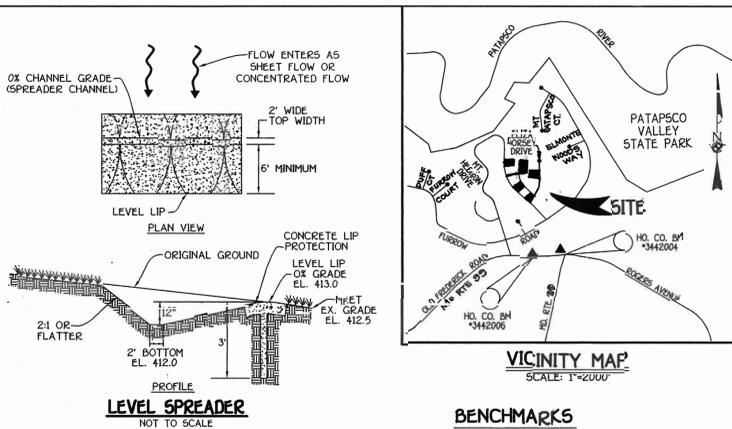
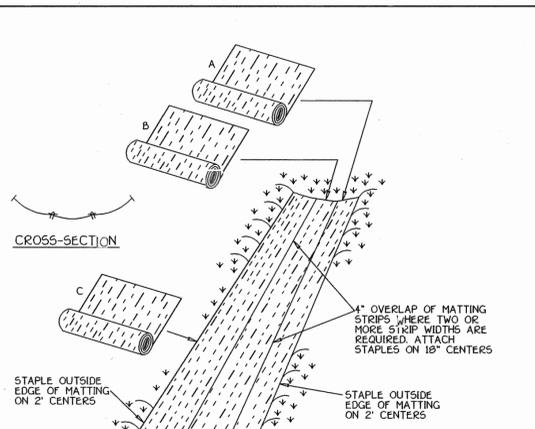
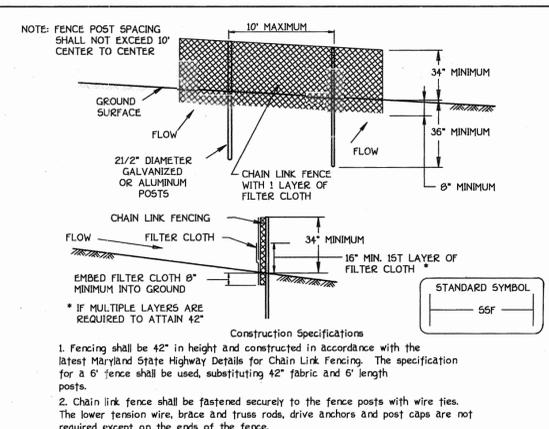
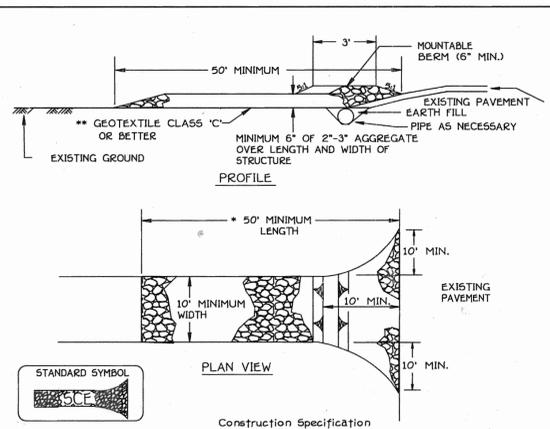


SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSING AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (315-1659).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THEREOF.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, BIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1; b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 50), 500 (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:
 - a) TOTAL AREA OF SITE: 1.120 ACRES
 - b) TOTAL AREA TO BE DISTURBED: 0.420 ACRES
 - c) TOTAL AREA TO BE VEGETATIVELY STABILIZED: 0.700 ACRES
 - d) TOTAL CUT: 970 CU.YDS.
 - e) TOTAL FILL: 970 CU.YDS.
 - f) OFFSITE WASTE/BORROW AREA LOCATION: N/A
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



