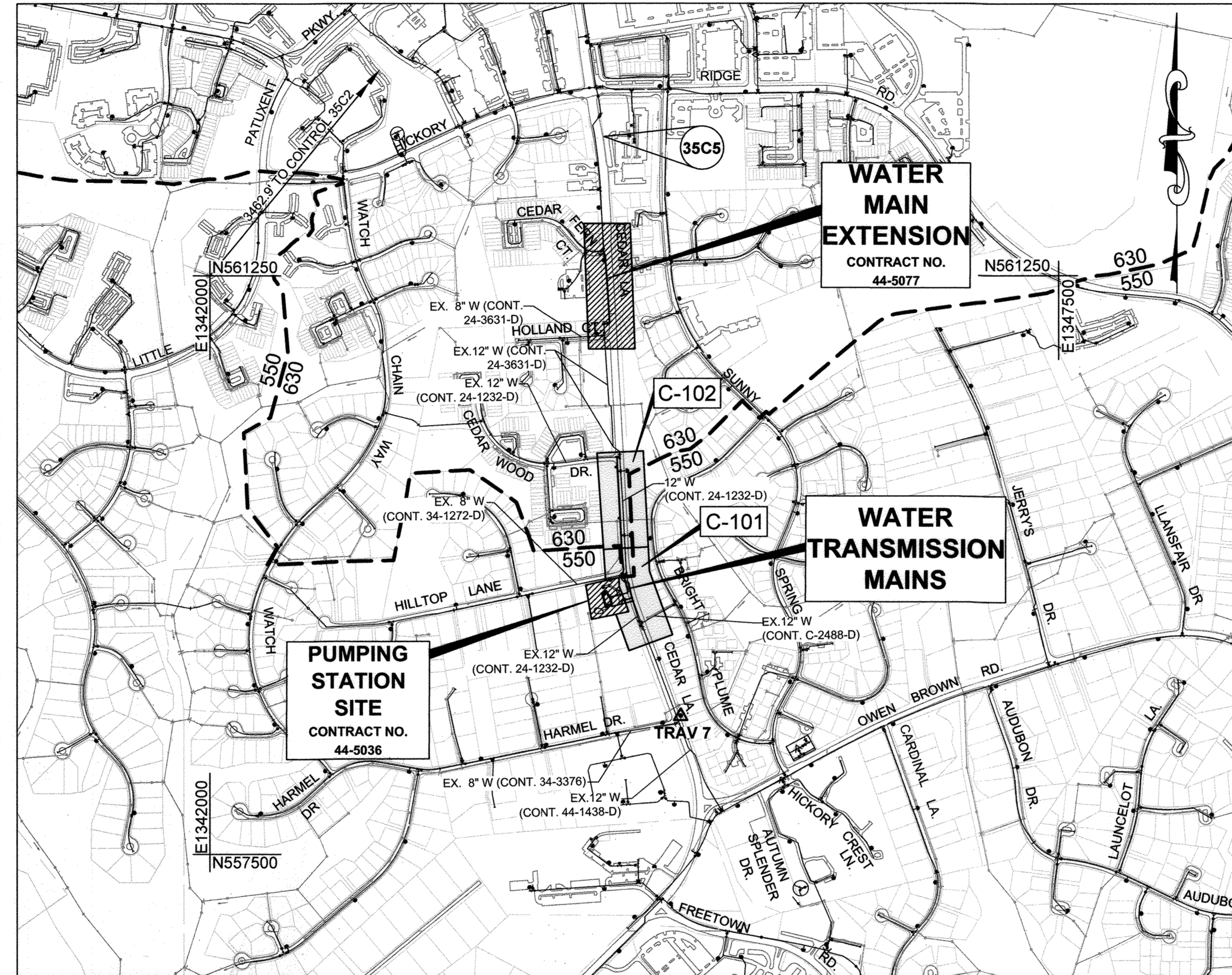


CEDAR LANE WATER TRANSMISSION MAINS CAPITAL PROJECT NO. W-8328 CONTRACT NO. 44-5046 HOWARD COUNTY, MARYLAND

INDEX OF SHEETS

SHEET NO.	DRAWING NO.	DESCRIPTION
1	G-001	TITLE SHEET
2	G-002	GENERAL NOTES, LEGEND, TRENCH DETAILS AND SEQUENCE OF CONSTRUCTION
3	C-001	PRESSURE ZONE BOUNDARY AND VALVE LOCATION & POSITION PLAN
4	C-101	12" SUCTION WATER MAINS AND 16" DISCHARGE WATER MAIN STA. 0+00 TO STA. 4+50
5	C-102	16" DISCHARGE WATER MAIN STA. 4+50 TO STA. 10+06
6	ES-101	EROSION AND SEDIMENT CONTROL PLAN
7	ES-102	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
8	ES-103	EROSION AND SEDIMENT CONTROL NOTES
9	T-101	TRAFFIC CONTROL NOTES AND DETAILS
10	CP-1	CATHODIC PROTECTION PLAN



VICINITY MAP
SCALE: 1" = 600'

QUANTITIES

ITEM	UNIT	ESTIMATE	AS-BUILT	MANUFACTURER
16" CLASS C-900 DR14 PVC	L.F.	927	941	NORTH AMERICAN PIPE CORP.
12" CLASS C-900 DR14 PVC	L.F.	105	36	NORTH AMERICAN PIPE CORP.
6" CLASS C-900 DR14 PVC	L.F.	50	42	NORTH AMERICAN PIPE CORP.
16" VALVE	EA.	2	2	MUELLER CO.
12" VALVE	EA.	3	3	MUELLER CO.
16" X 6" FHT AND 6" VALVE	EA.	2	2	MUELLER CO.
NAME OF UTILITY CONTRACTOR: COSENTINO				
		CHECKBOX		
		AS-BUILT DATE	5/3/2019	
SURVEY AND DRAFTING DIVISION				

8" VALVE EA. - 1 MUELLER CO.

NOTE:
FOR GENERAL NOTES, WATER MAIN NOTES AND LEGEND, SEE DRAWING NO. G-002.

TYPE OF BUILDING: N/A
 NUMBER OF PARCELS: N/A
 NUMBER OF WATER HOUSE CONNECTIONS: N/A
 PRESSURE ZONE: 550 & 630
 TEST GRADIENT: 780 (550 ZONE)
 860 (630 ZONE)
 TEST PRESSURE: 166 psi (550 ZONE)
 201 psi (630 ZONE)
 DRAINAGE AREA: MIDDLE PATUXENT

CONTROL NOTE
 THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON GPS OBSERVATIONS FROM HOWARD COUNTY GEODETIC SURVEY CONTROL POINTS.
 NAD 1983 / 2011 (HORIZONTAL)
 NAVD 1988 (VERTICAL)
 35C2 N 563920.82 35C5 N 562148.44
 E 1344204.19 E 1344554.49
 ELEV. 463.41 ELEV. 451.54

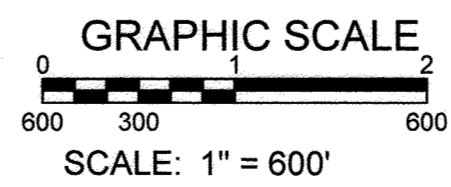
OWNER'S/DEVELOPER'S CERTIFICATION
 "WE CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO THE BEGINNING OF THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."
 Kerri Dinsmore 2/13/2019
 OWNERS / DEVELOPERS SIGNATURE DATE
 Kerri Dinsmore Project Manager
 PRINTED NAME & TITLE

DESIGN CERTIFICATION
 "I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 Guihua Wang 02/11/2019
 DESIGNERS SIGNATURE DATE
 GUIHUA WANG
 PRINTED NAME MD REGISTRATION NO. 31363
 (P.E./R.L.S. OR R.L.A. (CIRCLE ONE))

PURPOSE STATEMENT:
 CONTRACT NO. 44-5046 IS IN CONJUNCTION WITH CONTRACT NO. 44-5036 TO PROVIDE REDUNDANCE TO THE 630 WEST WATER PRESSURE ZONE. THE TRANSMISSION MAINS WITHIN THE PUBLIC RIGHT-OF-WAY ARE INCLUDED IN THIS CONTRACT (44-5046), WHILE 44-5036 INCLUDES THE CEDAR LANE WATER PUMPING STATION AND ASSOCIATED SYSTEM UPGRADES.

NOTE:
 THE WORK SITE SHALL BE CONTROLLED IN ACCORDANCE WITH THE HOWARD SOIL CONSERVATION DISTRICT "STANDARD EROSION AND SEDIMENT CONTROL PLAN FOR MINOR EARTH DISTURBANCE", AND ADHERE TO THE LIMITATIONS, CONDITIONS AND REQUIREMENTS THEREIN. A COPY OF THE STANDARD PLAN SHALL BE ON-SITE FOR REFERENCE DURING WORKING HOURS.

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. 31363, Expiration Date 01/16/2020



AS-BUILT
DATE 5-30-2019

KCI TECHNOLOGIES PROJECT NO.: 131601306.01

Date: 02/11/2019 9:20am User: kwan.johnson File: C:\Users\kjohnson\Documents\131601306.01\Drawings\G-001 Cover Sheet.mxd.dwg

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: [Signature] 2/14/19
 Chief, Bureau of Engineering: [Signature] 2-13-19
 Chief, Bureau of Utilities: [Signature] 2-13-19
 Chief, Utility Design Division: [Signature] 2/13/19

KCI TECHNOLOGIES
 ENGINEERS
 PLANNERS
 SCIENTISTS
 CONSTRUCTION MANAGERS
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 Sparks, MD 21152
 PHONE: (410) 316-7800
 FAX: (410) 316-7817
 www.kci.com

STATE OF MARYLAND
 GUIHUA WANG
 PROFESSIONAL ENGINEER
 NO. 31363
 EXPIRES 02/11/2019

DES: KFJ
 DRN: KFJ
 CHK: GW
 DATE: FEB. 2019
 BY: JER
 NO.: AS-BUILT
 REVISION
 DATE: 5/30/19

TITLE SHEET

DATE: 600' SCALE MAP NO. 35 BLOCK NO. 17, 11

**CEDAR LANE
WATER TRANSMISSION MAINS**

CAPITAL PROJECT No. W-8328
 CONTRACT No. 44-5046

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

DRAWING NO. G-001
 SCALE AS SHOWN
 SHEET 1 of 10

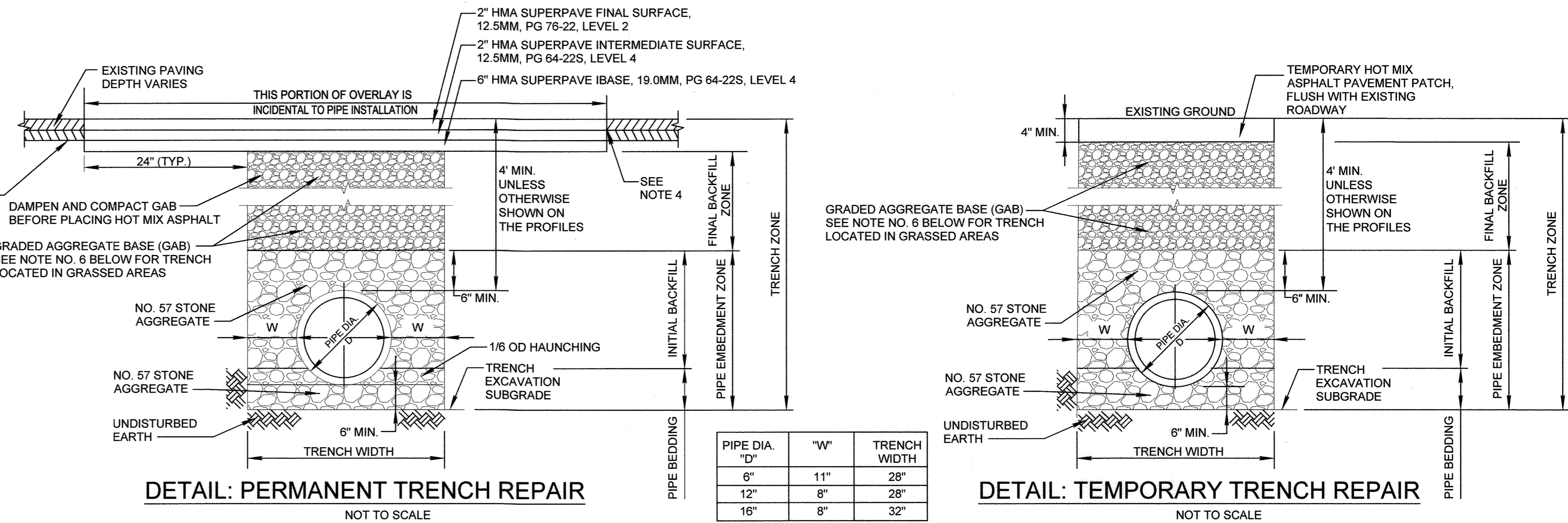
GENERAL NOTES

WATER MAIN NOTES

- APPROXIMATE LOCATION 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 EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON 8/02/2017 BY KCI TECHNOLOGIES, INC.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 1983/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 35C2, 35C5. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE REBAR & CAP AND NAILS.
- 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 DRAWINGS, 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.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
AT&T1-800-252-1133
BGE (CONSTRUCTION SERVICES)410-837-8713
BGE (EMERGENCY)410-885-0123
BUREAU OF UTILITIES (DPW)410-313-4900
COLONIAL PIPELINE CO.410-795-1390
MISS UTILITY1-800-257-7777
STATE HIGHWAY ADMINISTRATION410-531-5533
VERIZON1-800-743-0033 / 410-224-9210
- 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.
- CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG 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.
- THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE VARIOUS BUSINESSES AND RESIDENCES AND COORDINATE THE WORK ACTIVITIES SO AS NOT TO NEGATIVELY IMPACT THE CONNECTED CUSTOMERS. THE INSTALLATION OF WATER MAIN SHALL CAUSE MINIMUM DISTURBANCE TO THE EXISTING BUSINESSES AND RESIDENCES AND NOTIFICATION OF ANY INTERRUPTIONS OF SERVICE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COUNTY REQUIRES THAT THE CONTRACTOR NOTIFY EACH AFFECTED BUSINESS AND RESIDENCE OF THE IMPENDING INTERRUPTION BY LETTER OR WITH DOOR TAGS AT LEAST 72 HOURS IN ADVANCE OF THE PLANNED INTERRUPTION. IN THE EVENT OF UNPLANNED INTERRUPTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR NOTIFYING THE BUSINESSES AND RESIDENCES BY DOOR-TO-DOOR CANVASSING.
- A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT BY KCI TECHNOLOGIES, INC. THIS REPORT IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. THE OPINIONS AND CONCLUSIONS OF KCI REPRESENT OUR INTERPRETATION OF THE SUBSURFACE CONDITIONS AND THE PLANNED CONSTRUCTION AT THE TIME OF THE REPORT PREPARATION. THE DATA IN THIS REPORT MAY NOT BE ADEQUATE FOR CONTRACTORS' ESTIMATING PURPOSES.
- FOR PUMPING STATION WORK SEE CONTRACT NO. 44-5036.

- ALL WATER MAINS SHALL BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 4'-0" 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.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANT 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 WIRES 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 PIPE 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. SEVENTEEN (17) POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSES. TWELVE (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 PVC PIPE.
- ALL CHANGES IN HORIZONTAL OR VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH MECHANICAL JOINT DUCTILE IRON (AWWA C153) STANDARD (1/4, 1/2, 1/6, 1/32, 1/64) BENDS OR MECHANICAL JOINT, FULL BODY, SOLID SLEEVES MEETING AWWA C110. NO BENDING OF THE PIPE OR DEFLECTING OF PVC PIPE JOINTS IS PERMITTED. WHERE SOLID SLEEVES ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ONE FULL PIPE LENGTH (20-FOOT LONG) ON EITHER SIDE OF THE SOLID SLEEVE. THE CONTRACTOR SHALL USE A VIBRATORY PLATE COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #57 STONE ON BOTH SIDES OF THE SOLID SLEEVE.
- RESTRAINING JOINTS AT MECHANICAL JOINT SOLID SLEEVES SHALL BE ACHIEVED BY USING EBBA IRON SERIES 2000PV OR APPROVED EQUAL.
- WHERE CONNECTING TO EX. CAST IRON OR DUCTILE IRON PIPE, THE CONTRACTOR SHALL USE PE X PE SPOOL PIECE AND A RESTRAINED COUPLING MANUFACTURED BY EBBA IRON, SERIES 3800 OR APPROVED EQUAL.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 1 WEEK PRIOR TO WATER MAIN SHUT DOWN. ALL SHUT DOWNS SHALL BE DISCUSSED AND OUTAGES CONFIRMED WITH HOWARD COUNTY. THE CONTRACTOR IS RESPONSIBLE FOR ALL NOTIFICATIONS.
- WHEN THE WATER MAIN IS UNDER A UTILITY, THE WATER MAIN PIPE SEGMENT SHALL BE CENTERED AT THE CROSSING.
- IN COMPLIANCE WITH COMAR 09.20.01.03 AND THE SAFE DRINKING WATER ACT (SECTION 1417(a)(4)(8)), MATERIALS THAT COME IN CONTACT WITH WATER INTENDED FOR USE IN PUBLIC WATER SUPPLY SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT, WHICH WENT INTO EFFECT IN MARYLAND IN JANUARY 2012.
- IN ACCORDANCE WITH CODE OF MARYLAND REGULATIONS (COMAR) 26.04.01.33, DIRECT AND INDIRECT ADDITIVES, SUPPLIERS OF WATER SHALL ONLY USE PRODUCTS (ANY MATERIALS THAT COME IN CONTACT WITH WATER INTENDED FOR USE IN PUBLIC WATER SUPPLY) THAT MEET THE APPLICABLE AMERICAN NATIONAL STANDARDS INSTITUTE / NSF INTERNATIONAL (ANSI / NSF) STANDARDS FOR DIRECT OR INDIRECT DRINKING WATER ADDITIVES. THE PRODUCTS CAN ALSO BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY THE ANSI FOR SUCH TESTING (I.E. INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS RESEARCH AND TESTING, ONTARIO CA, UNDERWRITERS LABORATORY, NORTHBROOK IL, AND WATER QUALITY ASSOCIATION, LISLE IL)
- AFTER DISINFECTION, SAMPLES MUST BE COLLECTED BY A STATE-CERTIFIED SAMPLER AND ANALYZED AT A STATE-CERTIFIED LABORATORY. THE SAMPLE RESULTS MUST BE SUBMITTED TO MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER SUPPLY PROGRAM FOR REVIEW.
- THE PUMPING STATION SUCTION WATER MAIN SHOWN ON DRAWING NO. C-101 SHALL BE TESTED AT THE TEST PRESSURE FOR THE 550 ZONE AS SHOWN ON DRAWING NO. G-001. THE PUMPING STATION DISCHARGE WATER MAIN SHOWN ON DRAWINGS C-101 AND C-102 SHALL BE TESTED AT THE TEST PRESSURE FOR THE 630 ZONE AS SHOWN ON DRAWING NO. G-001.

