

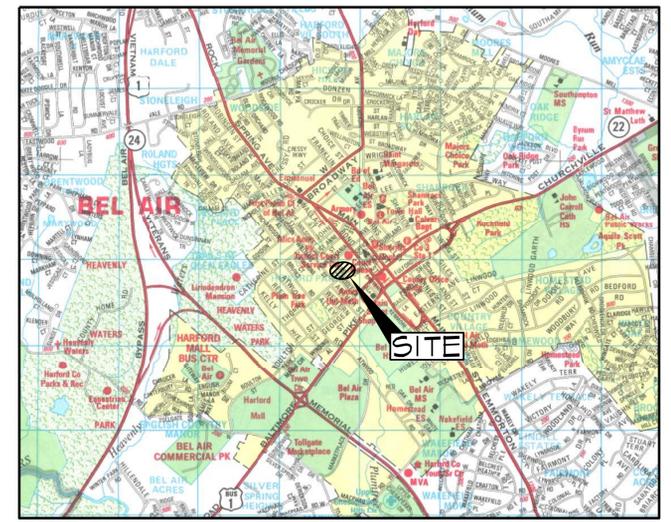
# HARFORD COUNTY, MARYLAND

## DEPARTMENT OF PUBLIC WORKS

### MARY E. W. RISTEAU DISTRICT COURTS & MULTI-SERVICE CENTER PARKING LOT MICRO-BIORETENTION FACILITY

**GENERAL NOTES**

1. SPECIFICATIONS: ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH MARYLAND STATE HIGHWAY ADMINISTRATIONS "SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" DATED JANUARY 2009, AND THE MOST RECENT REVISIONS THEREOF AND ADDITIONS THERETO.  
  
THE GENERAL PROVISIONS FOR THIS PROJECT ARE THOSE INCLUDED IN THE "HARFORD COUNTY ROAD CODE" GENERAL PROVISIONS COUNTY FUNDED PROJECTS, SECTIONS 100-110.
2. UTILITIES: UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON LIMITED INFORMATION AVAILABLE. HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF THIS INFORMATION.
3. UTILITY RELOCATIONS: UTILITY RELOCATIONS MADE NECESSARY BY THE HIGHWAY WORK WILL BE ACCOMPLISHED BY THE UTILITY OWNERS AT NO COST TO THE CONTRACTOR. WHEN SUCH WORK IS NECESSARY, THE CONTRACTOR SHALL NOTIFY APPROPRIATE PERSONNEL AS FOLLOWS:  
  
CONTACT "MISS UTILITY" PHONE 1-800-251-7777, 48 HOURS IN ADVANCE FOR LOCATION OF ANY UTILITIES.  
  
CONTACT BALTIMORE GAS & ELECTRIC CO. - PHONE NO. 1-410-291-5119, 48 HOURS IN ADVANCE OF BEGINNING ANY CONSTRUCTION.
4. STANDARD DETAILS: REFERENCE MADE TO STANDARDS ARE TAKEN FROM THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS, BOOK OF STANDARD DETAILS DATED JUNE 2009. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY THAT THE STANDARD DRAWINGS IN HIS POSSESSION ARE THE LATEST REVISED STANDARDS UP TO AND INCLUDING THE DATE OF THE ADVERTISEMENT OF THIS CONTRACT.
5. RIGHT-OF-WAY LINES: RIGHT-OF-WAY LINES SHOWN ON THESE PLANS DO NOT INCLUDE EASEMENTS. THEY ARE FOR ASSISTANCE IN INTERPRETING THE PLANS ONLY. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL FEE RIGHT-OF-WAY AND EASEMENT INFORMATION, SEE THE APPROPRIATE RIGHT-OF-WAY PLATS.
6. SOIL CONSERVATION: THE CONTRACTOR SHALL TAKE EXTREME CAUTION NOT TO DISTURB THE EXISTING VEGETATION OUTSIDE THE LIMITS OF CONSTRUCTION. STOCKPILING AND STAGING WILL NOT BE ALLOWED ON SITE. THE CONTRACTOR MUST SECURE AN OFF-SITE AREA AND ANY NECESSARY PERMITS. SOIL STABILIZATION WILL CONFORM TO 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. THE CONTRACTOR WILL OBTAIN APPROVAL OF THE HARFORD COUNTY SOIL CONSERVATION DISTRICT FOR HIS PLANS IN CONTROLLING SEDIMENT EROSION FOR THE BORROW AREA AND DISPOSING OF ANY WASTE EXCAVATION.
7. EXISTING MAILBOXES AND EXISTING SIGNS: ALL EXISTING MAILBOXES, SIGNS AND PAPER BOXES DISTURBED DURING CONSTRUCTION SHALL BE TEMPORARILY RESET IMMEDIATELY AND PERMANENTLY RESET AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.
8. NEW INLETS SHALL BE BACKFILLED WITH NO. 57 AGGREGATE FOR A WIDTH OF 1.5 FEET OUTSIDE PERIMETER OF STRUCTURE AS PER SECTION 305 OF THE HARFORD COUNTY ROAD CODE.
9. SURVEYS: ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 AS DETERMINED BY RTK/GPS OBSERVATIONS AS BROADCAST BY THE TOPCON TOPNET REAL TIME NETWORK.  
  
COORDINATES SHOWN HEREON ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD 83(2011)) AS DETERMINED BY RTK/GPS OBSERVATIONS AS BROADCAST BY THE TOPCON TOPNET REAL TIME NETWORK.
10. HARFORD COUNTY REQUIRES ALL INLETS TO BE BICYCLE SAFE CONSTRUCTION GRATES SHALL BE APPROVED BY HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS.



**LOCATION MAP**  
SCALE 1" = 2000'  
0 2000 4000

**ESD & UNIFIED SIZING CRITERIA**

REQUIRED VOLUME (ESD): 1525 CF (Pe = 1.00')  
 PROVIDED VOLUME (ESD): 1623 CF (Pe = 1.06')  
 PROVIDED RECHARGE (REV): 71 CF  
 CHANNEL PROTECTION (CPV): N/A (1-YR STORM REDUCED THROUGH IMPERVIOUS REMOVAL)  
 OVERBANK PROTECTION VOL: N/A (10-YR STORM UNCHANGED THROUGH IMPERVIOUS REMOVAL)  
 FREEBOARD PROVIDED: 368.60 (ADJACENT INLET GRATE ELEV.) - 368.40 = 0.20'

**SWM SITE ANALYSIS**

TOTAL SITE AREA: 1.82 Ac.±  
 TOTAL SITE IMPERVIOUS AREA (EXISTING): 1.63 Ac.±  
 TOTAL LIMIT OF DISTURBANCE: 0.06 Ac.±  
 EXISTING IMPERVIOUS WITHIN LOD: 0.04 Ac.±  
 PROPOSED IMPERVIOUS WITHIN LOD: 0.02 Ac.±  
 TOTAL SITE IMPERVIOUS AREA REDUCTION: (-)0.02 Ac.±  
 TOTAL SITE IMPERVIOUS AREA (PROPOSED): 1.61 Ac.±  
 SWM WATERSHED: WINTERS RUN

**TOTAL POLLUTANT LOAD REMOVAL TABLE**

REMOVAL RATE DESIGNATION	TOTAL NITROGEN REMOVED (lbs/yr)	TOTAL PHOSPHORUS REMOVED (lbs/yr)	TOTAL SUSPENDED SOLIDS REMOVED (lbs/yr)	IMPERVIOUS ACRE CREDIT (Ac.)
ESD/RR	4.0	*0.0	80.0	0.44

\*ACTUAL PHOSPHORUS REMOVED CALCULATED IN THE HUNDREDTHS

**ENVIRONMENTAL INFORMATION**

- THE FOLLOWING ARE NOT ASSOCIATED WITH THIS PROPERTY:
- 100-YR FLOODPLAIN
  - TIDAL / NONTIDAL WETLANDS
  - CHESAPEAKE BAY CRITICAL AREA
  - ENDANGERED SPECIES
  - FOREST CONSERVATION EASEMENTS
  - EXISTING BMP FACILITIES
  - STEEP SLOPES OR ERODIBLE SOILS

**INDEX OF SHEETS**

1. TITLE SHEET
2. EXISTING CONDITIONS & DEMOLITION PLAN
3. STORMWATER MANAGEMENT PLAN
4. STORMWATER MANAGEMENT NOTES & DETAILS
5. SEDIMENT & EROSION CONTROL PLAN
6. STORMWATER MANAGEMENT DRAINAGE AREA MAPS

**PROJECT NARRATIVE**

IN CONJUNCTION WITH HARFORD COUNTY'S MS4 PERMIT PROGRAM, THE DEPARTMENT OF PUBLIC WORKS IS PROPOSING A MICRO-BIORETENTION FACILITY AT THE MARY E. W. RISTEAU DISTRICT COURTS & MULTI-SERVICE CENTER. THIS FACILITY WILL REPLACE (5) FIVE PAVED PARKING SPACES AT THE LOT'S SOUTH CORNER ADJACENT TO SOUTH HAYS & THOMAS STREETS. THE FACILITY IS DESIGNED TO TREAT A Pe OF 1.06" AND IMPERVIOUS AREA OF 0.44 ACRES. CURRENTLY, THERE ARE NO STORMWATER MANAGEMENT FACILITIES LOCATED ON THIS PROPERTY.

**FIELD VERIFICATION CERTIFICATION**

I HEREBY CERTIFY THAT I COMPLETED A FIELD VERIFICATION TO THE INFORMATION SHOWN ON THE PLANS ON MAY 2, 2018 AND THAT THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS.

NICK JENKINS  
 NAME (PRINT) \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_ DATE 8/28/18

---

**DEVELOPER'S/LANDOWNER'S CERTIFICATION**

I/WE HEREBY CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) WILL BE ACCOMPLISHED PURSUANT TO THESE PLANS. I/WE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED, INCLUDING THE SUBMITTAL OF "AS-BUILT" PLANS WITHIN 30 DAYS OF COMPLETION BY A REGISTERED PROFESSIONAL ENGINEER.

NAME (PRINT) \_\_\_\_\_ TITLE \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

---

**ENGINEER'S CERTIFICATION**

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME, OR UNDER MY SUPERVISION, AND MEETS THE MINIMUM STANDARDS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS, UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION.

CHRISTINE M. BUCKLEY  
 NAME (PRINT) \_\_\_\_\_ DATE 8/28/18  
 SIGNATURE \_\_\_\_\_  
 200472  
 P.E. NO.

