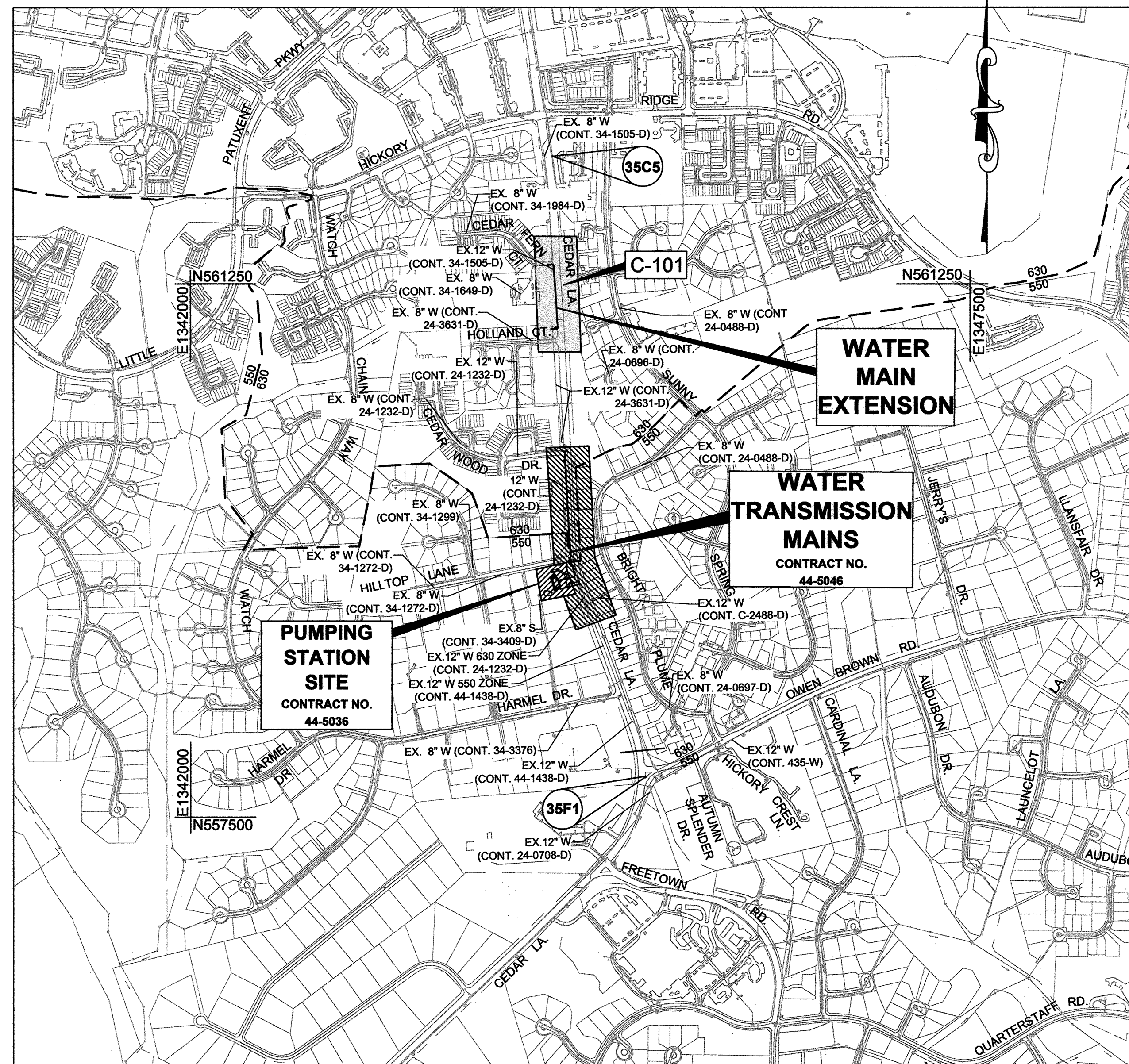


# CEDAR LANE WATER TRANSMISSION MAIN EXTENSION HOLLAND COURT TO CEDAR FERN COURT CAPITAL PROJECT NO. W-8328 CONTRACT NO. 44-5077 HOWARD COUNTY, MARYLAND

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-101	12" WATER MAIN PLAN AND PROFILE
4	T-101	TRAFFIC CONTROL PLAN, NOTES AND DETAILS
5	CP-1	CATHODIC PROTECTION PLAN

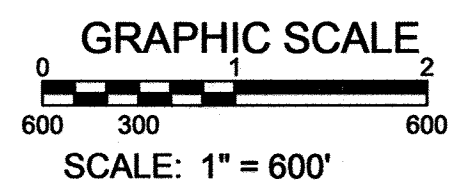
**NOTE:**  
FOR GENERAL NOTES, WATER MAIN NOTES AND LEGEND,  
SEE DRAWING NO. G-002.



**VICINITY MAP**  
SCALE: 1" = 600'

TYPE OF BUILDING: N/A  
 NUMBER OF PARCELS: N/A  
 NUMBER OF WATER HOUSE CONNECTIONS: 630  
 PRESSURE ZONE: N/A  
 TEST GRADIENT: 884  
 TEST PRESSURE: 207 psi  
 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)  
 35F1 N 557787.19 E 1345217.31  
 ELEV. 400.45  
 35C5 N 562148.44 E 1344554.49  
 ELEV. 451.54



**OWNER'S/DEVELOPER'S CERTIFICATION**

"I HEREBY 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 K. Dinsmore* 9/13/2018  
 OWNERS / DEVELOPERS SIGNATURE DATE  
**KERRI K. DINSMORE, P.E. 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* 08/11/2018  
 DESIGNER'S 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. 44-5077 WILL PROVIDE A 12" WATER CONNECTION BETWEEN CEDAR FERN CT. AND HOLLAND CT. THIS COMPLETING A LOOP WITHIN THE 630 WEST ZONE WHICH IS REQUIRED FOR THE NEW 630 WEST ZONE WATER PUMPING STATION (CONTRACT NO. 44-5036 - BY OTHERS).

**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.

**QUANTITIES**

ITEM	UNIT	ESTIMATE	AS-BUILT	MANUFACTURER
12" CLASS C-900 DR14 PVC	L.F.	531	535	NATIONAL PIPE
12" X 12" TAPPING SLEEVE & VALVE	EA.	2	2	SMITH-BLAIR
BLOW-OFF HYDRANT & VALVE	EA.	1	1	KUPFERLE FOUNDRY
NAME OF UTILITY CONTRACTOR: <b>COSENTINO CONTRACTING CO. INC.</b>				
CHECKBOX			AS-BUILT DATE: <b>2/14/2019</b>	
SURVEY AND DRAFTING DIVISION				

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

KCI TECHNOLOGIES PROJECT NO.: 131601306.01

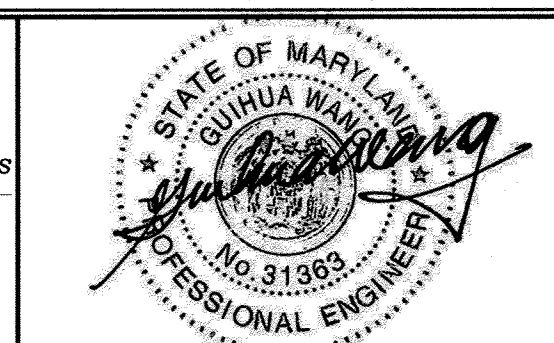
Sep 15, 2018 9:48am User: kci\kciadmin Job: 131601306.01 Drawing: G-001 Cover Sheet\_12in\_Mk.dwg

<b>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</b>	
<p><i>Carly Ann</i> 9/13/18                  DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Thomas</i> 9/13/18                  CHIEF, BUREAU OF UTILITIES DATE</p>	<p><i>Thomas B. Rutledge</i> 9/14/18                  CHIEF, BUREAU OF ENGINEERING DATE</p> <p><i>Thomas</i> 9/14/18                  CHIEF, UTILITY DESIGN DIVISION DATE</p>

**KCI TECHNOLOGIES**

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

936 Ridgeway Road  
Sparks, MD 21152  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
www.kci.com



DES: Kfj	DRN: Kfj	CHK: GW	DATE: SEPT. 2018	
BY: <i>Kfj</i>	NO. <b>AS-BUILT</b>	REVISION	DATE: <b>2-14-19</b>	

**TITLE SHEET**

**CEDAR LANE  
WATER TRANSMISSION MAIN EXTENSION  
HOLLAND COURT TO CEDAR FERN COURT**

CAPITAL PROJECT No. W-8328  
CONTRACT No. 44-5077

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

DRAWING NO. G-001  
SCALE AS SHOWN  
SHEET 1 OF 5

**GENERAL NOTES**

- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES 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 6/02/2017 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". CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES AS SHOWN ON THE DRAWINGS, 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 TABLE CONTAINING THE RESULTS OF THE TEST PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN NOTED 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&T.....1-800-252-1133  
BG&E (CONSTRUCTION SERVICES).....410-850-4620  
BG&E (EMERGENCY).....410-685-1400  
BUREAU OF UTILITIES (DPW).....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 / 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 ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATERSSEWER 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 SHALL PROVIDE STAGING/STORAGE AREA. THE WORK SHALL BE CONDUCTED UNDER STRICT ADHERENCE TO SECTION 308 - EROSION AND SEDIMENT CONTROL OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV.
- 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.

