

DOCUMENTATION GUIDE

**(Minimum Acceptance Requirements for
Materials Approvals and Documentation)**

2003 EDITION

VERSION 1.0

April 8, 2010



**CONSTRUCTION AND TECHNOLOGY
DIVISION**

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DOCUMENTATION REQUIREMENTS FOR PROJECTS

This document is intended for use as a **GUIDE** to assist in project documentation. 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.

REFRESHER FOR FINAL ESTIMATE REVIEWS.

The purpose of the Final Estimate Review is to determine whether the documentation is in substantial conformance to the plans, specifications and properly authorized contract modifications.

When the Project Engineer has determined that the final quantities of all pay items and tested materials, the Resident Engineer should be notified that the project is ready for a final estimate review. A review team will meet with the Project Engineer to review the backup documentation. For the review, the Project Engineer should provide the review team with work space, computer access to the FieldManager files (read-only access), all of the project files (including testing files provided by outside offices and/or subcontractors) and personnel familiar with the project and records. All of the files shall be provided at one location.

Basically, the review asks:

- Was it measured according to specifications?
- Were the source documents (pay items and testing) validated by signatures and dates?
- Were the prescribed forms used?
- Were the testing frequencies correct?
- Were materials listed on the signed Material Source List?
- Were materials approved in sufficient quantities to equal the material usage? (Certified materials only require certifications as proof that the material came from the source listed on the Material Source List)
- Were Pay items and Materials used and approved posted in FieldManager?

Particular attention will be paid on the proper use of FieldManager and FieldBook in the cross-referencing of pay items and source documents (IDRs, certifications, test reports, project file for numbers/descriptions/forms, etc.). FieldManager provides excellent methods to associate materials with sources. The correct use of FieldManager provides reviewers with good cross-references for finding the documentation in the files.

NOTES:

Note: All sampling and testing data used in the acceptance testing or the Independent Assurance Program must be conducted by qualified personnel. For Aggregate, Concrete, Density testing, this only applies to projects on the National Highway System (NHS). HMA testing must be done by CERTIFIED personnel on all state and federally funded projects, regardless of NHS status.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

Aggregate: A minimum of one satisfactory test/per season (NHS Routes ONLY)

Density: If density performed on the job, A minimum of one satisfactory test per tester/per type/per season (NHS Routes ONLY)

Concrete: A minimum of one satisfactory test, per tester/per season (NHS Routes ONLY)

HMA: A minimum of one satisfactory test / per type / per season (NHS Routes ONLY)

Scales Check: One test per year if plant is stationary (if material is paid by the ton). Written verification from scale owner to PE or region material staff that scale system has been inspected or copy of current scale inspection must be on file.

Verify current sample requirements from latest edition of Material Source Guide.

The source and approximate quantity for all materials incorporated into projects must be listed on the current MDOT Material Source List. Original Material Source List along with signature required in the Project files.

Check for "BUY AMERICA" statement on all steel certifications which is required on Federal Aid Projects.

Immediate possession of delivery tickets are required if any item is paid by Ton.

Qualified Products List documentation requirements:

- Notation on an IDR by naming the manufacturer, product, and stating that the labeling of material was checked and verified.

OR

- Placement of label or copy of label, tag, etc. in the project files.

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2050001

Backfill, Swamp

MATERIALS

| | |
|-----------|-----------------------------|
| Pay Unit: | Cubic Yard |
| Material: | Granular Material Class III |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: One test per 10,000 cubic yards of embankment. Max. VI is 500 cubic yards per project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Cross Sections: When used, spot check cross sections, end areas and volume sheets.
- Density Reports: Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of 1 test per 1000 Cyds have been achieved.

NOTE: Refer to notes on sheet 7 of 7 of Standard Plans R-103-C concerning the backfill of a dry trench.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's

2050010**Embankment, CIP****MATERIALS**

| | |
|----------|--|
| Pay unit | Cubic Yard |
| Material | Sound Earth, Granular Material Class II or Granular Material Class III |

ACCEPTANCE TESTING REQUIREMENTS

- Sound Earth: VI for organic material and test for maximum unit weight of at least 95 pounds per cubic foot. Note results of VI and weight test on IDR.
- Granular Material Delivery Tickets: One ticket per load containing:
Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Class II - One test per 3,000 cubic yards. Max. VI 500 cubic yards for total material per project.
Class III - One test per 10,000 cubic yards. Max. VI 500 cubic yards for total material per project.
See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Cross Sections: When used, spot check cross sections, end areas and volume sheets.
- Density Reports: Controlled Density Method (subsection 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 1000 cubic yards have been achieved. Sound Earth if used must be compacted to 95 percent of maximum unit weight.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

2050011**Embankment, LM****MATERIALS**

| | |
|----------|--|
| Pay unit | Cubic Yard |
| Material | Sound Earth, Granular Material Class II or Granular Material Class III |

ACCEPTANCE TESTING REQUIREMENTS

- Sound Earth: VI for organic material and test for maximum unit weight of at least 95 pounds per cubic foot. Note results of VI and weight test on IDR.
- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Class II - One test per 3,000 cubic yards. Max. VI 500 cubic yards for total material per project.
Class III - One test per 10,000 cubic yards. Max. VI 500 cubic yards for total material per project.
See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Cross Sections: If Embankment, LM will be measured in the hauling unit then no cross sections are required. When used, spot check cross sections, end areas and volume sheets.
- Density Reports: Controlled Density Method (subsection 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 1000 cubic yards have been achieved. Sound Earth if used must be compacted to 95 percent of maximum unit weight.

2050011 Cont.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

2050012**Embankment, Structure, CIP****MATERIALS**

| | |
|----------|--|
| Pay unit | Cubic Yard |
| Material | Sound Earth, Granular Material Class III |

ACCEPTANCE TESTING REQUIREMENTS

- Sound Earth: VI for organic material and test for maximum unit weight of at least 95 pounds per cubic foot. Note results of VI and weight test on IDR.
- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Class III - One test per 10,000 cubic yards. Max. VI 500 cubic yards for total material per project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Cross Sections: When used, spot check cross sections, end areas and volume sheets.
- Density Reports: Controlled Density Method (subsection 205.03.H.4.a). Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 1000 cubic yards have been achieved. Sound Earth if used must be compacted to 95 percent of maximum unit weight.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

2050016

Excavation, Earth

MATERIALS

Pay Unit Cubic Yard

ACCEPTANCE TESTING REQUIREMENTS

None

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

None

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Cross Sections: When used, spot check cross sections, end areas and volume sheets.
- Density Reports: Review reports to see that all test and retests meet MDOT Requirements.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner.

Includes 2050017

2050040 Subgrade Undercutting, Type I**MATERIALS**

| | |
|----------|--|
| Pay Unit | Cubic Yard |
| Material | Selected Clay or other approved material |

ACCEPTANCE TESTING REQUIREMENTS

| | |
|--------------------------|--|
| Clay: | VI. |
| Other approved material: | Test for acceptance per latest Material Quality Assurance Procedures Manual. |

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Controlled Density Method, subsection 205.03.H.4.a. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 500 feet per width of 24 feet or less.

NOTE: refer to notes on sheet 7 of 7 of Standard Plans R-103-C concerning the backfill of a dry trench.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR's.

2050041 Subgrade Undercutting, Type II

MATERIALS

| | |
|----------|----------------------------|
| Pay Unit | Cubic Yard |
| Material | Granular Material Class II |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Class II - One test per 3,000 cubic yards. Max. VI 500 cubic yards for total material per project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector’s Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Controlled Density Method, subsection 205.03.H.4.a. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 150 feet per width of 24 feet or less.

NOTE: Refer to notes on sheet 7 of 7 of Standard Plans R-103-C concerning the backfill of a dry trench.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR’s.

2050042 Subgrade Undercutting, Type III

MATERIALS

| | |
|----------|---|
| Pay Unit | Cubic Yard |
| Material | Excavated material effectively mixed, or approved material. |

ACCEPTANCE TESTING REQUIREMENTS

- If approved material is used in lieu of excavated material, the acceptance testing requirements in section G of the Materials Quality Assurance Procedures Manual must be followed for the approved material.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Controlled Density Method, subsection 205.03.H.4.a. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 500 feet per width of 24 feet or less.

NOTE: Refer to notes on sheet 7 of 7 of Standard Plans R-103-C concerning the backfill of a dry trench.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR's.

2060002
2060003

Backfill, Structure, CIP
Backfill, Structure, LM

MATERIALS

Pay Unit Cubic Yard
Material Granular Material Class II

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material One ticket per load containing:
Delivery Tickets: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Class II - One test per structure per supplier. Max. VI 100 cubic
Mechanical Analysis: yards for total material per project.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS (IAT)

See Notes page for IAT requirements

CONSTRUCTION

- Inspector’s Daily IDR should show measurements, computations, materials used.
Report: If backfill will be paid as plan quantity, no computations or measurements are required.
- Density Reports: Controlled Density Method, subsection 205.03.H.4.a. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 300 Cyd with 6 inch layers.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR’s.

2080025**Erosion Control, Silt Fence****MATERIALS**

| | |
|----------|-----------------------------------|
| Pay Unit | Foot |
| Material | Geotextile material, stakes, lath |

ACCEPTANCE TESTING REQUIREMENTS

- Silt Fence: A General Certification from an approved Manufacturer of the silt fence system. Fabric manufacturer and brand name must be included on certification. Fabric must be listed on Qualified Products List (910.04).

OR

If not from an approved manufacturer then test prior to incorporation. Sample size: One piece 8 foot long by the width of the roll (including 2 stakes and lath). One sample per the first 3,000 foot or fraction of. One sample for per additional 10,000 foot or fraction of. Max. VI 500 feet. Fabric must be listed on Qualified Products List (910.04).

Note: The fabric shall be furnished by approved Manufacturer/Qualified Products List - Testing agency must verify the Geotextile material manufacture.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

Document the total quantity received from the shipping label and this should match or exceed quantity placed on IDR.

