

**SECTION 02125
EROSION, SEDIMENTATION AND POLLUTION CONTROL**

PART 1 GENERAL

1.01 SCOPE

- A. The work specified in this Section consists of providing, maintaining and removing temporary erosion, sedimentation and pollution controls.
- B. Temporary erosion controls, include, but are not limited to, grassing, mulching, watering and reseeded on-site surfaces and spoil and borrow area surfaces, and providing interceptor ditches at ends of berms and at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the Georgia Erosion and Sedimentation Act of 1975, as amended, Section 402 of the Federal Clean Water Act, and applicable codes, ordinances, rules, regulations and laws of local and municipal authorities having jurisdiction.
- C. Temporary sedimentation controls include, but are not limited too; silt dams, traps, barriers, filter stone and appurtenances at the foot of sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the Federal Clean Water Act of 1987, as amended.
- D. Land disturbance activity shall not commence until the Land Disturbance Permit and, if required, Georgia's National Pollutant Discharge Elimination System Permit (NPDES), General Permit No.: GAR10000# has been issued.
- E. Basic Principles
 - 1. Conduct the earthwork and excavation activities in such a manner to fit the topography, soil type and condition.
 - 2. Minimize the disturbed area and the duration of exposure to erosion elements.
 - 3. Stabilize disturbed areas immediately.
 - 4. Safely convey run-off from the site to an outlet such that erosion will not be increased off site.
 - 5. Retain sediment on site that was generated on site.
 - 6. Minimize encroachment upon watercourses.
- F. Temporary Erosion and Sedimentation Control: In general, temporary erosion and sedimentation control procedures shall be directed toward:
 - 1. Preventing soil erosion at the source.
 - 2. Preventing silt and sediment from entering any waterway if soil erosion cannot be prevented.

City of Thomasville Water, Sewer & Natural Gas Specifications

3. Preventing silt and sediment from migrating downstream in the event it cannot be prevented from entering the waterway.

G. Permanent Erosion Control: Permanent erosion control measures shall be implemented to prevent sedimentation of the waterways and to prevent erosion of the Project site.

1.02 QUALITY ASSURANCE

A. General: Perform all work under this Section in accordance with all pertinent rules and regulations including, but not necessarily limited to, those stated above and these Specifications.

B. Conflicts: Where provisions of pertinent rules and regulations conflict with these Specifications, the more stringent provisions shall govern.

PART 2 PRODUCTS

2.01 SEDIMENT BARRIER

A. Silt Fence: Silt fence shall be as shown on the Standard Detail Drawings.

B. Stone Check Dams: Stone shall conform to the requirements of Section 805.01 of the Georgia Department of Transportation Standard Specification, latest edition, for Stone Dumped Rip Rap except the stone shall be have a graded size of 2" to 10" at the greatest dimension.

C. Hay Bales: Hay bales shall be clean, seed-free cereal hay. Hay bales can be used in conjunction with silt fence but not as a substitute for silt fence.

D. Concrete Blocks: Concrete blocks shall be hollow, non-load-bearing type.

E. Plywood shall be 3/4-inch thick exterior type.

2.02 CONSTRUCTION EXIT STONE

Use sound, tough, durable stone resistant to the action of air and water. Slabby or shaley pieces will not be acceptable. Aggregate size shall be in accordance with the National Stone Association Size R-2 (1.5 to 3.5-inch stone) or Type 3 rip rap stone conforming to Section 805.01 of the Georgia Department of Transportation Standard Specifications.

2.03 CONCRETE

Concrete shall have a compressive strength of not less than 3,000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between 3 and 5-inches. Ready-mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

City of Thomasville Water, Sewer & Natural Gas Specifications

2.04 RIP RAP

- A. Stone Rip Rap: Use sound, tough, durable stones resistant to the action of air and water. Slabby or shaley pieces will not be acceptable. Unless shown or specified otherwise, stone rip rap shall be Type 1.
1. Type 1 Rip Rap: Rip rap size shall conform to Section 805.01 of the Georgia Department of Transportation Standard Specification for Type 1 Stone Dumped Rip Rap except the stone size shall have a graded size of 4" to 10" at the greatest dimension.
 2. Type 3 Rip Rap: Rip rap size shall conform to Section 805.01 of the Georgia Department of Transportation Standard Specifications for Type 3 Stone Dumped Rip Rap except the stone size shall have a graded size of 4" to 10" at the greatest dimension.
 3. 200 Pound Rip Rap: Minimum weight of individual stones shall be 200 pounds.

2.05 FILTER FABRIC

- A. The filter fabric for use under rip rap shall be a monofilament, polypropylene woven fabric meeting the specifications as established by Task Force 25 for the Federal Highway Administration. The filter fabric shall have an equivalent opening size (EOS) of 70.
- B. Filter fabric under rip rap shall be Mirafi, Amoco or Exxon.

