

HOWARD COUNTY, MARYLAND


PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL

BONNIE BRANCH INTERCEPTOR SIPHON REPLACEMENT

CAPITAL PROJECT S-6282

CONTRACT NO. 10-4948

GENERAL NOTES:

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC DATA BASED ON SEPTEMBER 2013 LIDAR SURVEY FROM INTERFLUVE, INC.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/91.
- 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 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 TEST PITS ARE 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.....1-800-252-1133 BGE
 - (CONSTRUCTION SERVICES).....410-637-8713 BGE
 - (EMERGENCY).....410-685-0123 BUREAU OF UTILITIES.....410-313-4900 COLONIAL PIPELINE CO.....410-795-1390 MISS UTILITY.....1-800-257-7777 STATE HIGHWAY ADMINISTRATION.....410-531-5533 VERIZON.....1-800-743-0033
- 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.

SEWER NOTES:

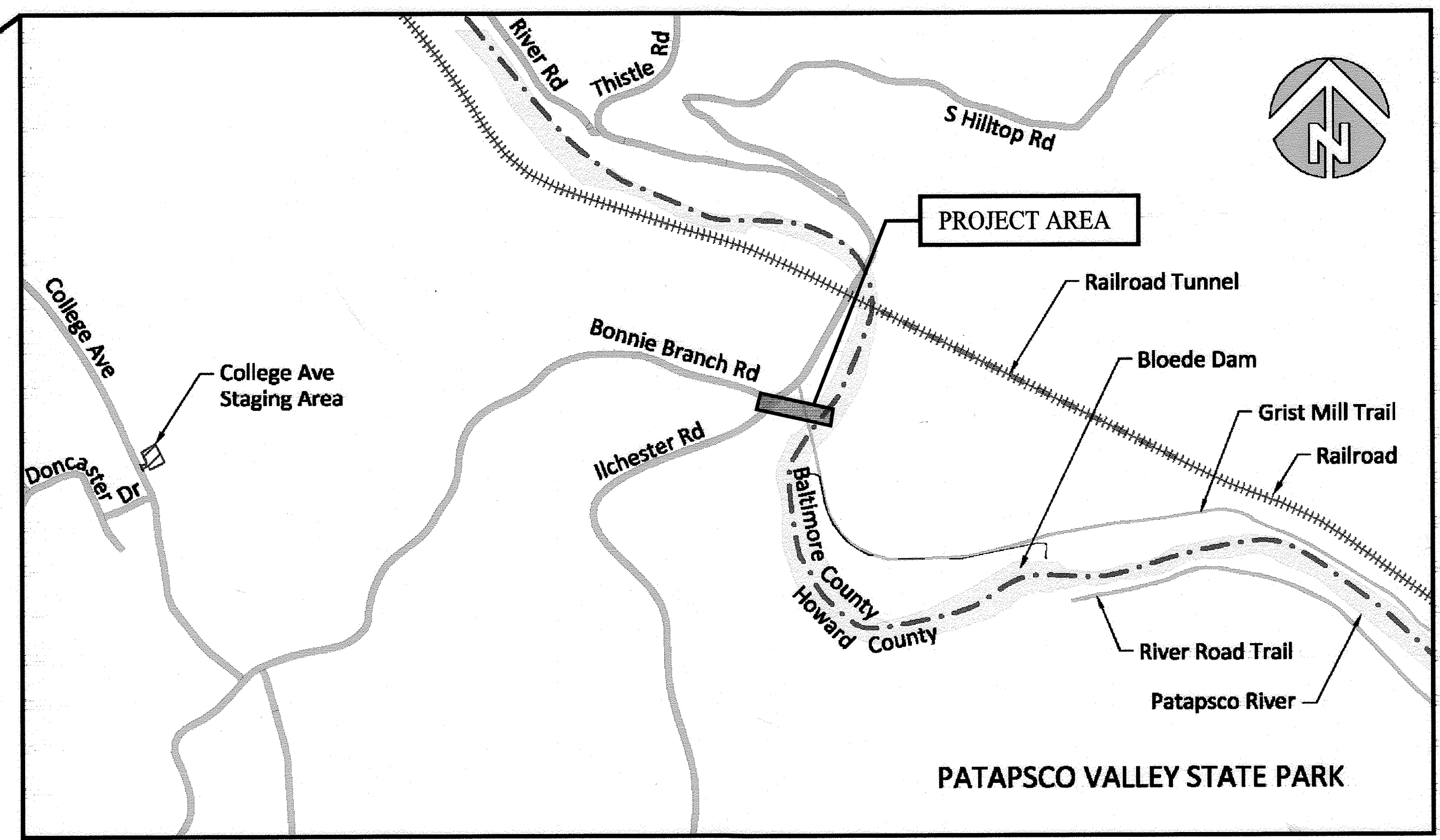
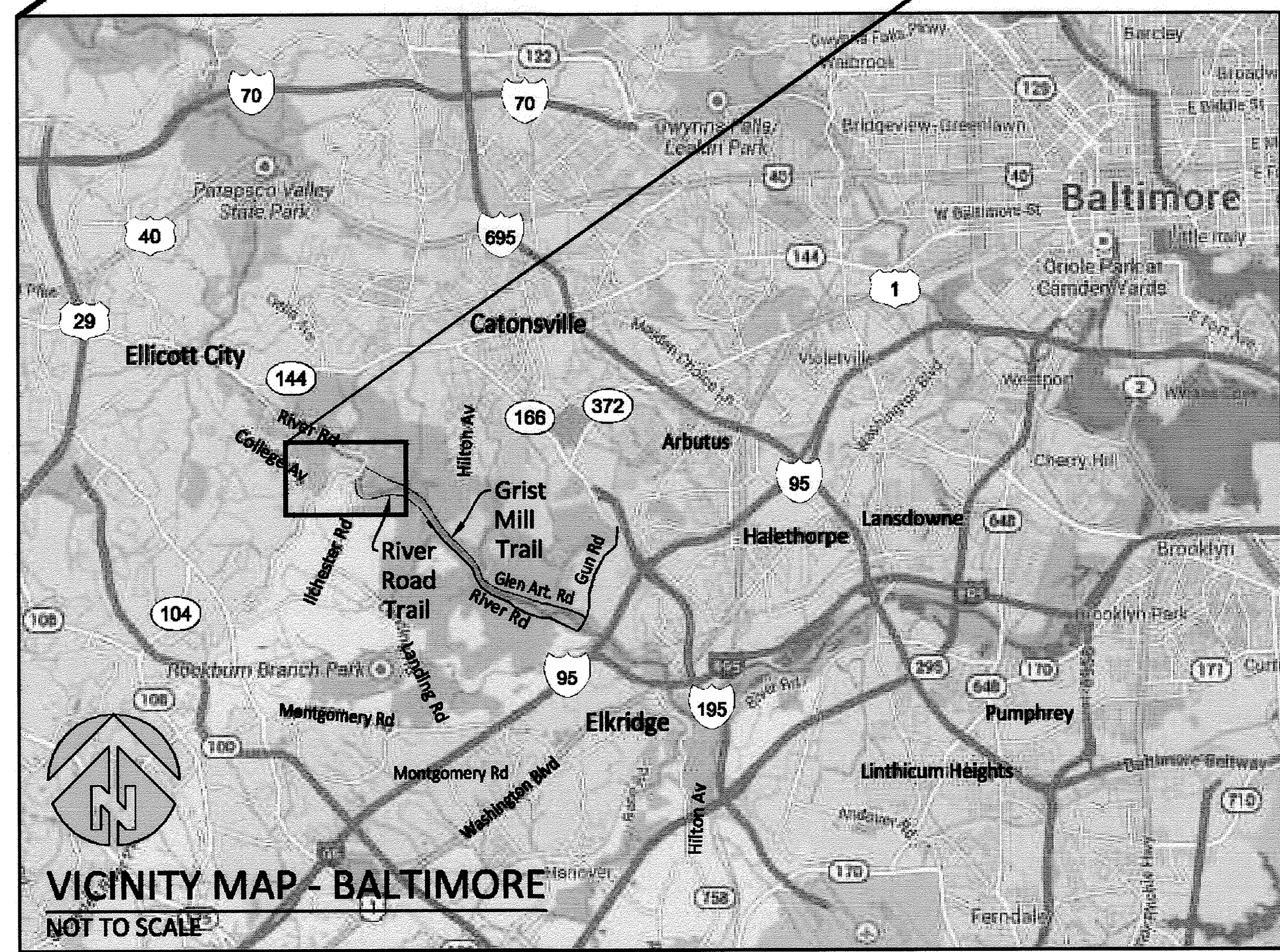
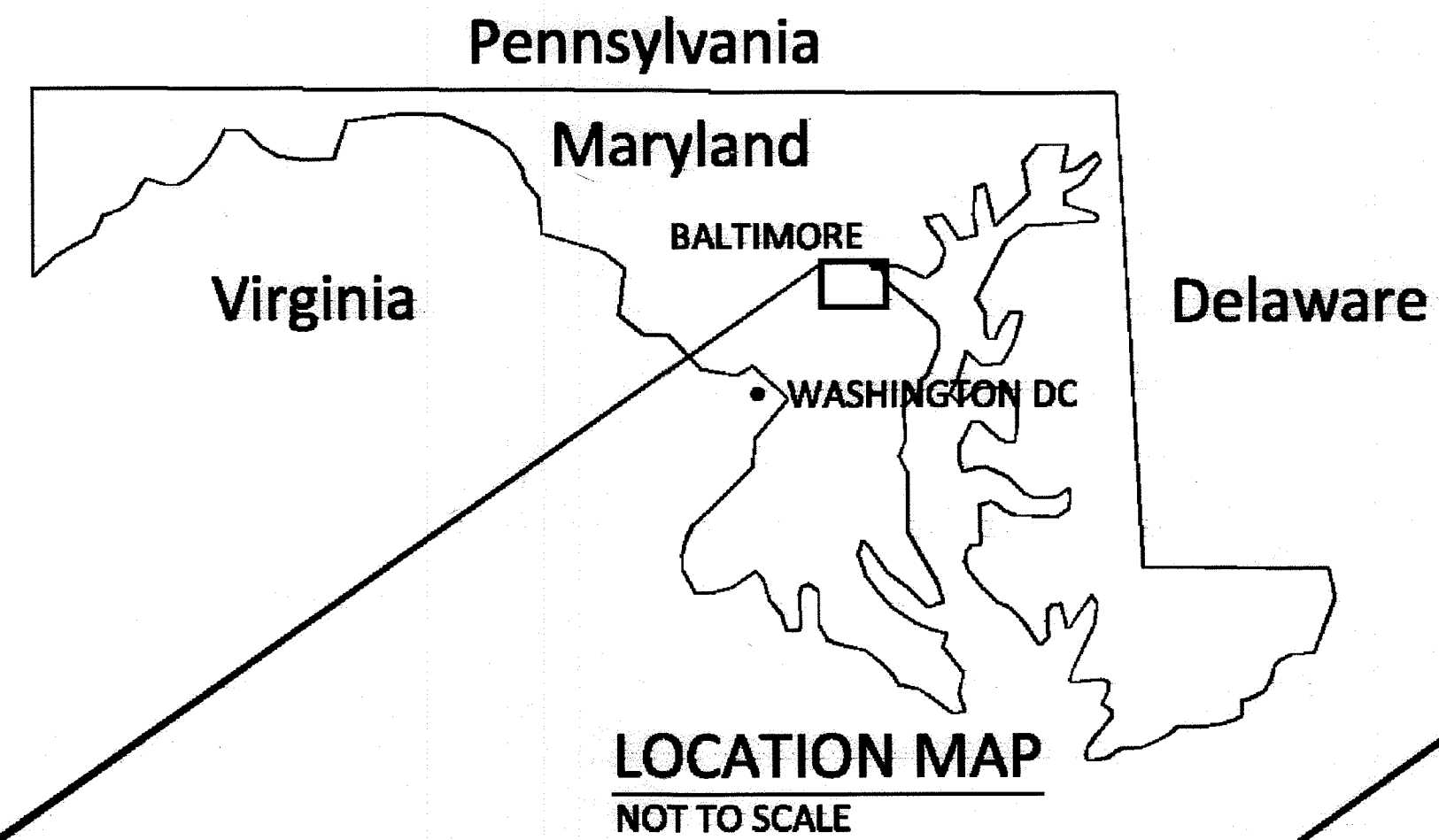
- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATER-TIGHT FRAME AND COVER, STANDARD DETAIL 65-52. WHERE WATER-TIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT THE CELLAR CANNOT BE SERVED.

BILL OF MATERIALS

ITEM	UNIT	ESTIMATE	AS-BUILT	MANUFACTURER
12" DIP, CLASS 54 RJ	LF	278	279	US PIPE
12" RJ DIP 22.5" BEND	EA	9	7	US PIPE
12" RJ DIP 11.25" BEND	EA	2	3	US PIPE
12" RJ DIP TEE	EA	1	1	US PIPE
VAULT FRAME AND COVER	EA	1		
LINE STOP	EA	1	1	
YALE CLOSURE	EA		1	
NAME OF UTILITY CONTRACTOR: KIEWIT FERROUSON WATERWORKS				
		CHECKBOX		
		AS-BUILT DATE	12/2019	

AS-BUILT
DATE: 12/21/2019

BID SET



SITE MAP - BONNIE BRANCH INTERCEPTOR HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NAVD88
1" = 1000'

STATEMENT OF PROJECT PURPOSE:

THIS PROJECT IS TO REPLACE THE ENTIRE 12-INCH SEWER INTERCEPTOR SIPHON SERVING BONNIE BRANCH INTERCEPTOR AND CONSTRUCT A NEW JUNCTION CHAMBER TO CONNECT IT TO THE EXISTING 42-INCH PATAPSCO INTERCEPTOR. THE REASON FOR THE NEW SIPHON REPLACEMENT IS TO LOWER THE SIPHON UNDER THE RIVER TO PERMIT CHANNEL EROSION TO OCCUR WHICH WILL RESULT FROM THE REMOVAL OF BLOEDE DAM.

"SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL - VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AS SHOWN ON THESE PLANS AND ON DRAWINGS ESC-1 THROUGH ESC-24 OF THE PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL DRAWINGS."

****SIGNATURE BLOCK REDACTED PER CHANGE ORDER NO. 1****

NOTE FOR REVISION 5:
THE SIGNATURE BLOCK REDACTED ON THIS DRAWING WAS THE "DEVELOPER'S CERTIFICATION" FOR THE HOWARD SOIL CONSERVATION DISTRICT THAT WAS REMOVED VIA CHANGE ORDER NO. 1.

NO CHANGES IN REVISIONS 1, 3

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] DIRECTOR OF PUBLIC WORKS
[Signature] CHIEF BUREAU OF UTILITIES

[Signature] CHIEF BUREAU OF ENGINEERING
[Signature] CHIEF UTILITY DESIGN DIVISION

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7681

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. 35295, EXPIRATION DATE 01/06/2018
SIGNED: *[Signature]*

DESIGNED	NH/MJB	DATE	BY
DRAWN	MJB		
CHECKED	JTH		
PROJ. ENGR.	JTH	5/2016	JTH
APPROVED	<i>[Signature]</i>		

GENERAL
COVER SHEET

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: AUGUST 2017
DRAWING NUMBER: HSG-1
SCALE: AS SHOWN
SHEET 64 OF 106

MAPS: MAP, aerial, medium, aerial, small, college, aerial, small, simpkins
 VECTORS: aerial, small, college, aerial, small, simpkins
 20170816 10:00A C:\32322-000-BAL\Drawings\CAD Backup\MB\CAD\SC\HSG-1.dwg LastSaveBy:MBLICKENSTAFF

ABBREVIATIONS

ALT APPROX	ALTERNATE APPROXIMATE	LF LOD	LINEAR FEET LIMITS OF DISTURBANCE
BLDG	BUILDING BLOCK	MDE	MARYLAND DEPARTMENT OF THE ENVIRONMENT
BM	BENCHMARK	MDOT	MARYLAND DEPARTMENT OF TRANSPORTATION
BOC	BACK OF CURB	MDSHA	MARYLAND STATE HIGHWAY ADMINISTRATION
BOT	BOTTOM	MFR	MANUFACTURER
CF	CUBIC FEET	MH	MANHOLE
CI	CAST IRON	MIN	MINIMUM
CL	CAST IRON PIPE CENTER LINE	MISC	MISCELLANEOUS
CMP	CORRUGATED METAL PIPE	NTS	NOT TO SCALE
CO	CLEANOUT	OD	OUTSIDE DIAMETER
CONC	CONCRETE	PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
CY	CUBIC YARD	PVC PG	POLYVINYL CHLORIDE PAGE
DET DIA Ø	DETAIL DIAMETER	PG	PAGE
DIM	DIMENSION	QTY	QUANTITY
DIP	DUCTILE IRON PIPE	RCP	REINFORCED CONCRETE PIPE
DISCH DWG	DISCHARGE DRAWING	REQD	REQUIRED
EA	EACH	RSF	REINFORCED SILT FENCE
ELEV	ELEVATION	R/W	RIGHT OF WAY
ELEC	ELECTRIC/ELECTRICAL	SCE	STABILIZED CONSTRUCTION ENTRANCE
EOP	EDGE OF PAVEMENT	SHC	SEWER HOUSE CONNECTION
EQ	EQUAL	SF	SQUARE FEET
EQPT	EQUIPMENT	SPEC	SPECIFICATION
EX	EXISTING	SS	SANITARY SEWER
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	SSMH	SANITARY SEWER MANHOLE STATION
FM	FIRE MAIN	STD	STANDARD
FP	FLOOD PLAIN	TYP	TYPICAL
FT	FEET	UG	UNDERGROUND
HDPE	HIGH DENSITY POLYETHYLENE	VERT	VERTICAL
HOR	HORIZONTAL	W/ W/O	WITH WITHOUT
IN	INCH	WUS	WATERS OF THE US
INV	INVERT	YD	YARD
		YR	YEAR

SITE LEGEND

NEW	EXISTING		
— LOD —		LIMITS OF DISTURBANCE	
		STABILIZED CONSTRUCTION ENTRANCE	
		SOIL BORING LOCATION	
		CONTOUR	
---		PROPERTY LINE	
		PAVEMENT	
---		GUARDRAIL	
— X —		FENCE	
		ROAD SIGN	
— OHE —		OVERHEAD ELECTRIC LINE	
		ELECTRIC POLE	
— SD —		STORM DRAIN PIPING	
— SS —		SANITARY SEWER PIPING	
		SANITARY SEWER MANHOLE	
— 2YR —		2-YEAR STORM WATER LEVEL	
— 10YR —		10-YEAR STORM WATER LEVEL	
— 100YR —		100-YEAR STORM WATER LEVEL	
		SURVEY TRAVERSE POINT	

GENERAL NOTES FOR THE BONNIE BRANCH SEWER RELOCATION DRAWINGS ONLY (HSG, HSR, HSC, & HST SERIES DRAWINGS):

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORKING BEING DONE. IF MISS UTILITY DOES NOT RESPOND, THE CONTRACTOR SHALL BE REQUIRED TO CONTACT AND CONTRACT A PRIVATE UTILITY LOCATOR COMPANY 48 HOURS PRIOR TO BEGINNING GRADING OR DEMOLITION ACTIVITIES.
- THE SURVEY INFORMATION DATED SEPTEMBER 2013 WAS PROVIDED BY INTERFLUVE, INC. THE HORIZONTAL DATUM IS REFERENCED TO MARYLAND STATE PLANE (NAD 83/91) AND THE VERTICAL DATUM IS REFERENCED TO NAVD 88.
- EXISTING UTILITIES SHOWN MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO START OF ANY DEMOLITION AND CONSTRUCTION.
- THE ENTIRE PROJECT AREA IS LOCATED IN THE 100 YEAR FLOODPLAIN. FLOOD ELEVATIONS HAVE BEEN PROVIDED ON THE SITE PLANS FOR THE VARIOUS LOCATIONS.
- OFF SITE DISPOSAL OF EXCESS MATERIAL SHALL BE TO AN APPROVED AND PROPERLY PERMITTED SITE.
- THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING FACILITIES, STRUCTURES AND UTILITIES FROM DAMAGE UNLESS OTHERWISE NOTED TO BE REMOVED/DEMOLISHED.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE AND LEGALLY DISPOSE OF ANY AND ALL DEMOLISHED/DELETERIOUS MATERIALS AT A PROPERLY PERMITTED DISPOSAL SITE.
- POSITIVE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES. PONDING OF WATER SHALL NOT BE PERMITTED. ALL PONDING WATER SHALL BE FILTERED THROUGH A PORTABLE SEDIMENT TANK PRIOR TO DISCHARGE INTO THE PUBLIC STORM SEWER SYSTEM.
- SURFACED STREET AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION - FREE OF MUD AND DUST AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND EQUIPMENT.
- IN-RIVER WORK ASSOCIATED WITH BONNIE BRANCH SEWER CONSTRUCTION SHALL OCCUR DURING PATAPSCO RIVER LOW FLOW PERIODS TO THE MAXIMUM EXTENT FEASIBLE TO MINIMIZE RIVER DIVERSION AND DEWATERING.

GENERAL SEDIMENT CONTROL NOTES:

- THE FOLLOWING NOTES SHALL APPLY TO WORK ON THE BONNIE BRANCH SIPHON. WHERE REQUIREMENTS ARE CONTRADICTORY WITH WHAT IS SHOWN ON DRAWINGS ESC-1 THROUGH ESC-11 OF THE PATAPSCO INTERCEPTOR AND BLOEDE DAM REMOVAL DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL APPLY. CONTRACT SHALL NOTE THAT THE MARYLAND DEPARTMENT OF THE ENVIRONMENT IS IN CHARGE OF REVIEWING AND APPROVING SEDIMENT CONTROL MEASURES.
- FOR UTILITY INSTALLATIONS, ALL DISTURBED AREAS SHALL BE STABILIZED THE SAME DAY. IF UNFORESEEN CONDITIONS REQUIRE THAT AN EXCAVATION MUST REMAIN OPEN BEYOND THE WORK DAY, THE FOLLOWING PROVISIONS MUST BE FOLLOWED:
 - TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY, AND
 - ANY PILES OF EXCAVATION SPOILS MATERIALS MUST BE SECURELY COVERED TO ENSURE THAT SEDIMENTS ARE NOT TRANSPORTED FROM THE PILE.
 - PAVEMENTS ADJACENT TO THE EXCAVATION MUST REMAIN SEDIMENT FREE. CONTRACTOR SHALL PLACE PLASTIC SHEETING BENEATH THE EXCAVATED MATERIAL PILES, AND SWEEP PAVEMENTS CLEAN OF SEDIMENTS AS REQUIRED.
 - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT AND EROSION CONTROL INSPECTOR.
 - ALL SPOILS FROM THE EXCAVATION ARE TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.