3010002
3010003

Subbase, CIP
Subbase, LM

MATERIALS

| | |
|----------|----------------------------|
| Pay Unit | Cubic Yard |
| Material | Granular Material Class II |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Class II - One test per 3,000 cubic yards. Max. VI 500 cubic yards for total material per project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENT

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Refer to section 301 Subbase. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 500 feet per width of 24 feet or less.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

3020001
3020002
3020008 - 3020030

**Aggregate Base
Aggregate Base, LM
Aggregate Base, __ inch**

MATERIALS

| | |
|----------|---|
| Pay Unit | Ton, Cubic Yard, Square Yard |
| Material | Dense Graded Aggregate - 21AA, 21A, 22A O.G.D.C. by special provision. |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: One test per 1,000 tons. Max. VI 500 ton per aggregate type per project total.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

NOTE: Immediate possession of tickets are required if paying by ton.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used and require depth checks
- Depth Checks: One test per 400 lft per traffic lane width. One test per 1,200 syds, for intersections, crossovers, ramps, widening strips and acceleration lanes.

Note depth checks on IDR (Depth checks not required for LM)

- Density Reports: Refer to subsection 302.03.A, Placing and Compacting. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 500 feet per width of 24 feet or less.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR's.

3030001 - 3030005**Open-Graded Dr Cse, __ inch****MATERIALS**

| | |
|-----------|--------------------------|
| Pay Unit | Square Yard |
| Materials | Open Graded Aggregate 4G |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: One test per 1,000 tons. Max. VI 100 ton per aggregate type per project total.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

Note: Also check special provisions for testing requirements.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used and note depth checks on IDR.
- Density Reports: Refer to subsection 303.03.B of the standard specifications. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency requirement.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR.

3050002 HMA Base Crushing and Shaping

MATERIALS

| | |
|----------|---|
| Pay unit | Square Yard |
| Material | if required 21AA, 21A, 22A, 23A (to be paid as aggregate base) |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Test prior to incorporation. One test per 1,000 tons. Max. VI 500 tons.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

Note: Check for special provisions in the proposal for field gradation requirements.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENT

See Notes page for IAT requirements.

CONSTRUCTION

- Inspector’s Daily Report: IDR should show measurements, computations, locations, materials used.
- Density Reports: Refer to subsection 305.03.C, Compacting and Shaping in the standard specifications. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency requirement.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note IDR’s.

3060001 - 3060002
3060005 - 3060009

Aggregate Surface Cse
Aggregate Surface Cse, __ inch

MATERIALS

| | |
|-----------|-----------------------------------|
| Pay Units | Ton, Cubic Yard, Square Yard |
| Materials | Dense Graded Aggregate 22A or 23A |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing:
Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Test prior to incorporation. One test per 1,000 tons. Max. VI 500 tons.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

Note: Immediate possession of tickets are required if paying by Ton.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS (IAT)

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used and depth checks.
- Depth Checks: One test per 400 foot per traffic lane width. One test per 1200 square yards for intersections, crossovers, ramps, widening strips and acceleration lanes.

Note depth checks on IDR.

Send density reports to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR'S.

3070001 - 3070051
3070101 - 3070162

Approach, CI I; CL II and CI III
Shoulder, CI I; CI II; CI III and CI IV

MATERIALS

| | |
|-----------|---|
| Pay Units | Ton, Cubic Yard, Square Yard |
| Material | Dense Graded Aggregate 22A , 23A or Salvaged Material |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing:
Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Test prior to incorporation. One test per 1,000 tons. Max. VI 500 tons.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

Note: Immediate possession of tickets are required if paying by Ton.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used and depth checks
- Depth Checks: One test per 400 feet per traffic lane width. One test per 1200 square yards, for intersections, crossovers, ramps, widening strips and acceleration lanes.

Note depth checks on IDR.

- Density Reports: Refer to subsection 307.03.C. CI I, CI II, CI III and CI IV Shoulders and Approaches. Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per 500 foot per width of 24 feet or less.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

3070200

Trenching

MATERIALS

| | |
|-----------|---------|
| Pay Units | Station |
|-----------|---------|

ACCEPTANCE TESTING REQUIREMENTS

None

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

None

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations and comments.
- Density Reports: Refer to subsection 307.03.A. Density testing is required on the bottom of trench. Review reports to see that all test and retests meet MDOT requirements.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

4010000 - 4010646**Culverts****MATERIALS**

| | |
|----------|--|
| Pay Unit | Foot |
| Material | Reinforced/Nonreinforced Concrete pipe, or Corrugated & Spiral Ribbed Al-Alloy/Steel pipe, Smooth-Lined Corrugated Plastic Pipe(CPE), Mastic ,Pipe Gaskets, Granular Material Class II, III, IIIA, Water Tight Joint, Geotextile Blanket |

ACCEPTANCE TESTING REQUIREMENTS

- Concrete and Steel Pipe: A General Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual.
- Polyethylene Pipe: (CPE) Shipment of Tested Stock Report, Form 1922, from approved source.

OR

Test prior to incorporation. One per 1,000 feet for 12 inch dia and over. Max. VI 100 feet for diameters 12 inch and greater.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.
- Sealers: Test prior to incorporation. One test per shipment from a single container. Max. VI 10 gallons.
- Gaskets: Compression or External Rubber Type. VI as part of the Watertight Joint System and note on IDR.
- Granular Material Delivery Tickets: One ticket per load containing:
Pit name, MDOT assigned number, Net weight, Type of material, Control section, Job number, Date, Signature of pit representative, Certification statement from certified pit

AND
- Granular Material Mechanical Analysis: **CI II:** One per 3,000 cubic yards. Max. VI 500 cubic yards for total Class II on project.
CI III: One test per 10,000 cubic yards. Max. VI 500 cubic yards for total Class III on project.
CI IIIA: One test per 1,000 cubic yards. Max. VI 100 cubic yards for total Class IIIA on project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

4010000 – 4010646 Cont.

- AL-Alloy Pipe: A General Certification

AND

Test prior to incorporation. One test per 1000 feet of pipe.
- Water Tight Joint: Must be from the Qualified Product List (909.03). Document supplier and quantity used on IDR.
- Geotextile Blanket: Test data Certification. One test for first 1200 square yards, one additional test for each additional 7500 square yards.

****Note: BUY AMERICA statement required on steel certification.**

INDEPENDENT ASSURANCE TEST (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

- Testing: Mandrel testing and video inspection required per subsections 401.03.E.1 and 401.03.O.

Note: if length of span is greater than 20 feet see Materials Quality Assurance Procedures Manual, Section C-9.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used. Geotextile Blanket product name and source must be noted on IDR.
- Density Reports: Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per layer of backfill/per run of pipe.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR'S.

4010650 - 4010874

Culvert End Sections

MATERIALS

| | |
|-----------|---|
| Pay Unit | Each |
| Materials | Concrete End Section, Steel End Section |

ACCEPTANCE TESTING REQUIREMENTS

- Concrete End Section: A Test Data Certification from approved manufacturer.

OR

Test per lot prior to incorporation. Test 1 percent of pieces per Section G of the Materials Quality Assurance Manual. Max. VI 10 pieces.

- Metal End Section: **A General Certification.

****Note: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

4010900-4011038**Culvert, CSP Arch****MATERIALS**

| | |
|-----------|---|
| Pay Unit | Foot |
| Materials | Corrugated Steel and Aluminum Sheets Granular Material Class II, Class III or IIIA as required |

ACCEPTANCE TESTING REQUIREMENTS

- Sheet: A General Certification. Test per Section G of the Materials Quality Assurance Procedures Manual.
- Granular Material Delivery Tickets: One ticket per load containing:
Pit name, MDOT assigned number, net weight, Type of material, Control section/Project number, Date, Signature of pit representative, Certification statement from certified pits.

AND

- Granular Material Mechanical Analysis: **CI II:** One per 3,000 cubic yards. Max. VI 500 cubic yards for total Class II on project.
CI III: One test per 10,000 cubic yards. Max. VI 500 cubic yards for total Class III on project.
CI IIIA: One test per 1,000 cubic yards. Max. VI 100 cubic yards for total Class IIIA on project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per layer of backfill/per run of pipe if applicable.

If density is performed send density report to the Area Density Specialist and Lansing C&T Density Technology Unit in a timely manner.

Construction must perform moisture checks on ton items and note on IDR'S.

**4020001 – 4020713,
4020720-4021196**

Sewer, CI __, __ inch, Tr Det __

MATERIALS

| | |
|-----------|--|
| Pay Unit | Foot |
| Materials | Corrugated PVC Pipe, Reinforced and Non Reinforced Concrete Pipe, Corrugated Smooth Lined Polyethylene Pipe, Corrugated and Spiral Ribbed AL-Alloy & Steel Pipe, Water Tight Joint System, Steel Pipe Jacked-in-Place Joint Sealer, Granular Materials Class II, III, IIIA, Mortar Type R-2, Geosynthetics |

ACCEPTANCE TESTING REQUIREMENTS

- Corrugated PVC Pipe: Test prior to incorporation. One test per 1000 feet of 12 inch or greater diameter straight lengths of pipe. Max. VI for 12 inch or greater diameter pipe is 100 feet.
- Reinforced Concrete Pipe: A General Certification from approved manufacturer.

OR

Test prior to incorporation. Test 1 percent of number of pieces of each size. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 5 pieces 42 inch dia or less.

- Non Reinforced Concrete Pipe: A General Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 10 pieces.

- Corrugate Smooth Lined Polyethylene Pipe (CSLPP): Shipment of Tested Stock Report, Form 1922, from approved source.

OR

Test prior to incorporation. One test per 1000 feet of 12 inch or greater diameter straight lengths of pipe. Test per Section G of the Materials Quality Assurance Procedures Manual.

- Joint Sealers, Mastic (cold applied): Test prior to incorporation. One test per shipment from a single container. Max. VI 10 gallons.
- Compression Gaskets: VI as part of Watertight Joint System.

4020001 – 4020713 Cont.

- External Type Gaskets: VI as part of Watertight Joint System.
- Al-Alloy Pipe: A General Certification.
- Water Tight Joint System: Must be from Qualified Products List (909.03). Document supplier and quantity used on IDR.
- Steel Pipe Jacked-in-Place: VI along with BUY AMERICA statement required. Document quantity used on IDR.
- Geosynthetics: Blanket - Test Data Certification. Test per Section G of the Materials Quality Assurance Procedures Manual.
- Granular Material Delivery Tickets: One ticket per load containing:
Pit name, MDOT assigned number, net weight, Type of material, Control section/Project number, Date, Signature of pit representative, Certification statement from certified pits.

AND

- Granular Material Mechanical Analysis:
 - CI II:** One per 3,000 cubic yards. Max. VI 500 cubic yards for total Class II on project.
 - CI III:** One test per 10,000 cubic yards. Max. VI 500 cubic yards for total Class III on project.
 - CI IIIA:** One test per 1,000 cubic yards. Max. VI 100 cubic yards for total Class IIIA on project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.
- Mortar: VI. Documentation may be on IDR.