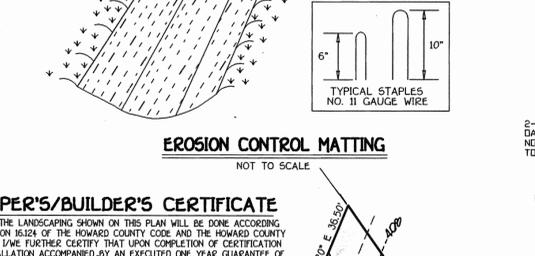
STABILIZED CONSTRUCTION ENTRANCE - 2
 NOT TO SCALE

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 101	Unlimited	Unlimited
10 - 20%	101 - 51	200 feet	1,500 feet
20 - 33%	51 - 31	100 feet	1,000 feet
33 - 50%	31 - 21	100 feet	500 feet
50% +	21 +	50 feet	250 feet

EROSION CONTROL MATTING
 NOT TO SCALE

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THIS PLAN, SECTION 1824 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF CERTIFICATION OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: SIMON ROSENBERG DATE: 6/11/04

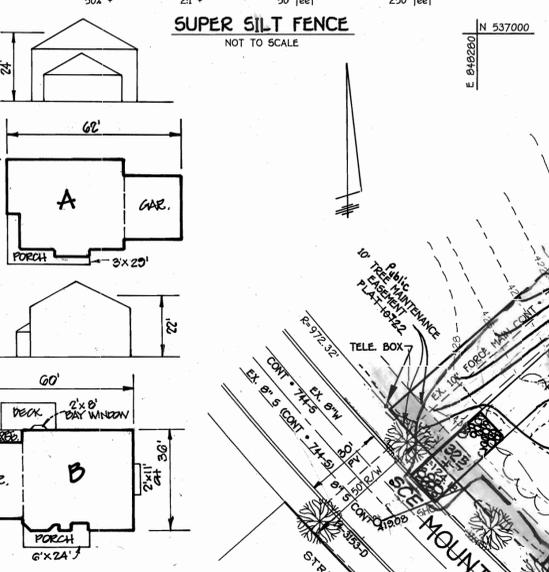


- BENCHMARKS**
 HO. CO. #3442004
 HO. CO. #3442006
 NOTE: ADDITIONAL BENCHMARK INFORMATION IS NO LONGER AVAILABLE FROM HOWARD COUNTY.
- GENERAL NOTES**
1. THE PROPERTY IS ZONED R-20 PER THE 10/18/93 COMPREHENSIVE ZONING PLAN.
 2. THE TOTAL AREA INCLUDED IN THIS SUBMISSION IS 3.032 AC.
 3. THE TOTAL NUMBER OF LOTS INCLUDED IN THIS SUBMISSION IS 5.
 4. THE TOTAL DISTURBED AREA IS 1.190 AC.
 5. SHC ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE.
 6. DEPARTMENT OF PLANNING AND ZONING REFERENCE FILE NUMBERS ARE F-9817, M & C CONT. #4-355-D & #4-374-D.
 7. UTILITIES SHOWN AS EXISTING ARE TAKEN FROM APPROVED WATER AND SEWER PLANS CONTRACTS #4-355-D AND #4-374-D AND APPROVED ROAD CONSTRUCTION PLANS F-98-87.
 8. ANY DAMAGE TO COUNTY RIGHTS-OF-WAY SHALL BE REPAIRED AT THE DEVELOPER'S EXPENSE.
 9. ALL COORDINATES ARE BASED ON NAD 27, MARYLAND STATE PLANE GRID AS PROJECTED BY HOWARD COUNTY CONTROL STATIONS #412004 AND #42006.
 10. IN ACCORDANCE WITH SECTION 1824(B)(2) OF THE HOWARD COUNTY SUPPLEMENTARY ZONING DISTRICT REGULATIONS, BAY WINDOWS OR PORCHES NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 12 FEET INTO ANY SETBACK PROVIDED AND DECKS MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR SETBACKS.
 11. BASED UPON WAIVER PETITION #P 90-90 GRANTED 8/23/90, GRADING AND CLEARING OF ALL SLOPES SHALL BE DONE AT A STEEPER SLOPE ADJACENT TO THE STREAM BANK AND WETLANDS.
 12. STORMWATER MANAGEMENT IS PROVIDED FOR LOTS 64, 77, 82, 89, 91 AND 92. THIS PLAN IS SUBJECT TO THE FIFTH EDITION OF THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING SUPPLEMENTARY ZONING DISTRICT REGULATIONS, BAY WINDOWS OR PORCHES NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 12 FEET INTO ANY SETBACK PROVIDED AND DECKS MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR SETBACKS.
 13. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTION DIVISION (410-33-1800) AT LEAST 24 HOURS PRIOR TO THE START OF WORK.
 14. THE CONTRACTOR SHALL NOTIFY "MSU UTILITY" (410-257-7777) AT LEAST 48 HOURS PRIOR TO EXCAVATION WORK.
 15. THIS PLAN IS BASED ON A BOUNDARY SURVEY PERFORMED BY PURDUM & RESCHKE.
 16. TOPOGRAPHY IS BASED ON FIELD RUN TOPOGRAPHY PERFORMED BY FISHER, COLLINS & CARTER, INC. JULY 1993 AND APRIL 2002.
 17. THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION SECTION 16.12(C) OF THE HO. CO. CODE BECAUSE THE SUBDIVISION WAS RECORDED PRIOR TO 12/31/1992.
 18. THIS PLAN IS SUBJECT TO THE FIFTH EDITION OF THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING SUPPLEMENTARY ZONING DISTRICT REGULATIONS, BAY WINDOWS OR PORCHES NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 12 FEET INTO ANY SETBACK PROVIDED AND DECKS MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR SETBACKS.
 19. THIS PLAN HAS BEEN PREPARED BY A LICENSED LANDSCAPING MANUAL FINANCIAL SERVICES, INC. HAS BEEN AS PART OF THE QUALITY OF ENVIRONMENT PROGRAM FOR A SHADE TREES AND 5 GARDENERS TREES on Lot 82.

