03.00 EROSION AND SEDIMENTATION CONTROL

03.01 GENERAL

03.01.01 REQUIREMENTS

1. General requirements are listed in the City of Monroe Erosion and Sedimentation Control Ordinance, Chapter 158 of the City Code.

2. In cases where a subdivision developer will also be constructing on individual lots within the subdivision, the Erosion and Sedimentation Control Plan Review and Approval may be completed simultaneously. It is the property owner's ultimate responsibility to ensure that all land-disturbing activities are properly permitted and maintained in accordance with all local state, and federal requirements. (A separate ESC Plan is required for property owner's building within an approved subdivision under construction by a separate developer.)

3. If property changes ownership at any time during the course of land-disturbing activity or before permanent erosion control measures are established, the new property owner must submit a revised Installation & Maintenance Agreement or Financial Responsibility Form for the property.

4. The Erosion and Sedimentation Control Ordinance requires erosion and sedimentation control measures to be installed in areas of land-disturbing activity to prevent accelerated erosion and movement of soil from the project location. Any activities which transport soil, mud or dust onto the public right-of-way or adjacent private properties will cause the person conducting the land-disturbing activity to be in violation of the Erosion and Sedimentation Control Ordinance and subject to applicable penalties.

5. Effort should be made not to uncover more than 20 acres at any one time. If more than 20 acres are to be uncovered at any one time, the plan shall contain the following:

    a. The method of limiting the time of exposure and amount of exposed area to achieve the objectives of this chapter
    b. A cut/fill analysis that shows where soil will be moved from one area of the tract to another as ground elevation is changed.
    c. Construction sequence and construction phasing to justify the time and amount of exposure.
    d. Techniques to be used to prevent sedimentation associated with larger disturbed area.
    e. Additional erosion control measures, structures, and devices to prevent sedimentation.

6. A lien agent is required in accordance with North Carolina Statute 44A-11.1 for improvements to real property at the time the original building permit is issued if the costs of the improvements are $30,000 or more. Per North Carolina General Statute 87-14, a building permit will not be issued until lien agent verification has been obtained through the City of Monroe Permit Department.

03.01.02 COMPUTATIONS

1. All computations and assumptions used to formulate an erosion control plan shall be in accordance with the City of Monroe's Stormwater Ordinance and the City of Monroe's Erosion and Sedimentation Control Ordinance and shall be reviewed by the City of Monroe Engineering Department.

2. Erosion and sedimentation control measures, structures, and devices shall be planned, designed, and constructed to control the calculated peak runoff from a 10-year frequency storm.

3. Runoff rates shall be calculated using the USDA Soil Conservation Service Method, the Rational Method, or other acceptable calculation procedures as approved by the Engineering Director.

4. Runoff computations shall be based on rainfall data published by the National Weather Service for the Monroe, NC station. The National Weather Service website is http://www.nws.noaa.gov/.

03.01.03 SCHEDULING

1. Temporary and permanent erosion control measures shall be provided for all land disturbing work in accordance with an erosion control plan reviewed and approved by the City of Monroe Engineering Department.

2. A grading permit shall be obtained from the City of Monroe Engineering Department prior to beginning site work.

3. Erosion Control measures shall be installed by the Developer and inspected by the City of Monroe Engineering Department for compliance prior to any land disturbing activity.

4. All permanent erosion control measures shall be incorporated into the work at the earliest practical time.

5. All temporary measures shall be maintained until the permanent measures have taken effect or are approved for removal by the City of Monroe Engineering Department.

6. Temporary and permanent measures shall be coordinated to provide effective and continuous erosion control throughout the construction and

post-construction period to minimize siltation of streams, lakes, reservoirs, and other impoundments, ground surfaces, and other property.

7. Temporary measures shall remain in place until the Engineering Director approves Certification Form 1-07 Final Erosion Control Acceptance Form.