**WATER MAIN NOTES**

- ALL WATER MAINS SHALL BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED.
- TOPS OF WATER MAIN SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 15 DAYS PRIOR TO WATER MAIN SHUT DOWN.
- 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 DETAIL AND SPECIFICATIONS.
- 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 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. SEVEN TEEN (17) POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. 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. BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBBA IRON, INC. OR APPROVED EQUAL.
- ALL CHANGES IN HORIZONTAL OR VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH MECHANICAL JOINT DUCTILE IRON(AWWA C153) STANDARD (1/4, 1/8, 1/16, 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.
- 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.
- WHEN THE WATER MAIN IS UNDER A UTILITY, THE WATER MAIN PIPE SEGMENT SHALL BE CENTERED AT THE CROSSING.
- ALL WATER MAINS SHALL BE TESTED AT THE TEST PRESSURE FOR THE 630 ZONE AS SHOWN ON DRAWING NO. G-001.
- THE CONTRACTOR SHALL PROVIDE 2" MILL AND OVERLAY ASPHALT FOR THE FULL LANE WIDTH FOR ANY LANE ENCLOSED BY THE UTILITY TRENCH MORE THAN ONE FOOT. PRIOR TO EXCAVATION THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE UTILITY TRENCH WILL ENCLOSE MORE THAN ONE LANE.

**SUGGESTED SEQUENCE OF CONSTRUCTION**

THE FOLLOWING SEQUENCE OF CONSTRUCTION IS NOT A COMPLETE LIST OF TASKS OR WORK REQUIRED TO COMPLETE THE CONTRACT REQUIREMENTS. THE SEQUENCE OF CONSTRUCTION MAY BE MODIFIED OR REVISED AT THE REQUEST OF THE CONTRACTOR WITH THE APPROVAL OF THE COUNTY PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL INFORM ALL USERS THAT WILL BE IMPACTED BY THE WATER MAIN SHUTDOWN DURING CONSTRUCTION, PRIOR TO THE SHUTDOWN OF ANY EXISTING WATER MAIN.

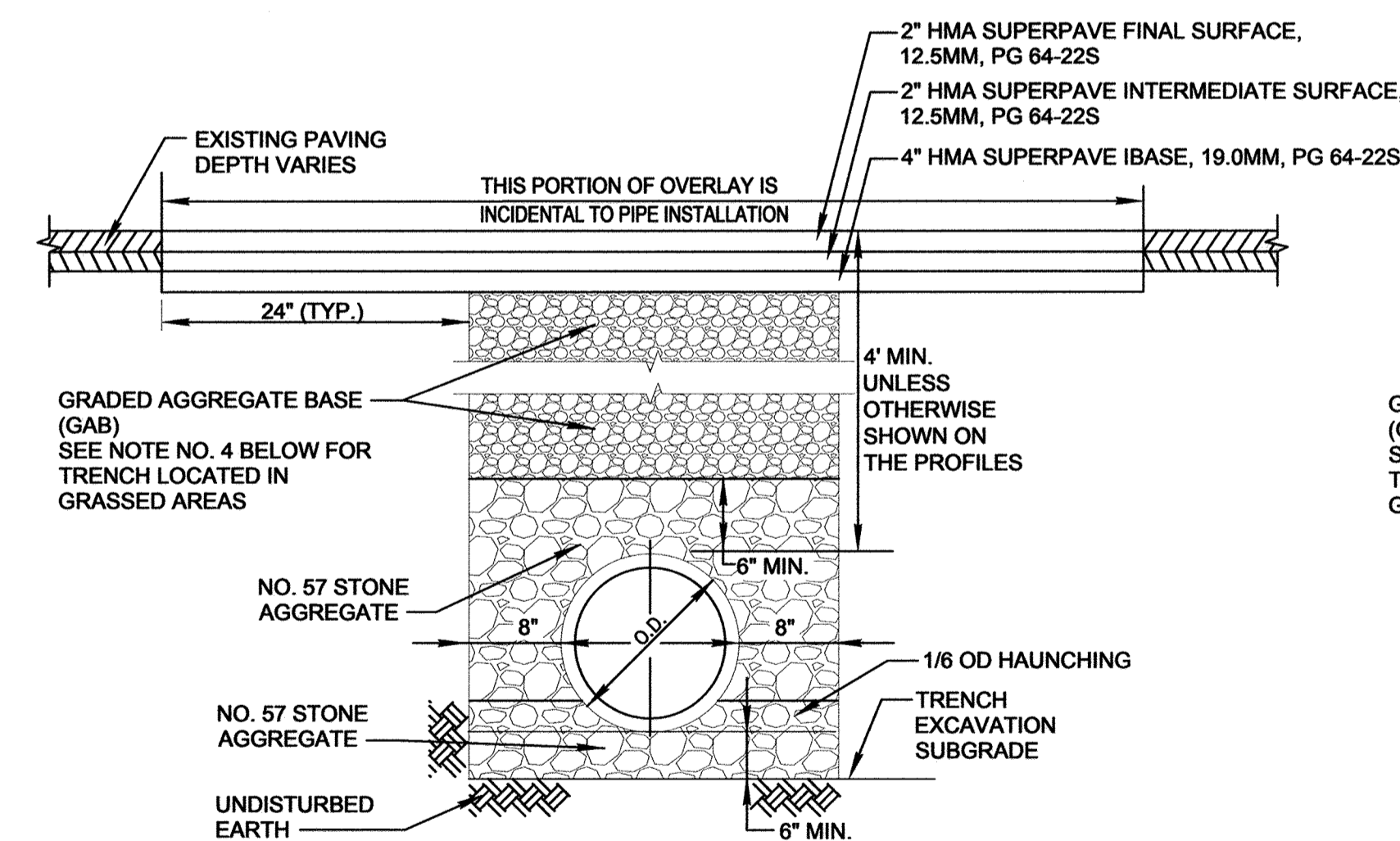
**A. CONSTRUCTION OF 12" WATER MAIN ALONG CEDAR LANE BETWEEN HOLLAND CT AND CEDAR FERN CT.**

- SET UP TRAFFIC CONTROL IN ACCORDANCE WITH TRAFFIC CONTROL PLAN.
- INSTALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARD EROSION AND SEDIMENT CONTROL PLAN.
- INSTALL 12" WATER MAIN FROM STA. 0+00 TO STA. 5+31.
- PERFORM PRESSURE TESTING AND DISINFECT THE 12" WATER MAIN. PERFORM BACTERIOLOGICAL TESTING.
- CLOSE EXISTING VALVE #1 (CONTRACT NO. 24-3631-D) AND VALVE #2 (CONTRACT NO. 34-1505-D).
- MAKE CONNECTIONS TO THE EXISTING WATER MAINS.
- OPEN THE EXISTING VALVE #1 (CONTRACT NO. 24-3631-D), VALVE #2 (CONTRACT NO. 34-1505-D), AND THE NEWLY INSTALLED VALVE.

