

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

A. Soil Preparation

Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked 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 to 5 inches of soil by disking or other suitable means.

 a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are

i. Soil pH between 6.0 and 7.0. Soluble salts less than 500 parts per million (ppm)

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be

planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable. iv. Soil contains 1.5 percent minimum organic matter by weight. v. Soil contains sufficient pore space to permit adequate root penetration.

b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test. e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is 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.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as 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-NRCS. 3. Topsoiling 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.

4. Areas having slopes steeper than 2:1 require special consideration and design. 5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of confrasting textured subsoils and must contain less than 5 percent by volume of cinders stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter. b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

a. Erosion and sediment control practices must be maintained when applying topsol

b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be

c. Topsoil must not be placed if 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 seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable

laws and must bear the name, trade name or trademark and warranty of the producer 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 90 to 100 percent will pass

through a #20 mesh sieve. 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or

other suitable means. 5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

The application of seed and mulch to establish vegetative cover

To protect disturbed soils from erosion during and at the end of construction

Conditions Where Practice Applies To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Seeding 1. Specifications

a. All seed must meet the requirement of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of

seed and seeding rate. b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws. c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared

specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cook as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

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

Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.

ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with weighted roller to provide good seed to soil contact.

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting. ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction

c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer). i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per

acre total of soluble nitrogen; P 0 (phosphorus), 200 pounds per acre; K 0 (potassium), 200 pounds per acre. ii. 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. iii. Mix seed and fertilizer on site and seed immediately and without interruption.

iv. When hydroseeding do not incorporate seed into the soil. Mulch Materials (in order of preference)

(410) 461 - 2055

a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Marvland Seed Law and not musty, moldy, caked, decayed, or excessively dusty.

Note: Use only sterile straw mulch in areas where one species of grass is desired. b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into uniform fibrous physical

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter). i. WCFM is to 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 slurry.

ii. WCFM, including dye, must contain no germination or growth inhibiting factor iii. WCFM materials are to 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. The mulch material must form a blotter-like ground cover, on application, having moisture

iv. WCFM material must not contain elements or compounds at concentration levels that will by phyto-toxic.
 v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of

a. Apply mulch to all seeded areas immediately after seeding. b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.

c. Wood cellulose fiber used as mulch must be applied to a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of

a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard: i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipmen can operate safely. If used on sloping land, this practice should follow the contour.

ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds pe acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be

heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited. iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4-15 feet wide and 300 to 3,000 feet long.

TEMPORARY SEEDING NOTES (B-4-4)

To stabilize disturbed soils with vegetation for up to 6 months.

To use fast growing vegetation that provides cover on disturbed soils.

testing agency. Soil tests are not required for Temporary Seeding.

Conditions Where Practice Applies Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below

along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan. 2. For sites having soil tests performed, use and show the recommended rates by the

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season. Temporary Seeding Summary

		tomporar coodin	3		
	ne (from Figure B. (from Table B.1):	3):6b		Fertilizer Rate (10-20-20)	Lime Rațe
Species	Application Rate (lb/ac)	Seeding Dates	5eeding Depths		
BARLEY	96	3/1 - 5/15.	1"	436 lb/ac	2 tons/ac
OAT5	72	8/15 - 10/15	1"	(10 lb/ 1000 sf)	(90 lb/ 1000 sf)
RYE	112		1"		

PERMANENT SEEDING NOTES (B-4-5)

A. Seed Mixtures General Use

a. Select one or more of the species or mixtures listed in Table 8.3 for the appropriate Plant Hardiness Zone (from Figure 8.3) and based on the site condition or purpose found on Table 8.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan. b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office

Guide, Section 342 - Critical Area Planting. c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency. d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown

in the Permanent Seeding Summary

DATE

a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended. iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass

Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose certified material. Certified material is the best guarantee of cultivar purity. The

certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides

Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a) Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a. 7b)

a reliable means of consumer protection and assures a pure genetic line

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

	e. If soil every 3 t seedings	moisture is deficie to 4 däys dependin äre mäde läte in t	nt, supply new seed g on soil texture) u the planting season, Permanent Se			ter for plant g tablished. This hot seasons, c	5. PLANT INSTALLATION COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE IM AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3" SHOR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STAND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTABLE.		
5ee	Hardiness Zone (from Figure B.3): 6b Fertilizer Rate (10-20-20) Seed Mixture (from Table B.3): 6					,	·	Lime Rațe	ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT RO SHOULD BE PLANTED SO 1/6 TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ 0		Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball. Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following.
8	TALL FESCUE		Mar. 1-May 15 Aug. 15-Oct. 15	1/4-1/2 in.	45 lbs. per acre (1.0 lb/ 1000 sf)	e (2 lb/	90 lb/ac (2 lb/ 1000 sf)	(90 lb/	THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING, THE PRIMARY FUNCTION OF THE BIOREFENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS ARE USED TO AMEND THE SOIL ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEI
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SEQUENCE OF CONSTRUCTION

OBTAIN A GRADING PERMIT AND HOLD PRE-CONSTRUCTION MEETING WITH COUNTY

INSPECTOR. (2 WEEKS) NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT -800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/ INSPECTION AT 410-313-1330 AT LEAST 24 HOURS BEFORE STARTING WORK.

INSTALL STABILIZED CONSTRUCTION ENTRANCE, EARTH DIKE (IF EARTH DIKE STILL IN PLACE FROM DEVELOPER'S WORK (F-14-073) IT MAY BE UTILIZED), SILT FENCE, AND SUPER-SILT FENCE. (1 DAY) REMOVE NECESSARY TREES AND ROUGH GRADE LOT. (5 DAYS)

INSTALL TEMPORARY SEEDING. (1 DAY) CONSTRUCT BUILDING, PORCH, AND DRIVEWAY. INSTALL WATER CONNECTION AND SEPTIC SYSTEM AND CONNECTION TO SERVICE THE PROPOSED HOUSE. INSTALL EROSION CONTROL MATTING. (4 MONTHS) INSTALL MICRO-BIORETENTION FACILITY, ROOF LEADERS, AND FINE GRADE SITE. ALL FINAL GRADES AND STABILIZATION SHOULD BE COMPLETED BEFORE ANY

CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES MAY BE REMOVED. (3 DAYS) NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE EACH

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDENS. LANDSCAPE INFILTRATION & INFILTRATION BERMS (Cont.)

6. UNDERDRAINS UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA: COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE. COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 750 YPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4X4) GALVANIZED HARDWARE CLOTH.

GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN. THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE. A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

A 4" LAYER OF PEA GRAVEL (1/4" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24". THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5% OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN

Manie View, Lot 6 SDP-19-042 d = death of flow

U.S. DEPARTMENT OF AGRICULTURE

S = Slope (energy gradient, ft./ft.)

So. East Swale = 67.4 x 0.71' x 0.025 = 0.33 lb./ft So. West Swale = 52.4 x 0.21 x 0.026 = 0.33 lb./ft

CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.

STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OR REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

SEDIMENT & EROSION CONTROL NOTES & DETAILS AND STORMWATER MANAGEMENT SPECIFICATIONS

Signature of Professional Engineer STEPHANIE J. TUITE ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE chief, Development Engineering Division NO. 38386, EXPIRATION DATE: 01/12/2020. ULAO 7-16-19 FISHER. COLLINS & CARTER. INC LICENSE NO. 38386 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYOR EXPIRATION DATE: 1/12/2020 Director -Department of Planning and Zoning Date BUILDER/DEVELOPER'S CERTIFICATE SECTION ELLICOTT CITY, MARYLAND 21042

a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.

d. Sod must not be harvested or transplanted when moisture content (excessively dry of wet) may adversely affect its survival.

b. After the first week, sod watering is required as necessary to maintain adequate moisture content

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREAS

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept

free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

D. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,

Offsite waste/borrow area location: <u>N/A</u>.

Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE)

Weather information (current conditions as well as time and amount of last recorded precipitation

Brief description of project's status (e.g., percent complete) and/or current activities

Compliance status regarding the sequence of construction and stabilization requirements Photographs
Monitoring/sampling

All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25 minimum

16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION.

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site

RAIN GARDENS, LANDSCAPE INFILTRATION & INFILTRATION BERMS

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE

THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA: SOIL COMPONENT-LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION), ORGANIC CONTENT-MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%). CLAY CONTENT-MEDIA SHALL HAVE A CLAY

FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER, PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

SAND LAYER, PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE, BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE, WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE

PLANT MATERIAL
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A,
SECTION A.2.3.

