GENERAL NOTES

1. 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

2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN MAY, 2017 BY BENCHMARK

ENGINEERING, INC.

THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 38BA AND NO. 38AA.

ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 0012 AND 16E1. 4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

5. 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.

6. 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. 7. 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

8. 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 (CONTRACTOR SERVICES)	410-637-8713
BGE (EMERGENCY)	
BUREÀU OF UTILITIES	
COLONIAL PIPELINE CO	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033

9. 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.

10. THE 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

11. 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.

PART II WATER

2. TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.

3. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.

4. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS. 5. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS, ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND

6. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM. 7. TRACER WIRE AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL PVC C900 WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.

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.

9. UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS SACRIFICIAL ANODES SHALL 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.

10. 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 INSERTIONLINE SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE HE 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.

11. ALL CHANGES IN HORIZONTAL AND VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH STANDARD BENDS, 5-DEGREE SWEEPS OR HIGH DEFLECTION (HD) COUPLINGS. NO BENDING OF THE PIPE OR DEFLECTING OF PVC PIPE JOINTS IS PERMITTED. WHERE HIGH DEFLECTION COUPLINGS OR 5-DEGREE SWEEPS ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ONE FULL PIPE LENGTH (20-FOOT LONG) ON EITHER SIDE OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. THE CONTRACTOR SHALL USE A VIBRATORY PLATE COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #57 STONE ON BOTH SIDES OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP, TAKING CARE NOT TO USE COMPACTION EQUIPMENT DIRECTLY OVER THE FITTING.

PVC HIGH DEFLECTION COUPLINGS SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (1 1/2) DEGREE ON EITHER END OF THE COUPLING), SHALL BE RATED FOR A MINIMUM 200 PSI MEETING
THE REQUIREMENTS OF AWWA C900, SHALL HAVE A MINIMUM LAY LENGTH OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTEED PVC HIGH

5-DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR18 OR EQUAL. 12. WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C-900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICESFOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAIN ENDS INTO THE PUSH ON BELL JOINT ON BOTH SIDES OF THE HIGH DEFLECTION COUPLINGS AND 5 DEGREE SWEEPS. BELL STOPS SHALL BE PLACED AT THE PROPER INSERTION LINE FOR THE FITTING. THE BELL STOP SHALL BE MANUFACTURED OF DUCTILE IRON AND INCORPORATE AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.

PART III SEWER

1. ALL SEWER MAINS SHALL BE P.V.C. UNLESS OTHERWISE NOTED.

2. ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.

3. FORCE MAINS SHALL BE PVC ONLY.

4. MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY. 5. MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL G5.52. WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF

FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS. 6. HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER

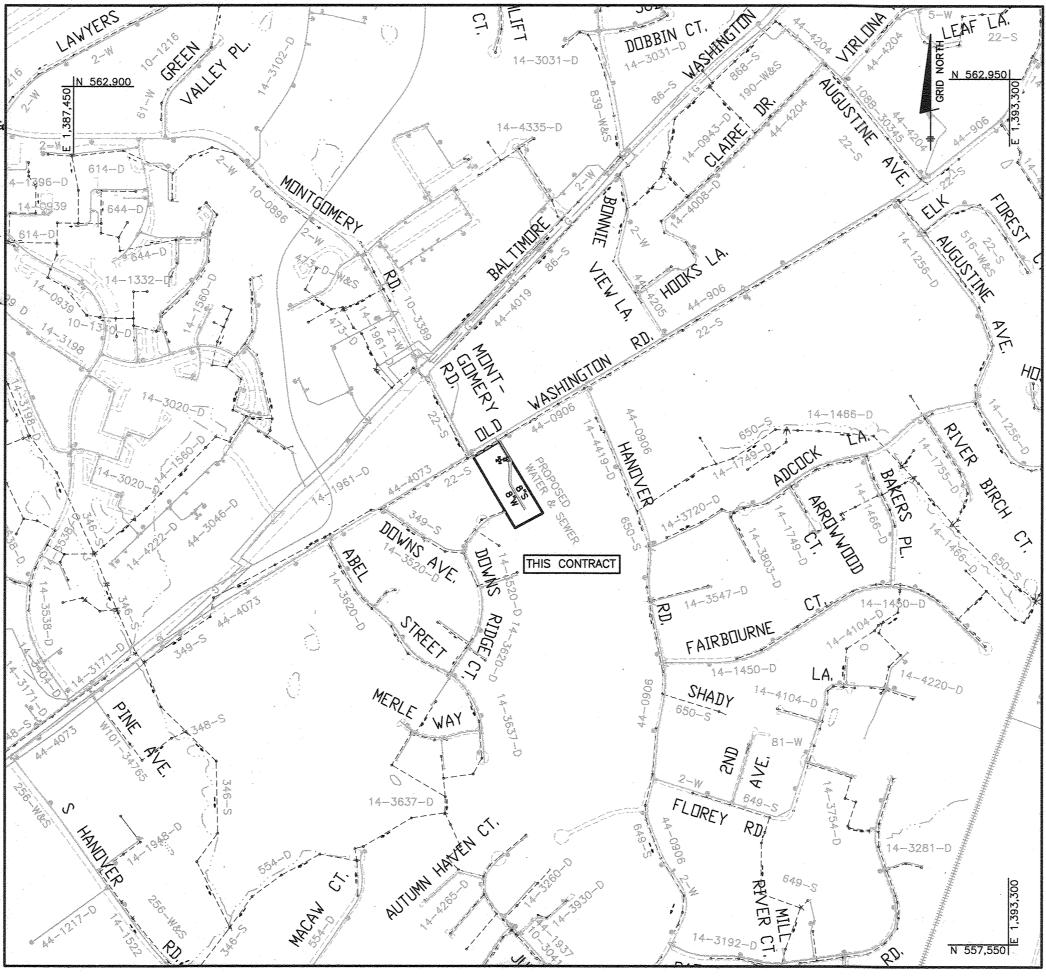
DEPARTMENT OF PLANNING AND ZONING DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND HOWARD COUNTY, MARYLAND

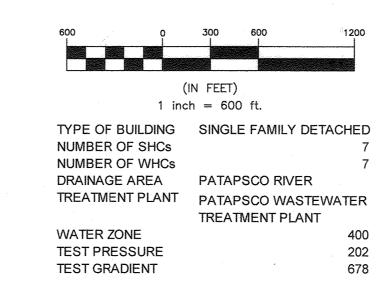
WATER & SEWER PLAN ELKRISE HILL

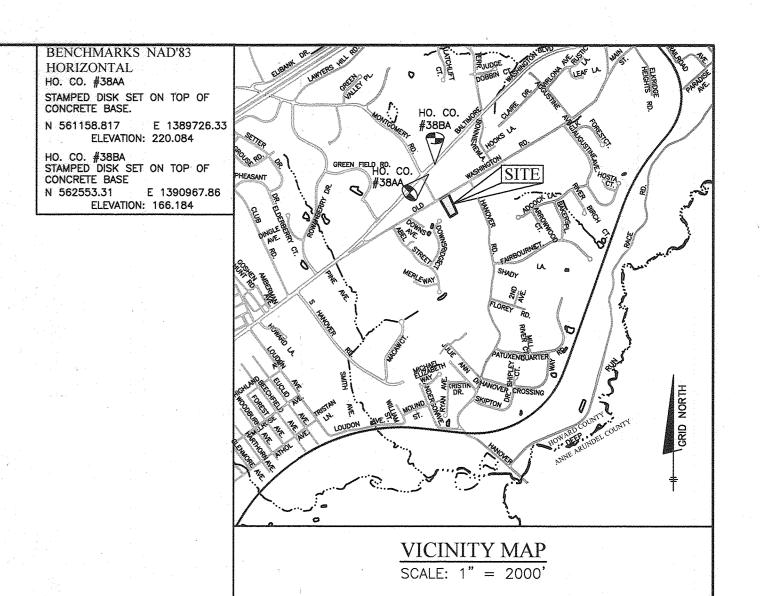
LOTS 1-7, OPEN SPACE LOT 8 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT NO. 14-5100-D