---

**AS-BUILT CERTIFICATION**

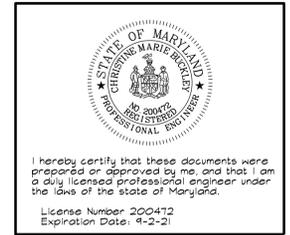
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

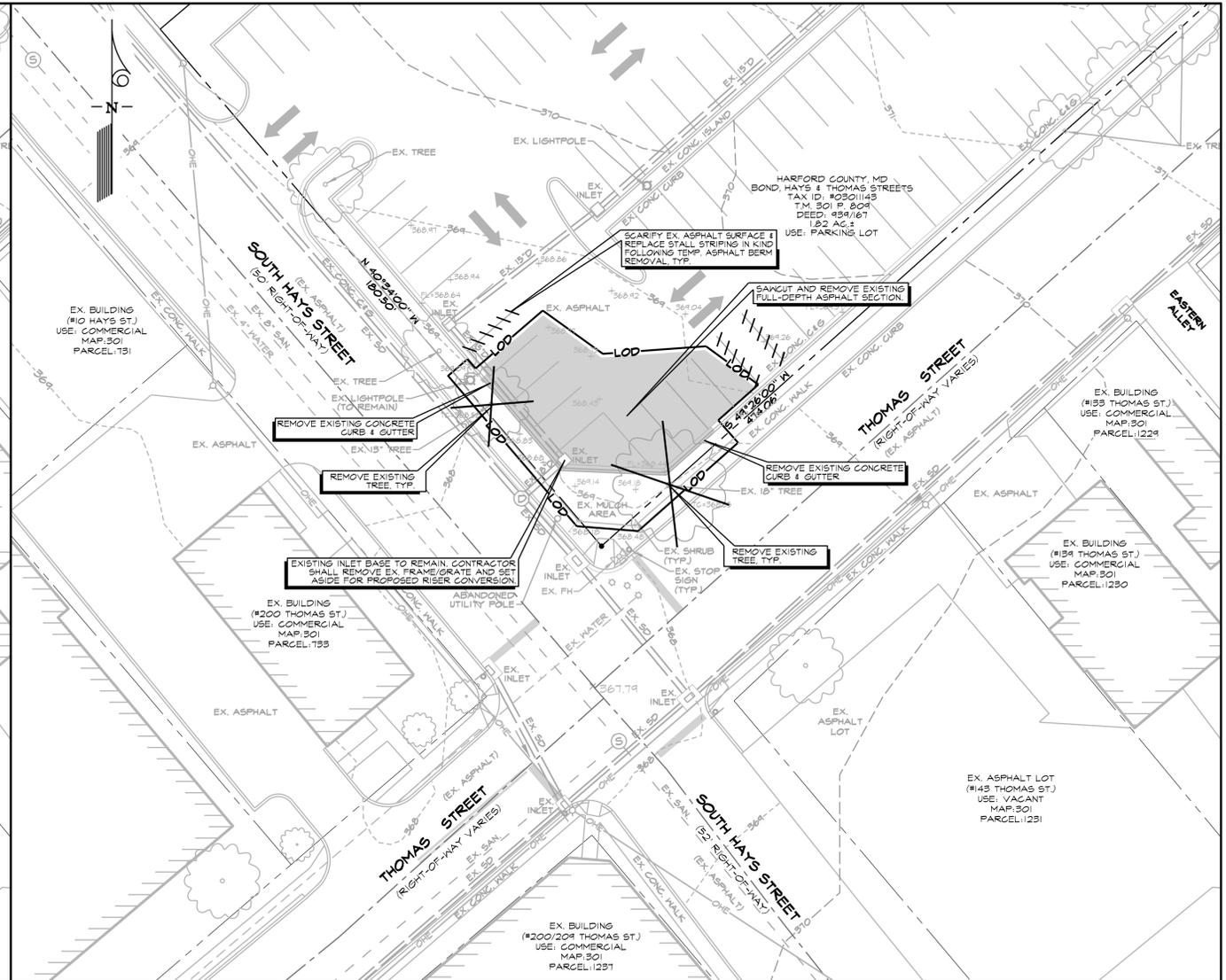
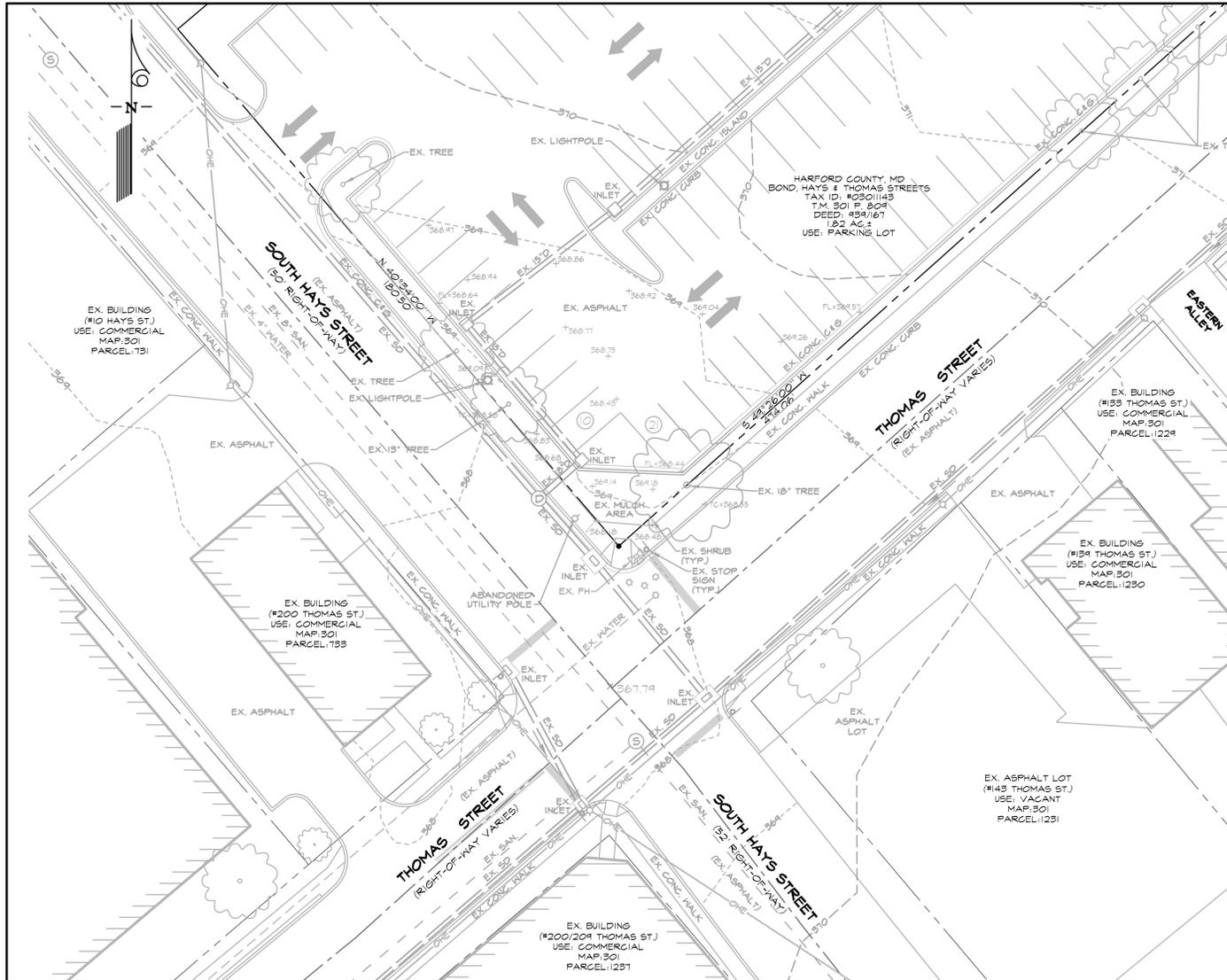
SIGNATURE \_\_\_\_\_  
 NAME (PRINT) \_\_\_\_\_ DATE \_\_\_\_\_  
 PE NO. \_\_\_\_\_ EXPIRATION DATE \_\_\_\_\_

CERTIFY MEANS TO STATE OR DECLINE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTION AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

THIS PLAN HAS BEEN REVIEWED FOR THE TOWN OF BEL AIR AND MEETS THE TECHNICAL REQUIREMENTS FOR STORMWATER MANAGEMENT.  
 HARFORD COUNTY BILLING NO. 97050

HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS DATE \_\_\_\_\_  
 STORMWATER MANAGEMENT REVIEW APPROVAL  
 TOWN OF BEL AIR, DIRECTOR OF PUBLIC WORKS DATE \_\_\_\_\_





**EXISTING CONDITIONS PLAN**

SCALE: 1"=20'

**DEMOLITION PLAN**

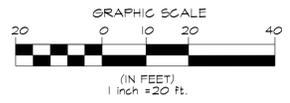
SCALE: 1"=20'

**DEMOLITION GENERAL NOTES**

- TOPOGRAPHIC INFORMATION SHOWN IS BASED UPON HARFORD COUNTY GIS AND FIELD-RUN SURVEY CONDUCTED MAY 2, 2016. ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 AS DETERMINED BY RTK/GPS OBSERVATIONS AS BROADCAST BY THE TOPCON TOPNET REAL TIME NETWORK. COORDINATES SHOWN HEREON ARE REFERRED TO THE NAD 83(2011) AS DETERMINED BY RTK/GPS OBSERVATIONS AS BROADCAST BY THE TOPCON TOPNET REAL TIME NETWORK.
- EXISTING UTILITY INFORMATION SHOWN HEREON IS BASED ON THE BEST AVAILABLE INFORMATION INCLUDING HARFORD COUNTY GIS.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. HARFORD COUNTY DPW DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR SHALL VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION. IN THE EVENT THAT INFORMATION IS IN CONFLICT WITH INFORMATION OBTAINED FROM THE CONTRACTOR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO STARTING ANY WORK.
- BURNING OF COMBUSTIBLE MATERIALS WILL NOT BE PERMITTED ON-SITE.
- EXISTING CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT.
- CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES SHOWN HEREON BEFORE STARTING ANY WORK ON THESE PLANS. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR THE COST OF ANY AND ALL DAMAGES WHICH OCCUR AS A RESULT OF A FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES TO REMAIN.
- ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL ADJUST ALL FRAMES, GRATES AND COVERS OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF THE CONTRACT TO THE PROPOSED GRADES AS REQUIRED.
- THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM STRUCTURES AT ALL TIMES.
- CONTRACTOR SHALL INSTALL SEDIMENT CONTROLS PRIOR TO BEGINNING ANY WORK AND SHALL MAINTAIN SEDIMENT CONTROLS THROUGHOUT THE ENTIRE DURATION OF DEMOLITION & CONSTRUCTION ACTIVITIES, IN ACCORDANCE WITH ALL APPLICABLE STATE & COUNTY REQUIREMENTS.
- ALL EXCAVATION SHALL BE BACKFILLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION FROM THIS PLAN PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION FROM THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE DEMOLITION INFORMATION SHOWN ON THIS DRAWING IS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LIMITS OF DEMOLITION AND REMOVAL OF AFFECTED SITE ITEMS.
- THE CONTRACTOR SHALL PROVIDE A PRIVATE UTILITY LOCATOR TO LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING ANY CONSTRUCTION.

**SITE DATA**

- SITE ADDRESS:  
BOND STREET  
BEL AIR, MD, 21014
- OWNER:  
HARFORD COUNTY GOVERNMENT  
220 S. MAIN STREET  
BEL AIR, MD, 21014
- TAX ACCOUNT NO.:  
03-01143
- PROPERTY REFERENCE:  
MAP 301, PARCEL 804
- TAX ASSESSMENT DIST.:  
03
- ZONING:  
EXISTING USE:  
PROPOSED USE:  
B-3A (GENERAL BUSINESS GATEWAY)  
PARKING LOT  
PARKING LOT
- SETBACKS:  
FRONT REAR SIDE  
25' 0' 0'
- AREA OF SITE:  
1.017 ACRES
- PARKING REQUIREMENTS:  
THE SITE CURRENTLY CONTAINS 200+/- SPACES. FIVE (5) SPACES WILL BE REMOVED DUE TO THE PROPOSED IMPROVEMENTS. HARFORD COUNTY PARKING ENFORCEMENT HAS VERBALLY AUTHORIZED THE REMOVAL OF THESE SPACES.
- FLOODPLAIN INFO.:  
THE SITE LIES WITHIN ZONE X OF THE 100-YEAR FLOODPLAIN AS SHOWN ON F.I.R.M. MAP 2402SC016E DATED APRIL 14, 2016. ZONE X IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
- SOILS:  
THE ENTIRE SITE LIES WITHIN NESHAMINY SILT LOAM (Nsb2) WITH 3-8% MODERATELY ERODED SLOPES IN HYDROLOGIC SOIL GROUP 'B' AND A K-FACTOR RATING OF 0.31.
- WATERSHED:  
ATKISSON RESERVOIR (#02130703)
- WELL/SEPTIC INFO.:  
THERE ARE NO WELLS OR SEPTIC SYSTEMS LOCATED WITHIN A 200' RADIUS OF THE SITE.



**LEGEND**

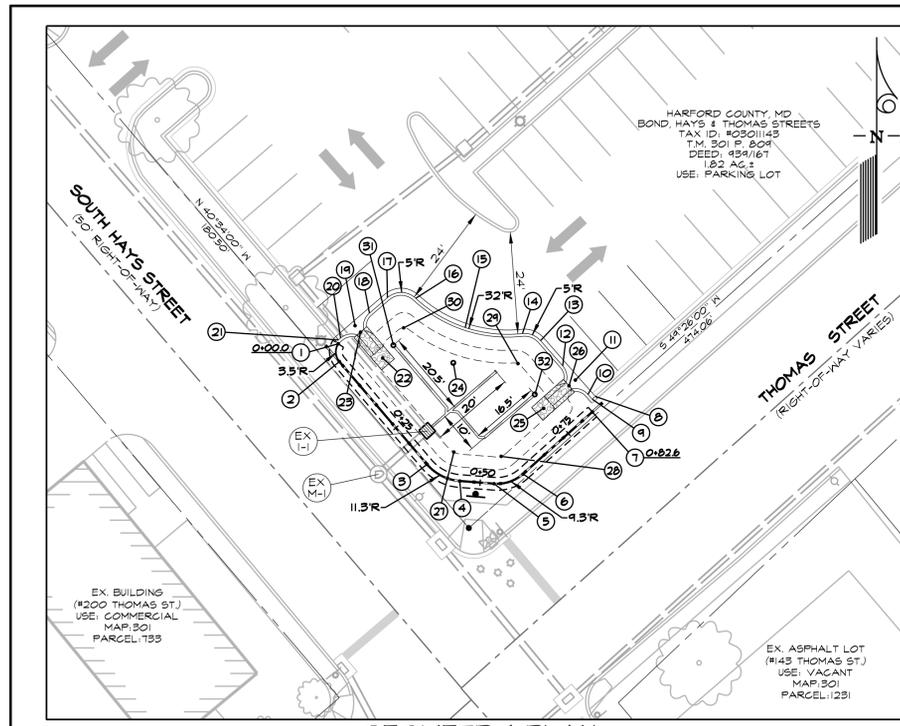
- 370 --- EX. MAJOR CONTOUR
- 364 --- EX. MINOR CONTOUR
- ==== PROPERTY LINE
- ==== EX. CONC. CURB
- ==== EX. CONC. CURB & GUTTER
- ONE --- EX. OVERHEAD ELECTRIC
- EX. 12" D --- EX. STORM DRAIN
- EX. 6" SAN --- EX. SANITARY SEWER
- EX. 6" W --- EX. WATER
- ⊕ EX. WATER VALVE
- ⊕ EX. FIRE HYDRANT
- ⊕ EX. STORM MANHOLE
- ⊕ EX. SANITARY SEWER MANHOLE
- ⊕ EX. SIGN
- ⊕ EX. POWER POLE
- ⊕ EX. LIGHT POLE
- ⊕ EX. INLET
- ⊕ EX. TREE
- ⊕ EX. TREE TO BE REMOVED
- ==== PARKING STRIPE REMOVAL OUTSIDE OF LOD
- ==== APPROXIMATE LIMITS OF EX. ASPHALT PAVEMENT/ CONCRETE CURB & GUTTER TO BE REMOVED
- ==== LIMIT OF DISTURBANCE

EG: SWMENG-000268-2019 SCALE: 1 inch 97050



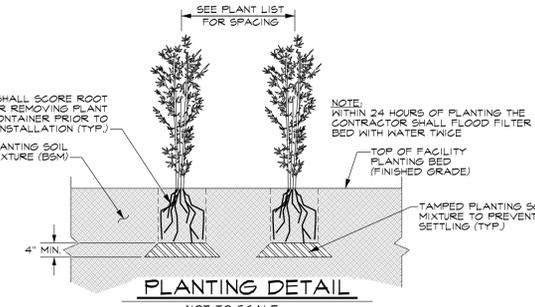
**HARFORD COUNTY, MARYLAND**  
**MARY E. W. RISTEAU DISTRICT COURTS & MULTI-SERVICE CENTER**  
**PARKING LOT MICRO-BIOTENTION FACILITY**  
**EXISTING CONDITIONS & DEMOLITION PLAN**

REVISION NO.	DATE	DESCRIPTION	SCALE:	1"=20'
			DESIGN BY:	N. JENKINS
			DRAWN BY:	N. JENKINS
			CHECKED BY:	C. BUCKLEY
			PROJECT NO.:	N/A
			DATE:	08/23/2019
			SHEET NUMBER	<b>02 of 06</b>



**GEOMETRY PLAN**  
SCALE: 1"=20'

QTY	BOTANICAL NAME / COMMON NAME	SIZE	SPACING	NATIVE
38	RUDBECKIA FULGIDA (ORANGE CONEFLOWER)	24"-48" HT.	24' O.C.	YES
38	ECHINACEA PURPUREA (PURPLE CONEFLOWER)	36" HT.	24' O.C.	YES
38	SCHIZACHYRIUM SCOPARIUM (LITTLE BLUESTEM)	24"-48" HT.	24' O.C.	YES
38	JUNCUS TENUIS (POVERTY RUSH)	24"-36" HT.	24' O.C.	YES
38	EUPATORIUM PERFORIATUM (COMMON BONESET)	24"-36" HT.	24' O.C.	YES
31	ASTER NOVAE-ANGLIAE (NEW ENGLAND ASTER)	24"-36" HT.	24' O.C.	YES
TOTAL	221	NOTE: ARRANGEMENT OF FILTER AREA PLANTINGS SHALL BE INSTALLED AT OWNER'S DISCRETION.		

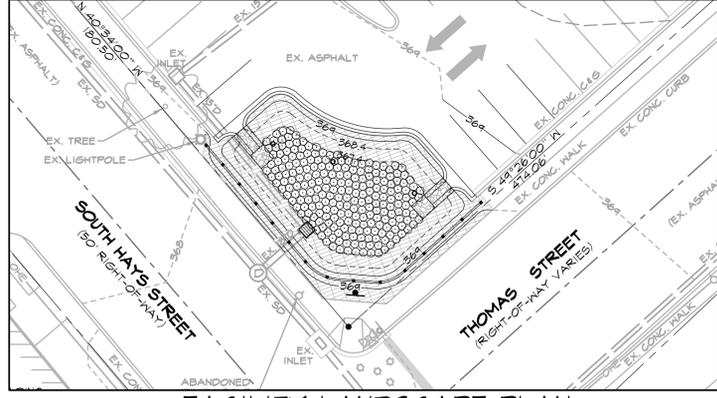


**PLANTING DETAIL**  
NOT TO SCALE

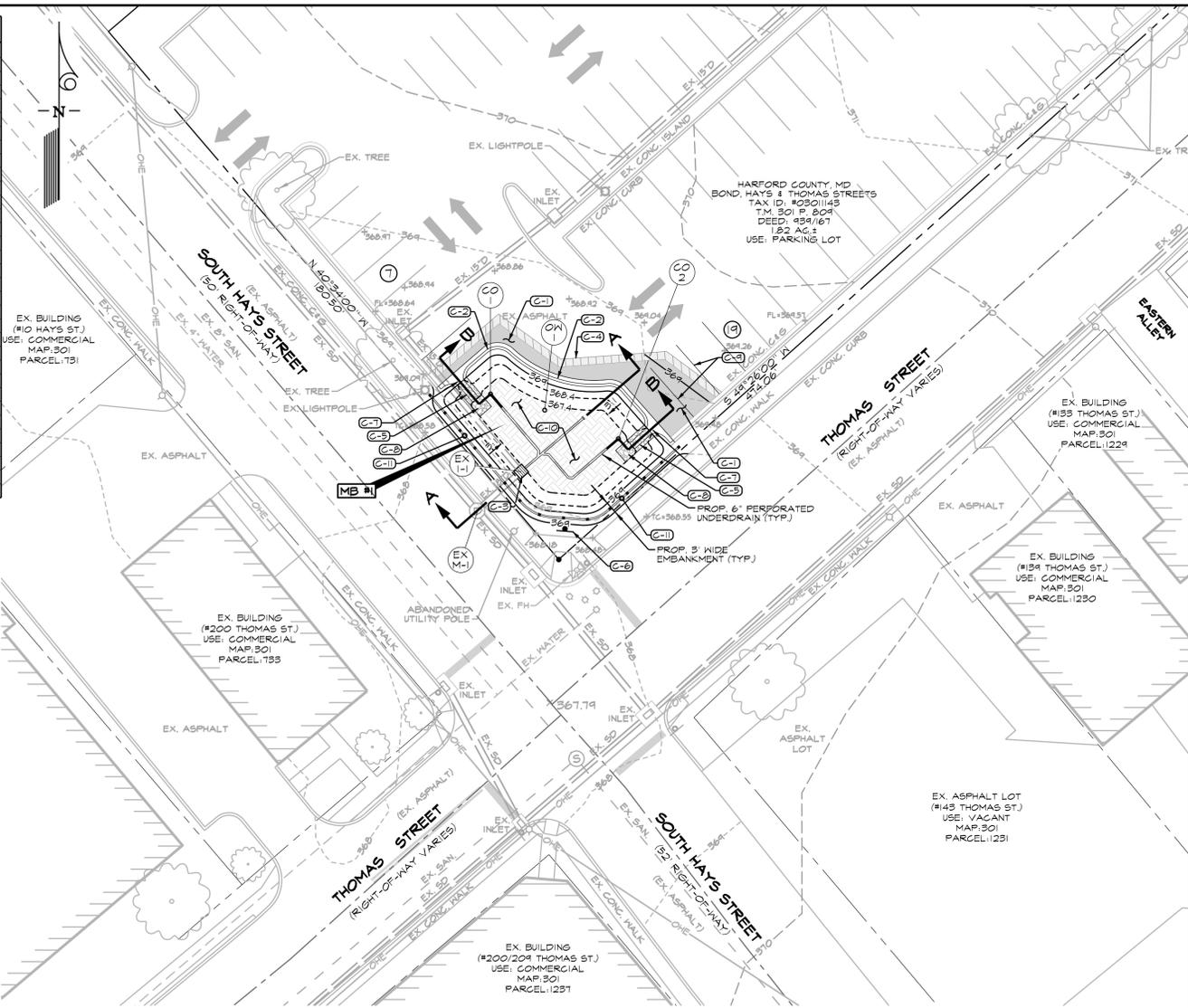
PT.	NORTHING	EASTING	DESCRIPTION	REMARKS
1	680891.06	1485342.84	PC STA 0+00.0 (BEGIN)	CL. SWM EMBANKMENT
2	680886.81	1485342.81	PT STA 0+04.5	CL. SWM EMBANKMENT
3	680882.72	1485343.30	PC STA 0+36.3	CL. SWM EMBANKMENT
4	680858.18	1485371.00	PT STA 0+48.2	CL. SWM EMBANKMENT
5	680858.18	1485374.04	PC STA 0+58.3	CL. SWM EMBANKMENT
6	680860.51	1485386.00	PT STA 0+60.8	CL. SWM EMBANKMENT
7	680875.03	1485402.30	STA 0+82.6 (END)	CL. SWM EMBANKMENT
8	680878.70	1485403.01	*CURB & GUTTER TIE-IN	HARFORD CO. DPW STD. PLATE 5-1
9	680878.03	1485402.26	CURB CORNER FL. EL. = 368.70	HARFORD CO. DPW STD. PLATE 5-1
10	680879.16	1485401.26	PC FL. ELEV. = 368.65	HARFORD CO. DPW STD. PLATE 5-1
11	680882.52	1485398.28	4' RADIUS CURB OPENING, FL. EL. = 368.50	SEE HARFORD CO. STD. PLATE 5-3B
12	680885.84	1485395.30	PC FL. ELEV. = 368.45	HARFORD CO. DPW STD. PLATE 5-1
13	680891.71	1485390.07	PT FL. ELEV. = 368.35	HARFORD CO. DPW STD. PLATE 5-1
14	680893.44	1485385.74	PRC FL. ELEV. = 368.61	HARFORD CO. DPW STD. PLATE 5-1
15	680894.87	1485372.30	PCG FL. ELEV. = 368.80 (HIGH POINT)	HARFORD CO. DPW STD. PLATE 5-1
16	680901.75	1485360.61	PC FL. ELEV. = 368.62	HARFORD CO. DPW STD. PLATE 5-1
17	680901.87	1485355.96	PT FL. ELEV. = 368.52	HARFORD CO. DPW STD. PLATE 5-1
18	680898.23	1485349.71	PC FL. ELEV. = 368.45	HARFORD CO. DPW STD. PLATE 5-1
19	680895.30	1485346.30	4' RADIUS CURB OPENING, FL. EL. = 368.42	SEE HARFORD CO. STD. PLATE 5-3B
20	680892.37	1485342.84	PC FL. ELEV. = 368.50	HARFORD CO. DPW STD. PLATE 5-1
21	680891.98	1485342.83	*CURB & GUTTER TIE-IN	HARFORD CO. DPW STD. PLATE 5-1
22	680891.71	1485352.81	CENTER OF 4'x4' OUTFALL, EL. = 367.40	SEE SECTION B-B BELOW FOR INFO
23	680893.78	1485347.60	CONC. THROAT OPENING, INV. EL. = 368.40	SEE SECTION B-B BELOW FOR INFO
24	680886.54	1485369.30	SWM OBSERVATION WELL	SEE SHEET 4 OF 6 FOR DETAIL
25	680875.84	1485390.71	CENTER OF 4'x4' OUTFALL, EL. = 367.40	SEE SECTION B-B BELOW FOR INFO
26	680881.20	1485396.78	CONC. THROAT OPENING, INV. EL. = 368.40	SEE SECTION B-B BELOW FOR INFO
27	680865.62	1485364.61	ESD FACILITY BOTTOM BANK, EL. = 367.40	SEE CROSS SECTIONS THIS SHEET
28	680864.61	1485380.77	ESD FACILITY BOTTOM BANK, EL. = 367.40	SEE CROSS SECTIONS THIS SHEET
29	680886.40	1485384.74	ESD FACILITY BOTTOM BANK, EL. = 367.40	SEE CROSS SECTIONS THIS SHEET
30	680894.80	1485357.77	ESD FACILITY BOTTOM BANK, EL. = 367.40	SEE CROSS SECTIONS THIS SHEET
31	680890.70	1485355.58	ESD FACILITY CLEANOUT, CAP = 368.40	SEE SHEET 4 OF 6 FOR DETAIL
32	680879.13	1485388.74	ESD FACILITY CLEANOUT, CAP = 368.40	SEE SHEET 4 OF 6 FOR DETAIL

