
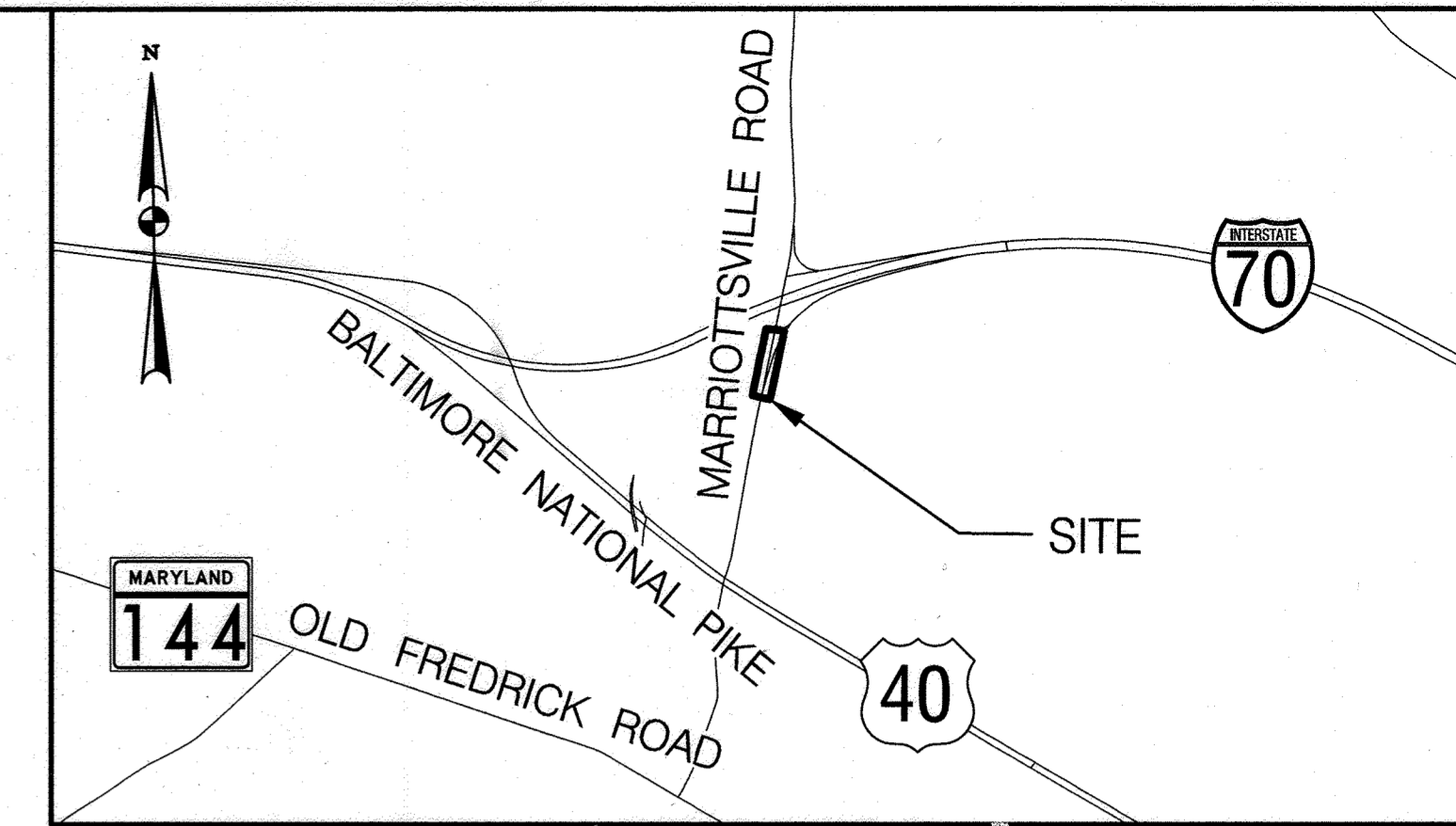


GENERAL NOTES:

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAINS UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON APRIL, 2010 AND MAY 2017 BY STV INCORPORATED (STV)
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91
AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0012, 16EM3 AND 16EM2. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88.
VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE
(ENGINEERING/SURVEY FIRM SHALL PROVIDE DESCRIPTION OF VERTICAL CONTROL POINTS, I.E., IRON BARS, CROSS CUTS ON CONCRETE STRUCTURES)
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED TO THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES
- FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL  AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
AT&T.....800-252-1133
BGE (CONTRACTOR SERVICES).....410-637-8713
BGE (EMERGENCY).....410-685-0123
BUREAU OF UTILITIES.....410-313-4900
COLONIAL PIPELINE CO.....410-795-1390
MISS UTILITY.....800-257-7777
STATE HIGHWAY ADMINISTRATION.....410-531-5533
VERIZON.....800-743-0033
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE

MARRIOTTSVILLE ROAD 16" WATER MAIN

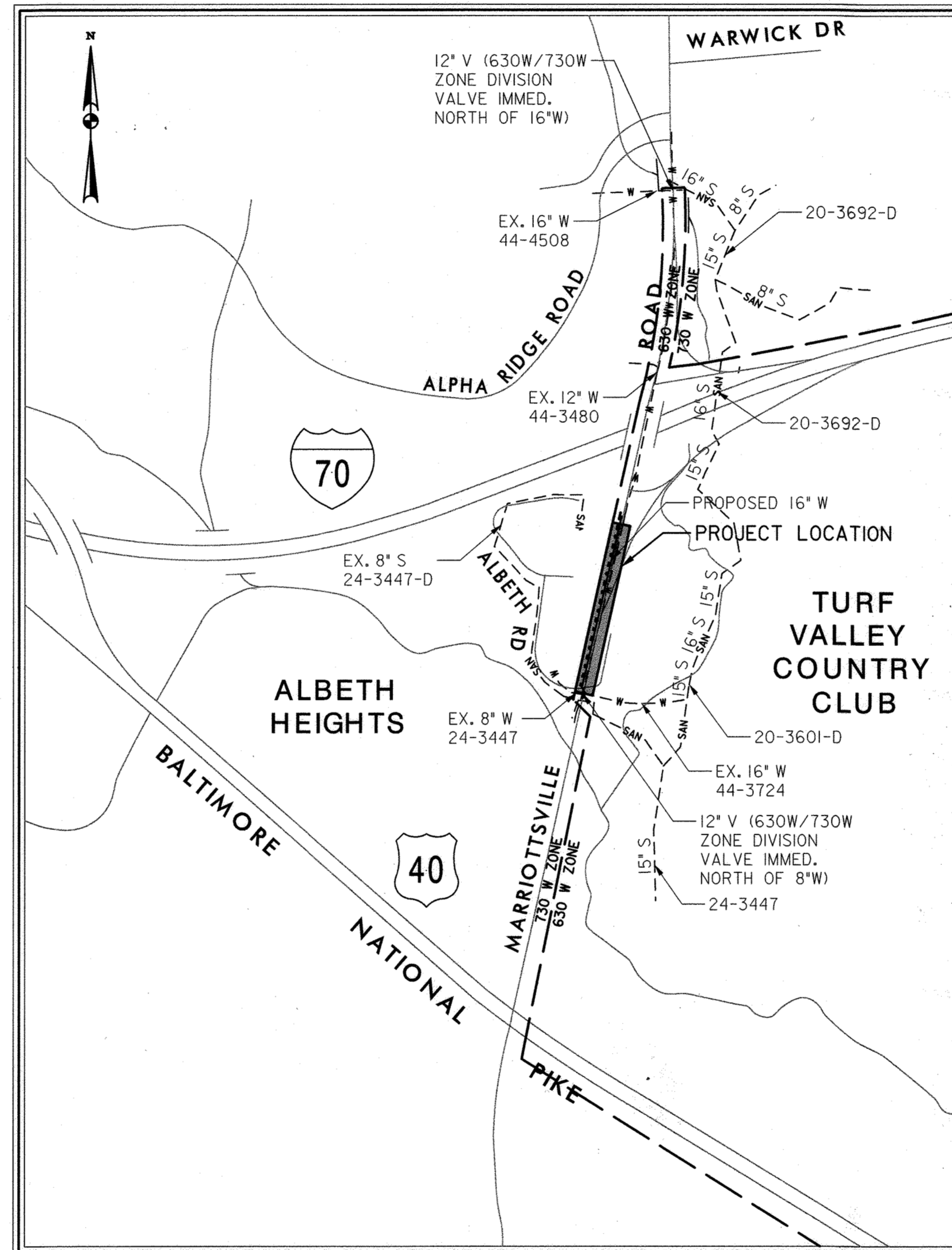
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS PROJECT NO. W8602 CONTRACT NO. 44-5147 - PHASE 1



LOCATION MAP
SCALE: 1"=2000'

WATER NOTES:

- ALL WATER MAINS SHALL BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS
- ACCORDING TO HOWARD COUNTY COMMON DESIGN GUIDELINES SECTION 5.9, THRUST RESTRAINT IS REQUIRED FOR ALL PRESSURIZED WATER MAIN WHERE TEES OCCUR.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM
- TRACER WIRE AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPES SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THIS CONTRACT. ALL PVC PIPE SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIPE SUPPLIED TO THE TEST RECORDS RECEIVED
- UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. 17 POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSES. 12 POUND ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS SHALL BE DUCTILE IRON
- PROPER ASSEMBLY OF GASKETED PVC PIPE JOINTS; THE MANUFACTURER'S INSERTION LINE OF GASKETED PVC PIPE JOINTS INDICATES THE MAXIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. AFTER ASSEMBLY OF THE JOINT, THE INSERTION LINE SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE THE MAXIMUM AND MINIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. THE CONTRACTOR SHALL NOT OVER INSERT OR OVER HOME THE SPIGOT INTO THE BELL OF THE PVC PIPE.
- ALL CHANGES IN HORIZONTAL OR VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH STANDARD BENDS, 5-DEGREE SWEEPS OR HIGH DEFLECTION (HD) COUPLINGS. NO BENDING OF THE PIPE OR DEFLECTING OF PVC PIPE JOINTS IS PERMITTED. WHERE HIGH DEFLECTION COUPLINGS OR 5-DEGREE SWEEPS ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ONE FULL PIPE LENGTH (20-FOOT LONG) ON EITHER SIDE OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. THE CONTRACTOR SHALL USE A VIBRATORY PLATE COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #57 STONE ON BOTH SIDES OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP, TAKING CARE NOT TO USE COMPACTION EQUIPMENT DIRECTLY OVER THE FITTING.
- PVC HIGH DEFLECTION COUPLINGS SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (1 1/2- DEGREE ON EITHER END OF THE COUPLING), SHALL BE RATED FOR A MINIMUM 200 PSI MEETING THE REQUIREMENTS OF AWWA C900, SHALL HAVE A MINIMUM LAY LENGTH OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL. FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR 18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTIFITTINGS (IPEX) BLUE BRUTE DRIB OR EQUAL.
- WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C-900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICES FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAIN ENDS INTO THE PUSH ON BELL JOINT ON BOTH SIDES OF THE HIGH DEFLECTION COUPLINGS AND 5-DEGREE SWEEPS. BELL STOPS SHALL BE PLACED AT THE PROPER INSERTION LINE FOR THE FITTING. THE BELL STOP SHALL BE MANUFACTURED OF DUCTILE IRON AND INCORPORATES AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL



VICINITY MAP
SCALE: 1"=600'

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
01	G-01	TITLE SHEET, GENERAL NOTES AND INDEX
02	G-02	LEGEND, ABBREVIATIONS, AND FITTING SCHEDULES
03	G-03	SURVEY CONTROL AND STAKEOUT
04	C-01	WATER PLAN AND PROFILE
05	C-02	WATER PLAN AND PROFILE
06	C-03	FIRE HYDRANT PROFILE AND MISCELLANEOUS DETAILS
07	ES-N1	EROSION AND SEDIMENT CONTROL NOTES
08	ES-N2	EROSION AND SEDIMENT CONTROL NOTES
09	ES-01	EROSION AND SEDIMENT CONTROL PLAN
10	ES-02	EROSION AND SEDIMENT CONTROL PLAN
11	MT-01	MAINTENANCE OF TRAFFIC DETAILS
12	CP-01	CATHODIC PROTECTION PLAN
13	CP-02	CATHODIC PROTECTION PLAN
14	CP-03	CATHODIC PROTECTION DETAILS

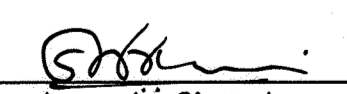
WATER ZONE - 630W
TEST GRADIENT - 460'
TEST PRESSURE - 200 PSI
TYPE OF BUILDINGS - N/A
NO. OF PARCELS - N/A
NO. OF WATER CONNECTIONS - N/A
NO. OF SEWER CONNECTIONS - N/A
DRAINAGE AREA - PATUXENT

PURPOSE STATEMENT:

THIS CONTRACT UPGRADES A PORTION OF EXISTING 12"W TO 16"W ALONG MARRIOTTSVILLE ROAD FROM ALBETH ROAD TO ALPHA RIDGE LANDFILL ENTRANCE ROAD. THIS WILL MAINTAIN SYSTEM RELIABILITY DURING FUTURE BUILD-OUT CONDITIONS.

OWNER/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 DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF 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: 12/21/2021

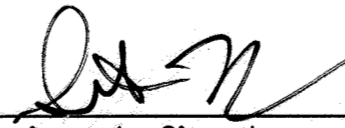
HOWARD COUNTY SCD BLOCK:

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

N.A. HOWARD SOIL CONSERVATION DISTRICT Date


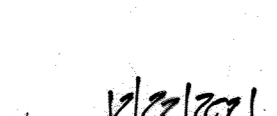
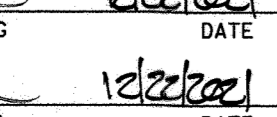
ENGINEER'S CERTIFICATION:

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.

Engineer's Signature:  Registration Number: 21350 Date: 12/20/21

AS BUILT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works:  Date: 12-22-21
Chief, Bureau of Engineering:  Date: 12/22/21
Chief, Utility Design Division:  Date: 12/22/21

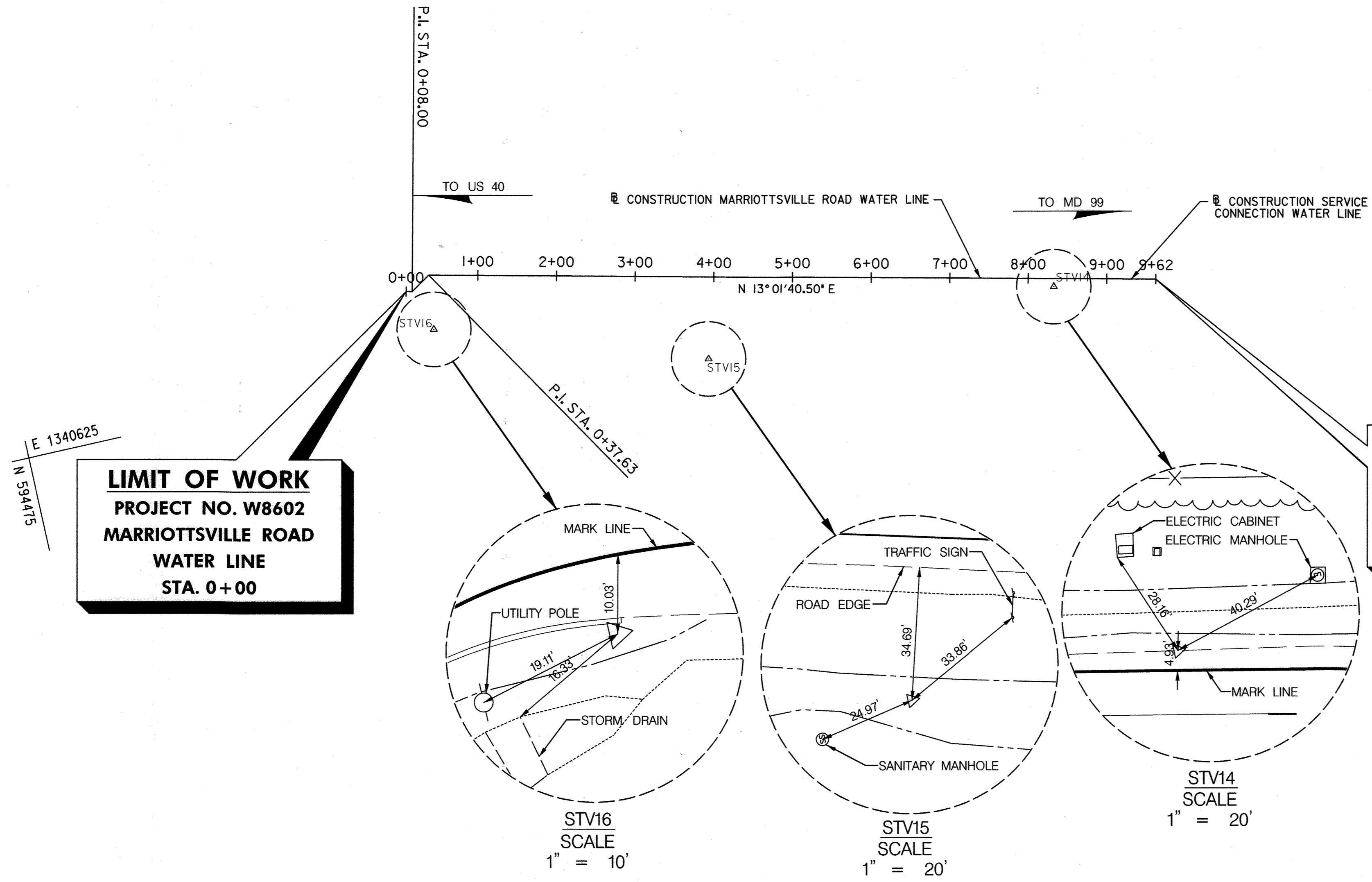
STV 100 Years
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Baltimore, Maryland 21244
www.stvinc.com

"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. 21350
EXPIRATION DATE: SEPTEMBER 20, 2022

DES. RYL	DRN. RYL	CHK. SRH	DATE: OCTOBER 2021	BY NO.	REVISION

100% SUBMISSION
DECEMBER 2021
TITLE SHEET, GENERAL NOTES, AND INDEX OF DRAWINGS
DATE: 600' SCALE MAP NO. 16 BLOCK NO.

PROJECT NO. W8602
CONTRACT NO. 44-5147 - PHASE 1
MARRIOTTSVILLE ROAD 16" WATER MAIN
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN
SHEET 01 OF 14



LIMIT OF WORK
PROJECT NO. W8602
MARRIOTTVILLE ROAD
WATER LINE
STA. 0+00

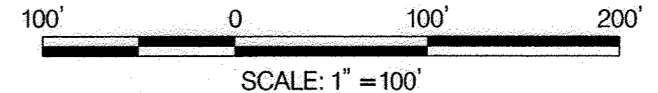
LIMIT OF WORK
PROJECT NO. W8602
MARRIOTTVILLE ROAD
WATER LINE
STA. 09+62

TRAVERSE POINTS				
POINT NO.	NORTH	EAST	ELEVATION	DESCRIPTION
STV14	595,794.5050	1,340,699.7361	473.91'	MAGN
STV15	595,346.2286	1,340,691.9631	464.46'	RC
STV16	595,013.5121	1,340,578.8392	444.14'	RC

BASELINE COORDINATES			
		NORTH	EAST
MARRIOTTVILLE ROAD WATER LINE			
P.O.B.	0+00.00	594,989.39	1,340,524.29
P.I.	0+08.00	594,997.18	1,340,526.09
P.I.	0+37.63	595,022.32	1,340,510.40
P.O.E.	9+62.38	595,923.27	1,340,718.87

WATERLINE STAKEOUT			
MARRIOTTVILLE RD WATERLINE		COORDINATES	
ITEM	STATION	NORTH	EAST
16" x 16" TAPPING SLEEVE & 16" VALVE	STA. 0+00.00	594,989.39	1,340,524.29
45° HORIZ BEND	STA. 0+08.00	594,997.18	1,340,526.09
22.5° VERT BEND	STA. 0+13.00	595,001.42	1,340,523.44
22.5° VERT BEND	STA. 0+20.83	595,008.07	1,340,519.30
45° HORIZ BEND	STA. 0+37.63	595,022.32	1,340,510.40
16" x 6" TEE & 6" VALVE	STA. 0+50.04	595,034.41	1,340,513.20
16" x 6" TEE & 6" VALVE	STA. 3+85.13	595,360.87	1,340,588.74
16" x 6" TEE & 6" VALVE	STA. 6+92.88	595,660.70	1,340,658.11
16" x 12" TEE	STA. 9+52.38	595,913.52	1,340,716.61
12 VALVE	STA. 9+52.38	595,913.07	1,340,718.56
12" x 12" TAPPING SLEEVE & 12" VALVE	STA. 9+52.38	595,909.71	1,340,733.09
22.5° VERT BEND	STA. 9+52.38	595,912.40	1,340,721.48
22.5° VERT BEND	STA. 9+52.38	595,910.98	1,340,727.59
16" VALVE	STA. 9+57.38	595,918.40	1,340,717.74
16" CAP	STA. 9+62.38	595,923.27	1,340,718.87

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. 21350, EXPIRATION DATE: SEPTEMBER 20, 2022.



