GENERAL NOTES

1. SPECIFICATIONS: ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION "SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" DATED JULY 2024, 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 SURVEY DATA.

3. UTILITY RELOCATIONS: UTILITY RELOCATIONS MADE NECESSARY BY THE STORMWATER MANAGEMENT RETROFIT 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 NO. 1–800–257–7777, 48 HOURS IN ADVANCE FOR THE LOCATION OF ANY UTILITIES.

   CONTACT BALTIMORE GAS & ELECTRIC CO., PHONE NO. 1–410–291–3119, 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 2008. 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. STOCK-PILING AND STAGING WILL BE ALLOWED ON SITE, HOWEVER, THE CONTRACTOR MAY 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. SURVEYS: ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 AS DETERMINED BY RTK/GPS OBSERVATIONS AS BROAD–CASTED 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 BROADCASTED BY THE TOPCON TOPNET REAL TIME NETWORK.

ESD & UNIFIED SIZING CRITERIA

REQUIRED VOLUME : 5,131 CF (Pe = 1.00")
PROVIDED VOLUME : 5,690 CF (Pe = 1.11")
CHANNEL PROTECTION (Cpv): N/A
OVERBANK PROTECTION VOL: N/A

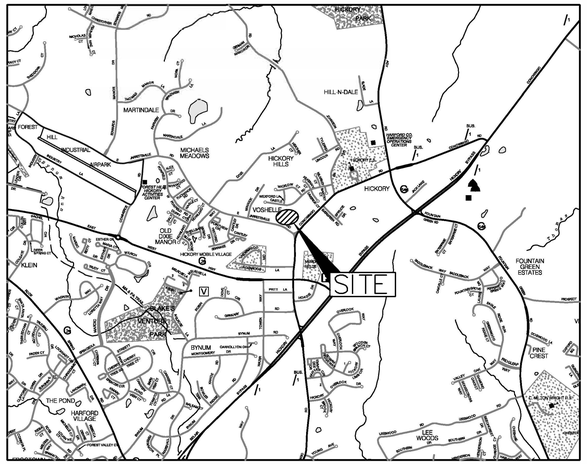
SWM SITE ANALYSIS

TOTAL SITE AREA: 3.22 Ac.±
TOTAL SITE IMPERVIOUS AREA (EXISTING): 1.39 Ac.±
TOTAL LIMIT OF DISTURBANCE: 0.49 Ac.±
EXISTING IMPERVIOUS WITHIN LOD: 0.0 Ac.±
PROPOSED IMPERVIOUS WITHIN LOD: 0.0 Ac.±
TOTAL SITE IMPERVIOUS AREA REDUCTION: (–)0.0 Ac.±
TOTAL SITE IMPERVIOUS AREA (PROPOSED): 0.0 Ac.±
SWM WATERSHED: BYNUM RUN

HARFORD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

HICKORY VETERINARY HOSPITAL (FORMERLY KNOWN AS SENIOR/ BOGARITY KENNEL) STORMWATER MANAGEMENT RETROFIT

BID NO: 26-033



LOCATION MAP
SCALE 1" = 2000'

0 2000 4000

DEVELOPER
HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS
WATERSHED PROTECTION & RESTORATION OFFICE
212 SOUTH BOND STREET, 1ST FLOOR
BEL AIR, MARYLAND 21014
PH: (410) 638–3217 EXT. 1176

OWNER
534 EAST JARRETTSVILLE ROAD LLC
534 EAST JARRETTSVILLE ROAD
FOREST HILL, MD 21050

ENGINEER
STANTEC CONSULTING SERVICES
6110 FROST PLACE
LAUREL, MARYLAND 20707
PH: (301) 982–2800

ENVIRONMENTAL INFORMATION
THE FOLLOWING ARE NOT ASSOCIATED WITH THIS PROPERTY:
* 100-YR FLOODPLAIN
* TIDAL /NONTIDAL WETLANDS
* WATERS OF THE US
* CHESAPEAKE BAY CRITICAL AREA
* ENDANGERED SPECIES
* FOREST CONSERVATION EASEMENTS
* EXISTING BMP FACILITIES
* STEEP SLOPES (15% OR GREATER)
* WELL OR SEPTIC AREAS LOCATED WITHIN 200' OF THE SITE

INDEX OF SHEETS

PROJECT NARRATIVE
IN CONJUNCTION WITH HARFORD COUNTY'S MS4 PERMIT PROGRAM, THE DEPARTMENT OF PUBLIC WORKS IS PROPOSING A SUBMERGED GRAVEL WETLAND FACILITY AT THE HICKORY KENNELS PROPERTY. THIS FACILITY WILL REPLACE AN EXISTING DRY EXTENDED DETENTION POND. THE FACILITY IS DESIGNED TO TREAT A Pe OF 1.89" AND IMPERVIOUS AREA OF 1.24 ACRES.

Stantec
6110 FROST PLACE
LAUREL, MD 20707
TEL. (301) 982–2800
WWW.STANTEC.COM

S/C PLAN #59865
GP #12947–2020
EG: SWMENG–000069–2020

SCALE : 1 inch 97066

STATE OF MARYLAND · EDWARD ENRIQUE BENITEZ · No. 39966 · REGISTERED PROFESSIONAL ENGINEER
3/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND
HICKORY VETERINARY HOSPITAL
STORMWATER MANAGEMENT RETROFIT
TITLE SHEET

Drawn By : CC
Designed By : MV
Reviewed By : FB

Contract No :
Scale : AS SHOWN
Sheet 1 Of 15
Date : MARCH 2025

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE : 1 inch

534 EAST JARRETTSVILLE ROAD LLC
534 E JARRETTSVILLE RD
FOREST HILL MD 21050-1604
MAP: 0041 GRID: 0001A
ACCOUNT NO: 087921
EXISTING VETERINARY HOSPITAL
E JARRETTSVILLE ROAD
E 1494400
N 695700
TOP OF CONC. WALL EL. 462.45
ASPHALT
RIP RAP 4"-10" STONES
6" WOOD POST
RIP RAP 6"-12" STONES
DAMAGED 4" PVC POSSIBLY SANITARY SEWER
REMOVE AND REPLACE EXISTING RISER AND 8" PVC PIPE
15" HDPE INV. 457.65
INV. 457.41
8" PVC INV. 457.29
TOP 22" CMP RISER EL. 459.67 INV. 457.51
TRANSFORMER
COORDINATE WITH UTILITY COMPANY TO TEMPORARILY RELOCATE EXISTING UTILITY GUY WIRES DURING EMBANKMENT CONSTRUCTION
EX. 15' HILLCREST DRIVE EASEMENT
EX. 20' LANDSCAPE BUFFER
EX. 20' DRAINAGE AND UTILITY EASEMENT
EX. 25' TUCKER DRIVE EASEMENT
EX. 20' DRAINAGE AND UTILITY EASEMENT
EX. 20' LANDSCAPE BUFFER
RIP RAP 6"-10" STONES
RIP RAP 4"-12" STONES
REMOVE LARGE TREES, SMALL TREES, SHRUBS, AND VEGETATION WITHIN 25' OF EMBANKMENT
N 695300
E 1494100
ST IGNATIUS' HICKORY ROMAN CATHOLIC CONGREGATION INCORPORATED
533 E JARRESTTSVILLE RD
FOREST HILL MD 21050-1603
MAP: 0041 GRID: 0001A
ACCOUNT NO: 062945
NOTE: GEOMETRY PLAN WITH CONTROL POINTS FOR CONSTRUCTION, SEE SHEET 9.
N 695700
E 1494100
ST IGNATIUS' HICKORY ROMAN CATHOLIC CONGREGATION INCORPORATED
533 E JARRETTSVILLE RD
FOREST HILL MD 21050-1603
MAP: 0041 GRID: 0001A
ACCOUNT NO: 103889

LEGEND:

80	EXISTING MAJOR CONTOUR
81	EXISTING MINOR CONTOUR
	EXISTING STORM DRAIN
	EXISTING FOREST LINE
E	EXISTING ELECTRICITY LINE
T	EXISTING TELEPHONE LINE
CATV (QLC)	EXISTING CATV CABLE
	EXISTING FENCE
	PROPERTY LINE
LOD	LIMIT OF DISTURBANCE
	EXISTING TREE
	EXISTING ROAD SIGN
	EXISTING GAS METER
	EXISTING SANITARY SEWER MANHOLE
	REMOVE TREE

NOTES:
1. NO EXISTING SEPTIC AND WELLS LOCATED WITHIN 200' OF SITE.

SCALE: 1" = 20'

STATE OF MARYLAND — FERNANDO ENRIQUE BENITEZ — NO. 39966 — REGISTERED PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

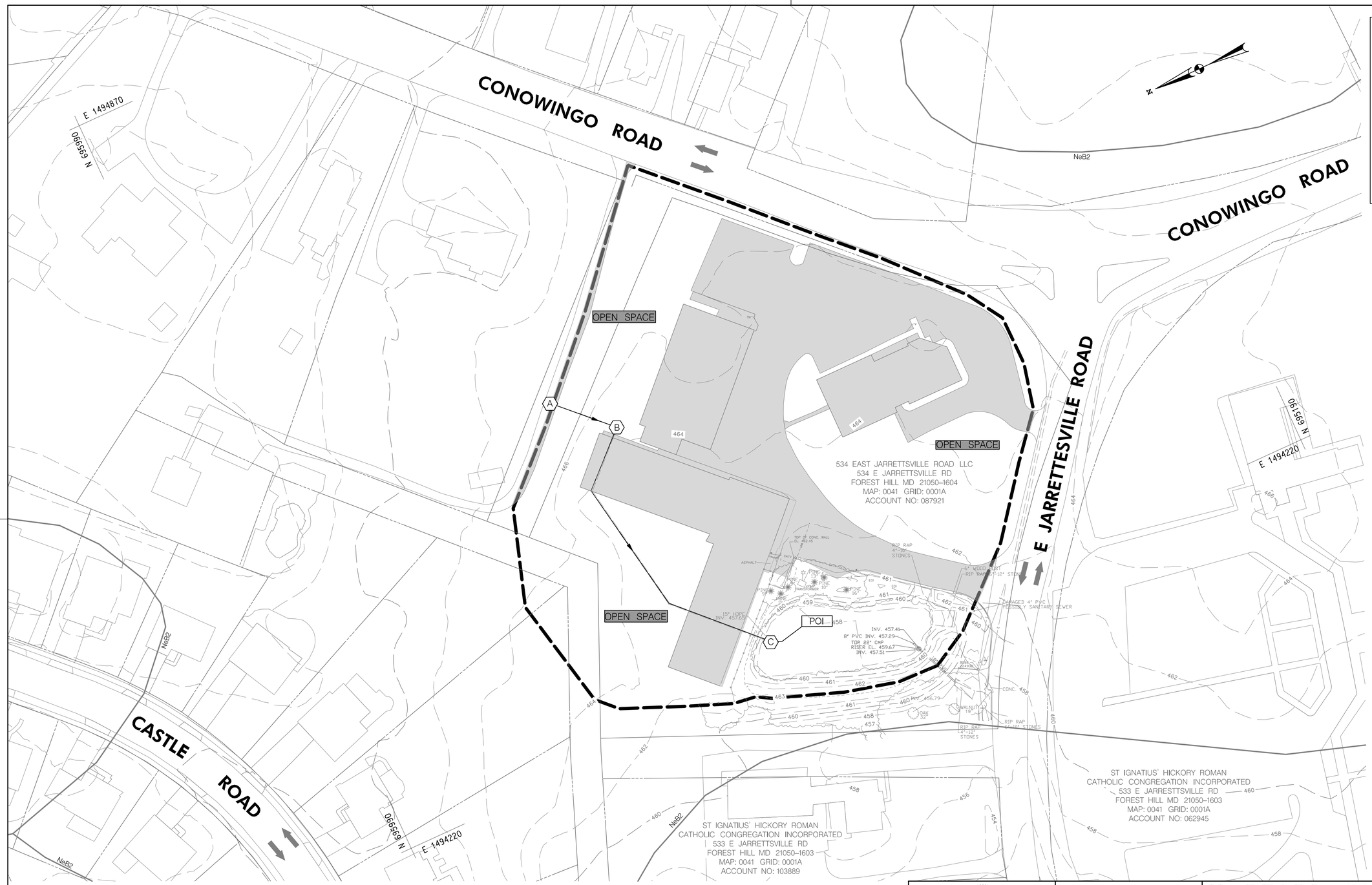
HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT EXISTING CONDITIONS PLAN

Drawn By : CC
Designed By : MV
Reviewed By : FB

Contract No : --------
Scale : 1" = 20'
Sheet 2 Of 15
Date : MARCH 2025

EG: SWMENG-000069-2020 SCALE : 1 inch 97066

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:



LEGEND

- DRAINAGE AREA BOUNDARY
- SOIL BOUNDARY — NeB2 / NeB2
- LIMIT OF DISTURBANCE — LOD
- POINT OF INVESTIGATION — POI
- IMPERVIOUS SURFACE W/I DRAINAGE AREA
- DRAINAGE AREA DESTINATION — A
- TIME OF CONCENTRATION LINE
- DIRECTION OF FLOW

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.:

QUANTITY MANAGEMENT SUMMARY TABLE					
1-YR STORM EVENT (CFS)		10-YR STORM EVENT (CFS)		100-YR STORM EVENT(CFS)	
EXISTING CONDITION	PROPOSED CONDITION	EXISTING CONDITION	PROPOSED CONDITION	EXISTING CONDITION	PROPOSED CONDITION
1.23	0.44	2.24	2.09	15.17	10.92

SOIL DESCRIPTIONS			
SYMBOL	SOIL NAME	HGS	K FACTOR
NeB2	Neshaminy silt loam, 3-8% slopes, moderately eroded	B	0.37

RUNOFF DATA TO POI (QUANTITY)				
DRAINAGE AREA (AC)	IMPERV. AREA (AC)	OPEN AREA (AC)	TIME OF CONCENT. (HR)	CURVE NUMBER
3.22	1.39	1.46	0.1	77

SPOT ELEVATIONS	
SEGMENT	ELEVATION
A	467.0'
B	465.0'
C	457.7'

TIME OF CONCENTRATION		
SEGMENT	FLOW TYPE	FLOW LENGTH (FT)
A-B	SHEET	57
B-C	PIPED	256

40' 0 40' 80'

SCALE: 1" = 40'

EG: SWMENG-000069-2020 SCALE : 1 inch 97066

STATE OF MARYLAND
EDWARD ENRIQUE BENITEZ
NO. 39966
REGISTERED
PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

DRAINAGE AREA MAP

Drawn By : CC

Designed By : MV

Reviewed By : FB

Contract No : ---------

Scale : 1" = 40'

Sheet 3 Of 15

Date : MARCH 2025

SCALE: 1 inch

MD-378 CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

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. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

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 6", 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 THE CAPABILITY 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 PORTIONS 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 HEAVY 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.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY 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 1 TO 1 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 A 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 SHELL OF THE EMBANKMENT.

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 NEEDS TO 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" 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 6" (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" 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 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 STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" 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.

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 0.01INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS 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 PAINTEDWITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM 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 AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION 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 BANDWIDTH. 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 ORING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 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 CONNECTION. 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.

4. 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.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

6. 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 - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

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 BROUGHT UP 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 4 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 - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D1785 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 REQUIREMENTS 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. 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.

DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS. SECTION 311. GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS. SECTION 921.09, CLASS C.

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 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 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 SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

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 NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

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.

