

## PART 1-GENERAL

### 1.1 RELATED REQUIREMENTS

- .1 Section 31 14 11 Earthwork & Related Work.
- .2 Section 31 22 16.14 Trail Corridor Reshaping.

### 1.2 REFERENCES

- .1 U.S. Environmental Protection Agency (EPA)/Office of Water  
.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

### 1.3 DEFINITIONS

- .1 Clearing isolated trees -min 50 mm Dia. - max. 100mm Dia. consists of cutting off to ground of designated trees, and random placement to ground of felled trees and debris.

### 1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

### 1.5 QUALITY ASSURANCE

- .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

### 1.6 STORAGE AND PROTECTION

- .1 Prevent damage to trees, natural features, water courses and root systems of trees which are to remain.
  - .1 Repair damaged items to approval of Departmental Representative.
- .2 Replace trees designated to remain, if damaged, as directed by Departmental Representative.

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### 1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 Construction/Demolition Waste Management and Disposal.

## PART 2 -PRODUCTS

### 2.1 NOT USED

## PART 3 - EXECUTION

### 3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction sediment and erosion control drawings sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

### 3.2 PREPARATION

- .1 Inspect site and verify with Departmental Representative, items designated to remain.
- .2 Notify Departmental Representative before starting selective clearing operations.

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### 3.3 ISOLATED TREES

- .1 Cut off isolated trees as directed by Departmental Representative at height of ground surface.

### 3.4 REMOVAL AND REPLACEMENT

- .1 Spread cleared materials on site within trail corridor after trail corridor reshaping operations are completed as per Section 31 22 16.14. Obtain approval of finished surface by Departmental Representative prior to spreading materials.

### 3.5 FINISHED SURFACE

- .1 Leave ground surface in condition suitable for immediate grading operations to approval of Departmental Representative.

### 3.6 CLEANING

- .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

PART 1 -GENERAL

1.1 RELATED

REQUIREMENTS

- .1 Section 02 41 99 Demolition for Minor Works.
- .2 Section 31 22 16.14 Trail Corridor Reshaping.
- .3 Section 31 37 00 Rip Rap.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D 698-2012, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600kN-m/mü) .
- .2 Department of Transportation and Infrastructure Standard Specifications for Highway Construction January 2015.
  - .1 DTI 201 Production of Highway Aggregates.
  - .2 Item 601 Random Rip rap.

1.3 REGULATIONS

- .1 Shore and brace excavations, protect slopes and banks and perform all work in accordance with Provincial and Municipal regulations whichever is more stringent.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Hazardous Materials: provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of work as required.

1.5 TESTS AND  
INSPECTIONS

- .1 Testing of materials and imported organic material will be carried out by testing laboratory designated by Departmental Representative at the discretion of the Departmental Representative.
- .2 As requested by Departmental Representative

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provide to designated testing agency, samples of each organic material proposed for use. Departmental Representative shall specify quantity of material to be submitted at time of request.

- .3 Do not deliver imported organics to site until material has been approved for use by Departmental Representative.
- .4 Before commencing work, conduct, with Departmental Representative, condition survey of existing structures, vegetation, and survey bench marks and monuments which may be affected by work.

## 1.6 PROTECTION

- .1 Protect excavations against flooding and damage due to surface run off.
- .2 Keep excavations clean, free of standing water, loose soil, and snow.
- .3 Provide impermeable liner to separate stockpiles from ground and cover stockpiles with tarps to acceptance of Departmental Representative.
- .4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.

## PART 2 -PRODUCTS

### 2.1 MATERIALS

- .1 Organic overlay material: uncontaminated soil and aggregate material, including stumps, roots and organic materials, free of weeds (invasive and non-native species) as approved for use as overlay material by Departmental Representative.
- .2 On site fill material from excavation operations.

### PART 3 - EXECUTION

#### 3.1 LAYOUT

- .1 Identify on site, areas of excavation/filling as indicated on the drawings.
- .2 Do not commence excavation until Departmental Representative has confirmed areas of excavation.

#### 3.2 SITE PREPARATION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

#### 3.3 EXCAVATION

- .1 Carry out excavation in accordance with Section 01 14 10 Scheduling and Management of Work.

#### 3.4 BACKFILLING

- .1 Do not commence any backfilling activities without authorization of Departmental Representative.
- .2 Remove standing water from spaces to be filled to satisfaction of Departmental Representative.
- .3 Compact subgrade to 85% maximum dry density to ASTM D698.
- .4 Backfill as follows:
  - .1 Compact each lift to 85% maximum dry density to ASTM D 698.
  - .2 Place excavated fill material as required to fill excavations to level with existing grade of surrounding area.