STANDARD SEDIMENT CONTROL NOTES:

- THE FOLLOWING NOTES SHALL APPLY TO WORK ON THE BONNIE BRANCH SIPHON. WHERE REQUIREMENTS ARE CONTRADICTORY WITH WHAT IS SHOWN ON DRAWINGS ESC-1 THROUGH ESC-24 OF THE PATAPSCO INTERCEPTOR AND BLOEDE DAM REMOVAL DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL APPLY. CONTRACT SHALL NOTE THAT THE MARYLAND DEPARTMENT OF THE ENVIRONMENT IS IN CHARGE OF REVIEWING AND APPROVING SEDIMENT CONTROL MEASURES.
- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
 - ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISION OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND ALL REVISIONS THERETO.
 - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) THREE (3) CALENDAR DAYS FOR ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT 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 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 DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
 - ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
 - ANY SEDIMENT CONTROL PRACTICE THAT 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 SEDIMENT AND EROSION CONTROL INSPECTOR.
 - ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
 - TRENCHES FOR THE CONSTRUCTION OF UTILITIES SHALL BE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED AT THE END OF EACH WORKING DAY, WHICHEVER IS SHORTER.
 - ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
 - 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 UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

INDEX OF BONNIE BRANCH SEWER RELOCATION DRAWINGS:

SHEET NO.	DWG NO.	DESCRIPTION
HSG SERIES		
64	HSG-1	COVER SHEET
65	HSG-2	SYMBOLS, NOTES, AND ABBREVIATIONS
66	HSG-3	ACCESS PLAN
67	HSG-4	ACCESS ROAD SECTIONS
68	HSG-5	BONNIE BRANCH SEWER RECORD DRAWINGS (FOR INFORMATION ONLY)
69	HSG-6	BONNIE BRANCH SEWER RECORD DRAWINGS (FOR INFORMATION ONLY)
70	HSG-7	PEDESTRIAN BRIDGE RECORD DRAWINGS (FOR INFORMATION ONLY)
71	HSG-8	PEDESTRIAN BRIDGE RECORD DRAWINGS (FOR INFORMATION ONLY)
HSR SERIES		
72	HSR-1	CLEARING AND GRUBBING PLAN
HSC SERIES		
73	HSC-1	BONNIE BRANCH SIPHON PLAN
74	HSC-2	BONNIE BRANCH BYPASS PLAN
75	HSC-3	DETAILS
76	HSC-4	DETAILS
HST SERIES		
77	HST-1	TRAFFIC CONTROL PLAN

"SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL - VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AS SHOWN ON THESE PLANS AND ON DRAWINGS ESC-1 THROUGH ESC-24 OF THE PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL DRAWINGS."

2 DETAILED SEQUENCE OF CONSTRUCTION:
REFER TO DRAWING DG-3 FOR DETAILED SEQUENCE OF CONSTRUCTION.

SURVEY CONTROL DATA

TRAVERSE STATION	EASTING	NORTHING	ELEV.	DESCRIPTION
170	1379843.04	575435.07	77.90	ROD/STAKE
171	1379948.79	575472.53	88.88	ROD/STAKE
421	1378813.99	576083.95	75.23	ROD/STAKE
422	1379009.21	576112.95	100.94	ROD/STAKE
423	1379031.99	575939.45	99.85	ROD/STAKE
424	1379054.66	575694.67	79.44	ROD/STAKE
425	1379247.99	575468.30	80.16	ROD/STAKE
426	1379438.38	575481.61	79.73	ROD/STAKE
427	1379687.26	575573.48	80.68	ROD/STAKE
428	1379979.79	575556.07	76.55	ROD/STAKE
937	1378798.59	576084.57	82.52	ROD/STAKE
42435	1379686.15	575729.33	98.42	ROD/STAKE
42436	1379400.10	575719.56	99.78	ROD/STAKE
42437	1379205.84	575766.43	100.54	ROD/STAKE

AS-BUILT
DATE 12/31/2019

NO CHANGES IN REVISIONS 1, 3

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] DIRECTOR OF PUBLIC WORKS
[Signature] CHIEF BUREAU OF ENGINEERING
[Signature] CHIEF UTILITY DESIGN DIVISION

DATE: 8/12/17
DATE: 8/12/17
DATE: 8/17/17

Hazen

HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7681

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. 35295, EXPIRATION DATE 01/08/2018.
SIGNED: *[Signature]*

DESIGNED: NH/MJB
DRAWN: MJB
CHECKED: JTH
PROJ. ENGR: JTH
APPROVED: *[Signature]*

NO.	ISSUED FOR	DATE	BY
5	REVISION PER HOWARD COUNTY	8/2017	JTH
4	REVISION PER MDE COMMENTS	1/2017	JTH
2	CHANGE ORDER NO. 1	5/2016	JTH

GENERAL
SYMBOLS, NOTES, AND ABBREVIATIONS

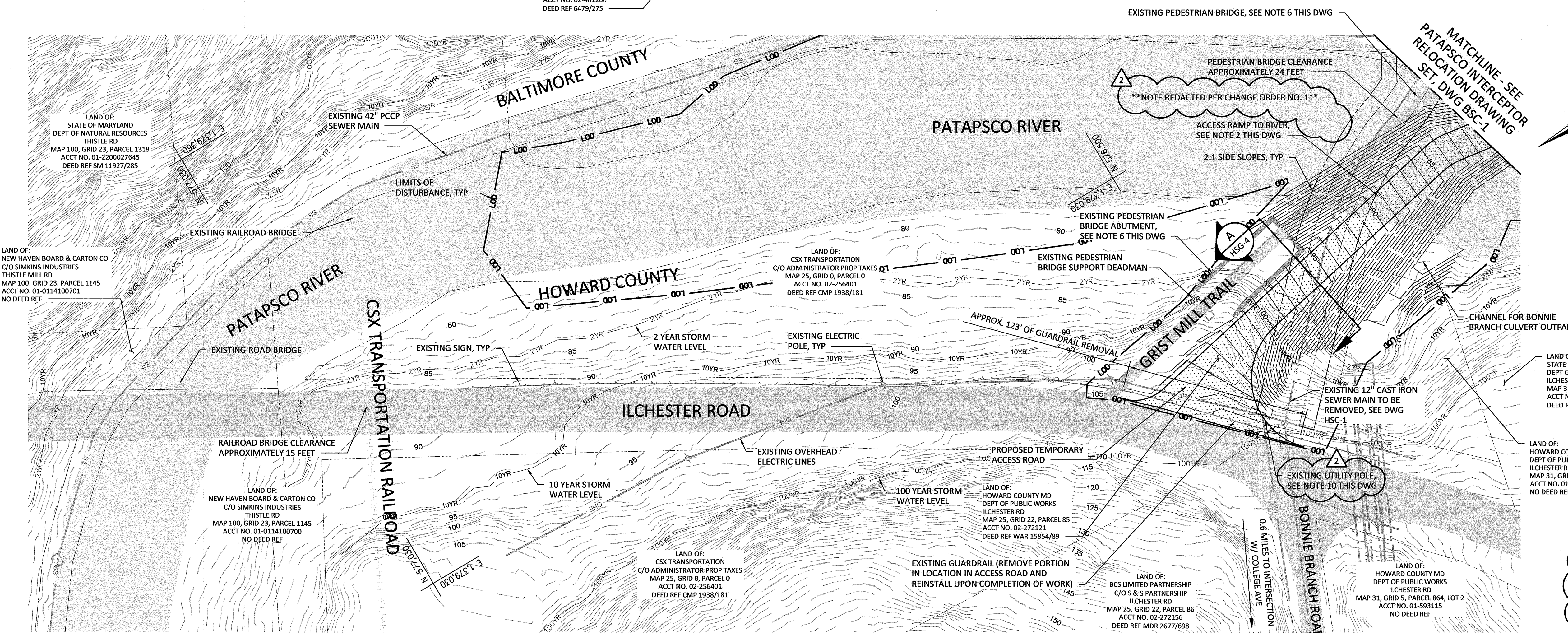
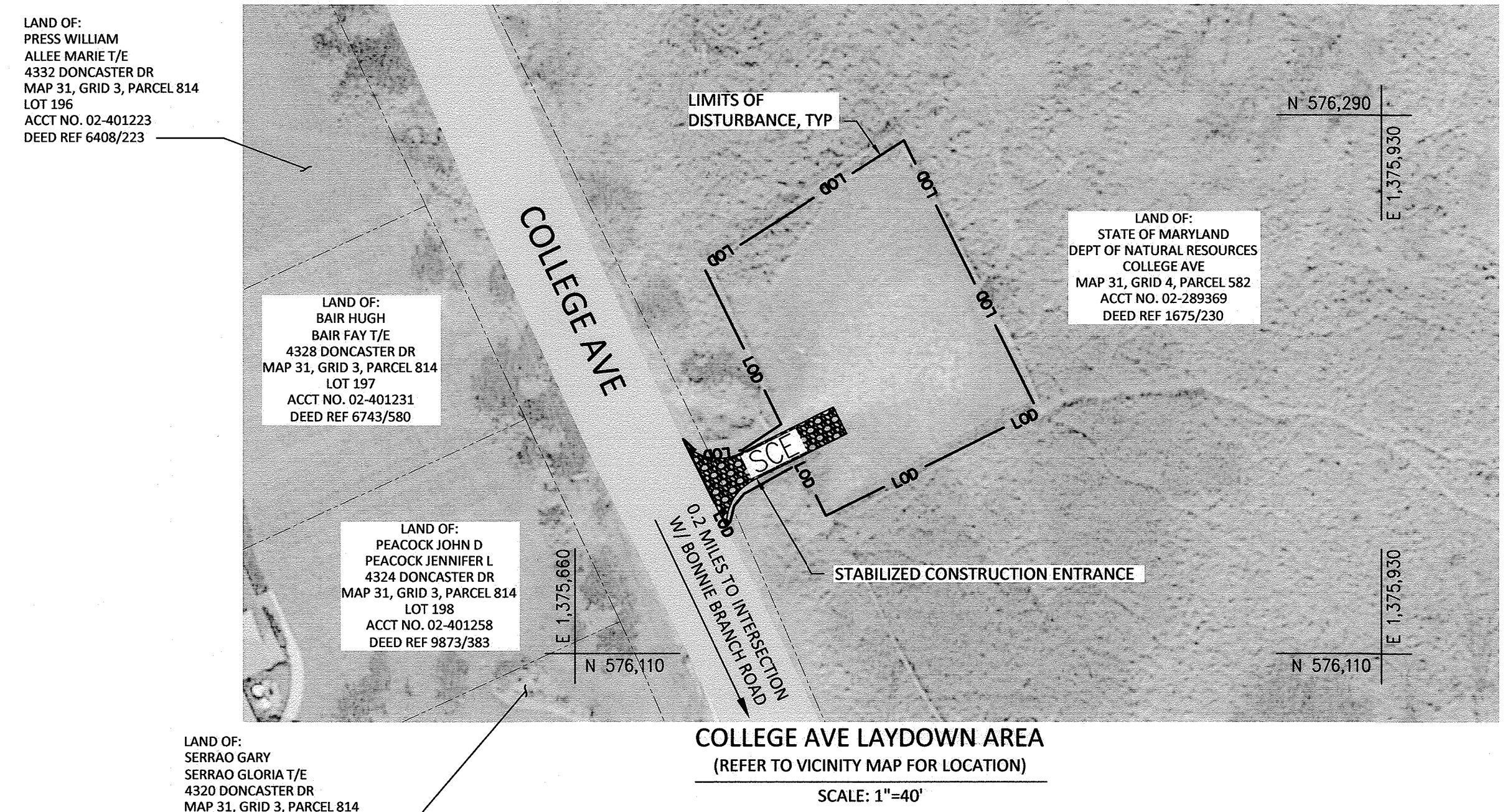
PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: AUGUST 2017
DRAWING NUMBER: HSG-2
SCALE: NTS
SHEET 65 OF 106

IMAGE XREF= HC-TB-original

NOTES:

1. ALL GRADING SHOW HEREIN SHALL BE PERFORMED FOR CONSTRUCTION OF THE PIPE AND ACCESS ROAD FOR THE PATAPSCO INTERCEPTOR RELOCATION.
2. SEE DAM REMOVAL DRAWING SET, DRAWING DG3 FOR DETAILED SEQUENCE OF CONSTRUCTION.
3. REFER TO DRAWING ESC-5 FOR EROSION & SEDIMENT CONTROL.
4. STREAM CONDITIONS AND FLOOD LINES SHOWN ARE BASED ON A HEC-RAS MODEL PREPARED BY INTERFLUVE, INC. FLOOD LINE LOCATIONS ARE BASED ON EXISTING TOPOGRAPHY.
5. LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.
6. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE EXISTING PEDESTRIAN BRIDGE AND BRIDGE ABUTMENTS DURING CONSTRUCTION. CONTRACTOR SHALL NOT BE PERMITTED TO MOVE EQUIPMENT OF ANY SIZE OVER THE EXISTING PEDESTRIAN BRIDGE. EXISTING PEDESTRIAN BRIDGE MAY BE UTILIZED BY CONTRACTOR'S PERSONNEL. BYPASS PIPES TO BE RUN ACROSS BRIDGE TO TIE IN TO PATAPSCO INTERCEPTOR (SEE SHEET HSC-2). ANY DAMAGE TO THE PEDESTRIAN BRIDGE SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.
7. ALL PEDESTRIAN TRAILS WITHIN THE LIMITS OF DISTURBANCE (PORTION OF THE GRIST MILL TRAIL, RIVER ROAD TRAIL) SHALL BE CLOSED TO THE PUBLIC FOR THE DURATION OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE SIGNAGE AND BARRICADES AS REQUIRED FOR THESE CLOSURES. CONTRACTOR SHALL PROVIDE A TEMPORARY ACCESS PATH FOR THE BUZZARD ROCK TRAILHEAD NEAR THE BLOEDE DAM.
8. REFERENCE DAM REMOVAL DRAWING SET, DRAWINGS DT1, DG1, AND DG2 FOR THE OVERALL SCOPE OF THE SEWER RELOCATIONS AND DAM REMOVAL.
9. ANY FENCE THAT IS REMOVED FOR CONSTRUCTION ACCESS SHALL BE REPLACED OR SALVAGED FOR REINSTALLATION.
10. CONTRACTOR SHALL PROVIDE BRACING AND PROTECTION FOR EXISTING UTILITY POLE ADJACENT TO PROPOSED ACCESS ROAD. BRACING AND PROTECTION SHALL BE IN ACCORDANCE WITH BALTIMORE GAS & ELECTRIC REQUIREMENTS.

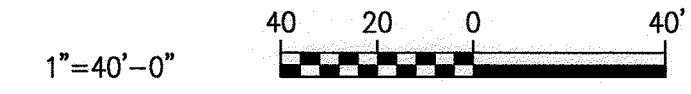


STREAM CONDITIONS NEAR PROPOSED ACCESS ROAD:

- NORMAL WATER SURFACE ELEVATION = 75.71 FT (NAVD 88)
- 2-YEAR STORM WATER SURFACE ELEVATION = 83.2 FT (NAVD 88)
- 10-YEAR STORM WATER SURFACE ELEVATION = 91.08 FT (NAVD 88)
- 100-YEAR STORM WATER SURFACE ELEVATION = 110.09 FT (NAVD 88)

NOTE FOR REVISION 5:
THE NOTE REDACTED ON THIS DRAWING WAS LABELING TWO 5' DIA TEMPORARY CULVERTS THAT WERE REMOVED IN CHANGE ORDER NO. 1.

AS-BUILT
DATE 12/31/2019



NO CHANGES IN REVISIONS 1, 3, 4

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Janet Ehlert* DATE: 8/17/17

Chief Bureau of Engineering: *Thomas E. Sullivan* DATE: 8/17/17

Chief Utility Design Division: *WD* DATE: 8/17/17

Hazen

HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-538-7681

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. 35295, EXPIRATION DATE 01/06/2018.
SIGNED: *[Signature]*

DESIGNED: NH/MJB
DRAWN: MJB
CHECKED: JTH
PROJ. ENGR: JTH
APPROVED: *[Signature]*

NO.	REVISION PER HOWARD COUNTY CHANGE ORDER NO. 1	ISSUED FOR	DATE	BY
5			8/2017	JTH
2			5/2016	JTH

GENERAL
ACCESS PLAN

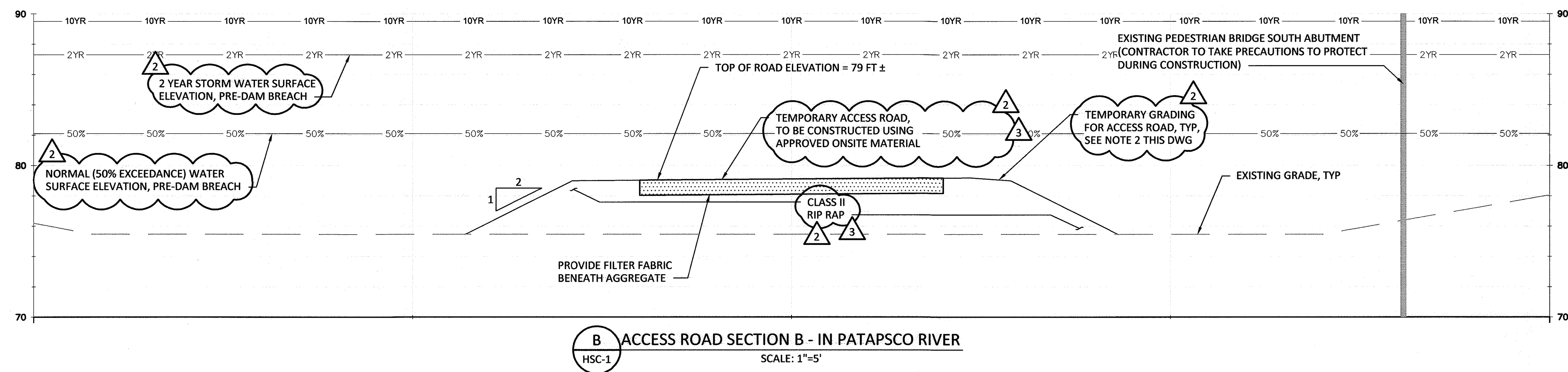
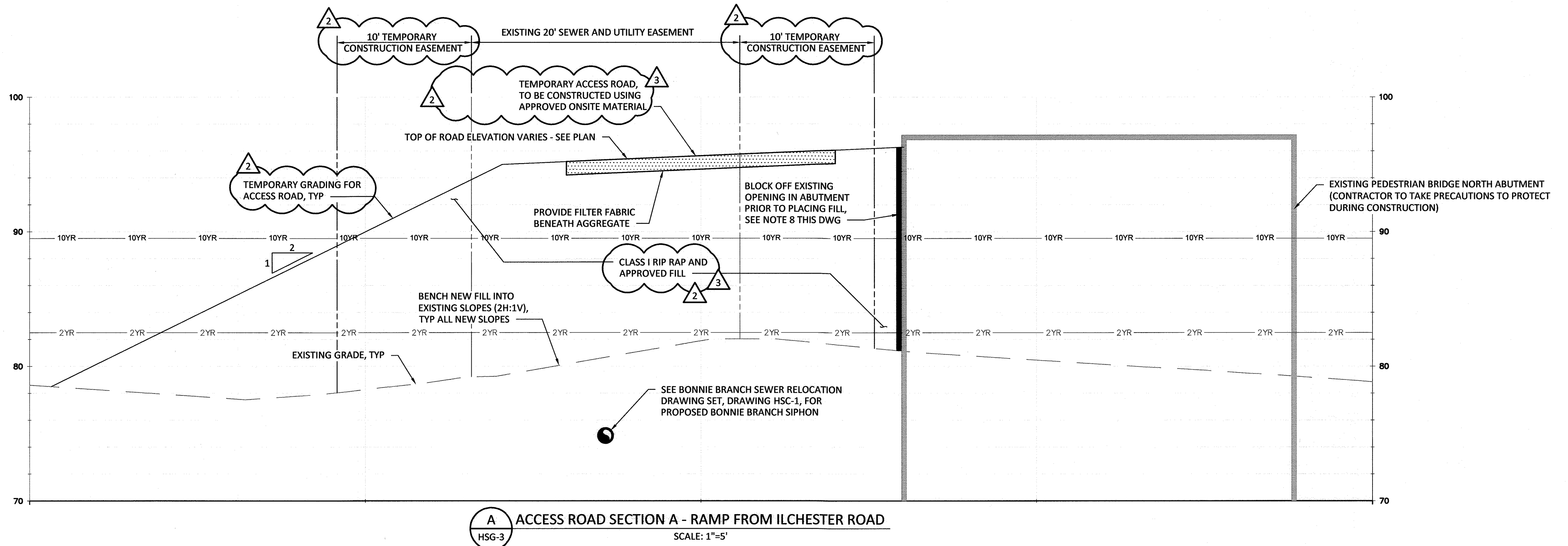
PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: AUGUST 2017
DRAWING NUMBER: HSG-3
SCALE: 1"=40'
SHEET 66 OF 106

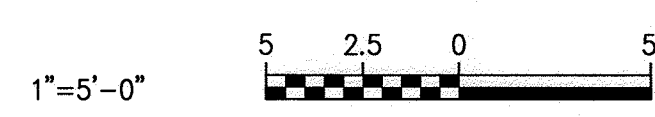
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NOTES:

- ALL GRADING SHOW HEREIN SHALL BE PERFORMED FOR CONSTRUCTION OF THE PIPE AND ACCESS ROAD FOR THE PATAPSCO INTERCEPTOR RELOCATION.
- SEE DAM REMOVAL DRAWING SET, DRAWING DG4 FOR THE TEMPORARY RIVER CROSSING ADJACENT TO THE EXISTING PEDESTRIAN BRIDGE.
- STREAM CONDITIONS AND FLOOD LINES SHOWN ARE BASED ON A HEC-RAS MODEL PREPARED BY INTERFLUVE, INC. FLOOD LINE LOCATIONS ARE BASED ON EXISTING TOPOGRAPHY.
- LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.
- INITIAL SITE CLEARING AND GRUBBING SHALL INCLUDE REMOVAL OF TOPSOIL AND UNSUITABLE FILL MATERIALS AND ANY DELETERIOUS MATERIALS WITHIN AREAS TO RECEIVE NEW FILL.
- AFTER REMOVAL OF UNSUITABLE MATERIALS, THE SUBGRADE SOILS SHALL BE HEAVILY PROOF-ROLLED WITH APPROVED CONSTRUCTION EQUIPMENT TO LOCATE SOFT SPOTS OR AREAS OF EXCESSIVE "PUMPING" THAT ARE TOO UNSTABLE TO ACCEPT COMPACTED FILL.
- UNSUITABLE AREAS SHALL BE SCARIFIED OR AIR-DRIED TO THE REQUIRED MOISTURE CONTENT AND THEN RE-COMPACTED, MECHANICALLY STABILIZED USING VARYING-SIZE ROCK, OR EXCAVATED TO STABLE SOILS PRIOR TO PLACEMENT OF FILL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING METHOD OF BLOCKING OFF THE EXISTING OPENING IN THE ABUTMENT. CONTRACTOR SHALL SUBMIT PLAN FOR APPROVAL BY THE ENGINEER.
- WHERE THE TEMPORARY ACCESS ROAD IS BELOW THE 2-YEAR WSE, IT SHALL BE CONSTRUCTED OF WASHED CLASS II RIP RAP.
- WHERE THE TEMPORARY ACCESS ROAD IS ABOVE THE 2-YEAR WSE, IT SHALL BE CONSTRUCTION OF CLASS I RIP RAP AND APPROVED ONSITE MATERIAL.



