |
| | d > 0.55 | 25 |
| Air Voids (deviation from JMF) | 0.6 < d ≤ 0.7 | 2 |
| | 0.7 < d ≤ 0.8 | 4 |
| | 0.8 < d ≤ 1.0 | 6 |
| | 1.0 < d ≤ 1.1 | 8 |
| | 1.1 < d ≤ 1.2 | 10 |
| | d > 1.2 | 25 |
| Maximum Specific Gravity (G _{mm}) (deviation from JMF) | 0.012 < d ≤ 0.014 | 2 |
| | 0.014 < d ≤ 0.015 | 4 |
| | 0.015 < d ≤ 0.017 | 6 |
| | 0.017 < d ≤ 0.019 | 8 |
| | 0.019 < d ≤ 0.021 | 10 |
| | d > 0.021 | 25 |
| Voids in Mineral Aggregate (VMA) (deviation below minimum value in the 2003 Standard Specifications for Construction). | 0.0 < d ≤ 0.1 | 2 |
| | 0.1 < d ≤ 0.3 | 4 |
| | 0.3 < d ≤ 0.4 | 6 |
| | 0.4 < d ≤ 0.5 | 8 |
| | 0.5 < d ≤ 0.6 | 10 |
| | d > 0.6 | 25 |

Table 4: Pavement Density Core Table

| Total Number of Cores Tested | Minimum Number of Cores Less Than 92.0% * COLUMN 1 (-10%) | Minimum Number of Cores Less Than 91.0% * COLUMN 2 (-25%) |
|------------------------------|---|---|
| 3 | 2 | 2 |
| 4 | 2 | 2 |
| 5 | 2 | 2 |
| 6 | 3 | 2 |
| 7 | 3 | 2 |
| 8 | 3 | 2 |
| 9 | 3 | 2 |
| 10 | 3 | 3 |
| 11 | 4 | 3 |
| 12 | 4 | 3 |
| 13 | 4 | 3 |
| 14 | 4 | 3 |
| 15 | 4 | 4 |
| 16 | 5 | 4 |
| 17 | 5 | 4 |
| 18 | 5 | 4 |
| 19 | 5 | 4 |
| 20 | 5 | 5 |

*Note: A mixture requiring an air void target value lower than 3.0 percent for non-traffic areas will require a corresponding increase in the pavement density values.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SUPERPAVE HOT MIX ASPHALT PERCENT WITHIN LIMITS (PWL)

C&T:SP

1 of 23

C&T:APPR:CJB:DBP:09-11-06
FHWA:APPR:09-19-06

a. Description. This special provision sets forth the quality control and quality assurance procedures that will be followed for acceptance of and payment for Superpave Hot Mix Asphalt (HMA). Except as explicitly modified by this special provision, all materials and HMA mixture requirements of the MDOT Standard Specifications for Construction and the contract documents apply.

1. Terminology

- A. Quality Control (QC) - All activities dealing with process control to ensure quality, including but not limited to training, materials sampling, testing, project oversight and documentation. The Contractor's HMA Quality Control Procedures are contained in the HMA-QC Plan.
- B. Quality Assurance (QA) - All activities dealing with acceptance of the product, including but not limited to materials sampling, testing, construction inspection, and review of Contractor quality control documentation. The Engineer's HMA Quality Assurance Procedures are contained in various MDOT procedures manuals and in the HMA-QA Plan.
- C. HMA Design - The selection and proportioning of aggregate(s), mineral filler (if required), reclaimed asphalt pavement (RAP), and asphalt binder to meet mixture design criteria.
- D. Job Mix Formula (JMF) - An HMA Design for a specific project. This may include adjustments to the mix design to optimize the field application.
- E. Target Value - A JMF parameter value which may be adjusted, if approved by the Engineer, to account for changes in the physical properties of the mixture.
- F. Voids in Mineral Aggregate (VMA) - The volume of void space between the aggregate particles of a compacted paving mixture that includes the air voids and the asphalt binder not absorbed into the aggregate, expressed as a percent of the total volume of mixture.
- G. Effective Specific Gravity (G_{se}) - The ratio of the oven dry weight in air of a unit volume of an aggregate (excluding voids permeable to asphalt) at a stated temperature to the weight of an equal volume of water at a stated temperature.

- H. Bulk Specific Gravity of Aggregate (Gsb) -The ratio of the oven dry weight in air of a unit volume of an aggregate at a stated temperature to the weight of an equal volume of water at a stated temperature.
- I. Maximum Specific Gravity of Mixture (Gmm) -The ratio of the weight in air of a unit volume of an un-compacted HMA at a stated temperature to the weight of an equal volume of water at a stated temperature.
- J. Rounding of Numbers - Rounding of numerical data will follow the Rounding Method as described in the *HMA Production Manual*.
- K. Percent Within Limits (PWL) - The percentage of material within the specification limits or tolerance for a given quality index parameter.
- L. QC Action Limits (Table 4 Col. II) - A range of values established by the Contractor in the HMA-QC Plan or specified in Table 4 that, if exceeded on two consecutive QC tests, requires that the Contractor take corrective action to bring the mixture produced into conformance with the specifications.
- M. QC Suspension Limits (Table 4 Col. III) - A range of values established by the Contractor in the HMA-QC Plan or specified in Table 4 that, if exceeded on a single QC test, requires that the Contractor suspend operations and determine, document and correct the cause before continuing production.
- N. QA Sublot Rejectable Quality Limits (RQL) (Table 4 Col. IV) - A range of values defined in Table 4 that, if exceeded on a single QA test may result in the Engineer issuing a Notice of Non-Compliance with Contract Requirements (Form 1165).
- O. QA Lot Acceptable Quality Limits (AQL) (Table 4 Col. V) - PWL value for an individual quality index parameter that will still result in a Pay Factor of 100 for that quality index parameter. Acceptable Quality Limits are specified in Table 4.
- P. QA Lot Rejectable Quality Limits (RQL) (Table 4 Col. VI) - PWL value for an individual quality index parameter that will result in either PF = 50.00; remove and replace or corrective action plan. Rejectable Quality Limits are specified in Table 4.
- Q. Outlier - Test result that appears to deviate markedly from test results for other samples from the same lot. An apparent outlier will be evaluated by the Engineer to determine if the results will be retained in the associated pay factor calculation.
- R. Quality Characteristic (Table 4 Col. I) - The material and mixture characteristics of HMA that are deemed to have direct bearing on the quality and performance of the HMA pavement and for which specification limits have been established.
- S. Quality Index Parameter - The HMA quality characteristics that are evaluated under the Department's Quality Assurance Acceptance Program and on which payment for

HMA material is based. The Quality Index Parameters for this project are VMA, Air Voids and In-Place Density.

- T. Lot - A lot is made up of a discrete tonnage of one mixture. Each lot is made up of five sublots.
- U. Sublot - A portion of a lot represented by a complete set of quality assurance tests. Sublots will be approximately equal size of 1000 tons.
- V. Small Tonnage - If the total tonnage of a specific mixture does not exceed 5000 tons, the mixture will be tested according to the Small Tonnage Acceptance Criteria in section (f.9) of this special provision.
- W. Small Tonnage Testing – If the total tonnage of a specific mixture does not exceed 5000 tons, the mixture will be considered a single small tonnage production lot consisting of a minimum of three and maximum of seven equal small tonnage production sublots (maximum of 1000 ton sublots) and will be tested and approved in accordance with the Small Tonnage Acceptance Criteria in section (f.9) of this special provision. The Initial Production Lot requirements of section (e) of this special provision will not apply to small tonnage mixtures.
- X. Initial HMA Production – A process used in which HMA Production for specific HMA mixtures are limited to 800 to 1000 tons per day for a maximum of three (consecutive or separate) days and 750 tons for the fourth and subsequent days until it is determined that HMA Production has met the requirements in section (e.) prior to moving into Unlimited Daily HMA Production.
- Y. Unlimited Daily HMA Production – Unrestricted Daily HMA Production tonnage.

2. Partnering Sessions

The Engineer will schedule a pre-production meeting. The pre-production meeting will be held a minimum of seven calendar days prior to the start of production. The Engineer will provide written notification to all parties a minimum of 14 calendar days prior to the meeting.

At the pre-production meeting the HMA-QC Plan will be discussed, the HMA-QA Plan will be reviewed, and the roles and responsibilities of all parties involved in the work covered by this special provision will be discussed.

Department personnel attending the meetings will include the following:

- MDOT Project or Resident Engineer
- Field inspector for the project
- All Traveling Mix Inspectors [TMI(s)] with responsibility for this project
- Any consultant involved in any part of the HMA sampling or testing on this project

- MDOT representative from the HMA Technical Committee can be present if requested by the Contractor or the Engineer at the time the meeting is scheduled. (Contact: John Barak [Construction & Technology (C&T)] - 517-322-4967).

Contractor personnel attending the partnering meetings will include the following:

- Project Superintendent
- HMA-QC Plan Administrator
- Any subcontractor involved in any part of the HMA quality control sampling or testing on this project
- Contractor representative from the HMA Technical Committee can be present if requested by the Contractor or the Engineer at the time the meeting is scheduled. (Contact: Chuck Mills [Asphalt Pavement Association of Michigan] - 517-323-7800).

b. Contractor Quality Control. Be responsible for the quality of the HMA produced and placed on this project and perform quality control sampling and testing, provide inspection, and exercise management control to ensure that work conforms to the contract requirements. Perform all testing in accordance with the accepted HMA-QC Plan. Provide the Engineer the opportunity to observe sampling and testing. Sample, test and evaluate all HMA mixtures in accordance with the requirements of this special provision.

Establish and follow an HMA-QC Plan for HMA production and placement as required by section 503 of the Standard Specifications for Construction. Utilize personnel and testing equipment capable of providing a product that conforms to contract requirements. Do not start work on the subject items without an accepted HMA-QC Plan.

Perform quality control sampling, testing, and inspection during all phases of the work at the minimum guidelines specified for that item or at an increased frequency sufficient to ensure that the work conforms to the contract requirements. Continual production of non conforming material at a reduced price in lieu of making adjustments to bring material into conformance will not be allowed.

The Engineer will not sample or test for quality control or assist in controlling the HMA production and placement operations. The results of department QA testing may not be available for use in quality control activities and should not be included in the HMA-QC Plan discussion.

1. **HMA-Quality Control Plan.** Develop and follow an HMA-QC Plan that addresses personnel; sampling and testing equipment and calibration records; supplies and facilities for obtaining samples, performing tests and documenting results; and other activities to control the quality of the product to meet contract requirements. Include methodology for addressing material that appears to be inconsistent with similar material being sampled. Perform all QC sampling and testing according to the *HMA Production Manual* unless specifically documented in the HMA-QC Plan and discussed at the pre-production meeting.

- A. Plan Submittal. Submit the HMA-QC Plan to the Engineer for review and acceptance a minimum of 14 calendar days prior to the pre-production meeting.
- B. Plan Acceptance. Revisions to the HMA-QC Plan may be required by the Engineer prior to its acceptance. The Engineer will request plan revisions in writing on or before the day of the pre-production meeting. If revisions are required by the Engineer, these revisions must be made and the HMA-QC Plan accepted before HMA production or placement commences.

Acceptance of the HMA-QC Plan does not imply any warranty by the Engineer that the HMA-QC Plan will result in production of hot mix asphalt that complies with all contract requirements. It remains the responsibility of the Contractor to demonstrate such compliance.

- C. Plan Modification. The HMA-QC Plan may be refined or modified as work progresses. Such refinements or modifications are subject to review and acceptance by the Engineer.
2. **HMA-Quality Control Plan Contents.** Include the following specific items in the HMA-QC Plan.

- A. Quality Control Organization. Include an organization chart showing key personnel involved in production, placement, compaction, and quality control for this project. Provide the names of the HMA-QC Plan Administrator and Quality Control Technician(s) [QCT(s)]. Clearly identify all subcontractor personnel involved in HMA quality control.

Maintain consistency in the Quality Control Organization throughout the life of the project to the extent practicable. Substitution of qualified personnel is allowed provided that the names are forwarded to the Engineer prior to the substitution.

- B. Quality Control Personnel Qualifications and Responsibilities. Provide the qualifications of each individual or position listed on the organization chart and a brief narrative of their area of responsibilities. Describe the coordination of the activities of the Plan Administrator and the QCT(s).

(1) Plan Administrator. This individual will be responsible for administering the HMA-QC Plan and will institute any actions necessary to successfully implement the HMA-QC Plan.

(2) Quality Control Technicians (Plant). All equipment calibration; quality control sampling and testing; and quality control documentation must be performed by qualified technicians. Document the certification of all QCT(s) through the Michigan Bituminous QC/QA Technician Certification Program or other approved program.

- (3) Placement Personnel. Identify the personnel that will be responsible for inspecting all transport, lay down and compaction equipment to ensure it is operating properly and for verifying that all lay down and compaction conforms to the contract requirements.
- C. Mix Design. Provide the approval status and a copy of the mix design for all HMA mixtures to be produced for this contract and the plant location for production of each mixture.
- D. Quality Control Sampling and Testing. Complete and include the schedule of QC testing for the quality characteristics shown in Table 1. For each quality characteristic listed, define test method; minimum sampling and testing frequency; when the sampling and testing will be performed in relationship to production; and sampling location. Describe the random sampling method used.

Minimum QC sampling locations must be determined independently from QA sampling locations. In addition to the minimum QC sampling required by Table 1, additional non-random QC testing may be included in the HMA-QC Plan, except as otherwise specified.

- E. Quality Control Laboratory Facilities. Provide the location of the testing facilities and include a copy of the plant certification. All laboratories that prepare mix designs or perform quality control testing of HMA materials must demonstrate that they are equipped, staffed, and managed so as to be capable of mixing and testing HMA in accordance with the applicable test methods.
- F. Corrective Action. Tables 2 and 4 specify the action limits and/or list the quality characteristics for which action limits must be defined in the HMA-QC Plan. Complete and include Tables 2 and 4 with the QC Action Limits defined as indicated. Describe the procedures that will be followed to ensure that test results are properly reviewed and that corrective action, based on the test results, is taken and documented when necessary to control HMA quality.
- G. Suspension of Production. Table 4 specifies the QC Suspension Limits. Discuss the steps to be taken when any suspension criteria is met. Steps must include notifying the Engineer and making all necessary corrections whenever production is suspended. Include discussion of the following suspension criteria, as a minimum.
- (1) QC Suspension limits specified in Table 4 Col. III for any of the quality characteristics are exceeded.
 - (2) The PWL for VMA, Air Voids or In-Place Density is below 50.00 for any lot.
 - (3) The HMA-QC Plan is not followed.
 - (4) Visible pavement distress occurs such as segregation or flushing.

(5) Additional QC suspension criteria may be included.

H. Control Charts. Discuss the use of control charts for all quality characteristics listed in Table 1. Include examples of the control charts to be used. As a minimum, the control charts must identify the project number, the contract item (pay item) code, the test number, test parameter, the specification limits, the action limits, suspension limits, and the test results. Keep the control charts current and available in an accessible location at the laboratory facility.

c. Quality Control Sampling and Testing During Production.

1. Fifteen cores approximately 6 inches in diameter will be allowed per lot of material for quality control of In-Place Density.
2. At the time any QA or QC cores are taken, remove free standing water from the core hole; fill with hot mixture, and compact. Obtain and document approval for the method of filling holes and for obtaining compaction at the pre-production meeting.
3. At the time any QA or QC sample is collected from behind the paver, provide and place loose mixture according to MTM 324 or as directed by the Engineer.
4. In addition to maintaining test reports and control charts, enter all QC data into the PWL Program that can be downloaded from the Construction and Technology web site, provide the results to the Engineer as they become available.
5. Sample and test the plant produced material in accordance with the approved HMA-QC Plan.

d. HMA-Quality Assurance Plan. The Engineer will develop and follow an HMA-QA Plan. The Engineer will submit the HMA-QA Plan to the HMA-QC Plan Administrator a minimum of seven calendar days prior to the pre-production meeting. The HMA-QA Plan will be reviewed at the pre-production meeting and any proposed changes will be documented.

All QA sampling and testing will be performed according to the *HMA Production Manual* unless specifically documented in the HMA-QA Plan and discussed at the pre-production meeting. The Engineer will provide the Contractor the opportunity to observe QA sampling and testing. The following specific items will be included in the HMA-QA Plan.

1. **Quality Assurance Organization.** Key personnel involved in sampling, testing, construction inspection, review of quality control, and quality assurance management will be identified. The names of the Engineer, support staff and Quality Assurance Technician(s) [QAT(s)] involved in HMA quality assurance for this project will be included along with phone numbers, fax numbers, and e-mail addresses. The Engineer will notify the HMA-QC Plan Administrator of any deletions or additions to the HMA quality assurance team.

2. **Quality Assurance Personnel Qualifications and Responsibilities.** The HMA-QA Plan will include a brief narrative of the area of responsibilities of each HMA quality assurance team member and will describe the coordination of the activities of the Engineer, support staff and the QAT(s).
 - A. HMA-Quality Assurance Plan Administrator. The Engineer will be responsible for administering the HMA-QA Plan and will institute any actions necessary to successfully implement the HMA-QA Plan.
 - B. Quality Assurance Technicians. All equipment calibration and maintenance; quality assurance sampling and testing; and quality assurance documentation will be performed by qualified technicians. All QAT(s) will be certified through the Michigan Bituminous QC/QA Technician Certification Program or other approved program. Certifications required for QAT(s) will be included in the project files.
 - C. Construction Personnel. The personnel responsible for field inspection and for obtaining QA samples will be identified. Certifications/qualifications required for individuals collecting QA samples will be included in the project files.
 - D. Laboratory Facilities. The testing facilities with responsibility for QA testing on this project will be identified. All laboratories that perform quality assurance testing of HMA materials must demonstrate that they are equipped, staffed, and managed so as to be capable of testing HMA in accordance with the applicable test methods.
- e. **Initial Production Lot Procedure.** The purpose of the Initial Production Lot is:
 - To verify that the produced mixture is within specification limits.
 - To verify test results, procedures, and equipment used are capable of generating QC test results that agree with QA results to within allowable tolerances.
 - To establish roller patterns that will achieve the desired compaction results.

Prior to proceeding with full HMA production; produce, place, and test a minimum of one Initial Production Lot constructed with each of the specific HMA mixture types to be used on this project. The Initial Production Lots will be placed in a similar manner as full production on the jobsite.

The In-Place Density QC Suspension Limits (Table 4 Col. III) do not apply to initial production lots.

1. **JMF Adjustment Requests.** JMF adjustments may be requested prior to the Initial Production Lot run based on test data submitted from previous use of the approved mix designs. The previous usage may be on commercial, local agency, or state construction projects. JMF adjustments may also be requested based on the Initial Production Lot(s) results.
2. **Initial Production Lot.** An Initial Production Lot will consist of one day of HMA Production ranging from 800 tons to 1000 tons. Each Initial Production Lot will be

evaluated as a single lot. The Contractor will be allowed to construct three Initial Production Lots for a given mixture. The mixture will be subject to pay adjustments and/or removal based on test results for a complete Initial Production Lot.

3. **Initial Production Lot Sampling and Testing.** Each Initial Production Lot will consist of four approximately equal sublots.

A. The Engineer will:

- (1) Collect one 45,000 gram Initial Production Lot split sample per subplot, and provide the Contractor with splits of all subplot samples, for testing of all quality characteristics listed in Table 1. These split sample test results will be evaluated against the single test tolerances in section (e.3.C) of this special provision.
- (2) Collect one independent 20,000 gram sample per subplot using the same random number as the 45,000 gram sample for possible dispute resolution of the Initial Production Lot results.
- (3) Locate and mark four random core locations per subplot, take possession of the cores when extracted by the Contractor and test the In-Place Density.
- (4) Complete all tests and report all results to the Contractor within 48 hours of the time of sampling.

B. The Contractor must:

- (1) Conduct tests on the Initial Production Lot split sample collected by the Engineer for all QC quality characteristics listed in Table 1.
- (2) Complete all tests and report all results to the Engineer within 48 hours of the time of sampling.
- (3) Continue with production only when all of the conditions in sections (e.3.C) and (e.3.D) of this special provision are met.
- (4) Construct additional Initial Production Lots as required in section (e.3D).

C. The Contractor's and the Engineer's test results for each pair of Initial Production Lot split samples must agree, to within the following single test tolerances.

| <u>Quality Characteristic</u> | <u>Initial Production Lot Single Test Tolerance</u> |
|--|--|
| Max. Theoretical Specific Gravity | ± 0.019 |
| Gmb | ± 0.020 |
| Air Voids | ± 1.00% |
| VMA | ± 1.20% |

If the Initial Production Lot split subplot sample test results do not agree to within these tolerances, the Contractor and the Engineer will jointly review the results, check equipment and review the test procedures for all testing laboratories to determine if there is an identifiable cause for the discrepancy; recalibrate equipment; and arrange for independent assurance sampling and testing reviews for the QAT(s) and QCT(s), if necessary, before continuing with production or conducting tests on a subsequent Initial Production Lot.

If mutually agreed upon by the Engineer and Contractor, split sampling frequency during the Initial Production Lots can be modified or waived.

- D. The Contractor will be allowed to construct up to three Initial Production Lots for a given mixture on three separate days. After the third Initial Production Lot is constructed paving will be suspended unless the requirements for moving into unlimited daily production have been achieved as outlined below.

Prior to proceeding with full HMA production, the PWL value for each measured QA property (In-Place Density, Air Voids & VMA) for an Initial Production Lot must be equal to or greater than 80.00.

If the first Initial Production Lot does not achieve a PWL value equal to or greater than 80.00 for each measured QA property, the acceptance and payment for the tonnage of material for the first Initial Production Lot will be adjusted as described in sections (k) and (l) of this special provision.

If the second Initial Production Lot for the mixture does not achieve a PWL value equal to or greater than 80.00 for each measured QA property, the acceptance and payment for the tonnage of material for the second Initial Production Lot will be adjusted as described in sections (k) and (l) of this special provision.

If the third Initial Production Lot does not achieve a PWL value equal to or greater than 80.00 for each measured QA property, the acceptance and payment for tonnage of material for the third Initial Production Lot will be adjusted as described in sections (k) and (l) of this special provision.

The Contractor will produce a fourth Initial Production Lot that will be approximately 750 tons and will consist of four approximately equal sublots. If the fourth or any subsequent Initial Production Lot does not achieve a PWL value equal to or greater than 80.00 for each measured QA property then it will be removed and another Initial Production Lot will be attempted.

All costs associated with this removal and replacement will be borne by the Contractor.

MDOT will complete all Initial Production Lot tests and report all results to the Contractor within 48 hours of the time of sampling.

E. The Initial Production Lots can be waived and the Contractor allowed to go to Unlimited Daily Production if all of the following criteria are met:

- (1) The mix design must have passed Initial Production Lot requirements on another project from the current or prior season. If a waiver was used on the prior season then the Initial Production Lot will not be waived for the current season.
- (2) On the previous project, an overall PWL value of 85.00 for each QA value must have been achieved for the last two full (or last full production lot if there were fewer than 2 full production lots) lots of production.
- (3) The mix must be produced from the same plant and location that was used on the previous project.

f. Quality Assurance Sampling and Testing. Acceptance of HMA is the responsibility of the Engineer and will be accomplished by conducting QA sampling and testing and by monitoring the Contractor's adherence to the HMA-QC Plan. The Engineer will notify the Contractor prior to conducting QA sampling. This notification shall be done in a manner that allows the contractor to witness the sampling but does not provide for the opportunity for the contractor to alter their production in anticipation of a sample being taken.

1. **Random Sampling.** Except as modified herein, QA sample locations will be determined as outlined in section A-12 of the *Materials Quality Assurance Procedures Manual*.

A. Prior to the pre-production meeting, the Engineer will generate three columns of random numbers using a computer spreadsheet program or a calculator. The random numbers will be used for the longitudinal and the transverse measurement for determining the core location. For HMA mixture sample location, use the random number from the third column, then multiply it by subplot tonnage. An excess amount of random numbers will be generated to take into account overruns or any situation where another random number is required.

B. At the pre-production meeting each page that lists random numbers, with the numbers covered by a separate sheet of paper, will be presented to be signed by the HMA-QC Plan Administrator and the Engineer.

C. The original signed list will be placed in the project file and a copy will be provided to the field inspector for the project.

D. When the project is completed a copy of the list of random numbers will be provided to the Contractor upon request.

2. **Production Lot size.** The Engineer will test HMA material for volumetric parameters (mixture) and In-Place Density on a lot-by-lot basis. Each lot will be divided into sublots approximately equal in size of 1000 tons.

If only one or two sublots remain at the end of production of a mixture, the test results for these sublots will be combined with the previous lot for evaluation of percent within limits and pay factors.

3. **Plant Produced Material (Mixture) Quality Assurance Sampling.** Location of QA sample sites within each sublot will be by a random process managed by the Engineer. Immediately after the Engineer acquires the samples, fill the voids with HMA in accordance with MTM 324.

The Engineer will sample the mixture in accordance with MTM 324, collecting two separate 20,000 gram samples at each sample site. These are the QA and dispute resolution samples. The Engineer will assign an identifier to each sample consisting of contract ID, mixture, lot and sublot and deliver the samples to the testing facility identified in the HMA-QA Plan where one will be tested and the other retained for possible appeal testing.

4. **Plant Produced Material (Mixture) Quality Assurance Testing.** Plant produced material acceptance testing will be completed by the Engineer within four calendar days after the Engineer has taken the samples from the project site. The Engineer will conduct the following tests.

- A. Maximum Specific Gravity, Gmm (MTM 314)
- B. Bulk Compacted Density, Nmax (AASHTO TP 4-97)
- C. Air Voids, Nini*, Ndes, Nmax*, (AASHTO PP28-97) (* for information only)
- D. Voids in Mineral Aggregate, VMA (AASHTO PP28-97)
- E. Voids Filled with Asphalt, VFA* (AASHTO PP28-97) (*for information only)
- F. Ratio of Fines to Effective Asphalt Binder*, P#200/Pbe (*for information only)
- G. Composition of the Mixture – Asphalt binder content based on vacuum extraction (AASHTO T 164) as modified by MTM 325 and the “Checklist for HMA Mixture Analysis Vacuum Extraction”, of the *HMA Production Manual* (pg. 50-51). Crushed particle content (MTM 117) based on extracted (AASHTO T 164) aggregate.

5. **In-Place Density Quality Assurance Sampling.** The Engineer will locate and mark all QA core locations. All QA coring operations will be completed by the Contractor. The Engineer will test all QA cores. If, for any reason, a core is damaged or determined not to be representative at the time of coring, the Engineer will evaluate and document the problem and determine if re-coring is necessary.

Core sample locations will be marked after final rolling. Core sample locations will be marked at the completion of a sublot, prior to traffic staging changes, or at another time that is independent of paving operations. The Engineer will identify four core sample

locations for each subplot based on longitudinal and transverse measurements. The Contractor will provide and pay for traffic control as required in the special provision for maintaining traffic for all coring procedures including dispute resolution coring.

The Engineer will mark each core location with a 2 inch diameter paint dot, which represents the center of the core. When sampling behind the paver, cores will not be taken from 5 feet before the sampling area through 5 feet after the sampling area. Cores will not be taken from hand patching areas or driveways. If the random core location falls within these areas, new longitudinal and transverse random numbers will be selected and the core sample site moved to the new location. If the center of the core is less than 5 inches from either edge of pavement, another transverse random number will be selected and the core sample site moved to the new location.

Notify the Engineer in advance of coring to ensure that MDOT has a representative to witness the coring operation and take immediate possession of the cores. Drill a core sample approximately 6 inches in diameter at each core location. Do not damage cores during removal from the roadway. Measure cores at the time they are extracted from pavement.

Any core disqualified based on the minimum thickness criteria will be discarded and a new core location will be selected by the Engineer. If more than 50 percent of the cores in a lot are disqualified, production shall stop. Production will not be allowed to continue until the Engineer has confirmed that the paving operation is meeting the contract application rate. All previous pavement, base aggregate or bond coat material will be sawed off the bottom of the core samples by the Engineer.

The minimum core thickness for each mixture type is:

| Hot Mix Asphalt Mixture No. | Minimum Core Thickness |
|--|-----------------------------------|
| 2 | 3 inch |
| 3 | 2¼ inch |
| 4 | 1½ inch |
| 5 | 1⅞ inch |

6. **In-Place Density Quality Assurance Testing.** Pavement In-Place Density acceptance testing will be completed by the Engineer within four calendar days after the Engineer has taken possession of the cores at the project site. Testing will be in accordance with MTM 315. The Engineer's test results on the compacted HMA will be used as a basis of acceptance and payment.

At the completion of lot testing all individual tests for In-Place Density will be checked for apparent outliers in accordance with ASTM E 178 Standard Practice for Dealing with Outlier Observations at a significance level of 5 percent (following the example in section 6.2 of that standard). If a test result is determined to be an apparent outlier the doubtful value will be investigated.

This investigation will include, but may not be limited to, visual and physical examination of the core (i.e. short core, core damaged during transport or during laboratory handling); and a careful review of the sampling and testing procedure including data entry and calculations (i.e. was raw data transposed or incorrectly entered into test calculations). If no documentable reason is found for the apparent outlier, the value will remain as part of the In-Place Density pay factor calculations. If a documentable reason is found for the apparent outlier, the value will be discarded and the remaining test results will be used to calculate the In-Place Density pay factor.

7. **Quality Assurance Stop Production Criteria.** The Engineer will issue a Notice of Non-Compliance with Contract Requirements (Form 1165) and HMA production must stop when any one or more of the following criteria are met or exceeded:
 - A. One or more of the QA Sublot Rejectable Quality Limits in Table 4 Col. IV is exceeded for a single QA test.
 - B. The PWL for VMA, Air Voids or In-Place Density is below 50.00 when calculated according to section (k) of this special provision.
 - C. The HMA-QC Plan is not followed.
 - D. Visible pavement distress occurs such as segregation or flushing.

Resume production only after making all necessary adjustments to bring the mixture into conformance with all applicable specifications; documenting these adjustments as discussed in the HMA-QC Plan; and receiving a Notice to Resume Work (Form 1165) from the Engineer.

8. **Sublot Removal and Replacement Criteria.** Exceeding one or more of the QA Sublot Rejectable Quality Limits in Table 4 Col. IV may result in removal and replacement of the associated sublot of material.
9. **Small Tonnage Acceptance Criteria.** If the total tonnage of a specific mixture does not exceed 5000 tons, the total quantity of that mixture will be considered as a lot and will be divided into a minimum of 3 approximately equal sublots (maximum of 1000 ton sublots) up to a maximum of 7 sublots for testing and acceptance. The sublot size shall be approved by the Engineer prior to production of small tonnage mixtures.

All quality assurance sampling and testing procedures and acceptance criteria described in this special provision will apply.

g. Daily Asphalt Binder Certification Verification Samples. Obtain the asphalt binder sample, correctly label the sample container, and complete a Sample Identification (Bituminous Material) (Form 1923B). The form must be filled out correctly and completely, and signed before the sample is given to the Engineer. The daily asphalt binder sample must be taken from a sampling spigot located on the pipeline supplying asphalt binder to the plant, in a position between the asphalt binder pump and the point where the asphalt binder enters the mixture.

Personnel safety is critical in selecting the position of the sampling spigot. Give the binder sample and completed Form 1923B to the Engineer.

Collect the daily asphalt binder sample in a 1 pint (16 ounce), slip top, seamless ointment tin. The tin must be at least three quarters full. Three 1 pint containers must be obtained if the binder being sampled has the "P" designation (e.g., PG 70-28P). One of these three containers must be marked with the letter "R", designating it as a referee sample. This is described in the Special Provision for Polymer Modified Performance Grade Binders included in the contract documents. All containers must be labeled in a legible format with the following information.

- MDOT control section and job number
- Binder grade
- Binder supplier certifier number
- Supplier name, city and state
- Date sampled
- Mix type

The Engineer may request to witness the sampling of the asphalt binder upon any visit to the HMA plant. The Engineer will complete the 1923B form for the witness sample. The witness sample will become the daily asphalt binder sample of record. Any other binder sample taken that same day will be discarded.

