

| SOILS TABLE | | | | | |
|-------------|--|-------------------------------|-------------|---------------|----------|
| SYMBOL | NAME | DRAINAGE CLASS | HYDRO GROUP | HYDRIC RATING | K FACTOR |
| BeB | BELTSVILLE SILT LOAM 2-5 PERCENT SLOPES | MODERATELY WELL DRAINED | C | NOT HYDRIC | 0.37 |
| HcA | HATBORO-CODORUS COMPLEX 0-3 PERCENT SLOPES | POORLY DRAINED | B/D | NOT HYDRIC | 0.49 |

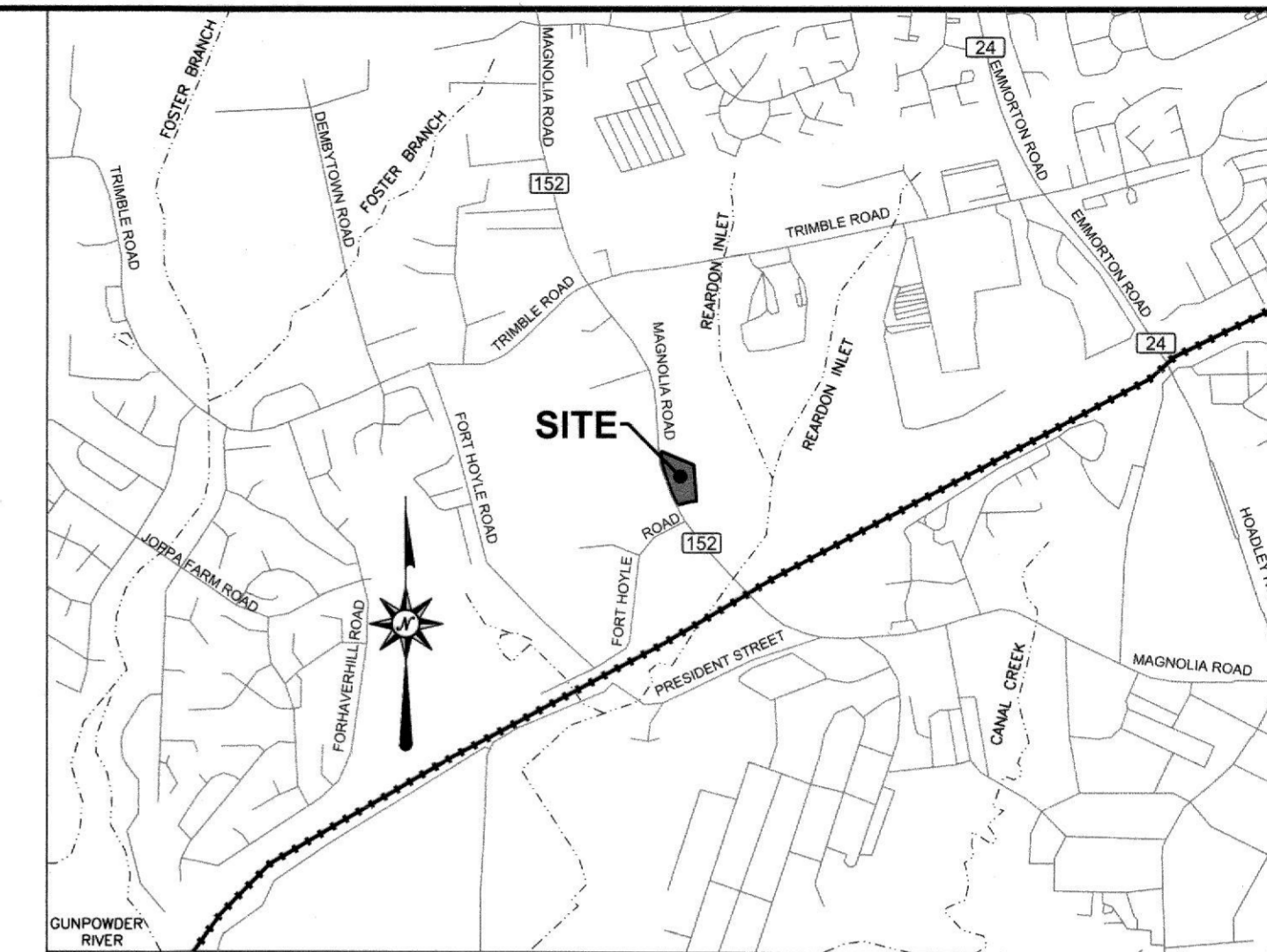
*SOURCE: NRCS WEB SOIL SURVEY

EROSION & SEDIMENT CONTROL PLAN FOR

LANDS OF MAGNOLIA 622, LLC

SHEET INDEX

- SHEET 1: TITLE SHEET
- SHEET 2: EXISTING CONDITIONS PLAN
- SHEET 3: EROSION & SEDIMENT CONTROL PLAN
- SHEET 4: EROSION & SEDIMENT CONTROL NOTES & DETAILS
- SHEET 5: EROSION & SEDIMENT CONTROL DETAILS
- SHEET 6: SOIL STABILIZATION SHEET



VICINITY MAP

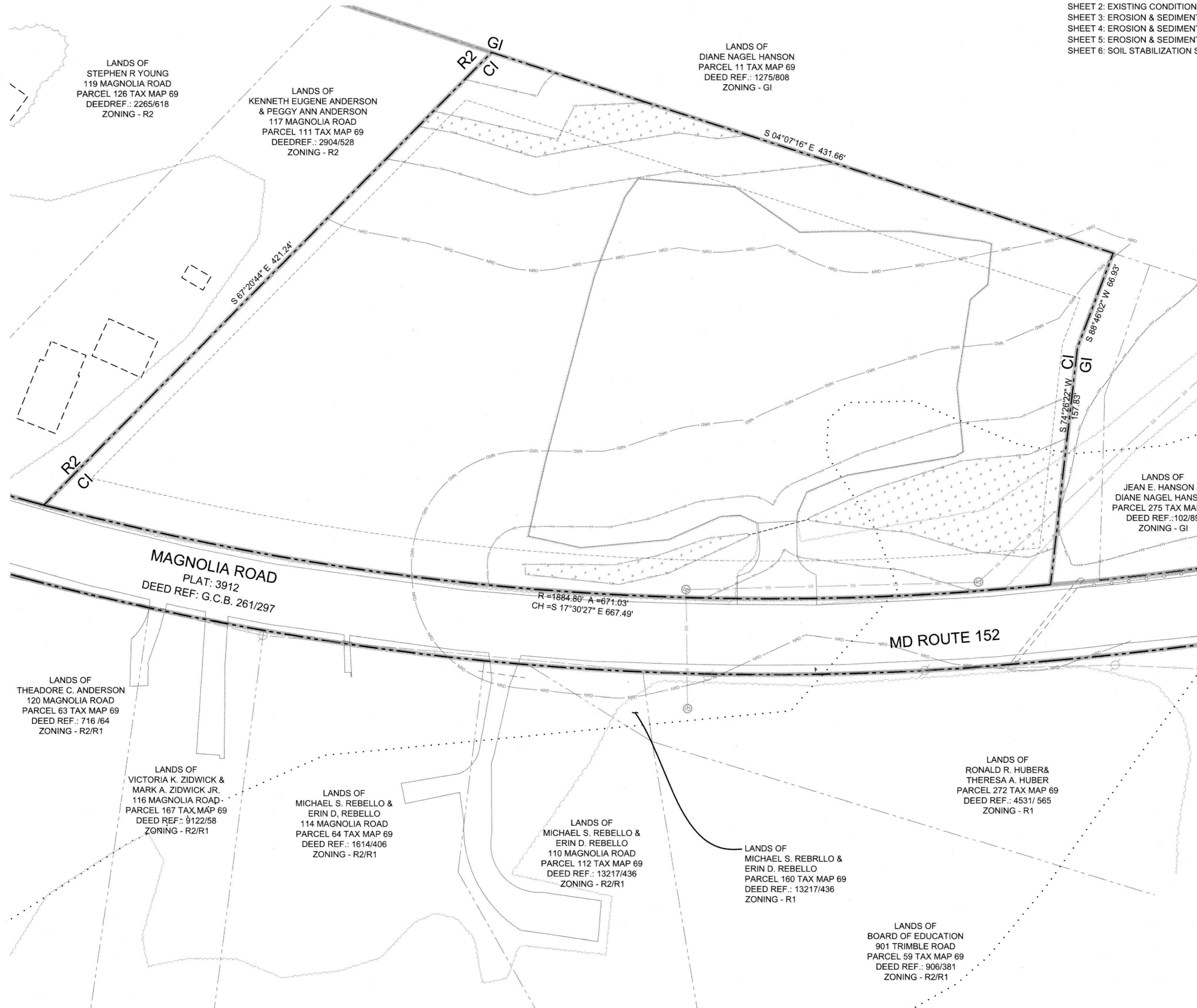
SCALE: 1" = 2000'

