STRAWBERRY KNOLL RD - UNDERGROUND SWM FACILITY

SEMI-FINAL (60%) DESIGN

SEPTEMBER 1, 2015

GENERAL NOTES

1. THE CONTRACTOR WILL IMMEDIATELY INFORM THE COUNTY OF ANY DISCREPANCIES FOUND BETWEEN THE PROJECT PLANS AND CONTRACT SPECIFICATIONS.

2. FOR CONSTRUCTION, ALL HORIZONTAL CONTROL SHALL BE NAD 83/91 AND VERTICAL CONTROL NAVD 88.

3. TYPES OF STORM DRAIN STRUCTURES REFER TO THE 'DESIGN STANDARDS' OF MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION, UNLESS OTHERWISE NOTED.

4. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS OF THE LINES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR SIX (6) INCHES, WHICHEVER IS LESS, THE CONTRACTOR SHALL CONTACT THE COUNTY.

5. REPAIRS TO UTILITIES OR PROPERTY DAMAGED AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE OR METHOD OF OPERATION MUST BE MADE AT THE CONTRACTOR'S EXPENSE BEFORE PROCEEDING WITH CONSTRUCTION.

6. CALL "MISS UTILITY" AT 1-800-257-7777 FOURTY-EIGHT (48) HOURS PRIOR TO BEGINNING EXCAVATION TO DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES.

7. CLEARING TO BE LIMITED TO THE "LIMIT OF DISTURBANCE" AS SHOWN ON THE PLANS.

8. ALL GRADING SHALL BE DONE IN SUCH A MANNER AS TO PROVIDE POSITIVE DRAINAGE.

9. DISTURBED AREAS ADJACENT TO ESTABLISHED LAWNS SHALL BE SODDED. OTHER DISTURBED AREAS SHALL BE SEEDED AND MULCHED.

10. THE CONTRACTOR SHALL OBTAIN A ROADSIDE TREE PERMIT FOR ANY MAINTENANCE, TREATMENT, PLANTING, REMOVAL OR ROOT CUTTING ON TREES WITHIN THE PUBLIC RIGHT-OF-WAY BEFORE STARTING A JOB. PERMIT REQUIREMENTS MAY BE OBTAINED FROM THE DEPARTMENT OF NATURAL RESOURCES - MARYLAND FOREST, PARK AND WILDLIFE SERVICE WHOSE TELEPHONE NUMBER IS (301) 854-6060.

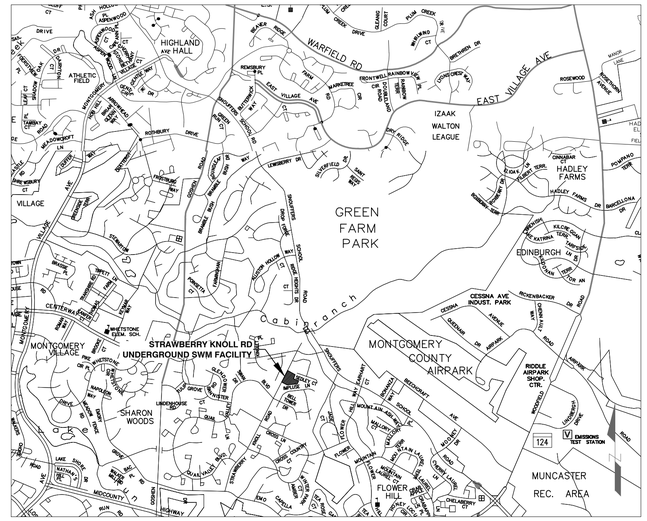
11. CONTACT THE WASHINGTON SUBURBAN SANITARY COMMISSION SYSTEM MAINTENANCE ENGINEER BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING WATER OR SEWER LINES. BACKFILL TO BE DONE UNDER THE SUPERVISION OF W.S.S.C. CALL 301-699-4420.

12. CONTACT WASHINGTON GAS DISPATCH OFFICER AT (703) 750-4831 BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING GAS MAIN AND SERVICE LATERALS.

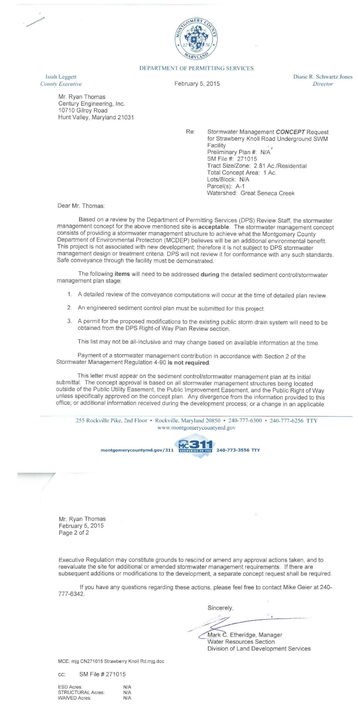
13. PRIOR TO VEGETATIVE STABILIZATION, ALL DISTURBED AREAS MUST BE TOPSOILED PER THE MONTGOMERY COUNTY "STANDARDS AND SPECIFICATIONS FOR TOPSOIL".

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.



VICINITY MAP
1" = 2,000'



DEPARTMENT OF PERMITTING SERVICES

Isiah Leggett, County Executive — Diane R. Schwartz Jones, Director

February 5, 2015

Mr. Ryan Thomas
Century Engineering, Inc.
10710 Gilroy Road
Hunt Valley, Maryland 21031

Re: Stormwater Management **CONCEPT** Request
for Strawberry Knoll Road Underground SWM Facility
Preliminary Plan #: N/A
SM File #: 271015
Tract Size/Zone: 2.81 Ac/Residential
Total Concept Area: 1 Ac.
Lots/Block: N/A
Parcel(s): A-1
Watershed: Great Seneca Creek

Dear Mr. Thomas:

Based on a review by the Department of Permitting Services (DPS) Review Staff, the stormwater management concept for the above mentioned site is **acceptable**. The stormwater management concept consists of providing a stormwater management structure to achieve what the Montgomery County Department of Environmental Protection (MCDEP) believes will be an additional environmental benefit. This project is not associated with new development; therefore it is not subject to DPS stormwater management design or treatment criteria. DPS will not review it for conformance with any such standards. Safe conveyance through the facility must be demonstrated.

The following **items** will need to be addressed **during** the detailed sediment control/stormwater management plan stage:

1. A detailed review of the conveyance computations will occur at the time of detailed plan review.
2. An engineered sediment control plan must be submitted for this project.
3. A permit for the proposed modifications to the existing public storm drain system will need to be obtained from the DPS Right-of-Way Plan Review section.

This list may not be all-inclusive and may change based on available information at the time.

Payment of a stormwater management contribution in accordance with Section 2 of the Stormwater Management Regulation 4-90 **is not required**.

This letter must appear on the sediment control/stormwater management plan at its initial submittal. The concept approval is based on all stormwater management structures being located outside of the Public Utility Easement, the Public Improvement Easement, and the Public Right of Way unless specifically approved on the concept plan. Any divergence from the information provided to this office, or additional information received during the development process; or a change in an applicable

255 Rockville Pike, 2nd Floor • Rockville, Maryland 20850 • 240-777-6300 • 240-777-6256 TTY
www.montgomerycountymd.gov

montgomerycountymd.gov/311 — 311 — 240-773-3556 TTY

Mr. Ryan Thomas
February 5, 2015
Page 2 of 2

Executive Regulation may constitute grounds to rescind or amend any approval actions taken, and to reevaluate the site for additional or amended stormwater management requirements. If there are subsequent additions or modifications to the development, a separate concept request shall be required.

If you have any questions regarding these actions, please feel free to contact Mike Geier at 240-777-6342.

Sincerely,

Mark C. Etheridge, Manager
Water Resources Section
Division of Land Development Services

MCE: mg CN271015 Strawberry Knoll Rd.mg.doc

cc: SM File # 271015

ESD Acres: N/A
STRUCTURAL Acres: N/A
WAIVED Acres: N/A

RELATED REQUIRED PERMITS

TO BE COMPLETED BY THE CONSULTATN AND PLACED ON THE FIRST SHEET OF THE SEDIMENT CONTROL/STORMWATER MANAGEMENT PLAN SET FOR ALL PROJECTS

IT IS THE RESPONSIBILITY OF PERMITTEE/OWNER OF THIS SITE TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ISSUANCE OF THE APPROVED SEDIMENT CONTROL PERMIT:

TYPE OF PERMIT	REQ'D	NOT REQ'D	PERMIT NO.	EXPIRATION DATE	WORK RESTRICTION DATES
M.C.D.P.S. FLOODPLAIN DISTRICT		X			
WATERWAYS/WETLAND(S)					
a. CORPS OF ENGINEERS		X			
b. M.D.E.		X			
c. M.D.E. WATER QUALITY CERTIFICATION		X			
M.D.E. DAM SAFETY		X			
DNR ROADSIDE TREE CARE PERMIT		X		APPROVAL DATE	
DPS ROADSIDE TREE PROTECTION PLAN		X		APPROVAL DATE	
N.P.D.E.S. NOTICE OF INTENT	X				DATE FILED
OTHERS (PLEASE LIST):					
MNCPPC		X			
WSSC		X			
MCDPS ROW PERMIT	X				

SEDIMENT CONTROL/STORMWATER MANAGEMENT CERTIFICATIONS

CERTIFICATIONS ON THIS SHEET MUST BE ON EVERY SEDIMENT CONTROL/STORMWATER MANAGEMENT PLAN.

OWNER'S/DEVELOPER'S CERTIFICATION

I/We hereby certify that all clearing, grading, construction, and or development will be done pursuant to this plan and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.

Signature — Date

Printed Name and Title

DESIGN CERTIFICATION

I hereby certify that this plan has been prepared in accordance with the "2011 Maryland Standards and Specification for Soil Erosion and Sediment Control," Montgomery County Department of Permitting Services Executive Regulations 5-90, 7-02AM and 36-90, and Montgomery County Department of Public Works and Transportation "Storm Drain Design Criteria" dated August 1988.

Design Engineer Signature — Date

Printed Name — Registration Number

CERTIFICATION OF THE QUANTITIES

I hereby certify that the estimated total amount of excavation and fill as shown on these plans has been computed to 2,400 cubic yards of excavation, 0 cubic yards of fill and the total area to be disturbed as shown on these plans has been determined to be 43,200 square feet.

Signature — Date

Printed Name and Title — Registration Number

SHEET INDEX

SHEET NO	DESCRIPTION
1	COVER SHEET
2	SWM PLAN
3 – 5	SWM DETAILS
6	SWM NOTES
7	HORIZONTAL LAYOUT
8	E&S PLAN
9 – 12	E&S NOTES AND DETAILS
13	LANDSCAPE PLAN

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT — REVIEWED DATE — APPROVED DATE — S.M.FILE NO.