The Engineer may request a copy of the MDOT Binder Certification Documents. These copies must be presented to the Engineer when the respective daily binder samples and 1923B forms are picked up at the plant. The Engineer will review these documents and communicate any problems that may arise. The Engineer will deliver the certification documents to the MDOT C&T Central Laboratory.

h. Dispute Resolution Process for Plant Produced Material (Mixture).

1. Lot Dispute Resolution.

A. Lot Dispute Resolution Criteria. The QA results for a lot, including an initial production lot, may be eligible for Dispute Resolution only if the Pay Factor for either Air Voids or VMA based on the QC test results is larger than the corresponding pay factor for Air Voids or VMA based on the QA test results. Only independent random QC test results from the corresponding sublots in the lot under Dispute Resolution will be used by the Engineer when processing the Dispute Resolution request. The QC testing used for Dispute Resolution must be conducted in the same manner as the QA testing. The pay factor for either Air Voids or VMA will be recomputed based on the Dispute Resolution sample test results.

B. Dispute Resolution Schedule.

(1) Request for Dispute Resolution testing must be submitted in writing within two working days of receipt of the results of the quality index analysis, including the pay factor for Air Voids, VMA and In-Place Density, for the lot.

- (2) The request for Dispute Resolution must include the QC test results for the lot. A signed statement certifying that the QC test results are true and accurate must accompany the request for Dispute Resolution.
- (3) The Engineer will document receipt of the request for Dispute Resolution and will deliver the Dispute Resolution samples to the MDOT C&T Central Laboratory within one working day of the receipt of the request.
- (4) The MDOT C&T Central Laboratory will complete all Dispute Resolution testing and return test results to the Engineer within 14 calendar days upon receiving the Dispute Resolution samples.

C. Dispute Resolution Testing Process.

- (1) All subplot dispute resolution samples will be tested.
- (2) All dispute resolution results will replace original QA test results.
- (3) The Overall Lot Pay Factor and the lot pay adjustment for the lot under Dispute Resolution will be recalculated.
- (4) If the recalculated Overall Lot Pay Factor is less than or equal to the original QA Overall Lot Pay Factor, all costs associated with completing the Dispute Resolution sample testing will be borne by the Contractor.
- (5) If the recalculated Overall Lot Pay Factor is greater than the original QA pay factor, all costs associated with completing the Dispute Resolution sample testing will be borne by the Department.

i. Dispute Resolution Process for In-Place Density

1. Lot Dispute Resolution.

- A. Lot Dispute Resolution Criteria. The QA In-Place Density results for a lot, including an initial production lot, may be eligible for Dispute Resolution if the lot Pay Factor for In-Place Density based on the QC test results is larger than the corresponding pay factor based on the QA test results. Only independent random QC test results (minimum of two random subplot cores from each subplot) from the corresponding lot under Dispute Resolution will be used by the Engineer when processing the Dispute Resolution request. The lot pay factor for In-Place Density will be recomputed based on the Dispute Resolution sample test results.
- B. Dispute Resolution Schedule
 - (1) Request for In-Place Density Dispute Resolution testing must be submitted in writing within two working days of receipt of the lot In-Place Density test results.

- (2) The request for Dispute Resolution must include the QC test results for the lot. A signed statement certifying that the QC test results are true and accurate must accompany the request for Dispute Resolution.
- (3) The Engineer will document receipt of the request for Dispute Resolution.
- (4) The Engineer will check the lot In-Place Density test results for data entry and mathematical errors. If there are errors, the lot pay factor for In-Place Density will be recomputed on the recalculated test results.
- (5) If it is determined that the test discrepancy has not been resolved, Dispute Resolution coring will be completed within five calendar days of the receipt of the request for Dispute Resolution. The Gmm from the original QA test results will be used to calculate the new In-Place Density values. If either Air Voids or VMA are in Dispute Resolution for the same lot, the new Gmm value will be used only to calculate the new Dispute Resolution In-Place Density values. The Dispute Resolution cores will be delivered to the MDOT C&T Central Laboratory within one work day after completion of the re-coring procedure.
- (6) The MDOT C&T Central Laboratory will complete all Dispute Resolution testing and return test results to the Engineer within seven calendar days upon receiving the Dispute Resolution samples. If there is a Dispute Resolution in process for either Air Voids or VMA, MDOT C&T Central Laboratory will complete all Dispute Resolution testing and return test results within 14 calendar days upon receiving the Dispute Resolution samples.

C. Dispute Resolution Testing Process

- (1) The Engineer will check the lot In-Place Density test results for data entry and mathematical errors. If there are errors, the lot pay factor for In-Place Density will be recomputed on the recalculated test results.
- (2) If it is determined that the test discrepancy has not been resolved, the Engineer will locate and mark the Dispute Resolution core locations by adding 1.0 foot longitudinally to all of the original QA cores tested using the same transverse offset. The Engineer will take possession of the cores when cut and extracted by the Contractor and submit them to MDOT C&T Central Laboratory for testing. The Dispute Resolution density cores will be tested in accordance with MTM 315. The Gmm from the original QA test results will be used to calculate the new In-Place Density values. If either Air Voids or VMA are in Dispute Resolution for the same lot, the new Gmm value will be used only to calculate the new Dispute Resolution In-Place Density values.
- (3) All lot Dispute Resolution core samples will be tested.

- (4) All lot Dispute Resolution core results will replace original QA test results.
- (5) The Overall Lot Pay Factor and the lot pay adjustment for the lot under Dispute Resolution will be recalculated.
- (6) If the recalculated Overall Lot Pay Factor is less than or equal to the original QA Overall Lot Pay Factor, all costs associated with completing the Dispute Resolution sample testing will be borne by the Contractor.
- (7) If the recalculated Overall Lot Pay Factor is greater than the original QA pay factor, all costs associated with completing the Dispute Resolution sample testing will be borne by the Department.

j. Documentation. The following documentation must be current and available for review as stated herein. All required documentation will be reviewed at the post-production meeting.

1. **Quality Control Records.** Maintain a complete record of all quality control tests and inspections. Make these records available at the laboratory facility at all times for the Engineer to review. Update all records within 24 hours of test completion. Failure to keep the required documentation updated constitutes a violation of the HMA-QC Plan. Furnish copies of individual records to the Engineer upon request and all records within seven working days of completion of the project. Report all sampling and testing on MDOT approved forms. The records must contain, as a minimum, the accepted HMA-QC Plan, signed originals of all QC test results and raw data, random numbers used and resulting calculations made for QC sampling locations if applicable, control charts, and summaries of all test results.
2. **Quality Assurance Records.** The Engineer will maintain a complete record of all quality assurance tests and inspections. Records will be updated within one working day of test completion. Copies of individual records will be furnished upon request. The records will contain, as a minimum, the HMA-QA Plan, signed originals of all QA test results and raw data, random numbers used and resulting calculations made for QA sampling locations if applicable, and summaries of all test results.

k. Quality Index Analysis. The Engineer's QA test results for plant produced material (mixture) and In-Place Density will be evaluated according to section 106 of the Standard Specifications for Construction. The upper and lower specification limits used in the quality index analysis are shown in Table 3. The Engineer will calculate percent within limits, pay factor and payment for all HMA material covered by this special provision using the formulae in section 106 and herein. All values of PWL and PF in these formulae are percents not decimals. All values of PWL and PF are carried to two decimal places as shown in Table 106-1 of the MDOT Standard Specifications for Construction.

1. **Pay Factor for Air Voids (PF_{AV}).**

- A. If PWL for Air Voids (PWL_{AV}) is equal to or greater than 90.00, use the following formula to determine PF_{AV} . Round the value of PF_{AV} two decimal places.

$$PF_{AV} = 100 + (0.20(PWL)-18).$$

This does not apply if either PWL_{VMA} or PWL_D is less than 90.00. If PWL_{VMA} or PWL_D is less than 90.00, then $PF_{AV} = 100$.

- B. If PWL for Air Voids is between 50.00 and 89.99, inclusive, use the following formula to determine PF_{AV} . Round the value of PF_{AV} two decimal places.

$$PF_{AV} = 100.00 - 0.000020072 \times (100.00 - PWL_{AV})^{3.5877}$$

- C. If PWL for Air Voids is less than 50.00, the Engineer may elect to do one of the following:

- (1) Require removal and replacement of the entire lot with new QA sampling and testing and repeat the evaluation procedure.
- (2) Allow the lot to remain in place and apply an overall lot pay factor of 50.00.
- (3) Allow submittal of a corrective action plan for the Engineer's approval. The corrective action plan may include removal and replacement of one or more sublots. If one or more sublots are replaced, the subplot(s) will be retested and the overall lot pay factor will be recalculated according to this special provision. If the Engineer does not approve the plan for corrective action, sections (1) or (2) above will be applied.

2. Pay Factor for VMA (PF_{VMA}).

- A. If PWL for VMA (PWL_{VMA}) is equal to or greater than 90.00, use the following formula to determine PF_{VMA} . Round the value of PF_{VMA} two decimal places.

$$PF_{VMA} = 100 + (0.20(PWL_{VMA})-18).$$

This does not apply if either PWL_{AV} or PWL_D is less than 90.00. If PWL_{AV} or PWL_D is less than 90.00, then $PF_{VMA} = 100$.

- B. If PWL for VMA is between 50.00 and 89.99, inclusive, use the following equation to determine PF_{VMA} . Round the value of PF_{VMA} two decimal places.

$$PF_{VMA} = 100.00 - 0.000020072 \times (100.00 - PWL_{VMA})^{3.5877}$$

- C. If PWL for VMA is less than 50.00, the Engineer may elect to take one of the actions specified in section (k.1.C) above.

3. Pay Factor for In-Place Density (PF_D).

- A. If PWL for In-Place Density (PWL_D) is equal to or greater than 90.00, use the

following formula to determine PF_D . Round the value of PF_D two decimal places.

$$PF_D = 100 + (0.20 (PWL_D) - 18).$$

This does not apply if either PWL_{VMA} or PWL_{AV} is less than 90.00. If PWL_{VMA} or PWL_{AV} is less than 90.00, then $PF_D = 100$.

- B. If PWL for In-Place Density is between 50.00 and 89.99, inclusive, use the following equation to determine PF_D . Round the value of PF_D two decimal places.

$$PF_D = 100.00 - 0.000020072 \times (100.00 - PWL_D)^{3.5877}$$

- C. If PWL for In-Place Density is less than 50.00, the Engineer may elect to take one of the actions specified in section (k.1.C) above.

4. Overall Lot Pay Factor (OLPF)

$$OLPF = (0.60 \times PF_D) + (0.20 \times PF_{AV}) + (0.20 \times PF_{VMA})$$

I. Measurement and Payment. Separate payment will not be made for providing and maintaining an effective hot mix asphalt quality control program as specified by this special provision. All costs associated with the work described in this special provision will be included in the applicable unit prices for the related HMA mixtures. HMA, (type) will be measured as specified in subsection 502.04 of the Standard Specification for Construction and the contract documents. If HMA Quality Initiative is not included in the contract as a pay item, there will be no payment for this item of work.

Payment for HMA pay items will be based on the contract prices for the completed items of work as adjusted according to this special provision. Adjusted payment for HMA, (type) will be calculated on a lot-by-lot basis.

The Overall Lot Pay Factor (OLPF) will be used to determine the lot pay adjustment as follows:

$$\text{Lot Payment Adjustment} = (OLPF - 100) / 100 \times (\text{Contract Unit Price}) \times (\text{Lot Quantity}).$$

| Contract Item (Pay Item) | Pay Unit |
|---------------------------------|-----------------|
| HMA Quality Initiative..... | Dollar |

Table 1: Minimum Quality Control Sampling and Testing Requirements

| Quality Characteristic | Test Method | Minimum Test Frequency | Sampling Location | Sampling Method |
|--|---------------------------|---------------------------|---------------------------|---------------------|
| Aggregate Gradation (optional) | As defined in HMA-QC Plan | As defined in HMA-QC Plan | As defined in HMA-QC Plan | Random AASHTO T 2 |
| Aggregate Moisture | As defined in HMA-QC Plan | As defined in HMA-QC Plan | | |
| PG Binder Content | As defined in HMA-QC Plan | 1 per day | As defined in HMA-QC Plan | Random AASHTO T 168 |
| Combined Mixture Gradation | As defined in HMA-QC Plan | 1 per day | As defined in HMA-QC Plan | Random AASHTO T 168 |
| Maximum Theoretical Specific Gravity | MTM 314 | 1 per day | As defined in HMA-QC Plan | Random MTM 313 |
| Bulk Specific Gravity | As defined in HMA-QC Plan | 1 per day | As defined in HMA-QC Plan | Random AASHTO T 168 |
| Volumetrics: Air Voids | As defined in HMA-QC Plan | 1 per day | As defined in HMA-QC Plan | Random AASHTO T 168 |
| Volumetrics: VMA | As defined in HMA-QC Plan | 1 per day | As defined in HMA-QC Plan | Random AASHTO T 168 |
| Fines to Effective Binder | As defined in HMA-QC Plan | 1 per day | As defined in HMA-QC Plan | Random AASHTO T 168 |
| In-Place Density (a) | As defined in HMA-QC Plan | 1 per day | From compacted HMA | Random AASHTO T 168 |
| a. A maximum of fifteen cores per lot of material will be allowed. | | | | |

Table 2: Action and Suspension Limits for Combined Gradation (from JMF)

| Sieve Size | HMA Mixture | | | | | | | |
|------------|-------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|
| | 5 | | 4 | | 3 | | 2 | |
| | QC Action | QC Suspension | QC Action | QC Suspension | QC Action | QC Suspension | QC Action | QC Suspension |
| ¾ inch | Defined | | Defined | | Defined | ± 10 | Defined | ± 10 |
| ½ inch | In the | | In the | ± 10 | In the | ± 10 | In the | ± 10 |
| ⅜ inch | HMA-QC | ± 10 | HMA-QC | ± 10 | HMA-QC | ± 10 | HMA-QC | ± 10 |
| No. 4 | Plan | ± 8 | Plan | ± 8 | Plan | ± 8 | Plan | ± 8 |
| No. 8 | | ± 8 | | ± 8 | | ± 8 | | ± 8 |
| No. 30 | | ± 6 | | ± 6 | | ± 6 | | ± 6 |
| No. 200 | | ± 2 | | ± 2 | | ± 2 | | ± 2 |

Table 3: HMA Quality Index Parameter Specification Limits

| Quality Index Parameter | Specification Limits | |
|--|----------------------|----------------|
| | Lower | Upper |
| Air Voids, (%@ Ndes) leveling and top course | 3.00 | 5.00 |
| Air voids base/shoulders | 2.00 | 4.00 |
| VMA | | |
| 2 | 12.00 | 14.00 |
| 3 | 13.00 | 15.00 |
| 4 | 14.00 | 16.00 |
| 5 | 15.00 | 17.00 |
| GGSP (Gap SMA) | 17.00 | 19.00 |
| Mat Density, %Gmm | 92.00% | None Specified |

Table 4: Quality Control and Quality Assurance Limits

| I Quality Characteristic | II QC Action Limits (a) | III QC Suspension Limits (b) | IV Sublot RQL Form 1165 (c) | V Lot AQL (d) | VI Lot RQL (d) |
|--------------------------------------|----------------------------|--|--|---------------------------------------|------------------------------------|
| Aggregate Gradation (optional) | | | | | |
| Aggregate Moisture | | | | | |
| PG Binder Content | ± 0.50% JMF | ± 1.00% JMF | | | |
| Combined Mixture Gradation | Defined in the HMA-QC Plan | Refer to Table 2 | | | |
| Maximum Theoretical Specific Gravity | ± 0.013 JMF | ± 0.020 JMF | | | |
| Bulk Specific Gravity | | | | | |
| Volumetrics: Air Voids | Defined In the HMA-QC Plan | ± 2.00% Target Value(e) | ± 2.00% Target Value(e) | $PWL_{AV} \geq 90.00$ For any lot | $PWL_{AV} < 50.00$ For any lot |
| Volumetrics: VMA | Defined In the HMA-QC Plan | - 1.00% or + 3.00% of Spec Limits in Table 3 | - 1.00% or + 3.00% of Spec Limits in Table 3 | $PWL_{VMA} \geq 90.00$ For any lot | $PWL_{VMA} < 50.00$ For any lot |
| Fines to Effective Binder | Defined In the HMA-QC Plan | | | | |
| In-Place Density | Defined in the HMA-QC Plan | Defined in the HMA-QC Plan | Average Sublot Value < 90.00% | $PWL_D \geq 90.00$ For any lot | $PWL_D < 50.00$ For any lot |

- a. Limits apply to two consecutive QC tests.
b. Limits apply to single QC tests.
c. Specified. Limits apply to a single QA subplot Air Void or VMA test or on the subplot average In-Place Density.
d. Specified. Limits apply on a lot-by-lot basis. Based on QA results for the lot.
e. For regressed designs the min air voids will be 2.00%.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
STEEL SHEET PILING, TEMP AND STEEL SHEET PILING, TEMP, LEFT IN PLACE

C&T:EMB

1 of 1

C&T:APPR:RBE:RDT:07-31-03
FHWA:APPR:08-18-03

Add the following sentence as the fourth sentence to the first paragraph to subsection 704.04.A.2, Measurement and Payment, page 375 of the 2003 Standard Specifications for Construction.

When earth is retained on both sides of the same steel sheet piling during different construction stages, the quantity will be computed from the stage requiring the largest area of earth retention and not the sum of the area of required earth retention for each stage.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
EXPANSION JOINT DEVICE

DES:SPB

1 of 1

C&T:APPR:EMB:JAR:06-24-04
FHWA:APPR:08-13-04

a. Description. Select expansion joint devices that will provide the minimum required total travel, as noted on the plans, when measured parallel to the centerline of bridge. Select the device from the list of approved devices shown on the plans. Table 1 provides model-specific total travel information to assist in selection of the expansion joint devices. Subsection 707.03.C.1 of the standard specifications regarding shop plans is waived if the expansion joint devices listed in Table 1 are selected. Provide the Engineer with a list of models selected for each location.

b. Shop Drawings. The Engineer will obtain the required number of prints of the standard installation details/shop drawings of the device through the Construction and Technology Support Area. These drawings are general, and do not include dimensions associated with the specific installation. All necessary dimensions must be determined by the Contractor and will not be reviewed by the Department.

c. Measurement and Payment. Device selection and determination of all project specific dimensions will be included in the associated contract item (pay item).

Table 1: Total Travel Measured Along Centerline of Bridge (in inches)

| Expansion Joint Device | Angle of Crossing (in degrees) | | | | | | |
|--|--------------------------------|-----|-----|-----|-----|-----|-----|
| | 90 | 80 | 70 | 60 | 50 | 40 | 30 |
| Watson-Bowman & Acme SE-300 (Type E, A, & M extrusion) | 3.0 | 3.0 | 3.1 | 3.5 | 3.7 | 3.3 | 2.8 |
| D.S. Brown Steelflex SSA2-300A2R | 3.0 | 3.0 | 3.0 | 3.3 | 3.5 | 3.5 | 4.5 |
| D.S. Brown Steelflex SSE2-300A2R | 3.0 | 3.0 | 3.1 | 3.5 | 3.0 | 2.1 | 2.0 |
| Watson-Bowman & Acme SE-400 (Type E, A, & M extrusions) | 4.0 | 4.1 | 4.3 | 4.3 | 3.7 | 2.7 | 2.6 |
| D.S. Brown Steelflex SSA2-400A2R | 4.0 | 4.1 | 3.7 | 3.5 | 2.4 | 2.0 | 1.2 |
| D.S. Brown Steelflex SSCM2-400A2R | 4.0 | 4.1 | 4.3 | 4.0 | 4.3 | 5.1 | 4.0 |
| D.S. Brown Steelflex SSE2-400A2R | 4.0 | 4.1 | 4.3 | 3.1 | 2.0 | 2.0 | 1.6 |
| Structural Rubber Products Company Onflex 40SS | 4.0 | 4.1 | 4.3 | 4.5 | 2.8 | 2.8 | 2.0 |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
STRUCTURAL STEEL AND ALUMINUM CONSTRUCTION

C&T:SJC

1 of 10

C&T:APPR:DAJ:DBP:07-09-07
FHWA:APPR:07-19-07

a. Description. This specification covers the fabrication of structural steel and aluminum, modifying the standard specifications and the referenced AWS Codes. In case of conflict between the MDOT Specifications and AWS Specifications, the MDOT Specifications shall govern.

PART I - BRIDGE WELDING

b. Fabricating Structural Steel (AWS D1.5M/D1.5:2002). The fabrication of structural steel bridge members shall be performed according to the Bridge Welding Code, AASHTO/AWS D1.5M/D1.5:2002. All references to AWS D1.5 shall include AWS D1.5M/D1.5:2002 and the AWS D1.5 Interim 2005 specifications.

The welding requirements of steel structures where the loads are carried by tubular members shall conform to the requirements of AWS D1.1/D1.1M:2002 and Part II of this specification. This includes Tubular Fracture Critical Members.

The following items are applicable for the entire code. Any reference to these items within the code shall be as modified herein.

AWS SECTION 2. DESIGN OF WELDED CONNECTIONS

AWS 2.8.1.8 Add the following sentence to the paragraph:

Welds on opposite sides of a common plane shall be continuous, as shown on the contract drawings, and corners ground to eliminate notches greater than 0.01 inch. Provide a smooth transition to the weld metal after grinding.

AWS 2.9.1.1 Delete the paragraph and replace with the following sentence:

Qualification tests will be required for all plug and slot welds.

AWS 2.9.3 Add the following:

The maximum center-to-center spacing of plug welds shall be equal to the minimum plus
1/2 inch.

AWS SECTION 3. WORKMANSHIP

AWS 3.1.3 Change "...when the ambient temperature is lower than 0 °F..." to read "...when the ambient temperature is lower than 40 °F...".

AWS 3.2.1 Change "... from the surface on which web-to-flange welds are to be made..." to read "... from the surface on which web-to-flange, stiffener-to-web, stiffener-to-flange and cover plate-to-flange welds are to be made...".

AWS 3.3.8 Delete and replace with the following:

Temporary or fit-up welds shall be subject to the same welding procedure requirements as final welds. They shall be removed unless otherwise permitted by the Engineer. Any Temporary or fit-up welding must be clearly shown on the shop plans and approved by the Engineer. A procedure for removal of all temporary or fit-up welds must be submitted, in writing, to the Engineer for approval. If removed, they shall be ground flush with the original surface to a surface finish of less than 125 microinches-rms, finished parallel to the direction of primary stress. Removal of temporary welds shall conform to the requirements of AWS 3.3.7.3 and AWS 3.3.7.4. If temporary welding is approved, non-destructive testing of the temporary weld areas may be required by the Engineer and performed at the Fabricator's expense to ensure that no cracks or flaws have been produced in the base metal.

AWS 3.13.3, 3.13.3.1, 3.13.3.2 Delete these paragraphs and replace with the following:

Steel backing on welds shall be removed and the joint shall be ground smooth, unless otherwise directed by the Engineer.

AWS 3.13.6 Copper backing shall not be used. In the first sentence of the first paragraph after "or similar materials" add "as approved by the Engineer.".

AWS SECTION 4. TECHNIQUE

AWS 4.2 All references to an ambient temperature of 0 °F shall be changed to an ambient temperature of 40 °F.

Add the following sentence to the paragraph:

The maximum interpass temperature for butt welding on M270 Grade 36, 50 and 50W steel shall not exceed 650 °F.

AWS 4.7.6 Add the following sentence to the paragraph:

Any use of backing materials or sealing by welding is subject to the approval of the Engineer and may be qualified by procedure qualification tests as directed by the Engineer.

AWS SECTION 5. QUALIFICATION

AWS 5.2.4 Delete and replace with the following:

Testing as specified by the standard specifications, AWS D1.5, MDOT Supplemental Specifications, Special Provisions, and Contract Documents are included in the "BID UPON" price for fabricating and furnishing structural steel and therefore payment for such testing is at the Contractor's/Fabricator's expense. This includes additional testing required by the Engineer for welders, welding operators, or welding procedures.

AWS 5.4.1 Change the word "should" in the note at the bottom of the table to "shall".**AWS Table 5.7** Delete fillet weld option 2 and accompanying Figure 5.22.

AWS 5.13 Nonstandard joints, as determined by the Engineer, shall be "mocked-up" to duplicate joints used in production.

AWS Figure 5.17, 5.18, 5.19, and 5.20 Change the 6 inches minimum dimension to 8 inches minimum.

AWS 5.20 Additional test specimens will not be cut from the same procedure qualification test plate. Any references to this within this code shall be deleted.

AWS 5.21.4 In the first sentence, change "...remaining in effect indefinitely..." to read "...remaining in effect for three (3) years...".

AWS 5.23.1.5 Delete and replace with the following:

Plug Weld Qualification Tests for Plug Welds Only. The joint shall consist of a diameter hole the same size as that used in production in a plate the same thickness as that being welded. Backing shall be of the same thickness and material as that to be used in production. In addition, Ultrasonic Testing (UT) shall be required for plug weld qualification and shall meet the requirements shown in Table 9.1. Conduct macroetch test according to AWS 5.27.6.

AWS 5.23.2.4(b) Delete option 2 and accompanying Figure 5.27.**AWS 5.27.1** Add the following requirements for visual inspection to the paragraph:

No discontinuities exceeding 1/8 inch measured in any direction on the surface.

No discontinuities exceed 3/8 inch - Sum of the greatest dimensions of all discontinuities exceeding 1/32 inch but less than or equal to 1/8 inch.

AWS 5.27.6.1 Add the following requirements to the paragraph:

(7) No discontinuities exceeding 1/8 inch measured in any directions on the surface.

(8) No discontinuities exceeding 3/8 inch - Sum of the greatest dimensions of all discontinuities exceeding 1/32 inch but less than or equal to 1/8 inch.

AWS 5.27.6.2 (3) Change "...in excess of 1/4 inch..." to read "... in excess of 1/8 inch...".

AWS SECTION 6. INSPECTION

AWS 6.3.1 Add the following sentence to the paragraph:

Approved weld procedures are to be posted where work and welding are being performed.

AWS 6.4.3 Add the following at the end of the paragraph:

...or the contract documents.

AWS 6.4.4 The "Inspector" is interpreted as being MDOT's quality assurance inspector or representative.

AWS 6.6.5 Delete and replace with the following:

If nondestructive testing (NDT), not specified in the original contract agreement, is subsequently requested by the owner, the Contractor shall perform any requested testing or shall permit any requested testing to be performed. Any cost related to subsequent testing requests shall be paid for by the owner. However, if such testing should disclose any deficiencies which require repair work, all cost for the repair and any NDT required on the repair shall be paid for by the Contractor/Fabricator.

AWS 6.26.1.5 Add the following to the paragraph:

"Cross frames and diaphragms attached to connection plates or stiffeners of horizontally curved girders are considered primary members. Fillet welds attaching connection plates or stiffeners to the web of horizontally curved girders that carry loads from cross frames or diaphragms are considered part of the primary member".

AWS 6.26.2.1 In the first sentence, change "For welds subject to tensile stress under any condition of loading..." to read "For all welds under any condition of loading...".

AWS 6.26.2.2 and AWS Figure 6.9 Delete paragraph 6.26.2.2 and Figure 6.9. Refer to AWS 6.26.2.1 and AWS Figure 6.8.

AWS 6.26.3.1 (1) Change "Welds subject to tensile stress..." to read "Welds under any condition of loading...".

AWS 6.26.3.1 (2) and AWS Table 6.4 Delete sentence (2) and Table 6.4. Refer to AWS 6.26.3.1 (1) and to AWS Table 6.3.

AWS 6.26.3.3 Change reference from Table 6.4 to Table 6.3.

PART II - STEEL

c. Fabricating Structural Steel (AWS D1.1/D1.1M:2002).-Shop fabrication of steel sign support structures, tower lighting units, CCTV towers, traffic signal mast arms and poles, drainage components, expansion dams, modular expansion joints, curb plates, bearings, railings and other miscellaneous structural steel members as determined by the Engineer shall be according to the Structural Welding Code - Steel, AWS D1.1/D1.1M:2002. Fabricators may qualify under the provision of AWS D1.5 if approved by the Engineer.

Any reference to prequalified joints in AWS D1.1 shall be deleted. See AWS Section 4.1.1 as modified herein.

AWS SECTION 2. DESIGN OF WELDED CONNECTIONS

AWS 2.5.5 Delete and replace with Section 2.8.1.1 of AWS D1.5 and as modified in Part I herein.

AWS SECTION 3. PREQUALIFICATION OF WPS's

Any reference to prequalified joints in this section shall be deleted. All joints require procedure qualification testing, see Section 4.1.1 herein.

AWS Table 3.2 Add the following general note to Table 3.2:

The ambient air temperature in the vicinity of the weld shall not be less than 40 °F.

AWS 3.2.1 Delete 3.2.1 but note requirements herein under modifications to AWS Section 4.

AWS 3.5.2 Delete this paragraph and eliminate all future references within AWS D1.1 to alternate methods for establishing minimum preheat and interpass temperatures.

AWS 3.6 Replace 3.6 with the following provisions:

All welding procedure specifications to be used shall be prepared by the Manufacturer, Fabricator, or Contractor as written procedure specifications, and submitted to the Department. A suggested form showing the information required in the procedure specification is given in Annex E.

AWS 3.6.1 Delete this paragraph and refer to 4.1.1 and 3.6.

AWS 3.7.1 Replace the first sentence of 3.7.1 with the following sentence:

The progression for all passes in vertical position welding shall be upward, including repair of undercuts. Delete all reference to welding vertically down.

AWS 3.9.3 Add the following sentence:

Qualification tests shall be required for all skewed T-Joints.

AWS 3.12 Add the following sentence:

Qualification tests shall be required for all partial joint penetration groove welds.

AWS SECTION 4. QUALIFICATION

AWS 4.1.1 Replace 4.1.1 with the following provisions:

Welding procedures shall be qualified prior to use, by tests as prescribed in Part B of this Section. No welding shall be done on any project until shop welded procedure qualification tests described in Part B of Section 4 demonstrate the performance of the wire-flux combination when welding with shop equipment using the shop welding procedure specification and representative samples of the wire, flux, and plates or shapes to be used in production. The type of procedure qualification test(s) run by the fabricator shall be determined by the Engineer. Welds for procedure qualification shall be made according to the shop welding procedure specification, including observance of preheat and interpass temperatures, using representative samples of the electrodes, flux, and base metal to be used in production. The Department will maintain records of procedures qualified by each shop, so that it will not be necessary to requalify for each new contract, as long as the qualified procedure remains controlled within the limitation of variables specified in Part B of Section 4, and provided that the welding machines, type of steel, and range of thickness are not changed. As an alternate to plate thickness procedure qualification, the Engineer may require tests run for procedures using actual joints used in production. Procedures are good for three (3) years. The Engineer may require a retest of welding procedures whenever the Engineer feels it is warranted.

AWS 4.1.1.3 Delete and add the following paragraph:

Charpy impact tests and all weld metal tensile tests are required for all groove weld procedure test plates. Additional plate lengths are required for these tests. This requirement is for all plate thicknesses, except that for less than $\frac{1}{2}$ inch plates all weld metal tensile test is not required; however, root and face bend tests are. Specimens tested for impact values shall have a minimum value of 20 ft-L at 0 °F. All weld tensile specimens shall have values not less than those shown in Table 3.1 with elongation in 2 inch gage length not less than 22 percent.

AWS 4.1.3.1 In the first sentence, change "...remaining in effect indefinitely..." to read "...remaining in effect for three (3) years...".

AWS 4.1.3.2 In the first sentence, change "...to perform tack welding indefinitely..." to read "...to perform tack welding for three (3) years...".

AWS 4.8.5 Additional test specimens will not be cut from the same procedure qualification test plate. Any reference to this within this code shall be deleted.

AWS Table 4.10 Delete fillet weld option 2 and accompanying Figure 4.32.

AWS 4.11.3 Delete all reference to prequalified consumables. All consumables for fillet welds shall be tested.

Add the following to the paragraph:

The deposited weld metal shall be tested by the Charpy impact test and shall produce a minimum of 20 ft-L at 0 °F.

AWS 4.12.4.1 (3)(f) Change "1/4 inch" to "1/8 inch" in the first sentence.

AWS 4.12.4.1 (3) Add the following requirements to the paragraph:

(g) No discontinuities exceeding 1/8 inch measured in any direction on the surface.