AS BUILT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 12-22-21
 Chief, Bureau of Engineering: *[Signature]* 12-21-21
 Chief, Bureau of Utilities: *[Signature]* 12-22-21
 Chief, Utility Design Division: *[Signature]* 12/22/21

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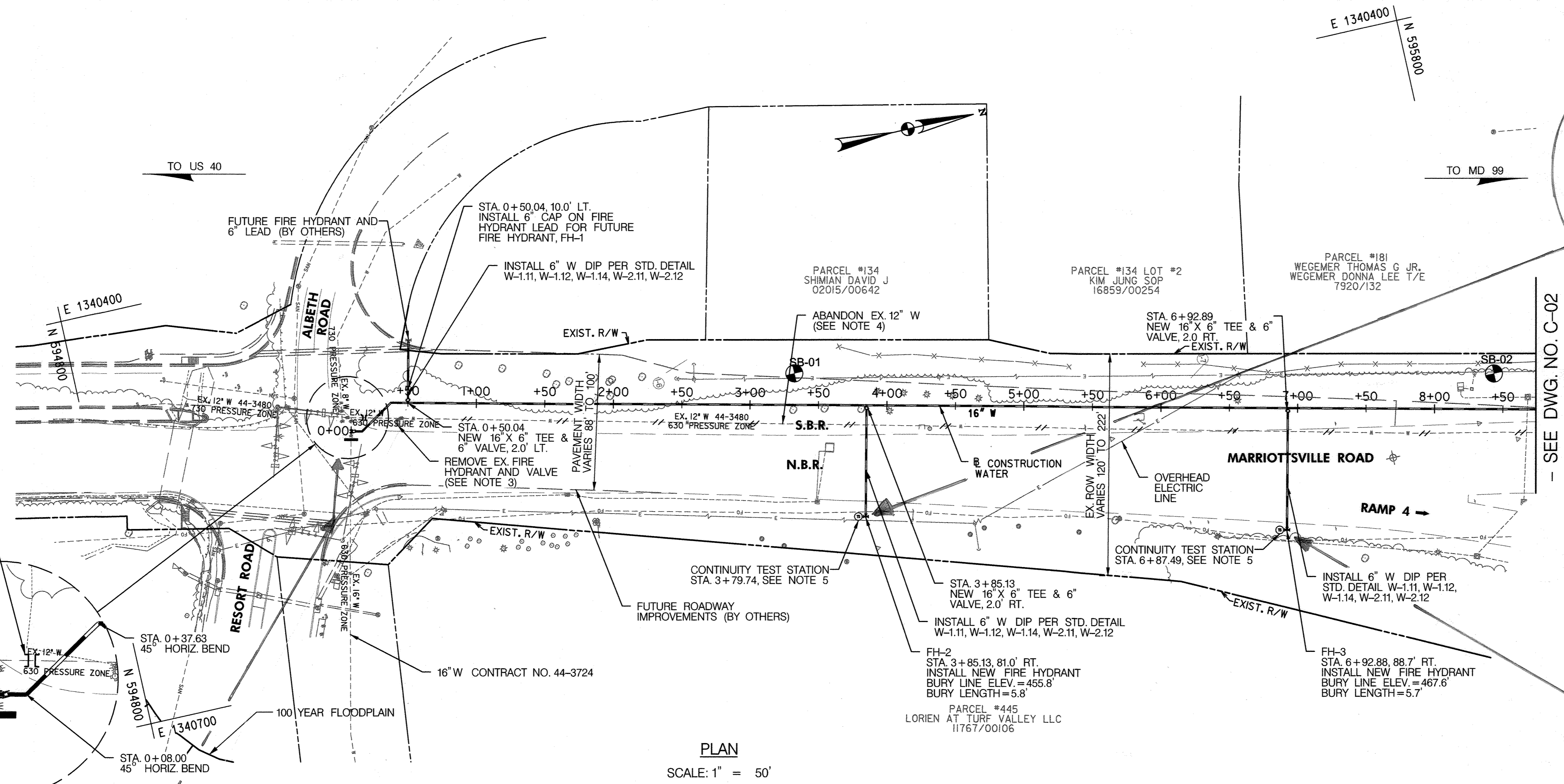
DESIGN	DATE	BY	NO.	REVISION
DESIGN	RYL			
DRN	RYL			
CHK	SRH			
DATE	OCTOBER 2021			

100% SUBMISSION
DECEMBER 2021
SURVEY CONTROL AND STAKEOUT

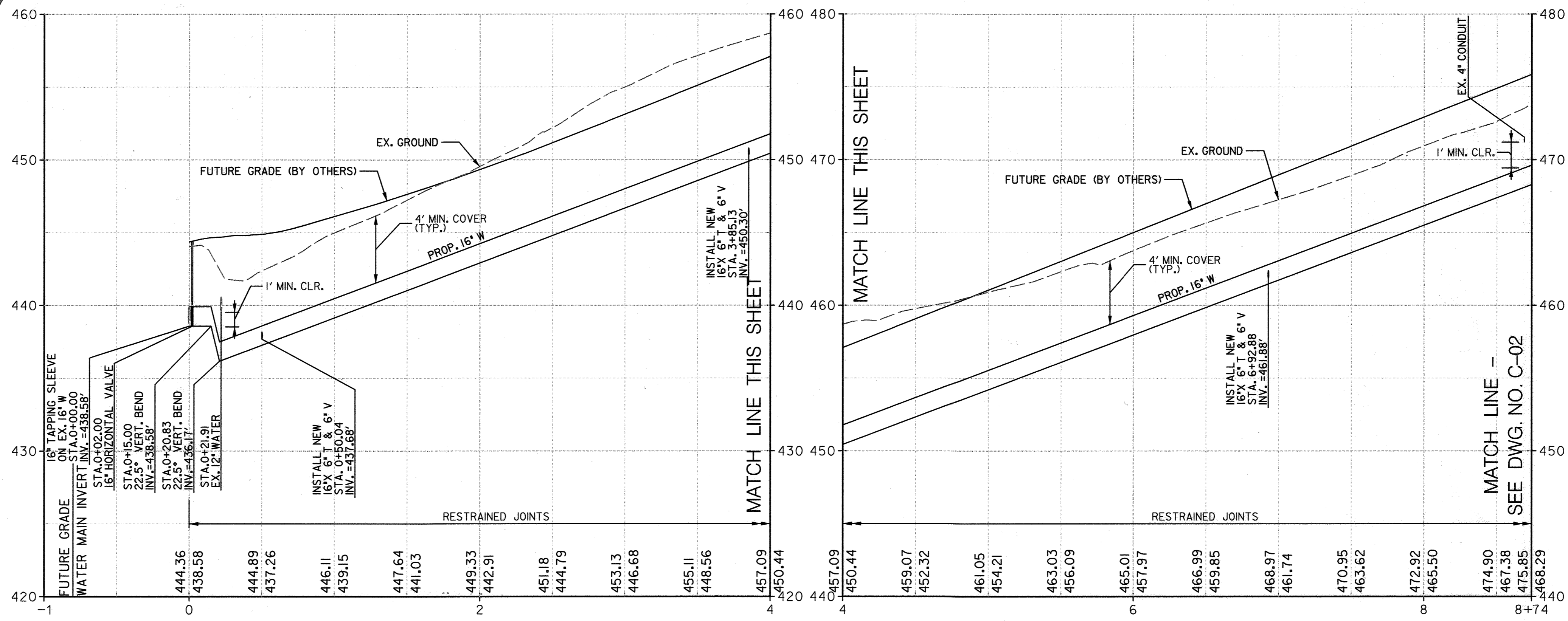
PROJECT NO. W8602
CONTRACT NO. 44-5147 - PHASE 1
MARRIOTTVILLE ROAD 16" WATER MAIN
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND

G-03
SCALE: AS SHOWN
SHEET 03 OF 14

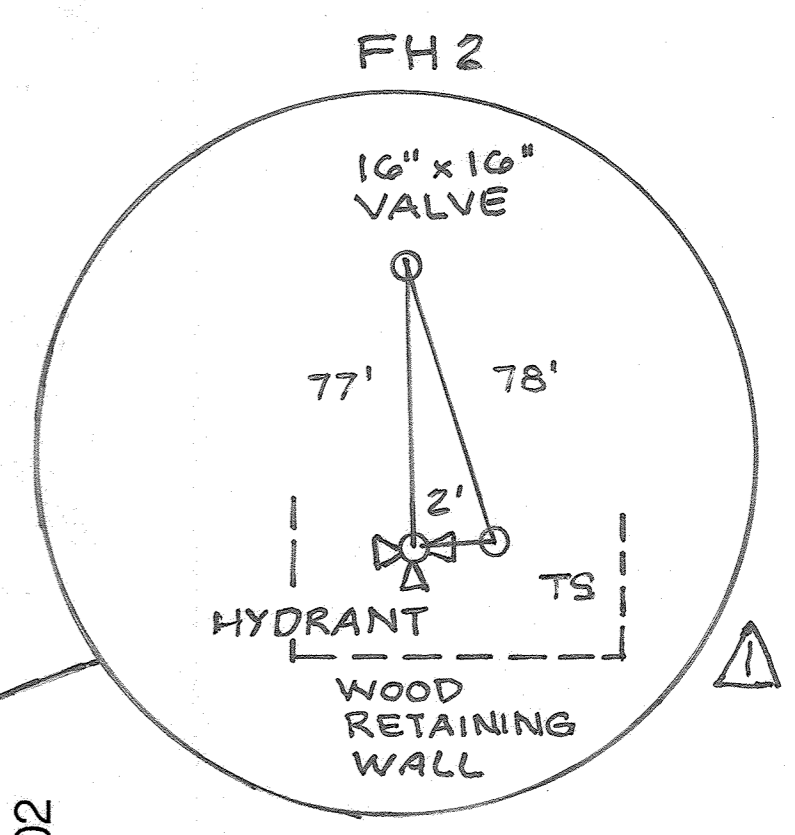
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PLAN
SCALE: 1" = 50'

