

SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This work consists of temporary measures needed to control erosion and water pollution. These temporary measures will include, but not be limited to, berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods. These temporary measures shall be installed at the locations where needed to control erosion and water pollution during the construction of the project and during site restoration, and as directed by A/E, and as shown on the drawings.
- B. The Erosion Control Plan presented in the drawings serves as a minimum for the requirements of erosion control during construction. Contractor has the ultimate responsibility for providing adequate erosion control and water quality throughout the duration of the project. Therefore, if the provided plan is not working sufficiently to protect the project areas, then Contractor shall provide additional measures as required to obtain the required protection.

1.02 RELATED SECTIONS

- A. Section 32 05 05 – Selective Demolition for Exterior Improvements.
- B. Section 01 50 00 – Temporary Facilities and Controls.
- C. Section 31 23 00 – Excavation and Fill.
- D. Section 32 12 16 – Asphalt Paving.
- E. Section 32 13 13 – Concrete Paving.
- F. Section 32 92 00 – Turf and Grasses.
- G. Section 33 00 00 – Utilities.

1.03 REFERENCES AND STANDARDS

- A. City and County of Denver Storm Water Criteria for Construction Activities.
- B. CDOT – Colorado Department of Transportation.
- C. UDFCD – Urban Drainage and Flood Control District.
- D. CDPHE – Colorado Department of Public Health and Environment.

1.04 SUBMITTALS

- A. Submit under provisions of Division One specifications.
- B. Submit the following information:
 - 1. Erosion Control Plan.
 - 2. Construction schedule for Erosion Control per Article Scheduling.
 - 3. Sequencing Plan per Article Scheduling.
 - 4. All applicable permits for Erosion Control.
- C. Product data: Submit on all products or materials supplied herein.

1.05 REGULATORY REQUIREMENTS

- A. Obtain and comply with all requirements of City and County of Denver and CDPHE Storm water and/or Groundwater Discharge Permits, as required.
- B. 401 Construction Dewatering Industrial Wastewater Permit (Construction Dewatering Permit 401):

1. Contractor shall apply for and obtain a Construction Dewatering Permit 401 from the Colorado Department of Public Health and Environment.
 2. All costs for this permit shall be the responsibility of Contractor.
 3. This permit requires that specific actions be performed at designated times.
 4. Contractor is legally obligated to comply with all terms and conditions of the permit including testing for effluent limitations.
 5. Contractor shall allow the Colorado Department of Public Health and Environment or other representatives to enter the site to test for compliance with the permit.
 6. Non-compliance with the permit can result in stoppage of all work.
- C. In the event of conflict between these requirements and erosion and pollution control laws, rules, or regulations of other Federal, State, or local agencies, the more restrictive laws, rules, or regulations shall apply.

1.06 SCHEDULING

- A. Sequencing Plan:
1. Contractor shall submit a sequencing plan for approval for erosion control in conformance with Contractor's overall Construction Plan for approval by City and County of Denver and DPS.
 2. Changes to the contractor's Erosion Control Sequencing Plan may be considered by City and County of Denver and DPS only if presented in writing by the Contractor.
- B. Temporary Erosion Control:
1. When so indicated in the Contract Documents, or when directed by City and County of Denver and DPS, Contractor shall prepare construction schedules for accomplishing temporary erosion control work including all maintenance procedures.
 2. These schedules shall be applicable to clearing and grubbing, grading, structural work, construction, etc.
- C. Contractor shall submit for acceptance the proposed method of erosion control on haul roads and borrow pits and a plan for disposal of waste material.
- D. Contractor shall be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Temporary erosion control measures shall then be used to correct conditions that develop during construction.
- E. Work shall not be started until the erosion control schedules and methods of operations have been accepted.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Comply with all applicable municipal or local Municipal Separate Storm Sewer System (MS4) requirements.
- B. All materials shall be submitted for approval prior to installation.
- C. Natural or biodegradable materials shall be reasonably clean, free of deleterious materials, and certified weed free. Materials may include, but are not limited to, hay bales, straw, fiber mats, fiber netting, wood cellulose, fiber fabric, gravel.
- D. Grass Seed:
1. Temporary grass cover (if required) shall be a quick growing species, suitable to the area, in accordance with local criteria and permit requirements, which will provide temporary cover, and not compete with the grasses sown for permanent cover.
 2. All grass seed shall be approved by A/E and in accordance with local regulations prior to installation.
- E. Fertilizer and soil conditioners shall be approved by A/E, and in accordance with local regulations prior to installation.