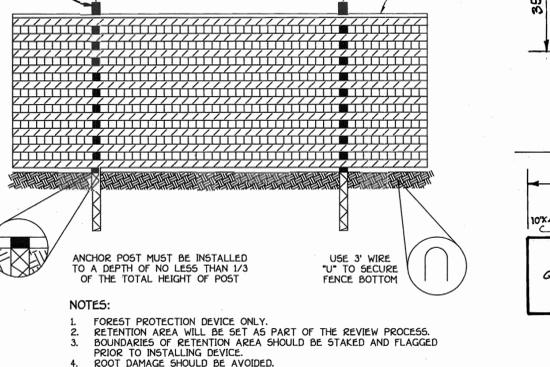
SCHEDULE A PERIMETER LANDSCAPE EDGE

LOT NO.	PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	SHADE TREES	EVERGREEN TREES	TOTAL TREES
82	P-1	ADJACENT TO ROADWAY	B	174	4	5	9

SUPER SILT FENCE
 NOT TO SCALE



TREE PROTECTION DETAIL
 NOT TO SCALE



ADDRESS CHART

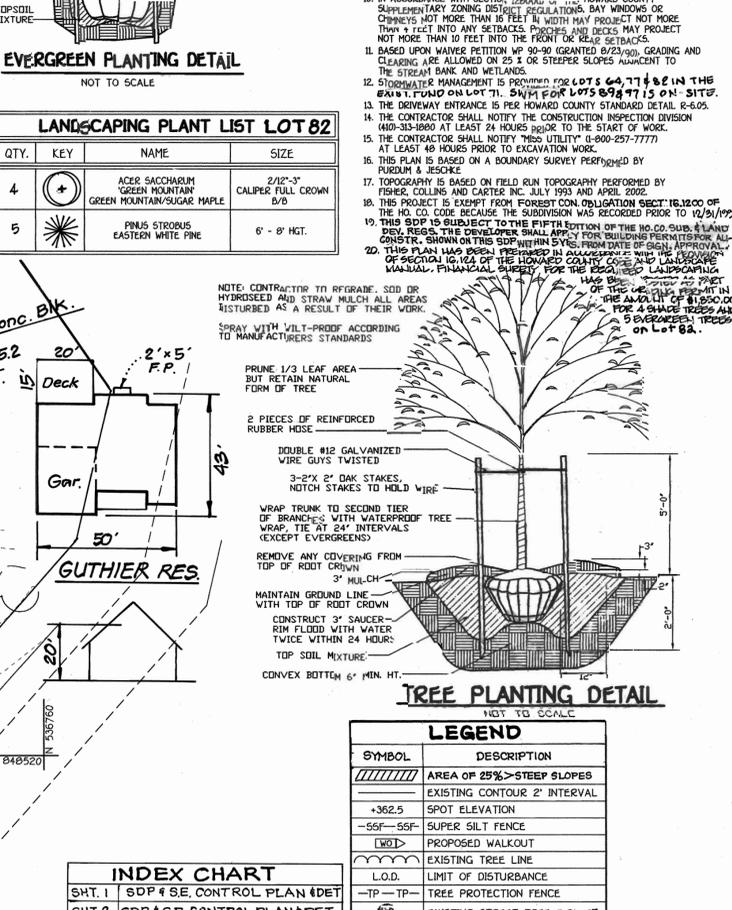
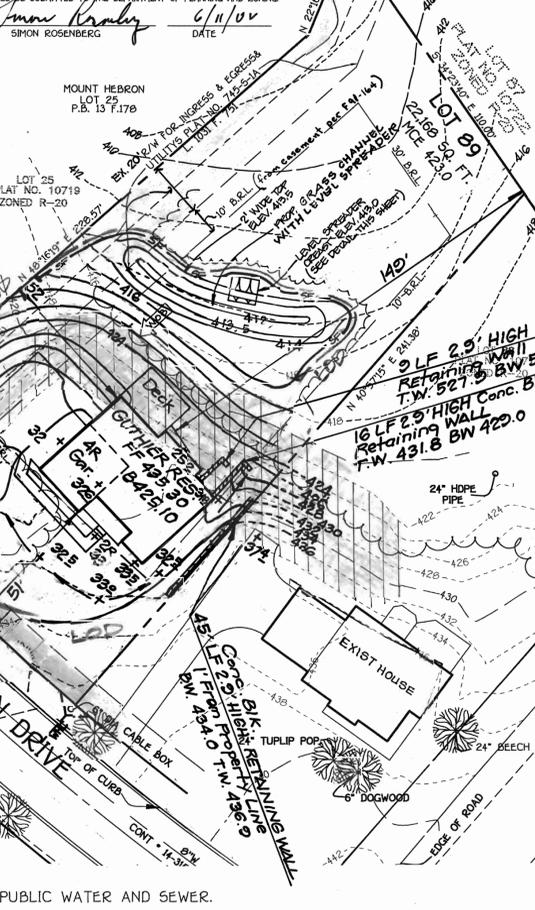
LOT NUMBER	STREET ADDRESS
64	2082 MT. HEBRON DRIVE
77	2073 DIANE LANE
82	2082 MT. HEBRON DRIVE
89	2084 MT. HEBRON DRIVE
91	2083 MT. HEBRON DRIVE

EROSION CONTROL MATTING

CONSTRUCTION SPECIFICATIONS

1. Kerf the matting by placing the top ends of the matting in a narrow trench 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4". Embed Bottom Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be key-in.



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 2000 SQUARE OFFICE PARK - 18275 SILVER SPRING ROAD, FLEX
 ELLICOTT CITY, MARYLAND 21114
 (410) 481-2955

REVISIONS

DATE	REVISION
6-15-04	Revise grad. Relocate Ret. Walls lot 89
5-14-04	Add 3RD Retaining Wall
4-30-04	Rev. grad. & add retaining walls to meet ex. grad. on lot 89
11-25-03	Rev. grad. lot 89 to show Existing Conditions
1-1-04	Rev. grad. & hse. lot 89, Add hse. typical

ENGINEER'S CERTIFICATE
 I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer: CHARLES J. GROVO Sr. DATE: 4/17/02

DEVELOPER'S CERTIFICATE
 I/We certify that all development and construction will be done according to this plan for sediment and erosion control and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

Signature of Developer: SIMON ROSENBERG DATE: 4-19-02

OWNER/BUILDER/DEVELOPER
 SIMON ROSENBERG
 HOUSING MARKETING ASSOC.
 1216 ARDIC ROAD
 SILVER SPRING, MD 20904
 410-879-4242

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development: Cindy J. Smith DATE: 4/23/02

Chief, Development Engineering Division: [Signature] DATE: 10/15/02

Director, Department of Planning and Zoning: [Signature] DATE: 10/26/02

PROJECT: PATAPSCO PARK ESTATES SECTION: 4 LOTS NO.: 64,77,82,89 & 97

PLAT: 10720 BLOCK NO.: 5 ZONE: R-20 TAX/ZONE: 17 ELEC. DIST.: SECOND CENSUS TR.: 602,00

WATER CODE: H-03 SEWER CODE: 1455600

SITE DEVELOPMENT PLAN, SEDIMENT, EROSION CONTROL PLAN, NOTES & DETAILS

SINGLE FAMILY DETACHED PATAPSCO PARK ESTATES
 LOTS 64,77,82,89 & 97
 SECTION FOUR

TAX MAP No: 17 PARCEL 38 ZONED: R-20
 SECOND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 SCALE: 1"=30' DATE: JANUARY, 2002

SHEET 1 OF 2
 F-91-167

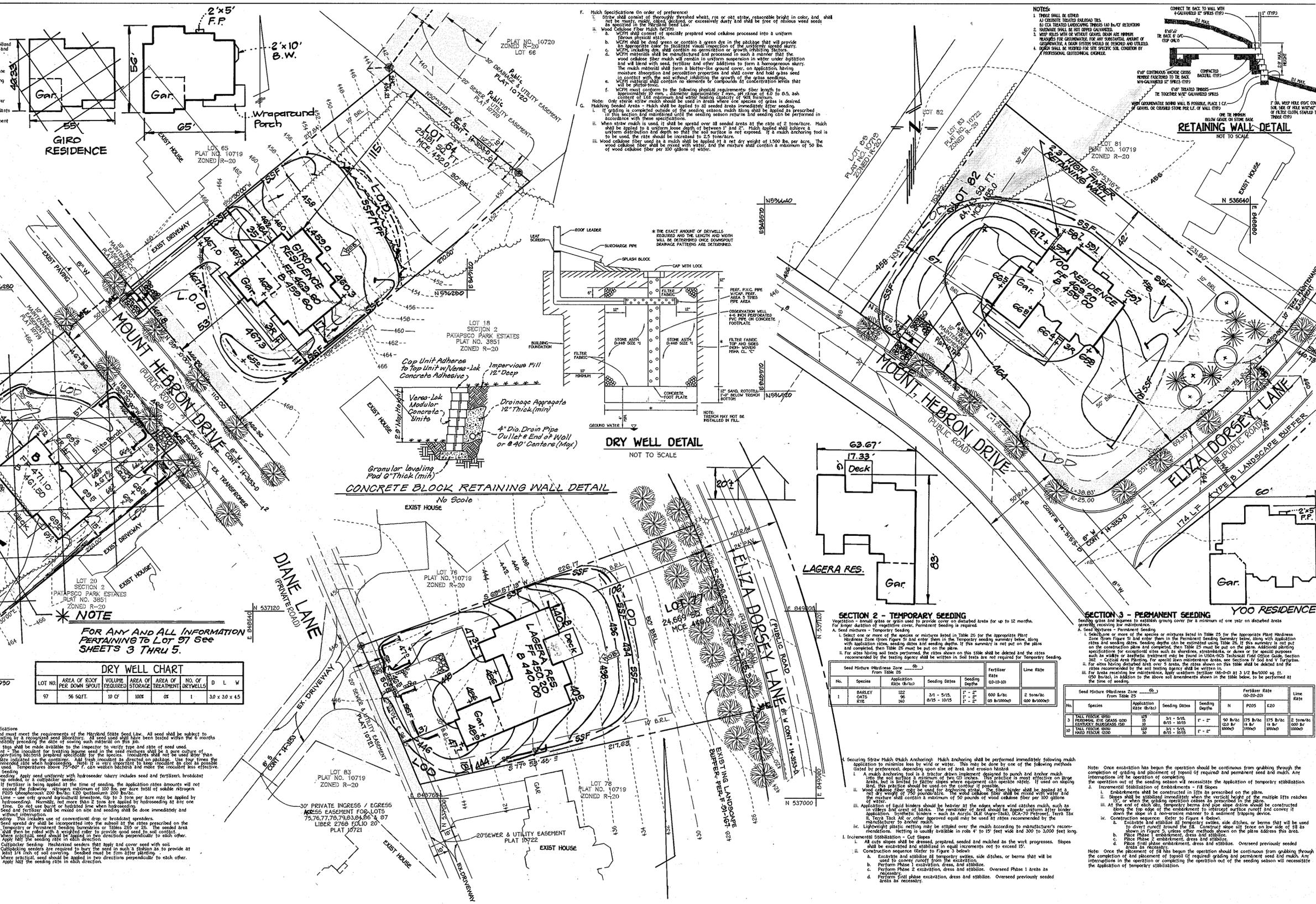
20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

VEGETATIVE STABILIZATION
DEFINITION
 Using vegetation as cover for barren soil to protect it from forces that cause erosion.
PURPOSE
 Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas, and improving wildlife habitat and aesthetic resources.
CONDITIONS WHERE PRACTICE APPLIES
 This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary soil stabilization, disturbed areas being left idle between construction phases, earth fills, etc. and for Permanent Seeding are lawns, dunes, cut and fill slopes and other areas at final grade, former stockpiles and staging areas, etc.
EFFECTS ON WATER QUALITY AND QUANTITY
 Infiltration of rainfall will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by absorbing those substances present within the root zone. Seeding control devices must remain in place during grading, seeded protection, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

- SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS**
- Site Preparation**
 - Install erosion and sediment control structures (either temporary or permanent) such as diversion, grade stabilization structures, berms, waterways, or sediment control basins.
 - Perform all grading operations at right angles to the slope. Final grading and sloping is not usually necessary for temporary seeding.
 - Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
 - Soil Amendments (Fertilizer and Lime Specifications)**
 - Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
 - Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Humus may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall be fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the product.
 - Lime materials shall be ground limestone hydrated or burnt lime may be substituted which contains at least 95% total calcium oxide plus magnesium oxide. Limestone shall be ground to such fineness that at least 50% will pass through a 100 mesh sieve and 90-100% will pass through a 20 mesh sieve and fertilizer into the top 3-5" of soil by disk or other suitable means.

STORMWATER MANAGEMENT NOTES

- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL.
- CREDITS ARE GIVEN FOR DISCONNECTION OF IMPERVIOUS COVERS.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE LESS THAN 550 SQ. FT.
- DOWNSPOUTS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5% SLOPE AND CONSTRUCTION OF DISCONNECTION SHALL BE IN ACCORDANCE WITH THE FIGURE 5.2 OF THE MANUAL AND THE DETAIL SHOWN ON THIS SHEET.
- FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.



NOTE
 FOR ANY AND ALL INFORMATION PERTAINING TO LOT 97 See SHEETS 3 THRU 5.