****NOTE: BUY AMERICA statement required on steel certification**

INDEPENDENCE ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements.

Note: If length of span is greater than 20 feet see Quality Assurance Manual Section C-9.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

4020001 – 4020713 cont.

- **Density Reports:** Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per layer of backfill/per run of pipe.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture checks on ton items and note on IDR'S.

4030000 - 4030017 Dr Structure, ___ inch dia
Dr Structure, Add Depth, ___ inch dia, 8 Feet to 15 feet
Dr Structure, Add Depth, ___ inch dia, more than 15 feet

MATERIALS

| | |
|-----------|--|
| Pay Unit | Each |
| Materials | Mortar Type R2, Granular Material Class II, III, Steel Reinforcement, Concrete Brick or Block, Pre-cast Reinforced Concrete Units, Manhole Bases & Sumps, Conc. S3 |

ACCEPTANCE TESTING REQUIREMENTS

- Mortar: VI. Document supplier and quantity used on IDR.
- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight, Type of material, Control section, Job number, Date, Signature of company representative, Certification statement from certified pits.

AND

- Granular Material Mechanical Analysis: **CI II:** One per 3,000 cubic yards. Max. VI 500 cubic yards for total Class II on project.
CI III: One test per 10,000 cubic yards. Max. VI 500 cubic yards for total Class III on project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Concrete Brick and Block: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test for first 10,000 pieces or fraction thereof. Two tests for lots of 10,000 to 100,000 pieces. Max. VI: 1,000 pieces.

- Pre-cast Reinforced Concrete Units: A General Certification from approved manufacturer.

OR

Test prior to incorporation. Test 1 percent per each size. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 10 pieces.

- Pre-cast Concrete Bases: A General Certification from approved manufacturer.

4030000 – 4030017 Cont.

OR

Test prior to incorporation. Test 5 percent of total. Max. VI 10 pieces.

Concrete S3**NRMCA Plants**

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For Portable Batch Plants

- Plant: Documentation of Inspection after each move per 601.03.A.1.b. With Waiver certification per 601.03.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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For all Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

4030000 – 4030017 Cont.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.
- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Fly Ash: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

- GGBFS: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Review reports to see that all test and retests meet MDOT requirements and the minimum frequency of one test per layer of backfill.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner.

Construction must perform moisture checks on ton items and note on IDR'S.

4030051

Dr Structure Cover

MATERIALS

| | |
|-----------|------------------------------|
| Pay Units | Pound |
| Materials | Gray Iron Casting and Covers |

ACCEPTANCE TESTING REQUIREMENTS

- Gray Iron Castings: Must be from the Qualified Products List (908.05)**. Document and Covers: supplier and quantity used on IDR.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show location, type, weights (as per the 2003 spec book), materials used.

4040001 - 4040089**Underdrain****MATERIALS**

| | |
|----------|---|
| Pay Unit | Foot |
| Material | Granular Material Class II, OGDC Aggregate (34R), Geosynthetics (PDS), Corrugated Plastic Tubing, ABS Pipe, Smooth Plastic Pipe. Outlets: Smooth Plastic Pipe or Corrugated Steel Pipe. See special provisions in the proposal. |

ACCEPTANCE TESTING REQUIREMENTS

- ABS Pipe: Test prior to incorporation. One test per 6,000 feet. Max. VI 600 feet.
- Corrugated Steel Pipe: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual.

- Smooth Plastic Pipe: Test prior to incorporation. One test per 2,500 feet or fraction thereof. Max. VI 250 feet.
- Corrugated Plastic Tubing (PE or PVC) (wrapped and unwrapped): **A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 5,000 feet with sample from coil. Max. VI 250 feet.

- Granular Material Delivery Tickets: (Class II aggregate) One ticket per load containing: Pit name, MDOT assigned number, Net weight, Type of material, Control section, Job number, Date, Signature of company representative, Certification statement from certified pits.

AND

- Granular Material Mechanical Analysis: **CI II:** One per 3,000 cubic yards. Max. VI 500 cubic yards for total Class II on project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

4040001 – 4040089 Cont.

- Granular Material Delivery Tickets: (OGDC Aggregate) One ticket per load containing: Pit name, MDOT assigned number, Net weight, Type of material, Control section, Job number, Date, Signature of company representative, Certification statement from certified pits.

AND

- Granular Material Mechanical Analysis: **OGDC:** One per 1,000 cubic yards. Max. VI 100 tons for total OGDC on project.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- PDS: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 10,000 feet or less.

- Geotextile Fabric: Test data certification and Sample test verification.

****NOTE: BUY AMERICA statement required on steel certification**

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used. Geotextile Blanket product name must be noted on IDR.
- Density Reports: See subsection 404.03.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

4040111 - 4040115 Underdrain, Outlet Ending, __inch

MATERIALS

| | |
|----------|---|
| Pay Unit | Each |
| Material | Concrete Ring or Steel End Section with Rodent Screen |

ACCEPTANCE TESTING REQUIREMENTS

- Steel End Section **VI of complete unit along with BUY AMERICA statement required.
- Concrete Ring VI.
- Rodent Screen Document quantity used on IDR.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, materials used.

5020030 - 5020061

HMA, __
HMA Approach

MATERIALS

Note: For Asphalt Binder, Asphalt Emulsion, and Fly Ash, if from approved source, the minimum project documentation is identification of source on Material Source List. (Certified delivery tickets are not required)

| | |
|----------|---|
| Pay Unit | Ton, Square Yard |
| Material | Aggregate, Asphalt Binder, Bituminous Mixture, Mineral Filler, Emulsified Asphalt (Prime and Bond Coat) |

ACCEPTANCE TESTING REQUIREMENTS

- **Mix Materials:** A written statement from the supplier certifying that all materials used in mix are of the same source submitted for JMF. This requirement can be met by separate letter in file from producer or statement on mix delivery ticket and Material Source List (subsection 501.02.A.1).
- **Asphalt Binder:** A General Certification from approved manufacturer. Plant inspector shall submit one sample per day of production for certification verification.

OR

Test prior to incorporation. One test per day's production of mix. Max. VI 5 tons per day or 27 tons total asphalt binder for project.

- **Bit Mixtures:** JMF (Job Mix Formula) Form 1911 must be in project file. Plant certification will be verified by TMI on Form 1911. VI limit 500 tons per project per mix.
- **Mix Delivery Tickets:** Required per load delivered to job, including control section/job number, mix type, date, time, truck number, tare weight, tonnage delivered and accumulated tonnage. Max. VI 500 tons per project per mix.

REGULAR TESTING JOBS

Form 1903 Daily report of bit plant inspection for each day of production.

QC/QA JOBS

Contractor Quality Control Plan. Form 1903B Verification /Acceptance Report (min. frequency: one report per lot placed). Form 1903C Report of Contractor's Quality Control Tests. See special provision for option choice and follow requirements. Form 1907 Core Density (4 cores per subplot).

5020030 – 5020061 Cont.**PWL JOBS**

PWL Calculation Spreadsheet. MDOT QA Plan. Random number sheets signed by MDOT and Contractor. Contractor QC Plan. Dispute resolution results if applicable. Forms: 1903B, 1903C and 1907.

- Emulsified Asphalt: A General Certification from approved source.

OR

Test prior to incorporation. Max. allowable VI. 100 gallons. See subsection 502.02 for allowable emulsions.

- Mineral Filler: A General Certification from approved source.

OR

Test prior to incorporation. Max. VI 10 tons per project.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements.

- Bit Mixtures: Contact Traveling Mix Inspector (TMI) to schedule IAT as soon as possible. One satisfactory test/per sampler and tester/per season. A qualified bituminous technician is required for testing on all state and federally funded projects.

CONSTRUCTION

- Inspector's Daily: Report IDR should show measurements, computations, quantities, locations, and materials used. Also, street information such as temperature of mix and yield computations and additional information per CA 2006-07 should be shown on IDR.
- Density: Refer to section 502 HMA Construction Practices. One test per 1000 feet, width of 24 feet (minimum) or as defined per special provision if any in the proposal

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

| | |
|--------------------------|--|
| 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 |

MATERIALS

| | |
|----------|---|
| Pay Unit | Square Yard, Cubic Yard |
| Material | Cement, Coarse Aggregate, Fine Aggregate, Wire Fabric, Lane Ties-Straight and Bent Tie Bars, Expansion Anchors, Bolts for Expansion Anchors, Deformed Bars, Bituminous Fiber Filler, Curing Compound-White, Concrete Accelerators, Admixtures, Fly Ash. |

ACCEPTANCE TESTING REQUIREMENTS

NRMCA Plants

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For Portable Batch Plants

- Plant: Documentation of Inspection after each move per 601.03.A.1.b. With Waiver certification per 601.03.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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For all Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

6020002 – 6020135 Cont.

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Fly Ash: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

- GGBFS: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

- Welded Wire Fabric: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 500 square yards.

- Lane Ties: **A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 500 pounds. Pullout test required - documentation on field inspection report.

Note: Epoxy coating must come from the Qualified Products List (905.03C1).

6020002 – 6020135 Cont.

- Deformed Bars: **A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer.
Max. VI 500 pounds.

Note: Epoxy coating must come from the Qualified Products List (905.03C1).

- Expansion Caps: VI and document on IDR quality and supplier. Must conform to Standard Plan R-40 series.
- Curing Compound: A test data certification. One test per lot or batch. Max. VI 200 gallons for total material used on project.

Note: Must be used within one year of manufacturer.

- Bituminized Fiber Joint Filler: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 1,000 square feet or fraction thereof. 1/4 inch material may be VI - note on IDR. Max. VI 150 square feet for all other sizes.

- Compressive Strength Test: Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers signature required.

****NOTE: BUY AMERICA statement required on steel certification.**

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Form 1155: Weekly summary of concrete shipped (for Regions who use numbered concrete plants). Fax copy to Regional C&T office.
- Delivery Tickets: Signed delivery tickets from supplier for each load containing the requirement as stated in the NRMCA requirements Batch Weights attached. Water additions must be noted and signed. Inspector is required to sign all delivery tickets.
- Contractor's Mix Design: Copy must be in project file.
- Contractor's QC Plan: Copy must be in project file.

6020002 – 6020135 Cont.

CONSTRUCTION

- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out and signature of inspector is required.