KCI TECHNOLOGIES PROJECT No.: 131601306.01

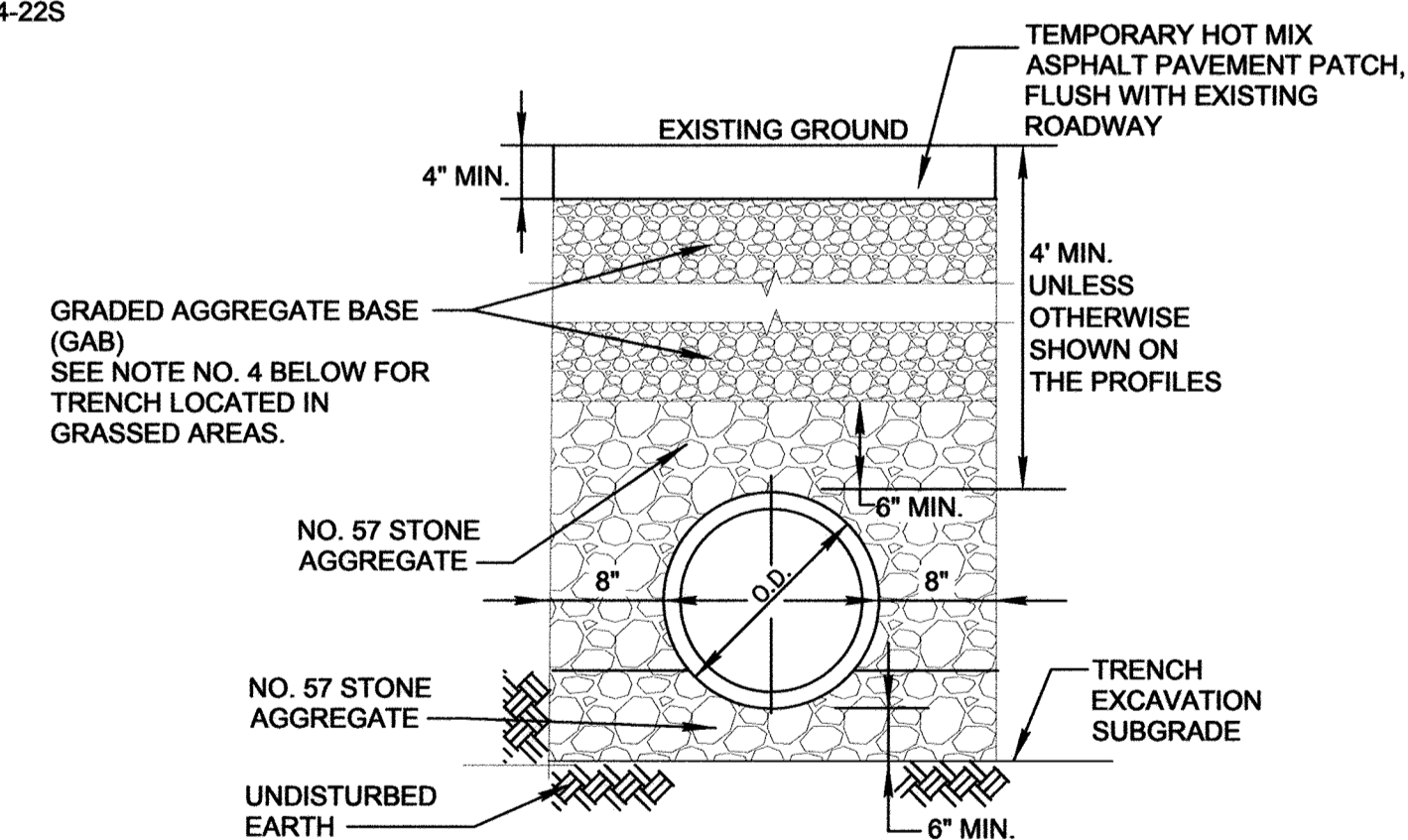
**LEGEND**

EXISTING	PROPOSED



**DETAIL: PERMANENT TRENCH REPAIR**

- NOTES:
- 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 REMAINING 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.



**DETAIL: TEMPORARY TRENCH REPAIR**

**AS-BUILT**  
DATE 2/14/2019

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: kci\m.jackson Date: 9/18/18 File: 2019\131601306.01\Drawings\G-002 Civil Notes and Legend.rvt

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS  
  
CHIEF, BUREAU OF ENGINEERING  
  
CHIEF, BUREAU OF UTILITIES  
  
CHIEF, UTILITY DESIGN DIVISION

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www.kci.com

DES: K F J					
DRN: K F J					
CHK: G W					
DATE: SEPT. 2018	BY	NO.	REVISION	DATE	

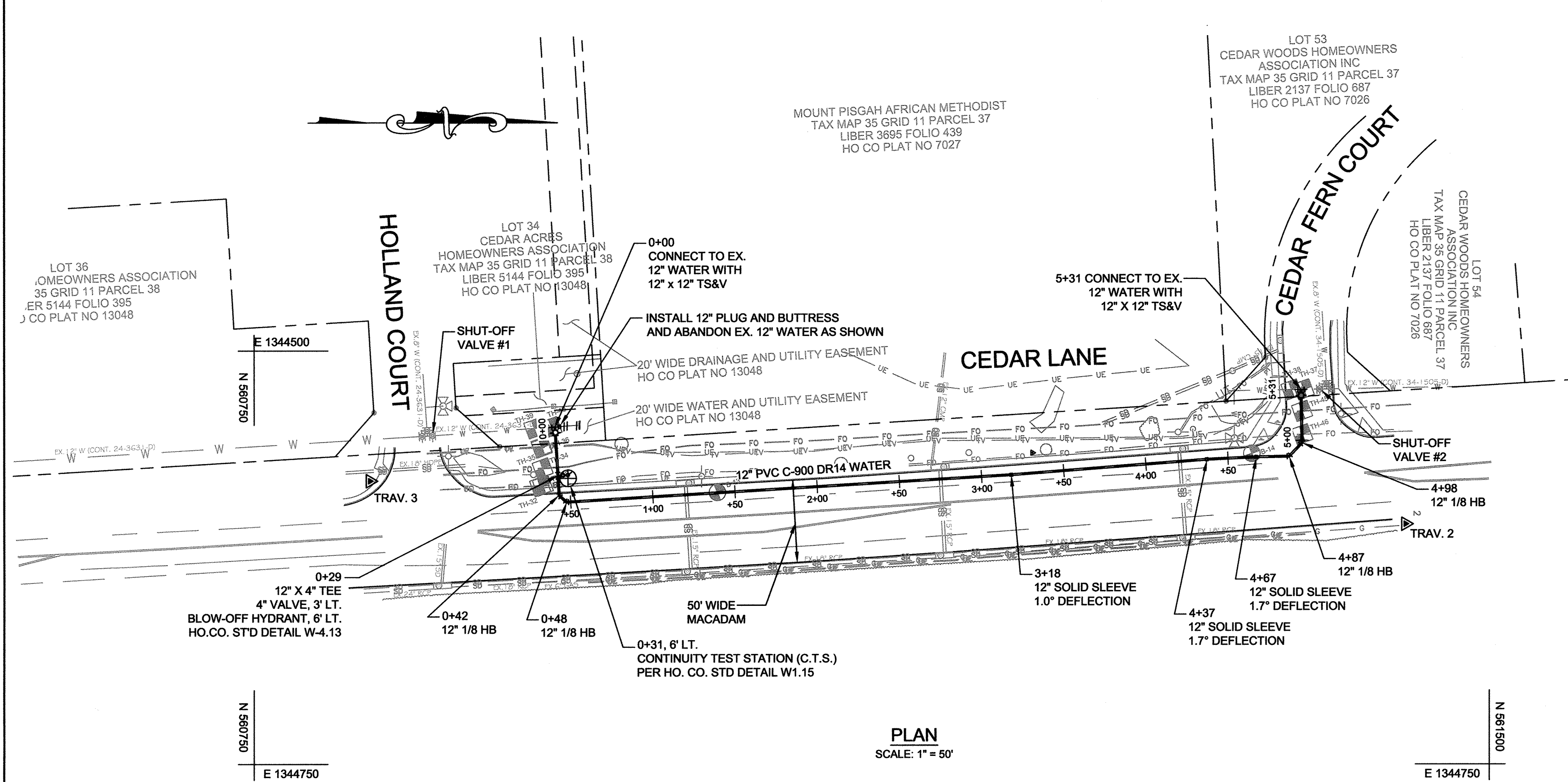
**GENERAL NOTES, LEGEND,  
TRENCH DETAILS  
AND SEQUENCE OF  
CONSTRUCTION**

**CEDAR LANE  
WATER TRANSMISSION MAIN EXTENSION  
HOLLAND COURT TO CEDAR FERN COURT**  
CAPITAL PROJECT No. W-8328  
CONTRACT No. 44-5077  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND

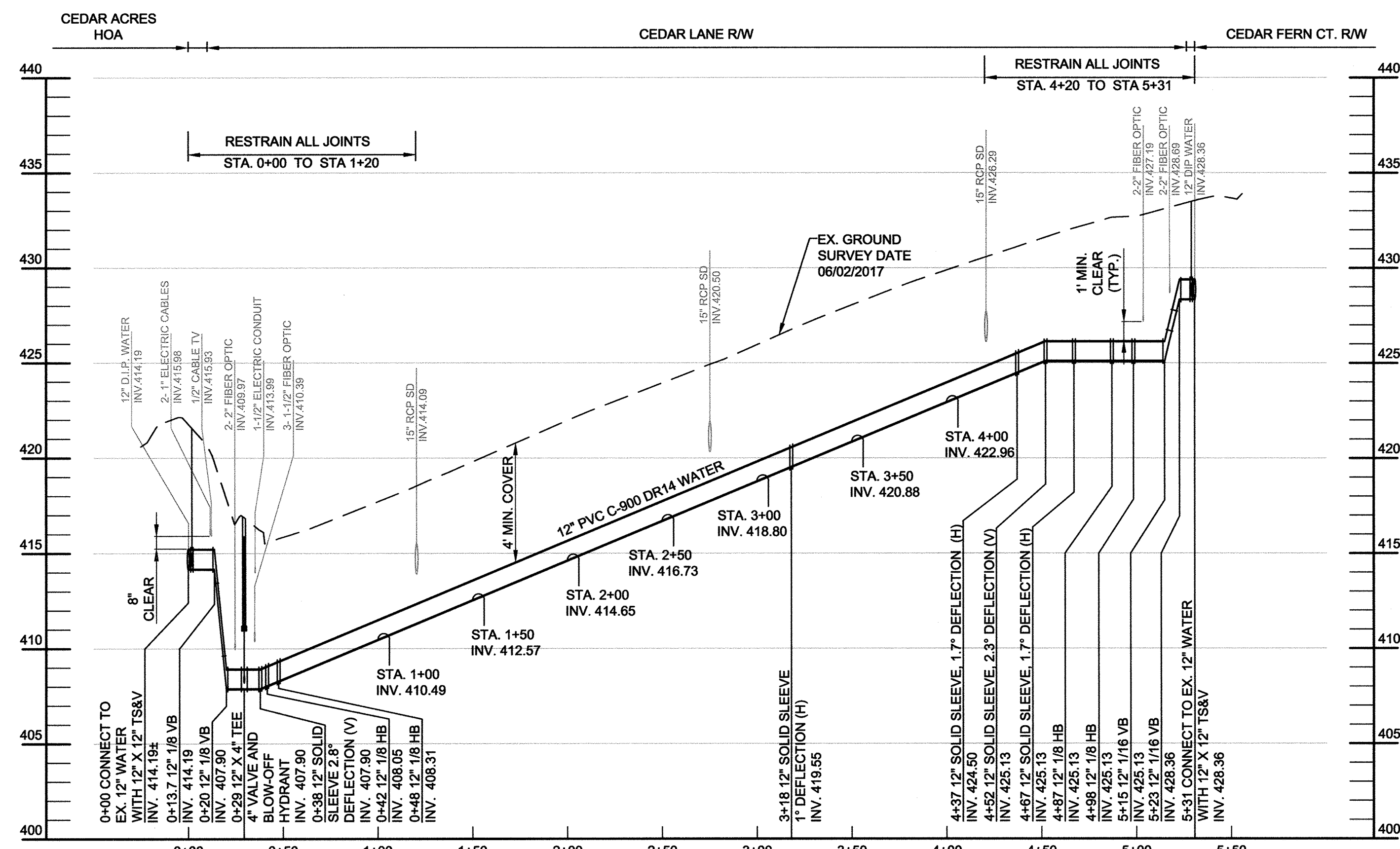
DRAWING NO. G-002  
SCALE AS SHOWN  
SHEET 2 OF 5

