

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 31 05 16 - Aggregate Materials.
- .2 Section 31 23 33.01 - Excavating, Trenching and Backfilling.
- .3 Section 31 32 19.01 - Geotextiles.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C 117-04, Standard Test Method for Material Finer Than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C 136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D 422-63(2007), Standard Test Method for Particle-Size Analysis of Soils.
 - .4 ASTM D 4318-10, Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
 - .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for New Construction and Major Renovations 2009.
 - .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
 - .4 CSA International
 - .1 CAN/CSA-B1800-11, Thermoplastic Non-Pressure Piping Compendium. (Consists of B181.1, B181.2, B181.3, B181.5, B182.1, B182.2, B182.4, B182.6, B182.7, B182.8 and B182.11).
 - .1 CAN/CSA-B182.2-11, PVC Sewer Pipe and Fittings (PSM Type).
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- 1.3 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for drainage field materials and include product characteristics, performance criteria, physical size, finish and limitations.
 - .3 Samples:
 - .1 Submit 20 kg sample of each granular materials 4 weeks minimum before beginning Work.
 - .4 Certificates:
 - .1 Submit copy of certification or licence of approved installers.
 - .5 Test Reports:
 - .1 Submit 2 certified copies of factory tests of pipe material.
 - .6 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
 - .2 Construction Waste Management:
 - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
 - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
 - .3 Recycled Content:
 - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.
 - .4 Regional Materials: submit evidence that project incorporates required percentage 20% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.
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- 1.3 ACTION AND INFORMATIONAL SUBMITTALS (Cont'd)
- .6 Sustainable Design Submittals:(Cont'd)
 - .5 Erosion and Sedimentation Control: submit copy of erosion and sedimentation control plan in accordance with authorities having jurisdiction and Section 01 35 21 - LEED Requirements.
- 1.4 QUALITY ASSURANCE
- .1 Use certified, licensed installers who comply with local authority having jurisdiction.
- 1.5 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .3 Storage and Handling Requirements:
 - .1 Store materials and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect drainage field materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
 - .4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.
 - .5 Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
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PART 2 - PRODUCTS

- 2.1 GRANULAR MATERIALS .1 Granular material in accordance with Section 31 05 16 - Aggregate Materials and to requirements as follows:
- .1 Pit run crushed or screened stone, gravel or sand.
 - .2 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.2.
 - .3 Table

Sieve Designation	% Passing	
	Sand	Stone
200 mm	-	-
75 mm	-	-
50 mm	-	-
38.1 mm	-	-
25 mm	-	80-100
19 mm	-	0-5
12.5 mm	100	-
9.5 mm	-	-
4.75 mm	80-100	-
2.00 mm	50-90	-
0.425 mm	10-50	-
0.180 mm	-	-
0.075 mm	0-5	-

- 2.2 IMPERVIOUS MATERIAL .1 Material Plasticity Index not less than 15% as measured to ASTM D 4318.
- .2 Material to have minimum of 50% of particles finer than 0.075 mm as measured to ASTM D 422.

- 2.3 IMPORTED FILTER MATERIAL .1 Sand conforming to requirements of local authority having jurisdiction.

- 2.4 GEOTEXTILE COVER .1 Geotextile cover: to Section 31 32 19.01 - Geotextiles.
 - .1 UV resistant polyolefin fabric.
 - .2 As indicated.

- 2.5 PIPE FOR DISPOSAL FIELDS .1 Straight PVC pipe and fittings to CAN/CSA-B182.2, perforated or unperforated as indicated.

- 2.6 DISTRIBUTION BOX .1 Concrete: as indicated and to Section 33 36 00 - Utility Septic Tanks.

PART 3 - EXECUTION

- 3.1 EXAMINATION .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for drainage field installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

 - 3.2 TRENCH TYPE DISPOSAL FIELD INSTALLATION .1 Excavate to lines and depths as indicated and in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.
 - .2 Scarify trench base and walls under dry conditions.
 - .3 Operate construction equipment across disposal only after receipt of written approval from Departmental Representative.
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- 3.2 TRENCH TYPE DISPOSAL FIELD INSTALLATION
(Cont'd)
- .4 Place 150 mm minimum stone material in trench bottom.
 - .5 Install distribution box between septic tank and absorption trenches. Installation to be water-tight construction.
 - .6 Set distribution box level as indicated.
 - .1 Provide access with removable cover for inspection of distribution box.
 - .7 Connect lengths and place distribution pipe on stone material as indicated and cover with 50 mm minimum of stone material.
 - .8 Place geotextile over stone as indicated.
 - .9 Connect each distribution pipe individually to distribution box.
 - .10 Cap free ends of distribution lines.
 - .11 Maintain pipe elevations within 5 mm of inverts indicated.
 - .12 Do not backfill trenches until pipe grade and alignment have been approved by Departmental Representative and authority having jurisdiction.
 - .13 Backfill trenching with material as indicated.
 - .1 Use only material approved in writing by Departmental Representative to backfill.
 - .2 Do not compact.
 - .3 Overfill to allow for settlement.
- 3.3 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
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3.3 CLEANING
(Cont'd)

- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.