

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 32 19.01 - Geotextiles.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C 144-11, Standard Specification for Aggregate for Masonry Mortar.
 - .2 ASTM C 618-02, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
- .2 Canadian Standards Association (CSA)
 - .1 CSA A231.1-09/A23.2-09, Concrete Materials and Methods of Concrete Construction.
 - .2 CSA-A3000-03, Cementitious Materials Compendium.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .2 Collect and separate plastic paper packaging and corrugated cardboard in accordance with Waste Management Plan.
 - .3 Place materials defined as hazardous or toxic in designated containers.
 - .4 Fold up metal banding, flatten and place in designated area for recycling.
 - .5 Divert left over aggregate materials from landfill as directed by Departmental Representative.
 - .6 Divert left over hardened cement materials from landfill as directed by Departmental Representative.
 - .7 Divert left over geotextiles as directed by Departmental Representative.
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PART 2 - PRODUCTS

2.1 STONE

- .1 Hard, with relative density (formally specific gravity) not less than 2.65, durable quarry stone, free from seams, cracks or other structural defects, to meet following size distribution for use intended:
 - .1 Armour rip-rap:
 - .1 Not more than 10% of total volume of stones with individual volume less than 30 dm³.
 - .2 Not less than 50% of total volume of stones with individual volume of 225 dm³ or more.
 - .3 Remaining percentage of total volume to have uniform distribution of stones between 30 and 225 dm³ size.
 - .2 Heavy rip-rap:
 - .1 Not more than 10% of total volume of stones with individual volume less than 30 dm³.
 - .2 Not less than 50% of total volume of stones with individual volume of 140 dm³ or more.
 - .3 Remaining percentage of total volume to have uniform distribution of stones between 30 and 140 dm³ size.
 - .3 Random rip-rap:
 - .1 Not more than 10% of total volume of stones with individual volume less than 15 dm³.
 - .2 Not less than 50% of total volume of stones with individual volume of 85 dm³ or more.
 - .3 Remaining percentage of total volume to have uniform distribution of stones between 15 and 85 dm³ size.
 - .4 Hand placed rip-rap:
 - .1 Minimum size of individual stones 10 dm³.
 - .2 Not less than 75% of total volume of stones with individual volume of 25 dm³ or more.
 - .3 Supply rock spalls or cobbles to fill open joints.

2.2 CEMENT MORTAR

- .1 Cement: to CAN/CSA-A3000, type 10.
 - .2 Sand for mortar: to ASTM C 144.
 - .3 Mortar mix: 1 part by volume of cement to 3 parts sand, to consistency approved by Departmental Representative.
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2.3 GEOTEXTILE FILTER

- .1 Geotextile: in accordance with Section 31 32 19.01 - Geotextiles.

PART 3 - EXECUTION

3.1 PLACING

- .1 Where rip-rap is to be placed on slopes, excavate trench at toe of slope to dimensions as indicated.
- .2 Fine grade area to be rip-rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .3 Place geotextile on prepared surface in accordance with Section 31 32 19.01 - Geotextiles and as indicated. Avoid puncturing geotextile. Vehicular traffic over geotextile not permitted.
- .4 Place rip-rap to thickness and details as indicated.
- .5 Place stones in manner approved by Departmental Representative to secure surface and create a stable mass. Place larger stones at bottom of slopes.
- .6 Hand placing:
 - .1 Use larger stones for lower courses and as headers for subsequent courses.
 - .2 Stagger vertical joints and fill voids with rock spalls or cobbles.
 - .3 Finish surface evenly, free of large openings and neat in appearance.
- .7 Mortar:
 - .1 Use mortar within one hour after water has been added. Do not add additional water after initial mixing.
 - .2 Begin applying mortar at bottom courses above water line and work upwards completely filling voids except for sub drainage relief holes as indicated, and leaving outer faces of stones exposed. Remove excess mortar to expose faces of stones as indicated.
 - .3 Cure and protect mortar in accordance with CAN/CSA-A23.1 by using absorptive mats keeping fabric continuously wet.