03.01.04 CONSTRUCTION SEQUENCE

1. Obtain Approval Letter for Erosion Control and schedule pre-construction meeting on-site with the City of Monroe Engineering Department Erosion Control Specialist. All approved plans and required permits will be issued at the meeting prior to any land disturbing activity.

2. Install all erosion control measures as shown on Approved Plan.

3. Submit Certification Form 1-01, Primary Erosion Control Inspection Form, to the Erosion Control Specialist during the inspection of installed erosion control measures.

4. Proceed with grading.

5. Clean sediment basins when one-half full. Check after every rain event. Maintain rain gauge and record keeping per NPDES permitting requirements.

6. Seed and mulch denuded area immediately after finished grades are established.

7. Maintain soil erosion control measures until a permanent ground cover is established.

8. Additional measures may be required based upon actual site conditions.

9. Submit Certification Form 1-07, Final Erosion Control Acceptance Form, to the Erosion Control Specialist to schedule a final on-site inspection.

10. Remove soil erosion control measures and stabilize these areas upon approval of Certification Form 1-07.

11. Submit Certification Form 1-06 when there is an intermediary removal of erosion control measures.

12. If compost blankets are to be installed for temporary erosion/sediment control, installation and maintenance shall be in accordance with Section 6.18 Compost Blanket in the North Carolina Erosion and Sediment Control Planning and Design Manual. Construction Specifications from Section 6.18 Compost Blanket shall be included in the construction sequence of the erosion and sedimentation control plan.

03.02 DESIGN

All erosion control designs shall be in accordance with the NCDENR Erosion and Sedimentation Control Planning and Design Manual, latest edition, unless otherwise stated by this manual.

03.02.01 TEMPORARY MEASURES

1. Silt Fence shall be installed in accordance with the details at the toe of all fill slopes and any other necessary locations.

2. Diversion Ditches shall be installed in accordance with the details at the top of cut and fill slopes and any other necessary locations.

3. Construction Entrances shall be installed at all points of access to construction sites in accordance with the details. Any access point which does not have a construction entrance shall be barricaded to prevent its use.

4. Sediment Traps or Filter Basins shall be installed in accordance with the appropriate details at all points where accumulated runoff is released to natural drainage channels, and any other necessary locations. Sediment traps and basins must provide a minimum of three (3) porous baffles. Basins less than 20' in length may use two (2) baffles. The minimum sediment storage volume for sediment traps is 3600 cubic feet per acre of the disturbed area. The minimum sediment storage volume for sediment basins is 1800 cubic feet per acre of disturbed area. Skimmer dewatering time of 2-5 days is required.

5. Temporary Seeding is the use of rapid growing annual grasses, small grains or legumes to provide initial, temporary cover for erosion control on disturbed areas for less than 12 months. Seed bed preparations and soil amendments shall be in accordance with the method described under "Seeding and Mulching".

6. Seeding and Mulching shall be done immediately following construction. All disturbed areas shall be dressed to a depth of 8 inches. The top 3 inches shall be pulverized to provide a uniform seedbed. Agricultural lime shall be applied at the rate of 95 lbs./1000 sq. ft. immediately before plowing. Grass seed shall be applied at the rates outlined in the City of Monroe Detail 03.07.01, Seedbed Preparation and Temporary Seeding.

7. On projects that will be maintained by the City of Monroe, verification of soil amendments and seeding rates may be required, and changes to these rates may be requested by the City of Monroe during the plan review process. Reuse of topsoil and/or other measures to assure final soil conditions are conducive to rapid establishment of vegetation cover is required.

8. 10-10-10 fertilizer shall be applied to all disturbed areas at 700-1000 lbs/acre, and mulching shall consist of small grain straw applied at a rate of 70 lbs./1000 sq. ft. Mulched areas shall be tacked with asphalt at a rate of 200 to 400 gallons per acre, or other approved method sufficient to hold the straw in place.

9. . Slopes left exposed will, within 14 calendar days in any phase of grading, be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion.

10. Compost blankets shall be installed per details shown in the North Carolina Erosion and Sediment Control Planning and Design Manual at the top of the cut and fill slopes and any other necessary locations.

11. For any land-disturbing activity, stabilize the site in accordance with the following, per NPDES General Permit NC010000:

GROUND STABILIZATION TIMEFRAMES		
Site Area Description	Stabilization	Timeframe Exceptions
Perimeter dikes, swales and slopes	7 Days	None
High Quality Water (HQW) Zones	7 Days	None
Slopes Steeper than 3:1	7 Days	If slopes are 10’ or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 4:1 or flatter	14 Days	7 days for slopes greater than 50’ in length 7 days for perimeter dikes, swales, ditches, perimeter slopes, and HQW Zones
All other areas with slopes flatter than 4:1	14 Days	7 days for perimeter dikes, swales, ditches, perimeter slopes, and HQW Zones

12. Seeding and soil stabilization of disturbed riparian areas shall be in accordance with Sections 6.24 Riparian Area Seeding of the North Carolina Erosion and Sediment Control Planning and Design Manual.

13. The use of compost sock shall be in accordance with Section 6.66 Compost Sock of the North Carolina Erosion and Sediment Control Planning and Design Manual. Uses include but are not limited to site perimeters, above graded slopes to serve as a diversion berm, check dams, drainage inlets, on paved surfaces, etc.

03.02.02 PERMANENT MEASURES

1. Permanent Ground Cover is the establishment of perennial vegetation cover for periods longer than 12 months. All disturbed areas shall receive a permanent ground cover. Permanent ground cover shall be applied within 15 working days or 60 calendar days, whichever is sooner. Permanent seeding and temporary seeding differ only in the type of seed to be used (i.e. annual versus perennial). Seed bed preparations and soil amendments shall be in accordance with Standard 03.02.01, number 6, “Seeding and Mulching”. As a part of permanent seeding, maintenance may

be required to maintain vegetation for 12 months. This maintenance shall be considered a part of establishing permanent ground cover.

2. Riprap Dissipation Pads and Riprap Protection - All stormwater release points shall be protected by riprap dissipation pads designed to reduce discharge velocities to non-erosive levels. Dissipation pads shall be designed and constructed with an engineering fabric or washed stone barrier between the pad and the natural ground. Calculations shall be furnished to indicate the sufficiency of the dissipation pads specified. Riprap pad design shall be in accordance with NYDOT or NRCS methods found in the North Carolina Erosion and Sedimentation Control Planning and Design Manual. Filter fabric, or a washed stone liner, shall be used on all sediment basins, riprap dissipaters, and channels.

03.03 CONSTRUCTION

03.03.01 CONSTRUCTION NOTES

1. Erosion control measures shall be installed prior to clearing operations. No land disturbing activity, except that which is required to install erosion control measures, may commence prior to approval of Certification Form 1-01 by the Engineering Director.

2. Any failure to maintain erosion control measures will result in appropriate enforcement actions in accordance with the City of Monroe Erosion and Sedimentation Control Ordinance, the North Carolina Sedimentation Pollution Control Act of 1973 (NCGS Chapter 113A, Article 4), and the North Carolina Administrative Code Title 15A, Department of Environment and Natural Resources Chapter 4.

3. If failures to maintain erosion control measures are not corrected, the City of Monroe will initiate enforcement action as authorized by the City Code of Ordinances.

4. Any existing streets that are affected by mud, debris, or sediment shall be cleaned within 24 hours of notice. If the streets are not cleaned within 24 hours of notice, the City will initiate cleaning and bill the developer in the amount of current policies. For a new subdivision, the City of Monroe shall not accept the right-of-way for maintenance until all outstanding bills are paid in full.

5. Sites disturbing one acre or more or any land-disturbing activity within a common plan of development one acre or more in size are subject to requirements of NPDES General Permit NCG0010000. Non-compliance of this permit will be subject to enforcement by the Division of Water Quality for any violations.