GENERAL NOTES:

- LOT INFORMATION:
ADDRESS: 109 MAGNOLIA ROAD, JOPPA MD 21085
TAX ACCOUNT #: 01380206
DEED REF: 15734/00161
TAX MAP 69, GRID: 1D, PARCEL: 274
- OWNER:
MAGNOLIA 622, LLC
ATTN: CURTIS SANDBEK
PHONE: 410-977-8180
- PROPERTY AREA: 167,222 S.F. / 3.839 AC.±
- ZONING: CI-COMMERCIAL INDUSTRIAL
- CURRENT USE: FORESTED LAND
- PROPOSED USE: COMMERCIAL; LANDSCAPE COMPANY
- THIS SITE DOES NOT LIE WITHIN THE CHESAPEAKE BAY CRITICAL AREA
- THERE ARE NON-TIDAL WETLANDS ON SITE. NTW WERE DELINEATED BY GTA IN FEB. 2023.
- REQUESTS WERE SUBMITTED FOR RECORDS REGARDING THE NEIGHBORING SITES WELLS/SEPTIC SYSTEM INFORMATION AND NO SITES SHOWING PRECISE LOCATIONS WERE FOUND.
- ALL AREAS WITHIN THE NRD AND WETLANDS THAT FALL OUTSIDE THE LOD ARE TO BE PROTECTED DURING CONSTRUCTION WITH APPROVED EROSION AND SEDIMENT CONTROL MEASURES.
- SWM OUTFALL WILL BE LOCATED IN AN AREA THAT IS STABILIZED.

SITE ANALYSIS

TOTAL SITE AREA: 167,222 S.F. / 3.839 AC.
 TOTAL DISTURBED AREA: 87,695 S.F.
 TOTAL IMPERVIOUS AREA: 49,402 S.F.
 AREA TO BE STABILIZED: 38,293 S.F.
 CUT: 100 CY
 FILL: 100 CY
 NPDES ID POINT: N 634,636.6869 E 1,503,687.6190



PLAN VIEW
SCALE: 1"=40'

LEGEND:

- EXISTING CONTOUR: ---100---
- EXISTING ZONING BOUNDARY: ———
- EXISTING ZONING DESIGNATION: R2
- EXISTING WETLAND BUFFER: ———
- EXISTING 75' NRD BOUNDARY: ———
- EXISTING BUILDING SETBACK LINE: - - - - -
- EXISTING EASEMENT: - - - - -
- EXISTING SEWER LINE: ———
- EXISTING WETLANDS: [Pattern]
- EXISTING SOILS LINE: - - - - -
- EXISTING SOILS LABEL: BeB
- EXISTING TREELINE: [Pattern]
- EXISTING GRAVEL AREA TO REMAIN: [Pattern]
- EXISTING GRAVEL AREA TO BE REMOVED: [Pattern]
- SLOPES 15-25%: [Pattern]
- SLOPES >25%: [Pattern]



THIS PLAN SHALL BE USED FOR EROSION AND SEDIMENT CONTROL ONLY

EROSION AND SEDIMENT CONTROL PLAN #: 52689

TECHNICAL REVIEW BY:
[Signature] 8/12/25
HARFORD SOIL CONSERVATION DISTRICT

APPROVED BY:
[Signature] 8/12/25
HARFORD SOIL CONSERVATION DISTRICT

EROSION & SEDIMENT CONTROL PLAN TITLE SHEET FOR
LANDS OF MAGNOLIA 622, LLC

SITUATED IN: 1ST ELECTION DISTRICT, HARFORD COUNTY, MARYLAND

OWNER'S CERTIFICATION

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HARFORD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, OR AS DEEMED NECESSARY

