TOWN OF CHEVERLY, MARYLAND
INVITATION FOR BID 2018/04/23
CONSTRUCTION
March 9, 2018

PROJECT TITLE: Construction of Green Infrastructure in Boyd Park

PRE-BID CONFERENCE DATE: March 16, 2018, at 11:00 am

PRE-BID CONFERENCE LOCATION: 6401 Forest Road Cheverly, MD Conference Room No. 1

PROJECT LOCATION: State Street & 64th Avenue, Cheverly, MD 20785

OPENING DATE: March 9, 2018, at 8:00 am

CLOSING DATE: March 23, 2018 at 10:00 am

PROJECT CONTACT: David W. Warrington, Town Administrator or Juan L. Torres, Director of Public Works at: (Adm) 301-773-8360 or (P.W.) 301-773-2666

QUESTIONS: Questions must be submitted in writing to the Town Administrator's office by March 19, 2018, no later than 4:00 pm. Electronic messages may be submitted to publicworksdirector@cheverly-md.gov. If necessary, and addendum will be issued and posted on the Town website at www.cheverly-md.gov. **It is the responsibility of the bidder to download any addenda.**

TOWN OF CHEVERLY, MARYLAND
INVITATION FOR BID 2018/04/23

CONSTRUCTION OF GREEN INFRASTRUCTURE IN BOYD PARK

Table of Contents

1. General Information

The Town of Cheverly

The Town of Cheverly (incorporated in 1931) has a population 6,433 as of the 2010 census. The Town offers sanitation, road maintenance, park maintenance, police services and other services. Cheverly operates on a Council form of government with an elected Mayor and six Town Council members. The Town Council appoints the Town Administrator, Chief of Police, Director of Public Works and Town Attorney to carry out its policies and enforce its ordinances. The Town currently has 42 employees.

About this Invitation to Bid
The Town Administrator for the Town of Cheverly seeks bids from Contractors interested in constructing green infrastructure features in Boyd Park. This project consists of removing an existing asphalt basketball court, fill, and portions of a curb and gutter; grading; the removal of select trees which are to be turned into much to be used on-site; and the construction and installation of a porous asphalt basketball court, two micro-bioretention facilities, curb and gutter, trees, and landscaping.

All bids submitted must be consistent with the bid requirements. The conditions of the bid must remain valid for the contract term. Either party is permitted to cancel the contract without any recourse, for reason or without reason by providing the other party with written notice 90 days prior to the cessation of services.

2. Bid Process

In developing the invitation to bid, the Town of Cheverly has worked to reasonably and as capabilities allow ensure that this Invitation for Bid contains enough information for a firm to prepare a satisfactory Proposal. The Town encourages all participating Contractors to submit the most complete and competitive bid possible. If a Contractor requires additional information, the Town of Cheverly is more than happy to answer any questions the company's representatives have.

The timing of the Proposal process is as follows:

a. Distribution of Invitation to Bid
   This invitation to bid will be made available on the town's website (www.cheverly-md.gov) and by request.

b. Bid Submission
   Bids will be received by the Town Administrator, no later than 10:00 AM on March 23, 2018, and shall be mailed or hand delivered to:

   David Warrington, Town Administrator
   Town of Cheverly
   6401 Forest Road
   Cheverly, MD 20785

   Both the inner and outer envelopes shall have noted thereon:
   i. "Sealed Bid 2018/04/23 Enclosed for Boyd Park Green Infrastructure Project"
   ii. The Contractor's name and address

   Fax transmitted Proposals will not be accepted at any time.

c. Bid Documents
   The Town will base the selection of a Contractor on documentation submitted in the Bid Documents. A Contractor responding to this bid for the "Invitation for Bid 2018/04/23:

Construction of Green Infrastructure in Boyd Park" must submit bids using the forms included at the end of this Invitation for Bids and fill in all blank spaces on the forms. Failure to comply with these requirements may result in a disqualification of the Contractor.

Contractors must submit **five (5) total copies of their Bid. These copies must adhere to the following format: four (4) unbound and one (1) digital pdf copy of the bid on thumb drive.**

Submit bids using forms furnished in this Invitation for Bid and fill in all blank spaces on the form. Forms include the following:

- Bid Form
- Statement of Experience
- Statement of Resources
- Listing of Subcontractors
- Statement of Understanding and Project Schedule
- Price Proposal
- Bid Form for Unit Prices, Item Totals, Subtotals, and Total Base Bid

d. Bid Review and Selection
Town Staff will evaluate, rate, and/or rank each Contractor based on information provided in their bid. We anticipate that the Staff will complete the review process by April 2, 2018. Contractors will then be notified concerning the outcome by April 3, 2018.

e. Official Approval
The Mayor and the Town Council, with the assistance of the Town Administrator, will consider the recommendation for the Construction of Green Infrastructure in Boyd Park and authorize a final contract between the Town of Cheverly and the firm.

f. Conversion Activities
The approved Contractor will be required to coordinate with the Town Administration all activities necessary to ensure a smooth transition. Activities will begin upon notification and should be completed by a time determined by the contract.

g. Contract Effectiveness
The Town will make every effort to administer the bid process in accordance with the terms and dates discussed in the Invitation for Bid. However, the Town of Cheverly reserves the right to modify the Proposal process and dates as deemed necessary.

3. Minimum Qualifications

For the Town of Cheverly to consider your application, a Proposal must include the following minimum requirements:

a. Contractor information that includes the name of the proposing Contractor, its principal business address, and the branch address that would serve the Town, the name of the proposer, a contact for questions by the Town, and the date that the Proposal was submitted.

b. A Statement of Experience that summarizes the Contractor's qualifications, experience, and length of time in business. Experience in multiple and varying municipalities is preferred.

c. A Statement of Resources that includes a list of the Contractor's available equipment, number of personnel who will be assigned to the project, and any other pertinent information.

d. A Listing of Subcontractors that the Contractor proposes to use and relevant references.

e. A Statement of Understanding of the scope of the work proposed with a list of deliverables and a Schedule based on the Scope of the Work that includes a timetable for deliverables.

f. Proof of insurance.

g. A draft contract.

h. A price proposal in a separate, sealed inner envelope that includes:

    i. A completed, signed Bid Form which indicates the lump sum bid and contain all necessary costs required for completion of the Work (Note: Any changes, erasures, modifications, or deletions in the bid form, or alternate Proposals not specified in the Bid Proposal may make the Proposal irregular and subject to rejection.).

    ii. A Bid Form for Unit Prices, Item Totals, Subtotals, and Aggregate Amount Bid, with all prices written clearly in the blank spaces for each item, with the amounts extended if a unit price bid and all amounts totaled (Note: In the event of any discrepancy between the written amounts and the numerals, the written amounts shall govern and will be considered as the price bid).

4. Services Required

The Town of Cheverly requires a Contractor to conduct the following services at Boyd Park:

- Remove an existing asphalt basketball court, fill, and portions of a curb and gutter.
- Perform grading.
- Remove select trees which are to be turned into mulch to be used on-site in area as specified by the landscape architect on-site.
- Construct a porous asphalt basketball court, two micro-bioretention facilities, curb and gutter, trees, and landscaping.
- Install new storm 24" and 36" storm sewer, grass channels, inlet trash screens, and a surface treated access road to correct a bank erosion issue at the edge of an abandoned landfill adjacent to a trail and creek.
- Install one (1) permanent interpretive sign in area specified by the landscape architect on-site.

The stormwater management plan set (which includes the landscape plan) and grading, erosion and sediment control plan for this project are included as attachments to this Invitation for Bid.

5. Evaluation of Proposals

Proposals from all Contractors meeting the minimum qualifications detailed in this solicitation will be reviewed and evaluated. A review committee will evaluate the Proposals and submit the qualified candidates to the Town Council for the final determination. The Town, at its discretion, will determine whether to hold discussions with the Proposers who are in a "competitive range" or be awarded without discussion on the basis of the Proposal submitted. The following are the evaluation criteria:

A. **Proper Submission of Proposal**. The Proposal must be submitted, received by the Town Administrator, or postmarked by the due date outlined in this Proposal. It is the responsibility of the firm to ensure proper and timely delivery of all required material. Late submissions will not be considered or evaluated.
B. **Comprehensiveness of Services Provided**. The Town's evaluation of the overall capabilities of the firm to meet the required service levels described in this Invitation for Bid.
C. **Related Experience**. The institution's related experience in providing services comparable to the Town's needs.
D. **Assigned Individuals**. The credentials and experience of the person(s) assigned to the Town's accounts.
E. **Total Base Bid**. The Contractor will complete the work for a lump sum Contract Price and is expected to provide all labor, materials, and equipment necessary for this project. All unit prices only apply to changes in the Work.
F. **Other Factors**. Any other factors the Town believes would be in the best interest of the Town to consider, which were not previously described.

6. Price to Remain Valid

All Proposals must be valid for a period of 90 days from the due date of the Invitation for Bid. The Town assumes no responsibility for variations in the cost of materials and labor from those existing at the time of submitting the Proposal.

7. Amendment or Cancellation of the Invitation for Bid

The Town of Cheverly reserves the right to cancel, amend, modify or otherwise change this application process at any time if it deems to be in the best interest of the Town of Cheverly to do so.

8. Proposal Modifications

No additions or changes to any Proposals will be allowed after the application due date, unless such modification is specifically requested by the Town of Cheverly. The Town, at its option, may seek retraction and/or clarification by an applicant regarding any discrepancy or contradiction found during its review of applications.

9. Suspension and/or Debarment

Developers, Contractors, Companies or Subcontractors which are either suspended or debarred from performing work by the State of Maryland or within Prince George's County, Maryland, are prohibited from submitting an application under this Program. A Contractor that submits a Proposal that is found to have been suspended and/or debarred from conducting business within Prince George's County, Maryland, such developer will be reported to the State's Attorney General and Comptroller's Office.

10. Codes and Standards

Comply with all Federal, Maryland, and Cheverly regulations, codes, and standards for construction within the right of way. No work is to occur between the hours 7:00 P.M. and 7:00 A.M Monday through Friday or anytime on Saturday, Sunday, or any legal holiday. All work, including emergencies, during these hours require written permission from the Town of Cheverly's Department of Public Works (DPW) director.

In performance of this project, or where there is an Americans with Disabilities Act component involved, the Contractor acknowledges that it is acting on behalf of the City and warrants to the best of its professional information, knowledge, and belief that its design, product, or completed infrastructure, will conform to, and comply with, the applicable provisions of the Americans with Disabilities Act.

11. Sequencing and Scheduling

Upon acceptance of the Proposal and execution of a contract, the Contractor agrees that the work shall be started within 10 (Ten) working days of the date of the Notice to Proceed and that the total

project will be completed within 30 (Thirty) working days. The Town shall facilitate the Contractor's work by providing reasonable access to all work areas. The Town shall facilitate the Contractor's services program by providing access to the project premises during both regular business hours and, as is necessary, at other times so that the Contractor can conduct both regular, scheduled maintenance and any special service(s).

12. Legal Terms

It is the policy of the Town of Cheverly that all legal disputes are heard in a court of law in Prince George's County, Maryland, and that each party is responsible to pay for the cost of their own legal fees. **The Town of Cheverly will not agree to terms that are not consistent with this policy**.

13. Final Comments

The Town of Cheverly reserves the right to reject any and all Proposals, cancel all or part of this Invitation for Bid, and waive any minor irregularities and to request additional information from proposing firms. By requesting Proposals, the Town of Cheverly is in no way required to award a contract or pay expenses of the proposing firms in connection with the preparation of the Proposal.

The Town's decision to award a contract will be based on many factors including but not limited to service, cost, Proposal requirements met, etc. No single factor, such as cost, will determine the final decision to award.

Contractors are responsible for all costs and expenses incurred in the preparation of a Proposal to respond to this solicitation. The Contractor submitting a Proposal further certifies and warrants that all payments of fees charged by any sub-Contractors pursuant to that contract are the sole responsibility of the Contractor.

The successful proposer will be required to secure and maintain appropriate insurance coverage. Proof of such coverage, in the form of a broker-issued certificate, must be received by the Town prior to the beginning contract date.

The Town truly appreciates the Chesapeake Bay Trust Prince George's Stewardship Program for providing funding to the Town of Cheverly for this project.

End of Invitation for Bids

PROPOSAL DOCUMENTS

In order to qualify for this Project, Contractors must submit all information requested in the following pages.

CONTRACTOR INFORMATION

Proposals must adhere to the format of these Proposal forms and content of this Invitation for Bid. Proposals will not be evaluated unless all parts of the Proposal form are submitted in a complete package. The information set forth is the minimum required in order to qualify for consideration.

Company Name _____

Address _____

City, State, Zip _____

Local Branch _____
(if applicable)

Has the company ever operated under another name? _____

If yes, what name? _____

List who is authorized to execute contracts

_____

Primary
Contact Person _____

Phone Number _____

Email Address _____

Proposal
Submittal Date _____

STATEMENT OF EXPERIENCE

Company Name _____

Year Founded _____

Project Manager Name _____ Years of Experience _____

Project Manager Phone _____ Email _____

Types of Work Normally _____

Performed _____

Do you have equipment and staff available to start within 10 days of Notice to Proceed? _____

Has the company ever worked for the Town of Cheverly? If yes, when and what type? _____

Projects of this type previously completed

1. _____

_____ Amount: $ _____

Reference (name, phone email): _____

2. _____

_____ Amount: $ _____

Reference (name, phone email): _____

3. _____

_____ Amount: $ _____

Reference (name, phone email): _____

STATEMENT OF AVAILABLE RESOURCES

Company Name _____

Equipment _____

_____

_____

_____

_____

No. Persons Currently Employed _____ No. Persons Available for Project: _____

Other Pertinent Information

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

LIST OF SUBCONTRACTORS

Contractors shall identify all subcontractors which will be performing twenty-five percent (25%) or more by value of the work. Subcontractor information shall be submitted as part of the bid form.

Subcontractor Name, Address and Contact Person/email	**Work to be Performed**	**Value of Work to be Performed**	**References**
			1. 2. 3.
			1. 2. 3.
			1. 2. 3.
			1. 2. 3.

STATEMENT OF UNDERSTANDING AND PROJECT SCHEDULE

Statement of Understanding

To demonstrate your comprehension of the project, please summarize your understanding of what the work is and what the work will entail. This should include, but not be limited to, your understanding of the purpose and scope of the project, critical success factors and potential problems related to the project and your understanding of the deliverables.

Project Schedule

Provide a project plan that indicates how you will complete the required deliverables and services and addresses the following:

- Number of staff needed
- Tasks to be performed (within phase as applicable)
- Number of hours each task will require
- Deliverables created by each task
- Dates by which each task will be completed (dates should be indicated in terms of elapsed time from project inception)
- Resources assigned to each task

This statement of understanding and project schedule should be limited to no more than three pages.

PROOF OF INSURANCE

Submit a certificate of Insurance from your insurance agent or insurance company that evidences your company's ability to obtain the following minimum insurance requirements. Attach and label as Exhibit 1.

1. Workers Compensation

Coverage A:	Statutory
Coverage B:	$500,000 Bodily Injury by Accident for Each Accident
	$500,000 Bodily Injury by Disease for Policy Limit
	$500,000 Bodily Injury by Disease for Each Employee

2. Commercial Auto Liability Insurance for All Owners, Non-Owned and Hired Autos.

$1,000,000 Combined Single Limit for Bodily Injury and Property Damage Liability

3. Commercial General Liability Insurance

$2,000,000 General Aggregate
$1,000,000 Products/Completed Operations Aggregate
$1,000,000 Personal and Advertising Injury Limit
$1,000,000 Combined Single Limit Bodily Injury & Property Damage – Each Occurrence
$50,000 Fire Legal Limit
$5,000 Medical Payment

4. Umbrella/Access Liability Insurance

$2,000,000 Each Occurrence

DRAFT CONTRACT

Provide a draft contract or agreement for Banking/Financial Services that is specific to the services, terms and conditions represented in this Invitation for Bid.

PROPOSAL FORM PRICE AUTHORIZATION

By signing this Proposal form, such action certifies that the Contractor has personal knowledge of the following:

That said Contractor and Subcontractors are legally authorized to do business in the State of Maryland;

That said Contractor represents that they have read and understand the bidding documents and specifications;

That said Contractor has visited the site, familiarized themselves with the local conditions under which the Work is to be performed, compared the sites with the drawings and specifications, satisfied themselves of the conditions of delivery, handling and storage of materials, and all other matters that may be incidental to the work, including subsurface conditions before submitting their proposal.

That said Contractor carefully prepared the Proposal forms and has checked the same in detail before submitting said Proposal;

That said Contractor, or the agents, officers, or employees thereof, have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive Proposing in connection with this Proposal;

That all of said work will be performed at the Contractor's own proper cost and expense. The Contractor will furnish all necessary materials, labor, tools, machinery, apparatus and other means of construction in the manner provided in the applicable specifications, and at the time stated in the contract;

That the undersigned, being a reputable Contractor and having submitted the necessary pre-qualification forms, hereby submits in good faith and in full accordance with all specifications, attached or integral, his/her Proposal:

Name of Contractor _____

Authorized Signature _____

Name and Title of Signatory _____

Date _____

Type of Organization (circle One): Corporation Partnership Proprietorship

SEAL:

(If corporation)

BID FORM FOR UNIT PRICES, ITEM TOTALS, SUBTOTALS, AND TOTAL BASE BID

If you believe there are any other supplies or costs not mentioned that should be given consideration by the Town, please add them to your bid form for unit prices.

BID 2018/04/23: Construction of Green Infrastructure in Boyd Park					
Contractor:					
No.	**Description**	**Unit of Measure**	**Quantity**	**Unit Bid Price**	**Total Bid Amount**
A	**General**				
1	Mobilization	Each	1		
2	Construction entrance	Each	1		
3	Super silt fence	Linear Ft	901		
4	Installation of interpretive sign	Each	1		
				Sub-Total	
B	**Earthwork**				
5	Trench excavation & backfill	Cubic Yds	45		
6	Trench undercut excavation	Cubic Yds	45		
7	Gravel for trench undercut	Cubic Yds	5		
8	Spoil	Cubic Yds	250		
				Sub-Total	
C	**Paving**				
9	Site prep - curb and gutter removal	Linear Ft	12		
10	Concrete curb and gutter replacement	Linear Ft	10		
11	Asphalt Curb	Linear Ft	360		
12	Mill & overlay within Boyd Park*	Square Yds	3		
				Sub-Total	
D	**Green Infrastructure/Stormwater Management**				
13	4-inch pvc pipe	Linear Ft	48		
14	10-inch SDR-35 pipe	Linear Ft	256		
15	18-inch drain basin	Each	2		
16	#57 stone, double washed	Cubic Yds	217		
17	#8 stone, double washed	Cubic Yds	51		

18	Class 1 Riprap	Cubic Yds	1		
19	Class 0 Riprap	Cubic Yds	1		
20	Permeable asphalt for basketball court	Square Ft	3,278		
21	Sand	Cubic Yds	9		
22	Bioretention soil media	Cubic Yds	122		
23	Mulch for micro-bioretention areas	Cubic Yds	5		
24	Bioretention plantings, native	Square Ft	800		
25	Perimeter plantings around bioretention, native	Square Ft	1000		
				Sub-Total	
E	**Other Landscaping**				
26	Landscape plantings, native	Square Ft	350		
27	Sodding	Cubic Yds	40		
28	Trees, native, 10 Gal	Each	19		
29	Large trees, native, 15 Gal	Each	8		
30	Tree removal & mulch chipping (mulch to be re-used on site in area specified by landscape architect)	Each	1		
				Sub-Total	
TOTAL BASE BID ……..					**$**

* Note: Additional mill & overlay on State Street and 64th Avenue identified as “Enlargement C” on Sheet 5 of the Approved Stormwater Management plan set is not part of this bid.

ATTACHMENT A:
APPROVED SWM PLAN SET

SHEET INDEX

GENERAL STORM DRAIN AND PAVING NOTES

1) INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF THE MAINS BY DIGGING TEST PITS, BY HAND OR VACUUM, AT UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES TO WATER AND SEWER LINES ARE LESS THAN SHOWN ON THIS PLAN, OR LESS THAN TWELVE (12) INCHES, CONTACT THE DEPARTMENT OF PERMITTING INSPECTION AND ENFORCEMENT (DPIE) INSPECTOR BEFORE PROCEEDING WITH CONSTRUCTION.

