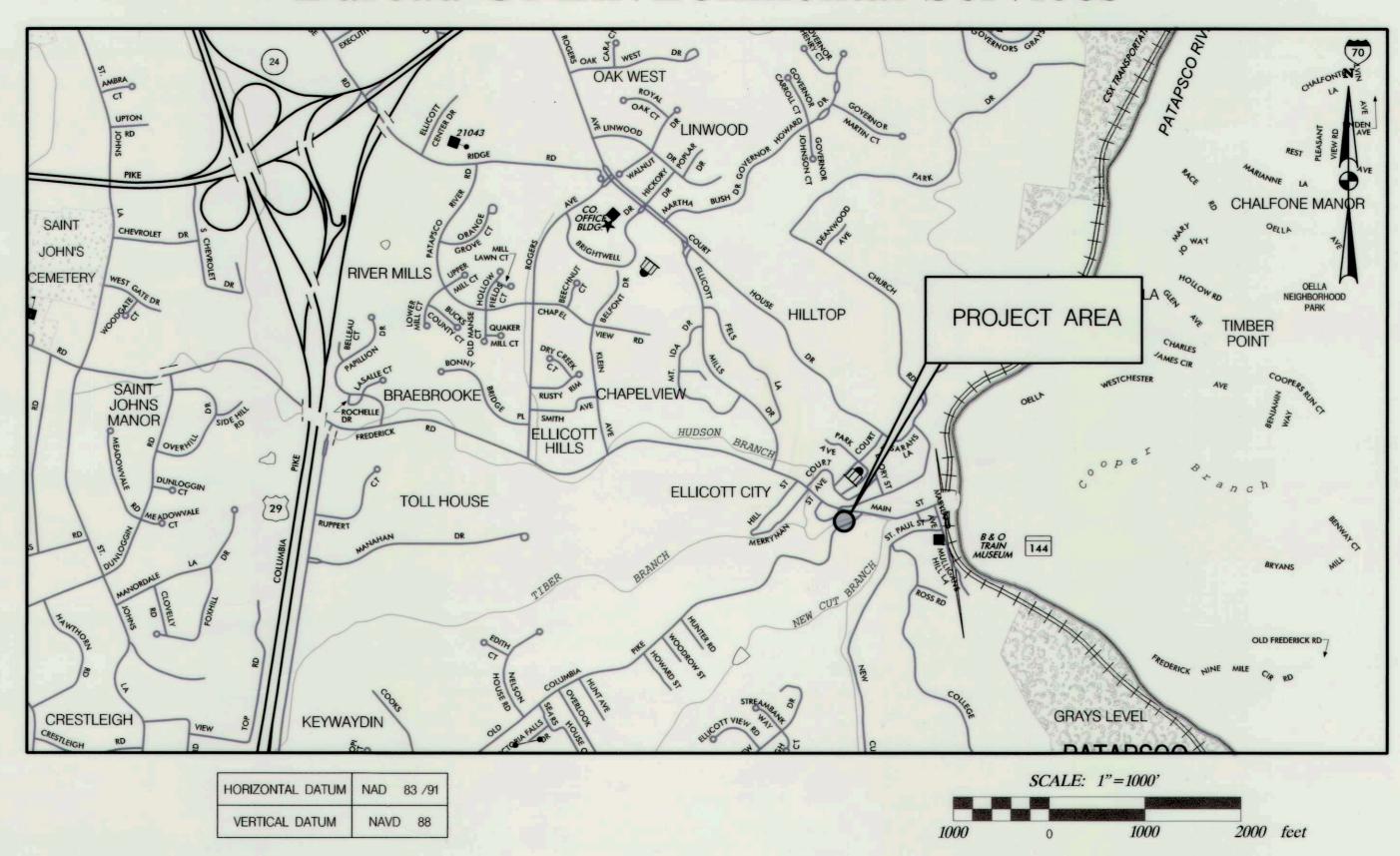
HOWARD COUNTY

Capital Project #D-1165

Old Columbia Pike Wall Repair Project

Storm Water Management Division Bureau Of Environmental Services





GENERAL NOTES

- 1. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313–1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK
- 3. SURVEY OF THIS SITE WAS PERFORMED BY HOWARD COUNTY 2016
- 4. THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY HOWARD COUNTY.
- 5. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND McCORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- 5. THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- 7. THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTORS'S OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- 8. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY McCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- O. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- 10. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- 11. A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER BELOW)
- 12. PROJECT IMPACTS INCLUDE WORK IN A USE I STREAM. THE SITE IS NOT LOCATED WITHIN A TIER II STREAM SEGMENT. THIS WATERSHED HAS BEEN IDENTIFIED AS IMPAIRED AND IS CURRENTLY UNDER A TMDL FOR TOXINS.
- 13. OWNERS OF THE PROJECT SITE INCLUDE HOWARD COUNTY AND JOHN PACYLOWSKI/SUN PACYLOWSKI.

APPROVALS/PERMITS									
AGENCY	#	DATE APPLIED	DATE APPROVED						
MDE JOINT PERMIT APPLICATION	201760679 / 17-NT-3107	3 /29 /17	6 /20 /17						
HOWARD SOIL CONSERVATION DISTRICT	EP-17-36	3 /31 /17	4 /12 /17						
DILP PERMIT	B17001514	4 /19 /17	5 /08 /17						

HOWARD SCD SIGNATURE BLOCK

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

INDEX OF SHEETS

WALL PLAN AND SECTION DETAIL

EROSION AND SEDIMENT CONTROL DETAILS

LEGEND

PROPOSED MEDIAN BARRIER -----

PROPERTY LINE -----

EASEMENT LINE -----

EXISTING ROADWAY -----

BASE OR SURVEY LINE ---- 3

LIMIT OF DISTURBANCE ————— LOD ———

WATERS OF THE US ----- --- --- WUS ----

HEDGE /TREE LINE -----

APPROXIMATE LIMITS OF CUT AND/OR FILL — — — C —

BUSH /TREE ______.

CONIFEROUS TREE ______.

LIGHT POLE -----

SANITARY LINE -----

BUSH /TREE TO BE REMOVED -----

ELECTRICAL HAND BOX - SIGNALS ----

FLOW LINE ------

TRAVERSE POINT -----

EROSION AND SEDIMENT CONTROL GENERAL NOTES

EROSION AND SEDIMENT CONTROL PLAN

TITLE SHEET

GENERAL NOTES

BORING LOG

TYPICAL SECTION

SITE PLAN

SHEET NO.