[Signature] 7/10/25
NAME DATE

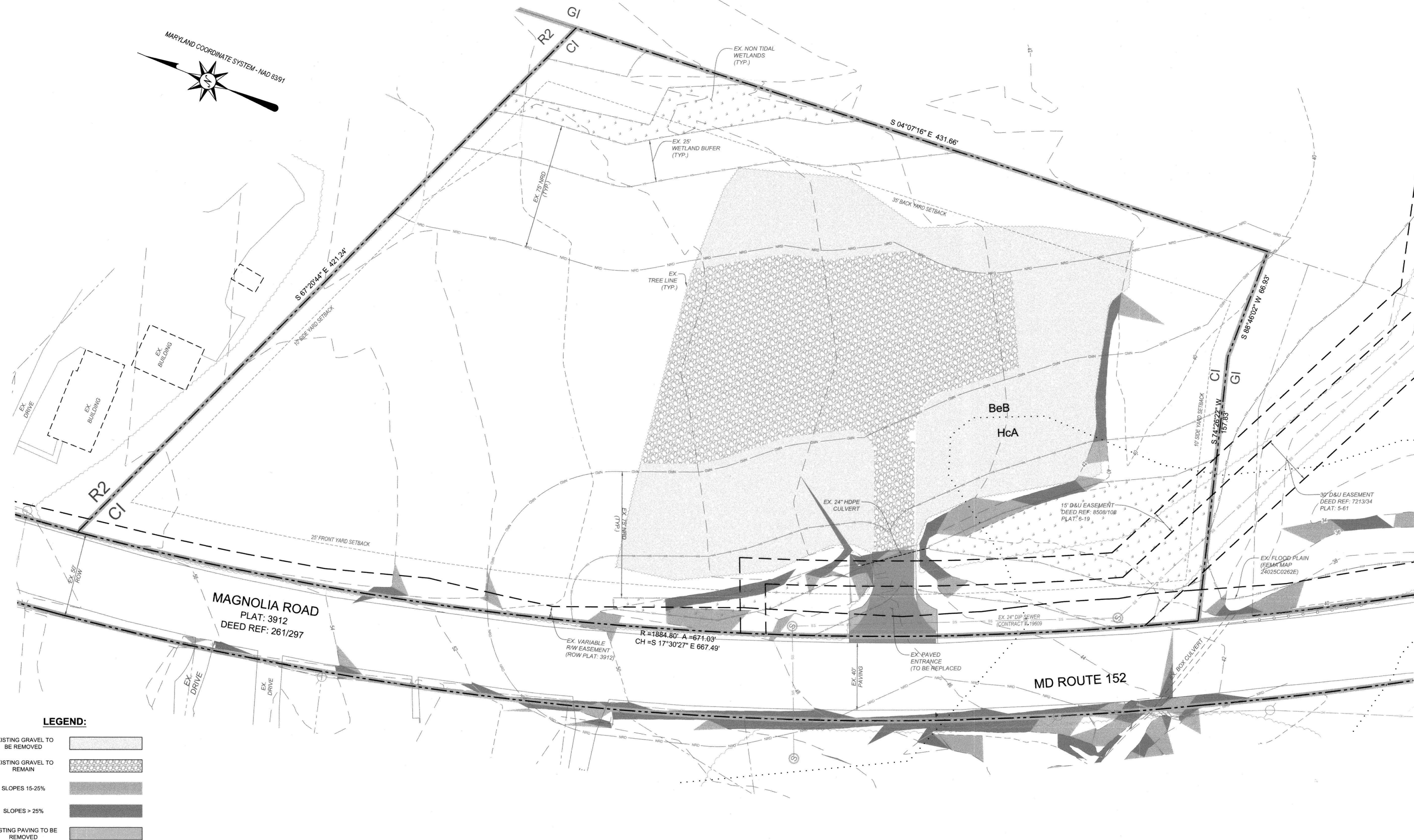
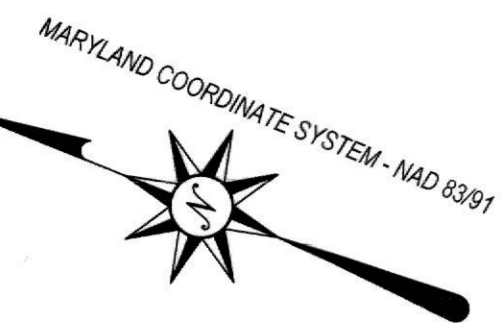
ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

[Signature] 7/10/2025
NAME DATE

| | | | |
|---|--|--|---|
| 866-850-4200 www.atwell.com 4692 MILLENNIUM DRIVE, SUITE 305 BEL CAMP, MD 21017 410.612.9900 | OWNER/DEVELOPER: MAGNOLIA 622 LLC 5200 GLEN ARM ROAD, SUITE M GLEN ARM, MARYLAND 21057 ATTN: CURTIS SANDBEK PHONE: 410-977-8180 | PROPERTY ADDRESS: 109 MAGNOLIA ROAD JOPPA, MD 21085 | SCALE: AS SHOWN DESIGNED BY: ASZ DRAWN BY: ASZ CHECKED BY: JBG |
| | SURVEY BY: RTS DESIGNED BY: ASZ DRAWN BY: ASZ CHECKED BY: JBG | DATE: 07/01/2025 DATE: 07/01/2025 DATE: 07/01/2025 DATE: 07/01/2025 | |

2510A9



LEGEND:

- EXISTING GRAVEL TO BE REMOVED
- EXISTING GRAVEL TO REMAIN
- SLOPES 15-25%
- SLOPES > 25%
- EXISTING PAVING TO BE REMOVED

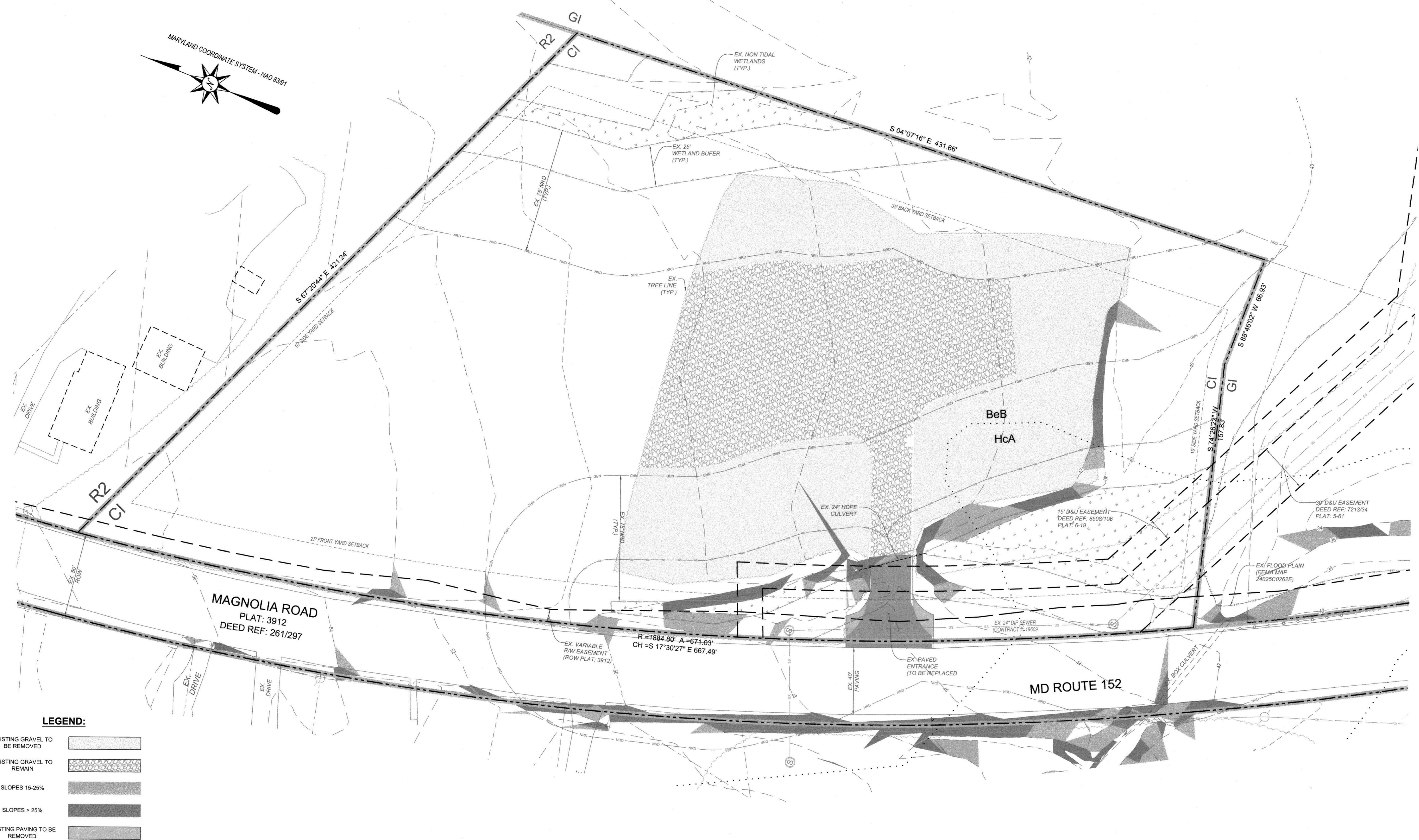
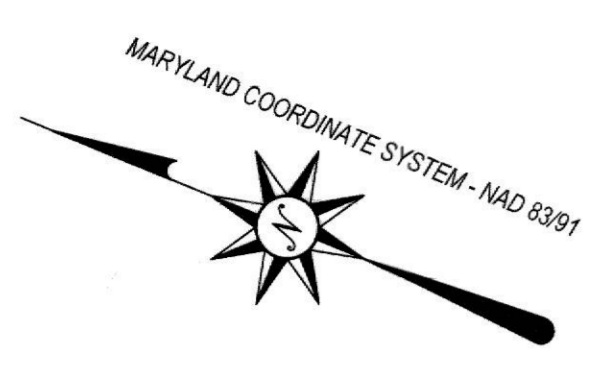
**EXISTING CONDITIONS PLAN
FOR
LANDS OF MAGNOLIA 622, LLC**