2) ALL STORM DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE STORMWATER MANAGEMENT STANDARDS AND SPECIFICATIONS OF PRINCE GEORGE'S COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION.

3) FOR TYPES OF STORM DRAIN STRUCTURES, REFER TO THE LATEST STANDARD DETAILS OF PRINCE GEORGE'S COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION, UNLESS OTHERWISE NOTED.

4) ALL ROADWAY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING: THE DPW&T SPECIFICATIONS AND STANDARDS FOR ROADWAYS AND BRIDGES; THE PRINCE GEORGE'S COUNTY CODE, SUBTITLE 23, ROAD ORDINANCE; AND THE PRINCE GEORGE'S COUNTY POLICY AND SPECIFICATION FOR UTILITY INSTALLATION AND MAINTENANCE.

5) PRIOR TO DIGGINGWITHIN THE PUBLIC RIGHT-OF-WAY, CALL "MISS UTILITY" TOLL FREE AT (800) 257-7777 FOR UTILITY LOCATION AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION.

6) PRIOR TO PERMIT ISSUANCE AND STARTING ANY WORK SHOWN ON THIS PLAN, THE PERMITTEE SHALL ARRANGE A PRE-CONSTRUCTION MEETING WITH THE DPIE INSPECTOR BY CALLING (301) 883-5730. AN INITIAL INSPECTION IS REQUIRED PRIOR TO FULL MASS GRADING OF THE SITE.

7) IN ACCORDANCE WITH SECTION 23-128, THE COUNTY'S ROAD ORDINANCE, A PROJECT SIGN SHALL BE POSTED PROMINENTLY DESCRIBING THE FOLLOWING:-SUBDIVISION NAME (AS SHOWN ON PERMIT APPLICATION) -OWNER/PERMITTEE NAME-OWNER/PERMITTEE ADDRESS AND PHONE-DPW&T PERMIT NUMBER

8) ALL ELEVATIONS SHOWN ON THIS PLAN ARE IN ACCORDANCE WITH THE FOLLOWING: HORIZONTAL—MARYLAND COORDINATE SYSTEM (STATE PLANE GRID) BASED ON NORTH AMERICAN DATUM OF 1983 (NAD 83); NATIONAL GEODOTIC VERTICAL DATUM OF 1929 (NG VD 29).

9) TEMPORARY TRAFFIC CONTROL AND PERMANENT TRAFFIC SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE FEDERAL HIGHWAY ADMINISTRATION'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

10) IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO ARRANGE FOR THE ADJUSTMENT OR RELOCATION OF ALL UTILITIES.

11) ALL UNSUITABLE MATERIAL MUST BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO A DEPTH AS DIRECTED BY THE GEOTECHNICAL ENGINEER, THE DPW&T INSPECTOR, AND/OR THE DEPARTMENT'S ENGINEER.

12) EXCAVATION AND PLACEMENT OF FILL MATERIAL SHALL BE PERFORMED UNDER THE SUPERVISION OF A MARYLAND-LICENSED ENGINEER.

13) THE PERMITTEE WILL BE REQUIRED TO FURNISH COMPACTION REPORTS CERTIFIED BY A MARYLAND-LICENSED ENGINEER ON EACH LAYER OF FILL MATERIAL PRIOR TO PLACING SUBSEQUENT LAYERS.

14) DURING THE PLACEMENT OF A STANDARD PAVEMENT SECTION, NO PAVEMENT COURSE OR STONE LIFT SHALL BE PLACED UNTIL THE UNDERLYING COURSE OR SUBGRADE IS APPROVED BY THE DPW&T INSPECTOR. THE APPROVAL SHALL EXPIRE IF TRAFFIC OR INCLEMENT WEATHER AFFECTS THE SITE PRIOR TO PAVING.

15) AS SOON AS THE ASPHALT BASE COURSE IS APPROVED, THE INTERMEDIATE ASPHALT COURSE SHALL BE PLACED IMMEDIATELY OVER IT TO FORM A PROTECTIVE SEAL.

16) TEMPORARY STREET NAME SIGN INSTALLATION AND MAINTENANCE IS THE OBLIGATION OF THE PERMITTEE ONCE BASE PAVING IS COMPLETED.

17) WHERE ROADWAY CONSTRUCTION IS ON OR IN THE VICINITY OF AN EXISTING ROAD, IN-KIND PAVEMENT MARKING AND STRIPING REPLACEMENT (E.G., THERMOPLASTIC, PAINTED, ETC.) ARE REQUIRED. ALSO, APPROPRIATE PAVEMENT MARKING AND STRIPING SHALL BE PROVIDED IN THE AREA OF PAVEMENT WIDENING AND/OR RECONSTRUCTION AND/OR OVERLAY OF AN EXISTING ROAD.

18) SAW CUT AND MILL A 2-INCH DEEP, 10-FOOT-WIDE NOTCH AT EXISTING EDGE OF PAVEMENT WHERE IT IS NECESSARY TO CONNECT TO OR TO EXTEND AN EXISTING ROAD. OVERLAY AT POINT OF TIE-IN TO ENSURE A SMOOTH TRANSITION AND POSITIVE DRAINAGE.

19) WHERE IT IS NECESSARY TO WIDEN AN EXISTING ROAD, AND MILLING AND OVERLAY REQUIREMENTS HAVE BEEN WAIVED OR REDUCED, THE WIDENING AND THE EDGE TREATMENT OF EXISTING ROAD SHALL BE CONSTRUCTED IN ACCORDANCE WITH DPW&T STANDARD NO.300.20 UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.

20) ALL RESIDENTIAL ROADWAY FILLET RADII SHALL BE AT LEAST 37 FEET, UNLESS OTHERWISE NOTED. ROADWAYS WITH HIGHER CLASSIFICATION REQUIRE 45 FEET AND/OR 50 FEET RADII.

21) AN UNDERDRAIN SYSTEM IS REQUIRED FOR THE FULL LENGTH OF ALL PROPOSED AND MODIFIED ROADWAYS, ON BOTH SIDES, AND TO THE LIMITS OF THE PERMIT SHOWN ON THIS PLAN.

22) ALL CURB AND GUTTER SHALL BE CONSTRUCTED IN ACCORDANCE WITH DPW&T STANDARDS NO.300.01 THROUGH 300.04 UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.

23) BRICK CHANNELIZATION IS REQUIRED IN ALL PUBLIC DPW&T STORM DRAIN STRUCTURES. CONCRETE CHANNELIZATION IS NOT ALLOWED.

24) POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE AREA COVERED BY THIS PERMIT AND THROUGH ADJACENT PROPERTY FRONTAGES.

25) ALL UNPAVED AREAS WITHIN THE RIGHT-OF-WAY SHALL BE SODDED.

26) ALL SIDEWALK RAMPS SHOWN ON THIS PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH DPW&T STANDARDS 300.05 THROUGH 300.10 AND SHALL COMPLY WITH THE LATEST REVISION TO THE FEDERAL ACCESSIBILITY GUIDELINES OF THE AMERICANS WITH DISABILITIES ACT.

27) ALL SIDEWALKS SHOWN ON THIS PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST DPW&T STANDARDS AND SHALL COMPLY WITH THE LATEST REVISION TO THE FEDERAL ACCESSIBILITY GUIDELINES OF AMERICANS WITH DISABILITIES ACT.

28) ALL SIDEWALKS (EXCEPT AS NOTED HEREIN) ARE TO BE CONSTRUCTED BY THE SITE DEVELOPER.

29) SIDEWALKS ALONG FRONTAGES OF OPEN-SPACE PARCELS AND THOSE NOT COVERED BY A SINGLE-FAMILY BUILDING PERMIT SHALL BE CONSTRUCTED UNDER THIS STREET CONSTRUCTION PERMIT.

30) THE WIDTH OF A RESIDENTIAL DRIVEWAY APRON AT THE PROPERTY LINE SHALL NOT BE LESS THAN THE WIDTH OF THE ONSITE PARKING PAD AT ITS WIDEST POINT, A MAXIMUM WIDTH OF 20 FEET, AND A MINIMUM WIDTH OF 10 FEET. A RESIDENTIAL DRIVEWAY APRON FLARE SHALL NOT BE CONSTRUCTED CLOSER THAN 3.5 FEET TO THE NEAREST ABUTTING PROPERTY LINE.

31) ALL DRIVEWAY APRONS ARE TO BE CONSTRUCTED BY THE SITE DEVELOPER.

32) ENSURE THAT STREET TREES ARE NO CLOSER THAN 1 FOOT TO THE RIGHT-OF-WAY LINE, IN AN OPEN SPACE SECTION CONFIGURATION, AND NO CLOSER THAN 15 FEET FROM STREET LIGHT OR POLE, AND OF APPROPRIATE HEIGHT SO AS NOT TO INTERFERE WITH EXISTING OR PROPOSED OVERHEAD UTILITY LINES. ALL STREETSCAPE PLANTING SHALL BE IN ACCORDANCE WITH DPW&T STANDARDS 600.01 THROUGH 600.20 UNLESS DIRECTED OTHERWISE BY THE DEPARTMENT.

33) PAVEMENT QUALITY CONTROL AND CORING WILL BE REQUIRED OF THE PERMITTEE FOR ALL PAVEMENT COURSES USING THE FOLLOWING PROCESS:
a. PRIOR TO PAVING, PERMITEE/PAVING CONTRACTOR SHALL ELECTRONICALLY NOTIFY INSPECTOR OF PAVING DATES (FAX CAN OCCASIONALLY BE ACCEPTED), AND PROVIDE INFORMATION NEEDED FOR CORE TESTING REQUEST (CTR FORM #1). DPW&T INSPECTOR FILLS OUT THE CTR FORM THEN SENDS IT TO THE MATERIALS LAB.
b. CONTRACTORS, WHO ARE NEW TO THE MATERIALS LAB, SHALL ELECTRONICALLY SUBMIT QC PLANS TO IT, AND ARRANGE TO BE INITIATED BY IT PRIOR TO PAVING.
c. THE PERMITEE/PAVING CONTRACTOR MUST PROVIDE A MD-CERTIFIED FIELD TECHNICIAN FOR DAILY QUALITY CONTROL (QC) TESTING DURING THE ENTIRE PAVING OPERATION (NOT JUST ITS END). FIELD TECHNICIAN SHALL BE A DEQUATELY EQUIPPED WITH A PHONE, CALIBRATED THERMOMETER, AND A CALIBRATED THIN-LIFT DENSITY GAUGE FOR QC AND INSPECTOR-REQUESTED TESTING.
d. HMA DENSITY GAUGES SHALL BE VALIDATED AND CALIBRATED DAILY (SHA 504.03.10. A.2), SO THEIR READINGS CAN BE ACCEPTED FOR COURSE PLACED WITH A TOTAL TONNAGE UNDER 200 TONS OR ACCEPTABLE THICKNESS UNDER 1.2" DUE TO PATCHING, WEDGE & LEVELING, BRIDGE DECKS, ... ETC.
e. FIELD TECH. SHALL CALL THE MARIALS LAB WITH DATE & TIME OF CORE CUTTING SO IT CAN BE WITNESSED, AND CORES & HMA SAMPLES CAN BE RECEIVED ON SITE BY A LAB INSPECTOR.
f. INSPECTOR RANDOMLY SELECTS & MARKS CORE LOCATIONS IN THE FIELD; NOTES THEM DOWN ON THE CTR STATING STREET'S NAME AND ADDRESS, LOT #, STA #, OR DISTANCE FROM NEAREST INTERSECTION; THEN FAXES THE CTR AGAIN TO THE LAB, AND GIVES TO FIELD TECH BOXES FOR ONLY PR. GEOGE'S COUNTY HMA SAMPLES.
g. FIELD TECH. SHALL CHECK DELIVERY TICKETS FOR COUNTY-REQUIRED INFO,
COLLECT AT LEAST ONE BEHIND-THE-PAVER HMA SAMPLE/MIX/DAY, AND CUT AT LEAST 5 CORES/MIX/DAY BUT NO LESS THAN 2 CORES FROM EACH STREET, UNLESS OTHERWISE INSTRUCTED BY AN INSPECTOR; THEN HAND OVER THE SAMPLES TO DPWT INSPECTOR NO LATER THAN ONE (1) BUSINESS DAY FROM THE PAVING.
h. IF, AT THE LAB'S DISCRETION, THE CORES' CUTTING IS NOT WITNESSED, CORES
SHALL BE RECEIVED IN THE LAB, IN ONE BUSINESS DAY FROM PAVING, AS LONG AS THEY ARE NUMBERED AND WELL IDENTIFIED ON FORM #2 BY: PROJECT NAME, STREET NAME, CORE LOCATION, PAVING DATE, CORING DATE, MIX CODE, ... ETC. IF NOT PROPERLY IDENTIFIED, CORES WILL NOT BE ACCEPTED.
i. IF, AT THE LAB'S DISCRETION, A BEHIND-THE-PAVER HMA SAMPLE IS NOT RECEIVED ON SITE, IT SHALL BE RECEIVED IN THE LAB ALONG WITH CERTIFIED DELIVERY TICKETS, IN ONE (1) BUSINESS DAY, AND BE IDENTIFIED BY: PROJECT
NAME, SAMPLING LOCATION, PAVING DATE, & STATE MIX DESIGNATION. IF NOT PROPERLY LABELED, HMA SAMPLES WILL NOT BE ACCEPTED.
j. IF CORES ARE TESTED AT AN INDEPENDENT THIRD PARTY'S TESTING LAB, THAT LAB MUST BE AASHTO ACCREDITED FOR SPECIFIC TESTS, AND BE INITIATED BY THE MATERIALS LAB, WHICH SHALL BE NOTIFIED (FAX CAN OCCASIONALLY BE ACCEPTED), OF THE TESTING DATE & TIME SO IT MAY WITNESS THE 3RD PARTY TESTING.
k. CORE RESULTS SHALL BE REPORTED ON CORE ANALYSIS (FORM #2), E-MAILED TO MATERIALS LAB & INSPECTOR NO LATER THAN ONE BUSINESS DAY FROM TESTING (ONE DAY FROM CUTTING FOR COMPANION CORES), AND MAILED OUT TO PERMITEE.
l. FIELD TECHNICIANS AND THIRD PARTY TESTING LABS SHALL MAINTAIN A LOG OF THEIR TEST RESULTS; RECOMMENDATIONS, AND ACTIONS TAKEN TO CORRECT THE PROBLEMS, IF ANY. THE LOG SHALL BE AVAILABLE TO DPW&T FOR REVIEW UPON ANY DPW&T INSPECTOR'S REQUEST.

34) PERMITTEE SHALL SUBMIT PROPERTY CORNER CERTIFICATIONS AND UTILIZE METAL PROPERTY MARKERS PER PRINCE GEORGE'S COUNTY CODE, SECTION 24–120, PRIOR TO ACCEPTANCE OF STREETS.

35) WASHINGTON SUBURBAN SANITARY COMMISSION
200 FOOT SHEET NO.: 212 NE 05

36) DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION SITE CONCEPT APPROVAL NUMBER:

37) SEDIMENT CONTROL APPROVAL NUMBER:

38) PRELIMINARY PLAN APPROVAL NUMBER:

39) RECORD PLAT RECORDING NUMBER:

40) APPROVED STREET GRADE ESTABLISHMENT INFORMATION: ORIGINAL STREET NAME APPROVAL NUMBER

41) AT THE TIME OF PERMIT RELEASE, THE FOLLOWING MINIMUM SUBMITTAL REQUIREMENTS WHERE APPLICABLE SHALL APPLY:
-WASHINGTON SUBURBAN SANITARY COMMISSION PAVING CLEARANCE CERTIFICATION;
-BITUMINOUS CONCRETE CORE CERTIFICATIONS, ALL PAVEMENT COURSES;
-PROPERTY MARKER CERTIFICATION;
-DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION LETTER APPROVING STORM DRAIN AS-BUILT;
-TREE APPROVAL AND TREE BOND POSTED, IF NECESSARY;
-STREET LIGHTPROOF OF PAYMENT (MUST BE ACCOMPANIED BY A MEMORANDUM FROM DPW&T'S TRAFFIC SAFETY DIVISION ACCEPTING THE PROOF OF PAYMENT); AND
-PROOF/STATEMENT THAT ALL FINANCIAL MATTERS HAVE BEEN SETTLED.

42) THE PERMITTEE IS RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ALL TRAFFIC SIGNS, TRAFFIC SIGNALS, AND ROADWAY MARKINGS FOR ROADWAY IMPROVEMENTS ON SUBDIVISION ACCESS ROADS WHICH INCLUDE ARTERIAL, COLLECTOR, INDUSTRIAL, AND ANY NECESSARY OFFSITE CONDITIONS WHICH REQUIRE ROADWAY IMPROVEMENTS. THE DESIGN AND/OR CONSTRUCTION DRAWINGS SHALL BE INCLUDED ALONG WITH THE PERMIT PLANS, AND SHALL BE REVIEWED AND APPROVED BY THE DEPARTMENT'S TRAFFIC SAFETY DIVISION PRIOR TO PERMIT ISSUANCE.

43) THE PERMITTEE IS RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ALL TRAFFIC MARKINGS, TRAFFIC SIGNALS, IF REQUIRED, AND PAYMENT OF FEE FOR STREET NAME SIGNS ON INTERNAL SUBDIVISION STREETS. TRAFFIC SIGNS WILL BE FURNISHED AND INSTALLED BY THE COUNTY.

44) ALL CONCRETE PIPE SYSTEMS 48 INCHES OR LESS SHALL BE INSPECTED WITH A VIDEO CAMERA AS PART OF THE FINAL "AS BUILT" CONSTRUCTION REQUIREMENT

GENERAL STORM DRAIN NOTES

1) ALL STORM DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE STORMWATER STANDARDS AND SPECIFICATIONS OF PRINCE GEORGE'S COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES, UNLESS OTHERWISE NOTED.

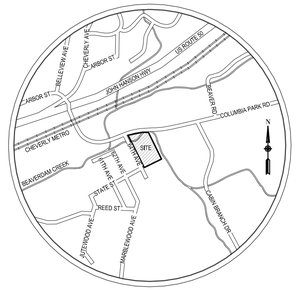
2) FOR TYPES OF STRUCTURES REFER TO THE LATEST STORMWATER MANAGEMENT STANDARD DETAILS, DER (SWMSD), UNLESS OTHERWISE NOTED.

3) INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILIABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF THE UTILITIES BY DIGGING TEST PITS AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SPECIFIED, CONTACT THE ENGINEER, AND THE OWNER OF OTHER INVOLVED UTILITY BEFORE PROCEEDING WITH CONSTRUCTION.

4) ALL STORM DRAIN PIPES MUST HAVE A MINIMUM OF 1 FOOT COVER.

5) ALL INLET TOP SLAB FRONT FACES SHALL BE PAINTED WITH THE FOLLOWING CHESAPEAKE BAY DRAINAGE, "DON'T DUMP" (STANDARD 82.0).

6) CONTRACTORS SHALL ADJUST ALL EXISTING UTILITIES AS NEEDED TO CONSTRUCT PROPOSED ROAD IMPROVEMENTS. ADJUSTMENTS MAY INCLUDE BUT NOT LIMITED TO MANHOLE COVERS, VALVES, FIRE HYDRANTS, STORM DRAIN INLETS, STREET LIGHTS, TRAFFIC SIGNALS STRUCTURES, UTILITY POLES, SIDEWALKS, BURIED UTILITY CONDUIT AND PIPES



VICINITY MAP

1" = 2000'

P.G.C
Structural
DPIE
APPROVED AS NOTED BY BUILDING SECTION

ENGINEERS & DRAINAGE CERTIFICATIONS

I HEREBY CERTIFY THAT THIS PLAN CONFORMS TO THE REQUIREMENTS OF SUBTITLE 32. DIVISION 2 OF THE CODE OF PRINCE GEORGE'S COUNTY WATER RESOURCES PROTECTION AND GRADING CODE; AND THAT I OR MY STAFF HAVE INSPECTED THIS SITE AND THAT DRAINAGE FLOWS FROM UPHILL PROPERTIES ONTO THIS SITE, AND FROM THIS SITE ONTO DOWNHILL PROPERTIES, HAVE BEEN ADDRESSED IN SUBSTANTIAL ACCORDANCE WITH APPLICABLE CODES.