GENERAL GEOTECHNICAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUBGRADE INSPECTIONS AND SOIL COMPACTION TESTING ASSOCIATED WITH THE PROPOSED WORK. THIS WORK SHALL BE COMPLETED BY OR UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSEDIN THE STATE OFMARYLAND.IF REQUESTED BY THE OWNER/DEVELOPER OR AS INDICATED ON THE APPROVED PLANS. THIS ENGINEER IS HEREON REFERRED TO AS THE GEOTECHNICAL ENGINEER AND SHALL BE FROM AN INDEPENDENT FIRM FROM THAT OF THE CONTRACTOR.

2. ALL FILL AREAS SHALL BE CLEANED OF ALL VEGETATION AND DEBRIS. STRIPPED OF ALL TOPSOIL. AND THEN SCARIFIED TO A MINIMUM DEPTH OF 12 INCHES PRIOR TO THE PLACEMENT OF FILL. FILL MATERIAL SHALL BE PLACED IN CONTROLLED LIFTS WITH A MAXIMUM THICKNESS OF 8" PRIOR TO COMPACTION THAT IS CONTINUOUS OVER THE ENTIRE AREA WHERE FILL IS TO BE PLACED. EACH LAYER OF FILL SHALL BE COMPACTED WITH THE MINIMUM NUMBER OF PASSES NECESSARY TO PRODUCE A FULL ASYMPTOTIC COMPACTION.

3. FOR STRUCTURAL AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS.COMPACTION SHALL BE CARRIED OUT WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT TO A DRY DENSITY OF 95% OF THE AMXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698 AND AASHTO METHOD T-99).

4. FOR VEGETATIVE AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS.COMPACTION SHALL BE CARRIED OUT AT A LESS THAN OPTIMUM MOISTURE CONTENT (E.G., AT A WATER CONTENT OF LESS THAN 13% ON A SOIL HAVING AN OPTIMUM CONTENT OF 15%) TO A DRY DENSITY OF BETWEEN 80% AND 85% OF THE MAXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698).

5. ALL SOILS USED IN FILL AND BACKFILL MUST BE MOISTENED OR AERATED TO WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. WHERE THE SOIL LAYER IS TOO DRY. THE CONTRACTOR MUST APPLY WATER UNIFORMLY USING APPROVED EQUIPMENT TO INCREASE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM. WHERE THE SOIL LAYER IS TOO WET. THE CONTRACTOR MUST DRY THE SOILS BY PLOWING OR DISKING TO AERATE THE SOIL AND REDUCE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM.

6. IF THE EXISTING ONSITE MATERIAL IS ROCKY, THEN THE SAME CAN BE USED UP TO 9 INCHES BELOW THE FINAL ELEVATION OR SUBBASE. THE REMAINING FILL MUST BE SELECT EARTH FILL.SOFT SPOTS IDENTIFIED DURING COMPACTION SHALL BE UNDERCUT AND BACKFILLED APPROPRIATELY.

7. ALL SELECT EARTH FILL SHALL BE FREE FROM ORGANICS. FROZEN MATERIAL. AND ROCKS/STONES GREATER THAN 2 INCHES IN ANY DIMENSION. ALL FILL MATERIAL MUST BE FREE FROM WASTE METAL PRODUCTS. UNSIGHTLY DEBRIS. TOXIC MATERIAL OR OTHER DELETERIOUS MATERIALS.

8. ALL IMPORTED FILL MATERIAL SHALL HAVE A MINIMUM DENSITY OF 105 POUNDS PER CUBIC FOOT FOR THE MAXIMUM DRY DENSITY ACCORDING TO AASHTO T-180, METHOD C AND SHALL NOT HAVE A LIQUID LIMIT GREATER THAN 30 NOR A PLASTICITY INDEX GREATER THAN 6 ACCORING TO ASTM D-4318. ALL OTHER MATERIALS SHALL MEET THE REQUIREMENTS STATED IN CATEGORY 900 OF THE LATEST EDITION OF THE MARYLAND STATE HIGHWAY ADMINISTRATION (MSHA) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.

9. NRCS-MD POND CODE NO. 378 STANDARDS/SPECIFICATIONS (MD-378) SHALL SUPERSEDE THESE NOTES FOR ANY FILL SUBJECT TO MD-378 WHEN THESE NOTES ARE LESS STRINGENT AND/OR IN THE CASE OF CONFLICT. ANY REFERENCE TO THE ENGINEER IN THE MD-378 SHALL BE THE PROFESSIONAL ENGINEER WHO SIGNED AND SEALED THE DESIGN PLANS. ANY REFERENCE TO THE GEOTECHNICAL ENGINEER SHALL BE THE GEOTECHNICAL ENGINEER IN THESE GENERAL NOTES.

10. THE CONTRACTOR SHALL SUBMIT ALL REQUIRED PROCTOR DENSITY RESULTS OF TESTED FILL TO THE OWNER/DEVELOPER FOR REIEW AND ACCPETANCE. AT A MINIMUM, COMPACTION TESTS SHALL BE COMPLETED FOR EVERY LIFT OF FILL AND THE TESTING FREQUENCY SHALL BE AT COMPACTION TEST PER LIFT AND AT LEAST TWO COMPACTION TESTS PER DAY.THE GEOTECHNICAL ENGINEER SHALL SUPPLY THE OWNER/DEVELOPER WITH CERTIFIED COMPACTION TEST RESULTS. INCLUDING CERTIFICATION OF PIPE BEDDING SUBGRADE AND/OR FILL SUBGRADE.WHERE APPROPRIATE.

11. ALL REQUIRED INSPECTIONS, TESTS, SUPPORTING DATA, REPORTS, AND CERTIFICATIONS SHALL BE PROVIDED TO THE OWNER/DEVELOPER AND SHALL BE SIGNALED AND SEALED BY THE GEOTECHNICAL ENGINEER. DAILY INSPECTION REPORTS. IF REQUESTED, MAY BE PROVIDED WITHOUT BEING IMMEDIATELY SIGNED AND SEALED BY THE GEOTECHNICAL ENGINEER. THESE REPORTS SHALL BE COMPILED, REVIEWED, SIGNED AND SEALED, AND SUBMITTED TO THE OWNER/DEVELOPER NO LATER THAN 30 DAYS AFTER THE COMPLETION OF THE PROJECT.

POND DESIGN CERTIFICATION FOR SMALL POND NUMBER

I CERTIFY THAT THIS DESIGN PLAN FOR THE CONSTRUCITON OF THE EMBANKMENT AND/OR EXCAVATED POND(S) REPRESENTS A HAZARD CLASS "A" POND(S) AND WAS DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE USDA, NATURAL RESOURCES CONSERVATION SERVICE' MARYLAND STANDARDS AND SPECIFICATIONS FOR PONDS (MD-378). I HAVE REVIEWED THIS PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE

PRINTED NAME

ADDRESS

MD PE REGISTRATION #

PHONE #

HARFORD SOIL CONSERVATION DISTRICT
SMALL POND APPROVAL

DISTRICT OFFICIAL — DATE 6/24/25

TECHNICAL REVIEW FOR DISTRICT

HARFORD COUNTY DEPT. OF PUBLTC WORKS — DATE 6-16-25

DEVELOPER'S/LANDOWNER'S CERTIFICATION

I/WE 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.

OWNER/DEVELOPER SIGNATURE — DATE 5-28-25

JOSEPH J. SIEMEK, PE - DIRECTOR OF PUBLIC WORKS
PRINTED NAME

ENGINEER'S CERTIFICATION

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

ENGINEER'S SIGNATURE — DATE 03/14/25

FERNANDO BENITEZ, P.E. — 39966
PRINTED NAME — MD PE REGISTRATION NO.

FIELD VERIFICATION

I HEREBY CERTIFY THAT I COMPLETED A FIELD VERIFICATION TO THE INFORMATION SHOWN ON THE PLANS [DATE] AND THAT THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS.

ENGINEER'S SIGNATURE — DATE 03/14/25

FERNANDO BENITEZ, P.E. — 39966
PRINTED NAME — MD PE REGISTRATION NO.

AS-BUILT CERTIFICATION

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

ENGINEER'S SIGNATURE — DATE

PRINTED NAME — MD PE REGISTRATION NO.

SWM APPROVAL

HARFORD COUNTY BILLING NUMBER XXXX
THESE PLANS HAVE BEEN REVIEWED BY HARFORD COUNTY AND MEET THE TECHNICAL REQUIREMENTS FOR STORMWATER MANAGEMENT ONLY.

REVIEWED FOR TECHNICAL SUFFICIENCY

STORMWATER MANAGEMENT — DATE 7/8/2025

REVIEW AND APPROVAL RECOMMENDED:

CHIEF ENGINEER — DATE 7-8-25

APPROVAL RECOMMENDED:

DEPUTY DIRECTOR OF PUBLIC WORKS — DATE 7/8/25

APPROVED:

DIRECTOR OF PUBLIC WORKS — DATE 7-8-25

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.:

SCALE : 1 inch

EG: SWMENG-000069-2020 SCALE : 1 inch 97066

STATE OF MARYLAND
FERNANDO ENRIQUE BENITEZ
No. 39966
REGISTERED
PROFESSIONAL ENGINEER
03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL
STORMWATER MANAGEMENT RETROFIT
STORMWATER MANAGEMENT NOTES

Drawn By : CC
Designed By : BS
Reviewed By : FB

Contract No : ---------
Scale : ---------
Sheet 4 Of 15
Date : MARCH 2025

534 EAST JARRETTSVILLE ROAD LLC
534 E JARRETTSVILLE RD
FOREST HILL MD 21050-1604
MAP: 0041 GRID: 0001A
ACCOUNT NO: 087921
EXISTING VETERINARY HOSPITAL
E 1494100
N 695700
18' GATE
12' MAINTENANCE ACCESS ROAD
EX. STORMWATER EASEMENT
PROP. FOREBAY #1 W/CLASS I RIPRAP
7'-0" WIDE FOREBAY WIERS SEE SHEET 5 FOR DETAILS
4'-0" WIDE X 10" HIGH STONE SILLS
PROPOSED OBSERVATION WELL #1
7'-0" WIDE FOREBAY WIERS SEE SHEET 5 FOR DETAILS
ST-1
ST-2
ST-3
ST-4
ST-5
ST-6
ST-7
EX ST-1
POND INFLOW FROM CURB CUT
RIP RAP 4"-10" STONES
6" WOOD POST
RIP RAP 6"-12" STONES
DAMAGED 4" PVC POSSIBLY SANITARY SEWER
PROPOSED TOKEN EMERGENCY SPILLWAY ELEV. = 461.0'
PROPOSED RISER STRUCTURE
REUSE EXISTING CLASS I RIPRAP TO CREATE PROPOSED 26 LF 0% STABLE OUTFALL
POND INFLOW EX. 15" HDPE
PROP. FOREBAY #2 W/CLASS I RIPRAP
PROPOSED 402 LF FENCE
15" HDPE INV. 457.65
TOP 22" RISER 459.67 INV. 457.51
SB-1
SB-2
SB-3
EX. 15' HILLCREST DRIVE EASEMENT
EX. 20' LANDSCAPE BUFFER
EX. 20' DRAINAGE AND UTILITY EASEMENT
PROPOSED SGW SURFACE AREA = 4,935 SF SURFACE ELEV. = 456.65' BOTTOM ELEV. = 453.73'
WQV ELEV. = 457.65'
EX. STORMWATER EASEMENT
PROP. CORE TRENCH
PROP. SAND FILTER DIAPHRAGM
PROP. 40 LF 15" RCP BARREL @ 0.8% C-361 B-25
PROP. 13 LF 4" SOLID PVC @ 0.0% BOTH SIDES
EX. 25' TUCKER DRIVE EASEMENT
EX. 20' DRAINAGE AND UTILITY EASEMENT
EX. 20' LANDSCAPE BUFFER
PROPOSED OBSERVATION WELL #2
RIP RAP 6"-10" STONES
RIP RAP 4"-12" STONES
E JARRETTSVILLE ROAD
ST IGNATIUS' HICKORY ROMAN CATHOLIC CONGREGATION INCORPORATED
533 E JARRESTTSVILLE RD
FOREST HILL MD 21050-1603
MAP: 0041 GRID: 0001A
ACCOUNT NO: 062945
ST IGNATIUS' HICKORY ROMAN CATHOLIC CONGREGATION INCORPORATED
533 E JARRETTSVILLE RD
FOREST HILL MD 21050-1603
MAP: 0041 GRID: 0001A
ACCOUNT NO: 103889
N 695300
E 1494100
PROPOSED OBSERVATION WELL #1
6" PVC SCH. 40 TYPICAL FOR ALL PIPES
4.0'
15.0'
22.5'
19.0'
60.0'
30.0'
8.0'
PROPOSED RISER STRUCTURE
4'-0" WIDE X 10" HIGH STONE SILLS
PROPOSED OBSERVATION WELL #2
SUBDRAIN BLOW-UP
SCALE 1" = 10'

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.:

LEGEND:

80	PROPOSED MAJOR CONTOUR
81	PROPOSED MINOR CONTOUR
LOD	LIMIT OF DISTURBANCE
	PROPOSED NORMAL POOL
	PROPOSED PIPE
	PROPOSED EASEMENT
	PROPOSED FENCE
	PROPOSED RISER
	SOIL BORING
	PROPOSED OUTFALL PROTECTION

SCALE: 1" = 20'

EG: SWMENG-000069-2020 97066

STATE OF MARYLAND FERNANDO ENRIQUE BENITEZ No. 39966 REGISTERED PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

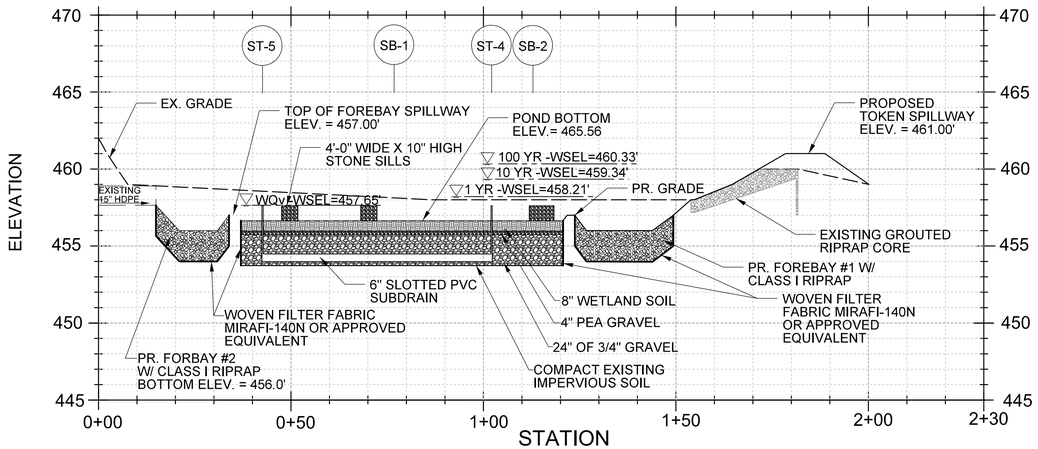
HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

STORMWATER MANAGEMENT PLAN

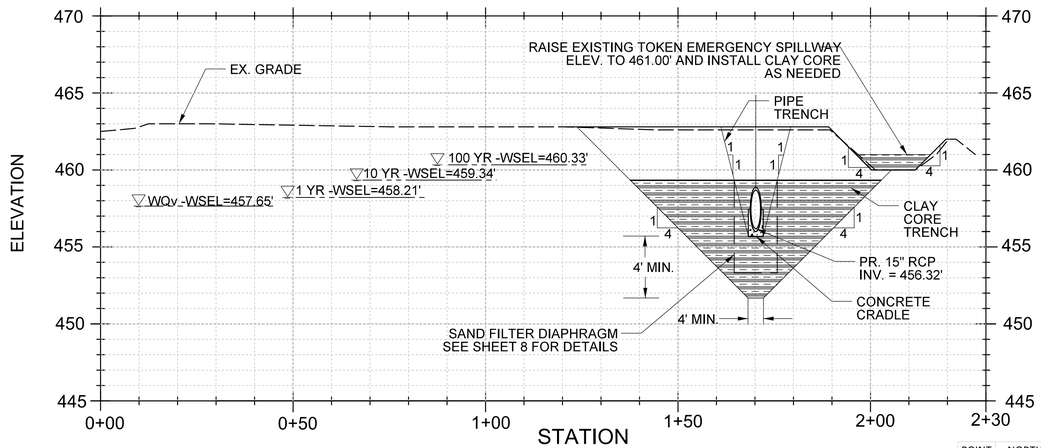
Drawn By : CC
Designed By : MV
Reviewed By : FB