KCI TECHNOLOGIES PROJECT No.: 131601306.01

Scale: 1" = 50' (Horizontal), 1" = 5' (Vertical)



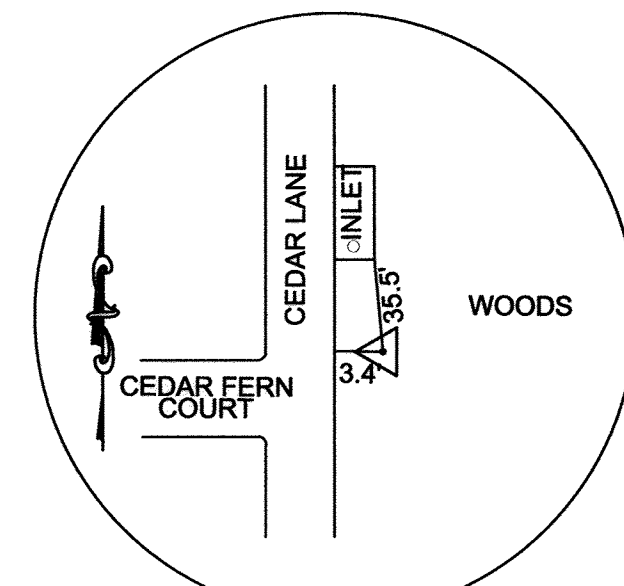
PLAN  
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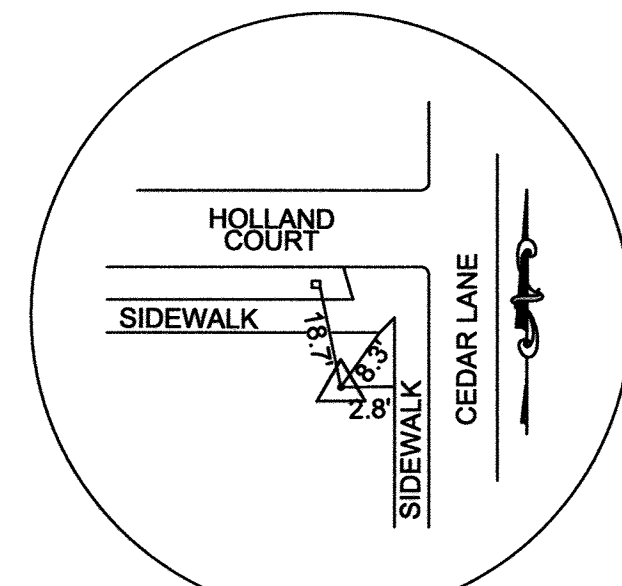
PROFILE  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'

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

WATER MAIN STAKE-OUT SCHEDULE			
STATION	DESCRIPTION	NORTHING	EASTING
0+00	12" X 12" TS&V	560932.82	1344546.00
0+29	12" X 4" TEE	560934.60	1344575.36
0+42	12" 1/8" HB	560935.33	1344587.44
0+48	12" 1/8" HB	560939.84	1344591.44
3+18	12" SOLID SLEEVE-1.0" DEFLECTION	561209.87	1344575.09
4+37	12" SOLID SLEEVE-1.7" DEFLECTION	561328.56	1344565.81
4+67	12" SOLID SLEEVE-1.7" DEFLECTION	561358.53	1344564.35
4+87	12" 1/8" HB	561378.52	1344563.98
4+98	12" 1/8" HB	561386.40	1344555.80
5+31	12" X 12" TS&V	561385.80	1344523.56

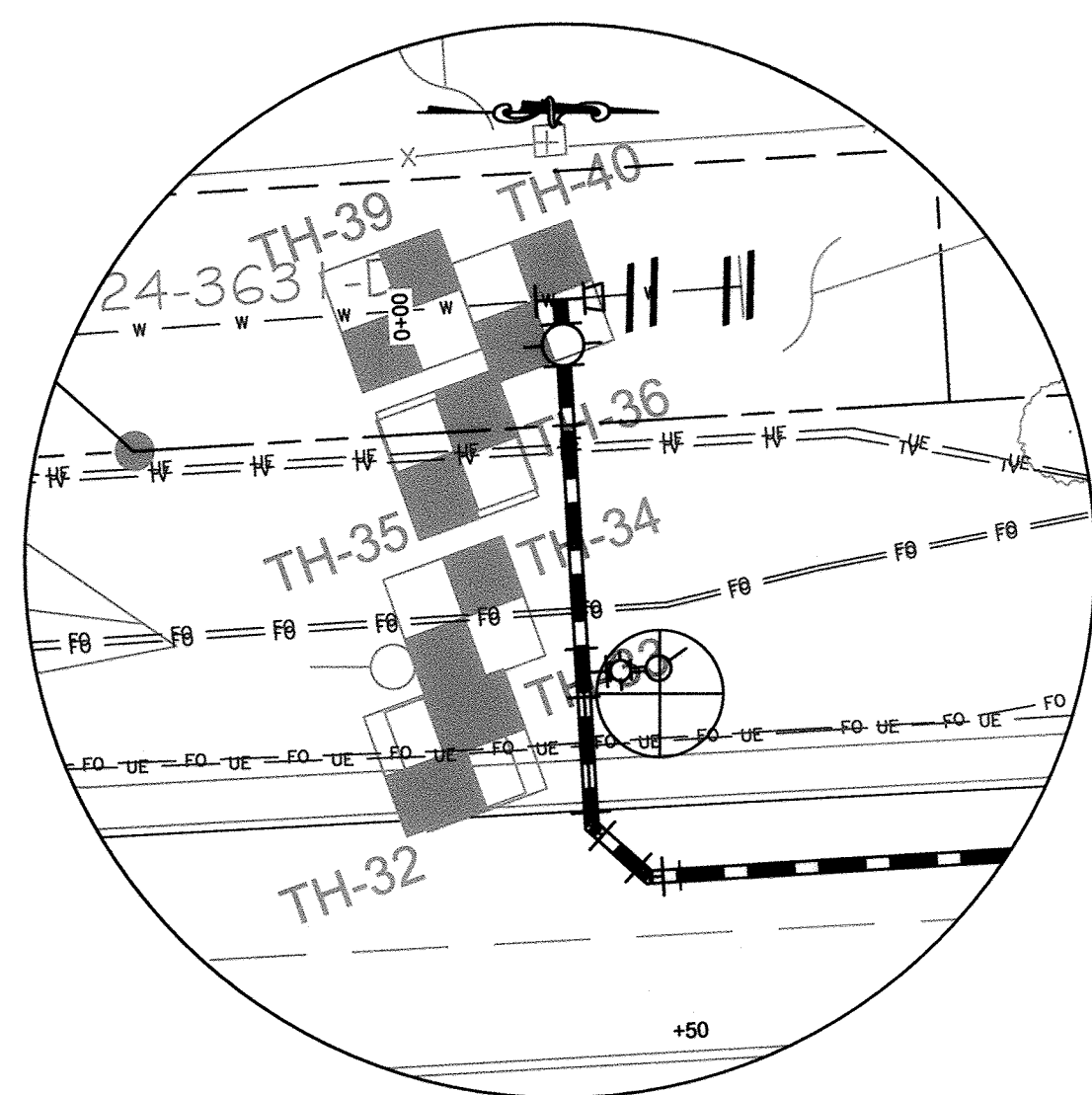


TRAVERSE #2  
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E 1344604.83  
Elev 434.93  
REBAR & CAP