SIGNATURE: _____

NAME: _____ DATE:_____

MD. REG. NO.: _____

UTILITY CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THAT THE EXISTING AND/OR PROPOSED UNDERGROUND UTILITY INFORMATION SHOWN HEREON HAS BEEN CORRECTLY DUPLICATED FROM UTILITY COMPANY RECORDS. FURTHER, THAT THIS PROJECT HAS BEEN CAREFULLY COORDINATED WITH EACH INVOLVED UTILITY COMPANY AND ALL AVAILABLE UNDERGROUND UTILITY INFORMATION RELATIVE TO THIS PLAN HAS BEEN SOLICITED FROM THEM.

SIGNATURE ENGINEER–IN-CHARGE DATE

Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

The Department of the Environment (DoE) has completed a review of this document for code compliance. As required by State Code, the design professional(s) responsible for the preparation and content of this document must provide a record copy of these documents with their original seal, signature and date.

Case Name: BOYD PARK STORMWATER RETROFIT
Case Number (Permit #): 3287-2018-0
Case Type: DOE SW OTHER
Issuance Date: 1/30/2018
Address: 1801 64TH AVE CHEVERLY, Maryland 20785
Lot(s) and Block(s) and Parcel(s):

El Hadji D Fall

DEPARTMENT OF THE ENVIRONMENT

BMP & ESD AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMP AND ESD) SHOWN ON THE PLANS AHVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF PERMITTING, INSPECTION AND ENFORCEMENT.

ENGINEERS NAME HERE DATE:
MD. REG. P.E. NO. XXXXX

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO._____, EXPIRATION DATE:_____.

SWM DESCRIPTION

THIS PROJECT IS FOR RETROFIT AND REHABILITATION FOR SWM FOR AN EXISTING 0.77 ACRES OF UNTREATED IMPERVIOUS AREA. THE PROJECT WILL PROVIDE WQV FOR THE 1" OF RUNOFF IN TWO (2) MICRO–BIORETENTION DEVICES AND ONE (1) PERMEABLE PAVEMENT DEVICE. SEE BMP SUMMARY TABLE FOR MORE INFORMATION

SWM CONCEPT CERTIFICATION

THIS PLAN HAS BEEN APPROVED FOR STORMWATER MANAGEMENT CONCEPT SUFFICIENCY.

NAME: El Hadji D Fall DATE: 01/30/2018

SIGNATURE: _____

Prince George's County Government
Department of Permitting, Inspections and Enforcement
Site/Road Plan Review Division
9400 Peppercorn Place, Suite 420
Largo, Maryland 20774

Final Plan BMP SUMMARY TABLE

Revision Date: May 27, 2015

Project Name: Boyd Park Stormwater Retrofit | Concept No.: | Permit No.: | Total Site Acreage: 0.77

MDE Tracking Number	POI	LABEL	NAME	MD NORTH	MD EAST	LAND USE	CONSTRUCTION PURPOSE	DRAINAGE AREA (AC)	TOTAL IMPERVIOUS AREA (AC)	NEW IMPERVIOUS AREA (AC)	EXISTING IMPERVIOUS AREA (AC)	PERCENT IMPERVIOUS	Rv	TARGET P_E (IN)	TARGET VOL (FT^3)	DESIGN VOL (FT^3) USING ESD PRACTICES	DESIGN VOLUME (CF) USING STRUCTURAL PRACTICES	MAX ESD VOL (ESD max) (CF)	RCN	ON_OFF_SITE	IMPERVIOUS AREA CREDIT (AC)
	A	1	Micro-Bioretention	9271	28287	Medium Density Residential	REST	0.23	0.21	0.00	0.21	96.0%	0.910	1	672	717	0	717	97	Off Site	0.21
	B	2	Micro-Bioretention	9260	28046	Medium Density Residential	REST	0.48	0.48	0.00	0.48	100.0%	0.950	1	1667	1671	0	1671	82	Off Site	0.48
	C	3	Permeable Pavements	9101	28197	Medium Density Residential	REST	0.08	0.08	0.00	0.08	100.0%	0.950	1	546	983	0	546	98	On Site	0.08
																				Total:	0.77

NOTES:

1. TOPOGRAPHY FROM PG GIS DATED: 2012 ADDITIONAL TOPOGRAPHY AND SURVEY FOR STRUCTURES AND SPOT ELEVATIONS PROVIDED BY PRECISION SURVEYING AND CONSULTING SERVICES, INC. DATED: MARCH 2017. DATUM: NGVD 88.
2. LIMIT OF DISTURBANCE: 17,973 SF
3. CUT: 360 CY
4. FILL: 15 CY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · NEIL ALAN WEINSTEIN · 28443 · PROFESSIONAL ENGINEER

DEPARTMENT OF PERMITTING, INSPECTIONS AND ENFORCEMENT
PRINCE GEORGE'S COUNTY, MARYLAND
PEER REVIEW APPROVAL STAMP

"I hereby certify that I have successfully completed participation in DPIE's Peer Review Program. I have reviewed these plans in detail and they are in conformance with DPIE's General Specifications and Standards."

APPROVAL DATE: 01/25/2018
PEER REVIEWER: MICHAEL WAGNER
COMPANY NAME: SOLTESZ
PERMIT NUMBER: 3287-2018

LOW IMPACT DEVELOPMENT CENTER

5000 Sunnyside Avenue, Suite 100
Beltsville, MD 20705
Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

SCALE: 0 20 40 60

MISS UTILITY NOTE

INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND UTILITY CROSSINGS BY DIGGING TEST PITS BY HAND, WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY COMPANY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCES LESS THAN NOTED MAY REQUIRE REVISIONS TO THIS PLAN.

REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

COVER SHEET

FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE:	SHEET 1 OF 10
FILE NO:	C-0.00
DRAFTED: DM	
CHECKED: NW	

EXISTING DRAINAGE AREA PLAN
SCALE: 1"=60'

0 60 120 180

NGVD88

LEGEND:

- EX. CONTOUR
- EX. PROPERTY LINE
- EX. SPOT ELEVATION
- EX. CANOPY
- EX. TREE
- EX. VEGETATION
- EX. GAS LINE
- EX. WATER LINE
- EX. SANITARY SEWER LINE
- EX. OVERHEAD WIRE
- EX. POWER POLE
- EX. TELEPHONE POLE
- EX. CURB INLET
- EX. WATER VALVE
- EX. GAS VALVE
- EX. SANITARY SEWER
- EX. FIRE HYDRANT
- EX. HEADWALL
- EX. SIGN
- EX. WOODEN FENCE
- FbB SOILS TYPE
- 52 DRAINAGE DIVIDE
- TIME OF CONCENTRATION
- IMPERVIOUS AREA
- SOILS DIVIDE
- SOIL TYPE
- SOIL BORING

P.G.C
Structural
DPIE
APPROVED AS NOTED BY BUILDING SECTION

BMP & ESD AS-BUILT CERTIFICATION

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ENGINEERS NAME HERE
MD. REG. P.E. NO. XXXXX
DATE:

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Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

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Case Number (Permit #): 3287-2018-0
Case Type: DOE SW OTHER
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El Hadji D Fall

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Expiration Date: 12/31/18

STATE OF MARYLAND
NEIL ALAN WEINSTEIN
28443
PROFESSIONAL ENGINEER

Peer Reviewed By:
Mike Wagner
Discipline:
Site/Civil
Date:
01/25/2018

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0 60 120 180
SCALE: 1" = 60'

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EXISTING DRAINAGE AREA PLAN

FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE: 1"=60'	SHEET 2 OF 10
FILE NO:	C-0.01
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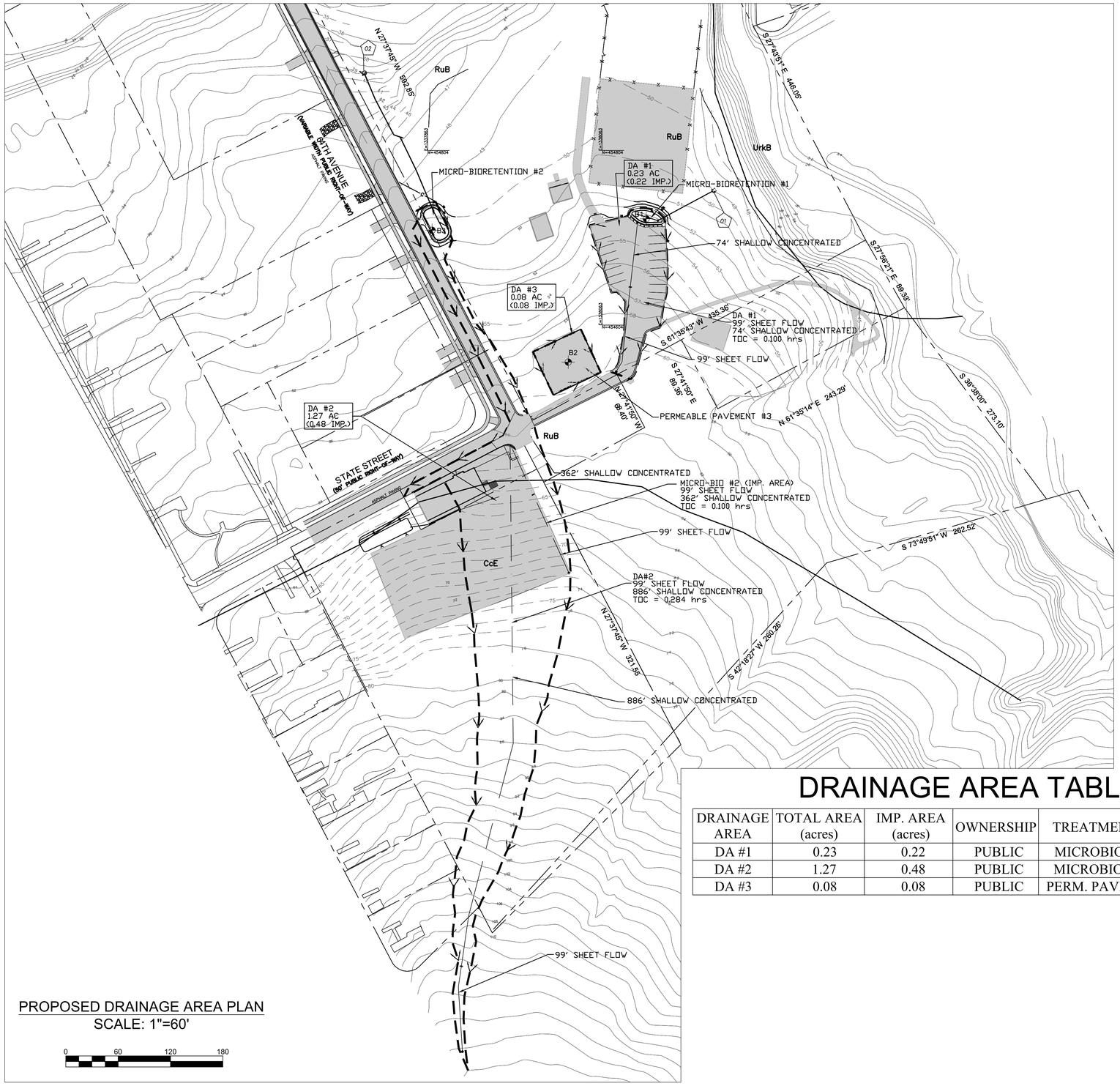
CHECKED: SC	



PROPOSED DRAINAGE AREA PLAN
SCALE: 1"=60'

0 60 120 180

NOV 088

LEGEND:

- EX. CONTOUR
- EX. PROPERTY LINE
- EX. SPOT ELEVATION
- EX. CANOPY
- EX. TREE
- EX. VEGETATION
- EX. GAS LINE
- EX. WATER LINE
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P.G.C
Structural
DPIE
APPROVED AS NOTED BY BUILDING SECTION

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DATE:

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DRAINAGE AREA TABLE

DRAINAGE AREA	TOTAL AREA (acres)	IMP. AREA (acres)	OWNERSHIP	TREATMENT	CN	TOC
DA #1	0.23	0.22	PUBLIC	MICROBIO #1	97	0.10 hr
DA #2	1.27	0.48	PUBLIC	MICROBIO #2	82	0.28 hr
DA #3	0.08	0.08	PUBLIC	PERM. PAVE. #3	92	0.10 hr

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND
NEIL ALAN WEINSTEIN
28443
PROFESSIONAL ENGINEER

Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

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0 60 120 180
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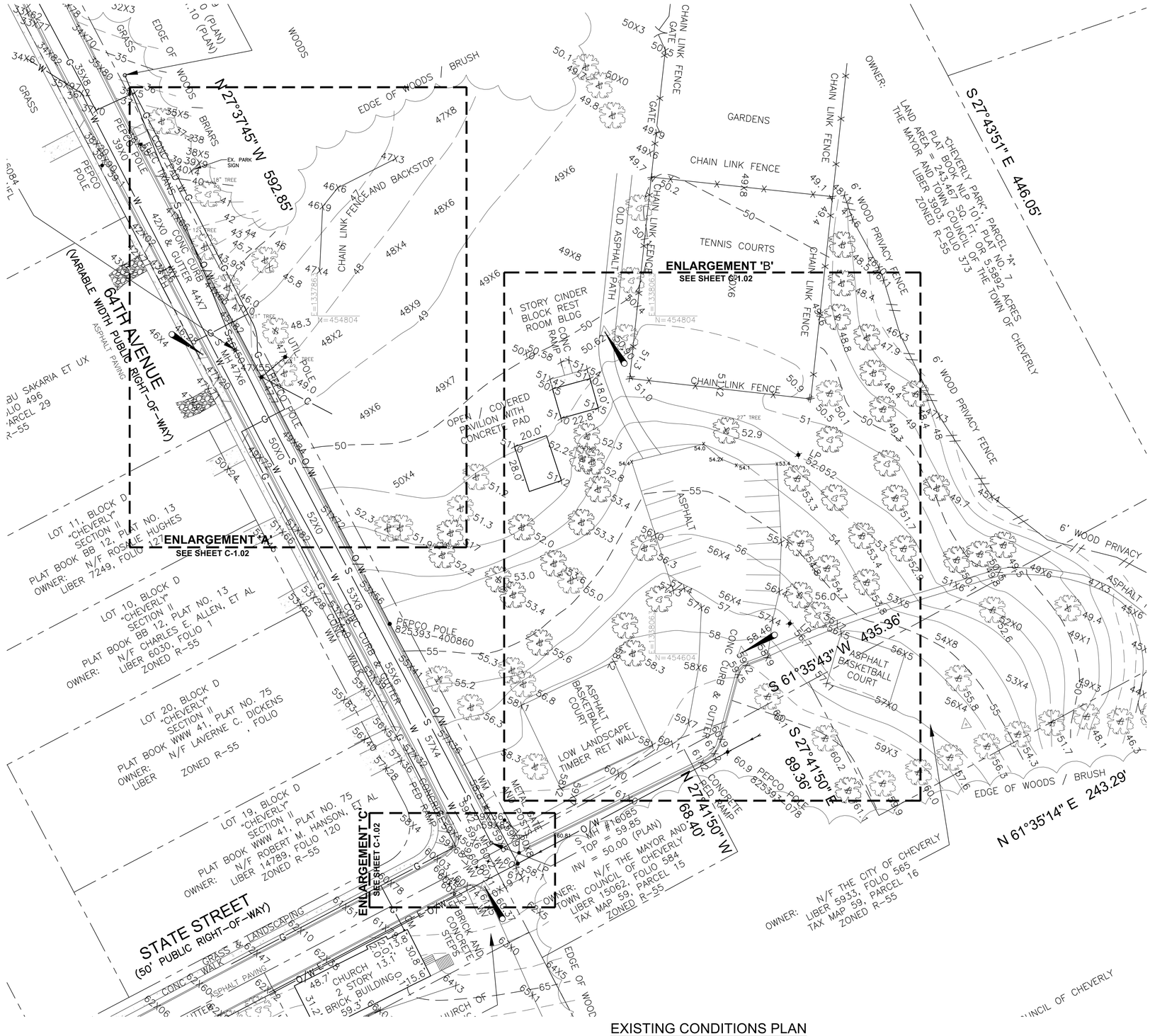
REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

PROPOSED DRAINAGE AREA PLAN
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE: 1"=60'	SHEET 3 OF 10
FILE NO:	C-0.02
DRAFTED: DM	
CHECKED: NW	



EXISTING CONDITIONS PLAN
SCALE: 1"=30'

BMP & ESD AS-BUILT CERTIFICATION

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NOTES:

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Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

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Case Name: BOYD PARK STORMWATER RETROFIT
Case Number (Permit #): 3287-2018-0
Case Type: DOE SW OTHER
Issuance Date: 1/30/2018
Address: 1801 64TH AVE CHEVERLY, Maryland 20785
Lot(s) and Block(s) and Parcel(s):

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND
NEIL ALAN WEINSTEIN
28443
PROFESSIONAL ENGINEER

Peer Reviewed By: Mike Wagner
Discipline: Site/Civil
Date: 01/25/2018

LOW IMPACT DEVELOPMENT CENTER
5000 Sunnyside Avenue, Suite 100
Beltsville, MD 20705
Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

SCALE: 1" = 30'

MISS UTILITY NOTE
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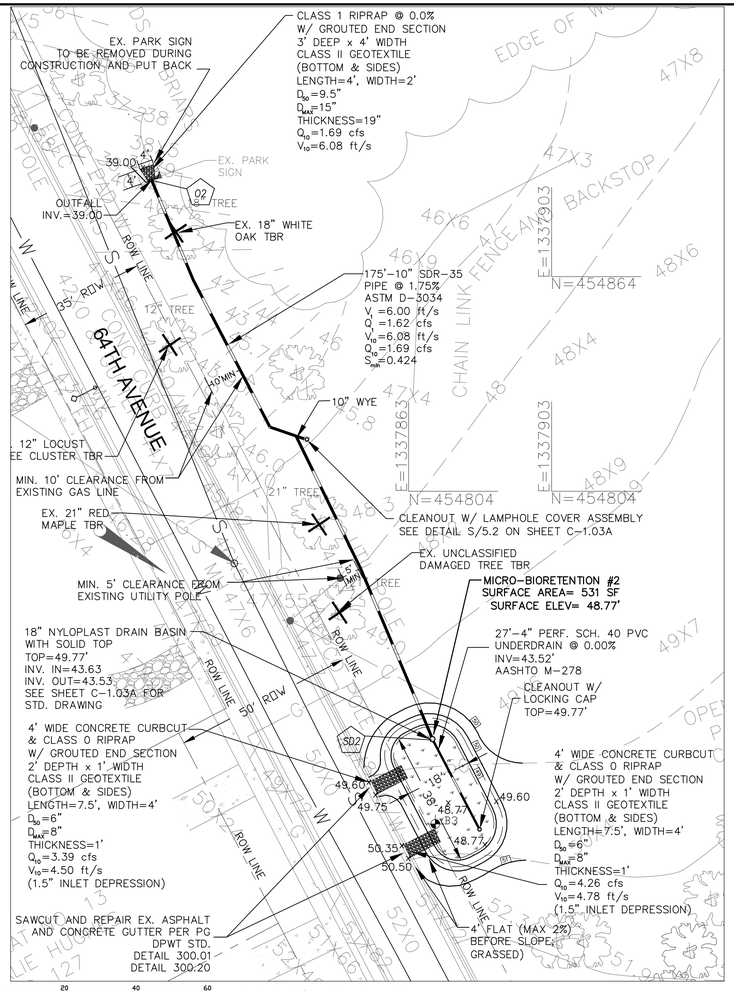
REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