2.06 GRASSING

- A. Grassing materials shall meet the requirements of the following sections of the Georgia Department of Transportation Standard Specifications, latest edition:

Material	Section
Topsoil	893.01
Seed and Sod	890
Fertilizer	891.01
Agricultural Lime	882.02
Mulch	893.02
Inoculants	893.04

- B. Seed species shall be provided as shown on the approved Erosion Control Plan.
- C. Mulch Binder: Mulch on slopes exceeding 3 (horizontal) to 1 (vertical) shall be held in place by the use of a mulch binder, as approved by the City. The mulch binder shall be non-toxic to plant and animal life and shall be approved by the City.
- D. Water: Water shall be free of excess and harmful chemicals, organisms and substances, which may be harmful to plant growth or obnoxious to traffic. Salt or brackish water shall not be

City of Thomasville Water, Sewer & Natural Gas Specifications

used. Water shall be furnished and paid for by the Contractor. It shall be the Contractor's responsibility to obtain a meter and backflow prevention device from the City if obtaining water from the City's public water system.

2.07 POLYACRYLAMIDE (PAM)

Polyacrylamide (PAM) is an anionic chemical element, when land applied, acts as a temporary soil binding agent to reduce soil erosion. PAM shall meet the requirements for mixture as outlined in the "Manual for Erosion and Sediment Control in Georgia", latest Edition.

2.08 STREAMBANK STABILIZATION

Streambank Stabilization, using permanent vegetation, is the use of readily available native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems. All streambank stabilization measures shall meet the minimum requirements as set forth in the "Manual for Erosion and Sediment Control in Georgia", latest edition.

PART 3 EXECUTION

3.01 GENERAL

- A. Standards: Provide all materials and promptly take all actions necessary to achieve effective erosion and sedimentation control in accordance with the Federal Clean Water Act of 1987, as amended, local enforcing agency guidelines and these Specifications.
- B. Implementation: The Contractor shall have the responsibility to actively take all steps necessary to control soil erosion and sedimentation.

3.02 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Temporary erosion and sedimentation control procedures should be initially directed toward preventing silt and sediment from entering the waterways. The preferred method is to provide an undisturbed natural buffer, extending a minimum of twenty five feet from the water, to filter the run-off. Should this buffer prove infeasible due to construction activities being too close to the water, or if the amount of sediment overwhelms the buffer, the Contractor shall place silt fences to filter the run-off and, if necessary, place permanent rip rap to stabilize the bank.
- B. Silt dams, silt fences, traps, barriers, check dams, appurtenances and other temporary measures and devices shall be installed as indicated on the approved plans and working drawings, shall be maintained until no longer needed, and shall then be removed. Deteriorated hay bales and dislodged filter stone shall be replaced with new materials.
- C. Where permanent grassing is not appropriate, and where the Contractor's temporary erosion and sedimentation control practices are inadequate, the City may direct the Contractor to provide temporary vegetative cover with fast growing seedings.
- D. All erosion and sedimentation control devices, including check dams, shall be inspected by the Contractor at least weekly and after each rainfall occurrence and cleaned out and repaired by the Contractor as necessary.

City of Thomasville Water, Sewer & Natural Gas Specifications

- E. Temporary erosion and sedimentation control devices shall be installed and maintained from the initial land disturbance activity until the satisfactory completion and establishment of permanent erosion control measures. At that time, temporary devices shall be removed.
- F. Temporary vegetative measures, such as Disturbed Area Stabilization are defined as Mulching Only, (Ds1), Temporary Seeding (Ds2), Permanent Vegetation (Ds3) and Sodding (Ds4) shall be installed as per the approved erosion, sedimentation and pollution control plan and meeting the requirements of the "Manual for Erosion and Sediment Control in Georgia", latest edition with the exception that Ds1 measures be installed at the end of each day, while Ds2 measures be installed every seven days.
- G. Polyacrylamide (PAM) shall be installed and applied as per the manufacturers specifications and meeting the minimum requirements set forth in the "Manual for Erosion and Sediment Control in Georgia", latest edition. Frequency of installing shall be as required to maintain erosion and sediment control throughout duration of the project or as directed by the City.

3.03 PERMANENT EROSION CONTROL

- A. Permanent erosion control shall include:
 - 1. Restoring the work site to its original contours, unless shown otherwise on the Drawings or directed by the City.
 - 2. Permanent vegetative cover shall be performed in accordance with "Grassing" of this Section.
- B. Permanent erosion control measures shall be implemented as soon as practical after the completion of pipe installation or land disturbance for each segment of the Project. In no event shall implementation be postponed when no further activities related to pipe installation will impact that portion or segment of the Project. Partial payment requests may be withheld for those portions of the Project not complying with this requirement.