Contract No : --------
Scale : 1" = 20'
Sheet 5 Of 15
Date : MARCH 2025



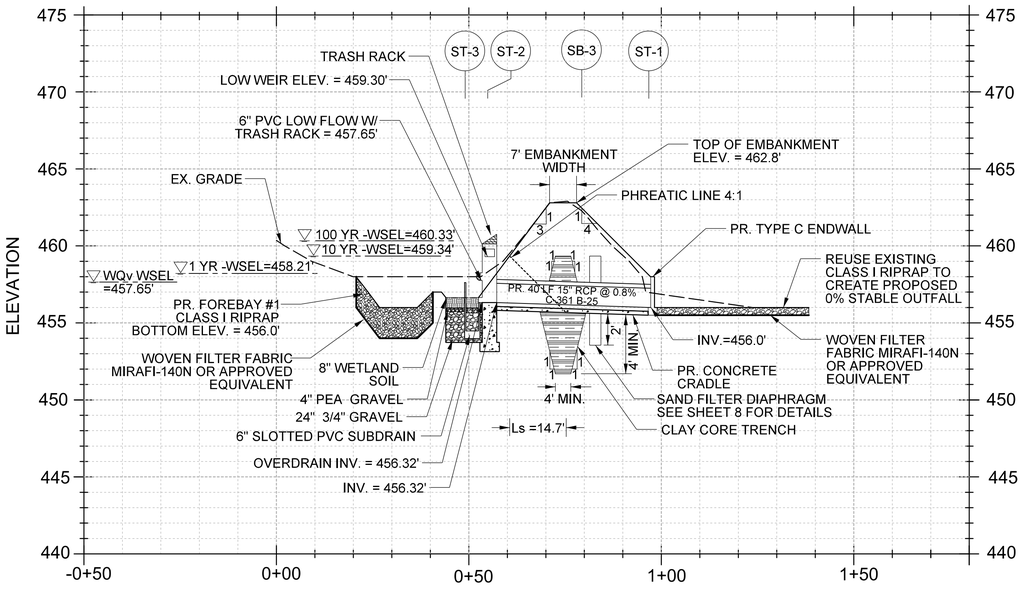
SECTION 'A–A'

VER. SCALE 1"= 5'
HOR. SCALE 1"= 20'



SECTION 'C–C'

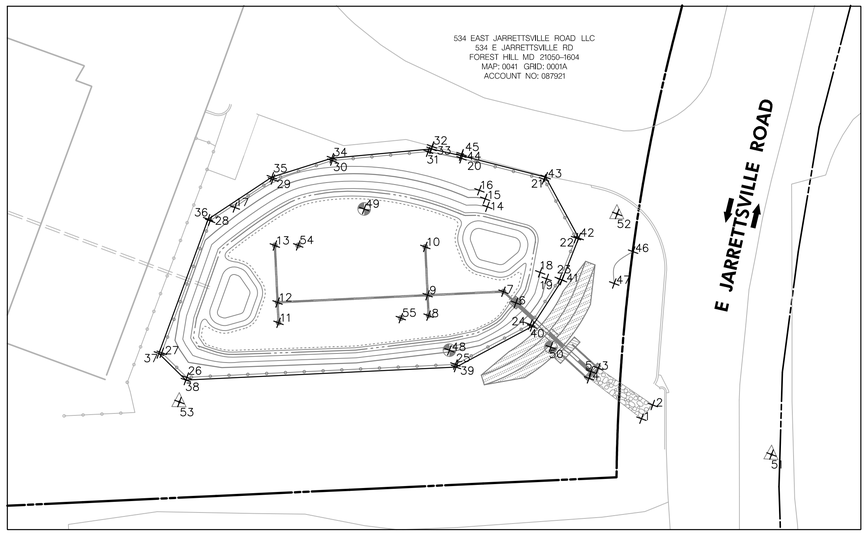
VER. SCALE 1"= 5'
HOR. SCALE 1"= 20'



NOTE:
A 4' THICK CLAY LINER SHALL BE INSTALLED ALONG THE UPSTREAM EMBANKMENT SLOPE. THE LINER MUST EXTEND UP TO THE 10-YR WSEL AND 2' BELOW THE PRINCIPAL SPILLWAY PIPE OR CONCRETE CRADLE.

SECTION 'B–B'

VER. SCALE 1"= 5'
HOR. SCALE 1"= 20'



GEOMETRY PLAN

SCALE: 1" = 20'

POINT	NORTHING	EASTING	DESCRIPTION
1	695322.9092'	1494497.1177'	RIPRAP OUTFALL PAD
2	695316.5746'	1494500.1819'	RIPRAP OUTFALL PAD
3	695330.0899'	1494522.4483'	RIPRAP OUTFALL PAD
4	695335.1124'	1494520.3148'	RIPRAP OUTFALL PAD
5	695333.1901'	1494522.1820'	PROPOSED HEADWALL
6	695348.9800'	1494559.5616'	PROPOSED RISER
7	695351.5969'	1494565.6263'	6" PVC CLEANOUT
8	695382.5075'	1494569.3972'	6" PVC CLEANOUT
9	695379.4699'	1494576.9338'	6" PVC CLEANOUT
10	695372.3211'	1494594.6706'	6" PVC CLEANOUT
11	695437.6858'	1494591.6366'	6" PVC CLEANOUT
12	695434.6737'	1494599.1101'	6" PVC CLEANOUT
13	695426.2312'	1494620.0568'	6" PVC CLEANOUT
14	695343.3303'	1494598.8661'	TIE-IN POINT
15	695342.8309'	1494602.1125'	TIE-IN POINT
16	695343.4987'	1494606.1082'	TIE-IN POINT
17	695434.3319'	1494640.3607'	TIE-IN POINT
18	695335.1850'	1494566.5219'	TIE-IN POINT
19	695333.9069'	1494563.1244'	TIE-IN POINT
20	695344.6242'	1494620.5814'	PROPOSED GATE
21	695318.4222'	1494599.3986'	PROPOSED FENCE
22	695316.6459'	1494572.9314'	PROPOSED FENCE
23	695329.2422'	1494560.9102'	PROPOSED FENCE
24	695347.3485'	1494549.3794'	PROPOSED FENCE
25	695380.9330'	1494547.3774'	PROPOSED FENCE
26	695479.7439'	1494587.1162'	PROPOSED FENCE
27	695484.6804'	1494600.1448'	PROPOSED FENCE
28	695445.4486'	1494639.6355'	PROPOSED FENCE
29	695416.0169'	1494644.1564'	PROPOSED FENCE
30	695391.5183'	1494641.0993'	PROPOSED FENCE
31	695355.5609'	1494628.4760'	PROPOSED GATE
32	695353.2716'	1494629.7260'	ACCESS EASEMENT
33	695353.8679'	1494628.9191'	ACCESS EASEMENT
34	695391.2882'	1494642.0783'	SWM EASEMENT
35	695416.0311'	1494645.1660'	SWM EASEMENT
36	695445.9259'	1494640.5739'	SWM EASEMENT
37	695485.8437'	1494600.3927'	SWM EASEMENT
38	695480.5237'	1494586.3520'	SWM EASEMENT
39	695381.0977'	1494546.3658'	SWM EASEMENT
40	695347.0301'	1494548.3966'	SWM EASEMENT
41	695328.6225'	1494560.1192'	SWM EASEMENT
42	695315.6168'	1494572.5312'	SWM EASEMENT
43	695317.4537'	1494599.9015'	SWM EASEMENT
44	695344.3073'	1494621.6111'	ACCESS EASEMENT
45	695343.9519'	1494622.0903'	ACCESS EASEMENT
46	695298.3081'	1494558.6095'	TIE-IN POINT
47	695310.3667'	1494550.2835'	TIE-IN POINT
48	695380.7323'	1494553.5069'	SOIL BORING
49	695388.0480'	1494618.4144'	SOIL BORING
50	695343.7255'	1494537.8296'	SOIL BORING
51	695477.817'	1494098.054'	TRAVERSE
52	695493.607'	1494210.151'	TRAVERSE
53	695682.246'	1494214.848'	TRAVERSE
54	695613.617'	1494251.555'	OBSERVATION WELL
55	695588.696'	1494208.425'	OBSERVATION WELL

S/C PLAN #59865
GP #12947-2020
EG: SWMENG-000069-2020

SCALE : 1 inch 97066

STATE OF MARYLAND
FERNANDO ENRIQUE BENITEZ
No. 39966
REGISTERED
PROFESSIONAL ENGINEER
03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

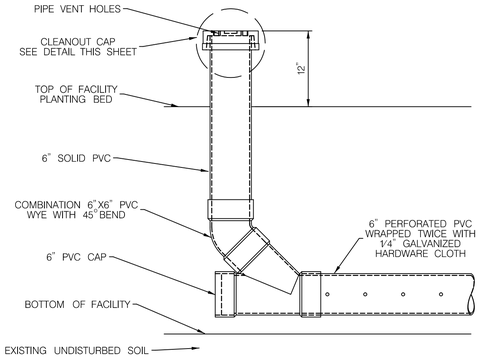
HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

STORMWATER MANAGEMENT PROFILES AND DETAILS

Drawn By : CC
Designed By : MV
Reviewed By : FB

Contract No : _____
Scale : AS SHOWN
Sheet 6 Of 15
Date : MARCH 2025

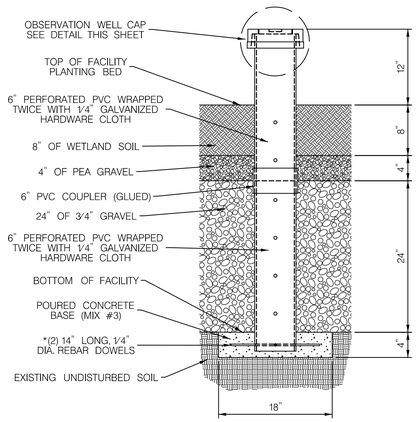
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SHEET 7 OF 15



NOTES

1. FOR AN UNDERGROUND FLUSH-MOUNTED OBSERVATION WELL/CLEANOUT, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 PVC, OR EQUAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST SIX INCHES.
2. THE TUBE SHALL HAVE A FACTORY-ATTACHED CAST IRON OR HIGH-IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION. WHEN REMOVING THE SCREW-TOP LID, THE SCREW-TOP LID SHALL BE CAST IRON OR HIGH-IMPACT PLASTIC THAT WILL WITHSTAND ULTRAVIOLET RAYS.

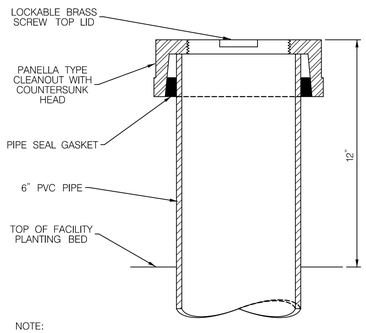
CLEANOUT DETAIL
SCALE: 1" = 1'-0"



NOTE:

PROPOSED 14" LONG, 1/4" DIAMETER (#2) REBAR SLEEVED THROUGH OPPOSITE OPENINGS, 7 INCHES ON CENTER. THE CONTRACTOR SHALL DRILL (5/16" HOLES) TWO OPPOSITE SETS OF OPENINGS WHICH BEST CENTER THE BARS LEVEL, 90° TO EACH OTHER AND CENTERED WITHIN THE POURED CONCRETE BASE.

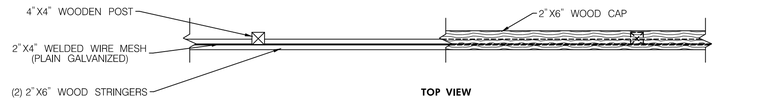
OBSERVATION WELL DETAIL
SCALE: 1" = 1'-0"



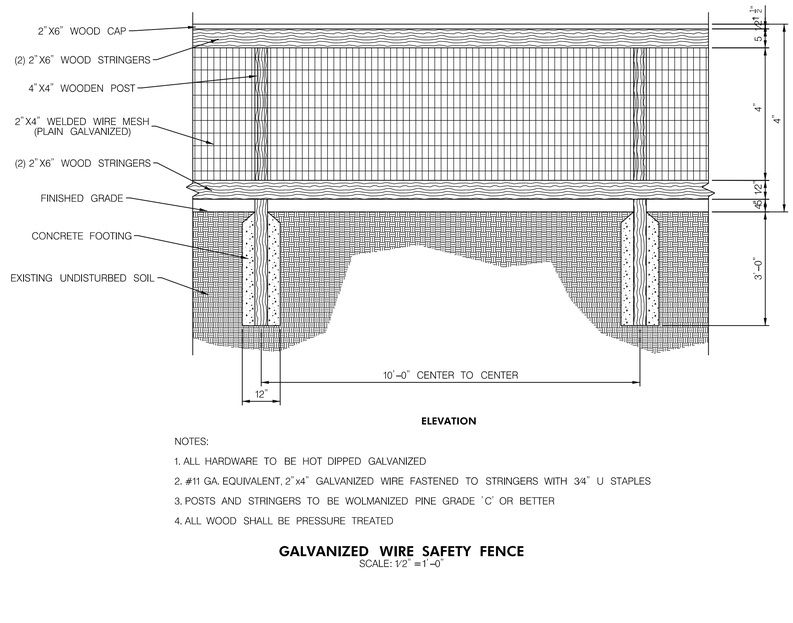
NOTE:

THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW 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.