EXISTING CONDITIONS PLAN
FOR PERMIT ONLY

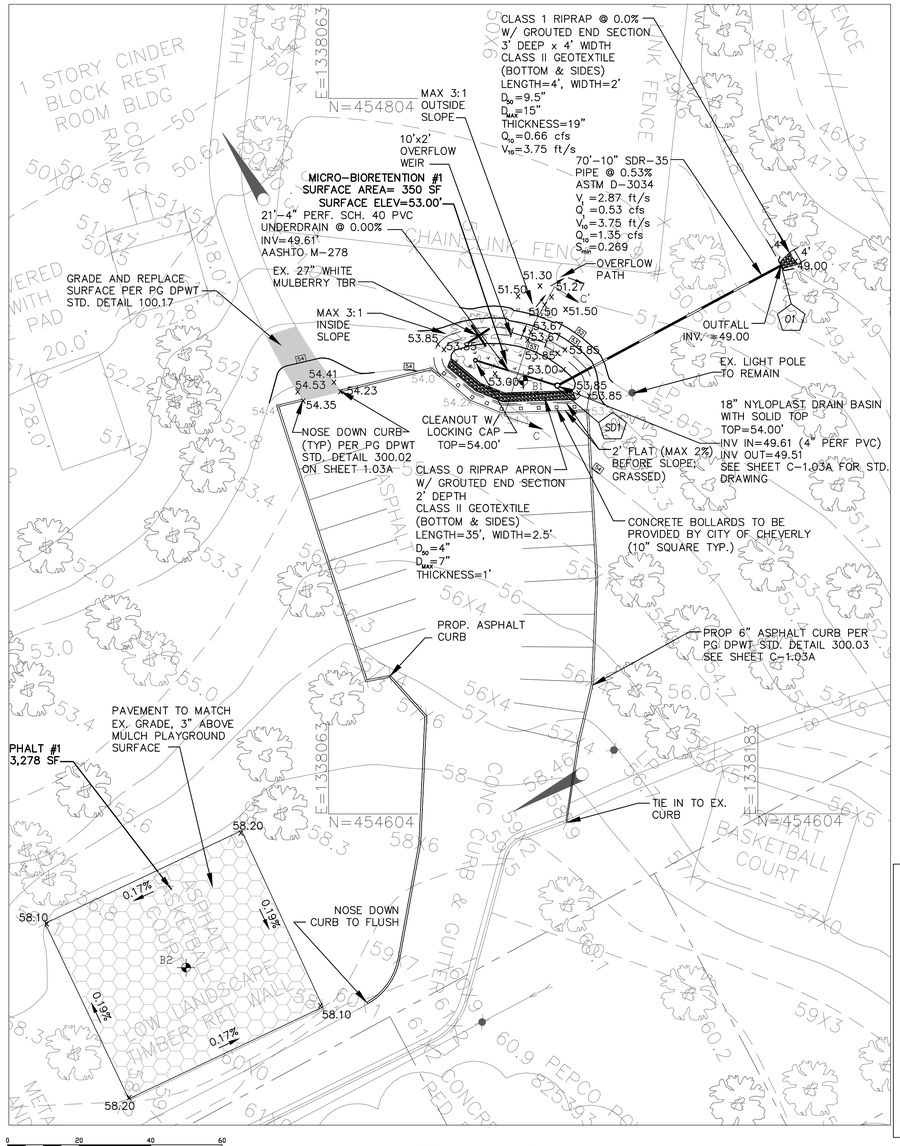
BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE: 1"=30'	SHEET 4 OF 10
FILE NO:	C-1.01
DRAFTED: DM	
CHECKED: NW	



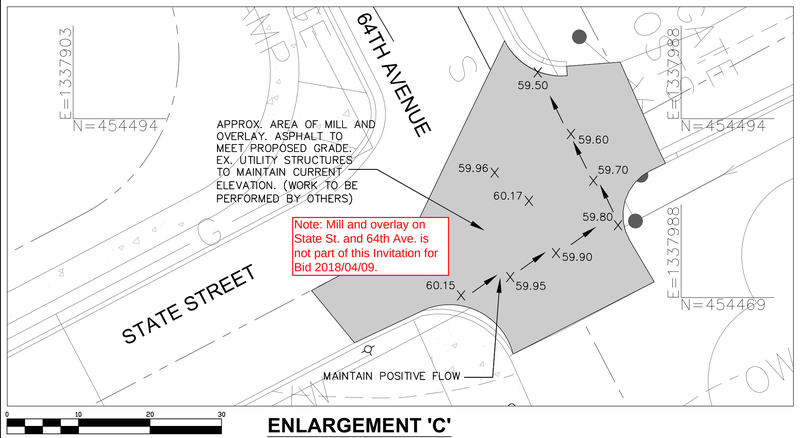
ENLARGEMENT 'A'

SCALE: 1" = 20'



ENLARGEMENT 'B'

SCALE: 1" = 20'



ENLARGEMENT 'C'

SCALE: 1" = 10'

NGVD88

KEY:

Q_1	1-YEAR EVENT FLOW RATE
Q_{10}	10-YEAR EVENT FLOW RATE
$Q_{1"}$	FLOW RATE DURING THE 1" EVENT
S_{min}	MINIMUM SLOPE TO ACCOMODATE FLOW RATE IN PIPE

LEGEND:

70	EX. CONTOUR
	EX. PROPERTY LINE
69.00	EX. SPOT ELEVATION
	EX. CANOPY
43"TRE	EX. TREE
	EX. VEGETATION
G	EX. GAS LINE
W	EX. WATER LINE
S	EX. SANITARY SEWER LINE
OW	EX. OVERHEAD WIRE
	EX. POWER POLE
T	EX. TELEPHONE POLE
	EX. CURB INLET
WV	EX. WATER VALVE
GV	EX. GAS VALVE
S	EX. SANITARY SEWER
	EX. FIRE HYDRANT
	EX. HEADWALL
	EX. SIGN
//	EX. WOODEN FENCE
FbB	SOILS TYPE
52	PROP. CONTOUR
	LIMIT OF DISTURBANCE
65.90	SPOT ELEVATION
	RIPRAP
	BIORETENTION
	PERMEABLE PAVEMENT
	STORM PIPE
	SOIL BORING

P.G.C
Structural
DPIE
APPROVED AS NOTED BY BUILDING SECTION

BMP & ESD AS-BUILT CERTIFICATION

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ENGINEERS NAME HERE
MD. REG. P.E. NO. XXXXX
DATE:

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Ed Hadji D Fall
DEPARTMENT OF ENVIRONMENT

NOTES:

TOPOGRAPHY AND UTILITY LOCATION FROM FIELD SURVEY

MOT AND MILL & OVERLAY REQUIREMENTS TO BE PROVIDED BY CITY OF CHEVERLY

Peer Reviewed By: Mike Wagner
Discipline: Site/Civil
Date: 01/25/2018

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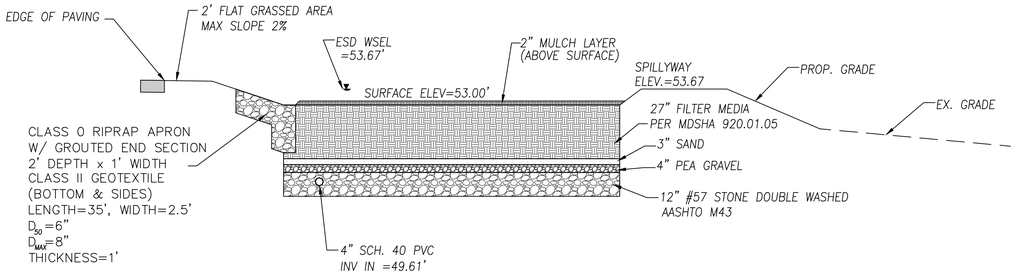
STORMWATER MANAGEMENT PLAN
FOR PERMIT ONLY

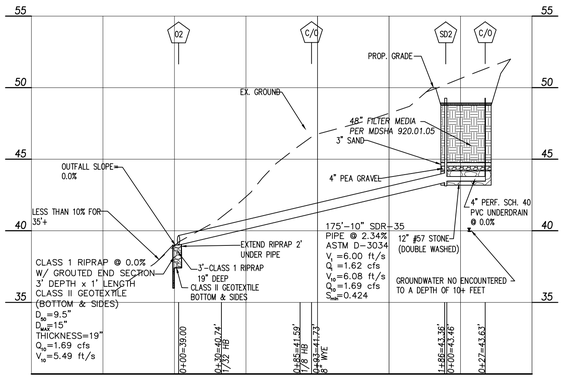
BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE: 1"=20'	SHEET 5 OF 10
FILE NO:	C-1.02
DRAFTED: DM	
CHECKED: NW	



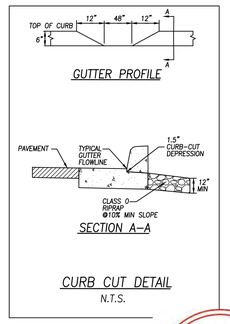
MICRO-BIORETENTION #1 (C-C')

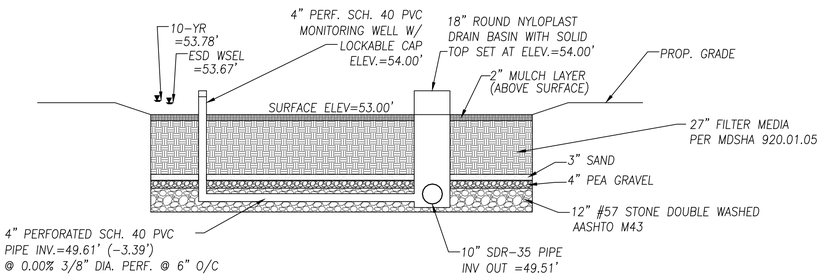
SCALE: 1"=3'



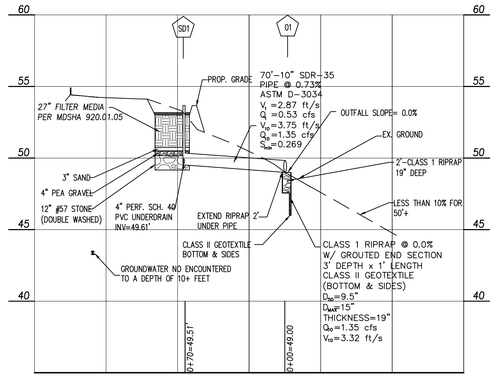
MICRO-BIORETENTION #2 - 02

SCALE: 1"=50' H
1"=5' V



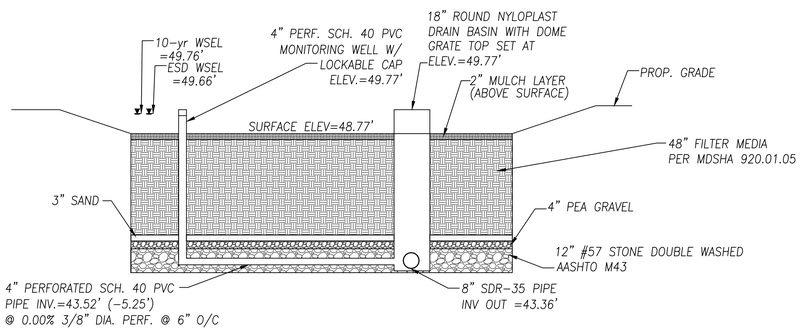


MICRO-BIORETENTION #1 (TYP)



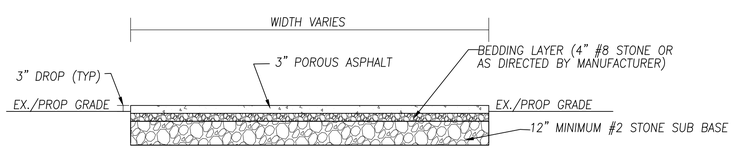
SD1 - 01

SCALE: 1"=50' H
1"=5' V



MICRO-BIORETENTION #2 (TYP)

SCALE: 1"=3'



PERMEABLE ASPHALT (TYP)

SCALE: 1"=3'

STORM STRUCTURE SCHEDULE

STR. NO.	DETAIL	TOP ELEV.	INV. IN	INV. IN	INV. IN	INV. IN	INV. OUT	INV. OUT	REMARKS
SD1	SEE C-1.03A	54.00	49.61 (4" PVC)	-------	-------	-------	49.51 (10" SDR-35)	-------	18" ROUND NYLOPLAST SOLID TOP
SD2	SEE C-1.03A	49.77	43.46 (4" PVC)	-------	-------	-------	43.36 (10" SDR-35)	-------	18" ROUND NYLOPLAST SOLID TOP

STORM PIPE SUMMARY	
SIZE & TYPE	LENGTH
4" PERF PVC	48
10" SDR-35	256

MATERIALS QUANTITIES:

MULCH	- 5 cu. yd.
PEA GRAVEL	- 51 cu. yd.
SAND	- 9 cu. yd.
#57 STONE	- 217 cu. yd.
FILTER MEDIA	- 122 cu. yd.

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ENGINEERS NAME HERE
MD. REG. P.E. NO. XXXXX

DATE:

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P.G.C
Structural
DPIE
APPROVED AS NOTED BY
BUILDING SECTION

Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

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El Hadji D Fall

ENVIRONMENT

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NEIL ALLAN WEINSTEIN
28443
PROFESSIONAL ENGINEER

Peer Reviewed By:
Mike Wagner
Discipline:
Site/Civil
Date:
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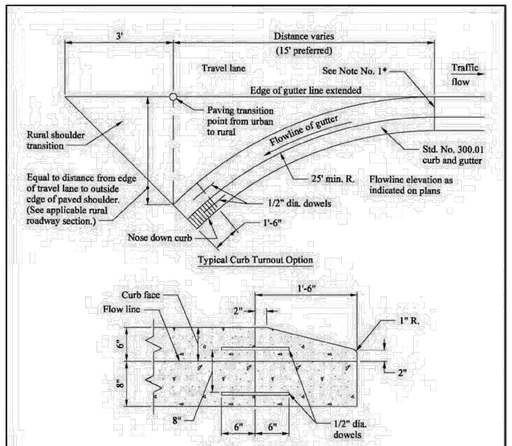
STORM DRAIN DETAILS

FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

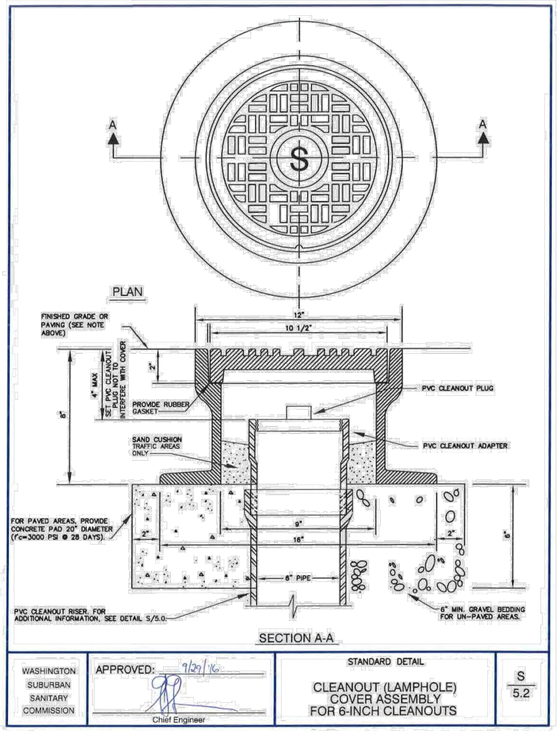
ISSUE:	DATE: 01/23/18
SCALE:	SHEET 6 OF 10
FILE NO:	C-1.03
DRAFTED: DM	
CHECKED: NW	



General Notes

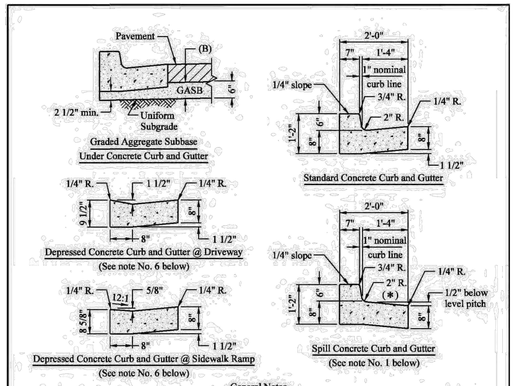
1. Install expansion joint (*) using 1/2" preformed nonextruding joint filler at the beginning of curve.
2. Preformed joint fillers shall conform to M 153. The bituminous fiber type joint shall conform to M 213, with the bitumen content determined using T 164.
3. All concrete shall be Class I (MSHA Mix No. 3) air-entrained, unless otherwise approved by the Department. The surface shall be broom finished.
4. Provide uniform subgrade under entire roadway section.

APPROVED:		DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION Prince George's County, MD	
DIRECTOR / DATE			
REVISION DATE:	APPROVED BY:	Concrete Curb Turnout and Nosed Down Curb	STD. 300.02



WASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: 7/29/16 Chief Engineer	STANDARD DETAIL CLEANOUT (LAMPHOLE) COVER ASSEMBLY FOR 6-INCH CLEANOUTS	S 5.2

S52

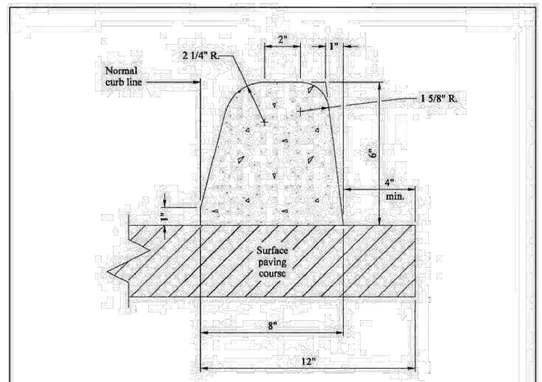


General Notes

1. Use of spill concrete curb and gutter requires special Departmental approval, except for "Urban Major Collector Road" design.
2. The slope (*) of a spill concrete curb and gutter pan shall be equal to the cross slope of roadway paving.
3. Install expansion joints using 1/2" preformed non-extruding joint filler, at 100' intervals, at the beginning and end of curves with less than 100' radii, at structures, and at midpoints of curb returns.
4. All construction joints shall be located at 10' intervals. The contraction joints shall be constructed to a depth equal to 1/4 of the depth of the thickness of the concrete.
5. All concrete shall be Class I (MSHA Mix No. 3) air-entrained, unless otherwise approved by the Department. The surface shall be brush finished.
6. The depressed concrete curb and gutter sections shall be used at all driveway aprons and sidewalk ramps.
7. Preformed joint fillers shall conform to M 153. The bituminous fiber type joint shall conform to M 213, with the bitumen content determined using T 164.
8. Granite curb and gutter may be required under certain conditions.
9. Provide uniform subgrade under entire roadway section.
10. All new construction within the County right-of-way shall comply with Federal accessibility guidelines of the Americans with Disabilities Act and Fair Housing regulations.

APPROVED:		DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION Prince George's County, MD	
DIRECTOR / DATE			
REVISION DATE:	APPROVED BY:	Concrete Curb and Gutter	STD. 300.01

NOTE: IF THE LENGTH BETWEEN THE END OF THE CURB & GUTTER REPLACEMENT AND THE NEAREST JOINT IN THE EXISTING CURB & GUTTER IS LESS THAN 5', REMOVE THE EXISTING CURB AND GUTTER TO THE NEXT JOINT (BEYOND THE NEAREST) AND INSTALL EXPANSION JOINT. IF THE LENGTH BETWEEN THE END OF CURB & GUTTER REPLACEMENT AND THE NEAREST JOINT IN THE EXISTING CURB & GUTTER IS GREATER THAN OR EQUAL TO 5', CUT THE EXISTING CURB AND GUTTER TO A NEAT LINE AND INSTALL EXPANSION JOINT.