AS-BUILT
DATE 12/31/2019



NO CHANGES IN REVISIONS 1, 4

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John G. Shuler 8/17/17
DIRECTOR OF PUBLIC WORKS DATE

Thomas P. Smith 8/17/17
CHIEF BUREAU OF ENGINEERING DATE

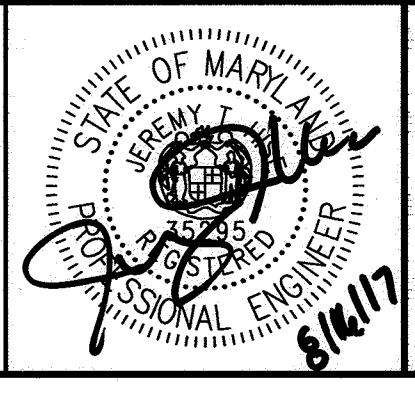
Tom Staff 8/21/17
CHIEF BUREAU OF UTILITIES DATE

WD 8/17/17
CHIEF UTILITY DESIGN DIVISION DATE

Hazen

HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150; BALTIMORE, MD 21202
410-539-7681

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. 35295, EXPIRATION DATE 01/06/2018.
SIGNED: *[Signature]*



DESIGNED	NH/MJB				
DRAWN	MJB				
CHECKED	JTH				
PROJ. ENGR.	JTH	5	REVISION PER HOWARD COUNTY	8/2017	JTH
		3	REVISION PER MDE COMMENTS	8/2016	JTH
		2	CHANGE ORDER NO. 1	5/2016	JTH
APPROVED	JTH	NO.	ISSUED FOR	DATE	BY

GENERAL ACCESS ROAD SECTIONS

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE AUGUST 2017
DRAWING NUMBER
HSG-4
SCALE 1"=5'
SHEET 67 OF 106

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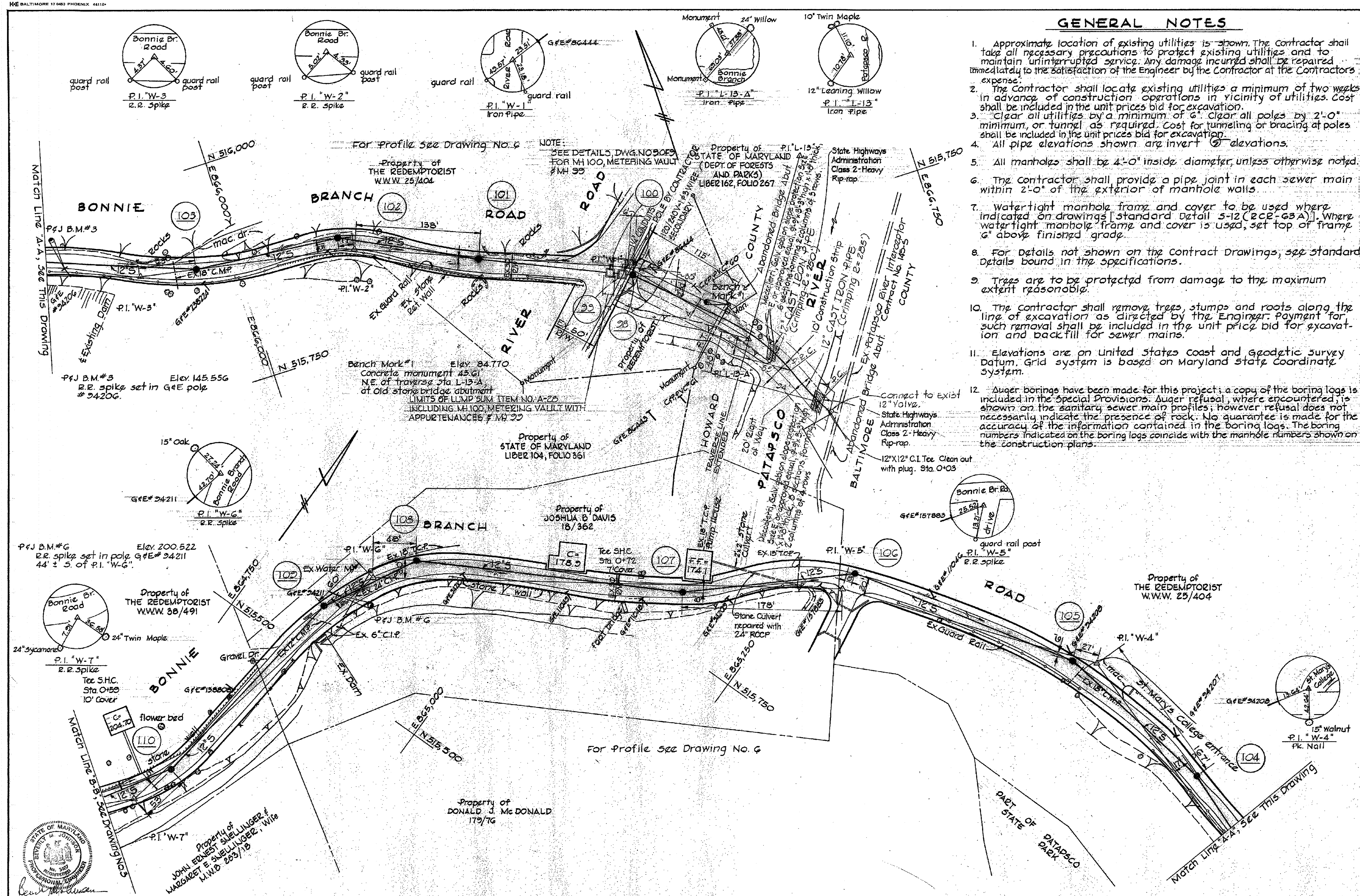
BID SET

NOTES:

1. RECORD DRAWINGS ARE SHOWN FOR INFORMATION ONLY.
2. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD29 VERTICAL DATUM.

GENERAL NOTES

1. Approximate location of existing utilities is shown. The Contractor shall take all necessary precautions to protect existing utilities and to maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer by the Contractor at the Contractor's expense.
2. The Contractor shall locate existing utilities a minimum of two weeks in advance of construction operations in vicinity of utilities. Cost shall be included in the unit prices bid for excavation.
3. Clear all utilities by a minimum of 6'. Clear all poles by 2'-0" minimum, or tunnel as required. Cost for tunneling or bracing of poles shall be included in the unit prices bid for excavation.
4. All pipe elevations shown are invert elevations.
5. All manholes shall be 4'-0" inside diameter, unless otherwise noted.
6. The Contractor shall provide a pipe joint in each sewer main within 2'-0" of the exterior of manhole walls.
7. Watertight manhole frame and cover to be used where indicated on drawings [standard detail 5-12 (ECE-63A)]. Where watertight manhole frame and cover is used, set top of frame 6" above finished grade.
8. For details not shown on the Contract Drawings, see standard details bound in the specifications.
9. Trees are to be protected from damage to the maximum extent reasonable.
10. The contractor shall remove trees, stumps and roots along the line of excavation as directed by the Engineer. Payment for such removal shall be included in the unit price bid for excavation and backfill for sewer mains.
11. Elevations are on United States Coast and Geodetic Survey Datum. Grid system is based on Maryland state coordinate system.
12. Auger borings have been made for this project; a copy of the boring logs is included in the Special Provisions. Auger refusal, where encountered, is shown on the sanitary sewer main profiles; however refusal does not necessarily indicate the presence of rock. No guarantee is made for the accuracy of the information contained in the boring logs. The boring numbers indicated on the boring logs coincide with the manhole numbers shown on the construction plans.



WS 417-S/2

PURDUM & JESCHKE ENGINEERS 1023 N. CALVERT ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 9-3-71 DATE	CONTRACT NO. 417-S	PLAN OF SEWER MAINS	ELECTION DISTRICTS NO. 1 & 2	DRAWING NO. 2	SCALE 1"=50'
					OF 9	AS BUILT DECEMBER 12, 1973

AS-BUILT
DATE 12/31/2019

NO CHANGES IN REVISIONS 1, 2, 3, 4

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Thomas E. Butler 8/21/17
DATE
CHIEF BUREAU OF ENGINEERING

John P. ... 8/21/17
DATE
DIRECTOR OF PUBLIC WORKS

... 8/21/17
DATE
CHIEF BUREAU OF UTILITY

... 8/21/17
DATE
CHIEF UTILITY DESIGN DIVISION

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7681

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. 35285, EXPIRATION DATE 01/06/2018.
SIGNED *JTH*

DESIGNED NH/MJB
DRAWN EP
CHECKED JTH
PROJ. ENGR. JTH
APPROVED *JTH*

NO.	REVISION PER HOWARD COUNTY	ISSUED FOR	DATE	BY
5			8/2017	JTH

GENERAL
BONNIE BRANCH SEWER
RECORD DRAWINGS (FOR
INFORMATION ONLY)

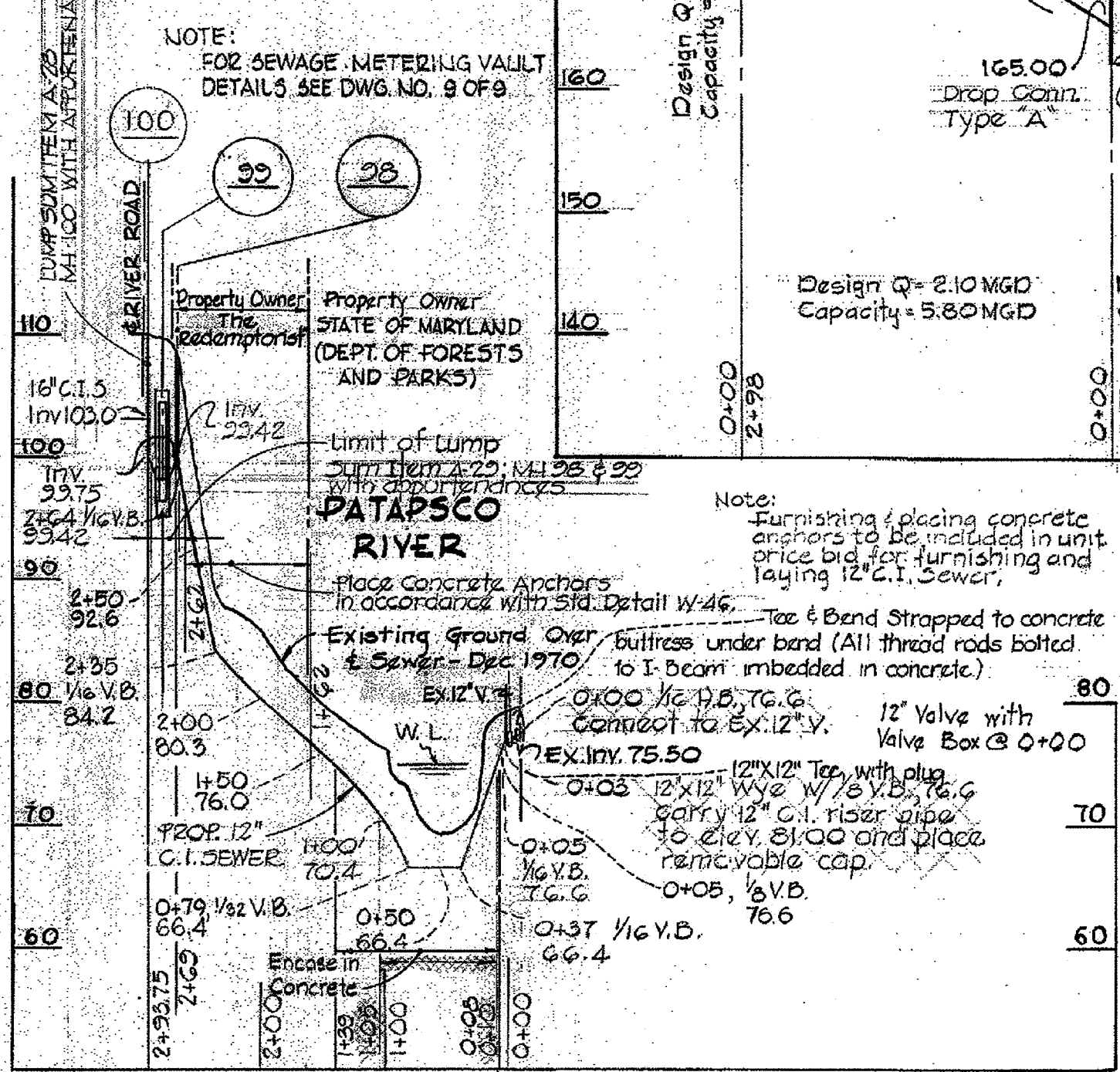
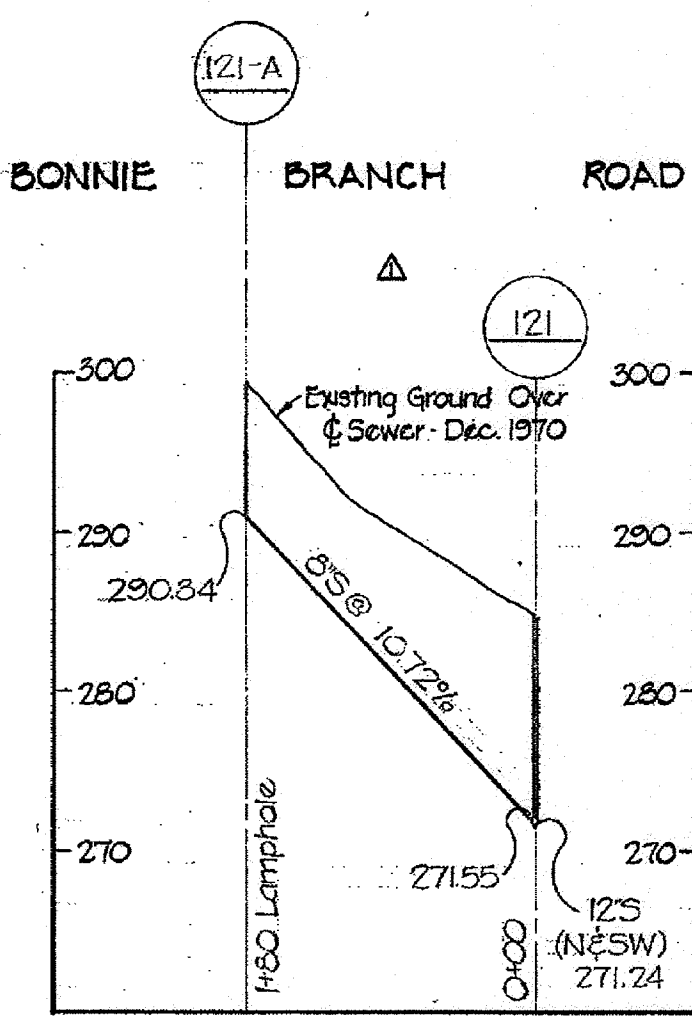
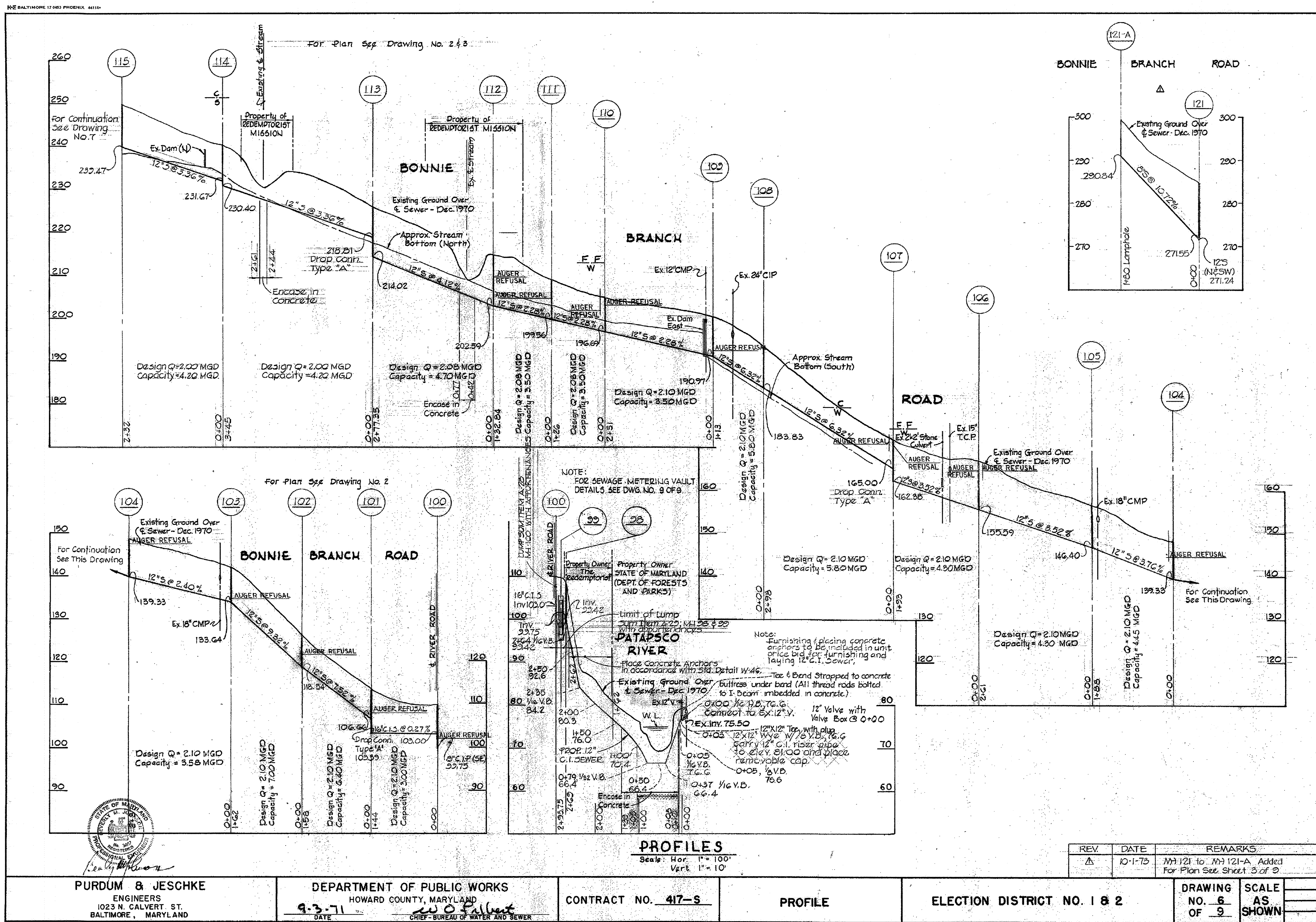
PATAPSCO INTERCEPTOR RELOCATION
AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE AUGUST 2017
DRAWING NUMBER
HSG-5
SCALE NTS
SHEET 68 OF 106

IMAGE= Sheet 2 of 5.dwg
XREF= HCTB-engineer

NOTES:

1. RECORD DRAWINGS ARE SHOWN FOR INFORMATION ONLY.
2. ELEVATIONS SHOWN ON THIS DRAWING ARE BASED ON NGVD29 VERTICAL DATUM.



REV	DATE	REMARKS
Δ	10-1-73	MH 121 to MH 121-A. Added For Plan See Sheet 3 of 2.

WS 417-S/6

PURDUM & JESCHKE ENGINEERS 1023 N. CALVERT ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE 9-3-71 CHIEF - BUREAU OF WATER AND SEWER	CONTRACT NO. 417-S	PROFILE	ELECTION DISTRICT NO. 1 & 2	DRAWING NO. 6 OF 9	SCALE AS SHOWN
					AS BUILT DECEMBER 12, 1973	

AS-BUILT
DATE 12/31/2019

NO CHANGES IN REVISIONS 1, 2, 3, 4

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
DIRECTOR OF PUBLIC WORKS <i>[Signature]</i> DATE 8/21/17	CHIEF BUREAU OF ENGINEERING <i>[Signature]</i> DATE 8/17/17
CHIEF BUREAU OF UTILITIES <i>[Signature]</i> DATE 8/21/17	CHIEF UTILITY DESIGN DIVISION <i>[Signature]</i> DATE 8/17/17

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-538-7681



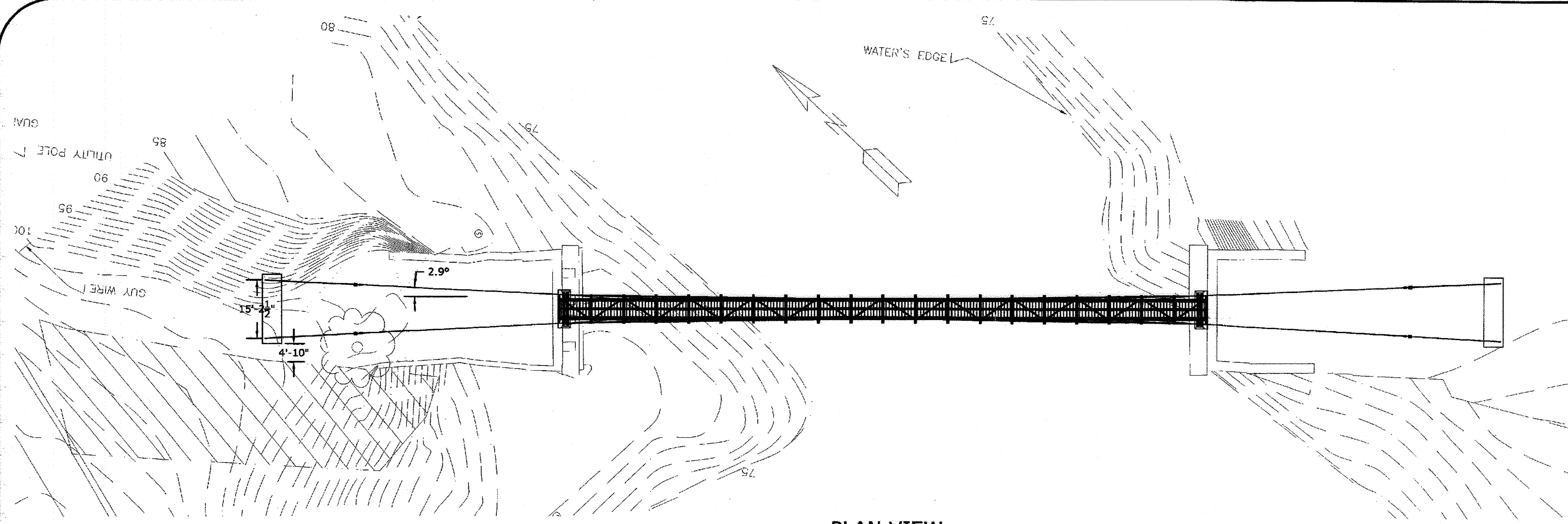
DESIGNED	NH/MIB
DRAWN	EP
CHECKED	JTH
PROJ. ENGR.	JTH
APPROVED	STH

GENERAL
BONNIE BRANCH SEWER
RECORD DRAWINGS (FOR
INFORMATION ONLY)