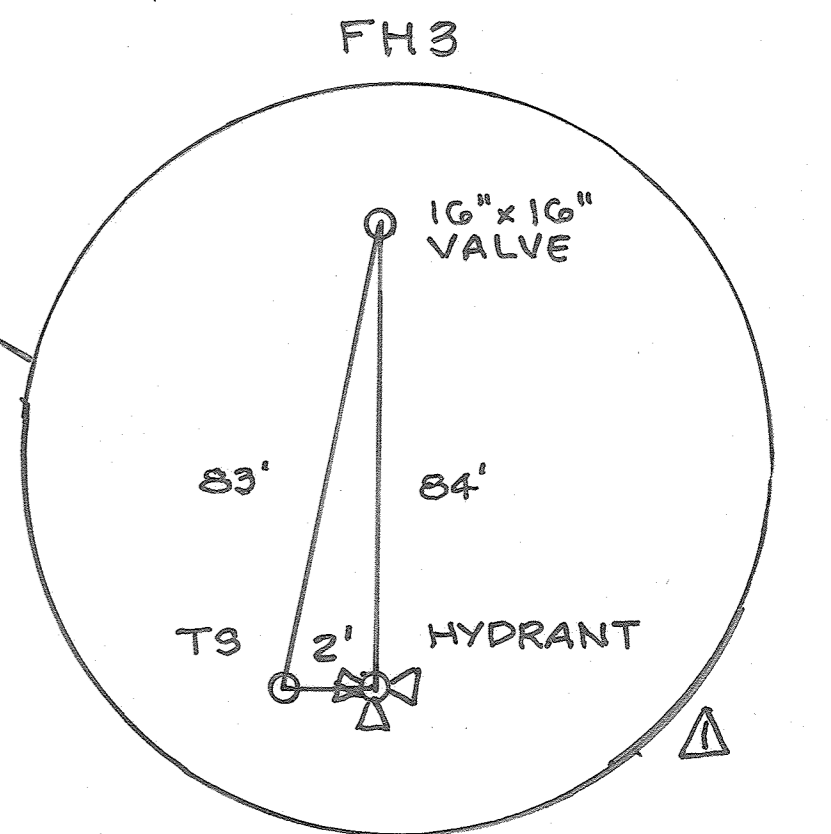


PROFILE - MARRIOTTVILLE ROAD WATER
SCALE: H: 1" = 50', V: 1" = 5'



BILL OF MATERIAL		
QTY.	DESCRIPTION	SIZE
180 L.F.	DIP (CL. 54)	6"
874 L.F.	DIP (CL. 54)	16"
2	45° HORIZ. BEND	16"
2	22.5° VERT. BEND	16"
2	FIRE HYDRANT	6"
3	VALVE	6"
3	TEE	16" X 6"
1	TAPPING SLEEVE	16" X 16"
1	HORIZONTAL VALVE	16"
1	THRUST BLOCK	10"
1	DOUBLE CAP, JACK & BUTTRESS	12"
1	CAP	6"

NOTES:
-SEE WATER PROFILE FOR EXTENT OF 16" RESTRAINED JOINTS.
-STA 0+00 TO 2+48 - CLASS 54 ZINC COATED DIP
-STA 2+48 TO 9+62 CLASS 56 DIP



NOTES:
1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE HOWARD COUNTY SOIL CONSERVATION DISTRICT APPROVED ESC PLANS.
2. DIP PIPE SHALL BE CLASS 56, WRAPPED IN V-BIO POLYETHYLENE, OR APPROVED EQUAL.
3. EXISTING HYDRANTS TO REMAIN IN SERVICE UNTIL NEW HYDRANTS ARE IN SERVICE.
4. ABANDONED 12" WATER MAIN TO BE GROUTED ACCORDING TO STANDARD SPECIFICATIONS 902.16
5. REFER TO HOWARD COUNTY DETAIL G-8.21 AND W-1.15.

STA 0+10.00 OFFSET 6' LT. INSTALL DOUBLE CAP, JACK AND BUTTRESS ON EXISTING 12" WATER LINE. ABANDON THE EX. 12" WATER LINE NORTH OF THE CAP TO STA. 9+62.38. SEE CAP, JACK AND BUTTRESS DETAIL ON SHEET C-04.

EXISTING 12" RESILIENT SEAT DIVISION VALVE

CONTRACT NO. 24-3447

EXISTING 8" VALVE

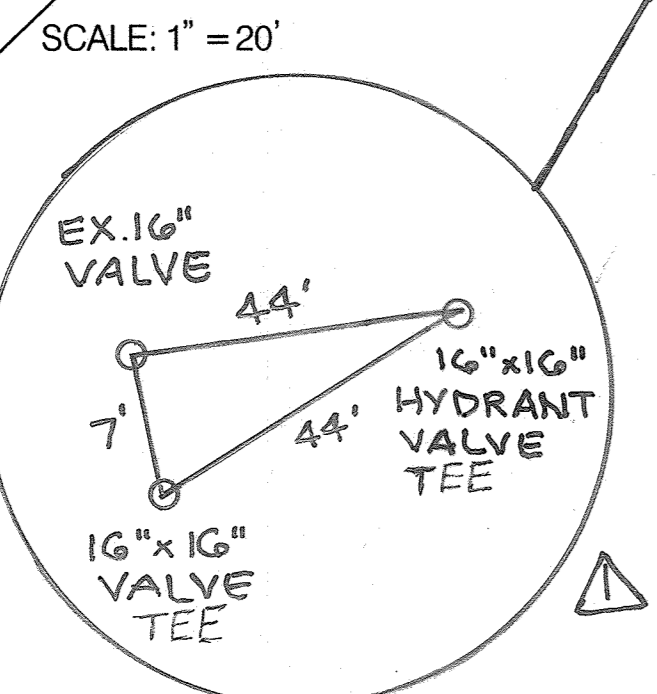
EXISTING 8" VALVE

STA 0+00.00 7.4' LT. EXISTING 16" VALVE TO REMAIN

STA 0+00.00 NEW 16" X 16" TAPPING SLEEVE AND BUTTRESS (PER STD DETAIL W-2.23). INSTALL NEW 16" HORIZONTAL V SEE DETAIL G-8.01

STA 0+00.00 6.0' RT. INSTALL NEW THRUST BLOCK PER STD. DETAIL G-8.13. SEE THRUST BLOCK NOTES.

EXISTING 16" W, CONTRACT NO. 44-3724



SCALE: 1" = 20'

THRUST BLOCK NOTES:

- L=8'-0"; H=6'-0"; T=1'-6"
- CONTRACTOR TO VERIFY NO UNRESTRAINED JOINTS BETWEEN THRUST BLOCK AND NEW FITTING.
- MEGALUG SERIES 1100SDB (OR APPROVED EQUAL) MAY BE USED FOR MID SPAN PIPE RESTRAINT IN LIEU OF THRUST RING.

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. 21350, EXPIRATION DATE: SEPTEMBER 20, 2022.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

12-22-21
12-21-21
12-22-21
12-22-21

CHIEF, BUREAU OF ENGINEERING
CHIEF, UTILITY DESIGN DIVISION

SRK

STV 100 Years
STV
7125 Ambassador Road, Suite 200
Baltimore, Maryland 21244
www.stvinc.com

DES: RYL
DRN: RYL
CHK: SRH
DATE: OCTOBER 2021

100% SUBMISSION
DECEMBER 2021

WATER PLAN AND PROFILE

AS BUILT

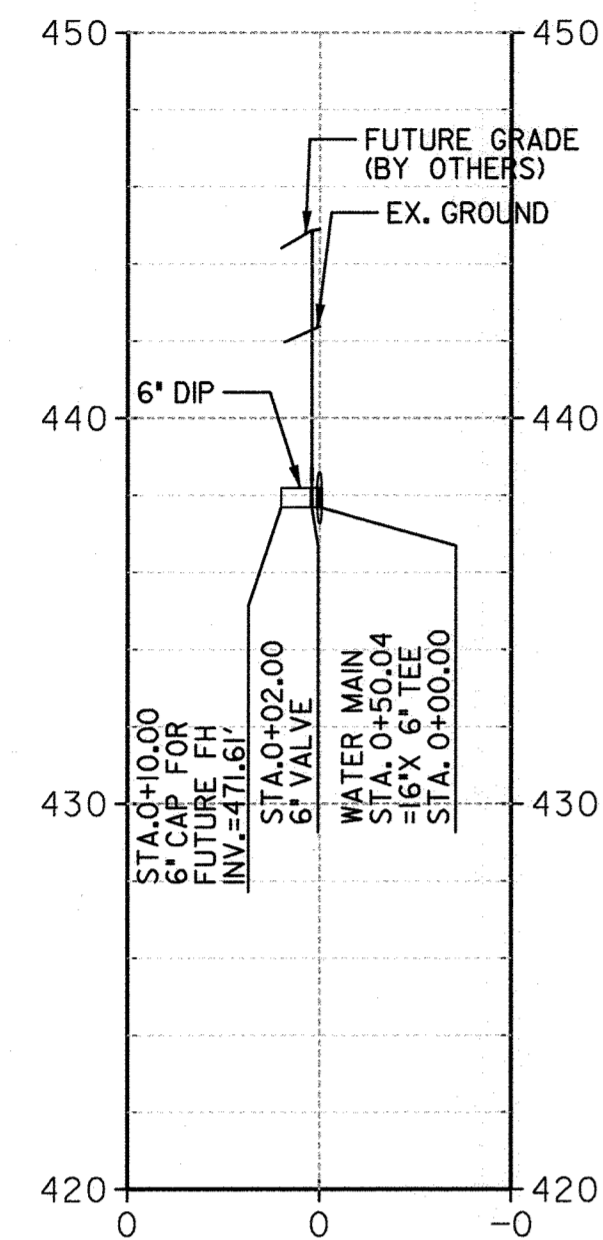
PROJECT NO. W8602
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MARRIOTTVILLE ROAD 16" WATER MAIN