CONTRACT #SWMENG-000430/2023
SWM BILLING #: 92096

SITUATED IN: 1ST ELECTION DISTRICT, HARFORD COUNTY, MARYLAND

| | | | | | |
|---|---|--|--|-------------------------|--|
| | | | | | |
| | ATWELL 866.850.4200 www.atwell.com 4692 MILLENNIUM DRIVE, SUITE 305 BELCAMP, MD 21017 410.812.9900 | | | | |
| OWNER/DEVELOPER: MAGNOLIA 622 LLC 5200 GLEN ARM ROAD, SUITE M GLEN ARM, MARYLAND 21057 ATTN: CURTIS SANDBEK PHONE: 410.877.8180 | | PROPERTY ADDRESS: 109 MAGNOLIA ROAD JOPPA, MD 21085 | | | |
| SURVEY BY: RTS | | SCALE: 1" = 30' | | | |
| DESIGNED BY: ASZ | | DRAWN BY: ASZ | | DATE: 07/01/2025 | |
| CHECKED BY: JBG | | DRAWING NO.: 3320_D11 | | SHEET: 2 OF 6 | |

251050



LEGEND:

| | |
|-------------------------------|--|
| EXISTING GRAVEL TO BE REMOVED | |
| EXISTING GRAVEL TO REMAIN | |
| SLOPES 15-25% | |
| SLOPES > 25% | |
| EXISTING PAVING TO BE REMOVED | |

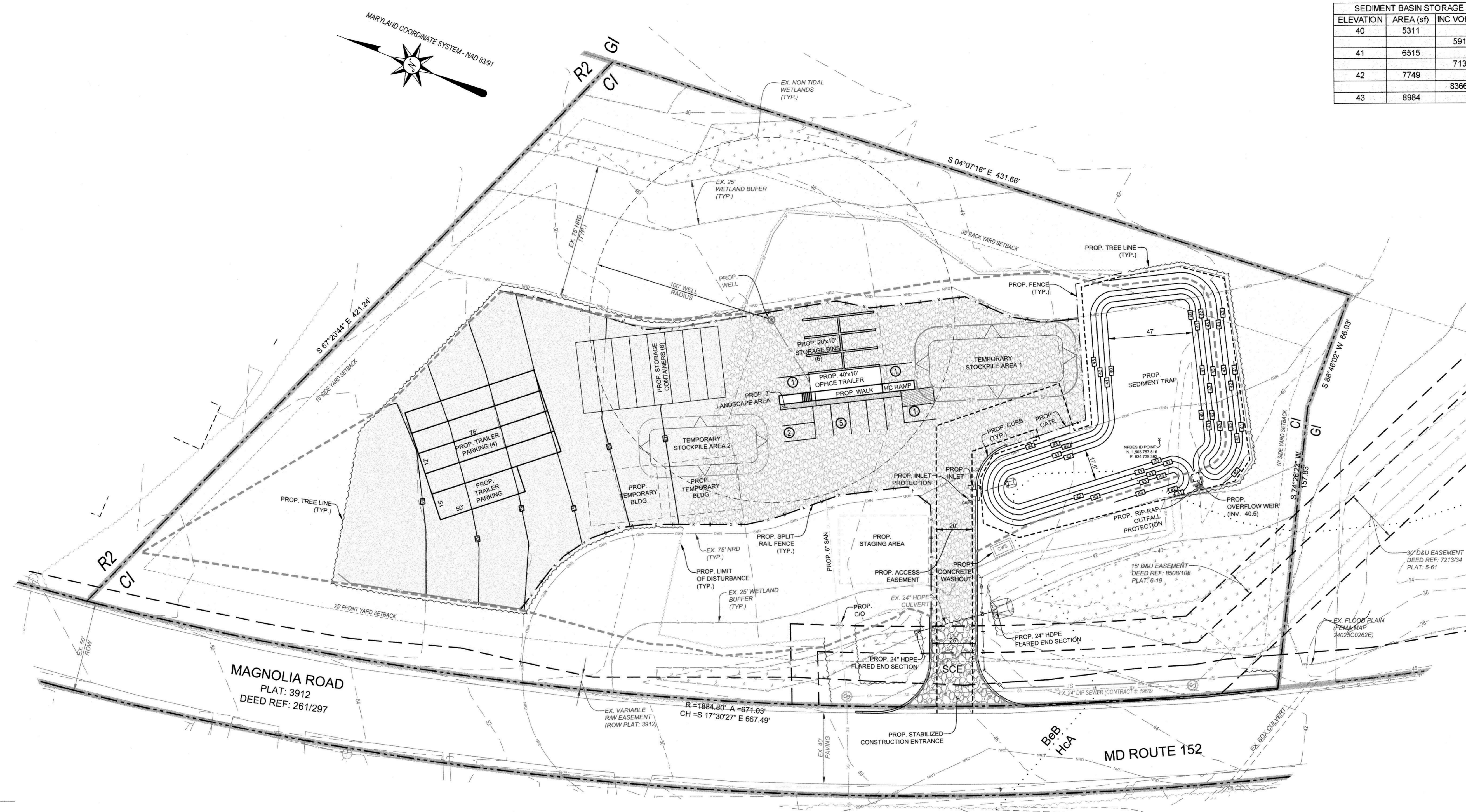
**EXISTING CONDITIONS PLAN
FOR
LANDS OF MAGNOLIA 622, LLC**

CONTRACT #: SWMENG-000430/2023
SWM BILLING #: 92096
SITUATED IN: 1ST ELECTION DISTRICT, HARFORD COUNTY, MARYLAND

| | | | |
|--|--|---|--|
| 866.850.4200 www.atwell.com 4692 MILLENNIUM DRIVE, SUITE 305 BELCAMP, MD 21017 410.612.9900 | CURTIS SANDBEK PROFESSIONAL ENGINEER STATE OF MARYLAND No. 12107 Exp. 07/01/2025 | | |
| | | OWNER/DEVELOPER: MAGNOLIA 622 LLC 5200 GLEN ARM ROAD, SUITE M GLEN ARM, MARYLAND 21057 ATTN: CURTIS SANDBEK PHONE: 410-977-8180 | PROPERTY ADDRESS: 109 MAGNOLIA ROAD JOPPA, MD 21085 |
| SURVEY BY: RTS | | SCALE: 1" = 30' | |
| DESIGNED BY: ASZ | | DATE: 07/01/2025 | |
| DRAWN BY: ASZ | | SHEET: 2 OF 6 | |
| CHECKED BY: JBG | | DRAWING NO.: 3320_D11 | |