- F. Silt Fence Fabric: woven polypropylene.
 - 1. Mirafi 100X, "Envirofence".
 - 2. Or accepted substitution.
- G. Temporary Slope Stabilization Mat: (if required) approved for use in the City and County of Denver.

PART 3 EXECUTION

3.01 GENERAL

- A. All temporary and permanent erosion and sediment control practices will be maintained and repaired as needed to ensure continued performance of their intended function.
- B. City and County of Denver and DPS will monitor Contractor's erosion control methods. If the overall function and intent of erosion control is not being met, City and County of Denver and DPS will require Contractor to provide additional measures as required to obtain the desired results.
- C. The erosion control features installed by Contractor shall be adequately maintained by Contractor until the project is accepted.

3.02 PROTECTION OF ADJACENT PROPERTIES

- A. Properties adjacent to the site of a land disturbance shall be protected from sediment deposition.
- B. In addition to the erosion control measures required on the drawings, perimeter controls may be required if damage to adjacent properties is likely, and may include, but is not limited to:
 - 1. Vegetated buffer strip around the lower perimeter of the land disturbance.
 - a. Vegetated buffer strips may be used only where runoff in sheet flow is expected and should be at least twenty (20) feet in width.
 - 2. Sediment barriers such as straw bales, erosion logs, and silt fences.
 - 3. Sediment basins and porous landscape detention ponds.
 - 4. Combination of above measures.

3.03 CONSTRUCTION

- A. Stabilization of Disturbed Areas:
 - 1. Temporary sediment control measures shall be established within five (5) days from time of exposure or disturbance.
 - 2. Permanent erosion protection measures shall be established within five (5) days after final grading of areas.
- B. Stabilization of Sediment and Erosion Control Measures:
 - 1. Sediment barriers, perimeter dikes, and other measures intended to either trap sediment or prevent runoff from flowing over disturbed areas shall be constructed as a first step in grading and be made functional before land disturbance takes place.
 - 2. Earthen structures such as dams, dikes, and diversions shall be stabilized within five (5) days of installation.
 - 3. Stormwater outlets shall also be stabilized prior to any upstream land disturbing activities.
- C. Stabilization of Waterways and Outlets:
 - 1. All onsite stormwater conveyance channels used by Contractor for temporary erosion control purposes shall be designed and constructed with adequate capacity and protection to prevent erosion during storm and runoff events.
 - 2. Stabilization adequate to prevent erosion shall also be provided at the outlets of all pipes and channels.

- D. Storm Sewer Inlet Protection: All storm sewer inlets which are made operable during construction or which drain stormwater runoff from a construction site shall be protected from sediment deposition by the use of filters.
- E. Construction Access Routes:
 - 1. Wherever construction vehicles enter or leave a construction site, a Stabilized Construction Entrance is required.
 - 2. Where sediment is transported onto a public road surface, the roads shall be cleaned thoroughly at the end of each day.
 - 3. Sediment shall be removed from roads by shoveling or sweeping and be transported to a sediment controlled disposal area.
 - 4. Street washing shall be allowed only after sediment is removed in the manner described above.

3.04 DISPOSITION OF TEMPORARY MEASURES

- A. All temporary erosion and sediment control measures shall be disposed of within thirty (30) days after final site stabilization is achieved or after the temporary measures are no longer needed as determined by City and County of Denver and DPS.
- B. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion.
- C. Substantial Completion of Erosion Control Measures:
 - 1. At the time specified in the Contract Documents, and subject to compliance with specified materials and installation requirements, Contractor shall receive a Substantial Completion Certificate for temporary erosion control measures.
 - 2. Maintenance of Erosion Control Measures after Substantial Completion: Contractor shall be responsible for maintaining temporary erosion control measures as specified in the drawings and Contract Documents until such time as work has been accepted by City and County of Denver and DPS and as specified in Division 1 for Closeout Procedures.

END OF SECTION 31 25 00