

SEQUENCE OF CONSTRUCTION

Before any clearing or grading, install the following erosion control techniques in the listed order:

1. Clearing and Grubbing (no stump removal)
2. Install Construction Entrance
3. Install Silt Fence
4. Construct other applicable erosion and sediment control structures as required.
5. Strip topsoil and stockpile per notes.
6. Grade site to proposed contours and remove stumps, as needed. Any controlled fill material to be placed per note.
7. Temporary seeding as needed
8. Finish site construction
9. Stabilize site and complete permanent seeding
10. Acquire approval for final stabilization from Franklin County Inspector
11. Remove temporary measures and stabilize the disturbed areas.

PLACEMENT OF CONTROLLED FILL MATERIAL

1. Proof roll subgrade surfaces of original ground surfaces which have been stripped for placement of controlled fill with a loaded dump truck or other heavy vehicle to locate areas of soft material. If soft material is found, remove and replace it according to notes for placement of controlled fill.
2. Place fill material in lifts not to exceed 6" in compacted thickness. Rock material of maximum dimension greater than 6" shall not be included in the fill material.
3. Compact each lift to 95% maximum dry density, moisture conditioned to within  $\pm 3\%$  of the optimum moisture content, per ASTM D-698, Standard Proctor Method.












GENERAL NOTES

1. The contractor is responsible for obtaining and adhering to the provisions of the Erosion Sediment Control Plan and Narrative. Work to included inspection and repairs, if necessary, periodically and after every erodible rainfall.
2. Franklin County Modification Note:  
"Upon site inspection, additional erosion and sediment control measures may be required by Franklin County personnel if installed measures are deemed inadequate." 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.
3. Care must be taken during construction to prevent erosion, dust and mud from damaging adjacent property, clogging ditches, tracking public streets and otherwise creating a public or private nuisance to surrounding areas.
4. Drainage easements must be defined by excavated ditches or channels for their full length to well defined existing natural watercourses.
5. If erosion is encountered in any drainage easement, it will be the responsibility of the developer to sod, rip rap, grout, pave, or do whatever is necessary to correct the problem.
6. All vegetation and overburden to be removed from proposed pavement, gravel, and concrete areas prior to the conditioning (cutting and/or preparation) of the subgrade.
7. Soil stockpiles to be located by the contractor on an as-needed basis. Soil piles to be constructed at 2:1 slope or less with a silt fence at the toe of slope. Piles to be temporary seeded if not in-use within 7 days.
8. A tree line is not shown on the plans. The site is grass covered on the upper flatter portions and very brushy with saplings present on the lower sections. Some trees exist on the lower half of the site. No specific trees are to be preserved as a part of this plan.
9. The entire site may be cleared and grubbed and the trees may be removed. Trees to be appropriately disposed of at County Landfill or an approved site.
10. Clearing and grubbing shall be completed within the Limit Of Disturbance (LOD) as shown on the PLAN.
11. Excess excavation to be disposed of as directed by the ENGINEER.

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 4VAC50-30 Erosion and Sediment Control Regulations.
- ES-2 The plan approving authority must be notified one week prior to the pre-construction 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 clearing.
- ES-4 A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.
- 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 areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan approving authority. This work will be completed at the Contractor's expense.
- 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 land disturbing activities and during site development until final stabilization is achieved.
- ES-8 During dewatering operations, water will be pumped into an approved filtering device.
- ES-9 The contractor shall inspect all erosion control measures periodically and after each runoff producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

EROSION & SEDIMENT CONTROL DEVICE LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CONSTRUCTION ENTRANCE		OUTLET PROTECTION
	CONSTRUCTION ROAD STABILIZATION		RIPRAP
	SILT FENCE		PERMANENT SEEDING
	INLET PROTECTION		STORMWATER CONVEYANCE CHANNEL
	TEMPORARY SEDIMENT TRAP		BLANKET/MATTING
	TEMPORARY DIVERSION DIKE		

LIMITS ON PLAN USE

These Plans detail information for Grading and for Erosion and Sediment Control. These plans are not a Site Plan.

MINIMUM STANDARDS FOR CONTROLLING EROSION AND SEDIMENT

- MS-1 Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 30 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.
- MS-2 During construction of the project, soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.
- MS-3 A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.
- MS-4 Timing and Stabilization of Sediment Trapping Measures  
Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.
- MS-5 Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
- MS-6 Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.  
A. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.  
B. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.
- MS-7 Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
- MS-8 Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.
- MS-9 Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
- MS-10 All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
- MS-11 Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.
- MS-12 When work in a live watercourse is performed, precautions shall be taken to minimize encroachment and disturbance to the watercourse. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.
- MS-13 When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.
- MS-14 All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met.
- MS-15 The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
- MS-16 Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:  
A. No more than 500 linear feet of trench may be opened at one time.  
B. Excavated material shall be placed on the uphill side of trenches.  
C. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.  
D. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.  
E. Rehabilitation shall be accomplished in accordance with this chapter.  
F. Applicable safety regulations shall be complied with.
- MS-17 Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.
- MS-18 All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local program authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.
- MS-19 Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria:  
A. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.  
B. Adequacy of all channels and pipes shall be verified in the following manner:  
(1) The applicant shall demonstrate that the total drainage area that is the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or  
(2)(a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel bed or banks nor cause erosion of channel bed or banks; and  
(2)(b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and  
(2)(c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.  
C. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:  
(1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to channel the bed or banks; or  
(2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;  
(3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or  
(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the plan approving authority to prevent downstream erosion.  
D. The applicant shall provide evidence of permission to make the improvements.  
E. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.  
F. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the locality of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.  
G. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.  
H. All on-site channels must be verified to be adequate.  
I. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.  
J. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.  
K. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.

Contractor shall be responsible for obtaining a copy of the approved Erosion and Sediment Control Plan and adhere to same. The Virginia Erosion and Sediment Control Handbook shall be used in addition to the approved narrative and plan.

Temporary & Permanent Seeding

Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Permanent stabilization shall be applied to areas that are to be left dormant for more than a year. Permanent vegetation shall not be considered established until a ground cover is achieved that, in the opinion of the local program administrator or his designated agent, is uniform, mature enough to survive and will inhibit erosion. Reference is made to the 1992 Virginia Erosion and Sediment Control Handbook addressing minimum standards number one and three (MS-1 and MS-3).

Seeding Mixture

Seeding	Total lbs. Per acre
A. General	200-250 lbs.
- Kentucky 31 or Turf Type Tall Fescue	90-100%
-Improved Perennial Ryegrass*	0-10%
-Kentucky Bluegrass	0-10%
B. General Slope (3:1 or less)	
- Kentucky 31Fescue	128 lbs
-Red Top Grass	2 lbs.
-Seasonal Nurse Crop**	20 lbs.
	150 lbs.
C. Low Maintenance Slope (Steeper than 3:1)	
- Kentucky 31Fescue	128 lbs
-Red Top Grass	2 lbs.
-Seasonal Nurse Crop**	20 lbs.
-Crownvetch***	20 lbs.
	150 lbs.

\*Perennial Ryegrass will germinate faster and at lower soil temperatures than fescue, thereby providing cover and erosion resistance for seedbed.

\*\*Use seasonal nurse crop in accordance with seeding dates as stated below:

March, April - May 15 Annual Rye May 16 - August 15 Foxtail Millet  
August 16 - October Annual Rye November - February Winter Rye

\*\*\*If Flatpea is used, increase to 30 lb/acre. All legume seed must be properly inoculated.

Weeping Lovegrass may also be included in any slope or low-maintenance mixture during warmer seeding periods: add 10-20 lb/acre in mixes.

Lime

Pulverized agricultural grade limestone 2 tons/acre (90 lbs/1000 sf)

Fertilizer

10-20-10 or equivalent nutrients 1000 lbs/acre (23 lbs/1000 sf)

Critical Erosion Areas

If proper methods are followed, there are the following critical erosion areas:

- CEA1) Contractor shall monitor all ditches for erosion and scouring and repair as needed.
- CEA2) Contractor shall monitor all silt fences for sediment buildup and shall be cleaned as required.
- CEA3) Contractor shall monitor all drainage structures for sediment buildup and shall be cleaned as required.
- CEA4) Exposed fill slopes constructed at 3:1 or steeper slope will be closely monitored. If vegetation cannot reasonably be established the areas will be blanket matted. Temporary silt fence will be placed and maintained at the toe of the slope until the slope has stabilized.

SCHEDULE OF MAINTENANCE

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

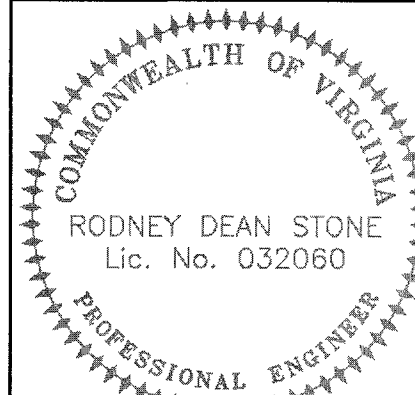
1. The drainage structures will be checked regularly for sediment buildup and cleaned out as required.
2. The silt fence barrier will be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.
3. The seeded areas will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed.

RESPONSIBILITY FOR MAINTENANCE AND REPAIR

IS ASSIGNED AND DELEGATED AS FOLLOWS:

- THE R.L.D. (RESPONSIBLE LAND DISTURBER) EMPLOYED BY THE OWNER IS RESPONSIBLE FOR EXECUTING THE EROSION & SEDIMENT CONTROL (E&SC) PLAN AS APPROVED, AND, AS AMENDED BY FRANKLIN COUNTY. THE R.L.D. WILL ALSO BE THE COORDINATOR FOR ANY E&SC ACTIVITIES ON-SITE.
- CONTRACTORS WORKING ON-SITE ARE RESPONSIBLE FOR USING AND MAINTAINING THE E&SC FEATURES AS THEY ARE ENCOUNTERED IN THE EXECUTION OF THEIR WORK.
- THE OWNER IS RESPONSIBLE FOR AUTHORIZING AND FUNDING ANY REQUIRED ACTIVITIES.
- FRANKLIN COUNTY IS RESPONSIBLE FOR NOTIFYING THE R.L.D. OF ANY SITE ISSUES, SITE INSPECTIONS, AND AMENDING THE E&SC PLAN AS NEEDED.

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DESIGN	CDS
DRAFT	CDS
CHECK	RDS

GENERAL NOTES FOR  
SOUTHLAKE TOWNE CENTER  
LOCATED ON STATE ROUTE 40 EAST  
UNION HALL MAGISTERIAL DISTRICT  
FRANKLIN COUNTY, VIRGINIA

DATE	09/29/10
SCALE	AS SHOWN
SHEET	2 OF 11
PROJECT NUMBER	08091