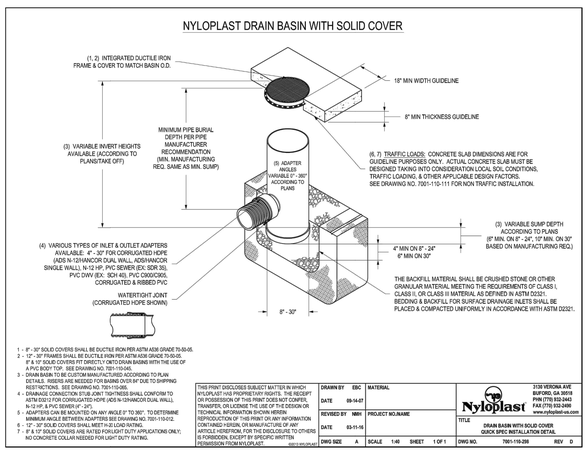
General Notes
(For temporary use only)

1. The use of Hot Mix Asphalt (HMA) curb requires special approval by the Department.
2. Material shall conform to Superpave Mixture Hot Mix Asphalt (HMA) for Surface 9.5mm, PG 64-22 or Bituminous Concrete Surface Fine (SF) mix. It shall be placed by a self-propelled machine. The machine shall form curbing that is uniform in texture, shape and density, and to a template as specified above, unless otherwise approved by the Department.
3. The base upon which the curb is to be placed shall be clean, dry and stable. It shall be tack coated with asphalt of the type and amount directed by the Department.
4. When required, the curb shall be backfilled with suitable fill material after it has sufficiently hardened, to prevent damage. The backfill shall be consolidated by tamping or rolling.

APPROVED:		DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION Prince George's County, MD	
DIRECTOR / DATE			
REVISION DATE:	APPROVED BY:	Hot Mix Asphalt (HMA) Curb	STD. 300.03

NOTE: FOR CURB & GUTTER REPLACEMENT/REPAIR, A MINIMUM 2' STRIP OF FULL DEPTH PAVEMENT MUST ALSO BE REPLACED

PAVING SECTION TO BE DETERMINED BY IN FIELD INVESTIGATION, AND APPROVED BY CITY OF CHEVERLY



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STATE OF MARYLAND MICHAEL NEWMAN WEINSTEIN 28443 PROFESSIONAL ENGINEER

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1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE:	SHEET 7 OF 10
FILE NO:	C-1.03A
DRAFTED: DM	
CHECKED: NW	

COMPOSITION- BIORETENTION SOIL MIX (BSM)						
TEST PROPERTY	**TEST [1] METHOD**	**TEST VALUE**				
Weeds	—	Free of seed and viable plant parts of species in 920.06.02(a)(b)(c) when inspected.				
Debris	—	No observable content of cement, concrete, asphalt, crushed gravel or construction debris.				
Hardwood Mulch	—	20% of the loose volume of BSM when inspected.				
Textural Analysis	T-88	**Particle**		**% Passing by Weight**		
		Size	**mm**	**Minimum**	**Maximum**	
		Sand	2.0 – 0.050	79	94	
		Silt	0.050 – 0.002	4	20	Combined Silt and Clay 21
		Clay	less than 0.002	1	10	
Soil pH	ASTM D 4972	pH of 5.7 to 7.4.				
Organic Matter	T-267	Minimum 1.5 % by weight.				
Soluble Salts	EC 1:2 (V:V)	500 ppm (0.78 mmhos/cm) or less.				
Harmful Materials	—	920.01.01(a).				

Note:

[1] Materials Standards and Materials Testing 356 (MSMT 356) has been superseded by OMT Landscaping Soils Eligibility List. Test methods not defined herein shall be as per visual inspection or methods defined by the Landscape Operations Division.

PERMEABLE PAVEMENT INSTALLATION

Step 1:
Stabilize Drainage Area-Construction of the permeable pavement should only begin after the entire contributing drainage area has been stabilized. The proposed site should be checked for existing utilities prior to any excavation. Do not install the system in rain or snow and do not install frozen bedding materials.

Step 2:
Install Soil Erosion and Sediment Control Measures- As noted above, temporary soil erosion and sediment controls are needed during installation to divert stormwater away from the permeable pavement area until it is completed. Special protection measures, such as erosion control fabrics, may be needed to protect vulnerable side slopes from erosion during the excavation process. The proposed permeable pavement area must be kept free from sediment during the entire construction process. Construction materials contaminated by sediment must be removed and replaced with clean material.

Step 3:
Minimize Impact of Heavy Installation Equipment- Where possible, excavators or backhoes should work from the sides to excavate the reservoir layer to its appropriate design Excavating equipment should have arms with adequate extension so they do not have to work inside the footprint of the permeable pavement area (to avoid compaction). Contractors can utilize a cell construction approach, whereby the proposed permeable pavement area is split into 500- to 1,000-square foot temporary cells with a 10- to 15-foot wide earth bridge in between, so cells can be excavated from the side. Excavated material should be placed away from the open excavation so as to not jeopardize the stability of the side walls.

Step 4:
Promote Infiltration Rate- The native soils along the bottom of the permeable pavement system should be scarified or tilled to a depth of 3 to 4 inches prior to the placement of the filter layer

Step 5:
Order of Materials- Geotextile fabric should be installed on the sides of the reservoir layer. Geotextile fabric strips should overlap down-slope by a minimum of 2 feet and be secured a minimum of 4 feet beyond the edge of the excavation. Excess geotextile fabric should not be trimmed until the site is fully stabilized.

Step 6:
Stone Reservoir Media- Spread 6-inch lifts of the appropriate clean, double washed stone aggregate (No. 57 stone). Compact it using a vibratory roller in static mode until there is no visible movement of the aggregate. Do not crush the aggregate with the roller.

Step 7:
Bedding Media- Install the desired depth of the bedding layer (4 inches).

Step 8:
Install porous asphalt pavement similarly to regular asphalt pavement. The pavement should be laid in a single lift over the filter course. The laying temperature should be between 230°F and 260°F, with a minimum air temperature of 50°F, to ensure the surface does not stiffen before compaction.

Complete compaction of the surface course when the surface is cool enough to resist a 10-ton roller. One or two passes of the roller are required for proper compaction. More rolling could cause a reduction in the porosity of the pavement.

The mixing plant must provide certification of the aggregate mix, abrasion loss factor, and asphalt content in the mix. Test the asphalt mix for its resistance to stripping by water using ASTM 1664. If the estimated coating area is not above 95 percent, additional anti-stripping agents must be added to the mix.

Transport the mix to the site in a clean vehicle with smooth dump beds sprayed with a non-petroleum release agent. The mix shall be covered during transportation to control cooling.

Test the full permeability of the pavement surface by application of clean water at a rate of at least five gallons per minute over the entire surface. All water must infiltrate directly, without puddle formation or surface runoff.

Inspect the facility 18 to 30 hours after a significant rainfall (greater than 1/2 inch) or artificial flooding to determine if the facility is draining properly.

Frequency	Maintenance Tasks
After installation	☐ For the first 6 months following construction, the practice and CDA should be inspected at least twice after storm events that exceed 1/2 inch of rainfall. Conduct any needed repairs or stabilization.
Once every 1–2 months during the growing season	☐ Mow grass in grid paver applications
As needed	☐ Stabilize the CDA to prevent erosion ☐ Remove any soil or sediment deposited on pavement. ☐ Replace or repair any pavement surfaces that are degenerating or spalling
2–4 times per year (depending on use)	☐ Mechanically sweep pavement with a standard street sweeper to prevent clogging
Annually	☐ Conduct a maintenance inspection ☐ Spot weed for grass applications
Once every 2–3 years	☐ Remove any accumulated sediment in pretreatment cells and inflow points
If clogged	☐ Conduct maintenance using a regenerative street sweeper or a vacuum sweeper ☐ Replace any necessary joint material

PERMEABLE PAVEMENT MATERIALS SPECIFICATION

Bedding Layer:
4 inches of No. 57 stone
ASTM D448 size No. 8 stone (e.g., 3/8 to 3/16 inch in size). Must be double-washed and clean and free of all fines.

Reservoir Layer
12 inches of No. 57 stone
ASTM D448 size No. 57 stone (e.g., 1 1/2 to 1/2-inch in size); Must be double-washed and clean and free of all fines.

Observation Well:
Use a perforated 4-to 6-Inch vertical PVC pipe (AASHTO M 252) with a lockable cap, installed flush with the surface.

The following asphalt mix designs are recommended:
PG 64-28 with 5 pounds of fibers per ton of asphalt mix.

1. Mix materials Mix materials consist of modified performance grade asphalt binder (PGAB), coarse and fine aggregates, and optional additives such as silicone, fibers, mineral fillers, fatty amines, and hydrated lime. Materials shall meet the requirements of the NAPA's Design, Construction, and Maintenance of Open-Graded Friction Courses, Information Series 115 (2002), except where noted otherwise below or approved in writing by the Engineer.

2. Polymer Modified PGAB and Mix Designs. The asphalt binder shall be a polymer and/or fiber modified Performance Graded asphalt binder (PGAB) used in the production of Superpave Hot Mix Asphalt (HMA) mixtures. Ideally for maximum durability, the PGAB shall be two grades stiffer than that required for dense mix asphalt (DMA) parking lot installations, which is often achieved by adding a polymer and/or fiber. Mix designs will meet or exceed criteria listed in Table 5 The PGAB polymer modifiers are to be either styrene butadiene rubber (SBR). The quantity of rubber solids in the SBR shall typically be 1.5-3% by weight of the bitumen content of the mix. The dosage of fiber additives shall be either 0.3 percent cellulose fibers or 0.4 percent mineral fibers by total mixture mass. The binder shall meet the requirements of AASHTO M320. The PGAB may be pre-blended or post-blended. The pre-blended binder can be pre-blended at the source or at a terminal. For post-blended addition, the modifier can either be in-line blended or injected into the pugmill at the plant.

3. Anti-Stripping Mix Additives. The mix shall be tested for moisture susceptibility and asphalt stripping from the aggregate by AASHTO T283. If the retained tensile strength (TSR) < 80% upon testing, a heat stable additive shall be furnished to improve the anti-stripping properties of the asphalt binder. Test with one freeze-thaw cycle (rather than five recommended in NAPA IS 115). The amount and type of additive (e.g. fatty amines or hydrated lime) to be used shall be based on the manufacturer's recommendations, the mix design test results, and shall be approved by the Engineer. Silicone shall be added to the binder at the rate of 1.5 mL/m3 (1 oz. per 5000 gal). Fibers may be added per manufacturer and NAPA IS 115 recommendation if the draindown requirement cannot be met (<0.3% via ASTM D6390) provided that the air void content requirement is met (>18%, or >16% as tested with CoreLok device). Additives should be added per the relevant DOT specification and NAPA IS 115.

4. Coarse Aggregate. Coarse aggregate shall be that part of the aggregate retained on the No. 8 sieve; it shall consist of clean, tough, durable fragments of crushed stone, or crushed gravel of uniform quality throughout. Coarse aggregate shall be crushed stone or crushed gravel and shall have a percentage of wear as determined by AASHTO T96 of not more than 40 percent. In the mixture, at least 75 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall have at least two fractured faces, and 90 percent shall have one or more fractured faces (ASTM D5821). Coarse aggregate shall be free from clay balls, organic matter, deleterious substances, and a not more than 8.0% of flat or elongated pieces (>3:1) as specified in ASTM D4791.

5. Fine Aggregate. The fine aggregate shall be that part of the aggregate mixture passing the No. 8 sieve and shall consist of sand, screenings, or combination thereof with uniform quality throughout. Fine aggregate shall consist of durable particles, free from injurious foreign matter. Screenings shall be of the same or similar materials as specified for coarse aggregate. The plasticity index of that part of the fine aggregate passing the No. 40 sieve shall be not more than 6 when tested in accordance with AASHTO T90. Fine aggregate from the total mixture shall meet plasticity requirements.

6. Porous Asphalt Mix Design Criteria. The Contractor shall submit a mix design at least 10 working days prior to the beginning of production. The Contractor shall make available samples of coarse aggregate, fine aggregate, mineral filler, fibers and a sample of the PGAB that will be used in the design of the mixture. A certificate of analysis (COA) of the PGAB will be submitted with the mix design. The COA will be certified by a laboratory meeting the requirements of AASHTO R18. The Laboratory will be certified by the state DOT, regional equivalent (e.g. NETTCP), and/or qualified under ASTM D3666. Technicians will be certified by the regional certification agency (e.g. NETTCP) in the discipline of HMA Plant Technician. Bulk specific gravity (SG) used in air void content calculations shall not be determined and results will not be accepted using AASHTO T166 (saturated surface dry), since it is not intended for open graded specimens (>10% AV). Bulk SG shall be calculated using AASHTO T275 (paraffin wax) or ASTM D6752 (automatic vacuum sealing, e.g. CoreLok). Air void content shall be calculated from the bulk SG and maximum theoretical SG (AASHTO T209) using ASTM D3203.

Table 5: Porous Asphalt Mix Design Criteria.

Sieve Size (inch/mm)	Percent Passing (%)
0.75/19	100
0.50/12.5	85-100
0.375/9.5	55-75
No.4/4.75	10-25
No.8/2.36	5-10
No.200/0.075 (#200)	2-4
Binder Content (AASHTO T164)	6 - 6.5%
Fiber Content by Total Mixture Mass	0.3% cellulose or 0.4% mineral
Rubber Solids (SBR) Content by Weight of the Bitumen	1.5-3% or TBD
Air Void Content (ASTM D6752/AASHTO T275)	16.0-22.0%
Draindown (ASTM D6390)*	≤ 0.3 %
Retained Tensile Strength (AASHTO 283)**	≥ 80 %
Cantabro abrasion test on unaged samples (ASTM D7064-04)	≤ 20%
Cantabro abrasion test on 7 day aged samples	≤ 30%

*Cellulose or mineral fibers may be used to reduce draindown.
**If the TSR (retained tensile strength) values fall below 80% when tested per NAPA IS 131 (with a single freeze thaw cycle rather than 5), then in Step 4, the contractor shall employ an antistrip additive, such as hydrated lime (ASTM C977) or a fatty amine, to raise the TSR value above 80%.

P.G.C
Structural
DPIE
APPROVED AS NOTED BY BUILDING SECTION

BMP & ESD AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMP AND ESD) SHOWN ON THE PLANS AHVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF PERMITTING, INSPECTION AND ENFORCEMENT.

ENGINEERS NAME HERE DATE:
MD. REG. P.E. NO. XXXXX

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO._____ , EXPIRATION DATE:_____ .

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · NEIL ALAN WEINSTEIN · 28443 · PROFESSIONAL ENGINEER

Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

The Department of the Environment (DoE) has completed a review of this document for code compliance. As required by State Code, the design professional(s) responsible for the preparation and content of this document must provide a record copy of these documents with their original seal, signature and date.

Case Name: BOYD PARK STORMWATER RETROFIT
Case Number (Permit #): 3287-2018-0
Case Type: DOE SW OTHER
Issuance Date: 1/30/2018
Address: 1801 64TH AVE CHEVERLY, Maryland 20785
Lot(s) and Block(s) and Parcel(s):

El Hadji D Fall

ENVIRONMENT

Peer Reviewed By:
Mike Wagner
Discipline:
Site/Civil
Date:
01/25/2018

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www.lowimpactdevelopment.org

0 20 40 60
NOT TO SCALE

MISS UTILITY NOTE
INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND UTILITY CROSSINGS BY DIGGING TEST PITS BY HAND, WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY COMPANY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCES LESS THAN NOTED MAY REQUIRE REVISIONS TO THIS PLAN.

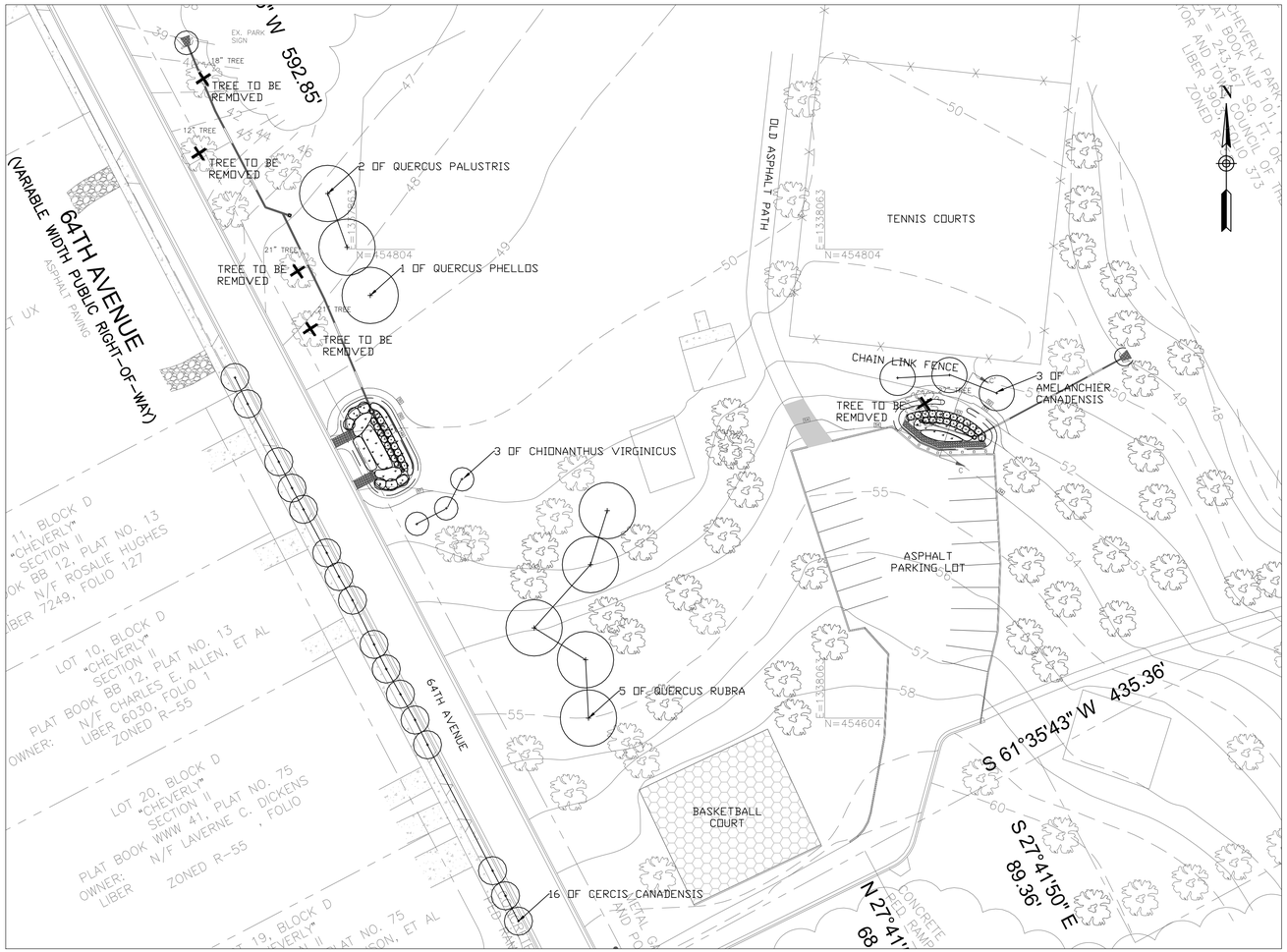
REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

STORM DRAIN DETAILS

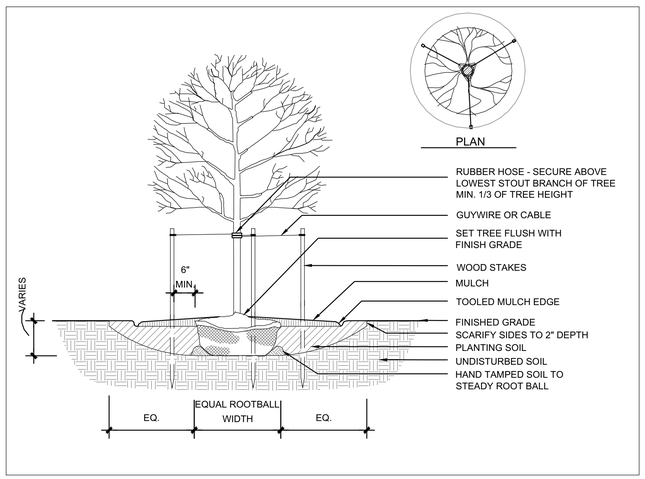
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE:	SHEET 8 OF 10
FILE NO:	C-1.03B
DRAFTED: DM	
CHECKED: NW	



LANDSCAPE PLAN: TREE PLANTING
SCALE: 1"=30'



PLANT LIST					
TYPE	QTY	SYMBOL	LATIN NAME	COMMON NAME	SIZE/SPACING
TREES	3		AMELANCHIER CANADENSIS	SERVICEBERRY	10 GAL
	16		CERCIS CANADENSIS	EASTERN REDBUD	10 GAL @ 15' O.C.
	3		CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	10 GAL @ 15' O.C.
	2		QUERCUS PALUSTRIS	PIN OAK	15 GAL
	1		QUERCUS PHELLOS	WILLOW OAK	15 GAL
	5		QUERCUS RUBRA	RED OAK	15 GAL

STATE OF MARYLAND
Lic. No. 625
Neil Alan Weinstein
Registered
LANDSCAPE ARCHITECT

EXPIRATION DATE: 09/17/2019

LANDSCAPE SPECIFICATIONS

A. PLANT MATERIALS

THE LANDSCAPE CONTRACTOR SHALL FURNISH AND INSTALL AND/OR DIG, BALL, BURLAP, AND TRANSPLANT ALL OF THE PLANT MATERIALS CALLED FOR ON THE DRAWINGS AND/OR LISTED IN THE PLANT SCHEDULE.

