

## SECTION S203 - EXCAVATION AND EMBANKMENT

### S203 GENERAL

References to NYSDOT specifications are to be in accordance with latest edition of *NYSDOT Standard Specifications (US Customary Units)*.

Work is to be in accordance with requirements of NYSDOT Sections 203 Excavation and Embankment and 204 Controlled Low Strength Material (CLSM), with following modifications:

### S203-1 DESCRIPTION

Under NYSDOT Section 203-1.01 Definitions, **DELETE** Subsection 203-1.01A Unclassified Excavation in its entirety and **REPLACE** with following:

**A. Unclassified Excavation.** Estimated limits and descriptions of subsurface deposits, formations and facilities which may be shown on plans, are supplied in accordance with Paragraph 5.2.1, Article 5 Availability of Lands; Physical Conditions; Reference Points of General Terms and Conditions of City of Rochester Standard Construction Contract Documents.

Under NYSDOT Section 203-1.01 Definitions, **ADD** following:

**Q. Rock Excavation.** Rock excavation consists of boulders exceeding 1/2 cubic yard in volume; and ledge rock which cannot in opinion of Project Manager, be removed without blasting or use of pneumatic hammers. Concrete pavements and pavement foundations, and sewers and their appurtenances will not be considered rock. Rock excavation for trenches or test pits will be included in Section R206 Trench and Culvert Excavation.

**R. Backfill - Recycled or Reclaimed Materials.** Pulverized or recycled concrete aggregate and brick are unacceptable for use as backfill material.

### S203-2 MATERIALS

At end of NYSDOT Section 203-2 Materials, **ADD** following:

#### S203-2.15 Backfill - General

Recycled materials, pulverized or recycled portland cement concrete aggregate (RCA) and brick, reclaimed asphalt pavement (RAP), and Corian® are unacceptable for use as backfill or bedding materials, unless specifically authorized in writing by City Engineer.

#### S203-2.16 Select Granular Backfill (Sewer/Water) - General

Select granular backfill (sewer/water) materials are to consist of sand and gravel, approved blast furnace slag, or stone, and are to be well graded from coarse to fine, and free from organic or other deleterious material.

Materials will be accepted on basis of Magnesium Sulfate Soundness Loss after 4 cycles of 20 percent or less. Plasticity index of material passing number 40 Screen is not to exceed 5.0.

Not more than 30 percent by weight of particles retained on 1/2 inch screen are to consist of flat or elongated particles. Flat or elongated particles are defined as one which has as its greatest dimension more than three times its least dimension. Acceptance for this requirement will normally be based on visual inspection by Project Manager. When City elects to test for this requirement, material which has percentage greater than allowable 30 percent will be rejected.

Materials are to meet specified gradation prior to placement, with processing completed at plant.

### S203-2.17 Stone Bedding

Stone bedding material is to be crushed stone primary size type 1, or mixture of primary sizes type 1 and type 2, washed, in accordance with requirements of NYSDOT Material Section 703-02 Coarse Aggregate, material designation 703-0201.

### S203-2.18 Sand

Sand material is to consist of clean, hard, durable, uncoated particles, free from lumps of clay and other deleterious substances. When dry, sand material is to be in accordance with following gradation requirements:

Screen Size	Percent Passing by Weight
1/4 inch	100%
#50	5 to 35%
#100	0 to 10%

Sand material is to have minimum resistivity of 15,000 Ohm-cm, and maximum chloride ion concentration of 50 parts per million (ppm). Sand material may be determined to be unacceptable if it contains loam or silt in excess of 10 percent of total volume.

### S203-2.19 Select Granular Backfill (Sewer)

Select granular backfill (sewer) material is to be used for backfilling of trenches and excavations for catch basin, lateral pipe and other sewer related work. Select granular backfill (sewer) material is to be in accordance with following gradation requirements:

Screen Size	Percent Passing by Weight
2 inch	100%
1/4 inch	30 to 65%
#40	5 to 40%
#200	0 to 10%

### S203-2.20 Select Granular Backfill (Water)

Select granular backfill (water) material is to be used for backfilling of trenches and excavations for water related work. Select granular backfill (water) material is to be in accordance with following gradation requirements:

Screen Size	Percent Passing by Weight
3 inch	100%
2 inch	90 to 100%
1/4 inch	30 to 65%
#40	5 to 40%
#200	0 to 10%

### S203-2.21 Controlled Low Strength Material (CLSM)

Material and testing requirements for CLSM is to be in accordance with NYSDOT Section 204 Flowable Fill.