(h) No discontinuities exceeding 3/8 inch - Sum of the greatest dimensions of all discontinuities exceeding 1/32 inch but less than or equal to 1/8 inch.

AWS Figure 4.21, 4.29, 4.30, and 4.31 Change the 6 inch minimum dimension to 8 inch minimum.

AWS 4.29 Delete and replace with Section 5.23.1.5 of AWS D1.5 and as modified in Part I herein.

AWS 4.30.2.1 (1) & (2) Use AWS 4.29 as modified herein.

AWS 4.30.2.3 Add the following requirements:

(5) No discontinuities exceeding 1/8 inch measured in any direction on the surface.

(6) No discontinuities exceeding 3/8 inch - Sum of the greatest dimensions of all discontinuities exceeding 1/32 inch but less than or equal to 1/8 inch...".

AWS 4.30.2.3 (4)(c) Change "... in excess of 1/4 inch..." to read "... in excess of 1/8 inch...".

AWS Figure 4.37 Change the note for L₂ to read....."5 inch min. (welder),....."

AWS SECTION 5. FABRICATION

AWS Table 5.1 Delete and replace with Table 4.7 of AWS D1.5.

AWS 5.2.2.1 and AWS 5.2.2.2 Delete and replace with:

Base metal for weld tabs, backing, and spacers shall be the same steel as that to be welded.

AWS 5.3.2.2 Delete "Electrodes exposed to the atmosphere...the electrodes maybe reissued." and replace with Section 4.5.2.2 of AWS D1.5.

AWS 5.3.2.3 Delete and replace with Section 4.5.2.1 of AWS D1.5.

AWS Table 5.8 Delete and replace with Section 707 of the standard specification.

AWS 5.12.2 (1) Change "...when the ambient temperature is lower than 0 °F..." to read "...when the ambient temperature is lower than 40 °F...".

AWS 5.14 Delete and replace with Section 707 of the standard specifications.

AWS 5.18.1 Delete and replace with Section 3.3.8 of AWS D1.5 and as modified in Part I herein.

AWS 5.26 Add the following sentences to the paragraph:

Written weld repair procedures shall be approved by the Engineer prior to any weld repairs.
For weld repairs, preheat is mandatory as specified in Table 3.2 as modified herein.

AWS SECTION 6. INSPECTION

AWS 6.1 Delete and replace with Section 6.1 of AWS D1.5.

AWS 6.3.1 Add the following sentence to the paragraph:

Approved weld procedures are to be posted where work and welding are being performed.

AWS 6.6.5 Delete and replace with Section 6.6.5 of AWS D1.5 and as modified in Part I herein.

AWS 6.9 Add the following requirements for visual inspection to the paragraph:

No discontinuities exceeding 1/8 inch measured in any direction on the surface.

No discontinuities exceeding 3/8 inch - Sum of the greatest dimensions of all discontinuities exceeding 1/32 inch but less than or equal to 1/8 inch.

AWS 6.12.2.1 In the first sentence, change "For welds subject to tensile stress under any condition of loading..." to read "For all welds under any condition of loading...".

AWS 6.12.2.2 and AWS Figure 6.5 Delete paragraph 6.12.2.2 and Figure 6.5. Refer to AWS 6.12.2.1 and to AWS Figure 6.4.

AWS 6.13.2 (1) Change "Welds subject to tensile stress..." to read "All welds under any condition of loading...".

AWS 6.13.2 (2) and AWS Table 6.2 Delete sentence (2) and Table 6.2. Refer to AWS 6.13.2 (1) and Table 6.3.

AWS 6.20.2 In the third sentence of the paragraph, replace the word “painted” with the word “coated”.

AWS 6.26.3 Replace the word “paint” with “coatings”.

PART III - ALUMINUM

d. Fabricating Structural Aluminum (AWS D1.2-97). Shop fabricating of structural aluminum shall be according to AWS D1.2 Structural Welding Code - Aluminum.

AWS SECTION 4. TECHNIQUE

AWS 3.1.8 Add the following sentence to the paragraph:

Where preheat is needed, the temperature of preheat shall not exceed 500 °F for non-heat-treated alloys. The use of preheat shall be an integral part of the procedure specification which shall be tested to qualify the welding procedure.

AWS SECTION 5. QUALIFICATION

AWS 4.3.1 Add the following sentence to the paragraph:

The Engineer may designate additional types of weld tests to be used in qualifying welders, welding operators, and tackers.

AWS 4.5.3 Delete and replace with the following:

Radiographic examination may not be used in lieu of the bend test performance requirements.

AWS 4.6.3 Add the following sentence to the paragraph:

(8) No discontinuities exceeding 1/8 inch measured in any direction on the surface.

(9) No discontinuities exceeding 3/8 inch - Sum of the greatest dimensions of all discontinuities exceeding 1/32 inch but less than or equal to 1/8 inch.

AWS 4.11 Delete and refer to 4.5.3 above.

AWS 4.15.3 Add the following to this Section:

Additional test specimens may be designated to qualify a welding procedure when deemed necessary by the Engineer. These additional tests will normally relate to the actual joint or structural detail being welded.

AWS 4.16 Additional test specimens will not be cut from the same procedure qualification test plate. Any references to this within this code shall be deleted.

AWS 4.20.1, 4.21.1 and 4.22.1 Delete the paragraph and replace with:

Welders, tack welders and welding operations shall qualify on aluminum alloy the same as that to be used in production work.

AWS 4.23.6.3 Delete and replace with the following:

Radiographic examination may not be used in lieu of the bend test for qualification testing of welders or welding operators.

AWS 4.3.2 In the first sentence, change "...remaining in effect indefinitely..." to read "...remaining in effect for three (3) years...".

AWS SECTION 6. INSPECTION

AWS 5.6.5 Delete and replace with Section 6.6.5 of AWS D1.5 and as modified in Part I herein.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**SOLVENT USED FOR COATING EXISTING
STRUCTURAL STEEL**

C&T:EMB

1 of 3

C&T:APPR:JAR:DBP:01-10-07
FHWA:APPR:01-18-07

Add the following to subsection 715.03.D, on page 516 of the Standard Specifications for Construction.

6. Solvents.

- a. **Solvent Reuse Determination Procedures.** Prepare a written Solvent Reuse Determination Procedure that complies with Act 451, PA 1994, Part 111 Hazardous Waste Management, and Rule R299.9202, Rule 202. Provide a copy of this procedure to the Engineer prior to performing any field coating. Solvent Reuse Determination Procedures must include, as a minimum, the following:

Determination Procedures

- Method used to determine whether the solvent is reusable.
- Applications for use of the reusable solvent.
- Statement of effectiveness of the reusable solvent in each application cited.

Documentation must include certification that the Contractor agrees to:

- Maintain records regarding solvent reuse on the "Solvent Tracking log".
- Handle the solvent in a manner consistent with the status of the product.
- Reuse the solvent within one year from the initial use.
- No reclamation of the solvent prior to reuse.

- b. **General.** Determine in performance of the work and prior to leaving the work site, whether solvents used for cleaning and Coating equipment are reusable or not reusable and considered waste. Make and document this determination in accordance with written Solvent Reuse Determination Procedures and the applicable federal, state, and local laws and regulations. Provide a copy of the written determination documentation to the Engineer before removing any solvents (reusable or waste) from the work site.

Manage, label, contain, store, and ship solvent determined to be reusable in accordance with the applicable federal, state, and local laws and regulations. Provide certification for reusable solvent transported from the bridge site (shipping paper). Manage, label, store, contain, ship, and dispose solvent characterized to be waste in accordance with Part 111, Hazardous Waste Management, Michigan Compiled Laws (MCL) 324.11101 et seq. of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); subtitle C of the Federal Resource Conversation and Recovery Act of 1976, as amended (RCRA); Part 121, Liquid Industrial Waste (MCL) 324.12101 et seq.; Part 115, Solid Waste Management (MCL) 324.11501 et seq., the administrative

rules or regulations promulgated pursuant to these acts, and all other applicable federal, state, and local laws and regulations.

Dispose of the non-reusable waste solvent associated with the project.

Add the following paragraph to subsection 715.04.G, on page 518 of the Standard Specifications for Construction.

All costs associated with the management, characterization, and disposal of waste solvent will be included in the applicable unit prices for the coating pay items.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**SHOP CLEANING AND COATING STRUCTURAL STEEL
(GALVANIZING OPTION)**

C&T:BDB

1 of 2

C&T:APPR:EMB:SJC:06-14-02
FHWA:APPR:06-17-02

a. Description. Galvanizing of structural steel shall be according to section 707 and work for shop cleaning and coating structural steel shall be according to section 716 of the Standard Specifications for Construction and the following.

b. Materials. The coating used for faying surfaces of the slip critical connections shall be an organic zinc-rich primer. The primer shall meet Class "B" (0.5 or greater) slip coefficient requirements of the Research Council on Structural Connections' Specification for Structural Joints Using ASTM A325 or A490 Bolts. The slip coefficient shall be verified by testing according to the Testing Method to Determine the Slip Coefficient for Coatings Used in Bolted Joints contained in Research Council on Structural Connections' Specification for Structural Joints Using ASTM A325 or A490 Bolts, Appendix A, from an independent laboratory. Before coating, the Fabricator shall furnish the Engineer with the certification of testing showing the variables for the primer to meet Class "B" slip coefficient. This coating shall be from the same manufacturer as selected for coating the remainder of the structure.

c. Construction. All structural steel members may be hot-dipped galvanized according to ASTM A 123 as a substitute for the zinc rich primer, except only a zinc-rich primer shall be applied to all surfaces internal to slip critical connections and all surfaces of filler plates shall be cleaned and coated only with the zinc-rich primer at a minimum dry film thickness of 1 mil and a maximum dry film thickness as determined by the slip coefficient test results. All other variables required for the primer to meet the requirements of Class "B" shall be as specified herein. The faying surface shall be masked during subsequent coating operations. The subsequent coats shall be applied according to subsection 715.03.D of the standard specifications. Repair damaged galvanized surface according to ASTM A780.

Galvanizing shall be done by the "dry process" and the galvanized components shall not be quenched following galvanizing. A chromate surface passivation shall not be applied to galvanized components which are to be top coated. The minimum galvanizing thickness shall be 3.9 mils (2.3 oz/ft²).

Areas of field connections must have a uniform, galvanized coating thickness free of local excessive roughness which would prevent splice plates, bearings or other field connections from making intimate contact.

Faying surfaces other than slip critical connections must be roughened in the shop after galvanizing by hand wire brushing. Power wire brushing is not permitted. All field splice bolt holes must be free of zinc build up and each hole must be checked in the shop after galvanizing to verify the hole's ability to receive a drift/barrel pin with a diameter of 1.6mm plus the diameter of the bolt.

After galvanizing, structural steel must be placed in a second shop assembly according to Subsection 707.03.C.6.c of the standard specifications to check alignment of holes, sweep and camber against the fabricator's original recorded lay down dimensions. This shop assembly may be performed at the galvanizer's facility by the Fabricator's personnel if approved by the Engineer. The second lay down may be waived by the Engineer, if the Fabricator records individual beam or girder cambers and sweeps during the first lay down and compares dimensions after galvanizing to the first within the following tolerances:

Bearing points after galvanizing must be plus or minus 1/8 inch from the first lay down.

Camber points after galvanizing must be + 1/4 inch or - 0 inch from the first lay down.

Sweep points after galvanizing must be plus or minus 3/8 inch from the first Lay down.

Individual beams or girders that exceed the listed tolerances must be placed with at least two adjacent beams or girders in lay down for checking against the recorded shop assembly records according to subsection 707.03.C.6.c of the standard specifications. Documentation of the second lay down or individual member cambers must be recorded by the Fabricator and witnessed by the Engineer.

Stenciling shall be according to subsection 715.03.D.4 except the coating type shall be designated 4GS.

d. Measurement and Payment. Galvanizing, the shop application of coating system, and shop repairing the complete shop applied coating system, including stenciling and approved sealant, will be included in the pay item **Structural Steel, Furn and Fab** (of the type specified).

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SIGN SUPPORT AND LIGHT STANDARDS

C&T:SJC

1 of 1

C&T:APPR:DAJ:DBP:07-09-07
FHWA:APPR:07-19-07

a. Description. This special provision sets forth the requirements for disbursement of payment for sign supports, Dynamic Message Sign (DMS) and Closed Circuit Television (CCTV) support structures, light standards, tower lighting and traffic signal mast arms. This is in addition to the requirements in the standard specifications and Special Provision for Traffic Signal Mast Arm Pole and Mast Arm.

b. Construction. Anchor bolt materials for DMS and CCTV support structures shall be according to subsection 908.15.A and B. Anchor bolt installation shall be according to subsection 810.03.N.

c. Disbursement. The Engineer shall withhold in reserve an amount equal to 40 percent of the total contract value for the following pay items: cantilever and cantilever foundations, truss and truss foundations, DMS support structure, DMS foundation, CCTV pole, CCTV foundation, light standard and light standard foundations (non-frangible type only), tower lighting and tower lighting foundations, traffic signal mast arm pole and foundations.

d. Inspection. After the Contractor has complied with the requirements of subsection 810.03 and the Engineer has witnessed the nut rotation according to subsection 810.03.N.2.e., the Contractor shall notify the Engineer in writing requesting final inspection. The Engineer will have 21 calendar days from receipt of Contractor's written request to schedule and complete all inspections. The Engineer shall contact the Construction and Technology Division, Structural Fabrication Engineer at (517) 322-5709, to schedule and conduct the inspection. Inspections shall be according to subsection 810.03.

e. Reporting. The Structural Fabrication Engineer shall notify the Engineer within the 21 calendar day inspection period relative to acceptance or rejection of any items. Written inspection reports will be provided to the Engineer within the 21 calendar day inspection period. Any rejectable items found shall be corrected according to subsection 810.03 at the Contractor's expense.

f. Payment. No extension of time and/or additional compensation shall be granted to the Contractor for delays resulting from the Contractor's failure to notify the Engineer in writing of the need for inspection, or any delays associated with the specified 21 calendar day inspection period. Payment of the amounts held in reserve for the pay items listed above can only be made after the Engineer has received notification of acceptance of the items inspected from the Structural Fabrication Engineer.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
6-INCH EDGE LINES AND 12-INCH GORE MARKINGS

T&S:DOT

1 of 1

C&T:APPR:JAR:JKG:01-05-04
FHWA:APPR:01-22-04

a. Description. Apply 6-inch edge lines and 12-inch gore markings at locations shown on the plans. Complete this work according to sections 811 and 920 of the 2003 Standard Specifications for Construction and this Special Provision.

b. Materials. Select marking material from the Qualified Products List.

c. Construction. Apply 6-inch edge lines and 12-inch gore markings as specified in the standard specifications except as noted in this special provision.

Apply 6-inch and 12-inch wide lines with a tolerance of +1/4 inch. Apply solid lines with no gaps or spaces.

Edge lines and gore markings must be solid lines.

Retrace existing pavement markings with lines of equal length. For existing 6-inch or 12-inch wide lines (nominal), retrace to +1/4 inch. Maximum total line width, existing and retraced, is 7 inches and 13 inches, respectively.

Apply pavement marking material uniformly at the rates shown in Table 1.

Table 1: Pavement Marking Material Application Rates per Mile

| Line Type | Waterborne | | Thermoplastic | | Sprayable Thermoplastic | | Epoxy | | Regular Dry | |
|-----------|--------------|------------|---------------|------------|-------------------------|------------|--------------|------------|--------------|------------|
| | Binder (gal) | Beads (lb) | Binder (lb) | Beads (lb) | Binder (lb) | Beads (lb) | Binder (gal) | Beads (lb) | Binder (gal) | Beads (lb) |
| Solid | | | | | | | | | | |
| 6-inch | 24 | 192 | 2730 | 264 | 1080 | 375 | 33 | 825 | 24 | 144 |
| 12-inch | 48 | 384 | 5460 | 528 | 2160 | 750 | 66 | 1650 | 48 | 288 |

d. Measurement and Payment. The completed work as described will be measured and paid according to subsection 811.04 of the standard specifications for the appropriate contract items.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
DELAYED ACCEPTANCE OF PERMANENT PAVEMENT MARKINGS

T&S:JGM

1 of 1

C&T:APPR:JKG:EMB:03-22-04
FHWA:APPR:09-01-04

Delete subsection 811.04.A.1, on page 589 of the Standard Specifications for Construction, in its entirety and replace with the following.

1. **Delayed Acceptance of Pavement Markings.** Final acceptance of completed pavement marking work will be delayed 60 days. During this 60-day delayed acceptance period, the markings will be inspected at the Department's discretion. Markings with less than 90 percent of the original markings in place will be considered failed and must be replaced immediately. Pavement markings that have been damaged by snowplow operations will not be considered as having failed.

In order for the project to be accepted for final payment prior to the end of the 60-day delayed acceptance period, the Contractor must furnish the Department with a maintenance bond equal in value to 90 percent of the value of the pavement marking work performed. This bond must be established when the balance of the contract work has been satisfactorily completed.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
EQUIPMENT CERTIFICATION

T&S:JGM

1 of 1

C&T:APPR:JKG:DBP:03-27-07
FHWA:APPR:5-21-07

Delete subsection 811.03.A, paragraph 4 on page 579 of the Standard Specifications for Construction, in its entirety and replace with the following.

A. Equipment.

All self-propelled equipment must be certified by the Department. Certification is in effect for a period of two years. The certificate, showing the maximum operating speed of the equipment and signed by the Traffic and Safety Division, must be attached to the equipment. Markings will not be paid for if placed by equipment operated at speeds higher than the certified speed. If a striping machine is found to be operating above the certified working speed, the Engineer will assume that the entire day's work was done at that speed.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TRUCK MOUNTED ATTENUATOR

LAN:PJS

1 of 4

C&T:APPR:JKG:DBP:08-18-06
FHWA:APPR:08-22-06

a. Description. Truck-mounted attenuators (TMA's) will be used to protect workers or work equipment from vehicular traffic according to the following guidelines.

TMA's will be used for projects to protect personnel or equipment when one or more of the following conditions are met.

- The vehicle is designated as a protective vehicle (shadow vehicle or barrier vehicle) as part of the maintenance of traffic typicals, maintenance of traffic plans, or other contract documents.
- Aerial work is being performed on scaffolding, lifts, hoists, bucket trucks, etc., where workers using this equipment are in an occupied lane or shoulder and not protected by temporary concrete barrier.
- Mobile/short duration operations such as pavement marking convoys, grinding in rumble strips, permanent sign installations, luminescent installations, etc.

TMA's shall not be mounted on the vehicle or equipment used by personnel to complete aerial work. TMA's shall not be used as a temporary/permanent barrier ending except during replacement of damaged temporary/permanent barrier ending. In the event that a TMA is used as a temporary safety measure for a damaged temporary/permanent barrier ending, the maximum length of time that a TMA shall be used for this purpose shall be 48 hours or as approved by the Engineer.

1. **Stationary Operation.** This work shall consist of furnishing a vehicle with the required gross vehicle weight as shown in the tables below and furnishing, installing and operating a truck mounted attenuator (TMA) according to the manufacturer's recommendations, the plans/proposal, and/or as directed by the Engineer. The attenuator placement shall be located as detailed in the applicable maintaining traffic typical, maintenance of traffic plans or other contract documents.

Material loaded onto the vehicle to obtain the required gross weight shall be securely attached to the vehicle. Hazardous materials will not be allowed on this vehicle. Materials that will be off loaded and incorporated into the construction activities shall not be considered part of the vehicle gross weight.

2. **Mobile Operation.** This work shall consist of furnishing a vehicle with the required gross vehicle weight as shown in the tables below and furnishing, installing and operating a truck mounted attenuator (TMA) according to the manufacturer's

recommendations, the plans/proposal, and/or as directed by the Engineer. The attenuator placement shall be located as detailed in the applicable maintaining traffic typical, maintenance of traffic plans or other contract documents.

Material loaded onto the vehicle for transport or during work operations shall be securely attached to the vehicle. Hazardous materials will not be allowed on this vehicle. Materials that will be off loaded and incorporated into the construction activities shall not be considered part of the vehicle gross weight.

b. Materials and Design. All TMA's used shall meet or exceed the requirements of NCHRP 350 test level 2 or test level 3 as described below for work zone traffic control devices.

A TMA rated for (NCHRP 350 – Test Level 2) may be used on non-freeway roadways with a normal posted speed of 40 mph or less. Test Level 2 TMA's shall be prohibited for use on all freeways, non-freeway roadways, and work zones with posted speed limits of 45 mph or greater.

A TMA rated for (NCHRP 350 – Test Level 3) shall be utilized on freeways, non-freeway roadways and work zones with posted speed limits of 45 mph or greater. Test Level 3 TMA's may be used on all roadways and work zones regardless of the posted speed limit.

The TMA shall have an acceptance letter from the Federal Highway Administration (FHWA) stating the TMA meets the appropriate NCHRP 350 test level specified in the above stated criteria. In addition, the Contractor shall supply a letter stating the TMA system has been installed and maintained according to manufacturer's specifications. Copies of these two letters must be furnished to the Engineer.

The face of the TMA, visible to approaching traffic shall have reflectorized alternating yellow and black stripes, sloping downwards in both directions from the center of the attenuator.

c. Operating Details and Utilization. The TMA shall be operated as per manufacturer's recommendation, the plans/proposal, and/or as directed by the Engineer. This includes, but is not limited to, the following:

- The height from the bottom of the TMA to the roadway surface shall be 12 inches (\pm 1 inch).
- The TMA shall be parallel (level) with the roadway surface.
- The manufacturers of the approved TMA's recommend a shoulder harness and headrest be provided for the TMA vehicle's operator.

For stationary operations, when operating the vehicle with the attenuator installed, the vehicle shall be in gear if it has a standard transmission (park if an automatic transmission), with the brakes set and steering wheels turned away from the work area and traffic, if possible, the TMA shall be placed according the roll ahead distance tables 1 or 2.

d. Measurement and payment. Truck Mounted Attenuators will be furnished and operated at no cost to the Department for all contract items associated with pavement marking operations.

The cost for the equipment, mobilization and labor to furnish and operate this equipment shall be included in other contract items. The Department will pay for repair or replacement of a TMA called for as part of the pavement marking operations if damaged by something other than the Contractor's own equipment, during contract operations as described below. Measurement and Payment for the use of Truck Mounted Attenuators on all other contract items will be as described below.

| Contract Item (Pay Item) | Pay Unit |
|---------------------------------|-----------------|
| Truck Mounted Attenuator..... | Each |

Payment for **Truck Mounted Attenuator** on a project will be the maximum number of TMA's deployed per the maintenance of traffic typicals, maintenance of traffic plans or other contract documents and in use at any one time during the life of the project or as approved by the Engineer. If the Contractor uses alternative construction operations or methods that require additional TMA's that exceed the amount specified in the contract, the additional TMA's will be provided at the Contractor's expense. The Department will pay for repair or replacement of a TMA called for as part of the contract if damaged by something other than the Contractor's own equipment, during contract operations by contract modification with the name of the extra pay item to be defined as **Truck Mounted Attenuator, Repair or Replace** if the following criteria are met:

1. The damaged or destroyed attenuator must meet all of the manufacturing and operating criteria of this special provision.
2. The Contractor shall have the repaired/replaced attenuators inspected by the Manufacturer/Supplier to insure that the units are in good working order. Documentation of the inspection is to be provided to the Engineer prior implementing the TMAs for use.
3. The Contractor shall be required to provide a crash report from the enforcement agency involved in the accident investigation.
4. The attenuator repair or replacement will be for the actual unit as required by this special provision. The cost to perform the repairs or replace the attenuator including installation will be paid for by the Contractor. A detailed invoice from the Supplier showing material costs for replacement or repair shall be provided to the Engineer for payment. The repair or replacement cost will not exceed the Suppliers invoice cost for a new attenuator.
5. The Department will not pay for any costs that are required to replace or repair the attenuator vehicle and any other items which were used to operate the attenuator.

6. Attenuators that have been repaired or replaced as part of the contract are not eligible for additional payment using the **Truck Mounted Attenuator** pay item once the attenuator is put back into service.

| Table 1: GUIDELINES FOR ROLL-AHEAD DISTANCE FOR TMA VEHICLES TEST LEVEL 2 | | |
|--|--|--|
| Weight of TMA Vehicle (Minimum) | Posted Speed (mph) (Posted Speed Prior to Work Zone) | Roll Ahead Distance* (Distance from front of TMA Vehicle to Work Area) |
| 5.5 Tons (Stationary) | 40 or Less | 25 feet |

*Roll ahead distances are calculated using a 4,410 pound impact vehicle weight.

| Table 2: GUIDELINES FOR ROLL-AHEAD DISTANCE FOR TMA VEHICLES TEST LEVEL 3 | | |
|--|--|--|
| Weight of TMA Vehicle (Minimum) | Posted Speed (mph) (Posted Speed Prior to Work Zone) | Roll-Ahead Distance* (Distance from front of TMA Vehicle to Work Area) |
| 5 Tons (Mobile) | 60-70 | 175 feet |
| | 50-55 | 150 feet |
| | 45 | 100 feet |
| 12 Tons (Stationary) | 60-70 | 50 feet |
| | 50-55 | 25 feet |
| | 45 | 25 feet |

*Roll ahead distances are calculated using a 10,000 pound impact vehicle weight.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY CONCRETE BARRIER

C&T:JKG

1 of 3

C&T:APPR:MSB:RDT:06-22-06
FHWA:APPR:06-30-06

a. Description. Temporary concrete barrier (TCB) sections meeting NCHRP 350 crashworthy criteria and parameters as described below are allowed for use. Previously built TCB sections that meet the requirements of Standard Plan R-52 Series and subsection 922.03.E of the Standard Specifications for Construction will be allowed until December 31, 2011, **with the following exception: Temporary concrete barrier in 10 foot segments with 1/2 inch diameter galvanized wire centered steel cable end attachment either of original or retrofit installation is PROHIBITED.** TCB in 10 foot segments with 1/2 inch diameter steel cable end attachment may be used if an additional 5/8 inch diameter cable is retrofitted.

All new TCB fabricated after September 1, 2006 must meet NCHRP 350 crashworthy criteria and the parameters below.

At the preconstruction meeting, provide information for all temporary concrete barrier that does not meet the requirements of Standard Plan R-52 including the wall type, a full set of plans showing the wall and the connection as they were crash tested, a copy of the FHWA letter of NCHRP 350 compliance, and written certification that the barrier sections provided meet NCHRP 350 requirements as well as the requirements below.

b. Materials. Cable used in the aforementioned retrofit shall be 5/8 -inch, galvanized, 6 x 19 IWRC wire centered, steel cable meeting ASTM A1023. Minimum breaking strength of the 5/8 -inch diameter steel cable must be 31,860 lb.

Bonding material used must be selected from the Qualified Products List.

Except as noted above, furnish and operate temporary concrete barrier (TCB) and connection details that conform to the requirements of NCHRP 350 and the following:

1. Tested maximum deflection must not exceed 6 ½ feet.
2. Bottom width must not exceed 28 inches.
3. Top must be at least 6 inches wide and must be flat.
4. All TCB section lengths furnished and operated must be as tested for NCHRP 350 or as accepted by the FHWA.
5. If Grade S3 concrete is not used to construct the barrier sections, as specified by subsection 922.03.E of the Standard Specifications for Construction, provide

documentation that the concrete used is equivalent to or exceeds the requirements of that used in the crash tested sections.

c. Construction. NCHRP 350 accepted temporary concrete barrier designs can be found on the FHWA web site at:

http://safety.fhwa.dot.gov/roadway_dept/road_hardware/longbarriers.htm

Follow the attachment and tensioning details for the specific temporary concrete barrier section selected regardless of date furnished.

To retrofit the 10 foot segments with ½ inch diameter galvanized, wire centered, steel cable; add a 5/8 inch diameter galvanized, wire centered, steel cable in the approximate middle of the temporary concrete barrier end section. The 5/8 inch diameter cable must withstand a pull-out force of 45,000 lb. when tested according to MTM 716.

Use the method described in subsection 922.03.E.2 of the Standard Specifications for Construction, to retrofit the 5/8 inch diameter cable with the following exceptions:

Delete the last sentence of the first paragraph of subsection 922.03.E.2, on page 871 of the Standard Specifications for Construction in its entirety and replace with the following:

Two ¾-inch diameter holes must be drilled a minimum of 15 inches deep at each attachment location. The center of the holes shall be 3 ¾ inches apart, +/- ½ inch.

Delete the first two sentences of the third paragraph of subsection 922.03.E.2, on page 871 of the Standard Specifications for Construction in its entirety and replace with the following:

A 5/8 inch diameter, galvanized, wire centered, steel cable must be used for all connections placed in the middle of the temporary concrete barrier end sections that are to be retrofitted. Minimum breaking strength of the 5/8 inch steel cable shall be 31,860 lb.

Delete the first sentence of the fourth paragraph of subsection 922.03.E.2, on page 871 of the Standard Specifications for Construction in its entirety and replace with the following:

Each end of the galvanized steel cable must be inserted a minimum of 15 inches into one of the ¾-inch diameter holes to form a loop. The inside of the loop must protrude from the concrete the same amount as the existing cable loops.

Delete the fifth sentence of the fourth paragraph of subsection 922.03.E.2, on page 871 of the Standard Specifications for Construction in its entirety and replace with the following:

The 45,000 lb sustained pull-out requirement is the governing criterion for acceptability regardless of the bonding material used.

d. Measurement and Payment. Furnishing and operating temporary concrete barriers will be measured and paid for according to subsection 812.04 of the Standard Specifications for Construction regardless of whether barrier sections meet the requirements of NCHRP 350 or the Standard Plan R-52 Series as retrofitted. Labor and materials required to connect the temporary concrete barrier to existing permanent concrete barrier or vertical wall will not be paid for separately.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY SIGNS

C&T:JKG

1 of 3

C&T:APPR:MSB:BRZ:10-10-06
FHWA:APPR:10-17-06

Delete subsection 812.03.F.1.a., on page 594 of the Standard Specifications for Construction in its entirety and replace with the following:

- a. Mount sign substrates of 20 square feet or less on portable or ground driven sign supports. Mount all other size substrate on ground driven supports. Place ground driven sign systems as described in the Maintaining Traffic Typical, WZD-100-A, "Ground Driven Sign Supports for Temporary Signs", or other NCHRP-350 accepted design.

Delete subsection 812.03.F.1.d., on page 594 of the Standard Specifications for Construction in its entirety and replace with the following:

- d. If a secondary sign is required below the ground driven primary sign, mount it with a bottom height 1 foot less than the 5 foot or 7 foot height specified. If a secondary sign is required below the portable primary sign, mount it on its own supports with a bottom height at the 5 foot or 7 foot bottom height specified. Portable sign clusters are allowed where the substrates area measures up to 16 square feet.

Delete the last paragraph in subsection 812.03.F.1., on page 594 of the Standard Specifications for Construction in its entirety and replace with the following:

Place one operating Type A warning light, equipped with a one-way lens, on all portable construction 4 foot x 4 foot diamond warning signs and all other diamond warning signs with non-prismatic sheeting. Refer to FHWA Work Zone Acceptance letter for additional requirements for placement and use of Type A lights on portable signs.

Delete the last two sentences in subsection 812.04.D., on pages 617 and 618 of the Standard Specifications for Construction in its entirety and replace with the following:

Payment for **Sign Type __, Temp, Furn** and **Sign Type __, Temp, Prismatic, Furn**, also includes installation of one Type A light on each 4 foot x 4 foot diamond warning signs. A furnished item is eligible for payment only when it has been placed into operation; and only once per project, unless a price adjustment for an authorized extension of time is approved. Projects with lump sum traffic control, measurement and payment for all sign systems as described above is included in the item of **Traffic Control**.

Delete the first sentence of subsection 919.02.A.2., on page 837 of the Standard Specifications for Construction in its entirety and replace with the following:

2. **Plywood.** Plywood sign panels must have a black or natural color overlay on both sides and a minimum thickness of ½ inch.

