

## SECTION 015713

### EROSION AND SEDIMENTATION CONTROL

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes providing 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 erosion and sedimentation control Drawings and requirements of authorities having jurisdiction. Temporary measures include the following:
  - 1. Silt fences and straw bales
  - 2. Sediment barriers and check dams
  - 3. Stabilized construction entrance
  - 4. Construction of temporary swales and sedimentation basins as required
  - 5. Seeding, sodding, and hydro mulching
- B. Comply with all local, state, and federal regulations regarding erosion control including the applicable provisions of the National Pollution Discharge Elimination System (NPDES) regulations from the Federal Clean Water Act.
- C. Should any provisions of this section be at variance with erosion control plan prepared by the civil engineer, the civil engineer's directive shall take precedence.

##### 1.2 NOTICE OF INTENT

- A. Contractor shall submit an EPA Notice of Intent (NOI) prior to construction.
- B. Contractor shall prepare the report, coordinate with Owner, and file in accordance with regulations.

#### PART 2 - PRODUCTS

##### 2.1 SILT FENCE

- A. Filter Fabric: Non-woven polypropylene, polyethylene or polyamide thermoplastic fibers with non-raveling edges. The fabric shall be non-biodegradable, inert to most soil chemicals, ultraviolet resistant, unaffected by moisture or other weather conditions, and permeable to water while retaining sediment. The filter fabric shall be supplied in rolls a minimum of 36-inches wide.
  - 1. Acceptable Products: Lundin "Silt Buster", Mirafi "Envirofence" or acceptable substitution.
- B. Wire Fence Support: Welded wire fabric 2 x 4 - W1.0 x W1.0.
- C. Fence Posts: Painted or galvanized steel Tee or Y-posts with anchor plates, not less than 5-feet in length with a minimum weight of 1.3 pounds per foot. Hangers shall be adequate to secure fence and fabric to posts. Posts and anchor plates shall conform to ASTM A-702.

##### 2.2 STRAW BALES

- A. Standard rectangular straw bales bound by baling wire (NO TWINE).

##### 2.3 SEDIMENT TRAPS

- A. Standard manufacture designed to fit the intended inlet.

##### 2.4 STABILIZED CONSTRUCTION ENTRANCE

- A. Aggregate: Graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448 and TEX 401-A coarse-aggregate; with 0 percent being retained by a 5-inch sieve and 100 percent being retained by a 3-inch sieve.

##### 2.5 GRASS

- A. Materials and seeding and sodding shall conform to applicable Division 32 section.

##### 2.6 FERTILIZER

- A. Use commercial grade fertilizers to insure germination and growth. Analysis by weight shall be 16-4-8 or 15-5-10 for Nitrogen, Phosphoric Acid and Potash.

##### 2.7 WATER

- A. Use clean potable water for maintaining the grass.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Keep disturbed areas to a minimum required to adequately perform the work. At all times, maintain the site in such a manner that minimizes erosion of the site. The execution of work under this section shall be in conformance with the NPDES rulings and the site Storm Water Pollution Prevention Plan.

#### 3.2 SILT FENCES

- A. Silt fence shall be a minimum of 24-inches high. Posts shall be embedded a minimum of 12-inches in the ground, placed a maximum of 8-feet apart and set on a slight angle toward the anticipated runoff source.
  - 1. When directed by the Engineer or designated representative, posts shall be set at specified intervals to support concentrated loads.
- B. Securely attach filter fabric to posts and wire support fence, with the bottom 12-inches of filter fabric buried in a trench a minimum of 6-inches deep and 6-inches wide to prevent sediment from passing under the fence.
  - 1. When silt fence is constructed on impervious material, a 12-inch flap of fabric shall be extended upstream from the bottom of the silt fence and weighted to limit particulate loss.
  - 2. No horizontal joints will be allowed in the filter fabric.
  - 3. Vertical joints shall be overlapped a minimum of 12-inches with the ends sewn or otherwise securely tied.
- C. Silt fence shall be maintained for the duration of the project, and repaired, replaced, and/or relocated when necessary or as directed by the Engineer or designated representative. Accumulated silt shall be removed when it reaches a depth of 6-inches

#### 3.3 EROSION CONTROL BARRIERS

- A. Provide erosion control barriers at intervals along swales and ditches as shown on the Drawings or as necessary to meet the requirements of the Storm Water Pollution Prevention Plan.
- B. Barriers: Silt fence or straw bales placed as indicated on the Drawings.
- C. Maintain barriers in good working condition and replace when damaged.