B. PLANT NAMES

PLANT NAMES USED IN THE PLANT SCHEDULE SHALL BE IDENTIFIED IN ACCORDANCE WITH HORTUS THIRD, BY L.H. BAILEY, 1976.

C. PLANT STANDARDS

ALL PLANT MATERIALS SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "AMERICAN STANDARD FORNURSERY STOCK," LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (HEREAFTER REFERRED TO AS AAN STANDARDS). ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL-BRANCHED AND WITH HEALTHY WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS AND MECHANICAL INJURIES.

(1) ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATIC CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEELED-IN PLANTS NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

(2) COLLECTED PLANTS OR TRANSPLANTED TREES MAY BE CALLED FOR BY THE LANDSCAPE ARCHITECT AND USED, PROVIDED, HOWEVER, THAT LOCATIONS AND SOIL CONDITIONS WILL PERMIT PROPER BALLING.

D. PLANT MEASUREMENTS

(1) MINIMUM SIZE FOR PLANTING SHRUBS SHALL BE, IN GENERAL, EIGHTEEN TO TWENTY-FOUR (18-24) INCHES IN HEIGHT OR SPREAD, AS APPROPRIATE, EXCEPT THAT A LARGER SIZE MAY BE REQUIRED WHEN DEEMED APPROPRIATE BY THE PLANNING DIRECTOR (OR DESIGNEE) IN THE CASE OF PARTICULAR SPECIES OR PLANTING SITUATIONS.

E. PLANTING METHODS

ALL PROPOSED PLANT MATERIAL THAT MEETS THE SPECIFICATIONS IN SECTION B. ABOVE ARE TO BE PLANTED IN ACCORDANCE WITH THE FOLLOWING PLANTING METHODS DURING THE PROPER SEASONS AS DESCRIBED BELOW.

(1) PLANTING SEASONS

A PROFESSIONAL HORTICULTURALIST/NURSERYMAN SHALL BE CONSULTED TO DETERMINE THE PROPER TIME, BASED ON PLANT SPECIES AND WEATHER CONDITIONS, TO MOVE AND INSTALL PARTICULAR PLANT MATERIAL TO MINIMIZE STRESS TO THE PLANT. PLANTING OF DECIDUOUS MATERIAL MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDED THERE IS NO FROST IN THE GROUND AND FROST-FREE TOP SOIL PLANTING MIXTURES ARE USED. MONITOR WEATHER CONDITIONS AND AVOID PLANTING IF SOIL ON SITE IS TOO WET. LANDSCAPE PLUGS MUST BE INSTALLED WHILE THEY ARE IN ACTIVE GROWTH ONLY.

(2) DIGGING

ALL PLANT MATERIAL SHALL BE DUG, BALLED AND BURLAPPED (B+B) OR BARE ROOT IN ACCORDANCE WITH THE "AAN STANDARDS."

(3) EXCAVATION OF PLANT PITS

THE LANDSCAPE CONTRACTOR SHALL EXCAVATE ALL PLANT PITS, VINE PITS, HEDGE TRENCHES AND SHRUB BEDS AS FOLLOWS:

(A) ALL PITS SHALL BE GENERALLY CIRCULAR IN OUTLINE, WITH BOWL SHAPED SIDES. THE TREE PIT SHALL BE DEEP ENOUGH TO ALLOW ONE-EIGHTH (1/8) OF THE BALL TO BE ABOVE THE EXISTING GRADE. PLANTS SHALL REST ON UNDISTURBED EXISTING SOIL OR WELL COMPACTED BACKFILL. THE TREE PIT MUST BE A MINIMUM OF NINE (9) INCHES LARGER ON EVERY SIDE THAN THE BALL OF THE TREE.

(B) IF AREAS ARE DESIGNATED AS SHRUB BEDS OR HEDGE TRENCHES, THEY SHALL BE CULTIVATED TO AT LEAST EIGHTEEN (18) INCHES IN DEPTH MINIMUM. AREAS DESIGNATED FOR GROUND COVERS AND VINES SHALL BE CULTIVATED TO AT LEAST TWELVE (12) INCHES IN DEPTH MINIMUM.

(4) PLANT PRUNING, EDGING, AND MULCHING

(A) EACH TREE, SHRUB OR VINE SHALL BE PRUNED IN AN APPROPRIATE MANNER TO ITS PARTICULAR REQUIREMENTS, IN ACCORDANCE WITH ACCEPTED STANDARD PRACTICES AS STATED IN ANSI STANDARDS A300 FOR PRUNING. BROKEN OR BRUISED BRANCHES SHALL BE REMOVED WITH CLEAN CUTS MADE ON AN ANGLE FROM THE BARK RIDGE TO THE BRANCH COLLAR, NO FLUSH CUTS, TO MINIMIZE THE AREA CUT. ALL CUTS SHALL BE MADE WITH SHARP TOOLS. TRIM ALL EDGES SMOOTH. NO TREE WOUND DRESSINGS SHALL BE APPLIED.

(B) ALL TRENCHES AND SHRUB BEDS SHALL BE EDGED AND CULTIVATED TO THE LINES SHOWN ON THE DRAWING. THE AREAS AROUND ISOLATED PLANTS SHALL BE EDGED AND CULTIVATED TO THE FULL DIAMETER OF THE PIT. SOD WHICH HAS BEEN REMOVED AND STACKED SHALL BE USED TO TRIM THE EDGES OF ALL EXCAVATED AREAS TO THE NEAT LINES OF THE PLANT PIT SAUCERS, THE EDGES OF SHRUB AREAS, HEDGE TRENCHES AND VINE POCKETS.

(C) AFTER CULTIVATION, ALL PLANT MATERIALS SHALL BE MULCHED WITH A TWO TO THREE (2- 3) INCH LAYER OF AGED SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS OVER THE ENTIRE AREA OF THE BED OR SAUCER. REFER TO THE MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL.

F. SEEDING AND SODDING

ALL SEEDING AND SODDING SHALL BE AS PER 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

G. TOP SOIL

TOP SOIL SHALL BE RETAINED AND/OR PROVIDED ON ALL SITES AND SPREAD OVER ALL UNIMPROVED AREAS.

P.G.C
Structural
DPIE
APPROVED AS NOTED BY BUILDING SECTION

BMP & ESD AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMP AND ESD) SHOWN ON THE PLANS AHVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF PERMITTING, INSPECTION AND ENFORCEMENT.

ENGINEERS NAME HERE DATE:
MD. REG. P.E. NO. XXXXX

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO._____ , EXPIRATION DATE:_____ .

Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

The Department of the Environment (DoE) has completed a review of this document for code compliance. As required by State Code, the design professional(s) responsible for the preparation and content of this document must provide a record copy of these documents with their original seal, signature and date.

Case Name: BOYD PARK STORMWATER RETROFIT
Case Number (Permit #): 3287-2018-0
Case Type: DOE SW OTHER
Issuance Date: 1/30/2018
Address: 1801 64TH AVE CHEVERLY, Maryland 20785
Lot(s) and Block(s) and Parcel(s):

El Hadji D Fall

Peer Reviewed By: Mike Wagner
Discipline: Site/Civil
Date: 01/25/2018

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Beltsville, MD 20705
Tel. (301) 982-5559
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www.lowimpactdevelopment.org

SCALE: 1" = 30'-0"

MISS UTILITY NOTE
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REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

LANDSCAPE PLAN
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
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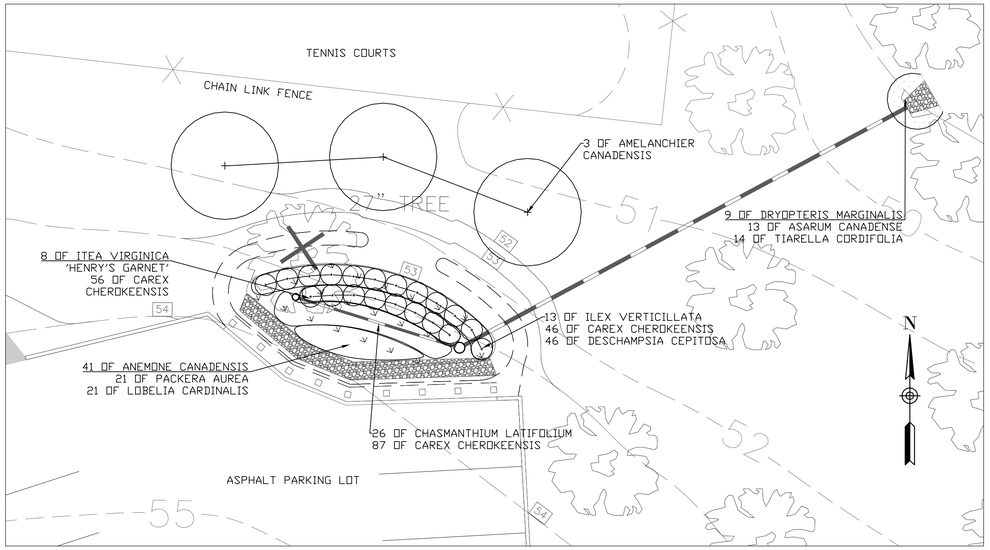
CHECKED: NW	



LANDSCAPE PLAN: MICRO-BIORETENTION #1
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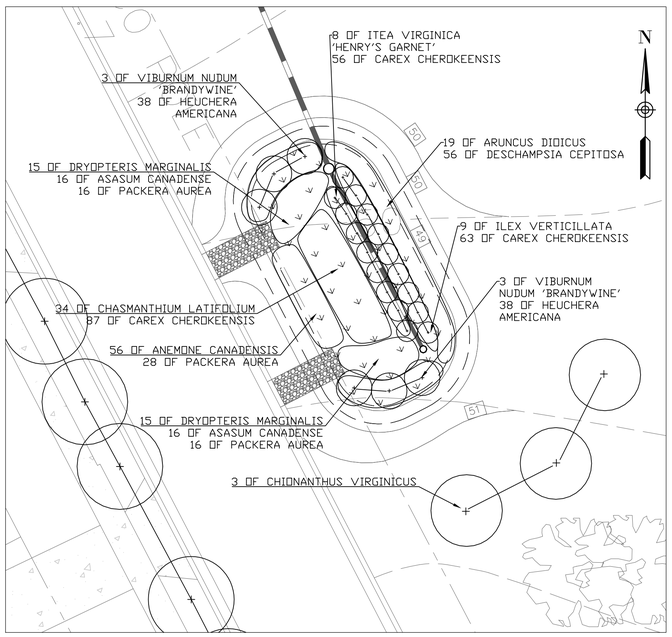

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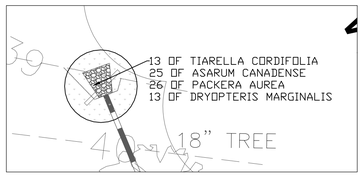
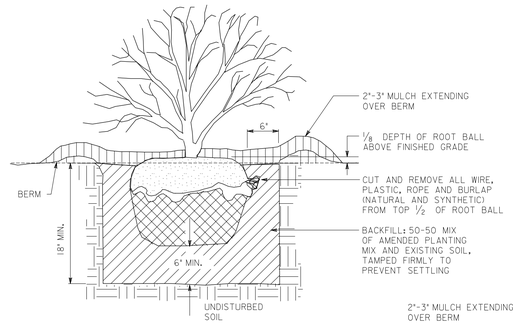
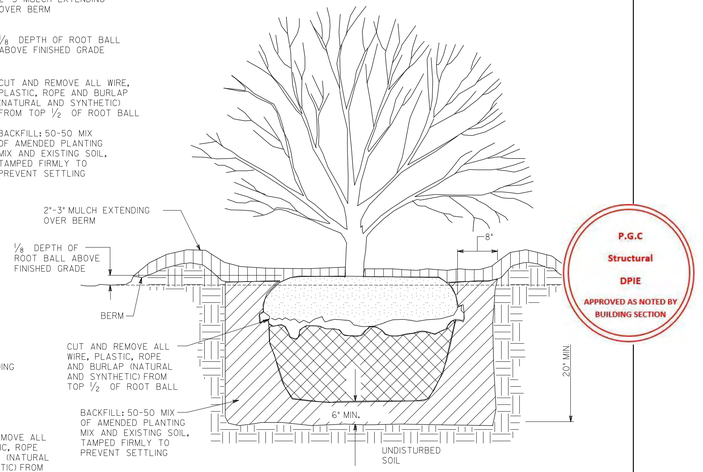


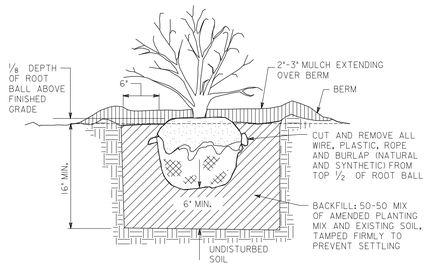
LANDSCAPE PLAN: ENTRANCE
SCALE: 1"=10'



FOR SHRUBS 2' TO 4' IN HEIGHT



FOR SHRUBS 4' IN HEIGHT AND OVER



FOR SHRUBS UNDER 2' IN HEIGHT

P.G.C
Structural
DPIE
APPROVED AS NOTED BY BUILDING SECTION

DATE	APPR.
REVISED	
ISSUED:	
REFERENCE	

RECOMMENDED: _____ DEPUTY CHIEF ENGINEER

APPROVED: _____ CHIEF TRANSPORTATION ENGINEER

STANDARD PLANTING DETAILS SHRUBS

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. **611.15**

PLANT LIST

TYPE	QTY	LATIN NAME	COMMON NAME	SIZE/SPACING
SHRUBS	22	ILEX VERTICILLATA	WINTERBERRY	3 GAL @ 36" O.C.
	16	ITEA VIRGINICA 'HENRY'S GARNET'	VIRGINIA SWEETSPIRE	3 GAL @ 36" O.C.
	16	VIBURNUM NUDUM 'BRANDYWINE'	POSSUMHAW VIBURNUM	5 GAL @ 60" O.C.
PERENNIALS	97	ANEMONE CANADENSIS	CANADA ANEMONE	1 GAL @ 12" O.C.
	19	ARUNCUS DIOICUS	GOAT'S BEARD	1 GAL @ 24" O.C.
	1	LOBELIA CARDINALIS	CARDINAL FLOWER	LP50 - 50 PLUGS PER TRAY 12" O.C.
GROUNDCOVER	2	ASARUM CANADENSE	CANADA WILD GINGER	LP50 - 50 PLUGS PER TRAY 12" O.C.
	2	HEUCHERA AMERICANA	CORAL BELLS	LP50 - 50 PLUGS PER TRAY 12" O.C.
	2	PACKERA AUREA	GOLDEN RAGWORT	LP50 - 50 PLUGS PER TRAY 12" O.C.
	1	TIARELLA CORDIFOLIA 'BRANDYWINE'	FOAM FLOWER	LP50 - 50 PLUGS PER TRAY 12" O.C.
GRASSES + FERNS	8	CAREX CHEROKEENSIS	CHEROKEE SEDGE	LP50 - 50 PLUGS PER TRAY 12" O.C.
	60	CHASMANTHIUM LATIFOLIUM	NORTHERN SEA OAT	1 GAL @ 24" O.C.
	2	DESCHAMPSIA CEPITOSA	TUFTED HAIR GRASS	LP50 - 50 PLUGS PER TRAY 12" O.C.
	2	DRYOPTERIS MARGINALIS	MARGINAL SHIELD FERN	LP50 - 50 PLUGS PER TRAY 18" O.C.

BMP & ESD AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMP AND ESD) SHOWN ON THE PLANS AHVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF PERMITTING, INSPECTION AND ENFORCEMENT.

ENGINEERS NAME HERE DATE:
MD. REG. P.E. NO. XXXXX

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____ , EXPIRATION DATE: _____ .

STATE OF MARYLAND
Lic. No. 625
Neil Alan Weinstein
Registered
LANDSCAPE ARCHITECT

EXPIRATION DATE: 09/17/2019

Prince George's County Maryland
Department of the Environment (DoE)
APPROVED PERMIT SET

The Department of the Environment (DoE) has completed a review of this document for code compliance. As required by State Code, the design professional(s) responsible for the preparation and content of this document must provide a record copy of these documents with their original seal, signature and date.

Case Name: BOYD PARK STORMWATER RETROFIT
Case Number (Permit #): 3287-2018-0
Case Type: DOE SW OTHER
Issuance Date: 1/30/2018
Address: 1801 64TH AVE CHEVERLY, Maryland 20785
Lot(s) and Block(s) and Parcel(s):

DEPARTMENT OF THE ENVIRONMENT

Peer Reviewed By: Mike Wagner
Discipline: Site/Civil
Date: 01/25/2018

LOW IMPACT DEVELOPMENT CENTER
5000 Sunnyside Avenue, Suite 100
Beltsville, MD 20705
Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

SCALE: 1" = 10'-0"

MISS UTILITY NOTE

INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND UTILITY CROSSINGS BY DIGGING TEST PITS BY HAND, WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY COMPANY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCES LESS THAN NOTED MAY REQUIRE REVISIONS TO THIS PLAN.

REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

LANDSCAPE PLAN
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 01/23/18
SCALE: 1" = 10'	SHEET 10 OF 10
FILE NO:	L-1.02
DRAFTED: SC	
CHECKED: NW	

ATTACHMENT B:
CONDITIONALLY APPROVED GRADING, EROSION AND SEDIMENT CONTROL SET

SHEET INDEX

CONSULTANT'S CERTIFICATION

"I certify that this plan of erosion and sediment control represents a practicable and workable plan based on my personal knowledge of the site, and that this plan was designed and prepared in accordance with the requirements of the Prince George's Soil Conservation District and "Standards and Specifications for Soil Erosion and Sediment Control". I have reviewed this erosion and sediment control plan with the owner/developer".

Signature Neil Weinstein MD License# *28443* Date 01/09/18
Name Neil Weinstein (printed)

OWNER'S/DEVELOPER'S CERTIFICATION

"I/We hereby certify that I/we have reviewed this erosion and sediment control plan and that any clearing, grading, drainage, construction and/or development will be done pursuant to this approved plan, including inspecting and maintaining controls and that any responsible personnel involved in the construction project will have a Certificate of Training at a Maryland Department of the Environment approved training program for the control of erosion and sediment before beginning the project. Prince George's Soil Conservation District and the enforcement authority shall have the right of entry for periodic on-site evaluations."