KCI TECHNOLOGIES PROJECT No. 131601308.01



PIPE DIA. "D"	"W"	TRENCH WIDTH
6"	11"	28"
12"	8"	28"
16"	8"	32"

- NOTES:
- THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH
 - GRADED AGGREGATE BASE (GAB) SHALL BE PLACED AND COMPACTED IN 6" MAXIMUM COMPACTED THICKNESS LAYERS.
 - SAW CUT FULL DEPTH JOINTS OF EXISTING PAVEMENT.
 - CLEAN EXPOSED VERTICAL SURFACE OF ADJACENT PAVEMENT AND PLACE TACK COAT ON ALL VERTICAL SURFACES PRIOR TO PLACING HMA.
 - IF THE REMAINING EXISTING PAVEMENT WITHIN THE LANE IS LESS THAN 4 FEET WIDE ON THE CURB SIDE OF THE TRENCH, THE RESIDUAL PAVEMENT SHALL BE REMOVED AND REPLACED.
 - THE DETAILS SHOWN ABOVE ARE FOR USE IN PAVED AREAS. IN GRASSED AREAS, SUITABLE ON SITE SOIL MAY BE USED AS BACKFILL IN PLACE OF THE GRADED AGGREGATE BASE.
 - THE CONTRACTOR SHALL PROVIDE 2" MILL AND OVERLAY ASPHALT FOR THE FULL LANE WIDTH FOR ANY LANE ENCRoACHED BY THE UTILITY TRENCH MORE THAN ONE FOOT. PRIOR TO EXCAVATION THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE UTILITY TRENCH WILL ENCRoACH MORE THAN ONE LANE.

AS-BUILT
DATE 5-31-2019

LEGEND

EXISTING	PROPOSED

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. 31363, Expiration Date 01/16/2020

User: kwin_bolton
M:\2018\131601308.01\Drawings\G-002 Civil Notes and Legend.mxd
Feb 11, 2019 - 9:20am

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John J. ... 2/14/19
DIRECTOR OF PUBLIC WORKS DATE

Thomas E. Butler 2-13-19
CHIEF, BUREAU OF ENGINEERING DATE

... 2-13-19
CHIEF, UTILITY DESIGN DIVISION DATE

KCI TECHNOLOGIES

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PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

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STATE OF MARYLAND
GUYANA WARRING
PROFESSIONAL ENGINEER
NO. 31363
02/11/2019

DES: KFJ					
DRN: KFJ					
CHK: GW					
DATE: FEB. 2019	BY	NO.	REVISION	DATE	

GENERAL NOTES, LEGEND, TRENCH DETAILS AND SEQUENCE OF CONSTRUCTION

600' SCALE MAP NO. 35 BLOCK NO. 17, 11

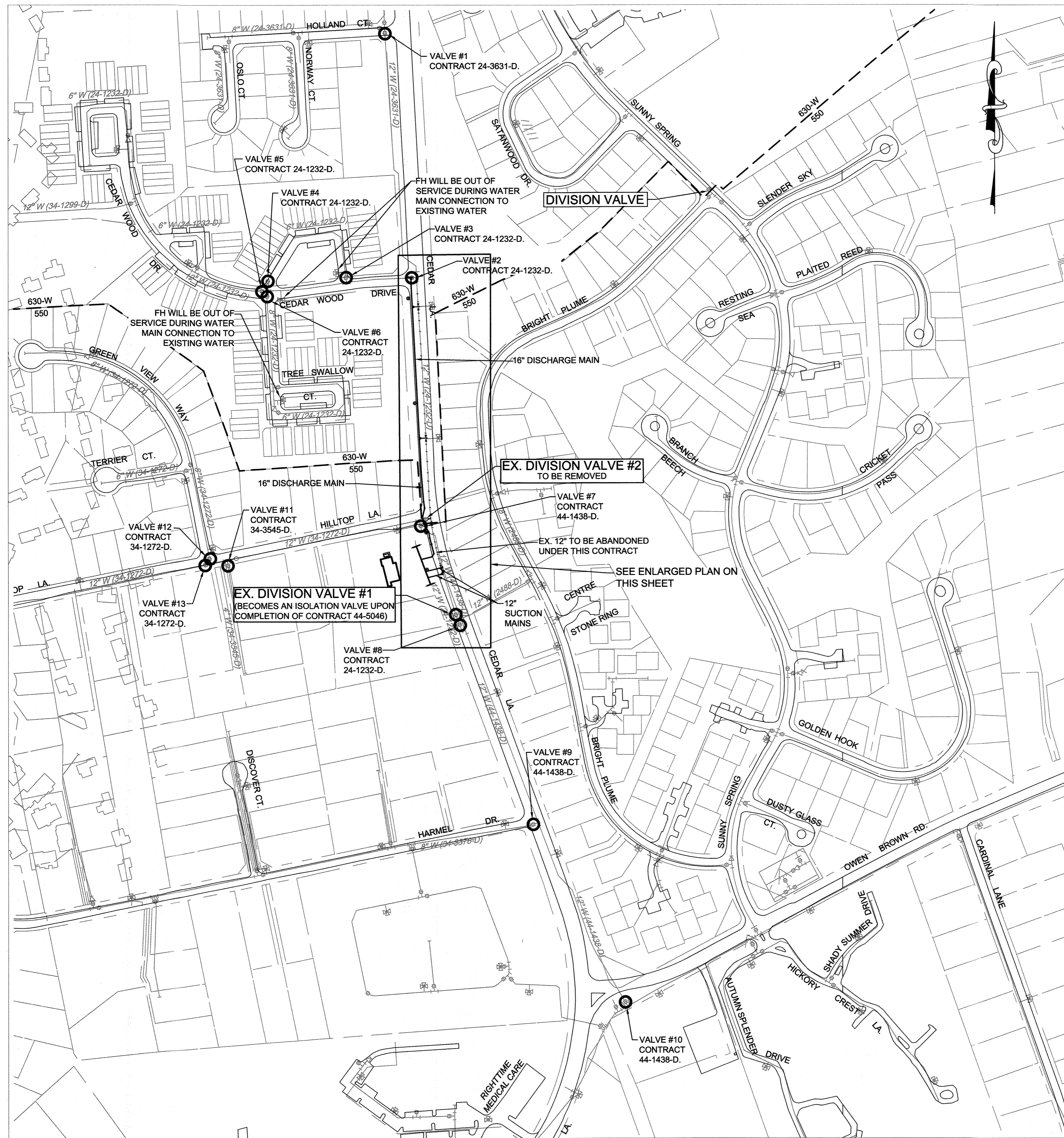
CEDAR LANE WATER TRANSMISSION MAINS

CAPITAL PROJECT No. W-8328
CONTRACT No. 44-5046

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

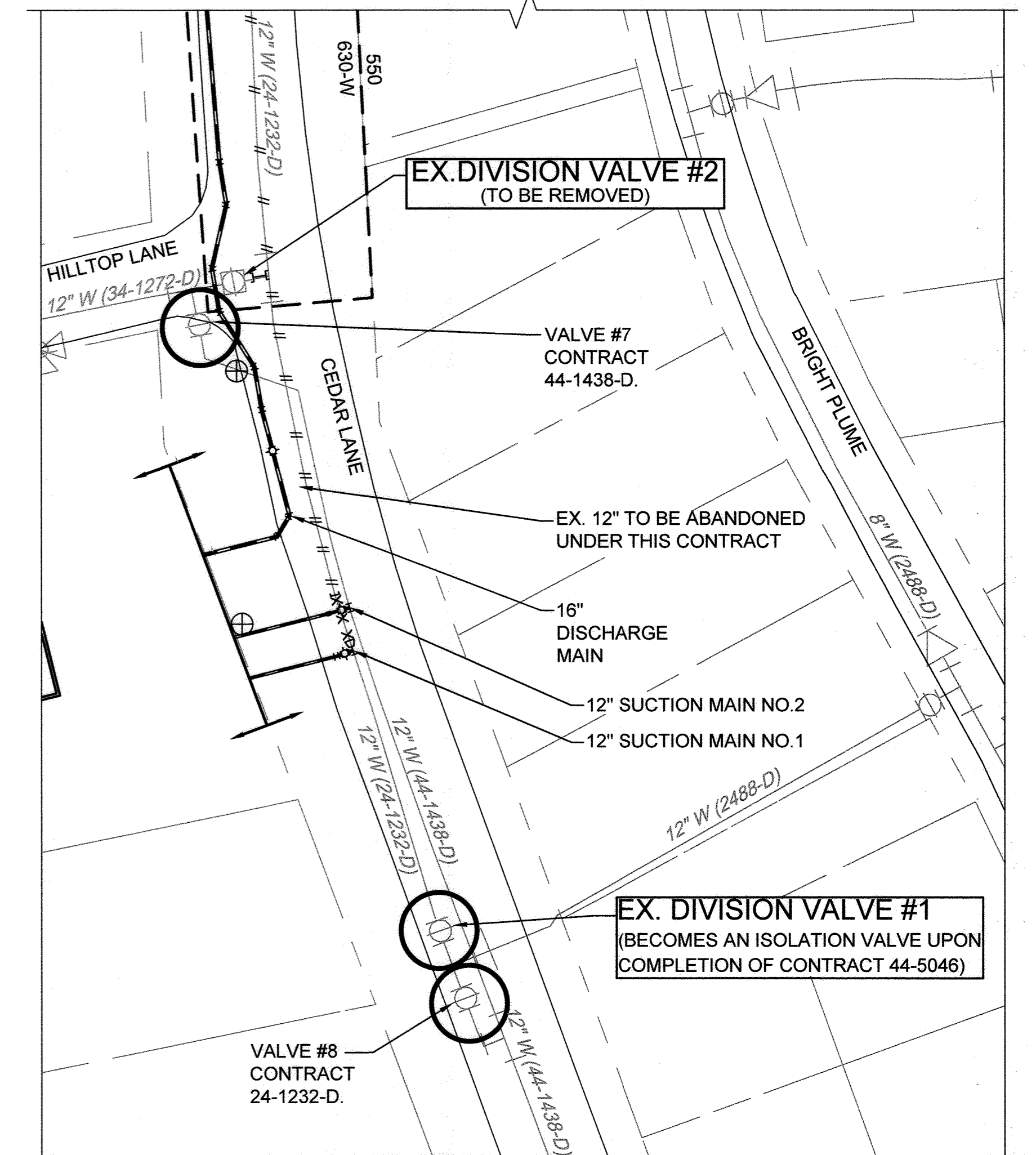
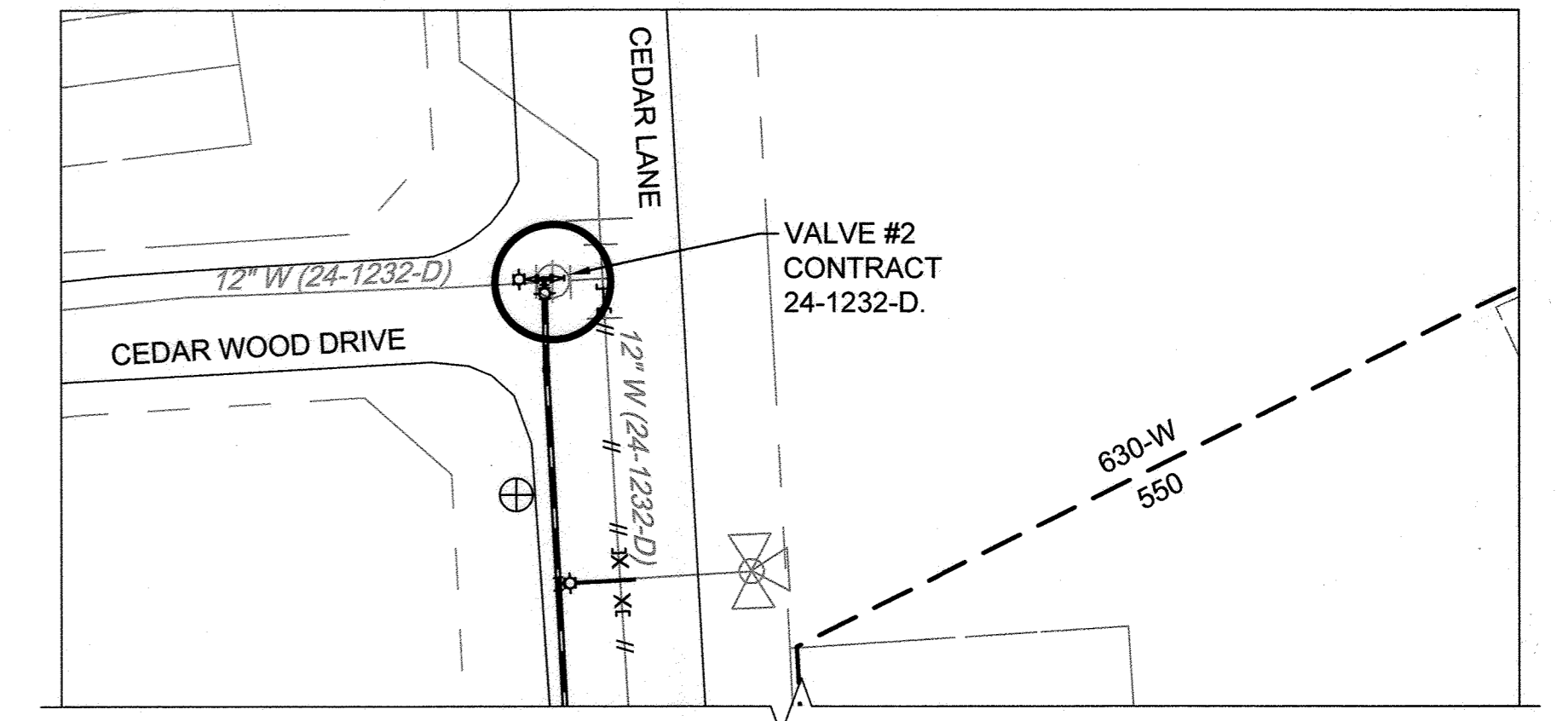
DRAWING NO. G-002
SCALE AS SHOWN
SHEET 2 OF 10

KCI TECHNOLOGIES PROJECT No. 131601306.01



PLAN
SCALE: NOT TO SCALE

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. 31363, Expiration Date 01/16/2020



ENLARGED PLAN AT PUMP STATION CONNECTION
SCALE: NOT TO SCALE

AS-BUILT
DATE 5-31-2019

NOTE:
TEMPORARY WATER HAS NOT BEEN ACCOUNTED FOR IN THIS CONTRACT. IF THE SHUT-DOWN IS EXPECTED TO LAST LONGER THAN 8 HOURS, THE CONTRACTOR SHALL CONTACT THE COUNTY PROJECT MANAGER TO DETERMINE IF ACCOMMODATIONS MUST BE MADE FOR TEMPORARY WATER.