- Inspector's Daily Report: IDR should show measurements, computations, locations, materials used. Attach pavement core thickness forms and document on IDR whether a penalty was required.

- Contractor's QC Results: Required in project files.

6020200 6020206**Joint, Contraction, (type)****MATERIALS**

| | |
|----------|---------------------------|
| Pay Unit | Foot |
| Material | Hot poured rubber sealant |

ACCEPTANCE TESTING REQUIREMENTS

- Hot Poured Rubber Sealant: Shipment of Tested Stock Report, Form 1922, from approved source.
OR
Test prior to incorporation. One test per batch from a single container. Max. VI 100 pounds for total material used on project.
- Backer Rod: VI.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

6030005
6030035

Calcium Chloride
Non Chloride Accelerator

MATERIALS

| | |
|----------|---|
| Pay Unit | Pound |
| Material | Calcium Chloride Solids, Non-Chloride accelerator |

ACCEPTANCE TESTING REQUIREMENTS

- Calcium Chlorides: VI.
- Non Chloride accelerator: Qualified Products List (903.02).

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, computations, materials used.

6030040 – 6030052 Pavt Repair, Nonreinf Conc, __ inch
6030060 – 6030072 Pavt Repr, Reinf Conc, __ inch

MATERIALS

| | |
|----------|--|
| Pay Unit | Square Yard |
| Material | Cement, Coarse Aggregate, Fine Aggregate, Wire Fabric, Lane Ties-Straight and Bent Tie Bars, Deformed Bars, Bituminous Fiber Filler, Curing Compound-White, Concrete Accelerators, Admixtures, Air Entraining Agents, Fly Ash. |

ACCEPTANCE TESTING REQUIREMENTS

NRMCA Plants

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy 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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

All Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

6030040 - 6030072 Cont.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.
- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Welded Wire Fabric: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 500 square yards.

- Lane Ties: **A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 500 pounds. Pullout test required - documentation on field inspection report.

Note: Epoxy coating must come from the Qualified Products List (905.03C1).

- Flexural Strength Test: Test reports for Beams, for acceptance and open to traffic. Avg of 2 specimens for each test. Testers signature required.
- Bituminized Fiber Joint Filler: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 1,000 square feet or fraction thereof. 1/4 inch material may be VI - note on IDR. Max. VI 150 square feet for all other sizes.

- Curing Compound: A Test Data Certification. One test per lot or batch. Max. VI 200 gallons for total material used on project.
- Dowel/Bars: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 240 Bars.

6030040 - 6030072 Cont.

Note: Epoxy coating must come from the Qualified Products List (905.03C1).

- Deformed Bars: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer.
Max. VI 500 pounds.

Note: Epoxy coating must come from the Qualified Products List (905.03C1).

- Expansion Caps: VI document on IDR quantity used and supplier. Must conform to Standard Plan R-40 series.
- Adhesive system: Qualified Products List (712.03J). Document on IDR. Max. VI 5 gallons.
- Bond Release Agent (Breaker): Qualified Product List (914.07A).
- Insulation Blankets: A Test Data Certification. Max. VI 10 sheets.
- Hot Poured Joint Sealant: Shipment of Tested Stock Report, Form 1922, from approved source.

OR

Test prior to incorporation. One test per batch from a single container. Max. VI 100 pounds.

- Backer Rod: VI.
- Cold Applied Joint Sealant: Test prior to incorporation. One test per shipment from a single container. Max. VI 10 gallons.
- Calcium Chloride: VI.

****NOTE: BUY AMERICA statement required on steel certification.**

INDEPENDENCE ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Form 1155: Weekly summary of concrete shipped (for Regions who use numbered concrete plants). Fax copy to Regional C&T office.

6030040 - 6030072 Cont.

- Delivery Tickets: Signed delivery tickets from supplier for each load containing the requirement as stated in the NRMCA requirements Batch Weights attached. Water additions must be noted and signed. Inspector is required to sign all delivery tickets
- Contractor's Mix Design: Copy must be in project file.
- Contractor's QC Plan: Copy must be in project file.

CONSTRUCTION

- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out and signature of inspector is required. QA test results must be noted.
- Contractor's QC Results: Required in project files.
- Inspector's Daily Report: IDR should show measurements, computations, locations, materials used.

**6030091 &
6030096**

**Reseal Longit Joints w/Hot Poured Rubber
Reseal Transv Joints w/Hot Poured Rubber**

MATERIALS

| | |
|----------|--------------------------------------|
| Pay Unit | Foot |
| Material | Hot Poured Joint Sealant, Backer Rod |

ACCEPTANCE TESTING REQUIREMENTS

- Hot Poured Joint Sealant: Shipment of Tested Stock Report, Form 1922, from approved source.

OR

Test prior to incorporation. One test per batch from a single container. Max. VI 100 pounds for total material used on project.

- Backer Rod VI.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7040001

Steel Sheet Piling, Permanent

MATERIALS

| | |
|----------|--------------|
| Pay Unit | Square Foot |
| Material | Sheet Piling |

ACCEPTANCE TESTING REQUIREMENTS

- Piling: **VI along with BUY AMERICA statement required. Document supplier and quantity used on IDR.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, measurements, computations.

7040002
7040003

Steel Sheet Piling, Temp
Steel Sheet Piling, Temp, Left in Place

MATERIALS

| | |
|----------|--------------|
| Pay Unit | Square Foot |
| Material | Sheet Piling |

ACCEPTANCE TESTING REQUIREMENTS

- Temporary Piling: **VI. Documentation can be made on IDR.
- Temporary Piling
Left in Place: VI along with BUY AMERICA statement required. Documentation
can be made on IDR.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily
Driven
Report: IDR should show quantities, measurements, computations.
depth must be noted on IDR.

7050010

Pile, Treated Timber, Furn

MATERIALS

| | |
|----------|---------------|
| Pay Unit | Foot |
| Material | Treated Piles |

ACCEPTANCE TESTING REQUIREMENTS

- Timber Piles: VI. Document quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, measurements.

7050020 Pile, CIP Conc, Furn and Driven, 12 inch
7050021 Test Pile,CIP Conc, 12 inch
7050025 Pile Points,CIP Conc

MATERIALS

| | |
|----------|--|
| Pay Unit | Foot, Each |
| Material | Pile shells, mortar, concrete, steel reinforcement |

ACCEPTANCE TESTING REQUIREMENTS

NRMCA Plants

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy 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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For all Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

7050020- 7050025 Cont.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.
- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Fly Ash: A Test Data Certification from approved manufacturer.

OR

- Test prior to incorporation. Submit cement with sample.
- Foundation Piling: Notation on form 1161. **A Test Data Certification on pile shells and pile points. Visual Inspect pile cut-offs. Document on IDR.
 - Compressive Strength Tests: Test report for 28 days strength (work sheet not summary). Average of 2 cylinder specimens for each test. Tester's signature is required.

****NOTE: BUY AMERICA statement required on steel certification.**

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Form 1155: Weekly Summary of Concrete Shipped. Fax copy to Regional C&T office (for Regions who use numbered concrete plants).
- Delivery Tickets: Signed delivery tickets from supplier for each load containing the requirement as stated in the NRMCA requirements. Batch weights attached. Water additions must be noted and signed. Inspector is required to sign all delivery tickets.
- Contractor's Mix Design: Copy must be in project file.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, measurements.

7050030 & 7050034 Steel Piles Furn and Driven, __ inch

MATERIALS

| | |
|----------|-------------|
| Pay Unit | Foot |
| Material | Steel Piles |

ACCEPTANCE TESTING REQUIREMENTS

- Steel Piles: **A Test Data Certification. Field check certification and note on IDR's or include copy of certification.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, measurements. Driven depth must be noted on IDR.
- Forms: Form 1157 and 1956 required.

**7050031 & 7050035
7050039**

**Test Pile, Steel, ___ inch
Pile Point, Steel**

MATERIALS

| | |
|----------|-------------|
| Pay Unit | Foot, Each |
| Material | Steel Piles |

ACCEPTANCE TESTING REQUIREMENTS

- Steel Piles: **A Test Data Certification. Field check certification and note on IDR's or include copy of certification.

****NOTE: BUY AMERICA statement required on steel certification.**

7060001 - 7060004
 7060008
 7060010
 7060020
 7060021

Conc, Grade, __
 Conc Quality Assurance, Structure
 Substructure Conc
 Superstructure Conc
 Superstructure Conc, Night Casting

MATERIALS

| | |
|----------|--|
| Pay Unit | Cubic Yard |
| Material | Cement, Coarse Aggregate, Fine Aggregate, Curing Compound, Bituminous Fiber Joint Filler, Admixtures, Fly Ash. |

ACCEPTANCE TESTING REQUIREMENTS

NRMCA Plants

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy 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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For All Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6,

7060001 – 7060004, 7060008, 7060010, 7060020 - 7060021 Cont.

Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Fly Ash: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

- Curing Compound A Test Data Certification. One test per lot or batch. Max. VI 200 gallons for total material used on project.

Note: Must be used within one year of manufacturer.

- Bituminized Fiber Joint Filler: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 1,000 square feet or fraction thereof. 1/4 inch material may be VI - note on IDR. Max. VI 150 square feet for all other sizes.

- Compressive Strength Test: Test reports for 28 day strength (work sheet not summary) per Department's latest QA testing requirements. Testers signature required.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Form 1155: Weekly summary of concrete shipped (for Regions who use numbered concrete plants). Fax copy to Regional C&T office
- Delivery Tickets: Signed delivery tickets from supplier for each load containing the requirement as stated in the NRMCA requirements. Batch weights

7060001 – 7060004, 7060008, 7060010, 7060020 - 7060021 Cont.

attached. Water additions must be noted and signed. Inspector is required to sign all delivery tickets.

- Contractor's Mix Design: Copy must be in project file.
- Contractor's QC Plan: Copy must be in project file.

CONSTRUCTION

- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out and signature of inspector is required.
- Contractor's QC Results: Required in project files.
- Inspector's Daily Report: IDR should show measurements, computations, locations, materials used.

7060034**Reinforcement, Steel****MATERIALS**

| | |
|----------|-------------|
| Pay Unit | Pound |
| Material | Steel Rebar |

ACCEPTANCE TESTING REQUIREMENTS

- Steel: **A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer.
Max. VI 500 pounds for total material used on project.

