EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION: THIS PROJECT CONSISTS OF THE CONSTRUCTION OF AN APARTMENT COMPLEX LOCATED AT THE INTERSECTION OF OWEN'S WAY AND BAILEY'S RIDGE DRIVE. APPROXIMATELY 12.1 AC. OF LAND DISTURBANCE WILL OCCUR DURING THE CONSTRUCTION OF THIS SUBDIVISION. THE LAND DISTURBANCE WILL INCLUDE CUT AND FILL GRADING ACTIVITIES, AND CLEARING. POST-DEVELOPED, THE SITE WILL CONSIST OF APPROXIMATELY 53% IMPERVIOUS SURFACES.

EXISTING SITE CONDITIONS: THE SITE IS LOCATED ON THE EAST SIDE OF BAILEY'S RIDGE DRIVE AND GENERALLY SLOPES FROM THE SOUTH TO THE NORTH TO EXISTING WETLANDS ALONG THE NORTHERN PROPERTY LINE.

ADJACENT AREAS: THE SITE IS BORDERED BY AN APARTMENT COMPLEX TO THE SOUTH AND REIDENTIAL TO THE EAST AND NORTH.

OFFSITE AREAS: NO OFFSITE AREAS WILL BE AFFECTED BY THIS DEVELOPMENT.

SOILS: PLEASE SEE SHEET 11 FOR SOIL TYPES, LOCATIONS AND VALUES.

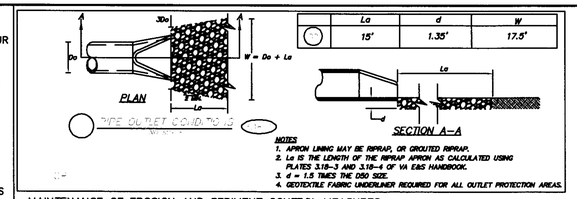
CRITICAL AREAS: HIGHLY ERODIBLE SOILS, WETLANDS AND WATERS OF THE U.S. ARE LOCATED ON THIS SITE. WETLANDS AND WATERS OF THE U.S. SHALL NOT BE IMPACTED WITHOUT APPROVAL FROM THE ARMY CORP OF ENGINEERS AND/OR THE DEPARTMENT OF ENVIRONMENTAL QUALITY.

EROSION AND SEDIMENT CONTROL MEASURES: PERIMETER SILT FENCE, INLET PROTECTION INSTALLED ON THE PROPOSED STRUCTURES, SEDIMENT BASINS, CULVERT INLET PROTECTION, AND DIVERSION DITCHES WILL SERVE AS THE PRIMARY EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PROCESS.

PERMANENT STABILIZATION: ALL DENUDED AND UNGRAVELLED AREAS SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH STATE REGULATIONS. OUTLET PROTECTION WILL BE USED AT ALL PIPE OUTFALLS.

STORMWATER RUNOFF CONSIDERATIONS: THE USE OF TWO STORMWATER MANAGEMENT BASINS WILL SERVE TO MAINTAIN PREDEVELOPED PEAK RUNOFF RATES.

CALCULATIONS: ALL STORM SEWER CALCULATIONS HAVE BEEN SUBMITTED TO COUNTY AND STATE OFFICIALS FOR REVIEW.



NOTES
1. APRON LINING MAY BE RIPRAP, OR GROUTED RIPRAP.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18-3 AND 3.18-4 OF VA E&S HANDBOOK.
3. d = 1.5 TIMES THE D50 SIZE.
4. GEOTEXTILE FABRIC UNDERLINER REQUIRED FOR ALL OUTLET PROTECTION AREAS.

MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES:

SILT FENCE: INSPECT AFTER EACH RAINFALL EVENT. REMOVE SEDIMENT FROM SILT FENCE WHEN IT REACHES ONE-HALF THE HEIGHT OF THE BARRIER. REPAIR ANY TORN FENCE PROMPTLY.

SEDIMENT TRAP AND SEDIMENT BASIN: INSPECT AFTER EACH RAIN. REMOVE SEDIMENT FROM THE TRAP/BASIN WHEN IT REACHES ONE-HALF THE DESIGN VOLUME OF THE WET STORAGE (THIS LEVEL SHOULD BE MARKED OR PAINTED ON THE STRUCTURE).

CONSTRUCTION ENTRANCE: TOPDRESS WITH ADDITIONAL STONE OR WASH AND REWORK EXISTING STONE AS NEEDED TO PREVENT MUD FROM BEING TRACKED OFF THE SITE.
ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

CURB INLET PROTECTION: INSPECT AFTER EACH RAIN. REMOVE SEDIMENT WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH OF THE TRAP.

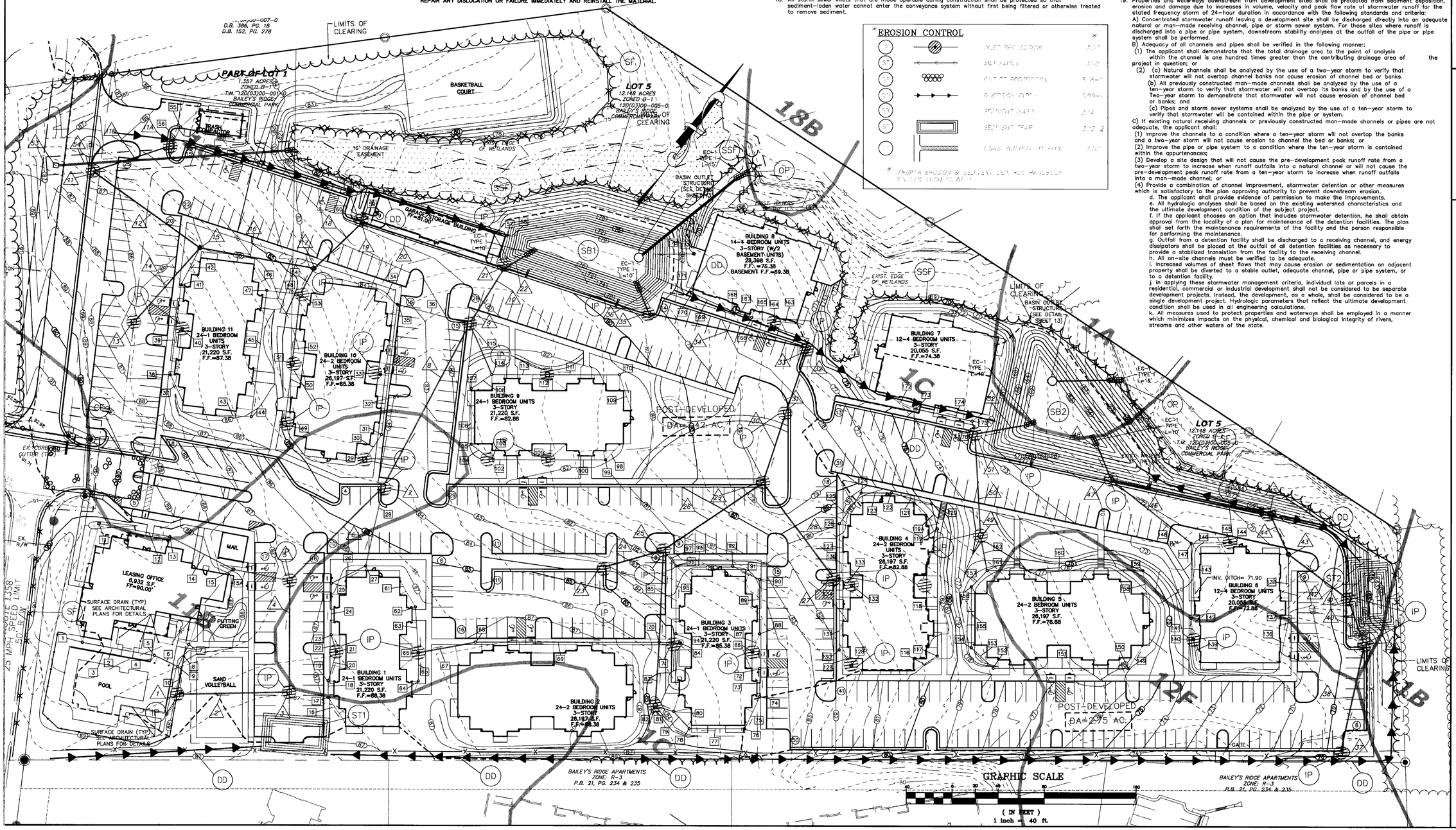
STRAW BALE BARRIER: INSPECT AFTER EACH RAIN. REPAIR DAMAGED BALES, END RUNS, AND UNDERCUTTING BENEATH BALES PROMPTLY. THE CONTRACTOR SHOULD REMOVE SEDIMENT AFTER EACH RAINFALL; HE SHALL REMOVE SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE BALE.

EROSION BLANKET OR MAT: INSPECT AFTER EACH RAIN FOR EROSION OR UNDERMINING.
REPAIR ANY DISLOCATION OR FAILURE IMMEDIATELY AND REINSTALL THE MATERIAL.

4VAC50-30-40. MINIMUM STANDARDS

An erosion and sediment control program adopted by a district or locality must be consistent with the following criteria, techniques and methods:

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.
2. During construction of the project, soil stock piles 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.
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.
4. 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.
5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
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 contain 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.
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.
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.
9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
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.
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.
12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. 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.
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.
14. All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met.
15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
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) Restabilization shall be accomplished in accordance with this chapter.
    F) Applicable safety chapters shall be complied with.
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.
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.
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 to 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 banks nor cause erosion of channel bed or banks.
    (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
    (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.



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DATE	REVISION DESCRIPTION
01-15-09	COUNTY COMMENTS
05-18-09	OWNER REVISIONS
06-19-09	COUNTY COMMENTS

DATE	02 JULY 2008
DRAWN BY	K.HALPAUS
DESIGNED BY	K.HALPAUS
CHECKED BY	D.JOHNSON
SCALE	1"=40'

TIMMONS GROUP

INDEPENDENCE PLACE APARTMENTS

BLAND DISTRICT - PRINCE GEORGE COUNTY - VIRGINIA

PHASE 2 EROSION CONTROL PLAN

JOB NO.	25056
SHEET NO.	12

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