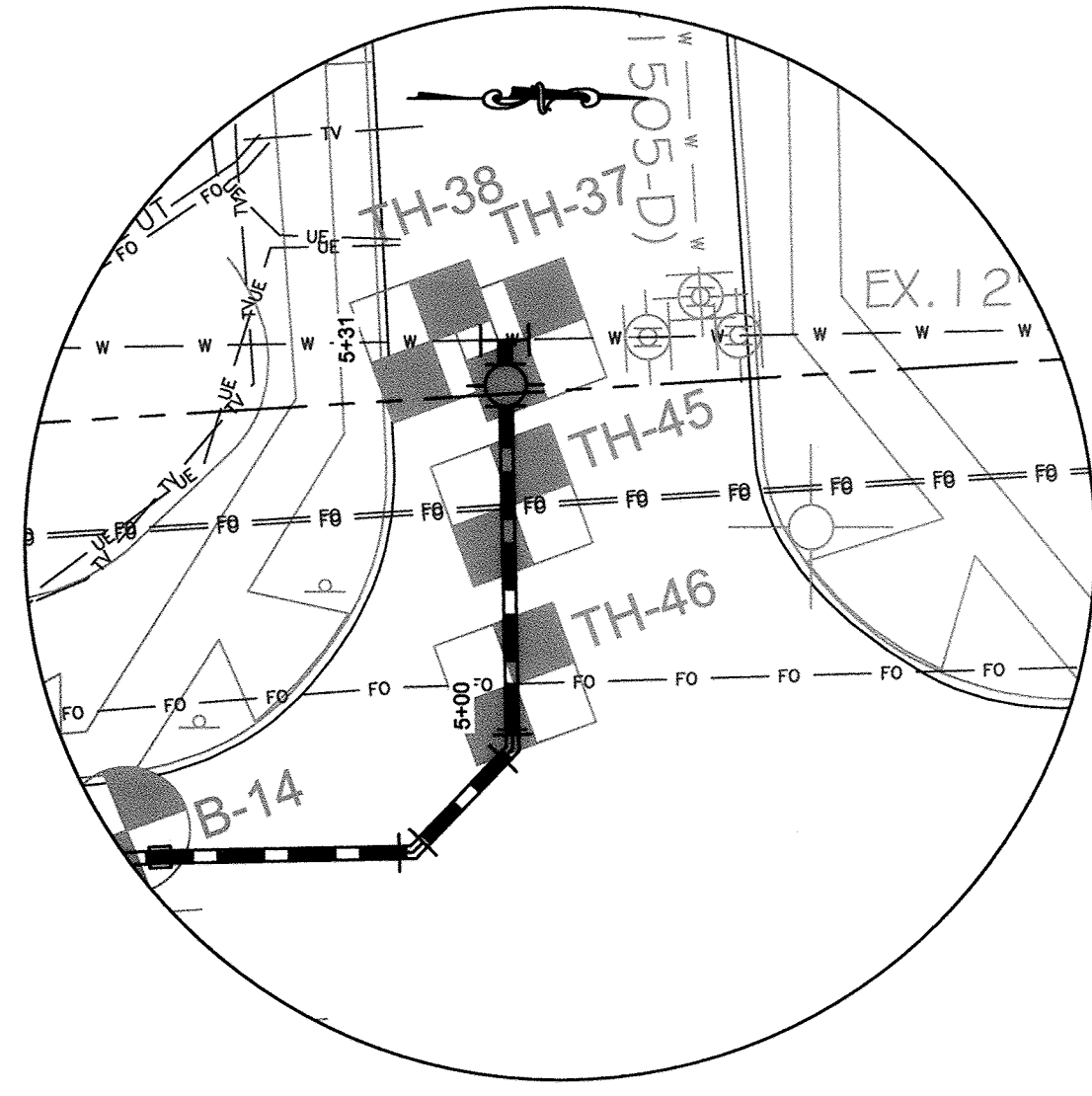


TRAVERSE #3  
N 560820.46  
E 1344578.63  
Elev 413.92  
REBAR & CAP

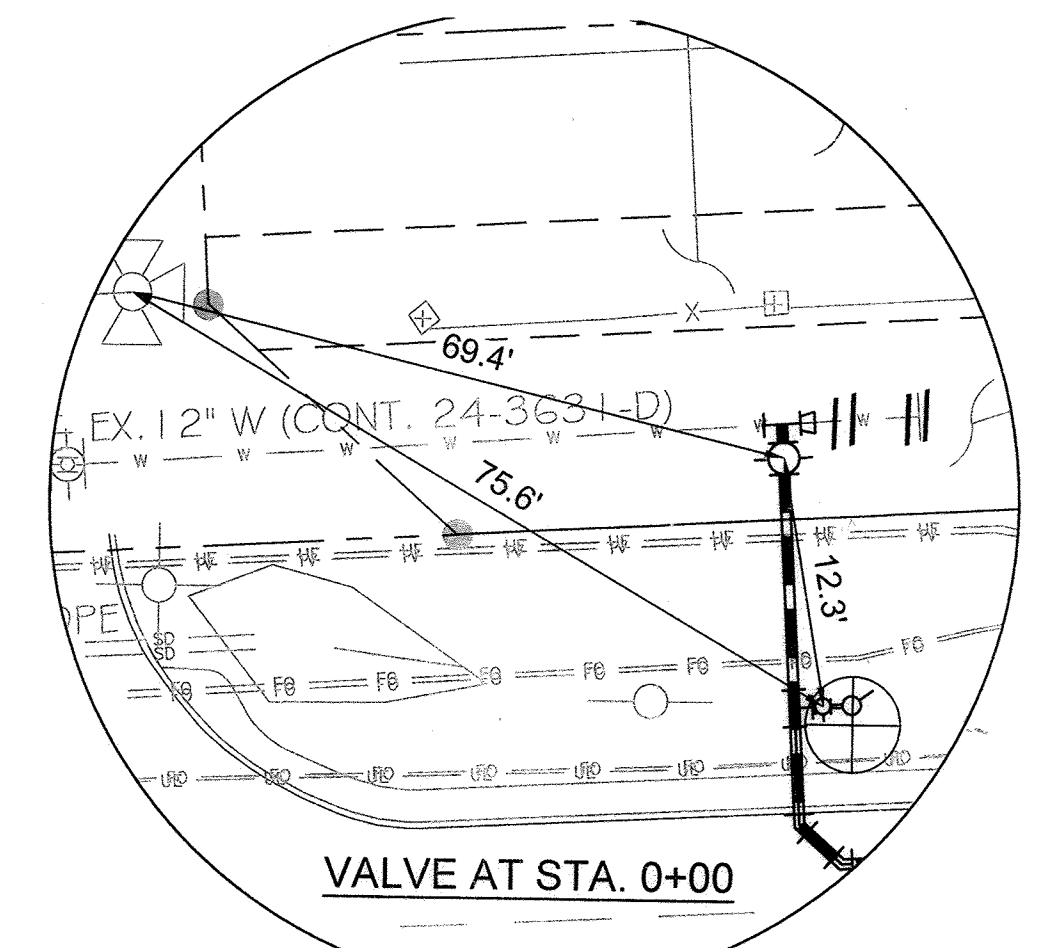
TEST HOLE SCHEDULE			
TEST HOLE NO.	UTILITY	MATERIAL	DEPTH
TH-32	1-1/2" ELECTRIC	PLASTIC	1.80'
TH-33	(3) 1-1/2" FIBER OPTIC	PLASTIC	5.26'
TH-34	(2) 2" FIBER OPTIC	PLASTIC	5.96'
TH-35	1/2" CATV	PLASTIC	3.80'
TH-36	(2) 1" ELECTRIC	PLASTIC	4.02'
TH-37	12" WATER	DIP	4.24'
TH-38	12" WATER	DIP	3.92'
TH-39	12" WATER	DIP	8.04'
TH-40	12" WATER	DIP	7.48'
TH-45	(2) 2" FIBER OPTIC	PLASTIC	4.16'
TH-46	(2) 2" FIBER OPTIC	PLASTIC	5.28'