251050

| SEDIMENT BASIN STORAGE ELEVATION TABLE | | | |
|--|-----------|---------------|-----------------|
| ELEVATION | AREA (sf) | INC VOL. (cf) | TOTAL VOL. (cf) |
| 40 | 5311 | | 0 |
| 41 | 6515 | 5913 | 5913 |
| 42 | 7749 | 7132 | 13045 |
| 43 | 8984 | 8366.5 | 21411.5 |



LEGEND:

- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED SILT FENCE
- PROPOSED TRAP DRAINAGE AREA
- PROPOSED INLET PROTECTION

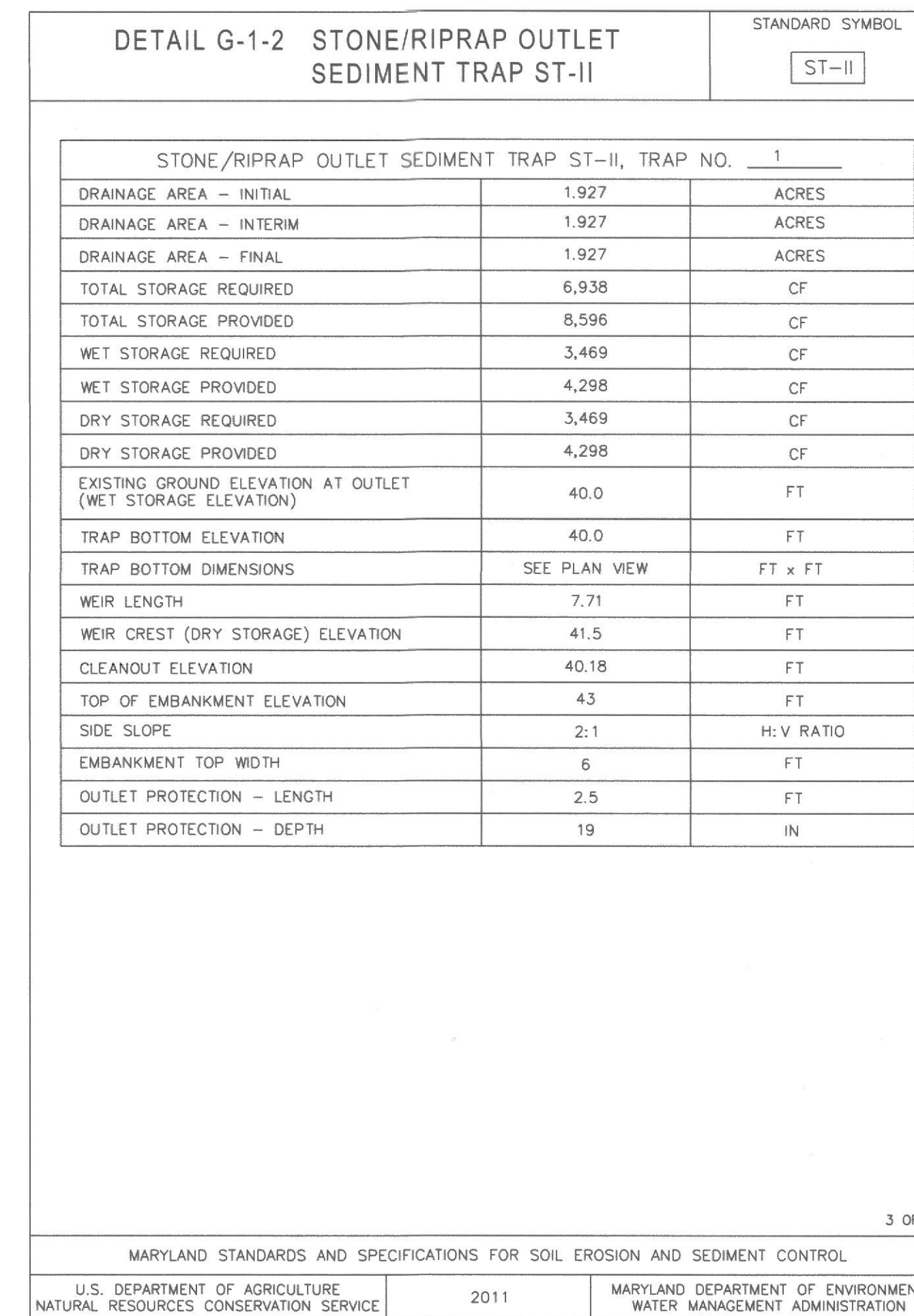
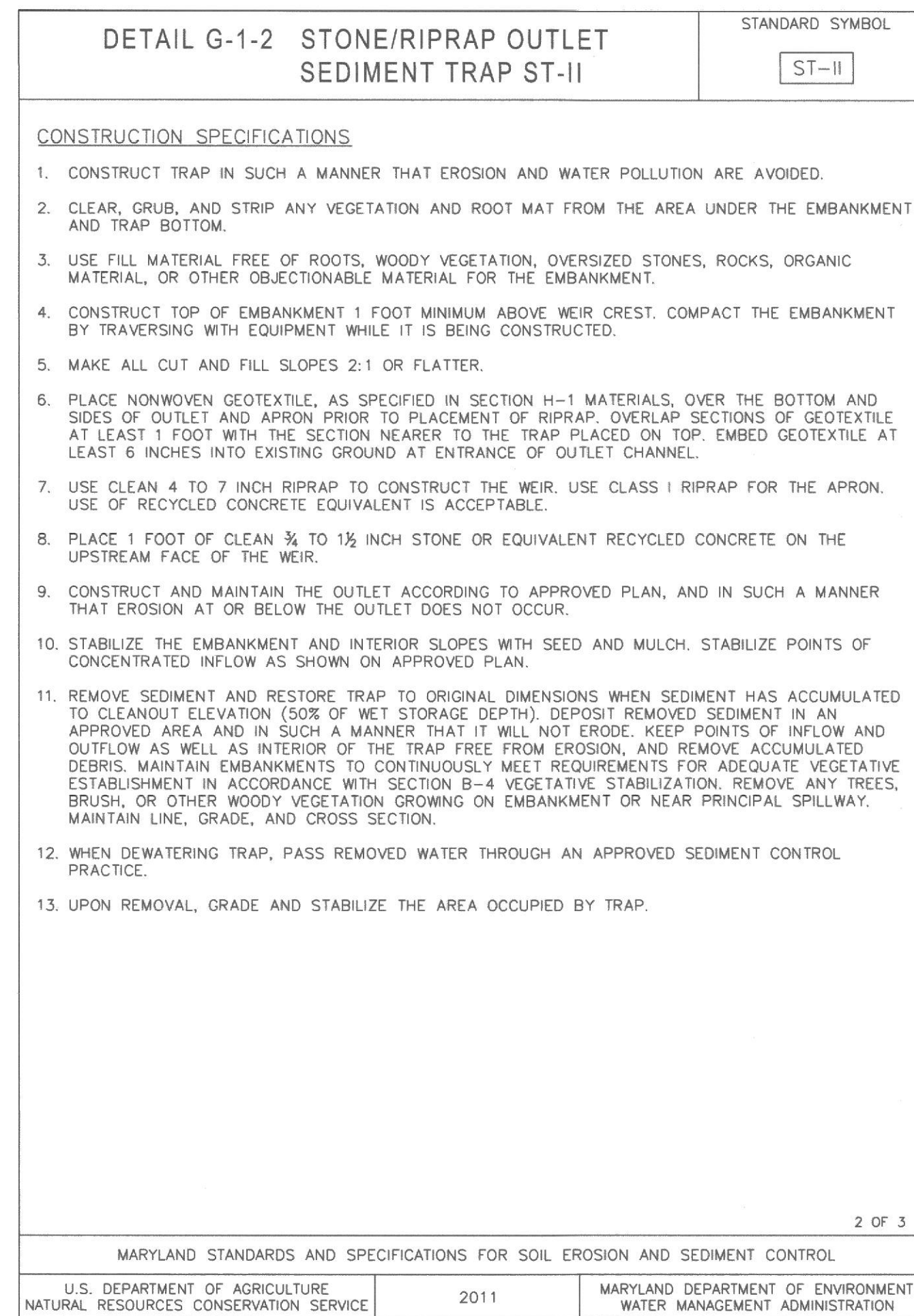
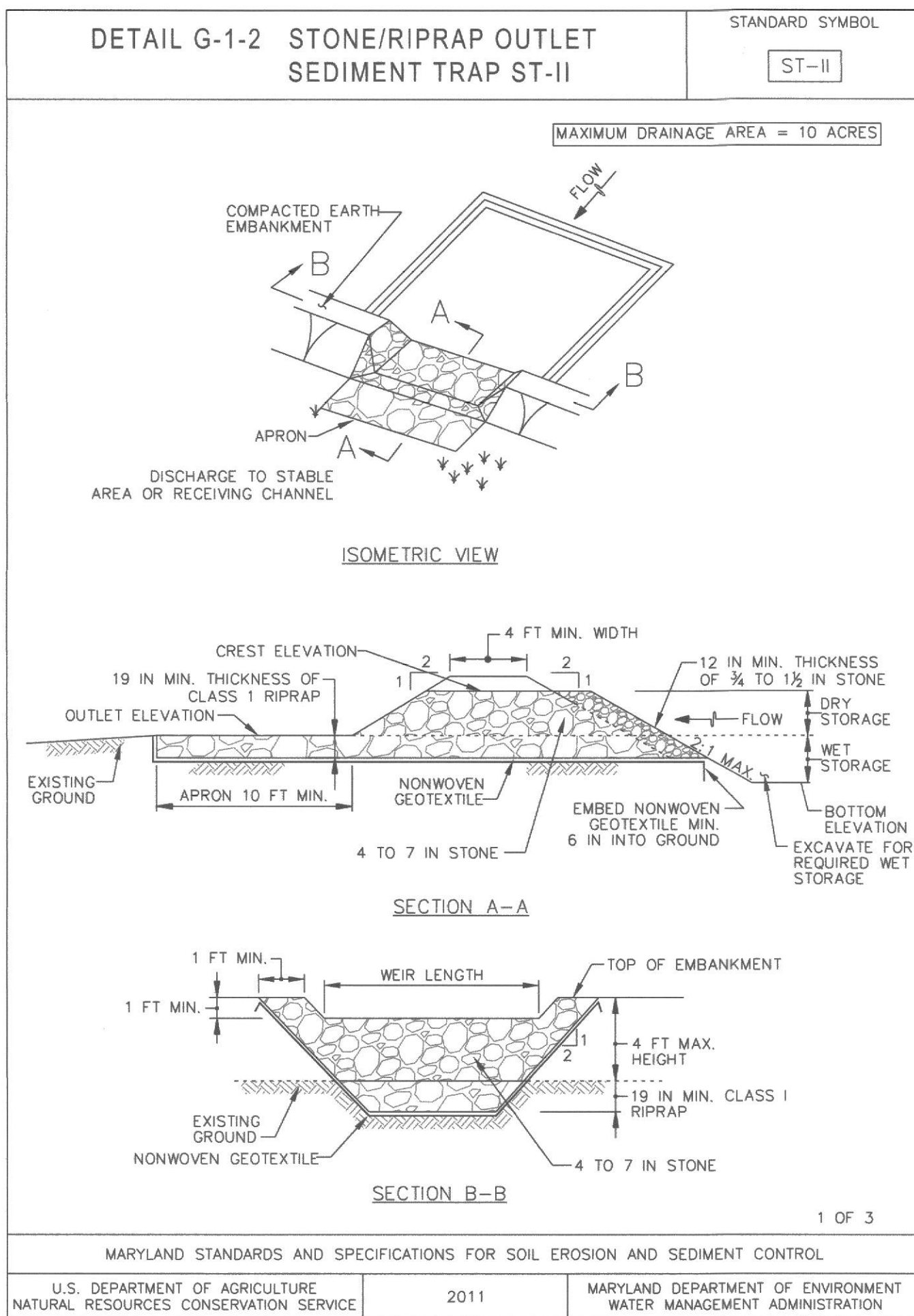
THIS PLAN SHALL BE USED FOR EROSION AND SEDIMENT CONTROL ONLY

