DOCUMENTATION GUIDE

(Minimum Documentation Requirements for Pay Item Approvals and Material Acceptance)

March 2024

MDOT

CONSTRUCTION
Field Services Division

For copies of this manual visit our Web Site at
the following link MDOT Construction Manual

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DOCUMENTATION REQUIREMENTS FOR PROJECTS

This document is intended for use as a **GUIDE** to assist in project documentation of construction operations. It is a working document and will be updated as required. It is the responsibility of the managing office preparing the project record files to verify that the requirements are current.

e-FINAL PROJECT REVIEWS

The purpose of the e-Final Project Review is to determine whether the documentation is in substantial compliance with the plans, specifications and properly authorized contract modifications. Refer to MDOT Construction Manual 109.07.06 e-Final Review Procedures.

Particular attention will be focused on the proper use of FieldManager, FieldBook, and ProjectWise in the cross-referencing of pay items and source documents (IDRs, certifications, MSL's, test reports, project file for numbers/descriptions/forms, etc.). The correct use of FieldManager provides reviewers with good cross-references for finding the documentation in the Construction Document Management System (ProjectWise).

NOTES PAGE:

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

Aggregate:	A minimum of one satisfactory test per tester/per season (NHS Routes ONLY)
Concrete Field Testing:	A minimum of one satisfactory test, per tester/per season (NHS Routes ONLY)
Concrete Cylinder Strength Testing:	A minimum of one satisfactory test, per tester/per season (NHS Routes ONLY)
Density:	A minimum of one satisfactory test per tester/per type/per season (NHS Routes ONLY)
HMA:	A minimum of one satisfactory test, per tester/ per type / per season (NHS Routes ONLY)
Note:	Qualified sampling and testing personnel, other than those performing the Quality Assurance (QA) sampling and testing, should perform the Independent Assurance (IA) tests. Likewise, equipment other than that used for QA should be used for IA sampling and testing.

***MDOT LET PROJECTS*:**
Aggregate, Concrete, Density, and HMA testing must be performed by: QA testing personnel must be CERTIFIED.

AGGREGATES:
One scale test per year if plant is stationary (if material is paid by the ton), per subsection 104.01.F of the current Standard Specification and per the Weights and Measures Act, MCL 290.601 et seq., and the requirements of the NIST Handbook 44, Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices.

BUY AMERICA:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See MDOT Construction Section 105.10.

CONSTRUCTION MANUAL:
Refer to the Construction Manual for current and updated information. MDOT Construction Manual.

MATERIAL ACCEPTANCE REQUIREMENTS TABLE:
Verify requirements from current edition of the guide at the time of letting. Materials Source Guide

MATERIAL SOURCE LIST (FORM 501):
The completed 501 form must be submitted in to ProjectWise by the contractor.
See the MQAP Chapter 1.04 for the requirements. MQAP Manual

QUALIFIED PRODUCTS LIST (QPL):
A QPL material should be field verified by construction staff to the extent possible.
The Office Tech must verify that material listed on the Material Source List is from the QPL.
See the MDOT Materials Source Guide / MDOT MQAP.

HMA TICKETS:
Immediate possession of tickets is required for items paid by ton (weight).
See the Construction Manual 102 Contract Administration and Oversight Guidelines for Projects

ROUNDING GUIDE:
For Pay Items make sure you are carrying the correct number of significant digits and do not round until the end of the calculation as described in Standard Rounding Convention Guidance.

Links to Guides and Manuals

2020 Standard Specifications for Construction with Errata
Construction Manual
Density Testing and Inspection Manual
Field Manual for Concrete Anchoring
Field Manual for Pile Welding
Field Manual for Structural Bolting
Field Manual for Structural Welding
Geotechnical Manual
HMA Production Manual
Manual for the Michigan Test Methods (MTM)
Materials Quality Assurance Procedures (MQAP) Manual
Materials Source Guide
MDOT Shop Drawing Review Process
Michigan Manual on Uniform Traffic Control Devices
Procedures for Aggregate Inspection
Road and Bridge Standard Plans
Soil Erosion and Sedimentation Control Manual
Structural Fabrication Quality Manual
Traffic and Safety Standards and Special Details

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2050001 **BACKFILL, SWAMP**
Pg 1 of 2 Pay Unit: Cubic Yard

MATERIALS: Granular Material Class III

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: "I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated. Date_____Signature_____." This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files.
   a. One test per 10,000 cubic yards.

2050001 **BACKFILL, SWAMP**
Pg 2 of 2

Job Site/On Site Sources:

1. Test reports must be in project files.
   a. One test per 10,000 cubic yards.

Visual Inspection: Maximum 500 cubic yards per project

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

1. Measurement and payment
   a. Prior to start of work the engineer and contractor can agree to plan quantity.
   b. Engineer will measure volume in original position. If it is not practical to calculate the volume in its original position, the engineer will calculate the volume within the limits of the plans, or from soil borings and increase the volume by 15%.
   c. Comparison of digital terrain models may be used if agreed to by the Contractor and the Engineer prior to the start of work.

2. Density Reports
   a. Controlled Density Method (Standard Specifications 205.03.H.4.a). Review reports to see that all tests and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 1000 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

NOTE: Refer to Standard Plan R-103 Series

2050010 **EMBANKMENT, CIP**
Pg 1 of 2 Pay Unit: Cubic Yard

MATERIALS: Granular Material Class II or Granular Material Class III, Sound Earth

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

2050010 EMBANKMENT, CIP
Pg 2 of 3

Non-Prequalified Sources:
1. Test reports must be in project files.
   a. Class II – One test per 3,000 cubic yards.
   b. Class III - One test per 10,000 cubic yards.

Job Site/On Site Sources:
1. Test reports must be in project files
   a. Class II – One test per 3,000 cubic yards.
   b. Class III – One test per 10,000 cubic yards.

Visual Inspection: Maximum 500 cubic yards per material class per project.

Sound Earth
1. No Organic Material
2. Unit Weight of at least 95 pounds per cubic foot.
3. Compact to the Required Density for the Item of Work.

Visual Inspection: All material placed.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS
1. See Notes page for IAT requirements.

CONSTRUCTION
2. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR
   c. Grade checks once every 50 feet across the section. Tolerance +/- 1 inch if subbase is required and +/- ¾ inch if subbase is not required.

3. Measurement and payment.
   a. Prior to start of work the engineer and contractor can agree to plan quantity.
   b. Engineer will measure volume based on the grade and cross section shown on the plans if not by plan quantity.
   c. Comparison of digital terrain models may be used if agreed to by the Contractor and the Engineer prior to the start of work.

4. Density Reports.
   a. Controlled Density Method (Standard Specifications 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 1000 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer.

b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2050011 **EMBANKMENT, LM**
Pg 1 of 2 Pay Unit: Cubic Yard

MATERIALS: Granular Material Class II or Granular Material Class III, Sound Earth

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated. Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files

2050011 EMBANKMENT, LM
Pg 2 of 2

a. Class II – One test per 3,000 cubic yards.
b. Class III - One test per 10,000 cubic yards.

Job Site/On Site Sources:
1. Test reports must be in project files.
   a. Class II – One test per 3,000 cubic yards.
   b. Class III - One test per 10,000 cubic yards.

Visual Inspection: Maximum 500 cubic yards per material class per project.

Sound Earth
1. No Organic Material
2. Unit Weight of at least 95 pounds per cubic foot.
3. Compact to the Required Density for the Item of Work.

Visual Inspection: All material placed.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS
1. See Notes page for IAT requirements.

CONSTRUCTION
1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Grade checks once every 50 feet across the section. Tolerance +/- 1 inch if subbase is required and +/- ¾ inch if subbase is not required.

2. Measurement and payment.
   a. Prior to start of work the engineer and contractor can agree to plan quantity.
   b. Engineer will measure by volume, LM (Standard Specifications 109.01.B.2).

3. Density Reports.
   a. Controlled Density Method (Standard Specifications 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 1000 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2050012 **EMBANKMENT, STRUCTURE, CIP**
Pg 1 of 2 Pay Unit: Cubic Yard

MATERIALS: Granular Material Class III, Sound Earth (if allowed)

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files

a. Class III - One test per 10,000 cubic yards.

Job Site/On Site Sources:

1. Test reports must be in project files.
   a. Class III - One test per 10,000 cubic yards.

Visual Inspection: Maximum 500 cubic yards per material class per project.

Sound Earth

1. For use under structure footing supported by piling if allowed by Engineer.

Visual Inspection: All material placed.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment.
   a. Prior to start of work the engineer and contractor can agree to plan quantity.
   b. Engineer will measure volume based on the grade and cross section shown on the plans if not by plan quantity.
   c. Comparison of digital terrain models may be used if agreed to by the Contractor and the Engineer prior to the start of work.

3. Density Reports.
   a. Controlled Density Method (Standard Specifications 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 1000 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer.
   b. Original ground must be compacted to 95 percent of maximum unit weight and at least 9 inches deep.
   c. Backfill material must be compacted to 100 percent of maximum unit weight under structure footing for which piling is not specified.
   d. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2050016 **EXCAVATION, EARTH**
Pg 1 of 1 Pay Unit: Cubic Yard

MATERIALS: Existing Material at Cut Depth

ACCEPTANCE TESTING REQUIREMENTS

Existing Material

1. Compact the subgrade to at least 95 percent of its maximum unit weight to a depth of at least 10 inches.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Grade checks once every 50 feet across the section. Tolerance +/- 1 inch if subbase is required and +/- ¾ inch if subbase is not required.

2. Measurement and payment.
   a. Prior to start of work the engineer and contractor can agree to plan quantity.
   b. Engineer will measure volume based on the grade and cross section shown on the plans if not by plan quantity.
   c. Comparison of digital terrain models may be used if agreed to by the Contractor and the Engineer prior to the start of work.

3. Density Reports.
   a. Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of 1 test per 500 feet per width of 24 feet or less.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2050040 **SUBGRADE UNDERCUTTING, TYPE I**
Pg 1 of 1 Pay Unit: Cubic Yard

MATERIALS: Selected Clay or other Engineer Approved Material

ACCEPTANCE TESTING REQUIREMENTS

Clay

Visual Inspection: All material placed.

Engineer Approved Material

1. If approved material is used, follow the acceptance testing requirements from the Current Standard Specification.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Grade checks once every 50 feet across the section. Tolerance +/- 1 inch if subbase is required and +/- ¾ inch if subbase is not required.

2. Measurement and payment.
   a. Prior to start of work the engineer and contractor can agree to plan quantity.
   b. Engineer will measure in its original position.
   c. Comparison of digital terrain models may be used if agreed to by the Contractor and the Engineer prior to the start of work

3. Density Reports.
   a. Controlled Density Method (Standard Specifications 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 500 feet per width of 24 feet or less. Material must be compacted to 95 percent of maximum unit weight.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2050041 **SUBGRADE UNDERCUTTING, TYPE II**
Pg 1 of 2 Pay Unit: Cubic Yard

MATERIALS: Granular Material Class II

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: "I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files.
   a. Class II - One test per 3,000 cubic yards.

2050041 **SUBGRADE UNDERCUTTING, TYPE II**
Pg 2 of 2

Job Site/On Site Sources:

1. Test reports must be in project files
   a. Class II - One test per 3,000 cubic yards.

Visual Inspection: Maximum 500 cubic yards per project.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page at the beginning of this document for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Grade checks once every 50 feet across the section. Tolerance +/- 1 inch if subbase is required and +/- ¾ inch if subbase is not required.

2. Measurement and payment.
   a. Prior to start of work the engineer and contractor can agree to plan quantity
   b. Engineer will measure in its original position.
   c. Comparison of digital terrain models may be used if agreed to by the Contractor and the Engineer prior to the start of work.

3. Density Reports.
   a. Controlled Density Method (Standard Specifications 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 500 feet per width of 24 feet or less. Material must be compacted to 95 percent of maximum unit weight.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2050042 **SUBGRADE UNDERCUTTING, TYPE III**
Pg 1 of 1 Pay Unit: Cubic Yard

MATERIALS: Excavated Material effectively mixed or Engineer Approved Material

ACCEPTANCE TESTING REQUIREMENTS

Excavated Material

Visual Inspection: All material placed.

Engineer Approved Material

1. If approved material is used in lieu of excavated material, follow the acceptance testing requirements from the Current Standard Specification.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Grade checks once every 50 feet across the section. Tolerance +/- 1 inch if subbase is required and +/- ¾ inch if subbase is not required.

2. Measurement and payment.
   a. Prior to start of work the engineer and contractor can agree to plan quantity.
   b. Engineer will measure in its original position.
   c. Comparison of digital terrain models may be used if agreed to by the Contractor and the Engineer prior to the start of work.

3. Density Reports.
   a. Controlled Density Method (Standard Specifications 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 500 per width of 24 feet or less. Material must be compacted to 95 percent of maximum unit weight.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2060002 **BACKFILL, STRUCTURE, CIP**
Pg 1 of 2 Pay Unit: Cubic Yard

MATERIALS: Granular Material Class II

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: "I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files
   a. Class II Structure Backfill - One test per structure.

2060002 BACKFILL, STRUCTURE, CIP
Pg 2 of 2

Job Site/On Site Sources:

1. Test reports must be in project files.
   a. Class II Structure Backfill - One test per structure.

Visual Inspection: Maximum 100 cubic yards per structure.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment.
   a. Engineer will base payment on plan quantity in accordance with subsection 109.01.A.

3. Density Reports.
   a. Controlled Density Method (Standard Specifications 206.03.B.2). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 300 cubic yards and regardless of the volume of material placed, a minimum of one test must be taken for each layer.
   b. For Bridges, Pump Stations, Retaining Walls, and Culverts (Other Than Pipe). Place backfill in 6-inch layers and compact each layer to 100% of the maximum unit weight in the load-bearing area. (Standard Specifications 206.03.B.2.a)
   c. For miscellaneous structures, place backfill in 12-inch layers and each layer must be compacted to 95 percent of maximum unit weight. (Standard Specifications 206.03.B.2.b)
   d. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

2080012 **EROSION CONTROL, Check Dam, Stone**
Pg 1 of 1 Pay Unit: Foot

MATERIALS: Cobblestone / Broken Concrete

ACCEPTANCE TESTING REQUIREMENTS

Cobblestone / Broken Concrete

1. Visual Inspection

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment.
   a. Engineer will measure in place.

NOTE: Refer to Standard Plan R-96 Series, Soil Erosion And Sedimentation Control Manual

2080025 **EROSION CONTROL, SILT FENCE**
Pg 1 of 1 Pay Unit: Foot

MATERIALS: Geosynthetics, Stakes and Lath (Silt Fence)

ACCEPTANCE TESTING REQUIREMENTS

Silt Fence

1. A certification from the Approved Manufacturer of the silt fence system.
2. Fabric Visual inspection, must be on Qualified Product List.

Or

If not from an approved manufacturer then test prior to incorporation. Sample size: 1 sample for the first 3000 ft or fraction thereof; 1 sample for each additional 10,000 ft or fraction thereof; 1 piece 8 ft long by full fence height include 2 attached posts and lath.

Visual Inspection: Maximum 500 feet.

CONSTRUCTION

3. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

4. Measurement and payment.
   a. Engineer will measure in place excluding overlap.

NOTE: Refer to Standard Plan R-96 Series, Soil Erosion And Sedimentation Control Manual

3010002 SUBBASE, CIP
3010003 SUBBASE, LM
Pg 1 of 2 Pay Unit: Cubic Yard

MATERIALS: Granular Material Class II

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files.
   a. Class II - One test per 3,000 cubic yards.

3010002 SUBBASE, CIP
3010003 SUBBASE, LM
Pg 2 of 2

Job Site/On Site Sources:

1. Test reports must be in project files.
   a. Class II - One test per 3,000 cubic yards.

Visual Inspection: Maximum 500 cubic yards per project.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENT

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Grade checks once every 50 feet across the section. Tolerance + 1 inch. IE: This will be measured + 1 inch down from the String line set at grade.

2. Measurement and payment.
   a. Engineer will measure CIP based on staked-section method as described in subsection 205.04.
   b. LM will be based on hauling unit dimensions and load counts.

3. Density Reports.
   a. Refer to section 301 Subbase. Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 500 feet per width of 24 feet or less. Material must be compacted to 95 percent of maximum unit weight.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

3020001 **AGGREGATE BASE**
3020002 **AGGREGATE BASE, LM**
3020008 – 3020030 **AGGREGATE BASE,___INCH**
Pg 1 of 3 Pay Unit: Cubic Yard, Square Yard, Ton

MATERIALS: Dense Graded Aggregate - 21AA, 21A, 22A
or O.G.D.C. if added by special provision

ACCEPTANCE TESTING REQUIREMENTS

Aggregates

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. If paid by square yard or cubic yard, truck number and time are not required on tickets/documentation.

3. Documentation verifying passing QA test results in project files.

4. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

5. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date _____ Signature_____.
   This statement must be signed by an authorized company representative. This statement does not signify acceptance by MDOT of the aggregate.