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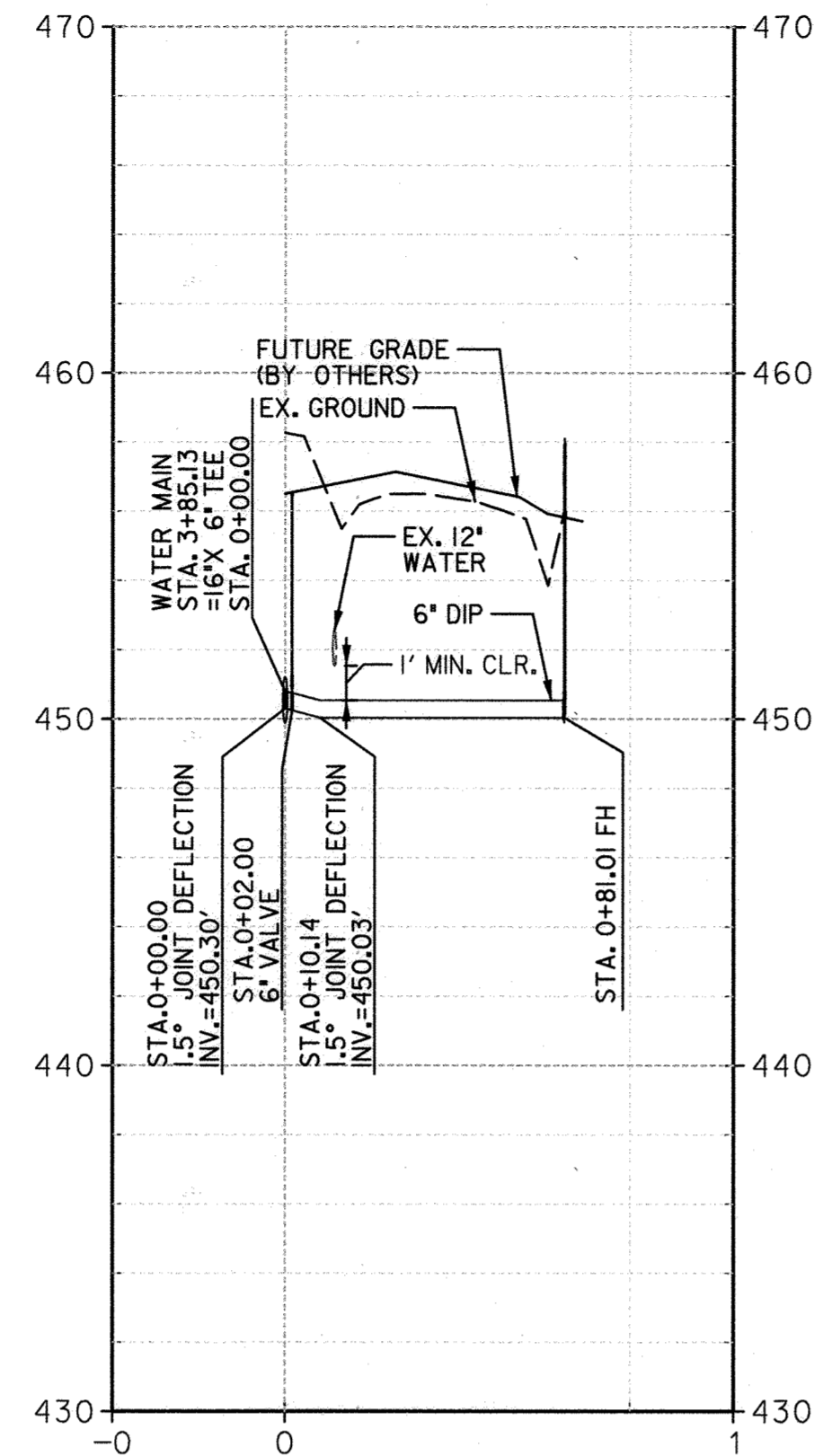
SCALE: 1" = 50'

SHEET 04 OF 14



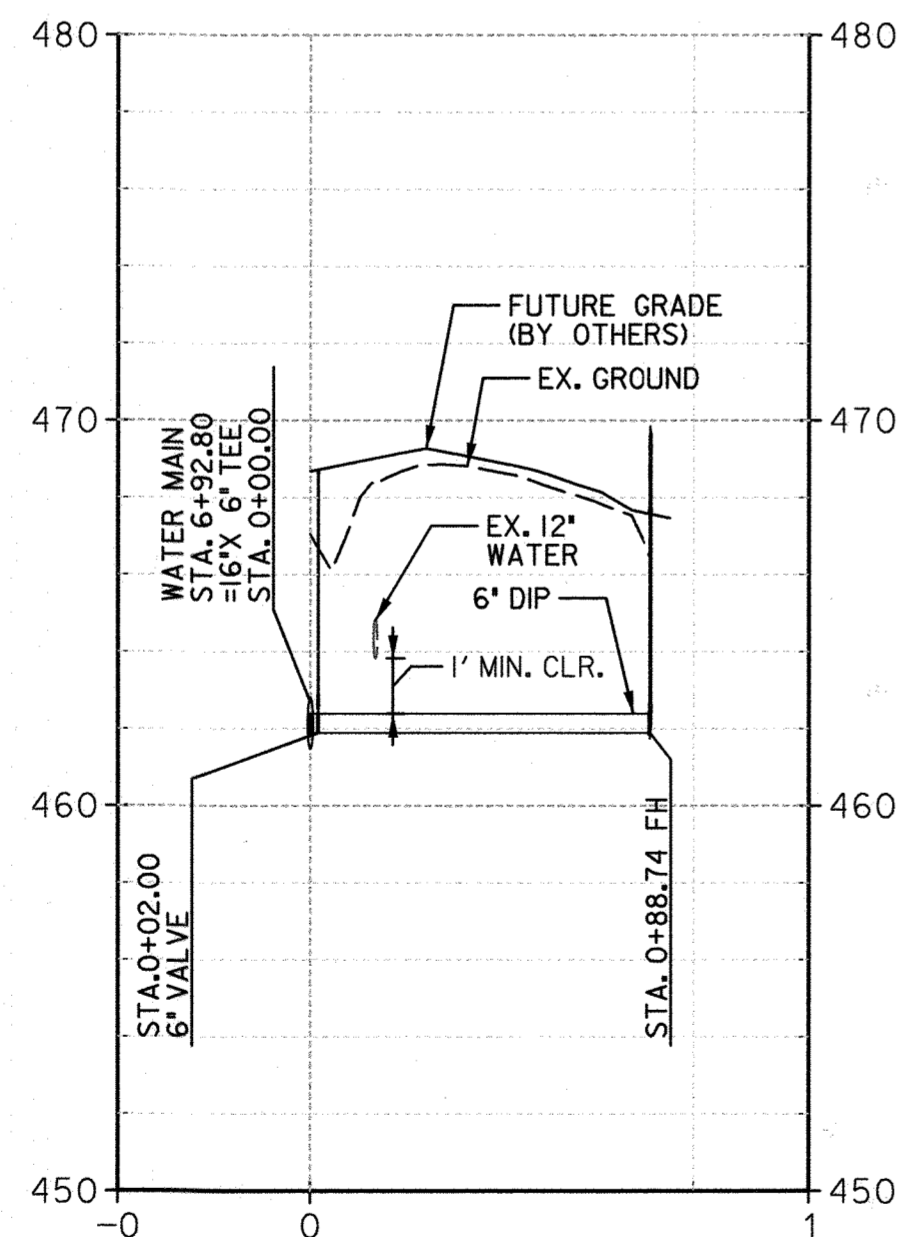
MARRIOTTSVILLE ROAD FIRE HYDRANT, FH-1 STA. 0+50.04

SCALE
H: 1" = 50'
V: 1" = 5'



MARRIOTTSVILLE ROAD FIRE HYDRANT, FH-2 STA. 3+85.13

SCALE
H: 1" = 50'
V: 1" = 5'



MARRIOTTSVILLE ROAD FIRE HYDRANT, FH-3 STA. 6+92.88

SCALE
H: 1" = 50'
V: 1" = 5'

PROFESSIONAL CERTIFICATION

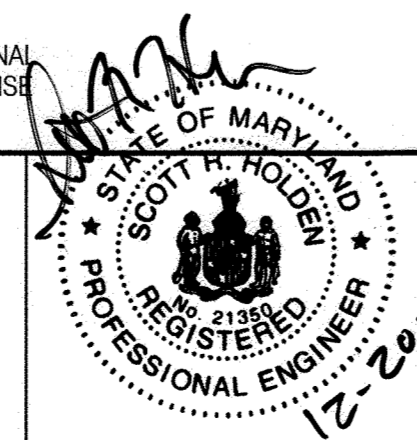
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

12-22-21
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BY: NDL	
REVISION	

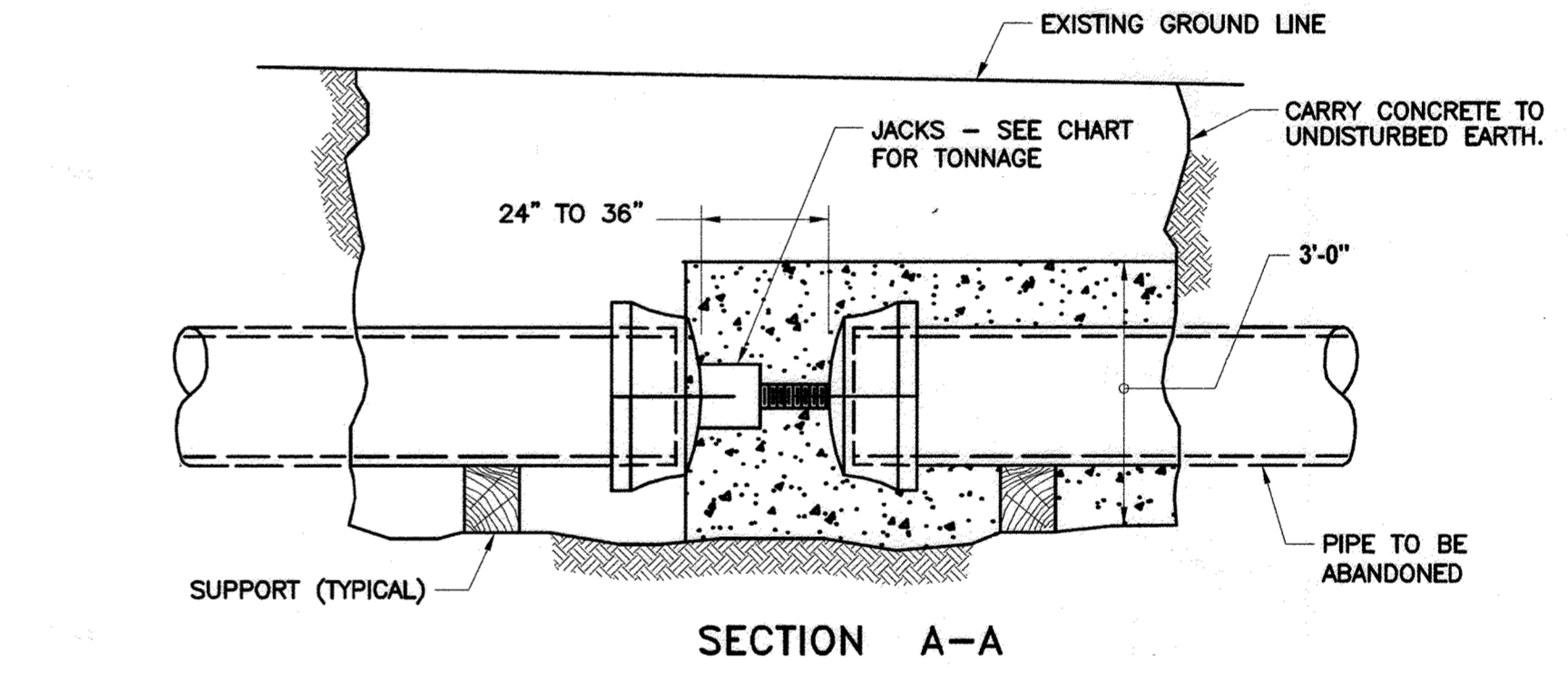
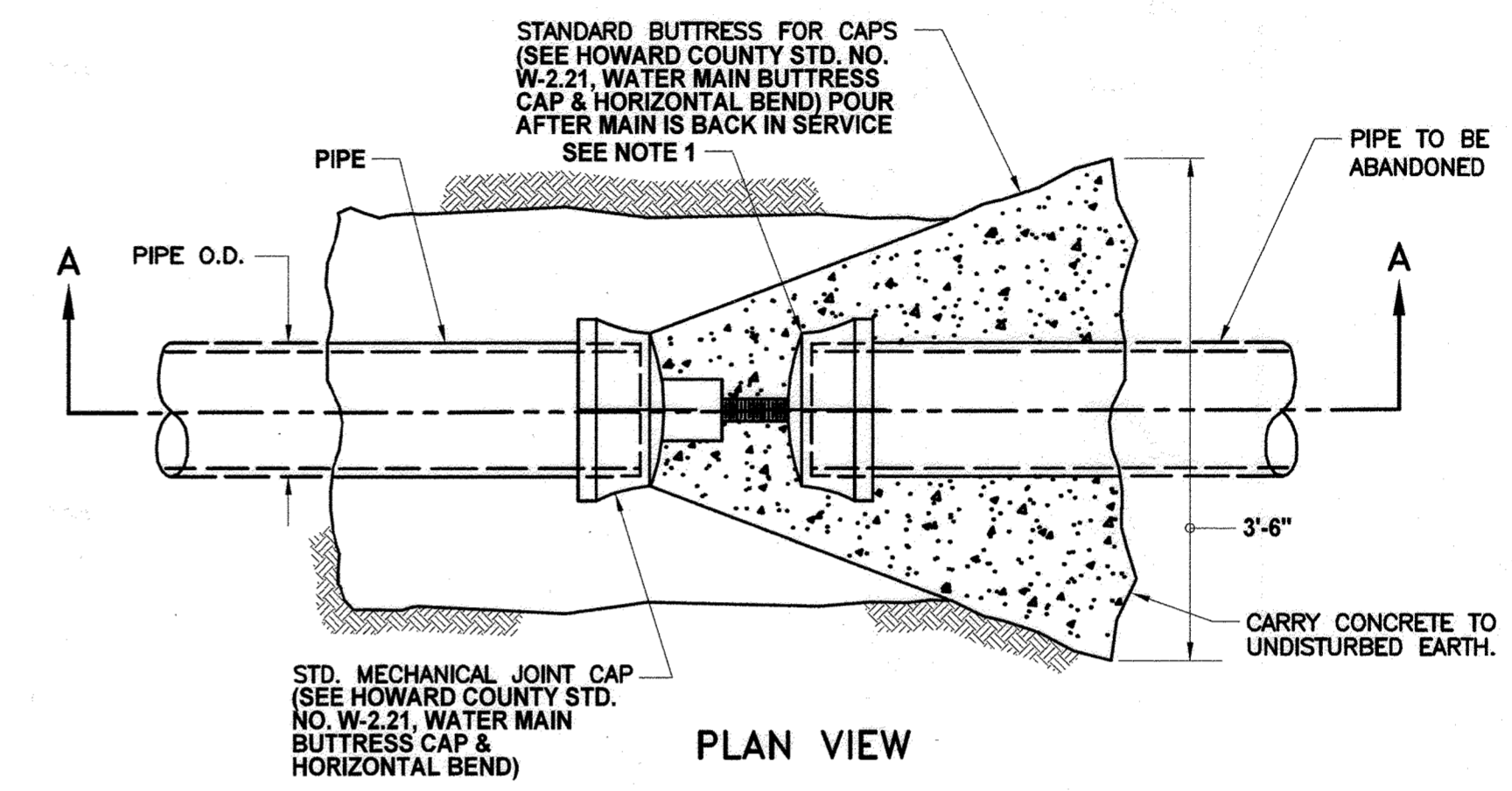
100% SUBMISSION
FIRE HYDRANT PROFILES
AND MISCELLANEOUS
DETAILS
DECEMBER 2021