****NOTE: BUY AMERICA statement required in steel certification**

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7060035 Reinforcement, Steel, Epoxy Coated**MATERIALS**

| | |
|----------|-----------------------------|
| Pay Unit | Pound |
| Material | Steel Rebar & Epoxy Coating |

ACCEPTANCE TESTING REQUIREMENTS

- Steel: **A Test Data Certification from approved manufacturer.
OR
Test prior to incorporation. One test per project per manufacturer.
Max. VI 500 pounds.
- Epoxy Coater: A Test Data Certification from approved manufacturer.
OR
Test prior to incorporation. One test per project per manufacturer.
Max. VI 500 pounds.

Note: Epoxy coating must come from the Qualified Products List (905.03C1).

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7060040 Water Repellent Treatment, Penetrating

MATERIALS

| | |
|----------|-----------------|
| Pay Unit | Square Yard |
| Material | Water Repellent |

ACCEPTANCE TESTING REQUIREMENTS

- Water Repellent: Qualified Products List (706.03S). Document Product name and quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7070001 - 7070014**Structural Steel****MATERIALS**

| | |
|----------|------------------|
| Pay Unit | Pound |
| Material | Structural Steel |

ACCEPTANCE TESTING REQUIREMENTS

- Structural Steel Fabrication: **Detailed fabrication inspection is required according to procedure D10 of the Materials Quality Assurance Procedures manual.
- Report shall include: Steel mill certs and test reports. Welder qualification reports. Pay weight approval letter from C&T Fabrication. Engineer shop inspection of structural steel reports(Form 538).

Upon delivery of structural steel, the inspector should check for the shop inspector's "approved for use" stamp on all principal members. Where steel is shipped to the job without the recommended approval mark, the region Bridge Engineer is to be advised before erection. C&T Structural Fabrication Engineer should be contacted to verify that the steel has been inspected and approved. Fabrication reports must be placed in the project files but usually they are not received until after the material has been shipped.

****NOTE: BUY AMERICA statement required in steel certification**

CONSTRUCTION

- Inspector's Daily Report: IDR should show locations, condition beams, materials used.

7070060 - 7070077

Bearing, Elastomeric, __ inch

MATERIALS

| | |
|----------|--------------------------|
| Pay Unit | Square Foot |
| Material | Elastomeric Bearing Pads |

ACCEPTANCE TESTING REQUIREMENTS

- Elastomeric Bearing Pads: A Test Data Certification. Show test result for Shear Modulus, ASTM D 4014.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, conditions of bearing, materials used.

7070080**Shear Developers****MATERIALS**

| | |
|----------|------------------|
| Pay Unit | Lump Sum |
| Material | Shear Developers |

ACCEPTANCE TESTING REQUIREMENTS

- Shear Developers: Qualified Products List (906.08). Document product name and quantity used on IDR.

OR

A Test Data Certification which certifies that they meet the requirements of the current AWS D1.5, Section 7.

TESTING STUDS

Studs are tested by *ringing* with a hammer. To test the studs, the inspector should allow 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 insure 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.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantity, materials used.

7080001 - 7080010**Prest Conc Deck, __ inch****MATERIALS**

| | |
|----------|---|
| Pay Unit | Square Foot |
| Material | Concrete Box Beams, Concrete Grade D, Steel Reinforcement, Miscellaneous Hardware, Grouts & Mortars |

ACCEPTANCE TESTING REQUIREMENTS

- Box Beams: Must be inspected during fabrication, according to section D8 of the Materials Quality Assurance Procedures Manual and section 708 of the standard specifications. Beams will be stamped or tagged "Approved for Use" by the inspector. Report will follow issued by C&T Fabrication Engineer or Local Government Agency. Local Government Agencies are responsible for all testing requirements.
- Concrete, Grade D: See 7060001.
- Steel Reinforcement: **A General Certification from approved source.

OR

Test prior to incorporation.

- Grout Type E-1: A General Certification (expansive) placed in void after post-tensioning.
- Grout Type R-2: Between Beams - Air and slump tests per specifications. Mixture from table 702-1 and VI.
- Grout Type H-1: For Dowel holes at fixed ends Qualified Products List. Document supplier and quantity used on or IDR.

****NOTE: BUY AMERICA statement required on steel certification.****INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS**

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show conditions of beams, make comments about erection of beams and positioning dowel placement, type of grout used, pressures applied for post tensioning, materials used.

7080015 Post Tensioning, (Structure No.)**MATERIALS**

| | |
|----------|---|
| Pay Unit | Lump Sum |
| Material | Post Tensioning Strands or Bar Grout |

ACCEPTANCE TESTING REQUIREMENTS

- Grout: A General Certification. 702.02.C Expansive Grout, Expansive Admixture.
- Tendons: ****Strands:** A Test Data Certification from approved manufacturer. No VI. quantity allowed.

Note: Sampling and testing may be waived if strand from same reel is tested for beam fabrication.

****Bars:** Test prior to incorporation. One test per heat per project. No VI. quantity allowed.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, quantity, materials used.

| | |
|--------------------------|---|
| 7080021 – 7080041 | Prest Conc I Beams, __, __ inch |
| 7080051 – 7080096 | Prest Conc Box Beam, __, __ inch |
| 7080101 – 7080102 | Prestr Conc 1800 Beam, __ |

MATERIALS

| | |
|-----------|--|
| Pay Units | Foot |
| Materials | Cement, Coarse Aggregate, Fine Aggregate, Bar Reinforcement Strand |

ACCEPTANCE TESTING REQUIREMENTS

- Fabrication inspection and testing will be performed by consultant retained by C&T Fabrication Engineer (Call C&T @ 517-322-5709) or consultant retained by local government.
- Letter from C&T approving beams or a letter from consultant retained by local government agency approving the beams must be in the project file.
- For MDOT oversight inspection projects -VI of beam at project site check for stamp or tag "Approved for Use" by the inspector. The beams are not released from the plant without inspector's approval.
- For Independent Agency oversight projects agreement as to the markings used on approved beams should be confirmed at the precon and VI for the those markings should be done when beams arrive at the job site.
- Notation to IDR confirming the inspectors number and/or the markings.

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. For testing requirements contact Lansing C&T, Structural Fabrication Engineer.

Inspectors at the fabrication site are responsible for checking the materials incorporated into the beam - no material documentation will appear in project file.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

CONSTRUCTION

- Inspector's Daily Report: IDR should show conditions of beams, make comments about placement of beams

7090001**Structure, Timber****MATERIALS**

| | |
|----------|--------------------------------------|
| Pay Unit | Lump Sum |
| Material | Structural Timber, Structural Lumber |

ACCEPTANCE TESTING REQUIREMENTS

- Structural Timber and Lumber: A General Certification from approved manufacturer.

OR

Test. One test per each charge.

- Preservative Treatment: A Test Data Certification.

CONSTRUCTION

- Inspector's Daily Report: IDR should show location, number of timbers, condition of timbers used.

7100001

Joint Waterproofing

MATERIALS

| | |
|----------|-----------------------------------|
| Pay Unit | Square Foot |
| Material | Waterproofing Membrane, Preformed |

ACCEPTANCE TESTING REQUIREMENTS

- Waterproofing Membrane, Preformed: Qualified Product List (914.11).

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7100008

Membrane, Performed Waterproofing

MATERIALS

| | |
|-----------------------|--|
| Pay Unit Materials | Square Foot Waterproofing Membrane, Performed |
|-----------------------|--|

ACCEPTANCE TESTING REQUIREMENTS

- Waterproofing Membrane, Prefomed: Qualified Product List (914.11).

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7110005**Bridge Railing, Aesthetic Parapet Tube****MATERIALS**

| | |
|-----------|--|
| Pay Unit | Foot |
| Materials | Concrete, Reinforcing Steel, Hardware, Anchor Studs, Washer and Lock Washer, Elastomeric Bearing Pads, Base Plates and Post Elements, Rail Elements (Tube) |

ACCEPTANCE TESTING REQUIREMENTS

- Concrete: See 7060002.
- Steel Reinforcement: **See 7060034.
- Base Plate, Rail Elements and Post Elements: **Shipment of Tested Stock Report, Form 1922, from approved source.
OR
Test Data Certification. One test per heat per project. Chemical analysis must include silicon content. Document must be attached to the sample ID. Test Report to P.E.
- Anchor Studs, Washers: **Test. One test per heat per diameter per project.
- Elastomeric Bearing Pads: A Test Data Certification. Show test result for Shear Modulus, ASTM D 4014.

NOTE: Standard Plan B-25-Series.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, and materials used.

7110008**Bridge Railing, 2 Tube****MATERIALS**

| | |
|-----------|---|
| Pay Unit | Foot |
| Materials | Square Steel Tube, Anchor Studs, Flat Washer & Lock Washers, Elastomeric Bearing Pad, Post and Base Plate |

ACCEPTANCE TESTING REQUIREMENTS

- Square Tube Rail: **Test One per heat/per project.

OR

Shipment of Tested Stock Report, Form 1922, - the original test must have been tested for an active MDOT project. Field check of spelter coating notation on IDR.

- Drop weight tear test required:

NOTE: MDOT will perform drop weight tear testing for Local Government projects, all additional testing must be performed by an independent laboratory retain by the Local Government agency.

- Anchor Studs and Washers: Test. One test per heat per diameter per project.
- Elastomeric Bearing Pad: A Test Data Certification. Show test result for Shear Modulus, ASTM D 4014.
- Base Plate, Rail Elements and Post Elements: **Shipment of Tested Stock Report, Form 1922, from approved source.

OR

Test Data Certification. One test per heat per project. Chemical analysis must include silicon content. Document must be attached to the sample ID. Test Report to P.E.

Note: MDOT projects - samples will be taken at the suppliers by a representative of MDOT and tested prior to delivery to the contractor.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7120015 & 7120016**Patching Mortar or Conc****MATERIALS**

| | |
|----------|--|
| Pay Unit | Cubic Yard, Cubic Foot |
| Material | Mortar or Cement, Fine Aggregate, Coarse Aggregate, Calcium Chloride, Admixtures, Latex Admixtures |

ACCEPTANCE TESTING REQUIREMENTS**NRMCA Plants**

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy 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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For All Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per requirements in Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

7120015 & 7120016 Cont.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Admixtures: Qualified Products List (903.03). Document manufacturer on Form IDR.
- Prepackaged Mortar: Qualified Products List (703). Document product name and quantity used on IDR.
- Latex Admixture: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per lot. No VI limit.