File 11, 2019 - 9:20am User: kwh, kwh Location: g:\2019\131601306.01\Drawings\C-001 - Water Location.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Butler 2/14/19
DIRECTOR OF PUBLIC WORKS DATE

Thomas E. Butler 2-13-19
CHIEF, BUREAU OF ENGINEERING DATE

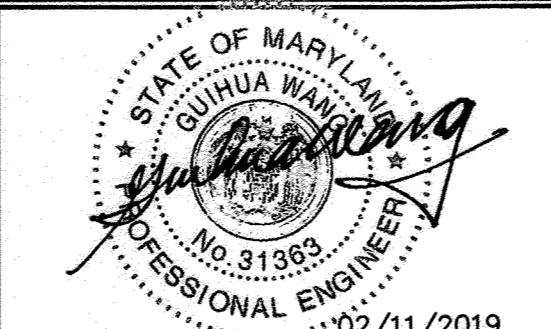
[Signature] 2-13-19
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 2/13/19
CHIEF, UTILITY DESIGN DIVISION DATE

KCI TECHNOLOGIES

ENGINEERS
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SCIENTISTS
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FAX: (410) 316-7817
www.kci.com



DES: Kfj	BY	NO.	REVISION	DATE
DRN: Kfj				
CHK: GW				
DATE: FEB. 2019				

PRESSURE ZONE BOUNDARY AND VALVE LOCATION & POSITION PLAN

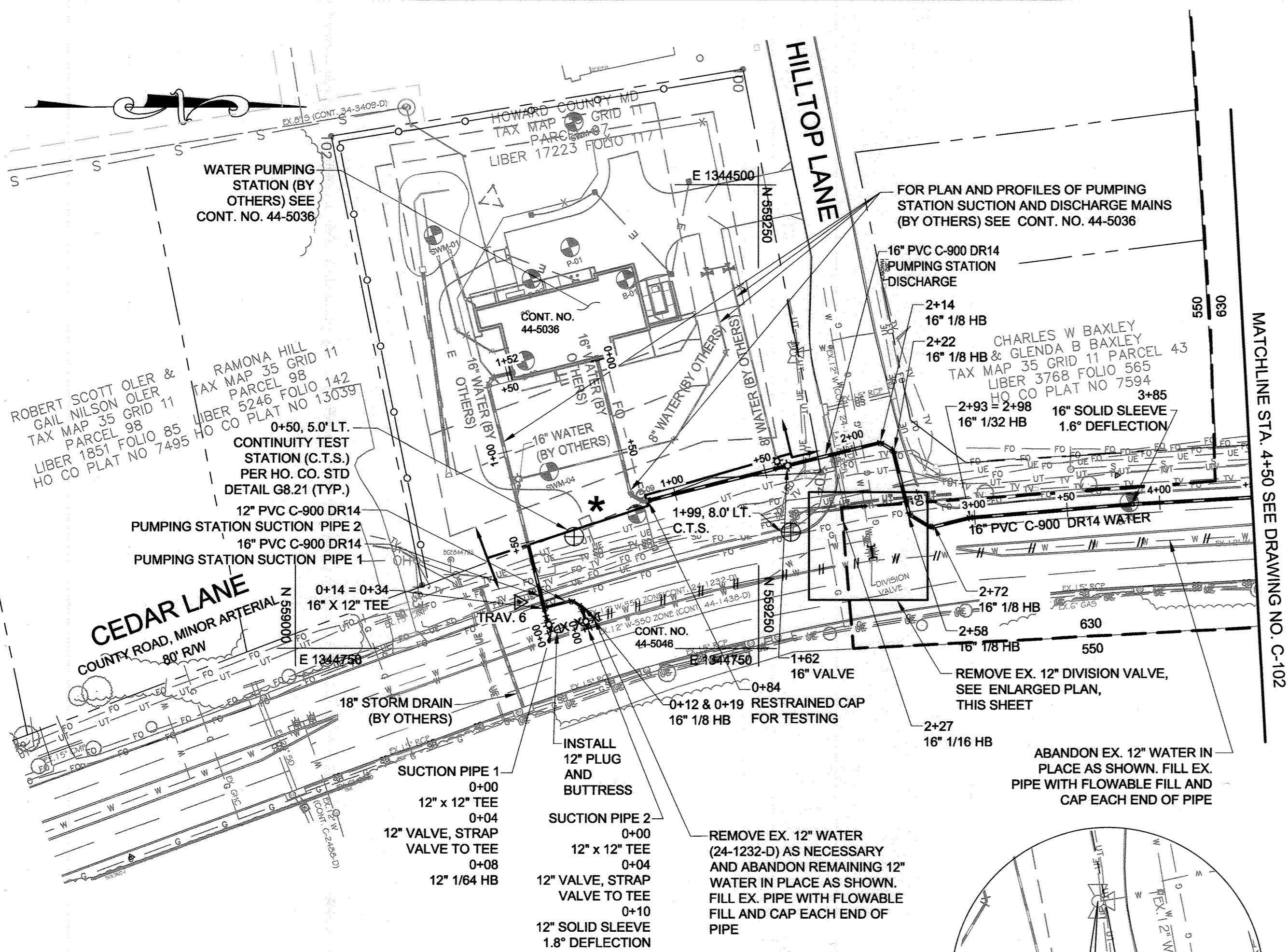
600' SCALE MAP NO. 35 BLOCK NO. 17, 11

CEDAR LANE WATER TRANSMISSION MAINS

CAPITAL PROJECT No. W-8328
CONTRACT No. 44-5046

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

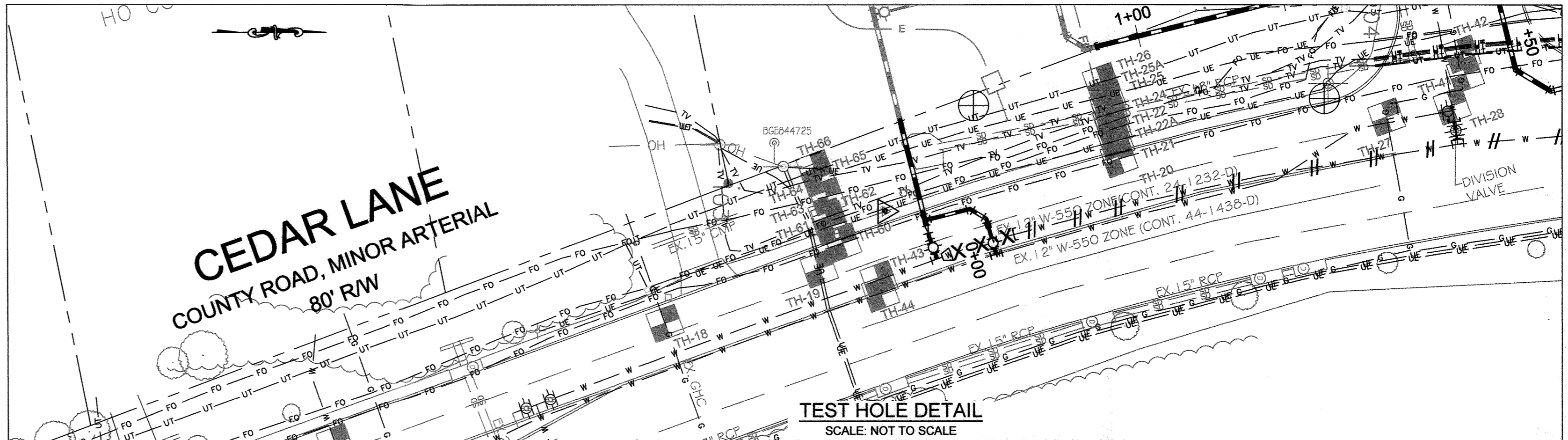
DRAWING NO. C-001
SCALE AS SHOWN
SHEET 3 OF 10



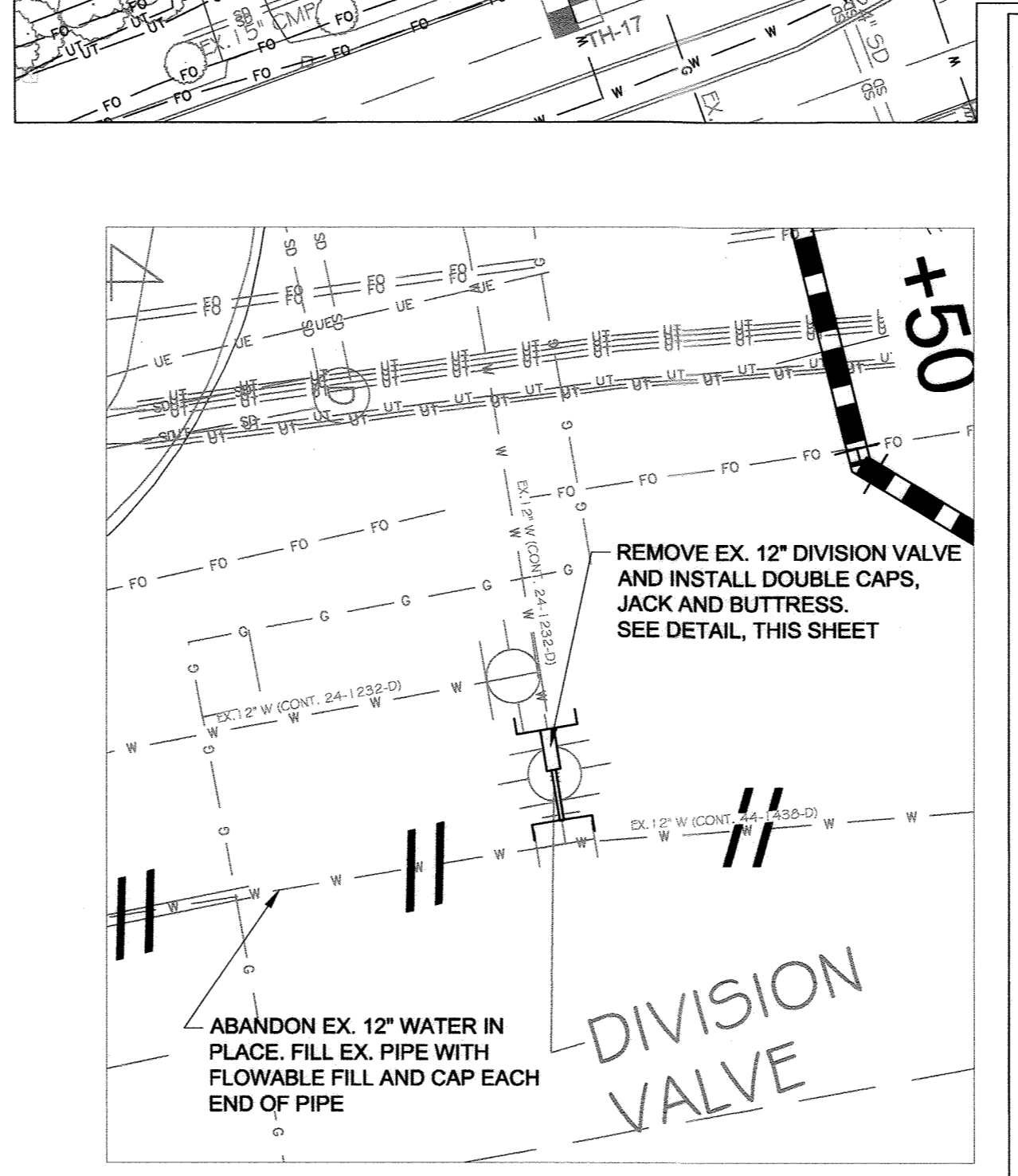
PLAN
 SCALE: 1" = 50'

WATER MAIN STAKE-OUT SCHEDULE			
STATION	DESCRIPTION	EASTING	NORTHING
PUMPING STATION SUCTION PIPE 1			
0+00	12" X 12" TEE	1344740.827	559138.065
0+04	12" VALVE	1344737.079	559136.731
0+08	12" 1/8" HB	1344733.312	559135.396
0+49.5	DEMARICATION LINE	1344692.955	559125.355
PUMPING STATION SUCTION PIPE 2			
0+00	12" X 12" TEE	1344739.308	559157.834
0+04	12" VALVE	1344735.460	559156.743
0+10	12" SOLID SLEEVE 1.8" DEFLECTION	1344729.888	559155.105
0+12	12" 1/8" HB	1344727.407	559154.537
0+19	12" 1/8" HB	1344724.112	559149.053
0+34	16" X 12" TEE	1344727.856	559134.035
PUMPING STATION DISCHARGE PIPE			
0+84	DEMARICATION LINE	1344670.315	559189.734
1+58	16" X 8" TEE	1344652.570	559260.908
2+14	16" 1/8" HB	1344638.898	559315.742
2+22	16" 1/8" HB	1344643.018	559322.600
2+58	16" 1/8" HB	1344677.657	559331.236
2+72	16" 1/8" HB	1344684.711	559342.976
2+93 = 2+98	16" 1/32" HB	1344679.437	559364.129
3+85	16" SOLID SLEEVE 1.6" DEFLECTION	1344672.252	559451.600

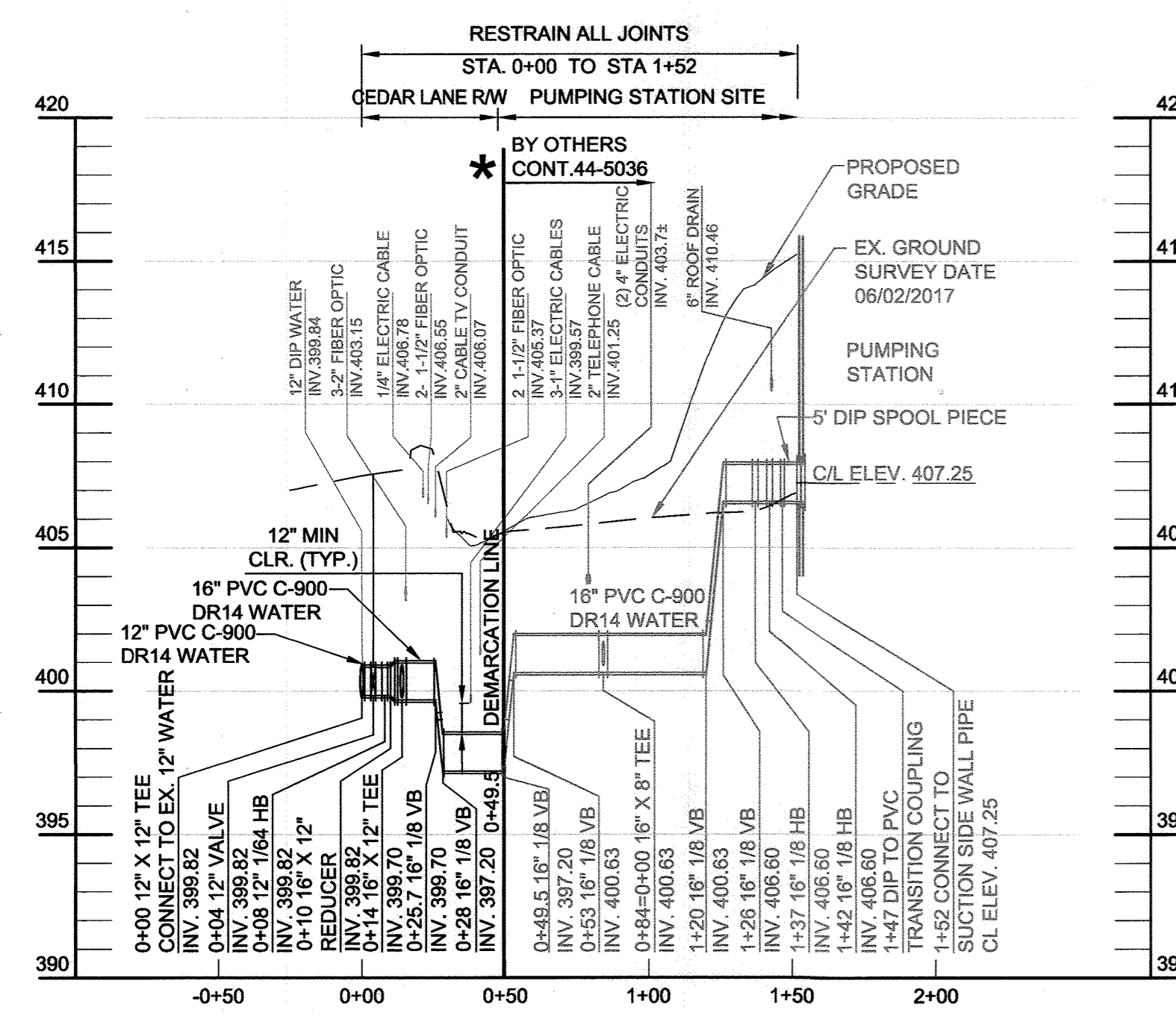
TEST HOLE SCHEDULE			
TEST HOLE NO.	UTILITY	MATERIAL	DEPTH
TH-17	1" WATER	COPPER	4.10'
TH-18	1/2" GAS H.C.	PLASTIC	2.08'
TH-19	(2) 2" ELECTRIC	PLASTIC	1.84'
TH-20	(3) 2" FIBER OPTIC	PLASTIC	6.34'
TH-21	1/2" ELECTRIC	PLASTIC	1.42'
TH-22	(2) 2" FIBER OPTIC	PLASTIC	2.40'
TH-22A	(2) 1-1/2" FIBER OPTIC	PLASTIC	1.60'
TH-24	2" CATV	PLASTIC	1.72'
TH-25	CATV	PLASTIC	NOT FOUND
TH-25A	(3) 1" ELECTRIC	PLASTIC	5.80'
TH-26	2" TELECOMM	PLASTIC	4.12'
TH-27	2" GAS	PLASTIC	2.88'
TH-28	12" WATER	DIP	4.50'
TH-41	(3) 2" FIBER OPTIC	PLASTIC	8.32'
TH-42	(6) 2" TELECOMM	PLASTIC	8.52'
TH-43	12" WATER	DIP	8.36'
TH-44	12" WATER	DIP	7.54'
TH-46	FIBER OPTIC	PLASTIC	3.5' CONC. SLAB
TH-61	(3) 3/4" ELECTRIC	PLASTIC	0.76'
TH-62	(2) 2" TELECOMM	PLASTIC	1.44'
TH-63	2" CATV	PLASTIC	1.84'
TH-64	(2) 2" FIBER OPTIC	PLASTIC	5.66'
TH-65	(2) 2" CATV	PLASTIC	3.46'
TH-66	2" ELECTRIC	PLASTIC	2.16'



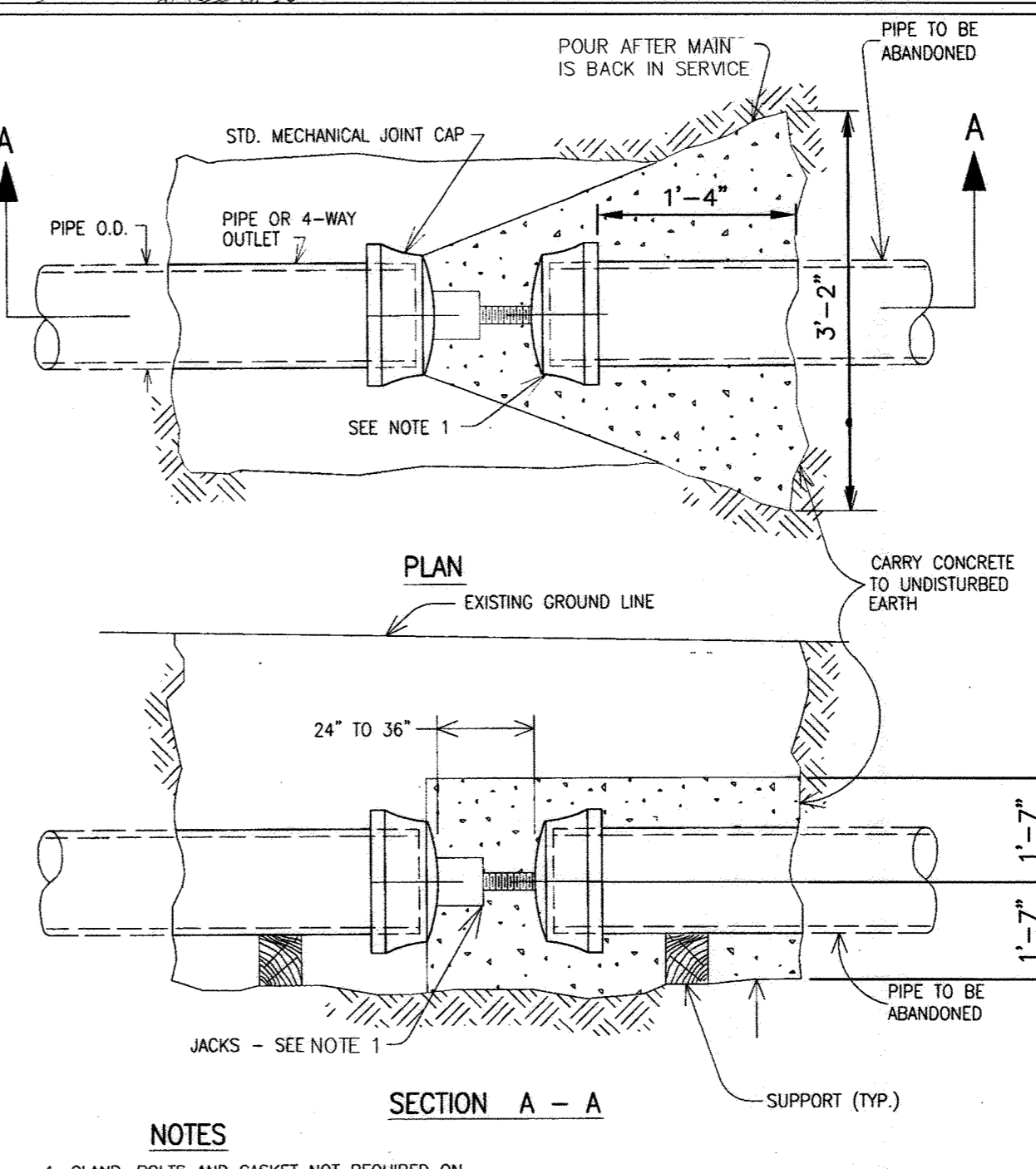
ENLARGED PLAN
 SCALE: 1" = 10'



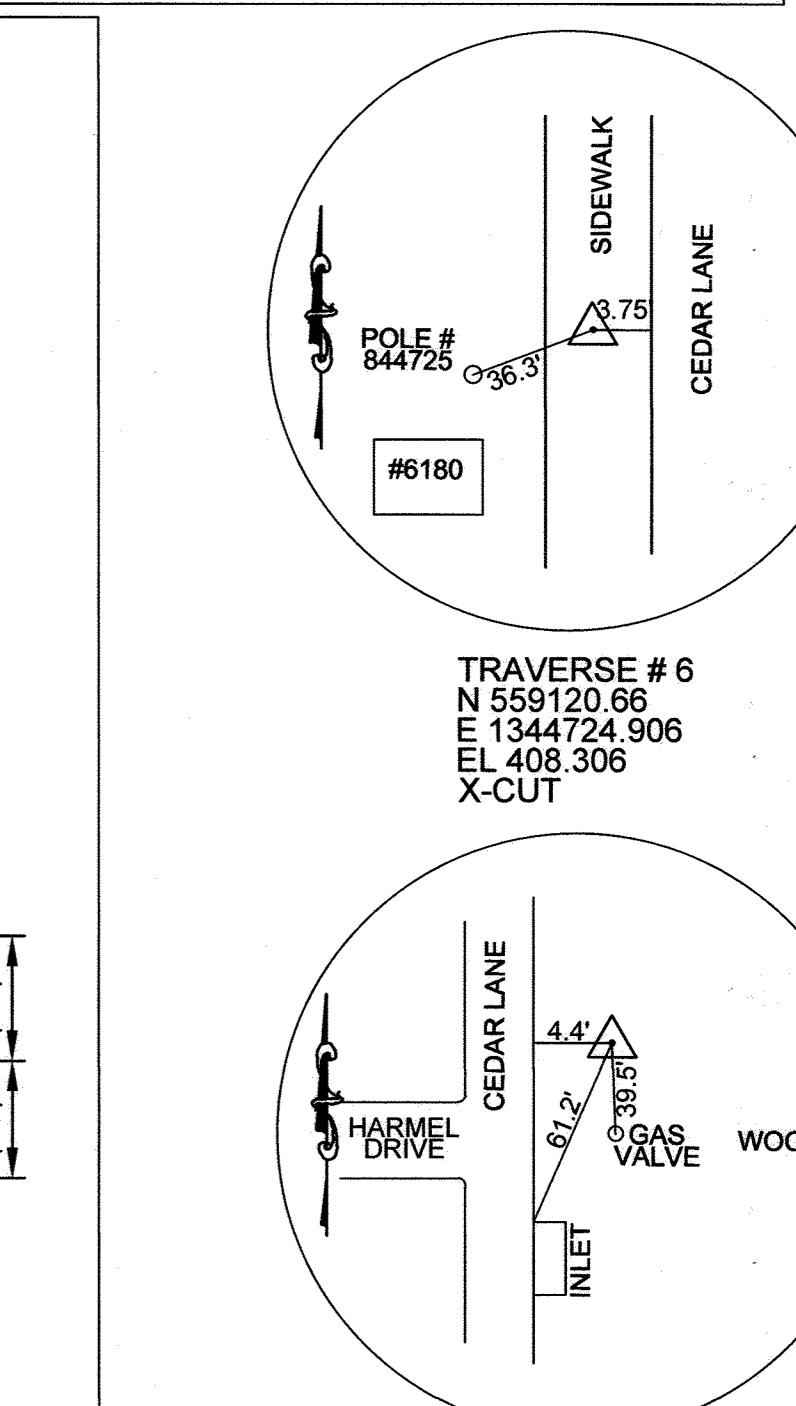
PROFILE - PUMPING STATION SUCTION PIPE 2
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



PROFILE - PUMPING STATION SUCTION PIPE 1
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



DETAIL - DOUBLE CAPS, JACK AND BUTRESS



AS-BUILT REPLACEMENT SHEET

- NOTES
- CLAND, BOLTS AND GASKET NOT REQUIRED ON THIS CAP UNLESS LEAKAGE IS PRESENT IN ABANDONED PIPE. PROVIDE 20 TON JACK.
 - O.D. MEASURED IN INCHES.
 - IN LIEU OF JACK, STEEL BLOCKING OF SAME CAPACITY MAY BE USED.
 - THIS DETAIL SHALL BE USED FOR DUCTILE IRON PIPE ONLY. FOR HOPE PIPE, CONSULT THE DESIGN DIVISION OF THE BUREAU OF ENGINEERING AND CONSTRUCTION.

* THE CONTRACTOR SHALL INSTALL A TEMPORARY CAP AND BUTRESS, AT THE DEMARICATION LINE, ON BOTH 12" SUCTION PIPES AND 16" DISCHARGE PIPE FOR FUTURE CONNECTION UNDER CONTRACT NO. 44-5036.

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. 31363, Expiration Date 01/16/2020

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature]
 DIRECTOR OF PUBLIC WORKS
 DATE: 6/13/19

[Signature]
 CHIEF, BUREAU OF UTILITIES
 DATE: 6/13/19

ENGINEERS
 PLANNERS
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KCI TECHNOLOGIES
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 www.kci.com

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 K. J. F. J.
 02/11/2019

DES: KFJ
 DRN: KFJ
 CHK: GW
 DATE: FEB. 2019
 BY: NO.
 REVISION
 DATE: 5/31/19
 600' SCALE MAP NO. 35
 BLOCK NO. 17.11

12" SUCTION WATER MAINS
 AND
 16" DISCHARGE WATER MAIN
 STATION 0+00 TO 4+50

CEDAR LANE
 WATER TRANSMISSION MAINS
 CAPITAL PROJECT No. W-8328
 CONTRACT No. 44-5046

ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

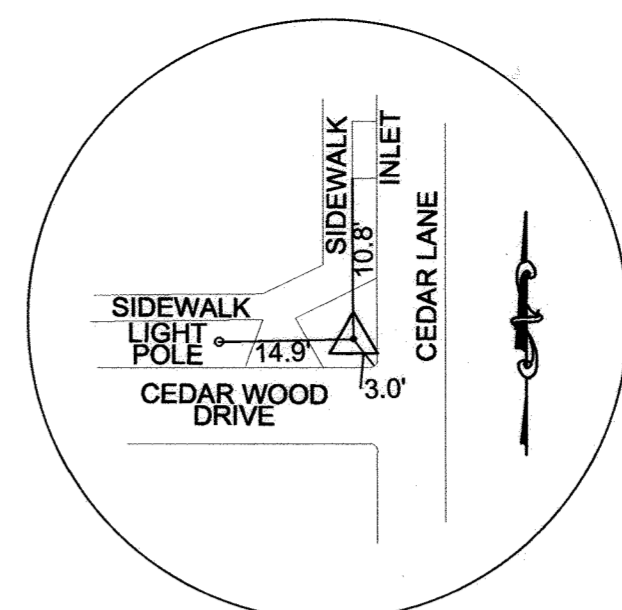
DRAWING NO. C-101
 SCALE AS SHOWN
 SHEET 4 OF 10

KCI TECHNOLOGIES PROJECT NO. 131601306.01

DATE: 02/13/19
 DRAWN: 6/13/19
 CHECKED: 6/13/19
 DESIGNED: 6/13/19
 PROJECT: 131601306.01
 SHEET: 5 OF 10

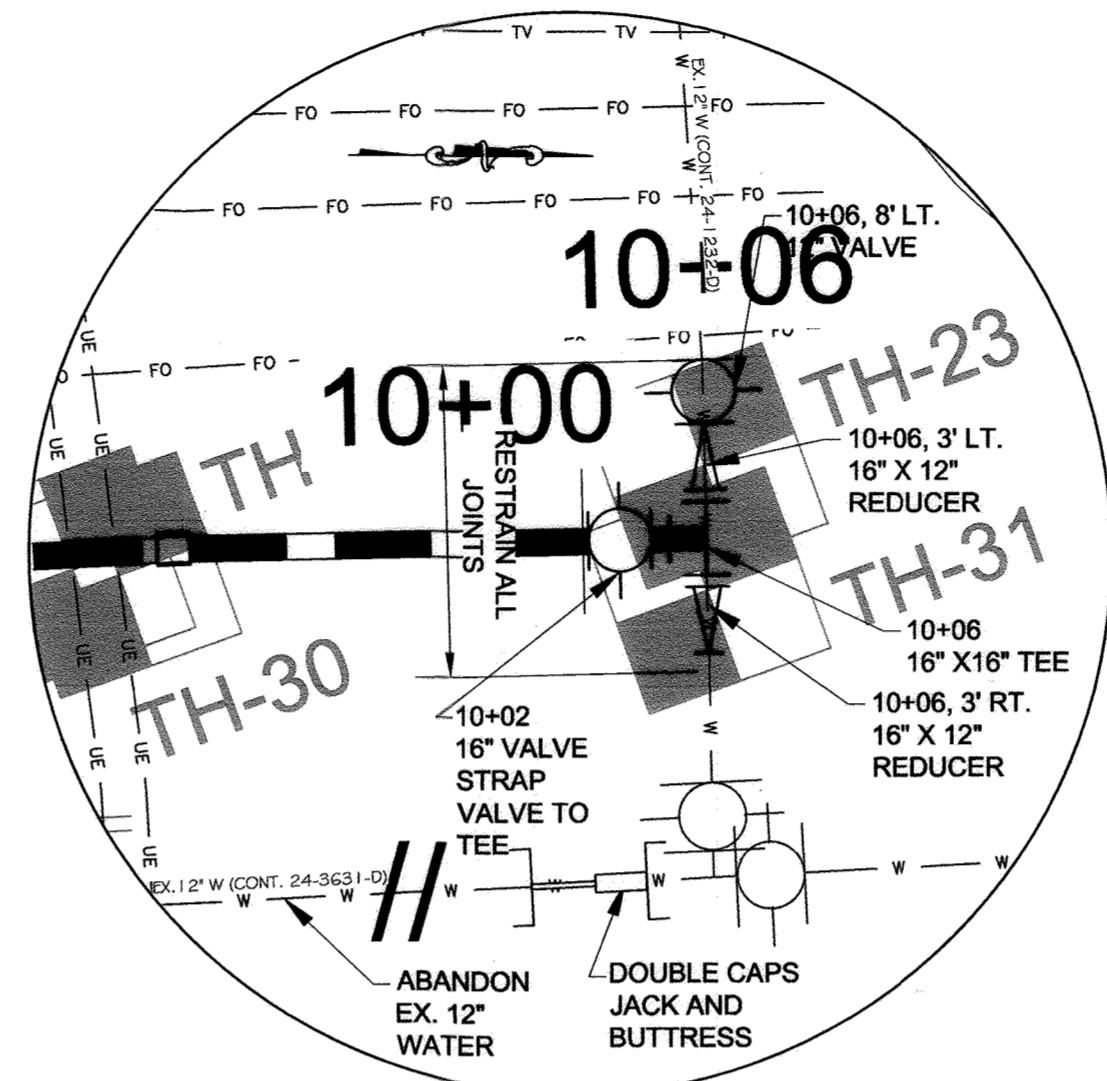
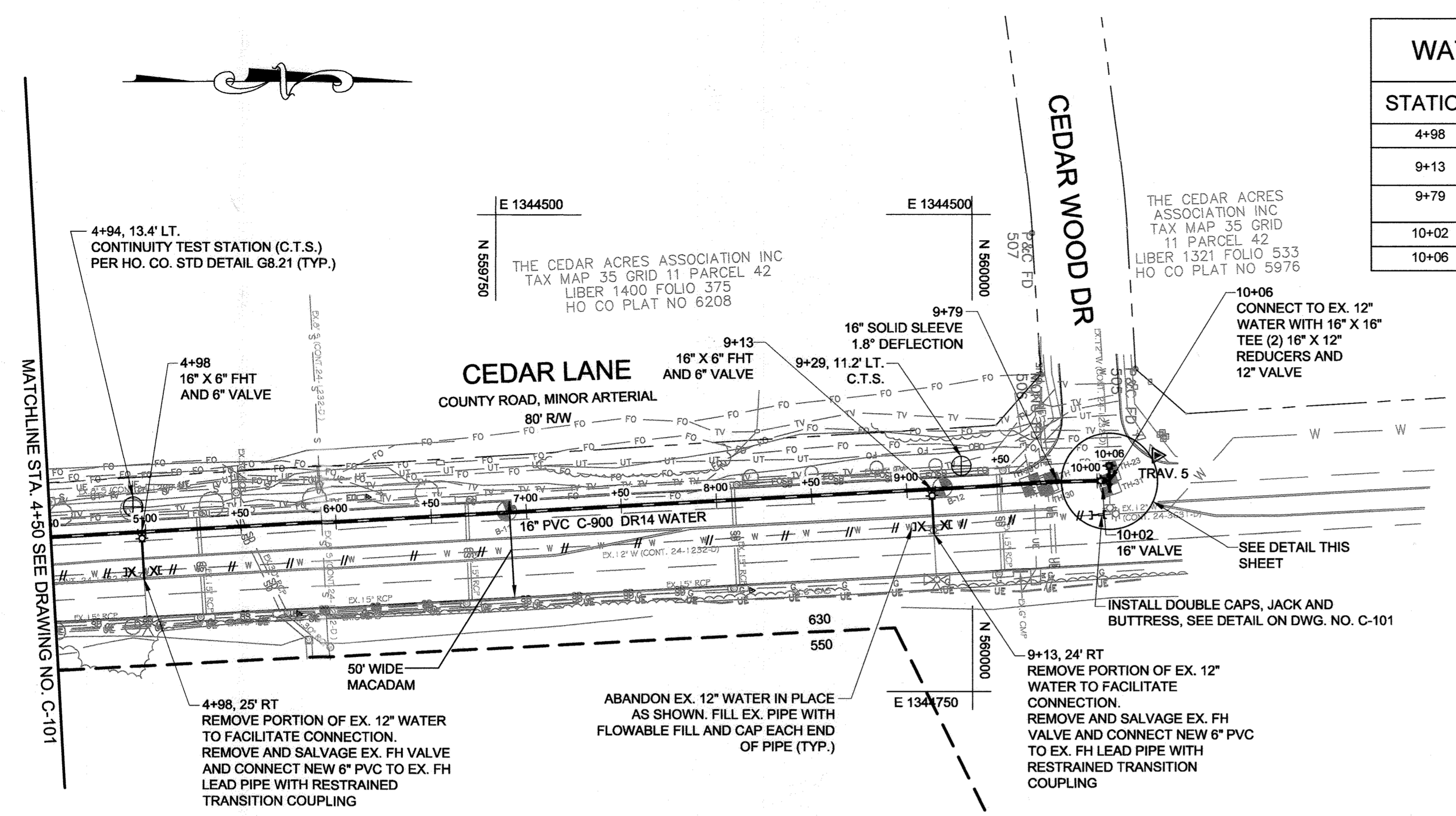
WATER MAIN STAKE-OUT SCHEDULE