AS BUILT

PROJECT NO. W8602
CONTRACT NO. 44-5147 - PHASE 1
MARRIOTTSVILLE ROAD 16" WATER MAIN

ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND

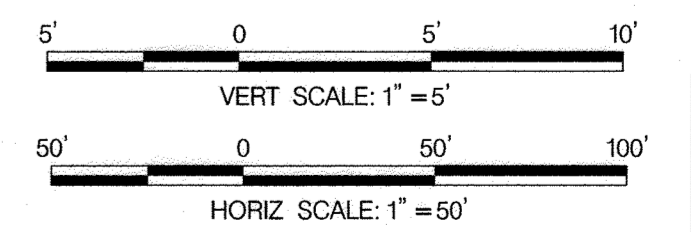
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1"=50'
SHEET
06 OF 14



- NOTES:**
- GLANDS, BOLTS AND GASKETS NOT REQUIRED ON THIS CAP UNLESS LEAKAGE IS PRESENT IN ABANDONED PIPE. FOR CAP DIAMETER >12", JACK LOAD WITH BLOCKING ON CAPS.
 - O.D. MEASURED IN INCHES.
 - IN LIEU OF JACK, STEEL BLOCKING OF SAME CAPACITY MAY BE USED.
 - SURGE PRESSURE FOR PIPELINE DIAMETER 12 TO 14 INCHES IS 110 LB/IN²

JACK TONNAGE CHART	
JACK TONNAGE AT 100 PSI	$\frac{O.D.^2}{25}$ TONS
JACK TONNAGE AT 150 PSI	$\frac{O.D.^2}{16}$ TONS
JACK TONNAGE AT 200 PSI	$\frac{O.D.^2}{12}$ TONS

CAP, JACK AND BUTTRESS DETAIL
N.T.S.

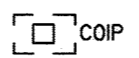
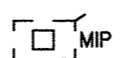
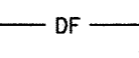
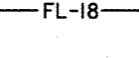
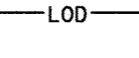

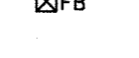
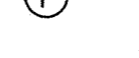










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STANDARD SEDIMENT CONTROL NOTES

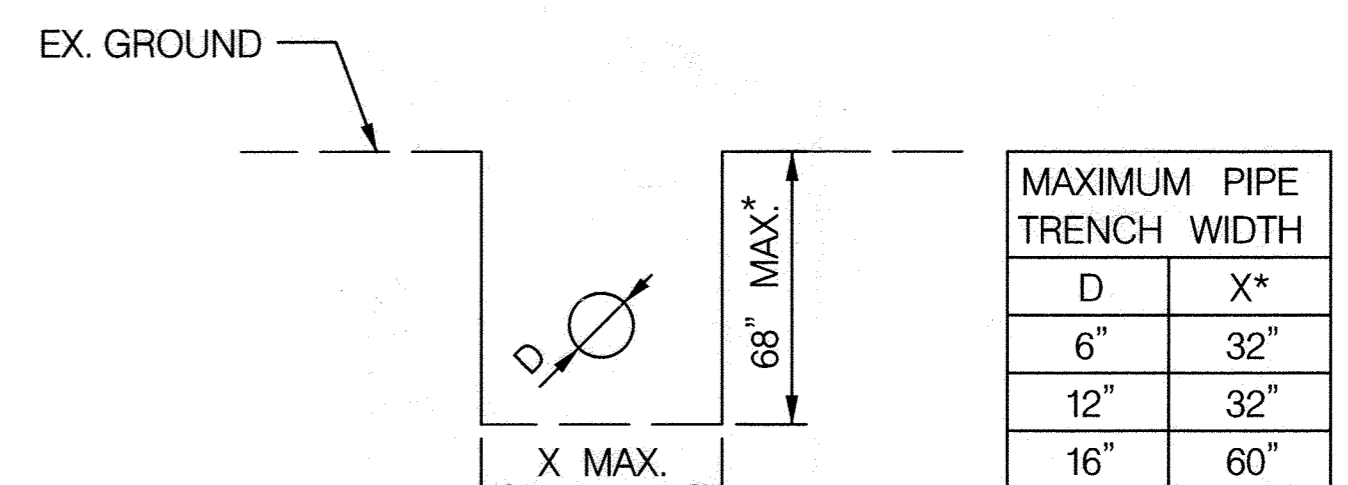
- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR 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.
 OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
- 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.
- 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.
- 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).
- 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.
- SITE ANALYSIS:
 TOTAL AREA OF SITE: 3.49 ACRES
 AREA DISTURBED: 0.10 ACRES
 AREA TO BE ROOFED OR PAVED: 0.02 ACRES
 AREA TO BE VEGETATIVELY STABILIZED: 0.08 ACRES
 TOTAL CUT: 915 CU. YDS.
 TOTAL FILL: CU. YDS.
 OFFSITE WASTE/BORROW AREA LOCATION: TBD BY CONTRACTOR
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 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).
- 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.
- 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.
- 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 HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UP HILL BY 2' IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
 - USE I AND IP MARCH 1 - JUNE 15
 - USE III AND IIP OCTOBER 1 - APRIL 30
 - USE IV MARCH 1 - MAY 31
- 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.

STANDARD SYMBOLS

- COMBINATION INLET PROTECTION 
- MEDIAN INLET PROTECTION 
- DIVERSION FENCE 
- FILTER LOG  DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG.
- LIMIT OF DISTURBANCE 
- ROCK OUTLET PROTECTION II 
- FILTER BAG 
- PUMP 
- SANDBAG DIKE 
- STABILIZED CONSTRUCTION ENTRANCE 
- TEMPORARY GABION OUTLET STRUCTURE 
- TEMPORARY STONE OUTLET STRUCTURE 
- EARTH DIKE 
- EXISTING CONTOURS  - 100 -
- PROPOSED CONTOURS  100
- DRAINAGE BOUNDARY  DA

