February 3, 2011

REVISION OF SECTION 203

IMPORTED MATERIAL FOR EMBANKMENT

**NOTICE**

This is a standard special provision that revises or modifies CDOT’s *Standard Specifications for Road and Bridge Construction* It has gone through a formal review and approval process and has been issued by CDOT’s Project Development Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by CDOT’s Standards and Specifications Unit. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use in projects that have imported material as embankment for pipes.

Section 203 of the Standard Specifications is hereby revised for this project as follows:

Subsection 203.03 (a) shall include the following:

Imported Material used for backfilling pipes (storm sewer, cross culverts, side drains, etc) shall be tested for compatibility with the selected pipe material.

When Nonreinforced Concrete Pipe or Reinforced Concrete Pipe is used, the imported material shall be tested for sulfate and pH

When Corrugated Steel Pipe, Bituminous Coated Corrugated Steel Pipe or Precoated Corrugated Steel Pipe is used, the imported material shall be tested for sulfates, chlorides, pH and resistivity.

When Aramid Fiber Bonded Corrugated Steel Pipe or Corrugated Aluminum Pipe is used, the imported material shall be tested for pH and resistivity.

When Plastic pipe is selected, the imported material does not need to be tested for sulfates, chlorides, pH and resistivity.

Sulfates, chlorides, pH and resistivity shall be determined by the following procedures:

1. Water soluble sulfates using CP-L 2103 Method B.
2. Chlorides using CPL 2104
3. Resistivity using ASTM G57
4. pH using ASTM G51.

The average of three consecutive tests shall show the imported material’s sulfate, chloride, pH and resistivity is not greater than the limits corresponding to the Pipe Class in Table 203-1 or 203-2 for the pipe class specified on the plans. No single test shall have a result more than 20 percent greater than that corresponding to the limit in Table 203-1 or Table 203-2 for sulfates, chlorides and resistivity. No single test shall have a result more than 5 percent outside the limit in Table 203-1 for pH. The remaining sample material from a single failing test shall be split into three equal portions. CDOT shall receive one portion, the Contractor shall receive one portion and the remaining portion shall be retained by the Project. CDOT and the Contractor’s Lab shall retest the failed sample; if the results from those tests are within 10 percent of each other, the results will be averaged. The averaged result will be used for Contract compliance. If the results from the Labs are not within 10 percent of each other, the remaining sample portion will be sent to an independent laboratory for testing using the testing requirements specified above. The independent laboratory will be mutually agreed upon by the Department and the Contractor. The Independent Lab’s test result will be used for Contract compliance.

If the imported material’s sulfates, chlorides, and resistivity are less than the limits and the pH is within the limits in Table 203-1 or 203-2, CDOT will bear all costs associated with the independent lab test. If the imported material’s sulfates, chlorides, and resistivity is greater than the limits and the pH is outside the limits in Table 203-1 or 203-2,, all costs associated with independent lab testing shall be at the Contractor’s expense.

Embankment represented by failing tests shall be removed from the project and replaced at the Contractor’s expense.

**Table 203-1**

**SULFATE, CHLORIDE AND PH OF IMPORTED MATERIAL**

|  |  |
| --- | --- |
|  | **SOIL** |
| Pipe Class | Sulfate | Chloride |  |
| (SO4) | (Cl) | pH |
| % max | % max |  |
| 0 , 7 | 0.05 | 0.05 | 6.0-8.5 |
| 1, 7 | 0.10 | 0.10 | 6.0-8.5 |
| 2, 8 | 0.20 | 0.20 | 6.0-8.5 |
| 3, 9 | 0.50 | 0.50 | 6.0-8.5 |
| 4, 9 | 1.00 | 1.00 | 5.0-9.0 |
| 5, 10 | 2.00 | 2.00 | 5.0-9.0 |
| 6, 10 | >2.00 | >2.00 | <5 or >9 |

**Table 203-2**

**RESISTIVITY AND PH OF IMPORTED MATERIAL**

|  |
| --- |
| **SOIL SIDE** |
| Resistivity, R (Ohm – cm) |  |
| pH |
|  |
| ≥1,500 | 5.0-9.0 |
| ≥250 | 3.0-12.0 |