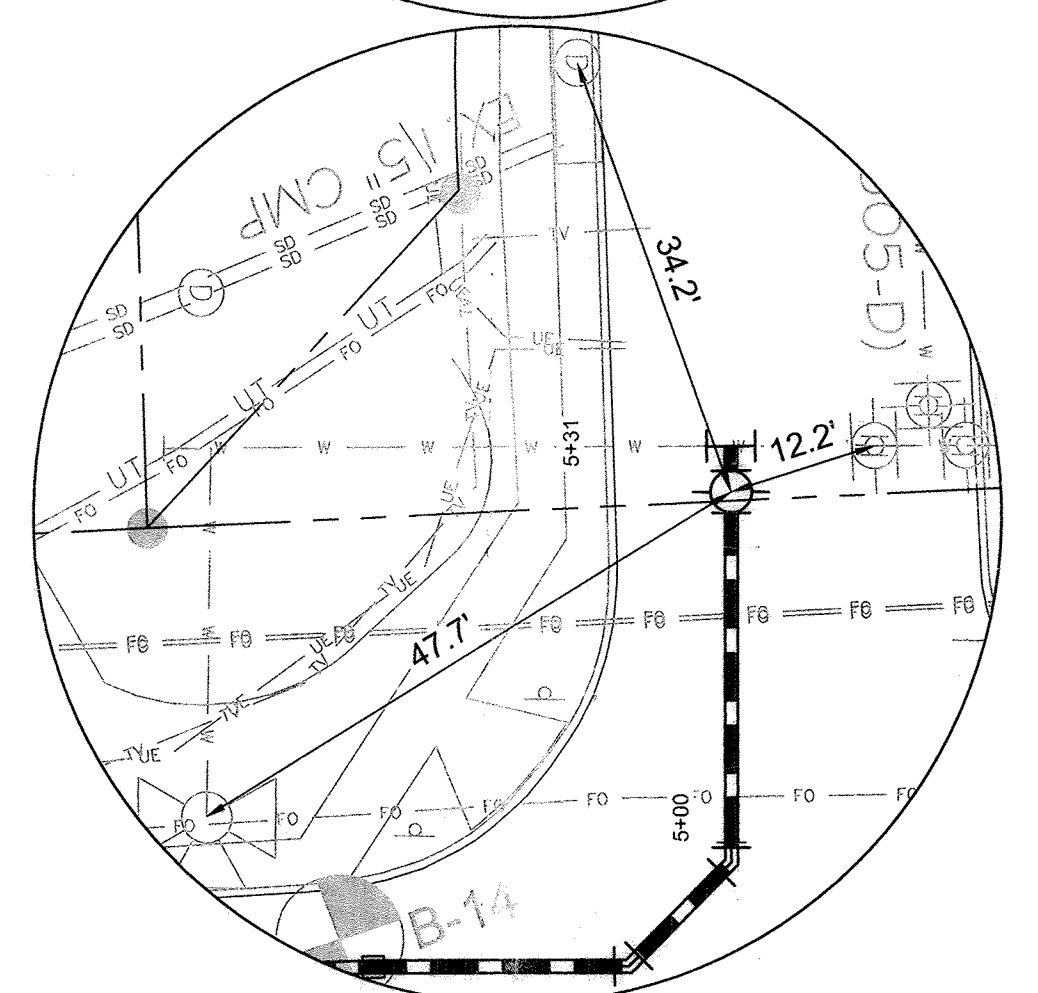
TEST HOLE DETAIL  
SCALE: NOT TO SCALE



TEST HOLE DETAIL  
SCALE: NOT TO SCALE



VALVE AT STA. 0+00



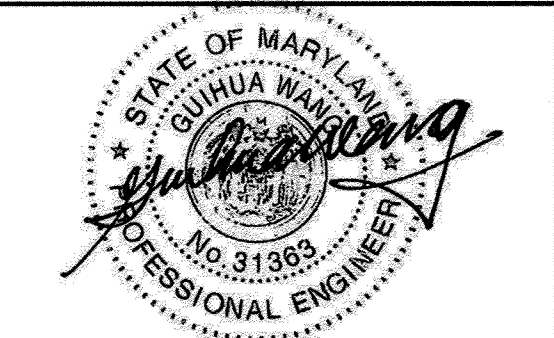
VALVE AT STA. 5+31  
AS-BUILT VALVE TIES

**AS-BUILT**  
DATE 2/14/2019

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *John A. Alshie* DATE: 9-17-18  
Chief, Bureau of Engineering: *Thomas B. Butler* DATE: 9/14/18  
Chief, Bureau of Utilities: *[Signature]* DATE: 9/14/18  
Chief, Utility Design Division: *[Signature]* DATE: 9/14/18

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



DES: KFJ  
DRN: KFJ  
CHK: GW  
DATE: SEPT. 2018  
BY: KFJ  
NO.: [Blank]  
REVISION: [Blank]

12" WATER PLAN & PROFILE

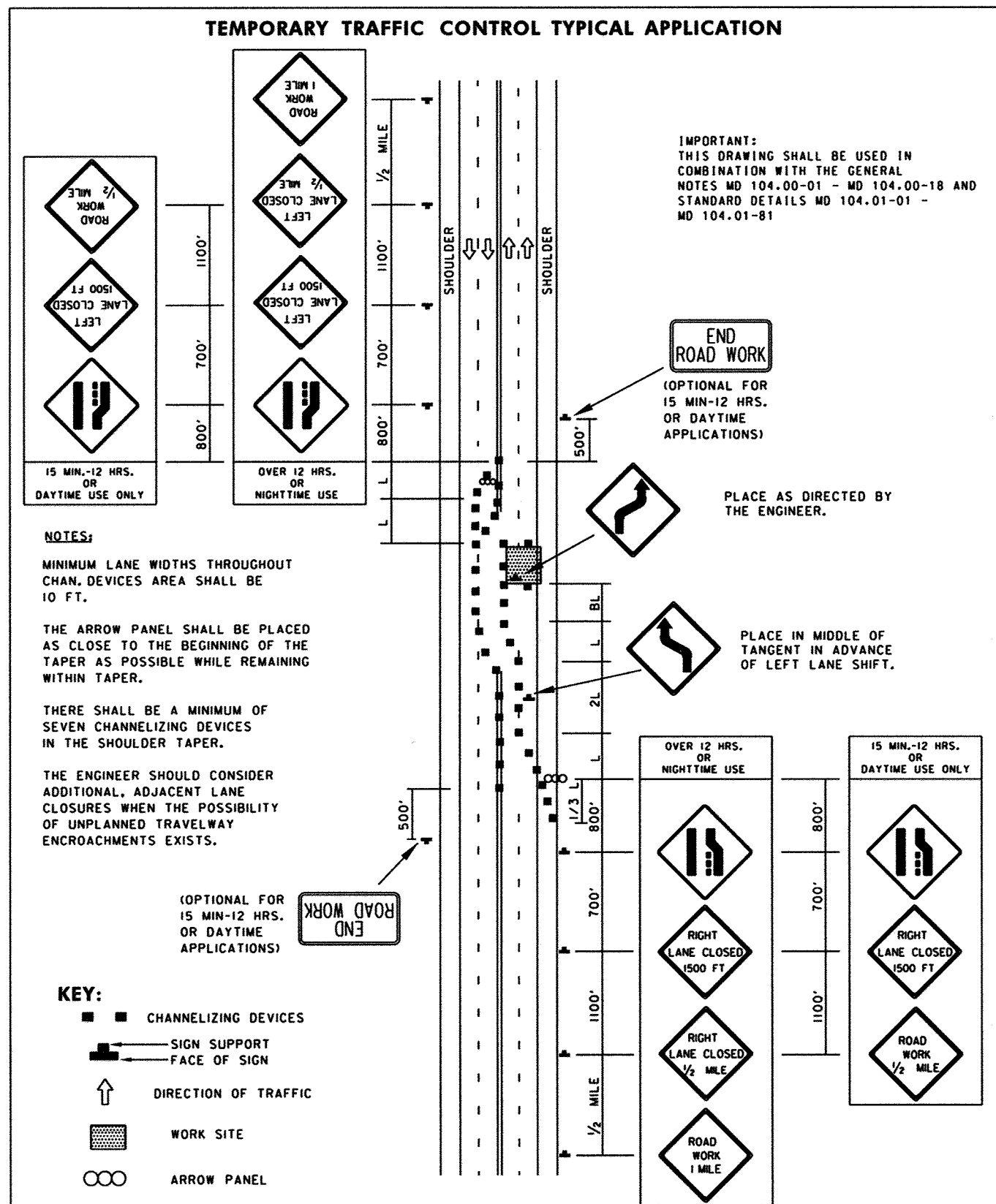
DATE: 2/14/19  
600' SCALE MAP NO. 35  
BLOCK NO. 17.11

CEDAR LANE  
WATER TRANSMISSION MAIN EXTENSION  
HOLLAND COURT TO CEDAR FERN COURT  
CAPITAL PROJECT No. W-8328  
CONTRACT No. 44-5077  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND

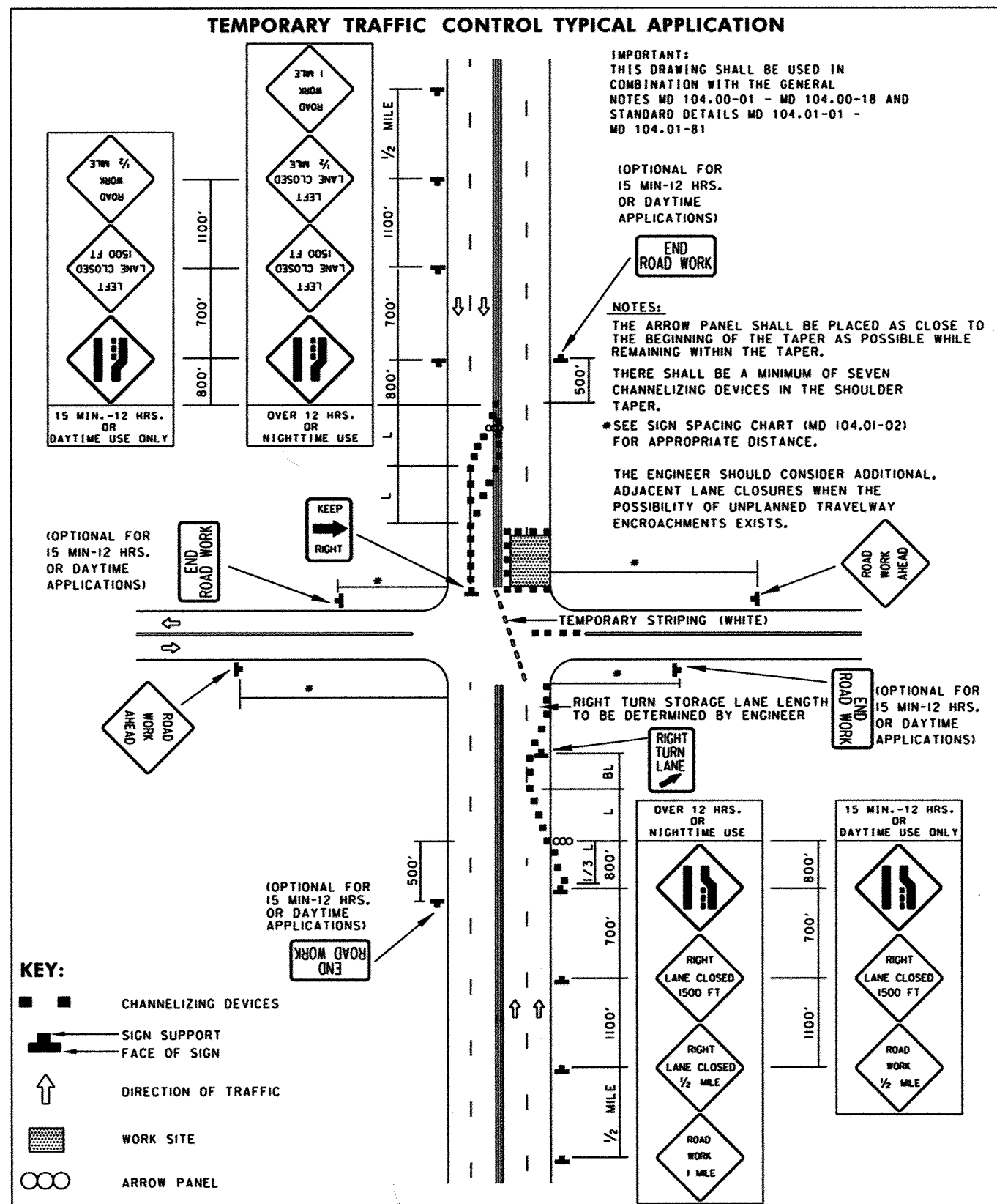
DRAWING NO. C-101  
SCALE AS SHOWN  
SHEET 3 of 5