Signature _____ Date _____
Name(printed) Juan Luis Torres Title DIRECTOR
Ph# _____ Firm TOWN OF CHEVERLY PUBLIC WORKS
Complete address 6401 FOREST ROAD CHEVERLY, MD 20875

APPLICANT INFORMATION

Name Neil Weinstein
Address 5000 Sunnyside Avenue suite 100, Beltsville, MD
Applicant Low Impact Development Center Phone# 301-982-5559

Erosion and Sediment Control General Notes

a. The developer is responsible for the acquisition of all required easement, right and/or rights-of-way pursuant to the discharge from the erosion and sediment control practices, stormwater management practices and the discharge of stormwater onto or across and grading or other work to be performed on adjacent or downstream properties affected by this plan.

b. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than three horizontal to one vertical (3:1) and b) seven (7) calendar days for all other disturbed or graded areas on the project site, The in-place sediment control measures will be maintained on a continuing basis until the site is permanently stabilized and all permit requirements are met.

c.The owner/developer or representative shall request that the inspection authority approve work completed in accordance with the approved erosion and sediment control plan, the grading or building permit and shall obtain written inspection approvals by the Inspector at the following stages in the development of the site:

(1) Prior to the start of earth disturbance;
(2) Upon completion of installation of tree protection devices, followed by the installation of perimeter erosion and sediment controls, prior to proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until initial approval by the Inspector is made;
(3) Upon completion of stripping, the stockpiling of topsoil, the construction of temporary sediment and erosion control facilities, disposal of all waste material and preparation of the ground;
(4) Upon completion of rough grading, but prior to placing topsoil, permanent drainage or other site development improvements and ground covers;
(5) Prior to the start of another phase of construction or opening of another grading unit;
(6) Prior to the removal of sediment control practices; and;
(7) Upon completion of final grading, reforesting, permanent drainage and erosion control facilities including established ground covers and planting, and all other work of the building permits. Reference 29 c. in all sequence of construction.

d. Approval shall be requested upon final stabilization of all sites with disturbed areas in excess of two acres before removal of controls.

e. All permits under an erosion and sediment control plan must and can only be issued to the owner/developer that signs the certification on the plan. The owner/developer that signs the certification on an erosion and sediment control plan is the responsible party regardless of any sale of the property or work of subcontractors. Erosion and sediment control plans are approved for one owner/developer only.

f. PGSCD approval of a erosion and sediment control plan, pursuant to meeting local permit requirements for grading, building or street permits, etc., is valid only when the work to be performed under the permit is the same as (no more/no less than) that contained in the plan as approved by the PGSCD.

g. Any changes or modifications to an approved erosion and sediment control plan, not approved by the PGSCD, shall invalidate the plan approval.

h. Offsite borrow or spoil areas must have an approved and active erosion and sediment control plan.

i. Temporary designed sediment basins shall be removed within 36 months
after the beginning of construction of the basin.

j. ~~On small pond approvals:~~
(1) ~~The owner or engineer will notify PGSCD promptly in writing when construction is begun and when construction is completed.~~

(2) ~~The project shall be constructed under the supervision of the engineer-in-charge. Within 30 days of the completion of construction, the engineer-in-charge that designed the structure shall provide PGSCD with an As-Built plan and shall certify, with the engineer's seal, that the MD378 pond was constructed as shown on the As-Built plans.~~

(3) ~~The approval is valid only for use by the applicant and may not be transferred to another unless written approval for such transfer is obtained from PGSCD.~~

k.
Disturbed surface area: 0.32 ac
Vegetatively stabilized area: 0.16 ac
Volume of spoil material: 345 cy
Volume of cut: 360 cy
Volume of borrow material 0 cy
Volume of fill: 15 cy

l. List Predominant soil types and general description per PGSCD soil survey: RuB, CcE

SEQUENCE OF CONSTRUCTION - BIORETENTION #1

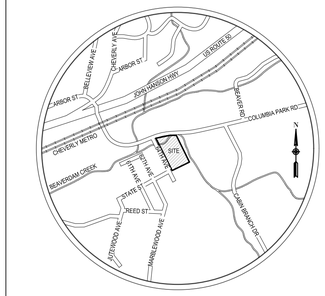
1. HOLD PRECONSTRUCTION MEETING WITH DPIE INSPECTOR (301-883-3820) AND OWNER ONSITE. NOTE: PRIOR TO ANY CLEARING AND GRUBBING THE LIMITS OF DISTURBANCE (LOD) AND TREES TO BE REMOVED MUST BE CLEARLY MARKED	1 DAY
2. CONTACT DPIE INSPECTOR (301-883-3820) 24 HOURS PRIOR TO THE START OF CONSTRUCTION	1 DAY
3. INSTALL STABILIZATED CONSTRUCTION ENTRANCE (SCE). REMOVE MARKED TREES AND STUMPS. ALL BRANCHES OVER 6" DIAMETER SHALL BE MULCHED AND STOCKPILED FOR LATER USE.	3 DAYS
4. INSTALL SUPER SILT FENCE (SSF) AND TREE PROTECTION FENCE	3 DAYS
4. WITH THE PERMISSION OF THE DPIE INSPECTOR, ROUGH GRADE AND EXCAVATE FOR BIORETENTION. INSTALL STORM PIPE AND OUTLET. INSTALL STRUCTURE, GRAVEL, UNDERDRAIN, BIORETENTION MEDIA, RIPRAP, BOLLARDS, ASPHALT CURB AND REGRADE ASPHALT PATH. MILL& OVERLAY AND FINISH FINAL GRADING. REPAIR ANY DAMAGE TO SIDEWALK, CURB, OR ROADWAY. SEED AND STABILIZE DISTURBED AREA.	4 WEEKS
5. AFTER ALL AREAS ARE STABILIZED, THE PERMITTEE SHALL OBTAIN WRITTEN APPROVAL FROM DDOE SEDIMENT & EROSION CONTROL INSPECTOR, PRIOR TO THE REMOVAL OF ANY SEDIMENT CONTROL DEVICES.	1 DAY
6. REMOVE ALL SEDIMENT CONTROL DEVICES	1 DAY

SEQUENCE OF CONSTRUCTION - BIORETENTION #2

1. HOLD PRECONSTRUCTION MEETING WITH DPIE INSPECTOR (301-883-3820) AND OWNER ONSITE. NOTE: PRIOR TO ANY CLEARING AND GRUBBING THE LIMITS OF DISTURBANCE (LOD) AND TREES TO BE REMOVED MUST BE CLEARLY MARKED	1 DAY
2. CONTACT DPIE INSPECTOR (301-883-3820) 24 HOURS PRIOR TO THE START OF CONSTRUCTION	1 DAY
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE (SCE). REMOVE MARKED TREES AND STUMPS. ALL BRANCHES OVER 6" DIAMETER SHALL BE MULCHED AND STOCKPILED FOR LATER USE.	3 DAYS
4. INSTALL SUPER SILT FENCE (SSF) AND TREE PROTECTION FENCE	3 DAYS
4. WITH THE PERMISSION OF THE DPIE INSPECTOR, ROUGH GRADE AND EXCAVATE FOR BIORETENTION. INSTALL OUTFALL AND STORM PIPE UP TO THE EDGE OF THE PROPOSED EXCAVATION. PILE MATERIAL BETWEEN THE TRENCH AND THE SUPER SILT FENCE. BLOCK PIPE AT END OF EACH WORK DAY. INSTALL STRUCTURE, GRAVEL, UNDERDRAIN, AND BIORETENTION MEDIA. INSTALL RIPRAP, CURB CUTS AND FINISH FINAL GRADING. REPAIR ANY DAMAGE TO SIDEWALK, CURB, OR ROADWAY. BLOCK CURB CUT WITH FILTER SOCK FOR FIRST GROWING SEASON. SEED AND STABILIZE DISTURBED AREA.	4 WEEKS
5. AFTER ALL AREAS ARE STABILIZED, THE PERMITTEE SHALL OBTAIN WRITTEN APPROVAL FROM DDOE SEDIMENT & EROSION CONTROL INSPECTOR, PRIOR TO THE REMOVAL OF ANY SEDIMENT CONTROL DEVICES.	1 DAY
6. REMOVE ALL SEDIMENT CONTROL DEVICES	1 DAY

SEQUENCE OF CONSTRUCTION - PERMEABLE PAVEMENT #3

1. HOLD PRECONSTRUCTION MEETING WITH DPIE INSPECTOR (301-883-3820) AND OWNER ONSITE. NOTE: PRIOR TO ANY CLEARING AND GRUBBING THE LIMITS OF DISTURBANCE (LOD) AND TREES TO BE REMOVED MUST BE CLEARLY MARKED	1 DAY
2. CONTACT DPIE INSPECTOR (301-883-3820) 24 HOURS PRIOR TO THE START OF CONSTRUCTION	1 DAY
3. INSTALL STABILIZAED CONSTRUCTION ENTRANCE (SCE). REMOVE MARKED TREES AND STUMPS. ALL BRANCHES OVER 6" DIAMETER SHALL BE MULCHED AND STOCKPILED FOR LATER USE.	3 DAYS
4. INSTALL SUPER SILT FENCE (SSF) AND TREE PROTECTION FENCE.	3 DAYS
4. WITH THE PERMISSION OF THE DPIE INSPECTOR, REMOVE EXISTING ASPHALT PAVEMENT. ROUGH GRADE AND EXCAVATE FOR PERMEABLE PAVEMENT. INSTALL GRAVEL BASE AND PAVEMENT. SEED AND STABILIZE DISTURBED AREA. STRIPE PAVEMENT TO MATCH EXISTING MARKINGS.	4 WEEKS
5. AFTER ALL AREAS ARE STABILIZED, THE PERMITTEE SHALL OBTAIN WRITTEN APPROVAL FROM DDOE SEDIMENT & EROSION CONTROL INSPECTOR, PRIOR TO THE REMOVAL OF ANY SEDIMENT CONTROL DEVICES.	1 DAY
6. REMOVE ALL SEDIMENT CONTROL DEVICES	1 DAY



VICINITY MAP

1" = 2000'

***Stabilization practices on all projects must be in compliance with the requirements of COMAR 26.17.1.08 G regulations by January 9, 2013, regardless of when an erosion and sediment control plan was approved.**

Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within:

a.) 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

b.) Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.

NOTES:

1. TOPOGRAPHY FROM PG GIS DATED: 2012 ADDITIONAL TOPOGRAPHY AND SURVEY FOR STRUCTURES AND SPOT ELEVATIONS PROVIDED BY PRECISION SURVEYING AND CONSULTING SERVICES, INC. DATED: MARCH 2017. DATUM: NGVD 88.
2. LIMIT OF DISTURBANCE: 17,973 SF
3. CUT: 360 CY
4. FILL: 15 CY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · NEIL ALAN WEINSTEIN · 28443 · PROFESSIONAL ENGINEER

PRINCE GEORGE'S SOIL CONSERVATION DISTRICT
FINAL APPROVAL
GRADING, EROSION AND SEDIMENT CONTROL

FSC# 115-18 EXPIRATION DATE
POND (P#)
DISTRICT SIGNATURE APPROVAL DATE

LOW IMPACT DEVELOPMENT CENTER
5000 Sunnyside Avenue, Suite 100
Beltsville, MD 20705
Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

SCALE: 0 20 40 60

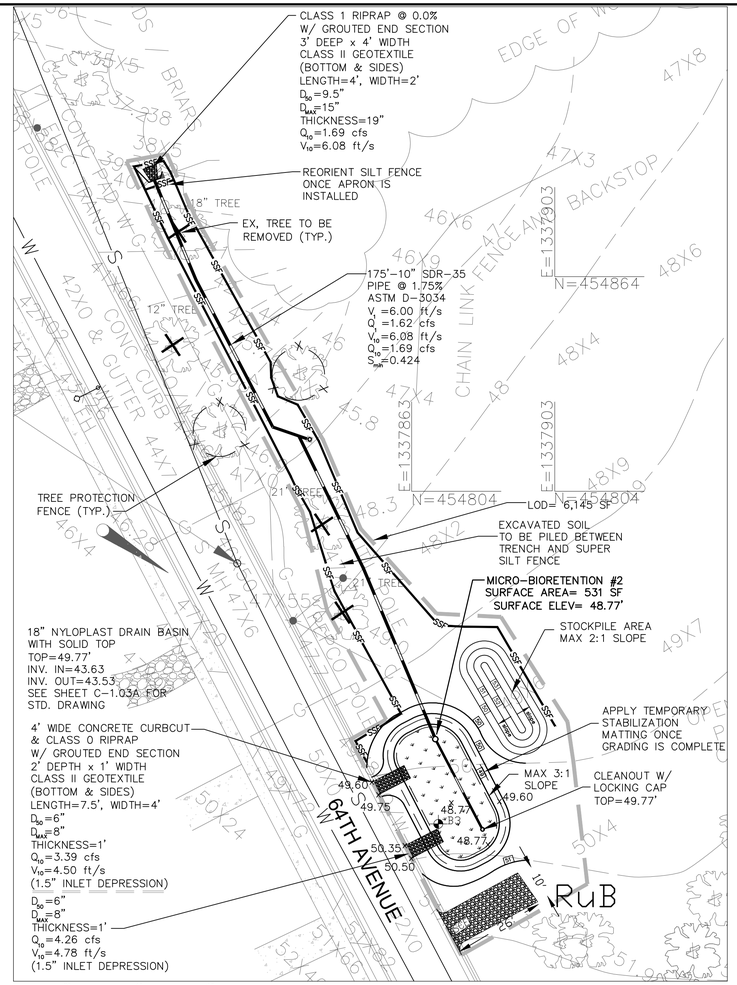
MISS UTILITY NOTE
INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND UTILITY CROSSINGS BY DIGGING TEST PITS BY HAND. WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY COMPANY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCES LESS THAN NOTED MAY REQUIRE REVISIONS TO THIS PLAN.

REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

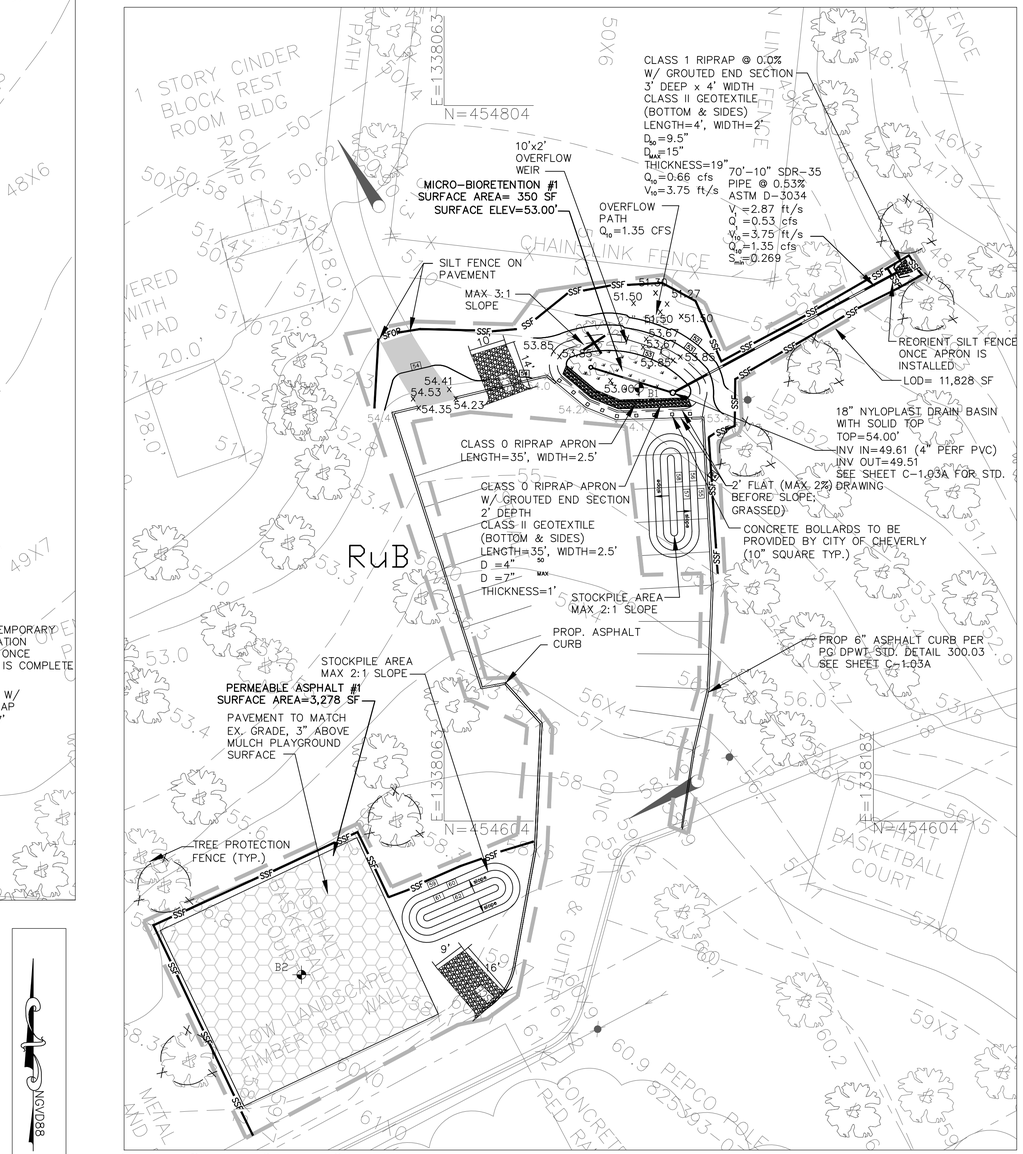
FINAL GRADING, EROSION AND SEDIMENT CONTROL COVER SHEET
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 02/16/18
SCALE:	SHEET 1 OF 6
FILE NO:	SC-1
DRAFTED: DM	
CHECKED: NW	



ENLARGEMENT 'A'



ENLARGEMENT 'B'

LEGEND:

- EX. CONTOUR
- EX. PROPERTY LINE
- EX. SPOT ELEVATION
- EX. CANOPY
- EX. TREE
- EX. VEGETATION
- EX. GAS LINE
- EX. WATER LINE
- EX. SANITARY SEWER LINE
- EX. OVERHEAD WIRE
- EX. POWER POLE
- EX. TELEPHONE POLE
- EX. CURB INLET
- EX. WATER VALVE
- EX. GAS VALVE
- EX. SANITARY SEWER
- EX. FIRE HYDRANT
- EX. HEADWALL
- EX. SIGN
- EX. WOODEN FENCE
- SOILS TYPE
- PROP. CONTOUR
- LIMIT OF DISTURBANCE
- SPOT ELEVATION
- RIPRAP
- BIORETENTION
- PERMEABLE PAVEMENT
- STORM PIPE
- SOIL BORING
- SUPER SILT FENCE
- SILT FENCE ON PAVEMENT
- STABILIZED CONSTRUCTION ENTRANCE
- TREE PROTECTION FENCING

BMP & ESD AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMP AND ESD) SHOWN ON THE PLANS AHVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF PERMITTING, INSPECTION AND ENFORCEMENT.

ENGINEERS NAME HERE
MD. REG. P.E. NO. XXXXX

DATE:

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____, EXPIRATION DATE: _____.

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b.) Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · NEIL ALAN WEINSTEIN · 28443 · PROFESSIONAL ENGINEER

DRAINAGE AREA SOILS:

RuB - RUSSET-CHRISTINA-URBAN LAND COMPLEX, 0-5 PERCENT SLOPES (28.3%)

CcE - CHRISTINA-DOWNER COMPLEX, 15-25 PERCENT SLOPES (71.7%)

LOW IMPACT DEVELOPMENT CENTER
5000 Sunnyside Avenue,
Suite 100
Beltsville, MD 20705
Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

SCALE: 1" = 20'

MISS UTILITY NOTE

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REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

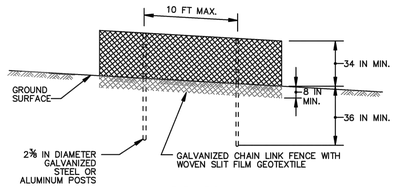
FINAL
GRADING, EROSION, AND SEDIMENT CONTROL PLAN
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

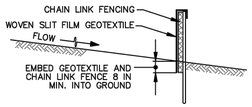
ISSUE:	DATE: 02/16/18
SCALE: 1"=20'	SHEET 2 OF 6
FILE NO:	SC-2
DRAFTED: DM	
CHECKED: NW	

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



ELEVATION



CROSS SECTION

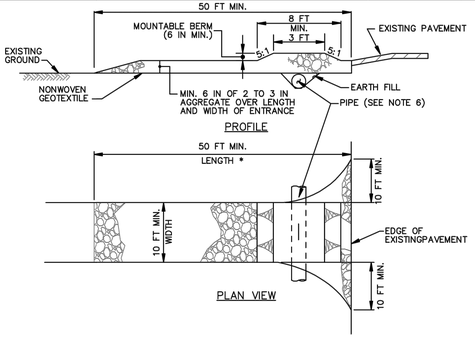
CONSTRUCTION SPECIFICATIONS

1. INSTALL 2¾ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2¾ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B–4–4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 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 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 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 NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDNESS ZONE 7A) (FROM TABLE B.1)				FERTILIZER RATE (10-20-20)	LIME RATE
SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
BARLEY	96	2/15-4/30 8/15-11/30	1"	436 LBS./AC. (10LB/1000SF)	2 TONS/AC (90LB/1000SF)
CEREAL RYE	112	2/15-4/30 8/15-12/15	1"		
FOXTAIL MILLET	30	6/1-7/31	0.5"		

B–4–5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

TO USE LONG–LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

A. SEED MIXTURES

1. GENERAL USE

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.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 ½ 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 .