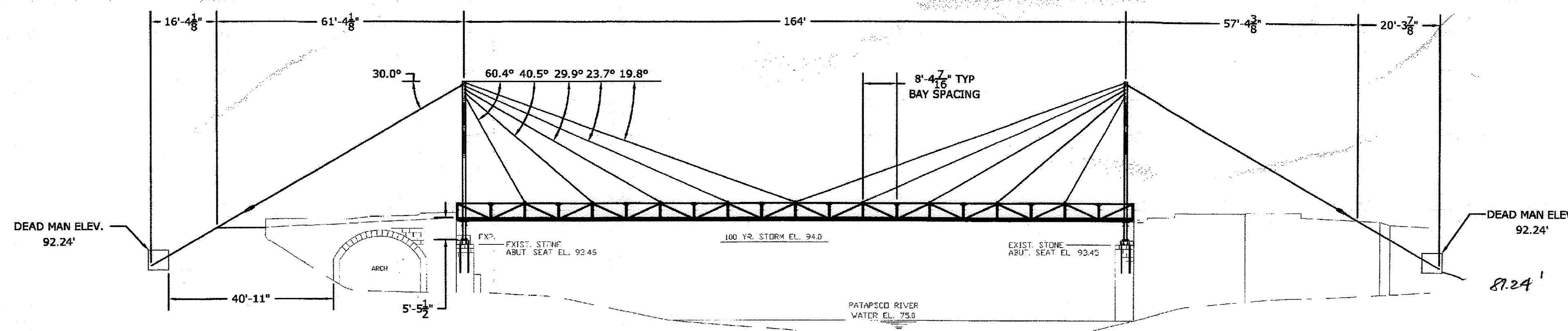
PATAPSCO INTERCEPTOR RELOCATION
AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE	AUGUST 2017
DRAWING NUMBER	HSG-6
SCALE	NTS
SHEET	69 OF 106

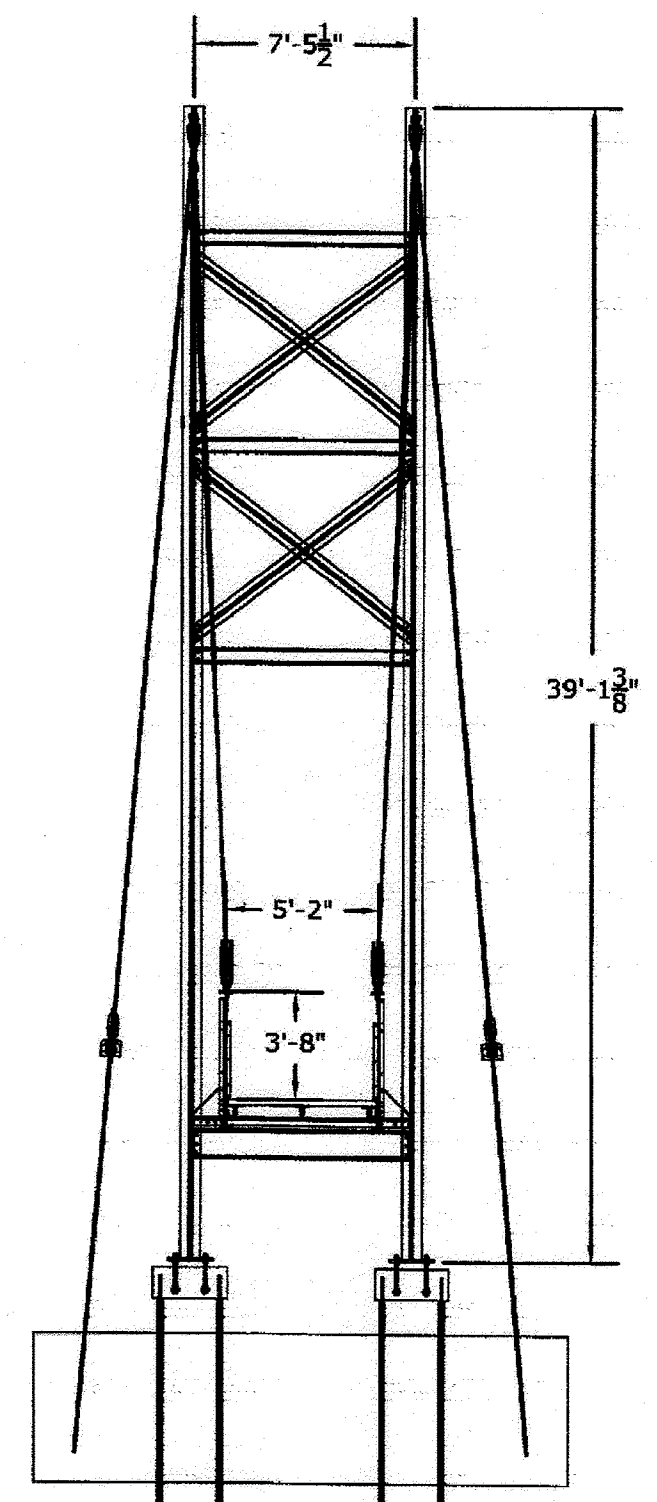
IMAGE= Sheet 6_S09
XREF= HC-TB-original



PLAN VIEW
SCALE 1/180
NOTE: TOPOGRAPHY LABELS
APPEAR UP SIDE DOWN



ELEVATION VIEW
SCALE 1/180

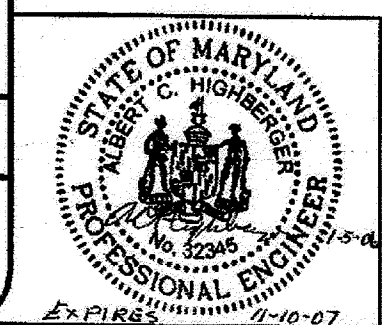


PROFILE VIEW
SCALE 1/60

- NOTES:**
- RECORD DRAWINGS ARE SHOWN FOR INFORMATION ONLY.
 - THE VERTICAL DATUM OF THIS DRAWING IS UNKNOWN.

PATAPSCO CABLE STAY		PLAN, ELEVATION, AND PROFILE VIEW	
SAHALE DESIGN TEAM		DATE	
BRANDON MCGINNIS	A.C. HIGHBERGER	01/04/06	
CARROLL VOGEL	KEITH MONOHAN	SHEET	
		2 OF 8	

DGS Project
No. P-020-015-010
THIS DESIGN IS THE SOLE
PROPERTY OF SAHALE, LLC.
WRITTEN DIMENSIONS TAKE
PRECEDENCE OVER SCALED.



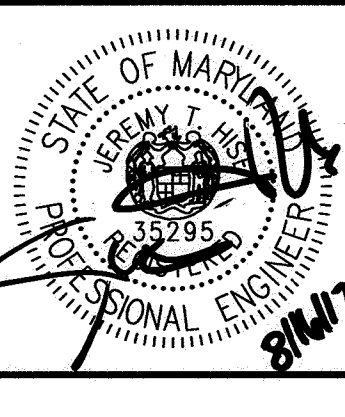
AS-BUILT
DATE 12/29/2019

NO CHANGES IN REVISIONS 1, 2, 3, 4

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND			
	DATE 8/2/17		DATE 8/17/17
	DATE 8/2/17		DATE 8/17/17

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150; BALTIMORE, MD 21202
410-538-7881

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. 35295,
EXPIRATION DATE 01/06/2018
SIGNED:



DESIGNED	NH/MJB			
DRAWN	MJB			
CHECKED	JTH			
PROJ. ENGR.	JTH			
APPROVED				

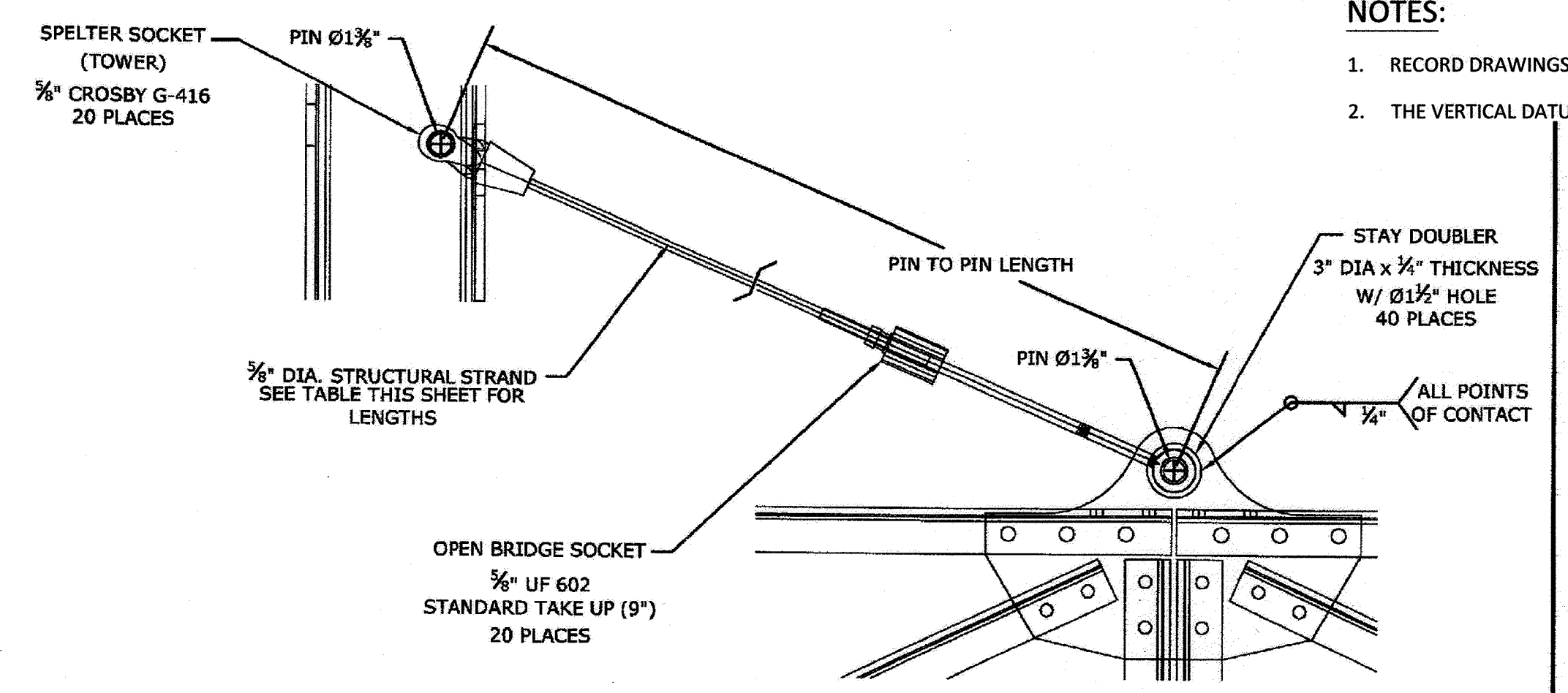
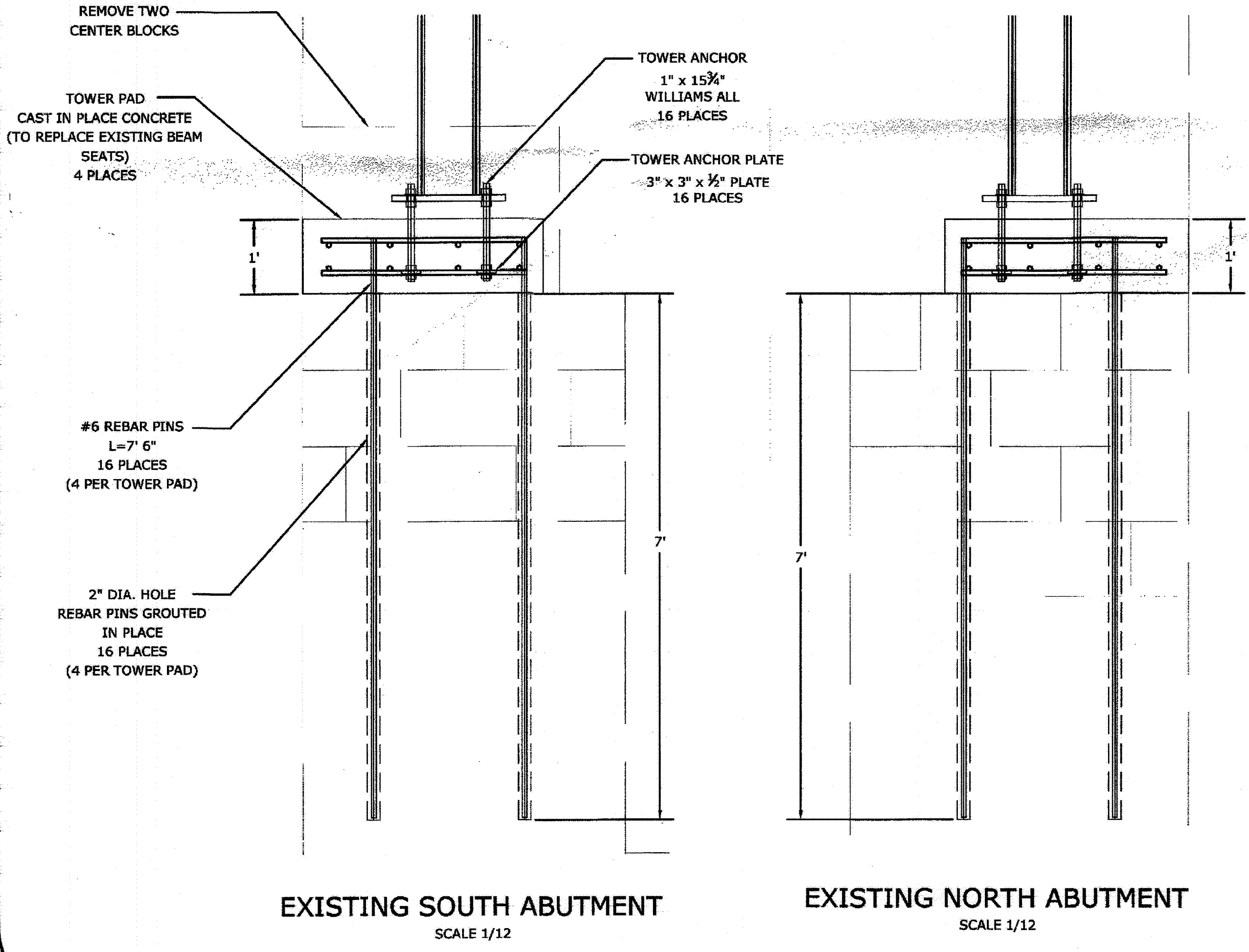
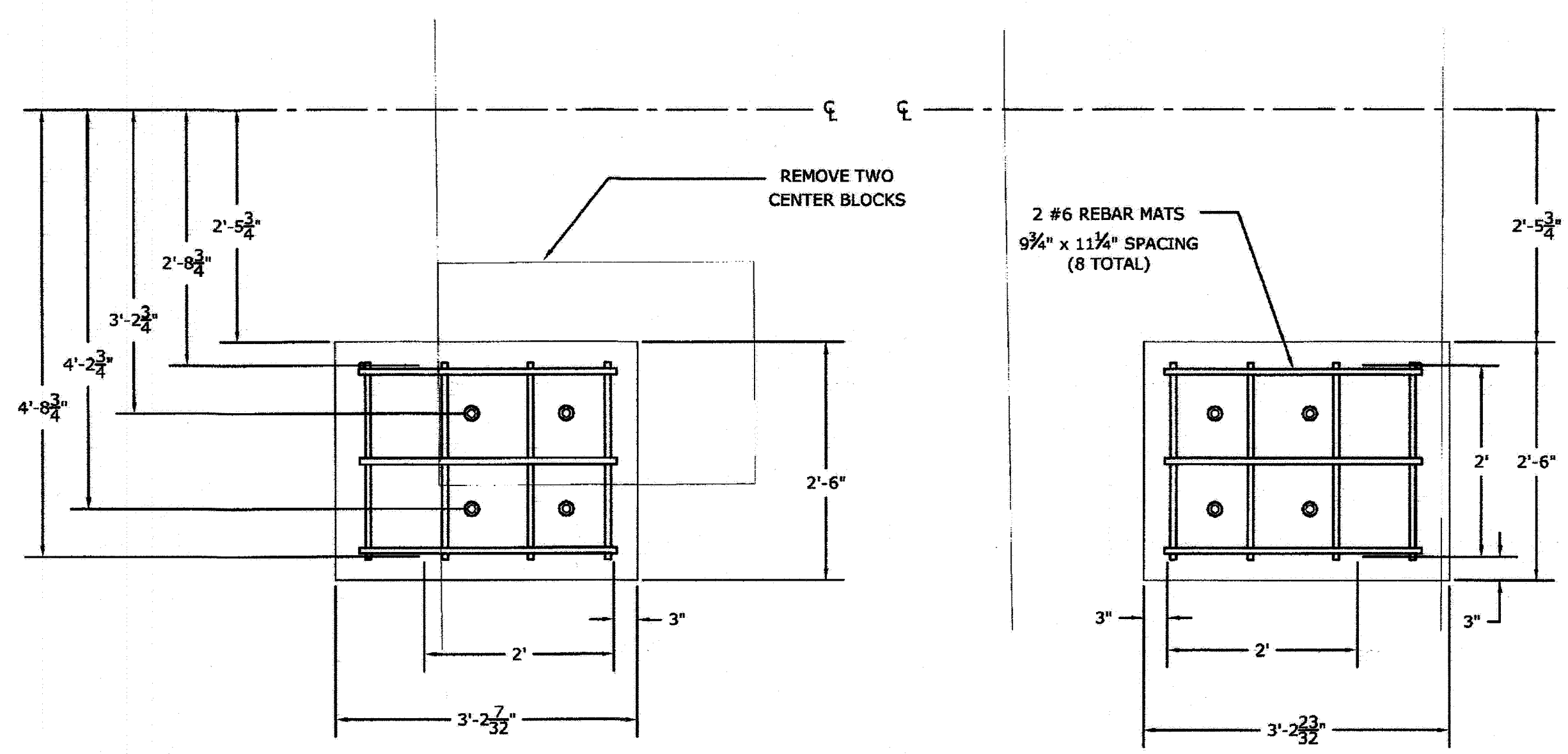
GENERAL
PEDESTRIAN BRIDGE
RECORD DRAWINGS (FOR
INFORMATION ONLY)

PATAPSCO INTERCEPTOR RELOCATION
AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE	AUGUST 2017
DRAWING NUMBER	HSG-7
SCALE	NTS
SHEET	70 OF 106

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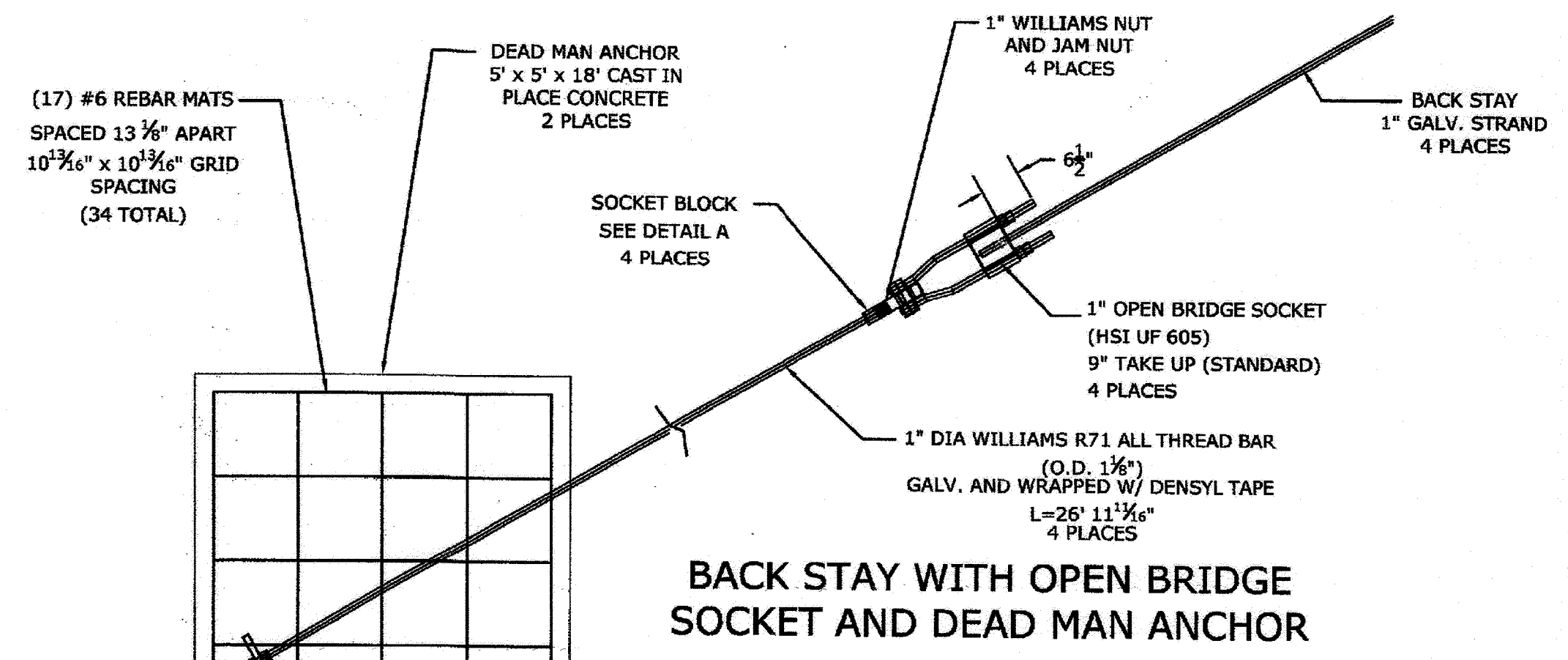
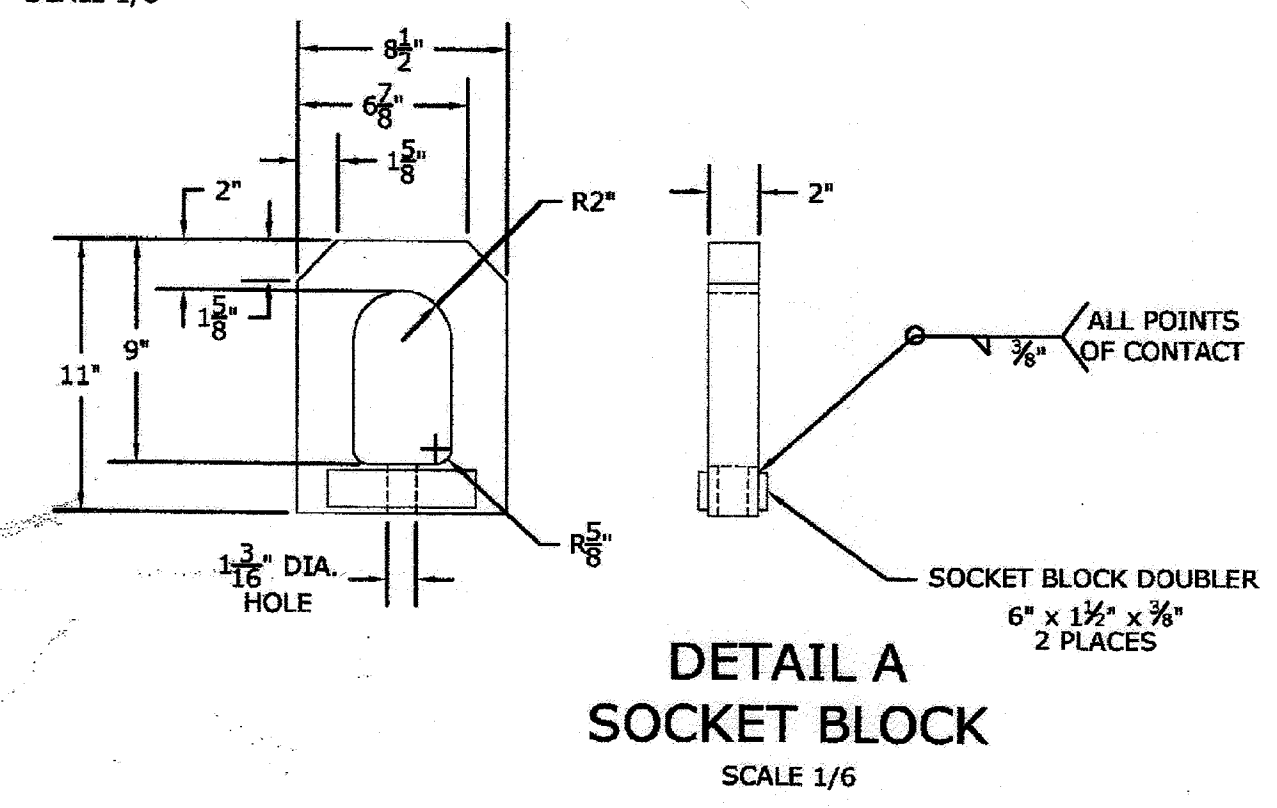
BID SET



NOTES:
 1. RECORD DRAWINGS ARE SHOWN FOR INFORMATION ONLY.
 2. THE VERTICAL DATUM OF THIS DRAWING IS UNKNOWN.