**TRAFFIC CONTROL NOTES:**

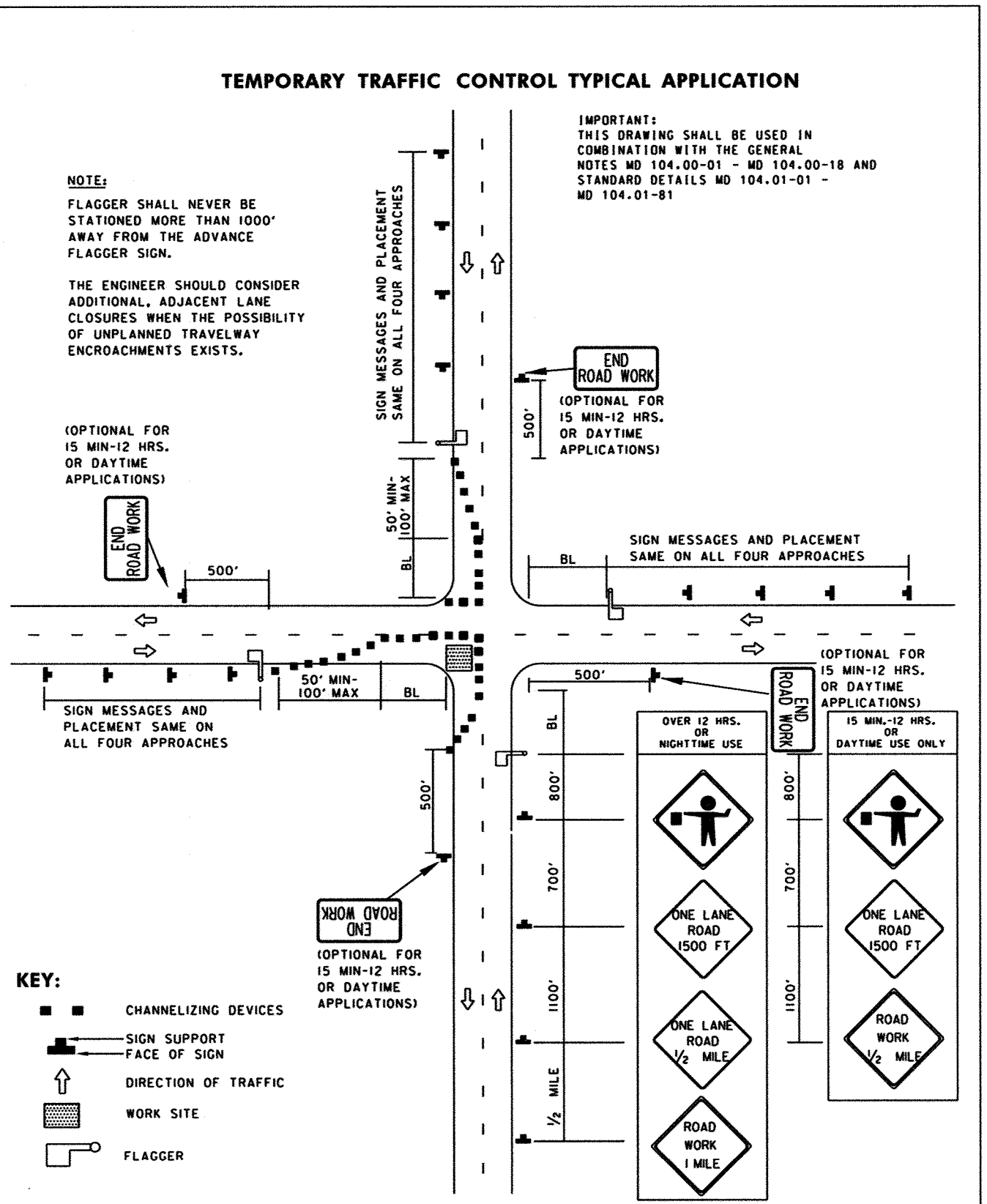
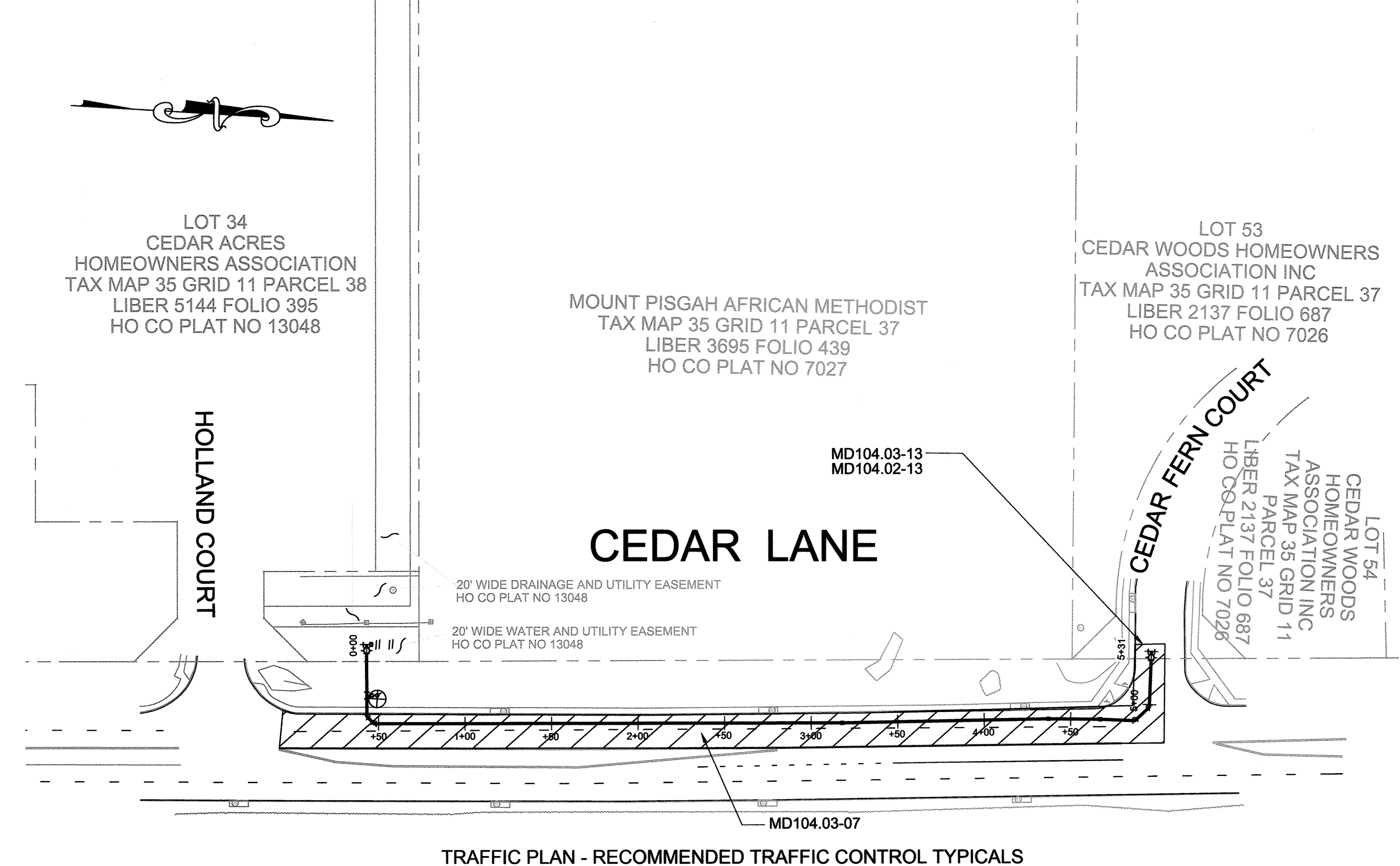
- ALL STANDARD REGULATORY AND WARNING SIGNS AND OTHER TRAFFIC CONTROL DEVICES USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- ALL TEMPORARY TRAFFIC SIGNS SHALL BE INSTALLED IN ACCORDANCE TO MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, MSHA BOOK OF STANDARDS, AND NCHRP 350.
- ALL TEMPORARY SIGNS SHOWN ON THIS PLAN SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES (MINIMUM 200' SPACING).
- ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THIS PLAN MUST BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS TRAFFIC DIVISION.
- MISS UTILITY MUST BE NOTIFIED PRIOR TO PLACEMENT OF SIGNING, IF MOUNTING ON POSTS.
- 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.
- 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.
- ALL DRIVEWAY ENTRANCES MUST BE MAINTAINED AT ALL TIMES.
- 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.
- 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-410-313-6728 (IF DURING SCHOOL TIMES)  
HOWARD COUNTY TRANSIT SERVICES-240-581-5800  
HOWARD COUNTY BUREAU OF ENVIRONMENTAL SERVICES-410-313-6470  
HOWARD COUNTY EMERGENCY COMMUNICATIONS/911 CENTER-410-313-2300.
- 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.
- 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.
- 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.
- 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.
- 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.
- SEE CONTRACT DOCUMENTS FOR WORK RESTRICTIONS, LANE CLOSURE TIMES AND HOLIDAYS.
- 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.
- NOTIFY THE HOWARD COUNTY HIGHWAY DEPARTMENT AT 410-313-7450 3 DAYS PRIOR TO WORKING IN THE ROADWAY.
- 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.
- FLAGGERS SHALL BE CERTIFIED AND HAVE THEIR CERTIFIED FLAGGER CARD WITH THEM AT ALL TIMES DURING FLAGGING OPERATIONS.
- LANE CLOSURES ARE RESTRICTED TO 9 AM TO 3 PM MONDAY-FRIDAY. COUNTY MAY ALTER WORK HOURS BASED ON TRAFFIC CONDITIONS.
- NOTIFY HOWARD COUNTY POLICE 5 DAYS PRIOR TO STARTING WORK.
- SEE MD STDS 104.00-01 THROUGH 104.00-18 FOR TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS AND STANDARDS.
- CONTRACTOR SHALL DOCUMENT ALL EXISTING PAVEMENT MARKINGS AND RE-INSTALL IN KIND.
- PLACE 2 VMS BOARDS (1 IN EACH DIRECTION) ONE WEEK PRIOR TO CONSTRUCTION. MESSAGE SHALL READ "CEDAR LANE ROAD WORK TO BEGIN ON OR ABOUT MM/DD/YYYY."