HOWARD SOIL CONSERVATION DISTRICT

MANAGEMENT DIVISION



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. 32306 EXPIRATION DATE: 10/16/2017

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DATE

MARYLAND
REGISTRATION 32013

AMY L. HRIBAR

OWNER'S DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

DATE

DATE

DATE

DATE

DATE

DAME M. Lev

PRINTED NAME AND TITLE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

RECTOR OF PUBLIC WORKS DATE

CHIEF, BUREAU OF
ENVIRONMENTAL SERVICES

4/12/17

McCORMICK TAYLOR

509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400

Howard County

Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046–3143 (410) 313–6444



	DES: JB	ADM	1	AS-BUILT SURVEY	9/05 /17	
	DRN: MER					
			100			
	CHK: AH					
	DATE: 4 /10/17	BY	NO.	REVISION	DATE	

OLD COLUMBIA PIKE WALL REPAIR PROJECT
CAPITAL PROJECT #D-1165
HOWARD COUNTY
HSCD #: EP-17-36

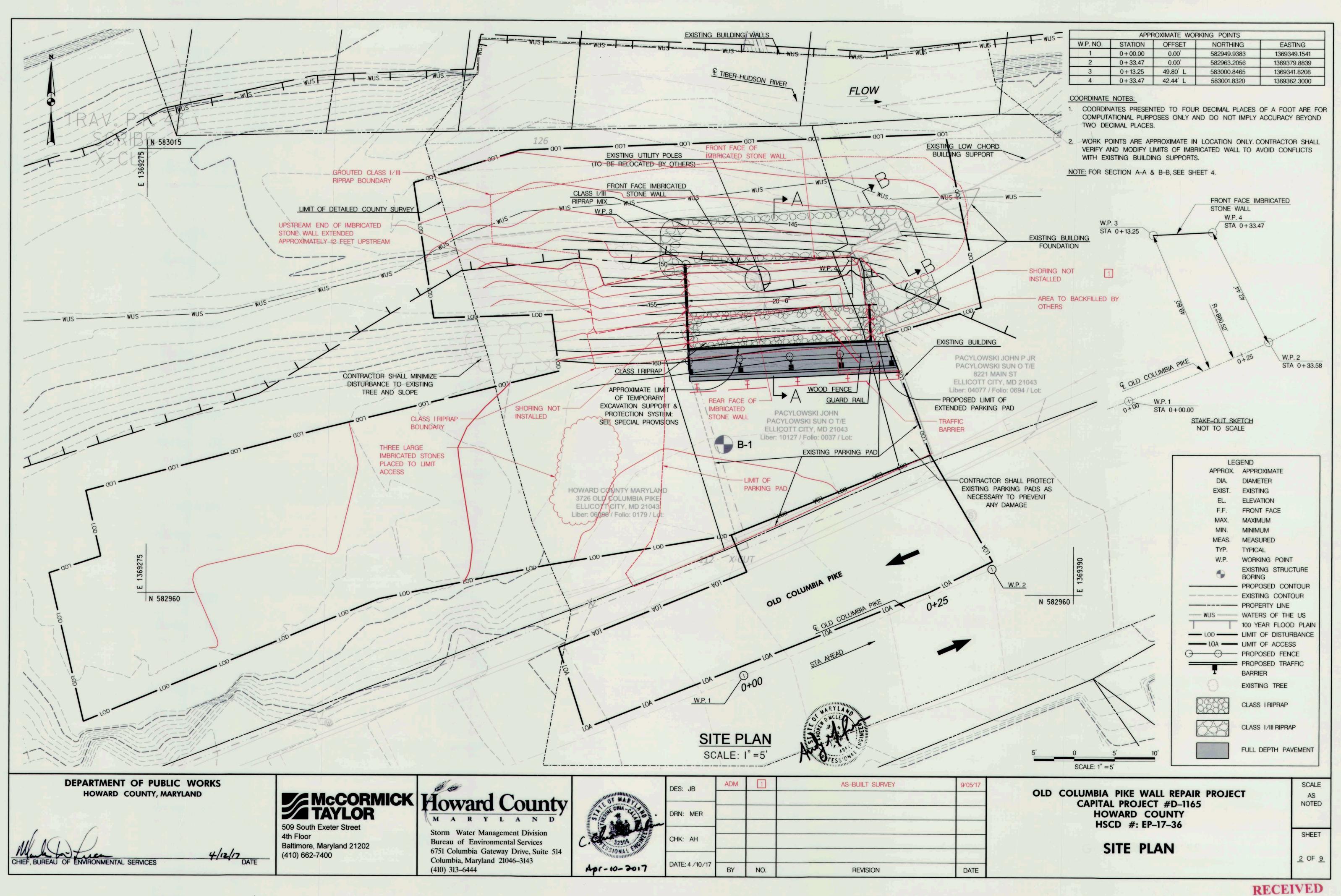
TITLE SHEET

SCALE

AS
SHOWN

SHEET

1 OF 9



GENERAL NOTES

SPECIFICATIONS:

SHA SPECIFICATIONS, DATED JULY 2008, REVISIONS THEREOF AND ADDITIONS THERETO AND AS SUPPLEMENTED BY HOWARD COUNTY VOLUME IV DESIGN MANUAL, DATED MAY 2007, AND REVISIONS THEREOF AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION. DESIGN AND INSTALLATION OF THE WALL SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION DATED 2014 AND ALL INTERIMS.

LOADINGS:

LIVE LOAD SURCHARGE: 240 PSF

DEAD LOAD SURCHARGE: 0 PSF

GENERAL:

VERIFY ALL DIMENSIONS AND GEOMETRY IN THE FIELD AS NECESSARY FOR PROPER FIT OF THE PROPOSED CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE PROTECTION TO PREVENT DAMAGE TO ASPHALT PARKING AREA.

EXISTING BUILDING AND FOUNDATIONS:

CONTRACTOR SHALL NOT DISTURB OR ADVERSELY IMPACT THE EXSTING BUILDING AND EXISTING BUILDING FOUNDATIONS OR ANY OTHER STRUCTURES IN THE VICINITY DURING CONSTRUCTION OPERATIONS.

THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE EXISTING BUILDING AND EXISTING BUILDING FOUNDATIONS.

THE CONTRACTOR MAY WISH TO CONDUCT BUILDING INSPECTIONS PRIOR TO WORK.

THE CONTRACTOR SHALL UTILIZE VIBRATION MONITORING TO MONITOR ANY IMPACTS TO THE EXISTING BUILDING OR THE EXISTING BUILDING FOUNDATIONS. SEE SPECIAL PROVISIONS.

STABILIZING STRUCTURAL EXCAVATION:

THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF ALL EXCAVATED SLOPES AND THE DESIGN OF ANY TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM THAT MAY BE USED. DIVERT ALL SURFACE RUNOFF AWAY FROM EXCAVATIONS. PERFORM ALL EXCAVATIONS IN ACCORDANCE WITH OSHA REQUIREMENTS.

BACKFILL AND GRADE ALL EXCAVATIONS AS SOON AS POSSIBLE TO PREVENT SURFACE WATER FROM PONDING AND CONCENTRATED FLOW FROM ENTERING THE EXCAVATION. KEEP THE EXCAVATION DRY WITH PUMPS AS REQUIRED. NO PAYMENT SHALL BE MADE FOR DEWATERING THE AREA WITHIN THE TEMPORARY SUPPORT OF EXCAVATION, THEREFORE DEWATERING SHALL BE INCIDENTAL TO THE IMBRICATED STONE WALL ITEM.

AFTER BACKFILLING TEMPORARY EXCAVATION SUPPORT SHALL BE MADE FLUSH WITH FINISHED GROUND OR MODIFIED AS DIRECTED BY THE ENGINEER

IMBRICATED STONE TYPE - SEE SPECIAL PROVISIONS. FLOWABLE BACKFILL - SEE SPECIAL PROVISIONS. COMPRESSIVE STRENGTH - 1200 PSI

MINIMUM DENSITY - 150 PCF

CLASS III / CLASS I RIPRAP MIX - 70% CLASS III 30% CLASS I

UTILITIES:

UTILITIES AS SHOWN ON THE PLANS FOR INFORMATION ONLY. THE PRESENCE, SIZE, AND LOCATION OF ALL UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD BEFORE COMMENCING WORK.

THE CONTRACTOR IS ADVISED THAT THERE MAY BE EXISTING BURIED ELECTRICAL LINES IN THE AREA OF THE PROPOSED IMBRICATED STONE WALL, WHICH MUST BE AVOIDED DURING THE INSTALLATION OF THE STRUCTURE. THE CONTRACTOR SHALL FOLLOW ALL CODES AND METHODS OUTLINED IN THE MARYLAND HIGH VOLTAGE LINE ACT (TITLE 6 OF THE LABOR AND EMPLOYMENT ARTICLE, ANNOTATED CODE OF MARYLAND) AND THE U.S. DEPARTMENT OF LABOR - OSHA STANDARD 1926-1408 (POWER LINE SAFETY (UP TO 350 KV) EQUIPMENT OPERATORS).

FOUNDATION NOTES:

FOUNDATIONS NEED TO BE FOUNDED ON LEVEL GROUND AND ARE TO BE CONFIRMED BY THE ENGINEER IN THE FIELD AFTER EXCAVATION.

IF UNSUITABLE MATERIALS ARE ENCOUNTERED, OVEREXCAVATE AT THE DIRECTION OF THE ENGINEER AND BACKFILL WITH COMPACTED CR-6 AGGREGATE.

A GEOTECHNICAL ENGINEER SHALL INSPECT FOUNDATION MATERIAL AND BE ON SITE DURING CONSTRUCTION.

EXISTING STREAM:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING CONSTRUCTION MATERIALS FROM BLOCKING THE STREAM CHANNEL. MATERIALS SHALL NOT BE STORED WITHIN THE 100YR FLOODPLAIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ANY CONSTRUCTION MATERIALS FROM CONTAMINATING THE STREAM.

LOOSE ROCK FROM THE EXISTING STREAM CHANNEL MAY BE UTILIZED FOR THE PROPOSED WALL CONSTRUCTION IF MEETING REQUIRED SPECIFICATIONS. ROCK EMBEDDED IN THE STREAM BED SHALL NOT BE REMOVED.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

McCORMICK 509 South Exeter Street 4th Floor

Baltimore, Maryland 21202

(410) 662-7400



(410) 313-6444

	DES: JB	-			
MINING OF MARY					
S OF CHA CALL	DRN: MER				
					L C. L
32306	CHK: AH				
William STONAL ENGINEER					
Apr-10-2017	DATE: 4 /10/17	BY	NO.	REVISION	DATE

OLD COLUMBIA PIKE WALL REPAIR PROJECT CAPITAL PROJECT #D-1165 HOWARD COUNTY HSCD #: EP-17-36

GENERAL NOTES

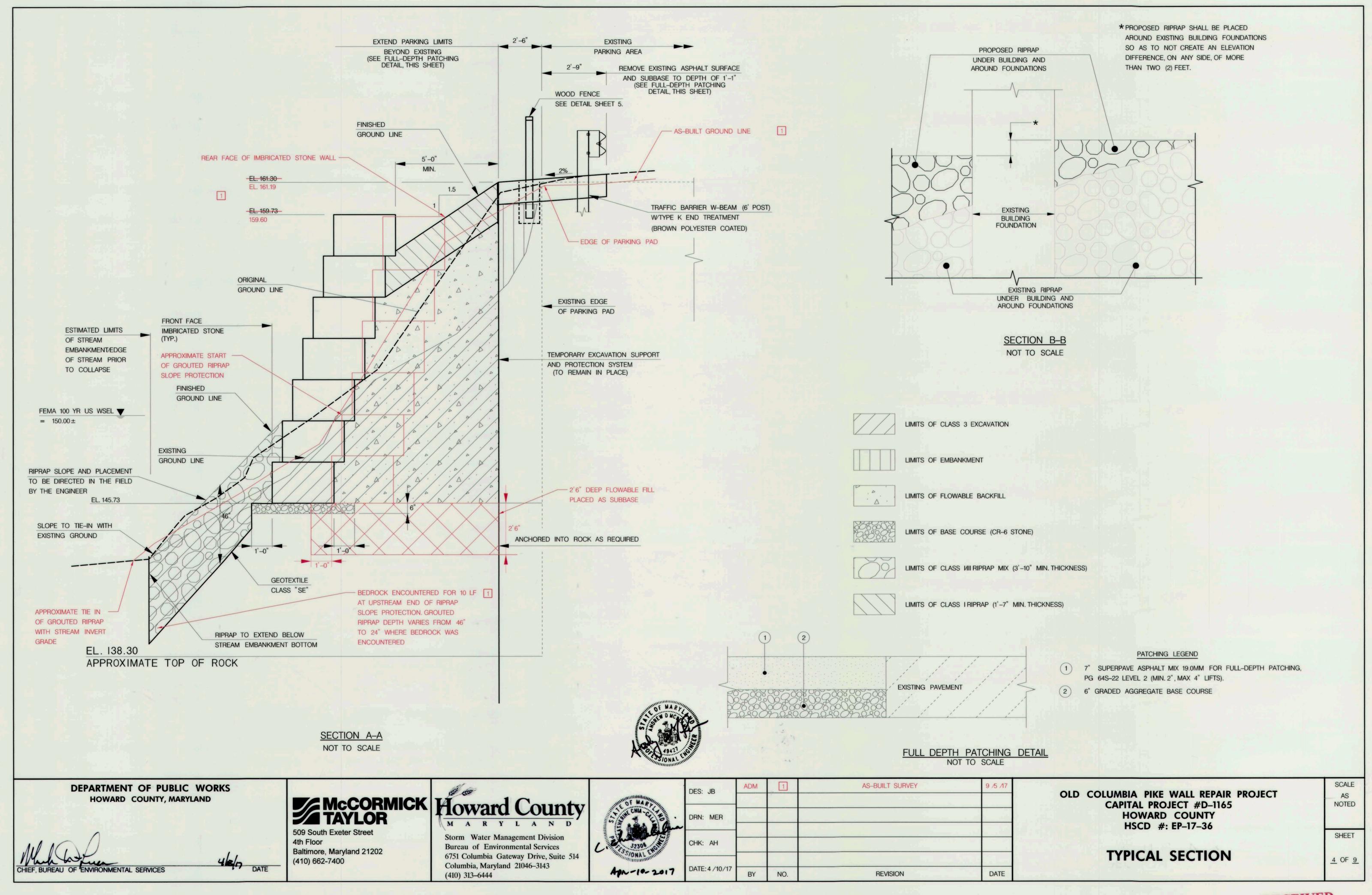
SCALE NONE

SHEET 3 OF 9

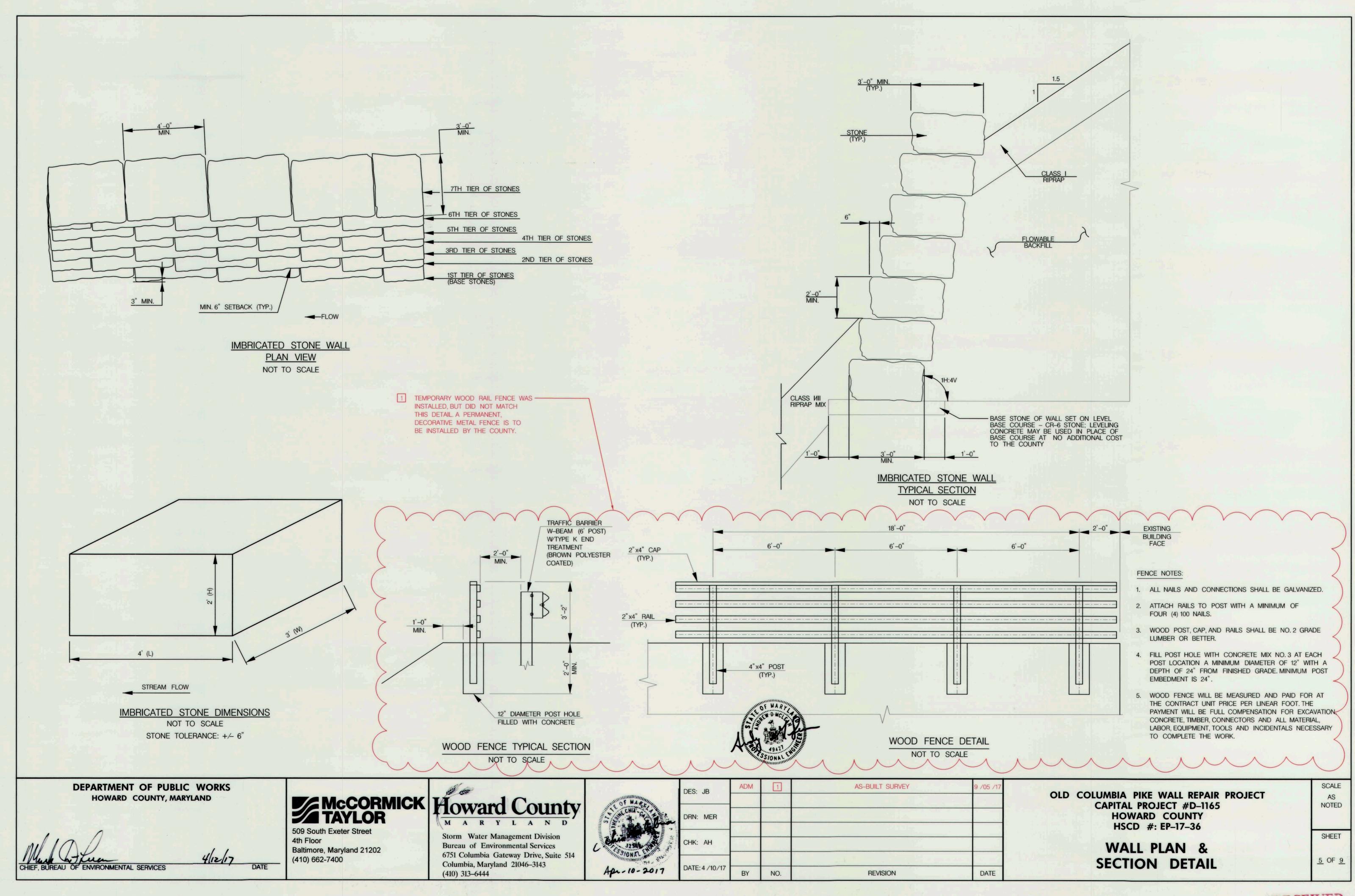
RECEIVED

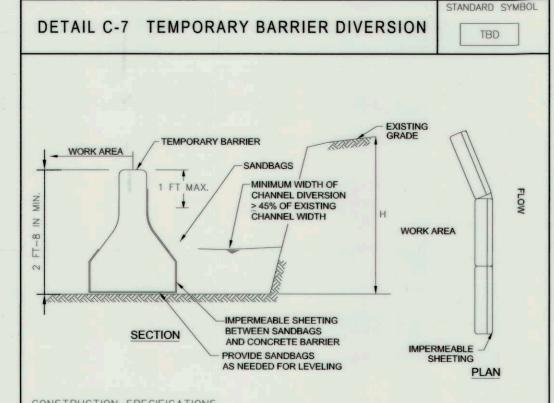
DIVISION

APR 1 9 2017 LICENSES & PERMITS



LICENSES & PERMITS





CONSTRUCTION SPECIFICATIONS

I. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.

2. USE BARRIER MADE OF CONCRETE OR OTHER APPROVED MATERIAL. 3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING.

4. ESTABLISH TOP ELEVATION AT H/2 + I FOOT FOR PROJECTS OF DURATION LESS THAN 2 WEEKS OR AS SPECIFIED ON APPROVED PLAN.

5. INSTALL DIVERSION STRUCTURE FROM UPGRADE TO DOWNGRADE. 6. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY

A MINIMUM OF 18 INCHES. 7. USE SANDBAG BASE FOR LEVELING AND TO ESTABLISH MINIMUM TOP ELEVATION OF THE BARRIER

8. DISPOSE OF ALL EXCAVATED MATERIALS IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN. 9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS

SPECIFIED ON APPROVED PLAN. IO. KEEP ABUTMENTS BETWEEN CONCRETE BARRIERS WATER TIGHT. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MGWC 2.1: RIPRAP*

150 lb (70 kg) 2 lb (1 kg) 700 lb (320 kg) 20 lb (10 kg) 10 max 2000 lb (910 kg) 40 lb (20 kg) Uniform-grade riprap should incorporate angular rock to promote interlocking \$78 per linear ft

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Once a slope stabilization project is initiated, preparation and placement of the riprap should immediately follow the initial disturbance to minimize the chances for further slope degradation. The recommended construction procedure for riprap is as follows beginning with initial slope preparations (refer to Detail 2.1):

1. The contractor should install all sediment and erosion control devices as the first order of business.

2. Excavation should be made in reasonably close conformity with the existing stream slope and bed.

4. Provisions must be made to anchor the riprap at the stream bed so as to provide protection against undermining. If this cannot be accomplished by creating a toe trench, an alternative method of protection must receive prior

3. All fill in the subgrade should be compacted to a density approximating that of the surrounding undisturbed

The filter layer or blanket should be placed immediately after slope preparation.

written approval from the WMA or local authority.

· The stone for granular filters should be spread in a uniform layer to the specified depth. Where more than one layer is employed, they should be spread such that there is minimal mixing. When cloth filters are used, special care should be taken not to damage the fabric during riprap placement.

6. Riprap placement should begin with the toe. The larger stones, as specified by the design gradation, should be placed in the toe and along the perimeter of the slope and channel protection. The riprap should be placed with suitable equipment in such a manner as to produce a reasonably graded mass of stones with zero drop height. The placing of stones that cause extensive segregation is not allowed. Where appropriate, a low flow channel shall be constructed through the riprap.

7. Any excavation voids existing along the edges of the completed slope and channel protection should be backfilled and compacted.

8. All disturbed areas should be permanently stabilized in accordance with an approved sediment and erosion

Note: The use of rock vanes (MGWC 3.3: Rock Vanes) should be considered to redirect high-velocity flows at the

SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE ENVIRONME WATERWAY CONSTRUCTION GUIDELINES PAGE 2.1 -2

Maryland's Guidelines To Waterway Construction DETAIL 2.1: RIPRAP*

SECTION VIEW

Toe Trench - minimum toe trench depth below

channel invert shall be designed based on site

*RIPRAP SLOPES WITHIN THE 100-YR FLOODPLAIN STEEPER

DETAIL F-4 FILTER BAG

THAN 2:1 SHALL BE GROUTED FOR STABILITY.

characteristics and to prevent failure due to scour

Riprap Layer - typical thickness is the greater of: 12 inches (30 cm), the upper limit of D 100, and 1.5 times

the upper limit of D 50; median stone size, D 50, shall be

riprap placement

Filter Layer - gravel filter should be

riprap layer; the gravel gradation is a

function of the median sizes of the

may be used instead of gravel

riprap and base material; filter fabric

approximately 1/2 the thickness of the

Imbricated riprap is used to protect and stabilize embankment soils from the erosive forces of flowing water and piping forces resulting from groundwater seepage. A well-engineered imbricated riprap revetment should consist of

MGWC 2.2: IMBRICATED RIPRAP *

a filter layer of gravel or cloth designed to prevent soil movement into or through the riprap layer while

allowing water to drain from the embankment, and a stone wall of appropriate size and positioning to resist the shearing forces of channelized water and the lateral

EFFECTIVE USES & LIMITATIONS

When properly designed and installed, imbricated riprap revetments resist lateral earth pressures to some extent and can be an effective method of bank armoring where soil conditions, water turbulence and velocity, expected vegetative cover, and groundwater conditions are such that the soil may erode under the design flow conditions and threaten infrastructure or personal property.

Filter cloth should only be utilized when the bank material is a noncohesive material such as sand or gravel. **BACKFILL MATERIAL SEE DETAIL SHEET 4 AND MATERIAL SPECIFICATIONS SPECIFICATIONS SHEET 3; IMBRICATED STONE SEE SHEET 5.

Materials for imbricated riprap construction and installation should meet the following requirements

2 1/2 in (64 mm) 1 in (25 mm) 1/2 in (13 mm) No. 10

Toe Riprap: The maximum diameter or weight of stone for toe riprap should be based upon the bankfull stream channel velocity as detailed in the MGWC 2.1: Riprap and Figure 2.1.

Imbricated Stones: Imbricated riprap should be angular and blocky in shape such that they are stackable and should be sufficiently large to resist displacement by both the design storm event and the site-specific lateral earth stresses. Therefore, the length of the longest axis of each stone should be the greater of 1/3 the height of the proposed wall and the size necessary to resist the design stream flow according to MGWC 2.1: Riprap. A typical minimum axis length is 24 inches (0.6 meters).

SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE ENVIRONMEN PAGE 2 2 - 1

MGWC 2.2: IMBRICATED RIPRAP **

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of ousiness according to a plan approved by the WMA or local authority. The recommended construction procedure for imbricated riprap is as follows (refer to Detail 2.2):

The stream should be diverted according to a WMA recommended procedure (see Section 1, Temporary Instream Construction Measures, Maryland's Guidelines to Waterway Construction), and the construction area

All excavation should be made in reasonably close conformity with the existing stream slope and bed. The slope of the cut face should be in the range of HI.6V to 2H.6V. Loose material at the toe of the embankment should be excavated until a stable foundation is reached, usually within 2 to 3 feet (0.6 to 0.9 meters) of the surface. The subgrade should be smooth, firm, and free from protruding objects or voids that would effect the proper positioning of the first layer of stones.

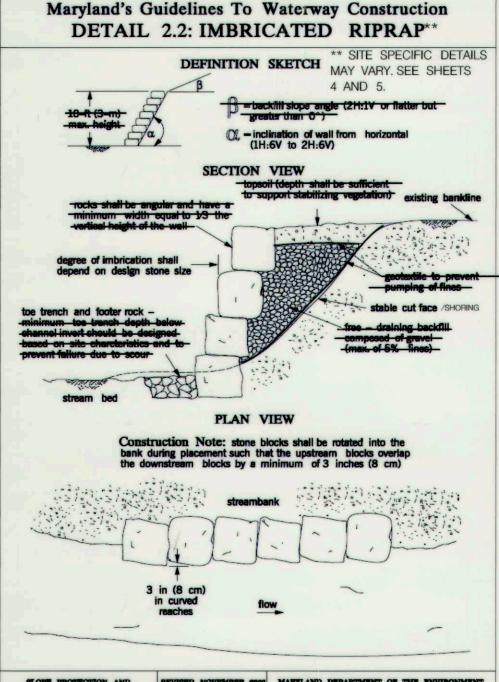
4. The rock layers should be neatly stacked with staggered joints so that each stone rests firmly on two stones in the tier below. Additionally, smaller stones should be used to fill voids so that each rock rests solidly on the previous rock layer with minimal opportunity for movement. Upon completion of the first layer of stone, the toe trench should be filled with Class III riprap sized according to MGWC 2.1: Riprap or additional imbricated stone. Two footer stones should be used where high potential for channel incision exists. The height of the imbricated revetment is dictated by the size of the stone used, and the height should not exceed 3 times the

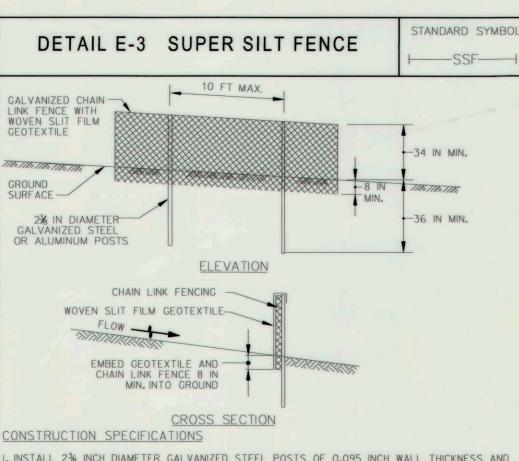
6. The disturbed sections of the channel, including the slopes and stream bed, should be stabilized with methods approved by the WMA.

Note: The use of rock vanes (MGWC 3.3: Rock Vanes) should be considered to dissipate excessive toe velocities.

**BACKFILL AND STABILIZATION MATERIALS VARY FROM STANDARD DETAIL 2.2. REFER TO SECTION A-A ON SHEET 4 OF 9 AND TYPICAL SECTION SHEET 5 OF 9 FOR SITE SPECIFIC DETAILS.

WATERWAY CONSTRUCTION GUIDELINES SLOPE PROTECTION AND STABILIZATION TECHNIOLE WATERWAY CONSTRUCTION GUIDELINES



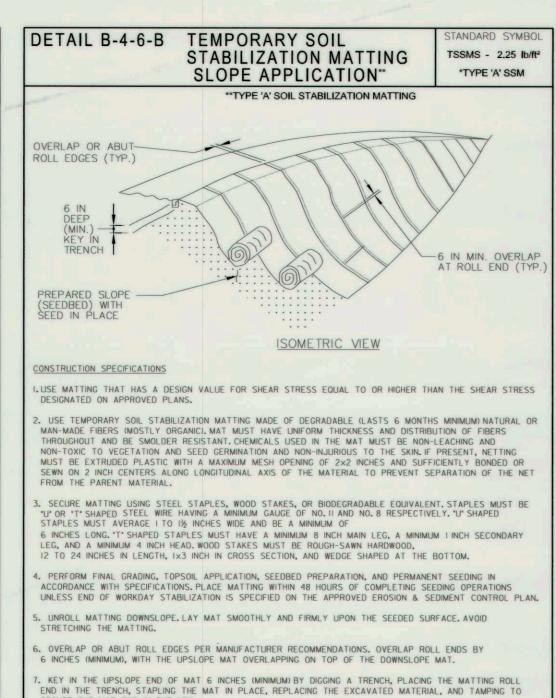


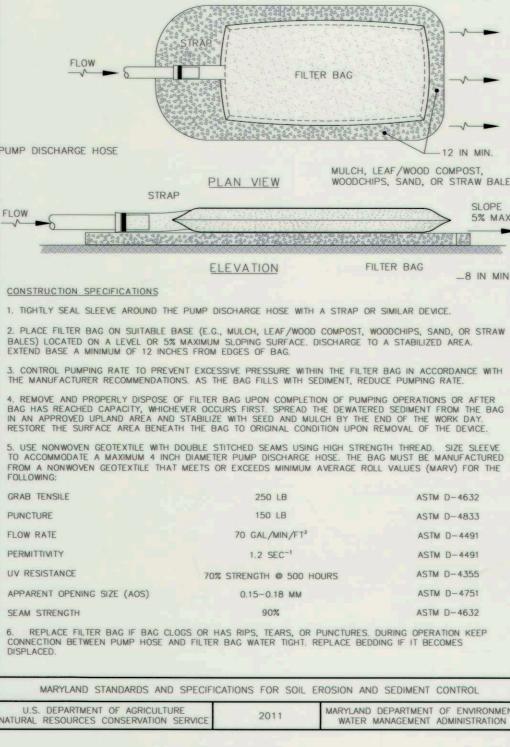
INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM

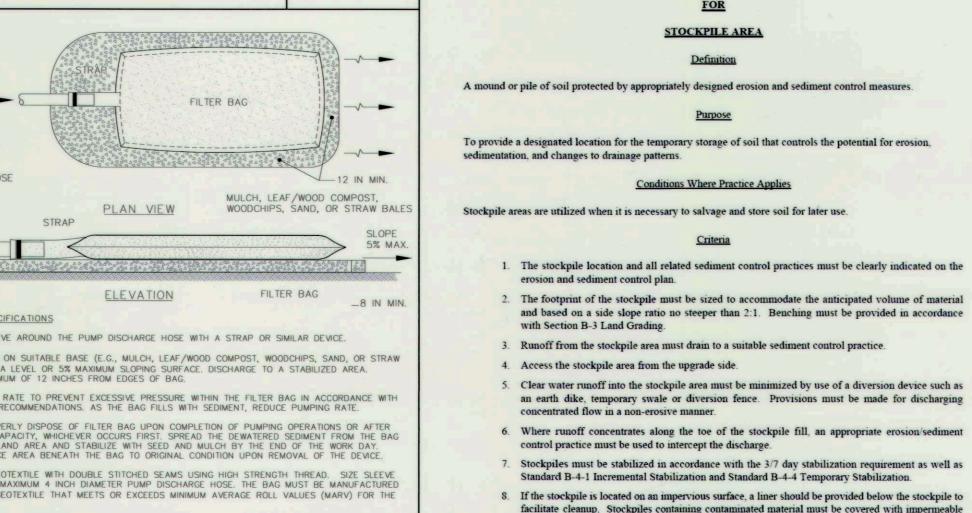
2.FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (23/8 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS. 3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-I MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES

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 UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNME ENDS OF THE SUPER SILT FENCE.		VENT RUNOFF FROM GOING AROUND THE
6. PROVIDE MANUFACTURER CERTIFICATION TO SHOWING THAT GEOTEXTILE USED MEETS 7. REMOVE ACCUMULATED SEDIMENT AND DEE SEDIMENT REACHES 25% OF FENCE HEIGHT OCCURS, REINSTALL CHAIN LINK FENCING A	THE REQUIRE BRIS WHEN B	MENTS IN SECTION H-I MATERIALS. BULGES DEVELOP IN FENCE OR WHEN SECTENTILE IF TORN, IF UNDERMINING
MARYLAND STANDARDS AND SPECIFICATION	ONS FOR SO	IL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION







⊠FB

B-4-8 STANDARDS AND SPECIFICATIONS

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

To provide a designated location for the temporary storage of soil that controls the potential for erosion,

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

1. The stockpile location and all related sediment control practices must be clearly indicated on the

2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance

3. Runoff from the stockpile area must drain to a suitable sediment control practice.

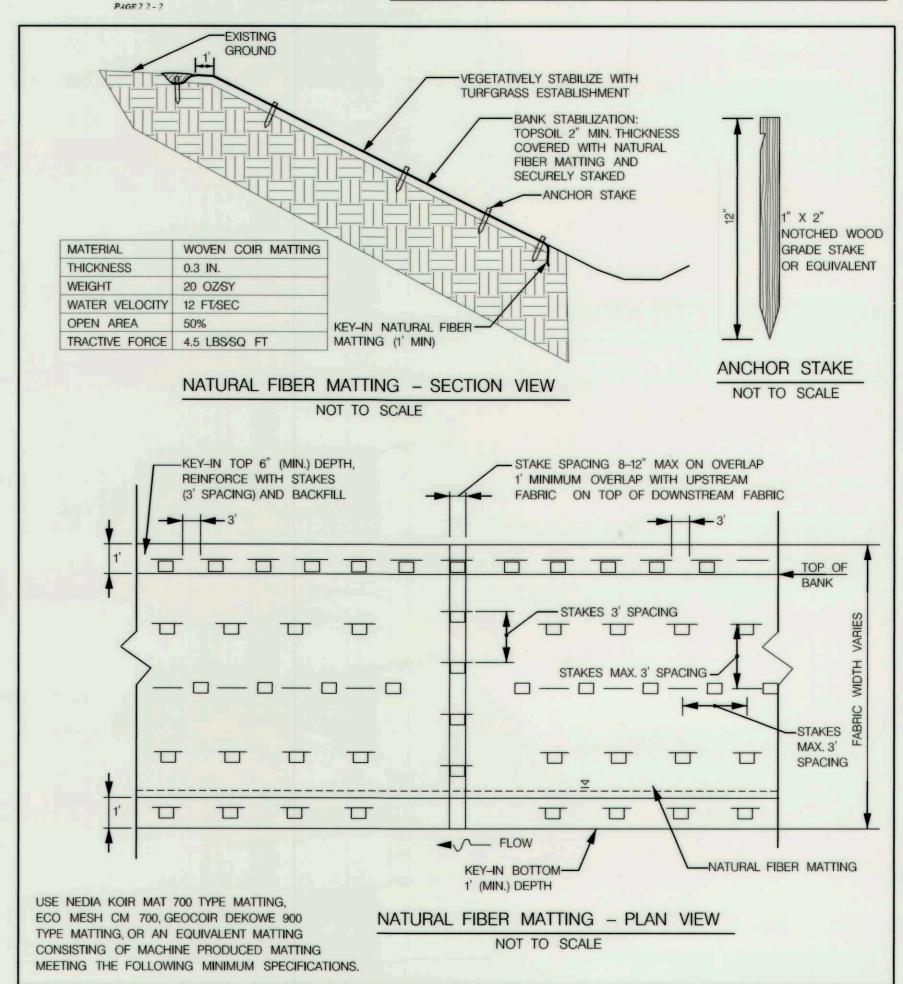
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment

7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.

facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

HIFE BUREAU OF ENVIRONMENTAL SERVICES



8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND

ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

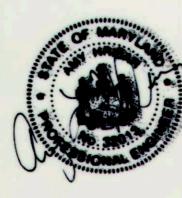
TURAL RESOURCES CONSERVATION SERVI

4th Floor

MARYLAND Storm Water Management Division Bureau of Environmental Services Baltimore, Maryland 21202 6751 Columbia Gateway Drive, Suite 514 (410) 662-7400 Columbia, Maryland 21046-3143 (410) 313-6444

MARYLAND DEPARTMENT OF ENVIRONMENT

WATER MANAGEMENT ADMINISTRATION



	DES: JB					
	DRN: MER	TIFE				
	CHK: AH					
	DATE: 4 /10/17	BY	NO.	REVISION	DATE	

OLD COLUMBIA PIKE WALL REPAIR PROJECT CAPITAL PROJECT #D-1165 HOWARD COUNTY HSCD #: EP-17-36

EROSION AND SEDIMENT CONTROL DETAILS

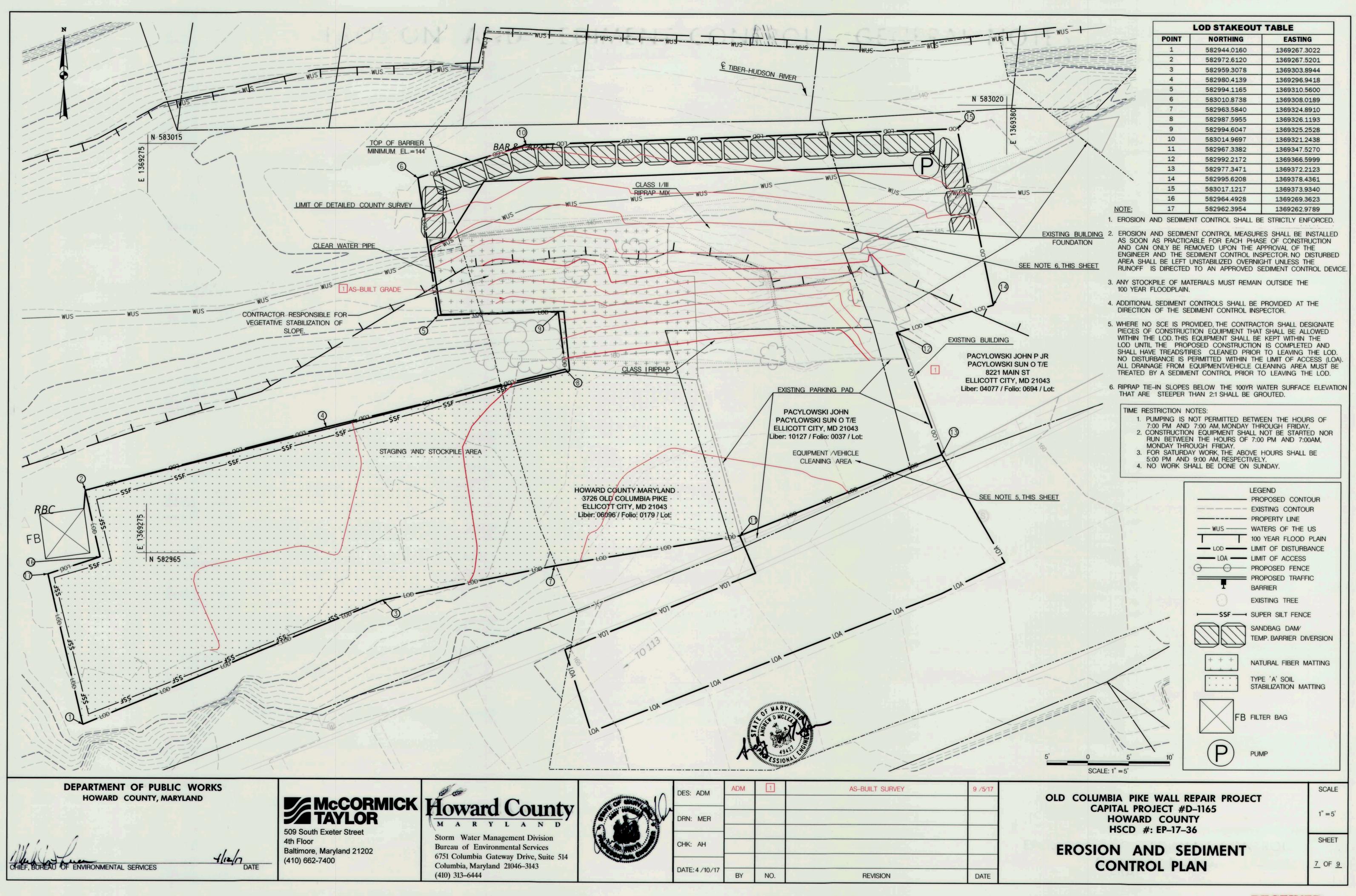
SHEET 6 OF 9

SCALE

NOTED

RECEIVED

APR 19 2017 LICENSES & PERMITS DIVISION



EROSION AND SEDIMENT CONTROL - GENERAL NOTES

SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT AND MDE PERMIT (TRACKING NUMBER XXXXXXXX). (1 DAY)
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410) 313-1880 A MINIMUM OF 5 DAYS PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY THE HOWARD COUNTY BUREAU OF UTILITIES (410) 313-4900 AND MARYLAND DEPARTMENT OF THE ENVIRONMENT INSPECTOR AT (301) 665-2850, FIVE(5) DAYS BEFORE ANY LAND DISTURBING ACTIVITY. (1 DAY)
- STAKEOUT LOD AS SHOWN ON THE PLANS AND INSTALL ORANGE CONSTRUCTION FENCE (OCF). THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRE-CONSTRUCTION MEETING. (1 DAY)
- THE CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT B LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION, AND THE CONTRACTOR. (1 DAY)
- INSTALL THE PERIMETER CONTROLS AND DEWATERING DEVICES AS SHOWN ON THE PLAN CLEARING ONLY THE AREA NEEDED TO INSTALL THE E&S CONTROLS. (2 DAYS)
- WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR BEFORE PROCEEDING AND DURING A 3 DAY DRY FORECAST FROM THE NATIONAL WEATHER SERVICE, EXCAVATE AND PREPARE TEMPORARY SHORING AS REQUIRED FOR INSTALLATION OF IMBRICATED RIPRAP WALL. CONSTRUCT RIPRAP WALL AND BACKFILL BEHIND THE WALL. INSTALL RIPRAP STABILIZATION AS SHOWN ON THE PLANS. DEWATER WORK AREA TO FILTER BAG AS NECESSARY. (10 DAYS)
- 7. INSTALL PAVEMENT SECTION, TRAFFIC BARRIER AND FENCE AS SHOWN ON THE PLANS. (3 DAY)
- STABILIZE DISTURBED AREAS AS SHOWN ON THE PLANS WITH SOIL STABILIZATION MATTING AND TURFGRASS ESTABLISHMENT.
- WHEN AREAS ARE FULLY STABILIZED AND WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE THE EROSION AND SEDIMENT CONTROLS. STABILIZE ANY REMAINING DISTURBED AREAS WITH PERMANENT STABILIZATION AS SHOWN ON THE PLANS. DEMOBILIZE EQUIPMENT (3 DAYS).

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN
- A. PRIOR TO THE STARTE OF EARTH DISTRUBANCE,
 B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS,
 BUT BEFORE PROCEEDING WITH ANY OTHER DISTURBANCE OR GRADING,
 C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
 D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.
- OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- 3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1. B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC.B-4-2), PERMANENT SEEDING (SEC.B-4-5), TEMPORARY SEEDING (SEC.B-4-4) AND MULCHING (SEC.B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC.B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC.B-4-8) IN EXCESS OF 20' MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOILS STABILIZATION MATTING (SEC.B-4-6).
- 5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR
- 6. SITE ANALYSIS:
 TOTAL AREA OF SITE
 AREA DISTURBED
 AREA TO BE ROOFED OR PAVED
 AREA TO BE VEGETATIVELY STABILIZED
 O.0924 ACRES
 0.0924 ACRES
 0.0924 ACRES
 0.0548 ACRES
 51 CY
 149 CY OFFSITE WASTE/BORROW AREA LOCATION SEE NOTE #17
 - 7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
 - 8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST IS PART OF EVERY INSPECTION AND SHALL INCLUDE ITEMS LISTED AT HOWARDSCD. ORG.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
- 10. ANY MAJOR CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY BE ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
- 11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT
- 12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- 13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
- 14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25 MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2 IN ELEVATION.
- 15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE): USE I AND IP MARCH 1 - JUNE 15 USE III AND IIIP OCTOBER 1 - APRIL 30 USE IV MARCH 1 - MAY 31
- 16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.
- 17. OFFSITE WASTE / BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN AND PERMIT.

B-4-2 SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

A. SOIL PREPARATION 1. TEMPORARY STABILIZATION

- A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
- B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS. C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

2. PERMANENT STABILIZATION

- A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - I.SOIL PH BETWEEN 6.0 AND 7.0. II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
- III.SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE. IV.SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
- V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION. B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.

LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
- D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST. E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL

- 1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH,
- MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION. 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
- 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
- A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH. B.THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING
- SUPPLIES OF MOISTURE AND PLANT NUTRIENTS. C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
- D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- 4.AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN
- 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA: A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED
- IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 INCH IN DIAMETER.
- B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
- A. FROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
- B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER
- OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS. C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS
- EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION. C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS) 1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR
- COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES. 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE
- NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER. 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT
- WILL PASS THROUGH A #20 MESH SIEVE. 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY
- DISKING OR OTHER SUITABLE MEANS. 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-4 TEMPORARY STABILIZATION

	HARDINESS ZONE (SEED MIXTURE ()	FERTILIZER RATE (10-20-20)	LIME			
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEED ING DATES	SEED ING DEPTHS	436 LB/AC	RATE
	ANNUAL RYEGRASS	40	MAR. 1 TO MAY 15; AUG. 1 TO OCT 15	0.5	(10 LB/ 1000 SF)	2 TON/AC (90 LB/
	FOXTAIL MILLET	30	MAY 16 TO JULY 31	0.5	1000 317	1000 SF)

B-4-3 SEEDING AND MULCHING

- A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.

 B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.

 C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

 D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

 APPLICATION
- CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

 2. APPLICATION

 A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

 I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.

 II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

 B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

 I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

 II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

 C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).

 I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.
- - K20 (POTASSIUM), 200 POUNDS PER ACRE.

 II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING).

 NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED
- III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION. IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

- MULCHING

 1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

 A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

 B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

 I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

 II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

 III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER—LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

 IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO—TOXIC.

 V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
 - HOLDING CAPACITY OF 90 PERCENT MINIMUM.

- A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

 B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.

 C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS
- A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION
 - I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE
 A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES
 WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.

 II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF
 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD
 CELLULOSE FIBER PER 100 GALLONS OF WATER.

 - III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.

 IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-5 PERMANENT STABILIZATION

	HARDINESS ZONE (F SEED MIXTURE (F	2000000	TILIZER R (10-20-20)	L I ME RATE					
NO. SPECIES		APPLICATION RATE (LB/AC)	SEED ING DATES	SEEDING DEPTHS	N	P ₂ O ₅	K 20	RAIL	
	SWITCH GRASS	10	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.		00 18/40	90 LB/AC		
1	CREEPING RED FESCUE	15	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.	(1.0 LB/	(2.0 LB/	(2.0 LB/		
	PARTRIDGE PEA	4	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.	1000 SF)	1000 SF)	1000 51)	1000 SF)	

NOTE: MAY 16 TO JUNE 15 ARE ADDITIONAL PLANTING DATES DURING WHICH SUPPLEMENTAL WATERING MAY BE NEEDED TO ENSURE PLANT ESTABLISHMENT

	HARDINESS ZONE (F SEED MIXTURE (F		TILIZER R (10-20-20)		LIME			
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEED ING DEPTHS	N	P ₂ O ₅	K 20	RATE
	TALL FESCUE	40	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1/4-1/2 IN.	The state of the s	90 18/40	90 LB/AC	2 TON/AC
6	PERENNIAL RYEGRASS	25	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1/4-1/2 IN.	(1.0 LB/	(2.0 LB/	(2.0 LB/ 1000 SF)	(90 LB/
	WHITE CLOVER	5	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1/4-1/2 IN.	THE CONTRACT OF THE CONTRACT O	1000 5F)	1000 3F)	1000 SF /

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

BUREAU OF ENVIRONMENTAL SERVICES

McCORMICK 509 South Exeter Street

Baltimore, Maryland 21202

4th Floor

(410) 662-7400

MARYLAN Storm Water Management Division

Bureau of Environmental Services

Columbia, Maryland 21046-3143

(410) 313-6444

6751 Columbia Gateway Drive, Suite 514

William St.	DES: ADM		177			
0						
	DRN: MER					_
The second second						
On November	CHK: AH					
No. of Control of Control						
	DATE: 4 /10/17	BY	NO.	REVISION	DATE	

OLD COLUMBIA PIKE WALL REPAIR PROJECT CAPITAL PROJECT #D-1165 HOWARD COUNTY HSCD #: EP-17-36

EROSION AND SEDIMENT CONTROL GENERAL NOTES

SHEET 8 OF 9

SCALE

NONE

RECEIVED

CLIENT:		- 1	PROJ	ECT:	-		0:4 =			\: c.		
McCormick	Taylor				Elli		City P			Sifts		
ARCHITECT/ENGINEER:			SITE:		Ho		Ellicot			and		
				SA	MPLE			,,	y.	TES	TS	
		SRAPHIC LOG	ОЕРТН (FT)	BLOWS/6" N - VALUE RQD	NUMBER	TYPE	IN. RECOVERED IN. DRIVEN	MOISTURE (%)	DRY DENSITY (PCF)	Qu (TSF)	% PASSING #200 SIEVE	REMARKS/ ADDITIONAL
SURFACE ELEV.:		9	BG	MZX	ž	7	ZZ	ž	P. C.	σĒ	%#	A A
0.6 7" Asphalt Medium dense, dense to loose brown and light gray SILTY SA clay, gravel and cobbles (Poss	ND (SM) with		5	5-8 7 N=15 15-25 9 N=34	2	SS	14/18 78% 12/18 67%				F-1-1-1	
8.0			7	5 N=8			67%					
Medium dense brown, greenis SILTY SAND (SM) with rock fr (Decomposed Rock)			10	7-9 12 N=21	4	SS	14/18 78%				7-	
			15	8-10 16 N=26	5	SS	14/18 78%					
			20 =	5-8 4 N=12	6	SS	14/18 78%					
23.0			=									
Auger and spoon refusal @ 23 End of Boring @ 23 ft Borehole was backfilled and p completion				51/0"	7	SS	%					
WATER LEVEL ORSERVATIONS												
WATER LEVEL OBSERVATIONS	130			ants, In		STA	RTED:	2/22		FINIS	HED:	2/22/17
WL Dry @ Drilling WL Dry, caved-in 12 ft @ 0 Hrs		Lanha	m, MD	lis Road 20706			L CO.:	F	ABC		L RIG:	B-6
Dry, caved-in 12 ft @ 0 Hrs		Dhono	Phone: 301-306-3091		LER:		PS	ASS'T DRILLER:				

BOREHOLE B-1 STATION: 0 + 08.73 BOREHOLE B-1 OFFSET: 27.45' L

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

HIEF, BUREAU OF ENVIRONMENTAL SERVICES

McCORMICK Howard County

TAYLOR

M A R Y L A N D

509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

M A R Y L A N D

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046–3143
(410) 313–6444



	DES: JB					
	520. 05	4				
	DRN: MER					
1						- 6
	CHK: AH					
	DATE: 4 /10/17	BY	NO.	REVISION	DATE	

OLD COLUMBIA PIKE WALL REPAIR PROJECT
CAPITAL PROJECT #D-1165
HOWARD COUNTY
HSCD #: EP-17-36

BORING LOG

SCALE AS NOTED

9 OF 9

SHEET