**EROSION & SEDIMENT CONTROL PLAN
FOR
LANDS OF MAGNOLIA 622, LLC**

SITUATED IN: 1ST ELECTION DISTRICT, HARFORD COUNTY, MARYLAND

| | |
|---|---|
| ATWELL 866.850.4200 www.atwell.com 4692 MILLENNIUM DRIVE, SUITE 305 BELCAMP, MD 21017 410.612.9900 | STATE OF MARYLAND PROFESSIONAL ENGINEER ATWELL, LLC No. 123456789 |
| | |
| SURVEY BY: RTS DESIGNED BY: ASZ DRAWN BY: ASZ CHECKED BY: JBG | SCALE: 1" = 30' DATE: 07/01/2025 SHEET: 3 OF 6 DRAWING NO.: 3320_D12 |

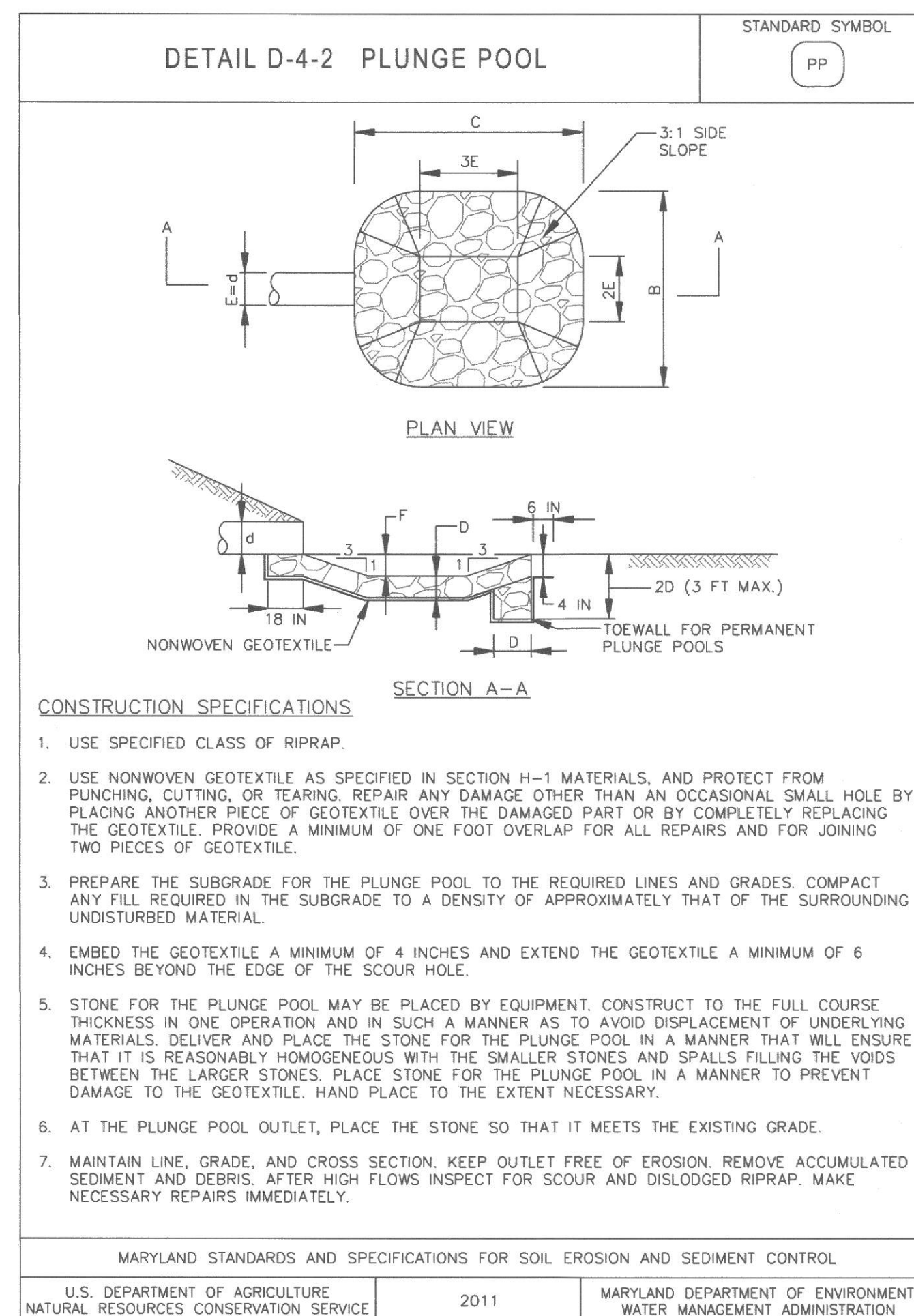
251051



- HARFORD COUNTY SEDIMENT CONTROL NOTES**
- A GRADING UNIT OF 20 ACRES IS THE MAXIMUM CONTIGUOUS AREA ALLOWED TO BE GRADED AT A GIVEN TIME.
 - A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PROCEEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY DPW. NO MORE THAN THIRTY ACRES CUMULATIVELY MAY BE DISTURBED AT ANY GIVEN TIME.
 - THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.
 - THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.
 - ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL FROM DPW.
 - ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.
 - EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.
 - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1; ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
 - SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.
 - DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.
 - SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.
 - TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.
 - AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NOINPDDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.
 - ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.
 - CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING.
 - SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
 - OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.
 - ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.
 - STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
 - TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL ESSENTIAL PARTS OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.
 - TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
 - PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED.
 - SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

SEQUENCE OF CONSTRUCTION

- OBTAIN ALL REQUIRED PERMITS
- STAKE OUT LIMITS OF DISTURBANCE IN THE FIELD.
- REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITIES.
- PERFORM CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS ONLY.
- INSTALL PERIMETER CONTROLS.
- INSTALL SEDIMENT TRAP
- CLEAR, GRUB AND GRADE THE REMAINING AREA AS SPECIFIED BY THE LIMITS OF DISTURBANCE.
- PROVIDE TEMPORARY STABILIZATION OF ANY AREA WITHIN THE LIMITS THAT HAVE BEEN CLEARED THAT WILL NOT BE GRADED WITHIN SEVEN (7) DAYS.
- INSTALL INLET AND INLET PROTECTION.
- INSTALL STORM DRAIN AND RIP RAP INFLOW PROTECTION.
- INSTALL PROPOSED WELL.
- INSTALL PROPOSED UTILITY CONNECTIONS.
- INSTALL BASE COURSE OF ENTRANCE AND GRAVEL LOT.
- CONSTRUCT/INSTALL PROPOSED BUILDINGS.
- CONVERT SEDIMENT TRAP TO PROPOSED SUBMERGED GRAVEL WETLAND.
- FINAL GRADING, LANDSCAPING, AND STABILIZATION ACCORDING TO THE SEEDING OR SODDING SPECIFICATIONS.
- COMPLETE SHOULDER IMPROVEMENTS.
- RECEIVE APPROVAL OF THE SITE FROM THE APPROPRIATE ENFORCEMENT AUTHORITY.
- WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL PRACTICES AND STABILIZE THE REMAINING DISTURBED AREAS.



STANDARD STABILIZATION NOTE

- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3' HORIZONTAL TO 1' VERTICAL (3:1); AND
 - SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

EROSION & SEDIMENT CONTROL NOTES AND DETAILS FOR LANDS OF MAGNOLIA 622, LLC

SITUATED IN: 1ST ELECTION DISTRICT, HARFORD COUNTY, MARYLAND

| | |
|--|--|
| 866.850.4200 www.atwell.com 4692 MILLENNIUM DRIVE, SUITE 305 BELCAMP, MD 21017 410.612.9900 | 7/18/2025 |
| | |
| SURVEY BY: RTS DESIGNED BY: ASZ DRAWN BY: ASZ CHECKED BY: JBG | SCALE: N/A DATE: 07/01/2025 SHEET: 4 OF 6 DRAWING NO.: 3320_D13 |

251052

B-4-4 STANDARDS AND SPECIFICATIONS

| FOR | | TEMPORARY STABILIZATION |
|---|--|---|
| PERMANENT STABILIZATION | | Definition |
| To stabilize disturbed soils with permanent vegetation. | | To stabilize disturbed soils with vegetation up to for 6 months. |
| Purpose | | To use fast growing vegetation that provides cover on disturbed soils. |
| 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. |
| Criteria | | 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardness 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 for the testing agency. Soil tests are not required for Temporary Seeding. 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 seeding season. |

| FOR | | SEEDING AND MULCHING |
|--|--|---|
| Definition | | The application of seed and mulch to establish vegetation cover. |
| Purpose | | 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. |
| Criteria | | 1. Specifications a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-seeding 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 standard and testing methods for all seed mixtures by weight. 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 cool as possible until use. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. d. Seed or seed mix must 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 phytotoxic materials. 2. Application a. Dry Seeding: This includes use of conventional drop or broadcast spreaders. i. 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 seed with a weighted roller to provide good seed to soil contact. b. Dry Chipspicker Seeding: Mechanized seeders that apply and cover seed with soil. i. Chipping spreaders 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 ₂ O ₅ (phosphorus), 200 pounds per acre; K ₂ O (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. B. Mulching 1. Mulch Materials (in order of preference) i. 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 Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dirty. Note: Use only sterile straw mulch in areas where one species of grass is desired. ii. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed to a uniform fibrous physical size. 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 factors. 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. iv. WCFM material must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding which contains a least soluble iron oxide (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 98 to 100 percent will pass through a #20 mesh sieve. v. WCFM material and dye to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means. 2. 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. |