STATION	DESCRIPTION	NORTHING	EASTING
4+98	16" X 6" FHT	559564.01	1344666.20
9+13	16" X 6" FHT	559978.62	1344643.89
9+79	16" SOLID SLEEVE-1.8" DEFLECTION	560044.14	1344640.36
10+02	16" VALVE	560067.34	1344639.85
10+06	16" X 16" TEE	560071.83	1344639.76

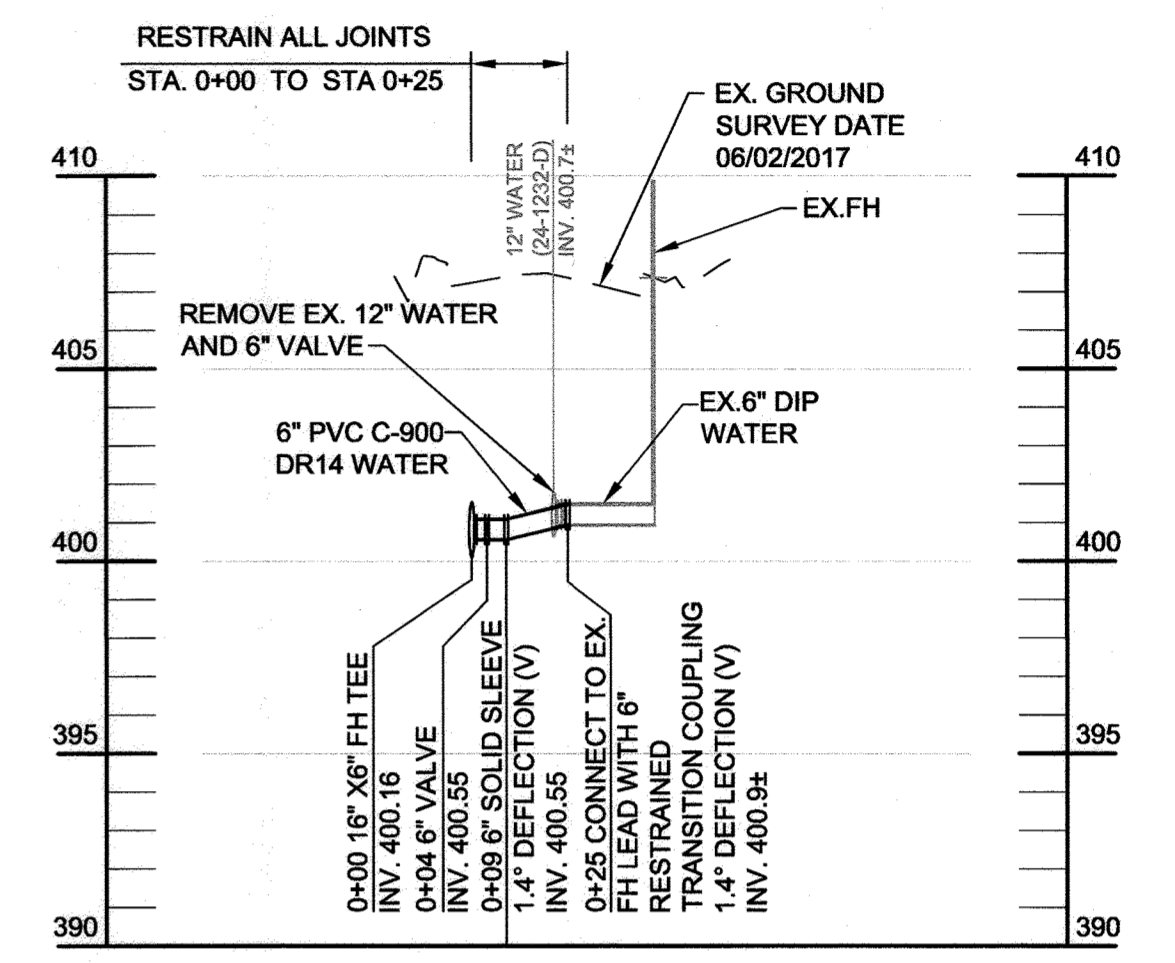


TEST HOLE SCHEDULE

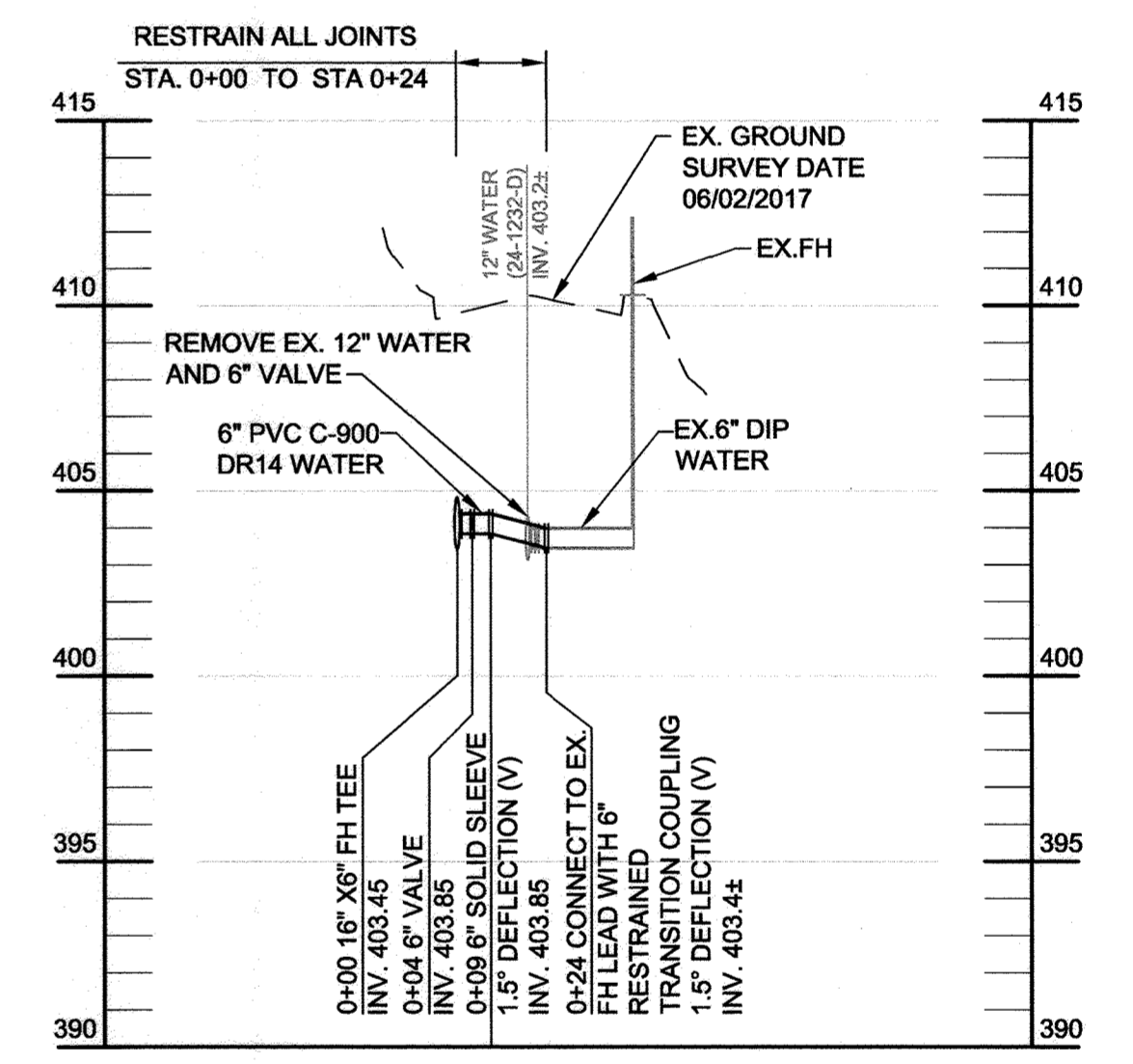
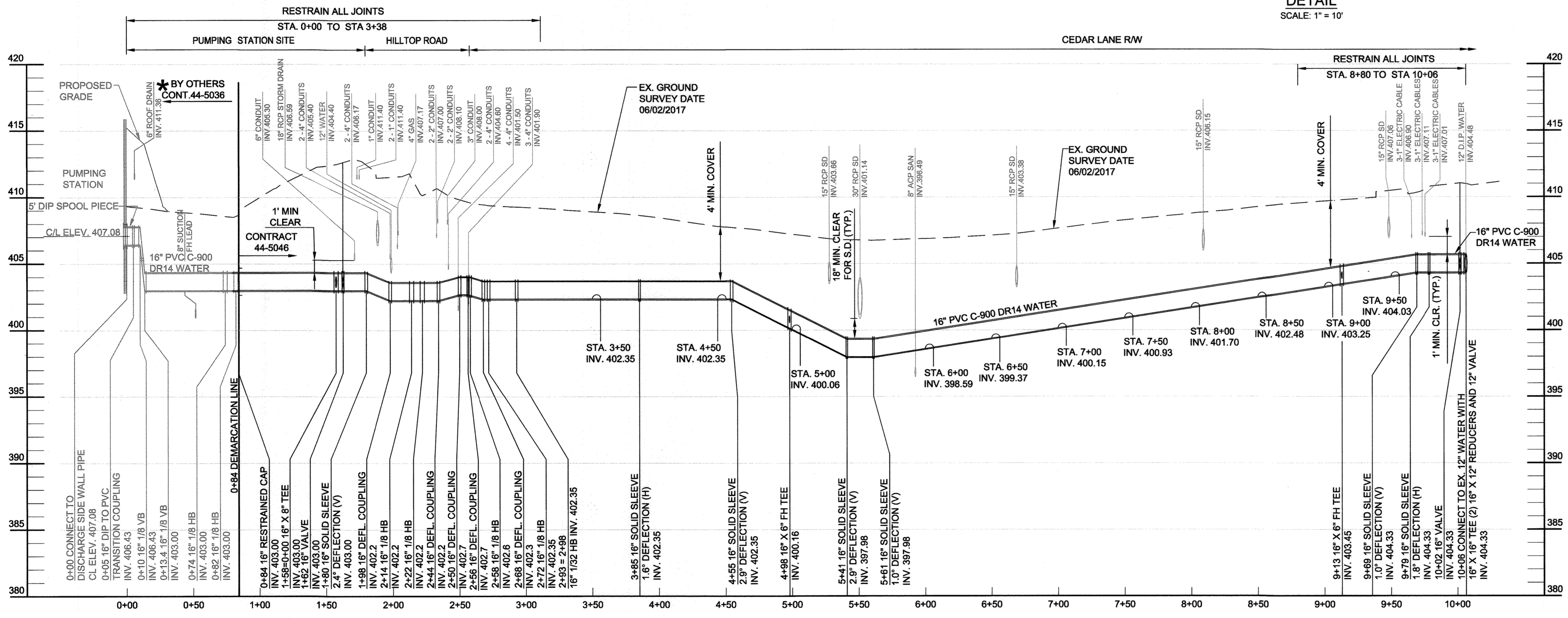
TEST HOLE NO.	UTILITY	MATERIAL	DEPTH
TH-23	12" WATER	DIP	5.46'
TH-29	(3) 1" ELECTRIC	PLASTIC	3.08'
TH-30	(3) 1" ELECTRIC	PLASTIC	3.06'
TH-30A	(3) 1" ELECTRIC	PLASTIC	3.26'
TH-31	12" WATER	DIP	5.48'



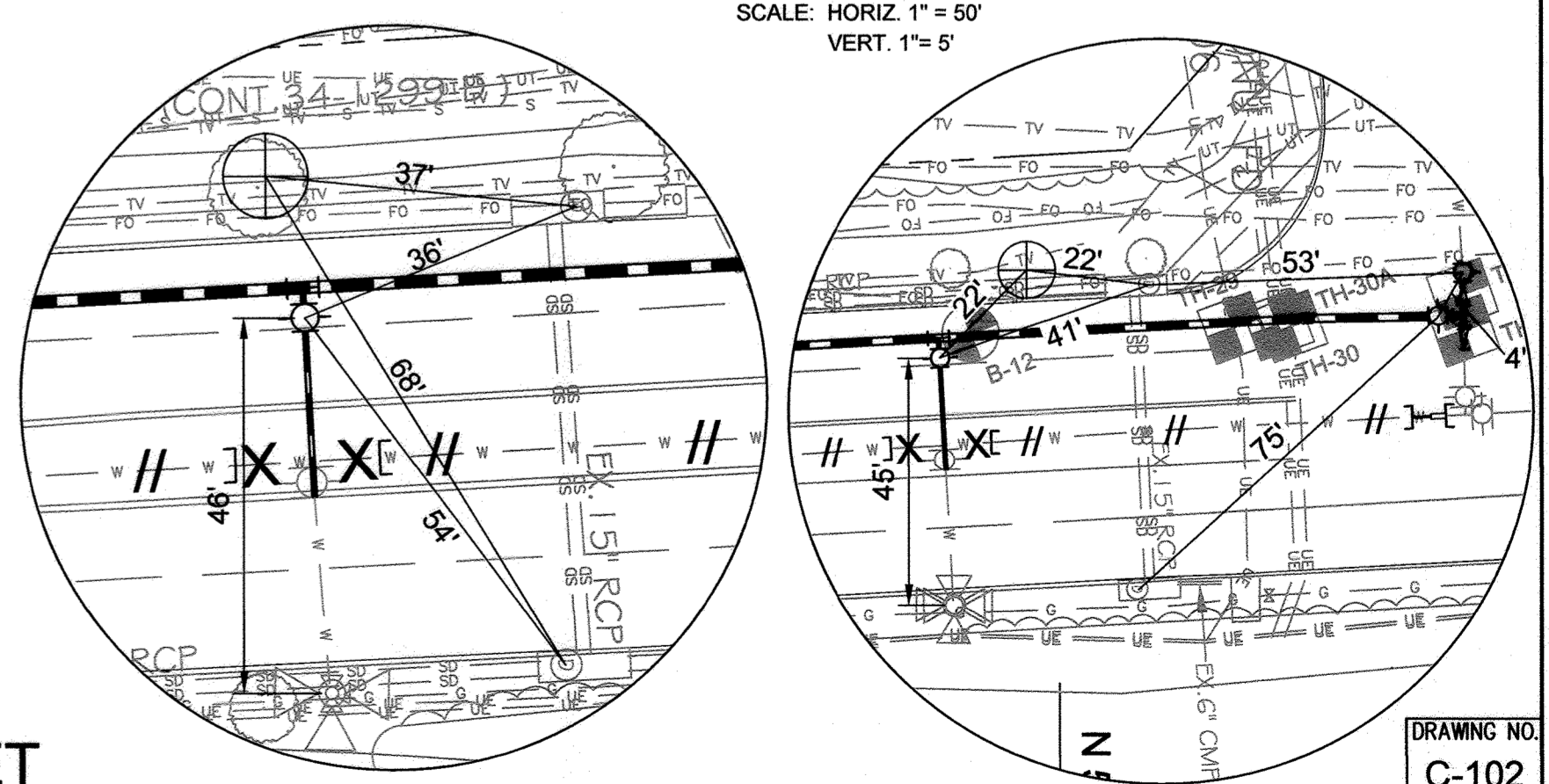
TRAVERSE #5
 N 560096.73
 E 1344626.60
 EL 411.29
 REBAR & CAP



PROFILE - FH LEAD AT STA. 4+98
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



PROFILE - FH LEAD AT STA. 9+13
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



AS-BUILT REPLACEMENT SHEET

16" DISCHARGE WATER MAIN
 STA. 4+50 TO STA. 10+06

CEDAR LANE
 WATER TRANSMISSION MAINS
 CAPITAL PROJECT No. W-8328
 CONTRACT No. 44-5046

DRAWING NO.
C-102
 SCALE
 AS SHOWN
 SHEET
5 OF 10

* THE CONTRACTOR SHALL INSTALL A TEMPORARY CAP AND BUTTRESS AT THE DEMARCATON LINE, ON BOTH 12" SUCTION PIPES AND 16" DISCHARGE PIPE FOR FUTURE CONNECTION UNDER CONTRACT NO. 44-5036.

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. 31363, Expiration Date 01/16/2020

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 www.kci.com

STATE OF MARYLAND
 CIVIL ENGINEER
 PROFESSIONAL ENGINEER
 No. 31363
 EXPIRES 02/11/2019

DES: KFJ	DATE: FEB. 2019	BY: NO.	REVISION	DATE: 6/07/19
DRN: KFJ		CHK: GW		
		KFJ	AS-BUILT	

600' SCALE MAP NO. 35
 BLOCK NO. 17.11

ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

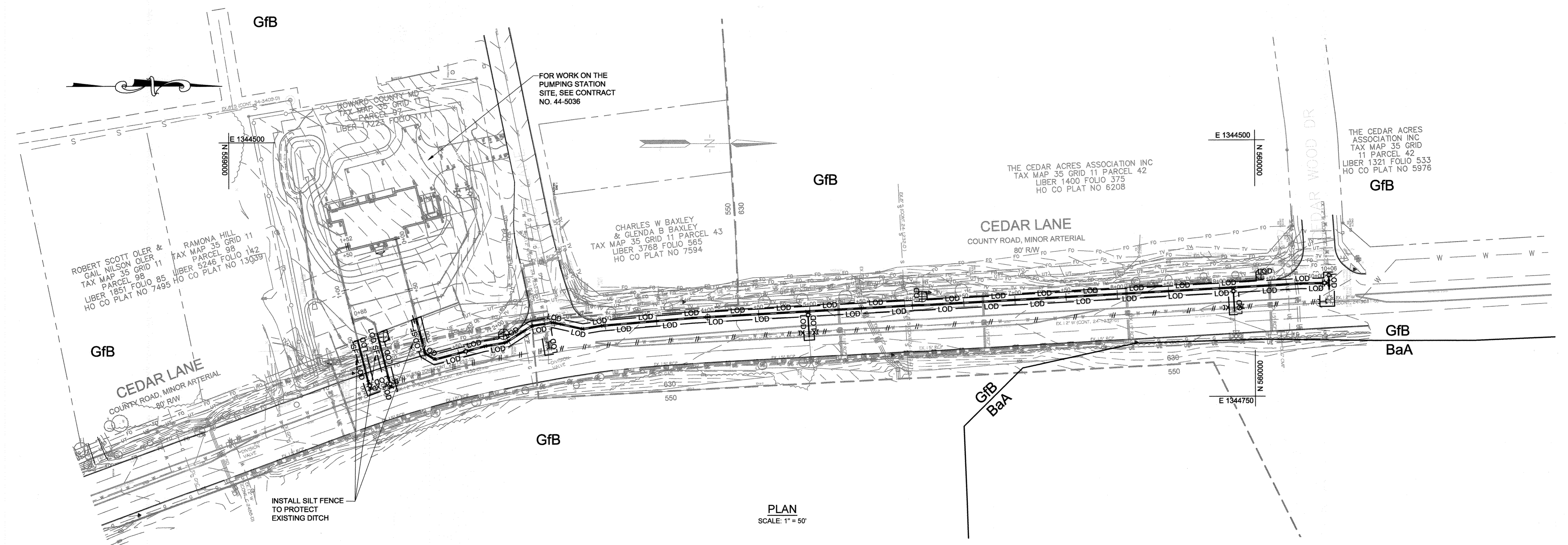
KCI TECHNOLOGIES PROJECT No. 131601306.01

SOIL MAPPING UNIT

BaA BAIL SILT LOAM, 0 TO 3 PERCENT SLOPES, Kw=0.32
 GfB GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES, Kw=0.20

LEGEND

- EXISTING**
- DECIDUOUS TREE
 - ✳ CONIFEROUS TREE
 - ⊕ EXISTING FIRE HYDRANT
 - ⊕ EXISTING VALVE
 - △ TRAVERSE POINT
 - 395— MAJOR CONTOUR
 - MINOR CONTOUR
 - W EXISTING WATER MAIN
 - S EXISTING SEWER MAIN
 - SD EXISTING STORM DRAIN
 - G — EXISTING GAS MAIN
 - UE — EXISTING UNDERGROUND ELECTRIC
 - OE — EXISTING OVERHEAD ELECTRIC
 - OH — EXISTING OVERHEAD WIRE
 - FO — EXISTING FIBER OPTIC
 - UT — EXISTING UNDERGROUND TELECOMMUNICATIONS
 - EXISTING SEWER EASEMENT
 - PROPERTY BOUNDARY/RIGHT OF WAY GUARDRAIL
 - ⌒ TREELINE
- PROPOSED**
- ⊕ WATER MAIN
 - ⊕ FIRE HYDRANT
 - ⊕ VALVE
 - ⊕ CONTINUITY TEST STATION
 - ⊕ TEST PIT (COMPLETED)
 - ⊕ SOIL BORING (SEE GEOTECHNICAL REPORT)
 - STORM DRAIN (BY OTHERS)
 - WATER MAIN
 - LOD LIMIT OF DISTURBANCE
 - SF SILT FENCE
 - LOD / SF LIMIT OF DISTURBANCE AND SILT FENCE
 - GfB SOILS DESIGNATION
 - BaA SOILS DESIGNATION

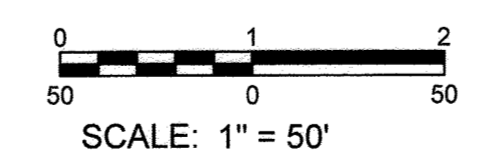


PLAN
SCALE: 1" = 50'

- NOTES:**
- IF REQUIRED BY THE SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION ENTRANCE. SEE DETAIL ON DRAWING NO. ES-102.
 - THE CONTRACTOR SHALL IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ON TO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.
 - THE CONTRACTOR SHALL HAUL AWAY EXCAVATED MATERIAL OFF-SITE WITHIN THE SAME WORKING DAY.

AS-BUILT
DATE 5-31-2019

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. 31363, Expiration Date 01/16/2020



User: kevin.johnson Date: 11/23/2019 11:23am Plot: 2019131601306.01 Drawing: 628-101 ES-101.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Kevin Johnson 2/14/19
DIRECTOR OF PUBLIC WORKS DATE

Thomas P. Butler 2-13-19
CHIEF, BUREAU OF ENGINEERING DATE

Kevin Johnson 2-13-19
CHIEF, BUREAU OF UTILITIES DATE

Kevin Johnson 2/13/19
CHIEF, UTILITY DESIGN DIVISION DATE

KCI TECHNOLOGIES

ENGINEERS
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STATE OF MARYLAND
GUY H. WALKER
PROFESSIONAL ENGINEER
No. 31363
02/11/2019

DES: Kfj					
DRN: Kfj					
CHK: GW					
DATE: FEB. 2019	BY	NO.	REVISION	DATE	

EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 35 BLOCK NO. 17.11

CEDAR LANE WATER TRANSMISSION MAINS

CAPITAL PROJECT No. W-8328
CONTRACT No. 44-5046

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 6 OF 10

KCI TECHNOLOGIES PROJECT No.: 131601306.01

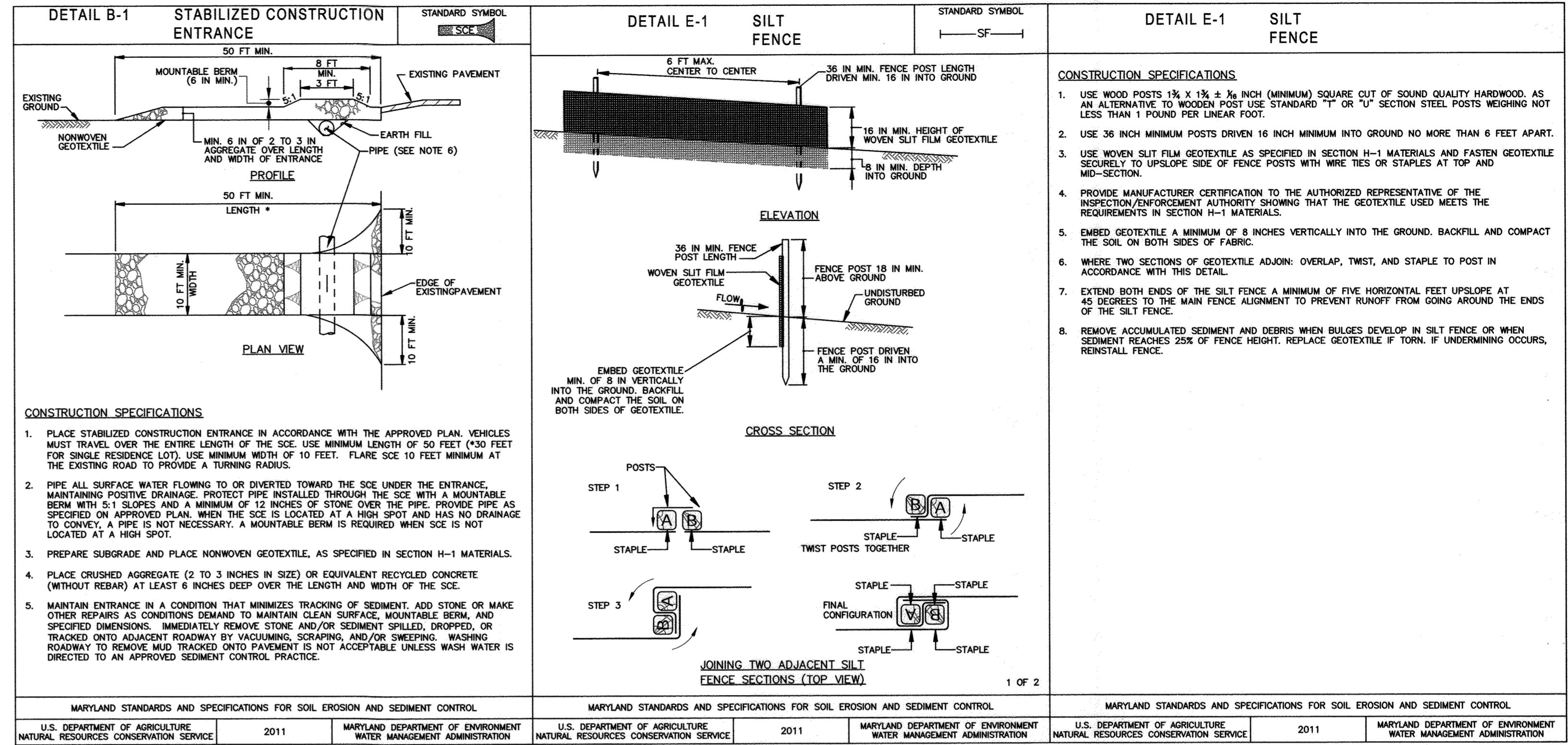
**HOWARD SOIL CONSERVATION DISTRICT (HSCD)
STANDARD SEDIMENT CONTROL NOTES**

- 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:	0.28	Acres
Area Disturbed:	0.09	Acres
Area to be roofed or paved:	0.085	Acres
Area to be vegetatively stabilized:	0.005	Acres
Total Cut:	735	Cu. Yds.
Total Fill:	735	Cu. Yds.
Offsite waste/borrow area location:	CONTRACTOR COORDINATE	
- 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 be 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 HSCD. 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 uphill 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 IIIIP 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.

Rev. 7.2018



SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT.
- LAYOUT ALIGNMENT AT SITE. (2 DAYS)
- REQUEST PRE-CONSTRUCTION MEETING ON-SITE WITH REPRESENTATIVE OF HOWARD COUNTY DPW CONSTRUCTION INSPECTION DIVISION. (1 DAY)
- THE CONTRACTOR SHALL INSTALL SEDIMENT CONTROL DEVICES AT THE DIRECTION OF THE HOWARD DPW CID INSPECTOR. (1 DAY)
- EXCAVATE TRENCH TO THE GRADE SPECIFIED ON THE PROFILE, INSTALL WATER MAIN, BACKFILL, STABILIZE TRENCH AND RESURFACE WITH BITUMINOUS PAVING AS APPROPRIATE (60 DAYS). TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO 3 LENGTHS OF PIPE OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER. AT THE END OF EACH WORK DAY, ALL VEGETATED AREAS DISTURBED DURING THE COURSE OF CONSTRUCTION SHALL BE TEMPORARILY STABILIZED IN ACCORDANCE WITH THE TEMPORARY SEEDING SUMMARY SHOWN ON DRAWING NO. ES-104 AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION B-4-4. AT THE END OF EACH WORKING DAY ALL DISTURBED PAVING AREAS WITHIN THE EXISTING ROAD SHALL BE REPLACED WITH PERMANENT SUBGRADE AND BASE ASPHALT, THEN TEMPORARILY PATCHED, SEE TEMPORARY PAVING DETAIL ON DRAWING NO. C-001.
- UPON COMPLETION OF PIPE INSTALLATION AND INSPECTOR'S APPROVAL, PERMANENTLY STABILIZE ALL DISTURBED VEGETATED AREAS IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION SHOWN ON DRAWING NO. ES-104 AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION B-4-5. (1 DAY)
- CLEAN UP CONSTRUCTION SITE. (1 DAY)
- REMOVE SEDIMENT CONTROL DEVICES AFTER PERMISSION IS GRANTED BY THE HOWARD CID INSPECTOR. (1 DAY)

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. 31363, Expiration Date 01/16/2020

User: kevin.jackson
File: 11_2019 - 8:21am
M: 2019131601306.01 Drawing: E28-02 E28 DETAIL NOTES.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Kevin Jackson 2/14/19
DIRECTOR OF PUBLIC WORKS DATE

Thomas E. Butler 2-13-19
CHIEF, BUREAU OF ENGINEERING DATE

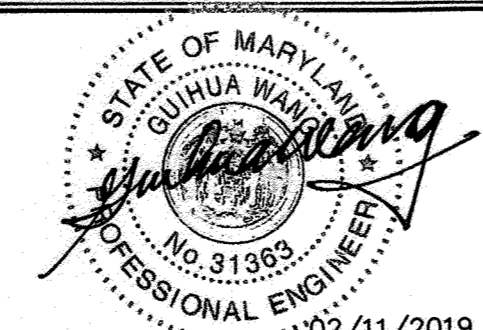
Kevin Jackson 2-13-19
CHIEF, BUREAU OF UTILITIES DATE

Kevin Jackson 2/13/19
CHIEF, UTILITY DESIGN DIVISION DATE

KCI TECHNOLOGIES

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PHONE: (410) 316-7800
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DES: Kfj					
DRN: Kfj					
CHK: GW					
DATE: FEB. 2019	BY	NO.	REVISION	DATE	

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 35 BLOCK NO. 17, 11

CEDAR LANE WATER TRANSMISSION MAINS

CAPITAL PROJECT No. W-8328
CONTRACT No. 44-5046

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

AS-BUILT
DATE 5-31-2019

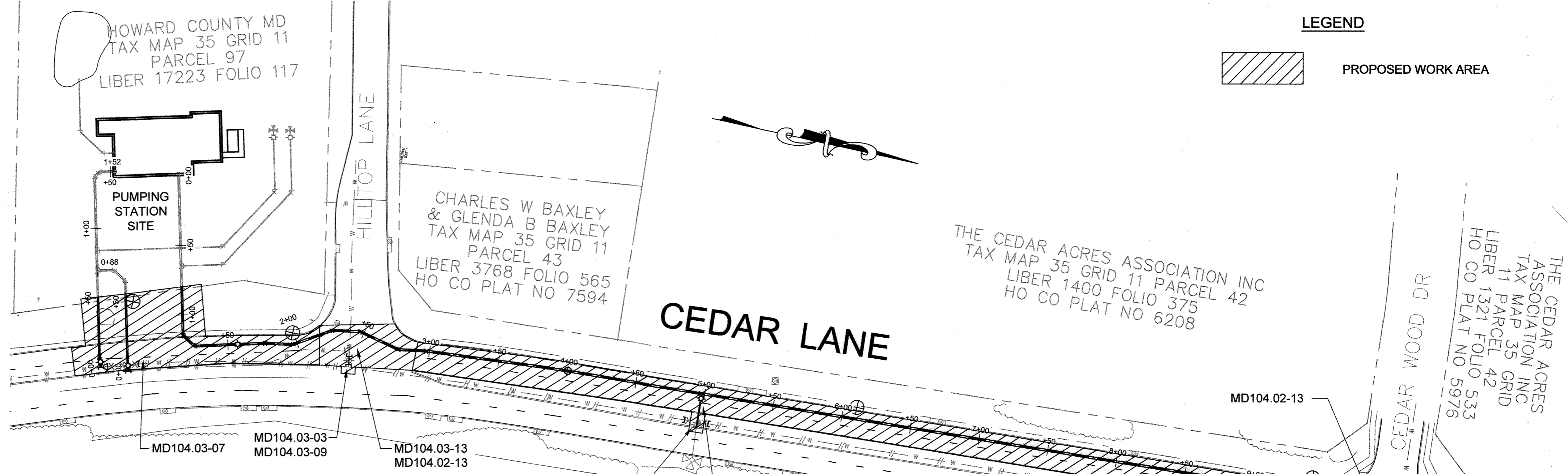
DRAWING NO. ES-102
SCALE AS SHOWN
SHEET 7 OF 10

TRAFFIC CONTROL NOTES:

1. ALL STANDARD REGULATORY AND WARNING SIGNS AND OTHER TRAFFIC CONTROL DEVICES USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
2. ALL TEMPORARY TRAFFIC SIGNS SHALL BE INSTALLED IN ACCORDANCE TO MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, MSHA BOOK OF STANDARDS, AND NCHRP 350.
3. ALL TEMPORARY SIGNS SHOWN ON THIS PLAN SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES (MINIMUM 200' SPACING).
4. ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THIS PLAN MUST BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS TRAFFIC DIVISION.
5. MISS UTILITY MUST BE NOTIFIED PRIOR TO PLACEMENT OF SIGNING, IF MOUNTING ON POSTS.
6. SIGN INSTALLATION SHALL NOT LAST ANY LONGER THAN 15 MINUTES PER LOCATION. IF LONGER THAN 15 MINUTES APPROPRIATE TRAFFIC CONTROL AND PERMITS MUST BE USED.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES. AT ANYTIME THE CONTRACTOR DOES NOT MAKE NECESSARY REPAIRS WITHIN 24 HOURS OF NOTIFICATION, APPROPRIATE WORK TIME REDUCTION AND/OR FINES MAY BE APPLIED.
8. ALL DRIVEWAY ENTRANCES MUST BE MAINTAINED AT ALL TIMES.
9. THE DAILY TRENCHING OPERATION SHALL NOT EXTEND MORE THAN 30 FEET IN ADVANCE OF THE PIPE LAYING OPERATION. ALL ROADWAYS SHALL BE FULLY REOPENED AT THE END OF EACH WORK DAY.
10. LANE CLOSURE NOTIFICATION:
THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AT LEAST 4 WEEKS IN ADVANCE.
HOWARD COUNTY DPW - TRAFFIC DIVISION-410-313-2430
HOWARD COUNTY PUBLIC SCHOOLS/TRANSPORTATION DIVISION-410-313-8728 (IF DURING SCHOOL TIMES)
HOWARD COUNTY TRANSIT SERVICES-240-581-5800
HOWARD COUNTY BUREAU OF ENVIRONMENTAL SERVICES-410-313-8470
HOWARD COUNTY EMERGENCY COMMUNICATIONS/911 CENTER-410-313-2300.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THE SAFETY OF THE PUBLIC AND THE WORK CREW IS MAINTAINED AT ALL TIMES THROUGHOUT THE TERM OF THE CONTRACT. MOTORISTS SHALL BE GUIDED IN A CLEAR AND POSITIVE MANNER WHILE TRAVELING THROUGH THE WORK ZONE.
12. THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS FROM THE TRAVELED PORTION OF THE ROADWAY. NO EQUIPMENT OR MATERIALS SHOULD BE STORED IN A WAY THAT OBSTRUCTS SIGHT DISTANCE AT INTERSECTING ROADWAYS AND SHALL NOT BE STORED WITHIN THE 30-FOOT CLEAR ZONE WITHOUT POSITIVE PROTECTION. THE CONTRACTOR AND INSPECTORS SHALL NOT PARK VEHICLES BEHIND DRUMS WITHIN THE TAPER AND BUFFER AREAS.