SCREW CAP DETAIL
SCALE: 3" = 1'-0"



TOP VIEW

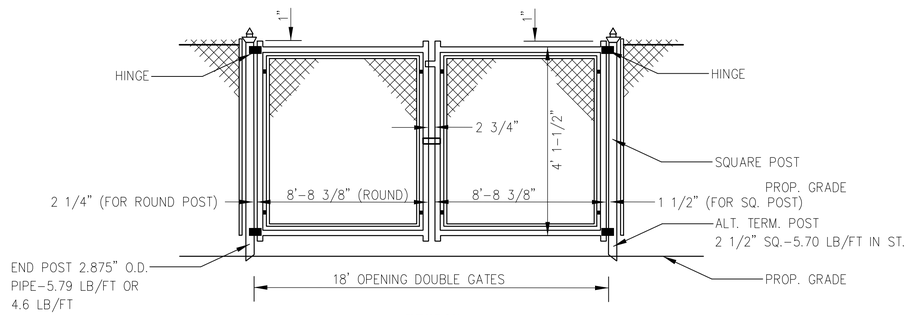


ELEVATION

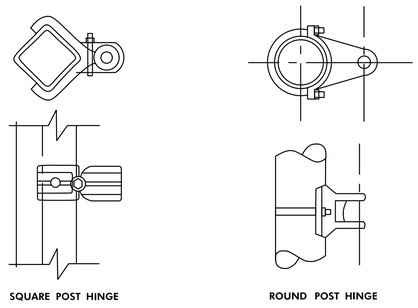
NOTES:

1. ALL HARDWARE TO BE HOT DIPPED GALVANIZED
2. #11 GA. EQUIVALENT, 2"x4" GALVANIZED WIRE FASTENED TO STRINGERS WITH 3/4" U STAPLES
3. POSTS AND STRINGERS TO BE WOLMANIZED PINE GRADE 'C' OR BETTER
4. ALL WOOD SHALL BE PRESSURE TREATED

GALVANIZED WIRE SAFETY FENCE
SCALE: 1/2" = 1'-0"



ELEVATION

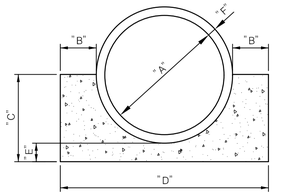


18' WIDE 42" HIGH DOUBLE GATE DETAIL
NOT TO SCALE

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
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 < 5% PH between 5.5 and 7.0 Organic content - minimum 10% by dry weight (ASTM D-2974)
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	NO. 8 OR NO. 9 (1/8" TO 3/8")	Washed
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	Washed
Geotextile		n/a	PE Type 1 nonwoven or woven 125 gpm
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Pipe shall be wrapped twice with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 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* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; 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	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone **(AASHTO)** #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



NOTES:

1. POUR CONCRETE AGAINST UNDISTURBED EARTH.
2. CONCRETE SHALL BE MSHA MIX # 3 (f'c = 4,500 PSI)
3. BARREL MAY BE PLACED ON PRECAST CONCRETE BLOCKS PRIOR TO CRADLE POUR.
4. POURING AN ADDITIONAL 4" – 6" THICK "MUDMAT" MAY BE ACCEPTABLE IF SUBGRADE CONDITIONS ARE WET AND WITH THE APPROVAL OF GEOTECHNICAL ENGINEER.
5. IF THE ENTIRE CONCRETE CRADLE CANNOT BE POURED IN ONE POUR, ONE VERTICAL JOINT IS ALLOWED, PLACE A MINIMUM OF THREE (3) 6'-0" LONG, #6 REBAR DOWELS TO JOIN POURS.

CONCRETE CRADLE DIMENSION SCHEDULE

LOCATION	"A"	"B"	"C"	"D"	"E"	"F"
15" RCP (ST-1)	15"	6"	15-3/4"	2'-5 1/4"	6"	2-1/4"
AS-BUILT						

CONCRETE CRADLE DETAIL
NOT TO SCALE

PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH (FT)	REMARKS
15"	RCP	ASTM C-361 B-25	40	
6"	PVC	SCH-40	178	

EG: SWMENG-000069-2020 SCALE : 1 inch 97066

STATE OF MARYLAND · FERNANDO ENRIQUE BENITEZ · NO. 39966 · REGISTERED PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

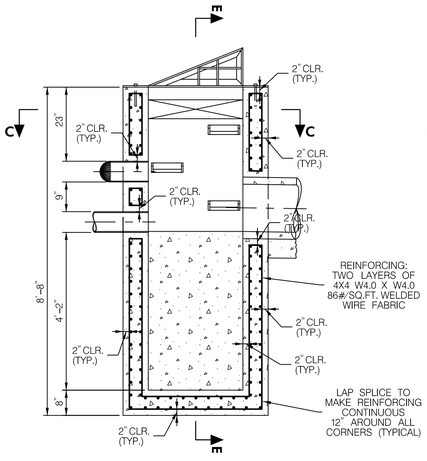
HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

STORMWATER MANAGEMENT DETAILS

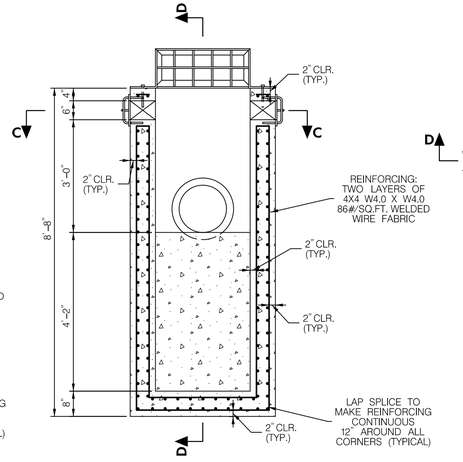
Drawn By : CC
Designed By : BS
Reviewed By : FB

Contract No : ---------
Scale : 1" = 20'
Sheet 7 Of 15
Date : MARCH 2025

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE : 1 inch



SECTION D–D



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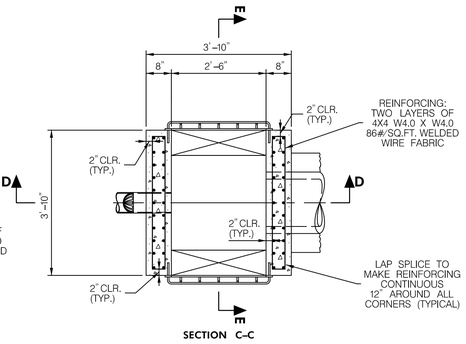

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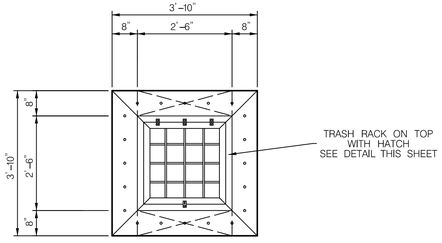
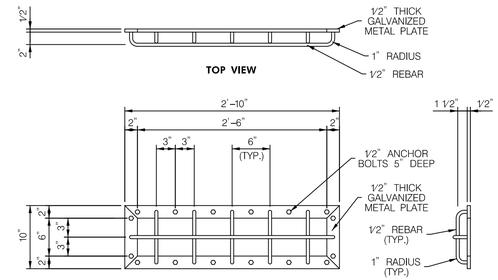


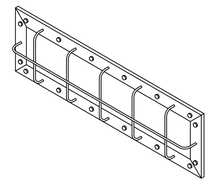
TRASH RACK ON TOP



TOP VIEW

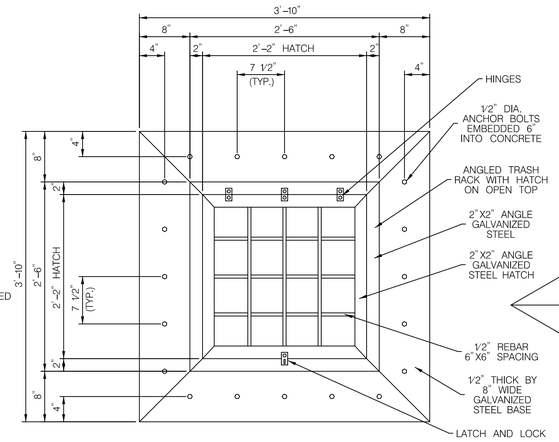
FRONT VIEW

RIGHT SIDE VIEW

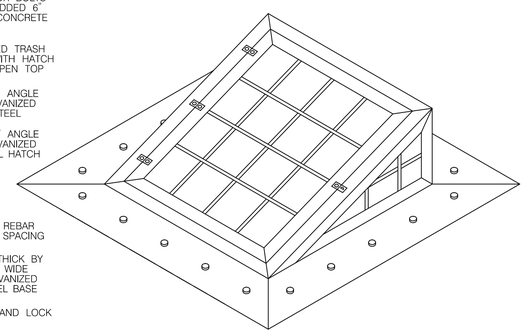


ISOMETRIC VIEW

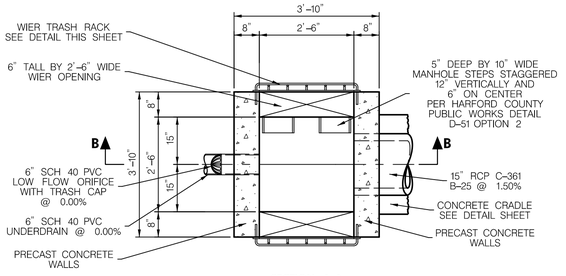
WIER TRASH RACK DETAIL
SCALE: 1" =1'-0"



TOP VIEW



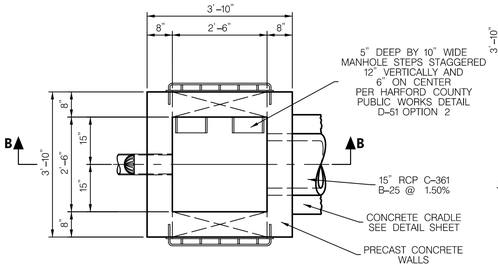
ISOMETRIC VIEW



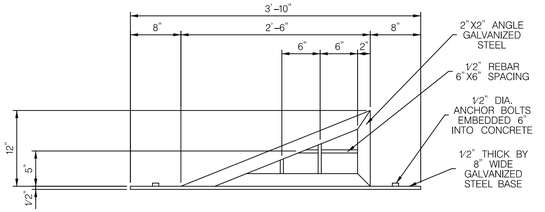
SECTION A–A

NOTES

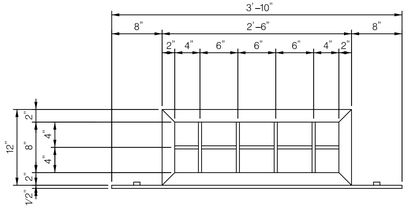
1. CONCRETE TO BE MIX NO. 6 (4500 PSI).
2. THREADED PLASTIC INSERTS SHALL BE PROVIDED FOR HANDLING.
3. GRADE AND SLOPE ADJUSTMENTS SHALL BE COMPLETED IN THE FIELD USING CONCRETE MIX NO. 6 OR BRICK AND MORTAR.



TOP VIEW

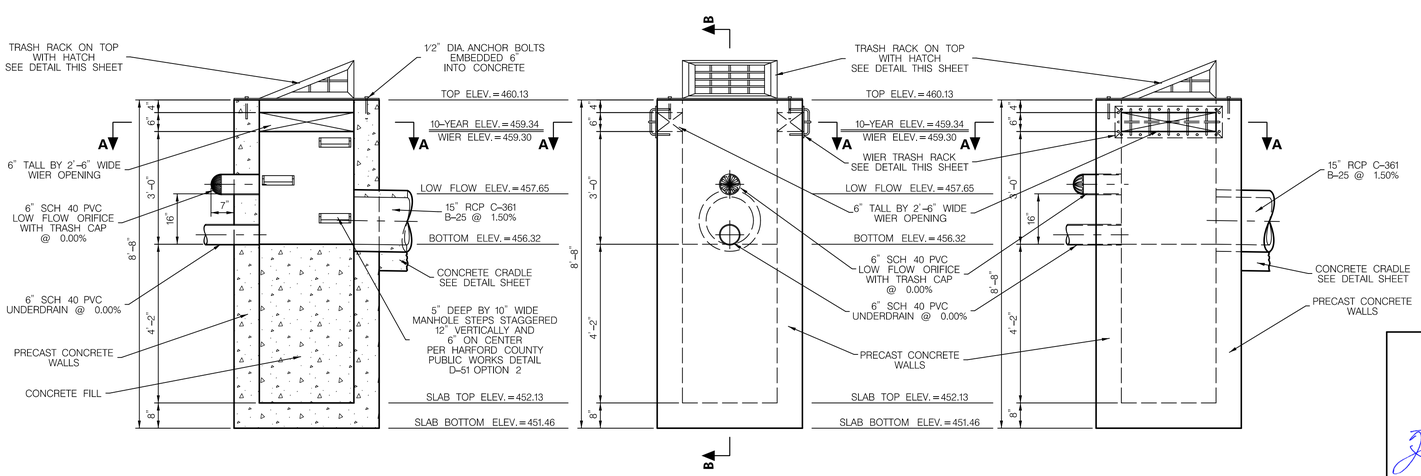


RIGHT SIDE VIEW



BACK VIEW

TOP TRASH RACK DETAIL
SCALE: 1" =1'-0"



SECTION B–B

FRONT VIEW

RIGHT SIDE VIEW

RISER DETAIL
SCALE: 1/2" =1'-0"

EG: SWMENG–000070–2020

SCALE : 1 inch 97067

STATE OF MARYLAND · EDWARD ENRIQUE BENITEZ · 39966 · REGISTERED PROFESSIONAL ENGINEER

3/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT STORMWATER MANAGEMENT DETAILS

Drawn By : CC
Designed By : BS
Reviewed By : FB

Contract No : ---------
Scale : AS SHOWN
Sheet 8 Of 15
Date : MARCH 2025

TAX MAP :
ADC MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE 1 inch

FILTER DIAPHRAGM INSTALLATION NOTES:

1. ALL MATERIALS FOR FILTER DIAPHRAGM INSTALLATION MUST BE SUBMITTED TO AND APPROVED BY THE ENGINEER–IN–CHARGE AND THE OWNER'S PROJECT MANAGER PRIOR TO DELIVERY TO SITE. SAMPLES OF SAND AND STONE MATERIAL TO BE USED IN THE FILTER DIAPHRAGM SHALL BE TESTED BY THE GEOTECHNICAL ENGINEER OF RECORD TO ENSURE COMPLIANCE WITH CORRECT GRADATIONS OF THE SPECIFIED MATERIALS.

2. MATERIALS TO BE USED ON THIS PROJECT CONSIST OF THE FOLLOWING:

   2.1. ASTM C–33 SAND – THE MINIMUM DRY DENSITY OF THE COMPACTED SAND SHALL BE EQUAL TO 70 PERCENT OF THE DRY DENSITY OBTAINED BY COMPACTING A SINGLE SPECIMEN OF SAND USING THE ENERGY AND METHODS DESCRIBED IN ASTM D698A. THE TEST CONSISTS OF A ONE POINT TEST PERFORMED ON SAND THAT HAS BEEN AIR DRIED THOROUGHLY PRIOR TO COMPACTION. THE SAND SHALL HAVE NO MORE THAN 3% MATERIAL PASSING A #200 SIEVE AS STOCKPILED ON–SITE AND NO MORE THAN 5% MATERIAL PASSING A #200 SIEVE AS INSTALLED. THE GEOTECHNICAL ENGINEER OF RECORD SHALL CONFIRM THIS REQUIREMENT.

   2.2. STONE AGGREGATE SHALL BE DOUBLE–WASHED WITH GRADATION MEETING AASHTO M43 SIZE #7.

   2.3. UNDER DRAIN PIPE AND FITTINGS SHALL BE 4" DIAMETER POLYVINYL CHLORIDE (P.V.C.) MEETING SCHEDULE 80, SLOTTED PIPE, WHERE SHOWN, SHALL CONSIST OF 1/8" WIDE BY 1.9 INCHES LONG SLOTS ORIENTED FOUR (4) SLOTS PER LF. AND FOUR ROWS SPACED EQUALLY AROUND THE CIRCUMFERENCE OF THE PIPE. SLOTS MUST BE MACHINED PRIOR TO DELIVERY TO THE SITE.

3. ALL FILTER DIAPHRAGM INSTALLATION WORK IS TO BE DONE UNDER SUPERVISION OF A PROFESSIONAL GEOTECHNICAL ENGINEER.

4. FILTER DIAPHRAGM MATERIAL IS TO BE PLACED IN A MAXIMUM OF 8" THICK LIFTS COMPACTING IN BETWEEN EACH LIFT.

5. COMPACTION OF EACH LIFT OF SAND SHALL BE ACCOMPLISHED VIA THE FOLLOWING PROCESS:

   5.1. PLACE LIFT THE FULL LENGTH OF THE FILTER DIAPHRAGM PRIOR TO COMPACTION.

   5.2. FLOOD THE LIFT WITH CLEAN POTABLE WATER IMMEDIATELY PRIOR TO COMPACTION FROM A SOURCE APPROVED BY THE ENGINEER–IN–CHARGE AND THE OWNER'S PROJECT MANAGER.