**LEGEND**

- 369 --- PROP. CONTOUR
- 368.75 --- PROP. INTERMEDIATE CONTOUR
- [Pattern] PROP. COBBLE CHANNEL & OUTFALL PROTECTION
- [Pattern] PROP. ESD UNDERDRAIN
- [Symbol] PROP. CLEANOUT/OBSERVATION WELL
- [Symbol] PROP. CONCRETE CURB & GUTTER
- [Symbol] PROP. SIGN
- [Symbol] PROP. ORNAMENTAL FENCE
- [Symbol] PROP. FULL-DEPTH ASPHALT PAVEMENT
- [Symbol] PROP. 2' WIDE PAVEMENT TIE-IN
- [Symbol] PROP. ESD FACILITY FILTER BED
- [Symbol] PROP. GROUNDCOVER SIDE SLOPE/EMBANKMENT STABILIZATION (CHOSEN BY OWNER)
- [Symbol] PROP. ESD FACILITY PLANT



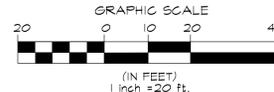
**FACILITY LANDSCAPE PLAN**  
SCALE: 1"=20'



**MICRO-BIORETENTION FACILITY #1**  
SCALE: 1"=20'

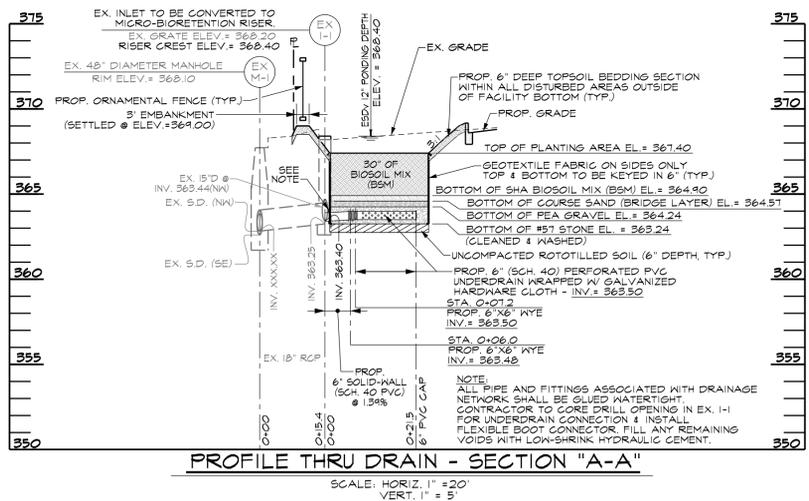
**CONSTRUCTION NOTES**

- (C-1) PROPOSED ALTERNATE 'A' PAVING SECTION. SEE HARFORD COUNTY PUBLIC WORKS STD. PLATE R-1 FOR DETAIL.
- (C-2) PROPOSED 'T' COMBINATION CURB & GUTTER. SEE HARFORD COUNTY PUBLIC WORKS STD. PLATE 5-1 FOR DETAIL.
- (C-3) INSTALL FORMWORK ALONG THE UPPER INLET BASE (INSIDE & OUTSIDE PERIMETER) TO AN ELEVATION OF 368.40 AND RESET THE SALVAGED INLET FRAME TO THAT SAME ELEVATION WITHIN THE FORMWORK. PRIOR TO POURING, ADD BONDING AGENT TO CAST-IN-PLACE CONCRETE (MIX #3) & HAND TROWEL CONCRETE FLUSH @ ELEV. 368.40. AFTER (7) SEVEN DAYS, STRIP FORMWORK AND APPLY PARGE COATING TO ALL EXTERIOR SIDES OF THE INLET TO ELEV. 368.00. LASTLY, REINSTALL SALVAGED INLET GRATE. (PRIOR TO ANY CONCRETE WORK THE CONTRACTOR SHALL CLEAN & REMOVE ALL LOOSE MATERIAL/DEBRIS.)
- (C-4) PROPOSED 2' WIDE ASPHALT PAVEMENT TIE-IN. AREA SHALL BE MILLED 2' DEEP WITH TACK COAT APPLIED TO SURFACE AND SIDES PRIOR TO SURFACE COURSE (12.5mm, LEVEL 2) INSTALLATION.
- (C-5) PROPOSED 6' LONG COBBLE CHANNEL (4-8" STONE) PLACED ON NON-WOVEN GEOTEXTILE FABRIC. SEE SHEET 4 OF 6 FOR DETAIL.
- (C-6) PROPOSED INFORMATION/EDUCATIONAL SIGN. MOUNT AND STYLE TO BE CHOSEN BY OWNER.
- (C-7) PROPOSED 4' RADIUS CONC. CURB OPENING. SEE HARFORD COUNTY PUBLIC WORKS STD. PLATE 5-3B FOR DETAIL.
- (C-8) PROPOSED 4(L) x 4(W) x (H)10" COBBLE OUTFALL (4-8" STONE) LEVEL @ ELEV. 367.40 & PLACED ON NON-WOVEN GEOTEXTILE FABRIC.
- (C-9) PROPOSED 4-INCH WIDE THERMOPLASTIC STRIPING (WHITE). OFFSET & LENGTH TO MATCH EXISTING STALLS.
- (C-10) \*PROPOSED BIO-SOIL MIX SHALL BE SUPPLIED BY STANCILLS, INC. OF FERRYVILLE, MD.
- (C-11) PROPOSED 85 L.F. ORNAMENTAL FENCE W/ CONCRETE MOW STRIP ALONG EMBANKMENT CENTERLINE. SEE SHEET 4 OF 6 FOR DETAIL. STYLE, COLOR & MATERIAL SHALL BE CHOSEN BY OWNER.

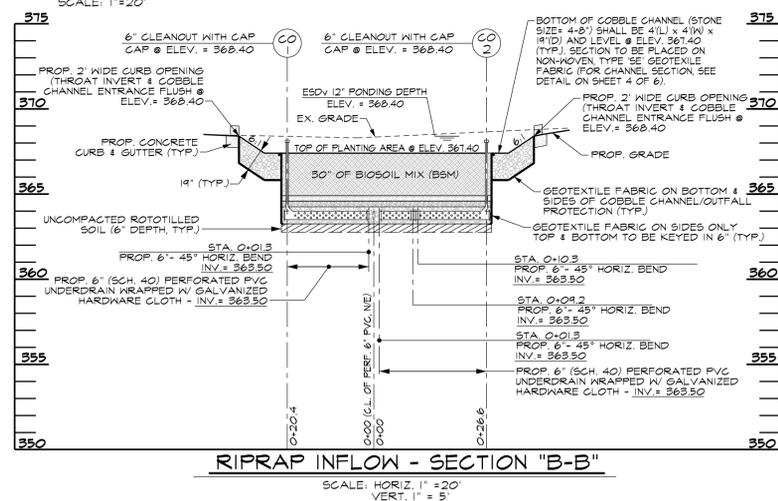


\*STANCILLS, INC.  
488 MOUNTAIN HILL RD.  
FERRYVILLE, MD 21038  
CONTACT: CHRIS SIGILIANO  
410-489-2224  
chris@stancills.com

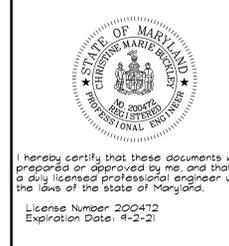
EG: SWMENG-000268-2019 SCALE: 1 inch 97050



**PROFILE THRU DRAIN - SECTION "A-A"**  
SCALE: HORIZ. 1"=20'  
VERT. 1"=5'



**RIPRAP INFLOW - SECTION "B-B"**  
SCALE: HORIZ. 1"=20'  
VERT. 1"=5'



**HARFORD COUNTY, MARYLAND**  
MARY E. W. RISTEAU DISTRICT COURTS & MULTI-SERVICE CENTER  
PARKING LOT MICRO-BIORETENTION FACILITY  
STORMWATER MANAGEMENT PLAN

REVISION NO.	DATE	DESCRIPTION	SCALE:	AS SHOWN
			DESIGN BY:	N. JENKINS
			DRAWN BY:	N. JENKINS
			CHECKED BY:	C. BUCKLEY
			PROJECT NO.:	N/A
			DATE:	08/23/2019
			SHEET NUMBER	03 of 06

I hereby certify that these documents were prepared or approved by me and that I am a duly licensed professional engineer under the laws of the state of Maryland.  
License Number 200472  
Expiration Date: 9-2-21

**STORMWATER MAINTENANCE SCHEDULE  
MICRO-BIORETENTION**

**MONTHLY INSPECTION**

Inspection Item	Inspection Requirements	Remedial Action
Debris and Trash	Check for trash and debris in facility including inlets, outlets, conveyance systems, and area around facility.	Remove all trash and debris and dispose in an acceptable manner. Unclog all openings.
Plant Composition and Health	Compare plant composition with approved plans. Check for invasive species or weeds. Check for dead or dying vegetation.	Remove invasive species and weeds. Replace dead plants in accordance with approved landscaping plan.
Vegetative Cover	Check for channelizing, erosion, and bare spots. Check for vegetation blocking inlet and outlet.	Remove or cut back vegetation around inlet and outlet structures. Mow side slopes when grass exceeds 12 inches in height, but do not mow filter bed. Remove grass clippings. Re-seed or re-plant in accordance with approved landscaping plans.
Mulch Layer	Check mulch for adequate cover, sediment accumulation, or discoloration.	Replace and remove old mulch and excess sediment. Provide adequate mulch cover according to approved design.

**SEASONAL INSPECTION AND AFTER A MAJOR STORM**

Inspection Item	Inspection Requirements	Remedial Action
Dewatering	Check ponding level. Surface storage must dewater within 48 hours of rainfall. Noticeable odors, stained water on the filter surface or at the outlet, or the presence of algae or aquatic vegetation are indicators of anaerobic conditions and inadequate dewatering of the facility.	Remove and replace top few inches of media. Confirm adequate dewatering with follow up inspections. If the facility does not function as intended after the above action, the entire system including the underdrain may need refurbishing.
Erosion	Check inlets, filter bed, outlets, and side slopes for erosion, rills, gullies, and runoff channelization.	Re-grading may be required when concentrated flow causes rills or gully through the facility. Grade, vegetate, and/or armor to provide stable conveyance in accordance with approved plans.
Sediment Accumulation	Check for accumulated sediment in conveyance systems and on filter bed. Check for clogged openings.	When sediment accumulates to 1 inch depth, remove sediment. Remove sediment from clogged openings. Dispose of all sediment in an acceptable location.
Blockages	Check overflow inlet (riser), piping, and underdrain for blockages. Check observation wells for water level.	Clear out any blockages.

**ANNUAL INSPECTION**

Inspection Item	Inspection Requirements	Remedial Action
Maintenance Access	Check for accessibility to facility.	Prevent excessive vegetative growth, erosion, and obstructions on access way.
Flow Conveyance System	Check overflow inlet, piping, and bypass for misalignments, breakage, and blockage.	Repair any broken or faulty piping. Clear out any blockages.
Structural Components	Check for evidence of structural deterioration, spalling, or cracking. Inlet and outlet structures as well as riprap outfalls must be in good condition.	Repair to good condition according to specifications on the approved plans.
Overall Function of Facility	Check that practice is functioning as designed.	Repair to good condition according to specifications on the approved plans.

**SEQUENCE OF CONSTRUCTION FOR MICRO-BIORETENTION**

- NOTIFY CERTIFYING ENGINEER TWO WEEKS IN ADVANCE OF CONSTRUCTION. CONTACT HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AT 410-658-3127 (EXT. 1844) AND SCHEDULE PRECONSTRUCTION MEETING.
- CLEAR AND GRUB FOR PERIMETER SEDIMENT CONTROLS. INSTALL SILT FENCE AND TEMPORARY ASPHALT BERM.
- INSTALL EX. I-1 GRATE BLOCKING (WEIGHTED DOWN PLYWOOD) AND BEGIN FULL-DEPTH PAVEMENT, CURB/GUTTER AND TREE REMOVAL.
- EXCAVATE FOR ESD FACILITY SECTION. ONCE FACILITY BOTTOM DEPTH HAS BEEN ACHIEVED REMOVE GRATE BLOCKING & EX. INLET FRAME/GRATE (SET ASIDE FOR REUSE).
- CLEAN TOP PORTION OF THE EX. INLET BOX. INSTALL GRADE ADJUSTMENT MATERIAL AND MOUNT THE SALVAGED INLET FRAME/GRATE SET TO THE ELEVATION SHOWN ON THESE PLANS. APPLY CONCRETE FARGE COAT TO EX. I-1 AS NOTED ON SWM PLAN.
- CONSTRUCT NEW CONCRETE CURB & GUTTER WITH 4" RADIUS CURB OPENINGS.
- ROTTILL FACILITY SUBGRADE AND INSTALL FACILITY UNDERDRAIN NETWORK, OBSERVATION WELL, RIPRAP INFLOW CHANNELS, EARTH EMBANKMENT AND BACKFILL WITH MICRO-BIORETENTION MATERIALS. WHEN ROUGH GRADING ALL AREAS OUTSIDE THE ESD FILTER BED COUNT FOR THE 4" DEPTH OF NEW TOPSOIL IN ORDER TO ACHIEVE THE FINAL ELEVATIONS SHOWN ON THESE PLANS.
- INSTALL NEW CR-6 SUBBASE AND ASPHALT BASE COURSE.
- FINE GRADE ALL AREAS OUTSIDE FILTER BED & PLACE NEW TOPSOIL. IMMEDIATELY INSTALL SIDE SLOPE GROUND COVER STABILIZATION AND ESD FACILITY PLANTINGS. ONCE ALL PLANTINGS HAVE BEEN PROPERLY PLACED APPLY THE NECESSARY LAYER OF HARDWOOD MULCH.
- INSTALL ORNAMENTAL FENCE, INFORMATIVE SIGN & REMOVE THE TEMPORARY ASPHALT BERM. REMOVE ALL UNUSED MATERIALS, DEBRIS AND STORED EQUIPMENT. THE LOCATION SHALL BE SWEEPED CLEAN PRIOR TO FINAL PAVING COURSE INSTALLATION.
- MILL THE 2" WIDE PAVEMENT TIE-IN STRIP. INSTALL SURFACE ASPHALT COURSE AND REMOVE REMAINING SILT FENCE ONLY UPON FINAL STABILIZATION & WITH THE APPROVAL OF HARFORD COUNTY INSPECTIONS.
- WITHIN 30 DAYS OF COMPLETION, PREPARE AND SUBMIT "AS-BUILT" PLANS. HARFORD COUNTY DPW SITE INSPECTOR & CONTRACTOR TO TAKE PHOTOS DURING CONSTRUCTION. PHOTOS TO BE INCLUDED IN AS-BUILT SUBMITTAL.

**CONSTRUCTION CRITERIA FOR MICRO-BIORETENTION FACILITY**

**EROSION AND SEDIMENT CONTROL:**  
MICRO-BIORETENTION PRACTICES SHOULD NOT BE CONSTRUCTED UNTIL THE CONTRIBUTING DRAINAGE AREA IS STABILIZED.

**SOIL COMPACTION:**  
EXCAVATION SHOULD BE CONDUCTED IN DRY CONDITIONS WITH EQUIPMENT LOCATED OUTSIDE OF THE PRACTICE TO MINIMIZE BOTTOM AND SIDEWALL COMPACTION. ONLY LIGHTWEIGHT, LOW GROUND-CONTACT EQUIPMENT SHOULD BE USED WITHIN MICRO-BIORETENTION PRACTICES AND THE BOTTOM SCARIFIED BEFORE INSTALLING UNDERDRAINS AND FILTERING MEDIA.

**UNDERDRAIN INSTALLATION:**  
GRAVEL FOR THE UNDERDRAIN SYSTEM SHOULD BE CLEAN, WASHED, AND FREE OF FINES. UNDERDRAIN PIPES SHOULD BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS. THE UPSTREAM ENDS OF THE UNDERDRAIN PIPE SHOULD BE CAPPED PRIOR TO INSTALLATION.

**FILTER MEDIA INSTALLATION:**  
SOILS SHOULD NOT BE PLACED UNDER SATURATED CONDITIONS. THE FILTER MEDIA SHOULD BE PLACED AND GRADED USING EXCAVATORS OR BACKHOES OPERATING ADJACENT TO THE PRACTICE AND BE PLACED IN HORIZONTAL LAYERS (12 INCHES PER LIFT MAXIMUM). PROPER COMPACTION OF THE MEDIA WILL OCCUR NATURALLY. SPRAYING OR SPRINKLING WATER ON EACH LIFT UNTIL SATURATED MAY QUICKEN SETTLING TIMES.

**LANDSCAPE INSTALLATION:**  
THE OPTIMUM PLANTING TIME IS DURING THE FALL. SPRING PLANTING IS ALSO ACCEPTABLE.

**FURNISHED TOPSOIL SPECIFICATIONS (MDSHA)**

420.01.02 FURNISHED TOPSOIL, A NATURAL, FRIABLE, SURFACE SOIL THAT IS UNIFORM IN COLOR AND TEXTURE AND NOT DERIVED FROM THE PROJECT. PRODUCERS SHALL BE INCLUDED IN THE QUALIFIED PRODUCTS LIST MAINTAINED BY THE ADMINISTRATION FOR FURNISHED TOPSOIL.

(a) COMPOSITION: FURNISHED TOPSOIL SHALL CONFORM TO THE FOLLOWING:

COMPOSITION - FURNISHED TOPSOIL					
TEST PROPERTY	TEST METHOD	TEST VALUE AND AMENDMENT			
PROHIBITED WEEDS	—	FREE OF LIVE STEMS AND ROOTS OF SPECIES IN 420.01.01 AS WELL AS LIVE STEMS AND ROOTS OF BERMUDAGRASS, QUACKGRASS, AND YELLOW NUTSEDGE.			
DEBRIS	—	420.01.01			
GRADING ANALYSIS	R-5B	420.01.01			
TEXTURAL ANALYSIS	T-8B	PARTICLE SIZE		% PASSING BY WEIGHT	
		mm	MINIMUM	MAXIMUM	
		SAND	2.0 - 0.050	20	75
		SILT	0.050 - 0.002	COMBINED SILT & CLAY	
CLAY	LESS THAN 0.002	25	30		
SOIL PH	ASTM D 4412	PH OF 6.1 TO 7.2			
ORGANIC MATTER	T 184	4.0 TO 8.0% OM BY WEIGHT			
NUTRIENT CONTENT	—	420.01.01			
SOLUBLE SALTS	EG-1 (V-V)	500 ppm (0.78 mmols/cm) OR LESS			
HARMFUL MATERIALS	—	420.01.01			

(a) STORAGE: FURNISHED TOPSOIL SHALL BE A HOMOGENEOUS MIXTURE STORED AT A SPECIFIC, IDENTIFIABLE SITE IN A STOCKPILE CONSTRUCTED AS SPECIFIED IN 508.03.2B AND 101.03.02(C).

(b) APPROVAL: TESTS SHALL BE COMPLETED AND APPROVAL WILL BE GRANTED BEFORE FURNISHED TOPSOIL IS DELIVERED. ENSURE THAT FORM 27B HAS BEEN COMPLETED AND THAT A SOURCE OF SUPPLY LETTER FOR THE FURNISHED TOPSOIL SOIL HAS BEEN SUBMITTED AND APPROVED.

(c) DELIVERY: CERTIFICATION SHALL BE SUBMITTED THAT THE FURNISHED TOPSOIL IS DELIVERED FROM AN APPROVED STOCKPILE. A BILL OF LADING OR OTHER ACCEPTABLE DOCUMENTATION THAT IDENTIFIES THE APPROVED SOURCE OF SUPPLY SHALL BE SUBMITTED WHEN FURNISHED TOPSOIL IS DELIVERED.

**MICRO-BIORETENTION INSPECTION SCHEDULE**

IT IS THE OWNER'S/CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE INSPECTOR OF THE APPROXIMATE TIME FOR INSPECTION OF THE FOLLOWING ITEMS:

- CONSTRUCTION OF INFLOW RIPRAP CHANNELS & OUTFALL PROTECTION.
- EXCAVATION TO SUBGRADE & ROTOTILLING PROCEDURES.
- INSTALLATION OF UNDERDRAIN NETWORK, GRAVEL JACKET & EX. I-1 CONNECTION.
- BACKFILL AND PLACEMENT OF REMAINING FACILITY MATERIAL SECTIONS INCLUDING BSM MIX.
- UPON COMPLETION OF FINAL GRADING, PLANTINGS AND STABILIZATION.

CONTACT INFO: HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS  
ATTN: NICK JENKINS  
PHONE: (410) 658-3217, EXT. 1844

**COMPACTION:**

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

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE MICRO-BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL FLOW RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRAGMENT THE SOIL PROFILE THROUGH THE 12" INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN 15" LIFTS. DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

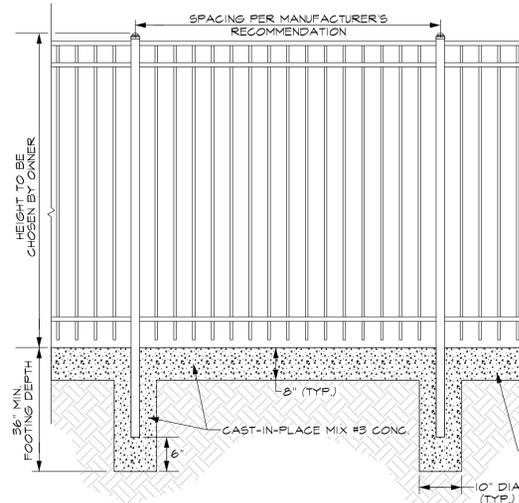
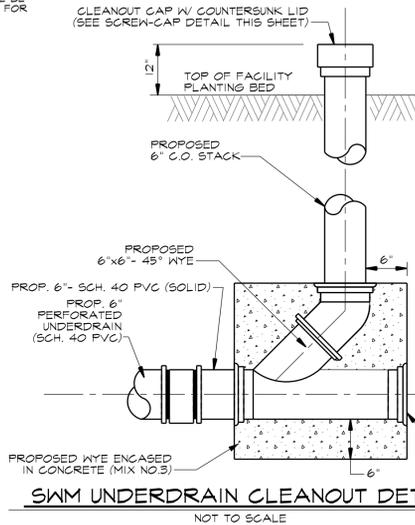
**FILTERING MEDIA OR PLANTING SOIL:**

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

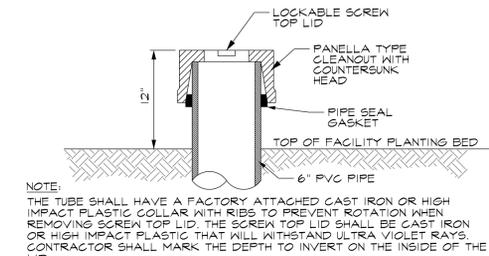
- SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
- ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (40%).
- CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
- PH RANGE - SHOULD BE BETWEEN 5.5-7.0. AMENDMENTS (E.G. LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.



**FENCE WITH MOW STRIP DETAIL**

NOTE: CONCRETE MOW STRIP SHALL BE 12" WIDE (6" O.C. OF POST ALIGNMENT)



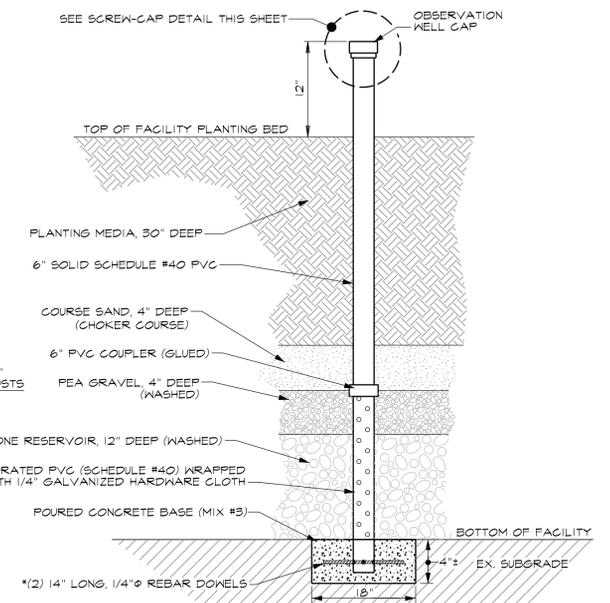
**SCREEN-CAP DETAIL**

NOTE: THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREEN TOP LID. THE SCREEN TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA VIOLET RAYS. CONTRACTOR SHALL MARK THE DEPTH TO INVERT ON THE INSIDE OF THE LID.



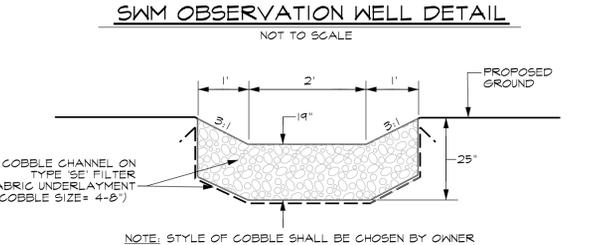
I hereby certify that these documents were prepared or approved by me and that I am a duly licensed professional engineer under the laws of the state of Maryland.  
License Number 200472  
Expiration Date: 9-2-21

MATERIALS SPECIFICATIONS FOR MICRO-BIORETENTION FACILITY (MB-1)			
MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE SHEET B	N/A	SEE SHEET B SWM LANDSCAPING PLAN
PLANTING SOIL [2" TO 4" DEEP]	LOAMY SAND (60 - 65%) & COMPOST (35 - 40%) OR SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM. CLAY CONTENT 15% PH RANGE 5.5 - 7.0. AMENDMENTS MAY BE MIXED INTO SOIL TO INCREASE OR DECREASE PH.
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D 2974)		
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
PEA GRAVEL DIAPHRAGM	PEA GRAVEL: ASTM-D-448 (1/8" TO 3/8")	NO. 8 OR NO. 9	WASHED
CURTAIN DRAIN	ORNAMENTAL STONE, WASHED COBBLES	STONE: 2" TO 5"	
GEOTEXTILE		N/A	PE TYPE I NONWOVEN
GRAVEL (UNDERDRAINS AND INFILTRATION BERMS)	AASHTO - M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	WASHED
UNDERDRAIN PIPING	F 158, TYPE PS 28 OR AASHTO M-27B	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR 35	SLOTTED OR PERFORATED PIPE, 3/8" PERFOR. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES. PIPE SHALL BE WRAPPED TWICE WITH 1/4" INCH GALVANIZED HARDWARE CLOTH.
POURED IN PLACED CONCRETE (IF REQUIRED)	MSHA MIX NO. 3; F <sub>c</sub> = 3500 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED, REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF POURED-IN PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS. DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MEETING ACI CODE 308.4R-08 VERTICAL LOADING (H-10 OR H-20); ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING.
SAND	AASHTO-M-6 OR ASTM-C-33	0.075" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRANYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.



**SWM OBSERVATION WELL DETAIL**

\*CONTRACTOR NOTE: PROP. 14" LONG, 1/4" (#2) REBAR SLEEVED THROUGH OPPOSITE OPENINGS, 1-INCHES ON CENTER. THE CONTRACTOR SHALL DRILL (3/8" HOLES) THE OPPOSITE SETS OF OPENINGS WHICH BEST CENTER THE BARS LEVEL, 90° TO EACH OTHER AND CENTERED WITHIN THE POURED CONCRETE BASE.



**COBBLE INFLOW CHANNEL DETAIL**

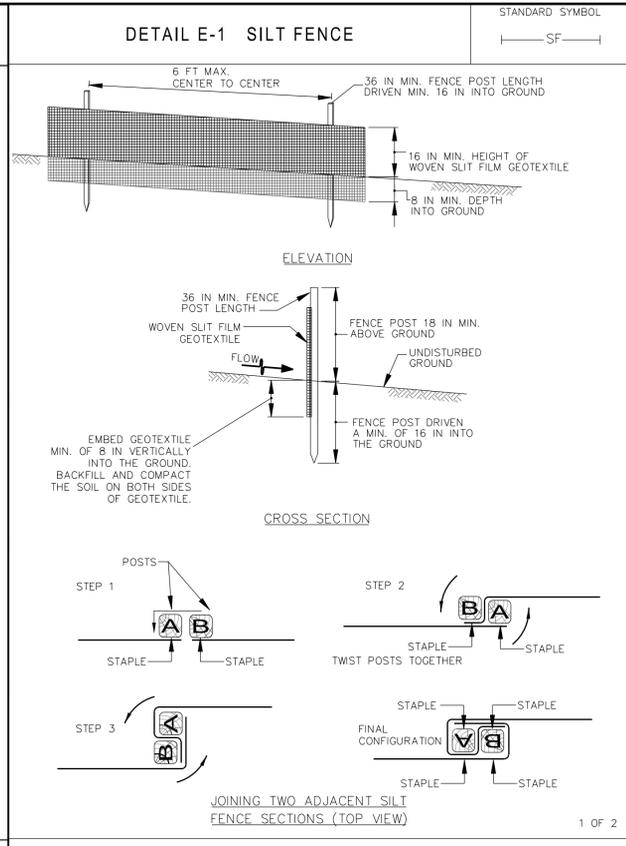
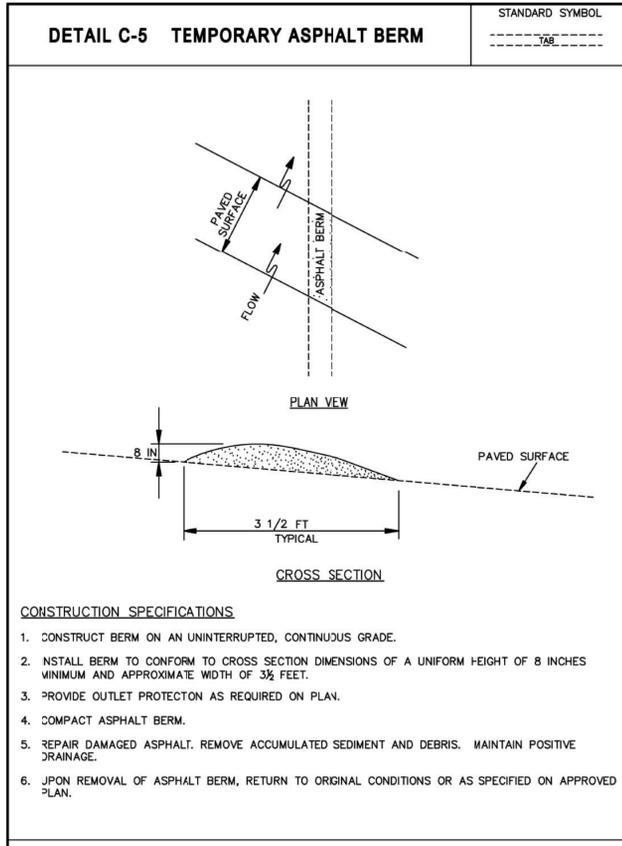
NOTE: STYLE OF COBBLE SHALL BE CHOSEN BY OWNER