Bioretention Basin. Heavy equipment can be used around the perimeter of the Basin to supply soils and sand. Grade Bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

(30%), CONTENT OF LESS THAN 5%. PH RANGE-SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH, WHICH SHOULD BE BETWEEN 5.5 - 7.0. AMENOMENTS (E.G., LIME, IRON SULFATE PLUS. THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TEST OR ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURED ANALYSIS

shall be performed for each location. A textured analysis shall be performed for each location where the topsoil was excavated

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL, WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATE AS AND IS NOT ACCEPTABLE

ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT. ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. THE OPTIONAL

hat may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge

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 CID.

<u>Definition</u>

A mound or pile of soil protected by appropriately designed erosion and sediment control measures

Conditions Where Practice Applie

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

3. Runoff from the stockpile area must drain to a suitable sediment control practice.

Prior to the start of another phase of construction or opening of another grading unit,

not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

ends will not be acceptable.

piece of sod within eight hours.

4. Access the stockpile area from the upgrade side

notice to CID must be given at the following stages:

Area Disturbed: 1.04 Acres
Area to be roofed or paved: 0.16 Acres

request, is part of every inspection and should include:

Inspection date
Inspection type (routine, pre-storm event, during rain event)

Identification of sediment controls that require maintenance Identification of missing or improperly installed sediment controls

Area to be vegetatively stabilized: 1.251
Total Cut: 250

Evidence of sediment discharges

Use I and IP March 1 - June 15

1. MATERIAL SPECIFICATIONS

3. COMPACTION

PLANT INSTALLATION

2. FILTERING MEDIA OR PLANTING SOIL

Use III and IIIP October 1 - April 30

d. Prior to the removal or modification of sediment control practices.

a. Prior to the start of earth disturbance

Sod Installation

b. Sod must be machine cut at a uniform soil thickness fo ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven

Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section

2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section

5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated

8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing containinated material must be covered with impermeable sheeting.

HOWARD SOIL CONSERVATION DISTRICT (HSCD)

STANDARD SEDIMENT CONTROL NOTES

horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. 8-4-2), permanent seeding (Sec.

B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1)

7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization

e, Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation

"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

PROFESSIONAL CERTIFICATE

accordance with the requirements of the Howard Soil Conservation District.

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

beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District." Signature of Developer

BUILDER/DEVELOPER **OWNERS**

ARUNDATHI BOBBALA

REDDY RAJI REKULA

2109 HARROW DR

WOODSTOCK MD 21163

443-250-4061

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR

APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL

CARUSO HOMES 2120 BALDWIN AVENUE SUITE 200 CROFTON, MARYLAND 21114 301-832-6426

7. MISCELLANEOUS

Moward SCD APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING Chief, Division of Land Developments 7.9.19 N/A MAPLE VIEW LOT 6 TAX/ZONE | ELEC. DIST. | CENSUS TR. ZONE PLAT GRID NO. 23512 6030.04 RC-DEO 15 23515