SEDIMENT CONTROL TECHNICAL REQUIREMENTS: — REVIEWED DATE — APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS: — REVIEWED DATE

SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL, IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
(240) 777-7713

CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIRMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

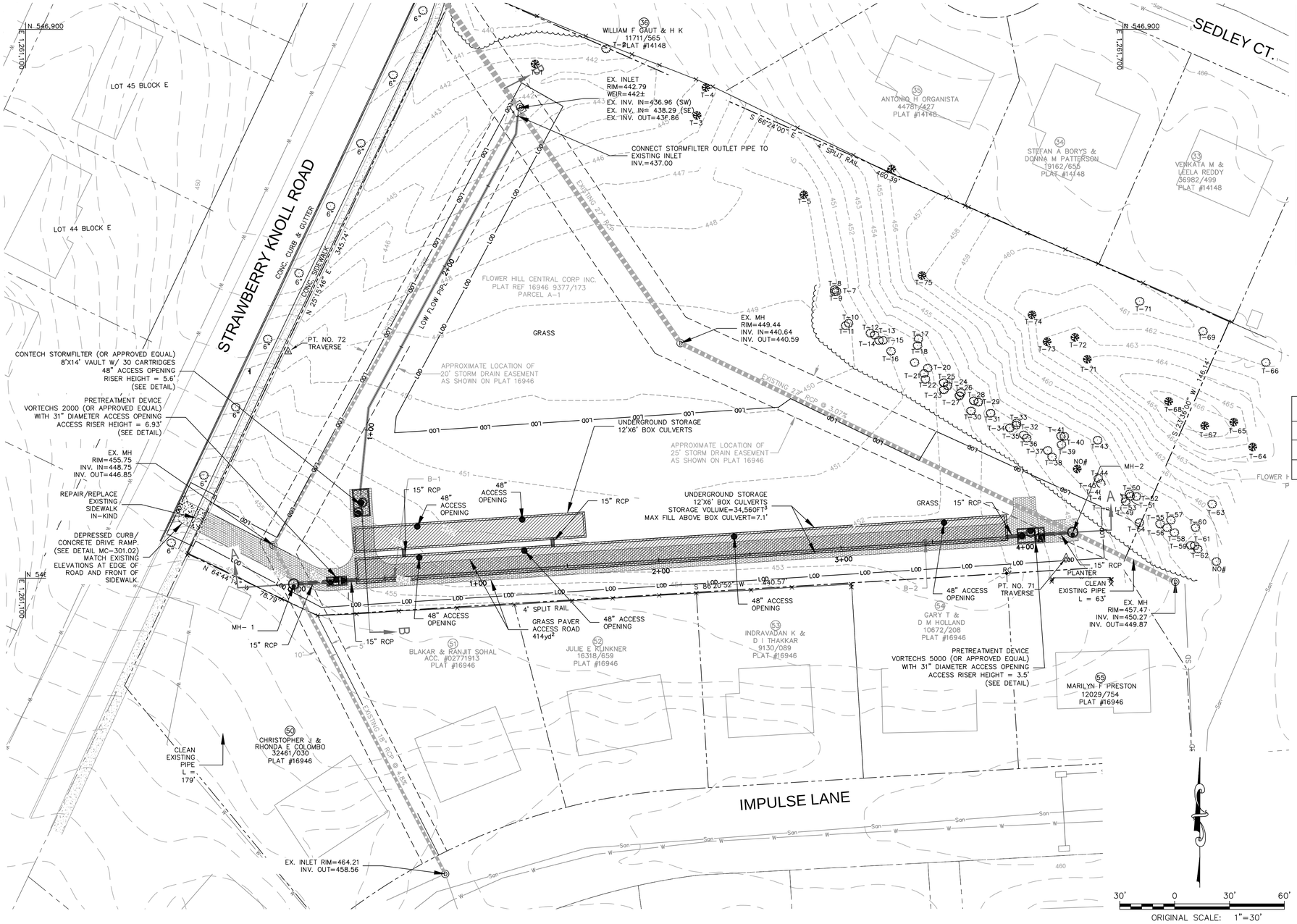
TASK ORDER 16

60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERY KNOLL RD
COVER SHEET

PROJECT NO. : 28270.20	SCALE: SEE PLAN
DATE: 09/01/2015	BY: JG / CHECK: TT
SEAL:	DWG. NO. :



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (GIS)
- CONTOUR (FIELD RUN)
- EXISTING STORMDRAIN (GIS)
- EXISTING STORMDRAIN (SURVEY)
- PROPOSED STORMDRAIN
- LIMITS OF DISTURBANCE
- PROPOSED MH
- EXISTING MH
- PROPOSED CONCRETE
- PROPOSED GRASS PAVERS
- UNDERGROUND STORAGE

SURVEY CONTROL

COORDINATES & ELEVATIONS ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD 83/2011 & NAVD88) VIA GPS AND TIED TO THE FOLLOWING C.O.R.S. STATIONS:

DJ5210 ANP5 ANNAPLOIS 5 CORS ARP
DO2484 HAG5 HAGERSTOWN 5 CORS ARP
DH8807 LOYC LOYOLA C COOP CORS ARP
DE8103 YORK YORK CORS ARP

TRAVERSE POINTS

POINT NO.	NORTHING	EASTING	ELEV.	DESC.
71	546611.1738	1261668.9399	454.802	TRAV.
72	546723.8586	1261243.5661	449.193	TRAV.

FACILITY SUMMARY

WQV REQUIRED	28,548FT³
WQV PROVIDED	28,548FT³
CPV REQUIRED	33,843FT³
CPV PROVIDED	34,423FT³

NOTE: ALL TREATMENT PROVIDED BY FILTRATION. INFILTRATION IS NOT PROPOSED.

OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
(240) 777-7713

CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

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DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16

60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD SWM PLAN

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT
REVIEWED DATE
APPROVED DATE
S.M.FILE NO.

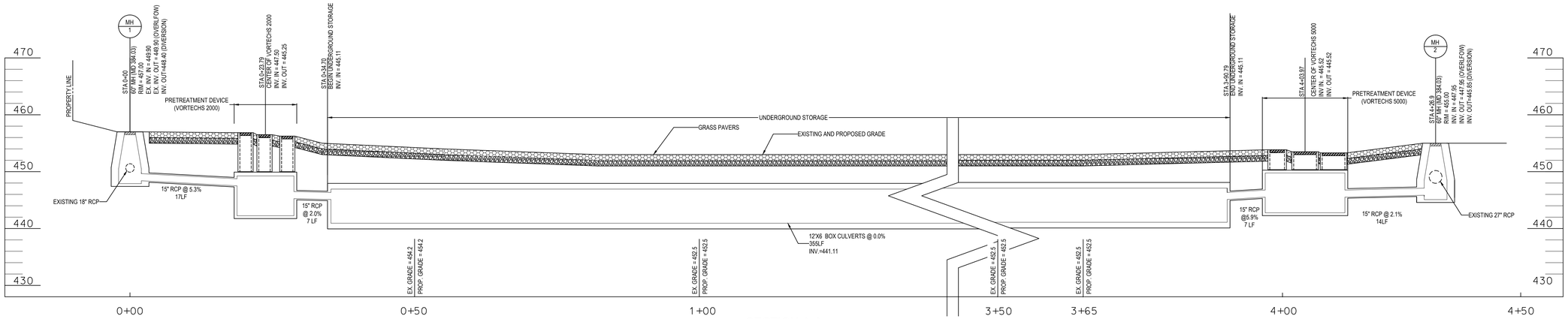
SEDIMENT CONTROL TECHNICAL REQUIREMENTS:
REVIEWED DATE
APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS:
REVIEWED DATE
SEDIMENT CONTROL PERMIT NO.

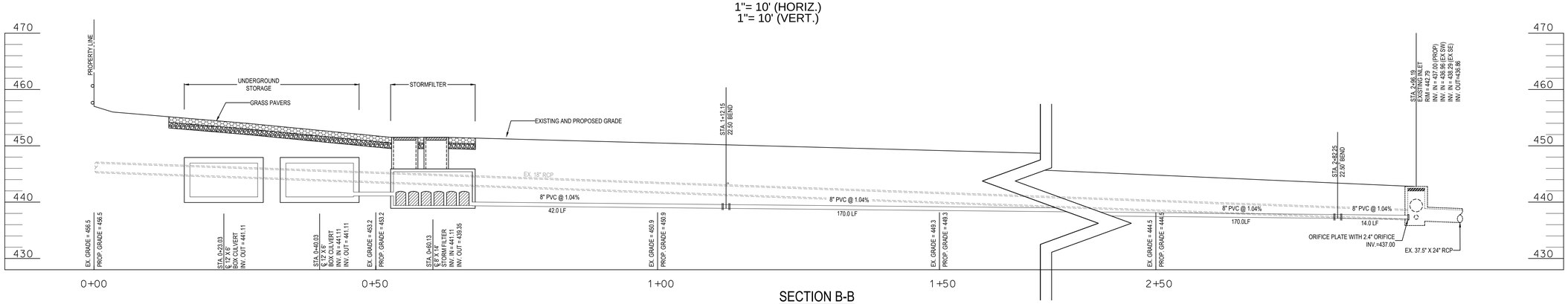
MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL, IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

PROJECT NO.: 28270.16	SCALE: 1" = 30'
DATE: 09/01/2015	BY: RT / CHECK: TT
SEAL:	DWG. NO.:



SECTION A-A

1"= 10' (HORIZ.)
1"= 10' (VERT.)



SECTION B-B

1"= 10' (HORIZ.)
1"= 10' (VERT.)

OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
(240) 777-7713

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DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16

60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
SWM PROFILES

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT

REVIEWED DATE

APPROVED DATE

S.M.FILE NO.

SEDIMENT CONTROL TECHNICAL REQUIREMENTS:

REVIEWED DATE

APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

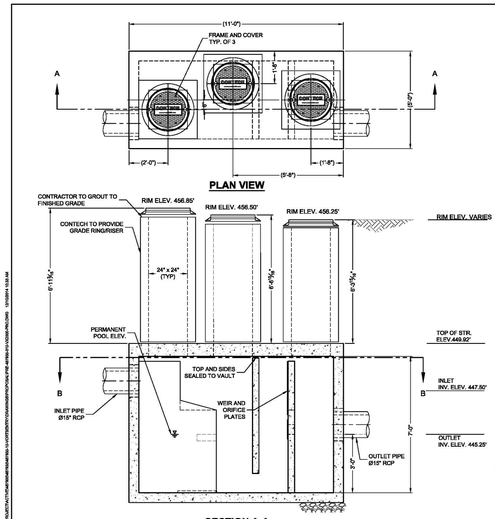
ADMINISTRATIVE REQUIREMENTS:

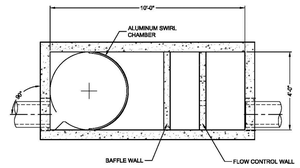
REVIEWED DATE

SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL. IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

PROJECT NO. : 28270.16		SCALE: N.T.S.	
DATE: 09/01/2015		BY: JG	CHECK: TT
SEAL:		DWG. NO. :	





MATERIALS LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	ALUMINUM SWIRL CHAMBER	CONTECH
1	ALUMINUM WEIR PLATE	CONTECH
1	ALUMINUM ORIFICE PLATE	CONTECH
1	SWIRL CHAMBER SEALANT	CONTECH
3	24" x 24" RISER	CONTRACTOR
1	SEALANT FOR JOINTS	CONTRACTOR
3	Ø24" x 4" FRAME AND COVER	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	2 cfs
PEAK FLOW RATE	2 cfs
RETURN PERIOD OF PEAK FLOW	10 yrs

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.contechES.com
4. VORTECHS WATER QUALITY VAULT SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING EARTH COVER OF 0' - 8', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM
6. ACTUAL GROUNDWATER ELEVATION.
7. WATER SURFACE ELEVATION IN THE VORTECHS SYSTEM IS EXPECTED TO BE AT OR BELOW TOP OF FLOW CONTROL WALL DURING THE DESIGN STORM.
8. GROUND WATER ELEVATION ASSUMED AT INLET PIPE INVERT.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS VAULT (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT JOINTS AND ASSEMBLE VAULT.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO PROVIDE ANY EXTERNAL BYPASS VAULTS REQUIRED FOR OFFLINE LAYOUT (UNLESS OTHERWISE SPECIFIED.
6. CONTRACTOR TO PROVIDE AND INSTALL MANHOLE RISERS, GRADE RINGS OR BLOCK REQUIRED BETWEEN THE TOP OF THE VORTECHS SYSTEM AND THE BASE OF THE MANHOLE FRAMES. TOP SLAB OPENING DIAMETER MAY BE DIFFERENT FROM THOSE SHOWN.