| FOR | | SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS |
|--|--|---|
| Definition | | The process of preparing the soils to sustain adequate vegetative stabilization. |
| Purpose | | To provide a suitable soil medium for vegetative growth. |
| Conditions Where Practice Applies | | Where vegetative stabilization is to be established. |
| Criteria | | 1. 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. 2. Permanent Stabilization a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions report for permanent vegetative establishment are: i. Soil pH between 6.0 and 7.0. ii. 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 loesslike soil will be placed, 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 approval plan as indicated by the results of a soil test. B. Topsoiling 1. 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 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 of 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: a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, rocks, 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 subsoils 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. 6. Topsoil Application a. Erosion and sediment control practices must be maintained when applying topsoil. 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 subsoil from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets. 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 rates 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 analysis. 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 a least soluble iron oxide (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 98 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. |

| FOR | | INCREMENTAL STABILIZATION |
|--|--|---|
| Definition | | Establishment of vegetative cover on cut and fill slopes. |
| Purpose | | To provide timely vegetative cover on cut and fill slopes as work progresses. |
| Conditions Where Practice Applies | | Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles. |
| Criteria | | 1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses. 2. Construction sequence example (Refer to Figure B.1): a. Construct and stabilize temporary swales or dikes that will be used to convey runoff around the excavation. b. Perform Phase 1 excavation, prepare seedbed, and stabilize. c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary. d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary. Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation over the seeding season will necessitate the application of temporary stabilization. B. Incremental Stabilization - Cut Slopes 1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses. 2. Stabilize slopes immediately when the vertical height of a fill reaches 15 feet, or when the grading operation ceases as prescribed in the plans. 3. At the end of each day, install temporary water conveyance practices, as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner. 4. Construction sequence example (Refer to Figure B.2): a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area. b. At the end of each day, install temporary water conveyance practices, as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner. c. Place Phase 1 fill, prepare seedbed, and stabilize. d. Place Phase 2 fill, prepare seedbed, and stabilize. e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary. |

| FOR | | PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION |
|-------------------|--|--|
| Definition | | Use of matting that has a design value for shear stress equal to or higher than the shear stress designated on approved plans. |
| Purpose | | 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. 2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE RESISTANT TO WEAR. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HAZARDOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2 1/2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXES OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. 3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES LONG AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM. 4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. 5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING. 6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END. 7. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSTREAM MAT. 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. 9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. |

| FOR | | PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION |
|-------------------|--|--|
| Definition | | Use of matting that has a design value for shear stress equal to or higher than the shear stress designated on approved plans. |
| Purpose | | 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. 2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE RESISTANT TO WEAR. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HAZARDOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2 1/2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXES OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. 3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES LONG AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM. 4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN. 5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING. 6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT. 7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. 9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. |

| FOR | | PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION |
|-------------------|--|---|
| Definition | | Use of matting that has a design value for shear stress equal to or higher than the shear stress designated on approved plans. |
| Purpose | | 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. 2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE RESISTANT TO WEAR. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HAZARDOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2 1/2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXES OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. 3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES LONG AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM. 4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. 5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING. 6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. 7. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSTREAM MAT. 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. 9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. |

| FOR | | PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION |
|-------------------|--|--|
| Definition | | Use of matting that has a design value for shear stress equal to or higher than the shear stress designated on approved plans. |
| Purpose | | 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. 2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE RESISTANT TO WEAR. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HAZARDOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2 1/2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXES OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. 3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES LONG AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM. 4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN. 5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING. 6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT. 7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. 9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. |

| FOR | | PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION |
|-------------------|--|---|
| Definition | | Use of matting that has a design value for shear stress equal to or higher than the shear stress designated on approved plans. |
| Purpose | | 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. 2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE RESISTANT TO WEAR. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HAZARDOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2 1/2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXES OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. 3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES LONG AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM. 4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. 5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING. 6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. 7. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSTREAM MAT. 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. 9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. |

B-4-5 STANDARDS AND SPECIFICATIONS

| FOR | | TEMPORARY STABILIZATION |
|---|--|---|
| PERMANENT STABILIZATION | | Definition |
| To stabilize disturbed soils with permanent vegetation. | | To stabilize disturbed soils with vegetation up to for 6 months. |
| Purpose | | To use fast growing vegetation that provides cover on disturbed soils. |
| 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. |
| Criteria | | 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardness 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 for the testing agency. Soil tests are not required for Temporary Seeding. 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 seeding season. |

| FOR | | SEEDING AND MULCHING |
|--|--|---|
| Definition | | The application of seed and mulch to establish vegetation cover. |
| Purpose | | 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. |
| Criteria | | 1. Specifications a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-seeding 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 standard and testing methods for all seed mixtures by weight. 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 cool as possible until use. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. d. Seed or seed mix must 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 phytotoxic materials. 2. Application a. Dry Seeding: This includes use of conventional drop or broadcast spreaders. i. 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 seed with a weighted roller to provide good seed to soil contact. b. Dry Chipspicker Seeding: Mechanized seeders that apply and cover seed with soil. i. Chipping spreaders 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 ₂ O ₅ (phosphorus), 200 pounds per acre; K ₂ O (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. B. Mulching 1. Mulch Materials (in order of preference) i. 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 Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dirty. Note: Use only sterile straw mulch in areas where one species of grass is desired. ii. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed to a uniform fibrous physical size. 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 factors. 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. iv. WCFM material must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding which contains a least soluble iron oxide (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 98 to 100 percent will pass through a #20 mesh sieve. v. WCFM material and dye to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means. 2. 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. |

| FOR | | INCREMENTAL STABILIZATION |
|--|--|---|
| Definition | | Establishment of vegetative cover on cut and fill slopes. |
| Purpose | | To provide timely vegetative cover on cut and fill slopes as work progresses. |
| Conditions Where Practice Applies | | Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles. |
| Criteria | | 1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses. 2. Construction sequence example (Refer to Figure B.1): a. Construct and stabilize temporary swales or dikes that will be used to convey runoff around the excavation. b. Perform Phase 1 excavation, prepare seedbed, and stabilize. c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary. d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary. Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation over the seeding season will necessitate the application of temporary stabilization. B. Incremental Stabilization - Cut Slopes 1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses. 2. Stabilize slopes immediately when the vertical height of a fill reaches 15 feet, or when the grading operation ceases as prescribed in the plans. 3. At the end of each day, install temporary water conveyance practices, as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner. 4. Construction sequence example (Refer to Figure B.2): a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area. b. At the end of each day, install temporary water conveyance practices, as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner. c. Place Phase 1 fill, prepare seedbed, and stabilize. d. Place Phase 2 fill, prepare seedbed, and stabilize. e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary. |

| FOR | | PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION |
|-------------------|--|---|
| Definition | | Use of matting that has a design value for shear stress equal to or higher than the shear stress designated on approved plans. |
| Purpose | | 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. 2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE RESISTANT TO WEAR. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-HAZARDOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2 1/2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXES OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. 3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES LONG AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM. 4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. 5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING. 6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIG |