

MISSOULA COUNTY OFFICE OF PUBLIC WORKS ENGINEERING POLICY

Adopted August 01, 2002

TESTS & SPECIFICATIONS FOR INFRASTRUCTURE IMPROVEMENTS

In order to better document the inspection and certification of public infrastructure improvements, the Office of Public Works Engineering Division shall require the following information for all projects approved for construction. This documentation shall be required prior to final acceptance of sanitary sewer, storm water management systems, water lines, utilities, Portland cement concrete, and bituminous pavement improvements within the County right of way easements.

THE FOLLOWING DOCUMENTATION SHALL BE REQUIRED ON ALL PROJECTS APPROVED BY THE OFFICE OF PUBLIC WORKS ENGINEERING DIVISION:

- 1 The Engineer shall submit a letter to the Office of Public Works certifying that the public improvements (ie: sanitary sewer, water lines, storm water management systems, utilities and streets) were installed in accordance with the approved plans and specifications. The required as-built drawings shall be 24 x 36 inches with one digital copy.
- 2 The Engineer shall submit all dates of acceptance tests for sanitary sewer, water lines, utilities and storm water management systems required for all public sewer mains, water lines, utilities and storm water management systems within County right of way.
- 3 The Engineer shall furnish documentation of tests in accordance with methods prescribed by AASHTO for theoretical maximum density, optimum moisture content, and sieve analysis for the surfacing/cushion material, the imported base material, and excavation backfill material within the County right of way. The existing base/sub base material within the right of way shall be field density tested until the material no longer responds to compactive efforts. This information shall be required for all public sewer mains, water lines, storm water management systems, utilities and street construction.
- 4 The Engineer shall furnish documentation of in place field density tests. In place density tests for trenches and embankments shall, as a minimum, be required for the first lift of backfill to set a pattern of compaction, and shall be provided daily, and as backfill material changes. In place density tests for roadways shall, as a minimum, be required at intervals of 200 feet. Tests for roadways shall be provided for sub grade, base, and cushion materials. A minimum of the top 6 inches of sub grade which are to be paved or covered with sidewalk, curb and gutter shall be field density tested until the material no longer responds to compactive efforts. All trench backfill material in improved areas and all embankments shall be compacted for the full depth and shall be compacted to 95% of the maximum dry density as determined by AASHTO-T-99. This information shall be required for all public sewer mains, water lines, storm water management systems, utilities and street construction within County right of way.

5. The Engineer shall furnish a dated job mix formula for hot plant mix B bituminous pavement which conforms to the procedures of the Asphalt Institute's MS-2 manual. The job mix formula shall be no older than one year, and shall have the same aggregate and asphalt sources and grades as the mix used for public improvements. The Engineer shall furnish certified results of a Marshall Test showing the bulk specific gravity determination, stability and flow data, and density and void analysis. The Engineer shall furnish a minimum of one "field Marshall Test" per 1000 feet of roadway to check for variations from the job mix formula. In addition, test results of ASTM D 1075 for the effect of water on cohesion of compacted bituminous material shall be provided by the Engineer. This information shall be required for all public streets within County right of way.

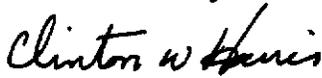
6. The Engineer shall furnish asphalt core samples for bituminous pavement in the public right of way. One core sample shall be required for every 400 feet of road with a minimum of two samples per project. The Engineer shall provide a certified laboratory report from the samples taken as to thickness and actual density. This information shall be required for all public streets within County right of way.

The Engineer shall furnish Portland cement concrete tests for concrete placed in the public right of way and concrete incorporated into public infrastructure improvements. One set of tests taken by an approved ACI certified concrete technician shall be required for every 50 cubic yards of concrete placed with a minimum of one set of tests per project. The concrete shall be sampled, specimens made, and compliance determined in accordance with the following:

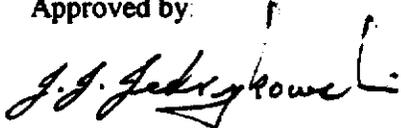
Sampling Fresh Concrete	ASTM C-172
Slump	ASTM C-143 or AASHTO T119
Air Content	ASTM C-231 or C-173 or C-138 or AASHTO T152
Compressive Strength	ASTM C-39 or AASHTO T22
Making and Curing Test Specimens in the Field	ASTM C-31 or AASHTO T23

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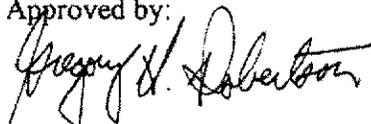
Recommended by:


 Clinton W. Harris
 Engineering Tech III

Approved by:


 Joe Jedrykowski, P.E.
 County Engineer

Approved by:


 Gregory H. Robertson, P.E., AICP
 Director of Public Works