3.04 GRASSING

- A. General
 - 1. Grassing shall be performed as shown on the approved Erosion Control Plan.
 - 2. All references to grassing, unless noted otherwise, shall relate to establishing permanent vegetative cover as specified herein for seeding, fertilizing, mulching, etc.
 - 3. When final grade has been established, all bare soil, unless otherwise required by the Contract Documents, shall be seeded, fertilized and mulched in an effort to restore to a protected condition. Critical areas shall be sodded as approved or directed by the City.
 - 4. Specified permanent grassing shall be performed at the first appropriate season listed below following establishment of final grading in each section of the site.
- B. Materials

City of Thomasville Water, Sewer & Natural Gas Specifications

1. Topsoil: Natural, fertile, agricultural soil typical of the locality, capable of sustaining vigorous plant growth, from a well drained site free of flooding, not in frozen or muddy condition, not less than six percent organic matter, and pH value of 5.9 to 7.0. Free from subsoil, slag, clay, stones, lumps, live plants, roots, sticks, crabgrass, couch grass, noxious weeds, and foreign matter.
 2. Peatmoss: Horticultural grade Class A decomposed plant material, elastic and homogeneous. Free of decomposed colloidal residue, wood, sulphur, and iron. Peatmoss shall have a pH value of 5.9 to 7.0, 60 percent organic matter by weight, moisture content not exceeding 15 percent and water absorption capacity of not less than 300 percent by weight on oven dry basis.
 3. Sand: Hard, granular, natural, beach sand, washed, free of impurities, chemical, or organic matter.
 4. Fertilizer: 6-12-12 grade Commercial type with six percent nitrogen, 12 percent P₂O₅, and 12 percent K₂O.
 5. Lime: Standard agricultural type containing at least 85 percent total carbonates applied at a rate of 4,000 pounds per acre (92 pounds per 1,000 square feet), or as required by the test results and recommendations as specified above. Before seeding, apply lime and fertilizer and incorporate them into the soil at least 3-inches deep by discing and harrowing, at the rates recommended above or required by the above test results.
 6. Seed: Seed shall be uniform mixtures of the kinds and applied at the rates shown in the approved Erosion Control Plan.
- C. Replant grass removed or damaged in residential areas using the same variety of grass and at the first appropriate season. Where sod is removed or damaged, replant such areas using sod of the same species of grass at the first appropriate season. Outside of residential or landscaped areas, grass the entire area disturbed by the work on completion of work in any area. In all areas, promptly establish successful stands of grass.

3.05 RIP RAP

- A. Unless shown otherwise on the Drawings and/or approved Erosion Control Plan, rip rap shall be placed where ordered by the City. Carefully compact backfill and place rip rap to prevent subsequent settlement and erosion.
- B. Preparation of Foundations: The ground surface upon which the rip rap is to be placed shall be brought in reasonably close conformity to the correct lines and grades before placement is commenced. Where filling of depressions is required, the new material shall be compacted with hand or mechanical tampers.
- C. Placement of Filter Fabric: The surface to receive fabric shall be prepared to a relatively smooth condition free from obstructions, depressions and debris. The fabric shall be placed with the long dimension running up the slope and shall be placed to provide a minimum number of overlaps. The strips shall be placed to provide a minimum width of one foot of overlap for each joint. The filter fabric shall be anchored in place with securing pins of the

type recommended by the fabric manufacturer. Pins shall be placed on or within 3-inches of the centerline of the overlap. The fabric shall be placed so that the upstream strip overlaps the downstream strip. The fabric shall be placed loosely so as to give and therefore avoid stretching and tearing during placement of the stones. The stones shall be dropped no more than three feet during construction. The fabric shall be protected at all times during construction from clogging due to clay, silts, chemicals or other contaminants. Any contaminated fabric or any fabric damaged during its installation or during placement of rip rap shall be removed and replaced with uncontaminated and undamaged fabric at no expense to the City.

- D. Placement of Rip Rap: The rip rap shall be placed on a 6-inch layer of soil, crushed stone or sand overlaying the filter fabric. This 6-inch layer shall be placed to maximize the contact between the soil beneath the filter fabric and the filter fabric. Rip rap shall be placed with its top elevation conforming with the natural slope of the stream bank and stream bottom. Stone rip rap shall be dumped into place to form a uniform surface and to the thickness specified on the Drawings. The thickness tolerance for the course shall be -6-inches and +12-inches. If the Drawings or Bid do not specify a thickness, the course shall be placed to a thickness of not less than 18-inches.

3.06 STREAMBANK STABILIZATION

Streambank stabilization with permanent vegetative materials shall be installed as per the erosion control plan, or otherwise directed by the City, as outlined in the “Manual for Erosion and Sediment Control in Georgia”, Latest Edition.

END OF SECTION