STAY LENGTHS

STAY	NUMBER OF STAYS	CABLE CUT LENGTH (1/4" RECESS IN BOTH BOWLS)	LENGTH (PIN CENTER TO PIN CENTER)
1	4	85' 2 3/4"	86' 9 3/4"
2	4	69' 6 5/8"	71' 1"
3	4	54' 2 5/8"	55' 9"
4	4	40' 0 1/2"	41' 6 1/4"
5	4	28' 6 1/8"	30' 0 3/8"
TOTAL	20	1110' 2"	N/A
BACK	4	80' 7 1/2"	62' 2 3/4"
TOTAL	4	242' 6"	N/A



PATAPSCO CABLE STAY ABUTMENT VIEWS AND STAY DETAILS

SAHALE DESIGN TEAM		DATE
BRANDON MCGINNIS	A.C. HIGHBERGER	01/04/06
CARROLL VOGEL	KEITH MONOHAN	SHEET
SAHALE, LLC		3
P.O. Box 31102 Seattle, Washington 98103-1102		OF 8

AS-BUILT
 DATE 12/31/2019

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 LastSaveBy: MBLICKENSTAFF

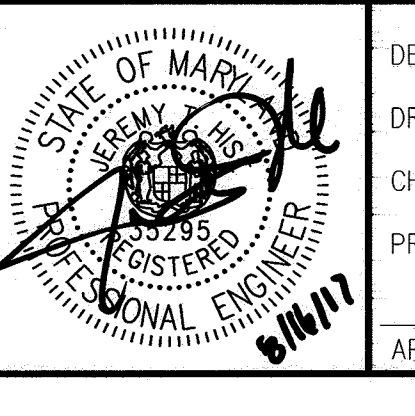
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

<i>John P. Van der... 8/17/17</i> DIRECTOR OF PUBLIC WORKS	<i>Thomas B. Butler 8/17/17</i> CHIEF BUREAU OF ENGINEERING
<i>... 8/17/17</i> CHIEF BUREAU OF UTILITIES	<i>... 8/17/17</i> CHIEF UTILITY DESIGN DIVISION

Hazen

HAZEN AND SAWYER
 1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
 410-539-7681

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. 35295, EXPIRATION DATE 01/06/2018.
 SIGNED: *[Signature]*



DESIGNED	NH/MJB			
DRAWN	MJB			
CHECKED	JTH			
PROJ. ENGR.	JTH			
APPROVED	<i>[Signature]</i>			

GENERAL
 PEDESTRIAN BRIDGE
 RECORD DRAWINGS (FOR
 INFORMATION ONLY)

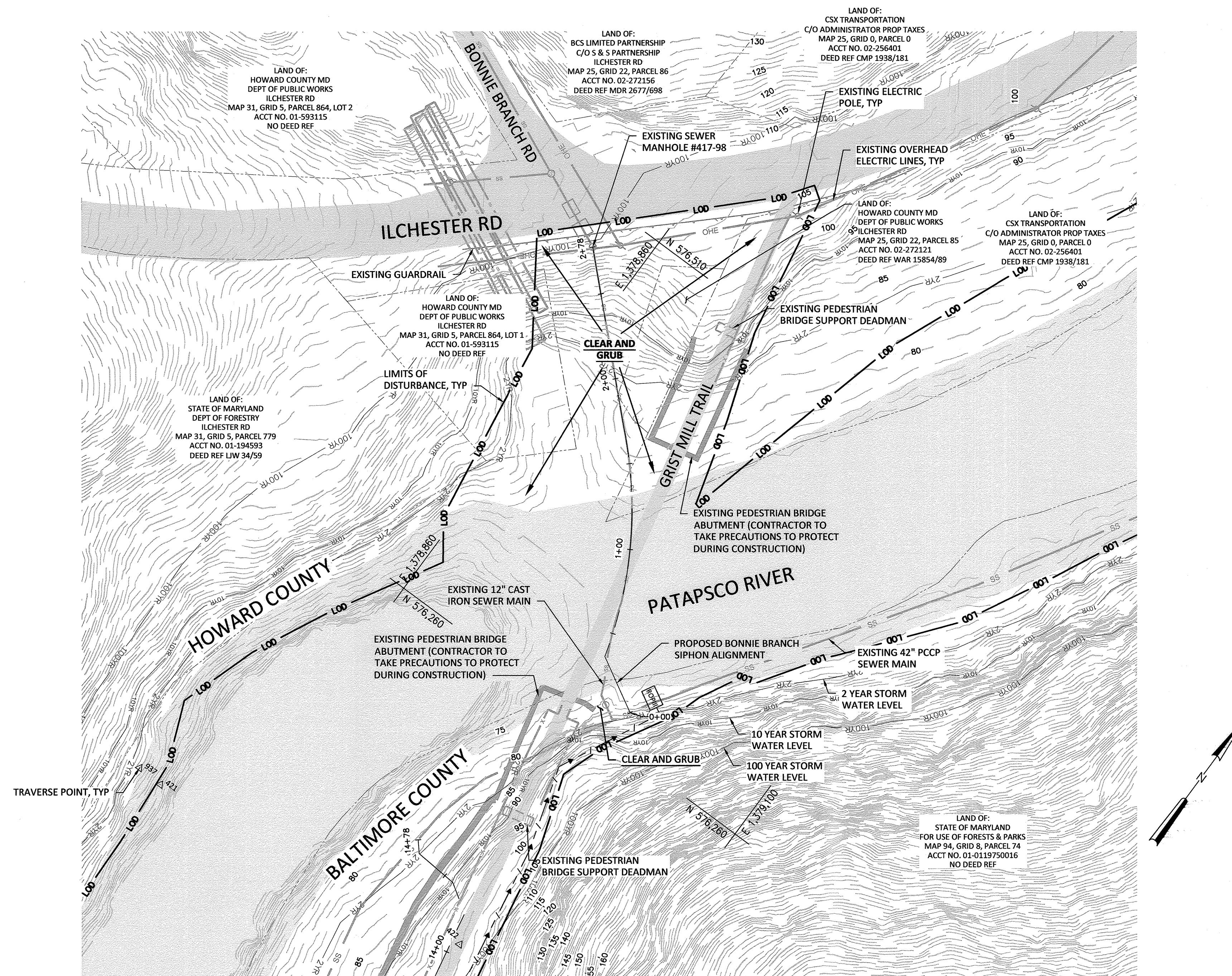
NO.	REVISION PER HOWARD COUNTY	ISSUED FOR	DATE	BY
5			8/2017	JTH

**PATAPSCO INTERCEPTOR RELOCATION
 AND BLOEDE DAM REMOVAL**
 CAPITAL PROJECT NUMBER S-6282
 CONTRACT NUMBER 10-4948
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE AUGUST 2017
 DRAWING NUMBER
HSG-8
 SCALE NTS
 SHEET 71 OF 106

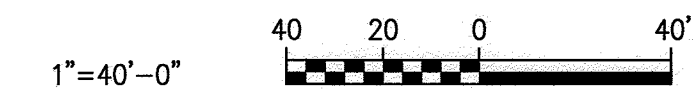
BID SET

- NOTES:**
- LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.



CLEARING AND GRUBBING PLAN - BONNIE BRANCH SIPHON
SCALE: 1"=40'

NO CHANGES IN REVISIONS 1, 2, 3, 4



AS-BUILT
DATE 12/31/2019

I:\ACES\SS-SP-CX, SS-SP-CX, SS-SP-30, SS-SP-GEO, HC-TB-original, SS-SP-CX-TOPO-MAI, SS-SP-TRAY
 XREF#
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Janet de Eshel* DATE: 8/21/17
 Chief Bureau of Engineering: *Thomas S. Butler* DATE: 8/17/17
 Chief Utility Design Division: *[Signature]* DATE: 8/17/17

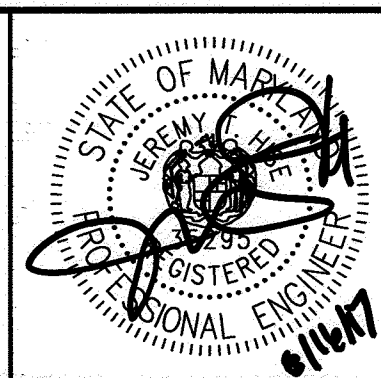
Hazen

HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7681

PROFESSIONAL CERTIFICATION

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SIGNED: *[Signature]*

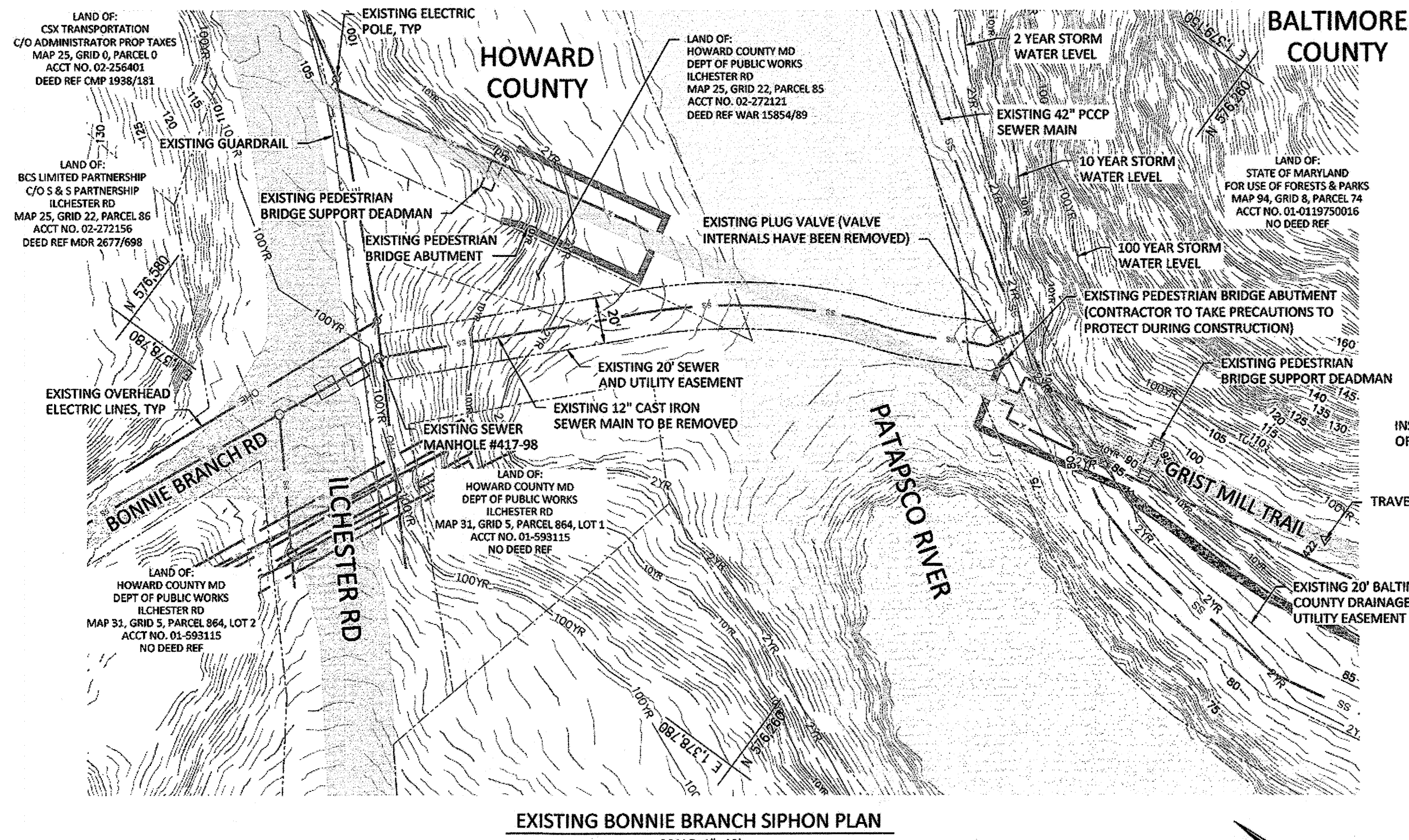


DESIGNED	NH/MJB			
DRAWN	MJB			
CHECKED	JTH			
PROJ. ENGR.	JTH			
APPROVED	<i>[Signature]</i>			

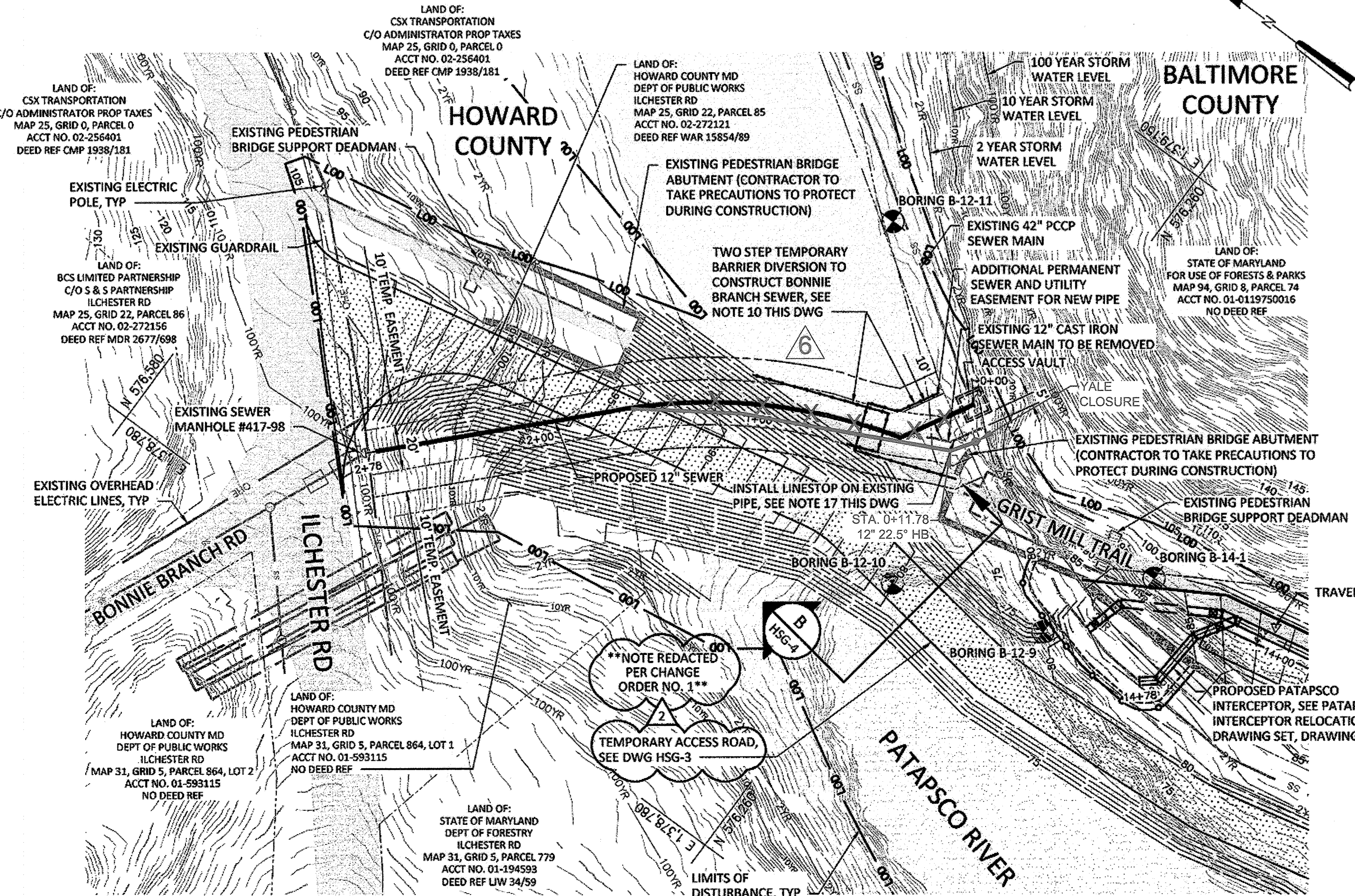
CIVIL			
CLEARING AND GRUBBING PLAN			
5	REVISION PER HOWARD COUNTY	8/2017	JTH
NO.	ISSUED FOR	DATE	BY

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

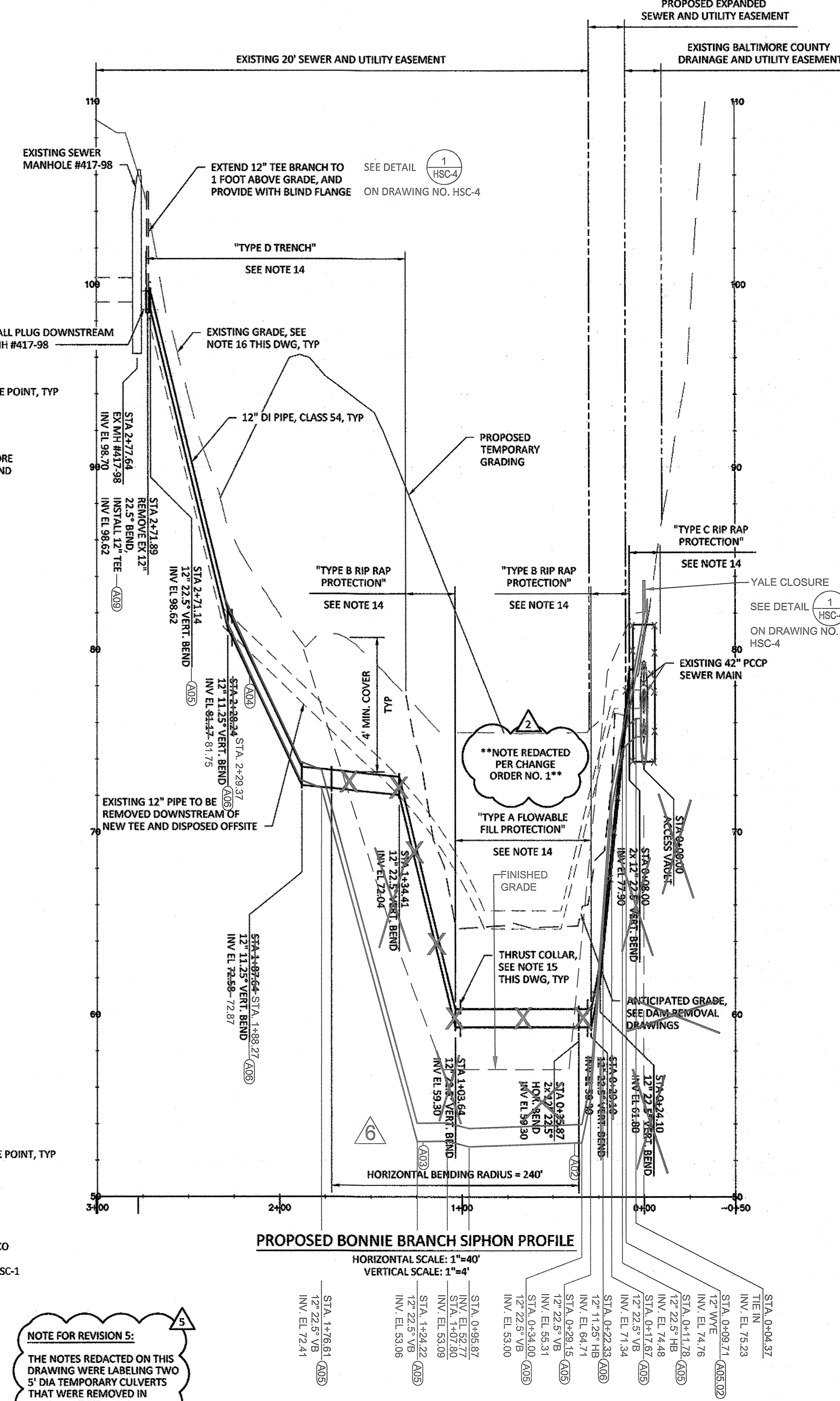
DATE: AUGUST 2017
DRAWING NUMBER: **HSR-1**
SCALE: 1"=40'
SHEET 72 OF 106



EXISTING BONNIE BRANCH SIPHON PLAN
SCALE: 1"=40'



PROPOSED BONNIE BRANCH SIPHON PLAN
SCALE: 1"=40'



PROPOSED BONNIE BRANCH SIPHON PROFILE
HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

NOTE FOR REVISION 5:
THE NOTES REDACTED ON THIS DRAWING WERE LABELING TWO 5' DIA TEMPORARY CULVERTS THAT WERE REMOVED IN CHANGE ORDER NO. 1.