EG: SWMENG-000268-2019 SCALE: 1 inch 97050

**HARFORD COUNTY, MARYLAND**

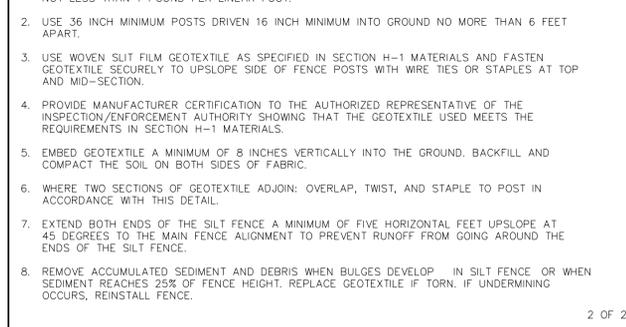
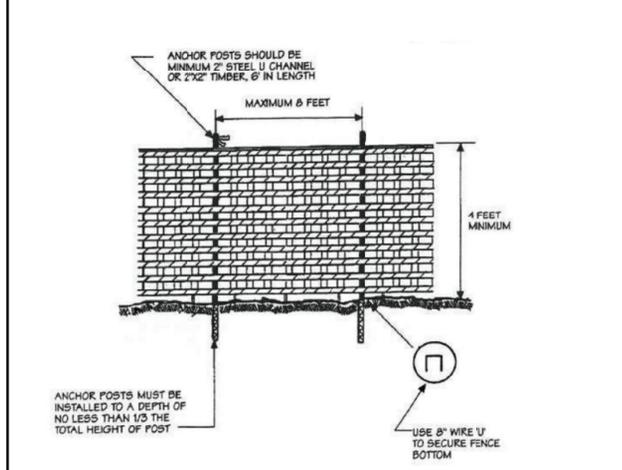
**MARY E. W. RISTEAU DISTRICT COURTS & MULTI-SERVICE CENTER  
PARKING LOT MICRO-BIORETENTION FACILITY  
STORMWATER MANAGEMENT NOTES & DETAILS**

REVISION NO.	DATE	DESCRIPTION	SCALE:	NOT TO SCALE
			DESIGN BY:	N. JENKINS
			DRAWN BY:	N. JENKINS
			CHECKED BY:	C. BUCKLEY
			PROJECT NO.:	N/A
			DATE:	08/23/2019
			SHEET NUMBER	<b>04 of 06</b>



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

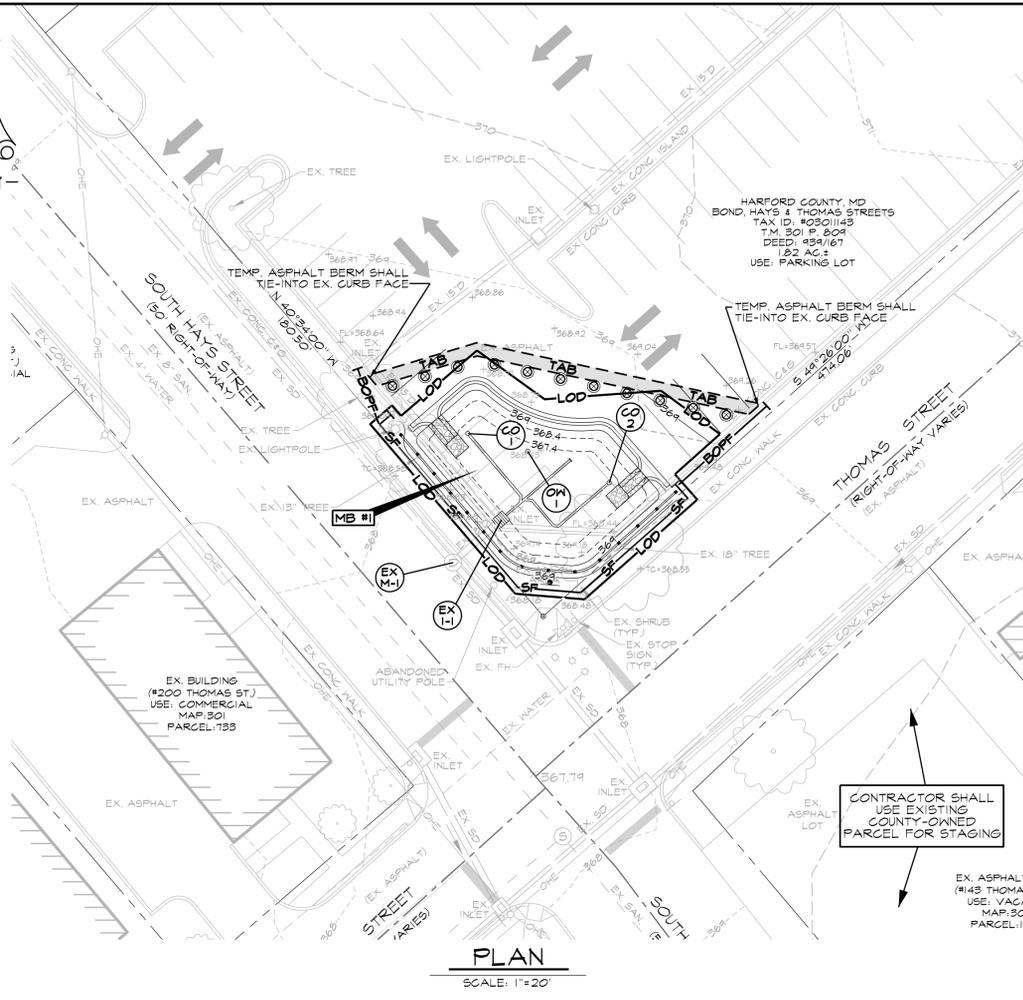
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



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

### HARFORD COUNTY SEDIMENT CONTROL NOTES

1. A GRADING UNIT OF 20 ACRES IS THE MAXIMUM CONTIGUOUS AREA ALLOWED TO BE GRADED AT A GIVEN TIME.
2. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY DPW. NO MORE THAN THIRTY ACRES CUMULATIVELY MAY BE DISTURBED AT ANY GIVEN TIME.
3. THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.
4. THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.
5. ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE ALLOWED WITHOUT THE APPROVAL FROM DPW.
6. ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.
7. EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.
8. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - a) THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1.
  - b) SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.
9. DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.
10. SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.
11. TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.
12. AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NO. 10/100 REGULATIONS. COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.
13. ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND/OR BASINS.
14. CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING.
15. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVELING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
16. OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.
17. ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.
18. STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
19. TOPSOIL LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL ESSENTIAL PARTS OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.
20. TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
21. PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED.
22. SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES SHALL BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.



### SEQUENCE OF CONSTRUCTION

SEE STORMWATER MANAGEMENT NOTES & DETAILS SHEET (SHEET #4) FOR SEQUENCE OF CONSTRUCTION.

### LEGEND

- LOD: LIMIT OF DISTURBANCE
- SF: SILT FENCE (BLAZE ORANGE FENCE SHALL BE INSTALLED IMMEDIATELY OUTSIDE SILT FENCE FOR ITS ENTIRE LENGTH UNLESS SHOWN OTHERWISE)
- BOPF: BLAZE ORANGE PROTECTION FENCE (WHEN EXTENDED PAST SILT FENCE LOCATIONS)
- TAB: TEMPORARY ASPHALT BERM (ALTERNATIVE CLEAN WATER DIVERSION DEVICE MAY BE APPROVED BY OWNER)
- Orange Traffic Barrels/Drums Spaced Every 8-FEET AND LINKED W/ YELLOW CAUTION TAPE (BARRELS SHALL BE MOVED AS NECESSARY DURING CONSTRUCTION & AT THE END OF EACH WORK DAY TO SAFEGUARD TRAFFIC)

### SITE ANALYSIS

TOTAL AREA TO BE STABILIZED = 1,930 S.F. / 0.04 AC.  
 TOTAL DISTURBED AREA = 2,600 S.F. / 0.06 AC.  
 AREA TO BE PAVED = 670 S.F. / 0.02 AC.  
 CUT = 120 C.Y. (DOES NOT INCLUDE THE ASSUMED 12-INCH PAVING SECTION)  
 FILL = 10 C.Y.  
 TOPSOIL = 22 C.Y.  
 NPDES ID PT. N. 680278.2 E. 1495371.2

\*EARTHWORK CALCULATIONS ARE AN ESTIMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATING CUT/FILL VOLUMES FOR BIDDING PURPOSES.

CONTRACTOR SHALL DISPOSE OF EXCESS SOIL ONLY AT A LOCATION WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN

NOTE TO CONTRACTOR: EROSION AND SEDIMENT CONTROLS SHALL BE STRICTLY ENFORCED.

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

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



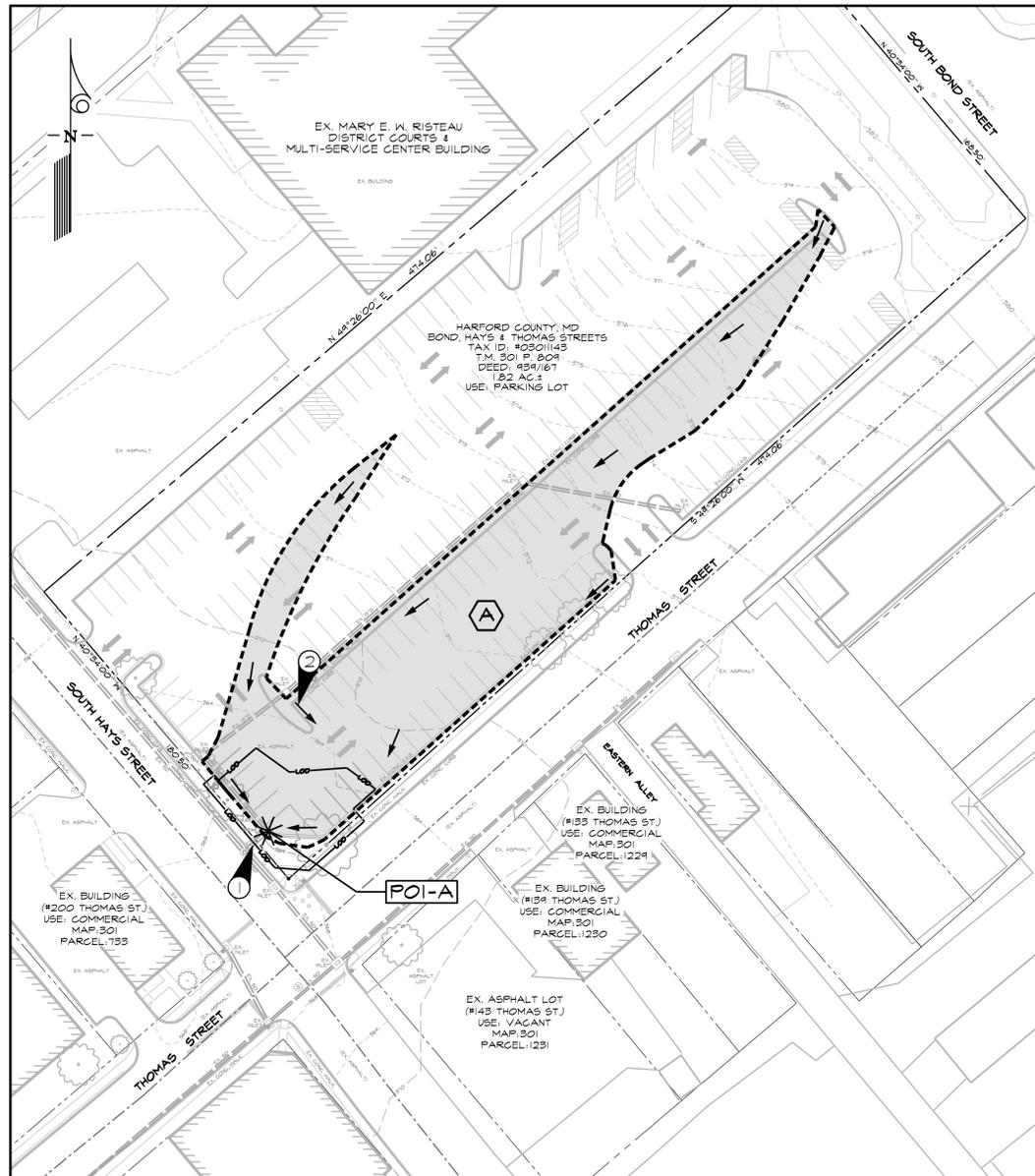
EG: SWMENG-000268-2019 SCALE: 1 inch = 20 feet 97050