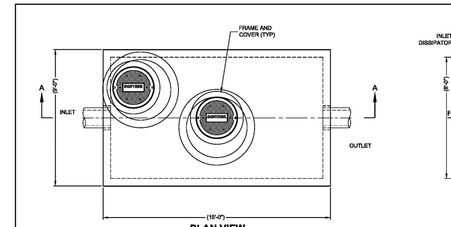
STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = TBD LBS.

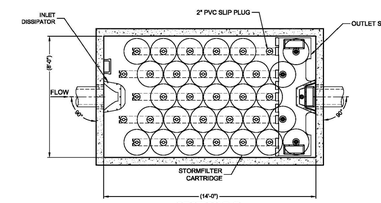
CONTECH PROPOSAL DRAWING

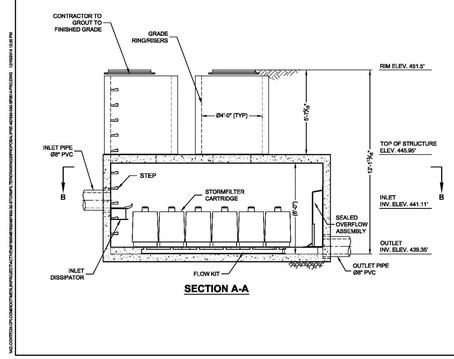
VORTECHS 2000 - 487935-010
STRAWBERRY KNOLL
GAITHERSBURG, MD
SITE DESIGNATION: PT

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
800 Global Way, Suite 113, Linthicum, MD 21090
410-795-9500 410-795-9501 FAX

DATE 12/31/14 | DESIGNED BCL | DRAWN N/A | CHECKED | APPROVED | PROJECT NUMBER 487935 | SHEET 1 OF 1







MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
30	27", 7.5 G/PM, XF-CSF CARTRIDGE (PRP)	CONTECH
5	2" PVC SLIP PLUG	CONTECH
1	FLOW KIT	CONTECH
1	INLET DISSIPATOR	CONTECH
1	SEALED OVERFLOW ASSEMBLY	CONTECH
1	JOINT SEALANT (BY PRECASTER)	CONTRACTOR
2 PLCS	GRADE RINGS/RISERS	CONTRACTOR
2	Ø30" x 4" FRAME AND COVER	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY VOLUME	33,850 CF
PEAK FLOW RATE	OFFLINE
RETURN PERIOD OF PEAK FLOW	N/A
FILTER MEDIA TYPE	XF-CSF

PERFORMANCE SPECIFICATION
FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7-INCHES**. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM)**.

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.contechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 8' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

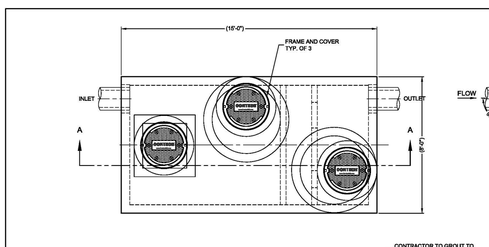
STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = T.B.D. LBS.

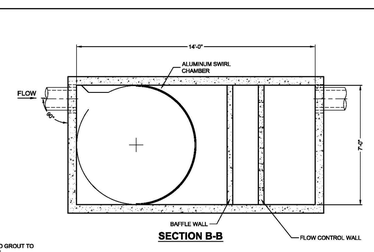
CONTECH PROPOSAL DRAWING

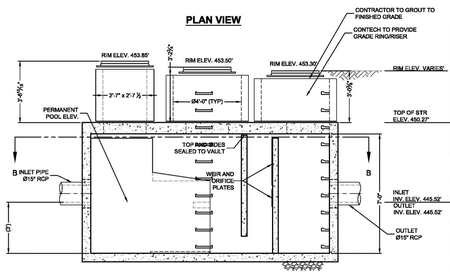
8' x 14' STORMFILTER - 487935-030
STRAWBERRY KNOLL
GAITHERSBURG, MD
SITE DESIGNATION: SF

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
800 Global Way, Suite 113, Linthicum, MD 21090
410-795-9500 410-795-9501 FAX

DATE 12/31/14 | DESIGNED BCL | DRAWN N/A | CHECKED | APPROVED | PROJECT NUMBER 487935 | SHEET 1 OF 1







MATERIALS LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	ALUMINUM SWIRL CHAMBER	CONTECH
1	ALUMINUM WEIR PLATE	CONTECH
1	ALUMINUM ORIFICE PLATE	CONTECH
1	SWIRL CHAMBER SEALANT	CONTECH
3	RISER	CONTRACTOR
1	SEALANT FOR JOINTS	CONTRACTOR
3	Ø30" x 4" FRAME AND COVER	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	7 cfs
PEAK FLOW RATE	7 cfs
RETURN PERIOD OF PEAK FLOW	10 yrs

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. VORTECHS WATER QUALITY VAULT SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING EARTH COVER OF 0' - 8', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM
6. ACTUAL GROUNDWATER ELEVATION.
7. WATER SURFACE ELEVATION IN THE VORTECHS SYSTEM IS EXPECTED TO BE AT OR BELOW TOP OF FLOW CONTROL WALL DURING THE DESIGN STORM.
8. GROUND WATER ELEVATION ASSUMED AT INLET PIPE INVERT.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS VAULT (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT JOINTS AND ASSEMBLE VAULT.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO PROVIDE ANY EXTERNAL BYPASS VAULTS REQUIRED FOR OFFLINE LAYOUT (UNLESS OTHERWISE SPECIFIED.
6. CONTRACTOR TO PROVIDE AND INSTALL MANHOLE RISERS, GRADE RINGS OR BLOCK REQUIRED BETWEEN THE TOP OF THE VORTECHS SYSTEM AND THE BASE OF THE MANHOLE FRAMES. TOP SLAB OPENING DIAMETER MAY BE DIFFERENT FROM THOSE SHOWN.

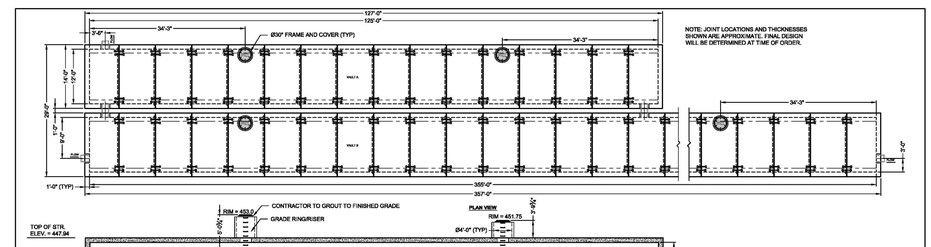
STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = TBD LBS.

CONTECH PROPOSAL DRAWING

VORTECHS 5000 - 487935-020
STRAWBERRY KNOLL
GAITHERSBURG, MD
SITE DESIGNATION: PT

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
800 Global Way, Suite 113, Linthicum, MD 21090
410-795-9500 410-795-9501 FAX

DATE 12/31/14 | DESIGNED BBB | DRAWN N/A | CHECKED | APPROVED | PROJECT NUMBER 487935 | SHEET 1 OF #



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2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.contech-cpi.com
4. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
6. BOX CULVERTS TO BE PULLED TOGETHER AND PERMANENTLY CONNECTED USING 1" DIAMETER BOLTS IN RECESSED POCKETS. JOINTS BETWEEN PRECAST SECTIONS: CONSEAL C-102 SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST JOINTS IN ORDER TO MAKE THE JOINTS WATERTIGHT. ALL JOINTS BETWEEN PRECAST BOX SECTIONS SHALL BE TONGUE AND GROOVE.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = TBD LBS.

MATERIAL LIST- PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	JOINT SEALANT (BY PRECASTER)	CONTRACTOR
5	Ø30" x 4" FRAME & COVER (LL/W 004-049)	CONTRACTOR
5 PLCS	GRADE RINGS/RISERS	CONTRACTOR

REV	DATE	REVISION DESCRIPTION	BY

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
800 Global Way, Suite 113, Linthicum, MD 21090
800-340-2018 410-795-9500 800-370-6011 FAX

CONTECH PROPOSAL DRAWING

STRAWBERRY KNOLL
12' x 6' x 480' URBAN GREEN CONCRETE DETENTION
GAITHERSBURG, MD
SITE DESIGNATION: UNDERGROUND STORAGE

PROJECT NO. 487935 | REV. NO. 042 | DATE 1/23/14 | DESIGNED BCL | DRAWN | CHECKED | APPROVED | SHEET NO. 1 OF 1

OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT
OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
(240) 777-7713

CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIRMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16
60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
SWM DETAILS

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT
REVIEWED DATE
APPROVED DATE
S.M.FILE NO.

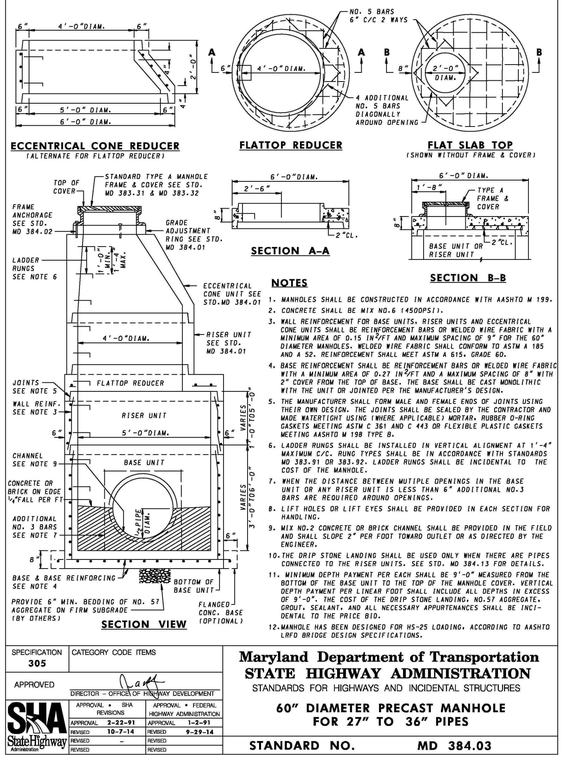
SEDIMENT CONTROL TECHNICAL REQUIREMENTS:
REVIEWED DATE
APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS:
REVIEWED DATE
SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL. IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

PROJECT NO.: 28270.16 | SCALE: N.T.S.
DATE: 09/01/2015 | BY: JG | CHECK: TT
SEAL:
DWG. NO.:



