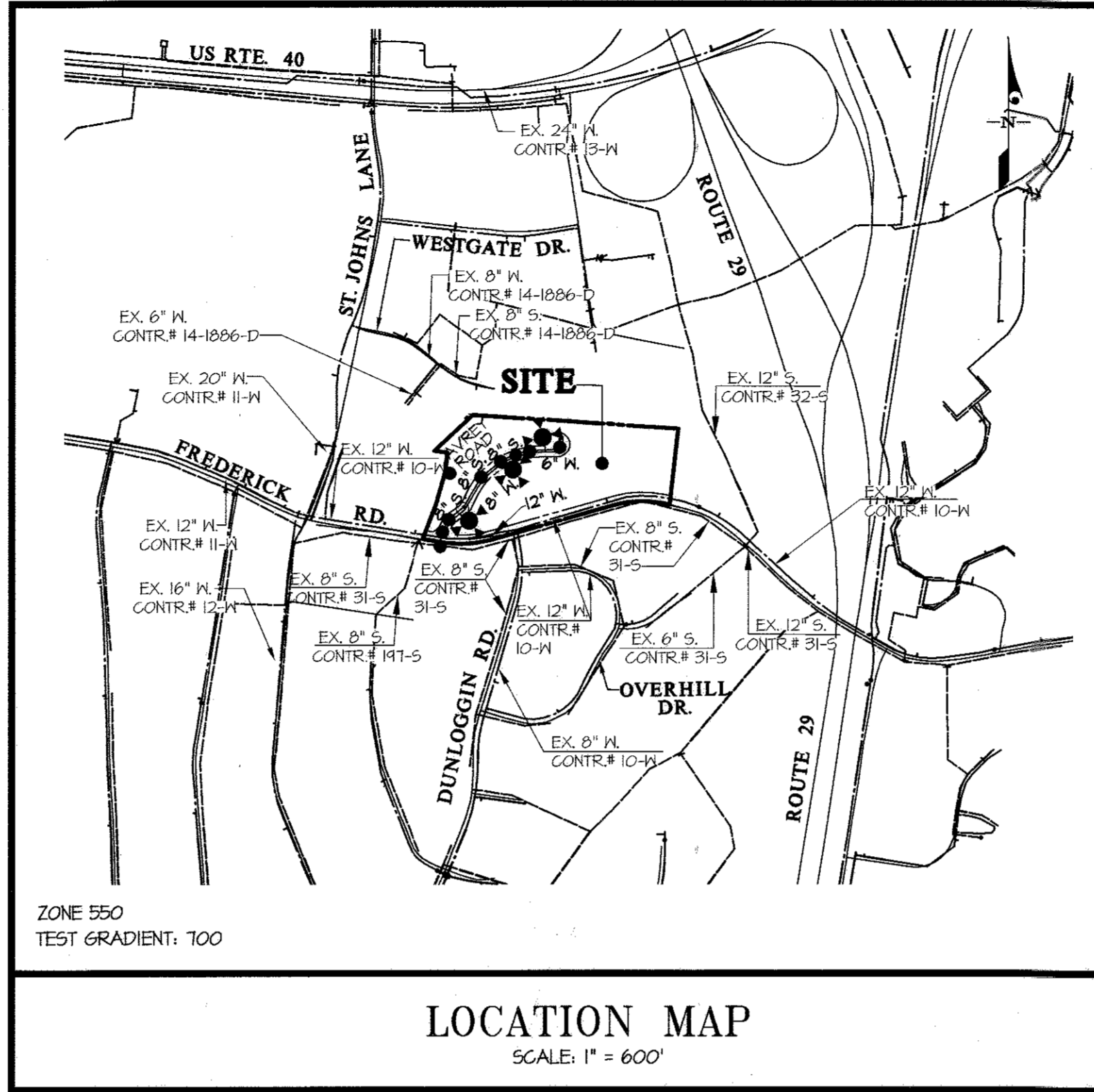
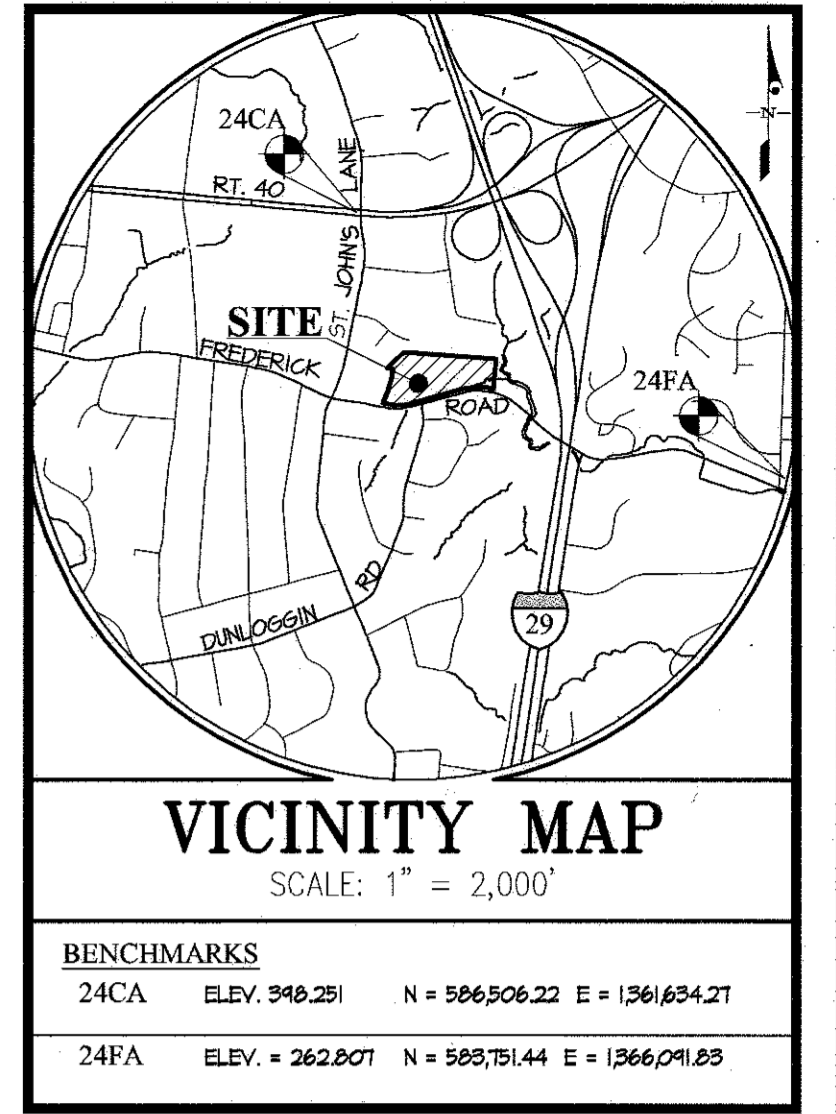


QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
6" WATER (DIP) FH. LEADS	44 L.F.			
6" WATER (C400 PVC DR 18 PVC)	130 L.F.			
8" WATER (C400 PVC DR 18 PVC)	646 L.F.			
12" WATER (DIP CL. 54)	245 L.F.			
8" SEWER MAIN (PVC)	314 L.F.			
8" SEWER MAIN (DIP CL. 54)	348 L.F.			
4" MANHOLES	10 EA.			
TYPE B DROP MANHOLES	2 EA.			
12" x 8" T.	1 EA.			
12" x 1/2" H.B.	2 EA.			
12" x 1/2" V.B.	2 EA.			
12" x 1/2" H.B.	2 EA.			
12" x 1/2" H.B.	1 EA.			
6" x 1/2" H.B.	2 EA.			
8" x 1/2" H.B.	3 EA.			
8" x 1/2" H.B.	4 EA.			
8" x 1/2" H.B.	2 EA.			
8" x 3/4" HDC	1 EA.			
8" x 5" SHEEP	2 EA.			
8" x 6" F.H.T.	3 EA.			
6" V.	3 EA.			
6" GAP	1 EA.			
8" x 6" REDUCER	1 EA.			
36" STEEL CASING PIPE	34 EA.			
FIRE HYDRANT	3 EA.			
CONTINUITY TEST STATION	3 EA.			
1 1/2" W.H.C.'s	470 L.F.			
4" S.H.C.'s (SCH. 40 PVC)	457 L.F.			
NAME OF UTILITY CONTRACTOR:				
SURVEY AND DRAFTING DIV.		CHECKBOX: AS-BUILT DATE:		