SEQUENCE OF CONSTRUCTION

- CONDUCT A PRE-CONSTRUCTION MEETING AS DESCRIBED IN THE STANDARD SEDIMENT CONTROL NOTES (THIS SHEET).
- INSTALL EROSION AND SEDIMENT CONTROL DEVICES REQUIRED BY EROSION AND SEDIMENT CONTROL INSPECTOR.
- FOLLOWING APPROVAL OF EROSION AND SEDIMENT CONTROL INSPECTOR, SAWCUT EXISTING PAVEMENT AND EXCAVATE TO INSTALL NEW THRUST BLOCK ON THE EXISTING 16" WATERLINE, STA. 0+00, 6' RT AS SHOWN ON THE CONTRACT DRAWINGS. SAWCUT EXISTING PAVEMENT AND EXCAVATE AT STA. 0+00 TO INSTALL 16"x16" TAPPING SLEEVE, VALVE AND BUTTRESS. ROADWAY THAT CANNOT BE BACKFILLED AND STABILIZED TO SUPPORT VEHICULAR TRAFFIC AT THE END OF EACH WORKDAY SHALL BE STEEL PLATED.
- SAWCUT EXISTING PAVEMENT AND EXCAVATE AT WATERLINE APPROX. STA. 9+52, 17' RT TO INSTALL 12"x12" TAPPING SLEEVE, VALVE AND BUTTRESS. INSTALL NEW THRUST BLOCK ON THE EXISTING 12" WATERLINE APPROX. STA. 9+62, 17' RT AS SHOWN ON THE CONTRACT DRAWINGS. ROADWAY THAT CANNOT BE BACKFILLED AND STABILIZED TO SUPPORT VEHICULAR TRAFFIC AT THE END OF EACH WORKDAY SHALL BE STEEL PLATED.
- CONTINUE TRENCH EXCAVATION NECESSARY TO INSTALL REMAINDER OF 16" WATERLINE, VALVES, T'S AND ASSOCIATED CORROSION PROTECTION MEASURES FROM STA. 0+00 TO APPROX. STA. 9+52.
- INSTALL 16"x12" T, 12" VALVE AND 12" LATERAL TO PREVIOUSLY INSTALLED TAPPING SLEEVE AT STA. 9+52, 16' RT.
- EXTEND 16" PIPE TO STA. 9+62 AND CAP AND BUTTRESS FOR FUTURE EXTENSION.
- INSTALL ALL HYDRANTS, VALVES AND LATERAL LEADS AS SHOWN ON THE CONTRACT DOCUMENTS.
- UPON COMPLETION OF ALL WATERLINE INSTALLATION PRESSURE TEST AND CHLORINATE NEW 16" PIPE.
- UPON SUCCESSFUL TESTING, OPEN 16" VALVE STA. 0+00 AND 12" VALVE STA. 9+52. CLOSE 16" VALVE STA. 0+00, 8' LT AND 12" VALVE STA. 9+42, 17' RT AND EXCAVATE FOR THE INSTALLATION OF DOUBLE CAP AND BUTTRESS ON EXISTING 12" PIPE STA. 0+10, 6' LT AND STA. 9+32, 17' RT.
- REMOVE STEEL PLATES AND RESTORE ALL ROADWAY TRENCH CUTS WITH AGGREGATE BASE AND ASPHALT PER STD DETAIL G-4.01.
- ALL DISTURBED AREAS SHALL BE BACKFILLED AND STABILIZED AT THE END OF A WORKDAY. IF AN AREA CANNOT BE STABILIZED AT THE END OF A WORKDAY, THE CONTRACTOR SHALL INSTALL MDE APPROVED EROSION AND SEDIMENT CONTROL MEASURES.
- WITH THE APPROVAL OF THE E&S INSPECTOR, REMOVE ANY REMAINING E&S DEVICES.



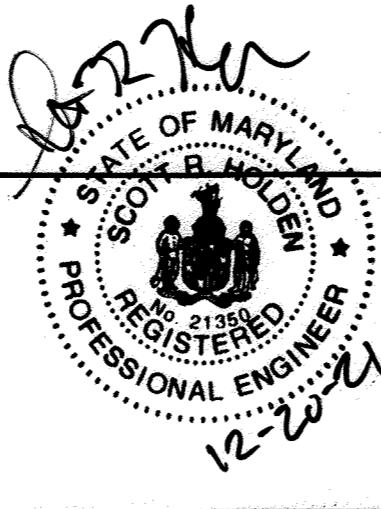
NOTE:
 1. REFER TO HOWARD COUNTY STANDARD DETAIL G-2.11 FOR PIPE TRENCH REQUIREMENTS.

* MAXIMUM VALUES PROVIDED ARE INTENDED FOR EROSION AND SEDIMENT CONTROL PURPOSES ONLY. TRENCH WIDTH / DEPTH MAY BE LESS BASED ON STD DETAIL G-2.11

PIPE TRENCH DETAIL
 N.T.S.

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. 21350, EXPIRATION DATE: SEPTEMBER 20, 2022.



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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 12-22-21
 DIRECTOR OF PUBLIC WORKS DATE

[Signature] 12-22-21
 CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12-22-21
 CHIEF, UTILITY DESIGN DIVISION DATE

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DRN: RYL			
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DATE: OCTOBER 2021	BY: NO.	REVISION	DATE

100% SUBMISSION DECEMBER 2021

EROSION AND SEDIMENT CONTROL NOTES

600' SCALE MAP NO. S.16. & W.16 BLOCK NO. 9. & 10

AS BUILT

PROJECT NO. W8602
 CONTRACT NO. 44-5147 - PHASE 1
MARRIOTTSVILLE ROAD 16" WATER MAIN

ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

ES-NI

SCALE: NTS

SHEET 07 OF 14

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

PERMANENT SEEDING SUMMARY

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY 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 6 MONTHS OR MORE.

CRITERIA

A. SEEDING MIXTURES

1. 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 1/2 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 RATE: 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 1/2 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. THE 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 ZONE: 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 1/2" 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 (1/2 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.

NO.	SPECIES	HARDINESS ZONE: 7a SEED MIXTURE: AS SHOWN BELOW			FERTILIZER RATE (10-20-20)			LIME RATE
		APPLICATION RATE(LB./AC.)	SEEDING DATES	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O	
1	Tall Fescue	100	March 1 to May 15	1/4-1/2 in	45 POUNDS PER ACRE (1.0 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
2	Tall Fescue	60	August 15 to October 15	1/4-1/2 in				
3	Creeping Red Fescue Chewings Fescue Kentucky Bluegrass	30 30 20		1/4-1/2 in				

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

1. GENERAL SPECIFICATIONS

- a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- b. SOD MUST NOT BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
- c. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
- d. SOD MUST BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- e. SOD MUST NOT BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

- a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
- b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
- c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- d. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

- a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

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.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 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.1 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 PRESCRIBED IN SECTION B-4-3.A.1.b AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

NO.	SPECIES	HARDINESS ZONE: 7a SEED MIXTURE: AS SHOWN BELOW		SEEDING DEPTHS	FERTILIZER RATE (10-20-20)	LIME RATE
		APPLICATION RATE(LB./AC.)	SEEDING DATES			
1	Annual Ryegrass	40	Feb 15 to Apr 30 and Aug 15 to Nov 30	1/2 IN	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
2	Foxtail Millet	30	May 1 to Aug 14	1/2 IN		
3	Pearl Millet	20	May 1 to Aug 14	1/2 IN		

TABLE B.1 - TEMPORARY SEEDING FOR SITE STABILIZATION

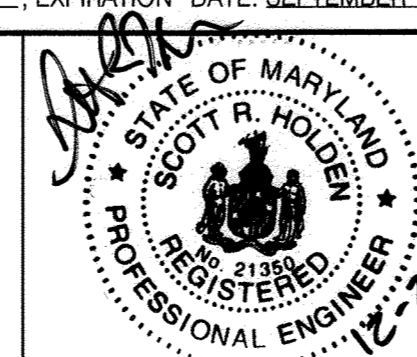
PLANT SPECIES	SEEDING RATE ^{1/}		SEEDING DEPTH (INCHES)	RECOMMENDED SEEDING DATES BY PLANT HARDINESS ZONE ^{2/}		
	LB /AC	LB / 1000 FT ²		5b AND 6a	6b	7a AND 7b
COOL-SEASON GRASSES						
ANNUAL RYEGRASS (LOLIUM PERENNE SSP. MULTIFLORUM)	40	1.0	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
BARLEY (HORDEUM VULGARE)	96	2.2	1.0	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
OATS (AVENA SATIVA)	72	1.7	1.0	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
WHEAT (TRITICUM AESTIVUM)	120	2.8	1.0	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
CEREAL RYE (SECALE CEREALE)	112	2.8	1.0	MAR 15 TO MAY 31; AUG 1 TO OCT 31	MAR 1 TO MAY 15; AUG 1 TO NOV 15	FEB 15 TO APR 30; AUG 15 TO DEC 30
WARM SEASON GRASSES						
FOXTAIL MILLET (SETARIA ITALICA)	30	0.7	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14
PEARL MILLET (PENNISETUM GLAUCUM)	20	0.5	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14

NOTES

- 1/ SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL SEASON GRASSES.
- SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS, AND WHEAT. FOR SMALLER-SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET), DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS. CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE.
- OATS ARE THE RECOMMENDED NURSE CROP FOR WARM-SEASON GRASSES.
- 2/ FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.
- 3/ THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR BOUNDARIES OF THE ZONE.

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. 21350, EXPIRATION DATE: SEPTEMBER 20, 2022



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

12-22-21 DATE
 12-22-21 DATE

CHIEF, BUREAU OF UTILITIES
 CHIEF, UTILITY DESIGN DIVISION

100% SUBMISSION DECEMBER 2021

EROSION AND SEDIMENT CONTROL NOTES

DATE: OCTOBER 2021

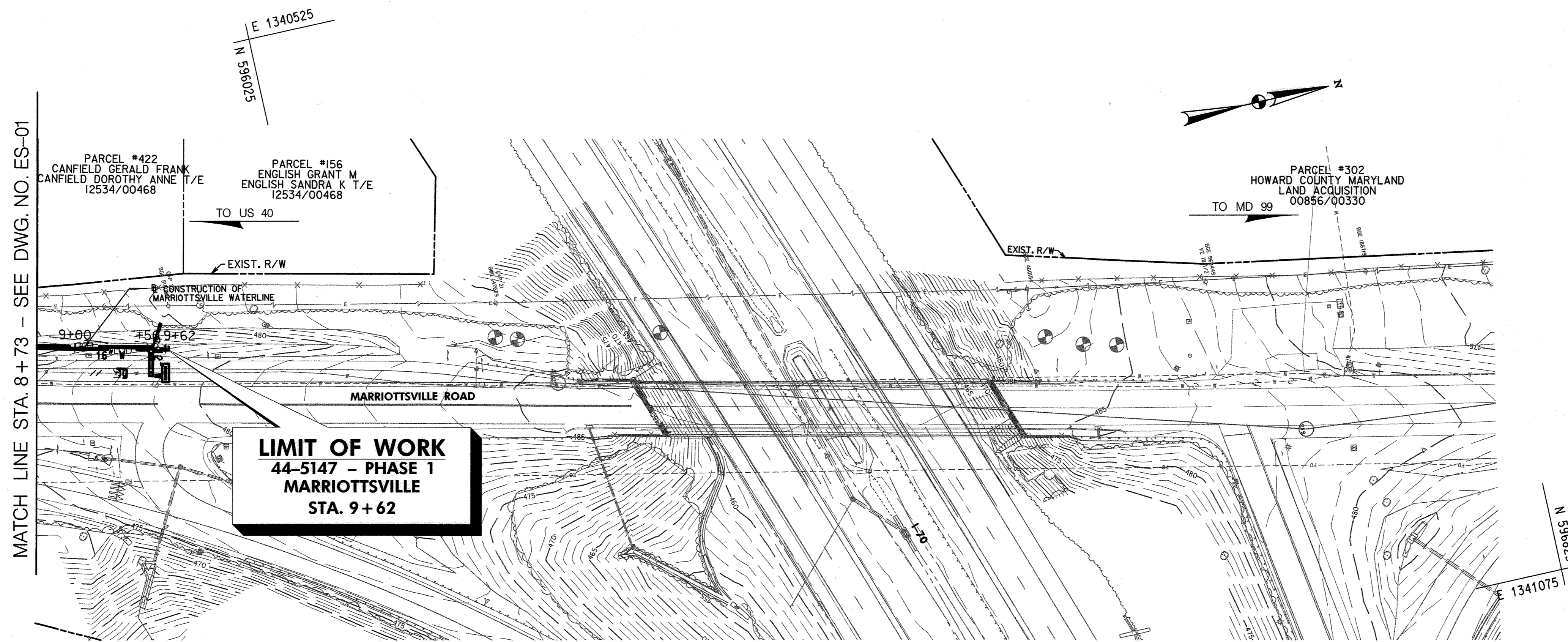
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PROJECT NO. W8602
 CONTRACT NO. 44-5147 - PHASE 1
MARRIOTTSVILLE ROAD 16" WATER MAIN

ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

ES-N2
 SCALE: NTS
 SHEET 08 OF 14

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GENERAL NOTES

I. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO (SEE STANDARD SEDIMENT CONTROL NOTE #2).