Delete subsection 922.02A., on page 868 of the Standard Specifications for Construction in its entirety and replace with the following:

A. Sign Panel and Supports. All sign systems must be approved by the FHWA and MDOT as meeting NCHRP-350 crashworthy requirements. Construct any portable sign system, with a sign substrate totaling 16 square feet or less, with the materials and design features specified in Standard Plan R-125 or approved equal. Bases for portable signs using only one rigid leg shall be in an “X” or “H” configuration.

1. To be an approved equal, 5 feet minimum bottom height sign systems must conform to the requirements of NCHRP 350 and have one or two rigid legs. Designs for an acceptable temporary portable sign system that meet the NCHRP criteria and the requirements of this special provision can be found on http://safety.fhwa.dot.gov/roadway_dept/road_hardware/cat2.htm.

From the dropdown or keyword menu, parameters of substrate and sign height can be used to find a sign system. For acceptance letters up to and including letter WZ-222, the following meet the above criteria for a 4 foot x 4 foot and smaller sign:

WZ-74 with substrate made of ½ inch thick plywood
WZ-149 (MDOT's design)
WZ-134
WZ-187
WZ-208

For acceptance letters up to and including letter WZ-222, the following meet the above criteria for a 4 foot x 5 foot sign:

WZ-74 with a substrate made of ½ inch thick plywood
WZ-134
WZ-187
WZ-222

Additional sign designs will be added to the website as they become available.

Construct the temporary ground driven sign system as described in the Maintaining Traffic Typical WZD-100-A, “Ground Driven Sign Supports for Temporary Signs”, or other NCHRP-350 accepted design.

2. The sign substrates must conform to the materials requirements of Section 919 of the Standard Specifications for Construction and the following:
 - a. Rigid Sign panels 3 feet by 3 feet or smaller may be aluminum sheet (Type III) or plywood (Type II).

- b. Rigid sign panels larger than 3 feet by 3 feet and up to and including 8 feet in width must be plywood (Type II).
- c. Rigid panels wider than 8 feet up to and including 12 feet wide may be plywood (Type II) or extruded aluminum (Type I).
- d. Rigid panels wider than 12 feet in width must be extruded aluminum (Type I).

Vertical joints in sign substrates are not allowed. Horizontal splices through legends or symbols are not permitted.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TRAFFIC CONTROL QUALITY AND COMPLIANCE

C&T:BRZ

1 of 1

C&T:APPR:MSB:DBP:06-14-07
FHWA:APPR:06-29-07

Delete the last paragraph of subsection 103.05, Traffic Control on page 29 of the Standard Specifications for Construction in its entirety, and replace with the following.

A. Traffic Control Quality and Compliance

1. **Traffic Control not Anticipated in Design.** If at any time during the project, including the time during the seasonal suspension, the Engineer documents that the traffic control requires improvements beyond the scope of the Traffic Control Plan, the Engineer will provide written instructions to the Contractor and traffic control supplier what improvements are required. The Contractor shall develop and submit to the Engineer for approval, a written implementation schedule for improvements. If the schedule is not approved, or if the schedule is approved but is not followed, the Department will adjust the contract according to subsection 812.03.E.3. If the implementation schedule is not followed, the Engineer will notify the Contractor and traffic control supplier in writing that they are in violation of this subsection. The work of making traffic control improvements directed by the Engineer that are beyond the scope of the Traffic Control Plan will be paid for as extra work.
2. **As Designed Traffic Control.** If at any time during the project, including the time during the seasonal suspension, the Engineer documents that the traffic control is deficient, inadequate or improperly placed, the Engineer will provide written notification with instructions for corrective action to the Contractor and traffic control supplier. Upon receipt of the notification of corrective action, the Contractor has four hours to correct the traffic control. If the traffic control cannot be corrected within the four hour time period, the Contractor will develop a written implementation schedule for the corrective action and submit the schedule to the Engineer for approval within one hour of receiving the written notification. If the schedule is not approved, or if the schedule is approved but is not followed, the Department will adjust the contract according to subsection 812.03.E.3. If the implementation schedule is not followed, the Engineer will notify the Contractor and traffic control supplier in writing that they are in violation of this subsection.

Add the following paragraph to subsection 812.03.E, on page 593 of the Standard Specifications for Construction.

3. A contract price adjustment will be made in the amount of \$100 per hour for every hour the improvements or corrective action remains incomplete as described in subsection 103.05.A. If improvements or corrections have not been made to the satisfaction of the Department, the contract will be adjusted until the traffic control is acceptable.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY REMOVAL OF PORTABLE SIGNS

C&T:BRZ

1 of 1

C&T:APPR:JKG:DBP:01-10-06
FHWA:APPR:02-06-06

a. Description.

Add the following immediately after the fourth paragraph of subsection 812.03.F, on page 594 of the Standard Specifications for Construction:

Temporary signs on portable supports that are temporarily removed, but remain on the project site, where shoulders without barrier wall exist, must have the sign stands removed from the uprights, with the sign laid flat and off the shoulder. Place the uprights so they face downstream from traffic. Remove all support stands and ballasts from the shoulder.

Temporary signs on portable supports that are temporarily removed, but remain on the project site, where shoulders with barrier wall exist, must have the sign stands removed from the uprights, and placed against the barrier wall. Place the uprights so they face downstream from traffic. Place all support stands and ballasts close to the barrier wall.

Temporary signs on portable supports that straddle barrier wall and are required to remain on the project site while not in use must be covered. Remove from the project site or store sign covers against the barrier wall when not in use.

Temporary signs on portable supports that are temporarily removed, but remain on the project site, where guardrail exists, must have the sign stands removed from the uprights, with the sign laid against the guardrail. Place all support stands and ballasts close to the guardrail.

Temporary signs on portable supports that are temporarily removed must not be stored to obstruct or interfere with any type of attenuation device.

b. Measurement and Payment. This work will not be paid for separately, but is included in the bid unit price for **Sign, Type __, Temp, Oper; Sign, Type __, Temp, Prismatic, Oper**, or in the price of Lump Sum Traffic Control.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**MINOR TRAF DEVICES AND FLAG CONTROL DURING AN APPROVED
EXTENSION OF TIME**

C&T:JJG

1 of 1

C&T:APPR:MSB:JKG:11-17-06
FHWA:APPR:11-20-06

Delete the first sentence in subsection 812.04.T, Price Adjustments for Authorized Extensions of Time, page 623 of the Standard Specifications for Construction and replace with the following.

No price adjustments will be made for temporary traffic control devices, Minor Traf Devices, and Flag Control during authorized extensions of time when liquidated damages are assessed.

Delete the second sentence in the third paragraph of subsection 812.04.T, Price Adjustments for Authorized Extensions of Time, on page 623 of the Standard Specifications for Construction and replace with the following.

The formula shown below will be used to calculate the adjustments except for pay items Minor Traf Devices and Flag Control.

Add the following paragraphs before the last paragraph in subsection 812.04.T, Price Adjustments for Authorized Extensions of Time, page 623 of the Standard Specifications for Construction.

Minor Traf Devices when used as required by the Engineer, on the project during an approved extension of time and when liquidated damages are not assessed will be compensated at \$900.00 per calendar day.

Flag Control when used as required by the Engineer, on the project during an approved extension of time and when liquidated damages are not assessed will be compensated at \$650.00 per calendar day.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
LIGHTS ON TRAFFIC CONTROL DEVICES

C&T:BRZ

1 of 2

C&T:APPR:JKG:DBP:05-18-07
FHWA:APPR:06-21-07

Replace the second sentence of Section 812.03.F.5.b, Channelizing Devices, on page 596 with the following.

Provide one Type D warning light on each plastic drum used during hours of darkness.

Delete the Section 812.03.I.6, Maintaining Lights, on page 605 of the Standard Specifications for Construction and replace with the following.

6. Maintaining Lights. Position and maintain Type A, Type C and Type D lights to be visible on a clear night from a distance of 3000 feet. Maintain Type B high intensity lights to be visible on a sunny day from a distance of 1000 feet when viewed without the sun directly on or behind the light. Replace the power source when lights do not meet these requirements. Provide and maintain Type C and Type D LED lights that meet or exceed all requirements in the MMUTCD. Maintain the intensity requirement of 2 candela in the field. This requirement does not preclude the Engineer from determining that a power source change is necessary.

Intermixing of different light styles or designs in a project will not be allowed.

All lights are required to work at the time of deployment to the roadway, and at all stage changes during the project. During the project, inspect and maintain each light to ensure a minimum of 95 percent of the total working. A maximum of 3 non-operational lights adjacent to each other is permitted at any time.

Delete the sentence in item 5 of Section 812.04.A.5, Damage Compensation, on page 616 of the Standard Specifications for Construction in its entirety, and replace with the following.

Replace damaged or non-functioning Type D lights at the Contractor's expense.

Add the following paragraph at the beginning of section 812.04.C, Maintaining Lights on High Intensity Plastic Drums, and Type III High Intensity Barricades on page 617 of the Standard Specifications for Construction.

The Contractor is required to maintain all lights on plastic drums in working order at all times without direction from the Engineer.

Replace the first sentence of section 812.04.C, Maintaining Lights on High Intensity Plastic Drums, and Type III High Intensity Barricades on page 617 of the Standard Specifications for Construction with the following.

If notice is given by the Engineer that maintenance is necessary on more than ten percent of the Type C LED lights in service on Type III, high intensity barricades and these lights are not maintained according to subsection 812.03.I.6 within 72 hours, a five percent reduction in the unit price bid will be applied for **Barricade, Type III, High Intensity, Lighted, Furn; Barricade, Type III, High Intensity, Lighted, Oper; Barricade, Type III, High Intensity, Double Sided, Lighted, Furn; and Barricade, Type III, High Intensity, Double Sided, Lighted, Oper.**

Add the following to the end of Section 922.05.B, Warning Lights, on page 874 of the Standard Specifications for Construction.

4. Type D – 360 degree steady burn warning light, yellow lens, battery operated.

The lens for the Type D lights on plastic drums shall be visible for 360 degrees. The LED light source shall emit light equally for 360 degrees and be capable of sustaining constant brightness evenly distributed throughout the lens until no longer able to maintain the intensity requirements detailed in section 812.03.I.6.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
GRANULAR MATERIALS

C&T:ACR

1 of 1

C&T:APPR:WRE:DBP:10-13-06

FHWA:APPR:10-17-06

a. Materials. Bottom Ash may be used for granular material for the pay items Subbase, LM; Subbase, CIP; Embankment, LM and Embankment, CIP. Bottom Ash may not be used for any other contract items, unless approved by the Engineer.

The only approved source for furnishing bottom ash as granular material for Subbase, LM; Subbase, CIP; Embankment, LM and Embankment, CIP is the DTE power plant at Monroe.

The Contractor shall provide written documentation to the Engineer that the bottom ash came from DTE's Monroe plant. All specification requirements for granular materials will remain the same.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
DETERMINATION OF AWI FOR HMA TOP COURSE MIXTURES

C&T:JAR

1 of 1

C&T:APPR:ACR:GMM 06-11-03
FHWA:APPR:06-20-03

a. Description. Aggregate Wear Index (AWI) for aggregates used in producing HMA top course mixtures for this project will be determined by the method described in MTM 112-01 Michigan Test Method for Determining an Aggregate Wear Index (AWI) from Sample Petrographic Composition and Wear Track AWI Factors with the following modification.

In Section 9.3 of MTM 112-01, calculate the AWI for the blend using the cumulative percent retained on the No. 16 sieve for each of the individual aggregates and their AWI values determined as follows:

Quarried Stone, Mine Rock, and Slag Sources - Use the AWI number established by MDOT's circular wear track testing.

Natural Aggregate Sand and Gravel Sources with Established Nomographs and More than 80 Percent Passing the No. 4. Sieve - Run MTM 118 Michigan Test Method for Measuring Fine Aggregate Angularity. Use the Angularity Index (AI) determined by MTM 118 and the following table to find the percent crushed for use in determining the AWI value from the established nomographs.

| Angularity Index (AI) | Percent Crushed |
|-----------------------|-----------------|
| $AI \leq 3.0$ | 30 |
| $3.0 < AI \leq 4.0$ | 70 |
| $AI > 4.0$ | 95 |

Natural Aggregate Sand and Gravel Sources with an Established Nomograph and Less than or Equal to 80 Percent Passing the No. 4 Sieve - Determine the percent crushed of the material retained on the No. 4 sieve. Use this percent crushed to determine the AWI value from the established nomograph.

Natural Aggregate Sand and Gravel Sources Without an Established Nomograph - Follow the Procedures Manual for Mix Design Processing for submitting aggregate samples, except include approximately 200 grams each of the No. 8 and No. 16 fractions. MDOT will conduct the necessary tests and report the results to the aggregate supplier.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
POLYMER MODIFIED PERFORMANCE GRADE BINDERS

C&T:JWB

1 of 3

C&T:APPR:EHR:CJB:07-25-06
FHWA:APPR:08-15-06

a. Description. This special provision shall consist of furnishing a polymer modified performance grade binder for incorporation into the designated bituminous mixtures. The performance grade binder will be provided according to the requirements of the Standard Specifications for Construction, except where modified herein.

This special provision only applies when polymer modified performance grade (PG) binders are identified by the suffix "P" at the end of a grade. For example, PG 64-28(P), PG 70-22(P). (The binder grades listed for a specific project are listed in the Bituminous Application Estimate Table found in the plans).

b. Materials. The polymer modified asphalt shall be preblended by adding a polymer to a base asphalt supplied from one of the approved certifiers listed in the MDOT Materials Sampling Guide.

Direct in-line blending of polymer at the hot mix plant is allowed if the Contractor is one of the approved certifiers listed in the MDOT Materials Sampling guide.

The modified asphalt binder shall be smooth, homogenous and comply with the requirements shown in Table 1 or Table 2.

If polymers and modifiers other than styrene-butadiene-styrene (SBS) or styrene-butadiene rubber (SBR) are used for asphalt binder modifications, approval from MDOT will be needed.

c. Reclaimed Asphalt Pavement (RAP) Guidelines. When specifying a polymer modified asphalt binder, the use of reclaimed asphalt pavement (RAP) shall be limited to a maximum of 14 percent by weight of the total binder in the mixture. A binder grade adjustment is not allowed. When a polymer modified binder is used in a mix, any other special provision within this contract that refer to RAP usage does not apply.

d. Price Adjustments. Collect the daily asphalt binder samples in one-pint (16 ounce), slip top, seamless ointment tins. The tins must be at least three quarters full. Three one-pint containers of the original samples of asphalt binder will be taken daily prior to incorporation into the mixture. The original samples will be used for Asphalt Binder Certification Verification. One of these three containers must be clearly marked with the letter "R", designating it as a referee sample. All containers must be labeled in a legible format with the following information:

- MDOT control section and job number
- Binder grade
- Binder supplier certifier number

- Supplier name, city, and state
- Date sampled
- Mix type

When two or more consecutive certification verification samples of a specific PG binder fail to meet the limits shown below, the contract unit price for the bituminous mixture containing the out of specification binder shall be decreased by 25 percent for the days of production represented by the samples. Price adjustments on asphalt binders are not cumulative. The general procedures for verification dispute resolution, found in the contract documents, may be initiated by the Contractor.

e. Measurement and Payment. Payment for this work shall be included in the price bid for the applicable bituminous items of work.

Table 1
Requirements for Styrene-Butadiene-Styrene (SBS) Modified Binders

| Test | Asphalt Grade PG 58-34(P), PG 64-28(P) PG 70-22(P), PG 70-28(P) | Asphalt Grade PG 64-34(P), PG 76-22(P), PG 76-28(P) |
|--|---|---|
| Tests On Original Binder, (1) | | |
| Separation of Polymer ASTM D5892-96A 163 °C, 48 hours, (R & B difference between top and bottom), Maximum | 2 | 2 |
| Force Ratio AASHTO T300-95 4°C, 50 mm/min.; 300 mm elongation, Minimum | 0.30 | 0.35 |
| Tests On Residue From Rolling Thin Film Oven, (1) | | |
| Elastic Recovery AASHTO T301-95, 25°C 100 mm elongation, and cut immediately, % Minimum | 60 | 70 |
| *Footnote (1): Report DSR values for G*/sin, and the phase angle at the high-grade temperature on the original and on the RTFO residue for informational purposes. | | |

Table 2
Requirements for Styrene-Butadiene-Rubber (SBR) Modified Binders

| Test | Asphalt Grade PG 58-34(P), PG 64-28(P) PG 70-22(P), PG 70-28(P) | Asphalt Grade PG 64-34(P), PG 76-22(P), PG 76-28(P) |
|--|---|---|
| Tests On Original Binder, (1) | | |
| Separation Of Polymer ASTM D5892-96A 163°C, 48 hours, (R & B difference between top and bottom), Maximum | 2 | 2 |
| Toughness ASTM D5801 25°C, 500 mm/min Newton-Meters (inch-pounds), Minimum | 12.5 (110) | 12.5 (110) |
| Tenacity ASTM D5801 25°C, 500 mm/min, Newton- Meters (inch-pounds) | 8.5 (75) | 8.5 (75) |
| Tests on Residue from Rolling Thin Film Oven, (1) | | |
| Elastic Recovery AASHTO T301-95, 25°C 100 mm elongation, and cut immediately, %minimum | 40 | 50 |
| *Footnote (1): Report DSR values for G*/sin, and the phase angle at the high-grade temperature on the original and on the RTFO residue for informational purposes. | | |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RETROREFLECTIVE SHEETING FOR YELLOW WARNING SIGNS

T&S:MWB

1 of 1

C&T:APPR:JKG:BRZ:03-29-05
FHWA:APPR:07-29-05

a. Description. This Special Provision identifies the retroreflective sheeting material to be used on permanent Yellow Warning (W series, OM-1, OM-2, OM-3, and D3-2a) signs installed on this project.

b. Materials. All Yellow Warning (W series, OM-1, OM-2, OM-3, and D3-2a) signs used on this project shall be Fluorescent Yellow. The Fluorescent Yellow sheeting shall meet ASTM D 4956 specifications for Type IX retroreflective sheeting.

c. General Requirements. The Contractor shall provide the Engineer with a written certification that the reflective sheeting on the furnished signs meets the following requirements:

1. Sheeting materials used on each sign are approved products obtained from the same sheeting manufacturer and applied according to the manufacturer's recommendations.
2. All signs were manufactured in strict compliance with the sheeting manufacturer's requirements.
3. The certification shall also include all lot numbers, run numbers, shipping date, invoice number, stock number, and quantities of all materials used for each sign shipment.

d. Measurement and Payment. The completed work as described will be paid for in accordance with subsection 810.04 of the Standard Specifications for Construction.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RETROREFLECTIVE SHEETING FOR FREEWAY GUIDE SIGNS

T&S:MWB

1 of 1

C&T:APPR:MSB:JKG:06-08-07
FHWA:APPR:06-21-07

a. Description. This Special Provision identifies the reflective sheeting material to be used for Freeway Guide signs with Clearview font and the background of Exit Only sign series (E11-1) and Advisory Speed Plaques (E13-1 and E13-2) installed on this project.

b. Materials. All white legends, the white portion of route markers, shields, and auxiliaries, and the borders on blue, brown, and green Freeway Guide signs used on this project with Clearview font shall meet ASTM D 4956 specifications for Type IX retroreflective sheeting. The background for blue, brown, and green Freeway Guide signs shall meet ASTM D 4956 specifications for Type IV high-intensity retroreflective sheeting.

The yellow background of the Exit Only sign series (E11-1) and Advisory Speed Plaques (E13-1 and E13-2) shall be fluorescent yellow. The fluorescent yellow sheeting shall meet ASTM D 4956 Type IX retroreflective sheeting specifications.

c. General Requirements. The Contractor shall provide the Engineer with a written certification that the reflective sheeting on the furnished signs meets the following requirements:

1. Sheeting materials used on each sign are approved products obtained from the same sheeting manufacturer and applied according to the manufacturer's recommendations.
2. All signs were manufactured in strict compliance with the sheeting manufacturer's requirements.
3. The certification shall also include all lot numbers, run numbers, shipping date, invoice number, stock number, and quantities of all materials used for each sign shipment.

d. Construction. All white legend placed on the same sign shall be placed with the identical orientation. The retroreflective sheeting material will have a datum mark (orientation arrows on it so it can be properly oriented in the cutting and application process. The datum marks (orientation arrows) on the material shall be positioned on a vertical axis.

e. Measurement and Payment. The completed work as described will be paid for in accordance with subsection 810.04 of the Standard Specifications for Construction.

NOTICE TO BIDDERS

REPORT FORMS

Form Number:

1366 – “Contractor’s Affidavit of Indebtedness”

1367 – “Consent of Surety to Payment to Contractor”

The above listed forms will originate with the Construction Contract Section (Payment Unit of the Contract Services Division). They are sent out to the Contractor upon receipt of a final estimate.

The Contractor must execute form 1366 and forward along with form 1367 to their surety company for the surety’s consent. Both of these forms are then returned to Michigan Department of Transportation’s Contract Services Division. These forms must be submitted to Agreements/Payments/Purchasing Section before a final estimate is paid.

1120 – “Final Inspection/Acceptance and Certification Report”

This form will be initiated and submitted by the Region Engineer

1199 – “Employment Report”

Employment Report form 1199 is to be submitted by the Contractor annually when work is performed the last week of July. Send form 1199 directly to the MDOT Business Development Division website. A shorter alternative to this report may be completed electronically through the Business Development Division website at the following address: <http://mdotwas1.mdot.state.mi.us/public/sblar/>. If the website is used, the paper form need not be completed.

0125 – “Monthly OJT Program Report and Training Log”

Form 0125 shall be submitted by the Contractor to MDOT, Small Business Liaison Office, and a copy to the Engineer when reporting the training record for the on-the-job training.

Biweekly progress payments for work completed by the Prime Contractor and/or Subcontractor may be withheld, upon written notice from the Engineer, for failure to comply with the contract prevailing wage requirements (Davis-Bacon and/or Michigan Prevailing Wage Rate Schedule) and for failure to submit weekly certified payrolls.

These requirements are supplemental to other required contract provisions contained within this proposal.

07/13/07

Notice to Bidders

Insurance

10/01/2007

The contractor shall provide for and in behalf of the State, the Commission, the Department and its official, agents and employees, and all agencies and their employees, specifically named below, or as stated on the Insurance Requirements (Form 1304, dated 01/2006), **an Owner's Protective Public Liability Insurance or the alternative option described in the 03SP107(G), Indemnification, Damage Liability and Insurance.**

The agencies are the:

Michigan Department of Transportation

NOTICE TO BIDDERS

CERTIFIED PAYROLLS

- A. Certified weekly payrolls covering the contractor's and subcontractor's work forces shall be submitted to the delivery/project engineer on all federally funded projects in accordance with CFR, Part 3, except these requirements shall not apply to any contract of \$2,000 or less, local force account projects, projects located on roadways classified as local or rural minor collectors, or projects located off the federal-aid highway system. Certified payroll information may be submitted in any format provided that all information requested on form WH-347 is included. Form WH-347 is available on the MDOT forms website.
- B. Certified weekly payrolls covering the contractor's and subcontractor's work forces shall be submitted to the delivery/project engineer on all state funded projects. The same payroll information is required on state funded projects as is required on federally funded projects.
- C. On contracts involving two or more projects and job numbers and the type of funding is mixed, the department puts only the wage rates issued by the U.S. Department of Labor in the proposal. Federal requirements apply.
- D. For projects where certified payrolls are required, Employment Report form 1199 is to be submitted by the contractor annually when work is performed the last week of July. Send form 1199 directly to the MDOT Business Development Division. A shorter alternative to this report may be completed electronically through the Business Development Division's website at the following address: <http://mdotwas1.mdot.state.mi.us/public/sblar/>. If the website is used the paper form need not be completed.

All payrolls submitted shall identify minority and female employees by preceding the name with an ethnic code notation. Ethnic code groups are (B) Black, (H) Hispanic, (N/A) American Indian, or Alaskan Eskimo, and (A) Asian or Pacific Islander. Use (F) for female.

All Payrolls shall also identify each employee's work classification, including level; i.e., Labor Group 1, 2, etc., Operating Engineer Group 1, 2, etc., Truck Driver Group 1, 2, etc.

Payrolls on state and federally funded projects are used for determining compliance with federal wage standard provisions and with Michigan Public Act 166 of 1965 - Prevailing Wages on State Funded Projects.

06/08/07

NOTICE TO BIDDERS

Multiple Wage Decisions

This proposal may contain multiple Davis-Bacon Wage Decisions. In order to clarify the work covered by each decision, the following explanations are offered:

General Decision MI0_0007 covers all airport construction, bridge construction, highway construction, and sewer and watermain work that are incidental to highway projects. The construction type indicated on this decision is “AIRPORT & BRIDGE, HIGHWAY, SEWER/INCID. TO HWY.” This wage decision is the most commonly used wage decision in MDOT’s federally funded projects.

In accordance with the U.S. Department of Labor’s All Agency Memorandums No. 130 and No. 131, multiple wage decisions will be included in those projects in which a second category of work is substantial in relation to project cost – more than approximately 20% (or \$1,000,000). Sewer and watermain work (MDOT prequalification classification K) is considered to fall under the Heavy Construction work classification by the DOL, therefore when that work type is more than 20% of the engineer’s estimate or \$1,000,000, the wage decision with the construction type “HEAVY” will also be included in the proposal and is to be used for the sewer and watermain work in the proposal. All other work performed on the project will be covered by the “AIRPORT & BRIDGE, HIGHWAY, SEWER/INCID. TO HWY” wage decision.

Also, when the landscape work (MDOT prequalification classification H) is more than 20% of the project cost or \$1,000,000, the “Heavy” wage decision will be included in the proposal to cover all landscape work. All other work performed on the project will be covered by the “AIRPORT & BRIDGE, HIGHWAY, SEWER/INCID. TO HWY” wage decision. If the project is a total landscape project, only the “HEAVY” wage decision will be in the proposal.

Rest area building projects will include the construction type “BUILDING” wage decision when the building portion of the work is more than 20% of the project cost or \$1,000,000. The other work performed on the project will be covered by the “AIRPORT & BRIDGE, HIGHWAY, SEWER/INCID. TO HWY” wage decision and/or the “HEAVY” wage decision (landscape and/or sewer and watermain work) if either or both are greater than 20% or \$1,000,000.

Although there is only one wage decision for “AIRPORT & BRIDGE, HIGHWAY, SEWER/INCID. TO HWY” work (MI0_0007), the “HEAVY” and “BUILDING” wage decisions vary from county to county.

NOTICE TO BIDDERS

BID RIGGING

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., Eastern Time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

NOTICE TO CONTRACTORS/CONSULTANTS

Fraud and Abuse Hotline

The Michigan Department of Transportation (MDOT) has established a Fraud and Abuse Hotline for employees, contractors, consultants, and others to report suspected fraud or abuse, such as: prevailing wage non-compliance, theft, kickbacks, wrongful claims, contract fraud, use of materials that do not comply with specifications, unapproved substitution of materials, commodities, or test samples, or failure to follow contract procedures.

Anyone with knowledge of any activity involving the potential for fraud or abuse is requested to call the Hotline at (toll free) **1-866-460-6368** or **517-241-2256**.

NOTICE TO BIDDERS
PRE-BID MEETING

1 of 1

A mandatory pre-bid meeting is scheduled for this project on September 17, 2007 at 9:00 AM at the Kalamazoo TSC, 5372 South 9th Street Kalamazoo, MI 49009.

All prospective bidders shall have purchased a set of plans and a proposal prior to this meeting. Prospective subcontractors may attend this meeting without prior purchase of plans and proposal.

All prime contactors are **required** to attend.

UTILITIES STATUS REPORT

| | |
|-----------------------------|-------------------------|
| CONTROL SECTION(S) 39014 | JOB NUMBER(S) 81325A |
|-----------------------------|-------------------------|

| UTILITY | FACILITY TYPE | RELOCATION WORK IDENTIFIED | UTILITY TO RELOCATE PRIOR TO START DATE | COORDINATION INFORMATION IN NOTICE TO BIDDERS | UTILITY WORK INCLUDED IN CONTRACT |
|--|---------------|----------------------------|---|---|-----------------------------------|
| | | YES/NO | YES/NO | YES/NO | YES/NO |
| CHARTER COMMUNICATIONS | CATV | Yes | Yes | No | No |
| LIGHTCORE, A CENTURYTEL COMPANY (FIBER TRANS.) | telecom | No | | No | No |
| CONSUMERS ENERGY | gas | Yes | No | Yes | No |
| CONSUMERS ENERGY | electric | No | | No | No |
| MIDWEST COMMUNICATION SERVICES, INC. | telecom | Yes | Yes | No | No |
| METC (MICHIGAN ELECTRIC TRANSMISSION COMPANY) | electric | No | | No | No |
| AT&T | telecom | No | Yes | Yes | Yes |
| LEVEL (3) GLOBAL NETWORK SERVICES | telecom | No | | No | No |
| OSHTEMO TOWNSHIP | sanitary | No | | No | No |

ONE OF THE FOLLOWING SHALL BE CHECKED:

- The above is a list of utilities which have indicated they have facilities in the project area. Coordination arrangements, if necessary, have been made and are noted in the Notice to Bidders - Utility Coordination document.
- The above is a list of utilities which have indicated they have facilities in the project area. There are no known utility adjustments required by this project.
- There are utilities within the project area. However based upon the project's limited scope of work, no utility impacts are anticipated. Utility information has not been solicited for this project and does not need to be listed above.

| | |
|-----------------------|--------------------|
| NAME Steven Serdel | Date 08/08/2007 |
|-----------------------|--------------------|

OFFICE

NOTICE TO BIDDERS

UTILITY COORDINATION

Control Section 39014 – Job Number 81325A
Parkview Avenue over US-131 – Bridge Replacement

The Contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Section 104.07 of the 2003 MDOT (Michigan Department of Transportation) Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in Section 107.12 of the 2003 MDOT Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 109.03 of the 2003 MDOT Standard Specifications for Construction.

AT&T

AT&T has telephone facilities along the south side of the Parkview Avenue right of way as shown on the plans. These facilities are not anticipated to conflict with construction.

The Contractor is advised AT&T has asbestos-cement conduit attached to the existing bridge structure. These conduits are no longer in service. Work items are found within the project documents for the removal and disposal of these ducts.

AT&T manholes are found within the project. AT&T will adjust covers with AT&T crews as needed. The Contractor shall coordinate work activities with AT&T for this work.

The contact for AT&T is Ms. Lacey Johnson, telephone (269) 334-4472.

Consumers Energy

Consumers Energy has electric and gas main facilities within the project limits. Existing electric facilities will not be adjusted for construction.

Consumers has an existing eight-inch diameter steel gas main along the south side of Parkview Avenue as shown on the project plans. This gas main, at 40 to 42 feet from centerline, may be affected by pile driving and will be deactivated within the influence of the bridge.

The gas main will be relocated between Station 97+00 and Station 104+00. Consumers proposes to directionally bore new gas main near the Parkview Avenue south right of way line. This portion of the relocation work will be completed by May 1, 2008.

Upon the closure of Parkview Avenue, the Contractor and Consumers' crews shall coordinate work efforts to tie the relocated main to the old. The MDOT contractor will be responsible to excavate and backfill an access pit over the existing gas main at Parkview Station 97+00 Right. Refer to the project plans for excavation details. Consumers' crews will need approximately one week to complete the tie-in at Station 97+00. One additional week of coordinated work activities

NOTICE TO BIDDERS

Page 2

will be required for Consumers' crews to make the tie-in at Station 104+00. Only after tie-in work is completed may the Contractor place piling near the existing gas main.

The Consumers Energy contact for electrical-related work is Mr. Mark Kleczynski, telephone (269) 337-2314. The Consumers Energy contact for gas main related work is Mr. Jeff Parker, telephone (269) 337-2285.

Charter Communication Services

Charter Communications has aerial facilities along the north side of Parkview Avenue. These cables will conflict with construction activities. Charter has been instructed to relocate facilities prior to April 15, 2008. The details of Charter's relocation plan has not been developed at the time of this writing.

The contact for Charter Communications is Mr. Mark Burke, telephone (269) 217-3152.

Midwest Communication Services (MCS)

MCS has underground and aerial communication facilities along the north side of Parkview Avenue. These cables will conflict with construction activities. MCS has been instructed to relocate facilities prior to April 15, 2008. The details of MCS's relocation plan has not been developed at the time of this writing.

The contact for MCS is Mr. Larry Powell, telephone (269) 963-7173.

Level 3

Level 3, formerly Wiltel and Ameritech, has fiber optic cable paralleling US-131. This cable is located approximately five feet west of the east US-131 right of way fence. This cable is not expected to interfere with construction.

The contact for Level 3 is Mr. Marvin Muncy, (734) 528-9327 or (419) 304-5190.

Light Core

Light Core, formerly Centurytel, has fiber-optic cable paralleling US-131. This cable is located approximately five feet east of the west US-131 right of way fence. This cable is not expected to interfere with construction.

The contact for Light Core is Mr. Kirk Thaelke, telephone (314) 880-1610.

Oshtemo Township

Neither water nor sanitary sewer are within the project limits.

MICHIGAN
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
FOR
ERRATA TO THE 2003 STANDARD SPECIFICATIONS

03SS001(2h)

1 of 11

02-07-07

| Page | Subsection | Errata |
|------|-------------|---|
| iii | | Add <i>Soil Erosion and Sedimentation Control Manual</i> to the list of MDOT publications included by reference. |
| vii | | Change the title of Section 605 to read "Concrete Quality Assurance" |
| 27 | 103.03.A.1 | Reference should read 109.07.B and C. |
| 27 | 103.03.C | Reference should read 109.07.E. |
| 38 | 104.08.A.3 | Change "right of way" to "right-of-way" in this subsection. |
| 38 | 104.08.A.5 | Change "right of way" to "right-of-way" in five instances in this subsection. |
| 42 | 104.08.B.11 | Change "the Engineerwill" to "the Engineer will" in the first sentence of this subsection. |
| 43 | 104.08.B.15 | The first sentence of this subsection should read "Final measurement for payment for all earthwork, undercuts, muck excavation, swamp backfill, sand subbase, and topsoil stripping will be the responsibility of the Contractor and must include detailed measurements, sketches and computations." |
| 50 | 104.09.A.1 | Delete the second instance of the word "or" in this subsection. |
| 63 | 106.03.D | Formula 106-2 should read $S = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$ |
| 67 | 107.02 | Change "National Pollution Discharge Elimination System" to "National Pollutant Discharge Elimination System" in the second sentence of the third paragraph of this subsection. |
| 71 | 107.10.D | Delete the first sentence of this subsection and replace with the following: "All insurance policies and binders must also include endorsements by which the insurer shall agree to provide the Department, in writing, items 1 and 2 below. All insurance policies and binders issued in the name of the contractor must also include the additional endorsement, to be provided in writing, in item 3 below." |

| Page | Subsection | Errata |
|-------|-------------|---|
| 71 | 107.10.D.1 | Change "initialed" to "initiated." |
| 76 | 107.15.A.2 | Delete the last paragraph of this subsection. |
| 105 | 109.07 | The first sentence of this subsection should read "...prices for extra work, the extra work..." |
| 122 | 203.03.C.2 | Reference in the first sentence of this subsection should read 402.03.E. |
| 122 | 203.04 | Delete the following Contract Items (Pay Items) Culv, Rem, More than 24 inch..... Each Culv, End, Rem, More than 24 inch Each Sewer, Rem, More than 24 inch..... Foot Add the following Contract Items (Pay Items) Culv, Rem, Over 48 inch Each Culv, End, Rem, Over 48 inch..... Each Sewer, Rem, Over 48 inch Foot |
| 142 | 205.03.P | Change "solely" to "solely" in the last sentence of this subsection. |
| 158 | 208.03.D.13 | Change "22A" to "21AA" in the first sentence of this subsection. |
| 162 | 209.01 | Change "Removel" to "Remove" in the first sentence of this subsection. |
| 171 | 304.03.B.5 | This subsection should read as follows. 5. Loose joint materials and loose patching materials may be removed prior to rubblizing; do not fill the resulting voids prior to rubblizing. |
| 174 | 305.03.A | Delete the second instance of "reduction" in the first sentence of the first paragraph in this subsection. |
| 180 * | 307.04 | Change the last pay item in this list to read as follows: Approach, CI ____, __ inch. |
| 192 | 401.04 | Change the fourth pay item from the end of this list to read as follows: Steel Casing Pipe, __ inch, Tr Det ____. |
| 197 | 402.03.C.1 | Replace "CPE" with "CPE and CPV" in three instances in this subsection. |
| 202 * | 402.04 | Change the first pay item in this list to read as follows: Sewer, CI ____, __ inch, Tr Det ____. |
| 206 | 403.03.A.6 | Delete the fourth sentence of this subsection beginning with |

| Page | Subsection | Errata |
|--------------------|--------------|---|
| 206 | 403.03.A.8 | “Wrap the connection...” Change the last sentence of this subsection to read as follows: “Place and compact the HMA according to Section 502.” |
| 210 | Table 403-1 | Change “350” to “315” for the Weight, lbs for Cover B in this table. |
| 210 | Table 403-1 | Change “350” to “318” for the Weight, lbs for Cover Q in this table. |
| 240 subsection. | 502.03.I | Change “point” to “print” in the first sentence of this subsection. |
| 240 | 502.03.I | Delete the word “a” in the last sentence of this subsection. |
| 242 | 502.04.C | Change the first sentence of this subsection to read as follows: “...material, and cleaning the cold milled pavement.” |
| 242 | 502.04.C | Change “placment” to “placement” in the second sentence of this subsection. |
| 266 | 507.03.G.3 | The time period for placing mixture in the Upper Peninsula should read: • June 1 - September 15 |
| 287 | 601.03.F | The first sentence of this subsection should read “Concrete must be between 45 °F and 90 °F, inclusive, at the time it is placed.” |
| 288 | 601.03.G | This subsection should read as follows: “G. Concrete Mixture Requirements. The Contractor is responsible for quality control for concrete on all projects according to Section 604.” |
| 289 | 601.03.G | Re-index subheadings in this subsection, beginning with the second instance of 601.03.G.3, as follows: 4. Air Content. 5. Water-Reducing Admixtures. 6. Slump. 7. Strength of Concrete. |
| 290* | 601.03.G.7.b | Delete the paragraph with the heading Non Concrete QA Projects , in its entirety, and replace with the following: b. Non Concrete QA Projects. The Engineer will perform strength testing for acceptance and payment, according to Department procedures, for all projects not covered by the Department’s concrete quality assurance program. |
| 314 | 602.04.C.1 | Change “faction” to “fraction” in the second sentence of this subsection. |

| Page | Subsection | Errata |
|------|--------------|--|
| 324* | 603.03.B | Change "6 feet" to "4 feet" in the first sentence of the second paragraph of this subsection. |
| 327 | 603.03.B.3 | The last sentence in this subsection should read as follows: 4. Placing Reinforcement. Position and support reinforcement according to the standard plans. |
| 328 | 603.03.B.8 | The third sentence, in the third paragraph of this subsection should read "...correct all high or low spots exceeding 1/8 inch." |
| 330 | 603.03.B.13 | Change "3/4" to "5/8" in the third paragraph of this subsection. |
| 333 | 603.03.D.3 | Reference in the first sentence of this subsection should read 602.03.R. |
| 333 | 603.03.D.4 | The last sentence of this subsection should read "...flush to 1/8 inch (after cooling) below the surface..." |
| 333 | 603.03.E.3 | The last sentence of the first paragraph of this subsection should read "...flush to 1/8 inch below the surface..." |
| 338 | 604.01 | Delete the first sentence of the first paragraph of this subsection and replace with the following: 604.01 Description. Provide quality control for all concrete production and placement on the project adequate to produce work of acceptable quality. |
| 339 | 604.03.C | Change "assurance" to "control" in the first sentence of the first paragraph of this subsection. |
| 348 | 605.03.C.1 | Change " <i>Materials Quality Assurance Manual</i> " to " <i>Materials Quality Assurance Procedures Manual</i> " in the first sentence of this subsection. |
| 350 | Table 605-2 | Change "10" to "90" for the Rejection Limit (percent) for all grades of concrete shown in this table. |
| 350 | 605.03.D.1.a | The first sentence of this subsection should read "...retest strength from Table 605-2 for the class..." |
| 352 | 605.03.E.3.c | Delete the second instance of the word "a" in the first sentence of this subsection. |
| 353 | 605.04 | Change the lettering for the subheadings from "A., D. & E." to "A., B. & C." |
| 360 | 701.03.D | The first sentence of this subsection should read "Concrete must be between 45 °F and 90 °F, inclusive, at the time it is placed." |

| Page | Subsection | Errata |
|------|---------------|---|
| 363 | 701.03.G.2 | <p>Delete the first four paragraphs of this subsection and replace with the following:</p> <p>2. Non Quality Assurance. The Engineer will perform strength testing for acceptance and payment, according to Department procedures, for all concrete not covered by the Department's concrete quality assurance program.</p> <p>Test specimens will be made according to AASHTO T 23 and cured according to section 9.2 or 9.3 of T 23.</p> |
| 382 | 705.03.F | Formula 705-1b should read $C = \frac{Wr + k^2 Wp}{Wr + Wp}$ |
| 407 | 706.03.M.3 | Change "Grove" to "Groove" in the first sentence of the first paragraph of this subsection. |
| 416 | 706.04.B | Move the entire paragraph beginning with "Concrete placed by the pumping method..." from subsection 706.04.C to the end of subsection 706.04.B. |
| 416 | 706.04.C | Change the first sentence of this subsection to read as follows. "C. False Decking will be measured for the total area protected, including the width of the beams." |
| 423 | Table 707-1 | Change the Minimum Size of Fillet Weld from "3/4" inch to "1/4" inch when Base Metal Thickness of Thicker Part Joined is less than or equal to 3/4 inch. |
| 427 | 707.03.C.8 | Change the first sentence of this subsection to read as follows: "...must be qualified according to AWS D1.5, <i>Bridge Welding Code</i> , ..." |
| 435 | 707.03.D.3 | Change the first sentence of this subsection to read as follows. "3. Falsework. Build and remove falsework according to subsections 706.03.C and 706.03.O." |
| 449 | 708.03.A.13.e | Change reference to AASHTO M 111. |
| 475 | 712.03.A.3 | Change " Equipment for Constructing Latex Modified Concrete Surfaces. " to " Equipment for Constructing Concrete Overlay Surfaces. " in the heading of this subsection. |
| 483 | 712.03.L.3 | Change the fourth sentence of this subsection to read as follows: "...two test splices on the largest bar sizes that are to be spliced." |
| 488* | 712.03.Q | The first sentence of the last paragraph of this subsection should read "Maintain wet cure for no less than seven days |

| Page | Subsection | Errata |
|------|------------|--|
| | | following concrete placement.” |
| 489* | 712.03.T | The last sentence of the fifth paragraph of this subsection should read “Allow heavy equipment on the deck overlay only after the overlay concrete has reached an age of at least seven days.” |
| 491 | 712.03.W.1 | The last sentence of this subsection should read “Clean and coat as required according to Section 715.” |
| 497 | 713.02 | Change “Grade 400” to “Grade 60” for the Steel Reinforcement. |
| 500 | 713.03.C.2 | Reference in the first paragraph of this subsection should read 204.03.A.5 |
| 535 | 804.02 | Change Type H-2 to Type H-1 for Mortar and Grout material. |
| 548 | 807.04 | Change the Pay Unit for Guardrail, Type ___ to “Foot”. |
| 558 | 809.04.A | Delete the first sentence of the first paragraph in this subsection and replace with the following: A. Field Office, CI __ includes set up, providing access, grading, maintaining, plowing snow, utility hook up charges and monthly water and sanitary service fees. |
| 562 | 810.03.J | Change “sigh” to “sign” in the last sentence of this subsection. |
| 571 | 810.03.P | Delete the phrase “and the traffic signal contract typical construction plans” from the end of the first sentence of this subsection. |
| 577 | 810.04.D | This subsection should read “...all work, including construction of the foundations, necessary for the installation of...”. |
| 583 | 811.03.D.2 | The last sentence of this subsection should read “Place regular dry paint between October 1 and May 1, inclusive.” |
| 588 | 811.04 | Change the third pay item in this list to read as follows “Pavt Mrkg, Waterborne, for Rest Areas, Parks, & Lots, ___ inch, (color)”. |
| 588 | 811.04 | Change the nineteenth pay item in this list to read as follows “Rem Curing Compound, for Longit Mrkg”. |
| 602 | 812.03.G | Delete the word “of” in the second sentence of the second paragraph of this subsection. |

| Page | Subsection | Errata |
|------|-------------|--|
| 610* | 812.03.K.6 | Change “W8-11 (UNEVEN LANES)” to “W8-9b (UNEVEN LANES)” in two places. |
| 616 | 812.04 | Change the eighth pay item from the end of this list to read as follows “Pavt Mrkg, Longit, 6 inch or Less Width, Rem”. |
| 621 | 812.04.M.3 | The second sentence of the first paragraph of this subsection should read “...applies for both existing longitudinal permanent markings and temporary Type NR markings...”. |
| 623 | 812.04.T.3 | Delete this subsection and replace with the following: 3. Items measured as lump sum if they are used or required on the worksite during the authorized extension of time, except that Minor Traffic Control Devices will not be adjusted when conspicuity tape is the only minor traffic control device in service or required during the authorized extension of time. |
| 639 | 816.01 | Change “National Pollution Discharge Elimination System” to “National Pollutant Discharge Elimination System” in the last sentence of this subsection. |
| 640 | 816.03.A | Delete the last sentence of this subsection beginning with “Supply compost from...” |
| 643 | Table 816-2 | Under Mixture for Upland Areas, in the row for ES (Environmental Seeding), in the Seeding Rate column, change “110 lb/acre” to “Table 917-1”. |
| 646 | 816.03.H | Reference in the second paragraph of this subsection should read 917.15.D.2. |
| 661 | 819.03E.3 | The second sentence of the third paragraph of this subsection should read “...so that they are not displaced during concrete placement.” |
| 665 | 819.03.H | Add the following sentence at the beginning of this subsection: “Construct tower lighting unit foundations according to subsections 810.03.J and K.” |
| 667 | 819.04 | Change the fifth pay item in this list to read as follows “Conduit, Fiberglass, ___ inch, Structure”. |
| 679 | 820.03.H | Delete the word “lineal” in the first sentence of the sixth paragraph of this subsection. |
| 680 | 820.04 | Change the first pay item of this list to read as follows “TS, <u>(number)</u> Way <u>(type)</u> Mtd”. |

| Page | Subsection | Errata |
|------|--------------|---|
| 694 | 902.03.B | Change "...retained on the-inch sieve..." to "retained on the 3/8-inch sieve..." in the second paragraph of this subsection. |
| 696 | Table 902-1 | Delete section reference "503" in three places in the Item of Work by Section Number column. Delete the reference to "502 Temporary Patching with HMA Mixture" in footnote (a). |
| 705 | 903.06.A | Change the first sentence of the first paragraph of this subsection to read "...ASTM C 309, Type 2 compounds, except that the requirements for reflectance and drying time do not apply." |
| 719 | 905.03 | Change "A 616" to "A 616-96a" and change "A 617" to "A 617-96a" in the first paragraph of this subsection. |
| 719 | 905.03 | Change "A 617" to "A 617-96a" in the second paragraph of this subsection. |
| 719 | 905.03 | Delete the third paragraph of this subsection and replace with the following: Bar reinforcement for prestressed concrete beams must meet ASTM A 616-96a for Grade 60 steel bars, except that bar reinforcement meeting ASTM A 615 or A 617-96a for Grade 40 steel bars will be permitted for stirrups in prestressed concrete beams. |
| 720 | 905.03.C | Change the first sentence of this subsection to read "... must be coated according to AASHTO M 284, with the following exceptions and additions:" |
| 720 | 905.03.C.3 | Change this subsection to read "...and tested according to AASHTO M 284." |
| 720 | 905.03.C.4 | Reference in the last sentence of this subsection should read subsection 706.03.E.8. |
| 720 | 905.05 | Change "A 616" to "A 616-96a" and change "A 617" to "A 617-96a" in the first paragraph of this subsection. |
| 723 | 906.04.B | Change "40 °F" to "30 °F" in the last sentence of this subsection. |
| 729 | 907.03.D.2.b | Change "1æ" to "1½" in the second sentence of the first paragraph of this subsection. |
| 734 | 908.04 | Change the second sentence of the first paragraph of this subsection to read "...requirements for carbon steel castings |

| Page | Subsection | Errata |
|------|-------------|--|
| | | of ASTM A 148 Grade 60/90, as specified on the plans.” |
| 761 | 910.03.B | Change the last sentence of this subsection to read, “Furnish a non-woven geotextile meeting the strength requirements in Table 910-1 for Geotextile Liner Heavy when heavy riprap is specified.” |
| 774 | Table 912-2 | Replace Table 912-2 with new Table 912-2 shown below. |
| 789* | 914.04.A | Change the first sentence of this subsection to read “Conform to ASTM D 6690, Type II with the following exceptions:” |
| 795 | 914.08 | Reference in the second paragraph of this subsection should read subsection 914.09.C. |
| 795 | 914.08 | Change “A 616” to “A 616-96a” and change “A 617” to “A 617-96a” in the first sentence of the third paragraph of this subsection. |
| 795 | 914.09.A | Change “A 616” to “A 616-96a” and change “A 617” to “A 617-96a” in the first sentence of this subsection. |
| 797 | 912.12 | Change “A 570” to “A 1011” in the first sentence of the second paragraph in this subsection. |
| 800 | 916.01.B | Change “ Coarse Gravel 3x1. ” to “ Coarse Aggregate 3x1. ” in the heading of this subsection. |
| 801 | 916.01.D.1 | The last sentence of this subsection should read “...3 to 12 inches for ditch grades 2 percent or greater.” |
| 801 | 916.02 | Delete the sixth sentence of this subsection beginning with “Silt fence fabric...” |
| 805 | 917.08 | Delete the first sentence of this subsection beginning with “Furnish compost from...” |
| 839* | 919.02.C | Delete the second and third paragraphs of this subsection and replace with the following. Bolts, nuts, washers, U-bolts and straps must be stainless steel. The stainless steel alloy for bolts, washers, U-bolts, and straps must conform to ASTM A 320, Class 1, Grade B8. Nuts must be self-locking nylon insert type conforming to ASTM A 320 and A 194 for Grade 8F. If U-bolts are formed from straight bar stock, forming must be by cold working. |
| 846* | 919.10.A | Delete the last two paragraphs of this subsection and replace with the following. Bolts, nuts, washers, U-bolts and straps must be stainless steel. The stainless steel alloy for bolts, washers, U-bolts, |

| Page | Subsection | Errata |
|------|----------------|--|
| | | and straps must conform to ASTM A 320, Class 1, Grade B8. Nuts must be self-locking nylon insert type conforming to ASTM A 320 and A 194 for Grade 8F. If U-bolts are formed from straight bar stock, forming must be by cold working. |
| 847 | 919.11.A.1 | This subsection should read as follows: |
| 847 | 919.11.A.2 | 1. Wood Posts. Concrete for wood post foundations, when required, must be Grade P2 as specified in section 601. This subsection should read as follows: |
| | | 2. Breakaway Columns. Concrete for breakaway column foundations must be Grade P2 as specified in section 601. |
| 868 | 922.02.D | Change “3200 square feet” to “32 square feet” in the last sentence of this subsection. |
| 869 | 922.03.C | Delete this subsection and replace with the following. C. Drums with Lights. Drums with warning lights attached must meet NCHRP 350 crashworthy criteria. Provide certification, according to subsection 922.01, when requested. |
| 869 | 922.03.D | Change “crash worthy” to “crashworthy” in the last sentence of this subsection. |
| 871 | 922.03.E.2 | Change “1/2 inch” to “1/2 –inch” in the second sentence of the third paragraph of this subsection. |
| 883 | Pay Item Index | Change the page number reference for Calcium Chloride to 322. |
| 883 | Pay Item Index | Delete the reference for Conc, Grade __ and add the following references. Conc, Grade __ (for pavements)..... 313 602 Conc, Grade __ (for structures) 414 706 |
| 886 | Pay Item Index | Change “Fertilizer, Chemical Nutrient, Class ____” to “Fertilizer, Chemical Nutrient, Cl ____”. |
| 899 | General Index | Change the page number reference for Concrete: Barrier, Bridge to 469. |
| 906 | General Index | Change “Carrier Bills, Required for Partial Payments” to “Freight Carrier Bills, Required for Partial Payments”. |
| 920 | General Index | Delete the material page reference, in boldface type, for Sleeves Placed in Structures. |

Page

Subsection

Errata

922

General Index

Change "Structure: Rehabilitation: Remove Portions" to "Structure: Rehabilitation, Remove Portions".

Table 912-2 Species and Grading Requirements for Posts

| Species | Round Posts Grade | Sawn Posts Agency (a) |
|---|----------------------|--------------------------|
| Hardwoods | | |
| Red Oak (Northern Red, Black, Pin Laurel, Cherry-Bark, Scarlet, Water and Willow Oaks) (b) Hard Maple (Black and Sugar) and Red Maple White Ash White-Heartwood Beech Yellow Birch | ASTM D 245 | MDOT |
| Softwoods | | |
| Northern White Cedar, Red Pine and Eastern White Pine (Northern White Pine) | No. 1 or better | NHPMA |
| Douglas-Fir | No. 2 or better | WCLIB, WWPA |
| Southern Pine Species | No. 2 or better | SPIB |
| a. NHPMA (Northern Hardwood and Pine Manufacturers Assoc.); WWPA (Western Wood Products Assoc.); WCLIB (West Coast Lumber Inspection Bureau) and SPIB (Southern Pine Inspection Bureau). b. Southern Red Oak is not permitted. | | |

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION
FOR
NPDES REQUIREMENTS FOR PORTABLE PLANT OPERATIONS

107(1)

1 of 1

08-21-01

a. General Information. This specification applies to portable plants on and off MDOT right of way. It does not apply to mobile units used to produce latex-modified or other deck overlay concrete mixes. Portable plant with no off-site storm water discharge are not regulated by the National Pollutant Discharge Elimination System (NPDES).

A minimum of seven days before mobilization of a portable plant, submit documentation to the Engineer that application has been made to the Michigan Department of Environmental Quality (MDEQ) for a permit under the National Pollutant Discharge Elimination System according to part 21 of the Michigan Water Resources Commission Rules. This will be either an individual permit application or notice of intent under a general permit. Provide a copy of the Pollution Prevention Plan for the site and any other appropriate documents to the Engineer.

Do not mobilize the portable plant until the Engineer provides written authorization to proceed. Authorization to proceed does not relieve the Contractor of any responsibilities required by law.

b. Contractor Responsibilities. Comply with all requirements of the regulations including maintaining soil erosion and sedimentation control measures following the Pollution Prevention Plan filed with the MDEQ. All compliance costs incurred and any fines or penalties resulting from failure to comply with the Pollution Prevention Plan are the Contractor's responsibility.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION
FOR
ASBESTOS REMOVAL AND DISPOSAL

204(2a)

1 of 4

09-22-03

a. Description. Arrange for investigation, removal, and disposal of all asbestos containing materials from the demolition and renovation of buildings and structures on this project. Ensure that all activities are carried out in compliance with applicable Federal, State, and Local laws and regulations. Submit the required notification to regulatory agencies and revise this notification as necessary. Reimburse the Department for any fines or remediation costs incurred as a result of failure to be in compliance with this specification and/or all Federal, State, and Local laws and regulations.

This specification provides general information and does not ensure compliance with environmental laws. Environmental laws pertaining to asbestos removal and disposal include, but may not be limited to the following.

- Michigan Air Pollution Act 1965, P.A. 348, as amended
- MCL 336.11, etc., seq. MSA 14.58(a), etc., seq.
- Federal Clean Air Act
- National Emissions Standards for Hazardous Air Pollutants (NESHAP), Subpart M
- Asbestos Standards of 40 CFR 61.140 through 61.156
- Occupational Safety and Health Act 154 of 1974, as amended
- Public Act 440 of 1988
- Public Act 135 of 1986, as amended
- Federal OSHA Asbestos Construction Standard, 29 CFR 1926.58

A copy of the National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations, 40 CFR Part 61, Subpart M can be obtained by written request to Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909. Copies of 29 CFR 1926.58, Acts 135, 154, and 440 can be obtained by calling the Michigan Department of Labor and Economic Growth (MDLEG), Construction Safety and Health Division, Asbestos Program at (517) 322-1320.

b. Asbestos Survey. Upon receiving notice of award of contract, have an accredited asbestos inspector conduct an asbestos materials survey for each building and structure that is to be demolished or renovated on the project. (Inquiries about accreditation requirements should be directed to MDLEG at 517-322-1320) Instruct the accredited inspector to determine the presence, quantity, and classification of all friable and non-friable asbestos containing materials in each building or structure. Two samples of each homogeneous (similar in nature) material suspected of containing asbestos must be collected and tested using polarized light microscopy (PLM). A report for each building or structure to be demolished or renovated must be prepared by the accredited asbestos inspector and copies provided to the Engineer. Each report must contain the following information.

1. A summary of the asbestos findings.
2. Estimated costs for the removal of both friable and non-friable asbestos materials.
3. Recommended measures to be taken to remove the friable asbestos materials.
4. Copies of all test reports, signed by the accredited asbestos inspector.

c. Notification. Provide notice before the start of any demolition or renovation of a structure or building. The start date is the date work is to begin on the removal of friable asbestos containing materials or the demolition of a structure or building. For each building or structure, complete a separate Notification of Intent to Renovate/Demolish (Form EQP 5661), sign as owner/operator, and submit to the regulatory agencies specified on the form. Mailing addresses are included on the form.

1. Provide a minimum of ten (10) working days notice to the Air Quality Division of the Michigan Department of Environmental Quality (DEQ); the NESHAP Asbestos Program, Detroit Field Office, MDEQ, AQD, Cadillac Place, Suite 2-300, 3058 West Grand Boulevard, Detroit, MI 48202, Ph. 313-456-4686 (for projects in Wayne County); and U.S. Environmental Protection Agency (EPA), for demolition of any building or structure and for the renovation of any building or structure for which the amount of friable asbestos containing materials equals or exceeds **any** of the following limits.
 - 260 feet on pipes
 - 160 square feet on other facility components
 - 35 cubic feet on other components that cannot be measured in length or area
2. Provide a minimum of ten (10) calendar days notice to the Michigan Department of Labor and Economic Growth (DLEG), Construction Safety and Health Division, Asbestos Program of all demolition, renovation, or encapsulation projects (as defined by Act 135) where the amount of friable asbestos containing materials exceeds **any** of the following limits.
 - 15 feet on pipe
 - 9 square feet on other facility components
3. If the start date is changed for any reason, immediately notify the following agencies and the Engineer, by telephone, and provide them with the new start date.
 - Air Quality Division of the DEQ, (517) 373-7064 (all counties except Wayne County)
 - NESHAP Asbestos Program, Detroit Field Office, MDEQ, AQD, Cadillac Place, Suite 2-300, 3058 West Grand Boulevard, Detroit, MI 48202, (313) 456-4686 (Wayne County only)
 - Michigan Department Labor and Economic Growth (DLEG), Construction Safety and Health Division, Asbestos Program, (517) 322-1320

Prior to the original start date provide these agencies with a copy of the original Notification of Intent to Renovate/Demolish with the old start date crossed out and the new start date inked in and signed. Under no circumstances is the removal of friable asbestos containing materials or the demolition of a building or structure to begin on a

date other than the start date provided to the Air Quality Division of the DEQ, the NESHAP Asbestos Program, Detroit Field Office, MDEQ, AQD (for projects in Wayne County), or to the MDCIS.

4. If, for any reason, the completion date changes from that noted on the Notification of Intent to Renovate/Demolish, immediately notify the MDEQ Asbestos Program by telephone (517) 373-7064 or the NESHAP Asbestos Program, Detroit Field Office, MDEQ, AQD (for projects in Wayne County) at 313-456-4686 and provide them with the new completion date. Make this notification of change of completion date no later than the original completion date or the new completion date, if this date is earlier.
5. Send a check or money order, made payable to the State of Michigan, to the MDLEG with the Notification of Intent to Renovate/Demolish. This MDLEG asbestos project fee is one percent of the cost of removal or encapsulation of the friable asbestos containing materials from the building or structure to be renovated or demolished. The notice is invalid and will not be accepted without the check or money order for the asbestos project fee.
6. If the amount of friable asbestos containing materials to be removed, stripped, or disturbed changes by at least 20 percent of the amount noted on the original notification, prepare and submit a revised Notification of Intent to Renovate/Demolish. Send the revised form to all agencies who received a copy of the original Notification of Intent to Renovate/Demolish and to the Engineer. Show all changes by neatly crossing out the original data and inking in the correct data.

Attach a check or money order for the additional asbestos project fee to the revised Notification of Intent to Renovate/Demolish sent to the MDLEG. The additional fee is one percent of the additional cost of removal or encapsulation of friable asbestos materials.

d. Asbestos Removal Activity. At the time of any demolition or asbestos removal, stripping or disturbance, a person must be on site who has been trained and possesses means and authority for complying with the rules and regulations of handling and disposing of asbestos containing materials. This person must have in his/her possession documentation of completing the 32-hour hazardous material training course for Contractors and supervisors.

Prior to demolition of a building or structure, remove all friable and non-friable asbestos containing materials. Prior to renovating buildings and structures, remove all friable asbestos material that is to be disturbed. This work must be completed by a licensed asbestos abatement Contractor.

If wetting of asbestos containing materials is suspended due to freezing temperatures, record the ambient air temperature three times each day at the asbestos removal site. Provide a signed copy of the temperature records to the Engineer for the project file. These temperature records must be kept in the project file for a minimum of two years.

e. Waste Shipment and Disposal. Arrange for a licensed waste transporter to transport all asbestos containing material, friable and non-friable, immediately and directly to a licensed Type II landfill. Fill out and sign the generator section of the Waste Shipment Record, (DEQ Air Quality Division form EQP 5661) for the disposal of both friable and non-friable asbestos containing materials. Provide a copy of the form to the Engineer immediately after signing.

After the owner/operator of the disposal site signs the form, immediately provide a copy to the Engineer. If this second copy of the Waste Shipment Record, signed by the owner/operator of the disposal site, is not received by the Engineer within 35 working days of receiving the first copy, the Engineer will contact the Contractor, the waste transporter, and owner/operator of the disposal site and determine the status of the asbestos materials shipment.

If the Engineer does not receive the second copy of the Waste Shipment Record, signed by the owner/operator of the waste disposal site, within 45 working days of the date the waste was accepted by the initial waste transporter, the MDEQ must be notified, in writing, at the following address.

NESHAP Coordinator
MDEQ, Air Quality Division
P.O. Box 30260
Lansing, Michigan 48909-7760

f. Measurement and Payment. Payment for work completed under this supplemental specification will be paid at invoice cost in accordance with subsection 103.04 of the 2003 Standard Specifications for Construction. A budget amount has been established for payment for the investigation, removal, and disposal of asbestos containing materials. Obtain prior approval of the Engineer for final details and costs of the investigation, removal, and disposal of the asbestos containing materials. Provide invoices from the accredited asbestos inspector, the licensed asbestos abatement Contractor and the licensed disposal facility. These invoices and the MDLEG asbestos project fee will be reimbursed from the budgeted amount.

| Contract Item (Pay Item) | Pay Unit |
|---|-----------------|
| Removal and Disposal of Asbestos Materials..... | Dollars |

MICHIGAN
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
FOR
CULVERT SLOPED END SECTIONS

401(1)

1 of 1

03-26-04

Delete the second paragraph of subsection 401.03.G, on page 189 of the 2003 Standard Specifications for Construction, in its entirety and replace with the following.

Use precast concrete end sections on concrete culverts according to Standard Plan R-86 Series. When sloped end sections are called for on concrete culverts, use either metal or concrete sloped end sections according to Standard Plan R-95 Series. When footings are required for precast end sections or precast sloped end sections, use either precast or cast in place footings. Form or place them at the locations and to the elevations shown on the plans.