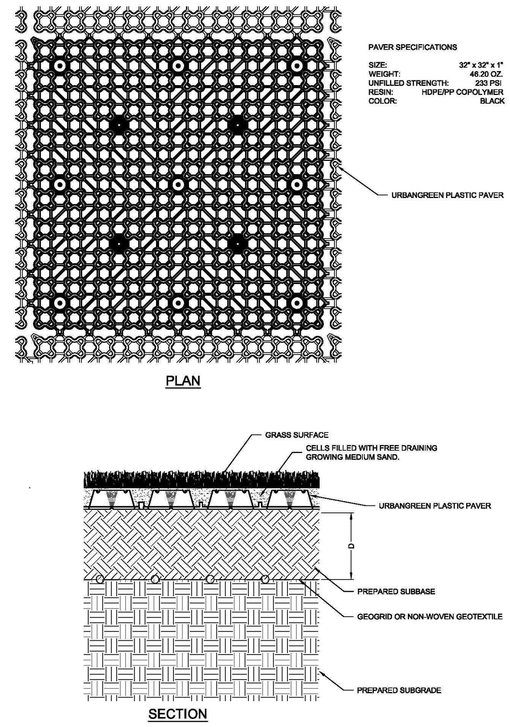


TABLE 1: TYPICAL SUB-BASE (D) THICKNESS REQUIREMENTS W/ GEOGRID

APPLICATION/LOAD	* CBR STRENGTH OF SUBGRADE SOIL	(D) SUB-BASE THICKNESS (IN.) (SEE NOTE 3)	GEOGRID (SEE NOTE 1)
FIRE TRUCK AND OCCASIONAL HEAVY VEHICLE ACCESS	>6	5	TX5
	4-6	7	TX5
	2-4	11/12	TX7
	1-2	19/21	TX7

* CBR = CALIFORNIA BEARING RATIO

GENERAL NOTES
1. IF CONTECH GEOGRID IS OMITTED, THEN THE TOTAL SUB-BASE LAYER THICKNESS MUST BE INCREASED BY 50% . IF SUBGRADE SOILS ARE IMPERMEABLE AND NO GEOGRID IS USED, A NON-WOVEN GEOTEXTILE W/ RECYCLED CONTENT IS RECOMMENDED AND SHOULD HAVE GOOD PERMEABILITY AND POROSITY (50-70 PORES PER SQUARE INCH).
2. IF AN UNDERDRAIN IS REQUIRED USE 4-INCH DIAMETER PERFORATED PIPE LAID AT MINIMUM GRAD/ENT 1:100, BEDDED ON GRAVEL IN TRENCH BACKFILLED WITH 'DOT TYPE A' DRAINAGE STONE, COVERED WITH A WOVEN GEOTEXTILE FABRIC AND LEADING TO A SUITABLE OUTFALL OR BIORETENTION AREA. DRAINS PLACED DOWN CENTER OR ONE EDGE OF ACCESS ROUTES UP TO 16.5 FT. WIDE . WIDER AREAS MAY REQUIRE ADDITIONAL DRAINS AT 16.5 FT. - 33 FT. CENTERS. DRAINAGE DESIGN BY SPECIFIER BASED ON SPECIFIC GROUND CONDITIONS ON SITE.
3. SUBBASE SHOULD BE A SANDY GRAVEL MATERIAL FROM LOCAL SOURCES COMMONLY USED IN THE PREPARATION OF A ROAD BASE AND WALKWAYS. SUBBASE GRAVEL AGGREGATE TO BE ¾ INCH MINUS CRUSHED ROCK WITH NO MORE THAN 3% PASSING THE #200 SIEVE. MATERIAL SHOULD BE NEARLY NEUTRAL IN PH.
4. URBANGREEN PAVER, GEOGRID AND GEOTEXTILES BY CONTECH ENGINEERED SOLUTIONS: 800-925-5240

INSTALLATION NOTES
A. THE CONTRACTOR SHALL COMMENCE THE WORK AFTER ENTIRE SUBGRADE HAS BEEN FINE GRADED AND COMPACTED TO SPECIFIED TOLERANCE.
B. INSTALL SUBBASE COURSE MATERIAL OVER PREPARED SUBGRADE TO ELEVATIONS AND DEPTHS SHOWN ON PLAN. INSTALL MATERIAL IN LIFTS THAT DO NOT EXCEED 4 INCHES, COMPACTING EACH LIFT TO 95% MODIFIED PROCTOR DENSITY.
C. USE CONNECTORS PROVIDED TO MAINTAIN PROPER SPACING AND TO INTERLOCK THE PAVERS
D. PAVER PANELS TO BE INSTALLED WITH THE LARGER CLOVER OPENING FACING DOWN. PAVER MATERIAL SHOULD BE COVERED IF EXPOSED TO SUN AND OUTSIDE ELEMENTS FOR MORE THAN 30 DAYS.
E. PAVERS CAN BE CUT USING A HAND OR POWER SAW TO FIT AROUND OBSTRUCTIONS AND CONTOURS. PIECES WHICH ARE LESS THAN HALF THE ORIGINAL SIZE SHOULD NOT BE USED.
F. FILL PAVERS WITH THE SPECIFIED SAND. FILL MATERIAL SHALL BE INSTALLED TO THE TOP OF THE PAVER AND NO HIGHER THAN 1/4-INCH ABOVE THE TOP OF THE PAVER. ONCE THE FILL MATERIAL IS INSTALLED USE A LIGHT VIBRATING PLATE TO CONSOLIDATE THE PAVERS AND TO SETTLE THE ROOTZONE INFILL.
G. CARRY OUT SOD PLACEMENT OR SEEDING, FERTILIZING AND WATERING PROGRAM. A VERY LIGHT TOP DRESSING MAY BE APPLIED TO JUST COVER THE SEED AND TO PROVIDE ADEQUATE GERMINATION CONDITIONS.
H. IT IS PREFERABLE TO ALLOW THE GRASS TO FULLY ESTABLISH PRIOR TO VEHICLE TRAFFIC.

* THIS DETAIL IS INTENDED FOR GENERAL USE AND REFERENCE ONLY, AND IS NOT SITE SPECIFIC.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
5570 Greenwood Plaza Blvd., Suite 530, Greenwood Village, CO 80111
800-526-3999 303-796-2233 303-796-2239 FAX

URBANGREEN PLASTIC PAVERS
GRASS INSTALLATION
STANDARD DETAIL

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OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
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DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16
60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
SWM DETAILS

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT
REVIEWED DATE
APPROVED DATE
S.M.FILE NO.

SEDIMENT CONTROL TECHNICAL REQUIREMENTS:
REVIEWED DATE
APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT
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PROJECT NO.: 28270.16	SCALE: N.T.S.
DATE: 09/01/2015	BY: JG / CHECK: TT
SEAL:	DWG. NO.:

DPS POND SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD–378. All references to ASTM, MSHA, and AASHTO specifications apply to the most recent version.

A. Construction Inspection by Designated Engineer

The construction of the pond and embankment shall be under the supervision of a Registered Professional Engineer. The engineer must submit written certification that the pond and embankment have been built in accordance with the approved plans to the Department of Permitting Services (DPS) along with a record drawing, soil compaction tests, concrete tests, and other required construction documentation. This should be done immediately following the completion of the project, unless otherwise designated on the plans. The engineer shall have the responsibility and authority to make minor changes in the plans in order to compensate for unusual soil conditions encountered during construction as long as changes do not adversely affect the integrity of the dam. Major changes to the design, which may result from site conditions encountered during construction, must be reviewed and approved by the Design Engineer, DPS, and the Montgomery Soil Conservation District prior to initiation of construction.

B. Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed, and stripped of topsoil. All trees, vegetation, roots, and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish, and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25–foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. A sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

C. Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 4 inches, frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have theability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portion of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball, it will not crumble; yet, not be so wet that water can be squeezed out.

The density of each lift shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T–99 (Standard Proctor).

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be one to one or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core

The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be minimum of four feet. The height shall extend up to at least the 10–year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shall of the embankment.

D. Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material must fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24 inches or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100–200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm–cm. Material shall be placed such that a minimum of six inches (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7 inches to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the back filling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24 inches or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

E. Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated Steel Pipe) – Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M–245 & M–246 with watertight coupling bands or flanges.

   Materials – (aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO specification M–274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M–190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

   Materials – (aluminum Pipe) – This pipe and its appurtenances shall confirm to the requirements of AASHTO Specification M–196 or M–211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M–190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti–seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

   Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connections to the riser shall be welded all around when the pipe and riser are metal. Anti–seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

   All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re–rolled an adequate number of corrugations to accommodate the band width. Pipe ends must be matched and numbered by the manufacturer. The following type connections are acceptable for pipes less than 24 inches in diameter; flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, pre– punched to the flange bolt circle, sandwiched between adjacent flanges; a 12–inch wide standard lap type band with 12–inch wide by 3/8 inch thick, closed cell circular neoprene gasket; and a 12–inch wide hugger type band with o–ring gaskets having a minimum diameter of ½–inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24–inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end, per current DPS band detail. A 24–inch wide by 3/8–inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8–inch closed cell gaskets the full width of the flange is also acceptable.

   Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill."

5. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – RCP shall have bell and spigot joints with rubber gaskets and shall meet ASTM Designation C–361. Pipes must be labeled in full accordance with ASTM C–361, including the ASTM C–361 designation on the inside of each section of pipe, and all pipes must be clearly marked by the manufacturer prior to delivery to the job site. Pipes with multiple designations will be rejected.
2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6–inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within four feet from the riser.
4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe – The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC–1120 or PVC–1220 conforming to ASTM D–1785 or ASTM D–2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4 – 10 inch pipe shall meet the requirement of AASHTO M252 Type S, and 12 through 24 inch shall meet the requirements of AASHTO M294 Type S.
2. Joints and connections to anti–seep collars shall be completely watertight.
3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length.
4. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
5. Backfilling shall conform to "Structure Backfill."
6. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

F. Drainage Diaphragms

When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

G. Concrete

Concrete design shall meet the requirements of ACI 350, Environmental Engineering Concrete Structures, with freezing and thawing exposures. Concrete shall be a type II or IIA cement, with a 28 day compressive strength of 4500 psi for cast in place and 5000 psi for pre–cast structures. Concrete shall also meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 420, Mix No. 6.

H. Rock Rip–rap

Rock rip–rap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specification for Construction and Materials, Section 311. Geotextile shall be placed under all rip–rap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

I. Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled, and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works, and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

J. Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD–342) or as shown on the accompanying drawings.

K. Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

CONSTRUCTION INSPECTION
CHECK-OFF LIST FOR STORMWATER MANAGEMENT PONDS

	STAGE	DESIGN ENGINEER (DE)	GEOTECHNICAL ENGINEER (GEO)	COUNTY INSPECTOR	MNCPPC & OTHER
	* **MANDATORY NOTIFICATION**: Inspection and approval by the parties indicated is required at these points prior to proceeding with construction. The permittee is required to give the required inspection parties twenty-four (24) hours notice (DPS telephone 240/777-6210). The DPS inspector may waive an inspection, provided the design engineer and/or geotechnical engineer makes the required inspection per a prior scheduled arrangement which has been confirmed with the DPS inspector. Work completed without the necessary party's approval may result in the permittee having to remove and reconstruct the unapproved work. The permittee must maintain a "record set" of approved SC/SM plans on-site.	INITIALS/DATE	INITIALS/DATE	INITIALS/DATE	INITIALS/DATE
1.	Pre-construction meeting & field review of tree save flagging/tree protection	*	*	*	*
2.	Sediment control installation		*	*	
3.	Dewatering (GEO) and stream diversion (DE)	*	*	*	
4.	Clearing, grubbing, subgrade preparation		*	*	
5.	Core trench excavation and dewatering, if required (GEO)		*	*	
6.	Core trench dimensions, location (DE) or (GEO), backfill and compaction tests (GEO)	*	*	*	
7.	Construction of principal spillway and riser	*	*	*	
7a.	- Barrel class. (ASTM C361) (DE) - Pipe certification from supplier (DE) - Pipe assembled in place on acceptable subgrade (GEO) - Watertight joints (DE) - Articulated joint 4 feet from riser (DE) - Lifts, compaction, soil material (GEO) - Location, dimensions (DE)				
7b.	- Concrete cradle dimensions (DE) - Concrete strength tests (GEO)	*	*	*	
7c.	- Anti-seep collars (location, collar dimensions and re-bar size) (DE) - Concrete strength tests (GEO)	*	*	*	
7d.	- Filter diaphragm gradation and dimensions (if applicable) (GEO)		*	*	
7e.	- Riser footing subgrade (GEO), dimensions, re-bar (DE) - Concrete strength tests (GEO)	*	*	*	
7f.	Precast Riser: - Shop drawings approved by DE, accepted by County - Visual inspection of riser (no cracks, spaulding, exposed steel, incorrect dimensions, honeycombing) (DE) - Certification from supplier (DE) - Watertight joints (DE) - Wall and opening dimensions per plan (DE)	*		*	
7g.	Cast-In-Place Riser: - Wall and opening dimensions per plan (DE) - Re-bar size, number, spacing acceptable (DE) - Concrete testing and certification (GEO) - Watertight joints (DE) - Extreme weather provisions (DE)	*	*	*	
7h.	Valve/orifice plate installation (DE). Note: may be delayed for SC purposes.	*		*	
8.	Backfilling of principal spillway (GEO)		*	*	
9.	Underdrain (if applicable) location (DE), pipe size (DE), filter cloth (DE), gravel (DE), field adjustments (GEO)	*	*	*	
10.	Channelization work and pond outfall protection (DE) or (GEO)	*		*	
11.	Diversion of stream through principal spillway (DE)	*	*	*	
12.	Construction of embankment: - Lifts, compaction, soil material (GEO) - Location, dimension (DE)	*		*	
13.	Construction of emergency spillway in cut (DE)	*		*	
14.	Field verification of constructed contours (DE)	*		*	
15.	Permanent vegetative stabilization, delivery tickets from supplier	*		*	
16.	Submit record drawing and documentation (DE) and (GEO)	*			
17.	Other items. (Set valve(s) to design opening values, if required) (DE)	*		*	
18.	Final inspection (DE) and (GEO)	*	*	*	

NOTES:
1. Permittee to supply Design Engineer with delivery tickets for all materials used in Pond construction, for submission with the as-built package. DPS Inspection Telephone: (240) 777-6210
2. See construction specifications this plan for detailed requirements.
3. A copy of this completed checklist must be submitted as part of the stormwater management as-built package. MNCP&PC Inspection Telephone: (301) 495-4571

SWMPOND.table.01/03 - Page 2 of 2

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT

REVIEWED DATE

APPROVED DATE

S.M.FILE NO.

SEDIMENT CONTROL TECHNICAL REQUIREMENTS:

REVIEWED DATE

APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS:

REVIEWED DATE

SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL, IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
(240) 777-7713

CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIRMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

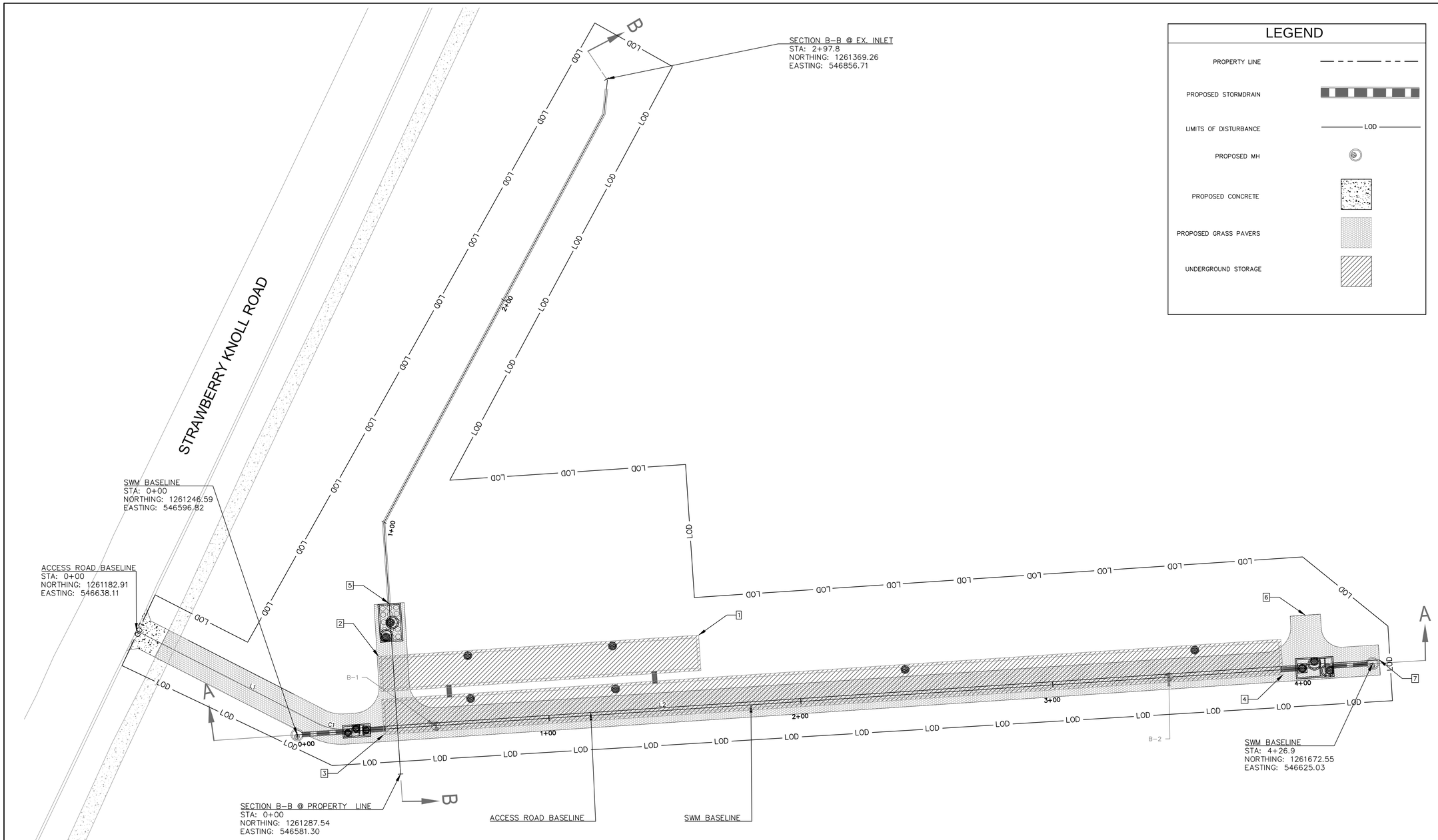
DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT
TASK ORDER 16
60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
POND NOTES

PROJECT NO.: 28270.16
SCALE: N.T.S.
DATE: 05/20/2015
BY: JG
CHECK: TT
SEAL:
DWG. NO.:



LEGEND

PROPERTY LINE	
PROPOSED STORMDRAIN	
LIMITS OF DISTURBANCE	LOD
PROPOSED MH	
PROPOSED CONCRETE	
PROPOSED GRASS PAVERS	
UNDERGROUND STORAGE	

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DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16
60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
HORIZONTAL LAYOUT

HORIZONTAL CONTROL

POINT	NORTHING	EASTING	DESCRIPTION
1	1261405.60	546636.32	NE OUTSIDE CORNER OF 12' X 6' BOX CULVERT
2	1261278.88	546627.85	NW CORNER OF 12' X 6' BOX CULVERT
3	1261280.95	546596.92	SW CORNER OF 12' X 6' BOX CULVERT
4	1261637.16	546620.71	SE CORNER OF 12' X 6' BOX CULVERT
5	1261282.94	546648.94	CENTER OF ACCESS ROAD AT END OF STORM FILTER
6	1261645.92	546644.22	CENTER OF ACCESS ROAD NEAR THE END
7	1261675.27	546626.52	CENTER OF ACCESS ROAD AT THE END

BASELINE DATA

LINE	DISTANCE	BEARING
L1	80.55	S62°53'55"E
L2	410.59	N86°10'42"E

BASELINE CURVE DATA

CURVE	ARC LENGTH	RADIUS	TANGENT	CHORD	CHORD DIST.
C1	11.33	21.00	5.81	S78°21'37"E	11.20

20' 0 20' 40'
ORIGINAL SCALE: 1"=20'

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT
REVIEWED DATE
APPROVED DATE
S.M.FILE NO.

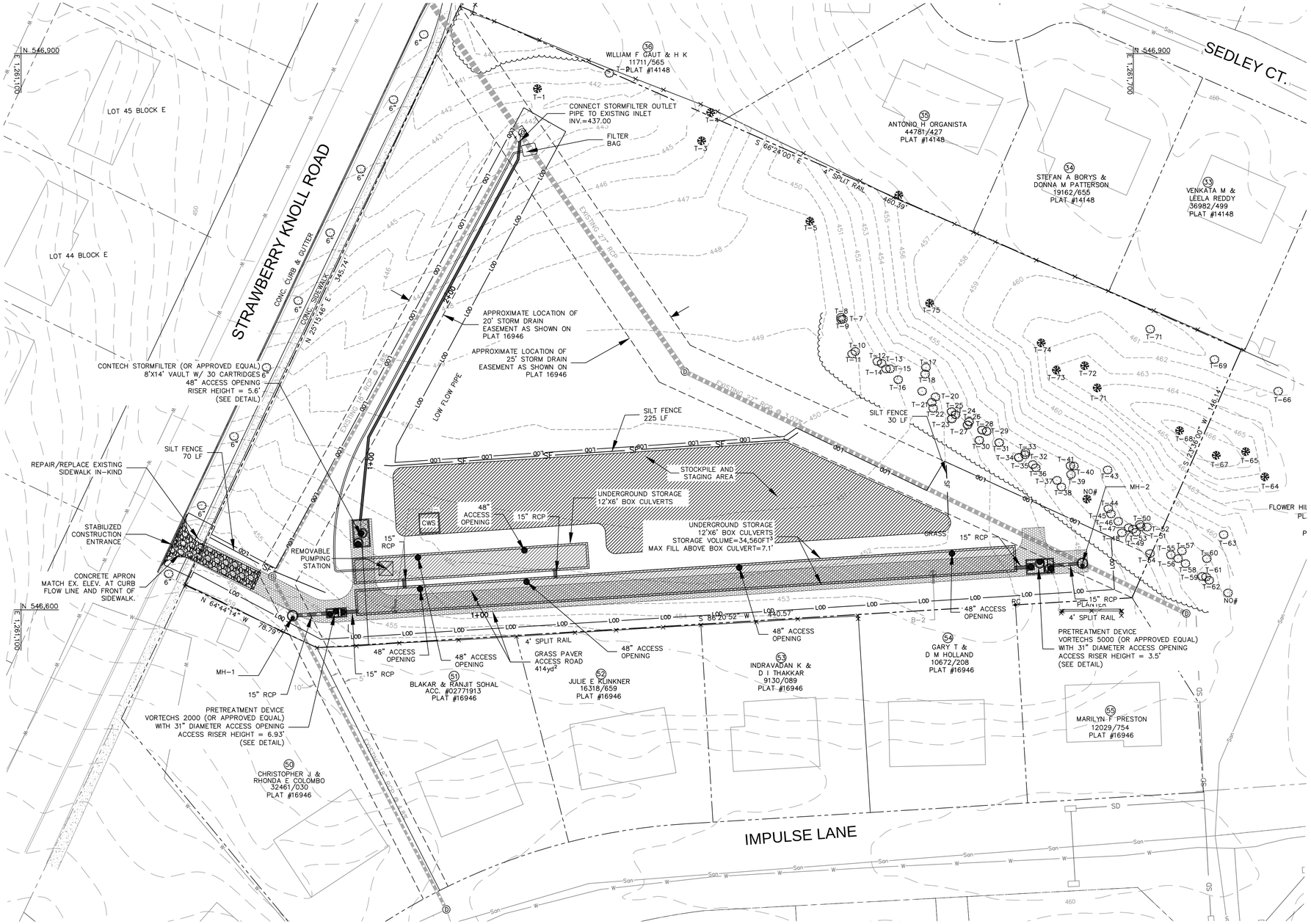
SEDIMENT CONTROL TECHNICAL REQUIREMENTS:
REVIEWED DATE
APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS:
REVIEWED DATE
SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL. IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