- Calcium Chloride: VI noting the chemical composition on IDR.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Delivery Tickets: Delivery tickets for each load containing the requirement as stated in the NRMCA requirements. Batch weights attached. Signed certification statement. Water additions must be noted and signed.
- Form 1155: Weekly summary of concrete shipped (for Regions who use numbered concrete plants). Fax copy to Regional C&T office.
- Contractor's Mix Design: A copy must be in project file QA/QC jobs.
- Form 1174: Concrete Proportioning Plant Report for Latex Modified. When material mixed by pug mill operation.
- Contractor's QC Plan: Required for QA/QC jobs.

CONSTRUCTION

- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out. Signature of inspector is required.
- Contractor's QC results: Required for QA/QC jobs.
- Inspector's Daily Report: IDR should show measurements, computations, materials used.

7120028 - 7120038 Adhesive Anchoring of __ Bar, __ inch
7120040 – 7120044 Bolt, Adhesive Anchored, __ inch

MATERIALS

| | |
|-----------|---|
| Pay Unit | Each |
| Materials | Bar Reinforcement, Bolts, Adhesive System |

ACCEPTANCE TESTING REQUIREMENTS

- Bar Reinforcement: **A General Certification from approved source.

OR

Test prior to incorporation. Max. VI 500 pounds.

- Bolts: **Test One bolt per heat/per project. A Test Data Certification must submitted with sample for testing.
- Adhesive System: Qualified Product List (712.03J). Document product name and quantity used on IDR.
- Pull-Out Testing: Field Inspection Report (Form 0566). See subsection 712.03.J.2.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector’s Daily Report: IDR should show quantity, location, condition of materials used and type of adhesive used.

7120050 - 7120052 Bolt, Mechanical Expansion Anchored, __ inch**MATERIALS**

| | |
|-----------|--|
| Pay Unit | Each |
| Materials | Expansion Anchor, Bolts for Expansion Anchor |

ACCEPTANCE TESTING REQUIREMENTS

- Expansion Anchors: Qualified Products List (712.03K). Document product name and quantity used on IDR.
- Bolts for Expansion: Test. One test per 5000 pieces or fraction thereof. Max. VI 250 units. Document product name and quantity used on IDR.
- Pull-Out Testing: Field Inspection Report (Form 0566). See subsection 712.03.J.2.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantity, location, condition of materials used and type of anchor used.

7120084**Reinforcement, Mechanical Splice****MATERIALS**

| | |
|----------|--------------|
| Pay Unit | Each |
| Material | Steel Sleeve |

ACCEPTANCE TESTING REQUIREMENTS

- Splice: **Must be from Qualified Products List (712.03L). The contractor must make test splices, witnessed by the Engineer, on the smallest and largest bar sizes that are to be spliced. Test splice consists of 2 pieces of reinforcing bar joined by the coupler with a minimum of 12 inches of bar exposed on each end of the coupler.

NOTE: RE/PE may VI small quantities along with BUY AMERICA statement required.

Document product name and quantity used on IDR.

For swaged splices, make five test splices on the smallest and five test splices on the largest bar sizes being spliced. The Engineer must witness the test splicing. Use these tests to establish a splicing procedure. For other types of splices, provide two test splices on the smallest and two test splices on the largest bar sizes that are to be splices. Demonstrate that splices have a tensile strength of 125 percent of the bar's yield strength. For all required tests, supply sample bars 12 inches long. 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: BUY AMERICA statement required in steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show lengths of splice, materials used.

7120110 - 7120115 Patching Conc, C; C-HE; C-L; C-L-HE; F-L; M**MATERIALS**

| | |
|----------|---|
| Pay Unit | Cubic Yard |
| Material | Coarse Aggregate, Fine Aggregate, Cement, Latex Admixture |

ACCEPTANCE TESTING REQUIREMENTS**NRMCA Plants**

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy 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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For All Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per requirements in Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

7120110 - 7120115 Cont.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Latex Admixture: A General Certification from certified manufacturer.

OR

Test prior to incorporation. One test per lot. No VI limit.

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

ADDITIONAL DOCUMENTATION REQUIRED

- Contractor's Mix Design: Copy must be in file QA/QC jobs.
- Contractor's QC Plan: Required for QA/QC jobs.

CONSTRUCTION

- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out. Signature of inspector is required.
- Contractor's QC results: Required for QA/QC jobs.
- Inspector's Daily Report: IDR should show measurements, computations, and materials used.

7150045 Steel Structures Cleaning, Type 4

MATERIALS

Pay Unit: Lump Sum
Materials: Low Dusting Abrasive, Steel Grit or Shot

ACCEPTANCE TESTING REQUIREMENTS

- See special provisions in proposal.
- Low Dust Qualified Products List (715.02). Document product name and quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show materials used.

Note: IDR's must make comments daily about enclosure condition, disposal and containment of material.

Employees working in these areas must be trained and record of such training must be on file in the project office.

7150046**Steel Structure, Coating, Type 4****MATERIALS**

| | |
|-----------|----------------|
| Pay Unit | Lump Sum |
| Materials | Coating System |

ACCEPTANCE TESTING REQUIREMENTS

- Coating System: Qualified Product List (915). Document product name and quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show, materials used, applicable checklist profile measurement and other documentation must be on the IDR per BOHIM 2005-13 dated August 25, 2005

Note: IDR's must make comments daily about enclosure condition, disposal and containment of material.

Employees working in these areas must be trained and record of such training must be on file in the project office.

**8010001 - 8010004,
8010005 - 8010008**

**Driveway, Reinf Conc, __ inch
Driveway, Nonreinf Conc, __ inch**

MATERIALS

| | |
|-----------|--|
| Pay Unit | Square Yard |
| Materials | Cement, Course Aggregates, Fine Aggregates, Welded Wire Fabric, Curing Compound, Admixtures, Fly Ash, Bituminous Fiber Joint Filler, Hook Bolts, Concrete Accelerators |

ACCEPTANCE TESTING REQUIREMENTS

NRMCA Plants

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For Portable Batch Plants

- Plant: Documentation of Inspection after each move per 601.03.A.1.b. With Waiver certification per 601.03.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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For all Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

8010001 - 8010004, 8010005 - 8010008 Cont.

- Coarse Aggregates: 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 district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Fly Ash: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

- Welded Wire Fabric: **A Test Data Certification form approved source.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 500 square yards.

- Bituminous Fiber Joint Filler: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 1000 square feet or fraction thereof. 1/4 inch material may be VI - notation on IDR. Max. VI 150 square feet for all sizes.

- Curing Compound: A Test Data Certification. One test per lot or batch. Max. VI 200 Gals for total material used on job.
- Concrete Accelerators: Calcium Chloride - VI for calcium chloride flake.
Non-Chloride - Qualified Products List (903.02).

****NOTE: BUY AMERICA statement required in steel certification.**

8010001 - 8010004, 8010005 - 8010008 Cont.**INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS**

See Notes page for IAT requirements.

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Form 1155: Weekly summary of concrete shipped. Fax copy to Regional C&T office (for Regions who use numbered concrete plants).
 - Delivery Tickets: Delivery tickets one for each batch containing the requirement per NRMCA. Batch weights attached. Signed certification statement. Water additions must be noted and signed.
 - Contractor's Mix Design: Copy must be in project file QA/QC jobs.
- Contractor's QC Plan: Required for QA/QC jobs.

CONSTRUCTION

- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out. Signature of inspector is required.
- Contractor's: Required for QA/QC jobs.
QC results:
- Inspector's Daily Report: IDR should show measurements, computations, materials used and comments about traffic control and daily activities.
- Density Reports: Density testing as per subsection 302.03 of the standard specifications.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner.

8020001 - 8020006
8020010
8020015 - 8020040

Curb, Conc, Det ___
Curb and Gutter, Bridge Approach
Curb and Gutter, Conc, Det ___

MATERIALS

| | |
|----------|---|
| Pay Unit | Foot |
| Material | Cement, Coarse Aggregate, Fine Aggregate, Weld Wire Fabric, Reinforcing Steel, Bituminous Fiber Joint Filler, Curing Compound-White, Concrete Accelerators, Admixtures, Fly Ash |

ACCEPTANCE TESTING REQUIREMENTS

NRMCA Plants

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For Portable Batch Plants

- Plant: Documentation of Inspection after each move per 601.03.A.1.b. With Waiver certification per 601.03.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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For all Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: Test prior to incorporation. One test per 1,000 tons. Max. VI 100

8020001 – 8020006, 8020010, 8020015 - 8020040 Cont.

tons for total grade used on job. L.A. Abrasion, freeze-thaw durability may be requested from district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Fly Ash: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

- Compressive Strength Test: Test reports for 28 day strength (work sheet not summary). Average of 2 cylinder breaks for each test. Testers signature required.
- Bituminized Fiber Joint Filler: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 1000 square feet or fraction thereof. 1/4 inch material may be VI - note on IDR. Max. VI 150 square feet for all other sizes.

- Curing Compound: A Test Data Certification. One test per lot per batch. Shipment of Tested Stock Report, Form 1922,. Max. VI 200 gallons for total material used on project.
- Concrete Accelerators: Calcium Chloride - VI for calcium chloride flake.
Non-Chloride - Qualified Products List (903.02).
- Steel Reinforcement: **# 4 Bar - A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 500 pounds. Pullout test required - document on Field

8020001 – 8020006, 8020010, 8020015 - 8020040 Cont.

Inspection Report, Form 0566.

- Lane Ties: **# 5 Bar - A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI 500 pounds. Pullout test required - document on Field Inspection Report, Form 0566.

Note: Epoxy Coating must come from Qualified Products List.

****NOTE: BUY AMERICA statement required on steel certification.**

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Form 1155: Weekly summary of concrete shipped. Fax copy to Regional C&T office (for Regions who use numbered concrete plants).
- Delivery Tickets: Delivery tickets for each load containing requirement as stated in NRMCA. Batch weights attached. Signed certification statement. Water additions must be noted and signed.
- Contractor's Mix Design: Copy must be in project file for QA/QC jobs.
- Contractor's QC Plan: Required for QA/QC jobs.

CONSTRUCTION

- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out. Signature of inspector is required. Need to document QA test results.
- Contractor's QC results: Required for QA/QC jobs.
- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Density testing as per subsection 302.03 of the standard specifications.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner. Construction must perform moisture check on ton items and note on IDR's.

8030001 - 8030004
8030010

Sidewalk, Conc, __ inch
Sidewalk Ramp

MATERIALS

| | |
|----------|---|
| Pay Unit | Square Foot |
| Material | Cement, Coarse Aggregate, Fine Aggregate, Weld Wire Fabric, Reinforcing Steel, Bituminous Fiber Joint Filler, Curing Compound-White, Concrete Accelerators, Admixtures, Fly Ash, Truncated Dome Inserts |

ACCEPTANCE TESTING REQUIREMENTS

NRMCA Plants

- Plant: Current NRMCA certification.
- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For Portable Batch Plants

- Plant: Documentation of Inspection after each move per 601.03.A.1.b. With Waiver certification per 601.03.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).

- Scales Check: Inspection certification every 6 months.
- Dispenser Check: Inspection certification every 3 months.
- MDOT Mix Design: Copy in project files.

For all Plants

- Cement: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Test per Section G of the Materials Quality Assurance Procedures Manual. Max. VI 45 tons.

- Coarse Aggregates: 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

8030001 – 8030004, 8030010 Cont.

durability may be request from district C&T.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Fine Aggregate: Test prior to incorporation. One test per 1,000 tons. Max. VI 100 tons for total FA used on job.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Liquid Concrete Admixtures: Qualified Products List (903.01, 903.02 & 903.03). Document manufacturer on IDR.
- Fly Ash: A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. Submit cement with sample.

- Compressive Strength Test: Test reports for 28 day strength (work sheet not summary). Average of 2 cylinder breaks for each test. Testers signature required.
- Bituminized Fiber Joint Filler: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per 1000 square feet or fraction thereof. 1/4 inch material may be VI - note on IDR. Max. VI 150 square feet for all other sizes.

- Curing Compound: A Test Data Certification. One test per lot per batch. Shipment of Tested Stock Report, Form 1922,. Max. VI 200 gallons for total material used on project.
- Concrete Accelerators: Calcium Chloride - VI for calcium chloride flake.
Non-Chloride - Qualified Products List (903.02).
- Detectable Warning Surface: Qualified Products List (803.02-SP).
- Welded Wire Fabric: **A Test Data Certification from approved manufacturer.

OR

8030001 – 8030004, 8030010 Cont.

Test prior to incorporation. One test per project per manufacturer.
Max. VI 500 square yards.

****NOTE: BUY AMERICA statement required on steel certification.**

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements

ADDITIONAL DOCUMENTATION REQUIREMENTS

- Form 1155: Weekly summary of concrete shipped. Fax copy to Regional C&T office (for Regions who use numbered concrete plants).
- Delivery Tickets: Delivery tickets for each load containing the requirement as stated in NRMCA. Batch weights attached. Signed certification statement. Water additions must be noted and signed.
- Contractor's Mix Design: Copy must be in project file for QA/QC jobs.
- Contractor's QC Plan: Required for QA/QC jobs.
- Form 1174A: Inspector's Report of Concrete Placed. One report per day of placement completely filled out. Signature of inspector is required. Need to document QA test results.
- Contractor's QC results: Required for QA/QC jobs.
- Inspector's Daily Report: IDR should show measurements, computations, materials used.
- Density Reports: Density testing as per subsection 302.03 of the standard specifications.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner.

8070000 - 8070008
8070010 - 8070011

Guardrail, Type ___
Guardrail, Curved, Type ___

MATERIALS

| | |
|----------|---|
| Pay Unit | Foot |
| Material | Guardrail Type____ (includes all components from same manufacturer) Wood Post and Block, Reflectorized Washers, End Shoes, Buffered Ends, Backup Plates, Connector Plates, Steel Post , SRT |

ACCEPTANCE TESTING REQUIREMENTS

- Guardrail Type ___ **A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer. Max. VI for beam elements 125 feet for total project.

- Hardware: VI.
- Steel Post: **A Test Data Certification from approved manufacturer. (Included with Guardrail Certification). Max. VI 25 posts for total project.

OR

Test prior to incorporation. One test per 1000 posts or fraction thereof. Max. VI 25 posts.

- Reflectorized Washers: VI (Usually separate pay item). Document supplier and quantity used on IDR. Inspect galvanizing, dimensions and type of sheeting.
- Steel Sleeve, Soil Plate, Backup Plate, & Bearing Plate: **VI (Include with Guardrail Certification).
- Wood Post and Block: Shipment of Tested Stock Report, Form 1922, from approved source. Max. VI none.

OR

A General Certification from approved manufacturer. Max. VI none.

OR

Test prior to incorporation. One test per charge. Max. VI none.

- Plastic Blocks: Qualified Products List (912.09Q). May only be used on Steel Posts.

****NOTE: BUY AMERICA statement required on steel certification.**

8070000 - 8070008, 8070010 – 8070011 Cont.

CONSTRUCTION

- Inspector's Daily IDR should show measurements, computations, materials used.
Report:

8070020 - 8070033 Guardrail Anchorage, Bridge, Det __

MATERIALS

| | |
|----------|---------------|
| Pay Unit | Each |
| Material | Complete Unit |

ACCEPTANCE TESTING REQUIREMENTS

- Complete Unit: **A General Certification from approved source.

OR

Test prior to incorporation.

- Specify on certification as: **A Guardrail Anchorage Bridge, Detail __ (Complete)

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, locations, materials used.

8070065

Guardrail Buffered Ends

MATERIALS

| | |
|----------|----------------------|
| Pay Unit | Each |
| Material | Buffered End Section |

ACCEPTANCE TESTING REQUIREMENTS

- Buffered End Section: **A Test Data Certification from approved manufacturer.

OR

Test prior to incorporation. One test per project per manufacturer.
Max. VI 125 feet.

****NOTE: BUY AMERICA statement required in steel certification**

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, locations, materials used and comments about traffic control and daily activities.

8070080

Guardrail Reflector

MATERIALS

| | |
|----------|----------------------|
| Pay Unit | Each |
| Material | Reflectorized Washer |

ACCEPTANCE TESTING REQUIREMENTS

- Reflective Washer: VI. Document supplier and quantity used on IDR. Inspect galvanizing, dimensions and type of sheeting.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, locations, materials used.

8070095**Post, Mailbox****MATERIALS**

| | |
|----------|-------------------------------|
| Pay Unit | Each |
| Material | Treated Wood Post, Cedar Post |

ACCEPTANCE TESTING REQUIREMENTS

- Treated Wood Post: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per each charge. Max. VI 25 post. Document supplier and quantity used on IDR.

- Cedar Post: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One test per charge. Max. VI 25 posts. Document supplier and quantity used on IDR.

NOTE: All posts must be treated except round Northern White Cedar. General Certification document required for Northern White Cedar in lieu of approved manufacturer.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, locations, materials used.

8080001 Fence, Woven Wire with Wood Post**MATERIALS**

| | |
|-----------|---|
| Pay Unit | Foot |
| Materials | Woven Wire Fabric, Treated Wood Posts, Cedar Posts, Fabric Fastenings and Fittings, Barbed Wire |

ACCEPTANCE TESTING REQUIREMENTS

- Woven Wire Fabric: VI - Document source on IDR.
- Treated Wood Post: A General Certification from approved manufacturer. Document supplier and quantity used on IDR.

OR

Shipment of Tested Stock Report, Form 1922, from approved source.

OR

Test prior to incorporation. One test per charge. Max. VI 25 posts.

- Cedar Posts: A General Certification from approved manufacturer. Document supplier and quantity used on IDR.

OR

Shipment of Tested Stock Report, Form 1922, from approved source.

OR

Test prior to incorporation. One test per charge. Max. VI 25 posts.

NOTE: All post must be treated except round Northern White Cedar. General Certification document required for Northern White Cedar in lieu of approved manufacturer.

- Fabric Fittings and Hardware: VI - Document source on IDR.
- Barbed Wire: **VI along with BUY AMERICA statement required. Document source on IDR.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

8080001 Cont.

- Inspector's Daily Report: IDR should show measurements, locations, materials used.

8080002 Fence, Woven Wire with Steel Posts**MATERIALS**

| | |
|----------|--|
| Pay Unit | Foot |
| Material | Woven Wire Fabric, Steel Posts, Fabric Fastening and Fittings, Barbed Wire |

ACCEPTANCE TESTING REQUIREMENTS

- Woven Wire Fabric: **VI along with BUY AMERICA statement required. Document source on IDR.
- Steel Line Posts: VI.
- Steel End Posts: VI.
- Fabric Fastenings and Fittings: VI. Document supplier on IDR.
- Barbed Wire: **VI along with BUY AMERICA statement required. Document source on IDR.

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, locations, materials used.

8100155 & 8100156

Post, Steel, __ lb

MATERIALS

| | |
|----------|------------|
| Pay Unit | Foot |
| Material | Steel post |

ACCEPTANCE TESTING REQUIREMENTS

- Steel Post: **A Test Data Certification. Max. VI 20 posts

****NOTE: BUY AMERICA statement required on steel certification.**

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, locations, materials used.

8100175 - 8100190

Sign, Type ___

MATERIALS

| | |
|----------|---|
| Pay Unit | Square Foot |
| Material | Reflective Sheeting, Extruded Aluminum Planks, Aluminum Sheeting, Plywood, Hardware |

ACCEPTANCE TESTING REQUIREMENTS

- Reflective Sheeting: Qualified Products List (919.02B1).
- Extruded Planks: Shipment of Tested Stock Report, Form 1922,.
- Aluminum Sheets: Shipment of Tested Stock Report, Form 1922, per CIM 1997-B. Max. VI 100 square feet.
- Plywood: A General Certification - grade mark on material serves as certification. Document supplier and quantity used on IDR.
- Hardware: A General Certification.

OR

Identifying marks on item. Document marks and quantity used on IDR.

CONSTRUCTION

- Inspector’s Daily used.
Report: IDR should show measurements, quantities, locations, materials used.
Comments about conditions of signs should be noted on IDR.
- Final Fabrication Inspection: To be completed after erection of sign. Copy of report required in project files.