## HARFORD COUNTY, MARYLAND

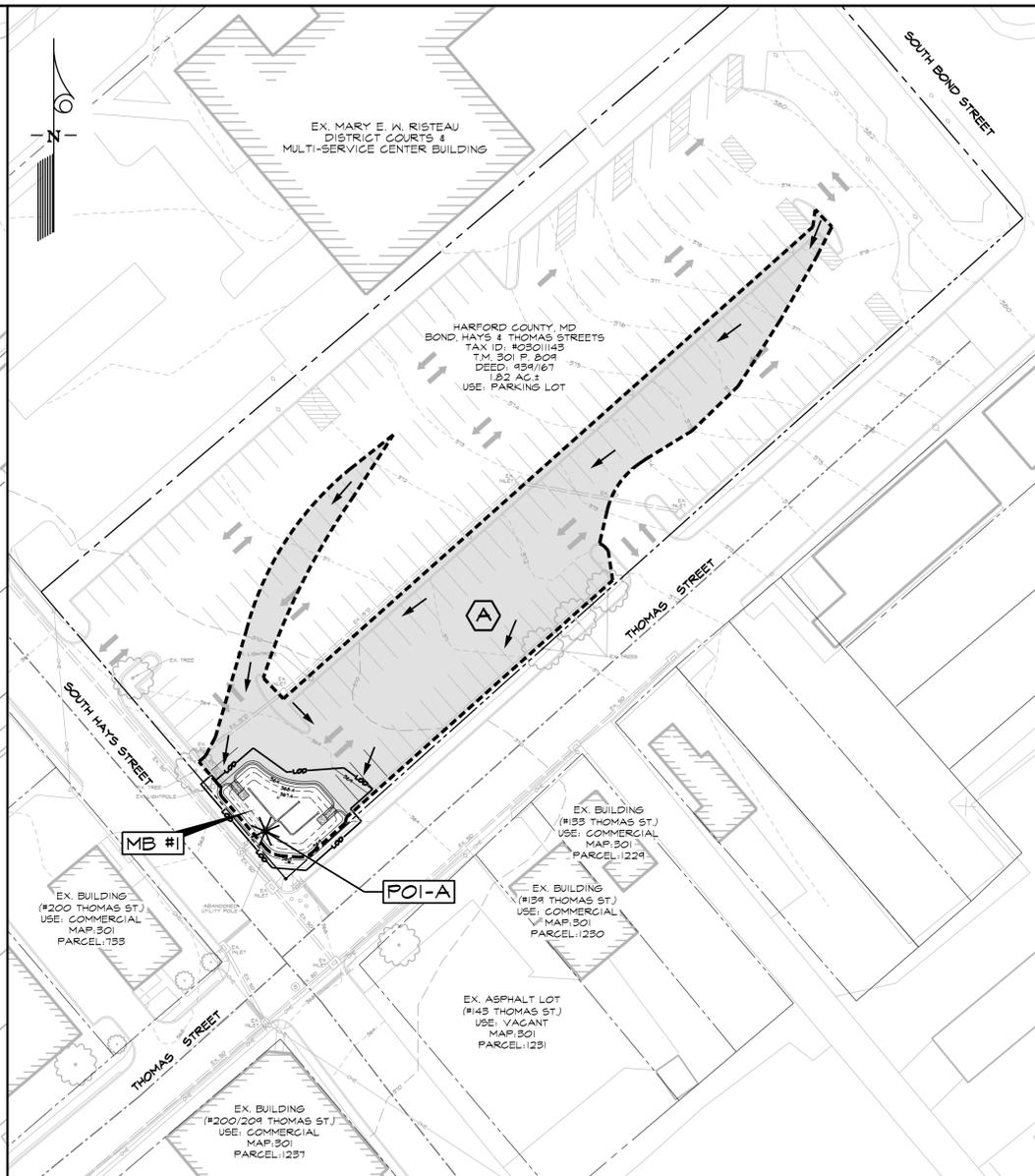
### MARY E. W. RISTEAU DISTRICT COURTS & MULTI-SERVICE CENTER PARKING LOT MICRO-BIOTENTION FACILITY SEDIMENT CONTROL PLAN

REVISION NO.	DATE	DESCRIPTION	SCALE:	AS SHOWN
			DESIGN BY:	N. JENKINS
			DRAWN BY:	N. JENKINS
			CHECKED BY:	C. BUCKLEY
			PROJECT NO.:	N/A
			DATE:	08/23/2019
			SHEET NUMBER	05 of 06

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland.  
 License Number 200472  
 Expiration Date: 9-2-21



**EXISTING CONDITION DRAINAGE AREA MAP**  
SCALE: 1"=40'



**PROPOSED CONDITION DRAINAGE AREA MAP**  
SCALE: 1"=40'

**LEGEND**

- DRAINAGE AREA BOUNDARY
- IMPERVIOUS SURFACE WITHIN DRAINAGE AREA
- ★ POI-A
- ⬆ DRAINAGE AREA DESIGNATION
- ← DIRECTION OF FLOW
- LOD
- 📷 PREDEVELOPMENT PHOTO LOCATION & DIRECTION

**EXISTING CONDITIONS RUNOFF DATA TO POI-A (QUANTITY)**

POINT OF INVESTIGATION	DRAINAGE AREA DESIGNATION	DRAINAGE AREA (Ac.)	**BYPASS DRAINAGE AREA INSIDE LOD (Ac.)	IMPERV. AREA (Ac.)	OPEN SPACE (Ac.)	TIME OF CONCENT. (HR)	CURVE NUMBER	DESCRIPTION
POI-A	A	0.47	**0.01	0.47	0.00	*0.10	98	D.A. DISCHARGES DIRECTLY TO SOUTH HAYS STREET S.D. SYSTEM (S/W)

\*MINIMUM TIME OF CONCENTRATION USED DUE TO RELATIVELY SMALL DRAINAGE AREA AND HIGH RUNOFF COEFFICIENT.  
\*\*EXISTING PERVIOUS AREA THAT DISCHARGES TO POI-A IN PROPOSED CONDITIONS DUE TO FACILITY EMBANKMENT GRADING.

**PROVIDED ESD MANAGEMENT**

POI	TYPE OF PRACTICE	BMP NO.	TREATED IMP. AREA ON-SITE OR INSIDE ROW (ACRES)	PERVIOUS AREA INCLUDING FACILITY FOOTPRINT (ACRES)	P <sub>r</sub> REQUIRED BY PRACTICE (INCHES)	REQUIRED ESD <sub>v</sub> (CUBIC FEET)	P <sub>r</sub> TREATED BY PRACTICE (INCHES)	PROVIDED ESD <sub>v</sub> (CUBIC FEET)	PROVIDED Rev (CUBIC FEET)
POI-A	(M-6) MICRO-BIORETENTION	MB-1	0.44	0.04	1.00"	1525	1.06"	1,623	71

**SOILS INFORMATION**  
THE ENTIRE SITE LIES WITHIN 'NESHAMINY SILT LOAM' (NsB2) WITH 3-8% MODERATELY ERODED SLOPES IN HYDROLOGIC SOIL GROUP 'B' AND A K-FACTOR RATING OF 0.31.

**PROPOSED CONDITIONS RUNOFF DATA TO POI-A (QUANTITY)**

POINT OF INVESTIGATION	DRAINAGE AREA DESIGNATION	DRAINAGE AREA (Ac.)	IMPERV. AREA (Ac.)	OPEN SPACE (Ac.)	TIME OF CONCENT. (HR)	CURVE NUMBER	DESCRIPTION
POI-A	A	0.48	0.44	0.04	*0.10	98	D.A. DISCHARGES DIRECTLY TO SOUTH HAYS STREET S.D. SYSTEM (S/W)

\*MINIMUM TIME OF CONCENTRATION USED DUE TO RELATIVELY SMALL DRAINAGE AREA AND HIGH RUNOFF COEFFICIENT.

**TOTAL POLLUTANT LOAD REMOVAL TABLE**

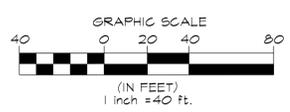
DRAINAGE AREA ID	DRAINAGE AREA (Ac.)	IMPERVIOUS AREA (Ac.)	IMPERVIOUS AREA PERCENTAGE (%)	RAINFALL TARGET, P (in.)	Rv	WQV REQUIRED (cf)	WQV PROVIDED (cf)	RUNOFF VOL. TREATED (in.)	REMOVAL RATE DESIGNATION	TOTAL NITROGEN REMOVED (lbs/yr)	TOTAL PHOSPHORUS REMOVED (lbs/yr)	TOTAL SUSPENDED SOLIDS REMOVED (lbs/yr)	IMPERVIOUS ACRE CREDIT (Ac.)
A	0.48	0.44	91.67	1.00	0.875	1525	1,623	1.06	ESD/RR	4.0	*0.0	80.0	0.44

\*ACTUAL PHOSPHORUS REMOVED CALCULATED IN THE HUNDREDTHS

**PROJECT LIMIT OF DISTURBANCE = 2,600 S.F. / 0.06 AC.±**

**QUANTITY MANAGEMENT SUMMARY TABLE**

POINT OF INVESTIGATION	1-YR. STORM EVENT (c.f.s.)		2-YR. STORM EVENT (c.f.s.)		10-YR. STORM EVENT (c.f.s.)	
	EXISTING CONDITION	DEVELOPED CONDITION WITHOUT SWM	EXISTING CONDITION	DEVELOPED CONDITION WITHOUT SWM	EXISTING CONDITION	DEVELOPED CONDITION WITHOUT SWM
POI-A	1.58	1.51	1.93	1.88	2.98	2.98



**STATE OF MARYLAND**  
COURT REPORTERS & PUBLIC ACCOUNTANTS  
C. BUCKLEY  
No. 200472  
Professional Seal

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland.  
License Number 200472  
Expiration Date: 9-2-21

**HARFORD COUNTY, MARYLAND**  
**MARY E. W. RISTEAU DISTRICT COURTS & MULTI-SERVICE CENTER PARKING LOT MICRO-BIORETENTION FACILITY DRAINAGE AREA MAPS**

REVISION NO.	DATE	DESCRIPTION	SCALE:
			1"=40'
			DESIGN BY: N. JENKINS
			DRAWN BY: N. JENKINS
			CHECKED BY: C. BUCKLEY
			PROJECT NO.: N/A
			DATE: 08/23/2019
			SHEET NUMBER <b>06 of 06</b>