CLSM provided for use in backfilling around Water facilities, is to have a compressive strength of 50 to 100 pounds per square inch, and must not contain fly ash or other pozzolan containing materials.

### **S203-3 CONSTRUCTION DETAILS**

Under NYSDOT Subsection 203-3.01B Scheduling of Work to Minimize Soil Erosion and Water Pollution, **ADD** following:

Work is to be progressed in such manner that exposed, unprotected surface area of any earth material that is subject to erosion by wind or water, will not exceed total of 10,000 square feet at any given time. Work progression includes any special soil erosion, water and air pollution measures required in Supplementary Conditions.

Under NYSDOT Subsection 203-3.02B Disposal of Surplus Excavated Materials, **ADD** following:

Surplus excavated materials that are to be disposed of are not to be stockpiled on Project site. Surplus excavated materials are to be disposed of off-site within 24 hours.

At end of NYSDOT Section 203-3 Construction Details, **ADD** following:

#### **S203-3.15 Select Granular Backfill, Stone Bedding, and Sand**

Select granular backfill, stone bedding, and sand materials are to be placed as required in Contract Documents. Compaction is to be in accordance with requirements of NYSDOT Subsection 203-3 Construction Details.

#### **S203-3.16 Controlled Low Strength Material (CLSM)**

Construction details for CLSM is to be in accordance with NYSDOT Section 204 Flowable Fill.

CLSM may only be used on case by case basis, and when specifically authorized in writing by City Engineer.

Where water main pipe crosses sewer pipe and has less than minimum separation requirements either horizontally or vertically, all of joints of water main pipe located within 10 feet of sewer pipe are to be encased with CLSM. CLSM encasement is to be placed to minimum thickness of 6 inches around water main pipe for minimum length of 2 feet as centered on joint of water main pipe.

### **S203-4 METHOD OF MEASUREMENT**

At end of NYSDOT Section 203-4 Method of Measurement, **ADD** following:

#### **S203-4.15 Rock Excavation**

Quantity to be measured for payment will be number of cubic yards of rock excavated, as computed in original position and to payment lines as specified in Contract Documents.

#### **S203-4.16 Stone Bedding, Sand and Select Granular Backfill (Sewer/Water)**

Quantity to be measured for payment will be number of cubic yards of material satisfactorily placed and compacted, as measured in completed work within payment lines specified in Contract Documents, less measured volume for pipes that exceed 12 inches in diameter as based on nominal diameter, and for all catch basin and manhole structures.

No additional quantity will be measured for payment to make up losses due to foundation settlement, compaction, erosion or any other cause.

**S203-4.17 Controlled Low Strength Material (CLSM)**

Quantity to be measured for payment will be number of cubic yards of material satisfactorily placed, as measured in completed work within payment lines specified in Contract Documents or from payment lines established in writing by Project Manager, less measured volume for pipes that exceed 12 inches in diameter as based on nominal diameter, and for all other payment items when combined cross-sectional area exceeds 144 square inches, unless otherwise shown in Contract Documents. No deduction will be made for cross-sectional area of an existing facility.

No additional quantity will be measured for payment to make up losses due to foundation settlement, compaction, erosion or any other cause.

Cross sectioning, for purpose of determining quantities for payment, will be employed only where payment lines are not shown in Contract Documents, and cannot be reasonably established by Project Manager.

**S203-5 BASIS OF PAYMENT**

At end of NYSDOT Section 203-5 Basis of Payment, **ADD** following:

**S203-5.15 Rock Excavation**

Unit price bid includes cost of: excavation; disposal of excavated material; blasting; and furnishing all labor, material and equipment necessary to complete work.

**S203-5.16 Stone Bedding, Sand and Select Granular Backfill (Sewer/Water)**

Unit price bid includes cost of: furnishing, placing and compacting material; and furnishing all labor, material and equipment necessary to complete work.

**S203-5.17 Controlled Low Strength Material (CLSM)**

Unit price bid includes cost of: furnishing and placing material; and furnishing all labor, material and equipment necessary to complete work.

Payment will be made under:

<b>ITEM NO.</b>	<b>ITEM</b>	<b>PAY UNIT</b>
S203.22	Rock Excavation and Disposal	Cubic Yard
S203.25	Stone Bedding	Cubic Yard
S203.26	Sand	Cubic Yard
S203.28	Select Granular Backfill (Sewer)	Cubic Yard
S203.29	Select Granular Backfill (Water)	Cubic Yard
S203.35	Controlled Low Strength Fill Material	Cubic Yard
S203.36	Controlled Low Strength Fill Material (no Fly Ash)	Cubic Yard

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