- NOTES:**
- ALL GRADING SHOWN HEREIN SHALL BE PERFORMED FOR CONSTRUCTION OF THE PIPE AND ACCESS ROAD FOR THE PATAPSCO INTERCEPTOR RELOCATION. FINAL GRADING FOR THE SITE SHALL CONSIST OF RETURNING THE DISTURBED AREAS TO THE EXISTING GRADES UNLESS OTHERWISE INDICATED.
 - SEE DAM REMOVAL DRAWING SET, DRAWING DG3 FOR DETAILED SEQUENCE OF CONSTRUCTION.
 - REFER TO THE GEOTECHNICAL REPORT LOCATED IN THE SPECIFICATIONS FOR BORING LOGS AND RELATED INFORMATION. THE CONTRACTOR SHALL PERFORM FIVE TEST PITS PRIOR TO CONSTRUCTION OF THE SIPHON AND ACCESS VAULT: ONE ON EACH SIDE OF THE EXISTING 42 INCH INTERCEPTOR AT THE PROPOSED VAULT LOCATION, AND AT STATION 0+29.0+66.1+05 OF THE SIPHON ALIGNMENT. THESE TEST PITS SHALL BE TAKEN DOWN TO REFUSAL IN HARD ROCK. THE RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR POSSIBLE MODIFICATIONS TO THE ACCESS VAULT FOUNDATION AND TO THE VERTICAL ALIGNMENT OF THE SIPHON.
 - REFER TO ESC SERIES DRAWINGS FOR EROSION & SEDIMENT CONTROL.
 - STREAM CONDITIONS AND FLOOD LINES SHOWN ARE BASED ON A HEC-RAS MODEL PREPARED BY INTERFLUVE, INC. FLOOD LINE LOCATIONS ARE BASED ON EXISTING TOPOGRAPHY.
 - REFER TO PATAPSCO INTERCEPTOR RELOCATION DRAWING SET, DRAWING BSD-1, FOR LIMITS AND DETAILS FOR REMOVAL OF EXISTING 42" PCCP INTERCEPTOR AND APPURTENANCES.
 - LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.
 - REFER TO DRAWING HSC-3 FOR PIPE TRENCH DETAILS.
 - A LINESHIP SHALL BE PROVIDED ON EXISTING 12" BONNIE BRANCH SEWER ADJACENT TO THE EXISTING 42" PATAPSCO INTERCEPTOR IN ORDER TO REMOVE IT FROM UNDER THE RIVER. EXISTING 12" PIPE SHALL BE REMOVED FROM THE NEW PIPE TIE-IN TO THE LINESHIP. AFTER REMOVAL OF 12" PIPE, REMAINING STUB SHALL BE ENCASED IN A MINIMUM OF 18" OF CONCRETE IN ALL DIRECTIONS.
 - BONNIE BRANCH PIPE ACROSS THE PATAPSCO RIVER SHALL BE CONSTRUCTED IN TWO STAGES. EACH STAGE SHALL UTILIZE A PARTIAL DIVERSION OF THE PATAPSCO RIVER TO CONSTRUCT THE PIPE. CONTRACTOR MAY ELECT TO PERFORM EITHER THE EASTERMOST SIDE OR WESTERMOST SIDE FIRST. SEE DETAIL C-7 ON DWG HSC-3 FOR BARRIER DETAILS. ALTERNATIVELY, THE CONTRACTOR MAY SUGGEST ALTERNATE METHODS, AND SUBMIT SUCH METHODS FOR REVIEW BY THE ENGINEER AND MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 - REFER TO DRAWING HSC-2 FOR BYPASS DETAILS.
 - ALL PIPE SHALL BE CLASS 54 DUCTILE IRON.
 - ALL PIPE SHALL BE RESTRAINED JOINT.
 - REFER TO DRAWING HSC-3 FOR TRENCH AND VAULT PROTECTION DETAILS.
 - PROVIDE THREE THRUST COLLARS ON THE PROPOSED SIPHON PER HOWARD COUNTY STANDARD DETAIL G-8.13. THRUST COLLARS SHALL BE PLACED AT STATIONS 0+31.1+00, AND 2+28. THRUST COLLARS AT STATION 0+31 AND 1+01 SHALL BE CONSTRUCTED TO THE DIMENSIONS OF THE ROCK TRENCH PER THE "TYPE A FLOWABLE FILL PROTECTION" DETAIL ON DRAWING HSC-3. STATIONING FOR THESE TWO SHALL BE SUBJECT TO FIELD VERIFICATION BY TEST PITS. THE THRUST COLLAR AT STATION 2+26 SHALL BE CONSTRUCTED TO THE DIMENSIONS REQUIRED BY EXISTING SOIL CONDITIONS AS PER THE "TYPE D TRENCH" DETAIL ON DRAWING HSC-3.
 - CONTRACTOR SHALL PERFORM A POST CONSTRUCTION GROUND-OVER SURVEY AT 25 FOOT INCREMENTS FROM STATION 1+34 TO EXISTING MH #417-98 TO ENSURE THAT THERE IS A MINIMUM OF 4 FEET OF COVER OVER THE NEW SIPHON.
 - LINESHIP SHALL BE INSTALLED UPSTREAM OF EXISTING PLUG VALVE ON EXISTING CAST IRON PIPE. CONTRACTOR SHALL PROVIDE RESTRAINT FOR EXISTING PIPE STUB AFTER REMOVAL OF EXISTING SIPHON UNDER RIVER. RESTRAINT SHALL BE SIMILAR TO HOWARD COUNTY STD DETAIL G-8.11.

STREAM CONDITIONS NEAR BONNIE BRANCH CONNECTION:

- NORMAL WATER SURFACE ELEVATION = 75.71 FT (NAVD 88)
- 2-YEAR STORM WATER SURFACE ELEVATION = 83.2 FT (NAVD 88)
- 10-YEAR STORM WATER SURFACE ELEVATION = 91.08 FT (NAVD 88)
- 100-YEAR STORM WATER SURFACE ELEVATION = 110.09 FT (NAVD 88)

AS-BUILT REPLACEMENT SHEET

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Raymond Stahn* DATE: *8/13/17*
 Chief Bureau of Engineering: *Thomas J. Butler* DATE: *8/13/17*
 Chief Utility Design Division: *WP* DATE: *8/13/17*

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1100, BALTIMORE, MD 21202
410-538-7681

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. 35225, EXPIRATION DATE 01/08/2018.
SIGNED: *[Signature]*

DESIGNED	NH/FP		
DRAWN	FP		
CHECKED	JTH		
PROJ. ENGR.	JTH		
APPROVED	<i>[Signature]</i>		

NO.	ISSUED FOR	DATE	BY
8	AS-BUILT	01/2020	KJ-KCI
5	REVISION PER HOWARD COUNTY	8/2017	JTH
2	CHANGE ORDER NO. 1	5/2016	JTH

CIVIL
BONNIE BRANCH SIPHON PLAN

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: AUGUST 2017
DRAWING NUMBER: **HSC-1**
SCALE: 1"=40'
SHEET 73 OF 106

IMAGE: Boring_Plan_XREF: SS-SF-CX, SS-SF-30, SS-SF-GE0, HC-TB-original, SS-SF-CX, TOPD-MAJ, SS-SF-TRAV

BID SET

NOTES:

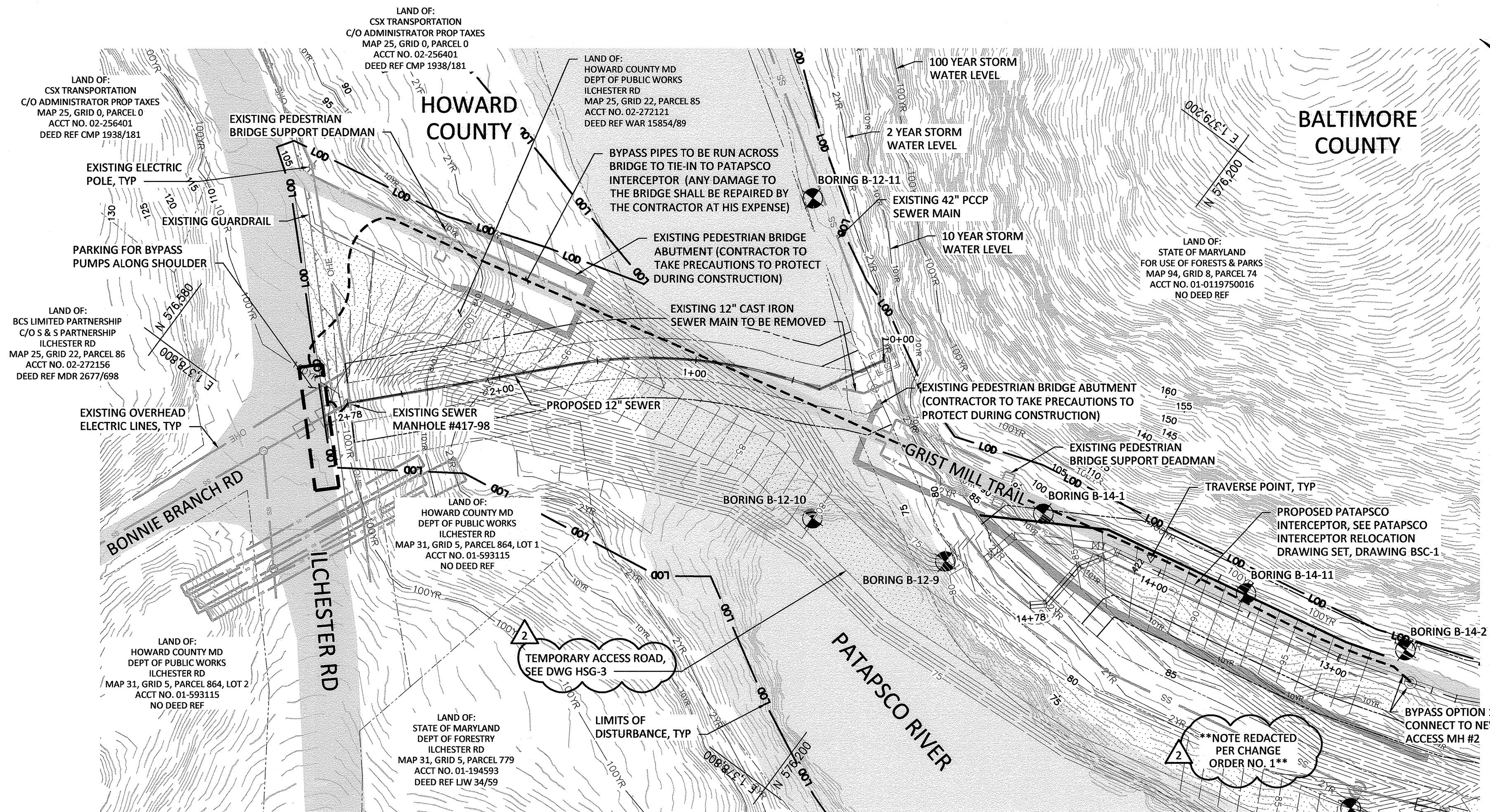
1. THE BYPASS PUMP PLAN SHOWN HEREON IS GENERAL AND SHALL BE USED FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR SHALL SUBMIT, FOR APPROVAL, A DETAILED BYPASS PLAN SIGNED AND SEAL BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND.
2. WHERE THE BYPASS ALIGNMENT IS RUNNING ALONG STEEP SLOPES OR AGAINST THE GRADE ALONG AN EMBANKMENT, THE CONTRACTOR SHALL SECURE THE BYPASS PIPING TO PROTECT IT DURING CONSTRUCTION. PIPE PROTECTION PLANS AND DETAILS SHALL BE SUBMITTED AS PART OF THE AFOREMENTIONED BYPASS PLAN.

STREAM CONDITIONS NEAR BONNIE BRANCH CONNECTION:

- NORMAL WATER SURFACE ELEVATION = 75.71 FT (NAVD 88)
- 2-YEAR STORM WATER SURFACE ELEVATION = 83.2 FT (NAVD 88)
- 10-YEAR STORM WATER SURFACE ELEVATION = 91.08 FT (NAVD 88)
- 100-YEAR STORM WATER SURFACE ELEVATION = 110.09 FT (NAVD 88)

BONNIE BRANCH SEWER BYPASS CRITERIA:

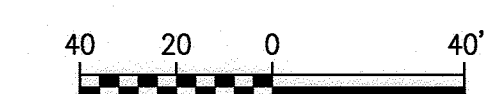
- MAXIMUM WET WEATHER FLOW = 4.4 MGD
 - AVERAGE FLOW = 1.0 MGD
- NOTE: BYPASS PUMPING SYSTEM MUST BE MANNED 24 HOURS PER DAY, 7 DAYS A WEEK, FOR THE DURATION OF THE BYPASS PUMPING OPERATION.



PROPOSED BONNIE BRANCH BYPASS PLAN
SCALE: 1"=40'

NOTE FOR REVISION 5:
THE NOTE REDACTED ON THIS DRAWING WAS LABELING BYPASS PIPE OPTION 2 THAT WAS REMOVED IN CHANGE ORDER NO. 1.

1"=40'-0"



AS-BUILT
DATE 12/31/2019

NO CHANGES IN REVISIONS 1, 3, 4

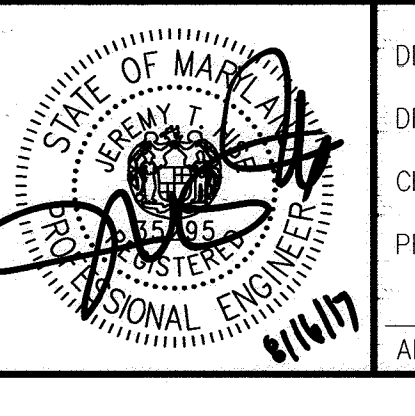
I:\ACES\Bids\10-17A\20170815 10-17A\CAD\Drawings\CAD Backup\MIB\CAD\SC\HSC-2.dwg
 XREF= SS-SP-CX, SS-SP-30, SS-SP-GE0, HC-TB-original, SS-SP-CX-TOPO-MAI, SS-SP-BYPASS, SS-SP-TRAV

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* DATE: 8/17/17
 Chief Bureau of Engineering: *[Signature]* DATE: 8/17/17
 Chief Bureau of Utilities: *[Signature]* DATE: 8/17/17
 Chief Utility Design Division: *[Signature]* DATE: 8/17/17

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7681

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. 35285, EXPIRATION DATE 01/06/2018.
SIGNED: *[Signature]*

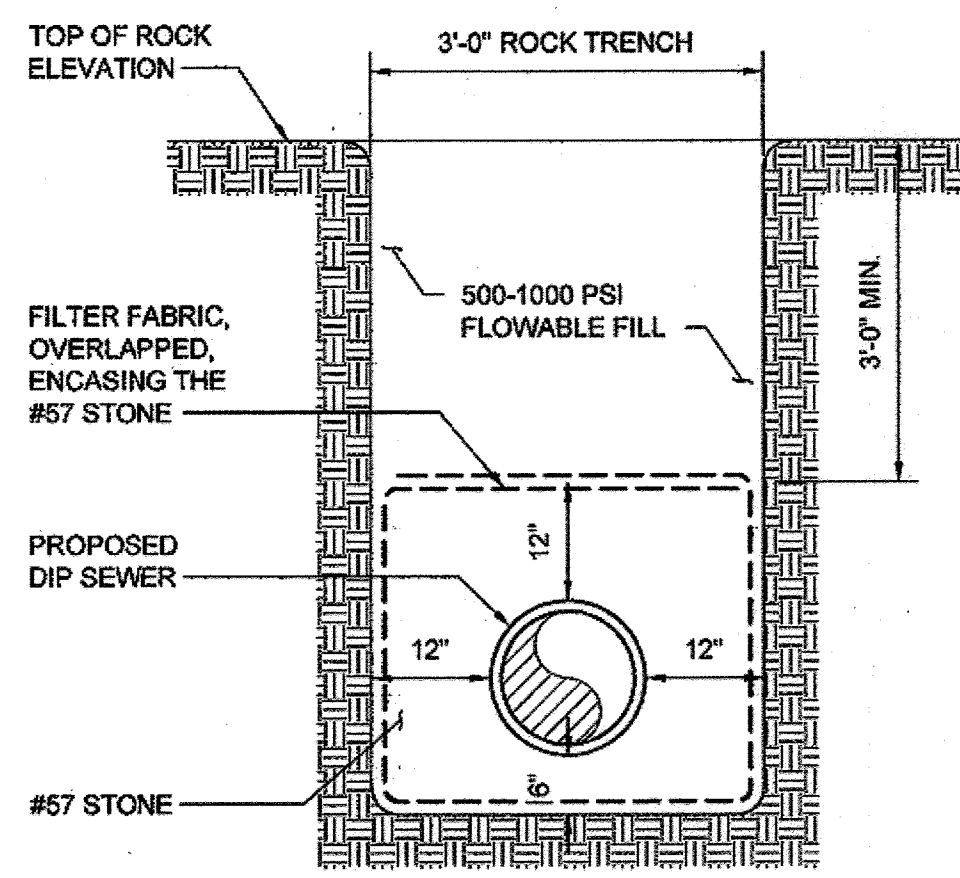


DESIGNED	NH/MJB				
DRAWN	MJB				
CHECKED	JTH				
PROJ. ENGR.	JTH				
APPROVED	<i>[Signature]</i>				
NO.	5	REVISION PER HOWARD COUNTY	8/2017	JTH	
	2	CHANGE ORDER NO. 1	5/2016	JTH	
		ISSUED FOR	DATE	BY	

CIVIL
BONNIE BRANCH BYPASS PLAN

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

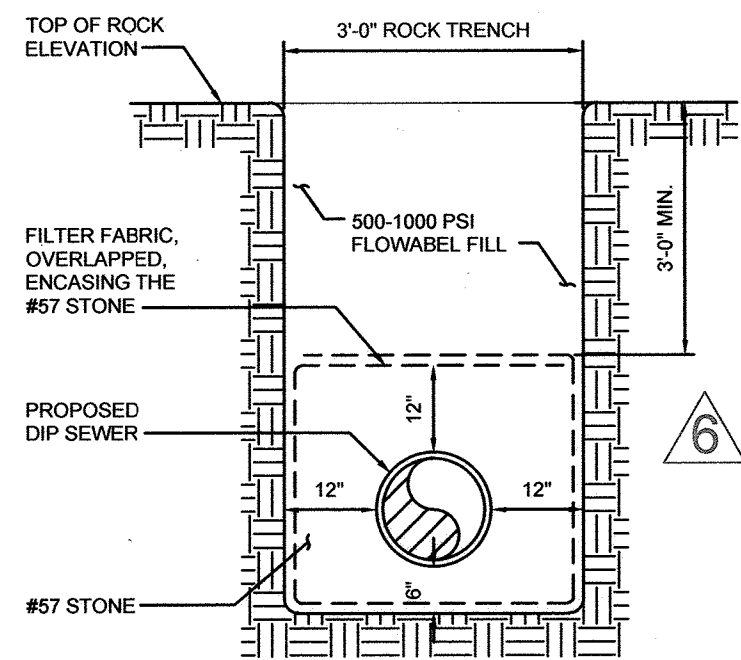
DATE: AUGUST 2017
DRAWING NUMBER: **HSC-2**
SCALE: 1"=40'
SHEET 74 OF 106



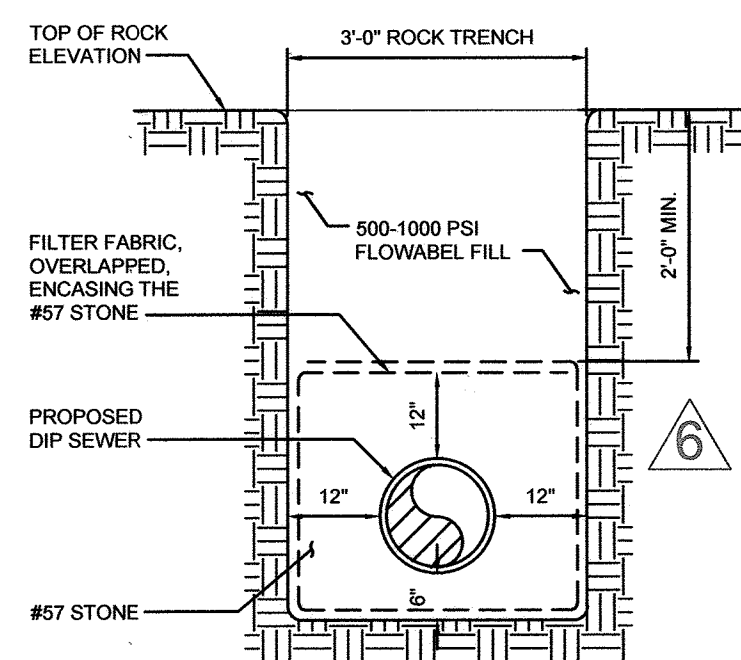
NOTES FOR "TYPE A FLOWABLE FILL PROTECTION":

- IT IS ANTICIPATED THAT THE PROPOSED 12" SIPHON WILL BE TRENCHED INTO BEDROCK WHERE "TYPE A FLOWABLE FILL PROTECTION" IS CALLED FOR. CONTRACTOR SHALL PERFORM THREE TEST PITS ALONG THE SIPHON ALIGNMENT AS STATED ON DRAWING HSC-1: ONE AT STATION 0+29, ONE AT STATION 1+03, AND ONE AT THE MIDPOINT STATION 0+66. CONTRACTOR SHALL PROVIDE THE TEST PIT DATA FOR REVIEW PRIOR TO COMMENCING WORK.
- IF THE TEST PIT DATA SHOWS THAT THE BEDROCK ELEVATION IS LOWER THAN APPROXIMATE ELEVATION 65.0, THE CONTRACTOR SHALL LOWER THE PIPE ELEVATION SUCH THAT THE CROWN OF THE PIPE WILL BE A MINIMUM OF 4 FEET INTO BEDROCK. THE VERTICAL ALIGNMENT WILL ADJUST FOR ANY CHANGES IN THE ELEVATION OF THE PIPE INVERTS AT THE LOWEST POINT.
- THE DUCTILE IRON SIPHON SHALL BE BURIED WITH DIMENSIONS AS SHOWN ABOVE. BACKFILL SHALL CONSIST OF #57 STONE, WRAPPED IN GEOTEXTILE, FROM 6" BELOW THE PIPE TO 12" ABOVE THE PIPE. #57 STONE SHALL BE THE FULL WIDTH OF THE TRENCH.
- ABOVE THE #57 STONE, FLOWABLE FILL SHALL BE PROVIDED. SEE THE HOWARD COUNTY SPECIAL PROVISIONS, PARAGRAPH 11 FOR REQUIREMENTS. THE TOP OF THE FLOWABLE FILL SHALL BE SET AT THE SAME ELEVATION AS THE TOP OF ROCK.

