

CAPERTON VILLAGE AT TURF VALLEY

PHASE 1

PUBLIC WATER AND SEWER

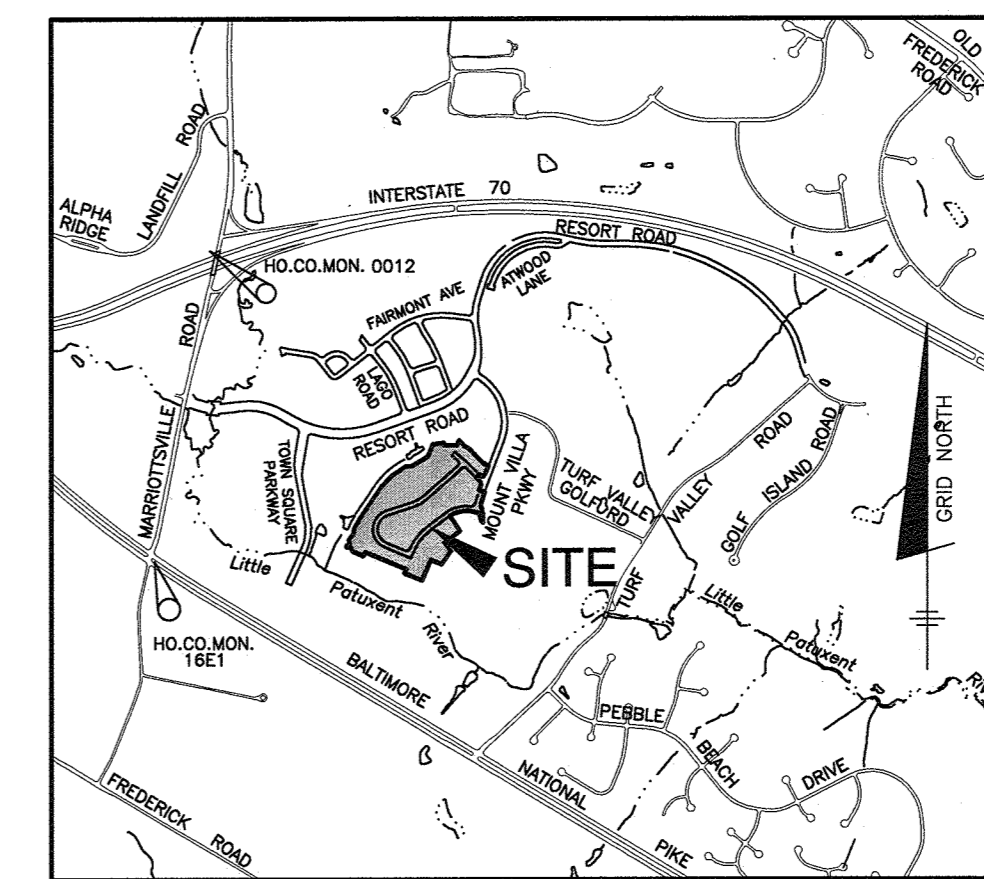
CONTRACT NO. 14-4977-D

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
6" DIP WATER	18 LF	18 LF	DIP	McWane/Ferguson
8" DIP WATER	1589 LF	1589 LF	DIP	McWane/Ferguson
12" DIP WATER	256 LF	256 LF	DIP	McWane/Ferguson
6" FIRE HYDRANT, TEE, & VALVE	5 EA	5	DIP	McWane/Ferguson
1.5" COPPER WHC	1,759 LF	1,759 LF	type K copper	Cape Flow/Ferguson
1" METER VAULT	50 EA	50	Concrete	Horne Concrete
8" PVC SDR-35 SEWER	2,178 LF	2,178 LF	PVC	Diamond Plastics/Ferguson
8" DIP CL 52 SEWER	465 LF	465 LF	DIP	McWane/Ferguson
MANHOLES	21	21	concrete	Atlantic Precast
MH DROP TYPE 'A'	2 EA	2	concrete	Atlantic Precast
MH DROP TYPE 'B'	1 EA	1	concrete	Atlantic Precast
4" PVC SHC	1,163 LF	1,163 LF	PVC	Diamond Plastics/Ferguson
BORING AND JACKING	130 LF	130 LF	steel	
36" STEEL CASING	130 LF	130 LF	steel	Sell's Pipe and Steel
NAME OF UTILITY CONTRACTOR: CCS				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:				

NOTE:

A DESIGN MANUAL WAIVER TO SECTION 5.14 OF HOWARD COUNTY DESIGN MANUAL VOLUME II TO ALLOW FOR AN ALTERNATE INSTALLATION TECHNIQUE, A JACK AND BORE BETWEEN SMH-7 AND SMH-8, WAS APPROVED ON NOVEMBER 6, 2017.

Lot Number	Distance (feet)
1	37.87
2	24.00
3	24.00
4	24.00
5	34.01
6	35.64
7	24.02
8	24.02
9	30.70
10	30.02
11	24.05
12	24.00
13	25.52
14	25.02
15	24.05
16	24.00
17	33.02
18	34.00
19	24.00
20	24.00
21	24.00
22	34.00
23	34.00
24	24.00
25	23.20
26	27.07
27	27.49
28	24.01
29	24.01
30	31.91
31	32.18
32	24.02
33	24.00
34	24.02
35	34.26
36	62.50
37	55.00
38	55.00
39	55.01
40	55.01
41	60.38
42	49.10
43	35.68
44	20.02
45	31.29
46	20.02
47	50.25
48	77.13
49	88.97
50	89.45



VICINITY MAP
SCALE: 1" = 2000'

ADC MAP: 19
GRID: D4

BENCHMARKS	
HO. CO. #16E1 (AKA: 3439001)	STAMPED BRASS DISK SET ON TOP OF A 3/4" DEEP COLUMN OF CONCRETE.
N 593250.960'	E 1340192.70'
ELEVATION: 463.981'	
HO. CO. #0012 (AKA: 3439001)	STAMPED BRASS DISK SET ON TOP OF A 3/4" DEEP COLUMN OF CONCRETE.
N 598502.760'	E 1340864.37'
ELEVATION: 466.298'	

GENERAL NOTES

PART I

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN JANUARY, 2006 BY WINGS AERIAL MAPPING CO., INC.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
- ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 0012 AND 16E1.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A TAG 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 BEEN MADE SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILTY ADMINISTRATION	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033

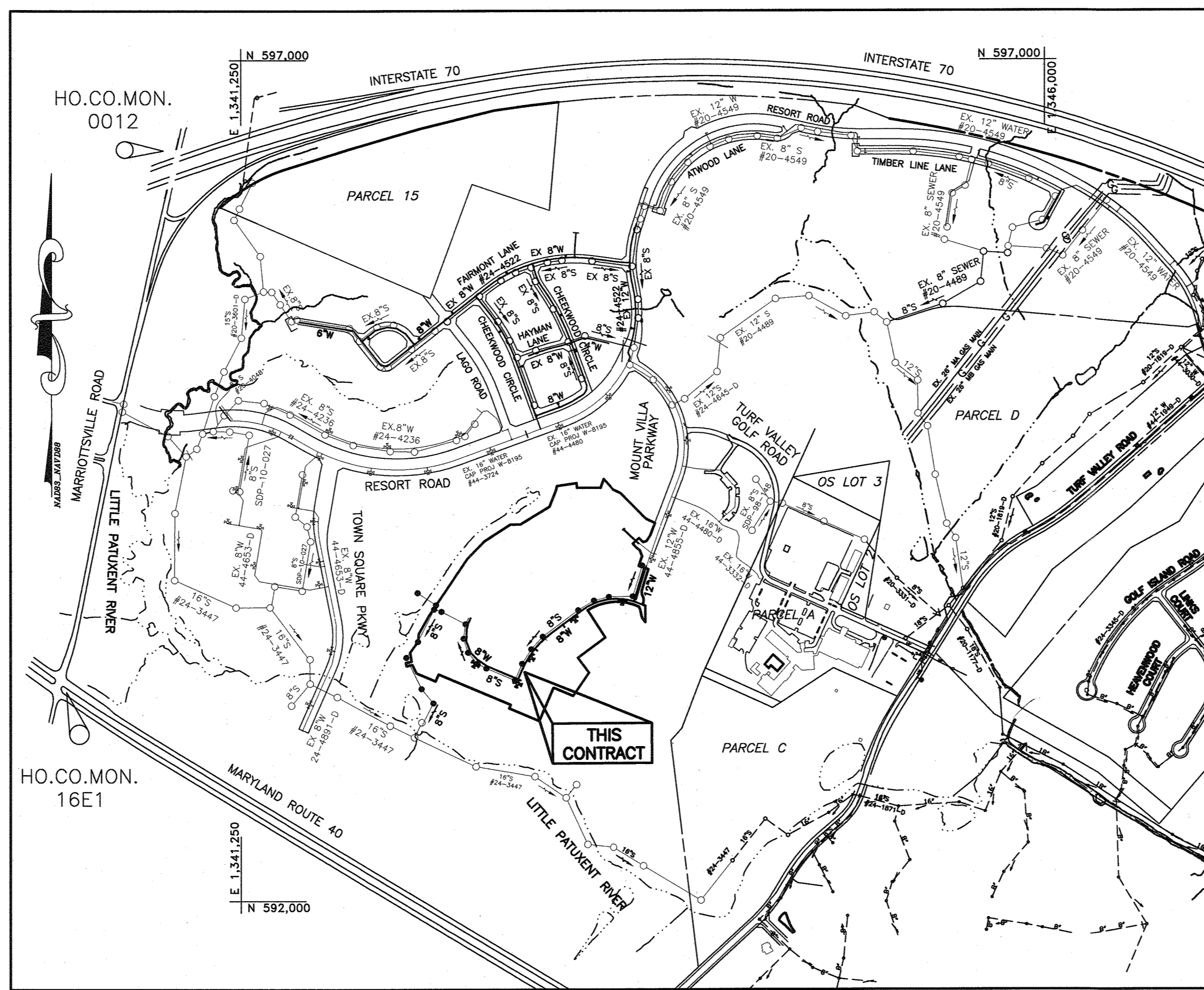
PART II WATER

- ALL WATER MAINS TO BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- 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 SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRE AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE 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 SPOIGT 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 SPOIGT INTO THE BELL. THE CONTRACTOR SHALL NOT OVER INSERT OR OVER HOME THE SPOIGT INTO THE BELL OF PVC PIPE.
- 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 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 #27 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 8-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.
- 5-DEGREE SWEEPS SHALL BE BELL BY SPOIGT, RATED FOR A MINIMUM 225 PSI, DR18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (PEX) BLUE BRUTE DR18 OR EQUAL.
- WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C-900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICES FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPOIGTS 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 MECA-STOP, AS MANUFACTURED BY EBA IRON, INC. OR APPROVED EQUAL.

LEGEND

---	EXIST. WATER MAIN
---	EXIST. SEWER MAIN
---	PROP. STORM DRAIN
---	PROP. SEWER MAIN
---	PROP. SEWER MANHOLE
---	PROP. TERMINAL MANHOLE
---	PROP. SEWER HOUSE CONNECTIONS
---	PROP. WATER MAIN
---	PROP. FIRE HYDRANT
---	PROP. VALVE
---	PROP. PLUG & BUTTRESS
---	PROP. WATER HOUSE CONNECTION

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



VICINITY MAP
SCALE: 1" = 600'

TYPE OF BUILDING:	RESIDENTIAL - SFA & SFD
NUMBER OF UNITS:	51
NUMBER OF SHC'S:	50
NUMBER OF WHC'S:	50
DRAINAGE AREA:	LITTLE PATUXENT WRP
TREATMENT PLANT:	ROUTE 108 PS
WATER ZONE:	63W0
TEST GRADIENT:	780

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

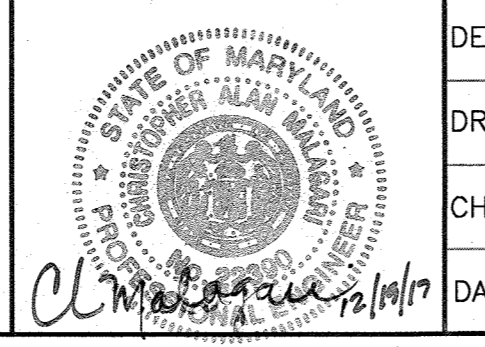
John C. Robertson 1/17/18
HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER F-17-101

OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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. 22390, Expiration Date: 6-30-2019.

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLIOTT CITY, MARYLAND 21043
(P) 410-455-6105 (F) 410-455-6644
WWW.BE-CIVILENGINEERING.COM



DES:	DBT				
DRAFT:	DBT				
CHK:	CAM				
DATE:	12/20/17	BE1	1	REVISE QUANTITY CHART	5-22-18
BY:	NO.			REVISIONS	DATE

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	PLAN VIEW: PUBLIC WATER & SEWER MAINS
3	PROFILE VIEW: PUBLIC WATER & SEWER MAINS
4	PROFILE VIEW: PUBLIC WATER & SEWER MAINS
5	PROFILE VIEW: PUBLIC WATER & SEWER MAINS

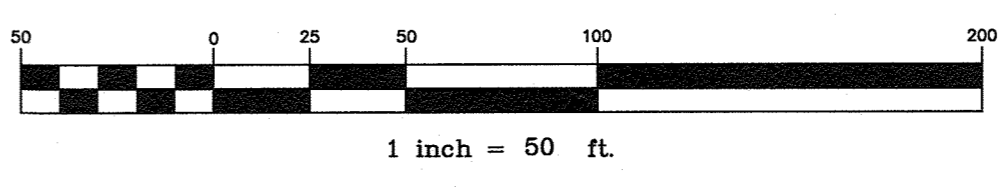
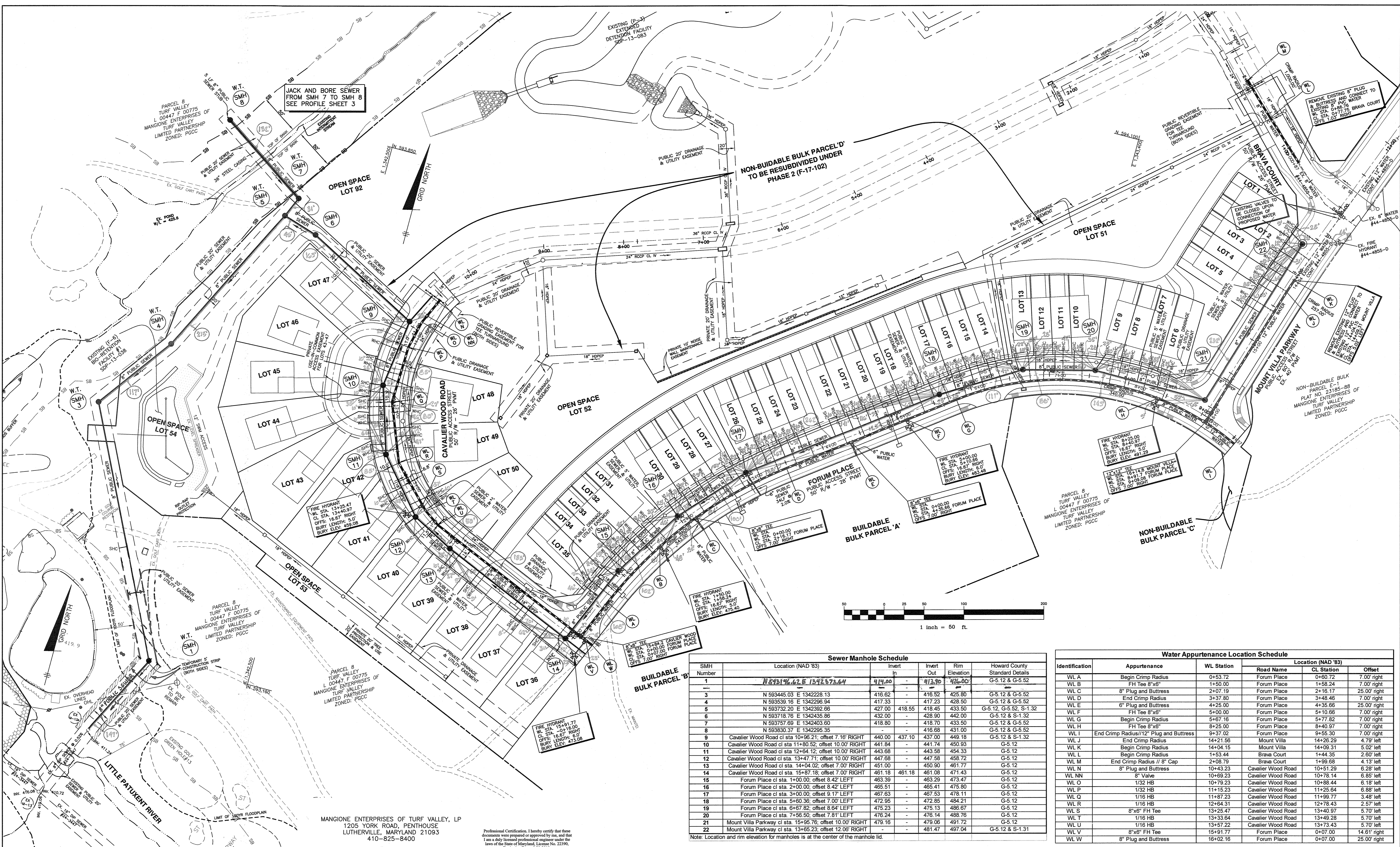
TITLE SHEET

CAPERTON VILLAGE AT TURF VALLEY
PHASE 1: LOTS 1-50; OPEN SPACE LOTS 51-54;
BUILDABLE BULK PARCELS 'A' AND 'B';
NON-BUILDABLE BULK PARCELS 'C' AND 'D'

TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8 - ZONED: PGCC - ELECTION DISTRICT 3

CONTRACT NO. 14-4977-D

SCALE: AS SHOWN
SHEET NO. 1 OF 5



Sewer Manhole Schedule						
SMH Number	Location (NAD '83)	Invert In	Invert Out	Rim Elevation	Howard County Standard Details	
1	N 532146.62 E 1342373.64	414.00	413.90	426.00	G-5.12 & G-5.52	
3	N 593445.03 E 1342228.13	416.62	416.52	425.80	G-5.12 & G-5.52	
4	N 593539.16 E 1342296.94	417.33	417.23	428.50	G-5.12 & G-5.52	
5	N 593732.20 E 1342362.66	427.00	418.55	433.50	G-5.12, G-5.52, S-1.32	
6	N 593718.76 E 1342435.86	432.00	-	442.00	G-5.12 & S-1.32	
7	N 593757.89 E 1342403.90	418.80	-	418.70	G-5.12 & G-5.52	
8	N 593830.37 E 1342295.95	-	-	418.68	G-5.12 & G-5.52	
9	Cavaller Wood Road cl sta 10+96.21; offset 7.16' RIGHT	440.00	437.10	437.00	G-5.12 & S-1.32	
10	Cavaller Wood Road cl sta 11+80.52; offset 10.00' RIGHT	441.84	-	441.74	G-5.12	
11	Cavaller Wood Road cl sta 12+64.12; offset 10.00' RIGHT	443.68	-	443.58	G-5.12	
12	Cavaller Wood Road cl sta 13+47.71; offset 10.00' RIGHT	447.68	-	447.58	G-5.12	
13	Cavaller Wood Road cl sta 14+04.02; offset 7.00' RIGHT	451.00	-	450.90	G-5.12	
14	Cavaller Wood Road cl sta 15+87.18; offset 7.00' RIGHT	461.18	461.18	461.08	G-5.12	
15	Forum Place cl sta 1+00.00; offset 8.42' LEFT	463.39	-	463.29	G-5.12	
16	Forum Place cl sta 2+00.00; offset 8.42' LEFT	465.51	-	465.41	G-5.12	
17	Forum Place cl sta 3+00.00; offset 9.17' LEFT	467.63	-	467.53	G-5.12	
18	Forum Place cl sta 5+60.36; offset 7.00' LEFT	472.95	-	472.85	G-5.12	
19	Forum Place cl sta 6+67.82; offset 8.64' LEFT	475.23	-	475.13	G-5.12	
20	Forum Place cl sta 7+56.50; offset 7.81' LEFT	476.24	-	476.14	G-5.12	
21	Mount Villa Parkway cl sta 15+95.76; offset 10.00' RIGHT	479.16	-	479.06	G-5.12	
22	Mount Villa Parkway cl sta 13+65.23; offset 12.06' RIGHT	-	-	481.47	G-5.12 & S-1.31	

Note: Location and rim elevation for manholes is at the center of the manhole lid.

Water Appurtenance Location Schedule					
Identification	Appurtenance	WL Station	Road Name	CL Station	Location (NAD '83)
WL A	Begin Crimp Radius	0+53.72	Forum Place	0+60.72	7.00' right
WL B	FH Tee 8"x6"	1+50.00	Forum Place	1+58.24	7.00' right
WL C	8" Plug and Buttress	2+07.19	Forum Place	2+16.17	25.00' right
WL D	End Crimp Radius	3+37.80	Forum Place	3+48.46	7.00' right
WL E	6" Plug and Buttress	4+25.00	Forum Place	4+35.66	25.00' right
WL F	FH Tee 8"x6"	5+00.00	Forum Place	5+10.66	7.00' right
WL G	Begin Crimp Radius	5+67.16	Forum Place	5+77.82	7.00' right
WL H	FH Tee 8"x6"	8+25.00	Forum Place	8+40.97	7.00' right
WL I	End Crimp Radius // 8" Cap	9+37.02	Forum Place	9+55.30	7.00' right
WL J	End Crimp Radius	14+21.56	Mount Villa	14+26.29	4.79' left
WL K	Begin Crimp Radius	14+04.15	Mount Villa	14+09.31	5.02' left
WL L	Begin Crimp Radius	1+53.44	Brava Court	1+44.35	2.60' left
WL M	End Crimp Radius // 8" Cap	2+08.79	Brava Court	1+98.68	4.13' left
WL N	8" Plug and Buttress	10+43.23	Cavaller Wood Road	10+51.29	6.28' left
WL NN	8" Valve	10+99.23	Cavaller Wood Road	10+78.14	6.85' left
WL O	1/32 HB	10+79.23	Cavaller Wood Road	10+88.44	6.18' left
WL P	1/32 HB	11+15.23	Cavaller Wood Road	11+25.64	6.88' left
WL Q	1/16 HB	11+87.23	Cavaller Wood Road	11+99.77	3.48' left
WL R	1/16 HB	12+64.31	Cavaller Wood Road	12+78.43	2.57' left
WL S	8"x6" FH Tee	13+25.47	Cavaller Wood Road	13+40.97	5.70' left
WL T	1/16 HB	13+33.64	Cavaller Wood Road	13+49.28	5.70' left
WL U	1/16 HB	13+57.22	Cavaller Wood Road	13+73.43	5.70' left
WL V	8"x6" FH Tee	15+91.77	Forum Place	0+07.00	14.61' right
WL W	8" Plug and Buttress	16+02.16	Forum Place	0+07.00	25.00' right

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

BENCHMARK ENGINEERING, INC.
2480 BALTIMORE NATIONAL PIKE & SUITE 418 ELLICOTT CITY, MARYLAND 21043
(P) 410-465-9109 (F) 410-465-8944
WWW.BE-CIVLENGINEERING.COM

DESIGN: DBT
DRAFT: DBT
CHK: CAM
DATE: 12/2017

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. 22390, Expiration Date: 6-30-2019.

1-11-18
1-24-18

BEI | RELOCATE SMH 1 ADD DELETE SMH 2 | 5-22-18

BY NO. REVISIONS DATE

600 SCALE MAP NO. 16 BLOCK: 11

**PLAN VIEW:
PUBLIC WATER & SEWER MAINS**

CAPERTON VILLAGE AT TURF VALLEY
PHASE 1: LOTS 1-50; OPEN SPACE LOTS 51-54;
BUILDABLE BULK PARCELS 'A' AND 'B';
NON-BUILDABLE BULK PARCELS 'C' AND 'D'

TAX MAP: 16 - GRID: 19 - PARCEL: P08 - ZONED: PGCC - ELECTION DISTRICT 3

CONTRACT NO. 14-4977-D

SCALE:
AS SHOWN

SHEET NO.
2 OF 5

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

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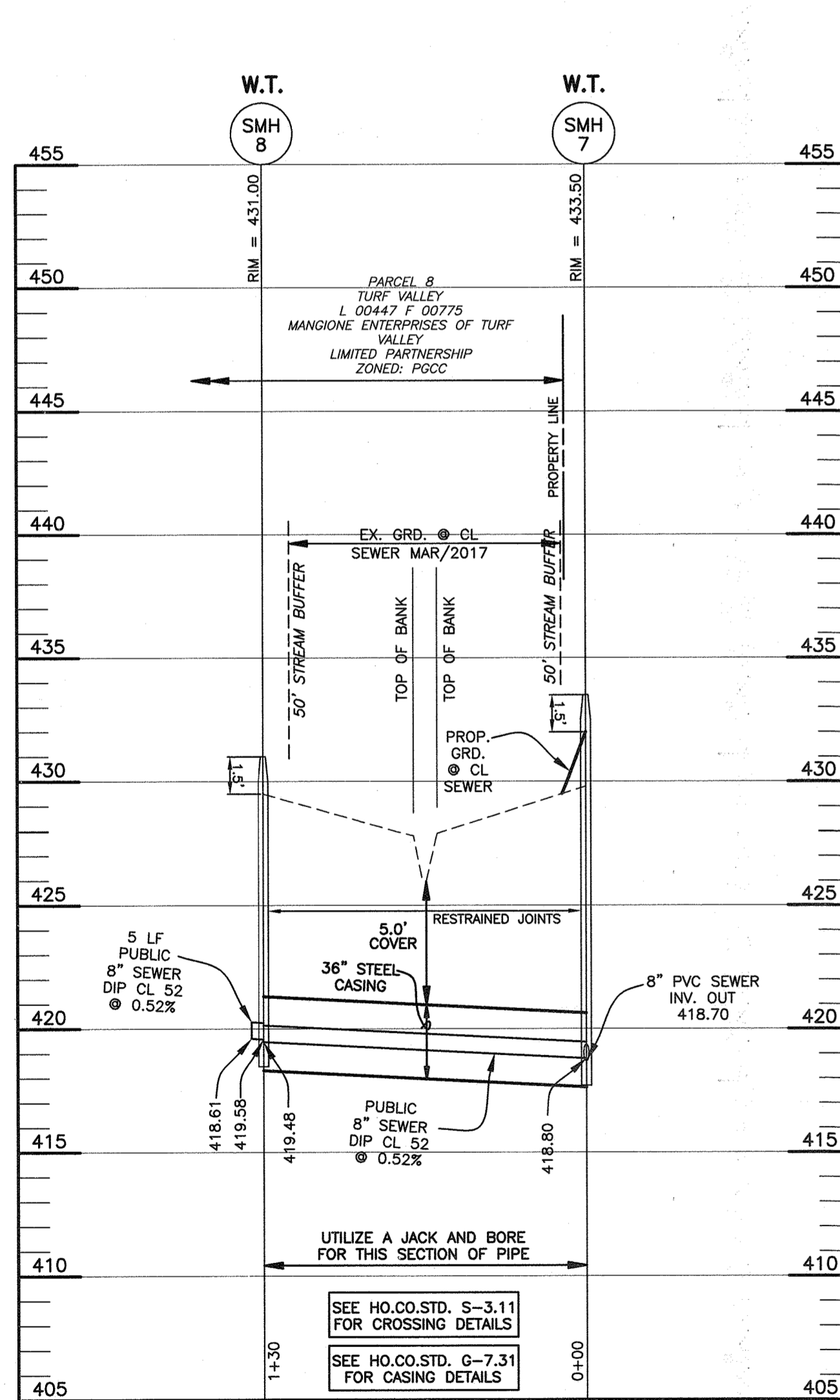
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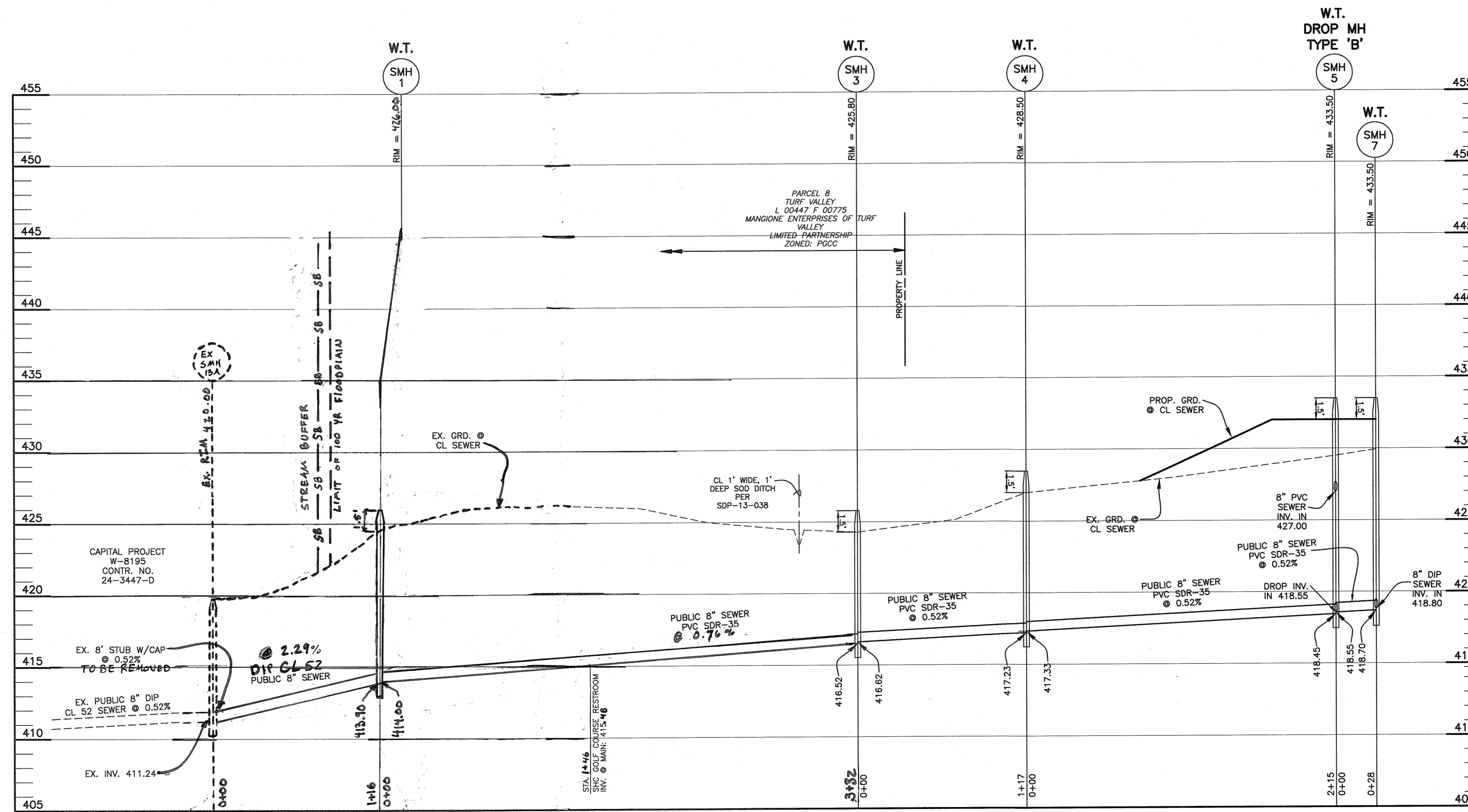
SHEET NO.
2 OF 5

SHC CHART						
Lot Number	Drop Connection	Invert @ main	DHC standpipe length/height	Invert @ R/W or esmt line	Minimum Cellar Elevation	Basement Floor
golf course	no	415.79	0.00	415.48	419.40	424.00
restroom						

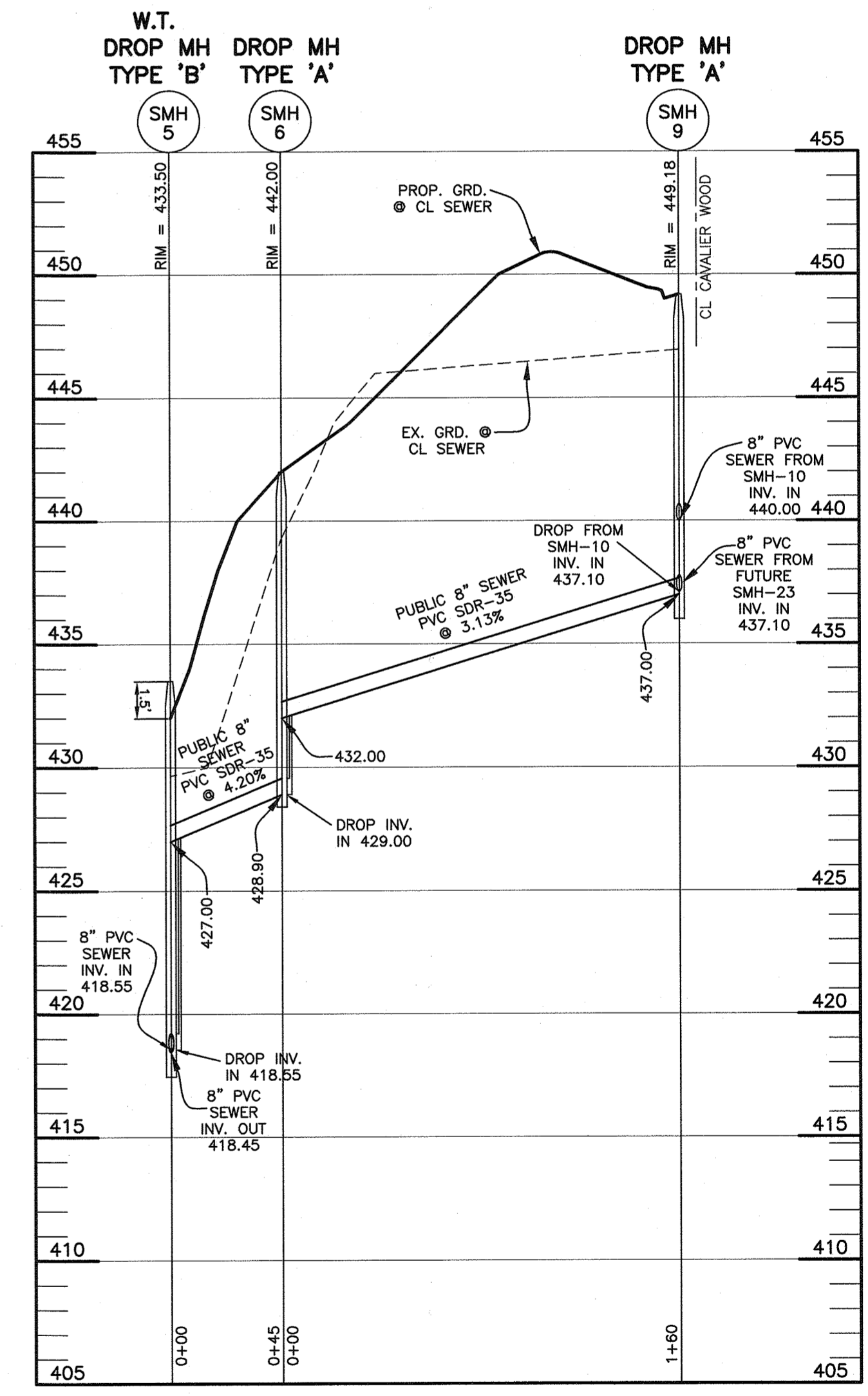
All SHC's are at a 2.0% unless otherwise noted.



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



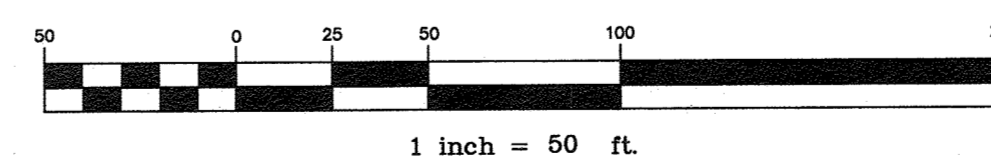
SEWER PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



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

MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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. 22390, Expiration Date: 6-30-2019.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF UTILITIES
1-11-18
DATE

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
1-24-18
DATE

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
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DESIGN: DBT			
DRAFT: DBT			
CHK: CAM			
DATE: 12/2017	BY: BEI	NO. 1	RELOCATE SMH1 AND DELETE SMH2
			5-22-18
			DATE

PROFILE VIEW:
PUBLIC WATER & SEWER MAINS

CAPERTON VILLAGE AT TURF VALLEY

PHASE 1: LOTS 1-50; OPEN SPACE LOTS 51-54;
BUILDABLE BULK PARCELS 'A' AND 'B';
NON-BUILDABLE BULK PARCELS 'C' AND 'D'

TAX MAP: 16 - GRID: 19 - PARCEL: PO 8 - ZONED: PGCC - ELECTION DISTRICT 3

CONTRACT NO. 14-4977-D

SCALE:
AS SHOWN

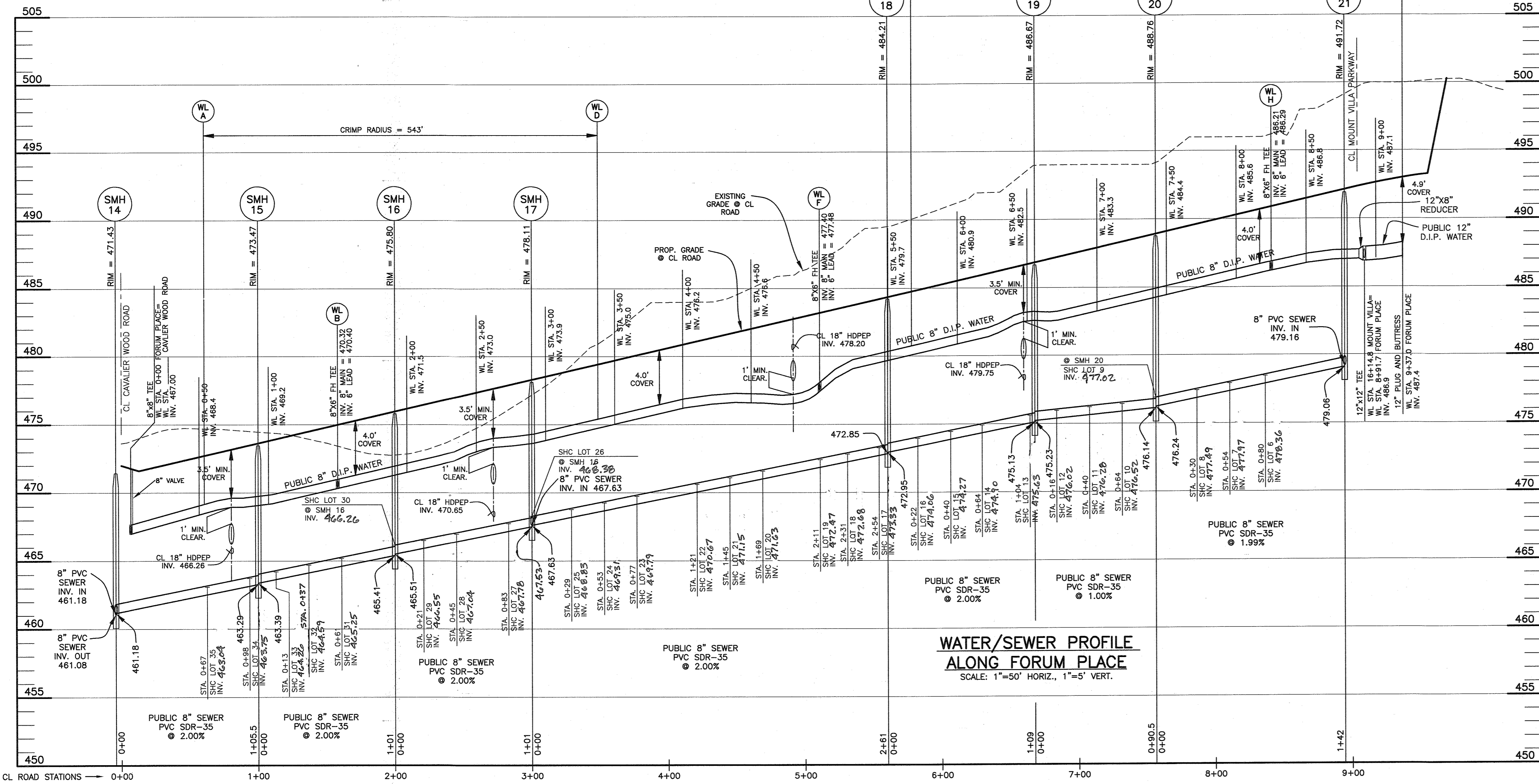
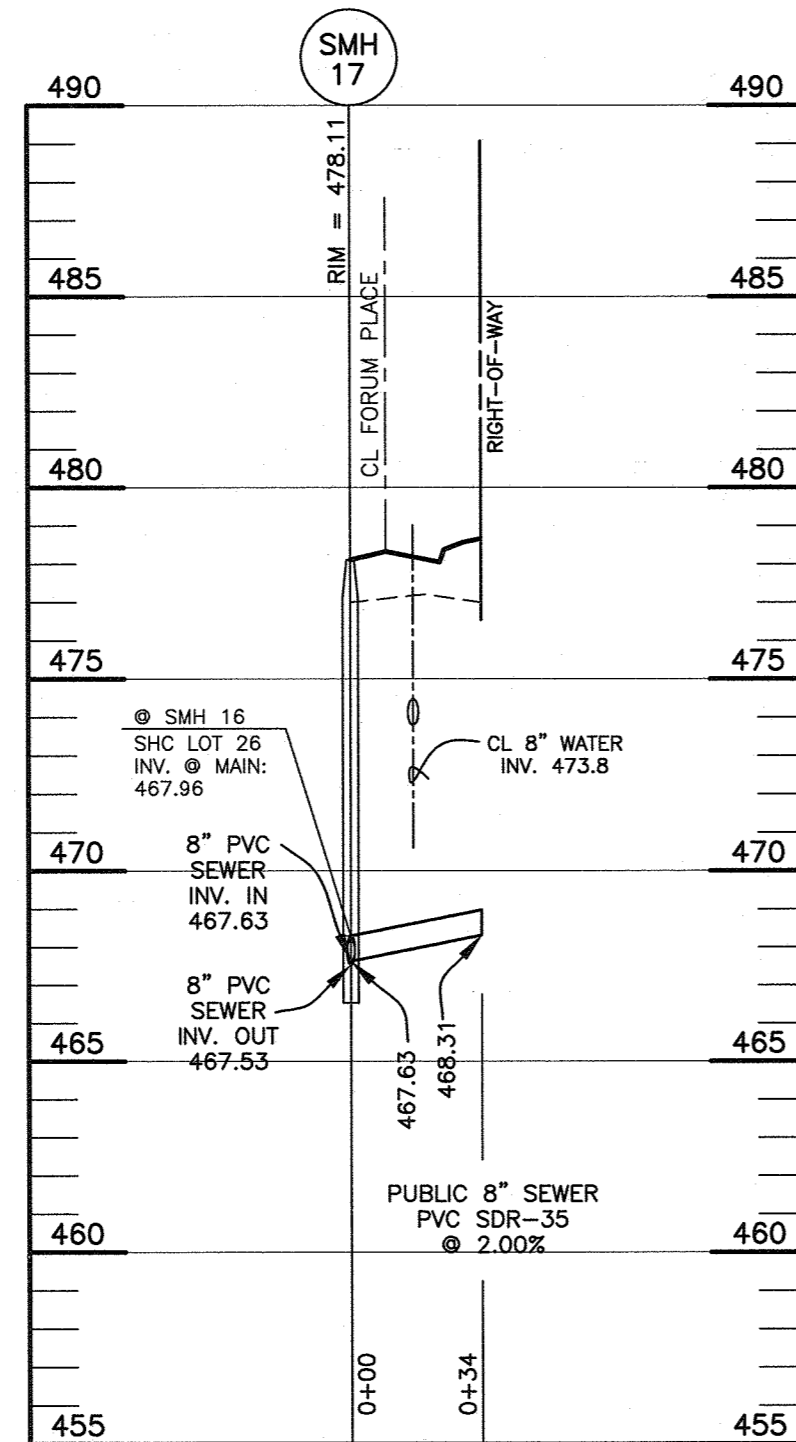
SHEET NO.
3 OF 5

600 SCALE MAP NO. 16

BLOCK: 11

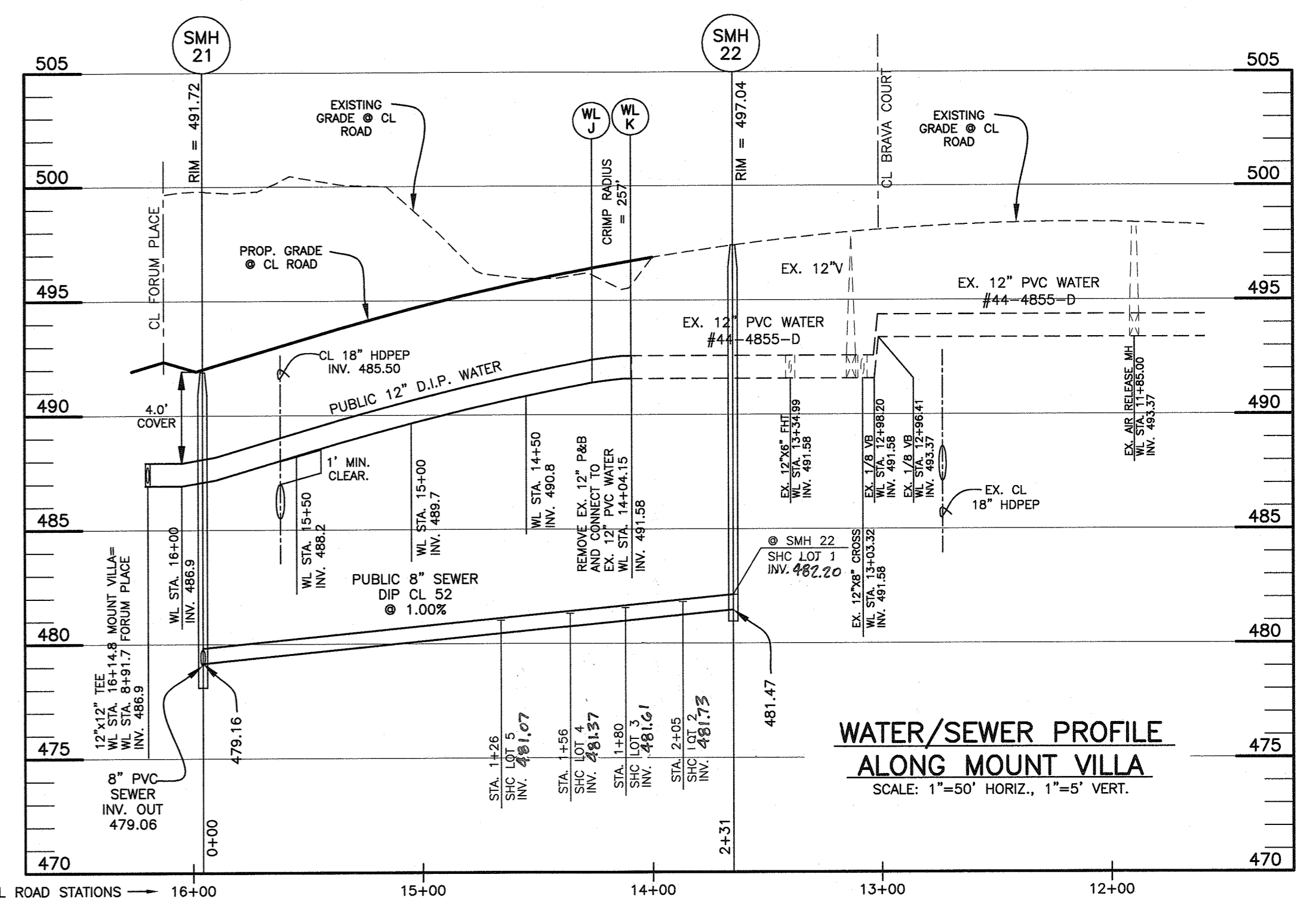
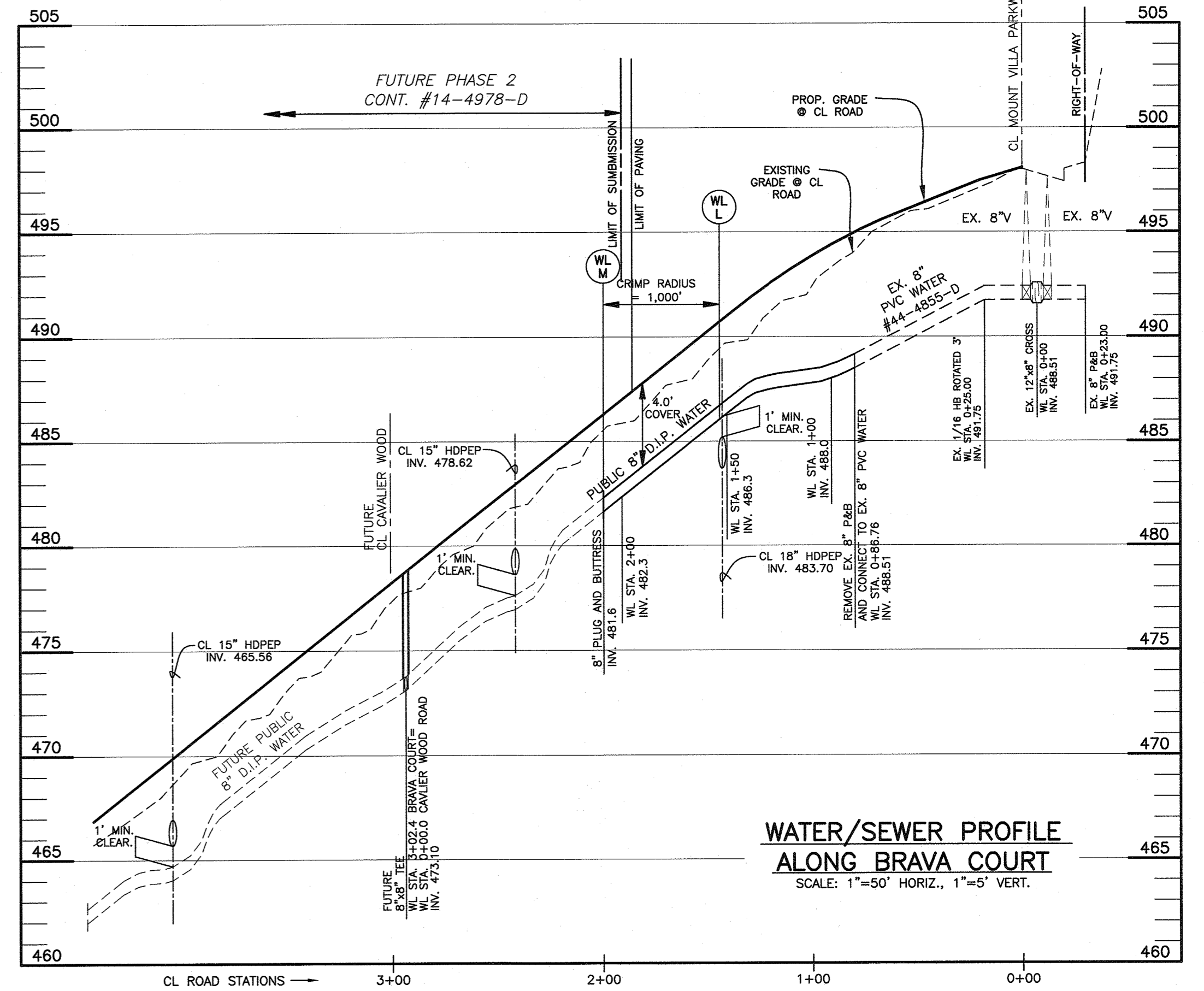
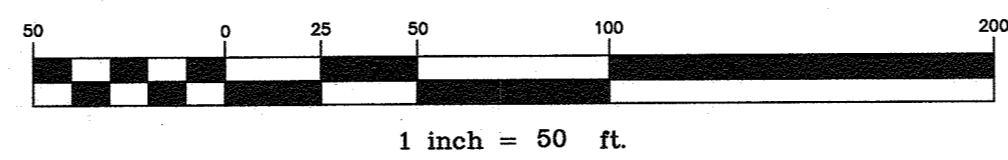
SHC CHART						
Lot Number	Drop Connection	Invert @ main	DHC standpipe length/height	Invert @ R/W or esmt line	Minimum Cellar Elevation	Basement Floor
1	no	481.80	0.00	482.20	486.34	491.03
2	no	481.33	0.00	481.73	485.87	489.69
3	no	481.17	0.00	481.61	485.75	488.35
4	no	480.93	0.00	481.37	485.51	487.01
5	no	480.63	0.00	481.07	485.21	485.67
6	no	477.92	0.00	478.36	482.26	485.34
7	no	477.49	0.00	477.97	481.87	484.67
8	no	477.01	0.00	477.49	481.39	483.33
9	no	476.57	0.00	477.02	480.92	481.99
10	no	476.04	0.00	476.52	480.42	480.42
11	no	475.80	0.00	476.28	480.18	480.41
12	no	475.56	0.00	476.02	479.92	480.41
13	no	475.20	0.00	475.64	479.54	479.74
14	no	474.40	0.00	474.90	478.80	478.86
15	no	473.75	0.00	474.27	478.17	478.19
16	no	473.56	0.00	474.06	477.96	478.19
17	no	472.88	0.00	473.33	477.23	477.52
18	no	472.23	0.00	472.68	476.58	477.05
19	no	472.02	0.00	472.47	476.37	476.38
20	no	471.18	0.00	471.63	475.53	475.71
21	no	470.70	0.00	471.15	475.05	475.71
22	no	470.22	0.00	470.67	474.57	475.04
23	no	469.34	0.00	469.79	473.69	474.42
24	no	468.86	0.00	469.31	473.21	473.75
25	no	468.38	0.00	468.83	472.73	473.75
26	no	467.96	0.00	468.38	472.28	473.08
27	no	467.34	0.00	467.78	471.88	472.76
28	no	466.58	0.00	467.04	470.94	472.09
29	no	466.10	0.00	466.55	470.45	471.42
30	no	465.84	0.00	466.26	470.16	470.75
31	no	464.78	0.00	465.25	469.15	469.66
32	no	464.13	0.00	464.59	468.49	468.99
33	no	463.82	0.00	464.26	468.16	468.32
34	no	463.31	0.00	463.75	467.65	468.32
35	no	462.60	0.00	463.04	467.14	467.65

All SHC's are at a 2.0% unless otherwise noted.



MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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. 22390, Expiration Date: 6-30-2019.

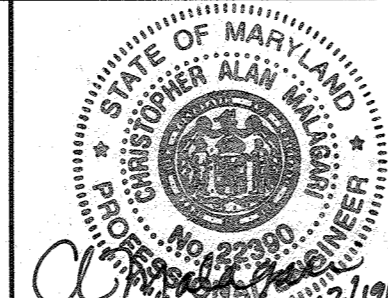


DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

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DESIGN: DBT

DRAFT: DBT

CHK: CAM

DATE: 12/2017

BY	NO.	REVISIONS	DATE

PROFILE VIEW:
PUBLIC WATER & SEWER MAINS

600 SCALE MAP NO. 16

BLOCK: 11

CAPERTON VILLAGE AT TURF VALLEY

PHASE 1: LOTS 1-50; OPEN SPACE LOTS 51-54;
BUILDABLE BULK PARCELS 'A' AND 'B';
NON-BUILDABLE BULK PARCELS 'C' AND 'D'

TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8 - ZONED: PGCC - ELECTION DISTRICT 3

CONTRACT NO. 14-4977-D

SCALE:
AS SHOWN

SHEET NO.
4 OF 5

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	MOUNT VILLA PARKWAY	MH 22 - 22'	WHC Lot 1 - 9'
2	MOUNT VILLA PARKWAY	MH 22 - 31'	WHC Lot 2 - 12'
3	MOUNT VILLA PARKWAY	MH 22 - 35'	WHC Lot 3 - 9'
4	MOUNT VILLA PARKWAY	MH 22 - 55'	WHC Lot 4 - 10'
5	MOUNT VILLA PARKWAY	MH 22 - 103'	WHC Lot 5 - 10'
6	FORUM PLACE	MH 21 - 66'	WHC Lot 6 - 12'
7	FORUM PLACE	MH 21 - 32'	WHC Lot 7 - 10'
8	FORUM PLACE	MH 20 - 40'	WHC Lot 8 - 9'
9	FORUM PLACE	MH 20 - 25'	WHC Lot 9 - 10'
10	FORUM PLACE	MH 20 - 35'	WHC Lot 10 - 10'
11	FORUM PLACE	MH 20 - 54'	WHC Lot 11 - 9'
12	FORUM PLACE	MH 19 - 22'	WHC Lot 12 - 10'
13	FORUM PLACE	MH 19 - 22'	WHC Lot 13 - 9'
14	FORUM PLACE	MH 19 - 47'	WHC Lot 14 - 9'
15	FORUM PLACE	MH 19 - 42'	WHC Lot 15 - 10'
16	FORUM PLACE	MH 18 - 24'	WHC Lot 16 - 10'
17	FORUM PLACE	MH 18 - 25'	WHC Lot 17 - 10'
18	FORUM PLACE	MH 18 - 43'	WHC Lot 18 - 11'
19	FORUM PLACE	MH 18 - 50'	WHC Lot 19 - 10'
20	FORUM PLACE	MH 18 - 23'	WHC Lot 20 - 9'
21	FORUM PLACE	MH 18 - 116'	WHC Lot 21 - 9'
22	FORUM PLACE	MH 18 - 141'	WHC Lot 22 - 10'
23	FORUM PLACE	MH 17 - 51'	WHC Lot 23 - 10'
24	FORUM PLACE	MH 17 - 55'	WHC Lot 24 - 10'
25	FORUM PLACE	MH 17 - 37'	WHC Lot 25 - 11'
26	FORUM PLACE	MH 17 - 22'	WHC Lot 26 - 9'
27	FORUM PLACE	MH 17 - 22'	WHC Lot 27 - 11'
28	FORUM PLACE	MH 17 - 52'	WHC Lot 28 - 9'
29	FORUM PLACE	MH 16 - 23'	WHC Lot 29 - 9'
30	FORUM PLACE	MH 16 - 23'	WHC Lot 30 - 10'
31	FORUM PLACE	MH 16 - 46'	WHC Lot 31 - 10'
32	FORUM PLACE	MH 16 - 45'	WHC Lot 32 - 9'
33	FORUM PLACE	MH 15 - 28'	WHC Lot 33 - 9'
34	FORUM PLACE	MH 15 - 24'	WHC Lot 34 - 15'
35	FORUM PLACE	MH 15 - 46'	WHC Lot 35 - 9'
36	CAVALIER WOOD ROAD	MH 14 - 35'	WHC Lot 36 - 31'
37	CAVALIER WOOD ROAD	MH 14 - 62'	WHC Lot 37 - 8'
38	CAVALIER WOOD ROAD	MH 13 - 51'	WHC Lot 38 - 9'
39	CAVALIER WOOD ROAD	MH 13 - 23'	WHC Lot 39 - 10'
40	CAVALIER WOOD ROAD	MH 12 - 19'	WHC Lot 40 - 17'
41	CAVALIER WOOD ROAD	FH Sta. 13+25 - 27'	WHC Lot 41 - 10'
42	CAVALIER WOOD ROAD	MH 11 - 26'	WHC Lot 42 - 10'
43	CAVALIER WOOD ROAD	MH 11 - 54'	WHC Lot 43 - 10'
44	CAVALIER WOOD ROAD	MH 10 - 35'	WHC Lot 44 - 10'
45	CAVALIER WOOD ROAD	MH 10 - 171'	WHC Lot 45 - 10'
46	CAVALIER WOOD ROAD	MH 10 - 35'	WHC Lot 46 - 10'
47	CAVALIER WOOD ROAD	MH 9 - 24'	WHC Lot 47 - 29'
48	CAVALIER WOOD ROAD	MH 10 - 33'	WHC Lot 48 - 29'
49	CAVALIER WOOD ROAD	MH 11 - 49'	WHC Lot 49 - 12'
50	CAVALIER WOOD ROAD	MH 12 - 37'	WHC Lot 50 - 10'

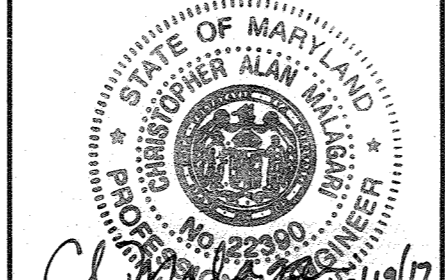
WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	MOUNT VILLA PARKWAY	MH 22 - 23'	SHC Lot 1 - 9'
2	MOUNT VILLA PARKWAY	MH 22 - 24'	SHC Lot 2 - 10'
3	MOUNT VILLA PARKWAY	MH 22 - 44'	SHC Lot 3 - 9'
4	MOUNT VILLA PARKWAY	MH 22 - 66'	SHC Lot 4 - 10'
5	MOUNT VILLA PARKWAY	MH 22 - 103'	SHC Lot 5 - 10'
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15	FORUM PLACE	MH 19 - 42'	SHC Lot 15 - 10'
16	FORUM PLACE	MH 18 - 24'	SHC Lot 16 - 10'
17	FORUM PLACE	MH 18 - 25'	SHC Lot 17 - 10'
18	FORUM PLACE	MH 18 - 43'	SHC Lot 18 - 11'
19	FORUM PLACE	MH 18 - 50'	SHC Lot 19 - 10'
20	FORUM PLACE	MH 18 - 23'	SHC Lot 20 - 9'
21	FORUM PLACE	MH 18 - 116'	SHC Lot 21 - 9'
22	FORUM PLACE	MH 18 - 141'	SHC Lot 22 - 10'
23	FORUM PLACE	MH 17 - 51'	SHC Lot 23 - 10'
24	FORUM PLACE	MH 17 - 55'	SHC Lot 24 - 10'
25	FORUM PLACE	MH 17 - 37'	SHC Lot 25 - 11'
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28	FORUM PLACE	MH 17 - 52'	SHC Lot 28 - 9'
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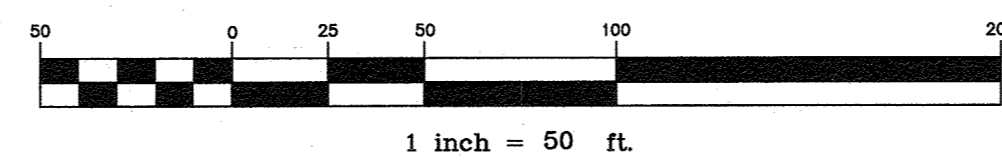
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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. 22390, Expiration Date: 6-30-2019.

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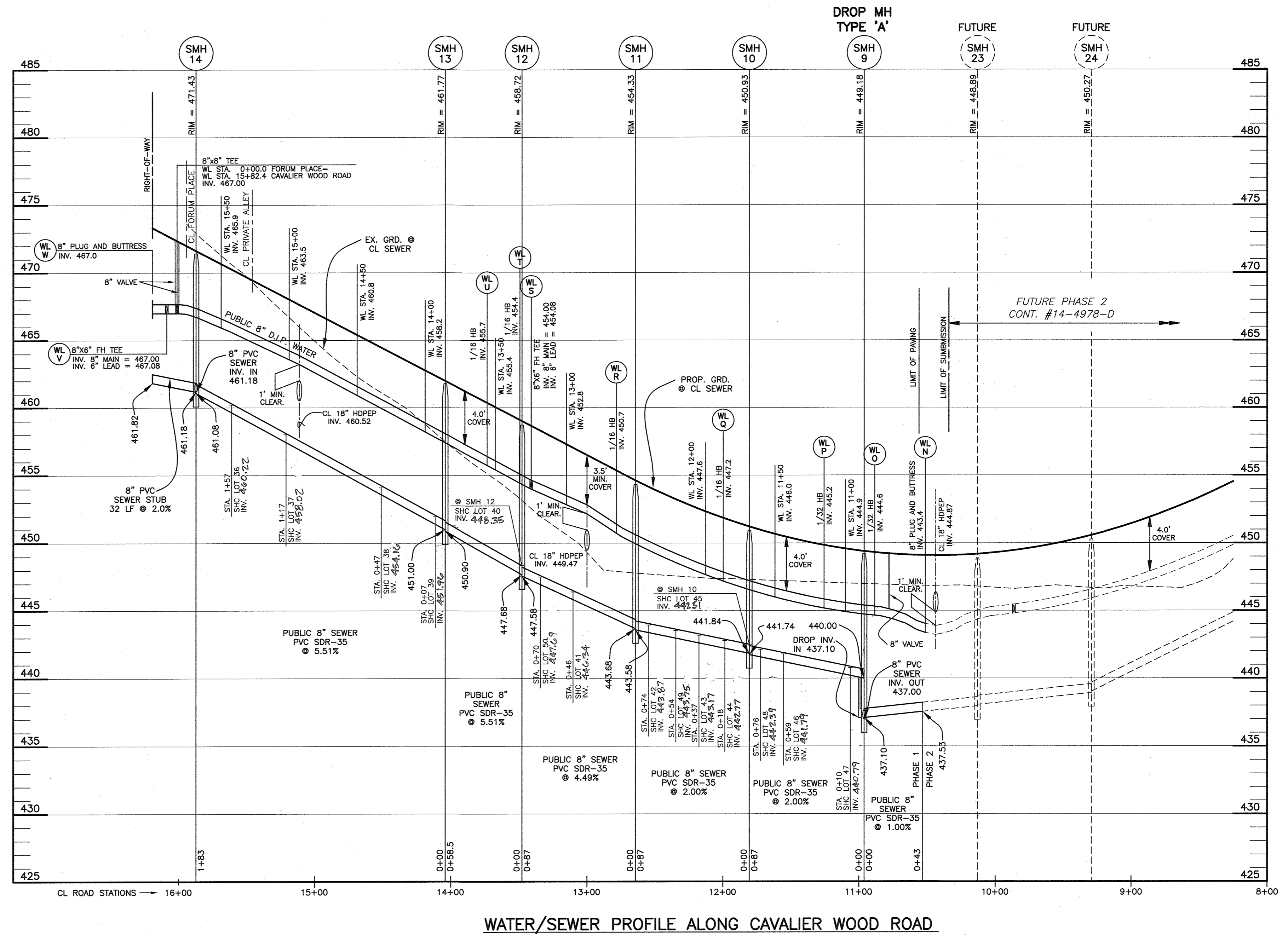
DESIGN: DBT
DRAFT: DBT
CHK: CAM
DATE: 12/2017



SHC CHART

Lot Number	Drop Connection	Invert @ main	DHC standpipe length/height	Invert @ R/W or esmt line	Minimum Cellar Elevation	Basement Floor
36	no	459.82	0.00	460.22	464.40	464.94
37	no	457.62	0.00	458.02	462.06	462.69
38	no	453.76	0.00	454.16	458.32	459.79
39	no	451.56	0.00	451.96	455.90	456.91
40	no	448.01	0.00	448.35	452.65	454.22
41	no	445.92	0.00	446.34	450.64	451.57
42	no	443.49	0.00	443.87	448.73	450.15
43	no	442.75	0.00	443.17	447.14	447.22
44	no	442.37	0.00	442.77	446.81	447.17
45	no	442.17	0.00	442.51	448.05	448.17
46	no	441.35	0.00	441.79	447.09	447.17
47	no	440.37	0.00	440.79	445.73	446.17
48	no	441.69	0.00	442.39	446.59	446.60
49	no	443.09	0.00	443.75	448.05	449.22
50	no	446.99	0.00	447.69	452.05	454.99

All SHC's are at a 2.0% unless otherwise noted.



WATER/SEWER PROFILE ALONG CAVALIER WOOD ROAD
SCALE: 1"=50' HORIZ., 1"=5' VERT.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
1-11-18
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
1-24-18
CHIEF, DEVELOPMENT ENGINEERING DIVISION

PROFILE VIEW:
PUBLIC WATER & SEWER MAINS

CAPERTON VILLAGE AT TURF VALLEY
PHASE 1: LOTS 1-50; OPEN SPACE LOTS 51-54;
BUILDABLE BULK PARCELS 'A' AND 'B';
NON-BUILDABLE BULK PARCELS 'C' AND 'D'
TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8 - ZONED: PGCC - ELECTION DISTRICT 3
CONTRACT NO. 14-4977-D

SCALE:
AS SHOWN
SHEET NO.
5 OF 5