PROJECT DESCRIPTION

This project includes the grading of a 3.57 acre site for thirteen (13) single family detached dwelling sites and approximately 425 linear feet of street. The total disturbed area is 3.4 acres.

EXISTING SITE CONDITIONS

The site drains from west to east with slopes ranging up to 50 percent. Partially graded several years ago, the site is now covered by native grasses and several stands of small trees.

ADJACENT AREAS: The area to the east has been developed as the stormwater management facility for the entire subdivision. Monet Drive bounds the site on the south. Areas to the north have been developed for single family recidential usage. Areas to the North are either urban or rural residential.

Soils information is taken form the "Soil Survey of Roanoke County and the Cities of Roanoke and Salem, Virginia," issued in July 1997. A copy of Map Number 10 from this publication is included in the Drainage Calculations.

liap Symbol 26B — Hayesville Fine Sandy Loam, 2 to 7 percent slopes to 8 inches, brown fine sandy loam 8 to 15 inches, strong brown loam;
15 to 24 inches, yellowish red clay loam
24 to 43 inches, red clay
43 to 51 inches, red and yellowish red clay loam
51 to 61 inches, red, brownish yellow, and white sandy clay loam

lap Symbol 27C — Hayesville Gravely, Fine Sandy Loam, 7 to 15 percent slopes Subsurface Layer: Subsoil:

0 to 4 inches, dark brown gravelly fine sandy loam
4 to 8 inches, brown gravelly fine sandy, loam
8 to 15 inches, strong brown loam
15 to 24 inches, yellowish red clay loam
24 to 43 inches, red clay
43 to 51 inches, red and yellowish red clay loam
51 to 61 inches, red, brownish yellow, and white sandy clay, loam

Map Symbol 27D — Hayesville Gravely Fine Sandy Loam, 15 to 25 percent slopes Surface Layer: Subsurface Layer: Subsoil:

0 to 4 inches, dark brown gravely fine sandy loam
4 to 8 inches, brown gravelly fine sandy loam
8 to 15 inches, strong brown loam
15 to 24 inches, yellowish red clay loam
24 to 43 inches, red clay
43 to 51 inches, red and yellowish red clay loam
51 to 61 inches, red, brownish yellow, and white sandy clay loam

Map Symbol 28E — Hayesville Fine Sandy Loam, 25 to 50 Percent Slopes, Strong Subsurface Layer: Subsoil: to 8 inches, brown find sandy loam 8 to 15 inches, strong brown loam
15 to 24 inches, yellowish red clay loam
24 to 43 inches, red clay
43 to 51 inches, red and yellowish red clay loam
51 to 61 inches, red, brownish yellow, and white sandy clay loam

Grading of the proposed embankment along the westerly and northerly boundaries has the potential for serious erosion problems because of the 2:1 slopes. EROSION AND SEDIMENT CONTROL MEASURES

2. The construction entrance and temporary diversion dikes shall be installed prior to any grading

3. Sediment trapping measures shall be installed as a first step in grading and shall be seeded and mulched immediately following installation.

4. Temporary seeding or other stabilization shall follow immediately after grading.

Area which are not to be disturbed shall be clearly marked.

6. Field inspections during construction may require additional erosion and sediment control measures.

7. The developer shall be responsible for the installation and maintenance of all erosion and sediment

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook.

STD. & SPC. 3.02 - Temporary Construction Entrance

The stone construction entrance will reduce the amount of mud transported from the site onto paved public roads by motor vehicles or runoff. STD. & SPC. 3.03 - Construction Road Stabilization

Construction road stabilization will reduce the erosion of roadbeds and parking areas caused by construction traffic during wet weather.

STD. & SPC. 3.05 - Silt Fence

The silt fence will intercept and detain small amounts of sediment from disturbed areas during construction operations and prevent it from leaving the site. The silt fence will also decrease the velocity of sheet flows to low-to-moderate channel flows.

STD. & SPC. 3.07 - Storm Drain Inlet Projection

The storm drain inlet protection will prevent sediment from entering the storm drain system prior to permanent stabilization. STD. & SPC. 3.09 - Temporary Diversion Ditch

The temporary diversion dike will divert storm runoff from upslope drainage areas away from the unprotected disturbed areas to a stabilized outlet. The temporary dike will also divert sediment laden runoff to a sediment trapping facility.

STD. & SPC. 3.13 — Temporary Sediment Trap The temporary sediment trap will detain sediment—laden runoff long enough to allow the majority of the sediment to settle out.

STD. & SPC. 3.17 — Stormwater Conveyance Channel

The storm water Conveyance Channel will provide a means for the conveyance of concentrated surface water to a receiving system with out damage from erosion. STD. & SPC. 3.18 - Outlet Protection

Outlet protection will prevent scouring at stormwater outlets and minimizing the potential downstream erosion by reducing the velocity and energy of concentrated stormwater flows. STD. & SPC. 3.31 — Temporary Seeding

Temporary seeding will reduce erosion and sedimentation by stabilizing disturbed areas and will reduce damage from sediment and runoff to downstream or off-site areas until such time as permanent erosion control measures can be established.

STD. & SPC. 3.32 - Permanent Seeding

The permanent seeding will reduce erosion and sedimentation by permanently stabilizing disturbed areas.

STD. & SPC. 3.35 - Mulching

Mulching will prevent erosion by protecting the soil surface from raindrop impact, reduce the velocity of overland flow and foster the growth of vegetation by increasing available moisture and providing insulation against extreme heat and cold.

PERMANENT STABILIZATION

All disturbed areas not be paved shall be seeded as directed below. Seeded area shall be protected during establishment with straw mulch applied at the rate of 2 tons per acre and anchored with fiber mulch at the rate of 750 pounds per acre.

TEMPORARY SEEDING

Temporary seeding shall be applied to any disturbed area where grading operations are suspended for an anticipated duration of greater than 15 days. The temporary seeding shall adhere to the listed seed mixture and shall be done according to Standard and Specifications 3.31 of the Virginia Erosion and Sediment Control Handbook.

Temporary Seeding Mixture <u>Planting Dates</u> 1 September to 15 February 50% Annual Ryogra 50% Cereal (Winter) 15 February to 30 April 1 March to 30 August

PERMANENT SEEDING

All areas disturbed by construction will be stabilized with permanent seeding within 7 days or immediately following finish grading. Seeding will be done according to Standard and Specification 3.32 of the Virginia Erosion and Sediment Control Handbook. Permanently seeded areas shall be fertilized, mulched and protected as listed.

Slopes shall be seeded incrementally, as finish grade is established. Slopes with vertical heights of more than 5 feet shall be seeded in two equal increments. Slopes with vertical heights of less than 5 feet may be seeded in one operation.

Areas where full stands of vegetation are not established shall be overseeded or cultivated and reseeded to establish growth of vegetation.

The topsoil pile shall be seeded as soon as it is placed

Slopes 3: 1 or Less

K-31 Fescue © 5 lb/1000 SF Borzy Winter Rye © ½ lb/1000 SF 15 October to 1 February 1 February to 1 June K-31 Fëscue **©** 5 lb/1000 S Annual Ry• **© ½** lb/1000 SF

1 June to 1 September

K-31 Fescue © 5 lb/1000 St GermanMillett © ½ lb/1000SF 1 September to 15 October K-31 Fescue @ 5 lb/1000 St Annual Rye @ ½ lb/1000 SF

Slopes 3:1 or Steeper 15 March to 1 May

Crown Vetch & 2 lb/1000 SF
Perennial Ryegrass & ½ lb/1000 SF
Red Top @ 1/8 lb/1000 SF
140 lb/1000 SF Pulverized Agricultural Limestone
izer: 5-20-10 @ 25 lb/1000 SF
38-0-0 @ 7 lb/1000 SF

Incorporation of lime and fertilizer selection of certified seed, mulching, maintenance of new seedlings, and reseeding shall be in accordance with specifications contained with the Virginia Soil Erosion and Sediment Control Handbook, latest edition. Additional seeding to be performed

The proposed development will result in increased peak rates of runoff. This increase in stormwater runoff was included in the design of the detention facility constructed with Section One, "The Groves."

<u>CALCULATIONS</u>

Calculations for the detention facility were previously submitted.

MAINTENANCE

In general, all erosion and sediment control measures will be checked weekly and after each significant rainfall. The following items will be checked in particular:

All sediment trappings will be checked regularly for necessary sediment removal.

All storm drain inlets and outlets will be checked regularly for sediment buildup.

All sit barriers will be checked regularly for undermining or deterioration.

All seeded areas will be checked regularly to ensure stabilization is maintained. Areas shall be reseeded and fertilized as needed.

CONSTRUCTION SEQUENCE

1. Contractor's Certified Responsible Land Disturber shall be named at and attend the pre-construction meeting and provide a copy of his RLD Certificate thereat.

Contract shall apply for DEQ Land Disturbance Permit at least two (2) days prior to land disturbance and provide Roanoke County Department of Community Development copy of said permit within five (5) days of issuance.

3. Install Construction Entrance as the first step in the construction process.

4. Areas to be cut and filled are to be cleared and graded in phases. This phasing will be done to minimize the length of time areas are subject to erosion. All perimeter erosion and sediment control measures shall be installed prior to beginning grading operations in the affected areas.

5. Install inlet protection and outlet protection along with storm drain construction.

6. Temporary erosion and sediment control measures shall be removed after those affected areas have been brought to final grade and permanently stabilized with improvements or established

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES—1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulations VR 625—02—00 Erosion and Sediment Control Regulations.

ES-2: The plan approving authority must be notified one week prior to the onsite preconstruction conference. One week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in

ES-4: A copy of the approved Erosion and Sediment Control Plan and Narrative, as well as a copy of the Land Disturbing Permit, shall be maintained on the site at all times. The Erosion and Sediment Control Administrator will deliver these materials at the onsite pre-construction

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste greas), the Contractor shall submit a supplementary Erosion Control Plan to the owner for review and approval by the plan approving authority.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.

ES-7: All disturbed areas are to drain to approved sediment control measures at all times during the land disturbing activities and during site development until final stabilization is achieved.

ES-8: During dewatering operation, water will be pumped into an approved filtering device.

ES-9: The Contractor shall inspect all erasion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erasion control devices shall be made immediately. An inspection report must be filled with the Roanoke County Erasion and Sediment Control Administrator once every two weeks, beginning with commencement of the land disturbing activity, and within 48 hours of any runoff-producing rainfall event. Failure to submit a report will be grounds for immediate revocation of the Land Disturbing Permit. Reports must be postmarked within 24 hours of the deadline. A standard inspection report form will be supplied, which should be copied as necessary. This provision in no way waives the right of Roanoke County Personnel to conduct site inspections, no does it deny the right of the permittee(s) to accompany the inspector(s).

SHEET

LUMSDEN ASSOCIATES, P.C. ENGINEERS-SURVEYORS-PLANNERS ROANOKE, VIRGINIA

No. 033002

THOMAS C. DAL

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