#### 3.4 STABILIZED CONSTRUCTION ENTRANCE

- A. Remove brush, stumps, obstructions, and other objectionable material and dispose of in a manner that will not interfere with the excavation, grading, and construction of the entrance as indicated on the Drawings.
  - 1. Stabilized construction entrance shall not drain onto the public right-of-way and shall not allow surface water runoff to exit the construction site.
  - 2. When necessary, vehicle wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way.
    - a. When vehicle washing is required, it shall be done on an area stabilized with crushed stone, which drains into an approved sediment trap or sediment basin.
  - 3. Sediment shall be prevented from entering any storm drain, ditch or watercourse through use of sand bags, gravel, boards, silt fence or other methods approved by the Engineer or designated representative.
- B. The entrance shall be maintained in a condition that will prevent tracking or disposition of sediment onto public right-of-way. Provide periodic top dressing with additional stone as conditions demand, as well as the repair and/or cleanout of any measures used to trap sediment. Sediment that is spilled, dropped, washed, or tracked onto public right-of-way shall be removed immediately.

#### 3.5 TEMPORARY AND PERMANENT SWALES

- A. Description:
  - 1. Provide temporary and permanent drainage swales as required to carry drainage away from the work area to an approved outfall point.
  - 2. Unless otherwise shown on the drawings, swales shall be earthen "V" shaped channels graded to a sufficient depth and slope to carry the anticipated runoff, but at least 2-feet deep with a slope of 0.1 percent.
  - 3. Swales not designated to remain in place at the completion of the contract shall be cleaned of any muck, debris and other unsuitable material and filled with approved fill before final grading operations begin.
  - 4. Swales shall have erosion control barriers as required.
  - 5. All permanent swales shall be sodded to a minimum width of 10-feet on either side of the centerline of the swale.

- B. Maintenance:
1. During the course of construction maintain temporary swales constructed for this contract so as to allow proper drainage from the construction area. Before Contractor leaves the site at the end of construction, place temporary swales to remain in good working condition.
  2. Work with other contractors at the site in maintaining existing swales and ditches.
  3. Where necessary for access to the work areas install adequately sized culverts and maintain to provide the access without disturbing the site drainage.
  4. Take care not to rut and damage sodded swales. Immediately repair damaged swales.
  5. Keep sodded swales mowed.

### 3.6 DRAINAGE DITCHES

- A. Immediately hydro mulch drainage ditches upon final grading.
- B. Repair erosion of the banks of the drainage ditches immediately and re-stabilize.
- C. Place sediment barriers at intervals along the ditch as shown on the plans or as necessary to help trap sediment on the site. Remove sediment and other debris trapped by the barriers daily.
- D. Maximum Ditch Side Slopes: 3-feet horizontal to 1-foot vertical.
- E. Maintenance of the ditches during construction shall include but not be limited to mowing, re-grading, sediment removal, re-hydro mulching, bank repair, and debris removal.
- F. Sediment removed from the ditches may be re-spread on the site as directed by the Owner.

### 3.7 FILL AND CUT SLOPES

- A. Fill slopes in all cases shall be no steeper than 3:1 unless specifically stated on the plans or approved by the Owner's soils engineer.
- B. When cut slopes exceed 2:1 for depths over 3-feet, proper bracing and shoring per OSHA requirements shall be used and maintained.
- C. For permanent slopes, cut or fill, between 2:1 and 10:1, erosion protection shall be provided with hydro mulching, sodding, seeding, or other method as approved.

### 3.8 SEDIMENTATION BASINS

- A. Description:
  1. Provide sedimentation ponds where indicated.
  2. Route drainage from cleared areas through the sedimentation basin.
  3. Operate and maintain the pond during construction.
- B. Maintenance:
  1. Maintain the pond and the outfall and sediment-retarding structure in good working condition throughout the time the pond is to be in operation.
  2. When sediment and debris fill the pond to over one third ( $\frac{1}{3}$ ) its' designed capacity, clean out the pond.
  3. Stockpile, in its' own separate area, the sediment from the clearing operation, or remove from the site, as required. Make adequate drainage provisions such that drainage from the sediment stockpile drains back into the sediment pond. When approved by the Owner, sediment removed from the pond may be spread over the site.

### 3.9 SEEDING

- A. Seed disturbed portions of the site and stockpile areas within fourteen (14) days if the phasing of the construction operations is anticipated to leave those portions of the areas unworked for twenty-one (21) days or more.
- B. Maintain seeded areas until the Owner accepts the project. Maintain by watering, fertilizing, reseeding, mowing and erosion repair as may be required. Cut grass when the average height of the grass reaches **4-inches**. Clippings may be mulched back into the seeded areas.

**END OF SECTION**