**END OF SECTION**

## PART 1 - GENERAL

### 1.1 RELATED REQUIREMENTS .1 Section 31 14 11 - Earthworks and Related Works.

.2 Section 31 11 01 - Selective clearing.

.3 Section 31 37 00 - Rip rap.

### 1.2 REFERENCE STANDARDS .1 ASTM D698-[12e2], Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft<sup>2</sup>) [600 kN-m/m<sup>2</sup>].

## PART 2 - PRODUCTS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

### 2.1 MATERIALS

.1 Organic overlay material: Excavated organic material including roots, wood, vegetative matter free of refuse, soft unsound particles, deleterious or objectionable materials and stones larger than 200mm in diameter and tree branches/trunks greater than 50mm in diameter. Imported organic material (80%) from approved off-site sources. Materials approved at source by Departmental Representative prior to delivery.

.1 Local organic overlay material: organics harvested within the trail disturbance corridor.

.2 Imported organic material: Imported material from approved locations outside the trail corridor.

## PART 3 - EXECUTION

### 3.1 TEMPORARY EROSION AND SEDIMENT CONTROL .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore

### 3.2 SCARIFYING AND RESHAPING

and stabilize areas disturbed during removal.

.1 Scarify subgrade to full widths indicated and to minimum depth of 200mm. minimum.

.2 Pulverize and break down scarified material to 200 mm maximum soil clod size. Stones larger than this size may be stockpiled for use as rip rap as approved by Departmental Representative.

.3 Blade and trim pulverized material to elevation and cross section dimensions as indicated.

.4 Regrade disturbed scarified areas to ensure minimum depth of 75mm of organic material is achieved over disturbed trail corridor areas, including former trail tread. Ensure minimum 2% cross slope on trail surface.

.5 Where deficiency of material exists to achieve specified depth, add and blend additional approved organic overlay material as directed by Departmental Representative.

.6 Excess mineral soil material is to be placed in ditch areas identified for filling and levelling. Cover mineral soil with organic matter removed/replaced in ditch.

.7 Regrade to create grade reversals and drainage swales where indicated on drawings. Install rip rap on swale surfaces.

### 3.3 COMPACTION

.1 Plan site operations to minimize moving machinery over scarified surfaces. Fine grade with hand tools to avoid compaction.

### 3.4 SITE TOLERANCES

.1 Reshape finished surfaces to allow sheet drainage across the corridor in existing downslope direction.

### 3.5 PROTECTION

.1 Protect and maintain reshaped surface in condition conforming to this Section until after receipt of written acceptance from Departmental Representative. Do not install erosion control matting or straw until surface has been approved by Departmental Representative.

**END OF SECTION**



## PART 1 - GENERAL

### 1.1 RELATED

#### REQUIREMENTS

- .1 Section 31 11 00 Earthworks and Related Works.
- .2 Section 31 22. 16.14 Trail corridor reshaping.

### 1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM C 144-17, Standard Specification for Aggregate for Masonry Mortar.
  - .2 ASTM C 618-17a, 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 CAN/CSA-A23.1-14/A23.2-14, Concrete Materials and Methods of Concrete Construction.

### 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 Place materials defined as hazardous or toxic in designated containers.
- .3 Fold up metal banding, flatten and place in designated area for recycling.
- .4 Divert left over aggregate materials to local facility for reuse as approved by Departmental Representative.
- .5 Divert left over geotextiles to local plastic recycling facility as approved by Departmental Representative.

## PART 2 -PRODUCTS

### 2.1 STONE

- .1 Hard, dense with relative density (formally specific gravity) not less than 2.65, durable quarry

stone, free from seams, cracks or other structural defects, to meet specified size requirements for R-5 New Brunswick DOT Rip rap stone:

- .1 Random rip-rap:
  - .1 Not more than 10% of total volume of stones with individual volume less than 15 dmü.
  - .2 Not less than 50% of total volume of stones with individual volume of 85 dmü or more.
  - .3 Remaining percentage of total volume to have uniform distribution of stones between 15 and 85 dmü size.
- .2 Hand placed rip-rap:
  - .1 Minimum size of individual stones 10 dmü.
  - .2 Not less than 75% of total volume of stones with individual volume of 25 dmü or more.
  - .3 Supply rock spalls or cobbles to fill open joints.

### 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 rip-rap to thickness and details as indicated.
- .4 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.

**END OF SECTION**