	QUAN	TITIES	<u>.</u>	
ITEMS	QUANTITIES ESTIMATED		ASBUIL	Т
		QUANTITIES	TYPE	MANU./ SUPPLIER
8" WATER (PVC900 DR18)	499 LF	501 LF	PVC	NORTH AMERICA
6" FIRE HYDRANT, TEE & VALVE	1	IEA		AMERICAN DARLIN
1.5" WHC	91 LF	96 LF	COPPERK	CAMBRIDGELEE
8" VALVE	0	0		`
1' METER VAULT	7	7 EA		PRISM PRECAST
TAPPING SLEEVE AND VALVE (TS&V)	1	IEA	STAINLESS	FORD METER BOX
CONTINUITY TEST STATION	2	2 EA		PRISMPRECAST
8" PVC SDR-35 SEWER	474 LF	474 LF	PVC	NORTH AMERICAN
MANHOLES	4	4 EA	£3-	CPP
4" SHC	133 LF	138 L.F.		NORTH AMERICA
6" JATER (DI.P. CLASS SZ)	124	13 L.F.		
Z" BLOW OFF	I EA	I EA.		
IAME OF UTILITY CONTRACTOR UT		NLIMITED		San Carlo
SURVEY AND DRAFTING DIVISION AS-B	UILT DATE: 8	/25 /2025	TOM	ARK

ALL WATER HOUSE CONNECTIONS ARE TO BE 1.5" WITH A 1" METER (OUTSIDE SETTING). ALL SEWER HOUSE CONNECTIONS SHALL BE 4" PVC.







ADC MAP 35 GRID E2

HOUSE CONNECTIONS

SHEET INDEX			
NO.	DESCRIPTION		
1	TITLE SHEET		
2	PUBLIC WATER AND SEWER PLAN		
3	PUBLIC WATER AND SEWER PROFILES		

HARMONY BUILDERS INC 4228 COLUMBIA ROAD ELLICOTT CITY, MD 21042 410-461-0833

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed License No. 45577, Expiration Date: 06-08-2022.

BENCHMARK ENGINEERING, INC 8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

OF MAA!	DES: JC
Wh Car	DRAFT: JC
	СНК: –
Idale	DATE: 10/2020

	1		1 .	
				FINAL PLAN
; .				TITLE SHEET
WRA	3	QUANTITIES "AS BUILT"	9/7/23	WATER & SEWER
BEI	Z	ADJUST QUANTITIES TABLE, ADDING 6" LA	8-12-22	
BY	NO.	REVISION	DATE	ADC MAP 35, GRID E2

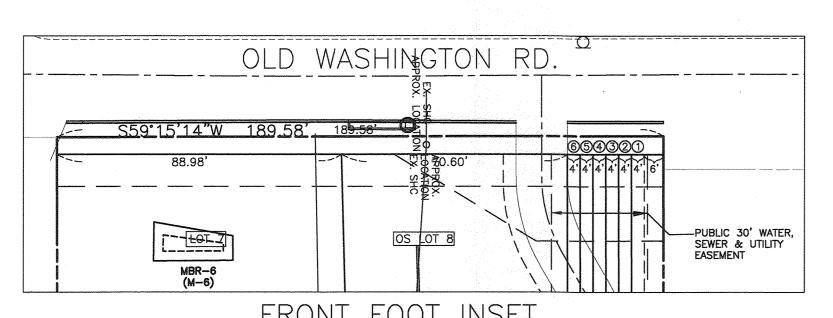
AL PLAN ER & SEWER

ELKRISE HILL LOTS 1 -7 TAX MAP: 38 - GRID: 08 - PARCEL: 198

ZONED: R-12 - ELECTION DISTRICT 1 CONTRACT NO. 14-5100-D

SCALE: AS SHOWN

SHEET NO. 1 OF 3



FRONT FOOT INSET SCALE: 1"=30'