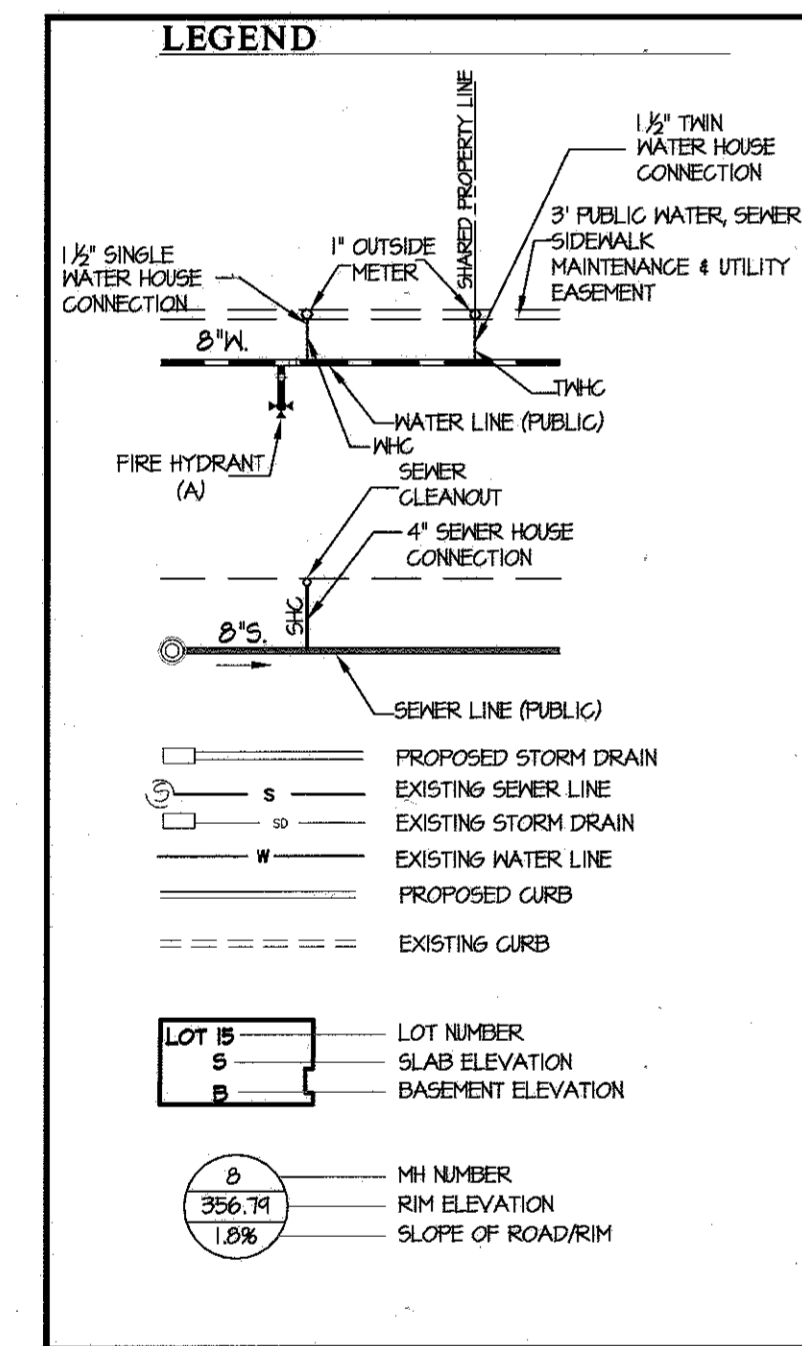
TYPE OF BUILDING	RESIDENTIAL
NUMBER OF UNITS	34
NUMBER OF S.H.C.'s	34
NUMBER OF W.H.C.'s	15 - TWIN W.H.C.'s & 4 SINGLE W.H.C.'s
AREA OF COMMERCIAL LOT/PARCEL	10.98 ACRES
SEWER SHED	PATAPSCO
PUMPING STATION	N/A



GENERAL NOTES

- Approximate locations of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the contractor's expense.
- Topographic field surveys were performed on December, 2012 by McKenzie SANDER Inc.
- Horizontal and Vertical Survey Controls: 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. 24CA and No. 24FA. All vertical controls are based on NAVD 88.
- 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 (2014). 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.
- The contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:

AT&T	1-800-252-1133
BGE (Construction Services)	410-631-8713
BGE (Emergency)	410-685-0225
Bureau of Public Works	410-315-4400
Colonial Pipeline Co.	410-745-1340
Miss Utility	1-800-251-TITTT
State Highway Administration	410-531-2533
Verizon	1-800-443-0033
- Trees and shrubs are to be protected from damage to the maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the contractor.
- The contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- The contractor shall notify the Bureau of Highways, Howard County, at (410)-313-1450 at least five working days before open cutting or string/packing 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 18.14(f) of the Howard County Code.



SHEET INDEX	
1 - WATER & SEWER TITLE SHEET	
2 - WATER & SEWER PLAN	
3 - WATER & SEWER PROFILES	

CONTRACT No. 14-4817-D
TERRAPIN WOODS
 LOTS 1 THRU 34, OPEN SPACE
 LOTS 35 THRU 38 & NON-BUILDABLE PARCEL A
 (A SUBDIVISION OF PARCELS 115 & 117, LIBER 15723 FOLIO 16
 AND IN PART A RESUBDIVISION OF LOTS 4-7 BLOCK A
 "ELKRIDGE FARM-No. 2" PLAT Bk. 122 PLAT No. 62)
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH F-18-001 & SECTION 308 OF THE SPECIFICATIONS.

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

APPROVED: 3/1/18
 HOWARD COUNTY S.C.D. DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF UTILITIES DATE: 4/23/18	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 5-10-18	GLWGUTSCHICK LITTLE & WEBER, P.A. CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866 TEL: 301-421-4024 BALT: 410-883-1820 DC/VA: 301-989-2524 FAX: 301-421-4186	DATE: MARCH, 2018 G.L.W. No. 12039 PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 12975 EXP. DATE: MAY 26, 2018	BY NO REVISION DATE 600' SCALE MAP NO. 24 BLOCK NO. 11	TERRAPIN WOODS CONTRACT No. 14-4817-D LOTS 1 THRU 34, OPEN SPACE LOTS 35 THRU 38 & NON-BUILDABLE PARCEL A (A SUBDIVISION OF PARCELS 115 & 117, LIBER 15723 FOLIO 16 AND IN PART A RESUBDIVISION OF LOTS 4-7, BLOCK A "ELKRIDGE FARM-No. 2" PLAT Bk. 122 No. 62) HOWARD COUNTY, MARYLAND ELECTION DISTRICT No. 2	SCALE AS SHOWN SHEET 1 OF 3
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PREPARED FOR:
 BVR INVESTMENTS, LLC
 1377 GOLD MINE LANE
 EVERGREEN, CO 80439
 ATTN: BRIAN ROBERTS
 240-461-9172

L:\CAD\DRAWINGS\2018\PLANS BY G.L.W.\MS\12039-MS-1-CS.dwg, PLOTTED: 5/22/2018 11:35 AM, LAST SAVED: 5/22/2018 8:57 AM, PLOTTED BY: Raymond Lopez

FITTING CHART			
STATION	FITTING	NAD '83/'91 COORDINATES	
WATER MAIN 'A'			
0+00	12" 8" T.	N 584442.4645	E 1362007.1404
0+55	8" 1/2 HB.	N 584541.4014	E 1362013.1481
0+78	8" 1/2 HB.	N 584561.4462	E 1362023.9712
1+35	8" x 6" F.H.T.	N 584603.5465	E 1362068.2608
1+62	8" 1/2 HB.	N 584620.5244	E 1362089.1988
2+01	8" 5" SWEEP	N 584723.3683	E 1362144.6231
2+47	8" 3" HDC	N 584735.9117	E 1362158.4156
3+41	8" 1/2 HB.	N 584775.1458	E 1362184.8405
3+46	8" 5" SWEEP	N 584806.7850	E 1362221.5883
4+53	8" x 6" F.H.T.	N 584834.4361	E 1362274.2127
4+66	8" 1/2 HB.	N 584846.6442	E 1362284.5184
4+91	8" 1/2 HB.	N 584858.4534	E 1362313.2871
5+85	8" 1/2 HB.	N 584874.6240	E 1362349.0442
6+40	8" x 6" F.H.T.	N 584881.8030	E 1362454.1842
6+44	8" x 6" REDUCER	N 584881.9429	E 1362451.6815
7+14	6" 1/2 HB.	N 584884.6974	E 1362521.3624
7+26	6" 1/2 HB.	N 584893.4375	E 1362535.4304
7+84	6" CAP	N 584451.2073	E 1362533.0084
WATER MAIN 'B'			
0+20	12" 1/2 HB.	N 584443.2092	E 1362106.6658
0+27	12" 1/2 HB.	N 584484.0500	E 1362111.4826
1+01	12" 1/2 HB.	N 584507.1828	E 1362265.1873
2+03	12" 1/2 HB.	N 584518.5567	E 1362283.8391
2+17	12" 1/2 HB.	N 584528.0173	E 1362294.1908

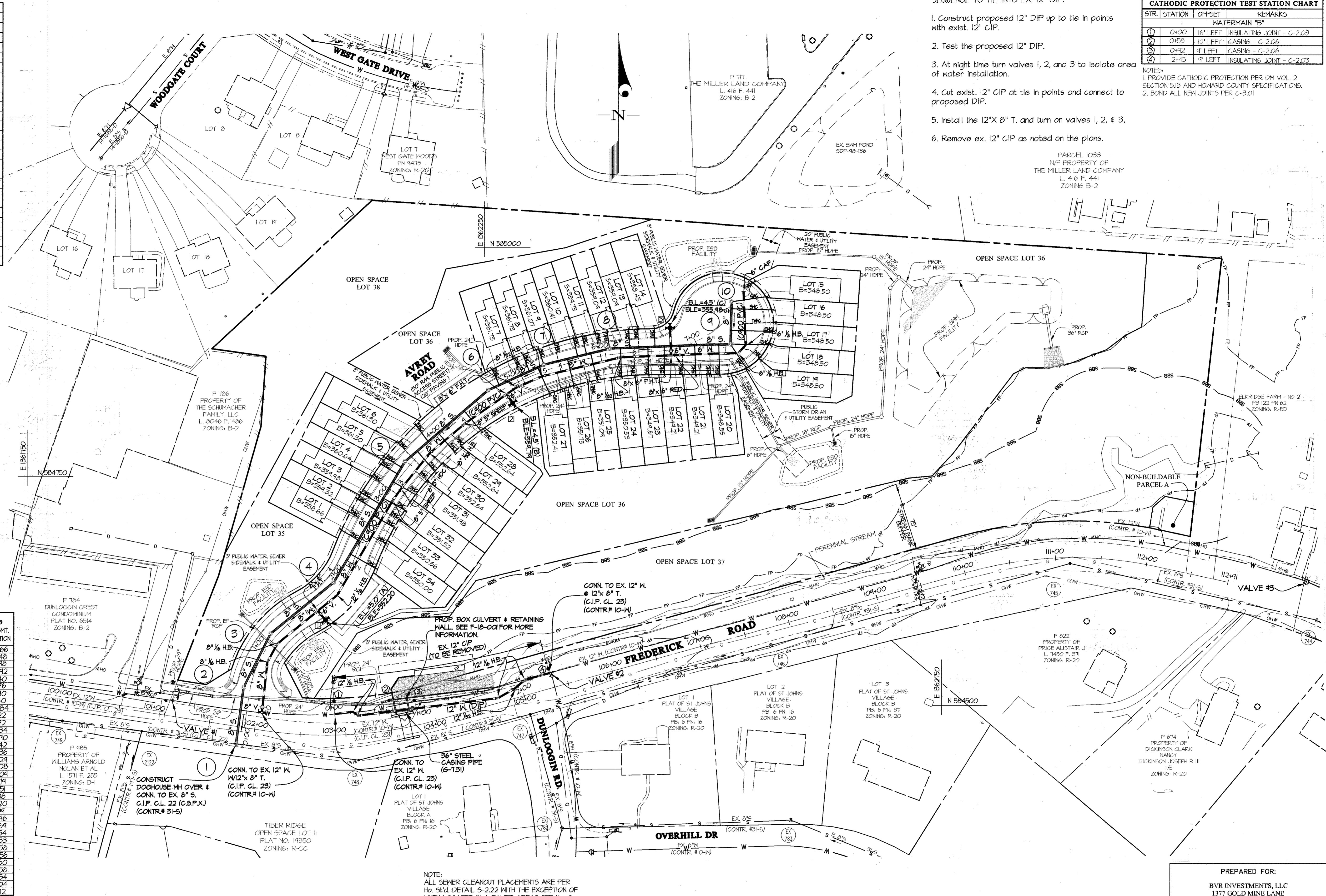
SEWER MH CHART		
MH	NAD '83/'91 COORDINATES	
1	N 584458.3801	E 1361918.9847
2	N 584520.0441	E 1361987.3116
3	N 584578.8017	E 1362016.7808
4	N 584634.5128	E 1362085.5347
5	N 584766.2228	E 1362163.1493
6	N 584843.8993	E 1362254.0386
7	N 584871.6088	E 1362315.2604
8	N 584884.0317	E 1362386.8911
9	N 584894.3694	E 1362518.1706
10	N 584940.8004	E 1362520.1168

FIRE HYDRANT CHART		
FH	NAD '83/'91 COORDINATES	
A	N 584543.1167	E 1362016.5368
B	N 584824.7386	E 1362281.0551
C	N 584411.6201	E 1362452.9104

CABLE TEST STATION CHART			
STR.	STATION	OFFSET	REMARKS
WATERMAIN 'A'			
1	1+35	18' RIGHT	HO. CO. STD. DETAIL W-HJ5
2	4+53	12' RIGHT	HO. CO. STD. DETAIL W-HJ5
3	6+38	30' LEFT	HO. CO. STD. DETAIL W-HJ5

MINIMUM CELLAR CHART										
LOT NO.	MCE*	BF ELEV.	FF ELEV.	1/2" MIN. THICK.	1/2" MIN. THICK.	1/2" MIN. THICK.	1/2" MIN. THICK.	1/2" MIN. THICK.	1/2" MIN. THICK.	INV. # R/WESMT. ELEVATION
LOT 1	344.62	358.66	368.91	2%	2'	15'	348.66			
LOT 2	344.81	359.32	369.63	2%	2'	8.2'	349.48			
LOT 3	344.03	359.48	370.24	2%	2'	4.6'	350.98			
LOT 4	344.94	360.64	370.95	2%	2'	4.4'	350.92			
LOT 5	345.24	361.50	371.81	2%	2'	8.4'	351.40			
LOT 6	345.63	361.30	371.81	2%	2'	10.1'	351.46			
LOT 7	346.05	361.13	371.81	2%	2'	4.5'	351.40			
LOT 8	345.98	361.13	371.81	2%	2'	8.8'	351.40			
LOT 9	354.40	361.07	371.81	2%	2'	11'	350.84			
LOT 10	346.48	360.41	371.81	2%	2'	7.3'	350.22			
LOT 11	346.51	359.75	371.81	2%	2'	7.0'	349.42			
LOT 12	353.44	359.04	371.81	2%	2'	11'	349.34			
LOT 13	346.75	359.04	371.81	2%	2'	5.6'	348.90			
LOT 14	346.14	358.43	371.81	2%	2'	5.0'	348.42			
LOT 15	348.50	348.50	358.81	2%	3'	---	344.36			
LOT 16	348.15	348.50	358.81	2%	4.5'	---	344.24			
LOT 17	348.34	348.50	358.81	2%	4.1'	---	344.08			
LOT 18	348.47	348.50	358.81	2%	4.1'	---	343.94			
LOT 19	348.36	348.50	358.81	2%	3.1'	---	343.74			
LOT 20	347.81	348.55	358.86	2%	3.3'	---	343.51			
LOT 21	347.68	344.21	354.52	2%	3.3'	---	343.38			
LOT 22	347.62	344.21	354.52	2%	3.2'	---	342.20			
LOT 23	347.44	344.81	360.18	2%	3.1'	---	343.04			
LOT 24	347.26	350.33	360.84	2%	3.2'	---	342.46			
LOT 25	346.34	351.04	361.40	2%	3.0'	---	342.64			
LOT 26	346.40	351.15	362.06	2%	3.0'	---	342.54			
LOT 27	346.84	352.41	362.72	2%	3.2'	---	342.33			
LOT 28	346.21	352.64	362.95	2%	2.4'	3.4'	345.58			
LOT 29	346.63	352.64	362.95	2%	2.8'	4.5'	346.36			
LOT 30	345.10	352.64	362.95	2%	3.0'	4.7'	346.60			
LOT 31	345.46	351.48	362.24	2%	2.4'	4.0'	345.50			
LOT 32	345.27	351.32	361.63	2%	2.1'	4.1'	345.54			
LOT 33	345.08	350.66	360.91	2%	2.1'	3.7'	345.04			
LOT 34	345.14	350.00	360.31	2%	3.2'	3.0'	344.12			

*NOTE: MCE VALUE IS FOR REVIEW PURPOSES ONLY AND DOES NOT TAKE INTO ACCOUNT ANY DROP HOUSE CONNECTIONS. USE INV. # R/WESMT ELEVATION TO DETERMINE IF BASEMENT SLAB ELEVATIONS WILL DRAIN TO SHC AS INSTALLED.



SEQUENCE TO TIE INTO EX. 12" CIP.

1. Construct proposed 12" DIP up to tie in points with exist. 12" CIP.
2. Test the proposed 12" DIP.
3. At night time turn valves 1, 2, and 3 to isolate area of water installation.
4. Cut exist. 12" CIP at tie in points and connect to proposed DIP.
5. Install the 12" x 8" T. and turn on valves 1, 2, & 3.
6. Remove ex. 12" CIP as noted on the plans.

CATHODIC PROTECTION TEST STATION CHART			
STR.	STATION	OFFSET	REMARKS
WATERMAIN 'B'			
1	0+00	16' LEFT	INSULATING JOINT - C-2.03
2	0+58	12' LEFT	CASING - C-2.06
3	0+42	9' LEFT	CASING - C-2.06
4	2+45	9' LEFT	INSULATING JOINT - C-2.03

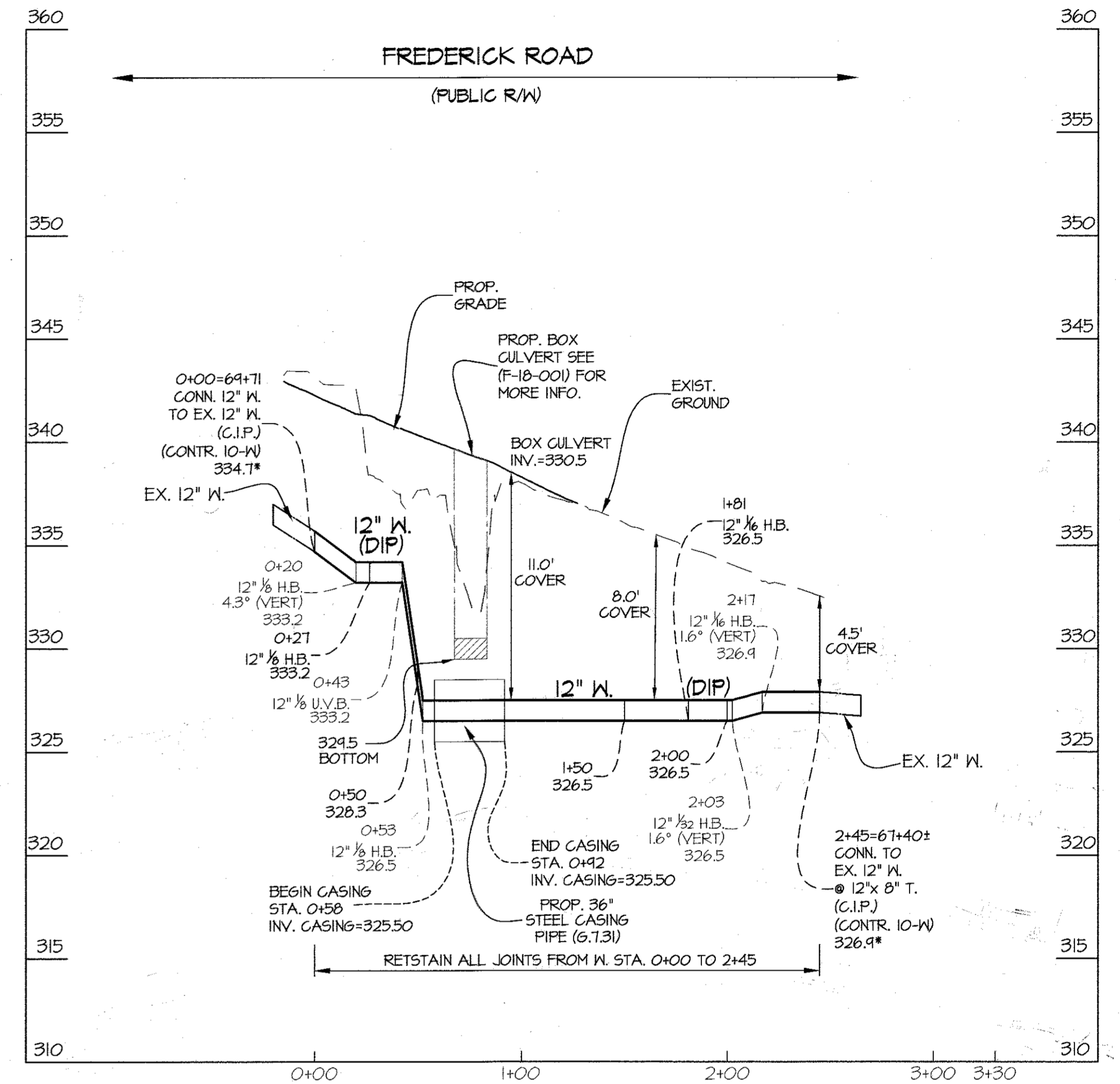
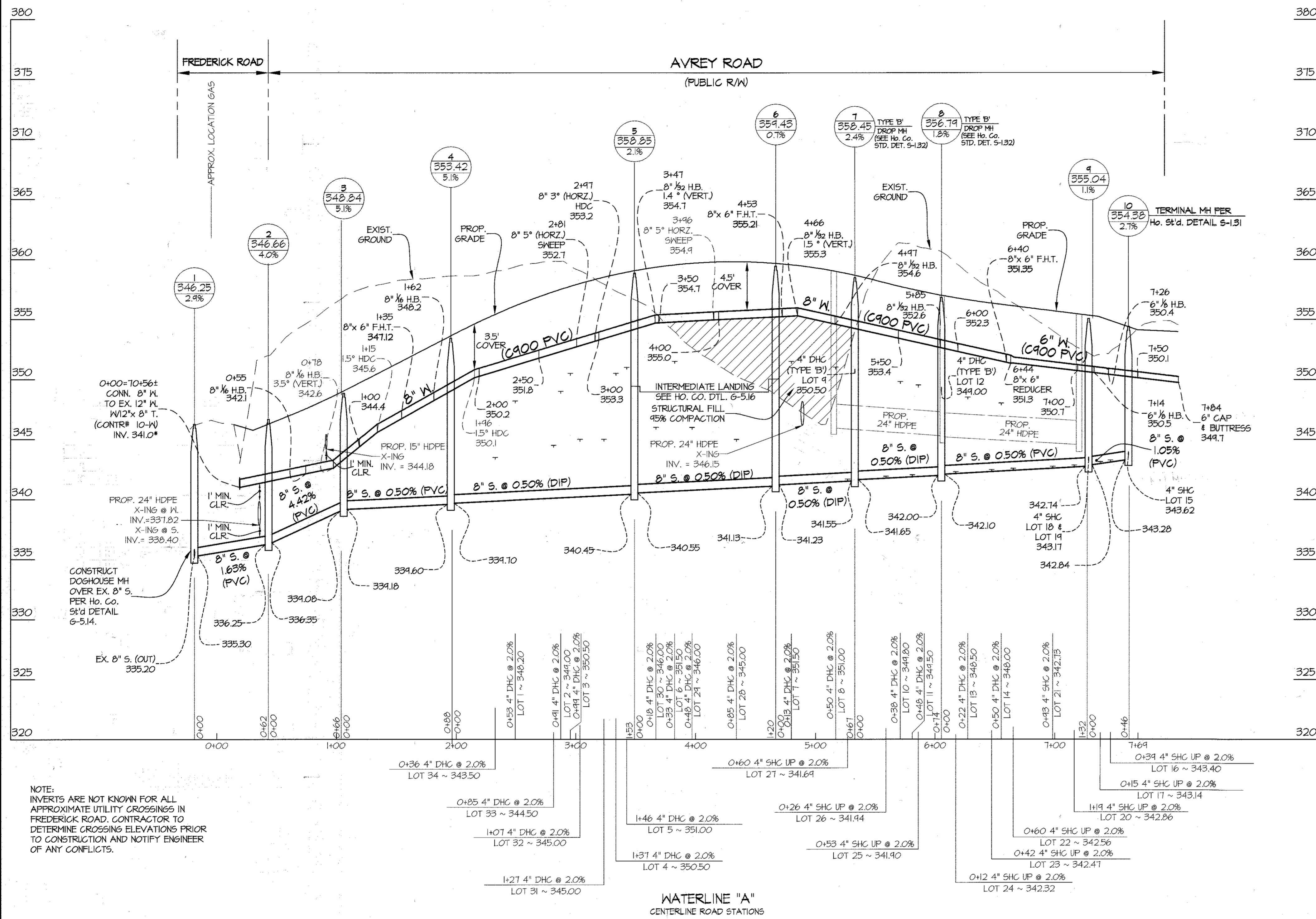
NOTES:
1. PROVIDE CATHODIC PROTECTION PER DN VOL. 2 SECTION 5.13 AND HOWARD COUNTY SPECIFICATIONS.
2. BOND ALL NEW JOINTS PER C-3.01

NOTE: ALL SEWER CLEANOUT PLACEMENTS ARE PER HO. STD. DETAIL 5-2.22 WITH THE EXCEPTION OF WHEN LOCATED IN A PAVED AREAS SEE HO. CO. STD. DETAIL 5-2.23. ALL WATER METER PLACEMENTS ARE PER HO. CO. STD. DETAIL W-3.11. IT IS ANTICIPATED THAT LOTS 2, 4, 8, 9, 11, 12, 13, 14, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 32, & 33 WILL HAVE SEWER CLEANOUTS IN PAVEMENT.

FOR WATER AND SEWER PROFILE SEE SHEET 3 OF 3

PREPARED FOR:
BVR INVESTMENTS, LLC
1377 GOLD MINE LANE
EVERGREEN, CO 80439
ATTN: BRIAN ROBERTS
240-461-9172

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 4/23/18	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND DATE: 5-10-18	GLW GUTSCHICK LITTLE & WEBER, P.A. CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866 TEL: 301-421-4024 FAX: 301-988-2524	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 12975 EXP. DATE: MAY 26, 2018 ALEIF	DATE: MARCH, 2018 G.L.W. No. 12039	BY: NO REVISION: _____ DATE: _____	600' SCALE MAP NO. 24 BLOCK NO. 11	TERRAPIN WOODS CONTRACT No. 14-4817-D LOTS 1 THRU 34, OPEN SPACE LOTS 35 THRU 38 & NON-BUILDABLE PARCEL A (A SUBDIVISION OF PARCELS 115 & 117, LIBER 15723 FOLIO 16 AND IN PART A RESUBDIVISION OF LOTS 4-7, BLOCK A "ELK RIDGE FARM-NO. 2" PLAT BK 12,2 NO. 62 HOWARD COUNTY, MARYLAND ELECTION DISTRICT No. 2)	SCALE: 1" = 50' SHEET: 2 OF 3
							DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 4/23/18	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND DATE: 5-10-18



NOTE:
INVERTS ARE NOT KNOWN FOR ALL APPROXIMATE UTILITY CROSSINGS IN FREDERICK ROAD. CONTRACTOR TO DETERMINE CROSSING ELEVATIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY CONFLICTS.

*PER CONTRACT 10-W, CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.

NOTES:
1. ALL SEWER DHC'S @ THE MAIN ARE TYPE "A" PER HO. CO. STD DETAIL 5-2.12
2. ELEVATIONS OF SHC'S & DHC'S LISTED ARE AT THE MAIN.

WATER & SEWER PROFILES
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

FOR WATER & SEWER PLAN VIEW SEE SHEET 2 OF 3

PREPARED FOR:
BVR INVESTMENTS, LLC
1377 GOLD MINE LANE
EVERGREEN, CO 80439
ATTN: BRIAN ROBERTS
240-461-9172

L:\CAD\DRAWINGS\2018\PLANS BY GJM\WSP\MS12018-WS-3.dwg PLOTTED 3/22/2018 11:45 AM, LAST SAVED: 3/2/2018 2:30 PM, PLOTTED BY: Waymond Joyner

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
[Signature] 4/23/18
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
[Signature] 5-10-18
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3809 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186
DES. WSD | DRN. WSD | CHK. DSS

DATE MARCH, 2018
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
L.C. 12975
EXP. DATE: MAY 26, 2018
4/2/18

BY	NO	REVISION	DATE

WATER and SEWER PROFILES
600' SCALE MAP NO. 24 BLOCK NO. 11

TERRAPIN WOODS
CONTRACT No. 14-4817-D
LOTS 1 THRU 34, OPEN SPACE LOTS 35 THRU 38 & NON-BUILDABLE PARCEL A
(A SUBDIVISION OF PARCEL 115 & 117, LIBER 15723 FOLIO 16 AND IN PART A RESUBDIVISION OF LOTS 4-7, BLOCK A TELKRIE FARM No. 2 PLAT BK. 122 No. 60)
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 2

SCALE AS SHOWN
SHEET 3 OF 3