   5.3. MAKE A MINIMUM OF TWO (2) PASSES WITH A VIBRATORY PLATE COMPACTOR WEIGHING AT LEAST 160 POUNDS WITH A MINIMUM CENTRIFUGAL WEIGHT OF 2,450 POUNDS AT A VIBRATING FREQUENCY OF NO LESS THAN 5,000 CYCLES PER MINUTE OR BY A VIBRATORY SMOOTH–WHEELED ROLLER WEIGHING AT LEAST 325 POUNDS WITH A CENTRIFUGAL WEIGHT OF 2,250 POUNDS AT A VIBRATING FREQUENCY OF NO LESS THAN 4,500 CYCLES PER MINUTE JUST AFTER THE WATER LEVEL HAS DROPPED BELOW THE SURFACE OF THE SAND.

6. FILTER DIAPHRAGM MATERIAL SHALL BE PLACED TO AVOID SEGREGATION OF PARTICLE SIZES AND TO ENSURE THE CONTINUITY AND INTEGRITY OF ALL ZONES. NO FOREIGN MATERIAL SHALL BE ALLOWED TO INTERMIX WITH OR OTHERWISE CONTAM–INATE THE FILTER DIAPHRAGM MATERIALS. THE CONTRACTOR SHALL COMPLETELY REMOVE ANY FILTER DIAPHRAGM MATERIAL FOUND TO BE CONTAMINATED WITH FOREIGN MATERIALS PRIOR TO INSTALLING ADDITIONAL DIAPHRAGM MATERIAL.

7. TRAFFIC SHALL NOT BE PERMITTED TO CROSSOVER FILTER ZONES AT RANDOM. EQUIPMENT CROSSOVERS SHALL BE MAINTAINED, AND THE NUMBER AND LOCATION OF SUCH CROSSOVERS SHALL BE ESTABLISHED AND APPROVED PRIOR TO BEGINNING THE FILTER DIAPHRAGM PLACEMENT. EACH CROSS OVER SHALL BE CLEARED OF CONTAMINATING MATERIAL AND SHALL BE INSPECTED AND APPROVED BY THE PROFESSIONAL GEOTECHNICAL ENGINEER SUPERVISING THE INSTALLATION BEFORE PLACEMENT OF ADDITIONAL FILTER DIAPHRAGM MATERIAL.

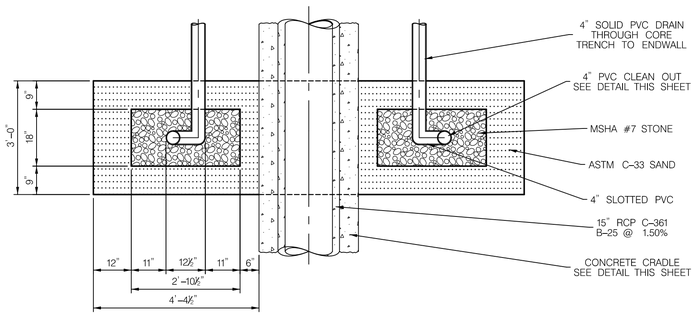
8. ANY DAMAGE TO THE FOUNDATION SURFACE OR THE TRENCH SIDES OR BOTTOM OCCURRING DURING PLACEMENT OF FILTER DIAPHRAGM MATERIAL SHALL BE REPAIRED BEFORE FILTER DIAPHRAGM PLACEMENT IS CONTINUED.

9. THE UPPER SURFACE OF THE FILTER DIAPHRAGM SHOULD BE CONSTRUCTED CONCURRENTLY WITH ADJACENT ZONES OF EARTH FILL AND SHALL BE MAINTAINED AT A MINIMUM ONE LIFT ABOVE THE UPPER SURFACE OF THE ADJACENT EARTH FILL.

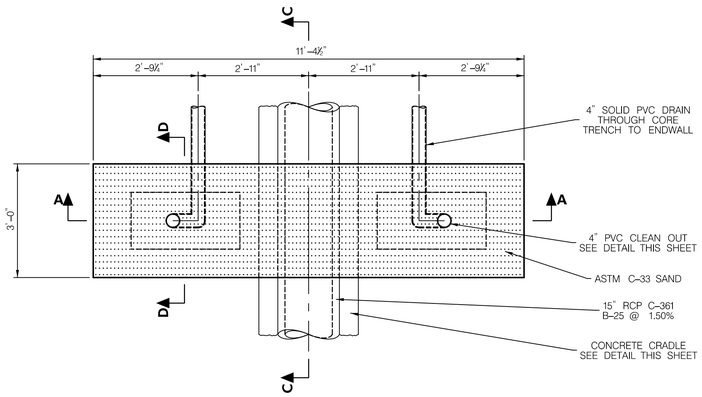
SAND SPECIFICATIONS:

WASHED ASTM C–33 FINE AGGREGATE CONCRETE SAND IS UTILIZED FOR STORMWATER MANAGEMENT APPLICATIONS. IN ADDITION TO THE ASTM C33 SPECIFICATION, SAND MUST MEET ALL OF THE FOLLOWING CONDITIONS:

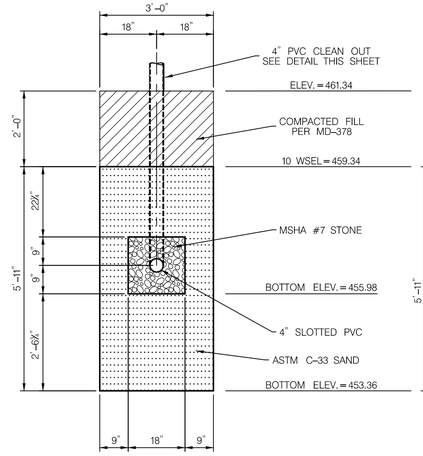
1. SAND MUST MEET GRADATION REQUIREMENTS FOR ASTM C–33 FINE AGGREGATE CONCRETE SAND. AASHTO M–6 GRADATION IS ALSO ACCEPTABLE.
2. SAND MUST BE SILICA BASED ... NO LIMESTONE BASED PRODUCTS MAY BE USED. IF THE MATERIAL IS WHITE OR GRAY IN COLOR, IT IS PROBABLY NOT ACCEPTABLE.
3. SAND MUST BE CLEAN, NATURAL, UNWASHED SAND DEPOSITS MAY NOT BE USED, LIKEWISE, SAND THAT HAS BECOME CONTAMINATED BY IMPROPER STORAGE OR INSTALLATION PRACTICES WILL BE REJECTED.
4. MANUFACTURED SAND OR STONE DUST IS NOT ACCEPTABLE UNDER ANY CIRCUMSTANCE.



SECTION B–B



TOP VIEW



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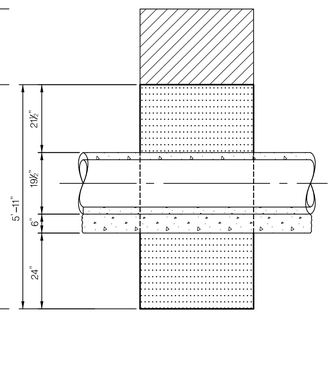
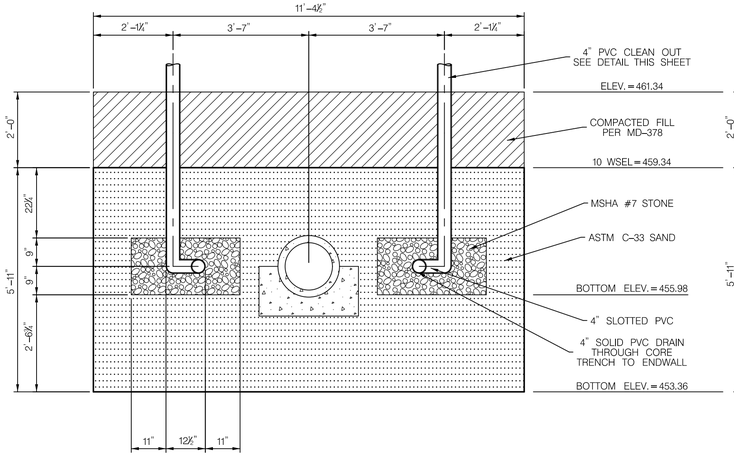


SECTION C–C



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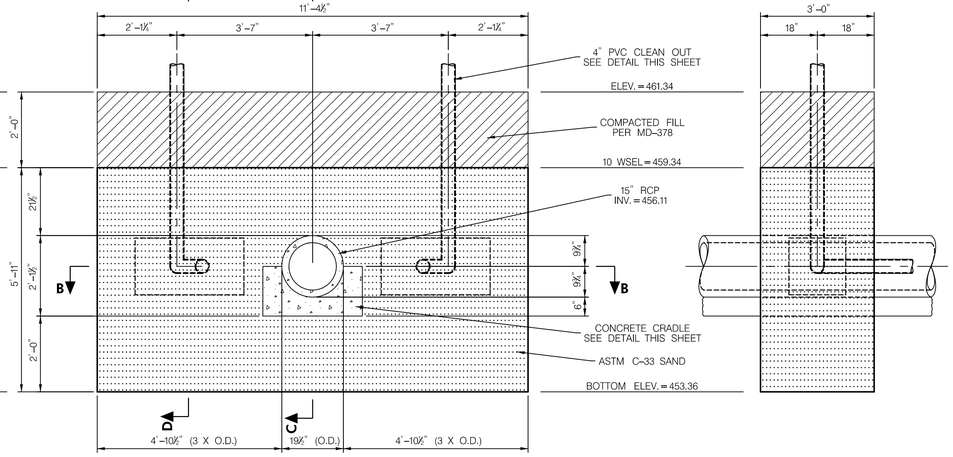

FRONT VIEW

RIGHT SIDE VIEW

SAND FILTER DIAPHRAGM DETAIL

SCALE: 1/2" = 1'–0"

STATE OF MARYLAND · EDWARD ENRIQUE BENITEZ · No. 39966 · REGISTERED PROFESSIONAL ENGINEER

03/14/25

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EG: SWMENG–000069–2020 SCALE : 1 inch 97066

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
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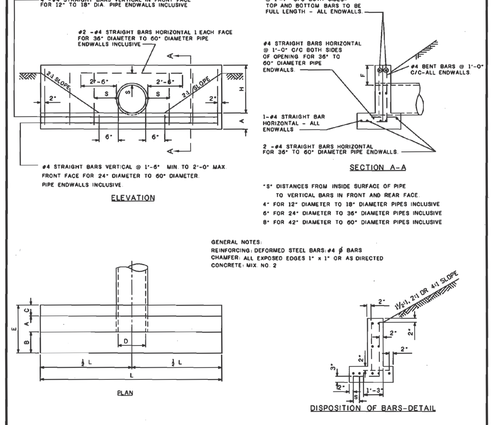
SCALE: 1 inch



QUANTITES IN TABLE TO BE USED FOR EST. ONLY

OPENINGS		DIMENSIONS							VOLUME	STEEL
D	AREA	A	B	C	E	F	H	L	CONC	
INCHES	SQ FT								C Y	LBS
12	0.79	9"	6"	6"	1'-9"	9"	1'-3"	6'-6"	0.61	38
15	1.23	9"	6"	6"	1'-9"	9"	2'-0"	7'-9"	0.78	55
18	1.78	9"	6"	6"	1'-9"	9"	2'-3"	9'-0"	0.95	62
24	3.14	9"	14"	6"	2'-5	9"	2'-9"	11'-6"	1.56	91
30	4.91	9"	14"	6"	2'-5	12"	3'-6"	14'-2"	2.19	136
36	7.07	12"	16"	10"	3'-2"	12"	4'-0"	16'-8"	4.18	222
42	9.62	12"	16"	10"	3'-2"	12"	4'-6"	19'-2"	5.13	265
48	12.57	12"	16"	10"	3'-2"	12"	5'-0"	21'-3"	6.12	336
54	15.90	12"	20"	12"	3'-8"	12"	5'-6"	24'2"	7.68	384
60	19.64	12"	20"	12"	3'-8"	12"	6'-0"	26'-8"	8.86	428

DIRECTOR OF PUBLIC WORKS — 05.02.00 DATE

DEP. DIRECTOR, PUBLIC WORKS — 04.12.00 DATE

HARFORD COUNTY, MD
DEPARTMENT OF
PUBLIC WORKS

STANDARD TYPE 'C' ENDWALL
ROUND PIPE

ISSUED 05.02.00
REVISED
REVISED
PLATE D-11

DMY

PROJECT NAME: Hickory Kennel Site
PROJECT NO.: 03.04459.02
LOCATION: Harford County, Maryland
CLIENT: Stantec

SB-1
PAGE 1 OF 1

FIELD DATA

DATE(S) DRILLED:2/5/2020
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME55
DRILLER: D.Pao LOGGER: J.Yao
SURFACE ELEVATION: 460.0 ft

LAB DATA

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
0	460	4 8 9		1.0	100		F2		0.0 / 460.0 TOPSOIL **Tops** -3 in 0.3 / 459.8 Brown, sandy silt FILL, stiff, moist **FL-ML**				
5	455	3 5 7		3.0	83		C2		3.0 / 457.0 Brown and tan, sandy LEAN CLAY, stiff, moist **CL**				
		6 7 7 7		5.0	100								
		2 4 4 5		7.0	100		C1		7.0 / 453.0 Gray and white, FAT CLAY, firm to stiff, moist **CH**	72	38	35.9	97.6
10	450	2 3 7 9		9.0	75								
		50/5		11.0	100		R3		11.0 / 449.0 Gray, fine SILTY SAND, contains mica, medium dense to very dense, moist **SM** 11.4 / 448.6 Boring Terminated				

REMARKS: Cave-in = 8ft;
As-drilled boring was offset 30ft from original boring location towards east due to original location was submerged by water. Elevation of as-drilled location was estimated from site plan provided by the Client

PAGE 1 OF 1
SB-1

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 000
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

DMY

PROJECT NAME: Hickory Kennel Site
PROJECT NO.: 03.04459.02
LOCATION: Harford County, Maryland
CLIENT: Stantec

SB-2
PAGE 1 OF 1

FIELD DATA

DATE(S) DRILLED:2/5/2020
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME55
DRILLER: D.Pao LOGGER: J.Yao
SURFACE ELEVATION: 460.0 ft

LAB DATA

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING
AT END OF DRILLING: 10.2 ft

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)
0	460	1 2 1 2		0.0	58		F2		0.0 / 460.0 TOPSOIL **Tops** -3 in 0.3 / 459.8 Pink and brown, sandy silt FILL, soft, moist **FL-ML**			
5	455	2 3 4 7		2.0	100		C2		2.0 / 458.0 Brown, sandy LEAN CLAY, trace gravel, firm to very stiff, moist **CL**			
		2 3 4 6		4.0	83							
		6 9 10 12		6.0	100							
10	450	4 4 5 7		8.0	100		C		8.0 / 452.0 Gray and brown, SILTY CLAY, stiff, moist **CL-ML**			
		4 6 7 6		10.0	100		R3		10.0 / 450.0 Gray, fine SILTY SAND, contains mica, medium dense, moist **SM**			
		4 7 8 8		12.0	100				14.0 / 446.0 Boring Terminated			

REMARKS: Cave-in = 12ft;
As-drilled boring was offset 26ft from original boring location towards north due to original location was submerged by water. Elevation of as-drilled location was estimated from site plan provided by the Client

PAGE 1 OF 1
SB-2

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 000
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

DMY

PROJECT NAME: Hickory Kennel Site
PROJECT NO.: 03.04459.02
LOCATION: Harford County, Maryland
CLIENT: Stantec

SB-3
PAGE 1 OF 1

FIELD DATA

DATE(S) DRILLED:2/5/2020
DRILLING METHOD(S): 3.25 in HSA
DRILLING EQUIPMENT: CME55
DRILLER: D.Pao LOGGER: J.Yao
SURFACE ELEVATION: 462.0 ft

LAB DATA

GROUND WATER WAS NOT ENCOUNTERED DURNG DRILLING

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION % RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)
0	460	2 1 3 2		0.0	67		F2		0.0 / 462.0 TOPSOIL **Tops** -3 in 0.3 / 461.8 Pink, sandy silt FILL, contains mica, soft to firm, moist **FL-ML**			
5	455	3 4 3 6		2.0	100				SAME, brown, trace gravel			
		5 3 4 7		4.0	100		C2		4.0 / 458.0 Brown, sandy LEAN CLAY, firm to very stiff, moist **CL**			
		5 7 9 11		6.0	100							
10	450	5 7 12 11		8.0	100							
		6 7 19 8		10.0	100		R3		10.0 / 452.0 Brown, fine to coarse SILTY SAND, trace gravel, medium dense, moist **SM**			
									12.0 / 450.0 Boring Terminated			

REMARKS: Cave-in = 8ft;
As-drilled boring was offset 6ft from original boring location towards west due to utility conflict. Elevation of as-drilled location was estimated from site plan provided by the Client

PAGE 1 OF 1
SB-3

DMY ENGINEERING CONSULTANTS INC.
4170 Lafayette Center Drive, Suite 000
Chantilly, Virginia, 20151
tel: (703) 665-0586 fax: (301) 768-4169

GENERAL GEOTECHNICAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUBGRADE INSPECTIONS AND SOIL COMPACTION TESTING ASSOCIATED WITH THE PROPOSED WORK. THIS WORK SHALL BE COMPLETED BY OR UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND.IF REQUESTED BY THE OWNER/DEVELOPER OR AS INDICATED ON THE APPROVED PLANS. THIS ENGINEER IS HEREON REFERRED TO AS THE GEOTECHNICAL ENGINEER AND SHALL BE FROM AN INDEPENDENT FIRM FROM THAT OF THE CONTRACTOR.

2. ALL FILL AREAS SHALL BE CLEANED OF ALL VEGETATION AND DEBRIS. STRIPPED OF ALL TOPSOIL, AND THEN SCARIFIED TO A MINIMUM DEPTH OF 12 INCHES PRIOR TO THE PLACEMENT OF FILL. FILL MATERIAL SHALL BE PLACED IN CONTROLLED LIFTS WITH A MAXIMUM THICKNESS OF 8" PRIOR TO COMPACTION THAT IS CONTINUOUS OVER THE ENTIRE AREA WHERE FILL IS TO BE PLACED. EACH LAYER OF FILL SHALL BE COMPACTED WITH THE MINIMUM NUMBER OF PASSES NECESSARY TO PRODUCE A FULL ASYMPTOTIC COMPACTION.

3. FOR STRUCTURAL AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS,COMPACTION SHALL BE CARRIED OUT WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT TO A DRY DENSITY OF 95% OF THE AMXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698 AND AASHTO METHOD T-99).

4. FOR VEGETATIVE AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS,COMPACTION SHALL BE CARRIED OUT AT A LESS THAN OPTIMUM MOISTURE CONTENT (E.G., AT A WATER CONTENT OF LESS THAN 13% ON A SOIL HAVING AN OPTIMUM CONTENT OF 15%) TO A DRY DENSITY OF BETWEEN 80% AND 85% OF THE MAXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698).

5. ALL SOILS USED IN FILL AND BACKFILL MUST BE MOISTENED OR AERATED TO WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. WHERE THE SOIL LAYER IS TOO DRY, THE CONTRACTOR MUST APPLY WATER UNIFORMLY USING APPROVED EQUIPMENT TO INCREASE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM. WHERE THE SOIL LAYER IS TOO WET, THE CONTRACTOR MUST DRY THE SOILS BY PLOWING OR DISKING TO AERATE THE SOIL AND REDUCE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM.

6. IF THE EXISTING ONSITE MATERIAL IS ROCKY, THEN THE SAME CAN BE USED UP TO 9 INCHES BELOW THE FINAL ELEVATION OR SUBBASE. THE REMAINING FILL MUST BE SELECT EARTH FILL.SOFT SPOTS IDENTIFIED DURING COMPACTION SHALL BE UNDERCUT AND BACKFILLED APPROPRIATELY.

7. ALL SELECT EARTH FILL SHALL BE FREE FROM ORGANICS, FROZEN MATERIAL, AND ROCKS/STONES GREATER THAN 2 INCHES IN ANY DIMENSION. ALL FILL MATERIAL MUST BE FREE FROM WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR OTHER DELETERIOUS MATERIALS.

8. ALL IMPORTED FILL MATERIAL SHALL HAVE A MINIMUM DENSITY OF 105 POUNDS PER CUBIC FOOT FOR THE MAXIMUM DRY DENSITY ACCORDING TO AASHTO T-180, METHOD C AND SHALL NOT HAVE A LIQUID LIMIT GREATER THAN 30 NOR A PLASTICITY INDEX GREATER THAN 6 ACCORDING TO ASTM D-4318.ALL OTHER MATERIALS SHALL MEET THE REQUIREMENTS STATED IN CATEGORY 900 OF THE LATEST EDITION OF THE MARYLAND STATE HIGHWAY ADMINISTRATION (MSHA) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.

9. NRCS-MD POND CODE NO. 378 STANDARDS/SPECIFICATIONS (MD-378) SHALL SUPERSEDE THESE NOTES FOR ANY FILL SUBJECT TO MD-378 WHEN THESE NOTES ARE LESS STRINGENT AND/OR IN THE CASE OF CONFLICT. ANY REFERENCE TO THE ENGINEER IN THE MD-378 SHALL BE THE PROFESSIONAL ENGINEER WHO SIGNED AND SEALED THE DESIGN PLANS. ANY REFERENCE TO THE GEOTECHNICAL ENGINEER SHALL BE THE GEOTECHNICAL ENGINEER IN THESE GENERAL NOTES.

10. THE CONTRACTOR SHALL SUBMIT ALL REQUIRED PROCTOR DENSITY RESULTS OF TESTED FILL TO THE OWNER/DEVELOPER FOR REIEW AND ACCPETANCE. AT A MINIMUM, COMPACTION TESTS SHALL BE COMPLETED FOR EVERY LIFT OF FILL AND THE TESTING FREQUENCY SHALL BE AT COMPACTION TEST PER LIFT AND AT LEAST TWO COMPACTION TESTS PER DAY.THE GEOTECHNICAL ENGINEER SHALL SUPPLY THE OWNER/DEVELOPER WITH CERTIFIED COMPACTION TEST RESULTS, INCLUDING CERTIFICATION OF PIPE BEDDING SUBGRADE AND/OR FILL SUBGRADE.WHERE APPROPRIATE.

11. ALL REQUIRED INSPECTIONS, TESTS, SUPPORTING DATA, REPORTS, AND CERTIFICATIONS SHALL BE PROVIDED TO THE OWNER/DEVELOPER AND SHALL BE SIGNALED AND SEALED BY THE GEOTECHNICAL ENGINEER. DAILY INSPECTION REPORTS, IF REQUESTED, MAY BE PROVIDED WITHOUT BEING IMMEDIATELY SIGNED AND SEALED BY THE GEOTECHNICAL ENGINEER. THESE REPORTS SHALL BE COMPILED, REVIEWED, SIGNED AND SEALED, AND SUBMITTED TO THE OWNER/DEVELOPER NO LATER THAN 30 DAYS AFTER THE COMPLETION OF THE PROJECT.

EG: SWMENG-000069-2020 SCALE : 1 inch 97066

STATE OF MARYLAND
EDWARD ENRIQUE BENITEZ
NO. 39966
REGISTERED
PROFESSIONAL ENGINEER
03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

STORMWATER MANAGEMENT DETAILS

Drawn By : CC
Designed By : BS
Reviewed By : FB

Contract No : ---------
Scale : 1" = 20'
Sheet 10 Of 15
Date : MARCH 2025

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE : 1 inch

534 EAST JARRETTSVILLE ROAD LLC
534 E JARRETTSVILLE RD
FOREST HILL MD 21050-1604
MAP: 0041 GRID: 0001A
ACCOUNT NO: 087921

E JARRETTSVILLE ROAD

N 695700
E 1494400

N 695300
E 1494100

N 695100
E 1494100

18" CWD-1
INV. IN = 458.0'

SCE-1

SB-1

SB-2

SB-3

18" CWD-2
INV. IN = 457.65'

SP-1

FB-1

SF-1

EX SF-1

DEWATER PUMP #1
DRAINAGE AREA = 0.3 AC

EXCAVATED PIT AREA
BOTTOM ELEV. = 457.29'

TOP OF CONC. WALL
EL. 462.45

RIP RAP
4"-10"
STONES

6" WOOD POST
RIP RAP 6"-12" STONES

DAMAGED 4" PVC
POSSIBLY SANITARY SEWER

ASPHALT

8" PVC INV. 457.29
TOP 22" CMP
RISER EL. 459.67
INV. 457.51

INV. 456.79

CONC.

RIP RAP
6"-10" STONES

RIP RAP
4"-12"
STONES

EX. 15' HILLCREST DRIVE EASEMENT
EX. 20' LANDSCAPE BUFFER
EX. 20' DRAINAGE AND UTILITY EASEMENT

EX. 25' TUCKER DRIVE EASEMENT
EX. 20' DRAINAGE AND UTILITY EASEMENT
EX. 20' LANDSCAPE BUFFER

ST IGNATIUS' HICKORY ROMAN
CATHOLIC CONGREGATION INCORPORATED
533 E JARRESTTSVILLE RD
FOREST HILL MD 21050-1603
MAP: 0041 GRID: 0001A
ACCOUNT NO: 062945

ST IGNATIUS' HICKORY ROMAN
CATHOLIC CONGREGATION INCORPORATED
533 E JARRETTSVILLE RD
FOREST HILL MD 21050-1603
MAP: 0041 GRID: 0001A
ACCOUNT NO: 103889

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.:

LEGEND:

- PROPOSED CONTOURS
- LIMIT OF DISTURBANCE
- CLEAR WATER DIVERSION PIPE
- SANDBAG DIKE
- SILT FENCE
- SUPER SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE (SCE)
- STOCKPILE AREA
- PUMP WITH HOSES
- TREE REMOVAL
- FILTER BAG
- SUMP PIT

NOTE:

STABILIZE EXCAVATED PIT AREA WITH FILTER CLOTH NAILED IN PLACE AND CLASS I RIPRAP TO PREVENT THE CREATION OF SEDIMENT FROM WATER MOVEMENT

SCALE: 1" = 20'

S/C PLAN #59865
GP #12947-2020
EG: SWMENG-000069-2020

SCALE : 1 inch 97066

STATE OF MARYLAND
EDWARD ENRIQUE DENTZ
NO. 39966
REGISTERED
PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

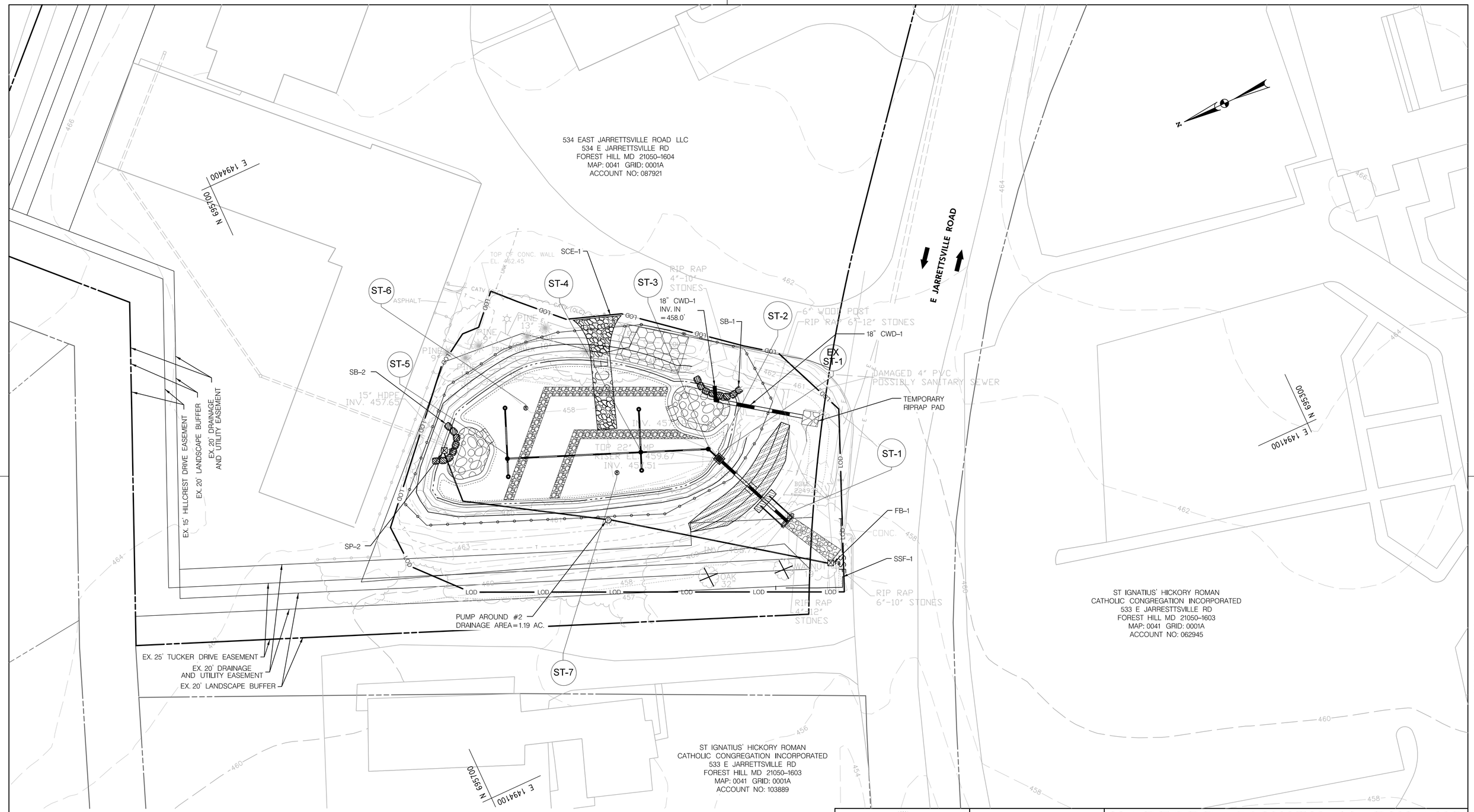
HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

EROSION AND SEDIMENT CONTROL PLAN - PHASE I

Drawn By : CC
Designed By : BS
Reviewed By : FB

Contract No : ---------
Scale : 1" = 20'
Sheet 11 Of 15
Date : MARCH 2025



LEGEND:

- 81 — PROPOSED CONTOURS
- LOD — LOD — LIMIT OF DISTURBANCE
- CLEAR WATER DIVERSION PIPE
- SANDBAG DIKE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- SCE — STABILIZED CONSTRUCTION ENTRANCE (SCE)
- STOCKPILE AREA
- P — PUMP WITH HOSES
- TREE REMOVAL
- FB — FILTER BAG
- SP — SUMP PIT

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

S/C PLAN #59865
GP #12947-2020
EG: SWMENG-000069-2020

SCALE: 1 inch 97066

STATE OF MARYLAND
BERNARD ENRIQUE BENITEZ
NO. 39966
REGISTERED
PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL
STORMWATER MANAGEMENT RETROFIT
EROSION AND SEDIMENT CONTROL PLAN - PHASE 2

Drawn By : CC
Designed By : BS
Reviewed By : FB

Contract No : _____
Scale : 1" = 20'
Sheet 12 Of 15
Date : MARCH 2025

SEDIMENT CONTROL NOTES

1. THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.
2. 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.
3. ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL FROM DPW.
4. 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.
5. 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.
6. 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, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
   B. SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.
7. DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.
8. 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.
9. TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.
10. 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 NOI/NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.
11. ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.
12. CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING.
13. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
14. 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.
15. ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.
16. STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
17. 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.
18. TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
19. PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED.
20. SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

SITE ANALYSIS

TOTAL SITE AREA	=	140,263/3.22	SF/AC
TOTAL DISTURBED AREA	=	21,344/0.49	SF/AC
AREA TO BE PAVED	=	0.00/0.00	SF/AC
AREA TO BE STABILIZED	=	21,344/0.49	SF/AC
TOTAL CUT	=	580	CY
TOTAL FILL	=	50	CY
TOPSOIL	=	43	CY

NPDES ID POINT: N: N/A
E: N/A

TEMPORARY VEGETATIVE STABILIZATION

A. SEEDBED PREPARATION:
LOOSEN A MINIMUM OF THREE INCHES ALONG UPPER SOIL BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS.