Non-Prequalified Sources:

1. One ticket REQUIRED per load containing the following data **if applicable**

3020001 AGGREGATE BASE
3020002 AGGREGATE BASE, LM
3020008 – 3020030 AGGREGATE BASE,___INCH

a. MDOT aggregate source number
b. Date and time of shipment
c. MDOT control section and job number
d. Michigan series number and class letter of aggregate
e. Weight or volume shipped
f. Suppliers name, telephone number and location
g. Truck identifier number
h. Type of aggregate approval.

2. Test reports must be in project files.
   a. One test per 1,000 tons

Job site/On site Sources:
1. Test reports must be in project files
   a. One test per 1,000 Tons
   b. Weigh Tickets required if paid by ton

Visual Inspection: Maximum VI 500 tons per material class per project

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS
1. See Notes page for IAT requirements

CONSTRUCTION
1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Moisture check required on ton pay items by inspector and note on the DWR/IDR.
   d. Grade checks required once every 50 feet across the section. Tolerance +/- 1/2 inch.
   e. Depth Checks are to be taken after final trimming to the nearest 1/4 inch (6mm), at a minimum of 400 linear feet (120 m) of traffic lane width or two lanes if simultaneous construction. For irregular areas, intersections, crossover widening strips, etc., take one depth check for each 1200 square yards (1,000 m^2) of area or fraction thereof.

2. Measurement and payment
   a. Tons: Engineer will measure scale weight of the material, including ad mixtures and moisture content no greater than 8%, if over 8% refer to section 109.01.
   b. LM: Engineer will measure based on hauling unit dimensions and load count before placement and compaction.

c. LM: Engineer will measure based on hauling unit dimensions and load count before placement and compaction

3. Density Reports
   a. Refer to Standard Specification subsection 302.03A, Placing and Compacting. Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 500 feet per width of 24 feet or less.
   b. Aggregate must be compacted to 95 percent of maximum unit weight under concrete
   c. Aggregate must be compacted to 98 percent of maximum unit weight under HMA pavement.
   d. Aggregate must be compacted to 98 percent of maximum unit weight under bridge approaches , from the abutment wall to the typical roadway cross section, compact each layer of the aggregate.
   e. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

3030004 – 3030006 **OPEN-GRADED DR CSE,___INCH**
Pg 1 of 2 Pay Unit: Square Yard

MATERIALS: Open Graded Aggregate 4G

ACCEPTANCE TESTING REQUIREMENTS

Aggregates

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date _____ Signature_____.
   This statement must be signed by an authorized company representative. This statement does not signify acceptance by MDOT of the aggregate.

Non-Prequalified Sources:

1. One ticket REQUIRED per load containing the following data **if applicable**
   a. MDOT aggregate source number
   b. Date and time of shipment
   c. MDOT control section and job number
   d. Michigan series number and class letter of aggregate
   e. Weight or volume shipped
   f. Suppliers name, telephone number and location
   g. Truck identifier number

3030004 – 3030006 OPEN-GRADED DR CSE,___INCH
Pg 2 of 2

h. Type of aggregate approval.

2. Test reports must be in project files
   a. One test per 1,000 Tons

Job site/On site Sources:
1. Test reports must be in project files
   a. One test per 1,000 Tons

Visual Inspection: Maximum 100 Ton per material class

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS
1. See Notes page for IAT requirements.

CONSTRUCTION
1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR
   c. Grade checks required once every 50 feet across the section. Tolerance +/- 1/2 inch.
   d. Depth Checks are to be taken after final trimming to the nearest 1/4 inch, at a minimum of 400 linear feet of traffic lane width or two lanes if simultaneous construction. For irregular areas, intersections, crossover widening strips, etc., take one depth check for each 1200 square yards of area or fraction thereof.

2. Measurement and payment
   a. Engineer will measure OGDC by width and length for the specified depth as shown on the plans.

3. Density Reports
   a. Refer to subsection 303.03.B and 303.03.D. Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency requirement per the contract.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

3050002 **HMA BASE CRUSHING AND SHAPING**
Page 1 of 1 Pay unit: Square Yard

MATERIALS: If required 21A, 21AA, 22A, (to be paid separately as aggregate base)

ACCEPTANCE TESTING REQUIREMENTS

Job site/On site Sources:

Visual Inspection: All material placed. Check specification for gradation requirements on crushed material.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENT

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR. Uniformly crush existing asphalt pavement, including 1 to 2 inches of the aggregate base to the required width and depth. Ensure that 95% of the crushed material has a maximum particle size of 1½ inches, and the remaining 5% contains no particles larger than 4 inches.
   c. After final Shaping, grade checks once every 50 feet across the section. Tolerance +/- 1/2 inch when tested with a 10 foot straightedge.

2. Measurement and payment
   a. Engineer will base payment on the width of the proposed HMA surface, in accordance with Standard Specification subsection 109.01.A, unless shown otherwise on the plans, regardless of any variation in depth.

3. Density Reports
   a. Refer to Standard Specification subsection 305.03C, Compacting and Shaping in the standard specifications. Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 500 feet per width of 24 feet or less. Material must be compacted to 98 percent of maximum unit weight.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

3060005 – 3060006 **AGGREGATE SURFACE CSE**
3060010 – 3060016 **AGGREGATE SURFACE CSE,___INCH**
Pg 1 of 3 Pay Units: Ton, Cubic Yard, Square Yard

MATERIALS: Dense Graded Aggregate 21A, 21AA, 22A, 23A, 23AA or Salvaged Material

ACCEPTANCE TESTING REQUIREMENTS

Aggregates

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. If paid by square yard or cubic yard, truck number and time are not required on tickets/documentation.

3. Documentation verifying passing QA test results in project files.

4. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

5. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date _____ Signature_____.
   This statement must be signed by an authorized company representative. This statement does not signify acceptance by MDOT of the aggregate.

Non-Prequalified Sources:

1. One ticket REQUIRED per load containing the following data if applicable
   a. MDOT aggregate source number

3060005 – 3060006 AGGREGATE SURFACE CSE
3060010 – 3060016 AGGREGATE SURFACE CSE,___INCH
Pg 2 of 3 Pay Units: Ton, Cubic Yard, Square Yard

b. Date and time of shipment
c. MDOT control section and job number
d. Michigan series number and class letter of aggregate
e. Weight or volume shipped
f. Suppliers name, telephone number and location
g. Truck identifier number
h. Type of aggregate approval.

If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Test reports must be in project files
   a. One test per 1,000 Tons.

Job site/On site Sources:

1. Test reports must be in project files
   a. One test per 1,000 Tons

Visual Inspection: Maximum VI is 500 Tons per material class per project

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Moisture check required on ton pay items by inspector and note on the DWR/IDR.
   d. Grade checks required once every 50 feet across the section. Grade the finished surface and layers to within ±½ inch of the crown and grade shown on the plans.

2. Measurement and payment
   a. Tons: Engineer will measure scale weight of the material, including ad mixtures and moisture content no greater than 8%, if over 8% Refer to Standard Specification subsection 109.01.

3060005 – 3060006 AGGREGATE SURFACE CSE
3060010 – 3060016 AGGREGATE SURFACE CSE,___INCH
Pg 3 of 3 Pay Units: Ton, Cubic Yard, Square Yard

b. SYD: Engineer will measure based on the width and length for the specified depth as shown on the plans.
c. CYD: Engineer will measure based on hauling unit/load count for LM or computations for CIP.

3. Density Reports
   a. Controlled Density Method (subsection 306.03.B). Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 500 feet per width of 24 feet or less. If placing HMA surface over the aggregate surface course, compact each aggregate layer to at least 98% of the maximum unit weight at a moisture content no greater than optimum. For other aggregate surface course applications, compact each layer of aggregate to at least 95% of the maximum unit weight at a moisture content no greater than optimum.

   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

3070001 – 3070051 **APPROACH, CL I; CL II AND CL III**
3070101 – 3070162 **SHOULDER, CL I; CL II; CL III AND CL IV**
Pg 1 of 3 Pay Units: Ton, Cubic Yard, Square Yard

MATERIALS: Dense Graded Aggregate 21A, 21AA, 22A, 23A, 23AA or Salvaged Material

ACCEPTANCE TESTING REQUIREMENTS

Aggregates

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date _____ Signature_____.
   This statement must be signed by an authorized company representative. This statement does not signify acceptance by MDOT of the aggregate.

Non-Prequalified Sources:

1. One ticket REQUIRED per load containing the following data **if applicable**.
   a. MDOT aggregate source number
   b. Date and time of shipment
   c. MDOT control section and job number
   d. Michigan series number and class letter of aggregate
   e. Weight or volume shipped
   f. Suppliers name, telephone number and location

3070001 – 3070051 APPROACH, CL I; CL II AND CL III
3070101 – 3070162 SHOULDER, CL I; CL II; CL III AND CL IV
Pg 2 of 3

g. Truck identifier number
h. Type of aggregate approval.

If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Test reports must be in project files.
   a. One test per 1,000 Tons

Job site/On site Sources:

1. Test reports must be in project files.
   a. One test per 1,000 Tons

Visual Inspection: Maximum 500 Tons per material class per project.

Salvaged Material

Visual Inspection: All material for 2 inch maximum particle size, document on DWR/IDR.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. If placing aggregate shoulder or approach material in a layer less than 3 inches, scarify with 2 inches of the layer below.
   d. Moisture check required on ton pay items by inspector and note on the DWR/IDR.

2. Measurement and payment.
   a. Tons: Engineer will measure scale weight of the material, including additives and moisture content no greater than 8%, if over 8% Refer to Standard Specification subsection 109.01.

b. LM: Engineer will measure based on hauling unit dimensions and load count before placement and compaction.
c. SYD: Engineer will measure shoulder or approach contract items by area, the Engineer will take longitudinal measurements parallel to the center line. The Engineer will use the transverse dimensions shown on the plans.
d. CYD: Engineer will measure shoulder or approach contract items by volume in place, the Engineer will use the lines and dimensions shown on the plans to measure volumes, compacted in place.

3. Density Reports.
   a. Refer to Standard Specification subsection 307.03.C, Placing and Compacting. Review reports to see that all test and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 1000 ft each side.
   b. Compact Class I shoulders and approaches to at least 98% of the maximum unit weight at no greater than optimum moisture content.
   c. Class II and Class III Shoulders and Approaches. Compact Class II and Class III shoulders and approaches to at least 95% of the maximum unit weight at no greater than optimum moisture content, except for layers 3 inches or less.
   d. Compact Class IV shoulders to at least 95% of the maximum unit weight at no greater than optimum moisture content, except for layers 3 inches or less.
   e. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

3080005 Geotextile, Separator
3080010 Geotextile, Stabilization
3082002 Road Grade Biaxial Geogrid
Page 1 of 1 Pay unit: Square Yard

MATERIALS: Separator Geotextile, Stabilization Geotextile and Road Grade Biaxial Geogrid.

ACCEPTANCE TESTING REQUIREMENTS
Test for Acceptance allow up to 28 days.

Job site/On site Sources:
1. Geotextile test required for the first 500 syd to 1500 Syd and then one test for every addition 25,000 Syd or less.
2. Road Grade Biaxial Geogrid test required one per lot per shipment.

Visual Inspection: Maximum 500 syd per material type per project only for Geotextile.

CONSTRUCTION
1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR. Do not expose geotextile and geogrid to ultraviolet degradation for more than 7 days

2. Measurement and payment
   a. The Engineer will measure Geotextile, Separator and Geotextile, Stabilization in place, Road Grade Biaxial Geogrid, to the limits shown on the plans.

4010012 – 4010108 **CULVERT END SECTIONS**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Concrete End Section, Metal End Section

ACCEPTANCE TESTING REQUIREMENTS

End Section

1. Concrete End Section.
   a. Certification from Approved Manufacturer.

Or

   b. Test per lot prior to incorporation. Test 1 percent of pieces per the Materials Quality Assurance Manual.

Visual Inspection: Maximum 10 pieces

2. Metal End Section.
   a. General Certification.

Visual Inspection: Maximum 4 pieces

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR. The letters “MDOT” or the local agency’s name must be physically stamped into steel end sections, creating an indention in the material. For concrete headwalls, end sections, and walls, the lettering must be physically inscribed into the material.

   Note The unit price for Culv End Sect, Metal also includes the cost of providing and placing the length of associated culvert represented by the "c" dimension shown on the plans, per Standard Plan R-88 Series. Unless stated differently in the contract documents Metal end section on metal pipe, Concrete end section on concrete pipe, and either Metal or Concrete end section can be used on CPE pipe.

2. Measurement and payment.
   a. Engineer will base payment for each end section used.

Notes: Refer to Standard Plan R-83, R-85, R-86, and R-88 Series

4010131 – 4010698 **CULVERTS**
Pg 1 of 4 Pay Unit: Foot

MATERIALS: Aggregate 6A,17A, 34R, 46G, Granular Material Class II, III, IIIA, Geosynthetic, Joint Sealers, Pipe Gaskets, Reinforced/Nonreinforced Concrete pipe, or Corrugated & Spiral Ribbed Al-Alloy/Steel pipe, Smooth-Lined Corrugated Plastic Pipe (CPE and CPV), Water Tight Joint

ACCEPTANCE TESTING REQUIREMENTS

Aggregates & Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____ Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

4010131 – 4010698 CULVERTS
Pg 2 of 4

Non-Prequalified Sources (Aggregate Only):

1. One ticket REQUIRED per load containing the following data **if applicable**.
   a. MDOT aggregate source number
   b. Date and time of shipment
   c. MDOT control section and job number
   d. Michigan series number and class letter of aggregate
   e. Weight or volume shipped
   f. Suppliers name, telephone number and location
   g. Truck identifier number
   h. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   Test reports must be in project files.
   i. Class II – One test per 3,000 cubic yards
   j. Class III – One test per 10,000 cubic yards
   k. Class IIIA – One test per 1,000 cubic yards
   l. Aggregates 6A,17A, 34R, and 46G – One test per 1,000 tons

Job site/On site Sources:

1. Test reports must be in project files.
   a. Class II – One test per 3,000 cubic yards
   b. Class III – One test per 10,000 cubic yards
   c. Class IIIA – One test per 1,000 cubic yards
   d. Aggregates 6A,17A, 34R, and 46G – One test per 1,000 tons.

Visual Inspection:

Class II – Maximum 500 cubic yards per project.
Class III – Maximum 500 cubic yards per project.
Class IIIA – Maximum 100 cubic yards per project.
Aggregates 6A,17A, 34R and 46G – Maximum 100 tons per material class per project.

Geosynthetics

1. Geotextile blanket – Test for acceptance

Visual Inspection: Maximum 500 Syd

Joint Sealers

1. Cold applied joint sealers (Mastic).
   a. VI

Pipe

1. Concrete and Steel Pipe.
   a. A Certification from the Approved Manufacturer.
   b.

Or

4010131 – 4010698 CULVERTS
Pg 3 of 4

c. Test prior to incorporation. Test per the Materials Quality Assurance Procedures Manual.

Visual Inspection: Maximum 10 pieces Conc. Non Reinforced, 5 pieces 42 inch or less Conc Reinforced, 125 ft steel 12 inch or less, 50 ft steel 15 inch to 54 inch, 25 ft 60 inches or greater.

2. Plastic Pipe.
   a. Class A, B and F plastic pipe must be from QPL (909.06).

Or

   b. Test prior to incorporation. One per 1,000 feet for 12 inch diameter and over. Note: All Class A, B and F plastic pipe must be from QPL (909.06).

Visual Inspection: Maximum 100 ft 12 inch and greater.

3. Aluminum Alloy Pipe.
   a. A General Certification

Visual Inspection: Maximum 250 ft

NOTE: Mandrel testing required only for all plastic pipe 12 Inches to 48 Inches. Video inspection required per Standard Specification subsections 401.03.C.1 and 401.03.M.

Water Tight Joint System

1. Water Tight Joint/Gaskets.
   a. Visual Inspection, must be on Qualified Product List.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

4010131 – 4010698 CULVERTS
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c. Wrapping all joints with geotextile blanket. Use geotextile at least 36 inches wide, and center it on the joint. Overlap the ends of the geotextile blanket at least 12 inches.

2. Measurement and payment.
   a. Engineer will measure culverts of the diameter, class or material required, by length, excluding the length of the end sections as shown on the plans.

3. Density Reports.
    a. Refer to Standard Specification subsection 401.03.D, Placing and Compacting. Place backfill equally on opposite sides of the pipe at the same time and in layers no greater than 10 inches deep or half the diameter of the pipe, whichever is less.
    b. Review reports to see that all tests and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 300 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer.
    c. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

Note: Refer to Standard Plan R-82 and R-83 Series

4020001 – 4021133 **SEWER, CL __,___INCH, TR DET ___**
Pg 1 of 4 Pay Unit: Foot

MATERIALS: Aggregate 6A,17A, 34R, 46G Granular Materials Class II, III, IIIA, Geosynthetics, Joint Sealers, Reinforced/Non-reinforced Concrete Pipe, or Corrugated & Spiral Ribbed Al-Alloy/Steel Pipe, Smooth-Lined Corrugated Plastic Pipe (CPE), Corrugated Polyvinyl Chloride Pipe (CPV), Polyvinyl Chloride (PVC), Steel Pipe Jacked-in-Place, Water Tight Joint System

ACCEPTANCE TESTING REQUIREMENTS

Aggregate/Granular Material

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____ Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Type of aggregate approval.4020001 – 4021133 SEWER, CL __,____INCH, TR DET _____

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Non-Prequalified Sources (Aggregate Only):

1. One ticket REQUIRED per load containing the following data **if applicable**.
   a. MDOT aggregate source number
   b. Date and time of shipment
   c. MDOT control section and job number
   d. Michigan series number and class letter of aggregate
   e. Weight or volume shipped
   f. Suppliers name, telephone number and location
   g. Truck identifier number

2. Test reports must be in project files.
   a. Class II – One test per 3,000 cubic yards
   b. Class III – One test per 10,000 cubic yards
   c. Class IIIA – One test per 1,000 cubic yards
   d. Aggregates 6A,17A, 34R, and 46G – One test per 1000 tons

Job site/On site Sources

1. Test reports must be in project files.
   a. Class II – One test per 3,000 cubic yards
   b. Class III – One test per 10,000 cubic yards
   c. Class IIIA – One test per 1,000 cubic yards

Visual Inspection

Class II – Maximum 500 cubic yards per project
Class III – Maximum 500 cubic yards per project
Class IIIA – Maximum 100 cubic yards per project
Aggregates 6A,17A, 34R, and 46G – Maximum 100 tons per material class per project

Geosynthetic

1. Geotextile Blanket – Test for Acceptance

Visual Inspection: Maximum 500 Syd

Joint Sealers:

1. Cold applied joint sealers (Mastic).
   a. VI.

Pipe

1. Corrugated Polyvinyl Chloride Pipe (CPV and PVC)**.**
   a. Test prior to incorporation. One test per 1000 feet of 12 inch or greater diameter straight lengths of pipe.

2. Corrugated Polyethylene pipe (CPE)
   a. From approved source.

4020001 – 4021133 SEWER, CL___,___INCH, TR DET ___

Pg 3 of 4

Or

b. Test prior to incorporation. One per 1,000 feet for 12 inch diameter and over.

NOTE: All Class A, B and F Plastic Pipe CPE, CPV and PVC must be on Qualified Product List

Visual Inspection: Maximum 100 ft. 12 inches or greater.

3. Concrete/Steel Pipe.
   a. A Certification from the Approved Manufacturer.

Or

   b. Test prior to incorporation.

Visual Inspection: Maximum 10 pieces Conc. Non Reinforced, 5 pieces 42 inch or less Conc Reinforced., 125 ft steel 12 inch or less, 50 ft steel 15 inch to 54 inch, 25 ft 60 inches or greater.

4. Aluminum Alloy Pipe
   a. A General Certification

AND

   b. Test prior to incorporation. One test per 1000 feet of pipe.

Visual Inspection: Maximum 250 ft

5. Steel Pipe, Jacked-in-Place
   a. A General Certification

Water Tight Joint/Gaskets

1. Visual Inspection, must be on Qualified Product List for Compression or External Rubber Type. VI as part of the Watertight Joint System and note on DWR/IDR.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Wrap all joints with geotextile blanket. Use geotextile at least 36 inches wide, and center it on the joint. Overlap the ends of the geotextile blanket at least 12 inches.

2. Measurement and payment.
   a. Engineer will measure Sewer and Sewer, Reinf conc, Ellip of the size, class, and trench detail required, in-place from center to center of manhole, catch basin, or inlet.
   b. Engineer will measure Sewer, Jack in Place, of the size and class required, by multiplying the number of units jacked by the commercial laying length.

Note: Refer to Standard Plan R-83 Series

3. Density Reports.
   d. Refer to Standard Specification subsection 401.03.D Placing and Compacting. Place backfill equally on opposite sides of the pipe at the same time and in layers no greater than 10 inches deep or half the diameter of the pipe, whichever is less.
   a. Review reports to see that all tests and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 300 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

4030010 – 4030090 **DR STRUCTURE COVER , Type _ XX**
Pg 1 of 1 Pay Units: Ea

MATERIALS: Castings, malleable iron and steel

ACCEPTANCE TESTING REQUIREMENTS

Malleable iron and steel

Visual Inspection: All material placed

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See the **MDOT Construction Manual Section 105.10.**

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure drainage structure covers based on placed quantity.

Note: Refer to Standard Plan R-7, R-8, R-8X, R-9, R-9X, R-10, R-12, R-14, R-15, R-18, R-20, R-20X, R22, R-23, and R-24 Series.

4030200 – 4030271 **DR STRUCTURE,___INCH DIA**
Pg 1 of 5 **DR STRUCTURE, ADD DEPTH,___INCH DIA, 8 TO 15 FT**
DR STRUCTURE, ADD DEPTH,___INCH DIA, OVER 15 FT

Pay Unit: Each, Ft

MATERIALS: Mortar Standard (R-2), Granular Material Class II, III, Steel Reinforcement, Concrete Brick or Block, Pre-cast Reinforced Concrete Units, Manhole Bases & Sumps, Geosynthetics, Concrete Grade 3000, Recycled Rubber Adjusting Rings

ACCEPTANCE TESTING REQUIREMENTS

Mortar

1. Standard (R-2), VI and document on DWR/IDR

GRANULAR MATERIALS

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____ Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

4030200 – 4030271 **DR STRUCTURE,___INCH DIA**
Pg 2 of 5 **DR STRUCTURE, ADD DEPTH,___INCH DIA, 8 TO 15 FT**
DR STRUCTURE, ADD DEPTH,___INCH DIA, OVER 15 FT

Non-Prequalified Sources:

1. Test reports must be in project files.
   a. Class II – One test per 3,000 cubic yards
   b. Class III – One test per 10,000 cubic yards

Job site/On site Sources:

1. Test reports must be in project files.
   a. Class II – One test per 3,000 cubic yards
   b. Class III – One test per 10,000 cubic yards

Visual Inspection:

Class II – Maximum 500 cubic yards per project
Class III – Maximum 500 cubic yards per project

Concrete Brick and Block

1. A Test Data Certification.

Visual Inspection: Maximum 1,000 pieces each.

Pre-cast Reinforced Concrete Units

1. A General Certification from the Approved Manufacturer.

Or

2. Test prior to incorporation. Test 1 percent per each size. Test per the Materials Quality Assurance Procedures Manual.

Visual Inspection: Maximum 10 pieces.

Recycled Rubber Adjusting Rings

a. Visual Inspection, must be on Qualified Product List.

Pre-cast Concrete Bases

1. A General Certification from the Approved Manufacturer

Or

2. Test prior to incorporation. Test 5 percent of total

Visual Inspection: Maximum 10 pieces

Steel Reinforcement

1. A General Certification from the Approved Manufacturer.

Or

4030200 – 4030271 **DR STRUCTURE,___INCH DIA**
Pg 3 of 5 **DR STRUCTURE, ADD DEPTH,___INCH DIA, 8 TO 15 FT**
DR STRUCTURE, ADD DEPTH,___INCH DIA, OVER 15 FT

Test prior to incorporation. One test per project per Manufacturer and per Size.

Visual Inspection: Maximum 500 pounds

Concrete Grade 3000

Refer to Standard Specification subsection 1004

NRMCA Plants

1. Plant
   a. Current NRMCA certification

2. Scales Check
   a. Inspection certification every 6 months

3. Dispenser Check
   a. Inspection certification every 6 months

4. Concrete Mix Design
   a. Copy in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per Standard Specification subsection 1001.03.

For non NRMCA Plants

All of the following documentation is required including Form 1174 CONCRETE PLANT PROPORTIONING (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3. Concrete Mix Design
   a. Copy in project files

For all Plants

1. Cement
   a. A General Certification from the Approved Manufacturer.

Visual Inspection: Maximum VI 45 tons

2. Coarse Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Maximum VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.

Visual Inspection: Maximum 100 tons for total grade used on job

   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.

Visual Inspection: Maximum 100 tons for total FA used on job

   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. Concrete Admixtures
   a. Visual Inspection, must be on Qualified Product List.

5. Fly Ash
   a. A General Certification from the Approved Manufacturer

6. Slag Cement
   a. A General Certification from the Approved Manufacturer.

4030200 – 4030271 **DR STRUCTURE,___INCH DIA**
Pg 5 of 5 **DR STRUCTURE, ADD DEPTH,___INCH DIA, 8 TO 15 FT**
DR STRUCTURE, ADD DEPTH,___INCH DIA, OVER 15 FT

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. All Non dedicated Concrete plant has to have signed certification statement by the producer on each Ticket, Standard Specification subsection 1001.03.A.4.

2. Measurement and payment
   a. Engineer will base payment for DR STRUCTURE, INCH DIA. from 0 to 8 feet as each.

3. Additional payment is required for
   a. DR STRUCTURE, ADD DEPTH,___INCH DIA, 8 FT TO 15 FT will be paid by the foot
   b. DR STRUCTURE, ADD DEPTH,___INCH DIA, OVER 15 FT will be paid by the foot.

4. Density Reports
   a. Refer to Standard Specification subsection 401.03.D. Placing and Compacting. Place backfill equally on opposite sides of the pipe at the same time and in layers no greater than 10 inches deep or half the diameter of the pipe, whichever is less.
   c. Review reports to see that all tests and retests meet MDOT requirements (see Form 0582B) and the minimum frequency of one test per 300 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer

   All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

5. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification subsection 1002 prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual.
   f. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

6. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003 for QA/QC Quality Control and Acceptance Of Portland Cement Concrete.

Note: Refer to Standard Plan R-1, R-2, R-3, and R-4 Series

4040001 – 4040089 **UNDERDRAIN (Subgrade, Bank, Fdn., Subbase, Pipe, and Edge of Pavt.)**
4040091 – 4040099 **UNDERDRAIN OUTLETS**
Pg 1 of 3 Pay Unit: Foot

MATERIALS: OGDC Aggregate (34R), Granular Material Class IIAA, Geosynthetics, Corrugated Plastic Tubing, Acrylonitrile-Butadiene-Styrene Pipe (ABS), Smooth Plastic Pipe and Corrugated Steel Pipe.

ACCEPTANCE TESTING REQUIREMENTS

Aggregate/Granular Materials

Prequalified Sources:

1. One ticket per load containing
   a. MDOT aggregate source number
   b. Date and time of shipment
   c. MDOT Control section and job number
   d. Michigan series number and class letter of aggregate
   e. Weight or volume shipped
   f. Suppliers name, telephone number and location
   g. Truck identifier number
   h. Type of aggregate approval.

   If the contract requires payment by weight, ensure the ticket includes the gross weight, tare weight, and net weight to the nearest 100 pounds. Determine the truck tare weight at least once daily.

   If the contract does not require payment by weight, the Engineer may accept written documentation instead of tickets. Written documentation must identify the pay item of the material and include all of the information listed above except time and truck identifier number.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____ Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

4040001 – 4040089 UNDERDRAIN (Subgrade, Bank, Fdn., Subbase, Pipe, and Edge of Pavt.)
4040091 – 4040099 UNDERDRAIN OUTLETS
Pg 2 of 3

Non-Prequalified Sources:

1. Test reports must be in project files
   a. Class IIAA – See the Aggregate Manual for Testing Frequency
   b. Aggregates 34R – One test per 1,000 tons

Job site/On site Sources:

1. Test reports must be in project files
   a. Class IIAA – See the Aggregate Manual for Testing Frequency

Visual Inspection:
Class IIAA – See the Aggregate Manual for Maximum VI
34R – Maximum 100 Tons

Geosynthetics

1. Geotextile Blanket
   a. Test prior to incorporation

Visual Inspection: Maximum 500 Syd.

Underdrain

1. Corrugated Steel Pipe
   a. A General Certification from the Approved Manufacturer.

Or

   b. Test prior to incorporation. Test per Chapter 4.02 of the Materials Quality Assurance Procedures Manual.

Visual Inspection: Maximum 125 feet 12 inch or less, 50 feet for 15 inch to 54 inch

2. Smooth Plastic Pipe
   a. Test prior to incorporation. One test per 2,500 feet or fraction thereof

Visual Inspection: Maximum 250 feet

3. Corrugated Plastic Tubing (PE or PVC) (wrapped and unwrapped)
   a. A General Certification from approved manufacturer.

Or

   b. Test prior to incorporation. One test per 5,000 feet with sample from coil.

Visual Inspection: Maximum 250 feet.

4040001 – 4040089 UNDERDRAIN (Subgrade, Bank, Fdn., Subbase, Pipe, and Edge of Pavt.)
4040091 – 4040099 UNDERDRAIN OUTLETS

4. Acrylonitrile-Butadiene-Styrene Pipe (ABS)
   a. Test prior to incorporation. One test per 6,000 feet or less.

Visual Inspection: Maximum 600 feet

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure underdrains in place.

3. Density Reports
   No density testing is required on underdrain.

Note: Refer to Standard Plan R-80 Series

4040111 – 4040115 **UNDERDRAIN, OUTLET ENDING,_INCH**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Concrete or Steel End Section

ACCEPTANCE TESTING REQUIREMENTS

Outlet Ending

1. Steel

Visual Inspection: All material placed of complete unit and note on DWR/IDR.

2. Concrete

Visual Inspection: All material placed and note on DWR/IDR.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Mark the locations of outlet endings on the adjacent shoulder if installing underdrains in conjunction with constructing or resurfacing concrete or HMA shoulders. Mark locations with a ½-inch-deep, 4- by 6-inch depression. Place the long edge of the depression perpendicular to the edge of the shoulder.
   d. Per R-80 Series sheet 8 of 8, PVC pipe require concrete end section, steel end section are not allowed.

2. Measurement and payment
   a. Engineer will measure each outlet ending in place.

Note: Refer to Standard Plan R-80 Series

5010025 – 5010806 **HMA,___; HMA Approach**
Pg 1 of 2 Pay Unit: Ton, Square Yard

MATERIALS: Asphalt Binder, Emulsified Asphalt (Bond Coat), and HMA Mixture

Note: Refer to SP 501 R and SP 501 S SUPERPAVE HOT MIX ASPHALT PERCENT WITHIN LIMITS (PWL) and Construction Manual

ACCEPTANCE TESTING REQUIREMENTS

Asphalt Binder

1. A General Certification from the Approved Certifier.

Or

2. Test prior to incorporation. One test per day per contractor's tank of asphalt binder.

NOTE:

Daily Asphalt Binder Sample: Contractor shall submit one sample per grade, per project, per day of production for certification verification (see Form 1923B).

Witness Sample: 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.

Failing binder notification letters must be in the project files.

Emulsified Asphalt (Bond Coat)

1. A General Certification from approved manufacturer.

Or

2. Test prior to incorporation.

HMA Mixtures

HMA Plant:

1. Plant certification will be verified by RMI on Form 1911. JMF (Job Mix Formula) Form 1911 must be in ProjectWise.

5010025 – 5010806 HMA,___; HMA Approach
Pg 2 of 2

HMA mixture

1. Test for acceptance. A written statement from the supplier certifying all materials used in mix are of the same source submitted for JMF. This requirement must be met by separate letter in file from producer, Standard Specification subsection 501.02.A

Visual Inspection: Maximum 500 tons per project per mix.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. Temperature and Yield calculations must be in the file for every day of paving.
   c. All materials used must be VI by the inspector with notation on the DWR/IDR.
   d. Delivery tickets required per load which includes control section/job number, contractor's name, mix type, date, time, truck number, gross weight, tare weight, net weight, and net accumulated job daily weight total.
   e. Immediate possession of tickets is required if paying by ton (weight).
   f. HMA sampling needs to be obtained by a qualified technician, to be qualified contact the TMI.

Note: See Paving Inspector Checklist in the Construction Manual 501-4.2

2. Measurement and payment
   a. Engineer will measure and pay for HMA of the mix specified based on weight placed as supported by weigh tickets.

3. Additional Documentation Requirements in project file
   b. Form 1903B Verification/Acceptance Report (minimum frequency, one report per lot placed)
   c. Form 1903C Report of Contractor's Quality Control Tests
   d. Form 1907 Core Density or Form 0582B Density Report
   e. Form 1907J Joint Core Density
   f. Form 0552 Bond Coat Application Inspector Operators Checklist
   g. MDOT QA Plan
   h. Contractor QC Plan
   i. Random number sheets signed by MDOT and Contractor
   j. Pre-production meeting minutes
   k. PWL Calculation spreadsheet (if required)

Local Agency Projects

Form 1903 Daily report of bit plant inspection for each day of production, and 0582B. Check special provision SP 501 I for additional requirements.