2. TURFGRASS MIXTURES

A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.

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: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.

NOTE:

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 A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

C. 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)

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 1½ 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 (½ 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.

SEED MIXTURE (HARDNESS ZONE 7A) (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
6	TALL FESCUE (75%) PERENNIAL RYEGRASS (15%) WHITE CLOVER (10%)	40 25 5	2/15 - 4/30 8/15 - 10/15	1/4"-1/2"	45 LBS./AC. (1.0 LB/ 1000 S.F.)	90 LBS./AC. (2.0 LB/ 1000 S.F.)	90 LBS./AC. (2.0 LB/ 1000 S.F.)	2 TONS/AC. (90 LB/ 1000 S.F.)

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS

A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 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 ENDS WILL NOT BE ACCEPTABLE.

C. 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.

D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

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.

2. SOD INSTALLATION

A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

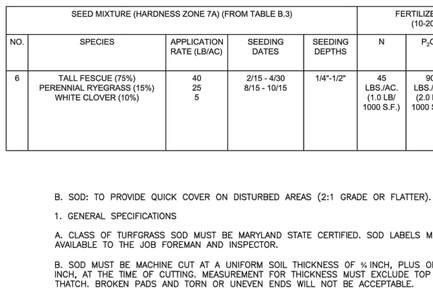
A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.

B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

DETAIL E-2 SILT FENCE ON PAVEMENT

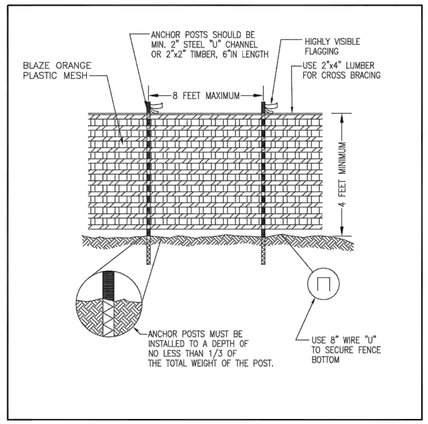
STANDARD SYMBOL: SFOP



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
3. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT–LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES: (MUST BE INCLUDED WITH DETAIL)

1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

TYPE 1 (TEMPORARY) TREE PROTECTION FENCE DETAIL FOR WOODLAND PRESERVATION AREAS

BMP & ESD AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMP AND ESD) SHOWN ON THE PLANS AHVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF PERMITTING, INSPECTION AND ENFORCEMENT.

ENGINEERS NAME HERE
MD. REG. P.E. NO. XXXXX

DATE:

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____ , EXPIRATION DATE: _____ .

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · NEIL TAN WEINSTEIN · 28443 · PROFESSIONAL ENGINEER

Peer Reviewed By: Mike Wagner

Discipline: Site/Civil

Date:

LOW IMPACT DEVELOPMENT CENTER
5000 Sunnyside Avenue, Suite 100
Beltsville, MD 20705
Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

0 20 40 60

NOT TO SCALE

MISS UTILITY NOTE

INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND UTILITY CROSSINGS BY DIGGING TEST PITS BY HAND, WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY COMPANY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCES LESS THAN NOTED MAY REQUIRE REVISIONS TO THIS PLAN.

REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

FINAL GRADING, EROSION AND SEDIMENT CONTROL DETAILS

FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 02/16/18
SCALE:	SHEET 3 OF 6
FILE NO:	SC-3
DRAFTED: DM	
CHECKED: NW	

B-3 STANDARDS AND SPECIFICATIONS

FOR

LAND GRADING

Definition

Reshaping the existing land surface to provide suitable topography for building facilities and other site improvements.

Purpose

To provide erosion control and vegetative establishment for extreme changes in grade.

Conditions Where Practice Applies

Earth disturbances or extreme grade modifications on steep or long slopes.

Design Criteria

The grading plan should be based on the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, adjacent properties, drainage patterns, measures for water removal, and vegetative treatment, etc.

Many jurisdictions have regulations and design procedures already established for land grading that must be followed. The plan must show existing and proposed contours for the area(s) to be graded including practices for erosion control, slope stabilization, and safe conveyance of runoff (e.g., waterways, lined channels, reverse benches, grade stabilization structures). The grading/construction plans are to include the phasing of these practices and consideration of the following:

1. Provisions to safely convey surface runoff to storm drains, protected outlets or stable water courses to ensure that surface runoff will not damage slopes or other graded areas.

2. Cut and fill slopes, stabilized with grasses, no steeper than 2:l. (Where the slope is to be mowed, the slope should be no steeper than 3:l, but 4:l is preferred because of safety factors related to mowing steep slopes.) Slopes steeper than 2:l require special design and stabilization considerations to be shown on the plans.

3. Benching per Detail B-3-1 whenever the vertical interval (height) of any 2:l slope exceeds 20 feet; for 3:l slopes, when it exceeds 30 feet; and for 4:l slopes, when it exceeds 40 feet. Locate benches to divide the slope face as equally as possible and to convey the water to a stable outlet. Soils, seeps, rock outcrops, etc. are to be taken into consideration when designing benches.

   a. Provide benches with a minimum width of six feet for ease of maintenance.

   b. Design benches with a reverse slope of 6:l or flatter to the toe of the upper slope and with a minimum of one foot in depth. Grade the longitudinal slope of the bench between 2 percent and 3 percent, unless accompanied by appropriate design and computations.

   c. The maximum allowable flow length within a bench is 800 feet unless accompanied by appropriate design and computations.

4. Diversion of surface water from the face of all cut and fill slopes using earth dikes or swales. Convey surface water down slope using a designed structure, and:

   a. Protect the face of all graded slopes from surface runoff until they are stabilized.

   b. Do not subject the slope's face to any concentrated flow of surface water such as from natural drainage ways, graded swales, downspouts, etc.

   c. Protect the face of the slope by special erosion control materials to include, but not be limited to, approved vegetative stabilization practices, riprap or other approved stabilization methods.

5. Serrated slope as shown in Detail B-3-2. The steepest allowable slope for ripable rock is 1.5:1. For non rock surfaces, the slopes are to be 2:1 or flatter. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization.

6. Subsurface drainage provisions. Provide subsurface drainage where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

7. Proximity to adjacent property. Slopes must not be created close to property lines without adequate protection against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.

8. Quality of fill material. Fill material must be free of brush, rubbish, logs, stumps, building debris, and other objectionable material. Do not place frozen materials in the fill nor place the fill material on a frozen foundation.

9. Stabilization. Stabilize all disturbed areas structurally or vegetatively in compliance with Section B-4 Standards and Specifications for Stabilization Practices.

Maintenance

The line, grade, and cross section of benching and serrated slopes must be maintained. Benches and serrated slopes must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization.

B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.

3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS

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

A. 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. Construction sequence example (Refer to Figure B.1):
   a. Construct and stabilize all 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 out of the seeding season will necessitate the application of temporary stabilization.

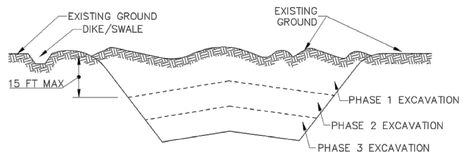


Figure B.1: Incremental Stabilization – Cut

B. Incremental Stabilization - Fill Slopes

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift 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 practice(s), 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 practice(s), 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.

Note: Once the placement of fill 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 out of the seeding season will necessitate the application of temporary stabilization.

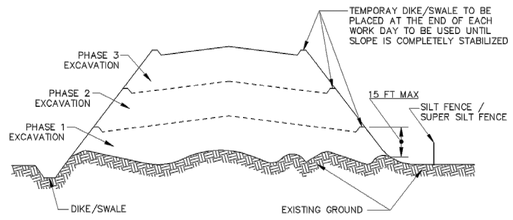


Figure B.2: Incremental Stabilization – Fill

B-4-2 STANDARDS AND SPECIFICATIONS

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

A. Soil Preparation

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 required 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 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.

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 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:
   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, roots, trash, or other materials larger than 1½ 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.
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 surface resulting 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

BMP & ESD AS-BUILT CERTIFICATION

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ENGINEERS NAME HERE
MD. REG. P.E. NO. XXXXX

DATE:

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____, EXPIRATION DATE: _____.

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · MATTHEW ALAN WEINSTEIN · 28443 · PROFESSIONAL ENGINEER

LOW IMPACT DEVELOPMENT CENTER

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Beltsville, MD 20705

Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

0 20 40 60

NOT TO SCALE

MISS UTILITY NOTE

INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND UTILITY CROSSINGS BY DIGGING TEST PITS BY HAND, WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY COMPANY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCES LESS THAN NOTED MAY REQUIRE REVISIONS TO THIS PLAN.

REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

FINAL GRADING, EROSION AND SEDIMENT CONTROL DETAILS

FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT

1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 02/16/18
SCALE:	SHEET 4 OF 6
FILE NO:	SC-4
DRAFTED: DM	
CHECKED: NW	

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 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.

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative 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

A. Seeding

1. Specifications
   a. All seed must meet the requirements 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 cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
   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.
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 seeded area with a 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_2O_5 (phosphorous), 200 pounds per acre; K_2O (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)
   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 Maryland 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 a uniform fibrous physical state.
      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. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be 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 90 percent minimum.
2. Application
   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 at 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 water.
3. Anchoring
   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 equipment 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 per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
      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 to 15 feet wide and 300 to 3,000 feet long.

B-4-6 STANDARDS AND SPECIFICATIONS

FOR

SOIL STABILIZATION MATTING

Definition

Material used to temporarily or permanently stabilize channels or steep slopes until groundcover is established.

Purpose

To protect the soils until vegetation is established.

Conditions Where Practice Applies

On newly seeded surfaces to prevent the applied seed from washing out; in channels and on steep slopes where the flow has erosive velocities or conveys clear water; on temporary swales, earth dikes, and perimeter dike swales as required by the respective design standard; and, on stream banks where moving water is likely to wash out new vegetative plantings.

Design Criteria

1. The soil stabilization matting that is used must withstand the flow velocities and shear stresses determined for the area, based on the 2-year, 24-hour frequency storm for temporary applications and the 10-year, 24-hour frequency storm for permanent applications. Designate on the plan the type of soil stabilization matting using the standard symbol and include the calculated shear stress for the respective treatment area.
2. Matting is required on permanent channels where the runoff velocity exceeds two and half feet per second (2.5 fps) or the shear stress exceeds two pounds per square foot (2 lbs/ft^2). On temporary channels discharging to a sediment trapping practice, provide matting where the runoff velocity exceeds four feet per second (4 fps).
3. Temporary soil stabilization matting is made with degradable (lasts 6 months minimum), natural, or manmade fibers of uniform thickness and distribution of fibers throughout and is smolder resistant. The maximum permissible velocity for temporary matting is 6 feet per second.
4. Permanent soil stabilization matting is an open weave, synthetic material consisting of non-degradable fibers or elements of uniform thickness and distribution of weave throughout. The maximum permissible velocity for permanent matting is 8.5 feet per second.
5. Calculate channel velocity and shear stress using the following procedure:

   Shear Stress (τ) is a measure of the force of moving water against the substrate and is calculated as:

   $\tau = \gamma \cdot R \cdot S_w$ where:

   τ = shear stress (lb/ft^2)
   γ = weight density of water (62.4 lb/ft^3)
   R = average water depth (hydraulic radius) (ft)
   S_w = water surface slope (ft/ft)

   Velocity (v) measures the rate of flow through a defined area and is calculated as:

   $$v = \frac{1.486 R^{2/3} s^{1/2}}{n}$$

   where:

   v = velocity (ft/sec)
   n = Manning's roughness coefficient
   R = hydraulic radius (ft)
   s = channel slope (ft/ft)

6. Use Table B.7 to assist in selecting the appropriate soil stabilization matting for slope applications based on the slope, the slope length, and the soil-erodibility K factor.

Table B.7: Soil Stabilization on Slopes

Slope	20:1 or Flatter (≤5%)			<20:1 to 4:1 (>5 - 25%)			<4:1 to 3:1 (>25 - 33%)			<3:1 to 2.5:1 (>33 - 40%)			<2.5:1 to 2:1** (>40 - 50%)		
Slope Length (feet)*	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120
Straw Mulch/Wood Cellulose Fiber				for K ≤ 0.35***											
Temporary Matting with Design Shear Stress ≥ 1.5 lb/sf															
Temporary Matting with Design Shear Stress ≥ 1.75 lb/sf															
Temporary Matting with Design Shear Stress ≥ 2.0 lb/sf															
Temporary Matting with Design Shear Stress ≥ 2.25 lb/sf															

Effective range for all K values unless otherwise specified

* Slope length includes contributing flow length.
** Slopes steeper than 2:1 must be engineered.
*** Soil having a K value less than or equal to 0.35 can be stabilized effectively with straw mulch or wood cellulose fiber when located on slopes steeper than 5%. Soil stabilization matting is required on all slopes steeper than 5% that have soil with a K factor greater than 0.35. K factor ratings are published in the NRCS Soil Survey http:// websoilsurvey.nrcs.usda.gov/app. During construction or reclamation, the soil-erodibility K value should represent the upper 6 inches of the final fill material re-spread as the last lift. Only the effects of rock fragments within the soil profile are considered in the estimation of the K value. Do not adjust K values to account for rocks on the soil surface or increases in soil organic matter related to management activities.

Maintenance

Vegetation must be established and maintained so that the requirements for Adequate Vegetative Establishment are continuously met in accordance with Section B-4 Vegetative Stabilization.

B-4-7 STANDARDS AND SPECIFICATIONS

FOR

HEAVY USE AREA PROTECTION

Definition

The stabilization of areas frequently and intensively used by surfacing with suitable materials (e.g., mulch and aggregate).

Purpose

To provide a stable, non-eroding surface for areas frequently used and to improve the water quality from the runoff of these areas.

Conditions Where Practice Applies

This practice applies to intensively used areas (e.g., equipment and material storage, staging areas, heavily used travel lanes).

Criteria

1. A minimum 4-inch base course of crushed stone or other suitable materials including wood chips over nonwoven geotextile should be provided as specified in Section H-1 Materials.
2. Select the stabilizing material based on the intended use, desired maintenance frequency, and runoff control.
3. The transport of sediments, nutrients, oils, chemicals, particulate matter associated with vehicular traffic and equipment, and material storage needs to be considered in the selection of material. Additional control measures may be necessary to control some of these potential pollutants.
4. Surface erosion can be a problem on large heavy use areas. In these situations, measures to reduce the flow length of runoff or erosive velocities need to be considered.

Maintenance

The heavy use areas must be maintained in a condition that minimizes erosion. This may require adding suitable material, as specified on the approved plans, to maintain a clean surface.

B-4-8 STANDARDS AND SPECIFICATIONS

FOR

STOCKPILE AREA

Definition

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

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

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

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
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 B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
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 flow in a non-erosive manner.
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.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

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.

BMP & ESD AS-BUILT CERTIFICATION

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ENGINEERS NAME HERE DATE:
MD. REG. P.E. NO. XXXXX

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Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · NEIL ALAN WEINSTEIN · 28443 · PROFESSIONAL ENGINEER

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NOT TO SCALE

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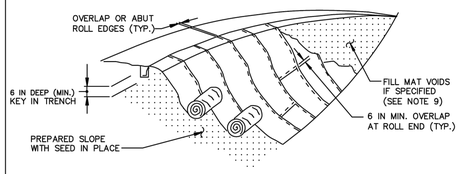
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 02/16/18
SCALE:	SHEET 5 OF 6
FILE NO:	SC-5
DRAFTED: DM	
CHECKED: NW	

DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL
PSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

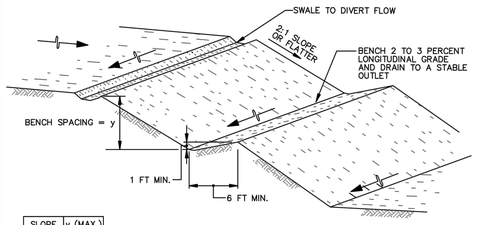
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. 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 1½ INCHES WIDE 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 MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE 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 DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE 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 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-3-1 BENCHING

STANDARD SYMBOL
BENCHING



SLOPE	y (MAX.)
2:1	20 FT
3:1	30 FT
4:1	40 FT

CONSTRUCTION SPECIFICATIONS

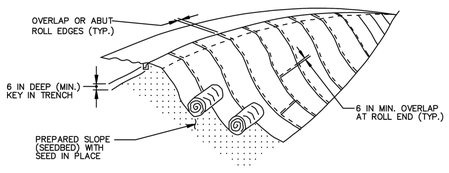
1. USE FILL MATERIAL FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
2. DO NOT INCORPORATE FROZEN, SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL SLOPES OR STRUCTURAL FILLS. DO NOT PLACE FILL ON A FROZEN FOUNDATION.
3. PLACE ALL FILL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES AND THEN COMPACT.
4. COMPACT ALL FILLS AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC., IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
5. HANDLE SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION IN ACCORDANCE WITH SECTION H-2 SUBSURFACE DRAINS OR OTHER APPROVED METHODS.
6. MAINTAIN LINE, GRADE, AND CROSS SECTION OF BENCHING. STABILIZE IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION CRITERIA OR AS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. INSTALLATION OF EROSION CONTROL MATTING MAY BE NECESSARY IN BENCH/SWALE INVERTS. CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
7. KEEP ALL BENCHES FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL
TSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)



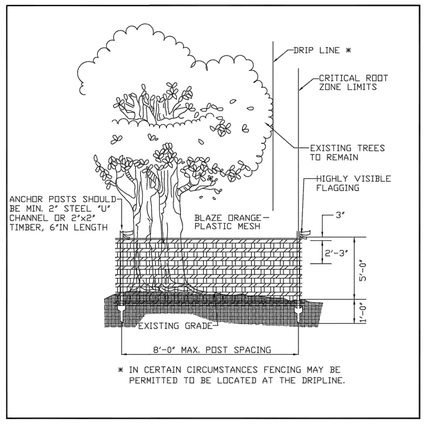
ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

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 SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS 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 1½ INCHES WIDE 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, 1x3 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 SEEDED 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 4 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.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES: (MUST BE INCLUDED WITH DETAIL)

1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

TEMPORARY FENCE PROTECTION DETAIL
FOR WOODLAND PRESERVATION AREAS

BMP & ESD AS-BUILT CERTIFICATION

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMP AND ESD) SHOWN ON THE PLANS AHVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY PRINCE GEORGE'S COUNTY DEPARTMENT OF PERMITTING, INSPECTION AND ENFORCEMENT.

ENGINEERS NAME HERE DATE:
MD. REG. P.E. NO. XXXXX

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____ , EXPIRATION DATE: _____ .

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

License No.: 28443

Expiration Date: 12/31/18

STATE OF MARYLAND · NEIL VAN WENKSTERN · 28443 · PROFESSIONAL ENGINEER

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Tel. (301) 982-5559
Fax. (301) 982-9305
www.lowimpactdevelopment.org

0 20 40 60
NOT TO SCALE

MISS UTILITY NOTE

INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND UTILITY CROSSINGS BY DIGGING TEST PITS BY HAND, WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY COMPANY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCES LESS THAN NOTED MAY REQUIRE REVISIONS TO THIS PLAN.

REV. NO.	DATE	REVISIONS PRIOR TO APPROVAL

FINAL GRADING, EROSION AND SEDIMENT CONTROL DETAILS
FOR PERMIT ONLY

BOYD PARK / 64TH AVENUE STORMWATER RETROFIT
1801 64TH AVENUE
CHEVERLY, MD 20785
PRINCE GEORGE'S COUNTY, MARYLAND

ISSUE:	DATE: 02/16/18
SCALE:	SHEET 6 OF 6
FILE NO:	SC-6
DRAFTED: DM	
CHECKED: NW	