



GRASS LINED CONVEYANCE CHANNEL

NOTE:

ANY OFF-SITE BARROW OF FILL AREAS WILL REQUIRE A SEPERATE EROSION SEDIMENT CONTROL PLAN.

**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 residential usage. Areas to the North are either urban or rural residential.

**SOILS**

Soils information is taken from 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.

Map Symbol 268 - Hayesville Fine Sandy Loam, 2 to 7 percent slopes

Surface Layer: 0 to 4 inches, dark brown fine sandy loam  
Subsurface Layer: 4 to 8 inches, brown fine sandy loam  
Subsoil: 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  
Substratum: Moderate  
Permeability: High  
Erosion Potential: High  
Shrink-Swell Potential: Low

Map Symbol 27C - Hayesville Gravelly, Fine Sandy Loam, 7 to 15 percent slopes

Surface Layer: 0 to 4 inches, dark brown gravelly fine sandy loam  
Subsurface Layer: 4 to 8 inches, brown gravelly fine sandy loam  
Subsoil: 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  
Substratum: Moderate  
Permeability: High  
Erosion Potential: High  
Shrink-Swell Potential: Low

Map Symbol 27D - Hayesville Gravelly Fine Sandy Loam, 15 to 25 percent slopes

Surface Layer: 0 to 4 inches, dark brown gravelly fine sandy loam  
Subsurface Layer: 4 to 8 inches, brown gravelly fine sandy loam  
Subsoil: 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  
Substratum: Moderate  
Permeability: High  
Erosion Potential: High  
Shrink-Swell Potential: Low

Map Symbol 28E - Hayesville Fine Sandy Loam, 25 to 50 Percent Slopes, Strong

Surface Layer: 0 to 4 inches, dark brown fine sandy loam  
Subsurface Layer: 4 to 8 inches, brown fine sandy loam  
Subsoil: 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  
Substratum: Moderate  
Permeability: High  
Erosion Potential: High  
Shrink-Swell Potential: Low

**CRITICAL AREAS**

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**

1. Construction should be sequenced so that grading operations can begin and end as quickly as possible.
2. The construction entrance and temporary diversion dikes shall be installed prior to any grading operations.
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.
5. 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 control practices.

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 Protection

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 ditch will divert storm runoff from upslope drainage areas away from the unprotected disturbed areas to a stabilized outlet. The temporary ditch 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 faster the growth of vegetation by increasing available moisture and providing insulation against extreme heat and cold.

**PERMANENT STABILIZATION**

All disturbed areas not to 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

Planting Dates	Species	Rate
1 September to 15 February	50% Annual Ryegrass 50% Cereal (Winter) Rye	100
15 February to 30 April	Annual Ryegrass German Millet	100
1 March to 30 August		50

**PERMANENT SEEDING**

All areas disturbed by construction will be stabilized with permanent seeding within 7 days or immediately following final 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 from erosion.

Slopes shall be seeded incrementally, as final 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**

15 October to 1 February K-31 Fescue @ 5 lb/1000 SF  
Barz Winter Rye @ 1/2 lb/1000 SF

1 February to 1 June K-31 Fescue @ 5 lb/1000 SF  
Annual Rye @ 1/2 lb/1000 SF

1 June to 1 September K-31 Fescue @ 5 lb/1000 SF  
GermanMillet @ 1/2 lb/1000SF

1 September to 15 October K-31 Fescue @ 5 lb/1000 SF  
Annual Rye @ 1/2 lb/1000 SF