TRAFFIC CONTROL NOTES (CONTINUED)

13. ANY DAMAGE TO EXISTING STRUCTURES, SIGNS, POSTS AND HARDWARE AS A RESULT OF OPERATIONS DURING CONSTRUCTION SHALL BE REPLACED AT NO ADDITIONAL COST TO THE COUNTY.
14. IN THE EVENT THAT ADJACENT CONSTRUCTION PROJECTS OCCUR SIMULTANEOUSLY WITH THIS PROJECT, COORDINATION OF THE TRAFFIC CONTROL PLANS FOR EACH PROJECT WILL BE REQUIRED. SPECIFICALLY THE LOCATION OF OVERLAPPING ADVANCED WARNING SIGNS SHALL BE ADJUSTED AS REQUIRED.
15. ALL TEMPORARY SIGNS INSTALLED FOR THIS PROJECT SHALL BE ADJUSTED TO AVOID CONFLICTS WITH EXISTING SIGNS. ANY EXISTING OR TEMPORARY SIGN THAT IS NO LONGER APPLICABLE SHALL BE COVERED OR REMOVED AND RESTORED WHEN THE PROJECT IS COMPLETE. TEMPORARY SIGNS SHALL MAINTAIN A MINIMUM SPACING OF 200 FEET BETWEEN SIGNS.
16. SEE CONTRACT DOCUMENTS FOR WORK RESTRICTIONS, LANE CLOSURE TIMES AND HOLIDAYS.
17. EXCAVATION THAT RESULTS IN A PAVEMENT EDGE DROP-OFF SHALL BE SIGNED IN ACCORDANCE WITH MD. STD. NO. 104.06-15 TO MD 104.06-19.
18. NOTIFY THE HOWARD COUNTY HIGHWAY DEPARTMENT AT 410-313-7450 3 DAYS PRIOR TO WORKING IN THE ROADWAY.
19. THE CONTRACTOR SHALL BACKFILL THE TRENCH IMMEDIATELY AFTER THE INSTALLATION OF A SECTION OF PIPE. IF STEEL PLATES ARE TO BE USED, APPROPRIATE SIGNING WILL BE REQUIRED. STEEL PLATES MUST BE RECESSED AND PINNED PER HOWARD COUNTY STANDARD DETAIL G-4.02. THE CONTRACTOR SHALL NOT LEAVE AN OPEN TRENCH UNATTENDED. ALL ROADWAYS SHALL BE FULLY REOPENED AT THE END OF EACH WORK SHIFT.
20. FLAGGERS SHALL BE CERTIFIED AND HAVE THEIR CERTIFIED FLAGGER CARD WITH THEM AT ALL TIMES DURING FLAGGING OPERATIONS.
21. LANE CLOSURES ARE RESTRICTED TO 9 AM TO 3 PM MONDAY-FRIDAY. COUNTY MAY ALTER WORK HOURS BASED ON TRAFFIC CONDITIONS.
22. NOTIFY HOWARD COUNTY POLICE 5 DAYS PRIOR TO STARTING WORK.
23. SEE MD STDS 104.00-01 THROUGH 104.00-18 FOR TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS AND STANDARDS.
24. CONTRACTOR SHALL DOCUMENT ALL EXISTING PAVEMENT MARKINGS AND RE-INSTALL IN KIND.



SEQUENCE OF CONSTRUCTION

1. SET UP TRAFFIC CONTROL PER TRAFFIC CONTROL PLANS FOR THE WORK AREA DURING WORKING HOURS.
 - A. SET UP MD104.03-07 AND MD 104.03-13 TO CONSTRUCT WATER MAIN ON CEDAR LANE FROM PUMPING STATION SITE TO CEDAR WOOD DRIVE. (CLOSE CENTER LEFT TURN LANE ON CEDAR LANE) FLAG TRAFFIC ENTERING AND EXITING HILLTOP LANE.
 - B. SET UP MD 104.03-13 TO CONSTRUCT WATER MAIN AT CEDAR WOOD DRIVE ENTRANCE. FLAG TRAFFIC ENTERING AND EXITING CEDAR WOOD DRIVE.
 - C. SET UP MD 104.03-03 AND/OR MD 104.03-09 TO CONSTRUCT FIRE HYDRANT LEAD PIPES AND DOUBLE CAP, JACK AND BUTTRESS.
2. CONSTRUCT WATER MAIN IN WORK AREA.
3. BACK FILL AND PAVE, OR INSTALL TEMPORARY STEEL PLATES OVER THE NEW WATER MAIN AT THE END OF WORK HOURS.
4. REMOVE TEMPORARY TRAFFIC CONTROL AND OPEN ALL LANES.
5. WHEN WATERMAIN CONSTRUCTION IS COMPLETE, MILL AND OVERLAY ROADWAY.

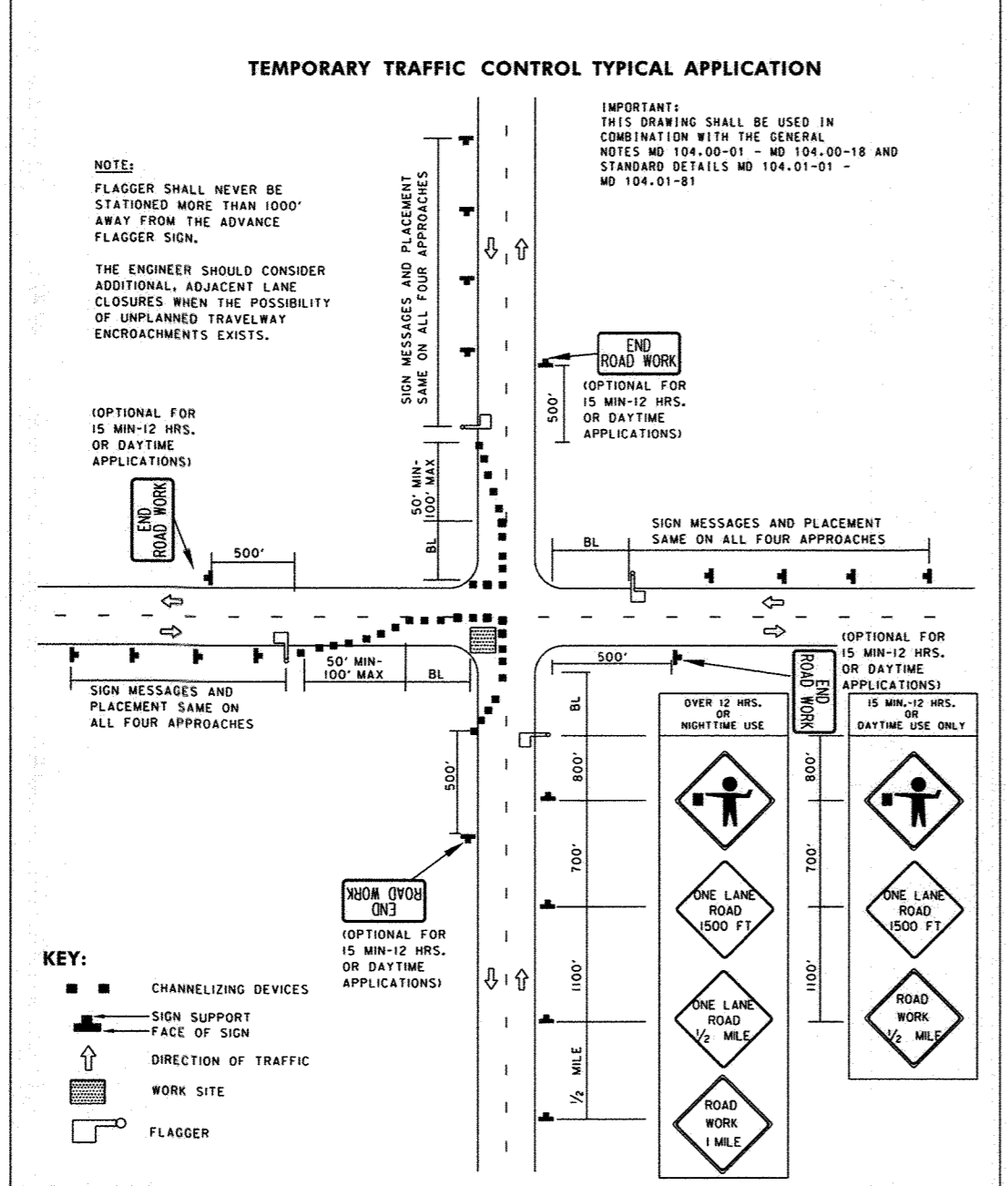
PLAN
SCALE: 1" = 50'

POSTED SPEED LIMIT	35 MPH
DESIGN SPEED	50 MPH
LANE CLOSURE TAPER (L) (ASSUME A 10' LANE)	500'
BUFFER LENGTH	425'
DRUM SPACING	35' (MAX.)

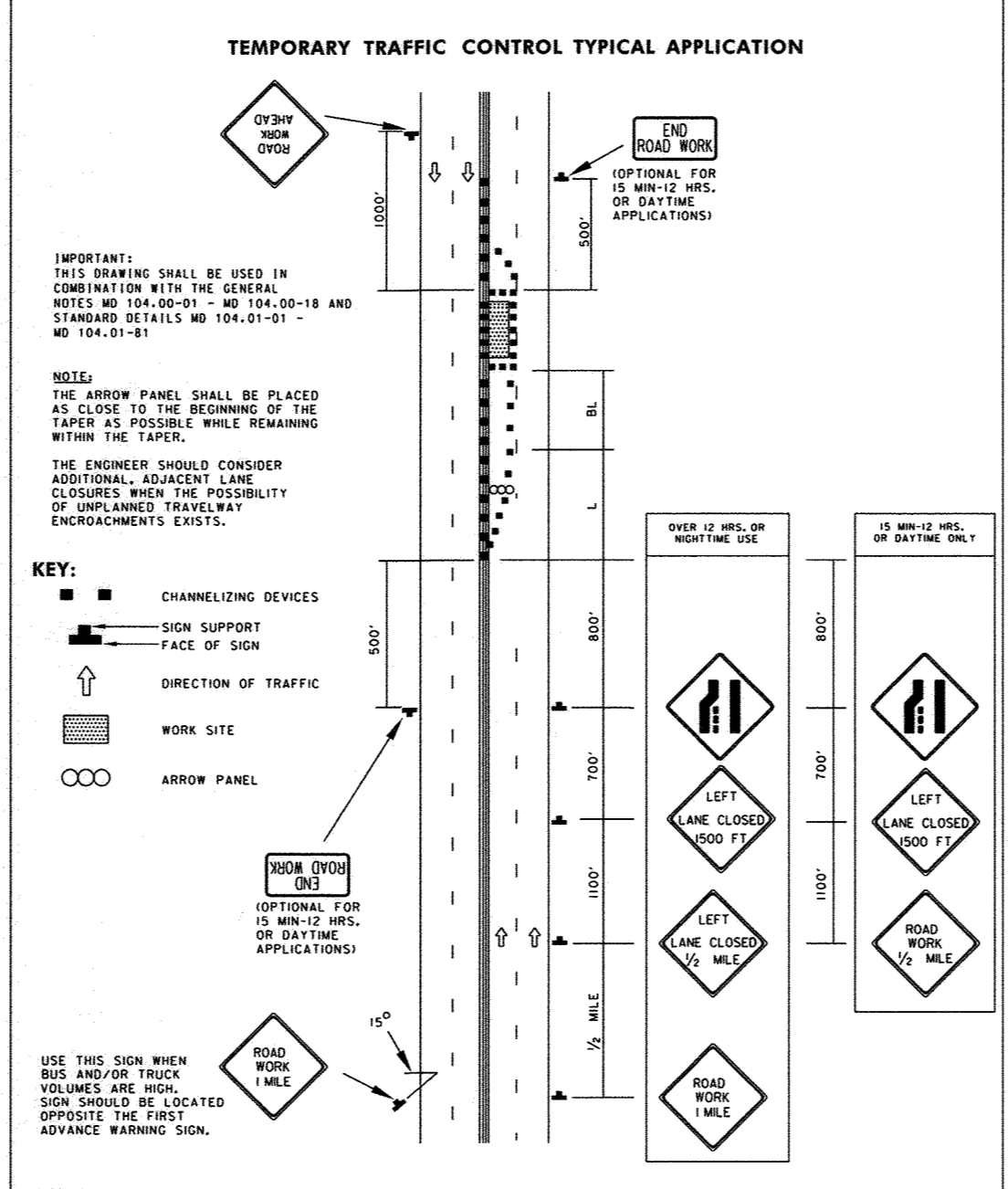
LEGEND



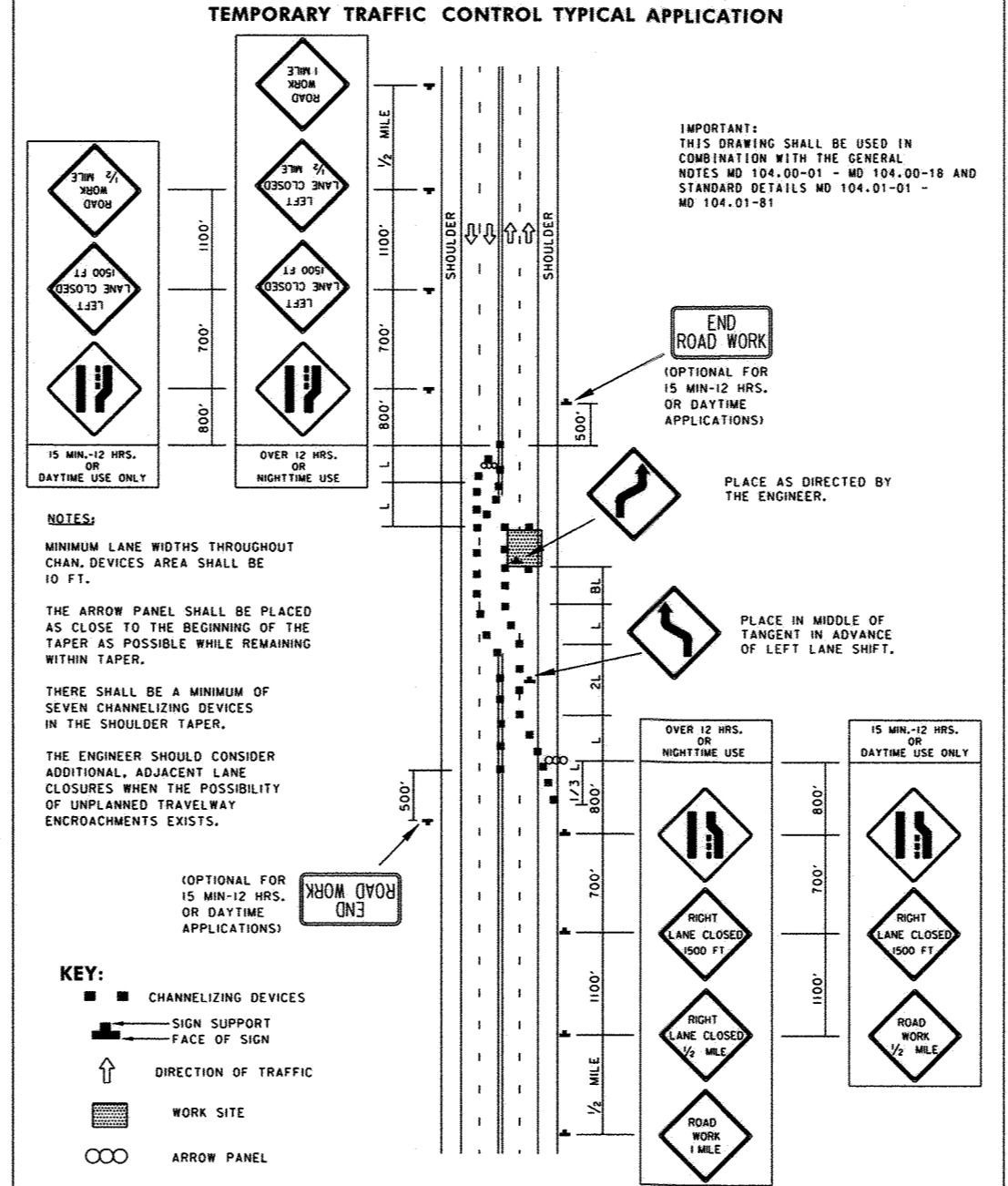
KCI TECHNOLOGIES PROJECT NO.: 131601306.01