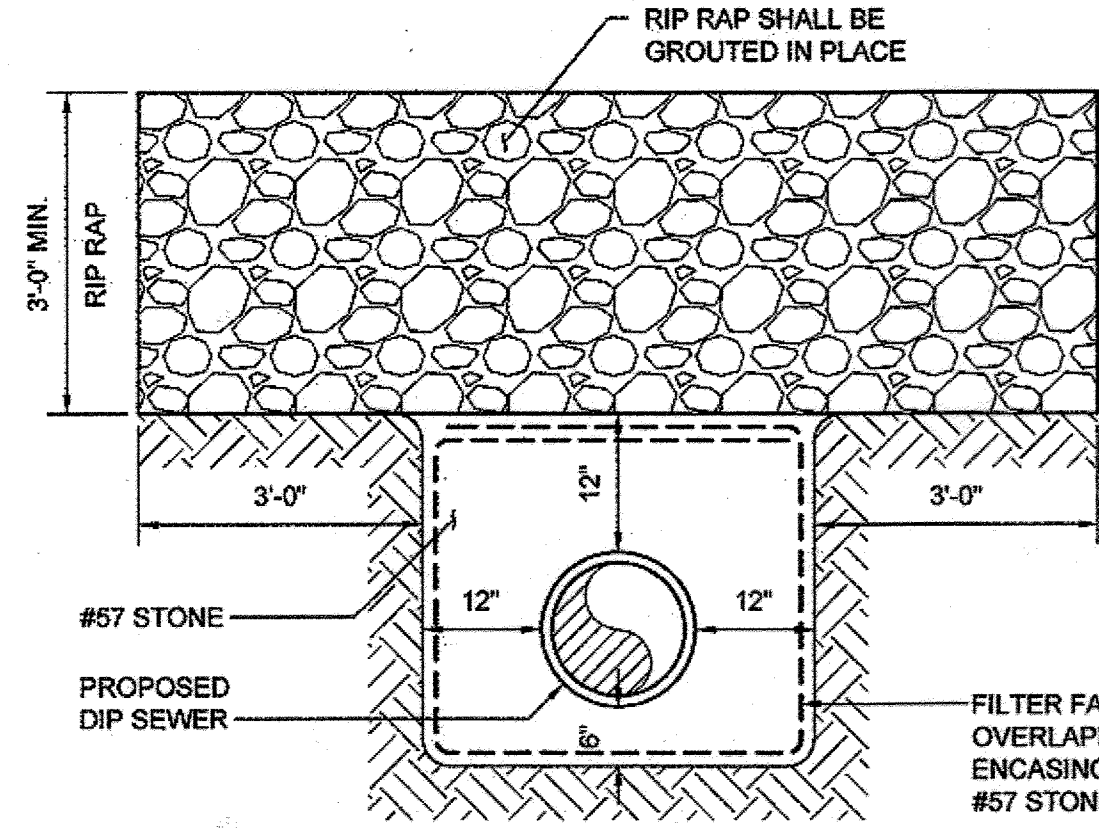
"TYPE A FLOWABLE FILL PROTECTION" DETAIL FOR BONNIE BRANCH SEWER CONNECTION
NOT TO SCALE



CONTRACT ENCASUREMENT DETAIL
INV. EL. 52
NOT TO SCALE



HOWARD COUNTY PROPOSAL OF 2' MIN. ENCASUREMENT IN ROCK WITH CONCRETE FILL
REVISED INV. EL. 53
NOT TO SCALE



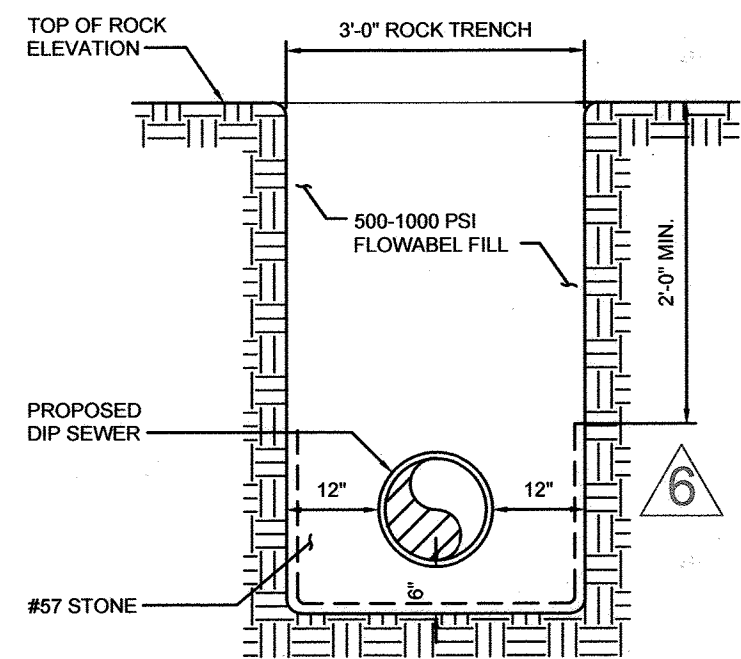
NOTES FOR "TYPE B RIP RAP PROTECTION":

- THIS TYPE OF RIP RAP PROTECTION SHALL BE UTILIZED TO PROTECT THE PIPE IN THE STEEP PORTIONS OF THE TRENCH WITHIN THE BANKS OF THE RIVER AT NORMAL FLOW.
- THE DUCTILE IRON SIPHON SHALL BE BURIED IN THE WITH DIMENSIONS SHOWN ABOVE. BACKFILL SHALL CONSIST OF #57 STONE, WRAPPED IN GEOTEXTILE, FROM 6" BELOW THE PIPE TO 12" ABOVE THE PIPE. #57 STONE SHALL BE THE FULL WIDTH OF THE TRENCH.
- ABOVE THE #57 STONE, CLASS III RIP RAP GROUTED IN PLACE SHALL BE PROVIDED AT A MINIMUM DEPTH OF 3 FEET AND EXTENDING HORIZONTALLY 3 FEET BEYOND THE LIMITS OF THE #57 STONE, FOR A TOTAL WIDTH OF APPROXIMATELY 9 FEET.
- THE TOP OF THE RIP RAP ELEVATION SHALL BE SET AT THE GRADE ELEVATION POST DAM REMOVAL. ONCE THE GROUTED RIP RAP IS INSTALLED, CONTRACTOR SHALL INSTALL RIVER BANK PROTECTION IN ACCORDANCE WITH THE RIVER BANK PROTECTION DETAIL ON THIS DRAWING.

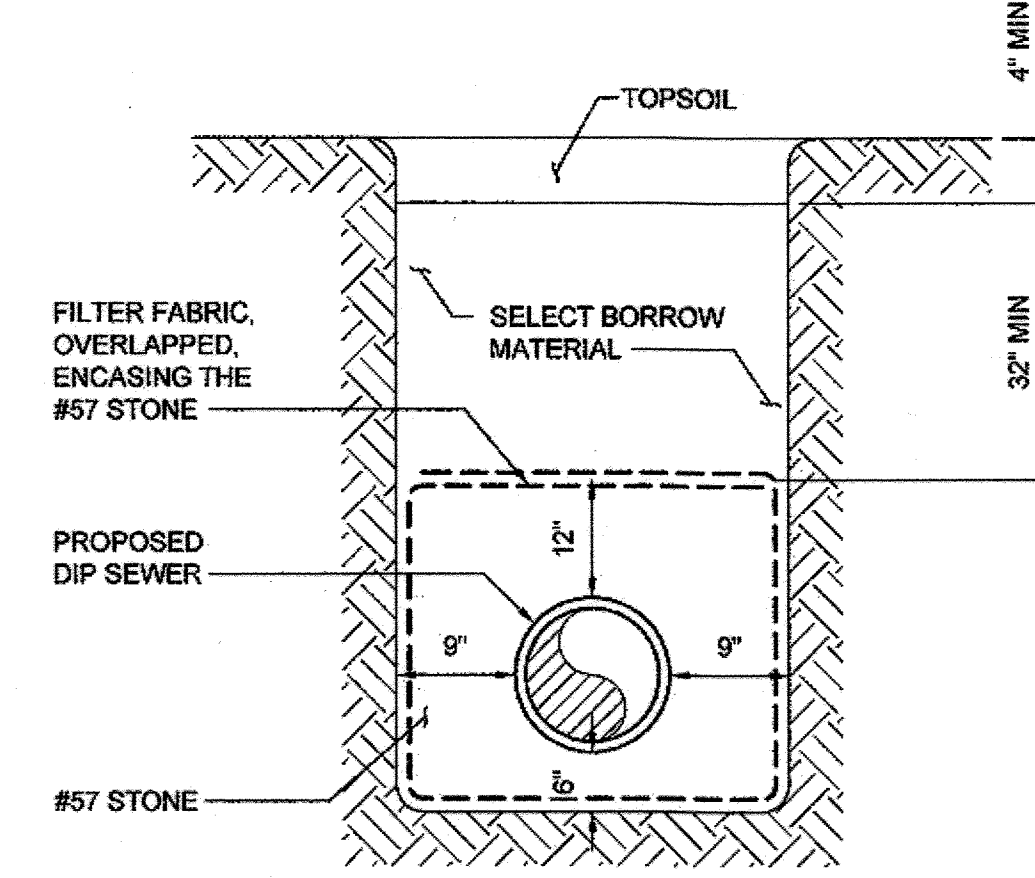
NOTES FOR "TYPE C RIP RAP PROTECTION":

- THIS TYPE OF RIP RAP PROTECTION SHALL BE UTILIZED TO PROTECT THE PIPE WHERE IT ENTERS THE ACCESS VAULT AS WELL AS PROTECTING THE ACCESS VAULT FROM THE FORCES OF THE RIVER.
- A SMALL PORTION OF THE SIPHON NEAR THE VAULT WILL BE ABOVE EXISTING GRADE. IN THIS LOCATION, CONTRACTOR SHALL CONCRETE ENCASE THE PIPE A MINIMUM OF 12 INCHES ALL AROUND AND PROVIDE GROUTED RIP RAP ABOVE AND ON ALL EXPOSED SIDES OF THE CONCRETE, AS WELL AS SURROUNDING THE PROPOSED ACCESS VAULT FOR A DISTANCE OF APPROXIMATELY 10 FEET. AROUND THE ACCESS VAULT, THE RIP RAP SHALL BE TAPERED FROM THE TOP OF THE VAULT TO EXISTING GRADE AS APPROPRIATE. RIP RAP SIZE SHALL BE A MIXTURE OF CLASS II AND CLASS III RIP RAP ARRANGED IN A PATTERN TO BEST PROTECT THE EXPOSED SIPHON AND ACCESS VAULT.

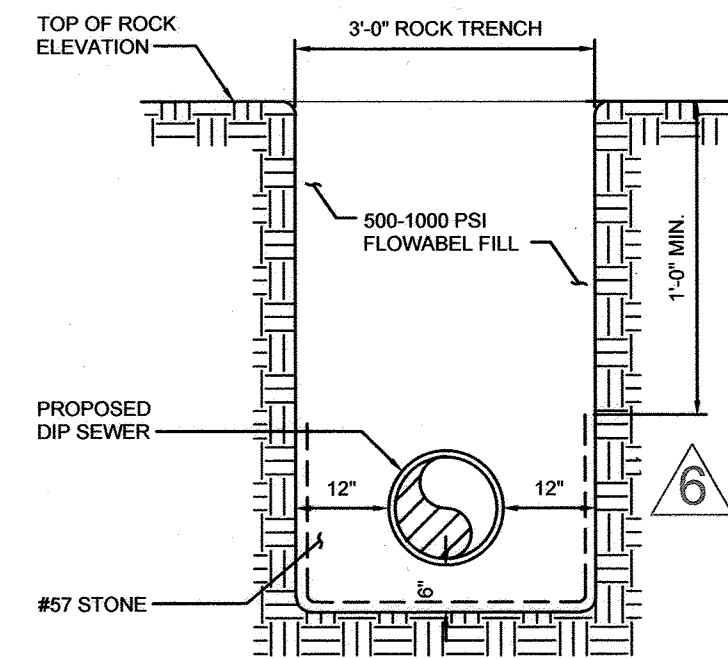
"TYPE B RIP RAP PROTECTION" AND "TYPE C RIP RAP PROTECTION" DETAIL FOR BONNIE BRANCH SEWER CONNECTION
NOT TO SCALE



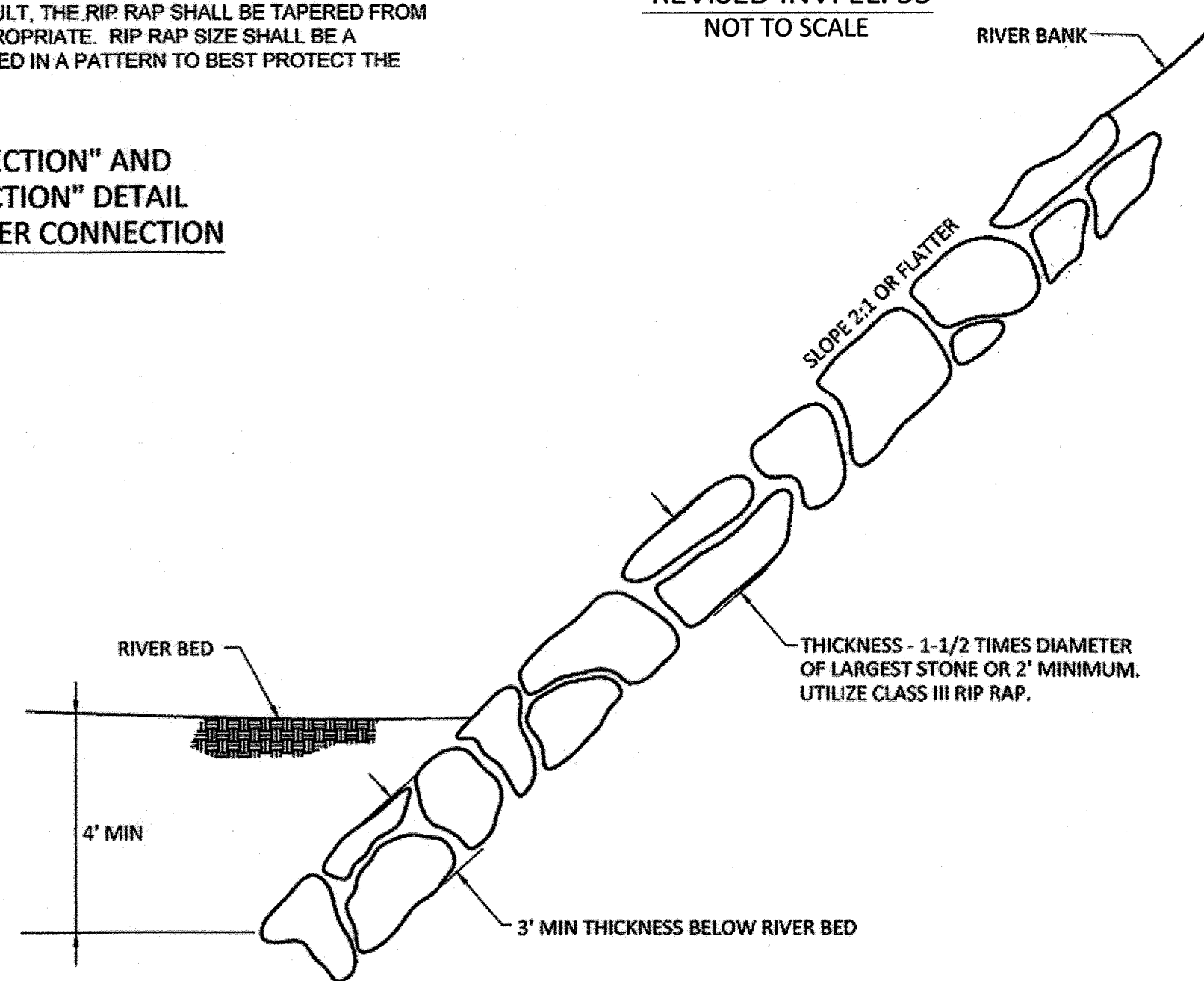
2' MIN. ENCASUREMENT IN CONCRETE WITHOUT #57 STONE ON TOP OF PIPE
REVISED INV. EL. 54
NOT TO SCALE



"TYPE D TRENCH" DETAIL FOR BONNIE BRANCH SEWER CONNECTION
NOT TO SCALE



1' MIN. ENCASUREMENT IN CONCRETE WITHOUT #57 STONE
REVISED INV. EL. 55
NOT TO SCALE



NOTE: RIVER BANK PROTECTION SHALL EXTEND A MINIMUM OF 6 FEET BOTH UPSTREAM AND DOWNSTREAM OF THE PROPOSED SIPHON ALIGNMENT, FOR A TOTAL LENGTH OF 12 FEET MEASURED ALONG THE DIRECTION OF RIVER FLOW.

RIVER BANK PROTECTION DETAIL
NOT TO SCALE

DETAIL C-7 TEMPORARY BARRIER DIVERSION		STANDARD SYMBOL
		TBD
CONSTRUCTION SPECIFICATIONS		
<ol style="list-style-type: none"> FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL. USE BARRIER MADE OF CONCRETE OR OTHER APPROVED MATERIAL. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING. ESTABLISH TOP ELEVATION AT H/2 + 1 FOOT FOR PROJECTS OF DURATION LESS THAN 2 WEEKS OR AS SPECIFIED ON APPROVED PLAN. INSTALL DIVERSION STRUCTURE FROM UPGRADE TO DOWNGRADE. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES. USE SANDBAG BASE FOR LEVELING AND TO ESTABLISH MINIMUM TOP ELEVATION OF THE BARRIER AS REQUIRED. DISPOSE OF ALL EXCAVATED MATERIALS IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN. KEEP ABUTMENTS BETWEEN CONCRETE BARRIERS WATER TIGHT. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN. 		
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
C.22		

TEMPORARY RIVER CONSTRUCTION DETAIL FOR BONNIE BRANCH SEWER CONNECTION - MDE DETAIL C-7
NOT TO SCALE

IMAGE=C-7-XREF=H:\Bibin\detail_bonniebranch, HC-TB-original, DET - River Bank Protection

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
DIRECTOR OF PUBLIC WORKS DATE: 8/24/12	CHIEF BUREAU OF ENGINEERING DATE: 8/27/12
CHIEF BUREAU OF UTILITIES DATE: 8/24/12	CHIEF UTILITY DESIGN DIVISION DATE: 8/27/12

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7581

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. 35285, EXPIRATION DATE 01/08/2018.
SIGNED:

STATE OF MARYLAND
PROFESSIONAL ENGINEER

DESIGNED	NH/MJB			
DRAWN	MJB			
CHECKED	JTH			
PROJ. ENGR.	JTH			
APPROVED				
NO.	8	AS-BUILT	01/2020	KJL/KCI
ISSUED FOR	5	REVISION PER HOWARD COUNTY	8/2017	JTH