PROJECT NO. 28270.16
SCALE: 1" = 20'
DATE: 09/01/2015
BY: JG
CHECK: TT
SEAL:
DWG. NO. :



LEGEND

- PROPERTY LINE
- PROPOSED CONTOUR (286)
- EXISTING CONTOUR
- EXISTING STORMDRAIN
- PROPOSED STORMDRAIN
- PROPOSED MH
- EXISTING MH
- LIMITS OF DISTURBANCE
- SILT FENCE
- DEWATERING PUMP W/ DISCHARGE HOSE
- EXISTING TREE (<24")
- PROPOSED CONCRETE
- PROPOSED GRASS PAVERS
- UNDERGROUND STORAGE
- STOCKPILE LOCATION

SURVEY CONTROL

COORDINATES & ELEVATIONS ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD 83/2011 & NAVD88) VIA GPS AND TIED TO THE FOLLOWING C.O.R.S. STATIONS:

DJ5210 ANP5 ANNAPLOIS 5 CORS ARP
DO2484 HAG5 HAGERSTOWN 5 CORS ARP
DH8807 LOYC LOYOLA C COOP CORS ARP
DE8103 YORK YORK CORS ARP

OWNER CONTACT

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DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16

60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
E&S PLAN

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT	SEDIMENT CONTROL TECHNICAL REQUIREMENTS:
REVIEWED DATE	REVIEWED DATE
APPROVED DATE	APPROVED DATE
S.M.FILE NO.	

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS:

REVIEWED DATE

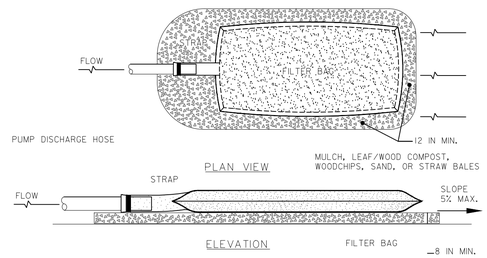
SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL. IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

PROJECT NO.: 28270.16	SCALE: 1" = 30'
DATE: 09/01/2015	BY: RT / CHECK: TT
SEAL:	DWG. NO.:

DETAIL F-4 FILTER BAG

STANDARD SYMBOL ⊠FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

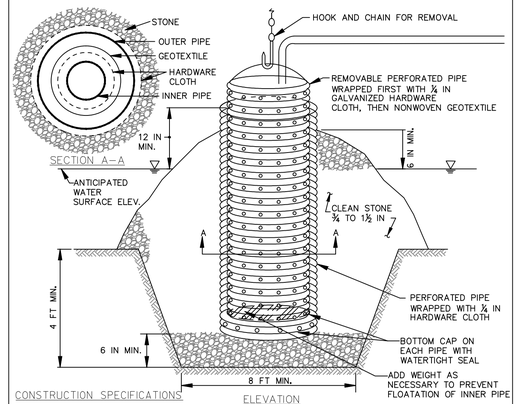
GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT^2	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES 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

DETAIL F-1 REMOVABLE PUMPING STATION



CONSTRUCTION SPECIFICATIONS

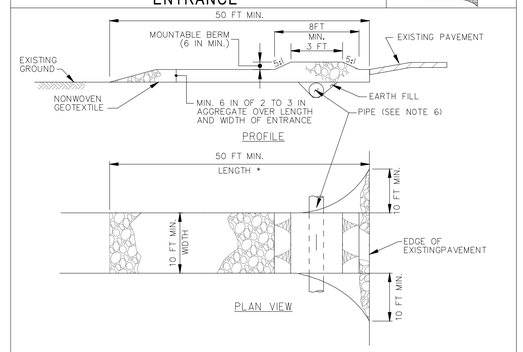
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE. AS SPECIFIED IN SECTION H-1 MATERIALS. OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

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

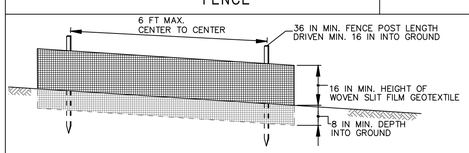
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING 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

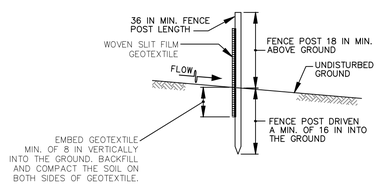
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

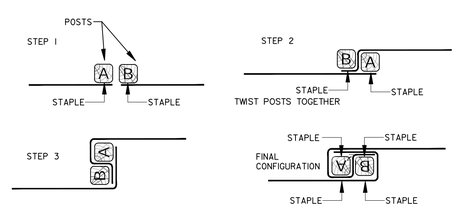
STANDARD SYMBOL —SF—



ELEVATION



CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

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 E-1 SILT FENCE

STANDARD SYMBOL —SF—

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. 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.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE 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 SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

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

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT	SEDIMENT CONTROL TECHNICAL REQUIREMENTS:	NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT
REVIEWED DATE	REVIEWED DATE	ADMINISTRATIVE REQUIREMENTS: REVIEWED DATE
APPROVED DATE	APPROVED DATE	SEDIMENT CONTROL PERMIT NO.
S.M.FILE NO.		MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL, IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
(240) 777-7713

CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

MISS UTILITY

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DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16

60% SEMI-FINAL DESIGN

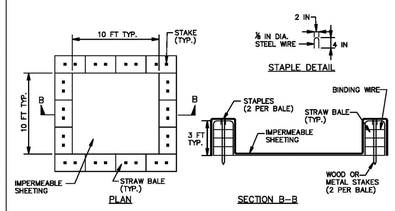
POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
E&S DETAILS

PROJECT NO.: 28270.16	SCALE: 1" = 30'
DATE: 09/01/2015	BY: JG / CHECK: TT
SEAL:	DWG. NO.:

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL
CWS



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

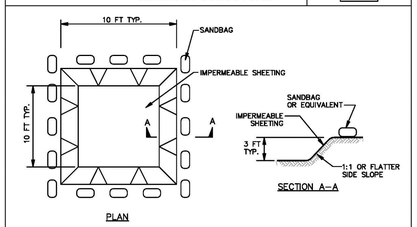
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

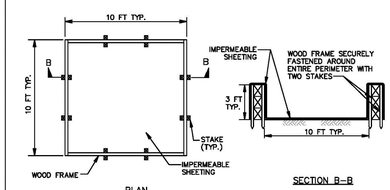
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL
CWS



EXCAVATED WASHOUT STRUCTURE



WASHOUT STRUCTURE WITH WOOD PLANKS

1 OF 2

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

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT

REVIEWED DATE

APPROVED DATE

S.M.FILE NO.

SEDIMENT CONTROL TECHNICAL REQUIREMENTS:

REVIEWED DATE

APPROVED DATE

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS:

REVIEWED DATE

SEDIMENT CONTROL PERMIT NO.

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MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES STANDARD EROSION AND SEDIMENT CONTROL NOTES

1. THE PERMITTEE SHALL NOTIFY THE DEPARTMENT OF PERMITTING SERVICES (DPS) FORTY–EIGHT (48) HOURS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE DEPARTMENT, SHALL BE REQUIRED TO HOLD A PRE–CONSTRUCTION MEETING BETWEEN THEM OR THEIR REPRESENTATIVE, THEIR ENGINEER AND AN AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT.
2. THE PERMITTEE MUST OBTAIN INSPECTION AND APPROVAL BY DPS AT THE FOLLOWING POINTS:
   A. AT THE REQUIRED PRE–CONSTRUCTION MEETING.
   B. FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES AND PRIOR TO ANY OTHER LAND DISTURBING ACTIVITY.
   C. DURING THE INSTALLATION OF A SEDIMENT BASIN OR STORMWATER MANAGEMENT STRUCTURE AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN). NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION IS MANDATORY.
   D. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).
   E. PRIOR TO FINAL ACCEPTANCE.
3. THE PERMITTEE SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE, SHALL HAVE THEM INSPECTED AND APPROVED BY THE DEPARTMENT PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES, SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES, AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE. WITHOUT PRIOR PERMISSION FROM THE DEPARTMENT.
4. THE PERMITTEE SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED PUBLIC THOROUGHFARE(S). ALL MATERIALS DEPOSITED ONTO PUBLIC THOROUGHFARE(S) SHALL BE REMOVED IMMEDIATELY.
5. THE PERMITTEE SHALL INSPECT PERIODICALLY AND MAINTAIN CONTINUOUSLY IN EFFECTIVE OPERATING CONDITION, ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM THE DEPARTMENT. <u>THE PERMITTEE IS RESPONSIBLE FOR IMMEDIATELY REPAIRING OR REPLACING ANY SEDIMENT CONTROL MEASURES WHICH HAVE BEEN DAMAGED OR REMOVED BY THE PERMITTEE OR ANY OTHER PERSON.</u>
6. 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, PERMIMETER 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.