8110005 - 8110133**Pavement Markings****MATERIALS**

| | |
|-----------|--|
| Pay Unit | Foot & Each |
| Materials | Waterborne, Regular Dry, Epoxy, Thermoplastic, Sprayable Thermoplastic, Polyurea, Cold Plastic, Glass Beads |

ACCEPTANCE TESTING REQUIREMENTS

- Waterborne: Qualified Product List (811.0D1). Document supplier, product identification number, quantity and that label was checked and verified on IDR.
- Regular Dry: Qualified Product List (811.0D2). Document supplier, product identification number, quantity and that label was checked and verified on IDR.
- Epoxy: Qualified Product List (811.0D3). Document supplier, product identification number, quantity and that label was checked and verified on IDR.
- Polyurea: Qualified Product List (811.0D3). Document supplier, product identification number, quantity and that label was checked and verified on IDR.
- Glass Beads: A General Certification. Max. VI 500 pounds.
- Thermoplastic: Qualified Products List (811.03D4). Document supplier, product code and quantity used on IDR.
- Sprayable Thermoplastic: Qualified Products List (811.03D6). Document supplier, product code and quantity used on IDR.
- Cold Plastic: Qualified Products List (811.03D5): Document supplier, product code and quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show, measurements, quantities, locations, product manufacturer, product name used. Note that label was checked and verified.

8120015 - 8120018**Conc Barrier, Temp, __****MATERIALS**

| | |
|----------|------|
| Pay Unit | Foot |
|----------|------|

ACCEPTANCE TESTING REQUIREMENTS

- **MTM 716 series:** Requires the contractor to provide a Test Data Certification for the number of barriers placed on the job. The contractor is responsible for all dimensional verification and any pull testing required. When pull testing is conducted the test results must be attached. The project staff is required to visually inspect the barriers placed and to measure the snug tight distance between barriers. If any loops look suspicious contact district C&T to pull the loops. Refer to CA 2007-01 for more documentation. VI. Document inspection and quantity used on IDR. Note receipt of a Test Data Certification.
- **JJ Hooks:** A General Certification from contractor.

CONSTRUCTION

- **Inspector's Daily Report:** IDR should show quantities, locations.
- **Visual Inspection:** Field Inspection document required on IDR. No spalling or cracking in place barrier sections. Snug tight distance between barriers.

8120025**Dust Pallative, Applied****MATERIALS**

| | |
|----------|---|
| Pay Unit | Ton |
| Material | Calcium Chloride Solids, Calcium Chloride Solutions |

ACCEPTANCE TESTING REQUIREMENTS

- Calcium Chloride Solutions: VI and Test Data Certification. One test per project. *Load ticket required if paying by Ton. Max. VI 1000 gallons.
- Calcium Chloride Solids: VI and Test Data Certification. One test per project. *Load ticket required if paying by Ton. Max. VI 5,000 pounds.

*NOTE: If paying by Ton immediate possession of delivery tickets are required.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, computations, materials used.

8120060 - 8120071 Raised Pavt Mrk, Temp, Type __, (color), (direction)

MATERIALS

| | |
|-----------|-----------------------------|
| Pay Unit: | Each |
| Material: | Temp Raised Pavement Marker |

ACCEPTANCE TESTING REQUIREMENTS

- Temp Raised Pavement Marker: Qualified Products List (922.04B). Document supplier and quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, locations, materials used.

8120080 - 8120091**Pavt Mrk, Type R and Pavt Mrk, Type NR****MATERIALS**

| | |
|----------|--|
| Pay Unit | Foot |
| Material | Temp Pavement Marking Tape, Temp Pavement Marking Paint, Glass Beads |

ACCEPTANCE TESTING REQUIREMENTS

- Temp Pavement Marking Tape: Qualified Products List (922.04A). Document supplier, product identification number, quantity and that label was checked and verified on IDR.
- Temp Pavement Marking Paint: Qualified Products List (922.04A). Document supplier, product identification number, quantity and that label was checked and verified on IDR.
- Glass Beads: A General Certification. Max. VI 500 pounds.

CONSTRUCTION

- Inspector's Daily Report: IDR should show, measurements, quantities, locations, product manufacturer, product name used. Note that label was checked and verified.

8130001 - 8130012**RIPRAP****MATERIALS**

| | |
|-----------|--------------------------------|
| Pay Unit | Square Yard, Cubic Yard or Ton |
| Materials | Stone, Geosynthetics |

ACCEPTANCE TESTING REQUIREMENTS

- Geosynthetics: A Test Data Certification. First sample 1200 Syd, additional every 5,000 Syd - Plain Riprap. First sample 1200 Syd, additional every 4,000 Syd - Heavy Riprap. Max. VI - 360 square yards.
- Stone: VI - Check special provision. Load tickets are required if paying by Ton. Document quantity used on IDR.

NOTE: If paying by ton immediate possession of delivery tickets are required

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, quantities, and locations.

8160020 - 8160022 Fertilizer, Chemical Nutrient, CI __

MATERIALS

| | |
|----------|------------------------------------|
| Pay Unit | Pound |
| Material | Chemical Fertilizer for Grass Seed |

ACCEPTANCE TESTING REQUIREMENTS

- Fertilizer: VI. Provide the bag label, showing the guaranteed analysis.

NOTE: The requirements are for pounds of nutrient (must be calculated) - not total pounds of fertilizer. See subsection 816.04.C or per special provision.

CONSTRUCTION

Inspector's Daily IDR should show measurements, quantities, locations,
Report: of areas to be fertilized

NOTE: Computations must be shown on IDR using rates of application as shown in the spec book or proposal.

8160026

Mulch Anchoring

MATERIALS

| | |
|----------|--------------------------|
| Pay Unit | Square Yard/Each |
| Material | Mulch Anchoring Material |

ACCEPTANCE TESTING REQUIREMENTS

- Mulch Anchoring Material: Qualified Products List (917.15C5). Document supplier and quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, computations, quantities, locations, materials used.

8160027**Mulch Blanket****MATERIALS**

| | |
|-----------|---|
| Pay Unit | Square Yard |
| Materials | Mulch Blanket, High Velocity Mulch Blankets |

ACCEPTANCE TESTING REQUIREMENTS

- Mulch Blankets: Qualified Products List (917.15B2). Document supplier and quantity used on IDR.
- High Velocity Mulch Blankets: Qualified Products List (917.15B1). Document supplier and quantity used on IDR.
- Pegs: VI - Document supplier and Quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Reports: IDR should show measurements, computations, quantities, locations, materials used.

8160035 - 8160045**Seeding, Mixture __****MATERIALS**

| | |
|----------|--------------|
| Pay Unit | Pound |
| Material | Seed Mixture |

ACCEPTANCE TESTING REQUIREMENTS

- Seed and/or Mixture: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One per lot per shipment. Allow 30+ days for testing after receipt of sample. Max. VI 100 pounds.

- Seed Varieties: Qualified Product List (917.12). Document supplier and quantity used on IDR.

CONSTRUCTION

- Inspector's Daily Report: Collect all seed tickets to verify application rate and pounds for payment. Place one ticket in file for documentation. IDR should show measurements, quantities, locations, of areas to be seeded.

Computations must be shown on IDR using rates of application as shown in the spec book or proposal.

8160050**Slope Restoration****MATERIALS**

| | |
|----------|--|
| Pay Unit | Square Yard |
| Material | Seed Mixture, Fertilizer, Mulch Blanket, High Velocity Mulch Blanket, Sodding, Mulch Anchoring, Top soil |

ACCEPTANCE TESTING REQUIREMENTS

- Seed and/or Mixture: A General Certification from approved manufacturer.

OR

Test prior to incorporation. One per lot per shipment. Allow 30+ days for testing after receipt of sample. Max. VI 100 pounds.

- Seed Varieties: Qualified Product List (917.12). Document supplier and quantity used on IDR.
- Fertilizer: VI. Provide the bag label, showing the guaranteed analysis.
- Sod: VI.
- Pegs for Sodding: VI.
- Mulch Blankets: Qualified Products List (917.15B2).
- High Velocity Mulch Blankets: Qualified Products List (917.15B1). Document supplier and quantity used on IDR.
- Mulch Anchoring Material: Qualified Products List (917.15C5). Document supplier and quantity used on IDR.
- Herbicides: A Test Data Certification.
- Top Soil: VI. Per section 917.07 of the Standard Specification for Construction.

CONSTRUCTION

- Inspector's Daily Report: Collect all seed tickets to verify application rate and lbs for payment. Place one ticket in file for documentation. IDR should show measurements, quantities, locations, of areas to be seeded.

Computations must be shown on IDR using rates of application as shown in the spec book or proposal.

8160055**Sodding****MATERIALS**

| | |
|-----------|-------------|
| Pay Unit | Square Yard |
| Materials | Sod, Pegs |

ACCEPTANCE TESTING CRITERIA

- Sod: VI. Document supplier and quantity placed on IDR.
- Pegs: VI. Document on IDR.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, quantities, locations, type of sod, materials used.

8190330 - 8190370

Luminaire

MATERIALS

| | |
|----------|-----------|
| Pay Unit | Each |
| Material | Luminaire |

ACCEPTANCE TESTING REQUIREMENTS

- Luminaire: A General Certification and approval from the maintaining agency.

CONSTRUCTION

- Inspector's Daily Report: IDR should show quantities, locations, materials used.

8250130 - 8250231**Water Main****MATERIALS**

| | |
|----------|--|
| Pay Unit | Foot, Each |
| Material | Granular CI III, Granular CI IIIA, Ductile Iron Pipe |

ACCEPTANCE TESTING REQUIREMENTS

- Granular Material Delivery Tickets: One ticket per load containing: Pit name, MDOT assigned number, Net weight/Volume Type of material, Control section/Job Number, Date, Signature of pit representative, Certification Statement from certified pits.

AND

- Granular Material Mechanical Analysis: Test prior to incorporation. CI III one test per 10,000 cubic yards. Max. VI 500 cubic yards. CI IIIA one test per 1,000 cubic yards. Max. VI 100 cubic yards.

See Material Quality Assurance Procedures Manual section C-6, Part 7 for reduced testing requirements if material is from a pre-qualified supplier.

- Ductile Iron Pipe: **A General Certification. Max. VI 250 feet.

****NOTE: BUY AMERICA statement required on steel certification.**

INDEPENDENT ASSURANCE TESTING (I.A.T.) REQUIREMENTS

See Notes page for IAT requirements.

CONSTRUCTION

- Inspector's Daily Report: IDR should show measurements, locations, materials used. Check in special provisions in the proposal if any chlorination and pressure test is need and document on IDR.
- Density: Refer to subsection 401.03.F Backfilling in the standard Specifications. One test per layer not more than 10 inches thick of backfill. Specification requires each lift to meet 95 % density requirements.

Send density report to the Area Density Supervisor and Radiation Safety Officer (RSO) in a timely manner.