STATE HIGHWAY ADMINISTRATION  
MARYLAND DEPARTMENT OF TRANSPORTATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
PARTIAL ROADWAY CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH  
STANDARD NO. MD 104.03-07



STATE HIGHWAY ADMINISTRATION  
MARYLAND DEPARTMENT OF TRANSPORTATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
INTERSECTION FAR-SIDE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH  
STANDARD NO. MD 104.03-13



STATE HIGHWAY ADMINISTRATION  
MARYLAND DEPARTMENT OF TRANSPORTATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
INTERSECTION FLAGGING OPERATION 2-LANE, 2-WAY GREATER THAN 40 MPH  
STANDARD NO. MD 104.02-13

- LEGEND**
- PROPOSED WORK AREA
- SEQUENCE OF CONSTRUCTION**
- SET UP TRAFFIC CONTROL PER TRAFFIC CONTROL PLAN FOR THE WORK AREA DURING WORKING HOURS.
    - SET UP MD104.03-07 AND MD 104.03-13 TO CONSTRUCT WATER MAIN ON CEDAR LANE FROM HOLLAND COURT TO CEDAR FERN COURT. (CLOSE CENTER LEFT TURN LANE ON CEDAR LANE)
    - SET UP MD 104.03-13 TO CONSTRUCT WATER MAIN AT CEDAR FERN COURT ENTRANCE. FLAG TRAFFIC ENTERING AND EXITING CEDAR FERN COURT.
  - CONSTRUCT WATER MAIN IN WORK AREA.
  - BACK FILL AND PAVE, OR INSTALL TEMPORARY STEEL PLATES OVER THE NEW WATER MAIN AT THE END OF WORK HOURS.
  - REMOVE TEMPORARY TRAFFIC CONTROL AND OPEN ALL LANES.
  - WHEN WATERMAIN CONSTRUCTION IS COMPLETE, MILL AND OVERLAY ROADWAY.

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.)

**AS-BUILT**  
DATE 2/14/2019

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. 16303, Expiration Date 12/21/2018.

KCI TECHNOLOGIES PROJECT No.: 131601306.01

SEP 11 2018 8:18am User: kci\kciadmin Traffic Control\_21n MM.dwg

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John J. Gable* 9/18/18  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas E. Butler* 9/14/18  
CHIEF, BUREAU OF ENGINEERING DATE

*John J. Gable* 9-17-19  
CHIEF, BUREAU OF UTILITIES DATE

*John J. Gable* 9/14/18  
CHIEF, UTILITY DESIGN DIVISION DATE

**KCI TECHNOLOGIES**

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

936 Ridgebrook Road  
Sparks, MD 21152  
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Fax: (410) 316-8177  
www.kci.com

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
JERRY J. GABLE  
LICENSE NO. 16303  
EXPIRES 12-21-2018

DES: AMH  
DRN: CK  
CHK: JFL  
DATE: SEPT. 2018

TRAFFIC CONTROL PLAN,  
NOTES AND DETAILS

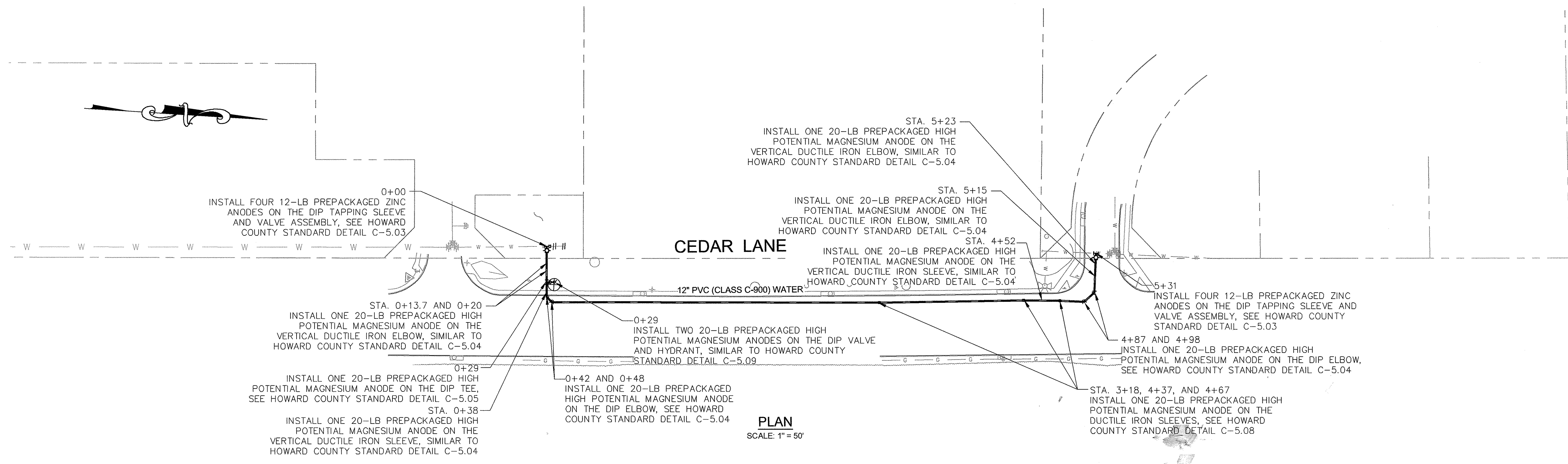
DATE 600' SCALE MAP NO. 35 BLOCK NO. 17.11

CEDAR LANE  
WATER TRANSMISSION MAIN EXTENSION  
HOLLAND COURT TO CEDAR FERN COURT  
CAPITAL PROJECT No. W-8328  
CONTRACT No. 44-5077  
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

DRAWING NO. T-101  
SCALE AS SHOWN  
SHEET 4 OF 5

KCI TECHNOLOGIES PROJECT No.: 131601306.01

User: Kevin Jackson  
 Date: 2/14/2019  
 File: 2019\131601306.01\Drawings\Russell Corrosion\13160130601-C-CP-Design.dwg

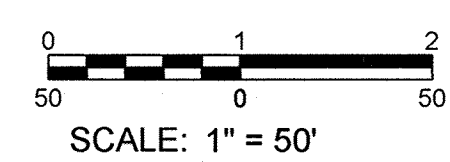


PLAN  
 SCALE: 1" = 50'

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 ENCASEMENT 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. ~~4491~~ 4491, Expiration Date 1/19/2020



**AS-BUILT**  
 DATE 2/14/2019

DRAWING NO.  
 CP-1

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*Kevin Jackson* 9/14/18  
 DIRECTOR OF PUBLIC WORKS DATE

*Thomas J. Butler* 9/14/18  
 CHIEF, BUREAU OF ENGINEERING DATE

*Kevin Jackson* 9-17-18  
 CHIEF, BUREAU OF UTILITIES DATE

*Kevin Jackson* 9/14/18  
 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: SEPT. 2018	BY	NO.	REVISION	DATE	

**CATHODIC PROTECTION PLAN**

600' SCALE MAP NO. 35 BLOCK NO. 17.11

**CEDAR LANE**  
**WATER TRANSMISSION MAIN EXTENSION**  
**HOLLAND COURT TO CEDAR FERN COURT**  
 CAPITAL PROJECT No. W-8328  
 CONTRACT No. 44-5077  
 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE  
 AS SHOWN

SHEET  
 5 OF 5