SAME DAY STABILIZATION NOTE

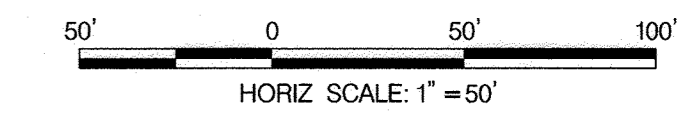
I. THE WORK SHOWN IN THIS AREA SHALL BE COMPLETED USING SAME-DAY-STABILIZATION. NO MORE AREA SHALL BE DISTURBED THAN CAN BE STABILIZED IN THE SAME DAY UNLESS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE. ALL WATER REMOVED FROM EXCAVATED AREAS SHALL BE PASSED THROUGH AN MDE APPROVED DEWATERING PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE TO A FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE.

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. 21350, EXPIRATION DATE: SEPTEMBER 20, 2022.

LEGEND

— LOD — LIMIT-OF-DISTURBANCE



AS BUILT

ES-02

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 12.22.21
 Chief, Bureau of Engineering: *[Signature]* 12-21-21
 Chief, Bureau of Utilities: *[Signature]* 11-22-21
 Chief, Utility Design Division: *[Signature]* 12/22/21

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DES: RYL	
DRN: RYL	
CHK: SRH	
DATE: OCTOBER 2021	
BY NO.	
REVISION	

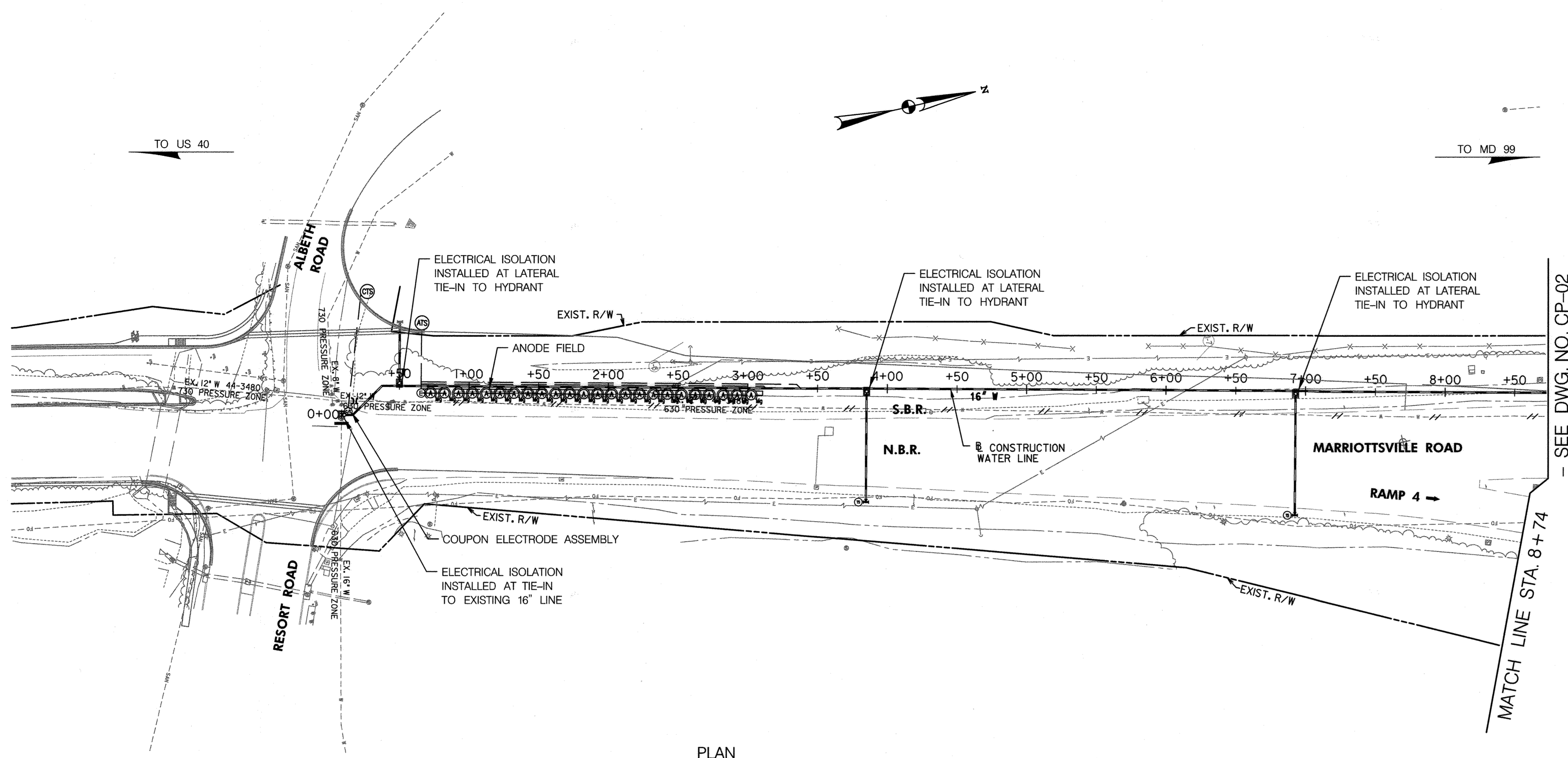
100% SUBMISSION
 DECEMBER 2021
EROSION AND SEDIMENT CONTROL PLAN
 600' SCALE MAP NO. S.16 & W.16 BLOCK NO. 9 & 10

PROJECT NO. W8602
CONTRACT NO. 44-5147 - PHASE 1
MARRIOTTSVILLE ROAD 16" WATER MAIN
 ELECTION DISTRICT NO. 3
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 10 OF 14

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CATHODIC PROTECTION LEGEND	
⊙	ANODE TEST STATION
⊕	COUPON TEST STATION
⊗	COUPON REFERENCE ELECTRODE
⊙	CU/CUSO4 REFERENCE ELECTRODE
⊕	MAGNESIUM ANODE
■	ELECTRICAL ISOLATION



PLAN
SCALE: 1" = 50'

NOTES:

1. ALL ANODES SHALL BE TYPE 40 S3, CONSISTING OF MAGNESIUM TYPE ANODES WITH A PACKAGE WEIGHT OF APPROXIMATELY 40 LBS.
2. EACH ANODE TEST STATION (ATS) SHALL CONSIST OF THE NUMBER OF ANODES AS ILLUSTRATED, AND INSTALLED IN ACCORDANCE WITH HO CO STD C-2.02 (TEST STATION PREPACKAGED ANODES).
3. ALL DUCTILE IRON PIPE (DIP) JOINTS SHALL HAVE A MINIMUM OF TWO (2) #8 HMWPE BOND CABLES. BOND CABLES SHALL BE EXOTHERMICALLY WELDED; ONE (1) WELD ON EACH SIDE OF PIPE JOINT PER BOND CABLES. ALL BONDING SHALL BE PER HO CO STD C-3.01 (BONDING JOINTS) DETAIL.
4. ISOLATION SHALL BE INSTALLED AT ALL TIE-INS TO EXISTING AND ALL HYDRANT LATERALS AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH HO CO STD C-4.01 (INSULATOR FLANGE).
5. COUPON/REFERENCE ELECTRODE ASSEMBLIES SHALL BE TYPE EDIUC-1 MODEL *UCIB-ZIN-50 OR APPROVED EQUAL. INSTALLATION OF COUPON/REFERENCE ASSEMBLY SHALL BE NO GREATER THAN EIGHTEEN INCHES, THAN NINE INCHES AWAY FROM AND PERPENDICULAR TO PIPE SPRING LINE.
6. COUPON TEST STATIONS SHALL ALSO CONSIST OF INDEPENDENT STRUCTURE WIRES; (TWO EACH) CONSISTING OF A SINGLE #8 HMWPE AND A SINGLE #10 THWN WIRE EXOTHERMICALLY WELDED.
7. SPLICE ANODE WIRE TO ANODE HEADER CABLE IN ACCORDANCE WITH HO CO STD C-1.03 (HEADER SPLICE).
8. BACKHILL TRENCH SIX INCHES DEEP AND PLACE CATHODIC PROTECTION WARNING TAPE. BACKFILL TO ESTABLISHED GRADE.
9. ALL PAVEMENT CUTS SHALL BE RESTORED IN ACCORDANCE WITH HO CO STD C-4.01 (UTILITY TRENCH ROADWAY REPAVING).

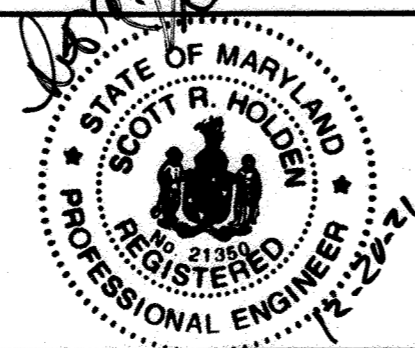
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AS BUILT
50' 0 50' 100'
HORIZ SCALE: 1" = 50'

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DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
DIRECTOR OF PUBLIC WORKS <i>[Signature]</i> DATE: 12-22-21	CHIEF, BUREAU OF ENGINEERING <i>[Signature]</i> DATE: 12-22-21
CHIEF, BUREAU OF UTILITIES <i>[Signature]</i> DATE: 12-22-21	CHIEF, UTILITY DESIGN DIVISION <i>[Signature]</i> DATE: 12-22-21

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DES: MA	
DRN: MA	
CHK: SRH	
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BY: NO.	
REVISION	

100% SUBMISSION
CATHODIC PROTECTION PLAN
 DECEMBER 2021
 600' SCALE MAP NO. S.16.8.W.16 BLOCK NO. 9.8.10

ELECTION DISTRICT NO. 3
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 HOWARD COUNTY, MARYLAND

CP-01
 SCALE: 1"=50'
 SHEET 12 OF 14