   ALL AREAS DISTURBED OUTSIDE THE PERIMETER SEDIMENT CONTROL SYSTEM MUST BE MINIMIZED AND STABILIZED IMMEDIATELY. MAINTENANCE MUST BE PERFORMED AS NECESARY TO ENSURE CONTINUED STABILIZATION.
7. THE PERMITTEE SHALL APPLY SOD, SEED, AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS WITHIN SEVEN (7) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED ON THAT AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. ACTIVE CONSTRUCTION AREAS, SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS, AND AREAS WITHIN FIFTY (50) FEET OF A BUILDING UNDER CONSTRUCTION MAY BE EXEMPT FROM THIS REQUIREMENT, PROVIDED THAT EROSION AND SEDIMENT CONTROL MEASURES ARE INSTALLED AND MAINTAINED TO PROTECT THOSE AREAS.
8. PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE PERMITTEE SHALL STABILIZE ALL CONTRIBUTORY DISTURBED AREAS WITH REQUIRED SOIL AMENDMENTS AND TOPSOIL, USING SOD OR AN APPROVED PERMANENT SEED MIXTURE AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHEN THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED WITHIN SEVEN (7) CALENDAR DAYS OF ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, AN APPROVED TEMPORARY SEED AND STRAW ANCHORED MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE COMPLETED PRIOR TO THE FOLLOWING APRIL 15.
9. THE SITE PERMIT, WORK, MATERIALS, APPROVED SC/SM PLANS, AND TEST REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF MONTGOMERY COUNTY.
10. SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO LOWER THE WATER DOWN SLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF CUT OR FILL SLOPES UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED, AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. MECHANICAL DEVICES MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.
11. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITHIN 7 CALENDAR DAYS OF ESTABLISHMENT WITH SOD OR SEED WITH AN APPROVED EROSION CONTROL MATTING OR BY OTHER APPROVED STABILIZATION MEASURES.
12. SEDIMENT CONTROL DEVICES SHALL BE REMOVED, WITH PERMISSION OF THE DEPARTMENT, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.
13. NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS OR ON RESIDENTIAL LOTS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON–MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW–MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.
14. THE PERMITTEE SHALL INSTALL A SPLASH BLOCK AT THE BOTTOM OF EACH DOWNSPOUT UNLESS THE DOWNSPOUT IS CONNECTED BY A DRAIN LINE TO AN ACCEPTABLE OUTLET.
15. FOR FINISHED GRADING, THE PERMITTEE SHALL PROVIDE ADEQUATE GRADIENTS SO AS TO PREVENT WATER FROM STANDING ON THE SURFACE OF LAWNS MORE THAN TWENTY–FOUR (24) HOURS AFTER THE END OF A RAINFALL, EXCEPT IN DESIGNATED DRAINAGE COURSES AND SWALE FLOW AREAS, WHICH MAY DRAIN AS LONG AS FORTY–EIGHT (48) HOURS AFTER THE END OF A RAINFALL.
16. SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A BUILDING WHICH IS EXISTING OR UNDER CONSTRUCTION. NO BUILDING MAY BE CONSTRUCTED WITHIN 20 FEET OF A SEDIMENT TRAP OR BASIN.
17. ALL INLETS IN NON–SUMP AREAS SHALL HAVE ASPHALT BERMS INSTALLED AT THE TIME OF BASE PAVING ESTABLISHMENT.
18. THE SEDIMENT CONTROL INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SEDIMENT CONTROL MEASURES, AS DEEMED NECESSARY.
19. ALL TRAP ELEVATIONS ARE RELATIVE TO THE OUTLET ELEVATION, WHICH MUST BE ON EXISTING UNDISTURBED GROUND.
20. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
21. SEDIMENT TRAP(S)/ BASIN(S) SHALL BE CLEANED OUT AND RESTORED TO THE ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO THE POINT OF ONE–HALF (1/2) THE WET STORAGE DEPT OF TH ETRAP/BASIN (1/4 THE WET STORAGE DEPTH FOR ST–III) OR WHEN REQUIRED BY THE SEDIMENT CONTROL INSPECTOR.
22. SEDIMENT REMOVED FROM TRAPS SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN.
23. ALL SEDIMENT BASINS AND TRAPS MUST BE SURROUNDED WITH A WELDED WIRE SAFETY FENCE. THE FENCE MUST BE AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THE TWO INCHES IN WIDTH AND FOUR INCHES IN HEIGHT, WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED IN GOOD CONDITION AT ALL TIMES.
24. NO EXCAVATION IN THE AREAS OF EXISTING UTILITIES IS PERMITTED UNLESS THEIR LOCATION HAS BEEN DETERMINED. CALL "MISS UTILITY" AT 1–800–257–7777, 48 HOURS PRIOR TO THE START OF WORK.
25. OFF–SITE SPOIL OR BORROW AREAS MUST HAVE PRIOR APPROVAL BY DPS.
26. SEDIMENT TRAP/BASIN DEWATERING FOR CLEANOUT OR REPAIR MAY ONLY BE DONE WITH THE DPS INSPECTOR'S PERMISSION. THE INSPECTOR MUST APPROVE THE DEWATERING METHOD FOR<u>EACH</u> APPLICATION. THE FOLLOWING METHODS MAY BE CONSIDERED:
   A. PUMP DISCHARGE MAY BE DIRECTED TO ANOTHER ON–SITE SEDIMENT TRAP OR BASIN, PROVIDED IT IS OF SUFFICIENT VOLUME AND THE PUMP INTAKE IS FLOATED TO PREVENT AGITATION OR SUCTION OF DEPOSITED SEDIMENTS; OR
   B. THE PUMP INTAKE MAY UTILIZE A REMOVABLE PUMPING STATION AND MUST DISCHARGE INTO AN UNDISTURBED AREA THROUGH A NON–EROSIVE OUTLET; OR
   C. THE PUMP INTAKE MAY BE FLOATED AND DISCHARGE INTO A DIRT BAG (12 OZ. NON–WOVEN FABRIC), OR APPROVED EQUIVALENT, LOCATED IN AN UNDISTURBED BUFFER AREA.
   REMEMBER: DEWATERING OPERATION AND METHOD <u>MUST</u> HAVE PRIOR APPROVAL BY THE DPS INSPECTOR.
27. THE PERMITTEE MUST NOTIFY THE DEPARTMENT OF ALL UTILITY CONSTRUCTION ACTIVITIES WITHIN THE PERMITTED LIMITS OF DISTURBANCE PRIOR TO THE COMMENCEMENT OF THOSE ACTIVITIES.
28. TOPSOIL MUST BE APPLIED TO ALL PERVIOUS AREAS WITHIN THE LIMITS OF DISTURBANCE PRIOR TO PERMANENT STABILIZATION IN ACCORDANCE WITH MDE "STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS".

SEQUENCE OF CONSTRUCTION

1. PRIOR TO CLEARING TREES, INSTALLING SEDIMENT CONTROL MEASURES, OR GRADING, A PRE–CONSTRUCTION MEETING MUST BE CONDUCTED ON–SITE WITH MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES (MCDPS) SEDIMENT CONTROL INSPECTOR (240)777–6210 (48 HOURS NOTICE), PLANNING DEPARTMENT, PLANS ENFORCEMENT INSPECTOR (301) 495–4521, AND THE OWNERS REPRESENTATIVE, AND THE SITE ENGINEER.
2. THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO CLEARING OF TREES, INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES.
3. INSTALL TEMPORARY CONSTRUCTION ENTRANCE, CONCRETE WASHOUT STRUCTURE, AND SILT FENCE DOWNSTREAM OF TEMPORARY STOCKPILE LOCATION.
4. INSTALL REMOVABLE PUMPING STATION WITH FILTERBAG AND PROVIDE DEWATERING AS NECESSARY THROUGHOUT CONSTRUCTION. MODIFY LOCATION OF DEWATERING DEVICE, HOSE, FILTER BAG, AND OTHER COMPONENTS AS NECESSARY TO COMPLETE CONSTRUCTION.
5. EXCAVATE AND INSTALL UNDERGROUND STORAGE, PRETREATMENT DEVICES (VORTECHS 2000 AND VORTECHS 5000), AND CONTECH STORMFILTER SYSTEM. COMPLETE ALL NECESSARY CONNECTIONS BETWEEN THE PRETREATMENT DEVICE, BOX CULVERTS AND STORMFILTER PER THE PLAN AND DETAILS.
6. CONNECT STORMFILTER OUTFALL PIPE TO EXISTING INLET PROVIDE SAME DAY STABILIZATION.
7. WITH THREE DAY DRY WEATHER FORECAST, CONSTRUCT STORMDRAIN CONNECTION BETWEEN PRETREATMENT DEVICE AND MH–1 AND MH–2. COMPLETE CONSTRUCTION STARTING AT THE DOWNSTREAM END AND WORKING UPSTREAM.
8. INSTALL GRASS PAVERS ALONG ACCESS ROUTE AS SHOWN ON THE PLAN.
9. REMOVE ANY ACCUMULATED SEDIMENT ON SITE AND DEWATERING PUMP STATION.
10. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE SILT FENCE, CONCRETE WASHOUT AREA, ANY MATERIAL REMAINING IN STOCKPILE AREA, AND STABILIZED CONSTRUCTION ENTRANCE. PROVIDE SAME DAY STABILIZATION FOR ANY REMAINING DISTURBED AREAS.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT	SEDIMENT CONTROL TECHNICAL REQUIREMENTS:	ADMINISTRATIVE REQUIREMENTS:
REVIEWED DATE	REVIEWED DATE	REVIEWED DATE
APPROVED DATE	APPROVED DATE	SEDIMENT CONTROL PERMIT NO.
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STRAWBERRY KNOLL RD
E&S NOTES

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B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

A. Soil Preparation
1. Temporary Stabilization
   1.a. Seed 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 soil is loosened, it must not be rolled or dragged smooth but left in roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
   1.b. Apply fertilizer and lime as prescribed on the plans.
   1.c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means

2. Permanent Stabilization
   2.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:
      a. Soil pH between 6.0 to 7.0.
      b. Soluble salts less than 500 parts per million (ppm).
      c. 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
      d. Soil contains 1.5 percent minimum organic matter by weight.
      e. Soil contains sufficient pore space to permit adequate root penetration.
   2.a. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
   2.b. 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.
   2.c. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
   2.d. 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 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:
   3.a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   3.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 material.
   3.c. The original soil to be vegetated contains material toxic to plant growth.
   3.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:
   5.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 1 ½ inches in diameter.
   5.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.
   5.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
   6.a. Erosion and sediment control practices must be maintained when applying topsoil.
   6.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.
   6.c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)
1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh seive and 98 to 100 percent will pass through a #20 mesh seive.
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

A. Seeding
1. Specifications
   1.a. All seed must meet the requirement of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
   1.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.
   1.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.
   1.d. Sod and 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
   2.a. Dry seeding: This includes use of conventional drop or broadcast spreaders.
      a. 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.
      b. 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.
   2.b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least ¼ inch of soil covering. Seedbed must be firm after planting.
      b. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   2.c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      a. If fertilizer is being applied at the time of seeding, teh application rates should be exceed the following: nitrogen, 100 pounds per acre total soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
      b. 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.
      c. Mix seed and fertilizer on site and seed immediately and without interruption.
      d. When hydroseeding, do not incorporate into the soil.

B. Mulching
1. Mulch Materials (in order of preference)
   1.a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonable bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland See 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.
   1.b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      a. 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.
      b. WCFM, including dye, must contain no germination or growth inhibiting factors.
      c. 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 homogenous 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.
      d. WCFM material must not contain elements or compounds at concentration levels that will by phyto-toxic.
      e. 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
   2.a. Apply mulch to all seeded areas immediately after seeding.
   2.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.
   2.c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 100 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
   3.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:
      a. 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.
      b. 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.
      c. 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.
      d. 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-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

CRITERIA

A. 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). For sites having soil tests performed, use and show the recommended rates by the testing agency. Soils tests are not required for Temporary Seeding.
B. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch along as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

A. Seed Mixtures
1. General Use
   1.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.
   1.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.
   1.c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   1.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
   2.a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   2.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:
      a. 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 total mixture by weight.
      b. 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.
      c. 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.
      d. 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 60 to 70 percent. Seeding Rate: 1 ½ to 3 pounds per 1000 square feet.

      NOTES:
      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.

3. Ideal Times of Seeding for Turf Grass Mixtures
   Western Maryland: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

   Central Maryland: 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 (Hardness Zones: 7a, 7b)

4. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

5. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch ever 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.