- SECTION 2 - TEMPORARY SEEDING**
 Vegetation - Annual grasses or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.
 A. Seed mixtures - Temporary Seeding
 1. Select one of the species or mixtures listed in Table 20 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary Seeding summary table, along with application rates, seeding dates and seeding depths. If this summary is not on the plans and completed, then Table 20 must be put on the plans.
 2. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in soil tests are not required for Temporary Seeding.
- | Seed Mixture | Application Rate (lb/acre) | Seeding Dates | Seeding Depth | Fertilizer Rate (lb/100-lb) | Line Rate |
|--------------------|----------------------------|--------------------------|---------------|-----------------------------|-------------|
| 1. BARELY OATS RYE | 120 | 3/1 - 5/15, 8/15 - 10/15 | 1" - 2" | 600 lb/acre | 2 tons/acre |
- SECTION 3 - PERMANENT SEEDING**
 Seeding rates and species to establish growing cover for a minimum of one year on disturbed areas generally, receiving long maintenance.
 A. Seed Mixture - Permanent Seeding
 1. Select one of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding summary table, along with application rates and seeding depths. If this summary is not on the plans, it shall be put on the plans and completed. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in soil tests are not required for Permanent Seeding.
 2. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in soil tests are not required for Permanent Seeding.
 3. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in soil tests are not required for Permanent Seeding.
- | Seed Mixture | Application Rate (lb/acre) | Seeding Dates | Seeding Depth | Fertilizer Rate (lb/100-lb) | Line Rate |
|--|----------------------------|--------------------------|---------------|-----------------------------|-------------|
| 1. TALL FESCUE (30%) PERENNIAL RYE GRASS (30%) CENTURY BURNING GRASS (30%) MAZE FESCUE (10%) | 120 | 3/1 - 5/15, 8/15 - 10/15 | 1" - 2" | 600 lb/acre | 2 tons/acre |

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 MILPORE LANE, SUITE 100
 ELLICOTT CITY, MARYLAND 21117
 (410) 431-2995

NO.	REVISION	DATE
8	Add Sheets 3-5 pertaining to Lot 97	7.10.13
7	Rev. grad. lot 64 to show Ex. Cond.	2/23/06
6	Rev. hse. & grad. lot 64. Add hse. typ.	5.10.05
5	Rev. grad. lot 77 to show Ex. Cond.	6.15.04
4	Noted Conc. Block Retaining Wall Detail	5.2.04
3	Rev. hse. & grad. lot 64 and 82	10.31.03
2	Rev. hse. & grad. lot 77. Add hse. typical	11.28.02

ENGINEER'S CERTIFICATE
 I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Signature of Engineer: *Charles J. Crovo Sr.* Date: 4/1/02
DEVELOPER'S CERTIFICATE
 I/we certify that all development and construction will be done according to this plan for sediment and erosion control and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.
 Signature of Developer: *Simon Rosenberg* Date: 4-19-02

Reviewed for HOWARD SCD and meets Technical Requirements.
 Signature: *John M. Ryan* Date: 10/8/02
 Signature: *John K. Robertson* Date: 10/8/02
OWNER/BUILDER/DEVELOPER
 SIMON ROSENBERG
 HOUSING MARKETING ASSOC.
 1216 ARBIC ROAD
 SILVER SPRING, MD 20904
 410-879-4242

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development: *Chris Harvath* Date: 10/23/02
 Chief, Development Engineering Division: *Paul Danner* Date: 10/15/02
 Director - Department of Planning and Zoning: *Paul Danner* Date: 10/28/02
 PROJECT: PATAPSCO PARK ESTATES SECTION/AREA: 4 LOT: 64,77,82,89 & 97
 PLAT: 10720 TAX CODE: 5 ELEC. DIST.: 17 SECOND: 6021.00
 WATER CODE: H-03 SEWER CODE: 1438600

SITE DEVELOPMENT PLAN
SEDIMENT EROSION CONTROL PLAN, NOTES & DETAILS
SINGLE FAMILY DETACHED
PATAPSCO PARK ESTATES
 LOTS 64,77,82,89 & 97
 SECTION FOUR
 ZONED: R-20
 TAX MAP NO: 17 PARCEL: 38
 SECOND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 SCALE: 1"=20' DATE: APRIL, 2002
 SHEET 2 OF 5

SDP 02-112

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE: Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES: This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (0 up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dunes, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY: Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff. Infiltration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

