

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS FREDERICK ROAD SLOPE REPAIR

CAPITAL PROJECT CONTRACT NO. D1124-29

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MARYLAND STATE HIGHWAY ADMINISTRATION (MSHA) STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 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.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE. THE CONTRACTOR SHALL CONTACT THE FOLLOWING UTILITIES AT LEAST 5 DAYS PRIOR TO BEGINNING ANY WORK UNDER THIS CONTRACT. FOR ADDITIONAL INFORMATION AND REQUIREMENTS WITH RESPECT TO UTILITIES, SEE SPECIAL PROVISIONS.

BUREAU OF UTILITIES, HOWARD COUNTY, 410-313-4900
 BGE GAS DIVISION (410) 291-5834
 BGE ELECTRIC DIVISION (410) 855-6958
 VERIZON (410) 224-9980
 COMCAST, 410-931-4600
 COMCAST FIBER, 410-427-9600

- TRAFFIC CONTROL DEVICES:
 - THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
 - ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MdMUTCD).
 - ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM ONE FOOT CONTOUR INTERVALS PREPARED BY MERCADO CONSULTANTS, INC. 17830 NEW HAMPSHIRE AVE. SUITE 200, ASHTON, MD 20861 FROM MAY, 2015.
- COORDINATES SHOWN HEREON ARE IN THE MARYLAND STATE REFERENCE SYSTEM NAD '83/(ADJ 2011) AS PROJECTED FROM HOWARD COUNTY GEODETIC CONTROL STATIONS:

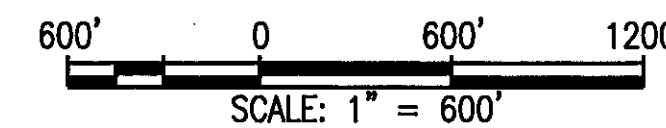
STATION	NORTHING	EASTING	ELEV.
24F3	581299.858	1360713.774	365.347

 VERTICAL CONTROL IS NAVD '88
- WATER IS PUBLIC, CONSTRUCTED UNDER CONTRACT NO. 10W.
- THE EXISTING UTILITIES SHOWN HEREON ARE LOCATED FROM THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS MADE TO THEIR ACCURACY. THE APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION AND CONVENIENCE. THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES TO HIS OWN SATISFACTION AND WELL IN ADVANCE OF ANY CONSTRUCTION ACTIVITIES. ADDITIONALLY, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- CLEARING SHALL BE LIMITED TO THE "LIMIT OF DISTURBANCE" AS SHOWN ON THE SEDIMENT AND EROSION CONTROL PLAN. GRADING SHALL BE DONE IN SUCH A MANNER AS TO PROVIDE POSITIVE DRAINAGE. CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS EXCEPT AS OTHERWISE DIRECTED.
- THE CONTRACTOR SHALL TAKE EXTREME CAUTION NOT TO DISTURB THE EXISTING VEGETATION OUTSIDE THE LIMITS OF CONSTRUCTION. SOIL STABILIZATION SHALL CONFORM TO "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL," DATED 2011, PUBLISHED JOINTLY BY WATER MANAGEMENT ADMINISTRATION, SOIL CONSERVATION SERVICE, AND STATE SOIL CONSERVATION COMMITTEE.
- ALL FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED AND VERIFIED IN ACCORDANCE WITH AASHTO T-180.
- ANY DAMAGE CAUSED BY THE CONTRACTOR TO EXISTING PUBLIC RIGHT-OF-WAY, EXISTING PAVING, EXISTING CURB AND GUTTER, EXISTING UTILITIES, ETC. SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

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3	ROADWAY PLAN AND TYPICAL SECTION
4	MAINTENANCE OF TRAFFIC PLAN
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9	SEDIMENT AND EROSION CONTROL DETAILS
10	WATER VALVE PLAN
11-12	CROSS SECTIONS FREDERICK ROAD



VICINITY MAP



OWNERS/DEVELOPER 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.

Steve Sharav 12/23/15
 OWNER'S/DEVELOPER'S SIGNATURE DATE

Steve Sharav, Chief, Trans Div.
 PRINTED NAME & TITLE

DESIGN CERTIFICATION:
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Christopher Cuzick 12/18/15
 DESIGNER'S SIGNATURE DATE

CHRISTOPHER CUZICK MD REGISTRATION NO. 57942
 PRINTED NAME (P) R.L.S. OR R.L.A. (CIRCLE ONE)

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

EA16-006 12/22/15
 HOWARD SOIL CONSERVATION DISTRICT DATE

"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. 30737 EXPIRATION DATE: 6/29/2016."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

James P. ... 12/23/15 *Marcus P. ...* 12/23/15
 DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE

Steve Sharav 12/23/15
 CHIEF, BUREAU OF HIGHWAYS DATE CHIEF, TRANSPORTATION DIV. DATE

WRA
 Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 12/18/15

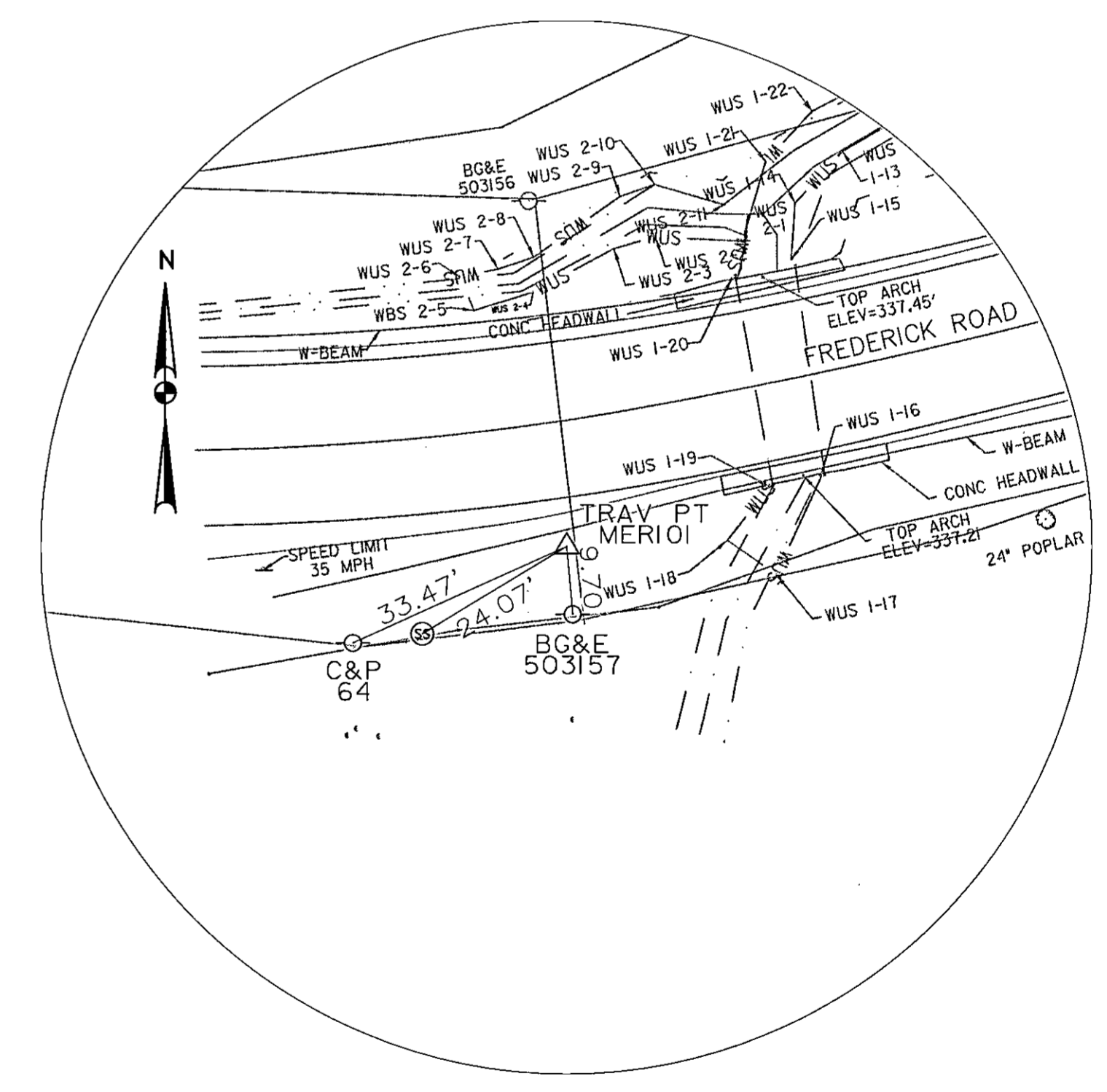
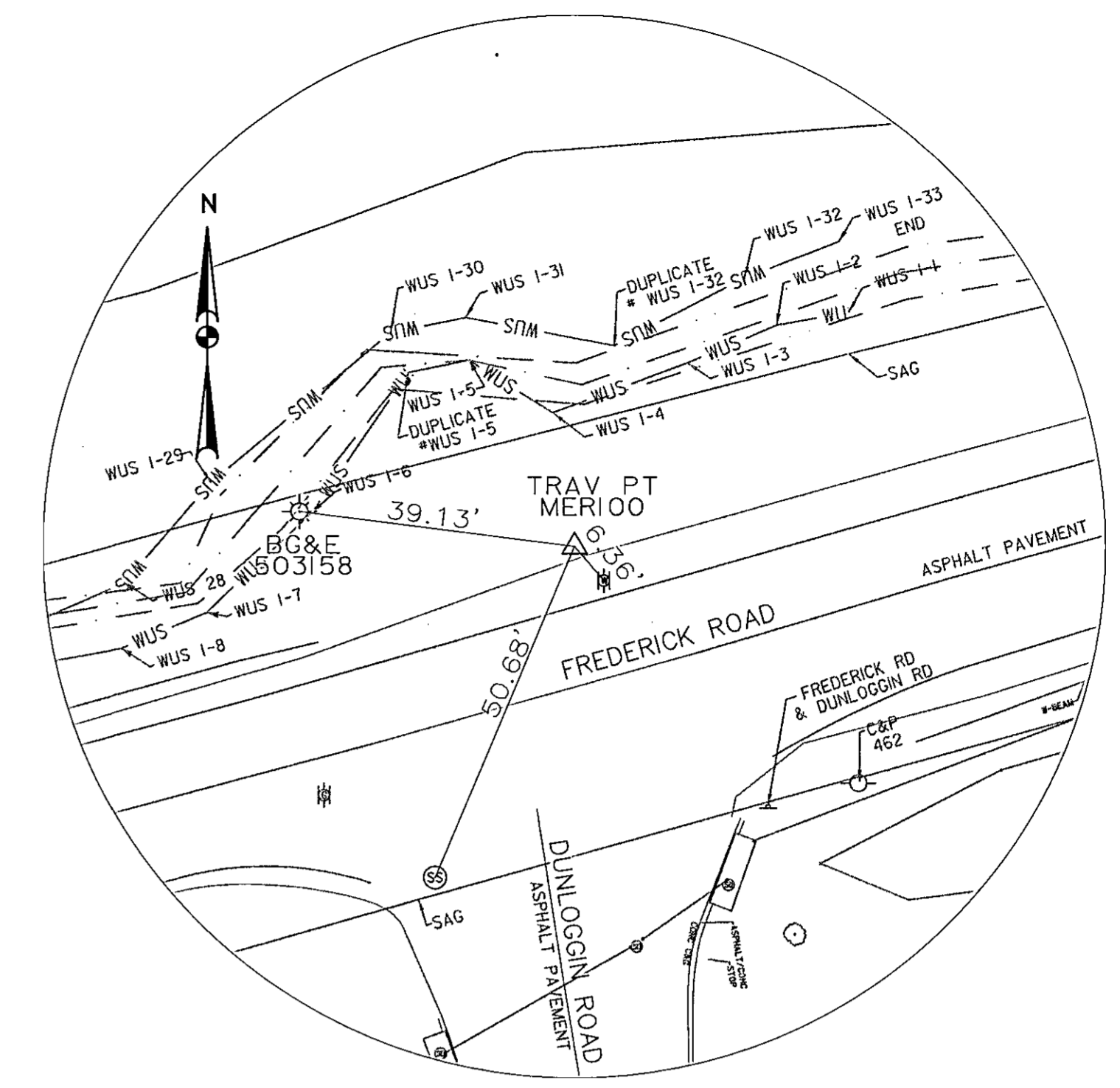
PREPARED BY:	WRA	DES: CSC	DRN: NSP	CHK: BRT	DATE: 12/15	TITLE SHEET	CAPITAL PROJECT CONTRACT NO. D1124-29	ELECTION DISTRICT 2	HOWARD COUNTY, MARYLAND
		BY: NO.	REVISION	DATE	600' SCALE MAP NO. 16	BLOCK NO. 3			

DWG. TI-01
SCALE NONE
SHEET 1 OF 12

12/18/2015 12:18:00 - 017 CADW/13700001E-T01.dgn

ABBREVIATIONS

A.A.S.H.T.O. American Association of State Highway Transportation Officials	IN..... Inch	R.Q.D. Rock Quality Designation
ADT..... Average Daily Traffic	I.S.T..... Inlet Sediment Trap	S..... South
AHD..... Ahead	INV..... Invert	SAN..... Sanitary Sewer
APPROX..... Approximate	J.B..... Junction Box	SB or S/B... Southbound
@ or B/L..... Baseline	K..... K Inlet	SBD..... Sandbag Diversion
BGE or BG&E..... Baltimore Gas and Electric	L..... Length	SCE..... Stabilized Construction Entrance
BIT..... Bituminous	LF..... Linear Feet	S.D..... Storm Drain
B.C..... Bituminous Concrete	L.L..... Liquid Limit	S.D.D..... Surface Drain Ditch
B.M..... Bench Mark	L.O.D..... Limit of Disturbance	S/E..... Super Elevation
BOT..... Bottom	LP..... Low Point	SE..... Southeast
C.C..... Center of Curve	L.P..... Light Pole	SF..... Silt Fence
CATV..... Cable Television	LT..... Left	S.F..... Square Feet
C.B.R..... California Bearing Ratio	MAC..... Macadam	SHT..... Sheet
CIP..... Cast Iron Pipe	M.C..... Moisture Content	SP..... Sump Pit
C or C/L..... Centerline	MAX..... Maximum	S.P.P..... Structural Plate Pipe
C&G..... Curb and Gutter	M.D.D..... Maximum Dry Content	S.P.T..... Standard Penetration Testing
CL..... Class	MH..... Manhole	SSMH..... Sanitary Sewer Manhole
CLF..... Chainlink Fence	MUTCD..... Manual on Uniform Traffic Control Devices	STD..... Standard
CMP..... Corrugated Metal Pipe	MOD..... Modified	STA..... Station
C.O..... Cleanout	MIN..... Minimum	SO..... Single Opening
COMB..... Combination	N..... North	S.Y..... Square Yards
CONC..... Concrete	N.B..... Northbound	SW..... Southwest
CONSTR..... Construction	NE..... Northeast	SWM..... Stormwater Management
COR..... Corner	N.P..... Non-Plastic	T..... Tangent
CORR..... Correction	NO..... Number	T..... Telephone
DC..... Degree of Curve	O.C..... On Center	T.C..... Top of Cover
D.H.V..... Design Hourly Volume	OHE..... Overhead Electric	T.G..... Top of Grate
D.I..... Drop Inlet	O.M..... Optimum Moisture	T or TL..... Traverse Line
DIA..... Diameter	PAV'T..... Pavement	T.M..... Top of Manhole
DIR..... Direction	P.C..... Point of Curvature	TRAV..... Traverse
DP..... Diversion Pipe	P.C.C..... Point of Compound Curvature	TS..... Temporary Swale
E..... East	P/C..... Point of Crown	T.S..... Top of Slab
ELEC..... Electric	P/GE..... Profile Grade Elevation	T.S..... Topsoil
E..... External Distance	P.G.E..... Profile Ground Elevation	TYP..... Typical
EA..... Each	P.G.L..... Profile Grade Line	U.D..... Under Drain
E.B..... Eastbound	P/G..... Profile Ground Line	U.G..... Underground
ELEV..... Elevation	P/R..... Point of Rotation	U.P..... Utility Pole
E.R.C.C.P..... Elliptical Reinforced Cement Concrete Pipe	P.I..... Plasticity Index	U.S.D.A..... United States Department of Agriculture
ES..... End Section	P.I..... Point of Intersection	VCL..... Vertical Clearance
ESC..... Erosion and Sediment Control	P.O.C..... Point On Curve	V.C.L..... Vertical Curve Length
EX. or EXIST..... Existing	P.O.T..... Point On Tangent	W..... Water
FT..... Feet/Foot	PROP..... Proposed	W..... West
F or FL..... Flowline	P.R.C..... Point of Reverse Curve	W.B..... Westbound
F.B.D..... Flat Bottom Ditch	PT..... Point	WB..... Wetland Buffer
F.H..... Fire Hydrant	P.T..... Point of Tangency	W.M..... Water Meter
FWD..... Forward	P.V.C..... Point of Vertical Curve	W.S..... Wrapped Steel
G..... Gas	PVC..... Polyvinyl Chloride	WUS..... Waters of the United States
G.V..... Gas Valve	PVI..... Point of Vertical Intersection	W.V..... Water Valve
H.B..... Handbox	PVRC..... Point of Vertical Reverse Curve	
H.D.P..... High Density Polyethylene	PVT..... Point of Vertical Tangency	
HDWL..... Headwall	R..... Radius	
H.E.R.C.P..... Horizontal Elliptical Reinforced Concrete Pipe	R.F..... Rock Fragments	
HP..... High Point	RD..... Road	
	RT..... Right	
	RW or R/W..... Right of Way	
	R.C.P..... Reinforced Cement Pipe	
	R.C.C.P..... Reinforced Cement Concrete Pipe	



SYMBOLS / LINSTYLES LEGEND

EXISTING SIGN.....	BASE LINE OR SURVEY LINE.....
EXISTING PIPE / CULVERT.....	EXISTING INDEX CONTOUR.....
EXISTING RIGHT OF WAY LINE.....	EXISTING INTERVAL CONTOUR.....
EXISTING ROADWAY.....	PROPOSED INDEX CONTOUR.....
EXISTING FENCE.....	PROPOSED INTERVAL CONTOUR.....
EXISTING W-BEAM.....	PROPOSED W BEAM.....
EX. UTILITY POLE.....	PROPOSED BORING TARGET.....
EX. UNDERGROUND ELECTRIC.....	PROPOSED TESTHOLE TARGET.....
EX. UNDERGROUND TELEPHONE.....	PROPOSED RIPRAP.....
EX. UNDERGROUND GAS.....	100-YEAR FLOODPLAIN.....
EX. UNDERGROUND SANITARY.....	W.U.S.....
EX. UNDERGROUND WATER.....	
EX. ROADWAY LIGHTING.....	
EX. SANITARY MANHOLE.....	
EX. FIRE HYDRANT.....	
EX. WATER METER.....	
EX. HANDBOX.....	
EX. COMMUNICATIONS BOX.....	
HEDGE / TREE LINE.....	
BUSH / TREE.....	
CONIFEROUS TREE.....	

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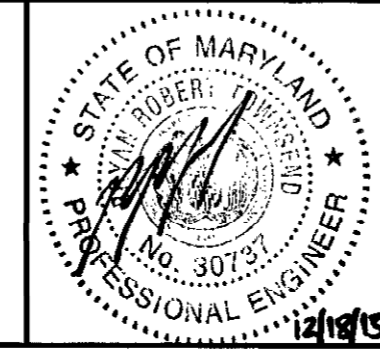
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

James P. Butler 12/23/15
DIRECTOR OF PUBLIC WORKS DATE
CHIEF, BUREAU OF HIGHWAYS

Steve Shavan 12/23/15
CHIEF, BUREAU OF TRANSPORTATION DATE

PREPARED BY:

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231



DES:	CSC
DRN:	NSP
CHK:	BRT
DATE:	12/15
BY:	NO.
REVISION:	
DATE:	

LEGEND AND ABBREVIATIONS

CAPITAL PROJECT CONTRACT NO. D1124-29
FREDERICK ROAD SLOPE REPAIR
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

DWG. LG-01
SCALE NONE
SHEET 2 OF 12

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CURVE DATA						
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL
FREDERICK-1	11° 56' 55.09" LT	12' 27" 20.18"	460.00	48.14	95.93	2.51

CONSTRUCTION COORDINATES				
POINT NO.	CURVE	STATION	NORTH	EAST
BASE LINE CONSTRUCTION FREDERICK ROAD				
1	FREDERICK-1	PC 200+25.00	584,468,5000	1,362,105,3888
2	FREDERICK-1	PI 200+73.14	584,471,5276	1,362,153,4330
3	FREDERICK-1	PT 201+20.93	584,484,4364	1,362,199,8095
4	--	POT 204+00.00	584,559,2701	1,362,468,6590

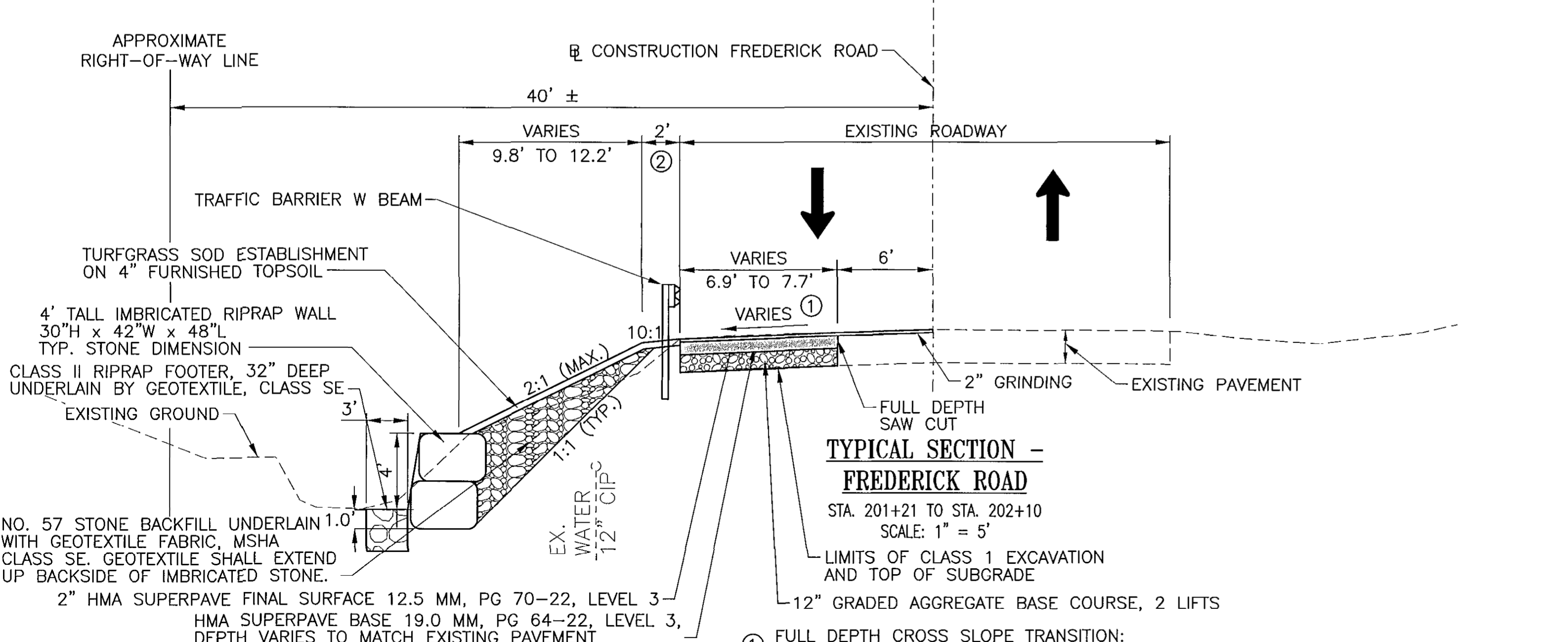
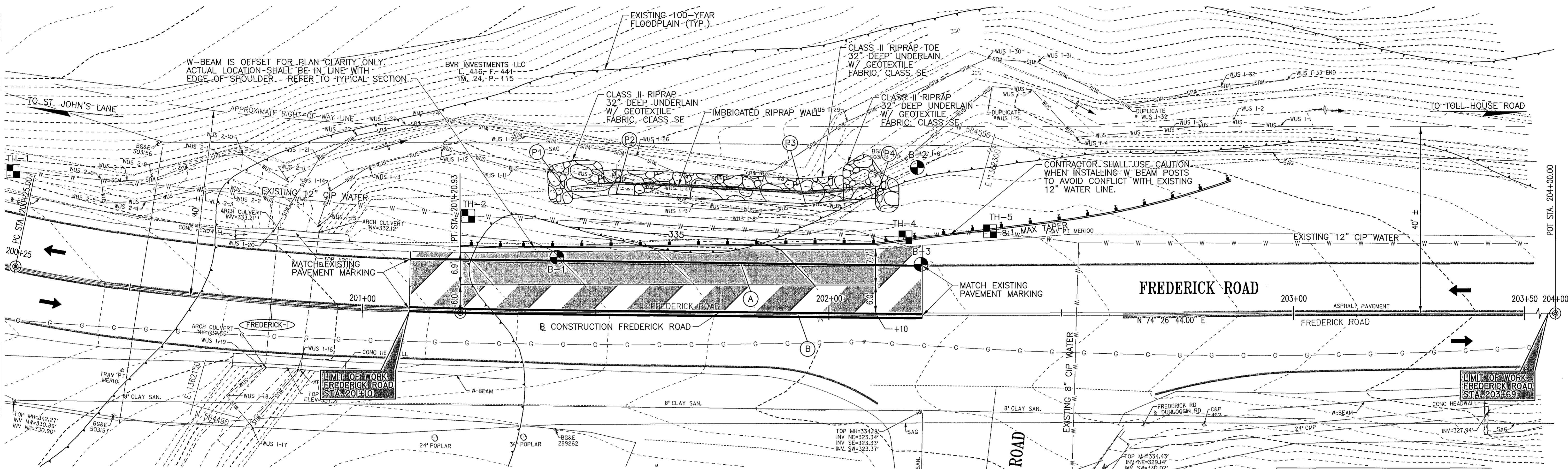
TRAVERSE POINTS			
POINT NO.	NORTH	EAST	ELEVATION
MER100	584,537,1467	1,362,320,0977	332.52
MER101	584,453,0813	1,362,133,3704	341.04

IMBRICATED RIPRAP WALL CONTROL POINTS				
POINT NO.	STATION	OFFSET	NORTH	EAST
P1	201+44.98	24.47' LT.	584,514,4691	1,362,216,4596
P2	201+54.35	25.38' LT.	584,517,8447	1,362,225,1997
P3	201+95.00	23.44' LT.	584,526,8756	1,362,264,8827
P4	202+10.00	24.57' LT.	584,531,9923	1,362,279,0287

GRINDING AND RESURFACING		
STATION	SY	REMARKS
201+10 TO 202+20	172	FREDERICK ROAD LEFT

LEGEND

- FULL DEPTH PAVEMENT
- GRINDING AND RESURFACING
- 5" SOLID WHITE PAVEMENT MARKING PAINT LINE
- 5" DOUBLE SOLID YELLOW PAVEMENT MARKING PAINT LINE



TRAFFIC BARRIER W BEAM USING 8 FT POST (MD STD. NO. 605.25)		
STATION	LF	REMARKS
201+21 TO 202+00	79	FREDERICK ROAD LEFT

TRAFFIC BARRIER W BEAM USING 6 FT POST (MD STD. NO. 605.25)		
STATION	LF	REMARKS
202+00 TO 202+50	50	FREDERICK ROAD LEFT

TYPE B TRAFFIC BARRIER END TREATMENT (MD STD. NO. 605.02)		
STATION	EA	REMARKS
202+50 TO 203+87	1	FREDERICK ROAD LEFT

TEST HOLE SCHEDULE		
NO.	COVER	REMARKS
TH-1	N/A	12" CIP WATER
TH-2	8.66'	12" CIP WATER
TH-4	5.08'	12" CIP WATER
TH-5	4.52'	12" CIP WATER

REMOVAL AND DISPOSAL OF EXISTING TRAFFIC BARRIER W BEAM		
STATION	LF	REMARKS
201+30 TO 202+13	83	FREDERICK ROAD LEFT

CLASS II RIPRAP FOR SLOPE AND CHANNEL PROTECTION			
LOCATION	LENGTH (FT)	WIDTH (FT)	S.Y.
STA. 201+40 TO 201+52, LT.	12	VARIES	9
STA. 202+03 TO 202+15, LT.	12	VARIES	9
STA. 201+52 TO 202+03, LT.	52'	3'	18

IMBRICATED RIPRAP WALL**			
LOCATION	LENGTH (FT)	WIDTH (FT)	HEIGHT (FT)
STA. 201+45 TO 202+10, LT.	65	3.0	5.0

*UNSUITABLE MATERIAL ENCOUNTERED BENEATH IMBRICATED WALL SHALL BE EXCAVATED AND BACKFILLED WITH NO. 57 STONE AGGREGATE AT THE DIRECTION OF THE ENGINEER.
 ** WALL PLACEMENT MAY BE ADJUSTED IN THE FIELD AT THE DIRECTION OF THE ENGINEER TO AVOID CONFLICT WITH IN-SITU UNDERLYING ROCK OUTCROPPINGS

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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.

Director of Public Works: *James*
 Chief, Bureau of Highways: *James*

Chief, Bureau of Engineering: *Steve Shavan*
 Chief, Transportation Div.: *Steve Shavan*

PREPARED BY:

Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231

DES: CSC
 DRN: NSP
 CIK: BRT
 DATE: 12/15

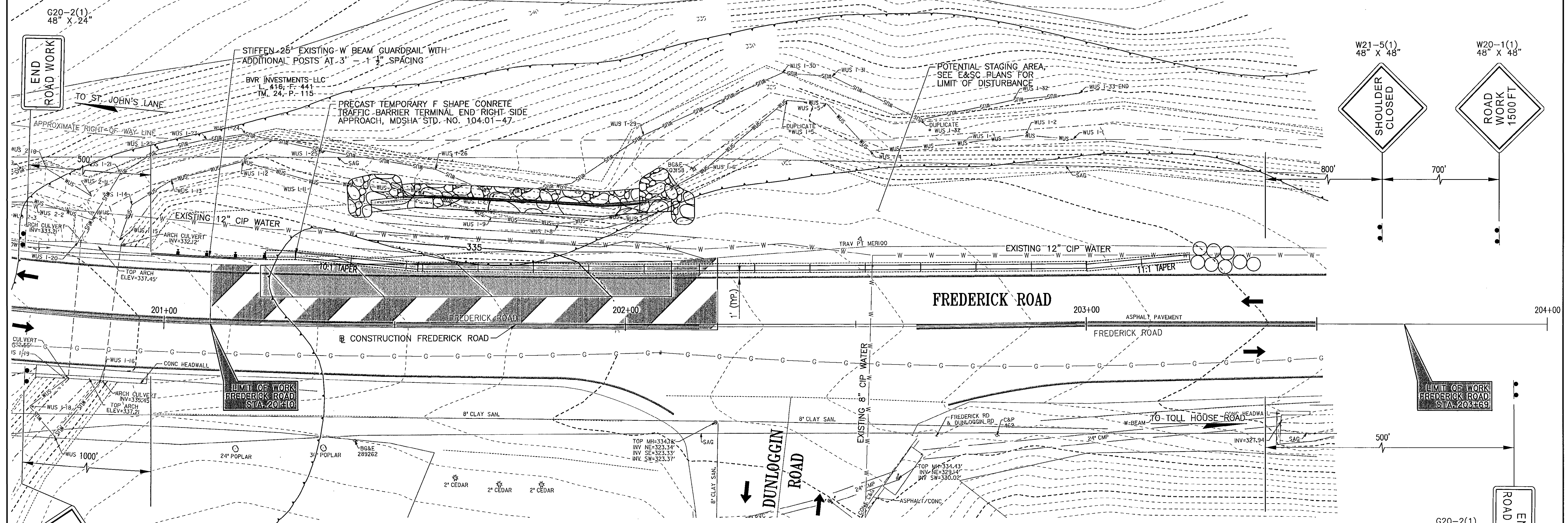
ROADWAY PLAN AND TYPICAL SECTION

600' SCALE MAP NO. 16 BLOCK NO. 3

CAPITAL PROJECT CONTRACT NO. D1124-29
 FREDERICK ROAD SLOPE REPAIR

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

DWG. PS-01
 SCALE 1" = 10'
 SHEET 3 OF 12



END ROAD WORK

SHOULDER CLOSED

ROAD WORK 1500 FT

ROAD WORK AHEAD

END ROAD WORK

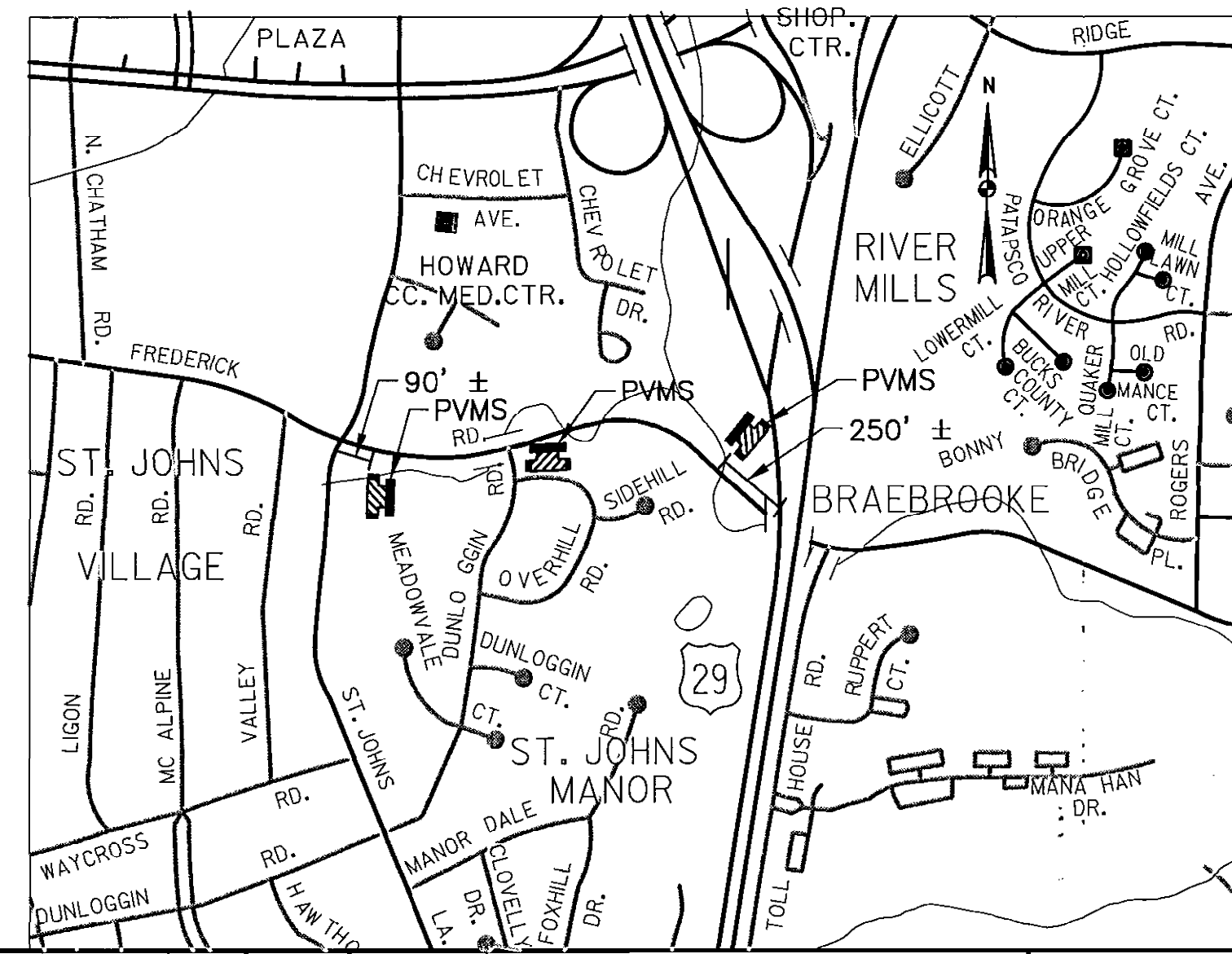
MAINTENANCE OF TRAFFIC NOTES:

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION WORK ZONE TRAFFIC CONTROL TYPICALS, THE MD MUTCD AND SUBSEQUENT REVISIONS ADOPTED BY THE STATE OF MARYLAND, AND THESE PLANS.
- ADVANCE WARNING SIGNS SHALL BE INSTALLED AT A MINIMUM SPACING OF 200 FEET TO AN EXISTING SIGN, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- NO WORK IS TO BEGIN UNTIL ALL ADVANCE WARNING SIGNS, CHANNELIZATION DEVICES AND PAVEMENT MARKINGS ARE IN PLACE AND OPERATIONAL.
- FLAGGING OPERATIONS SHALL BE IN ACCORDANCE WITH MDSA STD. NO. MD 104.02-10 (FLAGGING OPERATION/2-LANE, 2-WAY EQUAL/LESS THAN 40 MPH). FLAGGING HOURS SHALL BE RESTRICTED TO MONDAY THROUGH FRIDAY BETWEEN THE HOURS OF 9 AM AND 4 PM, OR WEEKENDS WITH PRIOR APPROVAL FROM HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - TRAFFIC DIVISION. ROAD CLOSURES SHALL NOT EXCEED 15 MINUTES. FLAGGERS ARE REQUIRED TO COMMUNICATE USING PORTABLE RADIOS. FLAGGERS ARE REMINDED OF THE REQUIREMENT TO CARRY FLAGGER CARDS AT ALL TIMES.
- THE CONTRACTOR IS REQUIRED TO MONITOR TRAFFIC SUCH THAT QUEUES DO NOT EXTEND INTO THE ST. JOHNS LANE / FREDERICK ROAD INTERSECTION.
- SHOULDER CLOSURES SHALL BE IN ACCORDANCE WITH MDSA STD. NO. MD 104.02-02 (SHOULDER WORK / 2-LANE, 2-WAY EQUAL/LESS THAN 40 MPH)
- PORTABLE VARIABLE MESSAGE SIGNS (PVMS) SHALL BE PLACED 10 DAYS PRIOR TO ROAD WORK. PVMS ALONG FREDERICK ROAD TO BE PLACED ON GRASS ADJACENT TO THE ROADWAY.
- THE HOWARD COUNTY PUBLIC SCHOOL SYSTEM SHALL BE ADVISED OF WORK ACTIVITIES WHICH MAY AFFECT BUS ROUTE TIMING AS EARLY AS PRACTICAL.
- NOTIFY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - UTILITY DIVISION (UDD) SEVEN (7) CALENDAR DAYS PRIOR TO INSTALLATION OF TRAFFIC BARRIER W BEAM.

MAINTENANCE OF TRAFFIC LEGEND

- CRASH CUSHION SAND FILLED PLASTIC BARRELS
- PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE TRAFFIC BARRIER
- TEMPORARY TRAFFIC SIGNS AND SUPPORTS
- DIRECTION OF TRAFFIC

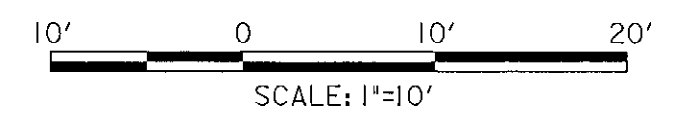
PVMS LOCATION MAP
NOT TO SCALE



PVMS MESSAGES

THE FOLLOWING PVMS MESSAGES SHALL BE USED FOR ANY LONG TERM FLAGGING OPERATION (MORE THAN THREE DAYS):

- 10 DAYS BEFORE WORK:
 - SCREEN 1: ROAD WORK TO BEGIN
 - SCREEN 2: ON OR ABOUT XX-XX
- DURING DURATION OF WORK:
 - SCREEN 1: SINGLE LANE AHEAD
 - SCREEN 2: EXPECT DELAYS

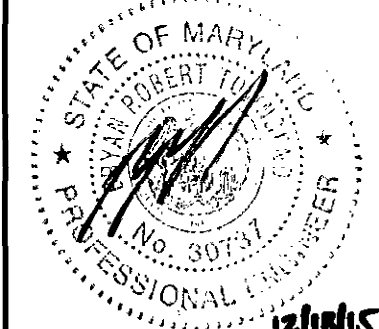


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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Signature of Director of Public Works: *La. A. de* 12/23/15
Signature of Chief of Engineering: *Thomas E. Sullivan* 12/23/15
Signature of Chief of Transportation Div.: *Steve Shuman* 12/23/15

PREPARED BY:
WRA
Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231



DES:	BRT
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600' SCALE MAP NO.:	16
BLOCK NO.:	3

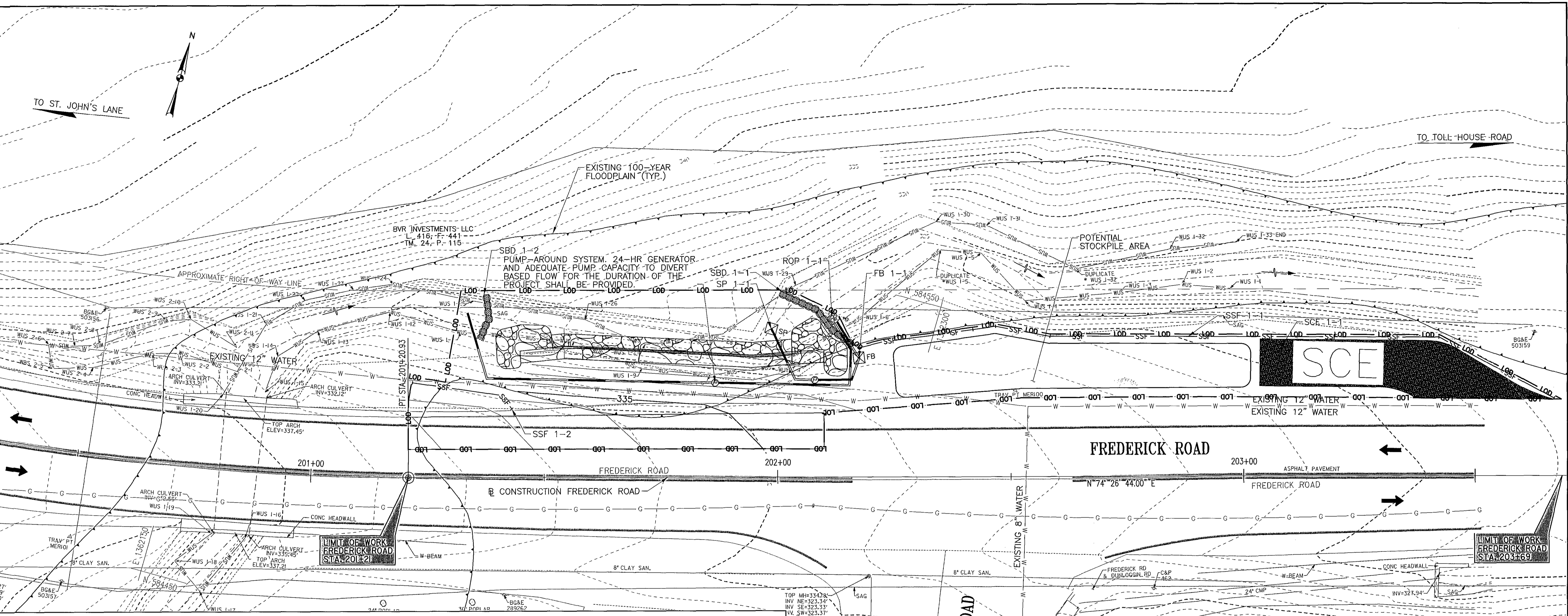
MAINTENANCE OF TRAFFIC PLAN

CAPITAL PROJECT CONTRACT NO. D1124-29
FREDERICK ROAD SLOPE REPAIR

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

DWG. MT-01
SCALE 1" = 10'
SHEET 4 OF 12

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SAME DAY STABILIZATION NOTE
 NO AREA SHALL REMAIN UNSTABILIZED OVERNIGHT UNLESS DIRECTED TO AN APPROVED MDE SEDIMENT CONTROL DEVICE.

STABILIZED CONSTRUCTION ENTRANCE (SCE)			
NO.	STATION, OFFSET	TONS	REMARKS
SCE 1-1	201+37 33' LT.	60	RE FREDERICK

SANDBAG DIVERSION (SBD)			
NO.	STATION, OFFSET	L.F.	REMARKS
SBD 1-1	201+37 33' LT.	20'	RE FREDERICK
SBD 1-2	202+09, 31' RT.	10'	RE FREDERICK

SUMP PIT (SP)		
NO.	STATION, OFFSET	REMARKS
SP 1-1	201+99, 32' LT.	RE FREDERICK

*SOIL TYPES					
TYPE	HSG	K FACTOR	SLOPES	REMARKS	
WATCHUNG SILT LOAM	C/D	0.43	3-8%	WITHIN LOD	

*SOIL DATA OBTAINED FROM WEB SOIL SURVEY. STEEP SLOPES ARE PRESENT WITHIN LOD.

ROCK OUTLET PROTECTION (ROP)					
NO.	STATION, OFFSET	LENGTH	WIDTH	SY	REMARKS
ROP 1-1	202+12, 34' LT.	2'	2'	0.44	RE FREDERICK

SUPER SILT FENCE (SSF)			
NO.	STATION, OFFSET	L.F.	REMARKS
SSF 1-1	202+15 29' LT. TO 203+67, 17' LT.	153'	RE FREDERICK
SSF 1-2	201+21 20' LT. TO 201+43, 10' LT.	23'	RE FREDERICK

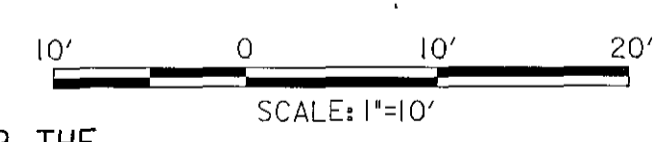
FILTER BAG (FB)		
NO.	STATION, OFFSET	REMARKS
FB 1-1	202+18, 25' LT.	RE FREDERICK

CALENDAR DAYS PER PHASE

SEQUENCE OF CONSTRUCTION

- NOTES:**
- CONSTRUCTION PHASING AND ESTIMATED DURATIONS ARE FOR THE PURPOSE OF EVALUATING EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR MAY SUBMIT REVISIONS TO THE CONSTRUCTION PHASING TO THE ENGINEER AND TO THE HOWARD SOIL CONSERVATION DISTRICT FOR REVIEW AND APPROVAL.
 - ALL CONTROLS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR PAYMENT, BUT SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM COST FOR MAINTENANCE OF STREAM FLOW.
 - CONSTRUCTION VEHICLES NOT UTILIZING THE SCE SHALL BE LOADED AND UNLOADED FROM THE ROADWAY INTO THE DISTURBED AREA AND SHALL NOT TRAVERSE FROM THE DISTURBED AREA ONTO THE ROADWAY. ANY SEDIMENT MUST BE CLEANED FROM PAVED AREAS AT THE END OF EACH WORKING DAY.
 - ANY AREAS NOT DRAINING TO AN APPROVED SEDIMENT CONTROL DEVICE MUST BE STABILIZED AT THE END OF EACH WORKING DAY.
 - ADDITIONAL SEDIMENT CONTROLS ARE TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 - NO MATERIAL SHALL BE STORED WITHIN THE LIMITS OF THE 100-YEAR FLOODPLAIN.
 - RESTORATION OF STREAM BANK AREAS DISTURBED BY CONSTRUCTION SHALL OCCUR AS A LAST ORDER OF WORK IN ORDER TO RE-ESTABLISH PRE-CONSTRUCTION CONDITIONS. RE-GRADE DISTURBED AREAS BACK TO PRE-CONSTRUCTION CONDITIONS, IF NECESSARY, USING STOCKPILED MATERIALS. COMPLETE RESTORATION OF STREAM BANK AREAS USING PERMANENT SEEDING AND MULCHING PER SHEET.

- THE MDE/USACE TRACKING NO. FOR WETLANDS AND WATERWAYS IMPACTS IS 15-NT-3229. THE CONTRACTOR SHALL NOTIFY MDES COMPLIANCE PROGRAM AT 301-665-2850 AT LEAST FIVE (5) DAYS BEFORE STARTING AUTHORIZED ACTIVITIES AND FIVE (5) DAYS AFTER COMPLETION. NO IN-STREAM WORK MAY BE PERFORMED BETWEEN MARCH 1 AND JUNE 15, INCLUSIVE.
- OBTAIN GRADING PERMIT. CONTACT THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR AT 410-313-1855 AT A MINIMUM OF 48 HOURS PRIOR TO THE START OF WORK. INFORM THE INSPECTOR OF THE STARTING DATE.
- INSTALL TRAFFIC CONTROL DEVICES PER MAINTENANCE OF TRAFFIC PLAN, SHEET MT-01.
- INSTALL WATER VALVES PER PLANS. ALL DISTURBANCE ASSOCIATED WITH WATER VALVE INSTALLATION SHALL BE IMMEDIATELY STABILIZED.
- DURING A NOAA 3-DAY CONTINUOUS DRY WEATHER FORECAST, INSTALL SCE, SSF, SBD, AND PUMP AROUND OPERATION PER PLANS WITH PERMISSION FROM INSPECTOR BEFORE PROCEEDING. PROVIDE 24-HR GENERATOR AND PUMP CAPACITY TO DIVERT BASEFLOW FOR THE DURATION OF THE PROJECT.
- PERFORM PROPOSED IMPROVEMENTS INCLUDING IMBRICATED RIPRAP WALL INSTALLATION, DEWATER THE WORK AREA AS NECESSARY USING A SUMP PIT AND FILTER BAG PER PLANS. ANY AREAS NOT DRAINING TO AN APPROVED SEDIMENT CONTROL DEVICE SHALL BE IMMEDIATELY STABILIZED.
- UPON FINAL GRADING AND BACKFILL, STABILIZE ALL SLOPES WITH 4-INCHES TOPSOIL AND PERMANENT SEEDING AND MULCHING OR SOD PER PLANS.
- PERFORM PAVING OPERATIONS AND INSTALL TRAFFIC BARRIER W-BEAM PER PLANS.
- UPON STABILIZATION AND WITH THE APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, ALL SEDIMENT CONTROL DEVICES MAY BE REMOVED. ANY DISTURBANCE DUE TO THE REMOVAL PROCESS SHALL BE STABILIZED IMMEDIATELY.



THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 12/20/15
 HOWARD SOIL CONSERVATION DISTRICT DATE
 CP-16-006

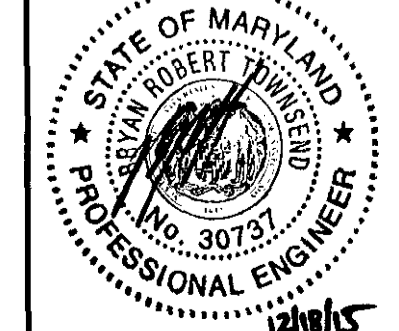
DESIGN CERTIFICATION:
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 12/20/15
 DESIGNER'S SIGNATURE DATE
 CHRISTOPHER CURRICK MD REGISTRATION NO. 29992
 PRINTED NAME (E) P.E. (R) L.S. OR R.L.A. (CIRCLE ONE)

OWNERS/DEVELOPER 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.
 OWNER'S/DEVELOPER'S SIGNATURE DATE
 PRINTED NAME & TITLE

"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. 30737, EXPIRATION DATE: 6/30/2016."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.
[Signature] 12/20/15
 DIRECTOR OF PUBLIC WORKS DATE
[Signature] 12/20/15
 CHIEF, BUREAU OF HIGHWAYS DATE

PREPARED BY:
WRA
 Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231



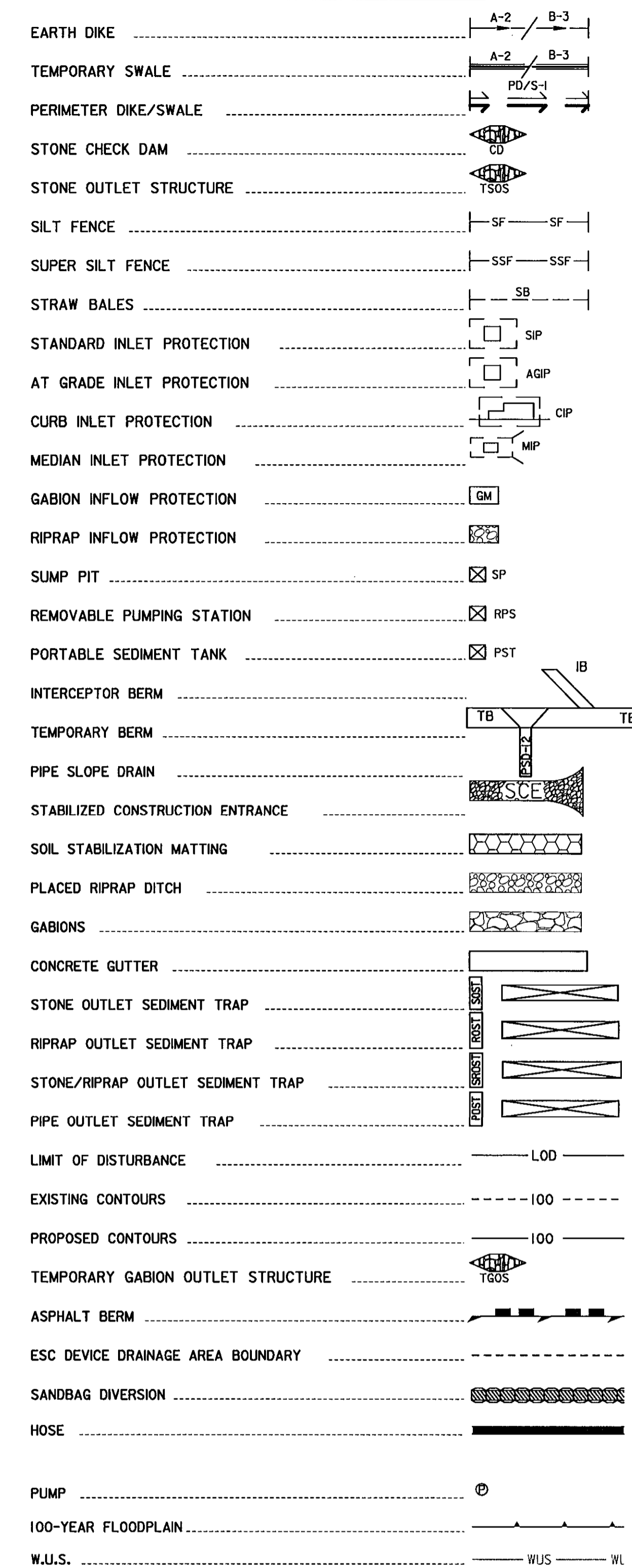
DES:	CSC				
DRN:	CSC				
CHK:	JDC				
DATE:	12/15				
BY:	NO.	REVISION	DATE		

SEDIMENT AND EROSION CONTROL PLAN
 600' SCALE MAP NO. 16 BLOCK NO. 3

CAPITAL PROJECT CONTRACT NO. D1124-29
 FREDERICK ROAD SLOPE REPAIR
 ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

DWG. ES-01
 SCALE 1" = 10'
 SHEET 5 OF 12

STANDARD SYMBOLS



B. MULCHING

I. 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.

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.

2. APPLICATION

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 OF WATER.

3. ANCHORING

A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

IA. 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 TACK 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.

CRITERIA

I. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.J FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.J PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.

2.FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

3.WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS DESCRIBED IN SECTION B-4-3.A.I.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TABLE B.J - TEMPORARY SEEDING SUMMARY

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (00-20-20)		LIME RATE
					N	P205	
1	OATS	72	2/15-4/30, 8/15-11/30	1-IN	436 LB/AC (90 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)	
2	FOXTAIL MILLET	30	05/01-08/14	1/2-IN			

B-4-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION

PURPOSE
TO USE LONG LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS

CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR MORE

CRITERIA

A. SEED MIXTURES

I. GENERAL USE

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2, ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.

C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY

D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3.5 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY

2. TURFGRASS MIXTURES

A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.

B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE, ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.

II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE; FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.

III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATES 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.

IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE; FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1.5 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:
SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND"

CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 6B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES. LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1.5 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (0.5 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

B. SOD; TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

I. GENERAL USE

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2, ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.

C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY

D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3.5 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY

Permanent Seeding Summary

No.	Species	Application Rate (lb/1000 sq ft)	Seeding Dates	Seeding Depths	Fertilizer Rate (00-20-20)			Lime Rate
					N	P205	K20	
I	COASTAL PANIC GRASS	10	2/15-4/30, 8/15-10/31, 11/01-11/30	1/4-1/2 in.	45 pounds per acre (1.0 lb/1000 sq ft)	90 pounds per acre (2.0 lb/1000 sq ft)	90 pounds per acre (2.0 lb/1000 sq ft)	2 tons/acre (90 lb/1000 sq ft)
	CREEPING RED FESCUE	15	2/15-4/30, 8/15-10/31, 11/01-11/30	1/4-1/2 in.				
	BUSH CLOVER	2	2/15-4/30, 8/15-10/31, 11/01-11/30	1/4-1/2 in.				

B-4-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

"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. 30737, EXPIRATION DATE: 6/30/2016."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Director of Public Works: *James* 12/22/15
 Director of Highways: *James* 12/22/15
 Director of Engineering: *Monroe & Butler* 12/22/15
 Chief, Transportation Div.: *Steve Shawan* 12/22/15

PREPARED BY:

Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231



DES:	CSC				
DRN:	CSC				
CHK:	JDC				
DATE:	12/15				
BY NO.		REVISION		DATE	

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Bob 12/22/15
 HOWARD SOIL CONSERVATION DISTRICT DATE: 12/22/15

SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. 16 BLOCK NO. 3

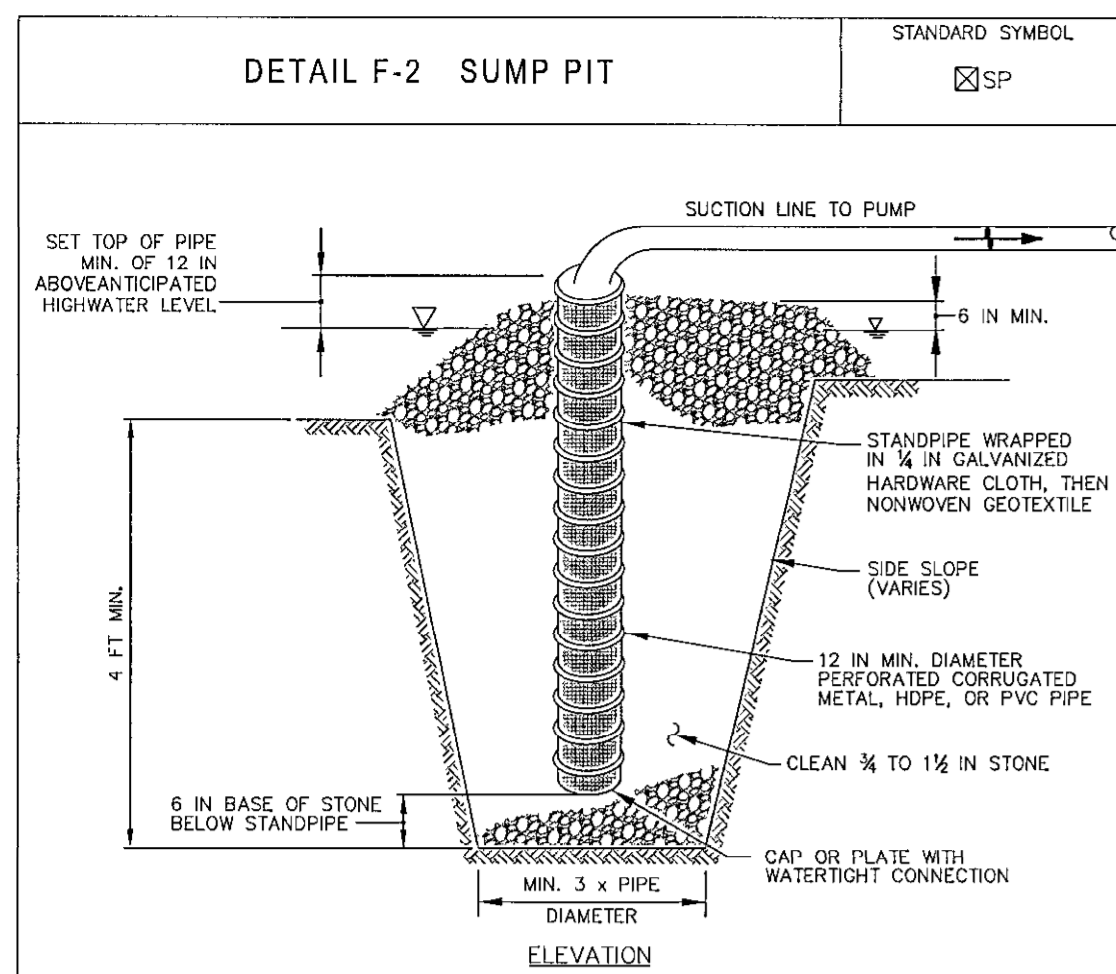
DESIGN CERTIFICATION
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 DESIGNER'S SIGNATURE: *Christopher Cuent* DATE: 12/22/15
 PRINTED NAME: CHRISTOPHER CUENT MD REGISTRATION NO. 37792
 (R.L.S., OR R.L.A. (CIRCLE ONE))

OWNERS/DEVELOPERS 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.
 OWNER'S/DEVELOPER'S SIGNATURE: _____ DATE: _____
 PRINTED NAME & TITLE: _____

CAPITAL PROJECT CONTRACT NO. D1124-29
 FREDERICK ROAD SLOPE REPAIR
 ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

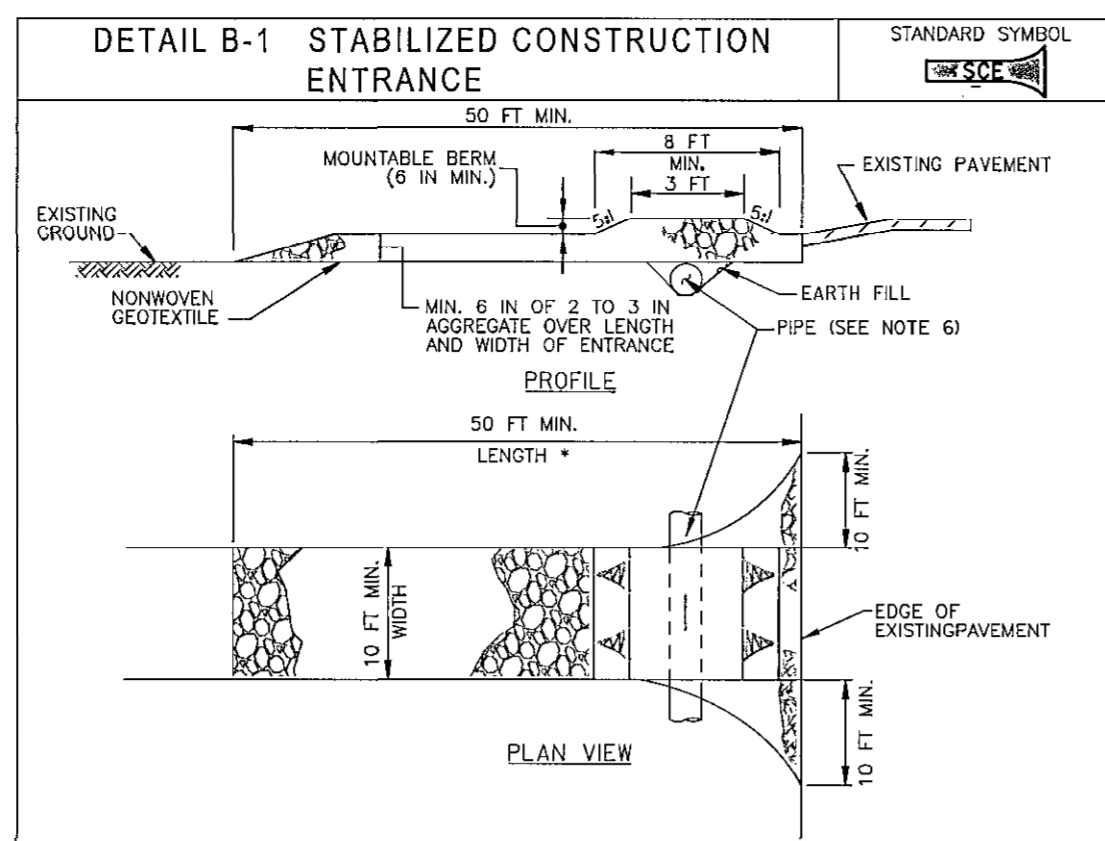
VA 31786-0174 (ADD) 31760017E-SPR03.dgn 12/22/2015

DWG. ES-03
 SCALE AS SHOWN
 SHEET 7 of 12



- CONSTRUCTION SPECIFICATIONS**
- 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 WATER TIGHT SEAL.
 - WRAP PIPE WITH 1/4 INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
 - EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
 - SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
 - BACKFILL PIT AROUND THE PIPE WITH 3/4 TO 1 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
 - DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
 - 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



- CONSTRUCTION SPECIFICATIONS**
- 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 (40 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.
 - PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAIN POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5% SLOPE 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.
 - PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
 - PLACE CRUSHED AGGREGATE 12 TO 3 INCHES IN SIZE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
 - 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 WACEDING, SCRAPPING, AND/OR SWEETING. 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

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 AT THE FOLLOWING STAGES:

- PRIOR TO THE START OF EARTH DISTURBANCE,
- UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING,
- PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
- PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

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 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS 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 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL 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 CID.

6. SITE ANALYSIS:

TOTAL AREA OF SITE:	0.11 ACRES
AREA DISTURBED:	0.11 ACRES
AREA TO BE ROOFED OR PAVED:	0.08 ACRES
AREA TO BE VEGETATIVELY STABILIZED:	0.04 ACRES
TOTAL CUT:	185 CU. YDS.
TOTAL FILL:	230 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION:	TBD ACRES

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 CID. 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 SHOULD INCLUDE:

- INSPECTION DATE
- INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
- NAME AND TITLE OF INSPECTOR
- WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
- BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
- EVIDENCE OF SEDIMENT DISCHARGES
- IDENTIFICATION OF PLAN DEFICIENCIES
- IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
- IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
- COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
- PHOTOGRAPHS
- MONITORING/SAMPLING
- MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
- OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).

9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.

10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY 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 A GIVEN TIME.

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

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.

MGWC 1.2: PUMP-AROUND PRACTICE



DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the stream channel must be restored to its original condition. Work should not be conducted in the channel during rain events. NOTE: REFERENCE SPEC NO. 5 ON SHEET 5.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater side of riprap or sandbags.

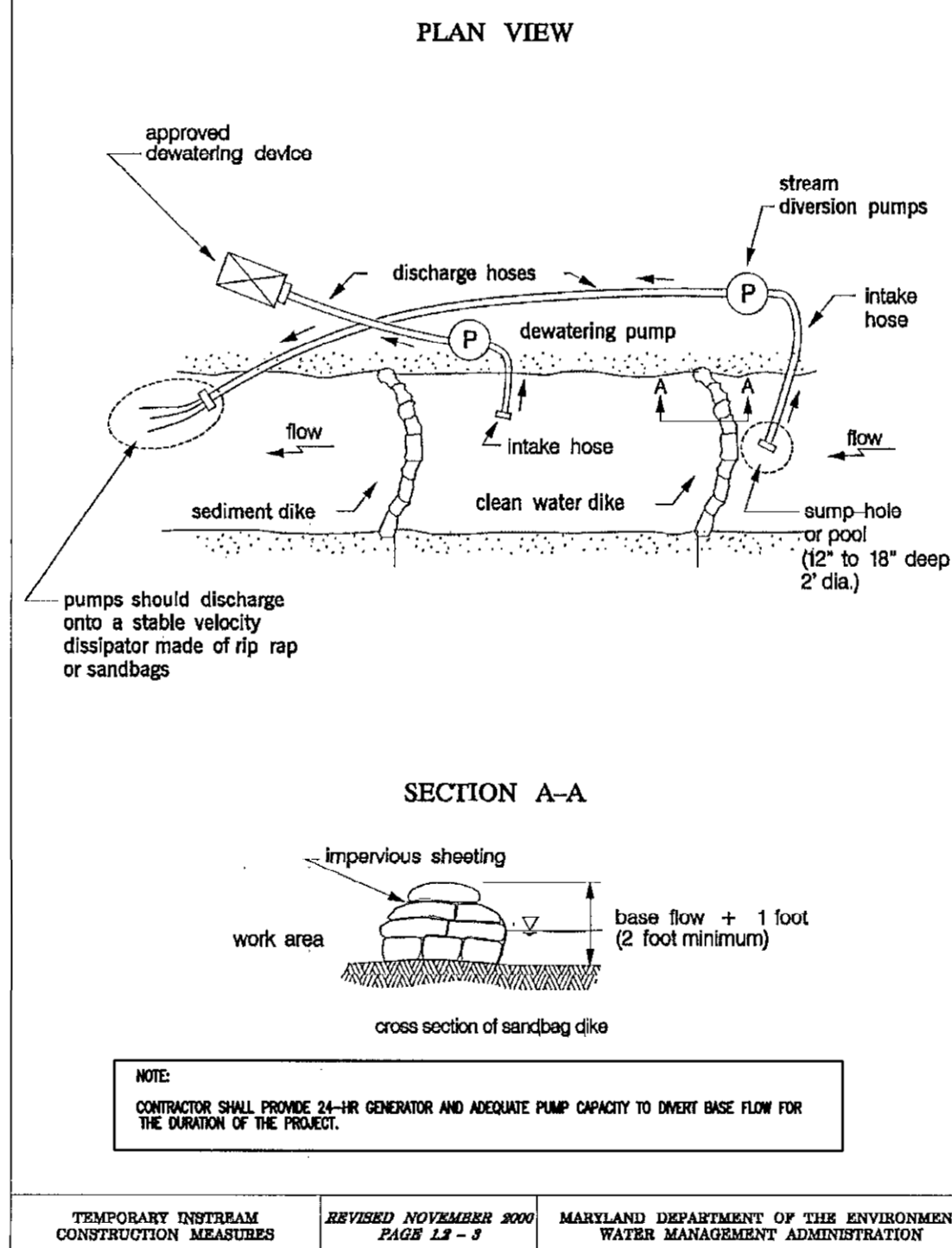
TEMPORARY DISTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2009
 PAGE 1.2 - 1

MGWC 1.2: PUMP-AROUND PRACTICE

- Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).
- All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, the clean water dike should be removed. After the first sediment dike, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
- A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

TEMPORARY DISTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2009
 PAGE 1.2 - 2

Maryland's Guidelines To Waterway Construction DETAIL 1.2: PUMP-AROUND PRACTICE



TEMPORARY DISTREAM CONSTRUCTION MEASURES REVISED NOVEMBER 2009 PAGE 1.2 - 2 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

"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. 30737, EXPIRATION DATE: 6/29/2016."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.
 Director of Public Works: James J. [Signature] 12/24/15
 Chief, Bureau of Highways: James J. [Signature] 12/24/2015
 Chief, Bureau of Engineering: Thomas R. [Signature] 12/23/15
 Chief, Transportation Div.: Steve [Signature] 12/23/15

PREPARED BY:
WRA
 Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231



DES:	CSC				
DRN:	CSC				
CHK:	JDC				
DATE:	12/15				
BY:	NO.				
		REVISION		DATE	

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 12/22/15
 HOWARD SOIL CONSERVATION DISTRICT DATE 12-16-2015

DESIGN CERTIFICATION
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 12/15/15
 DESIGNER'S SIGNATURE DATE
 CHRISTOPHER CUNCK MD REGISTRATION NO. 57792
 PRINTED NAME & TITLE (R) R.L.S. OR R.L.A. (CIRCLE ONE)

OWNERS/DEVELOPERS 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.
 OWNER'S/DEVELOPER'S SIGNATURE DATE
 PRINTED NAME & TITLE

SEDIMENT AND EROSION CONTROL DETAILS

CAPITAL PROJECT CONTRACT NO. D1124-29

FREDERICK ROAD SLOPE REPAIR

600' SCALE MAP NO. 16 BLOCK NO. 3 ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

DWG. ES-04
 SCALE NONE
 SHEET 8 OF 12

MGWC 2.2: IMBRICATED RIPRAP



DESCRIPTION

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 the following:

- 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 earth pressures of the enveloped bank.

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.

MATERIAL SPECIFICATIONS

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

- Filters:** Synthetic filter fabric may be used cautiously based on the 1994 MD Standards and Specifications for Soil Erosion and Sediment Control. Whenever possible, however, granular filters with a minimum thickness of 6 inches (15 cm) should be used with a gradation as found in Table 2.2.

Table 2.2: Granular Filter Material Grading Specifications

Percent Less Than	U.S. Standard Sieve Size
100	2 1/2 in (64 mm)
85 - 100	1 in (25 mm)
60 - 100	1/2 in (13 mm)
35 - 70	No. 10
20 - 50	No. 40
3 - 20	No. 200

- 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).

MGWC 2.2: IMBRICATED RIPRAP

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

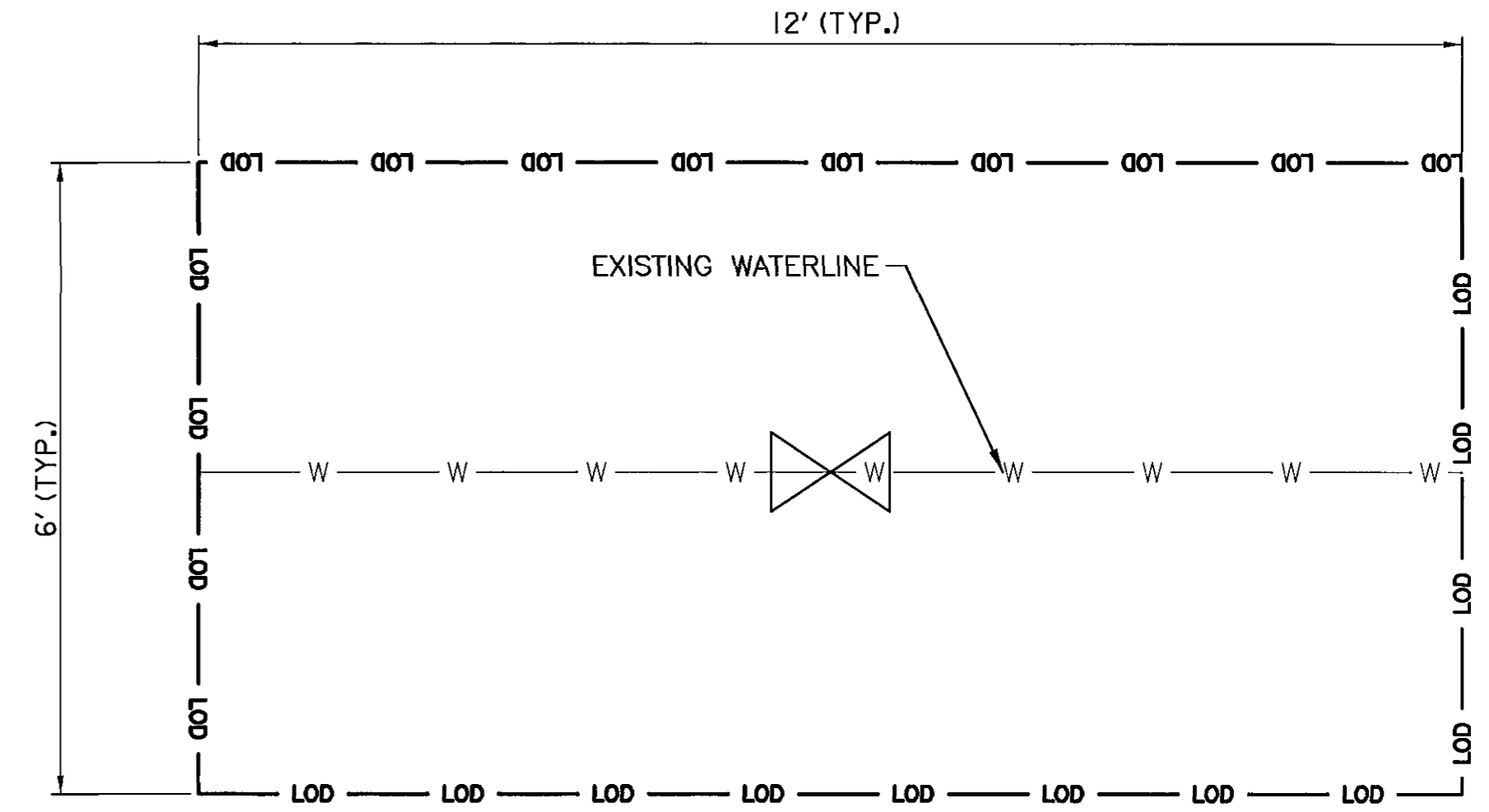
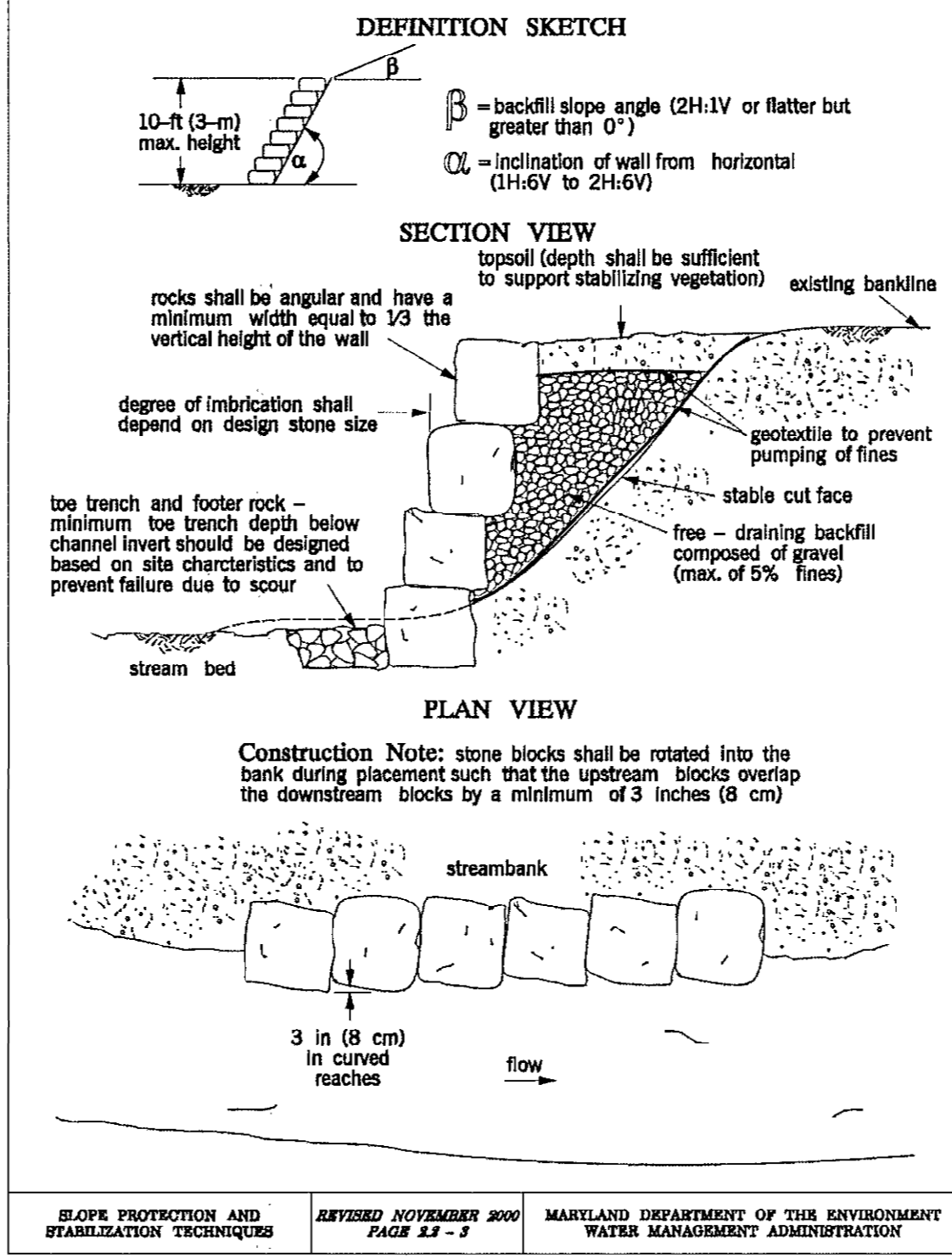
INSTALLATION GUIDELINES

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. 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 should be dewatered.
- 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 1H: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.
- A graded granular filter or filter fabric should be placed on the face of the cut slope to prevent the migration of fine materials through the revetment. If filter fabric is used, it should be carefully and loosely placed on the prepared slope and secured. Adjacent strips should overlap a minimum of 8 inches (0.20 meters). If the filter fabric is torn or damaged, it should be repaired or replaced.
- 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 length of the longest axis and should not be greater than 10 feet (3 meters).
- Placement of the granular backfill should occur concurrently with the stone placement. The backfill slope angle should be 2H:1V or flatter but should be greater than 0 degrees to facilitate drainage. Once all of the backfill is in place, it should be covered with a filter layer and a layer of topsoil sufficient to support a native vegetative cover.
- 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.

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



TYPICAL WATER VALVE INSTALLATION

SCALE: NTS
 * DISTURBANCE DUE TO WATER VALVE INSTALLATION SHALL BE STABILIZED IMMEDIATELY.

"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. 30757, EXPIRATION DATE: 6/28/2016."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.
 Director of Public Works: [Signature] 12/24/15
 Chief, Bureau of Highways: [Signature] 12/24/2015
 Chief, Bureau of Engineering: [Signature] 12/23/15
 Chief, Transportation Div.: [Signature]

PREPARED BY:
WRA
 Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231



DES: CSC
 DRN: CSC
 CHK: JDC
 DATE: 12/15
 BY NO. REVISION DATE

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature]
 HOWARD SOIL CONSERVATION DISTRICT DATE 12/22/15
 80-16-026

DESIGN CERTIFICATION
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 Designer's Signature: [Signature] DATE: 12/18/15
 Christopher Cook MD REGISTRATION NO. 82946 P.E. R.L.S. OR R.L.A. (CIRCLE ONE)

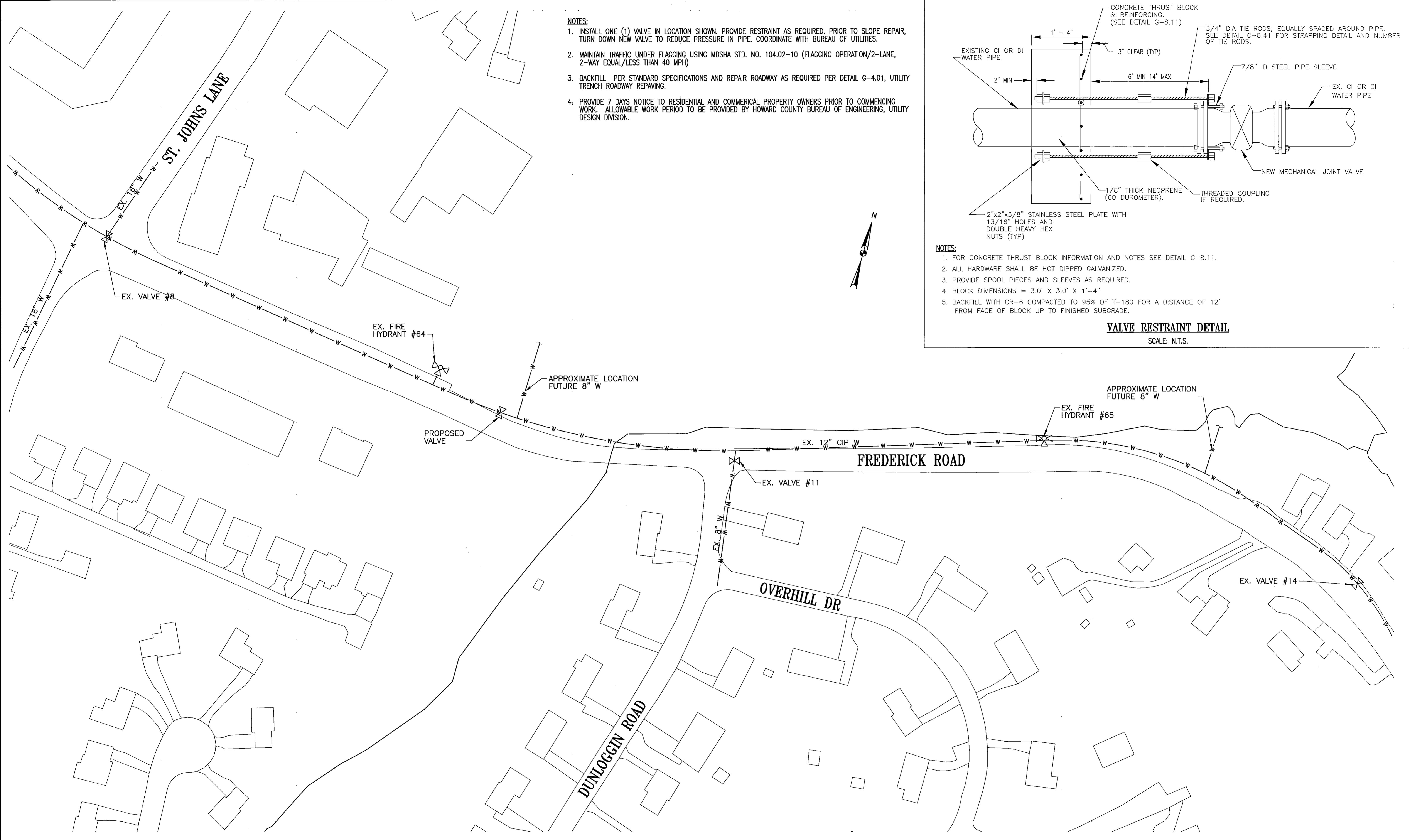
OWNERS/DEVELOPERS CERTIFICATION
 "I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT 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."
 Owner's/Developer's Signature: _____ DATE: _____
 Printed Name & Title: _____

SEDIMENT AND EROSION CONTROL DETAILS
 600' SCALE MAP NO. 16 BLOCK NO. 3

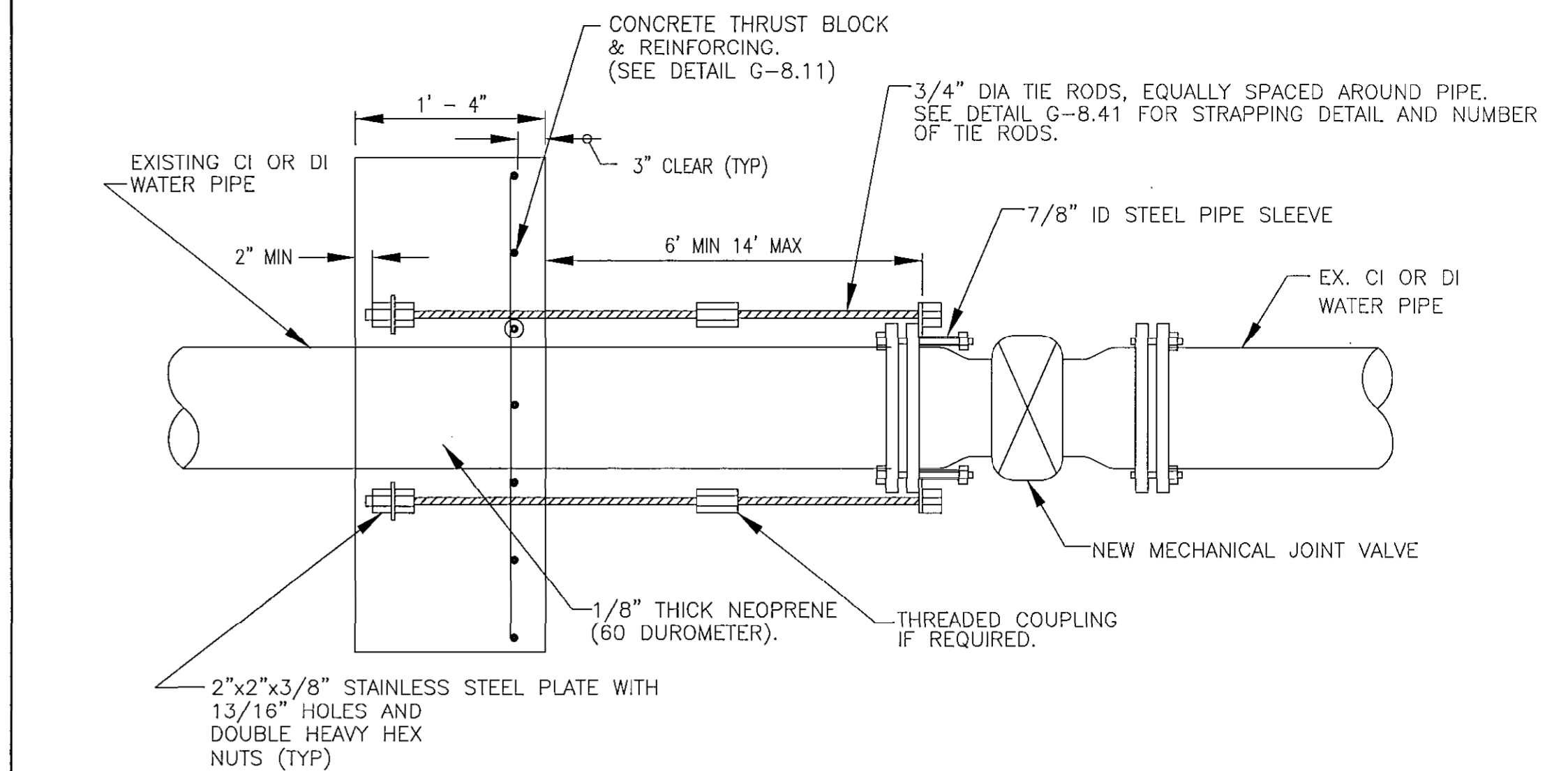
CAPITAL PROJECT CONTRACT NO. D1124-29
 FREDERICK ROAD SLOPE REPAIR
 ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

DWG. ES-05
 SCALE NONE
 SHEET 9 OF 12

BORDER REV: DATE: JULY 1, 2005

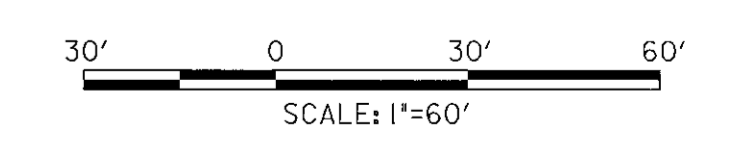


- NOTES:**
1. INSTALL ONE (1) VALVE IN LOCATION SHOWN. PROVIDE RESTRAINT AS REQUIRED. PRIOR TO SLOPE REPAIR, TURN DOWN NEW VALVE TO REDUCE PRESSURE IN PIPE. COORDINATE WITH BUREAU OF UTILITIES.
 2. MAINTAIN TRAFFIC UNDER FLAGGING USING MDSA STD. NO. 104.02-10 (FLAGGING OPERATION/2-LANE, 2-WAY EQUAL/LESS THAN 40 MPH)
 3. BACKFILL PER STANDARD SPECIFICATIONS AND REPAIR ROADWAY AS REQUIRED PER DETAIL G-4.01, UTILITY TRENCH ROADWAY REPAVING.
 4. PROVIDE 7 DAYS NOTICE TO RESIDENTIAL AND COMMERCIAL PROPERTY OWNERS PRIOR TO COMMENCING WORK. ALLOWABLE WORK PERIOD TO BE PROVIDED BY HOWARD COUNTY BUREAU OF ENGINEERING, UTILITY DESIGN DIVISION.



- NOTES:**
1. FOR CONCRETE THRUST BLOCK INFORMATION AND NOTES SEE DETAIL G-8.11.
 2. ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED.
 3. PROVIDE SPOOL PIECES AND SLEEVES AS REQUIRED.
 4. BLOCK DIMENSIONS = 3.0' X 3.0' X 1'-4"
 5. BACKFILL WITH CR-6 COMPACTED TO 95% OF T-180 FOR A DISTANCE OF 12' FROM FACE OF BLOCK UP TO FINISHED SUBGRADE.

VALVE RESTRAINT DETAIL
SCALE: N.T.S.



DWG. UT-01
SCALE 1" = 60'
SHEET 10 OF 12

"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. 30757, EXPIRATION DATE: 4/29/2016."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

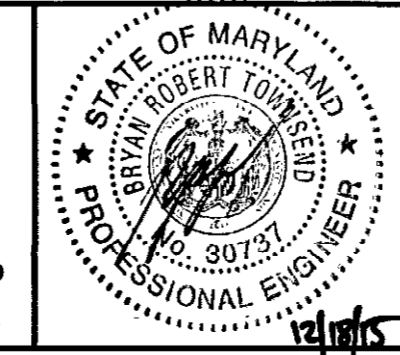
James E. Butler 12/24/15
DIRECTOR OF PUBLIC WORKS DATE

Steve Shaner 12/23/15
CHIEF, BUREAU OF HIGHWAYS DATE

PREPARED BY:

WRA

Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231



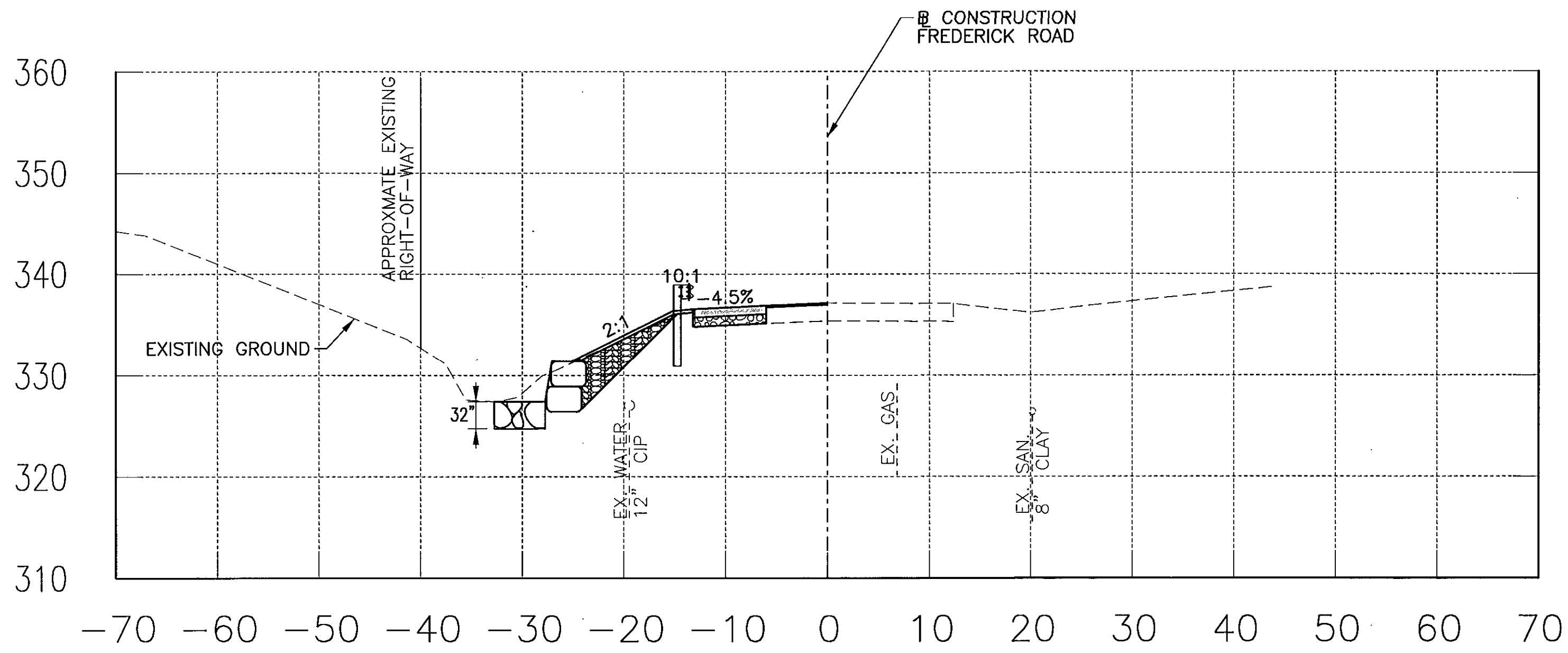
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CHK:	BRT				
DATE:	12/15	BY:	NO.	REVISION	DATE

600' SCALE MAP NO. 16 BLOCK NO. 3

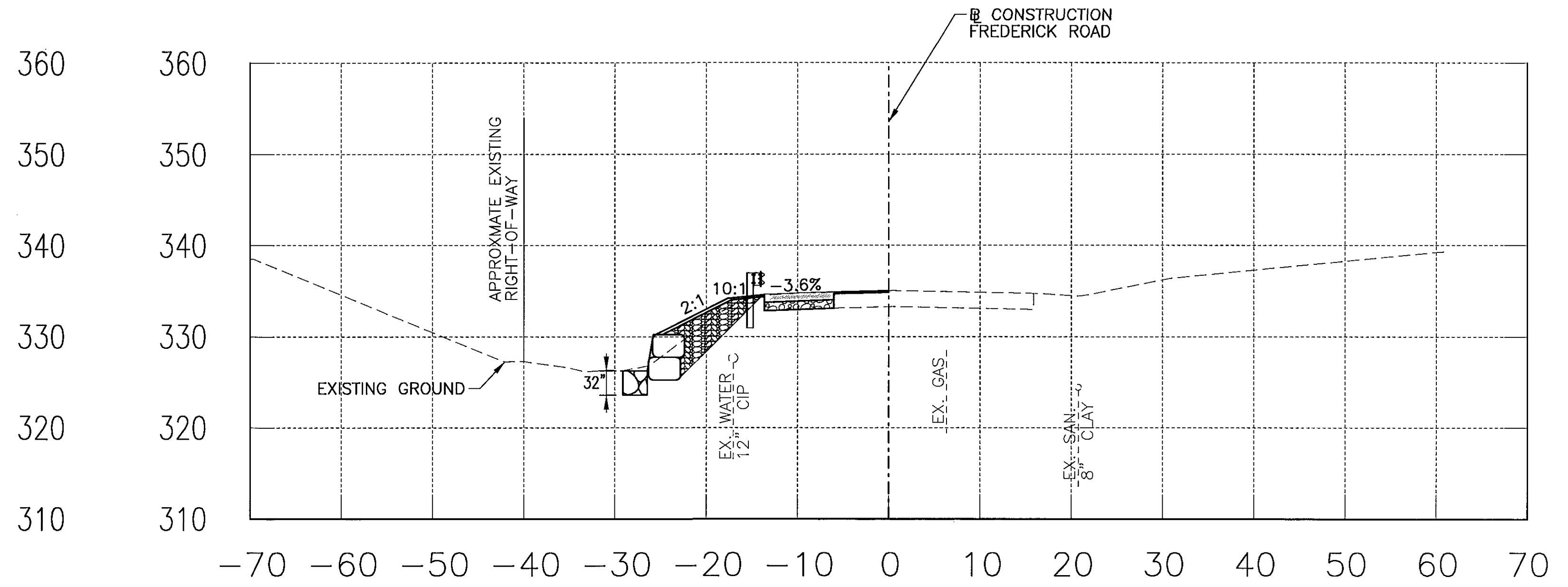
WATER VALVE PLAN

CAPITAL PROJECT CONTRACT NO. D1124-29
FREDERICK ROAD SLOPE REPAIR

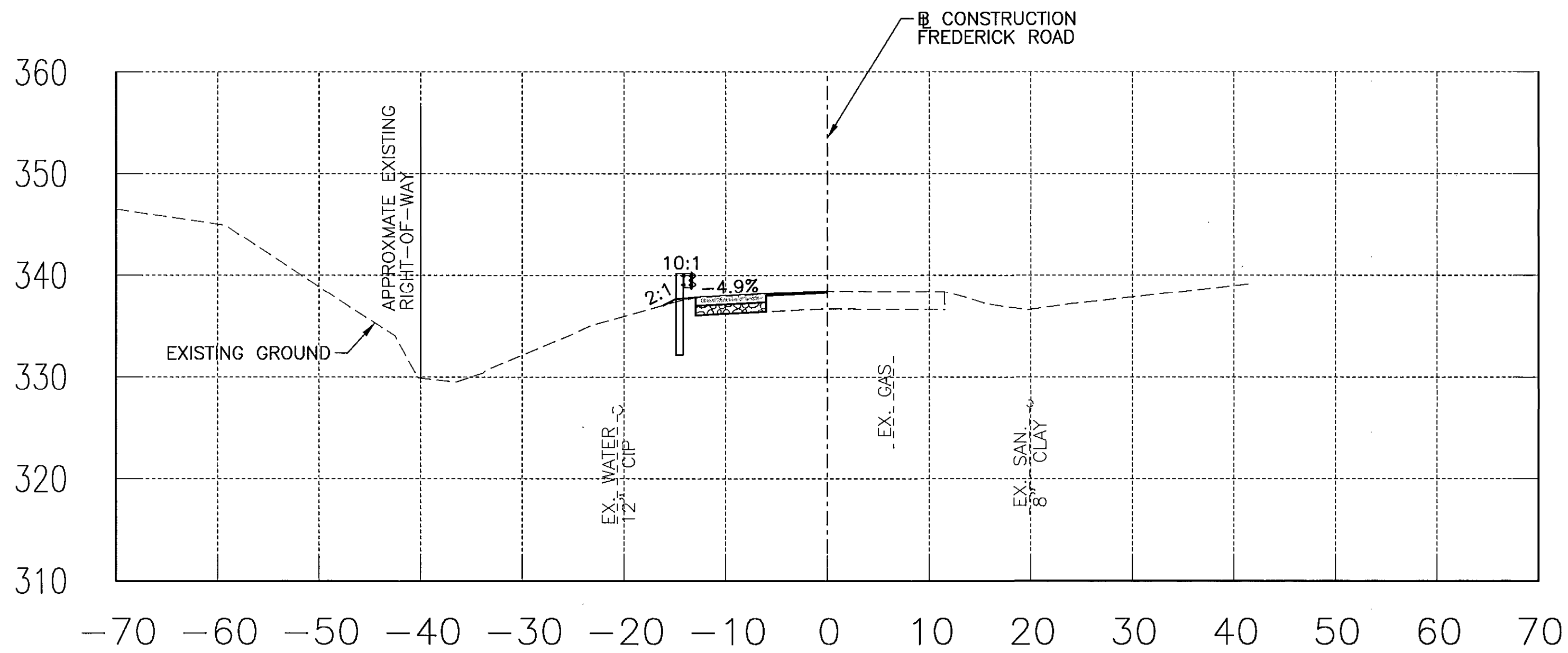
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND



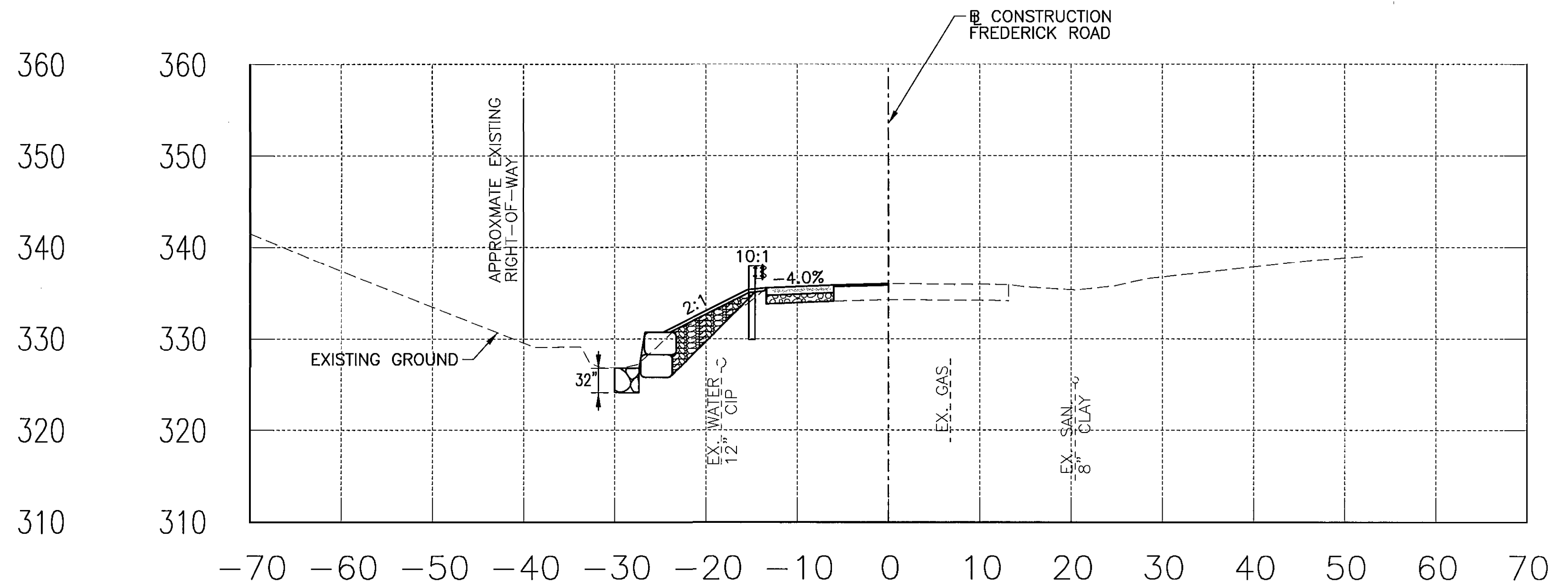
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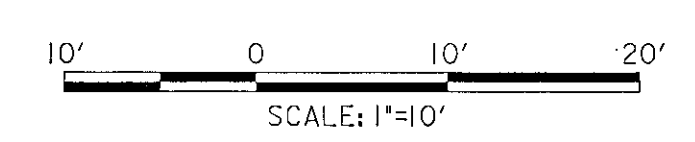
202+00



201+25



201+75



DWG. XS-01
SCALE 1" = 10'
SHEET 11 of 12

"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. 30732, EXPIRATION DATE: 6/24/2016."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Director of Public Works: [Signature] 12/24/15
Chief, Bureau of Highways: [Signature] 12/24/15

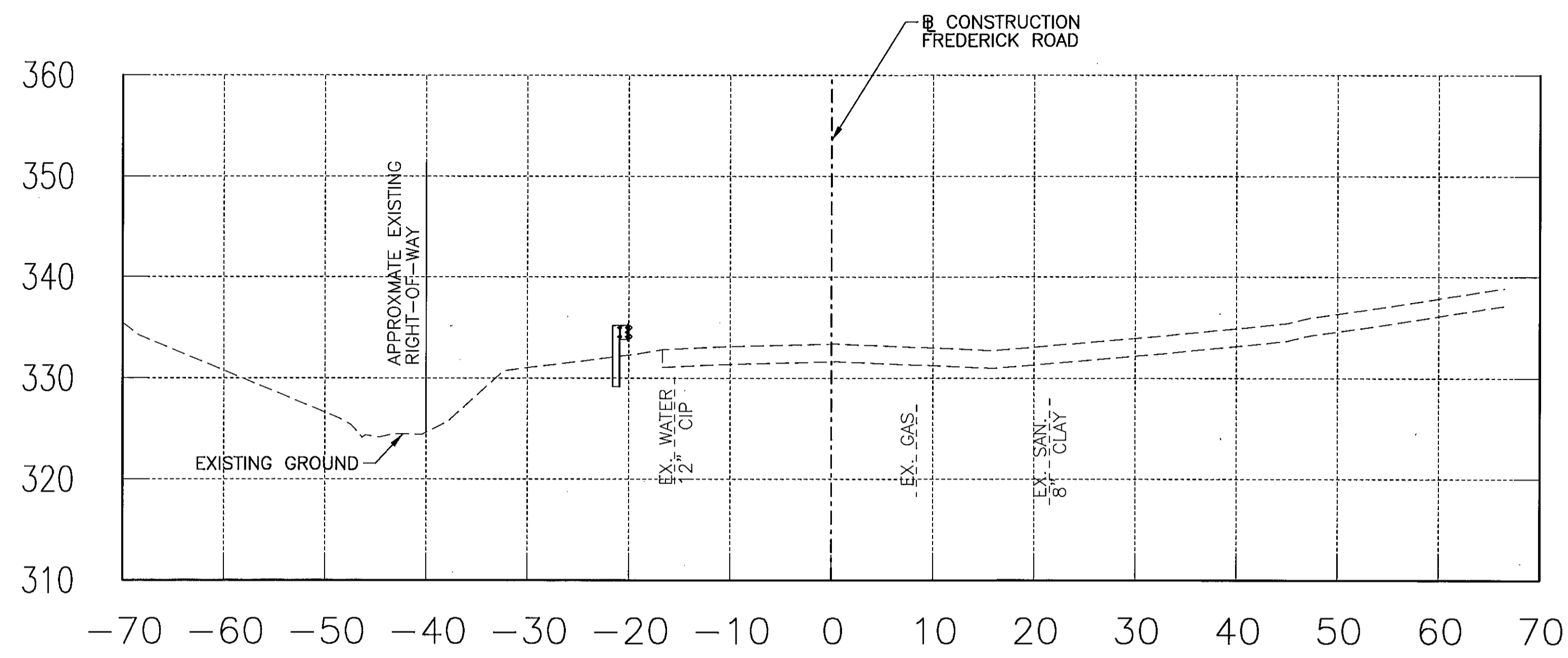
PREPARED BY:
WRA
Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231



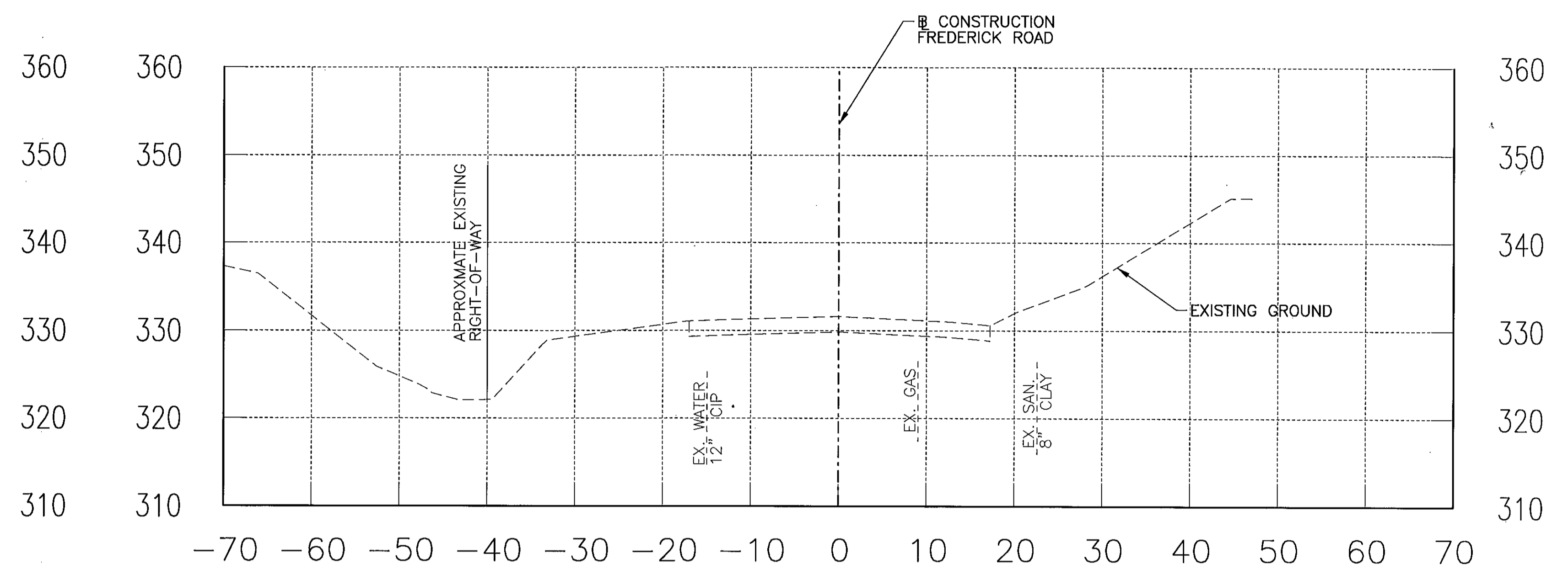
DES:	CSC
DRN:	NSP
CHK:	BRT
DATE:	12/15
BY:	NO.
REVISION	
DATE	

CROSS SECTIONS
FREDERICK ROAD
600' SCALE MAP NO. 16 BLOCK NO. 3

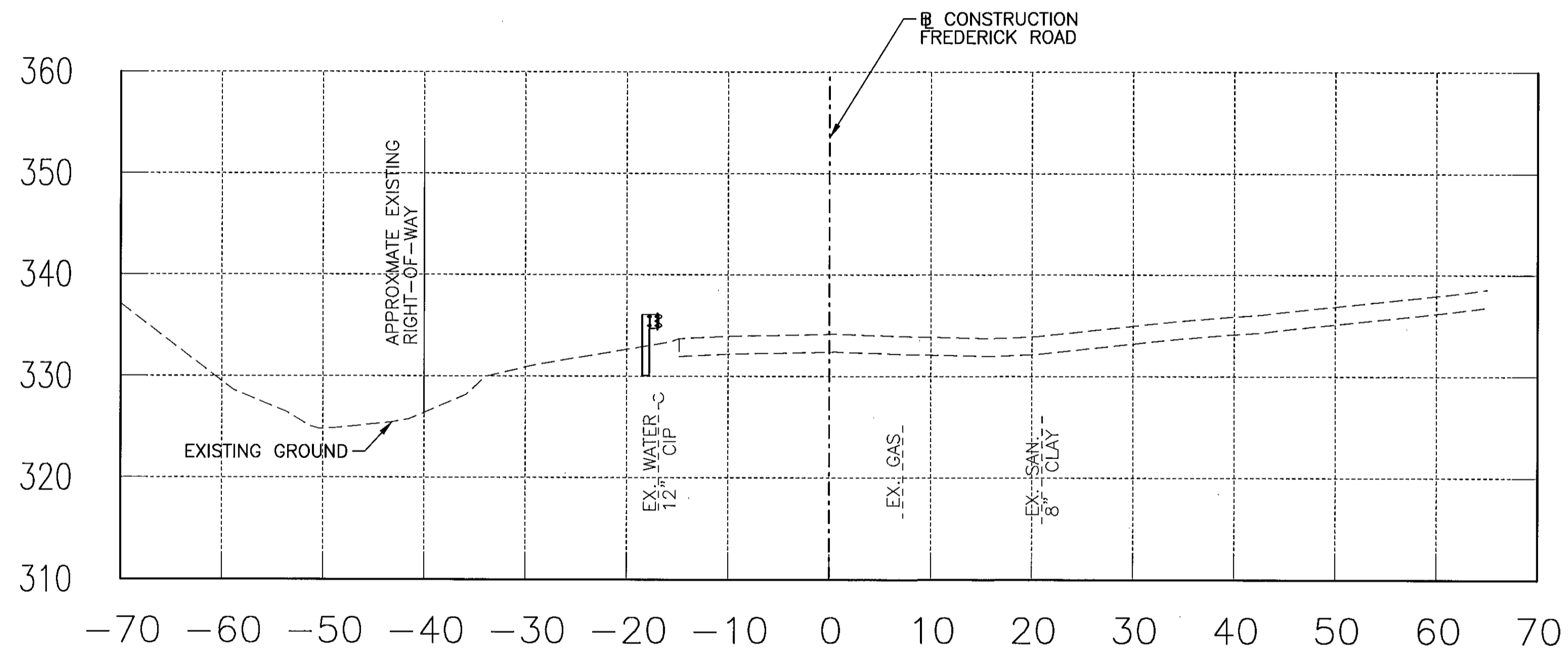
CAPITAL PROJECT CONTRACT NO. D1124-29
FREDERICK ROAD SLOPE REPAIR
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND



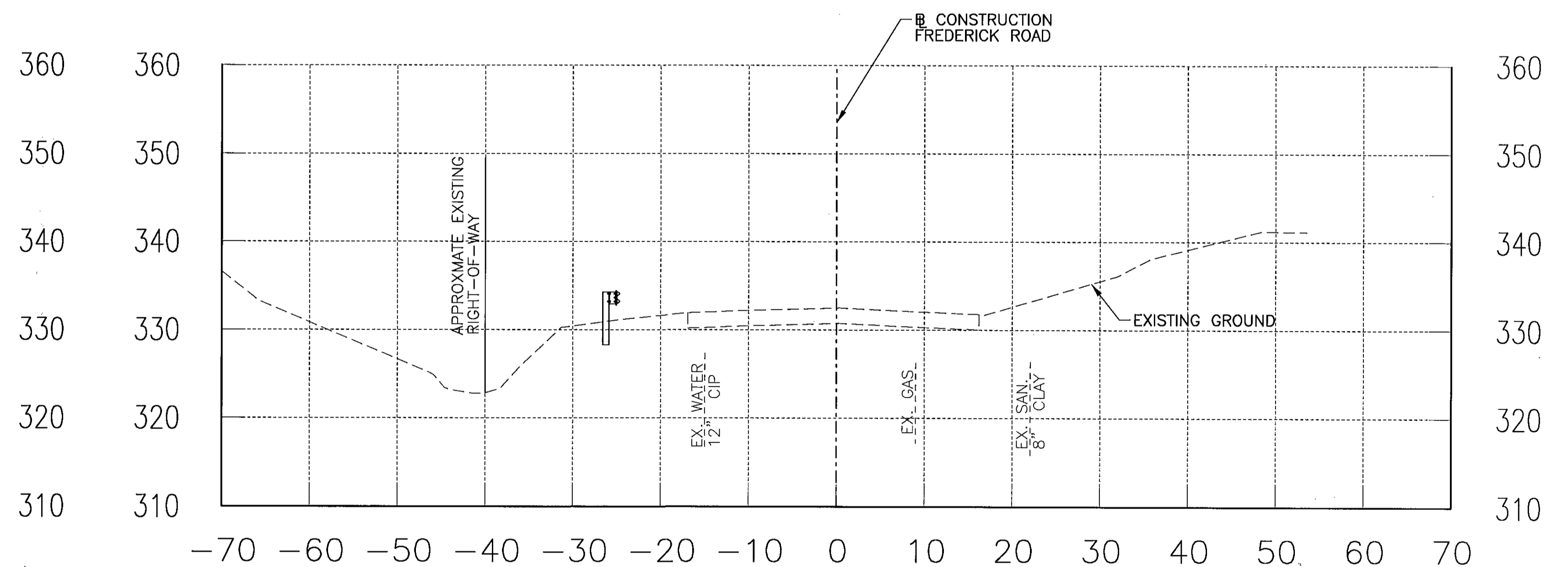
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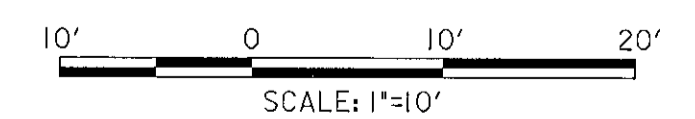


202+25



202+75

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DWG. XS-02

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

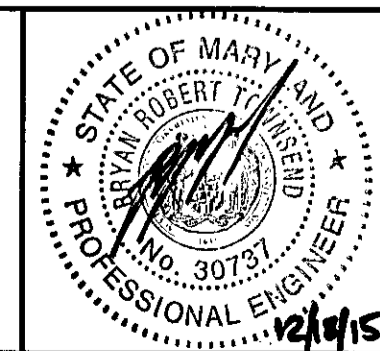
John J. Camp 12/29/2015
DIRECTOR OF PUBLIC WORKS DATE
CHIEF, BUREAU OF HIGHWAYS

Mona S. Butler 12/23/15
CHIEF, BUREAU OF ENGINEERING DATE

Steve Shaver 12/23/15
CHIEF, TRANSPORTATION DIV. DATE

PREPARED BY:

WRA
Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231



DES:	CSC
DRN:	NSP
CHK:	BRT
DATE:	12/15
BY:	NO.
REVISION:	
DATE:	

CROSS SECTIONS
FREDERICK ROAD

600' SCALE MAP NO. 16 BLOCK NO. 3

CAPITAL PROJECT CONTRACT NO. D1124-29
FREDERICK ROAD SLOPE REPAIR

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

SCALE 1" = 10'

SHEET 12 OF 12

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12/18/2015