	WATER APPURETE	NANCE SCHEDULE	
NAME	APPUTENANCE	WATER LINE STATION	
Α	12"x8" TAPPING SLEEVE & VALVE	WL STA. 0+00.00	
В	1/8 Vertical Bend	WL STA. 0+2231	
C	1/8 Vertical Bend	WL STA. 0124.44	
D	1/8 Vertical Bend	WLSTA.0+35.71	
Ę	1/8 Vertical Bend	WL STA 0 +37.84	<u>.</u>
F	1/32 VERTICAL BEND	WL STA. 0+57.89	
G	5° VERTICAL SWEEP	WL STA. 0+71.87	
H	1/16 HORIZONTAL BEND	WL STA. 1+48.51	
ז	FIRE HYDRANT TEE	WL STA. 1+56.28	
J	5° HORIZONTAL SWEEP	WL STA. 2+05.81	
K	5° HORIZONTAL SWEEP	WL STA. 2+19.95	
	5° HORIZONTAL SWEEP	WL STA. 2+87.78	
M	5° HORIZONTAL SWEEP	WL STA. 2+96.44	
N	1/16 HORIZONTAL BEND (ROTATED)	WL STA. 3+14.66	
0	3° VERTICAL HDC	WL STA. 4+31.00	
P	1° VERTICAL HDC	WL STA. 4+59.00	
Q	8" PLUG AND BUTTRESS	WL STA. 4+99.00	
R	FIRE HYDRANT	WL STA. 4+31.00	
W	DIP 45° BEND MJ	JL STA.0405.60	
X	PIP 45° BEND MJ	WL STA 0+0760	
4	DIP 45° BEND MJ	WL STA. 0+174	
Z	DIP 45° BEND MJ	LL STA. 0+14.60	4.

THE CONTRACTOR SHALL

PROVIDE THE INSPECTOR

THE DIAMETER OF

THE FIBER LINE AND

THE DIAMETER OF

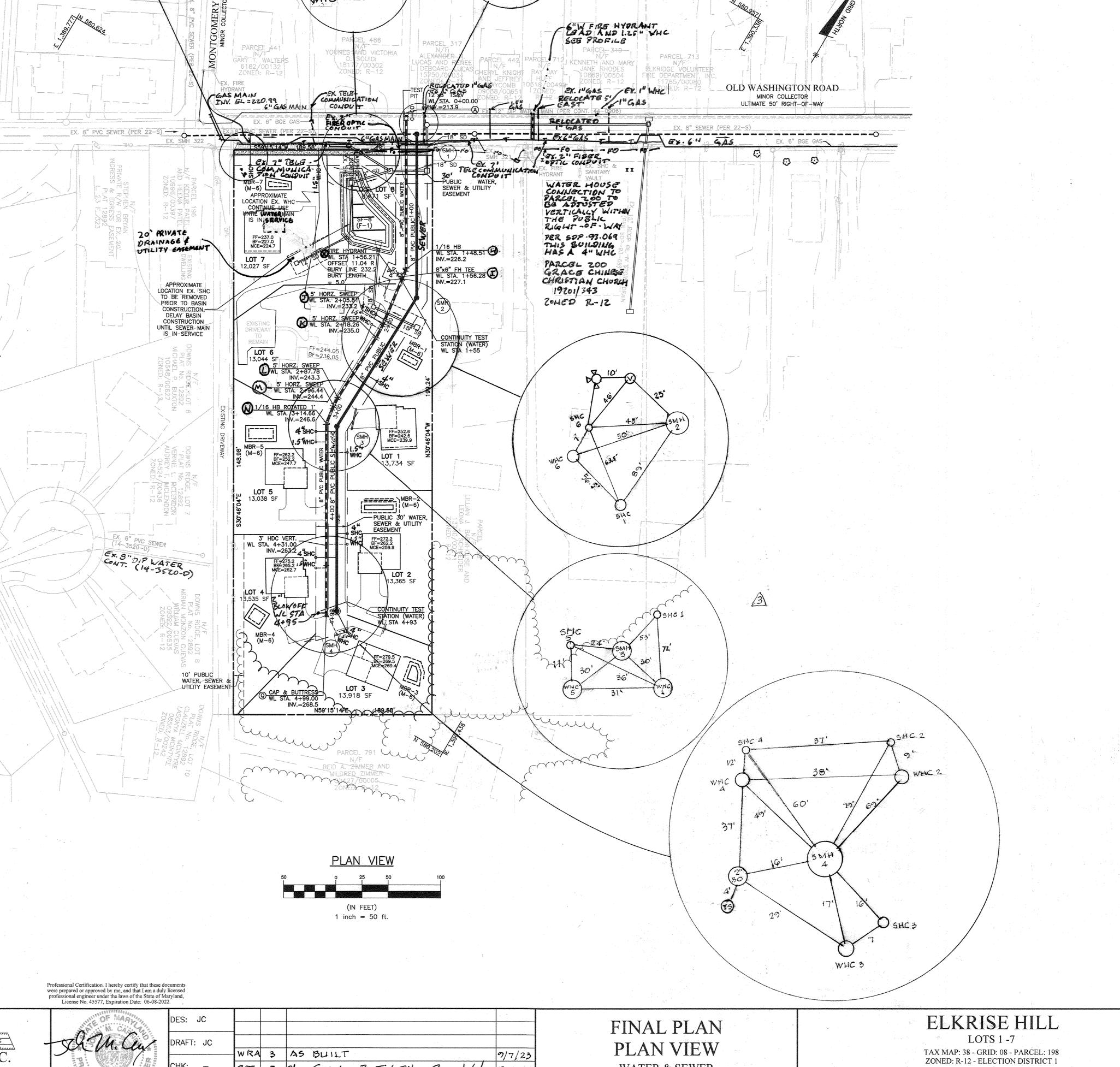
THE CONDUIT, IF

PRESENT, FOR THE

AS-BUILTS.

SEWER MANHOLE SCHEDULE									
	NUMBER	LOCATIO	N (NAD '83)	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL	OWNER	REMARKS
	1	N 560695.3947	E 1390112.5793		208.20(8")	217.91	HO. CO. STD. G-5.14	PUBLIC	
	2	N 560561.3255	E 1390192.3986	225.00(8")	225.10(8")	233.62	HO. CO. STD. G-5.14	PUBLIC	-
	3	N 560417.1608	E 1390189.9273	242.43(8")	242.53(8")	251.17	HO. CO. STD. G-5.14	PUBLIC	
	4	N 560265.8200	E 1390280.0294	266.00(8")		271.92	HO. CO. STD. G-5.14	PUBLIC	

		5	SHC CHART		
Lot Number	Invert @ main	Drop House	Invert @ R/W	Minimum	Notes
	or manhole		or esmt	Cellar	
1	235.79	No	235.99	239.89	SHC @ 2.0%
2	255.60	No	255.80	259.90	SHC @ 2.0%
3	265.08	No	265.52	269.40	SHC @ 2.0%
4	258.46	No	258.86	262.70	SHC @ 2.0%
5	243.30	No	243.70	247.68	SHC @ 2.0%
6	229.35	No	229.75	233.65	SHC @ 2.0%
7	209.29	YES	220.40	224.70	TYPE "A", SHC @ 2.0%



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION COATE

BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC. WWW.BEI-CIVILENGINEERING.COM

HARMONY BUILDERS INC 4228 COLUMBIA ROAD ELLICOTT CITY, MD 21042 410-461-0833

	DES:	JC		· · · · · · · · · · · · · · · · · · ·		
-	DRAFT	: JC		· · · · · · · · · · · · · · · · · · ·		
			WRA	3	AS BUILT	9/7/2
	CHK:	-	BEŦ	2	Show Crossings Per Test Pits + Revise Water	8.17.2
			BEI	1	ADJUST WATER MAIN & ADD FIBER OPTIC LINE	6-8-2
lu	DAIL:	10/2020	BY	NO.	REVISION	DATE