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
1. General Specifications
   1.a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   1.b. Sod must be machine cut at a uniform soil thickness of ¾ inches, 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.
   1.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.
   1.d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   1.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
   2.a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   2.b. Lay the first row of sod in a straight line with subsequent rows place 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.
   2.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.
   2.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 operation of laying, tamping and irrigating for any piece of sod within eight hours.
3. Sod Maintenance
   3.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.
   3.b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   3.c. Do not mow until the sod is firmly rooted. No more than ⅓ 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.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREAS

The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
C. 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.
D. Runoff from the stockpile area must drain to a suitable sediment control practice.
E. Access the stockpile area from the upgrade side.
F. Clear water runoff into the stockpile area must be minimized by use of a diversion fence such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
G. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
H. 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.
I. 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.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT	SEDIMENT CONTROL TECHNICAL REQUIREMENTS:	ADMINISTRATIVE REQUIREMENTS:
REVIEWED DATE	REVIEWED DATE	REVIEWED DATE
APPROVED DATE	APPROVED DATE	SEDIMENT CONTROL PERMIT NO.
S.M.FILE NO.		MCDPS APPROVAL OF THIS PLAN WIL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL, IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

OWNER CONTACT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
ROCKVILLE, MD 20850
(240) 777-7713

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIRMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

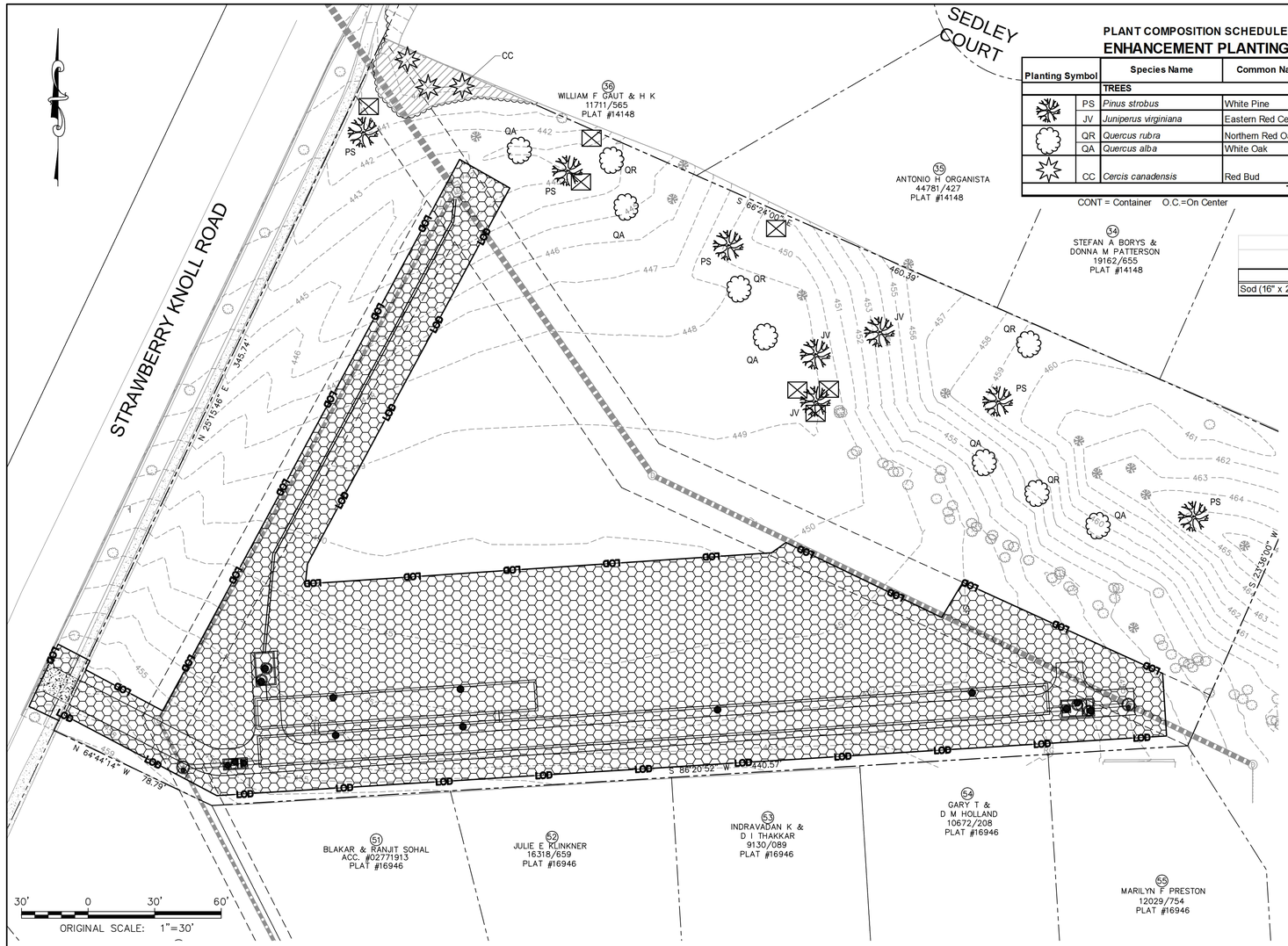
DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT
TASK ORDER 16
60% SEMI-FINAL DESIGN

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

STRAWBERRY KNOLL RD
E&S NOTES

PROJECT NO. : 28270.16		SCALE: 1" = 30'	
DATE: 05/20/2015		BY: JG	CHECK: TT
SEAL:		DWG. NO. :	



PLANT COMPOSITION SCHEDULE
ENHANCEMENT PLANTINGS

Planting Symbol		Species Name	Common Name	Species Quantity	Form	Spacing Type	Size
		TREES					
	PS	*Pinus strobus*	White Pine	5	CONT	As Shown	1"-1.5" Cal./10'-12' Height
	JV	*Juniperus virginiana*	Eastern Red Cedar	3			
	QR	*Quercus rubra*	Northern Red Oak	4			
	QA	*Quercus alba*	White Oak	5			
	CC	*Cercis canadensis*	Red Bud	3			1" Cal./ 8'-10' Height
			TOTAL	20			

CONT = Container O.C.=On Center

PLANT COMPOSITION	
Sod Planting Zone (0.99 AC)	
	Quantity (Square Yards)
Sod (16" x 24")	4,756

LANDSCAPING NOTES:

1. EXISTING STUMPS AND STANDING DEAD TREES ON-SITE SHALL BE REMOVED AND GRINDED.
2. RESULTING MUCH SHALL BE REMOVED AND THE AREA SHALL BE RESTORED TO GRADE WITH TOPSOIL AND SEEDED.

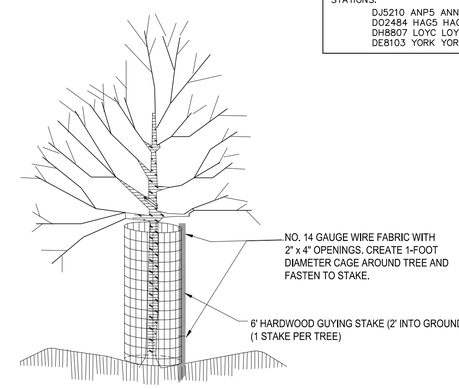
LEGEND

- PROPERTY LINE
- PROPOSED CONTOUR — 286
- EXISTING CONTOUR
- EXISTING STORMDRAIN
- PROPOSED STORMDRAIN
- PROPOSED MH
- EXISTING MH
- LIMITS OF DISTURBANCE — LOD
- EXISTING TREE (<24")
- PROPOSED CONCRETE
- SOD PLANTING ZONE (4,756 SQUARE YARDS)
- PROPOSED INDIVIDUAL EVERGREEN TREE (WITH SCIENTIFIC NAME DESIGNATION) — JV PS
- PROPOSED INDIVIDUAL DECIDUOUS TREE (WITH SCIENTIFIC NAME DESIGNATION) — QR QA
- PROPOSED INDIVIDUAL EASTERN RED BUD — CC
- APPROXIMATE LOCATION OF EXISTING STUMP/DEAD TREE PROPOSED FOR REMOVAL
- PROPOSED UNDERBRUSH AND TRASH CLEAN UP

SURVEY CONTROL

COORDINATES & ELEVATIONS ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD 83/2011 & NAVD88) VIA GPS AND TIED TO THE FOLLOWING C.O.R.S. STATIONS:

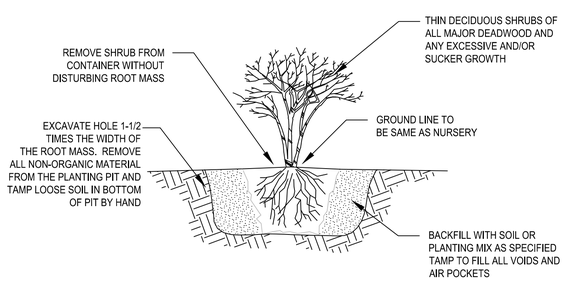
DJ5210 ANP5 ANNAPLOIS 5 CORS ARP
DO2484 HAG5 HAGERSTOWN 5 CORS ARP
DH8807 LOYC LOYOLA C COOP CORS ARP
DE8103 YORK YORK CORS ARP



NOTES:
1. DEER PROTECTION CAGES TO BE INSTALLED AROUND ALL PLANTED TREES AND SHRUBS.
2. HEIGHT OF CAGE SHALL BE 4-FEET (MIN.)
3. CAGE SHALL BE FASTENED TO STAKE WITH TWO (MIN.) 11-INCH RELEASABLE CABLE TIES (ONE AT TOP AND ONE 6" (MIN.) ABOVE THE GROUND.
4. DO NOT DAMAGE TREE DURING INSTALLATION.
5. DEER BARK PROTECTORS (ITEM #bg48, BY A.M. LEONARD, OR EQUAL) MAY BE SUBSTITUTED FOR TREES GREATER THAN 3/4" CALIPER. ALL OTHER SUBSTITUTIONS MUST BE APPROVED BY FOREST ECOLOGIST.
6. CAGES TO BE REMOVED AT DIRECTION OF FOREST ECOLOGIST.
7. ENSURE CAGE IS SECURE TO GROUND TO PREVENT UPLIFT BY DEER.

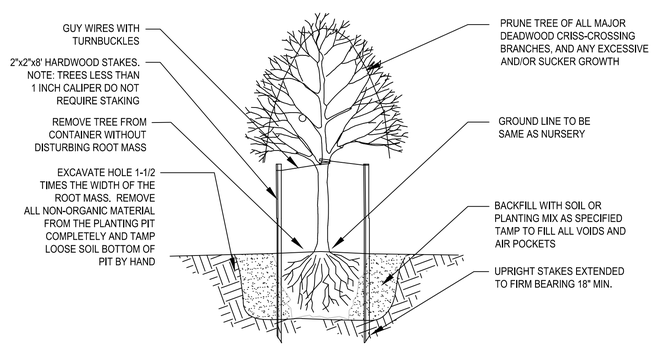
DEER PROTECTION CAGE

NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE



TREE PLANTING - CONTAINER GROWN

NOT TO SCALE

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT
STORMWATER MANAGEMENT: SWM RETROFIT	SEDIMENT CONTROL TECHNICAL REQUIREMENTS:	ADMINISTRATIVE REQUIREMENTS:
REVIEWED DATE	REVIEWED DATE	REVIEWED DATE
APPROVED DATE	APPROVED DATE	SEDIMENT CONTROL PERMIT NO.
262515 S.M.FILE NO.		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

DPS APPROVAL OF A SEDIMENT CONTROL OR STORMWATER MANAGEMENT PLAN IS FOR DEMONSTRATED COMPLIANCE WITH MINIMUM ENVIRONMENTAL RUNOFF TREATMENT STANDARDS AND DOES NOT CREATE OR IMPLY ANY RIGHT TO DIVERT OR CONCENTRATE RUNOFF ONTO ANY ADJACENT PROPERTY WITHOUT THAT PROPERTY WITHOUT THAT PROPERTY OWNER'S PERMISSION. IT DOES NOT RELIEVE THE DESIGN ENGINEER OR OTHER RESPONSIBLE PERSON OF PROFESSIONAL LIABILITY OR ETHICAL RESPONSIBILITY FOR THE ADEQUACY OF THE DRAINAGE DESIGN AS IT AFFECTS UPHILL OR DOWNHILL PROPERTIES.

OWNER CONTACT:

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
SUITE 120
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DATE	ISSUES/REVISIONS

CABIN BRANCH SWM RETROFIT

TASK ORDER 16

60% (SEMI-FINAL) DESIGN

STRAWBERRY KNOLL RD

POTOMAC (10TH) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

LANDSCAPE PLAN

PROJECT NO.: 28270.16	SCALE: 1" = 30'
DATE: 8/21/2015	BY: DY / CHECK: EW
SEAL:	DWG. NO.: