

HOWARD COUNTY

Capital Project #D-1165



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

INDEX OF SHEETS

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9	BORING LOG

Old Columbia Pike Wall Repair Project

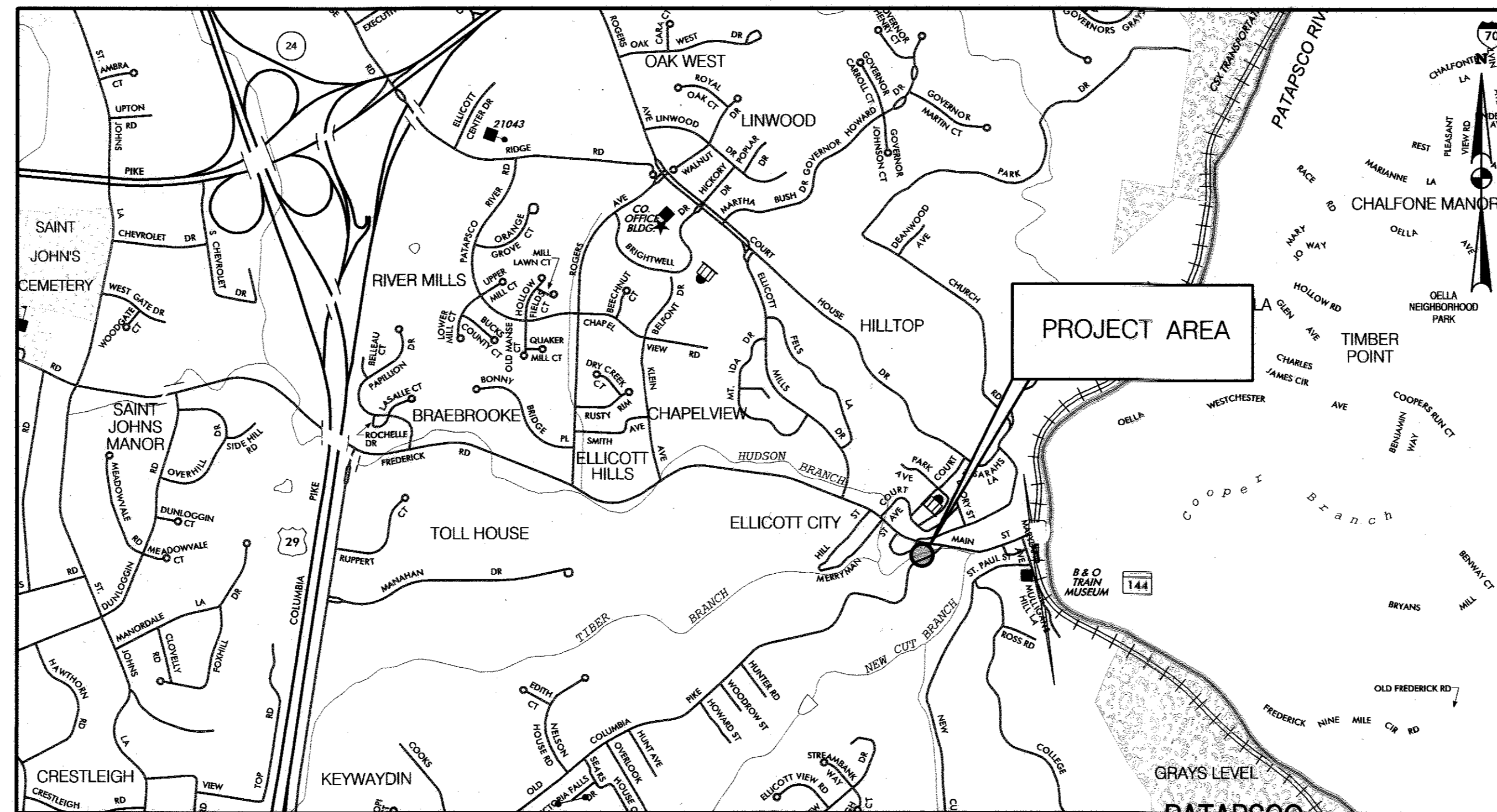
Storm Water Management Division
 Bureau Of Environmental Services

GENERAL NOTES

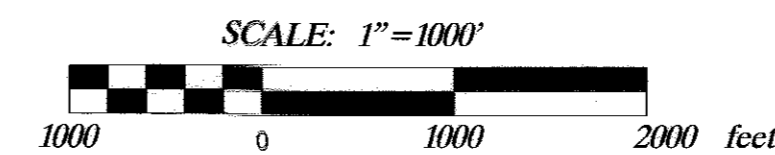
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY HOWARD COUNTY - 2016
- 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.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND McORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- 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.
- THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'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.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY McORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER BELOW)
- 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.
- OWNERS OF THE PROJECT SITE INCLUDE HOWARD COUNTY AND JOHN PACYLOWSKI/SUN PACYLOWSKI.

LEGEND

PROPOSED MEDIAN BARRIER	---
ELECTRICAL HAND BOX - SIGNALS	H.B.X.
FLOW LINE	---
STATE, COUNTY OR CITY LINES	---
EXISTING TRAFFIC BARRIER	---
PROPOSED FENCE LINE	X-X
EXISTING FENCE LINE	X-X
PROPERTY LINE	---
EASEMENT LINE	---
EXISTING ROADWAY	---
BASE OR SURVEY LINE	---
TRAVERSE POINT	△
APPROXIMATE LIMITS OF CUT AND/OR FILL	C F
PROPOSED MAJOR CONTOUR	180
PROPOSED MINOR CONTOUR	181
LIMIT OF DISTURBANCE	L00
EXISTING MAJOR CONTOURS	190
EXISTING MINOR CONTOURS	191
EXISTING PIPE/CULVERT	---
EXISTING DROP INLET	---
WETLAND	---
WATERS OF THE US	WUS
HEDGE /TREE LINE	---
BUSH /TREE	○
CONIFEROUS TREE	☼
LIGHT POLE	☼
SANITARY LINE	SAN
BUSH /TREE TO BE REMOVED	⊗



HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88



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

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.

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.

HOWARD SCD SIGNATURE BLOCK

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

[Signature] 4/12/17
 HOWARD SOIL CONSERVATION DISTRICT DATE

4-10-17 *[Signature]*
 DATE DESIGNER'S SIGNATURE

MARYLAND REGISTRATION NUMBER 32013 AMY L. HRISAR
 PRINTED NAME

4/13/17 *[Signature]*
 DATE OWNER/DEVELOPER SIGNATURE

JAMES M. JAV JAMES M. JAV
 PRINTED NAME AND TITLE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 4/13/17 *[Signature]* 4/12/17
 DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

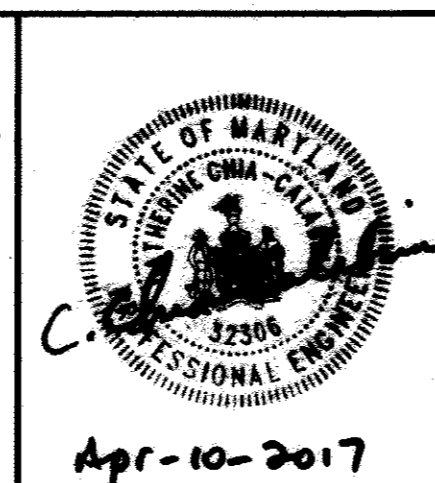
[Signature] 4/13/17
 CHIEF, STORMWATER MANAGEMENT DIVISION DATE

McCORMICK TAYLOR

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

Howard County
 MARYLAND

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



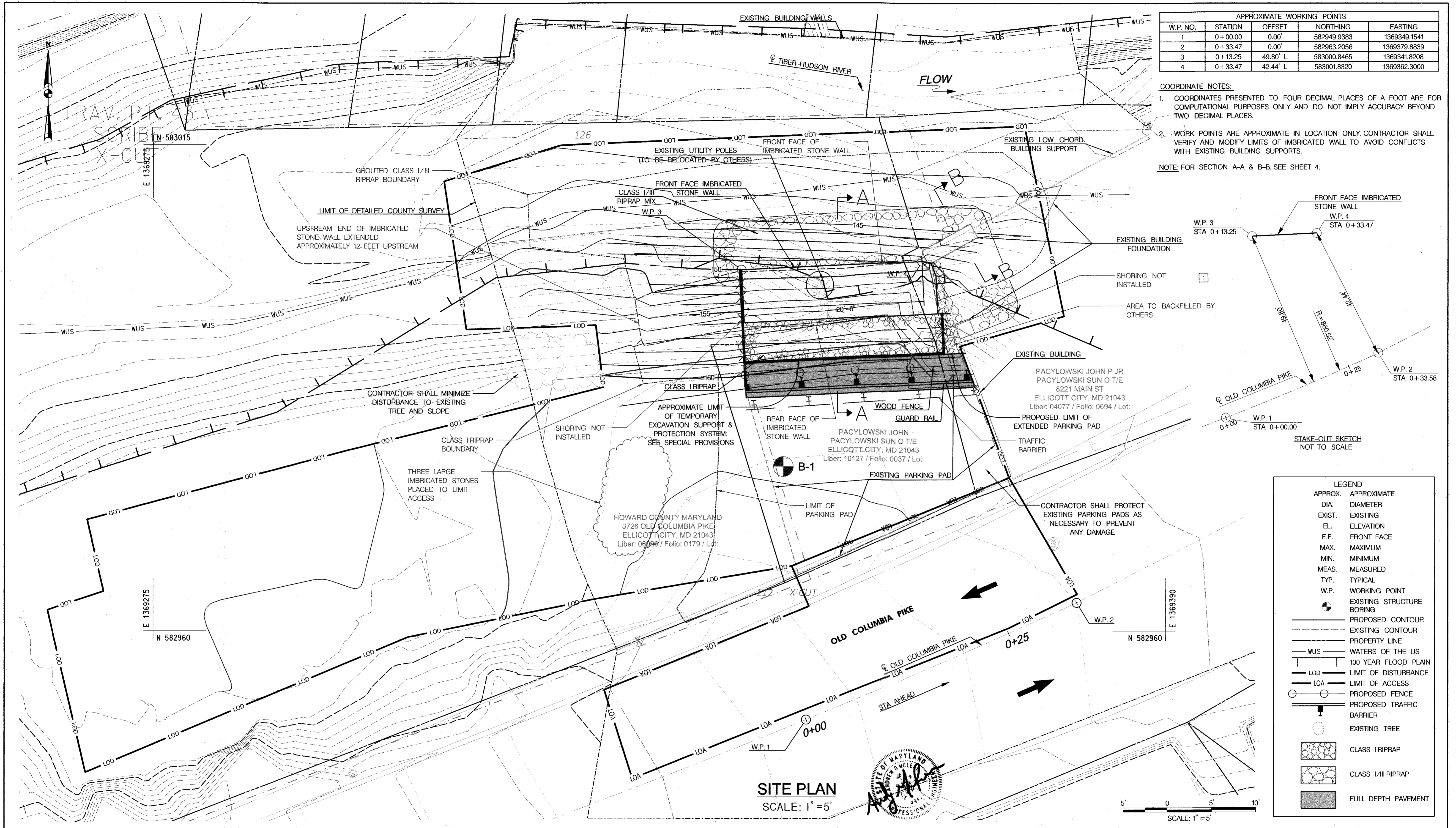
DES: JB	ADM	AS-BUILT SURVEY	9/05/17
DRN: MER			
CHK: AH			
DATE: 4/10/17	BY	NO.	REVISION
			DATE

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

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 LICENSES & PERMITS DIVISION



APPROXIMATE WORKING POINTS				
W.P. NO.	STATION	OFFSET	NORTHING	EASTING
1	0+00.00	0.00'	582949.9383	1369349.1541
2	0+33.47	0.00'	582963.2056	1369379.8839
3	0+13.25	49.80' L	583000.8465	1369341.8208
4	0+33.47	42.44' L	583001.8320	1369362.3000

COORDINATE NOTES:

- COORDINATES PRESENTED TO FOUR DECIMAL PLACES OF A FOOT ARE FOR COMPUTATIONAL PURPOSES ONLY AND DO NOT IMPLY ACCURACY BEYOND TWO DECIMAL PLACES.
- WORK POINTS ARE APPROXIMATE IN LOCATION ONLY. CONTRACTOR SHALL VERIFY AND MODIFY LIMITS OF IMBRICATED WALL TO AVOID CONFLICTS WITH EXISTING BUILDING SUPPORTS.

NOTE: FOR SECTION A-A & B-B, SEE SHEET 4.

LEGEND	
APPROX.	APPROXIMATE
DIA.	DIAMETER
EXIST.	EXISTING
EL.	ELEVATION
F.F.	FRONT FACE
MAX.	MAXIMUM
MIN.	MINIMUM
MEAS.	MEASURED
TYP.	TYPICAL
W.P.	WORKING POINT
	EXISTING STRUCTURE BORING
	PROPOSED CONTOUR
	EXISTING CONTOUR
	PROPERTY LINE
	WATERS OF THE US
	100 YEAR FLOOD PLAIN
	LIMIT OF DISTURBANCE
	LIMIT OF ACCESS
	PROPOSED FENCE
	PROPOSED TRAFFIC BARRIER
	EXISTING TREE
	CLASS I RIPRAP
	CLASS I/III RIPRAP
	FULL DEPTH PAVEMENT

SITE PLAN
SCALE: 1" = 5'

SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF ENVIRONMENTAL SERVICES	 McCormick Taylor 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400	 Howard County MARYLAND Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444	 APR 10 2017	DES: JB	ADM: [1]	AS-BUILT SURVEY	9/05/17
				DRN: MER	CHK: AH	DATE: 4/10/17	BY: NO.

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

SITE PLAN

SCALE AS NOTED
SHEET 2 OF 9

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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

MATERIALS:

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:

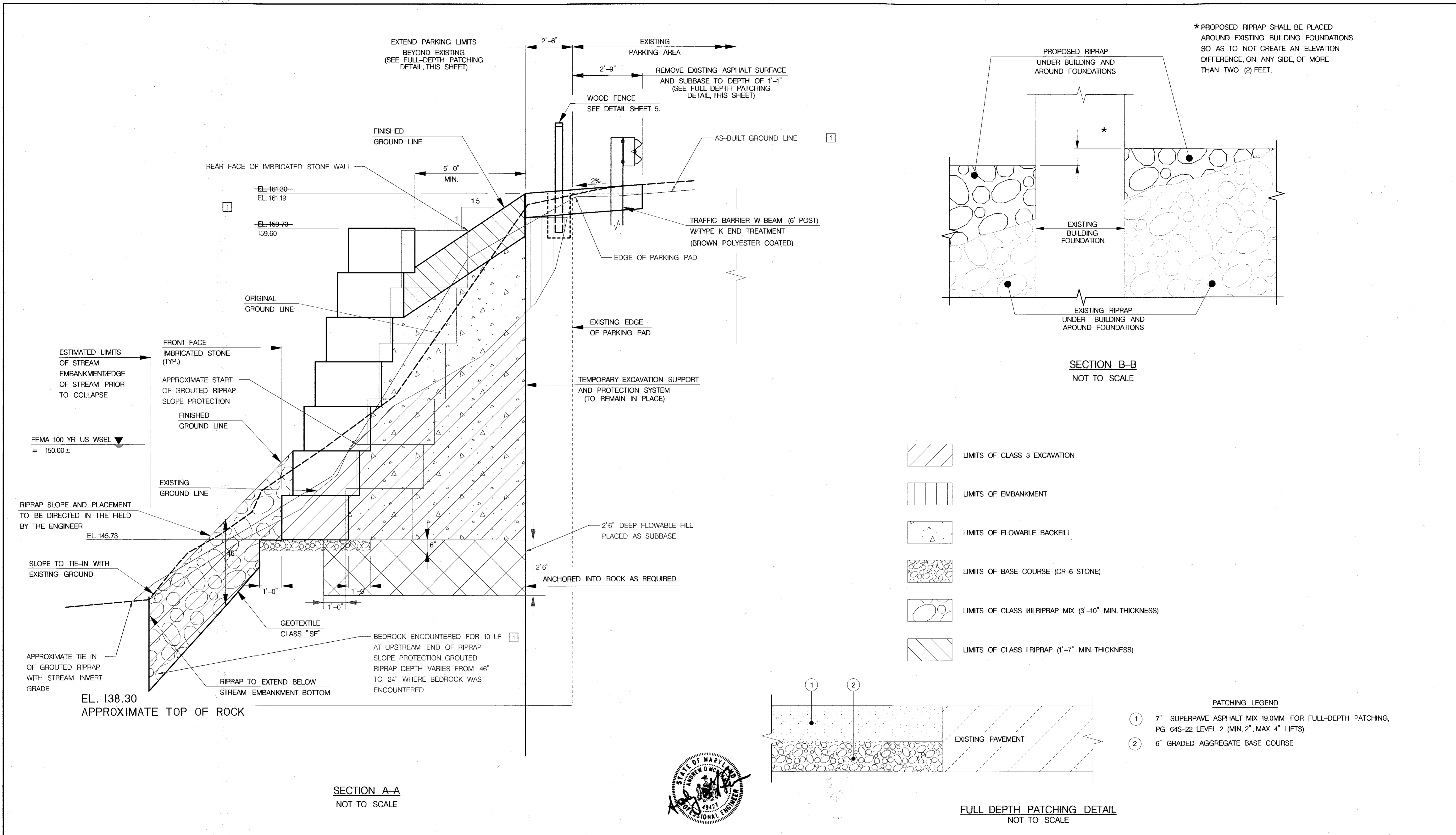
THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING CONSTRUCTION MATERIALS FROM BLOCKING THE STREAM CHANNEL. MATERIALS SHALL NOT BE STORED WITHIN THE 100YR FLOODPLAIN.

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.

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p>  <p>CHIEF, BUREAU OF ENVIRONMENTAL SERVICES</p>	 <p>McCORMICK TAYLOR 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400</p>	 <p>Howard County MARYLAND Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444</p>	 <p>APR - 10 - 2017</p>	DES: JB					<p>OLD COLUMBIA PIKE WALL REPAIR PROJECT CAPITAL PROJECT #D-1165 HOWARD COUNTY HSCD #: EP-17-36</p> <p>GENERAL NOTES</p>	SCALE NONE
				DRN: MER						
				CHK: AH						
				DATE: 4/10/17	BY	NO.	REVISION	DATE		

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DIVISION



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark Taylor
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

4/17/17
DATE

McCORMICK TAYLOR

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

Howard County
MARYLAND

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

STATE OF MARYLAND
ANDREW W. KUMAR
PROFESSIONAL ENGINEER
32308
APR-10-2017

DES: JB	ADM	①	AS-BUILT SURVEY	9/5/17
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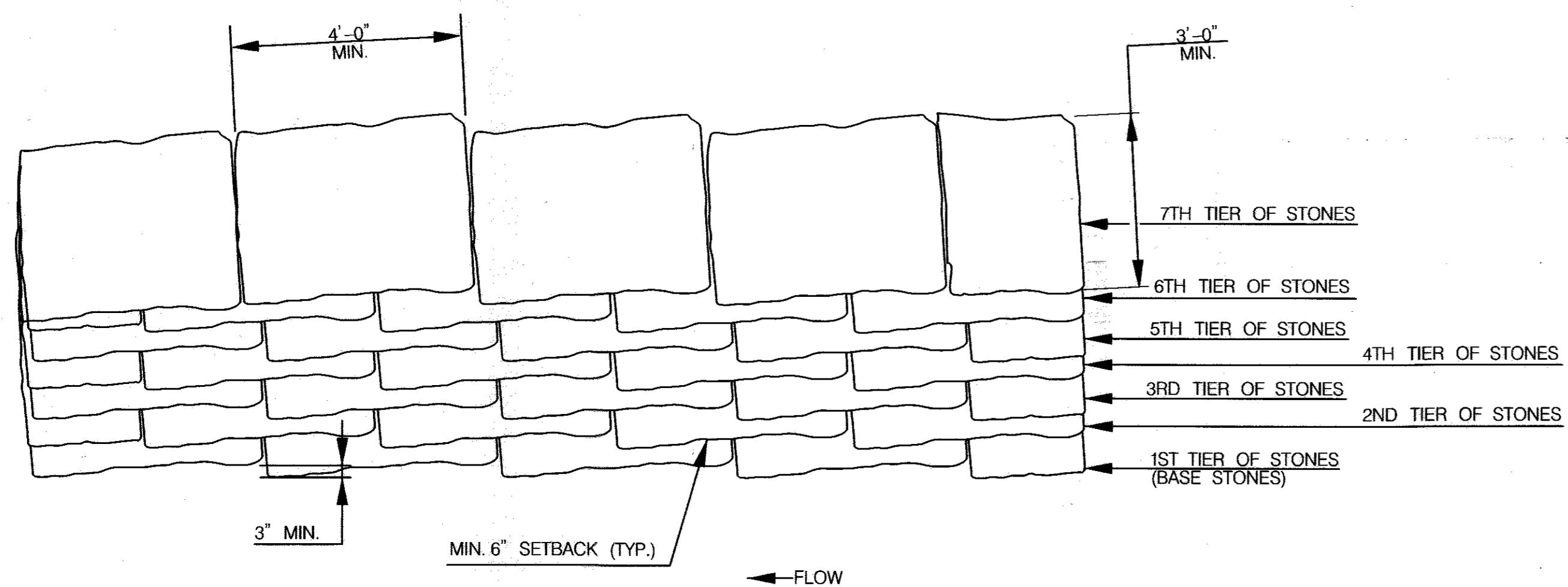
OLD COLUMBIA PIKE WALL REPAIR PROJECT
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HOWARD COUNTY
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TYPICAL SECTION

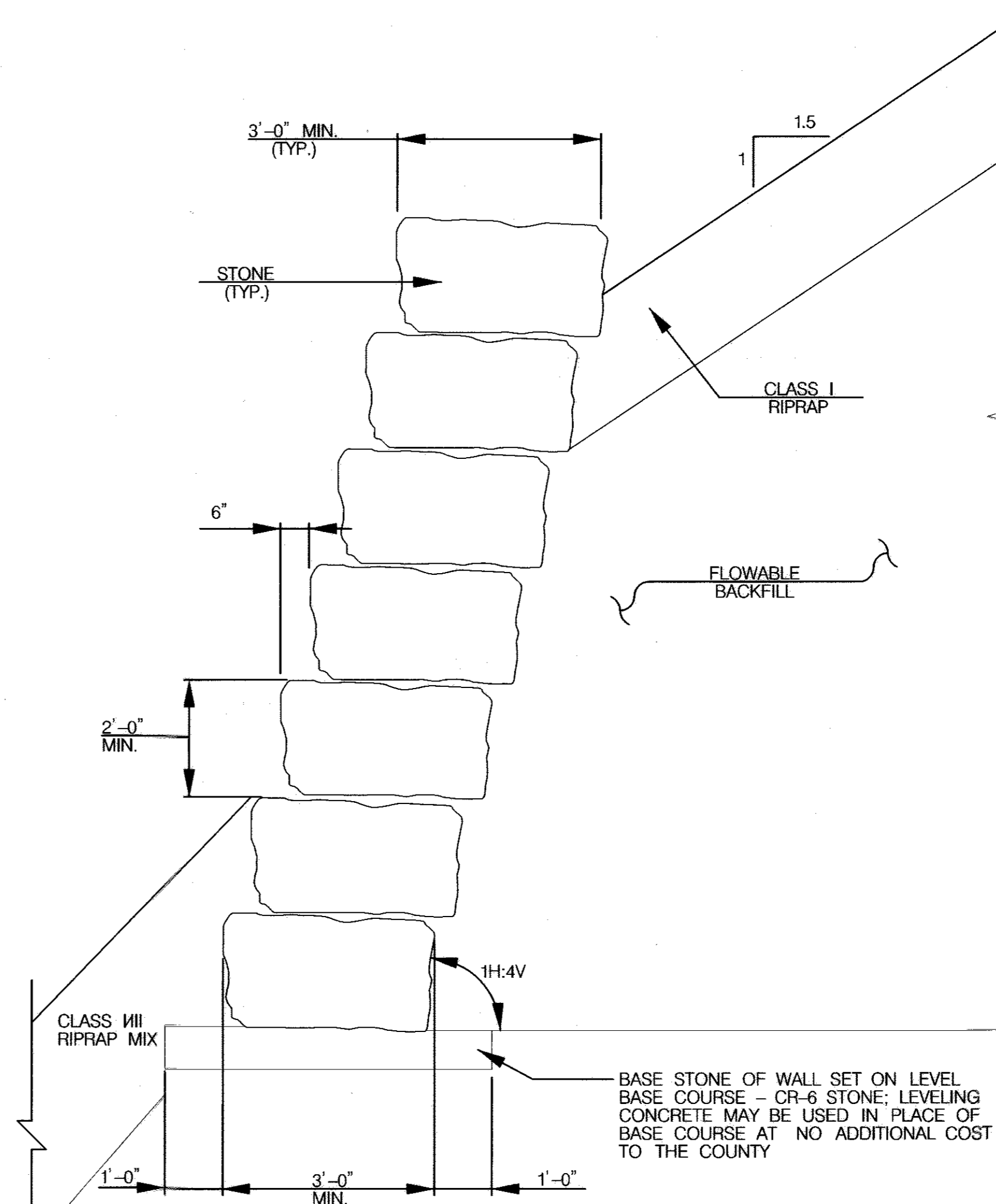
SCALE AS NOTED

SHEET 4 OF 9

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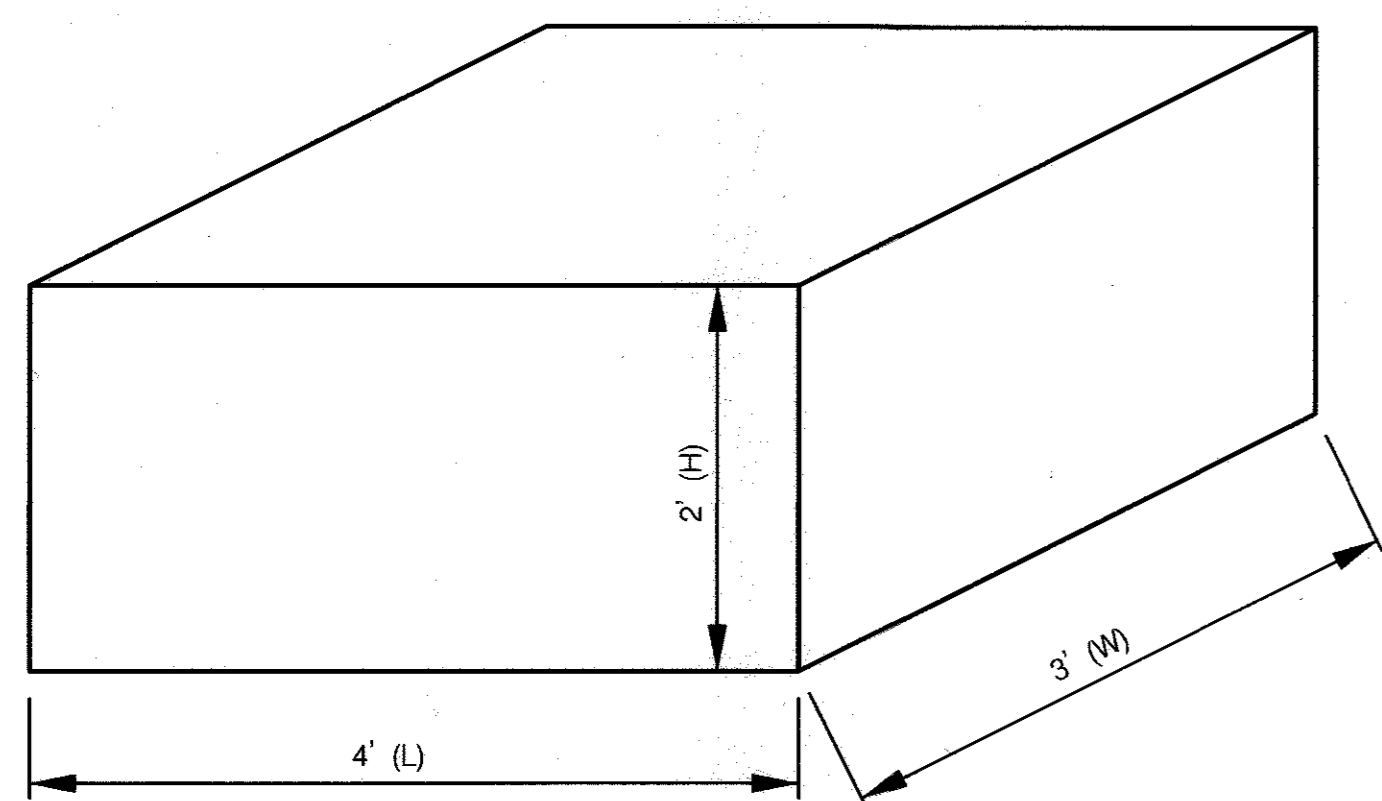


**IMBRICATED STONE WALL
PLAN VIEW
NOT TO SCALE**

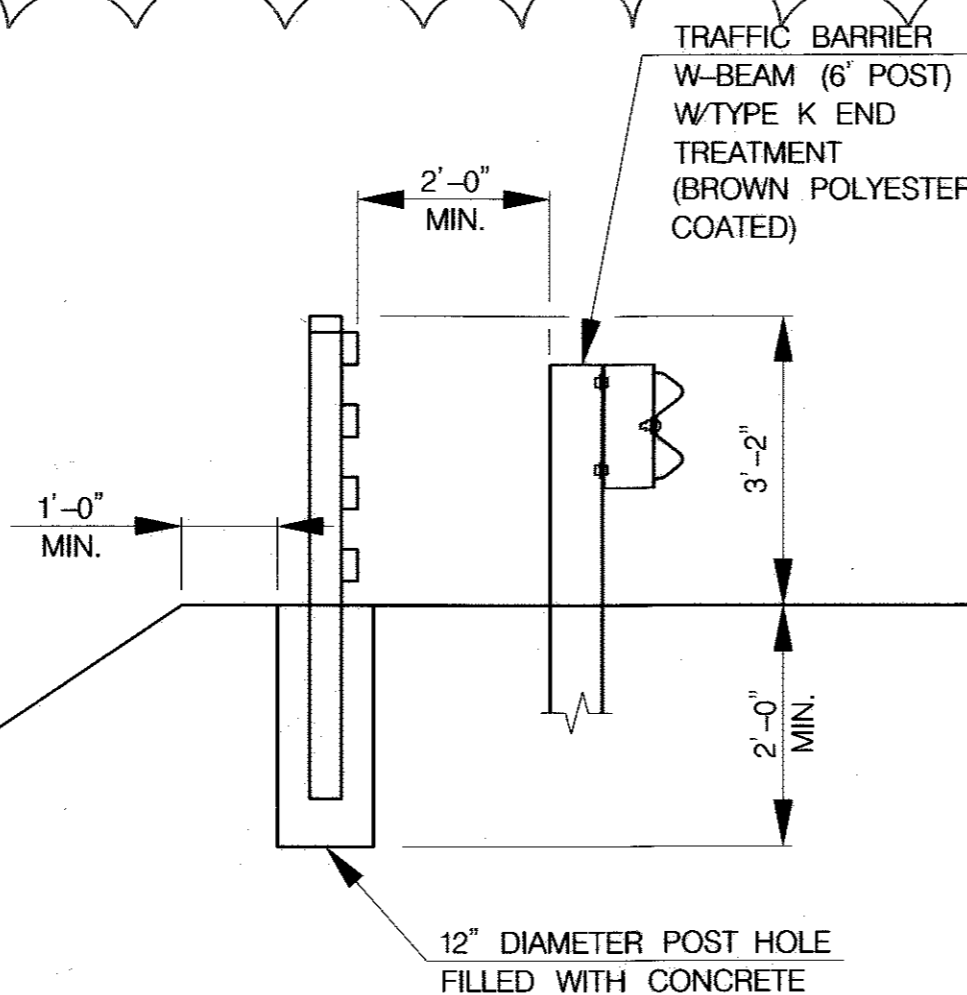


**IMBRICATED STONE WALL
TYPICAL SECTION
NOT TO SCALE**

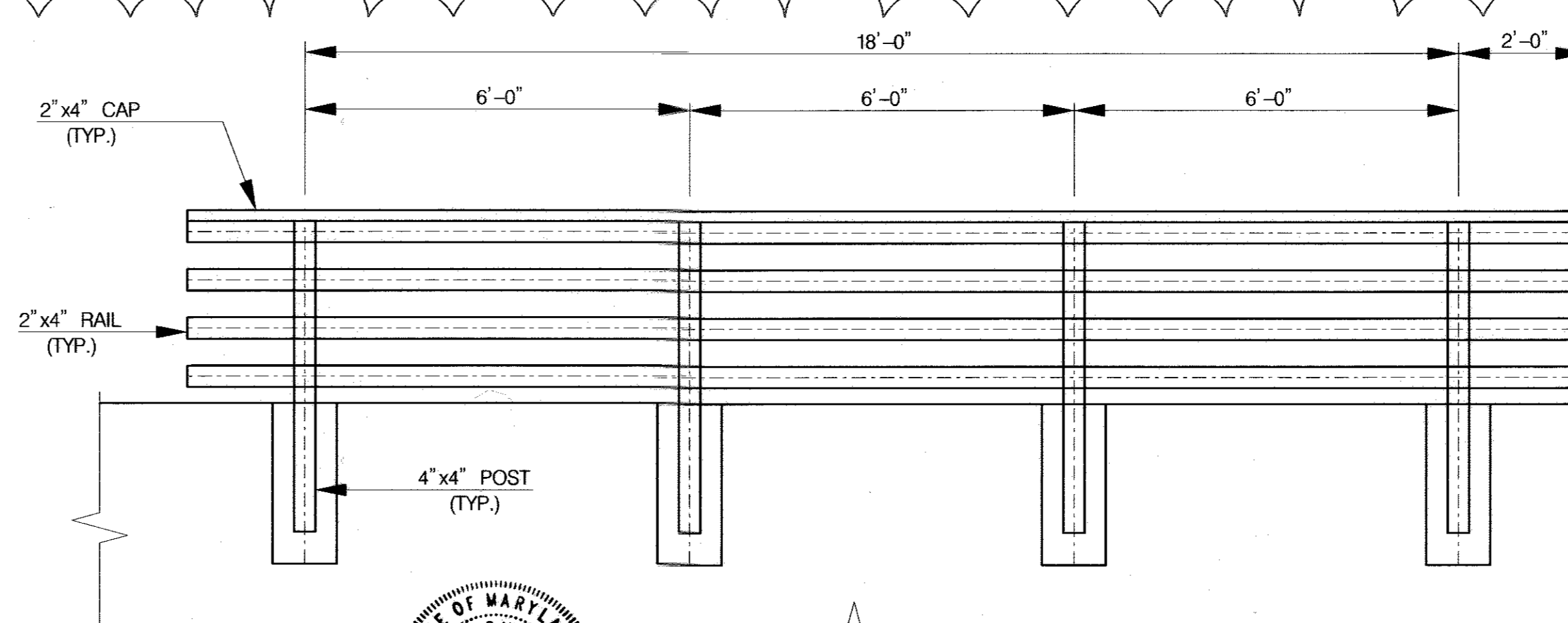
1 TEMPORARY WOOD RAIL FENCE WAS INSTALLED, BUT DID NOT MATCH THIS DETAIL. A PERMANENT, DECORATIVE METAL FENCE IS TO BE INSTALLED BY THE COUNTY.



**IMBRICATED STONE DIMENSIONS
NOT TO SCALE
STONE TOLERANCE: +/- 6"**



**WOOD FENCE TYPICAL SECTION
NOT TO SCALE**



**WOOD FENCE DETAIL
NOT TO SCALE**

FENCE NOTES:

1. ALL NAILS AND CONNECTIONS SHALL BE GALVANIZED.
2. ATTACH RAILS TO POST WITH A MINIMUM OF FOUR (4) 100 NAILS.
3. WOOD POST, CAP, AND RAILS SHALL BE NO. 2 GRADE LUMBER OR BETTER.
4. FILL POST HOLE WITH CONCRETE MIX NO. 3 AT EACH POST LOCATION A MINIMUM DIAMETER OF 12" WITH A DEPTH OF 24" FROM FINISHED GRADE. MINIMUM POST EMBEDMENT IS 24".
5. WOOD FENCE WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT. THE PAYMENT WILL BE FULL COMPENSATION FOR EXCAVATION, CONCRETE, TIMBER, CONNECTORS AND ALL MATERIAL, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

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**OLD COLUMBIA PIKE WALL REPAIR PROJECT
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**WALL PLAN &
SECTION DETAIL**

SCALE
AS NOTED

SHEET
5 OF 9

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DETAIL C-7 TEMPORARY BARRIER DIVERSION

STANDARD SYMBOL: TBD

CONSTRUCTION SPECIFICATIONS

- FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
- USE BARRIER MADE OF CONCRETE OR OTHER APPROVED MATERIAL.
- USE 10 ML OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING.
- ESTABLISH TOP ELEVATION AT 1/2 + 1 FOOT FOR PROJECTS OF DURATION LESS THAN 2 WEEKS OR AS SPECIFIED ON APPROVED PLAN.
- INSTALL DIVERSION STRUCTURE FROM UPGRADE TO DOWNGRADE.
- PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
- USE SANDBAG BASE FOR LEVELING AND TO ESTABLISH MINIMUM TOP ELEVATION OF THE BARRIER AS REQUIRED.
- DISPOSE OF ALL EXCAVATED MATERIALS IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN.
- DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
- KEEP ABUTMENTS BETWEEN CONCRETE BARRIERS WATER TIGHT, 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

MGWC 2.1: RIPRAP

Table 3.1b: Stone Gradations for Riprap Stone Classes

Class	Size	% Total Weight + Given Size
I	150 lb (70 kg) 2 lb (1 kg)	100 10 max
II	700 lb (330 kg) 20 lb (10 kg)	100 10 max
III	2000 lb (910 kg) 40 lb (20 kg)	100 10 max

Uniform-grade riprap should incorporate angular rock to promote interlocking.

Approximate Cost (\$1999): \$78 per linear ft.

INSTALLATION GUIDELINES

- The contractor should install all sediment and erosion control devices as the first order of business.
- Excavation should be made in reasonably close conformity with the existing stream slope and bed.
- All fill in the subgrade should be compacted to a density approximating that of the surrounding undisturbed material.
- 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 written approval from the WMA or local authority.
- The filter layer or blanket should be placed immediately after slope preparation.
 - 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.
- 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 excessive segregation is not allowed. Where appropriate, a low flow channel shall be constructed through the riprap.
- Any excavation voids existing along the edges of the completed slope and channel protection should be backfilled and compacted.
- All disturbed areas should be permanently stabilized in accordance with an approved sediment and erosion control plan.

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

SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000 PAGE 2.1-2

Maryland's Guidelines To Waterway Construction DETAIL 2.1: RIPRAP

SECTION VIEW

INSTALLATION GUIDELINES

- 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 should be dewatered.
- All excavation should be made in reasonably close conformity with the existing stream slope and bed. The slope of the excavated area should be the same as the existing stream slope. Loose material at the toe of the excavation 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.
- All 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 investment is dictated by the size of the stone used, and the height should not exceed 3 times the length of the longest stone and should be greater than 10 feet (3 meters).
- The riprap should be placed in a manner that provides for the drainage of water through the riprap and into the stream bed.
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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

MGWC 2.2: IMBRICATED RIPRAP

Approximate Cost (\$1999): \$90 per linear ft.

INSTALLATION GUIDELINES

- 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 should be dewatered.
- All excavation should be made in reasonably close conformity with the existing stream slope and bed. The slope of the excavated area should be the same as the existing stream slope. Loose material at the toe of the excavation 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.
- All 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 investment is dictated by the size of the stone used, and the height should not exceed 3 times the length of the longest stone and should be greater than 10 feet (3 meters).
- The riprap should be placed in a manner that provides for the drainage of water through the riprap and into the stream bed.
- The riprap should be placed in a manner that provides for the drainage of water through the riprap and into the stream bed.

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

Maryland's Guidelines To Waterway Construction DETAIL 2.2: IMBRICATED RIPRAP

DEFINITION SKETCH

SECTION VIEW

PLAN VIEW

CONSTRUCTION NOTE: stone blocks shall be rotated into the bank during placement such that the upstream blocks overlap the downstream blocks by a minimum of 3 inches (8 cm).

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DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF

CONSTRUCTION SPECIFICATIONS

- INSTALL 2 1/2 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 OF 36 INCHES INTO THE GROUND.
- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 1/2 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- FASTEN WOVEN SILT 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.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- 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.
- PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- 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.

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

STANDARD SYMBOL: TSSMS - 2.25 lb/yd² TYPE 'A' SSM

CONSTRUCTION SPECIFICATIONS

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC) MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOOGER RESISTANT CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SOIL. PRESENT, NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2 1/2 INCHES AND SUFFICIENTLY BORED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT STAPLES MUST BE 12" x 12" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 14 AND NO. 8 RESPECTIVELY TO SHARPENED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. 12" SHAPED STAPLES MUST HAVE A MINIMUM 3/4 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCHES IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
- UNROLL MATTING DOWNSLOPE, LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDS SURFACE, AVOID STRETCHING THE MATTING.
- OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS, OVERLAP ROLL ENDS BY 6 INCHES MINIMUM, WITH THE UPSLOPE END OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
- KEY IN THE UPSLOPE END OF MAT 6 INCHES MINIMUM BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT MAXIMUM CENTERS THROUGHOUT AND 2 FOOT MAXIMUM CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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DETAIL F-4 FILTER BAG

STANDARD SYMBOL: FIB

CONSTRUCTION SPECIFICATIONS

- TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
- 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.
- 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.
- 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 UP-LAND 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.
- 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 (MANY) OF THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT ²	ASTM D-4491
PERMEABILITY	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

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

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B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

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

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

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

Criteria

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Clear the stockpile area from the upgrade side.
- Access water runoff into the stockpile area must be minimized by use of a diversion device such as an earth ditch, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 9:7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate sheeting. Stockpiles containing contaminated material must be covered with impermeable sheeting.

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

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NATURAL FIBER MATTING - SECTION VIEW

NATURAL FIBER MATTING - PLAN VIEW

USE NEDIA KOIR MAT 700 TYPE MATTING, ECO MESH CM 700, GEOCOR DEKOWE 900 TYPE MATTING, OR AN EQUIVALENT MATTING CONSISTING OF MACHINE PRODUCED MATTING MEETING THE FOLLOWING MINIMUM SPECIFICATIONS.

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

4/12/17
DATE

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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

Howard County
MARYLAND

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

DES: JB
DRN: MER
CHK: AH
DATE: 4/10/17

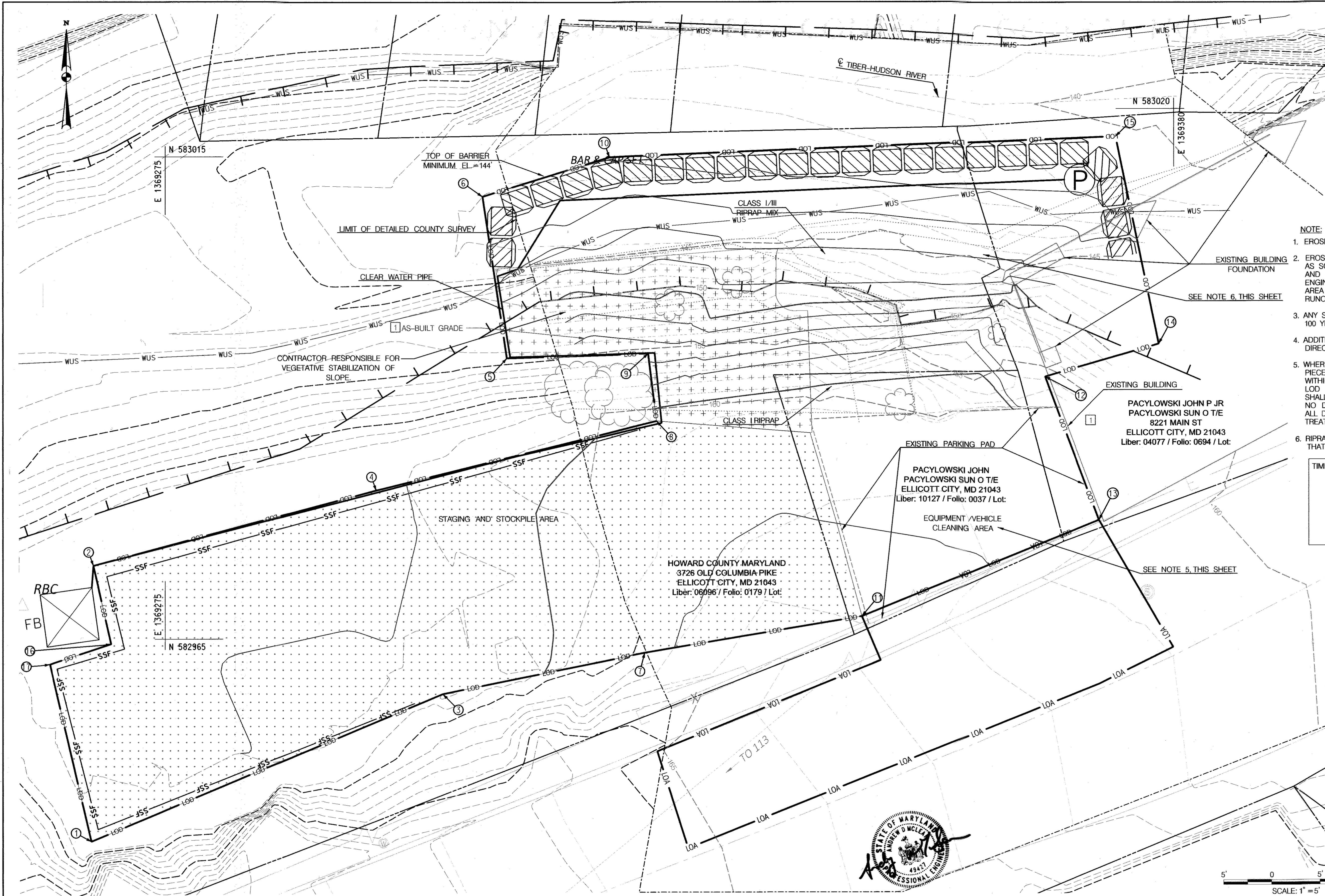
BY	NO.	REVISION	DATE

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

EROSION AND SEDIMENT CONTROL DETAILS

SCALE AS NOTED
SHEET 6 OF 9

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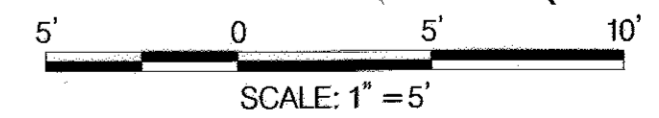
LOD STAKEOUT TABLE		
POINT	NORTHING	EASTING
1	582944.0160	1369267.3022
2	582972.6120	1369267.5201
3	582959.3078	1369303.8944
4	582980.4139	1369296.9418
5	582994.1165	1369310.5600
6	583010.8738	1369308.0189
7	582963.5840	1369324.8910
8	582987.5955	1369326.1193
9	582994.6047	1369325.2528
10	583014.9697	1369321.2438
11	582967.3382	1369347.5270
12	582992.2172	1369366.5999
13	582977.3471	1369372.2123
14	582995.6208	1369378.4361
15	583017.1217	1369373.9340
16	582964.4928	1369269.3623
17	582962.3954	1369262.9789

- NOTE:
1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
 2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
 3. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.
 4. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 5. WHERE NO SCE IS PROVIDED, THE CONTRACTOR SHALL DESIGNATE PIECES OF CONSTRUCTION EQUIPMENT THAT SHALL BE ALLOWED WITHIN THE LOD. THIS EQUIPMENT SHALL BE KEPT WITHIN THE LOD UNTIL THE PROPOSED CONSTRUCTION IS COMPLETED AND SHALL HAVE TREAD TIRES CLEANED PRIOR TO LEAVING THE LOD. NO DISTURBANCE IS PERMITTED WITHIN THE LIMIT OF ACCESS (LOA). ALL DRAINAGE FROM EQUIPMENT/VEHICLE CLEANING AREA MUST BE TREATED BY A SEDIMENT CONTROL PRIOR TO LEAVING THE LOD.
 6. RIPRAP TIE-IN SLOPES BELOW THE 100YR WATER SURFACE ELEVATION THAT ARE STEEPER THAN 2:1 SHALL BE GROUTED.

- TIME RESTRICTION NOTES:
1. PUMPING IS NOT PERMITTED BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM, MONDAY THROUGH FRIDAY.
 2. CONSTRUCTION EQUIPMENT SHALL NOT BE STARTED NOR RUN BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM, MONDAY THROUGH FRIDAY.
 3. FOR SATURDAY WORK THE ABOVE HOURS SHALL BE 5:00 PM AND 9:00 AM, RESPECTIVELY.
 4. NO WORK SHALL BE DONE ON SUNDAY.

LEGEND

- PROPOSED CONTOUR
- - - EXISTING CONTOUR
- PROPERTY LINE
- WUS 100 YEAR FLOOD PLAIN
- LOD LIMIT OF DISTURBANCE
- LOA LIMIT OF ACCESS
- PROPOSED FENCE
- PROPOSED TRAFFIC BARRIER
- EXISTING TREE
- SSF SUPER SILT FENCE
- ▨ SANDBAG DAM / TEMP. BARRIER DIVERSION
- +++ NATURAL FIBER MATTING
- TYPE 'A' SOIL STABILIZATION MATTING
- ⊗ FB FILTER BAG
- Ⓟ PUMP



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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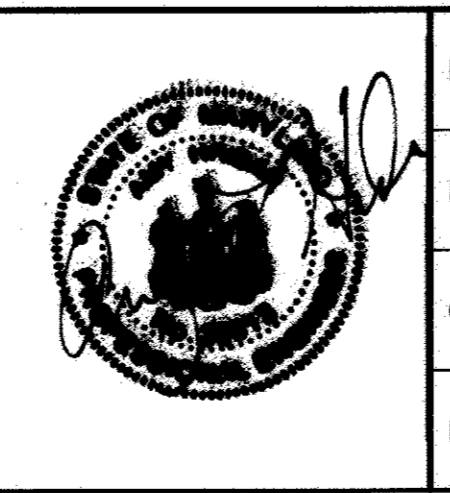
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McCORMICK TAYLOR

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Howard County MARYLAND

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



DES: ADM	ADM	1	AS-BUILT SURVEY	9 / 5 / 17
DRN: MER				
CHK: AH				
DATE: 4 / 10 / 17	BY	NO.	REVISION	DATE

OLD COLUMBIA PIKE WALL REPAIR PROJECT
CAPITAL PROJECT #D-1165
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EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 5'

SHEET: 7 OF 9

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HOWARD COUNTY

Project No. 2013055.101		LOG OF BOREHOLE B-1		Sheet 1 of 1	
CLIENT: McCormick Taylor			PROJECT: Ellicott City Precious Gifts		
ARCHITECT/ENGINEER:			SITE: Ellicott City Howard County, Maryland		
SURFACE ELEV.: 0.6 7" Asphalt	GRAPHIC LOG	SAMPLES		TESTS	
		DEPTH (FT)	BLOWS/6" N-VALUE ROD	NUMBER	TYPE
Medium dense, dense to loose brown, dark brown and light gray SILTY SAND (SM) with clay, gravel and cobbles (Possible Fill)	5	5-8 7 N=15	1	SS	14/18 78%
8.0	10	15-25 9 N=34	2	SS	12/18 67%
Medium dense brown, greenish gray and gray SILTY SAND (SM) with rock fragments (Decomposed Rock)	15	3-3 5 N=8	3	SS	12/18 67%
23.0	20	7-9 12 N=21	4	SS	14/18 78%
Auger and spoon refusal @ 23 ft End of Boring @ 23 ft Borehole was backfilled and patched upon completion	25	8-10 16 N=26	5	SS	14/18 78%
	30	5-8 4 N=12	6	SS	14/18 78%
	35	51/0"	7	SS	0/0 %
WATER LEVEL OBSERVATIONS		 AB Consultants, Inc. 9450 Annapolis Road Lanham, MD 20706 Phone: 301-306-3091 Fax: 301-306-3092		STARTED: 2/22/17 FINISHED: 2/22/17	
WL	Dry @ Drilling			DRILL CO.: ABC DRILL RIG: B-61	
WL	Dry, caved-in 12 ft @ 0 Hrs			DRILLER: PS ASST DRILLER:	
		LOGGED BY:		APPROVED:	

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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BORING LOG

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