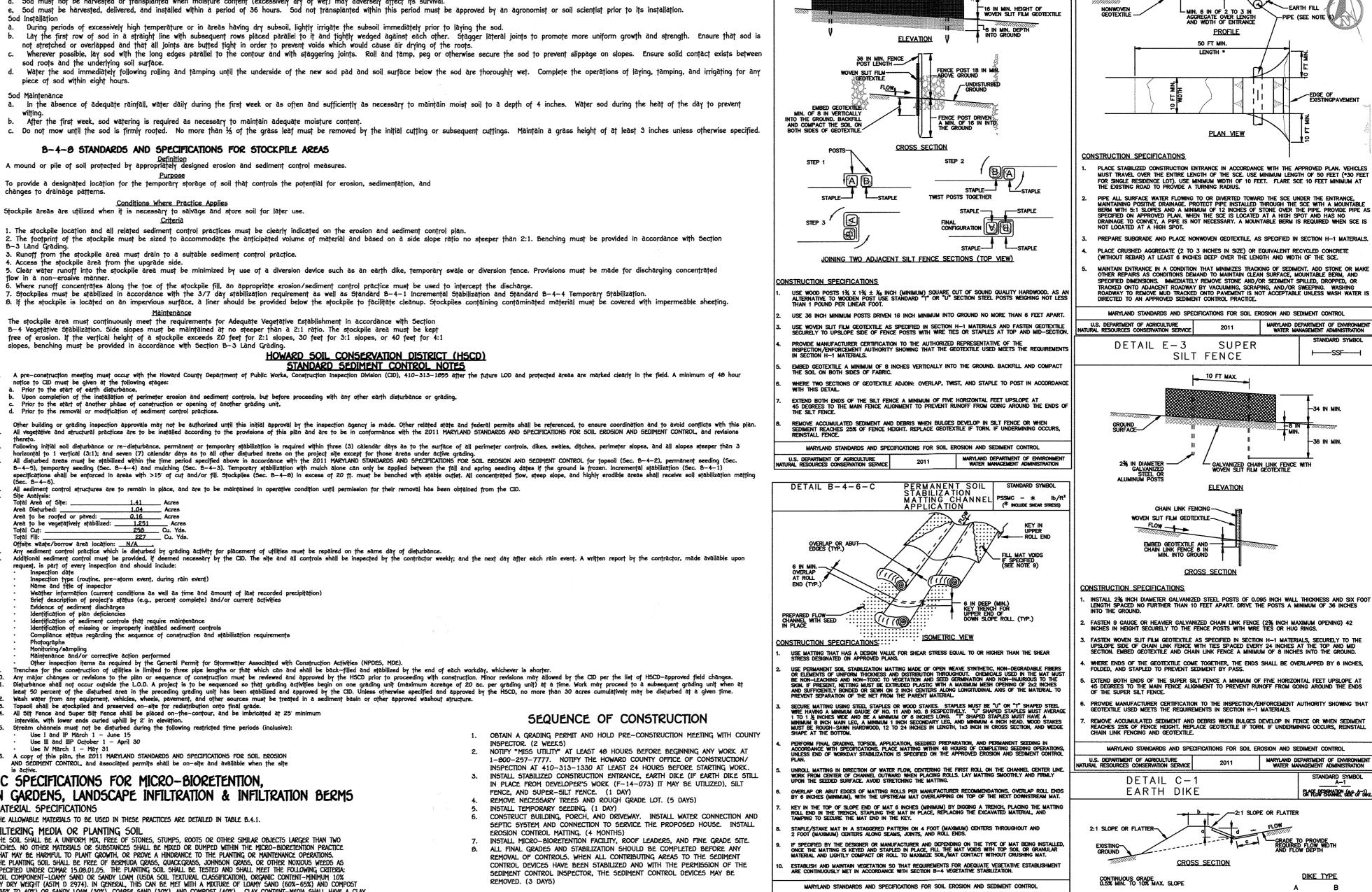
This Development Plan is approved for Soil Erosion and Sediment Control by

the HOWARD SOIL CONSERVATION DISTRICT.

LOT 6 ZONED RC-DEO

GRID No. 15 P/O PARCEL No. 88 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: JUNE 5, 2019 SHEET 2 OF 3

5DP-19-042



DETAIL E-1 SILT FENCE

6 FT MAX. CENTER TO CENTER

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL DETAIL C-1 EARTH DIKE b -2:1 SLOPE OR FLATTER 2:1 SLOPE OR FLATTER-CROSS SECTION CONTINUOUS GRADE 0.5% MIN. TO 10% MAX. SLOPE KATAAATAAI PLAN VIEW FLOW CHANNEL STABILIZATION A-3/B-3

DETAIL B-1

-----SF-----

SCE

⊢—SSF——I

PLACE DESIGNATION (See A-1)

-EARTH FILL

-- PIPE (SEE NOTE 6

CONSTRUCTION ENTRANCE

PROFILE

PLAN VEW

2011

SILT FENCE

GROUND SURFACE---

10 FT MAX.

ELEVATION

WOVEN SLIT FILM GEOTEXTILE -

FLOW ____

SUPER

GALVANIZED CHAIN LINK FENCE WITH WOVEN SLIT FILM GEOTEXTILE

50 FT MIN.

LENGTH *

DIKE TYPE A B a - DIKE HEIGHT 18 IN MIN. 30 IN MIN. b - DIKE WIDTH 24 IN MIN. 36 IN MIN. c - FLOW WIDTH 4 FT MIN. 6 FT MIN. d - FLOW DEPTH 12 IN MIN. 24 IN MIN. SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR

SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD. 4 to 7 inch stone or equivalent recycled concrete pressed into soil a minimum of 7 inches and flush with ground. CONSTRUCTION SPECIFICATIONS

REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.

MAPLE VIEW

TAX MAP No. 16