MICHIGAN DEPARTMENT OF TRANSPORTATION
QUANTITY SHEET SUMMARY
39014-81325 - 03 Spec Year

| Sec Num | Item Num | Description | Unit | Brkd Id | Quantity |
|---------|----------|--|------|-------------------|------------------|
| 0001 | 1000001 | Mobilization, Max. ____\$263200.00 | LS | 044 | .88 |
| | | | | 044 | .12 |
| | | | | Item Total | 1.00 |
| 0001 | 1040001 | Contractor Staking | LS | 044 | .88 |
| | | | | 044 | .12 |
| | | | | Item Total | 1.00 |
| 0001 | 1040020 | Staking Plan Errors and Extras, One Person | Hr | 044 | 23.00 |
| | | | | 044 | 3.00 |
| | | | | Item Total | 26.00 |
| 0001 | 1040021 | Staking Plan Errors and Extras, Two Person | Hr | 044 | 13.00 |
| | | | | 044 | 2.00 |
| | | | | Item Total | 15.00 |
| 0001 | 1040022 | Staking Plan Errors and Extras, Three Person | Hr | 044 | 8.00 |
| | | | | 044 | 2.00 |
| | | | | Item Total | 10.00 |
| 0001 | 2010001 | Clearing | Acre | 051 | .07 |
| | | | | 051 | .02 |
| | | | | Item Total | .09 |
| 0001 | 2020004 | Tree, Rem, 6 inch to 18 inch | Ea | 047 | 1.00 |
| | | | | 051 | 2.00 |
| | | | | Item Total | 3.00 |
| 0001 | 2030001 | Culv, Rem, Less than 24 inch | Ea | 051 | 4.00 |
| | | | | 051 | 1.00 |
| | | | | Item Total | 5.00 |
| 0001 | 2030005 | Culv End, Rem, Less than 24 inch | Ea | S01 | 2.00 |
| | | | | Item Total | 2.00 |
| 0001 | 2040006 | Curb and Gutter, Rem | Ft | 047 | 220.00 |
| | | | | Item Total | 220.00 |
| 0001 | 2040008 | Guardrail, Rem | Ft | 047 | 330.00 |
| | | | | 051 | 2,075.00 |
| | | | | Item Total | 2,405.00 |
| 0001 | 2040009 | Fence, Rem | Ft | 047 | 20.00 |
| | | | | 051 | 1,020.00 |
| | | | | Item Total | 1,040.00 |
| 0001 | 2040010 | Masonry and Conc Structure, Rem | Cyd | 047 | 2.00 |
| | | | | 051 | 3.00 |
| | | | | Item Total | 5.00 |
| 0001 | 2040035 | Rem and Disposal of Asbestos Materials | Dlr | S01 | 10,000.00 |
| | | | | Item Total | 10,000.00 |
| 0001 | 2050010 | Embankment, CIP | Cyd | 049 | 2,185.00 |
| | | | | 049 | 115.00 |
| | | | | 052 | 2,500.00 |
| | | | | 053 | 7,600.00 |
| | | | | 053 | 400.00 |
| | | | | Item Total | 12,800.00 |
| 0001 | 2050016 | Excavation, Earth | Cyd | 049 | 400.00 |
| | | | | 049 | 100.00 |
| | | | | 052 | 2,500.00 |
| | | | | 053 | 800.00 |
| | | | | 053 | 200.00 |
| | | | | Item Total | 4,000.00 |
| 0001 | 2080002 | Erosion Control, Check Dam, Stone | Ft | 044 | 25.00 |
| | | | | Item Total | 25.00 |

| | | | | | |
|------|---------|----------------------------------|-----|-------------------|-----------------|
| 0001 | 2080025 | Erosion Control, Silt Fence | Ft | 044 | 3,008.00 |
| | | | | Item Total | 3,008.00 |
| 0001 | 3010002 | Subbase, CIP | Cyd | 048 | 1,040.00 |
| | | | | 048 | 260.00 |
| | | | | 052 | 1,520.00 |
| | | | | 052 | 380.00 |
| | | | | Item Total | 3,200.00 |
| 0001 | 3020016 | Aggregate Base, 6 inch | Syd | 048 | 2,912.00 |
| | | | | 048 | 728.00 |
| | | | | 052 | 4,224.00 |
| | | | | 052 | 1,056.00 |
| | | | | Item Total | 8,920.00 |
| 0001 | 3070128 | Shoulder, CI II, 6 inch | Syd | 048 | 262.00 |
| | | | | 052 | 540.00 |
| | | | | Item Total | 802.00 |
| 0001 | 4010000 | Culv, CI A, 12 inch | Ft | 048 | 52.00 |
| | | | | 052 | 241.00 |
| | | | | Item Total | 293.00 |
| 0001 | 4010831 | Culv End Sect, 12 inch | Ea | 048 | 2.00 |
| | | | | 052 | 7.00 |
| | | | | Item Total | 9.00 |
| 0001 | 4021275 | Video Taping Sewer and Culv Pipe | Ft | 044 | 351.00 |
| | | | | Item Total | 351.00 |
| 0001 | 5020005 | HMA Surface, Rem | Syd | 044 | 1,740.00 |
| | | | | Item Total | 1,740.00 |
| 0001 | 5020009 | Edge Trimming | Ft | 044 | 1,754.00 |
| | | | | Item Total | 1,754.00 |
| 0001 | 5020031 | HMA, 3C | Ton | 048 | 303.00 |
| | | | | 048 | 76.00 |
| | | | | 052 | 639.00 |
| | | | | 052 | 160.00 |
| | | | | Item Total | 1,178.00 |
| 0001 | 5020032 | HMA, 4C | Ton | 044 | 120.00 |
| | | | | 048 | 151.00 |
| | | | | 048 | 38.00 |
| | | | | 052 | 320.00 |
| | | | | 052 | 80.00 |
| | | | | Item Total | 709.00 |
| 0001 | 5020061 | HMA Approach | Ton | 048 | 138.00 |
| | | | | Item Total | 138.00 |
| 0001 | 5040005 | HMA Quality Initiative | Dlr | 044 | 128.00 |
| | | | | 044 | 32.00 |
| | | | | Item Total | 160.00 |
| 0001 | 8020010 | Curb and Gutter, Bridge Approach | Ft | 052 | 120.00 |
| | | | | Item Total | 120.00 |
| 0001 | 8020016 | Curb and Gutter, Conc, Det B2 | Ft | 048 | 211.00 |
| | | | | Item Total | 211.00 |
| 0001 | 8020056 | Shoulder Gutter, Conc, Det 2 | Ea | 048 | 1.00 |
| | | | | Item Total | 1.00 |
| 0001 | 8020070 | Downspout Header, Conc | Ea | 048 | 2.00 |
| | | | | 052 | 7.00 |
| | | | | Item Total | 9.00 |
| 0001 | 8020075 | Spillway, Conc | Ft | 048 | 15.00 |
| | | | | Item Total | 15.00 |
| 0001 | 8050001 | Curb, HMA | Ft | 048 | 840.00 |
| | | | | 052 | 1,630.00 |
| | | | | Item Total | 2,470.00 |
| 0001 | 8070000 | Guardrail, Type B | Ft | 052 | 650.00 |
| | | | | 052 | 488.00 |
| | | | | 052 | 388.00 |
| | | | | 052 | 612.00 |
| | | | | Item Total | 2,138.00 |
| 0001 | 8070002 | Guardrail, Type T | Ft | 052 | 150.00 |
| | | | | 052 | 125.00 |
| | | | | 052 | 150.00 |

| | | | Item Total | 425.00 | |
|------|---------|--|------------|-------------------|-----------------|
| 0001 | 8070023 | Guardrail Anch, Bridge, Det T2 | Ea | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8070027 | Guardrail Anch, Bridge, Det T6 | Ea | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | Item Total | 2.00 |
| 0001 | 8070041 | Guardrail Approach Terminal, Type 1T | Ea | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8070042 | Guardrail Approach Terminal, Type 2B | Ea | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8070051 | Guardrail Departing Terminal, Type T | Ea | 052 | 1.00 |
| | | | | 052 | 1.00 |
| | | | | Item Total | 2.00 |
| 0001 | 8070080 | Guardrail Reflector | Ea | 052 | 26.00 |
| | | | | 052 | 16.00 |
| | | | | 052 | 3.00 |
| | | | | 052 | 3.00 |
| | | | | 052 | 26.00 |
| | | | | 052 | 20.00 |
| | | | | 052 | 3.00 |
| | | | | Item Total | 97.00 |
| 0001 | 8080011 | Fence, Chain Link, 48 inch | Ft | 048 | 40.00 |
| | | | | 052 | 1,183.00 |
| | | | | Item Total | 1,223.00 |
| 0001 | 8100156 | Post, Steel, 3 lb | Ft | 061 | 186.00 |
| | | | | Item Total | 186.00 |
| 0001 | 8100177 | Sign, Type IIIA | Sft | 061 | 7.00 |
| | | | | Item Total | 7.00 |
| 0001 | 8100180 | Sign, Type IIB | Sft | 061 | 13.00 |
| | | | | Item Total | 13.00 |
| 0001 | 8100181 | Sign, Type IIIB | Sft | 061 | 45.00 |
| | | | | Item Total | 45.00 |
| 0001 | 8100197 | Sign, Type III, Erect, Salv | Ea | 061 | 2.00 |
| | | | | 061 | 3.00 |
| | | | | Item Total | 5.00 |
| 0001 | 8100201 | Sign, Type II, Rem | Ea | 061 | 1.00 |
| | | | | Item Total | 1.00 |
| 0001 | 8100202 | Sign, Type III, Rem | Ea | 061 | 2.00 |
| | | | | 061 | 9.00 |
| | | | | Item Total | 11.00 |
| 0001 | 8110015 | Pavt Mrkg, Epoxy, 4 inch, White | Ft | 060 | 2,790.00 |
| | | | | Item Total | 2,790.00 |
| 0001 | 8110016 | Pavt Mrkg, Epoxy, 4 inch, Yellow | Ft | 060 | 2,230.00 |
| | | | | Item Total | 2,230.00 |
| 0001 | 8110045 | Pavt Mrkg, Ovly Cold Plastic, Lt Turn Arrow Sym | Ea | 060 | 2.00 |
| | | | | Item Total | 2.00 |
| 0001 | 8110050 | Pavt Mrkg, Ovly Cold Plastic, Only | Ea | 060 | 4.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8110052 | Pavt Mrkg, Ovly Cold Plastic, Rt Turn Arrow Sym | Ea | 060 | 2.00 |
| | | | | Item Total | 2.00 |
| 0001 | 8110083 | Pavt Mrkg, Sprayable Thermopl, 4 inch, White | Ft | 060 | 218.00 |
| | | | | Item Total | 218.00 |
| 0001 | 8110084 | Pavt Mrkg, Sprayable Thermopl, 4 inch, Yellow | Ft | 060 | 3,500.00 |
| | | | | Item Total | 3,500.00 |
| 0001 | 8110087 | Pavt Mrkg, Sprayable Thermopl, 6 inch, White | Ft | 060 | 2,820.00 |
| | | | | Item Total | 2,820.00 |
| 0001 | 8120005 | Barricade, Type III, High Intensity, Lighted, Furn | Ea | 044 | 20.00 |

| | | | | | |
|------|---------|--|-----|-------------------|------------------|
| | | | | Item Total | 20.00 |
| 0001 | 8120006 | Barricade, Type III, High Intensity, Lighted, Oper | Ea | 044 | 20.00 |
| | | | | Item Total | 20.00 |
| 0001 | 8120016 | Conc Barrier, Temp, Furn | Ft | 044 | 1,300.00 |
| | | | | Item Total | 1,300.00 |
| 0001 | 8120017 | Conc Barrier, Temp, Oper | Ft | 044 | 1,300.00 |
| | | | | Item Total | 1,300.00 |
| 0001 | 8120030 | Flag Control | LS | 044 | 1.00 |
| | | | | Item Total | 1.00 |
| 0001 | 8120035 | High Intensity Light, Type B, Furn | Ea | 044 | 4.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8120036 | High Intensity Light, Type B, Oper | Ea | 044 | 4.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8120050 | Minor Traf Devices | LS | 044 | 1.00 |
| | | | | Item Total | 1.00 |
| 0001 | 8120077 | Pavt Mrkg, Longit, 6 inch or Less Width, Rem | Ft | 044 | 5,020.00 |
| | | | | Item Total | 5,020.00 |
| 0001 | 8120090 | Pavt Mrkg, Type R, 4 inch, White, Temp | Ft | 044 | 4,190.00 |
| | | | | Item Total | 4,190.00 |
| 0001 | 8120091 | Pavt Mrkg, Type R, 4 inch, Yellow, Temp | Ft | 044 | 1,120.00 |
| | | | | Item Total | 1,120.00 |
| 0001 | 8120102 | Plastic Drum, High Intensity, Lighted, Furn | Ea | 044 | 110.00 |
| | | | | Item Total | 110.00 |
| 0001 | 8120103 | Plastic Drum, High Intensity, Lighted, Oper | Ea | 044 | 110.00 |
| | | | | Item Total | 110.00 |
| 0001 | 8120110 | Sign, Portable, Changeable Message, Furn | Ea | 044 | 4.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8120111 | Sign, Portable, Changeable Message, Oper | Ea | 044 | 4.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8120120 | Sign, Type B, Temp, Furn | Sft | 044 | 1,676.00 |
| | | | | Item Total | 1,676.00 |
| 0001 | 8120121 | Sign, Type B, Temp, Oper | Sft | 044 | 1,676.00 |
| | | | | Item Total | 1,676.00 |
| 0001 | 8120142 | Truck Mounted Attenuator | Ea | 044 | 2.00 |
| | | | | Item Total | 2.00 |
| 0001 | 8120153 | Ltg for Night Work | LS | 044 | 1.00 |
| | | | | Item Total | 1.00 |
| 0001 | 8127050 | _Temp Attenuator, Furn | Ea | 044 | 4.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8127050 | _Temp Attenuator, Oper | Ea | 044 | 4.00 |
| | | | | Item Total | 4.00 |
| 0001 | 8130010 | Riprap, Plain | Syd | 044 | 15.00 |
| | | | | 048 | 7.00 |
| | | | | 052 | 14.00 |
| | | | | Item Total | 36.00 |
| 0001 | 8160053 | Slope Restoration, Type C | Syd | 048 | 2,840.00 |
| | | | | 052 | 7,273.00 |
| | | | | Item Total | 10,113.00 |
| 0001 | 8507051 | _Wrapping Culvert and Sewer Joints | LS | 044 | 1.00 |
| | | | | Item Total | 1.00 |
| 0002 | 2040020 | Structures, Rem(S01 of 39014) | LS | S01 | 1.00 |
| | | | | Item Total | 1.00 |
| 0002 | 2060002 | Backfill, Structure, CIP | Cyd | S01 | 1,554.00 |
| | | | | S01 | 389.00 |
| | | | | Item Total | 1,943.00 |
| 0002 | 2060010 | Excavation, Fdn | Cyd | S01 | 1,312.00 |
| | | | | S01 | 328.00 |
| | | | | Item Total | 1,640.00 |
| 0002 | 4010402 | Culv, Cl A, CSP, 18 inch | Ft | S01 | 160.00 |
| | | | | Item Total | 160.00 |
| 0002 | 4010862 | Culv End Sect, Metal, 18 inch | Ea | S01 | 2.00 |
| | | | | Item Total | 2.00 |
| 0002 | 4040031 | Underdrain, Fdn, 4 inch | Ft | S01 | 358.00 |
| | | | | S01 | 90.00 |
| | | | | Item Total | 448.00 |
| 0002 | 4040111 | Underdrain, Outlet Ending, 4 inch | Ea | S01 | 8.00 |

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|------|---------|---|-----|-------------------|-------------------|-------------|
| | | | | | Item Total | 8.00 |
| 0002 | 5020057 | HMA, 5E3 | Ton | S01 | 128.00 | |
| | | | | S01 | 32.00 | |
| | | | | Item Total | 160.00 | |
| 0002 | 7040002 | Steel Sheet Piling, Temp | Sft | S01 | 768.00 | |
| | | | | S01 | 121.00 | |
| | | | | Item Total | 889.00 | |
| 0002 | 7050002 | Pile Driving Equipment, Furn(S01 of 39014) | LS | S01 | .88 | |
| | | | | S01 | .13 | |
| | | | | Item Total | 1.00 | |
| 0002 | 7050030 | Pile, Steel, Furn and Driven, 12 inch | Ft | S01 | 1,276.00 | |
| | | | | S01 | 212.00 | |
| | | | | Item Total | 1,488.00 | |
| 0002 | 7050031 | Test Pile, Steel, 12 inch | Ea | S01 | 3.00 | |
| | | | | S01 | 1.00 | |
| | | | | Item Total | 4.00 | |
| 0002 | 7050039 | Pile Point, Steel | Ea | S01 | 28.00 | |
| | | | | S01 | 4.00 | |
| | | | | Item Total | 32.00 | |
| 0002 | 7060008 | Conc Quality Assurance, Structure | Cyd | S01 | 441.00 | |
| | | | | S01 | 110.00 | |
| | | | | Item Total | 551.00 | |
| 0002 | 7060010 | Substructure Conc | Cyd | S01 | 268.00 | |
| | | | | S01 | 67.00 | |
| | | | | Item Total | 335.00 | |
| 0002 | 7060020 | Superstructure Conc | Cyd | S01 | 137.00 | |
| | | | | S01 | 35.00 | |
| | | | | Item Total | 172.00 | |
| 0002 | 7060022 | Superstructure Conc, Form, Finish, and Cure(S01 of 39014) | LS | S01 | .90 | |
| | | | | S01 | .10 | |
| | | | | Item Total | 1.00 | |
| 0002 | 7060025 | Conc Surface Coating(S01 of 39014) | LS | S01 | .80 | |
| | | | | S01 | .20 | |
| | | | | Item Total | 1.00 | |
| 0002 | 7060031 | Expansion Joint Device | Ft | S01 | 93.00 | |
| | | | | S01 | 23.00 | |
| | | | | Item Total | 116.00 | |
| 0002 | 7060032 | False Decking | Sft | S01 | 6,789.00 | |
| | | | | S01 | 1,697.00 | |
| | | | | Item Total | 8,486.00 | |
| 0002 | 7060034 | Reinforcement, Steel | Lb | S01 | 20,886.00 | |
| | | | | S01 | 5,222.00 | |
| | | | | Item Total | 26,108.00 | |
| 0002 | 7060035 | Reinforcement, Steel, Epoxy Coated | Lb | S01 | 24,355.00 | |
| | | | | S01 | 6,088.00 | |
| | | | | Item Total | 30,443.00 | |
| 0002 | 7067010 | _Precast Conc Deck Panel | Sft | S01 | 10,492.00 | |
| | | | | S01 | 2,623.00 | |
| | | | | Item Total | 13,115.00 | |
| 0002 | 7067011 | _Texturing Conc | Syd | S01 | 112.00 | |
| | | | | Item Total | 112.00 | |
| 0002 | 7067021 | _Precast Conc Substructure, Abutment | Cyd | S01 | 96.00 | |
| | | | | S01 | 14.00 | |
| | | | | Item Total | 110.00 | |
| 0002 | 7067021 | _Precast Conc Substructure, Pier | Cyd | S01 | 115.00 | |
| | | | | S01 | 29.00 | |
| | | | | Item Total | 144.00 | |
| 0002 | 7067021 | _Superstructure Conc - Special | Cyd | S01 | 14.00 | |
| | | | | Item Total | 14.00 | |
| 0002 | 7067051 | _Deck Post-Tensioning | LS | S01 | .80 | |
| | | | | S01 | .20 | |
| | | | | Item Total | 1.00 | |
| 0002 | 7067051 | _Precast Deck Panel Instrumentation and Data Collection | LS | S01 | 1.00 | |
| | | | | Item Total | 1.00 | |
| 0002 | 7067051 | _Superstructure Conc - Special, Form, Finish, and Cure | LS | S01 | 1.00 | |
| | | | | Item Total | 1.00 | |

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|------|---------|--|-----|-------------------|------------------|
| 0002 | 7070001 | Structural Steel, Rolled Shape, Furn and Fab | Lb | S01 | 3,918.00 |
| | | | | S01 | 980.00 |
| | | | | Item Total | 4,898.00 |
| 0002 | 7070002 | Structural Steel, Rolled Shape, Erect | Lb | S01 | 3,918.00 |
| | | | | S01 | 980.00 |
| | | | | Item Total | 4,898.00 |
| 0002 | 7070069 | Bearing, Elastomeric, 2 inch | Sft | S01 | 26.00 |
| | | | | S01 | 4.00 |
| | | | | Item Total | 30.00 |
| 0002 | 7070071 | Bearing, Elastomeric, 2 1/2 inch | Sft | S01 | 120.00 |
| | | | | S01 | 20.00 |
| | | | | Item Total | 140.00 |
| 0002 | 7080029 | Prest Conc I Beam, Furn, 45 inch | Ft | S01 | 1,467.00 |
| | | | | S01 | 244.00 |
| | | | | Item Total | 1,711.00 |
| 0002 | 7080030 | Prest Conc I Beam, Erect, 45 inch | Ft | S01 | 1,467.00 |
| | | | | S01 | 244.00 |
| | | | | Item Total | 1,711.00 |
| 0002 | 7100003 | Joint Waterproofing, Expansion | Sft | S01 | 151.00 |
| | | | | S01 | 38.00 |
| | | | | Item Total | 189.00 |
| 0002 | 7100008 | Membrane, Preformed Waterproofing | Sft | S01 | 10,512.00 |
| | | | | S01 | 2,628.00 |
| | | | | Item Total | 13,140.00 |
| 0002 | 7110005 | Bridge Railing, Aesthetic Parapet Tube | Ft | S01 | 477.00 |
| | | | | Item Total | 477.00 |
| 0002 | 7120087 | Filler Wall Conc | Cyd | S01 | 23.00 |
| | | | | S01 | 6.00 |
| | | | | Item Total | 29.00 |
| 0002 | 7160001 | Field Repr of Damaged Coating(S01 of 39014) | LS | S01 | .80 |
| | | | | S01 | .20 |
| | | | | Item Total | 1.00 |
| 0002 | 8100006 | Bridge Sign Connection, Conc, Type C | Ea | S01 | 1.00 |
| | | | | Item Total | 1.00 |
| 0002 | 8100195 | Sign, Type I, Erect, Salv | Ea | S01 | 1.00 |
| | | | | Item Total | 1.00 |
| 0002 | 8100200 | Sign, Type I, Rem | Ea | S01 | 1.00 |
| | | | | Item Total | 1.00 |
| 0002 | 8100320 | Bridge Sign Connection, Conc, Type A1 | Ea | S01 | 2.00 |
| | | | | Item Total | 2.00 |
| 0002 | 8130015 | Slope Paving Header | Ft | S01 | 182.00 |
| | | | | Item Total | 182.00 |
| 0002 | 8130020 | Slope Paving, Conc | Syd | S01 | 408.00 |
| | | | | S01 | 102.00 |
| | | | | Item Total | 510.00 |
| 0002 | 8190108 | Conduit, Galv Steel, 2 inch | Ft | S01 | 498.00 |
| | | | | Item Total | 498.00 |
| 0002 | 8190246 | Hh, Heavy Duty Cover | Ea | S01 | 2.00 |
| | | | | Item Total | 2.00 |

NOTICE TO BIDDERS

All inquiries concerning the plans and proposal for this project are to be directed to:

Name: Phil Grotenhuis
Title: Project Manager
Fax Number: 517-335-2731
E-mail Address: Grotenhuisp@michigan.gov
Phone: 517-335-6778

The above contact person is available Monday through Friday, 7:00 a. m. to 11:45 a. m. / 12:15 p.m. to 4:30 p. m. All inquiries must be made by Fax or E-mail. Telephone inquiries will not be answered. To be able to process and distribute an addendum, if required, all inquiries shall be made at least seven calendar days before the letting. Inquiries made after this date will be considered by MDOT, but will not require a response.

Inquiries made by fax or E-mail must include the following information:

Proposal Item Number
Contract ID
Name of Inquiring Person
Company Name
Phone #, Fax #, and/or E-mail address
Detailed question(s) with reference to proposal page and plan sheet number

Other employees of MDOT have been instructed to direct all inquiries to the person mentioned above.

APPENDIX A

PROHIBITION OF DISCRIMINATION IN STATE CONTRACTS

In connection with the performance of work under this contract; the contractor agrees as follows:

1. In accordance with Act. No. 453, Public Acts of 1976, the contractor hereby agrees not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, or marital status. Further, in accordance with Act No. 220, Public Acts of 1976 as amended by Act No. 478.
Public Acts of 1980 the contractor hereby agrees not to discriminate against an employee or applicant for employment tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of a disability that is unrelated to the individual's ability to perform the duties of a particular job or position. A branch of the above covenants shall be regarded as a material breach of this contract.
2. The contractor hereby agrees that any and all subcontractors to this contract, whereby a portion of the work set forth in this contract is to be performed, shall contain a covenant the same as in herein before set forth in section 1 of this Appendix.
3. The contractor will take affirmative action to insure that applicants for employment and employees are treated without regard to their race, color, religion, national origin sex, height, weight, marital status or disability that is unrelated to the individual's ability to perform the duties of a particular job or position. Such action shall include, but not b limited to the following; employment, upgrading, demotion or transfer, recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.
4. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, age, sex, height, marital status or disability that is unrelated to the individuals ability to perform the duties of a particular job or position.
5. The contractor or his collective bargaining representative will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers' representative of the contractor's commitments under this appendix.
6. The contractor will comply with relevant published rules, regulations, directives, and orders of the Michigan Civil Rights Commission which may be in effect prior to the taking of bids for any individual state project.
7. The contractor will furnish and file compliance reports within such time and upon such forms as provided by the Michigan Civil Rights Commission, said forms may also elicit information as to the practices, policies, program and employment statistics of each subcontractor as well as the contractor himself, and said contractor will permit access to his books, records, and accounts by the Michigan Civil Rights Commission, and/or its agent, for purposes of investigation to ascertain compliance with this contract and relevant with rules, regulations, and orders of the Michigan Civil Rights Commission.
8. In the event that the Civil Rights Commission finds, after a hearing held pursuant to its rules, that a contractor has not complied with the contractual obligations under this agreement, the Civil Rights Commission may, as a part of its order based upon such findings, certify said findings to the Administrative Board of the State of Michigan, which Administrative Board may order the cancellation of the contract found to have been violated, and/or declare the contractor ineligible for future contracts with the state and its political and civil subdivisions, departments, and officers, and including the governing boards of institutions of higher education, until the contractor complies with all of the persons with whom the contractor is declared ineligible to contract as a contracting party in future contracts. In any case before the Civil Rights Commission in which cancellation of an exiting contract is a possibility, the contracting agency shall be notified of such possible remedy and shall be given the option by the Civil Rights Commission to participate in such proceedings.
9. The contractor will include, or incorporate by reference, the provisions of the forgoing paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Michigan Civil Rights Commission, and will provide in every subcontract or purchase order that said provisions will be binding upon each subcontractor or seller.

**The Civil Rights Commission referred to as the Michigan Civil Rights Commission*

APPENDIX B
CERTIFICATION FOR FEDERAL-AID CONTRACTS

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief that:

1. 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.
2. 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.

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 Section 1352, Title 31, U.S. Code. 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.

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 subrecipients shall certify and disclose accordingly.

TITLE VI ASSURANCE

APPENDIX C

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the “contractor”) agrees as follows:

1. **Compliance with Regulations:** The contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation, Title 49, code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulation, including employment practices when the contractor covers a program set forth in Appendix B of the Regulations.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor’s obligations under the contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the State Highway department of the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the State highway department, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of the contractor’s noncompliance with the nondiscrimination provisions of this contract, the State highway department shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - (a) withholding of payments to the contractor under the contract until the contractor complies, and/or
 - (b) cancellation, termination or suspension of the contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the State highway department or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the State highway department to enter into such litigation to protect the interests of the State, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY**

(EXECUTIVE ORDER 11246)

- 1. The offeror's or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Employment Specifications" set forth herein.
- 2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables:

Goals for Minority participation for each trade: _____ %

Goals for female participation in each trade: _____ %

These goals are applicable to all the contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligation required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60.4. Compliance with the goals will be measured against the total work hours performed.

CONTRACTOR SHALL COMPLY

- 3. The Contractor shall provide written notification to the *DIRECTOR OF THE OFFICE OF FEDERAL CONTRACT COMPLIANCE PROGRAMS within ten (10) working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

* Notification shall be forwarded to the OFCCP office for the county in which the project is located. See page 6 for the proper address.

- 4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is: State

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS
(EXECUTIVE ORDER 11246)**

1. As used in these specifications:
 - a. “Covered area” means the geographical area described in the solicitation from which this contract resulted;
 - b. “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. “Minority” includes:
 - (i) Black (all person having origins in any of the Black African racial groups not of Hispanic origin); and
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture of origin, regardless of race); and
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, South East Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitation from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60.4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such

Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

- 4. The Contractor shall implement the specific affirmative action standards provided in paragraph 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.**
- 5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.**
- 6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.**
- 7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:**
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.**
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.**
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a**

union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- I. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons

and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60.3.
 - l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
 - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetable, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Detroit Area Office

Christopher Edwards, Area Office Director
 U.S. DOL/ESA/OFCCP
 Detroit Area Office
 211 West Fort Street
 Detroit, Michigan 48226
 Phone: 313/226-3728

Michigan Counties:

| | | | | | |
|---------|------------|----------|----------------|-----------|------------|
| Alcona | Benzie | Clare | Grand Traverse | Isabella | Lenawee |
| Allegan | Berrien | Clinton | Gratiot | Kalamazoo | Livingston |
| Alpena | Branch | Crawford | Hillsdale | Kalkaska | Macomb |
| Antrim | Calhoun | Eaton | Huron | Kent | Manistee |
| Arenac | Cass | Emmet | Ingham | Lake | Mason |
| Barry | Charlevoix | Genesee | Ionia | Lapeer | Mecosta |
| Bay | Cheboygan | Gladwin | Iosco | Leelanau | Midland |

Michigan Counties:

| | | | |
|--------------------|---------------------|-------------------|------------------|
| Missaukee | Oceana | Roscommon | Van Buren |
| Monroe | Ogemaw | St. Clair | Washtenaw |
| Montcalm | Osceola | St. Joseph | Wayne |
| Montmorency | Oscoda | Saginaw | Wexford |
| Muskegon | Otsego | Sanilac | |
| Newaygo | Ottawa | Shiawassee | |
| Oakland | Presque Isle | Tuscola | |

Milwaukee Area Office

Mr. Robert Potter
U.S. DOL/ESA/OFCCP
Milwaukee Area Office
Reuss Federal Bldg., Room 1115
310 West Wisconsin
Milwaukee, Wisconsin 53203
Phone: 414/291-3822

Michigan Counties:

| | | | | |
|-----------------|------------------|-----------------|------------------|--------------------|
| Alger | Delta | Houghton | Luce | Menominee |
| Baraga | Dickinson | Iron | Mackinac | Ontonagon |
| Chippewa | Gogebic | Keweenaw | Marquette | Schoolcraft |

SPECIAL PROVISIONS

23 CFR CH.1 P 4.230, SUBPT..a, APP. A

Specific Equal Employment Opportunity Responsibilities

1. General

- a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract Provisions (Form PR-1273 or 1316, as appropriate) and these Special Provisions that are imposed pursuant to Section 140 of Title 23, U.S.C. as established by Section 22 of the Federal Highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions.
- b. The contractor will work with the State highway agencies and the Federal Government in carrying out equal employment opportunity obligations and in their review of his/her activities under the contract.
- c. The contractors and all his/her subcontractors holding subcontracts not including material suppliers, of \$10,000 or more, will comply with the following minimum specific requirement activities of equal employment opportunity: (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to material suppliers as well as Contractors and Subcontractors.) The Contractor will include these requirements in every subcontract of \$10,000 or more with such modification of language as is necessary to make them binding on the Subcontractor.

2. Equal Employment Opportunity Policy

The contractor will accept as operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program:

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, or national origin. 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.

3. Equal Employment Opportunity Officer

The contractor will designate and make known to the State highway agency contracting officers an equal employment opportunity officer (hereinafter referred to as the EEO Officer) who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.