1. Density Reports

a. Refer to SP 501 I for HMA Construction Practices. One test per 1000 feet, width of 24 feet (minimum) or as defined per special provision if any in the proposal.
b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

6020002 – 6020010	**CONC BASE CSE, REINF,___INCH**
6020015 – 6020023	**CONC BASE CSE, NONREINF,___INCH**
6020030 – 6020031	**CONC, GRADE ___**
6020050 – 6020062	**CONC PAVT, MISC, NONREINF,___INCH**
6020070 – 6020082	**CONC PAVT, MISC, REINF,___INCH**
6020100 – 6020115	**CONC PAVT, NONREINF,___INCH**
6020120 – 6020135	**CONC PAVT, REINF,___INCH**
6020500 – 6020523	**CONC PAVT, HIGH PERFORMANCE**
Pg 1 of 5	Pay Unit: Square Yard, Cubic Yard

MATERIALS: Adhesive System, Bituminized Fiber Joint Filler, Concrete Grade 3000, 3500, 3500HP, Curing Compound-White, Hot Poured Rubber, Lane Tie bars, Wire Fabric

ACCEPTANCE TESTING REQUIREMENTS

Adhesive System

1. Visual Inspection, must be on Qualified Product List
2. Pull out test required per Standard Specification subsection 602.03.F.3 on Form 0566

Bituminized Fiber Joint Filler

1. A Test Data Certification.

Visual Inspection: Maximum 150 square feet for all other sizes.

Concrete Grade 3000, 3500, 3500HP

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   a. Form 1976 in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer

6020002 – 6020010	**CONC BASE CSE, REINF,___INCH**
6020015 – 6020023	**CONC BASE CSE, NONREINF,___INCH**
6020030 – 6020031	**CONC, GRADE __**
6020050 – 6020062	**CONC PAVT, MISC, NONREINF,___INCH**
6020070 – 6020082	**CONC PAVT, MISC, REINF,___INCH**
6020100 – 6020115	**CONC PAVT, NONREINF,___INCH**
6020120 – 6020135	**CONC PAVT, REINF,___INCH**
6020500 – 6020523	**CONC PAVT, HIGH PERFORMANCE**

For non NRMCA Plants
All of the following documentation is required including Form 1174 CONCRETE PLANT PROPORTIONING (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3.Concrete Mix Design
   a. Form 1976 in project files

Materials

1. Cement
   a. General Certification from the Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Maximum VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total grade used on job

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total FA used on job

6020002 – 6020010 CONC BASE CSE, REINF,___INCH
6020015 – 6020023 CONC BASE CSE, NONREINF,___INCH
6020030 – 6020031 CONC, GRADE __
6020050 – 6020062 CONC PAVT, MISC, NONREINF,___INCH
6020070 – 6020082 CONC PAVT, MISC, REINF,___INCH
6020100 – 6020115 CONC PAVT, NONREINF,___INCH
6020120 – 6020135 CONC PAVT, REINF,___INCH
6020500 – 6020523 CONC PAVT, HIGH PERFORMANCE

4. Liquid Concrete Admixtures
   a. Visual Inspection, must be on Qualified Product List (903.01, 903.02 & 903.03).

5. Slag Cement
   a. General Certification from the Approved Manufacturer

6. Fly Ash
   a. General Certification from the Approved Manufacturer

Curing Compound

1. A Test Data Certification.

NOTE: Must be used within one year of manufacturer date.

Visual Inspection: Maximum 200 gallons for total material used on project.

Hot Poured rubber

1. Visual Inspection, must be on Qualified Product List (914.04A)

Lane Tie Bars

1. A General Certification from the Approved Manufacturer for Bar
2. Coating Company is an Approved Manufacturer
3. Coating is a Must be on Qualified Product List (905.03C1).

Or

Test prior to incorporation. One test per project per manufacturer.

Visual Inspection: Maximum 500 pounds

NOTE: Pullout test required per Standard Specification subsection 602.03.F.3 – Form 0566 placed in the Project Files,.

6020002 – 6020010	**CONC BASE CSE, REINF,___INCH**
6020015 – 6020023	**CONC BASE CSE, NONREINF, __ INCH**
6020030 – 6020031	**CONC, GRADE __**
6020050 – 6020062	**CONC PAVT, MISC, NONREINF,___INCH**
6020070 – 6020082	**CONC PAVT, MISC, REINF,___INCH**
6020100 – 6020115	**CONC PAVT, NONREINF,___INCH**
6020120 – 6020135	**CONC PAVT, REINF,___INCH**
6020500 – 6020523	**CONC PAVT, HIGH PERFORMANCE**

Welded Wire Fabric

1. General Certification from the Approved Manufacturer

Or

2. Test prior to incorporation. One test per project per manufacturer.

Visual Inspection: Maximum 500 square yards.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Water additions must be noted and signed. Refer to MDOT Construction Manual Section 602, for additional information.
   d. Form 1174R - Inspector’s Report of Concrete Placed - roadway. One report per day of placement completely filled out. Document all underruns. See approved JMF and Tables 1004-1
   e. Contractors QC documentation

2. Measurement and payment
   a. Engineer will measure and determine quantity.

Note: Refer to Standard Plan R-41 Series for lane tie placement.

6020002 – 6020010	**CONC BASE CSE, REINF,___INCH**
6020015 – 6020023	**CONC BASE CSE, NONREINF,___INCH**
6020030 – 6020031	**CONC, GRADE __**
6020050 – 6020062	**CONC PAVT, MISC, NONREINF,___INCH**
6020070 – 6020082	**CONC PAVT, MISC, REINF,___INCH**
6020100 – 6020115	**CONC PAVT, NONREINF,___INCH**
6020120 – 6020135	**CONC PAVT, REINF,___INCH**
6020500 – 6020523	**CONC PAVT, HIGH PERFORMANCE**

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification Subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. Attach pavement core thickness forms and document on DWR/IDR whether a penalty was required.
   f. Pull out test for lane ties required per standard specification subsection 602.03.F.3
   g. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09.
   h. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

4. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003 for QA/QC.

6020200 - 6020211 **JOINT, CONTRACTION, (TYPE____)**
Pg 1 of 2 **JOINT, EXPANSION, (TYPE____)**
JOINT, PLANE -OF- WEAKNESS, (TYPE____)
Pay Unit: Foot

MATERIALS: Backer Rod, Expansion Caps, Hot Poured Rubber Sealant, Joint Filler Fiber, Load Transfer Assemblies

ACCEPTANCE TESTING REQUIREMENTS

Backer Rod

1. VI and document on DWR/IDR

Dowel Bars

1. A General Certification from the Approved Manufacturer for Bar
2. Coating Company is an Approved Manufacturer
3. Coating is a Visual Inspection, must be on Qualified Product List (905.03C1).

Or

Test prior to incorporation. One test per project per manufacturer.

Visual Inspection: Maximum 1200 Bars

Expansion Caps

Visual Inspection: All material placed must conform to Standard Plan R-40 series, and Buy America

Hot Poured Joint Sealant

1. Visual Inspection, must be on Qualified Product List (914.04A)

Joint Filler Fiber

1. Test Data Certification

Visual Inspection: Maximum VI 150 square feet for all other sizes.

Recycled Rubber Joint Filler

1. Visual Inspection, must be on Qualified Product List

Load Transfer Assemblies

1. General Certification from an Approved manufacturer for Assemblies
2. General Certification from an Approved manufacturer for the Bars
3. General Certification from an Approved manufacturer for the Coating company
4. Visual Inspection, must be on Qualified Product List for the Coating.
5. Visual Inspection, must be on Qualified Product List for the Bond release agent
6. Fabrication inspection of the Assemblies, minimum one inspection per manufacturer per project, on Form 0553.

Visual Inspection: Maximum 100 assemblies

6020200 - 6020211 **JOINT, CONTRACTION, (TYPE____)**
Pg 2 of 2 **JOINT, EXPANSION, (TYPE____)**
JOINT, PLANE -OF- WEAKNESS, (TYPE____)

NOTE:
Each Bundle of Assemblies need to have a tag on them with the assembly manufacturer name and plant location, Control section/project number, Lot number or other identification that will also be shown on the accompanying certification, and Supplier and/or contractor's name.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See the MDOT Construction Manual Section 105.10**.**

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. Inspection of the Load Transfer Assemblies needs to be completed on Form 0553 and placed in the Project Files.
   c. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will pay based on measurement

Note: Refer to Standard Plan R-37, R-39, R-40, R-42, R-43 Series

6030035 **NON CHLORIDE ACCELERATOR**
Pg 1 of 1 Pay Unit: Gal

MATERIALS: Non-Chloride accelerator

ACCEPTANCE TESTING REQUIREMENTS

Non Chloride Accelerator

1. Visual Inspection, must be on Qualified Product List (903.02)

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure and pay based on the quantity printed on the automated batch ticket.

6030040 – 6030053 **PAVT REPAIR, NONREINF CONC,___INCH**
6030060 – 6030072 **PAVT REPR, REINF CONC,___INCH**
Pg 1 of 4 Pay Unit: Square Yard

MATERIALS: Adhesive System, Concrete Grade 3500, 3500HP, P-NC, Curing Compound-White, Hot Poured Rubber, Insulation Blankets, Lane Tie Bars Wire Fabric

ACCEPTANCE TESTING REQUIREMENTS

Adhesive system

1. Visual Inspection, must be on Qualified Product List (603.03B.2 for Dowel and Tie Bars, and 712.03J for Lane Ties).

Concrete Grade 3500, 3500HP, and P-NC

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   a. Form 1976 in project files

For non-NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3. Concrete Mix Design
   a. Form 1976 in project files

Materials

1. Cement
   a. General Certification from the Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse Aggregates
   a. Test prior to incorporation. One test per 1,000 tons L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.

Visual Inspection: Maximum 100 tons for total grade used on job

   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.

Visual Inspection: Maximum 100 tons for total FA used on job.

   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. Slag Cement
   a. General Certification from the Approved Manufacturer

5. Fly Ash
   a. General Certification from the Approved Manufacturer

6. Liquid Concrete Admixtures
   a. Visual Inspection, must be on Qualified Product List (903.01, 903.02 & 903.03).

Curing Compound

1. A Test Data Certification.

NOTE: Must be used within one year of manufacturer date.

Visual Inspection: Maximum 200 gallons.

6030040 – 6030053 PAVT REPAIR, NONREINF CONC,___INCH
6030060 – 6030072 PAVT REPR, REINF CONC,___INCH

Hot Poured Joint Sealant

1. Visual Inspection, must be on Qualified Product List (914.04A)

Insulation Blankets

1. A Test Data Certification

Visual Inspection: Maximum 10 sheets.

Lane Tie Bars

1. A General Certification from the Approved Manufacturer for Bar
2. A General Certification from the Approved Manufacturer for the Coating Company
3. Visual Inspection, must be on Qualified Product List for the Coating (905.03).

Or

4. Test prior to incorporation. One test per project per manufacturer.

Visual Inspection: Maximum 500 pounds.

NOTE: Pullout test required – Documentation placed in the Project Files.

Welded Wire Fabric

1. General Certification from an Approved Manufacturer

Or

2. Test prior to incorporation. One test per project per manufacturer.

Visual Inspection: Maximum 500 square yards.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

INDEPENDENCE ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

6030040 – 6030053 PAVT REPAIR, NONREINF CONC,___INCH
6030060 – 6030072 PAVT REPR, REINF CONC,___INCH
Pg 4 of 4

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Water additions must be noted and signed. Refer to MDOT Construction Manual Section 603, or as superseded, for additional information.
   d. Form 1174R - Inspector's Report of Concrete Placed - roadway. One report per day of placement completely filled out. Document all underruns. See approved JMF and Tables 1004-1 and 1006-3
   e. Contractors QC documentation

2. Measurement and payment
   a. Engineer will measure based on pavement surface

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification Subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1160 The Engineer will perform flexural strength testing of the field cured test specimens. Acceptance will be based on the specimens attaining the minimum flexural strength prior to opening the concrete pavement repair to vehicular traffic. (603.02)
   e. Attach pavement core thickness forms and document on DWR/IDR whether a penalty was required.
   f. Pull out test for lane ties required per standard specification subsection 602.03.F.3, Form 0566
   g. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
   h. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

Note: Refer to Standard Plan R-44 Series

6030095-6030096 **SAWING AND SEALING PAVT JOINTS**
6030100-6030101 **RESEALING JOINTS W/ HOT POURED RUBBER**
Pg 1 of 1 Pay Unit: Foot

MATERIALS: Backer Rod, Hot Poured Joint Sealant

ACCEPTANCE TESTING REQUIREMENTS

Backer Rod

Visual Inspection: All material placed.

Hot Poured Joint Sealant

1. Visual Inspection, must be on Qualified Product List (914.04A)

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure length of the joint.

7040001 **STEEL SHEET PILING, PERMANENT**
Pg 1 of 1 Pay Unit: Square Foot

MATERIALS: Steel Sheet Piling

ACCEPTANCE TESTING REQUIREMENTS

Steel Sheet Piling

1. General Certification and Buy America Certification.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "BUY AMERICAN" statement which may also be listed. "BUY AMERICAN" is not an acceptable alternate to "BUY AMERICA". See the MDOT Construction Manual Section 105.10**.**

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. The Engineer will calculate quantities of Steel Sheet Piling, Permanent based on the lines and lengths below cutoff, shown on the plans or authorized by the Engineer.

7040002 STEEL SHEET PILING, TEMP
7040003 STEEL SHEET PILING, TEMP, LEFT IN PLACE
Pg 1 of 1 Pay Unit: Square Foot

MATERIALS: Steel Sheet Piling

ACCEPTANCE TESTING REQUIREMENTS

Steel Sheet Piling

1. Temporary Piling
   a. General Certification.

2. Temporary Piling Left in Place
   a. General Certification along with Buy America Certification

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. The Engineer will calculate quantities of Steel Sheet Piling, Temp and Steel Sheet Piling, Temp, Left in Place based on the area of earth retention. The Engineer will calculate the vertical dimension of the area based on the difference in ground elevations at the sheeting line or the planned foundation excavation limits at the sheeting line, whichever is less. Unless otherwise shown on the plans, the Engineer will calculate the lateral limits based on the design specified in Standard Specification subsection 704.03.A. If retaining earth on both sides of the same steel sheet piling during different construction stages, the Engineer will calculate the quantity based on the stage requiring the largest area of earth retention, not the sum of the areas of earth retention for each stage. The Engineer will take horizontal measurements along the sheet piling alignment without allowance for the structural shapes of the separate sections.

3. Additional Documentation Requirements in project file.
   a. Approved shop drawings and required calculations

7050020 **PILE, CIP CONC, FURN AND DRIVEN, 12 INCH**
7050021 **TEST PILE, CIP CONC, 12 INCH**
7050025 **PILE POINTS, CIP CONC**
Pg 1 of 3 Pay Unit: Foot, Each

MATERIALS: Concrete Grade 4000, Pile Points, Pile Shells

ACCEPTANCE TESTING REQUIREMENTS

Concrete Grade 4000

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   b. Form 1976 in project files

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months.

2. Dispenser Check
   a. Inspection certification every 6 months.

3. Concrete Mix Design
   c. Form 1976 in project files

Materials

1. Cement
   a. General Certification from the Approved Manufacturer.

   Visual Inspection: Maximum 45 tons

2. Coarse Aggregates
   a. Test prior to incorporation. One test per 1,000 tons L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.

   Visual Inspection: Maximum 100 tons for total grade used on job

7050020 PILE, CIP CONC, FURN AND DRIVEN, 12 INCH
7050021 TEST PILE, CIP CONC, 12 INCH
7050025 PILE POINTS, CIP CONC

b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.

Visual Inspection: Maximum 100 tons for total FA used on job.

b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. Slag Cement
   a. General Certification from the Approved Manufacturer

5. Fly Ash
   a. General Certification from the Approved Manufacturer

6. Liquid Concrete Admixtures
   a. Visual Inspection, must be on Qualified Product List (903.01, 903.02 & 903.03).

Foundation Piles and Points

1. A Test Data Certification

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

7050020 PILE, CIP CONC, FURN AND DRIVEN, 12 INCH
7050021 TEST PILE, CIP CONC, 12 INCH
7050025 PILE POINTS, CIP CONC
Pg 3 of 3

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Water additions must be noted and signed. Inspector Must sign all delivery tickets. Refer to MDOT Construction Manual Section 705, or as superseded, for additional information.
   d. Form 1174S - Inspector's Report of Concrete Placed - structure. One report per day of placement completely filled out. Document all underruns. See approved JMF and Tables 1004-1, 1006-1, and 1006-2
   e. Contractors QC documentation
   f. Need Forms 1125, 1138, 1161 and 1157.

2. Measurement and payment
   a. Test Piles - Department will pay for test piles in addition to the contract unit prices for furnished and driven pile pay items.
   b. Production Piles - Engineer will measure by the length of piling left in place below cut off.
   c. Pile Points – If the contract includes the pay item Pile Points for a specific structure, the Department will pay separately for Pile Points, of the type required for that structure.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification Subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
   f. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

2. Additional Documentation Requirements in project file
   a. Need Form 1157A and 1956
   b. Approved welding plan and welding certifications for welders. 20 SP 705A-01

7050030 & 7050034 **PILES, STEEL FURN AND DRIVEN,___INCH**
7050031 & 7050035 **TEST PILES, STEEL_____INCH**
7050039 **PILE POINT, STEEL___**
Pg 1 of 1 Pay Unit: Ea, Foot,

MATERIALS: Steel Piles, Pile Points

ACCEPTANCE TESTING REQUIREMENTS

Steel Piles and Points

1. A Test Data Certification

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Need Form 1161 and 1157.

2. Measurement and payment
   a. Test Piles - Department will pay for test piles in addition to the contract unit prices for furnished and driven pile pay items.
   b. Production Piles - If the contract includes the pay item Pile Points for a specific structure, the Department will pay separately for Pile Points, of the type required for that structure.

3. Additional Documentation Requirements in project file
   a. Need Form 1157A and 1956
   b. Approved welding plan and welding certifications for welders. 20 SP 705A-01

7060090 **REINFORCEMENT, STEEL**
Pg 1 of 1 Pay Unit: Pound

MATERIALS: Steel Reinforcement

ACCEPTANCE TESTING REQUIREMENTS

Steel Reinforcement

1. A General Certification from the Approved Manufacturer.

Or

Test prior to incorporation. One test per project per Manufacturer and per Size.

Visual Inspection: Maximum 500 pounds

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Form 1138 needs to be turned in with the DWR/IDR. Refer to MDOT Construction Manual Section 706 for additional information.

2. Measurement and payment
   a. The Engineer will calculate the weight of bars or bar mats, plain or coated, from the theoretical bar weights in accordance with Table 706-2, based on the total calculated weight for the bar sizes and lengths, mesh, or bar mats.

7060092 **REINFORCEMENT, STEEL, EPOXY COATED**
Pg 1 of 1 Pay Unit: Pound

MATERIALS: Steel Reinforcement Epoxy Coated

ACCEPTANCE TESTING REQUIREMENTS

Steel Reinforcement Epoxy Coated

1. A General Certification from the Approved Manufacturer for Bar
2. A General Certification from the Approved Manufacturer for Coating Company.
3. Visual Inspection, must be on Qualified Product List for the Coating (905.03C).

Or

4. Test prior to incorporation. One test per project per Manufacturer and per Size.

Visual Inspection: Maximum 500 pounds

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Form 1138 needs to be turned in with the DWR/IDR. Refer to MDOT Construction Manual Section 706, for additional information.

2. Measurement and payment
   a. The Engineer will calculate the weight of bars or bar mats, plain or coated, from the theoretical bar weights in accordance with Table 706-2, based on the total calculated weight for the bar sizes and lengths, mesh, or bar mats. The Engineer will not make allowance for the weight of coating.

7060010 – 7060013	**CONC, GRADE, ___**
7060100	**SUBSTRUCTURE CONC**
7060101	**SUBSTRUCTURE CONC, HIGH PERFORMANCE**
7060110	**SUPERSTRUCTURE CONC**
7060113	**SUPERSTRUCTURE CONC, NIGHT CASTING**
7060116	**SUPERSTRUCTURE CONC, HIGH PERFORMANCE**
7060117	**SUPERSTRUCTURE CONC, NIGHT CASTING, HIGH PERFORMANCE**
Pg 1 of 4	Pay Unit: Cubic Yard

NOTES: For Substructure and Superstructure Concrete refer to Construction Manual, or as superseded.

MATERIALS: Bituminized Fiber Joint Filler, Concrete Grade 3500, 3500HP, 4500,and 4500HP, Curing Compound, Hot Poured Rubber

ACCEPTANCE TESTING REQUIREMENTS

Bituminized Fiber Joint Filler

1. A Test Data Certification

Or

2. Test prior to incorporation. One test per 1,000 square feet or fraction thereof.

Visual Inspection: Maximum 150 square feet

Concrete Grade 3500, 3500HP, 4500,

4500HP

NRMCA Plants

1. Plant
   a. Current NRMCA certification.
2. Scales Check
   a. Inspection certification every 6 months.
3. Dispenser Check
   a. Inspection certification every 6 months.
4. Concrete Mix Design
   a. Form 1976 in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months.

7060010 – 7060013	**CONC, GRADE, ___**
7060100	**SUBSTRUCTURE CONC**
7060101	**SUBSTRUCTURE CONC, HIGH PERFORMANCE**
7060110	**SUPERSTRUCTURE CONC**
7060113	**SUPERSTRUCTURE CONC, NIGHT CASTING**
7060116	**SUPERSTRUCTURE CONC, HIGH PERFORMANCE**
7060117	**SUPERSTRUCTURE CONC, NIGHT CASTING, HIGH PERFORMANCE**

2. Dispenser Check
    a. Inspection certification every 6 months.

3. Concrete Mix Design
    a. Form 1976 in project files

Materials

1. Cement
    a. Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse/Intermediate Aggregates
    a. Test prior to incorporation. One test per 1,000 tons. Maximum VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.
    b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total grade used on job

3. Fine Aggregate
    a. Test prior to incorporation. One test per 1,000 tons.
    b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total FA used on job

4. Liquid Concrete Admixtures
    a. VI and must be on Qualified Products List (903.01, 903.02 & 903.03).

5. Slag Cement
    a. Approved Manufacturer

6. Fly Ash
    a. Approved Manufacturer

Curing Compound

1. A Test Data Certification. One test per lot or batch.

Visual Inspection: Maximum 200 gallons for white and Clear, Maximum 50 gallons for Linseed oil-based cures.

NOTE: Must be used within one year of manufacturer date.

7060010 – 7060013	**CONC, GRADE, ___**
7060100	**SUBSTRUCTURE CONC**
7060101	**SUBSTRUCTURE CONC, HIGH PERFORMANCE**
7060110	**SUPERSTRUCTURE CONC**
7060113	**SUPERSTRUCTURE CONC, NIGHT CASTING**
7060116	**SUPERSTRUCTURE CONC, HIGH PERFORMANCE**
7060117	**SUPERSTRUCTURE CONC, NIGHT CASTING, HIGH PERFORMANCE**

Hot Poured Rubber

1. Visual Inspection, must be on Qualified Product List (914.04A)

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. The Engineer must collect, verify the mixture proportions (JMF) and record discharge time, and sign each concrete delivery ticket prior to discharge. Water additions must be noted. Refer to MDOT Construction Manual Section 706, for additional information.
   d. Form 1174S - Inspector's Report of Concrete Placed - structure. One report per day of placement completely filled out and name of inspector is required. Document all underruns. See approved JMF and Tables 1004-1
   e. Forms 1125 and 1131 wet and dry check to be completed by inspection
   f. Form 2082 to be started by the inspector
   g. Contractors QC documentation

2. Measurement and payment
   a. Concrete Grade 3500, 3500HP, 4500, 4500HP – The Engineer will calculate pay quantities for pay items listed in this subsection based on the lines and dimensions shown on the plans. The Engineer will calculate concrete volumes without subtracting the volume of steel reinforcement or steel H-Piling.
   b. Superstructure – The Engineer will measure superstructure concrete for decks based on batch plant tickets with deductions made for material wasted or rejected.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification Subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. Attach pavement core thickness forms and document on DWR/IDR whether a penalty was required.

7060010 – 7060013	**CONC, GRADE, ___**
7060100	**SUBSTRUCTURE CONC**
7060101	**SUBSTRUCTURE CONC, HIGH PERFORMANCE**
7060110	**SUPERSTRUCTURE CONC**
7060113	**SUPERSTRUCTURE CONC, NIGHT CASTING**
7060116	**SUPERSTRUCTURE CONC, HIGH PERFORMANCE**
7060117	**SUPERSTRUCTURE CONC, NIGHT CASTING, HIGH PERFORMANCE**

f. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
g. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

4. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003 for QA/QC.

7060140 **WATER REPELLENT TREATMENT, PENETRATING**
Pg 1 of 1 Pay Unit: Square Yard

MATERIALS: Penetrating Water Repellents

ACCEPTANCE TESTING REQUIREMENTS

Penetrating Water Repellents

1. Visual inspection, Must be from the Qualified Products List (706.03S).

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. The Engineer will calculate and pay quantities for pay items based on the lines and dimensions shown on the plans.

7070050 - 7070071 **Structural Steel, Mixed, Erect**
Pg 1 of 2 **Structural Steel, Mixed, Furn and Fab**
Structural Steel, Plate, Erect
Structural Steel, Plate, Furn and Fab
Structural Steel, Rolled Shape, Erect
Structural Steel, Rolled Shape, Furn and Fab
Pay Unit: Pound

MATERIALS: High Strength Bolts, Nuts and Washers, Structural Steel_,

ACCEPTANCE TESTING REQUIREMENTS

High Strength Bolts, Nuts and Washers

1. Test prior to incorporation.

Structural Steel

1. Fabrication inspection documents, According to Structural Fabrication Quality Manual (SFQM), and Elements will be stamped or tagged “Approved for Use” by the QA shop inspector.
1. LAPs are responsible for all testing requirements.

NOTE: Local Government Agency is required to hire independent agency to perform all required testing. Reports must be signed by inspector performing the testing and/or inspection.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials must be stamped approved before incorporation and/or Stamped Bill of Lading and must be VI by the inspector with notation on the DWR/IDR.
   c. Ensure bolts are tightened and document on DWR/IDR per Standard Specification Subsection 707.03.E.6.c and 707.03.E.6.d
   d. Stamped Bill of Lading Must be collected at time of delivery, scanned and placed in ProjectWise
   e. When item is completed FFM (Final Field Measurement) will be based on approved pay weights.

2. Measurement and payment
   a. The Engineer will calculate the weights of rolled shapes and plates incorporated in the finished work on the basis of nominal weights and dimensions, as shown on the approved shop drawings, deducting for copes, cuts, and holes, except those for high-strength bolts.
   The Engineer will include the total calculated weight of bolts, nuts, and washers in the finished work in the weight of structural. Per standard Specification Subsection 707.04.A.
   b. On the receipt of a Stamped Bill of Lading the final payment can be made, before the final document package is submitted to ProjectWise.

Additional Requirements

1. Need approved shop drawings
2. MDOT Field Welding Plans (Form 0394 and 0395) are required to be approved by

7070050 - 7070071
Pg 2 of 2

Structural Steel, Mixed, Erect
Structural Steel, Mixed, Furn and Fab
Structural Steel, Plate, Erect
Structural Steel, Plate, Furn and Fab
Structural Steel, Rolled Shape, Erect
Structural Steel, Rolled Shape, Furn and Fab
Pay Unit: Pound

Bureau of Bridges and Structures – Structural Fabrication Unit. Field welders must be endorsed by MDOT for the field welding taking place in accordance with MDOT's Welder Qualification Program.

3. See current special provisions 20 SP-707A-01 (Structural Steel and Aluminum Construction), and 20 SP-707D-02 (Complex Steel Erection Shoring and Falsework) for additional construction requirements.

7070010 – 7070024 **BEARING, ELASTOMERIC,___INCH**
Pg 1 of 1 Pay Unit: Square Inch

MATERIALS: Elastomeric Bearing Pads

ACCEPTANCE TESTING REQUIREMENTS

Elastomeric Bearing Pads

1. A General Cert

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. The Engineer will measure Bearing, Elastomeric of the size required, by area, with no deductions for holes.

7070040 **SHEAR DEVELOPERS**
Pg 1 of 1 Pay Unit: Lump Sum

MATERIALS: Shear Developers

ACCEPTANCE TESTING REQUIREMENTS

Shear Developers

1. Visual inspection, must be from the Qualified Products List (906.09).

Note on Testing Studs

Studs are tested by *ringing* with a hammer. To test the studs, the inspector should allow studs to cool before testing. The first two studs welded will be bent to a 30 degree angle without breaking the weld. If the weld breaks, repairs will be made and the next set of studs tested along with the studs that were repaired. The rest of the studs on that beam can then be checked for proper welding. Sufficient tests should be made to ensure proper procedures are being followed (bend over additional studs). If a weld defect is found, the stud may be bent to an angle of 15 degrees away from the defect. If no weld break occurs, the stud is acceptable. No welding will be done when the temperature of the base material is below 32 degrees F (0 degrees C) or when the surface is wet or exposed to rain or snow.

NOTE:

Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure as a unit for each structure.

7080001 - 7080010 **PREST CONC DECK,___INCH**
Pg 1 of 1 Pay Unit: Square Foot

MATERIALS: Concrete, Precast Panels

ACCEPTANCE TESTING REQUIREMENTS

Precast Panels

1. Fabrication inspection documents, According to Structural Fabrication Quality Manual (SFQM), and Elements will be stamped or tagged "Approved for Use" by the QA shop inspector.
2. LAP is responsible for all testing requirements.

NOTE: Local Government Agency is required to hire independent agency to perform all required testing. Reports must be signed by QA inspector performing the testing and/or inspection.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials must be stamped approved before incorporation and/or Stamped Bill of Lading, and must be VI by the inspector with notation on the DWR/IDR.
   c. Stamped Bill of Lading Must be collected at time of delivery, scanned and placed in ProjectWise.

Measurement and payment

1. Engineer will measure based on the nominal overall length of the units, multiplied by the overall plan width.

Additional Requirements

1. Need approved shop drawings
2. See current special provisions 20 SP-708B-01 and 20 SP-708C-01 (local Agency Only) for additional construction requirements.

7080015 **POST TENSIONING, (STRUCTURE NO.)**
Pg 1 of 1 Pay Unit: Lump Sum

MATERIALS: Grout E-1, Post Tensioning Strands (Tendons)

ACCEPTANCE TESTING REQUIREMENTS

Grout E-1
1. Test Data Certification

Post Tensioning Strands (Tendons)
1. Strands
   a. A General Certification from an Approved Manufactures.

NOTE: Visual Inspection: All material placed. Verify mix proportioning per Standard Specifications table 1005-1 and 1005-2.

Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION
1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Test for slump and air when required.

2. Measurement and payment
   a. Engineer will pay as Lump Sum per structure number.

7080021 – 7080041 **PREST CONC I BEAMS,___, __ INCH**
7080051 – 7080096 **PREST CONC BOX BEAM,___,___INCH**
7080101 – 7080102 **PREST CONC 1800 BEAM, ___**
7080110 – 7080176 **PREST CONC Bulb-Tee Beam,___INCH**
Pg 1 of 1 Pay Unit: Foot

MATERIALS: Prest Concrete Beams

ACCEPTANCE TESTING REQUIREMENTS

Prest Concrete Beams

1. Fabrication inspection documents, According to Structural Fabrication Quality Manual (SFQM), and Elements will be stamped or tagged "Approved for Use" by the QA shop inspector.
2. LAP are responsible for all testing requirements.

NOTE: Local Government Agency is required to hire independent agency to perform all required testing. Reports must be signed by QA inspector performing the testing and/or inspection.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Notation on DWR/IDR confirming the fabrication acceptance stamp on beams and/or on Bill of Lading.
   d. Stamped Bill of Lading Must be collected at time of delivery, scanned and placed in ProjectWise.

2. Measurement and payment
   a. The Engineer will measure Prest Conc, Erect and Prest Conc, Furn pay items based on the nominal length of the beams.

Additional Requirements

1. Need approved shop drawings
2. See current special provisions 20 SP-707G-01 (if in proposal), 20 SP-708B-01, and 20 SP-708C-01 (local Agency Only) for additional construction requirements.

7100001 **JOINT WATERPROOFING**
Pg 1 of 1 Pay Unit: Square Foot

MATERIALS: Waterproofing Membrane - Preformed

ACCEPTANCE TESTING REQUIREMENTS

Waterproofing Membrane - Preformed

1. Visual Inspection, must be from Qualified Products List (914.11).

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. The Engineer will measure Joint Waterproofing by area based on a width of 18 inches and the plan length of joints requiring treatment.

7110005 **BRIDGE RAILING, AESTHETIC PARAPET TUBE**
Pg 1 of 3 Pay Unit: Foot

MATERIALS: Anchor Studs, Concrete – Grade 4500 & 4500HP, Curing Compound High Strength Bolts, Tubing, Steel Railing

ACCEPTANCE TESTING REQUIREMENTS

Anchor Studs

1. Test. One test per heat per diameter per project.

Concrete - Grade 4500, 4500HP

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   a. Form 1976 in project files

For non NRMCA Plants: All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months.

2. Dispenser Check
   a. Inspection certification every 6 months.

3. Concrete Mix Design
   a. Form 1976 in project files

Materials

1. Cement
   a. Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse Aggregates
   a. Test prior to incorporation. One test per 1,000 tons L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.

Visual Inspection: Maximum 100 tons for total grade used on job

b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.

Visual Inspection: Maximum 100 tons for total FA used on job.

b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. Slag Cement
   a. Approved Manufacturer

5. Fly Ash
   a. Approved Manufacturer

6. Liquid Concrete Admixtures
   a. VI and must be on Qualified Products List (903.01, 903.02 & 903.03).

Curing Compound

1. A Test Data Certification. One test per lot or batch.

Visual Inspection: Maximum 200 gallons.

NOTE: Must be used within one year of manufacturer date.

High Strength Bolts

1. Test. One test per heat per diameter per project

NOTE: Standard Plan B-25 Series.

Tubing, Steel Railing

1. MDOT gets Memo to file for Fabrication inspection, Shop inspection of structural steel reports (Form 538). According to Structural Fabrication Quality Manual (SFQM),.

2. LAP needs Fabrication inspection, Shop inspection of structural steel reports (Form 0538), Buy America certification and According to Structural Fabrication Quality Manual (SFQM) in the project file.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

7110005 **BRIDGE RAILING, AESTHETIC PARAPET TUBE**

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Inspector Must sign all delivery tickets, Water additions must be noted. Refer to MDOT Construction Manual Section 711, for additional information.
   d. Form 1174S - Inspector's Report of Concrete Placed - structure. One report per day of placement completely filled out and name of inspector is required. Document all underruns. See approved JMF and Tables 1004-1
   e. Notation on DWR/IDR confirming the fabrication acceptance stamp on Tube Railing and/or on the Bill of Lading.
   f. Stamped Bill of Lading Must be collected at time of delivery, scanned and placed in ProjectWise
   g. Contractors QC documentation

2. Measurement and payment
   a. Engineer will measure based on Plan Quantity

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per the standard specification subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
   f. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

4. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003.

7120010 **PATCH, FULL DEPTH**
7120015 - 7120016 **PATCHING MORTAR OR CONC**
7120110 - 7120115 **PATCHING CONC, C; C-HE; C-L; C-L-HE; F-L; M**
Pg 1 of 3 Pay Units: Cubic Foot, Cubic Yard

MATERIALS: Concrete – Grade 3500, 3500HP, 4500, 4500HP, Curing Compound, and Structure Patching Mixture (Conc C; C-HE; C-L; C-L-HE; F-L; M)

ACCEPTANCE TESTING REQUIREMENTS

Concrete - Grade C; C-HE; M

NRMCA Plants
1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months..

4. Concrete Mix Design
   a. Form 1976 in project files

For non NRMCA Plants: All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).
1. Scales Check
   a. Inspection certification every 6 months.

2. Dispenser Check
   a. Inspection certification every 6 months.

3. Concrete Mix Design
   a. Form 1976 in project files

Materials
1. Cement
   a. Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse Aggregates
   a. Test prior to incorporation. One test per 1,000 tons L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.
   b.

Visual Inspection: Maximum 100 tons for total grade used on job

   c. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

7120010 PATCH, FULL DEPTH
7120015 - 7120016 PATCHING MORTAR OR CONC
7120110 - 7120115 PATCHING CONCRETE, C; C-HE; C-L; C-L-HE; F-L; M

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.

Visual Inspection: Maximum 100 tons for total FA used on job.

   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. Slag Cement
   a. Approved Manufacturer

5. Fly Ash
   a. Approved Manufacturer

6. Liquid Concrete Admixtures
   a. VI and must be on Qualified Products List (903.01, 903.02 & 903.03).

Curing Compound

1. A Test Data Certification. One test per lot or batch.

Visual Inspection: Maximum 200 gallons.

NOTE: Must be used within one year of manufacturer date.

Structural Patching Mixture(Conc C; C-HE; C-L; C-L-HE; F-L; M)

1. Portable Mixing Unit
   a. Provide certification to the engineer and demonstrate by field test, the equipment is calibrated for yield and proportioning.
   b. Delivery tickets
   c. Latex admixture – A Certification from an Approved Manufacture.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

7120010 PATCH, FULL DEPTH
7120015 - 7120016 PATCHING MORTAR OR CONC
7120110 - 7120115 PATCHING CONCRETE, C; C-HE; C-L; C-L-HE; F-L; M
Pg 3 of 3

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Form 1174S - Inspector's Report of Concrete Placed - structure. One report per day of placement completely filled out and name of inspector is required. Document all underruns. See approved JMF and Tables 1004-1, 1006-1, and 1006-2

2. Measurement and payment
   a. The Engineer will measure Patch, Full Depth based on the volume of the hole requiring filling.
   Note: Patch, Full Depth in conjunction with overlay, the Department will only pay for patching the area shown on the plans. If full-depth patches are required in areas not shown on the plans, unit prices for Conc, Bridge Deck Ovly or Conc, Silica Fume Modified will include the cost of the concrete material required to fill the full depth patches.

3. Additional Documentation Requirements in project file
   a. Work progress specimen if necessary
   b. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01.

4. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per the standard specification subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan

Note: For portable mixing units a certification is required.

Local Agency Projects
Refer to standard specification subsection 1002 and 1003 for QA/QC.

7120028 – 7120038 ADHESIVE ANCHORING OF___BAR,___INCH
7120040 – 7120044 BOLT, ADHESIVE ANCHORED,___INCH
7120050 – 7120052 BOLT, MECHANICAL EXPANSION ANCHORED,__INCH
Pg 1 of 1 Pay Unit: Each

MATERIALS: Adhesive System, Bolts

ACCEPTANCE TESTING REQUIREMENTS

Adhesive System

1. Visual Inspection, must be from the Qualified Products List (712.03J).

Bolts

1. General Cert (914.10)

Structure Expansion Anchored (Mechanical Expansion Anchored)

1. Visual Inspection, must be from the Qualified Products List (712.03K). Pull out testing is required see MQAP manual section 3.03

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See MDOT Construction Manual Section 105.10.

Pull-Out Testing

1. Field Inspection Report (see Form 0566). See subsection 712.03.J and 712.03.K.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure based on each item placed.

7120084 **REINFORCEMENT, MECHANICAL SPLICE**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Reinforcement Mechanical Splice

ACCEPTANCE TESTING REQUIREMENTS

Reinforcement Mechanical Splice

1. Visual Inspection, must be from the Qualified Products List (712.03L).
   a. Test – The contractor must make test splices, witnessed by the Engineer, on the largest bar size being spliced.
   b. Mechanical and other splices: Make two test splices on the largest bar size being spliced. Test splice consists of 2 pieces of reinforcing bar joined by the coupler with a minimum of 12 inches or bar exposed on each end of the coupler.

NOTE: Use these tests to establish a splicing procedure. Demonstrate that splices have a tensile strength of 125 percent of the bar's yield strength. For all required tests, supply sample bars with 12 inches of exposed bar on each end. If the existing reinforcing steel being spliced has an inferior or badly corroded exterior deformation pattern, the Engineer may require additional qualification testing on these bars. The Department will test all test splices.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure based on each item placed.

7150045 **STEEL STRUCTURES CLEANING, TYPE 4**
Pg 1 of 1 Pay Unit: Lump Sum

MATERIALS: Low Dusting Abrasive, Steel Grit/Shot

Note: Refer to Construction Manual and 20 SP-715B-01 in proposal

ACCEPTANCE TESTING REQUIREMENTS

Low Dusting Abrasive

1. Visual Inspection, must be from the Qualified Products List (715.02).

Steel Grit/Shot

1. Visual Inspection

NOTE: Verify uniform profile after blasting of 1 to 2.8 mils per SSPC

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR
   c. Form 1941 to be completed by the Inspector.
   d. Form 2081 started in the Field by the inspector and finished in the office.

2. Measurement and payment.
   a. Engineer will measure as a unit for each structure.

7150046 **STEEL STRUCTURE, COATING, TYPE 4**
Pg 1 of 1 Pay Unit: Lump Sum

MATERIALS: Coating System

Note: Refer to Construction Manual and 20 SP-715A-01 in proposal

ACCEPTANCE TESTING REQUIREMENTS

Coating System

1. Visual Inspection, must be from the Qualified Products List (915).

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR
   c. Form 1941 completed by the inspector.
   d. Form 2081 started in the Field by the inspector and finished in the office.

2. Measurement and payment.
   a. Engineer will measure as a unit for each structure.

8010001 – 8010004 **DRIVEWAY, REINF CONC, INCH**
8010005 – 8010008 **DRIVEWAY, NONREINF CONC, ___ INCH**
Pg 1 of 4 Pay Unit: Square Yard

MATERIALS: Bituminous Fiber Filler, Concrete Grade 3500, Curing Compound-White, Wire Fabric

ACCEPTANCE TESTING REQUIREMENTS

Bituminized Fiber Joint Filler

1. A Test Data Certification.

Visual Inspection: Maximum 150 square feet for all other sizes.

Concrete Grade 3500

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   a. Form 1976 in project files

For Portable Batch Plants

1. Plant
   b. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer

For non NRMCA Plants: ***All of the following documentation is required including*** FORM***1174 CONCRETE PLANT PROPORTIONING (a minimum of one report per mix).***

1. Scales Check
   a. Inspection certification every 6 months.

2. Dispenser Check
   a. Inspection certification every 6 months.

3. Concrete Mix Design
   a. Form 1976 in project files

8010001 – 8010004 DRIVEWAY, REINF CONC,_INCH
8010005 – 8010008 DRIVEWAY, NONREINF CONC,___INCH

Materials

1. Cement
   a. Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total grade used on job

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total FA used on job

4. Liquid Concrete Admixtures
   VI and must be on Qualified Products List (903.01, 903.02 & 903.03).

5. Slag Cement
   a. Approved Manufacturer

6. Fly Ash
   a. Approved Manufacturer

8010001 – 8010004 DRIVEWAY, REINF CONC, INCH
8010005 – 8010008 DRIVEWAY, NONREINF CONC, ___ INCH

Curing Compound

1. A Test Data Certification. One test per lot or batch.

Visual Inspection: Maximum 200 gallons

NOTE: Must be used within one year of manufacturer date.

Wire Fabric

1. A General Certification from an Approved Manufacturer

Or

2. Test prior to incorporation. One test per project per manufacturer.

Visual Inspection: Maximum 500 square yards.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See the MDOT Construction Manual Section 105.10.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Water additions must be noted and signed. Refer to MDOT Construction Manual Section 801, for additional information.
   d. Form 1174R - Inspector's Report of Concrete Placed - roadway. One report per day of placement completely filled out and name of inspector is required. Document all underruns. See approved JMF and Tables 1004-1 and 1006-3
   e. Contractors QC documentation.

2. Measurement and payment
   a. The Engineer will measure Driveway, Reinf Conc, __ inch and Driveway, Nonreinf Conc, __ inch by the width and length placed, for the specified thickness required on the plans.

8010001 – 8010004 DRIVEWAY, REINF CONC, INCH
8010005 – 8010008 DRIVEWAY, NONREINF CONC, ___ INCH

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per the standard specification subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. Pull out test for lane ties required per standard specification subsection 602.03.F.3
   f. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
   g. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

4. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003 for QA/QC.

8020001 – 8020006 **Curb, Conc, Det ___**
8020010 **Curb and Gutter, Bridge Approach**
8020015 – 8020040 **Curb and Gutter, Conc, Det ___**
Pg 1 of 4 Pay Unit: Foot

MATERIALS: Bituminous Fiber Filler, Concrete Grade 3500, Curing Compound-White, Lane Ties Bars, Mortar Standard, Steel Reinforcement-Epoxy Coated, Fiber Reinforced Polymer Bar

ACCEPTANCE TESTING REQUIREMENTS

Bituminized Fiber Joint Filler

1. A Test Data Certification.

Visual Inspection: Maximum 150 square feet.

Concrete Grade 3500

NRMCA Plants

1. Plant
   a. Current NRMCA certification

2. Scales Check
   a. Inspection certification every 6 months

3. Dispenser Check
   a. Inspection certification every 6 months

4. Concrete Mix Design
   a. Copy in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer.

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3. Concrete Mix Design
   a. Copy in project files

8020001 – 8020006 Curb, Conc, Det ___
8020010 Curb and Gutter, Bridge Approach
8020015 – 8020040 Curb and Gutter, Conc, Det ___

Materials

1. Cement
   a. Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.

   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.

   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons

4. Liquid Concrete Admixtures
   a. VI and must be on Qualified Products List (903.01, 903.02 & 903.03).

5. Slag Cement
   a. Approved Manufacturer

6. Fly Ash
   a. Approved Manufacturer

Curing Compound

1. A Test Data Certification.

Visual Inspection: Maximum 200 gallons

NOTE: Must be used within one year of manufacturer date.

Lane Tie Bars

1. A General Certification from the Approved Manufacturer for Bar
2. A General Certification from the Approved Manufacturer for Coating Company
3. VI and must be on Qualified Products List for coating (905.03C1).

Visual Inspection: Maximum 500 pounds

8020001 – 8020006 Curb, Conc, Det ___
8020010 Curb and Gutter, Bridge Approach
8020015 – 8020040 Curb and Gutter, Conc, Det ___
Pg 3 of 4

Mortar Standard

1. Visual Inspected

Steel Reinforcement Epoxy Coated

1. A General Certification from the Approved Manufacturer for Bar
2. A General Certification from the Approved Manufacturer for Coating Company
3. VI and must be on Qualified Products List for coating (905.03C1).

Visual Inspection: Maximum 500 pounds

Fiber Reinforce Polymer Bar

1. General Certification 20 SP802A-02

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See the MDOT Construction Manual Section 105.10.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Water additions must be noted and signed. Refer to MDOT Construction Manual Section 802 for additional information.
   d. Form 1174R - Inspector's Report of Concrete Placed - roadway. One report per day of placement completely filled out and name of inspector is required. Document all underruns. See approved JMF and Tables 1004-1
   e. Contractors QC documentation

8020001 – 8020006 Curb, Conc, Det ___
8020010 Curb and Gutter, Bridge Approach
8020015 – 8020040 Curb and Gutter, Conc, Det ___

2. Measurement and payment
   a. Engineer will measure in place along the joint of the curbing with the pavement.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per the standard specification subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. Pull out test for lane ties required per standard specification subsection 602.03.F.3
   f. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
   g. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

4. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003 For QA/QC.

Note: Standard Plan R-27, R-30, R-31, R-32, and R-33 Series.

8030030 **CURB RAMP OPENING, CONC**
8030033 - 8030037 **CURB RAMP, CONC, __INCH**
8030043 – 8030047 **SIDEWALK, CONC, __ INCH**
Pg 1 of 3 Pay Unit: Foot, Square Foot

MATERIALS Bituminous Fiber Filler, Concrete Grade 3000,3500, Curing Compound-White, Granular Material Cl II, Steel Reinforcement-Epoxy Coated, Fiber Reinforced Polymer Bar

ACCEPTANCE TESTING REQUIREMENTS

Bituminized Fiber Joint Filler

1. A Test Data Certification.

Visual Inspection: Maximum 150 square feet for all other sizes.

Concrete Grade 3000, 3500

NRMCA Plants

1. Plant
   a. Current NRMCA certification
2. Scales Check
   a. Inspection certification every 6 months
3. Dispenser Check
   a. Inspection certification every 6 months
4. Concrete Mix Design
   a. Copy in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer.

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months
2. Dispenser Check
   a. Inspection certification every 6 months
3. Concrete Mix Design
   a. Copy in project files

Materials

1. Cement
   a. Approved Manufacturer.

Visual Inspection: Maximum 45 tons

8030030 CURB RAMP OPENING, CONC
8032000 - 8032003 CURB RAMP, CONC, __INCH
8030043 – 8030047 SIDEWALK, CONC, __ INCH
Pg 2 of 3

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons

4. Liquid Concrete Admixtures
   a. VI and must be on Qualified Products List (903.01, 903.02 & 903.03).

5. Slag Cement
   a. Approved Manufacturer

6. Fly Ash
   a. Approved Manufacturer

Curing Compound

1. A Test Data Certification.

Visual Inspection: Maximum 200 gallons

NOTE: Must be used within one year of manufacturer date.

Steel Reinforcement Epoxy Coated

1. A General Certification from the Approved Manufacturer for Bar
2. A General Certification from the Approved Manufacturer for Coating Company
3. VI and must be on Qualified Products List for coating (905.03C1).

Visual Inspection: Maximum 500 pounds

Fiber Reinforce Polymer Bar

1. General Certification 20 SP-802A-02

NOTE: Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10**.**

8030030 CURB RAMP OPENING, CONC
8030033 - 8030037 CURB RAMP, CONC, __INCH
8030043 – 8030047 SIDEWALK, CONC,_INCH
Pg 3 of 3

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Water additions must be noted and signed. Refer to MDOT Construction Manual Section 803, for additional information.
   d. Form 1174R - Inspector's Report of Concrete Placed - roadway. One report per day of placement completely filled out and name of inspector is required. Document all underruns. See approved JMF and Tables 1004-1
   e. Contractors QC documentation.

2. Measurement and payment
   a. The Engineer will measure Sidewalk, Conc, __inch of the required thickness, in place.
   b. The Engineer will measure Curb Ramp, Conc, __ inch by the area of ramp and landing in place.
   c. The Engineer will measure Curb Ramp Opening, Conc in place along the joint between the curbing with the pavement including transitions to and from adjacent standard full-height curb and gutter cross section.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per the Standard specification subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
   f. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

4. Local Agency Projects
   a. Refer to standard specification subsection 1002 and 1003.

5. Density Reports
   a. Compact to 95% of maximum unit weight with a minimum testing frequency of 1 test per 500 feet per width of 24 feet or less.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

Note: Standard Plan R-28, R-29, and R-30 Series.

8070000 – 8070009 **GUARDRAIL, TYPE ___**
8070010 – 8070012 **GUARDRAIL, CURVED, TYPE ___**
Page 1 of 2 Pay Unit: Foot

MATERIALS: Blocks (Plastic or Wood), Guardrail Beam Elements and Hardware (includes all components from same manufacturer), Wood Post

ACCEPTANCE TESTING REQUIREMENTS

Blocks (Plastic or Wood)

1. VI and must be on Qualified Products List for Plastic Block (912.0).

2. Wood –
   a. A General Certification from the Approved Manufacturer.

Or

   b. Test prior to incorporation. One test per charge.

Guardrail Beam Element and Hardware

1. A General Certification from the Approved Manufacturer.

Or

2. Test prior to incorporation. Beam element - One test per project per manufacturer.

Visual Inspection: Maximum VI for beam elements 125 feet
Maximum VI for steel post 25 Each.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

8070000 – 8070009 GUARDRAIL, TYPE ___
8070010 – 8070012 GUARDRAIL, CURVED, TYPE ___

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

   Note: Standard Plan R-59, R-60, R-72, R-73 Series and Special Detail 21.

2. Measurement and payment
   a. Engineer will measure along the face of the rail.

8070020 – 8070033 **GUARDRAIL ANCHORAGE, BRIDGE, DETAIL ___**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Blocks (Plastic or Wood), Guardrail Beam Elements and Hardware (includes all components from same manufacturer), Wood Post

ACCEPTANCE TESTING REQUIREMENTS

Blocks (Plastic or Wood)

1. Visual Inspection, must be on Qualified Product List Plastic Blocks(912.08Q).

2. Wood
   a. A General Certification from the Approved Manufacturer.

Or

   b. Test prior to incorporation. One test per charge.

Guardrail Beam Element and Hardware

1. A General Certification from the Approved Manufacturer.

Or

2. Test prior to incorporation. Beam element - One test per project per manufacturer.

Visual Inspection: Max VI for beam elements 125 feet
Max VI for steel post 25 Each.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

Note: Standard Plan R-59, R-67 Series

2. Measurement and payment
   a. Engineer will measure each item in-place.

8070038 – 8070044 GUARDRAIL APPROACH TERMINAL, TYPE____

8070050 – 8070052 GUARDRAIL DEPARTING TERMINAL

Pg 1 of 2 Pay Unit: Each

MATERIALS: Blocks (Plastic or Wood), Guardrail Beam Elements and Hardware (includes all components from same manufacturer), Wood Post

ACCEPTANCE TESTING REQUIREMENTS

Blocks (Plastic or Wood)

3. Visual Inspection, must be on Qualified Product List Plastic Blocks(912.08Q).

4. Wood
   a. A General Certification from the Approved Manufacturer.

Or

   b. Test prior to incorporation. One test per charge.

Guardrail Beam Element and Hardware

3. A General Certification from the Approved Manufacturer.

Or

4. Test prior to incorporation. Beam element - One test per project per manufacturer.

Visual Inspection: Max VI for beam elements 125 feet
Max VI for steel post 25 Each.

NOTE: Contractor to provide at least 14 days prior to terminal installation, provide the Engineer one electronic copy of the detailed drawings, installation manuals, and maintenance manuals for the selected guardrail approach terminal(s). Provide manufacturer issued and dated training certificates for all staff on the guardrail installation crew. Training must have occurred within the previous 3 years. Training certificates must be provided to the Engineer 14 days before guardrail installation work commences.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

3. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.

8070038 – 8070044 GUARDRAIL APPROACH TERMINAL, TYPE____

8070050 – 8070052 GUARDRAIL DEPARTING TERMINAL

 Pay Unit: Each

b. All materials used must be VI by the inspector with notation on the DWR/IDR.
c. For Approach Terminals, attach copy of the guardrail terminal manufacturer's installation checklist, completed and signed by the Contractor, for each individual guardrail terminal installed. Upon completion of guardrail work, provide written certification from the Contractor that all guardrail terminal installations have been installed per the contract and the manufacturers' specifications and guidelines.

Note: Standard Plan R-62, R-63, R-66, R-71 Series

4. Measurement and payment
   a. Engineer will measure each item in-place.

8070080 **GUARDRAIL REFLECTOR**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Reflectorized Washer

ACCEPTANCE TESTING REQUIREMENTS

Reflectorized Washer

1. VI on DWR/IDR. Inspect galvanizing, dimensions and type of sheeting.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See MDOT Construction Manual Section 105.10**.**

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure each item in-place.

8070095 **POST, MAILBOX**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Wood Post

ACCEPTANCE TESTING REQUIREMENTS

Wood Post

1. Visual Inspection

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure each item in-place

8080001 **FENCE, WOVEN WIRE WITH WOOD POST**
8080002 **FENCE, WOVEN WIRE WITH STEEL POSTS**
Pg 1 of 3 Pay Unit: Foot

MATERIALS: Barbed Wire, Concrete Grade 3000, Steel Post, Wood Posts, Woven Wire Fabric and Hardware

ACCEPTANCE TESTING REQUIREMENTS

Barbed Wire

1. Test Data Cert along with BUY AMERICA statement required.
2. VI 400 ft Maximum

Concrete Grade 3000

NRMCA Plants

1. Plant
   a. Current NRMCA certification

2. Scales Check
   a. Inspection certification every 6 months

3. Dispenser Check
   a. Inspection certification every 6 months

4. Concrete Mix Design
   a. Copy in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03.

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3. Concrete Mix Design
   a. Copy in project files

Materials

1. Cement
   a. A General Certification from the Approved Manufacturer.

Visual Inspection: Maximum VI 45 tons

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Maximum VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.

Visual Inspection: Maximum 100 tons for total grade used on job
   a. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total FA used on job

4. Liquid Concrete Admixtures
   a. VI and must be on Qualified Products List (903.01, 903.02 & 903.03). .

5. Slag Cement
   a. A General Certification from the Approved Manufacturer

6. Fly Ash
   a. A General Certification from the Approved Manufacturer

Sound Earth
1. No Organic Material
2. Unit Weight of at least 95 pounds per cubic foot.
3. Compact to the Required Density for the Item of Work.

Steel Post
1. Test Data Certification.

Woven Wire Fabric and Hardware
1. Test Data Certification.
2. VI 400 Ft Maximum
3. For coatings Provide General Certification per subsection 907.02.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10

8080001 FENCE, WOVEN WIRE WITH WOOD POST
8080002 FENCE, WOVEN WIRE WITH STEEL POSTS
Pg 3 of 3

Wood Post

Visual Inspection

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   d. Signed certification statement and batch weights required on each concrete delivery tickets from supplier for each load. Water additions must be noted and signed. Refer to MDOT Construction Manual Section 808, for additional information.
   e. Form 1174R - Inspector's Report of Concrete Placed - roadway. One report per day of placement completely filled out and name of inspector is required. Document all underruns. See approved JMF and Tables 1004-1
   f. Contractors QC documentation

2. Measurement and payment
   a. Engineer will measure fence in place and will not include gate openings and the measurement.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification Subsection 1002, prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.
   e. QA and QC Optimized aggregate test reports as required per the Materials Quality Assurance Procedures Manual 3.09
   f. Alkali – Silica Reactivity (ASR) test report per 20 SP-1002A-01

4. Local Agency Projects
   b. Refer to standard specification subsection 1002 and 1003 For QA/QC.

Note: Standard Plan R-101 and R-102 Series

8100370 - 8100371 **POST, STEEL,___LB**
Pg 1 of 1 Pay Unit: Foot

MATERIALS: Steel post

ACCEPTANCE TESTING REQUIREMENTS

Steel Post

1. A Test Data Certification.

Visual Inspection: Maximum 20 posts

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See the MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
2. Measurement and payment
   a. Engineer will measure sign supports to the nearest commercial length required.

8100392 – 8100414 **SIGN, TYPE ___**
Pg 1 of 1 Pay Unit: Square Foot

MATERIALS: Reflective Sheeting, Sign-Type I, III, IV, V, Sign-Type II.

ACCEPTANCE TESTING REQUIREMENTS

Signs
1. General Cert must be Attached and inspected at project site.

Reflective Sheeting
1. VI and must be on Qualified Products List (919.02B1).

Sign, Type I, III, IV, V
1. VI.

AND
2. Mill Cert must be submitted to the Project Engineer (919.02A1 and 919.02A3)

Sign, Type II
1. General Certification.
   OR
2. Grade mark on materials serves as certification

Sign Hardware
1. General Certification.
   OR
2. Identifying marks on items may serve as certification

CONSTRUCTION
1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR

2. Measurement and payment
   a. Engineer will measure Sign by the Square Foot, without reduction for rounded corners.

8110022 – 8110295 **PAVEMENT MARKINGS**
Pg 1 of 2 Pay Unit: Foot & Each

MATERIALS: Cold Plastic, Glass Beads, Modified Epoxy, Polyurea, Regular Dry, Sprayable Thermoplastic, Thermoplastic, Waterborne, Wet Reflective Beads/Elements

ACCEPTANCE TESTING REQUIREMENTS

Cold Plastic
1. VI and must be on Qualified Products List (811.03D4)

Glass Beads
1. General Certification.

Visual Inspection: Maximum 500 pounds.

Modified Epoxy
1. VI and must be on Qualified Products List (811.03D8).

Polyurea
1. VI and must be on Qualified Products List (811.0D7).

Regular Dry
1. VI and must be on Qualified Products List (811.0D3).

Sprayable Thermoplastic
1. VI and must be on Qualified Products List (811.03D6).

Thermoplastic
1. VI and must be on Qualified Products List (811.03D5).

Waterborne
1. VI and must be on Qualified Products List (811.03D1, 811.03D2).

Wet Reflective Beads/Elements
1. VI and must be on Qualified Products List (920.02C).

CONSTRUCTION
1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Sample plates are required for All Permanent Liquid Applied Pavement Marking see the MDOT Construction Manual Section 811, for the most updated sample frequency.
   d. 1585 is required one per project per season.
   e. Verify Truck Certification.

8110022 – 8110295 PAVEMENT MARKINGS
Pg 2 of 2 Pay Unit: Foot & Each

Note: Provide certification that liquid and solid applied pavement marking materials have been stored per the manufacturer's requirements. Use liquid applied pavement marking materials manufactured in the previous 12 months or within the shelf life directed by the manufacturer, whichever is less. Use solid applied materials within the shelf life directed by the manufacturer.

2. Measurement and payment
   a. Engineer will verify the measured Pavement Markings.

8120080 – 8120083 **CONC BARRIER, TEMP, ___**
Pg 1 of 1 Pay Unit: Foot

MATERIALS Barrier Reflective Markers Temporary, Concrete Barrier

ACCEPTANCE TESTING REQUIREMENTS

Barrier Reflective Markers Temporary

1. VI and a Self-Certification Letter per MQAP 3.07

Concrete Barrier

1. A Test Data Certification from contractor and meets 922.04.A of the Standard Specification for Construction 2020.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Document the barrier wall meet ATSSA standard as shown in Latest Edition.
   d. Check for fully engaged connection between sections.

Note: Refer to Standard Plan R-126 Series

2. Measurement and payment
   a. Engineer will measure in-place at initial location with barrier reflector marker attached.

8120100 **DUST PALLATIVE, APPLIED**
Pg 1 of 1 Pay Unit: Ton

MATERIALS Calcium Chloride Solids, Calcium Chloride Solutions

ACCEPTANCE TESTING REQUIREMENTS

Calcium Chloride Solutions

1. Test Data Certification. Load ticket or bag count required.

Visual Inspection:
1000 gals

Calcium Chloride Solids

1. Test Data Certification. Load ticket or bag count required.

Visual Inspection:
5000 lbs

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

Note: see section 922.12 of the Standard Specifications for Construction 2020.

2. Immediate possession of delivery tickets or shipping document is required.

3. Measurement and payment
   a. Engineer will pay based on weight of calcium chloride.

8120200 **PAVT MRKG COVER, TYPE R, BLACK**
8120215 – 8120246 **PAVT MRKG, TYPE R AND PAVT MRK, TYPE NR**
8120255 – 8120259 **PAVTMRKG, WTREF, TYPE R, TAPE**
Pg 1 of 1 Pay Unit: Foot

MATERIALS: Glass Beads, Temp Pavement Marking Tape, Temp Pavement Marking Paint, Wet Reflective Beads/Elements

ACCEPTANCE TESTING REQUIREMENTS

Glass Beads

1. A General Certification.

Visual Inspection: Maximum 500 pounds.

Temp Pavement Marking Paint

1. VI and must be on Qualified Products List (922.06A2).

Temp Pavement Marking Tape

1. VI and must be on Qualified Products List (922.06A).

Wet Reflective Beads/Elements

1. VI and must be on Qualified Products List (920.02C)

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Type R – Engineer will pay based on per foot measured along the length of the placed pavement marking, and includes the cost of providing, installing, maintaining, removing and disposing of temporary pavement markings.
   b. Type NR Tape and Paint - Engineer will pay based on the per foot measured along the length of the placed pavement marking, and includes the cost of providing and placing temporary pavement markings.

Note: All temporary pavement markings must be placed in accordance with the PAVE-900 Series. Local agencies should follow the PAVE-900 Series unless other local standards are approved by the Engineer.

8120280 – 8120301 **RAISED PAVT MRK, TEMP, TYPE_, (COLOR), (DIRECTION)**

Pg 1 of 1

Pay Unit: Each

MATERIALS: Temp Raised Pavement Marker

ACCEPTANCE TESTING REQUIREMENTS

Temp Raised Pavement Marker

1. VI and must be on Qualified Products List (922.06B).

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will pay based on each unit placed and includes the cost of providing, installing, maintaining, removing and disposing of raised pavement markers.

8120250 -- 8120261 PLASTIC DRUMS, FLUORESCENT, __
8120030 -- 8120036 CHANNELIZING DEVICE, 42 INCH FLUORESCENT, ____
8120340 -- 8120341 SIGN, TYPE A, TEMP, PRISMATIC, ___
8120350 -- 8120351 SIGN, TYPE B, TEMP, PRISMATIC, ___
8120352 -- 8120353 SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, _
Pg 1 of 1 Pay Unit: Each and Sft

MATERIALS Plastic Drums, Channelizing Device, Sign Temporary Prismatic

Plastic Drums

1. General Certification per MQAP 3.07

Channelizing Device

1. General Certification per MQAP 3.07

Sign Temporary Prismatic

General Certification per MQAP 3.07

Note:
Hyperlinks in the Crash Worthy Certification letter from contractor must work, taking you to ProjectWise Certification Documents

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Document that the devices meet ATSSA standard as shown in Latest Edition

2. Measurement and payment
   a. The Engineer will measure Sign, Type __ , Temp, Prismatic,____ as the total cumulative area of the maximum number of each sign legend that is in use during the course of the project unless previously paid. Sign, Type __, Temp, Prismatic, Furn includes the cost of portable or driven sign supports.
   b. The Engineer will count Plastic Drums and Channelizing Devises as the maximum number in use, at one time on the project.

8130005 – 8130012 **RIPRAP, ____**
Pg 1 of 1 Pay Unit: Square Yard, Cubic Yard or Ton

MATERIALS: Geotextile Liner, Riprap, Mortar Type R-3

ACCEPTANCE TESTING REQUIREMENTS

Geotextile Liner

1. Test as follows:
   a. Riprap 1 test from 500 to 1500 Syd, additional tests every 5,000 Syd.
   b. Heavy Riprap 1 test from 500 to 1500 Syd, additional tests every 4,000 Syd.

Visual Inspection: Maximum 500 square yards.

Note: See Special Instruction 910.03. Anticipate up to 28 calendar days for the testing of geotextile samples.

Riprap

1. VI - Check special provision. Load tickets are required if paying by Ton. Document quantity used on DWR/IDR.

Mortar Type R-3

1. VI

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Riprap (Cyd) – Engineer will pay based on measured in-place volume.
   b. Riprap (Syd) – Engineer will pay based on measured in-place quantity.
   c. Riprap (Ton) - Engineer will pay based on weight.

8160020 – 8160022 **FERTILIZER, CHEMICAL NUTRIENT, CL ___**
Pg 1 of 1 Pay Unit: Pound

MATERIALS: Chemical Fertilizer

ACCEPTANCE TESTING REQUIREMENTS

Chemical Fertilizer

Visual Inspection: Provide the bag label, showing the guaranteed analysis.

NOTE: Fertilizers for seeding and sodding requires both water soluble and water insoluble types to meet subsection 917.09.B. See MDOT Construction Manual Section 816 for addition guidance. The requirements are for pounds of nutrient (must be calculated) - not total pounds of fertilizer. See subsection 816.04.C or per special provision.
Example of a 50 lbs bag of fertilizer “19-19-19” is 28.5 lbs of Nutrient.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will pay based on measurements and calculations.

8160026 **MULCH ANCHORING**
Pg 1 of 1 Pay Unit: Square Yard

MATERIALS: Mulch Anchoring - (Tackifier)

ACCEPTANCE TESTING REQUIREMENTS

Mulch Anchoring - (Tackifier)

1. VI and must be on Qualified Products List (917.15C).

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure Mulch Anchoring in place. The unit price for Mulch Anchoring includes the cost of providing and spraying the tackifier.

8160027 - 8160028 **MULCH BLANKET___**
Pg 1 of 1 Pay Unit: Square Yard

MATERIALS: High Velocity Mulch Blankets, Mulch Blanket,

ACCEPTANCE TESTING REQUIREMENTS

High Velocity Mulch Blankets

1. VI and must be on Qualified Products List (917.15B1).

Mulch Blankets

1. VI and must be on Qualified Products List (917.15B2).

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

Note: Refer to Standard Plan R-100 Series

2. Measurement and payment
   a. Engineer will pay based on measurements and calculations and includes providing, placing and anchoring.

Note: If the Contractor substitutes Mulch Blanket, High Velocity for Mulch Blanket, the Department will pay for the substitution at the unit price for Mulch Blanket.

8160035 – 8160045 **SEEDING, MIXTURE ___**
Pg 1 of 1 Pay Unit: Pound

MATERIALS: Seed Mixture

ACCEPTANCE TESTING REQUIREMENTS

Seed Mixture

1. VI
2. All Projects with 5 acres or more of restoration, tests are required if the Special Provision 20SP-816A-01 Grass Seed Testing is included in the Contract. Submit test results to the Engineer for approval at least 14 calendar days prior to placement of the seed on the project.

Grass Seed Varieties:

VI and Visual Inspection, must be on Qualified Product List

Visual Inspection: Maximum 1100 pounds.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Date of test not to exceed of one year

   NOTE: Computations must be shown on DWR/IDR using rates of application as shown in the spec book or proposal.

2. Measurement and payment
   a. Engineer will pay based on pounds of seed applied.

8160100 - 8160103 SLOPE RESTORATION, _____

Pg 1 of 2 Pay Unit: Square Yard

20RC816(A240) and 20RC816(A245)

MATERIALS: Fertilizer, Herbicides, High Velocity Mulch Blanket, Mulch, Mulch Anchoring, Mulch Blanket, Permanent Turf Reinforcement Mat (TRM), Seed Mixture, Sod, Pegs for Sodding, Top soil

ACCEPTANCE TESTING REQUIREMENTS

Fertilizer

Visual Inspection: Provide the bag label, showing the guaranteed analysis.

Herbicides

1. A Test Data Certification.

High Velocity Mulch Blankets

1. VI and must be on Qualified Products List (917.15B1).

Mulch

1. VI

Mulch Anchoring Material

1. VI and must be on Qualified Products List (917.15C5).

Mulch Blankets

1. VI and must be on Qualified Products List (917.15B2).

Permanent Turf Reinforcement Mat (TRM)

1. Must meet Special Provision Requirements

Seed Mixture

1. VI
2. All Projects with 5 acres or more of restoration, tests are required if the Grass Seed Testing Special Provision is included in the Contract.

Grass Seed Varieties:

VI and Visual Inspection, must be on Qualified Product List

Visual Inspection: Maximum 1100 pounds.

Sod

Visual Inspection: All material placed.

Pegs for Sodding

Visual Inspection: All material placed.

8160100 - 8160103 SLOPE RESTORATION, _____
Pg 2 of 2

Top Soil

Visual Inspection: All material placed. Per Standard Specification Subsection 917.06 of the Standard Specification for Construction.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Verify topsoil depths.

Note: Refer to Standard Plan R-100 Series

Note: Computations must be shown on DWR/IDR using rates of application as shown in the spec book or proposal.
Fertilizers for seeding and sodding requires both water soluble and water insoluble types to meet subsection 917.09.B. See MDOT Construction Manual Section 816 for addition guidance. The requirements are for pounds of nutrient (must be calculated) - not total pounds of fertilizer. See subsection 816.04.C or per special provision.
Example of a 50 lbs bag of fertilizer "19-19-19" is 28.5 lbs of Nutrient.

1. Measurement and payment
   a. Engineer will pay based on measured Syd in place.

8160055 **SODDING**
Pg 1 of 1 Pay Unit: Square Yard

MATERIALS: Sod, Pegs for Sodding

ACCEPTANCE TESTING CRITERIA

Sod

Visual Inspection: All material placed.

Pegs for Sodding

Visual Inspection: All material placed.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

Note: Dampen the earth bed before laying the sod. Water the sod immediately after placement, in accordance with subsection 816.03.H. The Engineer will reject sod that has dried out.

2. Measurement and payment
   a. Engineer will pay based on measured Syd in place.

MDOT Standard Plan R-96 series

8190055 – 8190213 **Conduit, Encased,___,___inch**
Pg 1 of 3 Pay Unit: Ft

MATERIALS: Electric Conduit, Conc Grade 3500, Granular Cl II

ACCEPTANCE TESTING REQUIREMENTS

Concrete Grade 3500

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   a. Form 1976 in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3. Concrete Mix Design
   a. Form 1976 in project files

Materials

1. Cement
   a. General Certification from the Approved Manufacturer.

   Visual Inspection: Maximum 45 tons

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Maximum VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.

b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total grade used on job

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total FA used on job

4. Liquid Concrete Admixtures
   a. Visual Inspection, must be on Qualified Product List (903.01, 903.02 & 903.03).
5. Slag Cement
   a. Approved Manufacturer
6. Fly Ash
   a. Approved Manufacturer

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: “I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

8190055 – 8190213 **Conduit, Encased,___,___inch**
Pg 3 of 3 Pay Unit: Ft

Non-Prequalified Sources:

1. Test reports must be in project files
   a. Class II - One test per 3,000 cubic yards.

Visual Inspection:

a. Class II – Maximum 500 cubic yards per project.

Conduit

1. General Certification.
2. Max VI 400 Ft

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure conduit in place, from the inside walls of manholes, and the centers of handholes, post foundations, and cable poles.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification subsection 1002 prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.

4. Local Agency Projects

Refer to standard specification subsection 1002 and 1003 for QA/QC Quality Control and Acceptance Of Portland Cement Concrete.

8190200 - 8190213 **DB Cable, in Conduct, 600V,___/C#___**
Pg 1 of 2 Pay Unit: Ft

MATERIALS: Electric Conduit, Cable, Granular Cl II

ACCEPTANCE TESTING REQUIREMENTS

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: "I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files
   a. Class II - One test per 3,000 cubic yards.

Visual Inspection:

a. Class II – Maximum 500 cubic yards per project.

8190200 - 8190213 **DB Cable, in Conduct, 600V,__/C#__**
Pg 2 of 2 Pay Unit: Ft

Conduit

1. General Certification.
2. Max VI 400 Ft

Cable

1. Visual Inspection
2. The Maintaining Agency shall provide the project engineer with a memo or other appropriate Form indicating that the inspection has been made and that the material is acceptable.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure direct burial cable, at grade, between centers of handholes, light standards, and poles.

8190279 **LIGHT STD FDN**
Pg 1 of 4 Pay Unit: Each

MATERIALS: Anchor Bolts, Curing Compound, Conc 3500, Grounding Rod, Granular Cl II,

ACCEPTANCE TESTING REQUIREMENTS

Concrete Grade 3500

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   a. Form 1976 in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3. Concrete Mix Design
   a. Form 1976 in project files

Materials

1. Cement
   a. General Certification from the Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Maximum VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total grade used on job

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total FA used on job.

4. Liquid Concrete Admixtures
   a. Visual Inspection, must be on Qualified Product List (903.01, 903.02 & 903.03).

5. Slag Cement
   a. Approved Manufacturer

6. Fly Ash
   a. Approved Manufacturer

Curing Compound

1. A Test Data Certification.

NOTE: Must be used within one year of manufacturer date.

Visual Inspection: Maximum 200 gallons for total material used on project.

Anchor bolt

1. Test prior to incorporation and Buy America Certification

Ground Rod

1. Visual Inspection

8190279 **LIGHT STD FDN**
Pg 3 of 4 Pay Unit: Each

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: "I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated. Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files
   a. Class II - One test per 3,000 cubic yards.

Visual Inspection:

a. Class II – Maximum 500 cubic yards per project.

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the "Buy American" statement which may also be listed. "Buy American" is not an acceptable alternate to "Buy America". See MDOT Construction Manual Section 105.10.

8190279 **LIGHT STD FDN**
Pg 4 of 4 Pay Unit: Each

Note:
Submit a complete set of light standard installation shop drawings, including fabrication drawings, to the Engineer for approval.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Follow 707.03.D.07 and/or plans for Anchor Bolts.

2. Measurement and payment
   a. Engineer will pay based on each placed.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor's QC Plan per Standard Specification subsection 1002 prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers' Approved Stamp is required.

4. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003 for QA/QC Quality Control and Acceptance Of Portland Cement Concrete.

8190330 – 8190346 **LUMINAIRE**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Luminaire

ACCEPTANCE TESTING REQUIREMENTS

Luminaire

1. A General Certification

Note:
Provide the Engineer with a drawing showing a general diagram of the luminaire unit and the assembly and installation method.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will pay based on each placed.

8200017 - 8200024 **Case Sign(LED),_____Way,___In by___In**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Traffic Signal (Case Sign), Cable, Traffic Signal Mounting Assemblies

ACCEPTANCE TESTING REQUIREMENTS

Cable

1. Visual Inspection
   a. The Maintaining Agency shall provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and that the material is acceptable.

Traffic Signal (Case Sign)

1. Visual Inspection
   a. The Maintaining Agency shall provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and that the material is acceptable

Traffic Signal Mounting Assemblies

1. Visual Inspection
   a. The Maintaining Agency shall provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and that the material is acceptable

Note:

Secure the Engineer's approval for components of vehicular traffic signals and mounting assemblies not shown on the plans, or not specified in subsection 921.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. The Engineer will measure traffic signal pay items based on plan quantities in accordance with subsection 109.01.A.

8200250 - 8200256 **TS,_____Way Mast Arm Mtd**
Pg 1 of 1 Pay Unit: Each

MATERIALS: Traffic Signal, Cable, Traffic Signal Mounting Assemblies

ACCEPTANCE TESTING REQUIREMENTS

Cable

1. Visual Inspection
   a. The Maintaining Agency shall provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and that the material is acceptable.

Traffic Signal

1. Visual Inspection
   a. The Maintaining Agency shall provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and that the material is acceptable.

Traffic Signal Mounting Assemblies

1. Visual Inspection
   a. The Maintaining Agency shall provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and that the material is acceptable

Note: Secure the Engineer's approval for components of vehicular traffic signals and mounting assemblies not shown on the plans, or not specified in subsection 921.

CONSTRUCTION

1. Daily Work Report / Inspector's Daily Report
   a. DWR/IDR shall show the inspector's computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   The Engineer will measure traffic signal pay items based on plan quantities in accordance with subsection 109.01.A.

8200470 **Strain Pole, Fnd 6 Bolt**
Pg 1 of 4 Pay Unit: Ft

MATERIALS: Anchor Bolts, Curing Compound, Conc 3500, Electrical Conduit, Grounding Rod, Granular Cl II, Slurry, Steel Casing, Steel reinforcement

ACCEPTANCE TESTING REQUIREMENTS

Concrete Grade 3500

NRMCA Plants

1. Plant
   a. Current NRMCA certification.

2. Scales Check
   a. Inspection certification every 6 months.

3. Dispenser Check
   a. Inspection certification every 6 months.

4. Concrete Mix Design
   a. Form 1976 in project files

For Portable Batch Plants

1. Plant
   a. Documentation of Inspection after each move per 1001.03 With Waiver certification per 1001.03.C from the Engineer

For non NRMCA Plants

All of the following documentation is required including Form 1174 Concrete Plant Proportioning (a minimum of one report per mix).

1. Scales Check
   a. Inspection certification every 6 months

2. Dispenser Check
   a. Inspection certification every 6 months

3. Concrete Mix Design
   a. Form 1976 in project files

Materials

1. Cement
   a. General Certification from the Approved Manufacturer.

Visual Inspection: Maximum 45 tons

2. Coarse/Intermediate Aggregates
   a. Test prior to incorporation. One test per 1,000 tons. Maximum VI 100 tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be request from MDOT CFS.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total grade used on job

3. Fine Aggregate
   a. Test prior to incorporation. One test per 1,000 tons.
   b. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

Visual Inspection: Maximum 100 tons for total FA used on job

4. Liquid Concrete Admixtures
   a. Visual Inspection, must be on Qualified Product List (903.01, 903.02 & 903.03).
5. Slag Cement
   a. Approved Manufacturer
6. Fly Ash
   a. Approved Manufacturer

Curing Compound

1. A Test Data Certification.

NOTE: Must be used within one year of manufacturer date.

Visual Inspection: Maximum 200 gallons for total material used on project.

Anchor bolt

1. Test prior to incorporation and Buy America Certification

Electrical Conduit

1. General Certification
2. Max VI 400 Ft

Ground Rod

1. Visual Inspection

Slurry

1. Visual Inspection and see Standard Specification Subsection 718.03.E

8200470 **Strain Pole, Fnd 6 Bolt**
Pg 3 of 4 Pay Unit: Ft

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: "I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files
   a. Class II - One test per 3,000 cubic yards.

Visual Inspection:

   b. Class II – Maximum 500 cubic yards per project.

Steel Casing

1. Visual Inspection
2. Buy America Certification

Steel Reinforcement

1. Certification from Approved Manufacture
2. Buy America Certification

8200470 **Strain Pole, Fnd 6 Bolt**
Pg 4 of 4 Pay Unit: Ft

NOTE:
Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See MDOT Construction Manual Section 105.10.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay, and Form 1988.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.
   c. Follow 810.03.N and/or plans for Anchor Bolts.

2. Measurement and payment
   a. Engineer will measure vertically from the bottom of the foundation and shaft to the top of the shaft.

3. Additional Documentation Requirements for Redi-mix concrete.
   a. Approved Contractor’s QC Plan per Standard Specification subsection 1002 prior to work.
   b. Form 1155 the weekly summary of concrete shipped (For NRMCA Certified Concrete Plants). Emailed or Fax copy to Region Materials Office.
   c. Approved QA Plan
   d. QA – Form 1999 Compressive Test reports for 28 day strength (work sheet not summary) per Department’s latest QA testing requirements. Testers’ Approved Stamp is required.

4. Local Agency Projects
   Refer to standard specification subsection 1002 and 1003 for QA/QC Quality Control and Acceptance of Portland Cement Concrete.

8230150 – 8230181 **WATER MAIN**
Pg 1 of 2 Pay Unit: Foot

MATERIALS: Ductile Iron Pipe, Granular Cl III and Granular Cl IIIA

ACCEPTANCE TESTING REQUIREMENTS

Ductile Iron Pipe

1. A General Certification.
   Visual Inspection: Maximum 250 feet.

Granular Materials

Prequalified Sources:

1. One ticket REQUIRED per load containing the following data.
   a. MDOT aggregate source number (Pit Number)
   b. Date of shipment
   c. Time of shipment (if applicable)
   d. MDOT control section and job number
   e. Michigan series number and class letter of aggregate
   f. Weight or volume shipped
   g. Suppliers name, telephone number and location
   h. Truck identifier number (if applicable)
   i. Type of aggregate approval.

2. Documentation verifying passing QA test results in project files.

3. See Procedures for Aggregate Inspection Manual for reduced acceptance testing requirements if material is from a pre-qualified supplier.

4. In addition, the following statement shall be printed or stamped on each ticket: "I attest that aggregate as delivered from this pre-qualified source meets specification requirements for the listed Michigan series and class for quantity stated.
   Date_____Signature_____.
   This statement must be signed (hand, electronic, or otherwise) and dated by an accountable authorized company representative. Lack of delivery tickets will result in rejection of the aggregate. The statement on each delivery ticket, is to be provided by the supplier, and represents the results of quality control testing. This statement does not signify acceptance by MDOT.

Non-Prequalified Sources:

1. Test reports must be in project files
   a. Class II - One test per 3,000 cubic yards.
   b. Class III or IIIA One test per 10,000 cubic yards

Visual Inspection:

Class III – Maximum 500 cubic yards per project.
Class III A – Maximum 100 cubic yards per project

NOTE:

Check for the Buy America compliance on all steel and iron certifications which is required on Federal Aid Projects. All permanently incorporated steel or iron materials must be melted and all manufacturing processes including the coating must occur in the United States. It should be noted that this is different than the “Buy American” statement which may also be listed. “Buy American” is not an acceptable alternate to “Buy America”. See MDOT Construction Manual Section 105.10.

INDEPENDENT ASSURANCE TESTING (IAT) REQUIREMENTS

1. See Notes page for IAT requirements.

CONSTRUCTION

1. Daily Work Report / Inspector’s Daily Report
   a. DWR/IDR shall show the inspector’s computations, measurements and supporting documentation verifying quantity submitted for pay.
   b. All materials used must be VI by the inspector with notation on the DWR/IDR.

2. Measurement and payment
   a. Engineer will measure Water Main, DI of the sizes and trench details required, along the centerline of the pipe, with no deductions for fittings.

Note: The Department may withhold payment until the Engineer accepts the as-built plans.

3. Density Reports
   a. Compact to 95% of maximum unit weight with a minimum testing frequency of one test per 300 cubic yards, and regardless of the volume of material placed, a minimum of one test must be taken for each layer.
   b. All density reports are to be placed in ProjectWise on a daily basis and must be sent weekly to the Area Density Specialist and the Lansing Density Technology Unit at a minimum.

Note: Standard Plan R-83 Series