B. SOIL AMENDMENTS:
INCORPORATE 436 LBS. PER ACRE OF 10-20-20 FERTILIZER AND TWO (2) TONS PER ACRE OF LIME BY DISCING OR OTHER ACCEPTABLE MEANS.

C. SEEDING*:
FOR PERIODS OF MARCH 1 TO APRIL 30 AND AUGUST 15 TO NOVEMBER 15:
SEED WITH 2.5 BU. PER ACRE OF CEREAL RYE OR 40 LBS. PER ACRE OF ANNUAL RYEGRASS.

FOR PERIOD OF MAY 1 TO AUGUST 14:
SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS OR 30 LBS. PER ACRE OF PEARL OR FOXTAIL MILLET.

FOR THE PERIOD OF NOVEMBER 16 TO FEBRUARY 28:
PROTECT THE SITE BY APPLYING TWO (2) TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING.

D. MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

APPLY TWO (2) TONS PER ACRE OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRE.**

MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS, B-4-PORARY SEEDING", TABLE B-1 (PAGE B.20).
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATION, B-4-3: "SEEDING AND MULCHING" (PAGES B.15 - B.17).

SEQUENCE OF CONSTRUCTION

1. THE PERMITEE SHALL NOTIFY HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS (410-638-3545 EXT. 2431 OR 2440) AND ENGINEER PREPARING AS-BUILT DRAWINGS, AT LEAST 48 HOURS PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY HARFORD COUNTY, SHALL BE ANTICIPATED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN THE AUTHORIZED REPRESENTATIVES FOR THE PROJECT, COUNTY , CONTRACTOR, AND ENGINEER OF RECORD.
2. THE PERMITTEE SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED PUBLIC THOROUFARE(S). ALL MATERIALS DEPOSITED ONTO THE PUBLIC THOROUGHFARE(S) SHALL BE REMOVED IMMEDIATELY.
3. THE LIMIT OF DISTURBANCE (LOD) SHALL BE FIELD MARKED PRIOR TO CLEARING AND GRUBBING, INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION OR ANY LAND DISTURBING ACTIVITIES.
4. THE PERMITTEE SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN.
5. WITH THE COUNTY INSPECTOR'S WRITTEN APPROVAL BEGIN TO CLEAR AND GRUB THE SITE FOR THE SEDIMENT CONTROL PERIMETER MEASURES.
6. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE (SCE-1).
7. INSTALL THE CLEAR WATER DIVERSION PIPES (CWD-1 AND CWD-2) WITH SANDBAGS (SB-1, SB-2, AND SB-3). THE CWD PIPES SHALL BE CONNECTED TO A STABILIZED PIT AREA TO OUTFALL INTO THE EXISTING RISER STRUCTURE AND SHALL MAINTAIN POSITIVE FLOW.
8. INSTALL THE SUMP PIT WITH PUMP (SP-1) AND DISCHARGE THROUGH THE FILTER BAG (FB-1). THE SUMP PIT AND PUMP SYSTEM SHALL BE ADJUSTED AS NECESSARY AS THE SITE GRADING AND DISTURBANCE OPERATIONS PROGRESS TO COMPLETION.
9. WITH THE COUNTY INSPECTOR'S WRITTEN APPROVAL, BEGIN TO EXCAVATE BOTTOM OF THE SUBMERGED GRAVEL WETLAND, AND GRADE IN THE MAIN CELL AND THE FOREBAYS TO PROPOSED ELEVATIONS AS SHOWN ON THE APPROVED PLAN.
10. INSTALL FIRST 3 INCHES OF STONE LAYER AND LAYOUT OVERDRAIN SYSTEM ON TOP OF STONE LAYER.
11. WHEN THERE IS NO RAIN IN THE NOAA FORECAST FOR THREE DAYS, FILL THE REMAINING LAYERS OF SUBMERGED GRAVEL WETLAND MEDIA MATERIALS. USE CAUTION NOT TO DAMAGE OBSERVATION WELLS. ALL SUBMERGED GRAVEL WETLAND MEDIA MATERIALS MUST BE IN ACCORDANCE WITH DEP SPECIFICATIONS.
12. AT THE END OF EACH WORK DAY AND PRIOR TO RUNOFF PRODUCING RAINFALL, THE CONTRACTOR SHALL SECURE AND STABILIZE THE WORK AREA, PLACING GEOTEXTILE FABRIC AS NECESSARY TO PROTECT PREVIOUSLY CONSTRUCTED LAYERS OF GRAVEL AND WETLAND SOIL FROM BECOMING CONTAMINATED BY SEDIMENT.
13. ONCE THE SITE HAS BEEN STABILIZED, REMOVE THE EXISTING RISER STRUCTURE (EX ST-1) AND THE EXISTING BARREL PIPE.
14. RELOCATE THE CWD PIPE (CWD-1) TO OUTFALL THROUGH THE EMERGENCY SPILLWAY.
15. RELOCATE THE PUMP AROUND TO OUTFALL TO THE RIPRAP CHANNEL.
16. BEGIN THE INSTALLATION OF THE CONTROL STRUCTURE YARD INLET (ST-2) AND THE PROPOSED BARREL (ST-1).
17. INSTALL RIPRAP FOREBAYS AT INFLOWS.
18. PROVIDE PERMANENT STABILIZATION AND PLANTINGS AS SHOWN ON THE APPROVED PLAN.
19. WITH THE COUNTY INSPECTOR'S WRITTEN APPROVAL, REMOVE ALL SEDIMENT CONTROL DEVICES AND MEASURES FROM THE SITE.
20. WITHIN 5 DAYS OF COMPLETION OF THE STORMWATER MANAGEMENT FACILITY, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL THE MATERIAL TICKETS AND COMPLETED CHECK-OFF LISTS.

PERMANENT VEGETATIVE STABILIZATION

1. THE PERMITEE SHALL NOTIFY HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS (410-638-3545 EXT. 2431 OR 2440) AND ENGINEER PREPARING AS-BUILT DRAWINGS, AT LEAST 48 HOURS PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY HARFORD COUNTY, SHALL BE ANTICIPATED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN THE AUTHORIZED REPRESENTATIVES FOR THE PROJECT, COUNTY, CONTRACTOR, AND ENGINEER OF RECORD.
2. THE PERMITTEE SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED PUBLIC THOROUFARE(S). ALL MATERIALS DEPOSITED ONTO THE PUBLIC THOROUGHFARE(S) SHALL BE REMOVED IMMEDIATELY.
3. THE LIMIT OF DISTURBANCE (LOD) SHALL BE FIELD MARKED PRIOR TO CLEARING AND GRUBBING, INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION OR ANY LAND DISTURBING ACTIVITIES.
4. THE PERMITTEE SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN.
5. WITH THE COUNTY INSPECTOR'S WRITTEN APPROVAL BEGIN TO CLEAR AND GRUB THE SITE FOR THE SEDIMENT CONTROL PERIMETER MEASURES.
6. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE (SCE-1).
7. INSTALL THE CLEAR WATER DIVERSION PIPES (CWD-1 AND CWD-2) WITH SANDBAGS (SB-1, SB-2, AND SB-3). THE CWD PIPES SHALL BE CONNECTED TO A STABILIZED PIT AREA TO OUTFALL INTO THE EXISTING RISER STRUCTURE AND SHALL MAINTAIN POSITIVE FLOW.
8. INSTALL THE SUMP PIT WITH PUMP (SP-1) AND DISCHARGE THROUGH THE FILTER BAG (FB-1). THE SUMP PIT AND PUMP SYSTEM SHALL BE ADJUSTED AS NECESSARY AS THE SITE GRADING AND DISTURBANCE OPERATIONS PROGRESS TO COMPLETION.
9. WITH THE COUNTY INSPECTOR'S WRITTEN APPROVAL, BEGIN TO EXCAVATE BOTTOM OF THE SUBMERGED GRAVEL WETLAND, AND GRADE IN THE MAIN CELL AND THE FOREBAYS TO PROPOSED ELEVATIONS AS SHOWN ON THE APPROVED PLAN.
10. INSTALL FIRST 3 INCHES OF STONE LAYER AND LAYOUT OVERDRAIN SYSTEM ON TOP OF STONE LAYER.
11. WHEN THERE IS NO RAIN IN THE NOAA FORECAST FOR THREE DAYS, FILL THE REMAINING LAYERS OF SUBMERGED GRAVEL WETLAND MEDIA MATERIALS. USE CAUTION NOT TO DAMAGE OBSERVATION WELLS. ALL SUBMERGED GRAVEL WETLAND MEDIA MATERIALS MUST BE IN ACCORDANCE WITH DEP SPECIFICATIONS.
12. AT THE END OF EACH WORKDAY AND PRIOR TO RUNOFF PRODUCING RAINFALL, THE CONTRACTOR SHALL SECURE AND STABILIZE THE WORK AREA, PLACING GEOTEXTILE FABRIC AS NECESSARY TO PROTECT PREVIOUSLY CONSTRUCTED LAYERS OF GRAVEL AND WETLAND SOIL FROM BECOMING CONTAMINATED BY SEDIMENT.
13. ONCE THE SITE HAS BEEN STABILIZED, REMOVE THE EXISTING RISER STRUCTURE (EX ST-1) AND THE EXISTING BARREL PIPE.
14. RELOCATE THE CWD PIPE (CWD-1) TO OUTFALL THROUGH THE EMERGENCY SPILLWAY.
15. RELOCATE THE PUMP AROUND TO OUTFALL TO THE RIPRAP CHANNEL.
16. BEGIN THE INSTALLATION OF THE CONTROL STRUCTURE YARD INLET (ST-2) AND THE PROPOSED BARREL (ST-1).
17. INSTALL RIPRAP FOREBAYS AT INFLOWS.
18. PROVIDE PERMANENT STABILIZATION AND PLANTINGS AS SHOWN ON THE APPROVED PLAN.
19. WITH THE COUNTY INSPECTOR'S WRITTEN APPROVAL, REMOVE ALL SEDIMENT CONTROL DEVICES AND MEASURES FROM THE SITE.
20. WITHIN 5 DAYS OF COMPLETION OF THE STORMWATER MANAGEMENT FACILITY, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL THE MATERIAL TICKETS AND COMPLETED CHECK-OFF LISTS.

SUBMERGED GRAVEL WETLAND MAINTENANCE SCHEDULE

1. THE FACILITY SHALL BE INSPECTED TWICE ANNUALLY, MARCH AND SEPTEMBER. VISUAL INSPECTION OF ALL COMPONENTS SHALL BE PERFORMED BY THE OWNER.
2. GRASS ON THE DAM AND NON-WETLAND PORTIONS SHALL BE MOWED ANYTIME THE GRASS IS 6" TALL.
3. VEGETATED COVER SHALL BE MAINTAINED BY MOWING, LIMING, AND FERTILIZING, AS A MINIMUM REQUIREMENT, THE LIME AND FERTILIZER SHALL BE APPLIED ONE (1) TIME EVERY TWO (2) YEARS. NO TREES OR WOODY VEGETATION SHALL BE ALLOWED ON THE EMBANKMENT OR IN THE EMERGENCY SPILLWAY.
4. RILLS ON THE SLOPE OF THE DAM AND WASHED IN THE EARTH SPILLWAY SHALL BE FILLED WITH A SUITABLE MATERIAL AND THOROUGHLY COMPACTED. THESE AREAS SHALL BE PRESEEDED OR RESODDED, LIMED AND FERTILIZED AS NEEDED.
5. ALL INLETS AND TRASHRACKS SHALL BE KEPT FREE OF TRASH.
6. DETERIORATION OF PIPE, RISER, OR EMBANKMENT SHALL BE REPORTED TO THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AT (410) 638-3545 AS SOON AS DISCOVERED AND PRIOR TO REPAIR.
7. OCCASIONAL PRUNING AND REPLACEMENT OF DEAD VEGETATION IS NECESSARY. IF SPECIFIC PLANTS ARE NOT SURVIVING, MORE APPROPRIATE NATIVE SPECIES SHOULD BE USED. WATERING MAY BE REQUIRED DURING PROLONGED DRY PERIODS.
8. ALL REQUIRED MAINTENANCE SHALL BE PERFORMED BY THE OWNER OR THE OWNER'S REPRESENTATIVE AT THE OWNERS EXPENSE.

SUBMERGED GRAVEL WETLAND INSPECTION CRITERIA

REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:

- DURING EXCAVATION TO SUBGRADE AND PLACEMENT AND BACKFILL OF UNDERDRAIN SYSTEMS.
- DURING PLACEMENT OF FILTER MEDIA.
- DURING CONSTRUCTION OF PROPOSED RISER, OUTFALL PIPE, HEADWALL AND TRASH RACK.
- UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

EROSION AND SEDIMENT CONTROL
PLAN #: 59865
TECHNICAL REVIEW BY:
6/24/25
HARFORD SOIL CONSERVATION DISTRICT
APPROVED BY:
6/24/25
HARFORD SOIL CONSERVATION DISTRICT

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

ENGINEER — 03/14/25 DATE

FERNANDO BENITEZ, P.E.
PRINTED NAME

OWNER'S CERTIFICATION

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

SIGNED — 5-28-25 DATE

JOSEPH J. SIEMEK, PE - DIRECTOR OF PUBLIC WORKS
PRINTED NAME

S/C PLAN #59865
GP #12947-2020
EG: SWMENG-000069-2020 SCALE: 1 inch 97066

STATE OF MARYLAND — FERNANDO ENRIQUE BENITEZ — NO. 39966 — REGISTERED PROFESSIONAL ENGINEER
3/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL
STORMWATER MANAGEMENT RETROFIT
EROSION AND SEDIMENT CONTROL NOTES

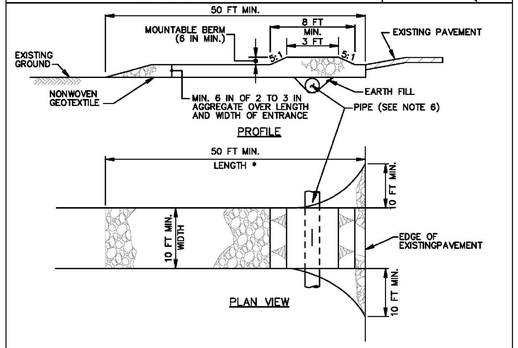
Drawn By : CC
Designed By : BS
Reviewed By : FB

Contract No : ----------
Scale : AS SHOWN
Sheet 13 Of 15
Date : MARCH 2025

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1 inch

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.

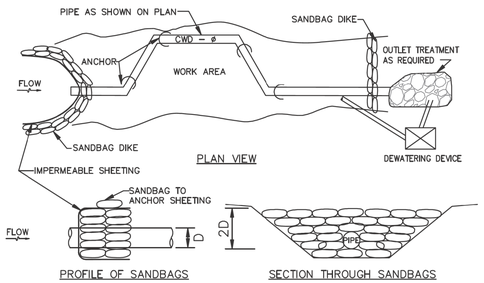
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD – 12

DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION.



CONSTRUCTION SPECIFICATIONS

1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

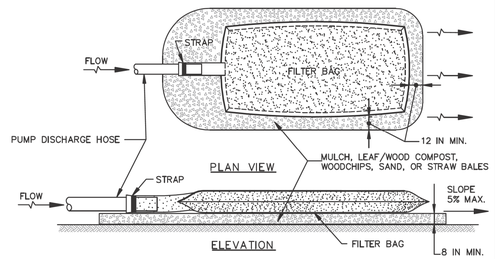
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

C.20

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/FT²	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.

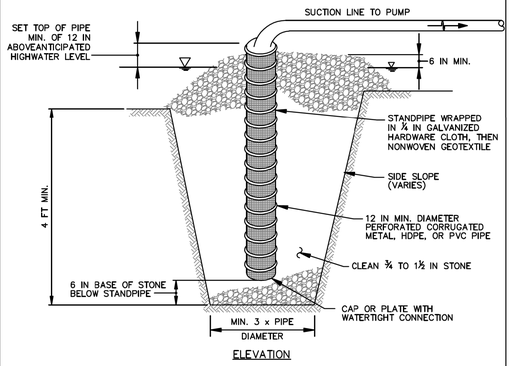
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

F.9

DETAIL F-2 SUMP PIT

STANDARD SYMBOL: ☒SP



CONSTRUCTION SPECIFICATIONS

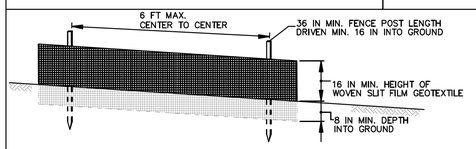
1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE 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.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

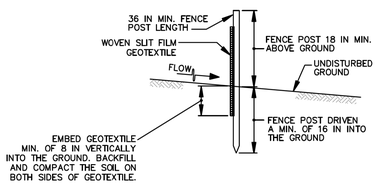
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

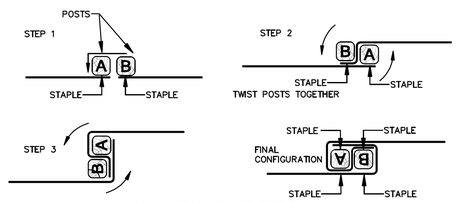
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF







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 ± ⅛ 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.

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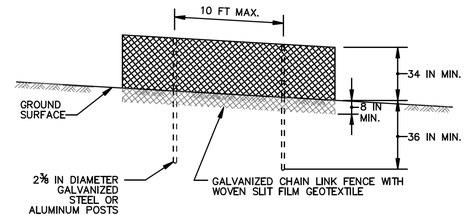
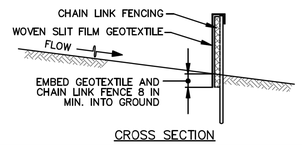
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF





CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

S/C PLAN #59865
GP #12947-2020
EG: SWMENG-000069-2020

SCALE: 1 inch 97066

STATE OF MARYLAND · EDWARD ENRIQUE BENTEZ · NO. 39966 · REGISTERED PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

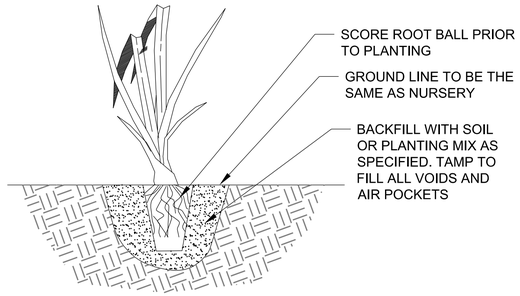
HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

EROSION AND SEDIMENT CONTROL DETAILS

Drawn By : CC
Designed By : BS
Reviewed By : FB

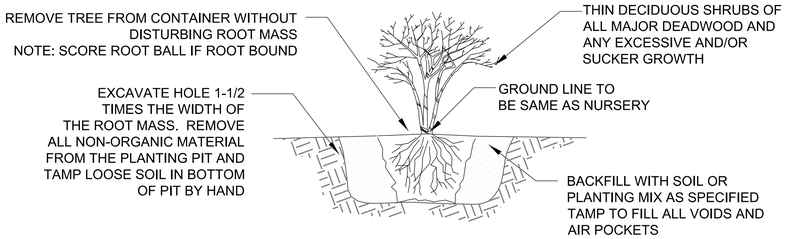
Contract No : ---------
Scale : AS SHOWN
Sheet 14 Of 15
Date : MARCH 2025

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE: 1 inch



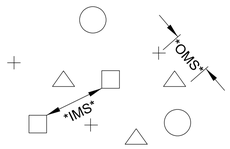
HERBACEOUS PLANTING - CONTAINER

NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE



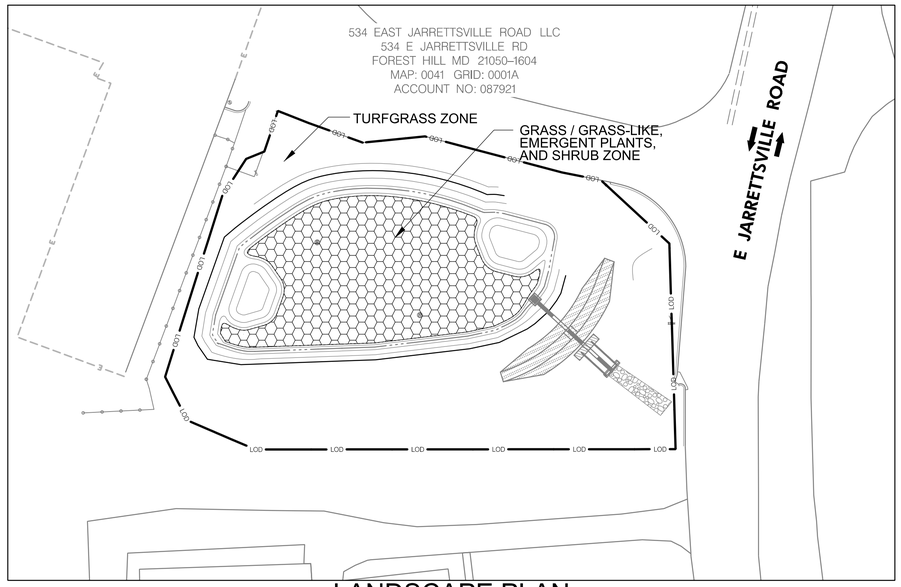
OMS- AN OVERALL MINIMUM SPACING DISTANCE *OMS* IS ASSIGNED TO THE PLANTING CONFIGURATION *SEE PLANT SCHEDULE*

IMS- AN INDIVIDUAL MINIMUM SPACING DISTANCES *IMS* IS ASSIGNED TO EACH INDIVIDUAL SPECIES *SEE PLANT SCHEDULE*

NOTE: EACH SYMBOL INDICATES A DIFFERENT SPECIES

PLAN VIEW PLANT SPACING - RANDOM

NOT TO SCALE



LANDSCAPE PLAN

SCALE: 1" = 30'

LANDSCAPE NOTES

PLANT MATERIALS:

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH AND INSTALL ALL OF THE PLANT MATERIALS CALLED FOR ON THE DRAWINGS AND/OR LISTED ON THE PLANT SCHEDULE.
2. NO PLANT SUBSITUTIONS SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE CLIENT OR THE CLIENT'S REPRESENTATIVE.
3. ALL PLANT MATERIAL SHALL MEET THE DESCRIPTIONS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN. BOTANTICAL NAMES PREVAIL OVER COMMON NAMES.

PLANT STANDARDS:

1. ALL PLANT MATERIAL SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS SET FORTH IN HE "AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMAN. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL-BRANCHED, AND WITH HEALHTY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS, AND MECHANICAL INJURIES.
2. ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATIC CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEELED-IN PLANTS, NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.
3. ALL PLANT MATERIAL SHALL BE ADEQUATELY PROTECTED FROM SUN, DRYING WINDS, AND/OR FROST.
4. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE.
5. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.
6. ALL PLANTS SHALL BE PLANTED WITHIN THE PLANTING SEASON - MARCH 15 THROUGH MAY 30 AND SEPTEMBER 1 THROUGH NOVEMBER 15. THE ABOVE PERIODS MAY BE EXTENDED OR REDUCED ACCORDING TO WEATHER AND SOIL CONDITIONS AT THE RISK OF THE CONTRACTOR. HOWEVER, NO FROZEN OR EXCESSIVELY WET MATERIALS WILL BE PERMITTED AT ANY TIME.

MULCHING AND PLANTING:

1. DO NOT USE HERBICIDES OR PESTICIDES AT THE STORMWATER MANAGEMENT FACILITY.
2. DO NOT DIRECTLY WALK ON THE MEDIA SURFACE, WHICH SHOULD REMAIN DECOMPACTED. USE BOARDS OR BAGS OF MULCH TO MOVE AROUND THE MEDIA SURFACE.
3. DO NOT PLANT UNTIL SOIL MEDIA IS DRY.

MAINTENANCE:

1. REMOVE WEEDS, DEAD VEGETATION, TURFGRASS, INVASIVES, AND UNDESIREABLE VOLUNTEER PLANTS. PRUNE ANY DEAD, DISEASED, OR DAMAGED PORTIONS OF PLANTS WHEN A PROBLEM IS NOTICED.
2. CUT BACK PERENNIALS AND GRASSES TO A HEIGHT OF SIX TO TWELVE INCHES IN LATE FEBRUARY TO EARLY MARCH.
3. REMOVE CUTTINGS FROM STORMWATER MANAGEMENT FACILITY. DO NOT LEAVE TO DECAY.
4. INSPECT THE BMP FOR EROSION OR INSTABILITY AFTER THE FIRST SEVERAL RAIN EVENTS AND THE FIRST MAJOR STORM.
5. REMOVE AND REPLACE MEDIA AND MULCH EVERY THREE YEARS OR AS NEEDED. MAINTAIN MULCH AT A DEPTH OF THREE INCHES.
6. REMOVE ACCULATED SEDIMENT AND DEBRIS AND REPLACE/LOOSEN ANY AREAS OF MULCH THAT HAVE BECOME CLOGGED.
7. PROTECT AGAINST EROSION, REPAIR ERODED AREAS, AND STABILIZE WITH EROSION CONTROL METHODS PER THE 2011 MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) STANDARD AND SPECIFICIATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

DEFINITION - PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE - 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.

CONDITIONS WHERE PRACTICE APPLIES:

THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE A SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS:

TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS.

TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

1. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY DPS. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2" DIAMETER.
2. THE SUBSOIL SHALL BE TILLED TO A MINIMUM DEPTH OF SIX INCHES BEFORE PLACEMENT OF TOPSOIL WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS / ACRE (200-400 LBS / 1000 SQ. FT.) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL.

TOPSOIL SHALL BE TESTED AND AMENDED AS PER SOIL TEST RECOMMENDATIONS.

TOPSOIL APPLICATION:

1. WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES.
2. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4-8 INCH LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF FOUR INCHES. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
3. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL 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.

SEEDING AND SODDING

SEEDING

1. SEEDING SHALL BE PER "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING AND B-4-5 FOR PERMANENT STABILIZATION.
2. REFER TO SECTION B-4-5, TABLE B.3 FOR PERMANENT SEED MIXES AND AS SHOWN ON THE SEDIMENT AND EROSION CONTROL PLAN.
3. IDEAL SEEDING TIME FOR HARDINESS ZONE 6B - MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15.
4. TILL AREA 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 11 / 2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

SODDING

1. SODDING SHALL BE PER "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED.
2. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
3. FOLLOW "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR SOD INSTALLATION AND MAINTENANCE.

TURFGRASS ESTABLISHMENT ZONE		SEEDING RATE/ACRE: 40 lbs TOTAL ZONE SIZE:	14538 SF/43,560 =	0.33 ACRES		
TOTAL QTY.	FREQUENCY %	BOTANICAL NAME	COMMON NAME	REGIONAL INDICATOR STATUS	ROOT TYPE	COMMENTS
12.54	95.0%	*Schedonorus arundinaceus (Schreb.)* Dumort., nom, cons.	Tall Fescue	N/A	Seed	Pure live seed
0.66	5.0%	*Poa pratensis* L. *ssp. pratensis*	Kentucky Bluegrass	N/A	Seed	Pure live seed

PLANT SCHEDULE			OVERALL PLANTS / ACRE:		10,890 PLANTS/AC		Plant in 60% of Total Area	
GRASS / GRASS-LIKE AND EMERGENT PLANTS			TOTAL ZONE SIZE:		4,935 SF/43,560 =		0.11 ACRES	
TOTAL QUANTITY	DESCRIPTION		ROOT TYPE	MINIMUM CONTAINER SIZE	WETLAND INDICATOR STATUS	SIZE / HEIGHT	APPROXIMATE SPACING	COMMENTS
	BOTANICAL NAME	COMMON NAME						
750	EMERGENT PLANTS							
150	*Andropogon glomeratus*	Broomsedge	CONT.	QT	FACW	3 FT. HT.	2 FT. O.C.	Plant in drier portions of the zone
150	*Asclepia incarnata*	Swamp Milkweed	CONT.	QT	OBL	3 FT. HT.	2 FT. O.C.	
150	*Onoclea sensibilis*	Sensitive Fern	CONT.	QT	FACW	3 FT. HT.	2 FT. O.C.	
150	*Panicum virgatum*	Switchgrass	CONT.	QT	FAC	3 FT. HT.	2 FT. O.C.	
150	*Peltandra virginica*	Arrow arum	CONT.	QT	OBL	3 FT. HT.	2 FT. O.C.	

NOTE: Cluster plants by species at the direction of the Engineer.

PLANT SCHEDULE			OVERALL PLANTS / ACRE:		2,723 PLANTS/AC		Plant in 40% of Total Area	
SHRUBS			TOTAL ZONE SIZE:		4,935 SF/43,560 =		0.11 ACRES	
TOTAL QUANTITY	DESCRIPTION		ROOT TYPE	MINIMUM CONTAINER SIZE	WETLAND INDICATOR STATUS	SIZE / HEIGHT	APPROXIMATE SPACING	COMMENTS
	BOTANICAL NAME	COMMON NAME						
150	SHRUBS							
30	*Cephalanthus occidentalis*	Common Buttonbush	CONT.	#5	OBL	3 FT. HT.	4 FT. O.C.	Plant in wetter portions of zone
30	*Cornus sericea*	Red Osier Dogwood	CONT.	#5	FACW	3 FT. HT.	4 FT. O.C.	
30	*Rhododendron vviscosum*	Swamp Azalea	CONT.	#5	OBL	3 FT. HT.	4 FT. O.C.	
30	*Sambucus nigra (S. canadensis)*	Common Elderberry	CONT.	#5	FACW	3 FT. HT.	4 FT. O.C.	
30	*Vaccinium corymbosum*	Highbush Blueberry	CONT.	#5	FACW	3 FT. HT.	4 FT. O.C.	

EG: SWMENG-000069-2020 SCALE : 1 inch 97066

STATE OF MARYLAND · EDWARD ENRIQUE BENITEZ · No. 39966 · REGISTERED PROFESSIONAL ENGINEER

03/14/25

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: 39966
Expiration Date: 01/17/2027

Revisions

HARFORD COUNTY, MARYLAND

HICKORY VETERINARY HOSPITAL STORMWATER MANAGEMENT RETROFIT

LANDSCAPE PLAN

Drawn By : CC
Designed By : MB
Reviewed By : RP

Contract No : ---------
Scale : 1" = 20'
Sheet 15 Of 15
Date : MARCH 2025

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.:
SCALE : 1 inch