CIVIL	
DETAILS	

AS-BUILT REPLACEMENT SHEET

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE	AUGUST 2017
DRAWING NUMBER	HSC-3
SCALE	NTS
SHEET	75 OF 106

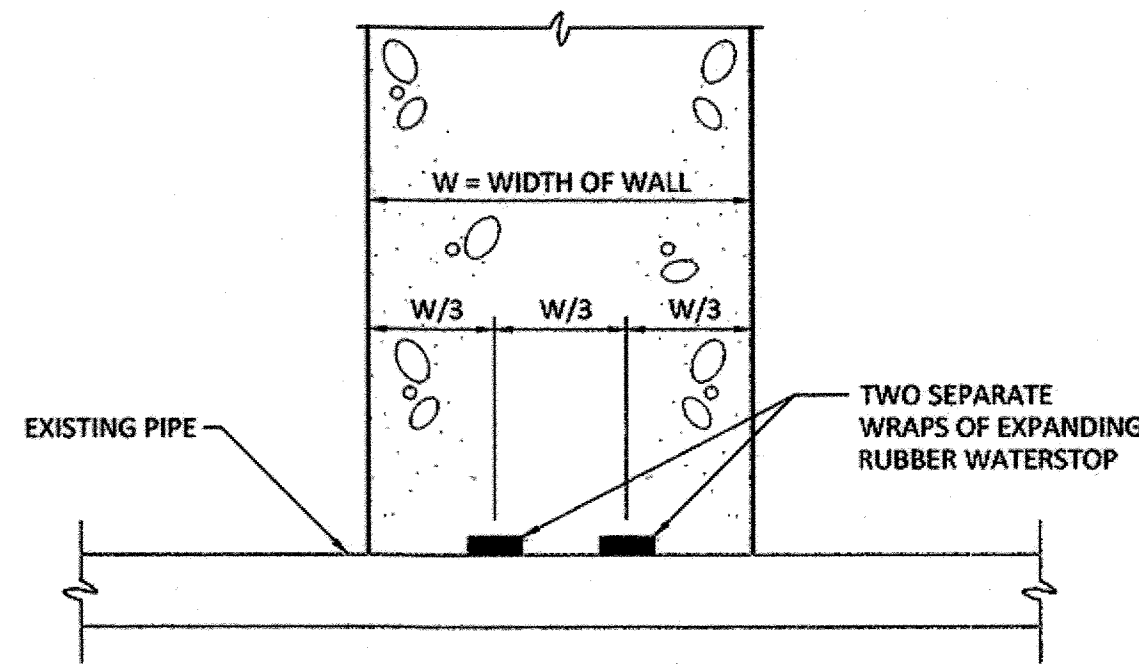
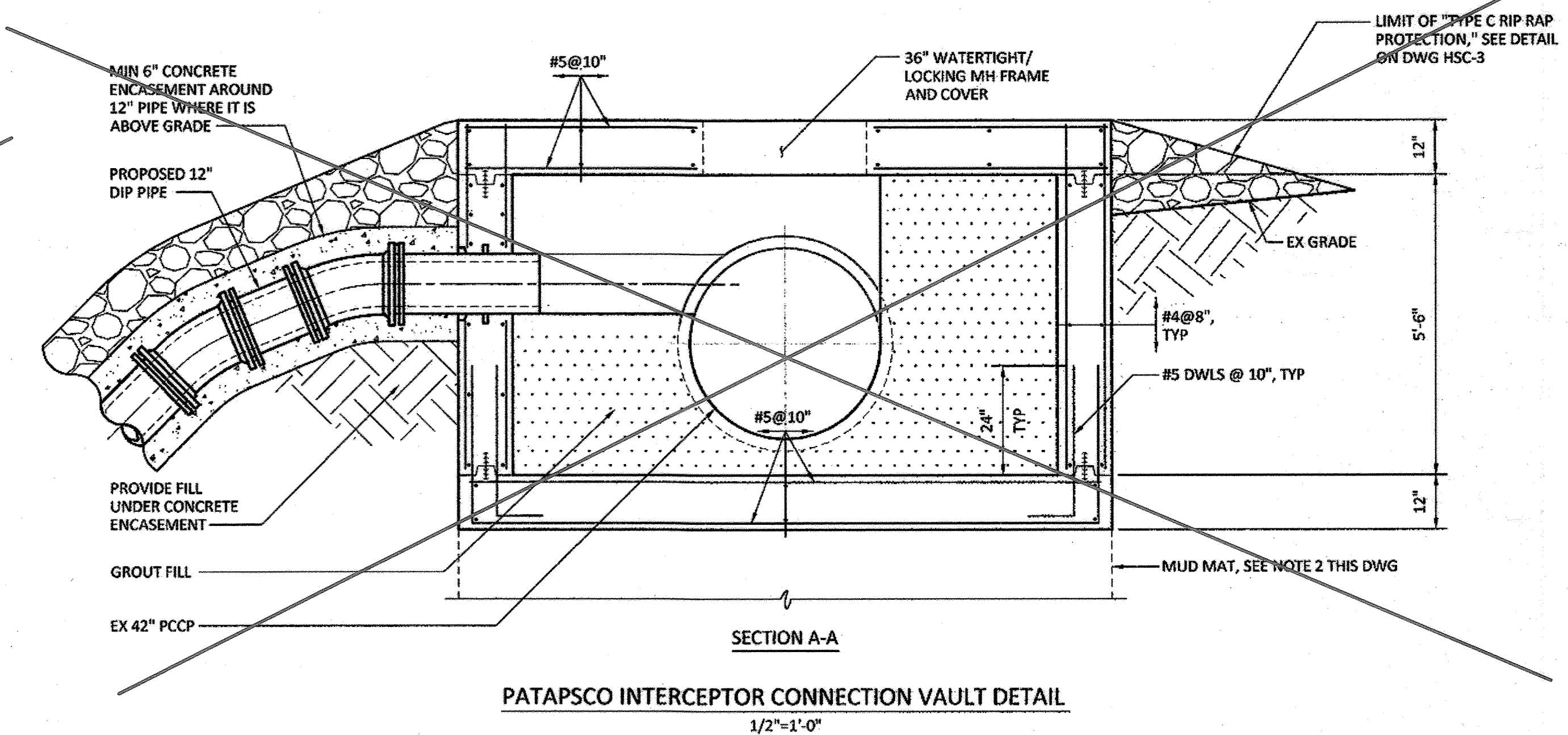
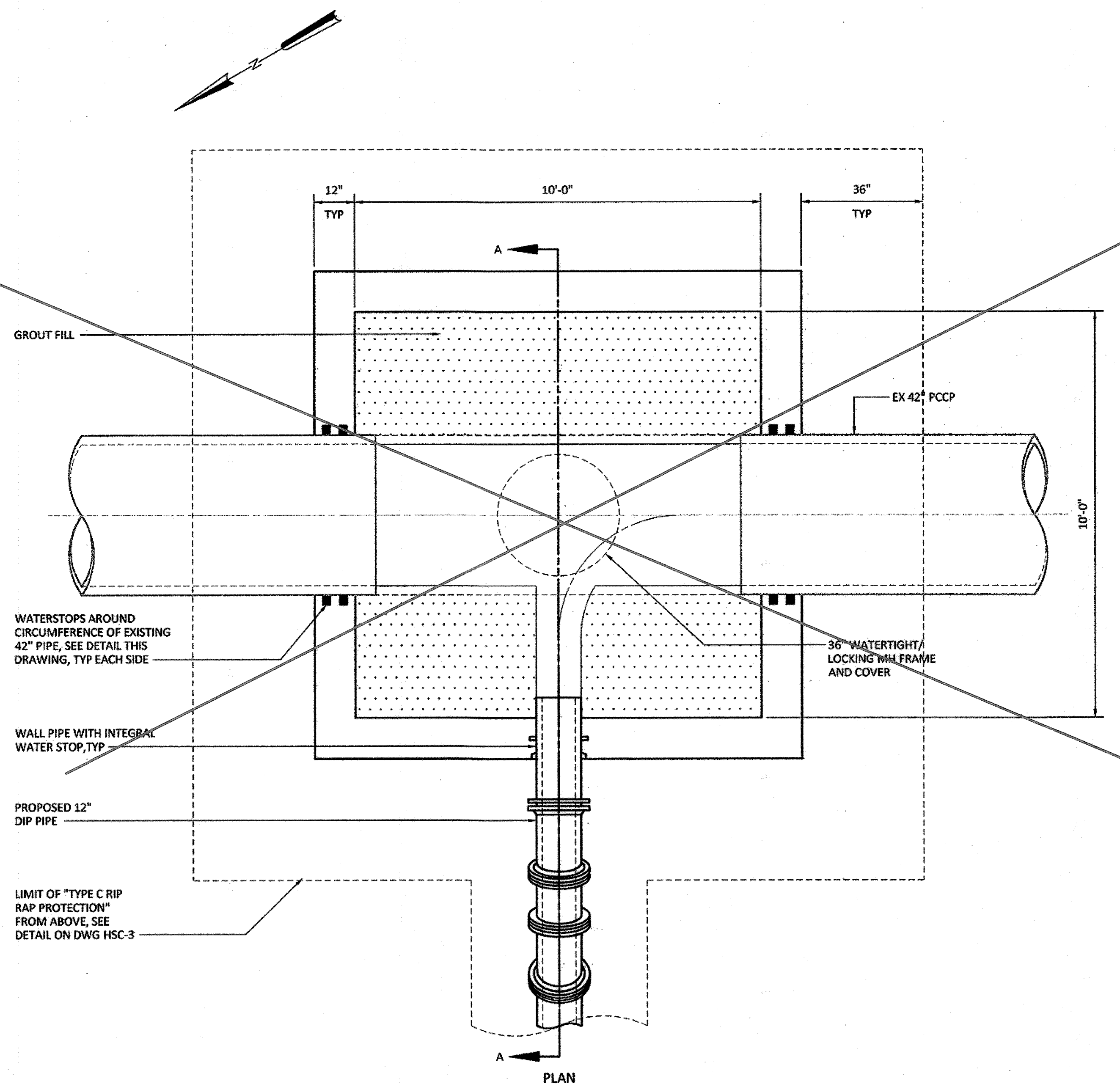
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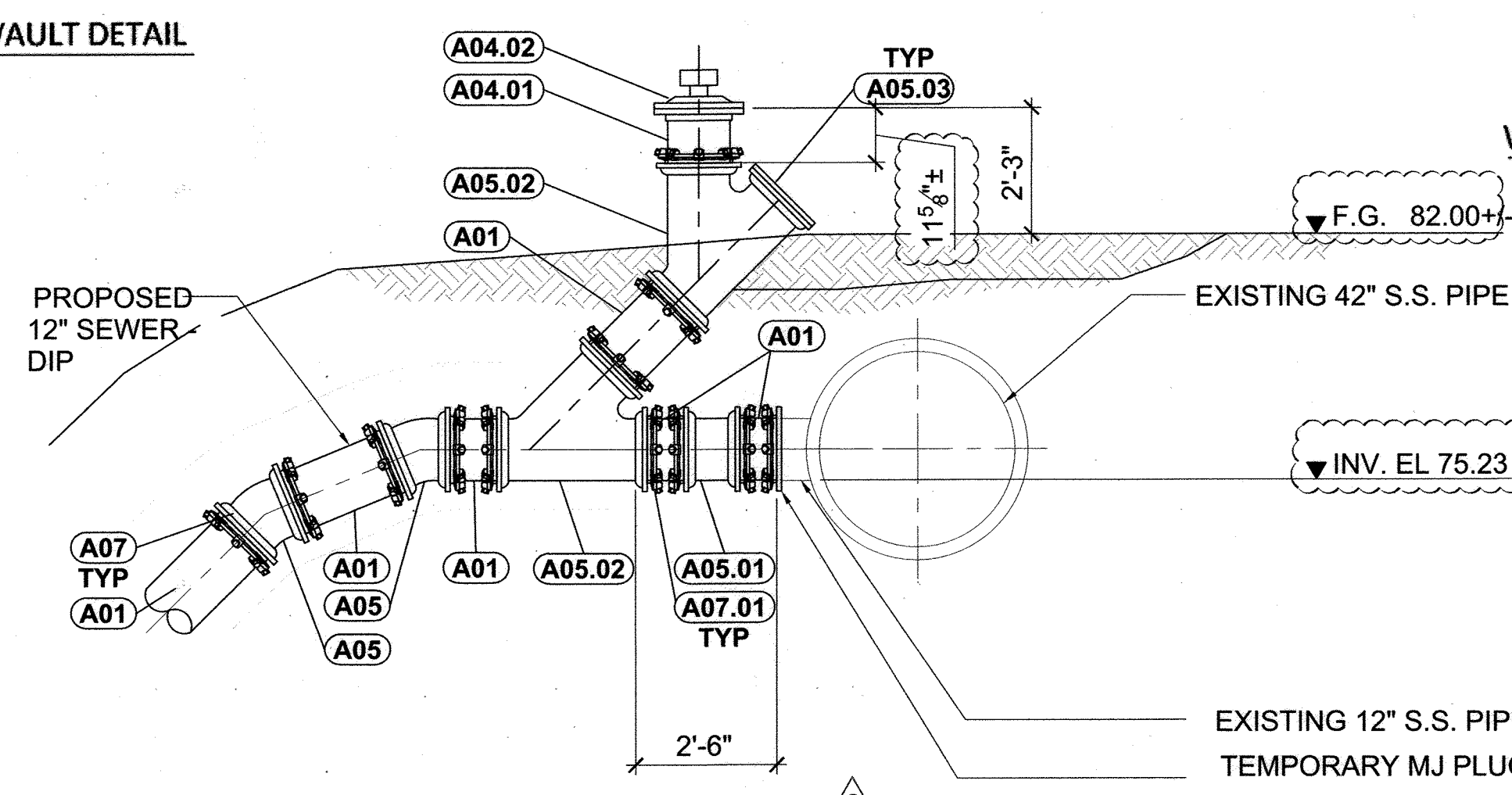
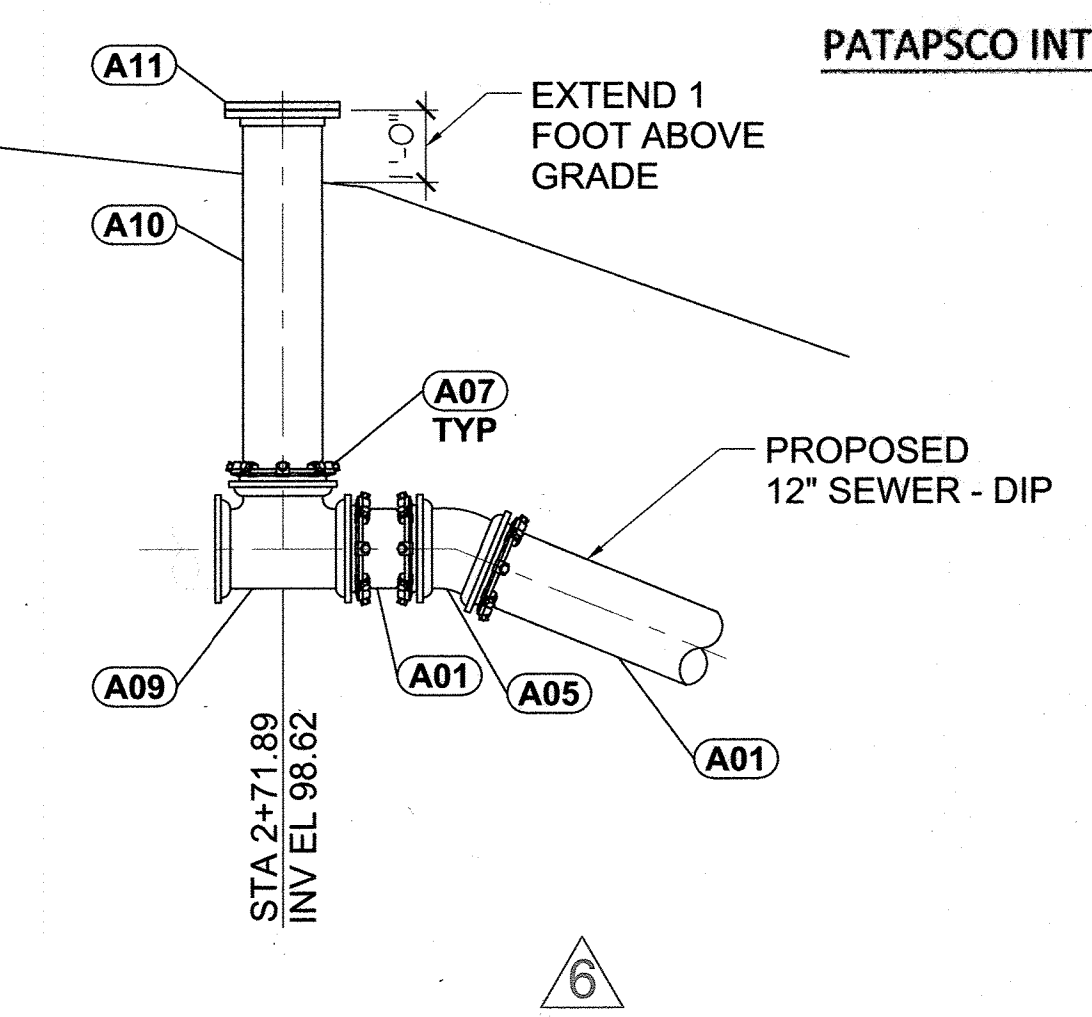
1. THE VAULT INTERIOR SHALL BE PROVIDED WITH A CORROSION PROTECTION BARRIER. REFER TO SPECIFICATION 09901 CORROSION PROTECTION FOR REQUIREMENTS.
2. IT IS ANTICIPATED THAT THE VAULT WILL BE FOUNDED ON BEDROCK. CONTRACTOR SHALL PERFORM A TEST PIT ON BOTH SIDES OF THE EXISTING 42 INCH INTERCEPTOR AT THE PROPOSED VAULT LOCATION TO DETERMINE BEDROCK ELEVATION. SHOULD THE BEDROCK ELEVATION BE LOWER THAN THE PROPOSED BOTTOM ELEVATION OF THE VAULT, A MUD-MAT SHALL BE CONSTRUCTED OVER THE ROCK BASE WITH ANCHORS DRIVEN INTO THE ROCK TO SECURE THE MUD-MAT. THE VAULT SHALL THEN BE CONSTRUCTED UPON THE MUD-MAT. THE MUD-MAT FOUNDATION SHALL BE DESIGNED IN ACCORDANCE WITH PARAGRAPH 17 OF THE HOWARD COUNTY SPECIAL PROVISIONS, SECTION 00807, AND ALL RELATED TECHNICAL SPECIFICATIONS OF THE IFB.

SEQUENCE OF CONSTRUCTION:

1. BYPASS PUMP SYSTEM SHALL BE FULLY OPERATIONAL AND THE LINE STOP ON THE EXISTING 12 INCH CAST IRON SIPHON SHALL BE INSTALLED, WORKING, AND ENCASED IN CONCRETE PRIOR TO ANY WORK BEGINNING ON THE VAULT.
2. EXCAVATE AND SUPPORT THE EXISTING 42-INCH PCCP. EXCAVATION SHALL BE TO HARD ROCK AND THE MUD-MAT SHALL BE INSTALLED ACCORDING TO THE APPROVED PLANS.
3. INSTALL CONCRETE VAULT BOTTOM SLAB AND WALLS. INSTALL WATERSTOP AROUND EXISTING 42-INCH PCCP PRIOR TO POURING NORTH AND SOUTH WALLS. SET WALL PIPE FOR 12-INCH PIPE PRIOR TO POURING WEST WALL.
4. GROUT FILL SPACE BETWEEN THE EXISTING 42-INCH PCCP AND THE VAULT TO EXTEND AS SHOWN ON THE CONTRACT DRAWING.
5. INSTALL 12-INCH DIP AND PLUG THE OPENING.
6. COAT THE INTERIOR WITH CORROSION PROTECTION BARRIER.
7. WHEN THE PROPOSED 12 INCH SIPHON IS COMPLETELY INSTALLED, TESTED, AND APPROVED FOR SERVICE, SAW CUT THE 42-INCH PCCP TO EXTEND AS SHOWN ON THE CONTRACT DRAWING. ENSURE LOW FLOW CONDITIONS PRIOR TO SAW CUTTING.
8. INSTALL CONCRETE TOP SLAB WITH WATERTIGHT/LOCKING MANHOLE FRAME AND COVER.
9. TOUCH UP COATING.



BILL OF MATERIALS				
SEQ.#	QTY.	SIZE	DESCRIPTION	FINISH
DGM SUCTION				
A01	236.6	LF	DIP CLASS54 TR FLEX JOINT PIPE	PROTECTO 401
A02	1	12	x 5'-11 3/4 DIP CLASS54 PE/PE W/ (1) 12\"/>	
A03	1	12	x 18'-2 3/8 CLASS54 FRB/PE W/ (1) 12\"/>	
A04	1	12	x 18'-2 3/8 CLASS54 FRB/PE W/ (1) 12\"/>	
A04.01	1	12	x 2'-0 CL54 DIP FLG/PE (FIELD CUT)	PROTECTO 401
A04.02	1	12	ENCLOSURE YALE	
A05	9	12	DI C153 MJ 22.5 BEND L/A	PROTECTO 401
A05.01	1	12	DI C153 MJ LONG SLEEVE	PROTECTO 401
A05.02	2	12	DI C153 MJ WYE L/A	PROTECTO 401
A05.03	2	12	DI C153 MJ PLUG	PROTECTO 401
A06	2	12	DI C153 MJ 11.25 BEND L/A	PROTECTO 401
A07	29	12	MEGALUG	
A07.01	8	12	MEGALUG	
A08	1	12	x 3'-8 CL54 DIP PE/WC/PE W/ (1) 12\"/>	
A09	1	12	DI C153 MJ TEE L/A	PROTECTO 401
A10	1	12	x 9'-0 CL54 DIP FLG/PE	PROTECTO 401
A11	1	12	DI CL110 BLIND FLG	PROTECTO 401
A12	2	12	DI C153 MJ SLEEVE L/P	PROTECTO 401



1 HSC-4
DETAIL - TEE BRANCH WITH BLIND FLANGE
NOT TO SCALE

2 HSC-4
DETAIL - YALE CLOSURE
NOT TO SCALE

NO CHANGES IN REVISIONS 1, 2, 3, 4

AS-BUILT REPLACEMENT SHEET

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James H. Elzly
DIRECTOR OF PUBLIC WORKS
DATE: 8/21/17

Thomas J. Butler
CHIEF BUREAU OF ENGINEERING
DATE: 8/17/17

W.D.
CHIEF UTILITY DESIGN DIVISION
DATE: 8/17/17

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7681

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. 352295, EXPIRATION DATE 01/08/2018.
SIGNED: *[Signature]*

DESIGNED: NH/MJB
DRAWN: MJB
CHECKED: JTH
PROJ. ENGR.: JTH
APPROVED: *[Signature]*

6 AS-BUILT 12/2019 KJK/KCI
5 REVISION PER HOWARD COUNTY 8/2017 JTH

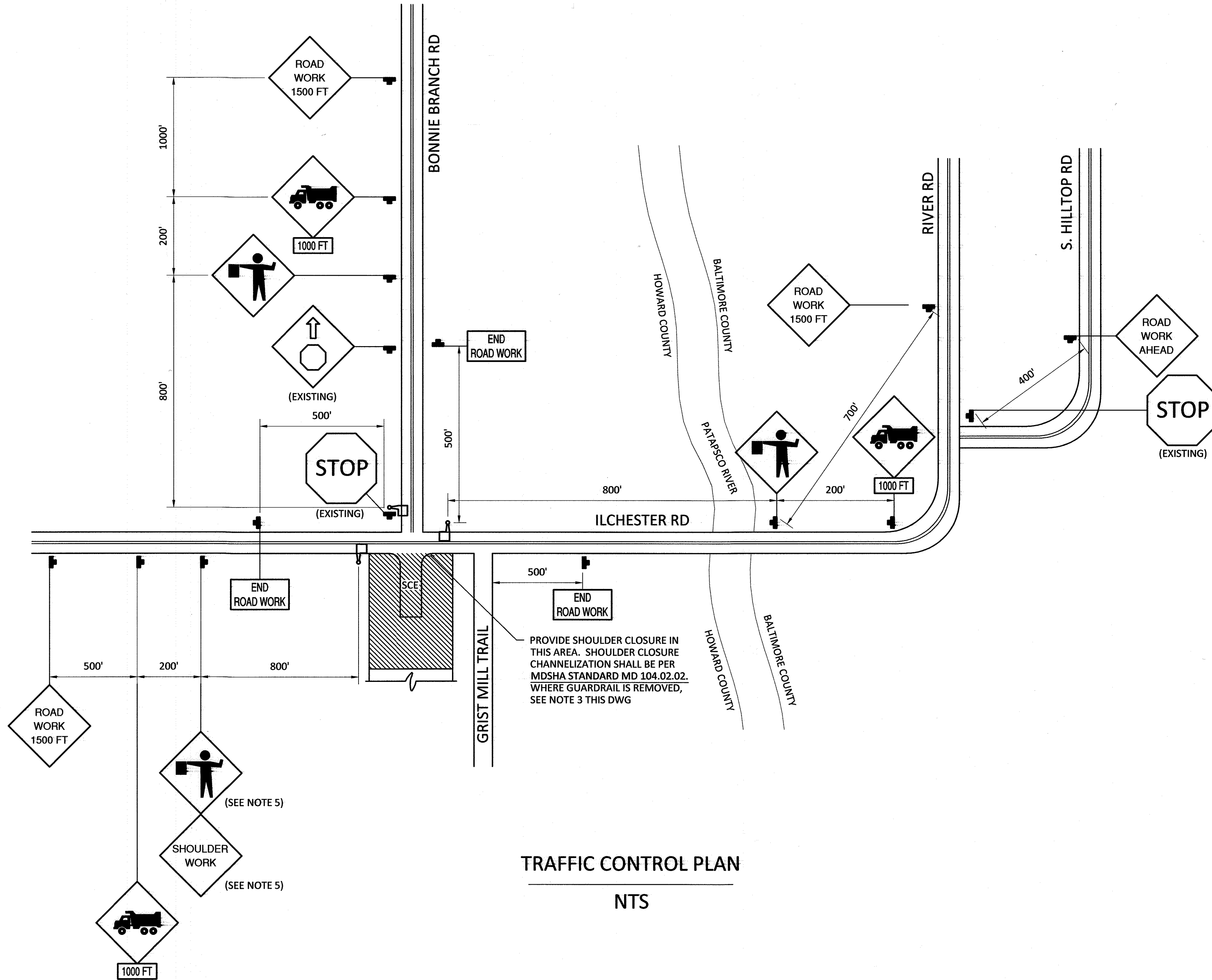
CIVIL
DETAILS

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: AUGUST 2017
DRAWING NUMBER: HSC-4
SCALE: NTS
SHEET 76 OF 106

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BID SET



TRAFFIC CONTROL PLAN
NTS

TRAFFIC CONTROL PLAN NOTES:

1. EXACT LOCATION OF ALL SIGNS SHALL BE COORDINATED WITH THE ENGINEER.
2. ALL WORK ZONE VEHICLES WHEN ENTERING/EXITING THE WORK AREA OR OPERATING WITHIN THE WORK ZONE SHALL DISPLAY FLASHING WARNING LIGHTS AS SPECIFIED IN MARYLAND SHA STANDARDS 104.01-18A AND B.
3. A PORTION OF THE EXISTING GUARDRAIL WILL NEED TO BE REMOVED FOR CONSTRUCTION ACCESS. CONTRACTOR SHALL PROVIDE THE PROPER NUMBER AND ARRANGEMENT OF SAND FILLED CRASH CUSHIONS AS PER MARYLAND SHA STANDARD 104.01-71 FOR 40MPH TO PROTECT THE ENDS OF THE GUARDRAIL FROM TRAFFIC.
4. ALL TEMPORARY SIGNS SHALL BE COVERED OR TURNED AWAY FROM TRAFFIC DURING NON-WORKING HOURS UNLESS OTHERWISE NOTED.
5. DURING WORK HOURS WHEN FLAGGER IS PRESENT, FLAGGER SIGN SHALL BE DISPLAYED IN THIS LOCATION. DURING ALL OTHER HOURS, SHOULDER WORK SIGN SHALL BE DISPLAYED IN THIS LOCATION.

SYMBOL LEGEND

- SIGN
- BARRICADE
- ▨ WORK AREA
- 👤 FLAGGER

SIGN LEGEND

SIGN	MDSHA SIGN NO.
	W11-10(1)
	W20-7a
	W20-1(1)
	G20-2(1)
	W21-5(1)

AS-BUILT
DATE 12/31/2019

NO CHANGES IN REVISIONS 2, 3, 4

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 8/22/17
 Chief Bureau of Engineering: *[Signature]* 8/17/17
 Chief Bureau of Utilities: *[Signature]* 8/22/17
 Chief Utility Design Division: *[Signature]* 8/17/17

Hazen
HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1150, BALTIMORE, MD 21202
410-539-7681

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. 35295, EXPIRATION DATE 01/06/2018.
SIGNED: *[Signature]* 8/17/17

DESIGNED	NH/MJB			
DRAWN	MJB			
CHECKED	JTH			
PROJ. ENGR.	JTH			
APPROVED	<i>[Signature]</i>			

TRAFFIC CONTROL			
TRAFFIC CONTROL PLAN			

PATAPSCO INTERCEPTOR RELOCATION AND BLOEDE DAM REMOVAL
CAPITAL PROJECT NUMBER S-6282
CONTRACT NUMBER 10-4948
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE AUGUST 2017
DRAWING NUMBER HST-1
SCALE NTS
SHEET 77 OF 106

IMAGE XREF= HC-TB-original