4. Dissemination of Policy

- a. 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 equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity 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:
 - (1) 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 equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.
 - (2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official covering all major aspects of the contractor's equal employment opportunity obligations within thirty days following their reporting for duty with the contractor.
 - (3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official in the contractor's procedures for locating and hiring minority group employees.
- b. In order to make the contractor's equal employment opportunity policy known to all employees, prospective employees, and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the contractor will take the following actions:
 - (1) Notice and posters setting forth the contractor's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment, and potential employees.
 - (2) The contractor's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, ~~202~~ employee handbooks, or other appropriate means.

5. Recruitment

- a. When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.
- b. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants, including but not limited to, State employment agencies, schools, colleges, and minority group organizations. To meet this requirement, the contractor will, through his EEO Officer, identify sources of potential minority group employees, and establish with such identified sources of procedures whereby minority group applicants may be referred to the Contractor for employment consideration.

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 equal employment opportunity contract provisions. (The U.S. Department of Labor 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 by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority group applicants will be discussed with employees.

6. 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, or national origin. The following procedures shall be followed:

- a. The contractor will conduct periodic inspections of project sites to ensure 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 avenues of appeal.

7. Training and Promotion

- a. The contractor will assist in locating, qualifying, and increasing the skill 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 the Training Special Provision is provided under this contract, this subparagraph will be superseded as indicated in Attachment 2.
- 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.

8. 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 their best efforts to incorporate an equal employment opportunity 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, or national origin.
- 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 State highway department 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, or national origin, making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U.S. Department of Labor 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 State highway agency.

9. Subcontracting

- a. The contractor will use his best efforts to solicit bids from and to utilize minority group subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of minority-owned construction firms from State highway agency personnel.
- b. The contractor will use his best efforts to ensure subcontractor compliance with their equal employment opportunity obligations.

10. Records and Reports

- a. The contractor will keep such records as are necessary to determine compliance with the contractor's equal employment opportunity obligations. The records kept by the contractor will be designed to indicate:
 - (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 to increase employment opportunities for minorities and women (applicable only to contractors who rely in whole or in part on unions as a source of their work force),
 - (3) the progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and the progress and efforts being made in securing the services of minority group subcontractors or subcontractors with meaningful minority and female representation among their employees.
- b. All such records must 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 State highway agency and the Federal Highway Administration.
- c. The contractor will submit to the State highway agency a monthly report for the first three months after construction begins and every month of 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 PR-1391. If on-the-job training is being required by "Training Special Provision," the contractor will be required to furnish Form FHWA 1409.

Contractors and all tiers of subcontractors are required to pay no less than the wage rates and fringe benefits required by federal or state law, as applicable. The rates of wages and fringe benefits to be paid to each class of construction mechanics (each employee covered by the prevailing wage requirements) by the contractor and by all tiers of subcontracts, shall not be less than the wage and fringe benefit rates in the attached schedule of occupational classifications for the locality in which the work is to be performed. This clause shall be included in every subcontract and every subcontractor shall require that this clause be included in each succeeding tier of subcontracts.

Superseded General Decision Number: MI20030007

State: Michigan

Construction Types: Highway (Highway, Airport & Bridge xxxxx and Sewer/Incid. to Hwy.)

Counties: Michigan Statewide.

| Modification Number | Publication Date |
|---------------------|------------------|
| 0 | 02/09/2007 |
| 1 | 02/16/2007 |
| 2 | 02/23/2007 |
| 3 | 03/30/2007 |
| 4 | 04/06/2007 |
| 5 | 04/13/2007 |
| 6 | 04/20/2007 |
| 7 | 06/01/2007 |
| 8 | 06/15/2007 |
| 9 | 06/22/2007 |
| 10 | 06/29/2007 |
| 11 | 07/06/2007 |
| 12 | 07/20/2007 |
| 13 | 08/10/2007 |

CARP0004-004 10/01/2006

LIVINGSTON COUNTY (Townships of Brighton, Deerfield, Genoa, Hartland, Osceola and Tyrone); MACOMB, MONROE, OAKLAND, SANILAC, ST. CLAIR AND WAYNE COUNTIES:

| | Rates | Fringes |
|----------------------------|-----------|---------|
| Carpenter; piledriver..... | \$ 30.511 | 14.893 |

CARP0004-005 10/01/2006

DOES NOT INCLUDE LIVINGSTON COUNTY (Townships of Brighton, Deerfield, Genoa, Hartland, Osceola and Tyrone); MACOMB, MONROE, OAKLAND, SANILAC, ST. CLAIR AND WAYNE COUNTIES:

| | Rates | Fringes |
|----------------------------|-----------|---------|
| Carpenter; piledriver..... | \$ 30.511 | 14.893 |

FOOTNOTE:

DIVER: to be paid one and one-half (1-1/2) times the regular journey person rate.

* ELEC0017-005 06/06/2005

HURON COUNTY; INGHAM COUNTY (Townships of Leroy, Locke, Wheatfield, White Oak and Williamson); LAPEER COUNTY; LENAWEE COUNTY (Townships of Clinton and Macon); LIVINGSTON COUNTY (Townships of Brighton, Conway, Genoa, Green Oak, Hamburg, Handy, Hartland, Howell, Iosco, Marion, Oceola and Putnam); MACOMB COUNTY; MONROE COUNTY (Townships of Ash, Berlin, Dundee, Exeter, Frenchtown, Ida, London, Milan, Monroe, Raisinville and Summerfield); OAKLAND, ST. CLAIR, SANILAC AND TUSCOLA COUNTIES; WASHTENAW COUNTY (Townships of Ann Arbor, Augusta, Bridgewater, Dexter, Freedom, Lima, Lodi, Northfield, Pittsfield, Salem, Saline, Scio, Superior, Webster, York and Ypsilanti); AND WAYNE COUNTY:

| | Rates | Fringes |
|--|----------|-------------|
| Line Construction | | |
| Cable splicer; Line technician when helio-arc welding..... | \$ 35.86 | 23.75%+4.80 |
| Combination driver/groundman..... | \$ 25.13 | 23.75%+4.80 |
| Combination equipment operator and groundman..... | \$ 26.64 | 23.75%+4.80 |
| Groundman..... | \$ 23.10 | 23.75%+4.80 |
| Line technician..... | \$ 34.42 | 23.75%+4.80 |
| TECHNICIAN (Commercial) | | |
| ALL COMMERCIAL WORK EXCEPT LINE CONSTRUCTION:..... | \$ 34.42 | 23.75%+4.80 |

ELEC0876-001 06/01/2007

REMAINDER OF STATE:

| | Rates | Fringes |
|--|----------|------------|
| Line Construction | | |
| Cable splicer..... | \$ 32.71 | 3.75+21.5% |
| Light equipment operator/groundman/truck driver/groundman (winch, A frame, diggers when used for distribution line truck and used for distribution work, distribution truck driver, 5th wheel type trucks, bucket trucks, ladder trucks and all live boom trucks, all equipment 85 hp or under)..... | \$ 20.70 | 3.75+21.5% |
| Line technician..... | \$ 31.41 | 3.75+21.5% |
| Operator/groundman (digger, tractor and setting rig with tracks or rough terrain vehicle, large bombardier, backhoe over 85 hp, hydraulic crane 10 ton or over)..... | \$ 23.62 | 3.75+21.5% |
| Truck driver/groundman(trucks with winch or boom or dump, other than distribution work)..... | \$ 19.70 | 3.75+21.5% |

FOOTNOTE: Operators of 5/8 yard, rated capacity, backhoe or over; and operators of 25 ton, rated capacity, crane or over; and operators of heavy duty tension or pulling machinery on 345 KV and above: to receive the journeyman line technician rate of pay.

ENGI0324-003 06/01/2006

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

| | Rates | Fringes |
|---|-------|---------|
| Power Equipment Operators - Steel Erection: | | 287 |

| | | |
|---------------|----------|-------|
| GROUP 1..... | \$ 41.02 | 14.90 |
| GROUP 2..... | \$ 42.02 | 14.90 |
| GROUP 3..... | \$ 39.52 | 14.90 |
| GROUP 4..... | \$ 40.52 | 14.90 |
| GROUP 5..... | \$ 38.02 | 14.90 |
| GROUP 6..... | \$ 39.02 | 14.90 |
| GROUP 7..... | \$ 37.75 | 14.90 |
| GROUP 8..... | \$ 38.75 | 14.90 |
| GROUP 9..... | \$ 37.30 | 14.90 |
| GROUP 10..... | \$ 38.30 | 14.90 |
| GROUP 11..... | \$ 36.57 | 14.90 |
| GROUP 12..... | \$ 37.57 | 14.90 |
| GROUP 13..... | \$ 36.21 | 14.90 |
| GROUP 14..... | \$ 37.21 | 14.90 |
| GROUP 15..... | \$ 35.57 | 14.90 |
| GROUP 16..... | \$ 28.76 | 14.90 |
| GROUP 17..... | \$ 27.35 | 14.90 |

FOOTNOTE:

Paid Holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Engineer when operating combination of boom and jib 400' or longer

GROUP 2: Engineer when operating combination of boom and jib 400' or longer on a crane that requires an oiler

GROUP 3: Engineer when operating combination of boom and jib 300' or longer

GROUP 4: Engineer when operating combination of boom and jib 300' or longer on a crane that requires an oiler

GROUP 5: Engineer when operating combination of boom and jib 220' or longer

GROUP 6: Engineer when operating combination of boom and jib 220' or longer on a crane that requires an oiler

GROUP 7: Engineer when operating combination of boom and jib 140' or longer

GROUP 8: Engineer when operating combination of boom and jib 140' or longer on a crane that requires an oiler

GROUP 9: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level)

GROUP 10: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level) on a crane that requires an oiler

GROUP 11: Engineer when operating combination of boom and jib 120' or longer

GROUP 12: Engineer when operating combination of boom and jib 120' or longer on a crane that requires an oiler

GROUP 13: Crane operator and job mechanic

GROUP 14: Crane operator on a crane that requires an oiler

GROUP 15: Hoisting operator

GROUP 16: Compressor or welder operator

GROUP 17: Oiler

ENGI0324-004 05/01/2006

| | Rates | Fringes |
|---|----------|---------|
| Power Equipment Operators - Steel Erection: | | |
| ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN | | |
| GROUP 1..... | \$ 28.26 | 14.85 |
| GROUP 2..... | \$ 28.01 | 14.85 |
| GROUP 3..... | \$ 27.51 | 14.85 |
| GROUP 4..... | \$ 22.41 | 14.85 |
| GROUP 5..... | \$ 20.76 | 14.85 |
| GROUP 6..... | \$ 18.16 | 14.85 |
| ANTRIM, BENZIE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE AND WEXFORD COUNTIES: | | |
| GROUP 1..... | \$ 28.26 | 14.85 |
| GROUP 2..... | \$ 28.01 | 14.85 |
| GROUP 3..... | \$ 27.01 | 14.85 |
| GROUP 4..... | \$ 22.11 | 14.85 |
| GROUP 5..... | \$ 20.46 | 14.85 |
| GROUP 6..... | \$ 17.66 | 14.85 |

FOOTNOTES:

Crane operator with main boom and jib 300' or longer: \$1.50 additional to the group 1 rate. Crane operator with main boom and jib 400' or longer: \$3.00 additional to the group 1 rate.

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane operator, with main boom & jib 220' or longer

GROUP 2: Crane operator, with main boom & jib 140' or longer; Tower crane; Gantry crane; Whirley derrick

GROUP 3: Regular equipment operator, crane, dozer, loader, hoist, straddle wagon, mechanic, Grade, Hydro Excavator

GROUP 4: Air tugger (single drum), material hoist, pump 6" or over, elevators, Brokk Concrete Breaker

GROUP 5: Air compressor, welder, generators, conveyors

GROUP 6: Oiler and fire tender

ENGI0324-005 09/01/2006

Power equipment operators -
 underground construction
 (includes sewer):

ALCONA, ALLEGAN, ALPENA,
 ANTRIM, ARENAC, BARRY,
 BENZIE, BERRIEN, BRANCH,
 CALHOUN, CASS, CHARLEVOIX,
 CHEBOYGAN, CLARE, CLINTON,
 CRAWFORD, EATON, EMMET,
 GLADWIN, GRAND TRAVERSE,
 GRATIOT, HILLSDALE, IONIA,
 IOSCO, ISABELLA,
 KALAMAZOO, KALKASKA, KENT,
 LAKE, LEELANAU, MANISTEE,
 MASON, MECOSTA, MISSAUKEE,
 MONTCALM, MONTMORENCY,
 MUSKEGON, NEWAYGO, OCEANA,
 OGEMAW, OSCEOLA, OSCODA,
 OTSEGO, OTTAWA, PRESQUE
 ISLE, ROSCOMMON, ST.
 JOSEPH, VAN BUREN AND
 WEXFORD COUNTIES:

| | | |
|--------------|----------|-------|
| GROUP 1..... | \$ 27.07 | 14.90 |
| GROUP 2..... | \$ 22.18 | 14.90 |
| GROUP 3..... | \$ 21.68 | 14.90 |
| GROUP 4..... | \$ 21.40 | 14.90 |

BAY, GENESEE, HURON,
 INGHAM, JACKSON, LAPEER,
 LENAWEE, LIVINGSTON,
 MACOMB, MIDLAND, MONROE,
 OAKLAND, SAGINAW, SANILAC,
 SHIAWASSEE, ST. CLAIR,
 TUSCOLA, WASHTENAW AND
 WAYNE COUNTIES:

| | | |
|--------------|----------|-------|
| GROUP 1..... | \$ 28.78 | 14.90 |
| GROUP 2..... | \$ 24.05 | 14.90 |
| GROUP 3..... | \$ 23.32 | 14.90 |
| GROUP 4..... | \$ 22.75 | 14.90 |

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backfiller tamper; Backhoe; Batch plant operator (concrete); Clamshell; Concrete paver (2 drums or larger); Conveyor loader (Euclid type); Crane (crawler, truck type or pile driving); Dozer; Dragline; Elevating grader; Endloader; Gradall (and similar type machine); Grader; Mechanic; Power shovel; Roller (asphalt); Scraper (self-propelled or tractor drawn); Side boom tractor (type D-4 or equivalent and larger); Slip form paver; Slope paver; Trencher (over 8 ft. digging capacity); Well drilling rig; Concrete pump with boom operator

GROUP 2: Boom truck (power swing type boom); Crusher; Hoist; Pump (1 or more - 6-in. discharge or larger - gas or diesel- powered or powered by generator of 300 amperes or more - inclusive of generator); Side boom tractor (smaller than type D-4 or equivalent); Sweeper (Wayne type and similar equipment); Tractor (pneu-tired, other than backhoe or front end loader); Trencher (8-ft. digging capacity and smaller)

GROUP 3: Air compressors (600 cfm or larger); Air compressors (2 or more-less than 600 cfm); Boom truck (non-swinging, non- powered type boom); Concrete breaker (self-propelled or truck mounted - includes compressor); Concrete paver (1 drum-1/2 yd. or larger); Elevator (other than passenger);

Maintenance person; Pump (2 or more-4-in. up to 6-in. discharge-gas or diesel powered - excluding submersible pumps); Pumpcrete machine (and similar equipment); Wagon drill (multiple); Welding machine or generator (2 or more-300 amp. or larger - gas or diesel powered)

GROUP 4: Boiler; Concrete saw (40 hp or over); Curing machine (self-propelled); Farm tractor (with attachment); Finishing machine (concrete); Fire person; Hydraulic pipe pushing machine; Mulching equipment; Oiler; Pumps (2 or more up to 4-in. discharge, if used 3 hours or more a day, gas or diesel powered - excluding submersible pumps); Roller (other than asphalt); Stump remover; Trencher (service); Vibrating compaction equipment, self-propelled (6 ft. wide or over); End dump operator

ENGI0324-006 06/01/2007

| | Rates | Fringes |
|--|----------|---------|
| Power equipment operators: (AIRPORT, BRIDGE & HIGHWAY CONSTRUCTION) | | |
| GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES: | | |
| GROUP 1..... | \$ 27.61 | 15.77 |
| GROUP 2..... | \$ 20.88 | 15.77 |
| GROUP 3..... | \$ 22.18 | 15.77 |
| GROUP 4..... | \$ 20.32 | 15.77 |
| GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW and WAYNE COUNTIES: | | |
| GROUP 5..... | \$ 20.15 | 15.77 |
| STATEWIDE (Excluding Genesee, Macomb, Monroe, Oakland, Washtenaw and Wayne Counties): | | |
| GROUP 1..... | \$ 27.61 | 15.77 |
| GROUP 2..... | \$ 20.73 | 15.77 |
| GROUP 3..... | \$ 22.03 | 15.77 |
| GROUP 4..... | \$ 20.17 | 15.77 |
| GROUP 5..... | \$ 19.85 | 15.77 |

FOOTNOTE:

Crane premiums: Swing boom truck operator over 12 tons: \$.50 per hour additional. Hydraulic crane operator 75 tons and under: \$.75 per hour additional. Hydraulic crane operator over 75 tons: \$1.00 per hour additional. Lattice boom crane operator: \$1.50 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt plant operator; Crane operator (does not include work on bridge construction projects when the crane operator is erecting structural components); Dragline operator; Shovel operator; Locomotive operator; Paver operator (5 bags or more); Elevating grader operator; Pile driving operator; Roller operator (asphalt); Blade grader operator; Trenching machine operator (ladder or wheel type); Auto-grader; Slip form paver; Self-propelled or tractor-drawn scraper; Conveyor loader operator (Euclid type); Endloader operator (1 yd. capacity and over); Bulldozer; Hoisting engineer; Tractor operator; Finishing machine operator (asphalt); Mechanic; Pump operator (6-in. discharge or over, gas, diesel powered or generator of 300

amp. or larger); Shouldering or gravel distributing machine operator (self-propelled); Backhoe (with over 3/8 yd. bucket); Side boom tractor (type D-4 or equivalent or larger); Tube finisher (slip form paving); Gradall (and similar type machine); Asphalt paver (self-propelled); Asphalt planer (self-propelled); Batch plant (concrete-central mix); Slurry machine (asphalt); Concrete pump (3 in. and over); Roto-mill; Swinging boom truck (over 12 ton capacity); Hydro demolisher (water blaster); Farm-type tractor with attached pan

GROUP 2: Screening plant operator; Washing plant operator; Crusher operator; Backhoe (with 3/8 yd. bucket or less); Side boom tractor (smaller than D-4 type or equivalent); Sweeper (Wayne type and similar equipment); Vacuum truck operator; Batch plant (concrete dry batch)

GROUP 3: Grease Truck

GROUP 4: Air compressor operator (600 cu. ft. per min or more); Air compressor operator (two or more, less than 600 cfm); Wagon drill operator; Concrete breaker; Tractor operator (farm type with attachment)

GROUP 5: Boiler fire tender; Oiler; Fire tender; Trencher (service); Flexplane operator; Cleftplane operator; Grader operator (self-propelled fine-grade or form (concrete)); Finishing machine operator (concrete); Boom or winch hoist truck operator; Endloader operator (under 1 yd. capacity); Roller operator (other than asphalt); Curing equipment operator (self-propelled); Concrete saw operator (40 h.p. or over); Power bin operator; Plant drier operator (asphalt); Vibratory compaction equipment operator (6 ft. wide or over); Guard post driver operator (power driven); All mulching equipment; Stump remover; Concrete pump (under 3-in.); Mesh installer (self-propelled); Tractor operator (farm type); End dump; Skid steer

 ENGI0324-007 05/01/2007

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

| | Rates | Fringes |
|---|----------|---------|
| Power Equipment Operators - | | |
| Steel Erection: | | |
| Compressor, welder and forklift..... | \$ 23.62 | 15.47 |
| Crane operator, main boom & jib 120' or longer..... | \$ 27.37 | 15.47 |
| Crane operator, main boom & jib 140' or longer..... | \$ 27.62 | 15.47 |
| Crane operator, main boom & jib 220' or longer..... | \$ 27.87 | 15.47 |
| Mechanic with truck and tools..... | \$ 28.37 | 15.47 |
| Oiler and fireman..... | \$ 22.32 | 15.47 |
| Regular operator..... | \$ 26.87 | 15.47 |

Crane Operator with main boom and jib 300' or longer shall be paid an additional one dollar and fifty cents (\$1.50) per hour above the 220' of boom and jib wage rate.

Crane Operator with main boom and jib 400' or longer shall be paid an additional one dollar and fifty cents, ²⁰²(\$1.50) per hour above the 300 foot of boom wage rate (\$3.00)

ENGI0324-008 10/01/2006

| | Rates | Fringes |
|--|----------|---------|
| Power equipment operators - sewer relining: | | |
| GROUP 1..... | \$ 26.27 | 10.66 |
| GROUP 2..... | \$ 24.74 | 10.66 |

SEWER RELINING CLASSIFICATIONS

GROUP 1: Operation of audio-visual closed circuit TV system,
including remote in-ground cutter and other equipment used
in connection with the CCTV system

GROUP 2: Operation of hot water heaters and circulation
systems, water jetters and vacuum and mechanical debris
removal systems

ENGI0325-010 05/01/2007

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON,
IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON
AND SCHOOLCRAFT COUNTIES:

| | Rates | Fringes |
|--|----------|---------|
| Power equipment operators - underground construction: | | |
| Crane operator, main boom & jib 120' or longer..... | \$ 26.97 | 15.47 |
| Crane operator, main boom & jib 140' or longer..... | \$ 27.22 | 15.47 |
| Crane operator, main boom & jib 220' or longer..... | \$ 27.47 | 15.47 |
| GROUP 1..... | \$ 26.47 | 15.47 |
| GROUP 2..... | \$ 23.22 | 15.47 |
| GROUP 3..... | \$ 22.64 | 15.47 |
| GROUP 4..... | \$ 21.70 | 15.47 |
| Mechanic with truck and tools..... | \$ 27.97 | 15.47 |

FOOTNOTES: Swing boom truck operator over 15 tons: \$.50 per
hour additional. Hydraulic crane operator 75 tons and
under: \$.75 per hour additional. Hydraulic crane operator
over 75 tons: \$1.00 per hour additional. Lattice boom crane
operator: \$1.50 per hour additional. Crusher pit, shafts
and tunnel workers: \$2.00 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Regular equipment operator, crane, dozer, front end
loader, job mechanic, pumpcrete and squeezecrete, concrete
pump, excavator, milling and pulverizing machines, scraper
(self-propelled and tractor drawn), welder

GROUP 2: Air track drill, boom truck (non-swing), concrete
mixer, material hoist and tugger, pump 6" and over,
beltcrete, sweeping machine, trencher, winches, well points
and freeze systems

GROUP 3: Air compressor, conveyor, concrete saw, farm tractor
(without attachments), fork truck, generator, guard post
driver, mulching machine, pumps under 6-in., welding
machine and grease person

GROUP 4: Oiler, fire tender, heater operator, brock concrete
breaker, elevators (other than passenger), end dumps and
skid steer

Crane Operator with main boom and jib 300' or longer shall be paid an additional one dollar and fifty cents (\$1.50) per hour above the 220' of boom and jib wage rate.

Crane Operator with main boom and jib 400' or longer shall be paid an additional one dollar and fifty cents (\$1.50) per hour above the 300 foot of boom wage rate (\$3.00)

 ENGI0325-011 10/01/2006

| | Rates | Fringes |
|--|----------|---------|
| Power equipment operators - hazardous waste removal: (BAY, GENESEE, HURON, INGHAM, JACKSON, LAPEER, LENAWEЕ, LIVINGSTON, MACOMB, MIDLAND, MONROE, OAKLAND, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) | | |
| LEVEL A: | | |
| Engineer when operating crane with boom and jib or leads 140' or longer.... | \$ 33.98 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer.... | \$ 34.28 | 14.85 |
| GROUP 1..... | \$ 31.33 | 14.85 |
| GROUP 2..... | \$ 27.10 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator..... | \$ 32.30 | 14.85 |
| LEVEL B AND C: | | |
| Engineer when operating crane with boom and jib or leads 140' or longer.... | \$ 33.03 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer.... | \$ 33.33 | 14.85 |
| GROUP 1..... | \$ 30.38 | 14.85 |
| GROUP 2..... | \$ 26.15 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator..... | \$ 31.35 | 14.85 |
| LEVEL D WHEN CAPPING | | |
| LANDFILL: | | |
| Engineer when operating crane with boom and jib or leads 140' or longer.... | \$ 31.48 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer.... | \$ 31.78 | 14.85 |
| GROUP 1..... | \$ 28.83 | 14.85 |
| GROUP 2..... | \$ 24.60 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator..... | \$ 29.18 | 14.85 |

LEVEL D:

| | |
|---|-------|
| Engineer when operating crane with boom and jib or leads 140' or longer....\$ 31.73 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer....\$ 32.03 | 14.85 |
| GROUP 1.....\$ 29.08 | 14.85 |
| GROUP 2.....\$ 24.85 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$ 30.05 | 14.85 |

Power equipment operators - hazardous waste removal:

(REMAINDER OF STATE:)

LEVEL A:

| | |
|---|-------|
| Engineer when operating crane with boom and jib or leads 140' or longer....\$ 32.27 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer....\$ 32.57 | 14.85 |
| GROUP 1.....\$ 29.62 | 14.85 |
| GROUP 2.....\$ 25.22 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$ 30.59 | 14.85 |

LEVEL D WHEN CAPPING

LANDFILL:

| | |
|---|-------|
| Engineer when operating crane with boom and jib or leads 140' or longer....\$ 29.77 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer....\$ 30.07 | 14.85 |
| GROUP 1.....\$ 27.12 | 14.85 |
| GROUP 2.....\$ 22.73 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$ 28.09 | 14.85 |

LEVEL D:

| | |
|---|-------|
| Engineer when operating crane with boom and jib or leads 140' or longer....\$ 30.02 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer....\$ 30.32 | 14.85 |
| GROUP 1.....\$ 27.37 | 14.85 |
| GROUP 2.....\$ 22.98 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$ 28.34 | 14.85 |

LEVELS B AND C:

Engineer when operating

| | |
|--|-------|
| crane with boom and jib or leads 140' or longer....\$ 31.21 | 14.85 |
| Engineer when operating crane with boom and jib or leads 220' or longer....\$ 31.54 | 14.85 |
| GROUP 1.....\$ 28.67 | 14.85 |
| GROUP 2.....\$ 24.28 | 14.85 |
| Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$ 29.64 | 14.85 |

HAZARDOUS WASTE REMOVAL CLASSIFICATIONS

Group 1: Backhoe, batch plant operator, clamshell, concrete breaker when attached to hoe, concrete cleaning decontamination machine operator, concrete pump, concrete paver, crusher, dozer, elevating grader, endloader, farm tractor (90 h.p. and higher), gradall, grader, heavy equipment robotics operator, loader, pug mill, pumpcrete machines, pump trucks, roller, scraper (self-propelled or tractor drawn), side boom tractor, slip form paver, slop paver, trencher, ultra high pressure waterjet cutting tool system, vactors, vacuum blasting machine operator, vertical lifting hoist, vibrating compaction equipment (self-propelled), and well drilling rig

GROUP 2: Air compressor, concrete breaker when not attached to hoe, elevator, end dumps, equipment decontamination operator, farm tractor (less than 90 h.p.), forklift, generator, heater, mulcher, pigs (portable reagent storage tanks), power screens, pumps (water), stationary compressed air plant, sweeper, and welding machine

ENGI0325-012 05/01/2007

| | Rates | Fringes |
|---|-------|---------|
| Power equipment operators - gas distribution and duct installation work: MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES: | | |
| GROUP 1.....\$ 25.88 | 25.88 | 15.72 |
| GROUP 2.....\$ 25.75 | 25.75 | 15.72 |
| GROUP 3.....\$ 24.62 | 24.62 | 15.72 |
| GROUP 4.....\$ 24.05 | 24.05 | 15.72 |
| STATEWIDE (does not include Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne Counties): | | |
| GROUP 1.....\$ 24.97 | 24.97 | 15.72 |
| GROUP 2-A.....\$ 24.87 | 24.87 | 15.72 |
| GROUP 2-B.....\$ 24.65 | 24.65 | 15.72 |
| GROUP 3.....\$ 23.87 | 23.87 | 15.72 |
| GROUP 4.....\$ 23.37 | 23.37 | 15.72 |

SCOPE OF WORK: The construction, installation, treating and reconditioning of pipelines transporting gas vapors within cities, towns, subdivisions, suburban areas, or within private property boundaries, up to and including private meter settings of private industrial, governmental or other premises, more commonly referred to as "distribution work," starting from the first metering station, connection, similar or related facility, of the main or cross country

pipeline and including duct installation.

DEFINITION OF GROUPS: MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES:

GROUP 1: Backhoe, crane, grader, mechanic, dozer (D-6 equivalent or larger), side boom (D-4 equivalent or larger), trencher(except service), endloader (2 yd. capacity or greater).

GROUP 2: Dozer (less than D-6 equivalent), endloader (under 2 yd. capacity), side boom (under D-4 capacity), backfiller, pumps (1 or 2 of 6-inch discharge or greater), boom truck (with powered boom), tractor (wheel type other than backhoe or front endloader).

GROUP 3: Tamper (self-propelled), boom truck (with non-powered boom), concrete saw (20 hp or larger), pumps (2 to 4 under 6-inch discharge), compressor (2 or more or when one is used continuously into the second day) and trencher(service).

GROUP 4: Oiler, hydraulic pipe pushing machine, grease person and hydrostatic testing operator.

STATEWIDE (does not include Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne Counties):

GROUP 1: Mechanic, crane (over 1/2 yd. capacity), backhoe (over 1/2 yd. capacity), grader (Caterpillar 12 equivalent or larger)

GROUP 2-A: Trencher(except service), backhoe (1/2 yd. capacity or less)

GROUP 2-B: Crane (1/2 yd. capacity or less), compressor (2 or more), dozer (D-4 equivalent or larger), endloader (1 yd. capacity or larger), pump (1 or 2 six-inch or larger), side boom (D-4 equivalent or larger)

GROUP 3: Backfiller, boom truck (powered), concrete saw (20 hp or larger), dozer (less than D-4 equivalent), endloader (under 1 yd. capacity), farm tractor (with attachments), pump (2 - 4 under six-inch capacity), side boom tractor(less than D-4 equivalent), tamper (self-propelled), trencher service and grader maintenance

GROUP 4: Oiler, grease person and hydrostatic testing operator

IRON0008-007 05/01/2006

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

| | Rates | Fringes |
|------------------------------|----------|---------|
| Ironworkers: | | |
| General contracts | | |
| \$10,000,000 or greater..... | \$ 25.12 | 16.69 |
| General contracts less | | |
| than \$10,000,000..... | \$ 22.33 | 16.69 |

IRON0008-011 05/01/2006

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

| | Rates | Fringes |
|---------------------------------------|----------|---------|
| Ironworker | | |
| Contracts \$10,000,000 or more..... | \$ 25.12 | 16.69 |
| Contracts less than \$10,000,000..... | \$ 22.33 | 16.69 |

IRON0025-002 06/01/2006

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

| | Rates | Fringes |
|--|----------|---------|
| Ironworkers: | | |
| Fence erector..... | \$ 21.22 | 18.45 |
| Ornamental, structural, precast erector..... | \$ 28.25 | 24.16 |
| Siding & decking..... | \$ 23.54 | 21.36 |

IRON0025-024 06/01/2006

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

| | Rates | Fringes |
|--|----------|---------|
| Ironworkers: | | |
| Machinery mover, rigger and machinery erector..... | \$ 27.20 | 20.62 |

IRON0026-014 06/01/2001

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

| | Rates | Fringes |
|------------------|----------|---------|
| Ironworkers: | | |
| Reinforcing..... | \$ 23.50 | 15.51 |
| Wire mesh..... | \$ 19.87 | 14.24 |

IRON0055-005 10/01/2006

LENAWEE AND MONROE COUNTIES:

| | Rates | Fringes |
|---|----------|---------|
| Ironworkers: | | |
| Metal fences and guardrails. | \$ 18.93 | 15.89 |
| Pre-engineered metal buildings, siding and decking..... | \$ 21.28 | 16.08 |
| All other work..... | \$ 26.00 | 16.08 |

FOOTNOTES:

Work in tunnels and caissons under pressure: ²⁹⁸ \$.50 per hour

additional. Work on furnaces, kilns or similar type units with a temperature of 125 degrees F. or over: \$1.00 per hour additional.

IRON0292-003 06/01/2006

BERRIEN AND CASS COUNTIES:

| | Rates | Fringes |
|-----------------|----------|---------|
| Ironworkers: | | |
| Cad welder..... | \$ 22.85 | 14.71 |
| Ironworker..... | \$ 22.35 | 14.71 |

IRON0340-001 01/01/2007

ALLEGAN, ANTRIM, BARRY, BENZIE, BRANCH, CALHOUN, CHARLEVOIX, EATON, EMMET, GRAND TRAVERSE, HILLSDALE, IONIA, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN AND WEXFORD COUNTIES:

| | Rates | Fringes |
|------------------------------|----------|---------|
| Ironworkers: | | |
| Reinforcing and structural.. | \$ 24.00 | 11.59 |

LABO0005-006 10/01/2006

| | Rates | Fringes |
|---|----------|---------|
| Laborers - hazardous waste abatement: (ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX, CHEBOYGAN, CRAWFORD, EMMET, GRAND TRAVERSE, IOSCO, KALKASKA, LEELANAU, MISSAUKEE, MONTMORENCY, OSCODA, OTSEGO, PRESQUE ISLE AND WEXFORD COUNTIES:) | | |
| Levels A, B or C..... | \$ 18.84 | 8.32 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D..... | \$ 17.84 | 8.32 |
| Laborers - hazardous waste abatement: (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:) | | |
| Work performed inside the building and up to and including 5 ft. outside the building: | | |
| Levels A, B or C..... | \$ 21.46 | 9.07 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D..... | \$ 20.46 | 9.07 |
| Work performed over 5 ft. outside the building: | | |
| Levels A, B or C..... | \$ 20.15 | 8.42 |
| Work performed in conjunction with site | | |

| | | |
|---|----------|------|
| preparation not requiring the use of personal protective equipment; | | |
| Also, Level D..... | \$ 19.15 | 8.42 |
| Laborers - hazardous waste abatement: (ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, IONIA COUNTY (except the city of Portland); KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH AND VAN BUREN COUNTIES:) | | |
| Levels A, B or C..... | \$ 20.15 | 8.55 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D..... | \$ 19.15 | 8.55 |
| Laborers - hazardous waste abatement: (ARENAC, BAY, CLARE, GLADWIN, GRATIOT, HURON, ISABELLA, MIDLAND, OGEMAW, ROSCOMMON, SAGINAW AND TUSCOLA COUNTIES:) | | |
| Levels A, B or C..... | \$ 21.54 | 8.42 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D..... | \$ 20.54 | 8.42 |
| Laborers - hazardous waste abatement: (CLINTON, EATON AND INGHAM COUNTIES; IONIA COUNTY (City of Portland); LIVINGSTON COUNTY (west of M-151 (Oak Grove Rd.), including the City of Howell):) | | |
| All work performed Levels A, B or C..... | \$ 21.23 | 8.52 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D..... | \$ 20.23 | 8.52 |
| Laborers - hazardous waste abatement: (GENESEE, LAPEER AND SHIAWASSEE COUNTIES:) | | |
| Levels A, B or C..... | \$ 21.94 | 8.47 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D..... | \$ 20.94 | 8.47 |
| Laborers - hazardous waste abatement: (HILLSDALE, JACKSON AND LENAWEE COUNTIES:) | | |
| Work performed inside the building and up to and | | |

| | | |
|--|--|-------|
| including 5 ft. outside the building: | | |
| Levels A, B or C.....\$ 21.88 | | 8.62 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D.....\$ 20.88 | | 8.62 |
| Work performed over 5 ft. outside the building: | | |
| Levels A, B or C.....\$ 22.67 | | 8.42 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D.....\$ 21.67 | | 8.42 |
| Laborers - hazardous waste abatement: (LIVINGSTON COUNTY (east of M-151 (Oak Grove Rd.) and south of M-59, excluding the city of Howell); AND WASHTENAW COUNTY:) | | |
| Work performed inside the building and up to and including 5 ft. outside the building: | | |
| Levels A, B or C.....\$ 26.41 | | 10.02 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D.....\$ 25.41 | | 10.02 |
| Work performed over 5 ft. outside the building: | | |
| Levels A, B or C.....\$ 22.67 | | 8.42 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D.....\$ 21.67 | | 8.42 |
| Laborers - hazardous waste abatement: (MACOMB AND WAYNE COUNTIES:) | | |
| Work performed inside the building and up to and including 5 ft. outside the building: | | |
| Levels A, B or C.....\$ 25.68 | | 11.65 |
| Work performed in conjunction with site preparation not requiring the use of personal protective equipment; | | |
| Also, Level D.....\$ 24.68 | | 11.65 |
| Work performed over 5 ft. outside the building: | | |
| Levels A, B or C.....\$ 22.64 | | 10.97 |
| Work performed in conjunction with site preparation not requiring the use of personal | | |

| | | |
|-------------------------------|----------|-------|
| protective equipment; | | |
| Also, Level D..... | \$ 21.64 | 10.97 |
| Laborers - hazardous waste | | |
| abatement: (MONROE COUNTY:) | | |
| Work performed inside the | | |
| building and up to and | | |
| including 5 ft. outside | | |
| the building: | | |
| Levels A, B or C..... | \$ 26.56 | 10.41 |
| Work performed in | | |
| conjunction with site | | |
| preparation not requiring | | |
| the use of personal | | |
| protective equipment; | | |
| Also, Level D..... | \$ 25.56 | 10.41 |
| Work performed over 5 ft. | | |
| outside the building line: | | |
| Levels A, B or C..... | \$ 22.67 | 8.42 |
| Work performed in | | |
| conjunction with site | | |
| preparation not requiring | | |
| the use of personal | | |
| protective equipment; | | |
| Also, Level D..... | \$ 21.67 | 8.42 |
| Laborers - hazardous waste | | |
| abatement: (Oakland County | | |
| and the North East portion of | | |
| Livingston County bordered by | | |
| M-151 (Oak Grove Road) on the | | |
| West and M-59 on the South.) | | |
| Level A, B, C..... | \$ 25.68 | 11.65 |
| Level D..... | \$ 24.68 | 11.65 |
| Laborers - hazardous waste | | |
| abatement: (SANILAC AND ST. | | |
| CLAIR COUNTIES:) | | |
| All work performed 5 feet | | |
| outside the building | | |
| Levels A, B or C..... | \$ 21.01 | 8.42 |
| Work performed in | | |
| conjunction with site | | |
| preparation not requiring | | |
| the use of personal | | |
| protective equipment; | | |
| Also, Level D..... | \$ 20.01 | 8.42 |
| Work performed inside the | | |
| building and up to and | | |
| including 5 ft. outside | | |
| the building: | | |
| Levels A, B or C..... | \$ 25.49 | 9.77 |
| Work performed in | | |
| conjunction with site | | |
| preparation not requiring | | |
| the use of personal | | |
| protective equipment; | | |
| Also, Level D..... | \$ 24.49 | 9.77 |

LABO0259-001 09/01/2006

| | Rates | Fringes |
|------------------------------|----------|---------|
| Laborers - tunnel, shaft and | | |
| caisson: | | |
| MACOMB, OAKLAND AND WAYNE | | |
| COUNTIES: | | |
| GROUP 1..... | \$ 21.34 | 11.03 |
| GROUP 2..... | \$ 21.45 | 11.03 |
| GROUP 3..... | \$ 21.51 | 11.03 |
| GROUP 4..... | \$ 21.69 | 11.03 |

| | | |
|--|----------|-------|
| GROUP 5..... | \$ 21.94 | 11.03 |
| GROUP 6..... | \$ 22.27 | 11.03 |
| GROUP 7..... | \$ 15.55 | 11.03 |
| STATEWIDE (Except Macomb, Oakland and Wayne Counties): | | |
| GROUP 1..... | \$ 21.92 | 8.48 |
| GROUP 2..... | \$ 22.01 | 8.48 |
| GROUP 3..... | \$ 22.11 | 8.48 |
| GROUP 4..... | \$ 22.27 | 8.48 |
| GROUP 5..... | \$ 22.53 | 8.48 |
| GROUP 6..... | \$ 22.84 | 8.48 |
| GROUP 7..... | \$ 15.11 | 8.48 |

SCOPE OF WORK: Tunnel, shaft and caisson work of every type and description and all operations incidental thereto, including, but not limited to, shafts and tunnels for sewers, water, subways, transportation, diversion, sewerage, caverns, shelters, aquifers, reservoirs, missile silos and steel sheeting for underground construction.

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Tunnel, shaft and caisson laborer, dump, shanty, hog house tender, testing (on gas) and watchman

GROUP 2: Manhole, headwall, catch basin builder, bricklayer tender, mortar machine, material mixer, fence erector and guard rail builder

GROUP 3: Air tool operator (jackhammer, bush hammer and grinder), first bottom, second bottom, cage tender, car pusher, carrier, concrete, concrete form, concrete repair, cement invert laborer, cement finisher, concrete shoveler, conveyor, floor, gasoline and electric tool operator, gunite, grout operator, welder, heading dinky person, inside lock tender, pea gravel operator, pump, outside lock tender, scaffold, top signal person, switch person, track, tugger, utility person, vibrator, winch operator, pipe jacking, wagon drill and air track operator and concrete saw operator (under 40 h.p.)

GROUP 4: Tunnel, shaft and caisson mucker, bracer, liner plate, long haul dinky driver and well point

GROUP 5: Tunnel, shaft and caisson miner, drill runner, key board operator, power knife operator, reinforced steel or mesh (e.g. wire mesh, steel mats, dowel bars, etc.)

GROUP 6: Dynamite and powder

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LABO0334-001 09/01/2006

| | Rates | Fringes |
|--------------------------|-------|---------|
| Laborers - open cut: | | |
| ALCONA, ALLEGAN, ALPENA, | | |
| ANTRIM, ARENAC, BARRY, | | |
| BAY, BENZIE, BERRIEN, | | |
| BRANCH, CALHOUN, CASS, | | |
| CHARLEVOIX, CHEBOYGAN, | | |
| CLARE, CRAWFORD, EMMET, | | |
| GLADWIN, GRAND TRAVERSE, | | |

GRATIOT AND HURON
COUNTIES; IONIA COUNTY
(EXCEPT THE CITY OF
PORTLAND); IOSCO,
ISABELLA, KALAMAZOO,
KALKASKA, KENT,
LAKE, LEELANAU, MANISTEE,
MASON, MECOSTA, MIDLAND,
MISSAUKEE, MONTCALM,
MONTMORENCY, MUSKEGON,
NEWAYGO, OCEANA, OGEMAW,
OSCEOLA, OSCODA, OSTEGO,
OTTAWA, PRESQUE ISLE,
ROSCOMMON, SAGINAW, ST.
JOSEPH, TUSCOLA, VAN BUREN

AND WEXFORD COUNTIES:

| | | |
|--------------|----------|------|
| GROUP 1..... | \$ 18.77 | 8.48 |
| GROUP 2..... | \$ 18.90 | 8.48 |
| GROUP 3..... | \$ 19.01 | 8.48 |
| GROUP 4..... | \$ 19.08 | 8.48 |
| GROUP 5..... | \$ 19.20 | 8.48 |
| GROUP 6..... | \$ 16.42 | 8.48 |
| GROUP 7..... | \$ 14.76 | 8.48 |

ALGER, BARAGA, CHIPPEWA,
DELTA, DICKINSON,
GOGEBIC, HOUGHTON, IRON,
KEWEENAW, LUCE, MACKINAC,
MARQUETTE, MENOMINEE,
ONTONAGON AND SCHOOLCRAFT

COUNTIES:

| | | |
|--------------|----------|------|
| GROUP 1..... | \$ 19.00 | 8.48 |
| GROUP 2..... | \$ 19.14 | 8.48 |
| GROUP 3..... | \$ 19.27 | 8.48 |
| GROUP 4..... | \$ 19.32 | 8.48 |
| GROUP 5..... | \$ 19.37 | 8.48 |
| GROUP 6..... | \$ 16.75 | 8.48 |
| GROUP 7..... | \$ 14.86 | 8.48 |

CLINTON, EATON, GENESEE,
HILLSDALE AND INGHAM
COUNTIES; IONIA COUNTY
(City of Portland);
JACKSON, LAPEER AND
LENAWEE COUNTIES;

LIVINGSTON COUNTY (west of
M-151 Oak Grove Rd.);

SANILAC, ST. CLAIR AND

SHIAWASSEE COUNTIES:

| | | |
|--------------|----------|------|
| GROUP 1..... | \$ 19.86 | 8.48 |
| GROUP 2..... | \$ 20.00 | 8.48 |
| GROUP 3..... | \$ 20.12 | 8.48 |
| GROUP 4..... | \$ 20.17 | 8.48 |
| GROUP 5..... | \$ 20.31 | 8.48 |
| GROUP 6..... | \$ 17.61 | 8.48 |
| GROUP 7..... | \$ 14.76 | 8.48 |

LIVINGSTON COUNTY (east of
M-151 (Oak Grove Rd.));

MONROE AND WASHTENAW

COUNTIES:

| | | |
|--------------|----------|------|
| GROUP 1..... | \$ 21.26 | 8.66 |
| GROUP 2..... | \$ 21.37 | 8.66 |
| GROUP 3..... | \$ 21.49 | 8.66 |
| GROUP 4..... | \$ 21.56 | 8.66 |
| GROUP 5..... | \$ 21.71 | 8.66 |
| GROUP 6..... | \$ 19.01 | 8.66 |
| GROUP 7..... | \$ 15.65 | 8.66 |

MACOMB, OAKLAND AND WAYNE

COUNTIES:

| | | |
|--------------|----------|-------|
| GROUP 1..... | \$ 21.19 | 11.03 |
| GROUP 2..... | \$ 21.30 | 11.03 |
| GROUP 3..... | \$ 21.35 | 11.03 |
| GROUP 4..... | \$ 21.43 | 11.03 |
| GROUP 5..... | \$ 21.49 | 11.03 |
| GROUP 6..... | \$ 18.94 | 11.03 |
| GROUP 7..... | \$ 15.56 | 11.03 |

SCOPE OF WORK:

Open cut construction work shall be construed to mean work which requires the excavation of earth including industrial, commercial and residential building site excavation and preparation, land balancing, demolition and removal of concrete and underground appurtenances, grading, paving, sewers, utilities and improvements; retention, oxidation, flocculation and irrigation facilities, and also including but not limited to underground piping, conduits, steel sheeting for underground construction, and all work incidental thereto, and general excavation. For all areas except the Upper Peninsula, open cut construction work shall also be construed to mean waterfront work, piers, docks, seawalls, breakwalls, marinas and all incidental work. Open cut construction work shall not include any structural modifications, alterations, additions and repairs to buildings, or highway work, including roads, streets, bridge construction and parking lots or steel erection work and excavation for the building itself and back filling inside of and within 5 ft. of the building and foundations, footings and piers for the building. Open cut construction work shall not include any work covered under Tunnel, Shaft and Caisson work.

OPEN CUT LABORER CLASSIFICATIONS

GROUP 1: Construction laborer

GROUP 2: Mortar and material mixer, concrete form person, signal person, well point person, manhole, headwall and catch basin builder, guard rail builder, headwall, seawall, breakwall, dock builder and fence erector

GROUP 3: Air, gasoline and electric tool operator, vibrator operator, driller, pump person, tar kettle operator, bracer, rodder, reinforced steel or mesh person (e.g., wire mesh, steel mats, dowel bars, etc.), welder, pipe jacking and boring person, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger person and directional boring person

GROUP 4: Trench or excavating grade person

GROUP 5: Pipe layer (including crock, metal pipe, multi-plate or other conduits)

GROUP 6: Grouting person, audio-visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

| | Rates | Fringes |
|---|----------|---------|
| Laborers: (does not include hazardous waste abatement; tunnel, shaft & caisson; or open cut construction) | | |
| ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OSTEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON AND WEXFORD | | |
| GROUP 1..... | \$ 20.52 | 9.27 |
| GROUP 2..... | \$ 20.73 | 9.27 |
| GROUP 3..... | \$ 21.02 | 9.27 |
| GROUP 4..... | \$ 21.46 | 9.27 |
| GROUP 5..... | \$ 21.08 | 9.27 |
| GROUP 6..... | \$ 21.51 | 9.27 |
| ALL COUNTIES IN THE UPPER PENINSULA OF MICHIGAN | | |
| GROUP 1..... | \$ 20.52 | 9.27 |
| GROUP 2..... | \$ 20.73 | 9.27 |
| GROUP 3..... | \$ 21.02 | 9.27 |
| GROUP 4..... | \$ 21.46 | 9.27 |
| GROUP 5..... | \$ 21.08 | 9.27 |
| GROUP 6..... | \$ 21.51 | 9.27 |
| ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA AND VAN BUREN COUNTIES: | | |
| GROUP 1..... | \$ 21.27 | 9.27 |
| GROUP 2..... | \$ 21.47 | 9.27 |
| GROUP 3..... | \$ 21.71 | 9.27 |
| GROUP 4..... | \$ 22.06 | 9.27 |
| GROUP 5..... | \$ 21.93 | 9.27 |
| GROUP 6..... | \$ 22.27 | 9.27 |
| GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES: | | |
| GROUP 1..... | \$ 23.02 | 9.32 |
| GROUP 2..... | \$ 23.15 | 9.32 |
| GROUP 3..... | \$ 23.33 | 9.32 |
| GROUP 4..... | \$ 23.41 | 9.32 |
| GROUP 5..... | \$ 23.62 | 9.32 |
| GROUP 6..... | \$ 23.92 | 9.32 |

LABORER CLASSIFICATIONS

GROUP 1: Asphalt shoveler or loader; asphalt plant misc.; burlap person; yard person; dumper (wagon, truck, etc.); joint filling laborer; miscellaneous laborer; unskilled

laborer; sprinkler laborer; form setting laborer; form stripper; pavement reinforcing; handling and placing (e.g., wire mesh, steel mats, dowel bars); mason's tender or bricklayer's tender on manholes; manhole builder; headwalls, etc.; waterproofing, (other than buildings) seal coating and slurry mix, shoring, underpinning; pressure grouting; bridge pin and hanger removal; material recycling laborer; horizontal paver laborer (brick, concrete, clay, stone and asphalt); ground stabilization and modification laborer; grouting; waterblasting; top person; railroad track and trestle laborer; carpenters' tender; guard rail builders' tender; earth retention barrier and wall and M.S.E. wall installer's tender; highway and median installer's tender (including sound, retaining, and crash barriers); fence erector's tender; asphalt raker tender; sign installer; remote control operated equipment.

GROUP 2: Mixer operator (less than 5 sacks); air or electric tool operator (jackhammer, etc.); spreader; boxperson (asphalt, stone, gravel); concrete paddler; power chain saw operator; paving batch truck dumper; tunnel mucker (highway work only); concrete saw (under 40 h.p.) and dry pack machine; roto-mill grounds person.

GROUP 3: Tunnel miner (highway work only); finishers tenders; guard rail builders; highway and median barrier installer; earth retention barrier and wall and M.S.E. wall installer's (including sound, retaining and crash barriers); fence erector; bottom person; powder person; wagon drill and air track operator; diamond and core drills; grade checker; certified welders; curb and side rail setter's tender.

GROUP 4: Asphalt raker

GROUP 5: Pipe layers, oxy-gun

GROUP 6: Line-form setter for curb or pavement; asphalt screed checker/screw man on asphalt paving machines.

 * PAIN0022-002 06/01/2007

HILLSDALE, JACKSON AND LENAWEE COUNTIES; LIVINGSTON COUNTY (east of the eastern city limits of Howell, not including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES:

| | Rates | Fringes |
|--------------|----------|---------|
| PAINTER..... | \$ 24.46 | 14.25 |

FOOTNOTES: For all spray work and journeyman rigging for spray work, also blowing off, \$0.80 per hour additional (applies only to workers doing rigging for spray work on off the floor work. Does not include setting up or moving rigging on floor surfaces, nor does it apply to workers engaged in covering up or tending spray equipment. For all sandblasting and spray work performed on highway bridges, overpasses, tanks or steel, \$0.80 per hour additional. For all brushing, cleaning and other preparatory work (other than spraying or steeplejack work) at scaffold heights of fifty (50) feet from the ground or higher, \$0.50 per hour additional. For all preparatorial work and painting performed on open steel under forty (40) feet when no scaffolding is involved, \$0.50 per hour additional. For all swing stage work-window jacks and window belts, exterior and interior, \$0.50 per hour additional. For all spray work and

sandblaster work to a scaffold height of forty (40) feet above the floor level, \$0.80 per hour additional. For all preparatorial work and painting on all highway bridges or overpasses up to forty (40) feet in height, \$0.50 per hour additional. For all steeplejack work performed where the elevation is forty (40) feet or more, \$1.25 per hour additional.

 PAIN0312-001 06/01/2003

ALLEGAN COUNTY (does not include the townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland)); BARRY, BRANCH AND CALHOUN COUNTIES; CASS COUNTY (east of an imaginary line running north and south through the town of Cassopolis); EATON COUNTY (Townships of Bellevue and Olivet); KALAMAZOO AND ST. JOSEPH COUNTIES; VAN BUREN COUNTY (east of an imaginary line running north and south through the town of Lawrence):

| | Rates | Fringes |
|---|----------|---------|
| Painters: | | |
| Brush and roller; sign painting..... | \$ 18.70 | 8.05 |
| Mechanical roller..... | \$ 19.40 | 8.05 |
| Spray and sandblast..... | \$ 19.90 | 8.05 |
| Swing stage, structural steel, steeplejack, boatswain chair and confined space..... | \$ 19.50 | 8.05 |

 * PAIN0845-003 05/10/2003

CLINTON COUNTY; EATON COUNTY (does not include the townships of Bellevue and Olivet); INGHAM COUNTIES; IONIA COUNTY (east of Hwy. M 66); LIVINGSTON COUNTY (west of the eastern city limits of Howell, including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); AND SHIAWASSEE COUNTY (Townships of Bennington, Laingsbury and Perry):

| | Rates | Fringes |
|--------------|----------|---------|
| PAINTER..... | \$ 20.83 | 7.37 |

FOOTNOTES: Work on vinyl, spray, blow-off, blast-all blasting including water blasting, lead, all epoxy, and high rate: \$.85 per hour additional.

 PAIN0845-015 06/01/1998

MUSKEGON COUNTY; NEWAYGO COUNTY (except the Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OCEANA COUNTY; OTTAWA COUNTY (except the townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

| | Rates | Fringes |
|---|----------|---------|
| Painters: | | |
| Brush (falling distance which exceeds 30')..... | \$ 17.45 | 2.31 |
| Brush and roller..... | \$ 16.95 | 2.31 |
| Spray (falling distance which exceeds 30'); Sandblasting (falling distance which exceeds 30'); High work (all | | |

| | | |
|---|----------|------|
| preparatorial work, sand blasting, and painting from a falling height exceeding 30 ft. on the following named structures: radio towers, exterior cranes but not including work performed from scaffolding or a platform or basket suspended from a crane or hoist)..... | \$ 18.20 | 2.31 |
| Spray; Sandblasting; Hydroblast (handheld lance 5,000 PSI and over); Power grinders (7" disc or over)..... | \$ 17.70 | 2.31 |
| Work performed in confined spaces..... | \$ 18.45 | 2.31 |

PAIN0845-018 05/11/2000

ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); IONIA COUNTY (west of Hwy. M-66); KENT, MECOSTA AND MONTCALM COUNTIES; NEWAYGO COUNTY (Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OSCEOLA COUNTY (south of Hwy. #10); OTTAWA COUNTY (Townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

| | Rates | Fringes |
|---|----------|---------|
| Painters: | | |
| Bridges over highways and railroads: | | |
| Brush..... | \$ 15.41 | 5.66 |
| Spray..... | \$ 16.41 | 5.66 |
| Water - sandblast..... | \$ 16.91 | 5.66 |
| Brush, swing stage; window jacks and belts..... | | |
| Brush..... | \$ 15.16 | 5.66 |
| Electric substations..... | \$ 16.66 | 5.66 |
| Fireproofing work..... | \$ 16.16 | 5.66 |
| Interior high work: | | |
| Brush..... | \$ 16.66 | 5.66 |
| Spray..... | \$ 17.66 | 5.66 |
| Interior pipes closed vessels and closed tanks: | | |
| Brush..... | \$ 15.66 | 5.66 |
| Spray..... | \$ 16.66 | 5.66 |
| Spray or sandblast, swing stage; steeplejack..... | | |
| Spray..... | \$ 16.16 | 5.66 |
| Steamclean..... | \$ 16.16 | 5.66 |
| Waterblast; sandblast..... | \$ 16.91 | 5.66 |

FOOTNOTES: Lead abatement work: \$1.00 per hour additional.

* PAIN1011-003 06/01/2007

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

Rates Fringes

PAINTER.....\$ 21.50 7.90

FOOTNOTES: High pay (bridges, overpasses, watertower): 30 to 80 ft.: \$.65 per hour additional. 80 ft. and over: \$1.30 per hour additional.

PAIN1474-002 06/01/2007

HURON COUNTY; LAPEER COUNTY (east of Hwy. M-53); ST. CLAIR, SANILAC AND TUSCOLA COUNTIES:

Painters:..... Rates Fringes
.....\$ 24.00 10.75

FOOTNOTES: Lead abatement work: \$1.00 per hour additional. Work with any hazardous material: \$1.00 per hour additional. Sandblasting, steam cleaning and acid cleaning: \$1.00 per hour additional. Ladder work at or above 40 ft., scaffold work at or above 40 ft., swing stage, boatswain chair, window jacks and all work performed over a falling height of 40 ft.: \$1.00 per hour additional. Spray gun work, pick pullers and those handling needles, blowing off by air pressure, and any person rigging (setting up and moving off the ground): \$1.00 per hour additional. Steeplejack, tanks, gas holders, stacks, flag poles, radio towers and beacons, power line towers, bridges, etc.: \$1.00 per hour additional, paid from the ground up.

PAIN1803-003 06/01/2007

ALCONA, ALPENA, ANTRIM, ARENAC, BAY, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT, IOSCO, ISABELLA, KALKASKA, LAKE, LEELANAU, MANISTEE, MASON, MIDLAND, MISSAUKEE, MONTMORENCY AND OGEMAW COUNTIES; OSCEOLA COUNTY (north of Hwy. #10); OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW AND WEXFORD COUNTIES:

Painters: Rates Fringes
Work performed on water, bridges over water or moving traffic, radio and powerline towers, elevated tanks, steeples, smoke stacks over 40 ft. of falling heights, recovery of lead-based paints and any work associated with industrial plants, except maintenance of industrial plants.....\$ 22.50 10.75
All other work, including maintenance of industrial plant.....\$ 21.08 10.75

FOOTNOTES: Spray painting, sandblasting, blowdown associated with spraying and blasting, water blasting and work involving a swing stage, boatswain chair or spider: \$1.00 per hour additional. All work performed inside tanks, vessels, tank trailers, railroad cars, sewers, smoke stacks, boilers or other spaces having limited egress not including buildings, opentop tanks, pits, etc.: \$1.25 per hour additional.

* PLAS0016-016 06/01/2007

| | Rates | Fringes |
|--|----------|---------|
| CEMENT MASON/CONCRETE FINISHER GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES..... | \$ 26.68 | 9.30 |
| STATEWIDE (Does not include Genesee, Livingston, Macomb, Monroe, Oakland, Saginaw, Washtenaw and Wayne Counties)..... | \$ 25.18 | 9.30 |

| PLUM0190-003 05/01/2007 | | |
|---|----------|---------|
| | Rates | Fringes |
| Plumber/Pipefitter - gas distribution pipeline: Welding in conjunction with gas distribution pipeline work..... | \$ 27.13 | 14.41 |
| All other work:..... | \$ 19.78 | 9.10 |

| SUMI2002-001 05/01/2002 | | |
|--|----------|---------|
| | Rates | Fringes |
| Flag Person..... | \$ 7.22 | |
| Pavement Marking Machine (line protector) (GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)..... | \$ 17.39 | 7.55 |
| Pavement Marking Machine (line protector) (STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)..... | \$ 16.11 | 7.50 |
| Pavement Marking Machine (STATEWIDE EXCEPT GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW and WAYNE)..... | \$ 20.14 | 7.50 |
| Pavement Marking Machine GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES:..... | \$ 21.74 | 7.55 |

PAVEMENT MARKER AND LINE PROTECTOR CLASSIFICATIONS PAVEMENT
MARKER: Performs all operations, including use of all tools
and equipment for the placement or removal of pavement
marking or markers.

LINE PROTECTOR: Performs all operations for the protection of
fresh markings or markers in a striping convoy operation.

| TEAM0007-004 06/01/2004 | | |
|--|-----------|------------------|
| | Rates | Fringes |
| Truck drivers: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES: Euclids, double bottomms and lowboys..... | \$ 23.645 | 311 .50 + a+b |

| | |
|--|-----------|
| Trucks under 8 cu. yds.....\$ 23.395 | .50 + a+b |
| GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNECOUNTIES: | |
| Trucks, 8 cu. yds. and over.....\$ 23.495 | .50 + a+b |
| STATEWIDE (Does not include Genesee, Livingston, Macomb, Monroe, Oakland, Washtenaw and Wayne Counties): | |
| Euclids, double bottoms and lowboys.....\$ 23.545 | .50 + a+b |
| Trucks under 8 cu. yds.....\$ 23.295 | .50 + a+b |
| Trucks, 8 cu. yds. and over.....\$ 23.395 | .50 + a+b |

Footnote: a. \$265.90 per week
b. \$28.00 daily

TEAM0247-004 06/01/2004

| | Rates | Fringes |
|---|-------|---------|
| Sign Installer | | |
| GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES: | | |
| GROUP 1.....\$ 21.73 | | .15 + a |
| GROUP 2.....\$ 21.48 | | .15 + a |
| STATEWIDE (Does not include Genesee, Macomb, Monroe, Oakland, Washtenaw and Wayne Counties): | | |
| GROUP 1.....\$ 20.18 | | .15 + a |
| GROUP 2.....\$ 19.93 | | .15 + a |

FOOTNOTE:

a. \$132.70 per week, plus \$17.80 per day.

SIGN INSTALLER CLASSIFICATION:S

GROUP 1: performs all necessary labor and uses all tools required to construct and set concrete forms required in the installation of highway and street signs

GROUP 2: performs all miscellaneous labor, uses all hand and power tools, and operates all other equipment, mobile or otherwise, required for the installation of highway and street signs

TEAM0247-010 04/01/2004

| | Rates | Fringes |
|--|------------|---------|
| Truck drivers - underground construction: | | |
| GENESEE, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE | | |
| GROUP 1.....\$ 20.92 | 172.80/wk | +34.0 |
| GROUP 2.....\$ 21.06 | 172.80/wk. | +34.0 |
| GROUP 3.....\$ 21.25 | 172.80/wk. | +34.0 |
| LAPEER AND SHIAWASSEE COUNTIES: | | |
| GROUP 1.....\$ 20.72 | 172.80/wk. | +34.0 |
| GROUP 2.....\$ 20.81 | 172.80/wk. | +34.0 |
| GROUP 3.....\$ 21.02 | 172.80/wk. | +34.0 |

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

SCOPE OF WORK: Excavation, site preparation, land balancing, grading, sewers, utilities and improvements; also including but not limited to, tunnels, underground piping, retention, oxidation, flocculation facilities, conduits, general excavation and steel sheeting for underground construction. Underground construction work shall not include any structural modifications, alterations, additions and repairs to buildings or highway work, including roads, streets, bridge construction and parking lots or steel erection.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver on all trucks (EXCEPT dump trucks of 8 cubic yards capacity or over, pole trailers, semis, low boys, Euclid, double bottom and fuel trucks)

GROUP 2: Truck driver on dump trucks of 8 cubic yards capacity or over, pole trailers, semis and fuel trucks

GROUP 3: Truck driver on low boy, Euclid and double bottom

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.
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END OF GENERAL DECISION

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

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ATTACHMENTS

**A. Employment Preference for Appalachian Contracts
(included in Appalachian contracts only)**

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4, and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

- a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

- b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation. 1

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 and 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 employee 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 with 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 qualifiable 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 questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

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 case 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 an 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, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the

Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 21, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section

308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "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.

* * * * *

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 judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with

which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier 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.

* * * * *

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.