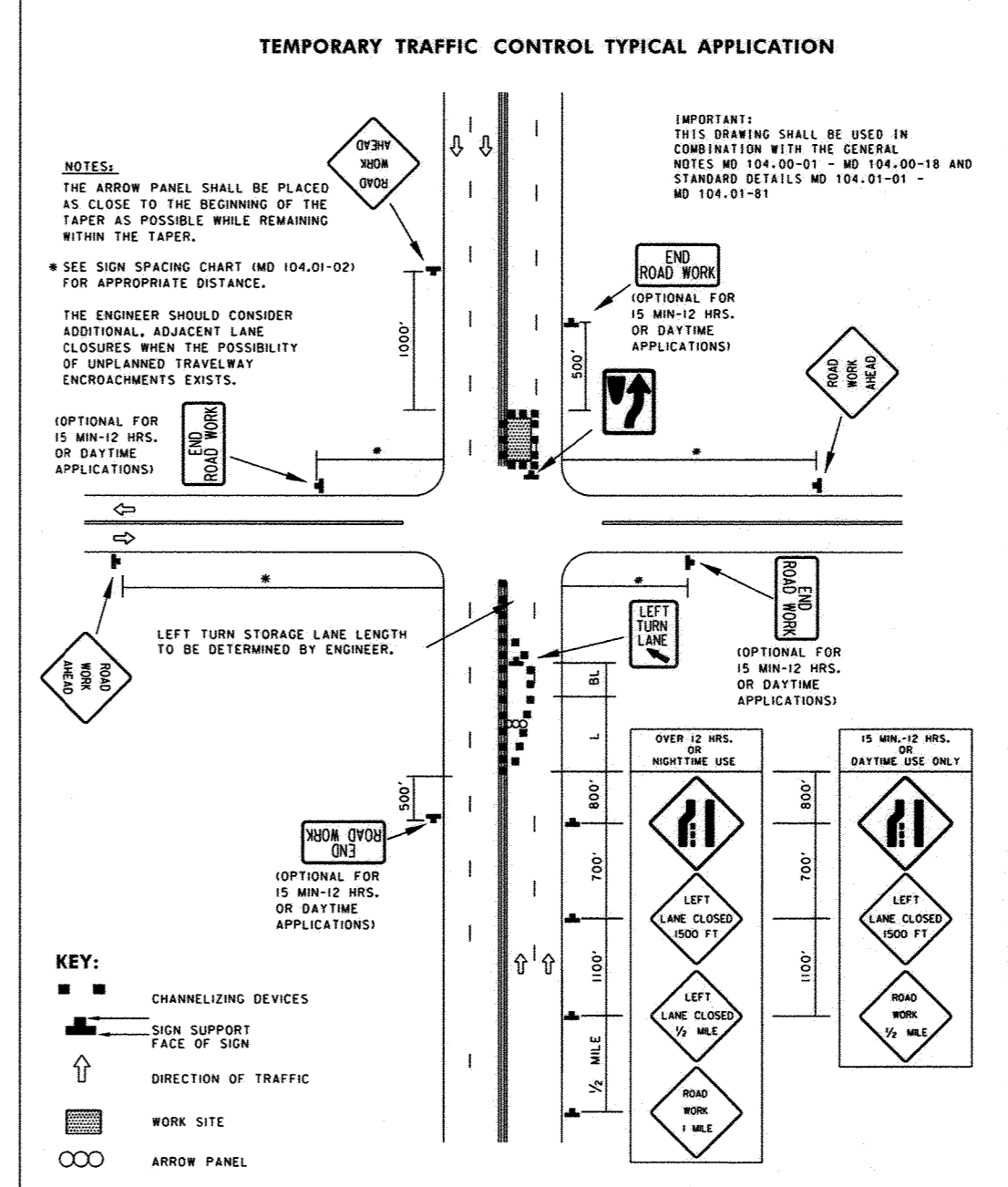
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
**INTERSECTION FLAGGING OPERATION
2-LANE, 2-WAY GREATER THAN 40 MPH**
STANDARD NO. MD 104.02-13



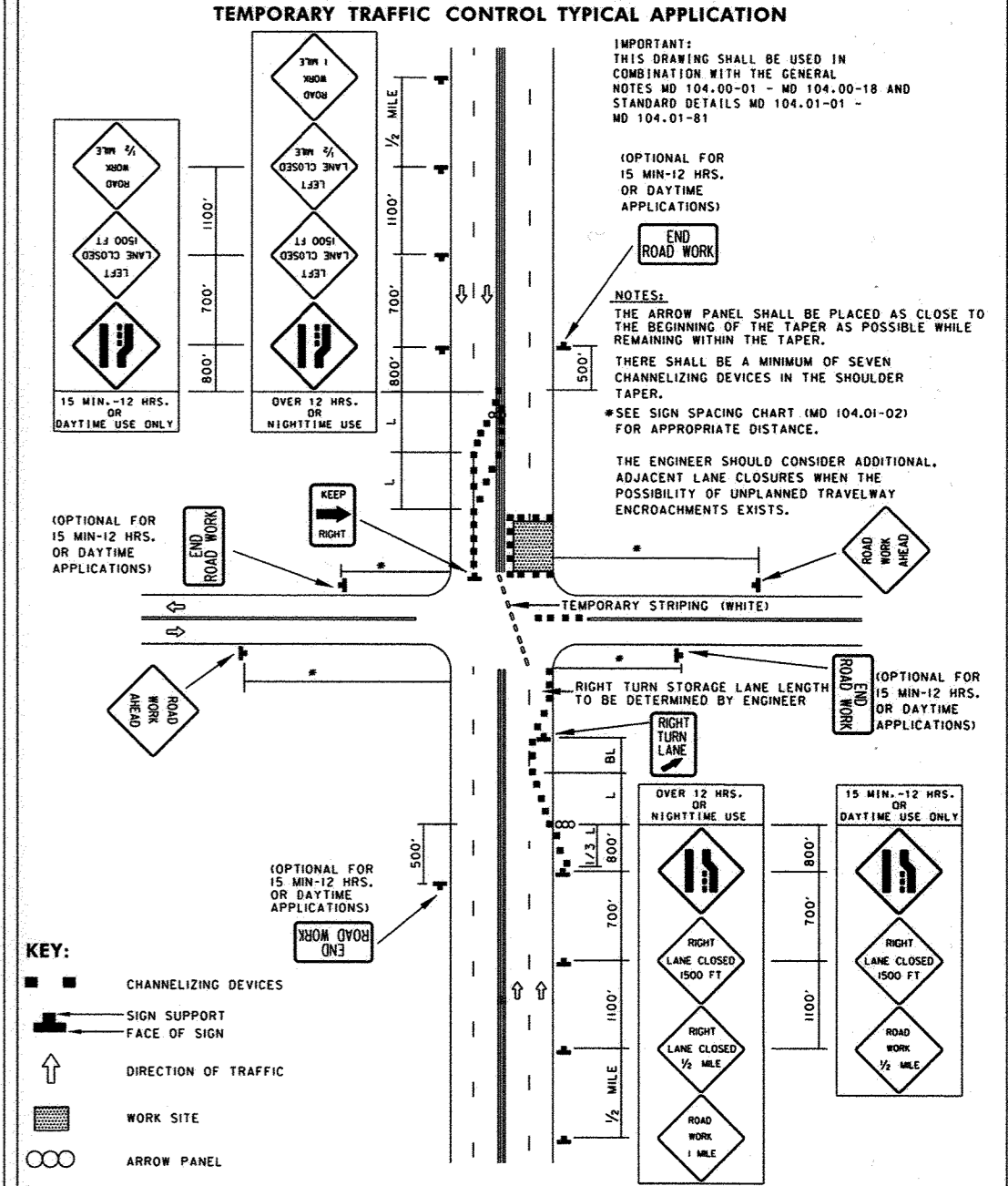
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
**LEFT LANE CLOSURE/MULTILANE UNDIV.
GREATER THAN 40 MPH**
STANDARD NO. MD 104.03-03



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
**PARTIAL ROADWAY CLOSURE/MULTILANE UNDIV.
GREATER THAN 40 MPH**
STANDARD NO. MD 104.03-07

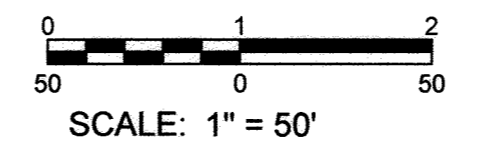


Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
**INTER. FAR-SIDE CLOSURE/
MULTILANE UNDIV. GREATER THAN 40 MPH**
STANDARD NO. MD 104.03-09



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
**INTERSECTION FAR-SIDE CLOSURE/MULTILANE
UNDIV. GREATER THAN 40 MPH**
STANDARD NO. MD 104.03-13

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. 16303, Expiration Date 12/21/2020.

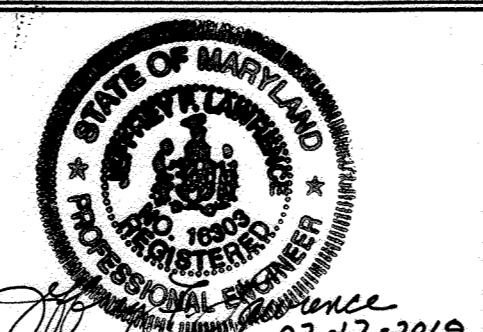


AS-BUILT
DATE 5-31-2019

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 2/14/19
Chief, Bureau of Engineering: *[Signature]* 2-13-19
Chief, Bureau of Utilities: *[Signature]* 2-13-19

KCI TECHNOLOGIES
936 Ridgebrook Road
Sparks, MD 21152
Phone: (410) 316-7800
Fax: (410) 316-7817
www.kci.com



DES: AMH
DRN: CK
CHK: JFL
DATE: FEB. 2019
BY: NO.

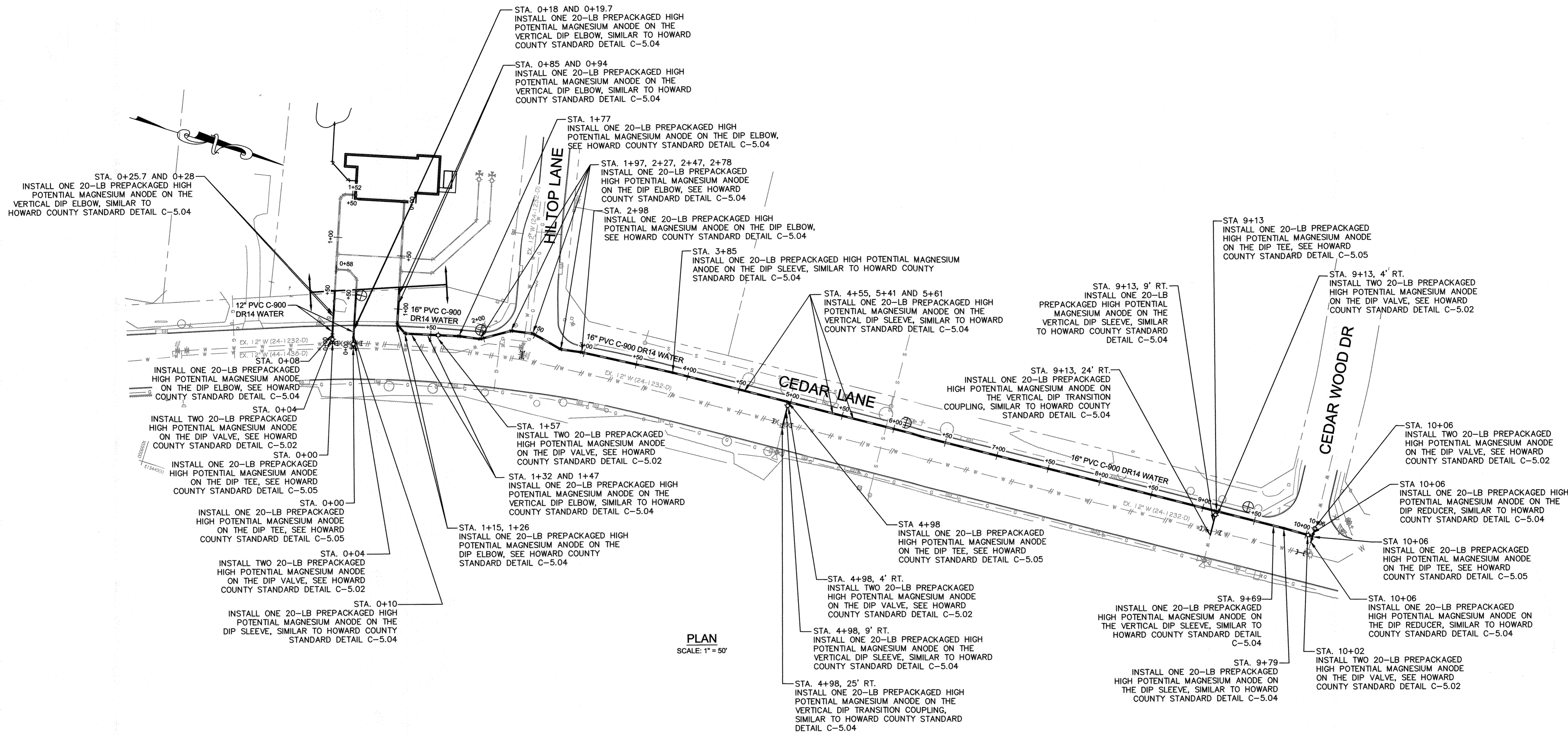
TRAFFIC CONTROL PLAN

600' SCALE MAP NO. 35 BLOCK NO. 17.11

**CEDAR LANE
WATER TRANSMISSION MAINS**

CAPITAL PROJECT No. W-8328
CONTRACT No. 44-5046
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

DRAWING NO. T-102
SCALE AS SHOWN
SHEET 9 of 10

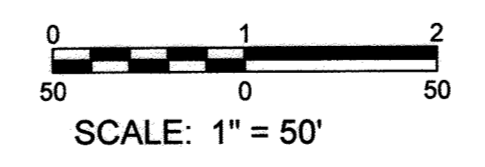


PLAN
SCALE: 1" = 50'

NOTES:

1. ALL NEW DUCTILE IRON AND STEEL FITTINGS, VALVES, COUPLINGS, TAPPING SLEEVES, REDUCERS, AND FIRE HYDRANT PIPE ALONG THE PVC WATER MAIN ARE TO BE PROVIDED WITH CORROSION PROTECTION, SEE HOWARD COUNTY STANDARD DETAIL C-5.01 THROUGH C-5.15.
2. FOR THERMITE WELD TO CONNECTOR PLATE, SEE HOWARD COUNTY STANDARD DETAIL C-5.13.
3. FOR HORIZONTAL THERMITE WELDS TO DUCTILE IRON PIPE, SEE HOWARD COUNTY STANDARD DETAIL C-3.04. FOR VERTICAL THERMITE WELDS TO DUCTILE IRON PIPE, SEE HOWARD COUNTY STANDARD DETAIL C-3.05.
4. FOR PLACEMENT OF ANODES, SEE HOWARD COUNTY STANDARD DETAIL C-5.14 AND C-5.15.
5. DO NOT MAKE THERMITE WELDS TO PVC PIPE.
6. POLYETHYLENE ENCASUREMENT SHALL NOT BE INSTALLED ON NEW DUCTILE IRON WATER PIPING.
7. INSTALL SEPARATOR MESH ON WATER MAIN AT EXISTING UTILITY CROSSINGS IF THERE IS LESS THAN 12 INCHES OF SPACING BETWEEN THEM, SEE HOWARD COUNTY STANDARD DETAILS C-4.06.
8. INSTALL ONE 12-LB PREPACKAGED ZINC ANODE ON ALL RESTRAINING HARNESSSES, SEE HOWARD COUNTY STANDARD DETAIL C-5.10.

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. 44991, Expiration Date Jan 1, 2020



AS-BUILT
DATE 5-31-2019

Feb 11, 2019 - 9:21am User: Kevin Jackson
 M: 2018 \131601306.01 Drawings\Russell Corrosion \131601306.01 - C-CP Design.dwg

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
[Signature] 2/14/19 DIRECTOR OF PUBLIC WORKS DATE	[Signature] 2-13-19 CHIEF, BUREAU OF ENGINEERING DATE
[Signature] 2-13-19 CHIEF, BUREAU OF UTILITIES DATE	[Signature] 2/13/19 CHIEF, UTILITY DESIGN DIVISION DATE

RUSSELL CORROSION CONSULTANTS, LLC
 7130 Minstrel Way - Suite 230
 Columbia, MD - 410-997-4481
 www.RussellCorrosion.com



DES:	YZ			
DRN:	AMT			
CHK:	DD			
DATE:	FEB. 2019	BY	NO.	REVISION

CATHODIC PROTECTION PLAN

CEDAR LANE WATER TRANSMISSION MAINS

CAPITAL PROJECT No. W-8328
CONTRACT No. 44-5046

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

DRAWING NO. CP-1
SCALE AS SHOWN
SHEET 10 OF 10