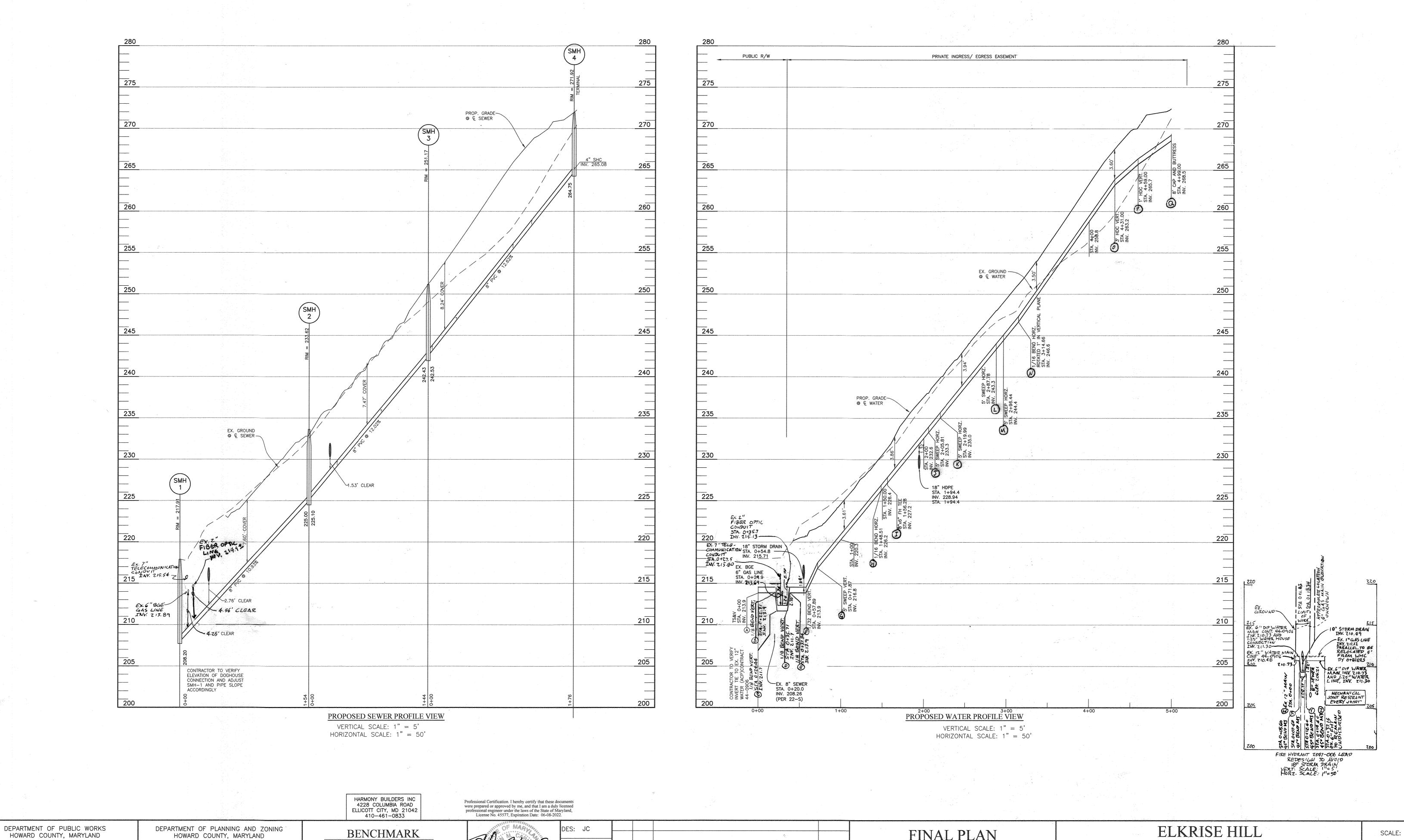
WATER & SEWER

ADC MAP 35, GRID E2

CONTRACT NO. 14-5100-D

SCALE: AS SHOWN

SHEET NO. 2 OF 3



CHIEF, DEVELOPMENT ENGINEERING DIVISION CDATE

● ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

BEJ Z SHOW CROSSINGS PER TEST PITS & REVISE WATER 8/14/22 1 ADJUST GAS LINE ELEV. ADJUST WATER, ADD FIBER OPTIC 6-8-21 DATE REVISION

FINAL PLAN PROFILE VIEW WATER & SEWER

ADC MAP 35, GRID E2

LOTS 1 -7

CONTRACT NO. 14-5100-D

TAX MAP: 38 - GRID: 08 - PARCEL: 198 ZONED: R-12 - ELECTION DISTRICT 1

SHEET NO. 3 OF 3

AS SHOWN