SEEDING CONTROL DEVICES: Seeding control devices shall remain in place during grading, seeded preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- A. Site Preparation
 - i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
 - ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
 - iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
- B. Soil Amendments (Fertilizer and Lime Specifications)
 - i. Soil tests must be performed to determine the exact rates and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or an approved commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
 - ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully baled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 - iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 90% calcium oxide (magnesium oxide) limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 90-100% will pass through a #20 mesh sieve.
 - iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
- C. Seeded Preparation
 - i. Temporary Seeding
 - a. Seeding preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or ripers mounted on construction equipment. After the soil is loosened it should not be rolled or compacted smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be treated leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
 - ii. Permanent Seeding
 - a. Minimum soil conditions required for permanent vegetative establishment:
 1. Soil pH shall be between 6.0 and 7.0.
 2. Soluble salts shall be less than 500 parts per million (ppm).
 3. The soil shall contain less than 40% clay but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lowgrass or serotica species are to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
 4. Soil shall contain 1.5% minimum organic matter by weight.
 5. Soil must contain sufficient pore space to permit adequate root penetration.
 6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
 - b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade. Then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
 - c. Apply soil amendments as per soil test or as included on the plans.
 - d. Mix soil amendments into the top 3-5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stumps and branches, and rake the soil for seed and application. Where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Step slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 3-5" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

Seeds: All seeds must meet the requirements of the Maryland Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. Seed used shall have been tested within 6 months immediately preceding the date of sowing such material on this job.

Soil Tests: Seed tests shall be made available to the inspector by type and rate of seed used. The inspector shall be provided with a copy of the seed analysis report and a copy of the nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°-80° F. can weaken bacteria and make the inoculant less effective.

Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a catpucker seeder.

Seeding Rates: If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen: maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorus): 200 lbs./ac; K2O (potassium): 200 lbs./ac.

Lime: Use only ground agricultural limestone. Up to 3 tons per acre may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

Seed and Fertilizer: Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

Drop Seeding: This includes use of conventional drop or broadcast spreaders.

Seeded Areas: Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 266. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.

Where Seeded: Seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

Catpucker Seeding: Mechanized seeders that apply and cover seed with soil.

Roller Seeding: Mechanized seeders that apply and cover seed with soil as provide at least 1/4 inch of soil covering. Seeded must be firm after planting.

Where Seeded: Seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

Mulch Specifications (In order of preference):

i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable free in color, and shall not be muddy, moldy, caked, decayed, or excessively dry and shall be free of noxious weed seeds as specified in the Maryland Seed Law.

ii. Wood Cellulose Fiber Mulch (WCFM) shall consist of specially prepared wood cellulose processed into a uniform fibrous physical sluff.

iii. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread sluff.

iv. WCFM, including dye, shall contain no germination or growth inhibiting factors.

v. WCFM material shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry.

vi. The mulch material shall form a batter-like ground cover, on application, having the moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

vii. WCFM material shall contain no elements or compounds at concentrations levels that will be phytotoxic.

viii. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 30% minimum.

ix. Only apply sluff mulch should be used in areas where one species of grass is desired.

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

- i. This practice is limited to areas having 2:1 or flatter slopes where:
 - a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - c. The original soil to be vegetated contains material toxic to plant growth.
 - d. The soil is so acidic that treatment with limestone is not feasible.
- ii. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

- i. Topsoil salvaged from the existing site may be used provided that it meets the standards set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.
- ii. Topsoil Specifications - Soil to be used as topsoil must meet the following:
 1. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textures and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
 2. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutgrass, poison ivy, thistle, or others as specified.
 3. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

- iii. For sites having disturbed areas under 5 acres:
 1. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 2. For sites having disturbed areas under 5 acres:
 - a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be pre-applied to raise the pH to 6.5 or higher.
 - b. Organic content of topsoil shall be not less than 1.5 percent by weight.
 - c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days or more) to permit dissipation of phytotoxic materials.

- iv. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 1. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be pre-applied to raise the pH to 6.5 or higher.
 2. Organic content of topsoil shall be not less than 1.5 percent by weight.
 3. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 4. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days or more) to permit dissipation of phytotoxic materials.

- v. Topsoil Application:
 1. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope 5/8" Fence and Sediment Traps and Basins.
 2. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, unless 4" - 8" higher in elevation.
 3. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that seeding or sodding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or wet pockets.
 4. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

- vi. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- vii. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- viii. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- ix. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- x. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xi. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xii. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xiii. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xiv. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xv. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xvi. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xvii. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xviii. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xix. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xx. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xxi. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

- xxii. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 28.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
 2. References: Guideline Specifications, Soil Preparation and Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University

