

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

PUBLIC WATER AND SEWER CONSTRUCTION PLANS

CASCADE OVERLOOK, SECTION 4

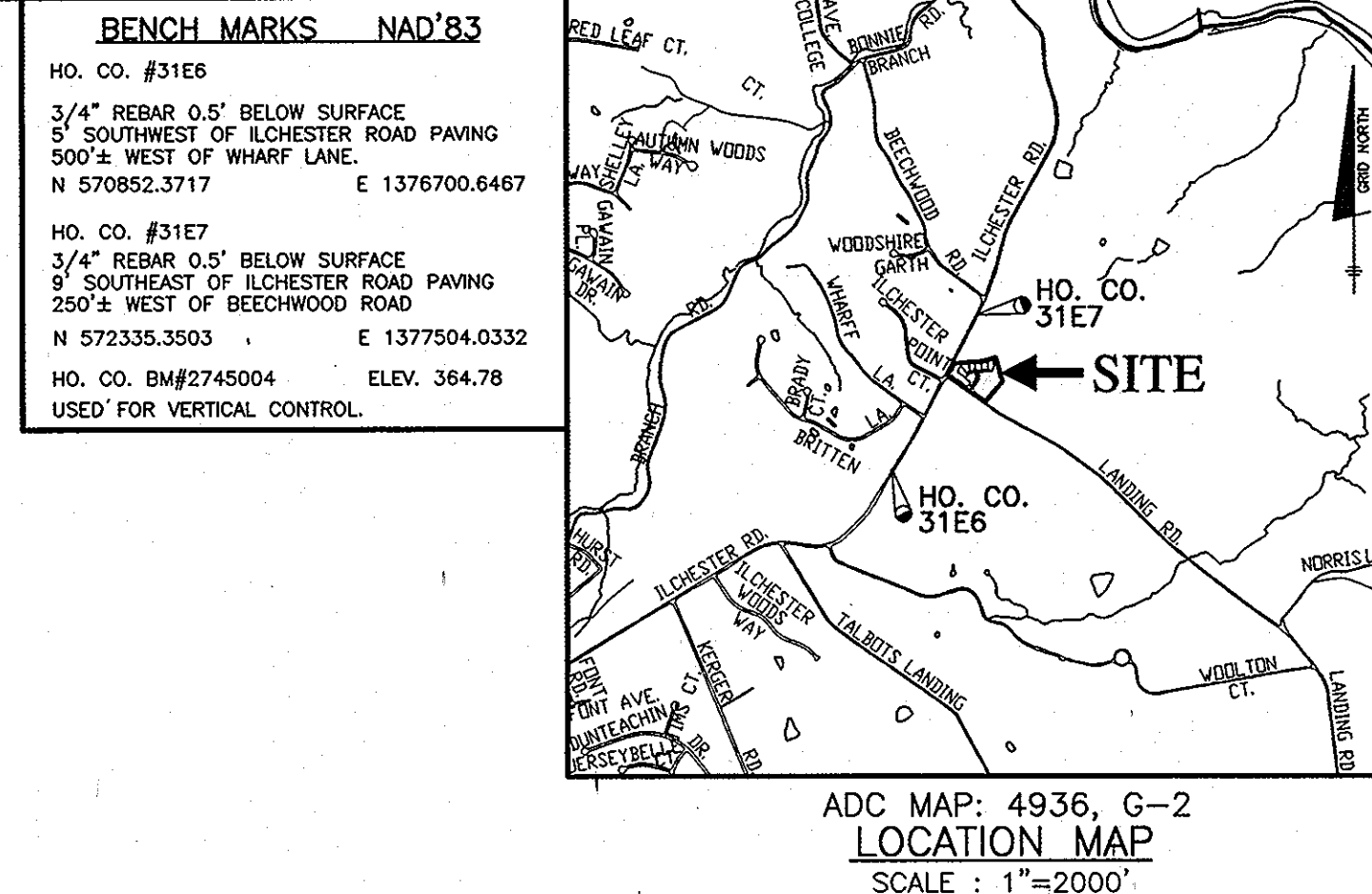
LOTS 1 THRU 6, 10 AND 11 AND OPEN SPACE LOTS 8 THRU 9

TAX MAP 31 - GRID 10 - PARCEL 133

1st ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

CONTRACT No.14-4741-D



SANITARY SEWER MANHOLE DATA							
NO.	LOCATION	SHC INV. IN	INV. IN	INV. OUT	RM ELEV.	EXISTING MANHOLE BUILT UNDER CONTRACT	REMARKS
EX. MH 32	ROYAL COACHMAN DR @ STA. 1+20.1 7.0' RT	-	416.0	416.0	416.0	EXISTING GROUND 426.2	HO. CO. STD. G-5.11
79	LANDING ROAD @ STA. 7+79.6 29.6' RT	-	416.9	416.8	416.8	EXISTING GROUND 426.2	HO. CO. STD. G-5.11
80	LANDING ROAD @ STA. 6+62.4 20.1' RT	-	417.5	417.5	417.5	EXISTING GROUND 426.2	HO. CO. STD. G-5.11
81	LANDING ROAD @ STA. 3+00.5 18.9' RT	-	430.0	425.9	440.4	EXISTING GROUND 426.2	HO. CO. STD. G-5.11-1.32
82	WELLSTONE WAY @ STA. 1+45.9 5.5' RT	434.3	431.1	431.0	444.4	EXISTING GROUND 426.2	HO. CO. STD. G-5.11
83	WELLSTONE WAY @ STA. 1+74.3 4.6' RT	437.5	436.3	431.3	445.8	EXISTING GROUND 426.2	HO. CO. STD. G-5.11
84	WELLSTONE WAY @ STA. 2+42.8 4.5' RT	440.3	439.3	431.8	443.7	EXISTING GROUND 426.2	HO. CO. STD. G-5.11
85	WELLSTONE WAY @ STA. 2+42.7 34.1' RT	436.4	432.1	432.0	446.9	EXISTING GROUND 426.2	HO. CO. STD. G-5.11

SHC TABLE			
LOT NO.	INVERT AT MH OR DSHC	INVERT AT RW/ESMT.	MCE
1	437.3	438.1	441.6
2	438.8	439.6	443.3
3	439.7	440.1	443.8
4	435.7	435.7	440.3
5	431.5	431.5	437.3
6	435.8	436.4	440.1
10	433.6	434.2	438.3
11	433.0	433.7	437.2

VALVE LOC.	TO:	TO:	TO:
8" @ 0+00	M1: 49' 6"	SMH 81: 16' 7"	
8" @ 2+31	FH: 11' 6"	SMH 84: 18' 5"	SMH 85: 38' 6"
6" FH 2+28	FH: 10' 0"	SMH 84: 21' 9"	SMH 85: 41' 3"
1 1/2" DRAIN 2+95	SMH 85: 16' 5"	SMH 84: 35' 8"	FH: 63' 0"

WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE			
LOT NO.	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
LOT 1	WELLSTONE WAY	SMH 82: 62' 6"	SMH 83: 49' 7" FH: 34' 4"
LOT 2	WELLSTONE WAY	FH: 40' 10"	SMH 84: 46' 10" SMH 85: 69' 9"
LOT 3	WELLSTONE WAY	FH: 42' 6"	SMH 84: 25' 7" SMH 85: 40' 10"
LOT 4	WELLSTONE WAY	FH: 66' 6"	SMH 84: 39' 8" SMH 85: 18' 3"
LOT 5	WELLSTONE WAY	FH: 64' 2"	SMH 84: 37' 10" SMH 84: 15' 0"
LOT 6	WELLSTONE WAY	SMH 83: 42' 6"	FH: 60' 7" SMH 84: 53' 7"
LOT 10	WELLSTONE WAY	SMH 82: 46' 5"	SMH 83: 32' 7" FH: 81' 5"
LOT 11	WELLSTONE WAY	M1: 100' 11"	SMH 82: 42' 7" SMH 83: 66' 5"

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE			
LOT NO.	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
LOT 1	WELLSTONE WAY	SMH 82: 42' 4"	SMH 83: 41' 1" FH: 53' 8"
LOT 2	WELLSTONE WAY	FH: 27' 3"	8" VALVE 2+31: 36' 0" SMH 84: 42' 10"
LOT 3	WELLSTONE WAY	FH: 45' 0"	SMH 84: 22' 9" SMH 85: 32' 10"
LOT 4	WELLSTONE WAY	SMH 85: 31' 1"	SMH 84: 34' 8" FH: 60' 7"
LOT 5	WELLSTONE WAY	SMH 85: 10' 9"	SMH 85: 35' 0" FH: 59' 2"
LOT 6	WELLSTONE WAY	SMH 83: 32' 4"	FH: 71' 7" SMH 84: 71' 10"
LOT 10	WELLSTONE WAY	SMH 82: 31' 10"	SMH 83: 39' 11" FH: 96' 7"
LOT 11	WELLSTONE WAY	M1: 80' 1"	SMH 82: 52' 4" SMH 83: 80' 1"

QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
8" WATER	231 L.F.	229	DIP CLS 4 T J	GRIFFIN
6" WATER	65 L.F.	71	DIP CLS 4 T J	GRIFFIN
8" X 8" T.S. & V	1	1	OPEN RIGHT	MJ/MULLER
8" VALVE	1	1	OPEN RIGHT	MULLER
FIRE HYDRANT	1	1	5 3/4	MULLER
1 1/2" WHC	227 L.F.	242	TYPE K	CAMBRIDGE LEE TYPE K
8" 1/2 HB	1	1	MIX MJ	MJ
8" 1/2 HB	1	1	MIX MJ	MJ
8" X 6" F.H.T. & V	1	1	OPEN RIGHT	MULLER
6" 1/2 HB	2	2	MIX MJ	MJ
1 1/2" DRAIN	1	1	FIP FIP	MULLER
6" CAP & BUTTRESS	1	1	CAP	MY
8" TO 6" REDUCER	1	1	MJ x MJ	MY
8" DIPSEWER	0	85	CLS 4 T J	GRIFFIN
8" PVC SEWER	918 L.F.	826	STD 35	GPK
MANHOLES	7	7	STD 4'	CPC
4" SHC	198 L.F.	194	SDR 35	GPK

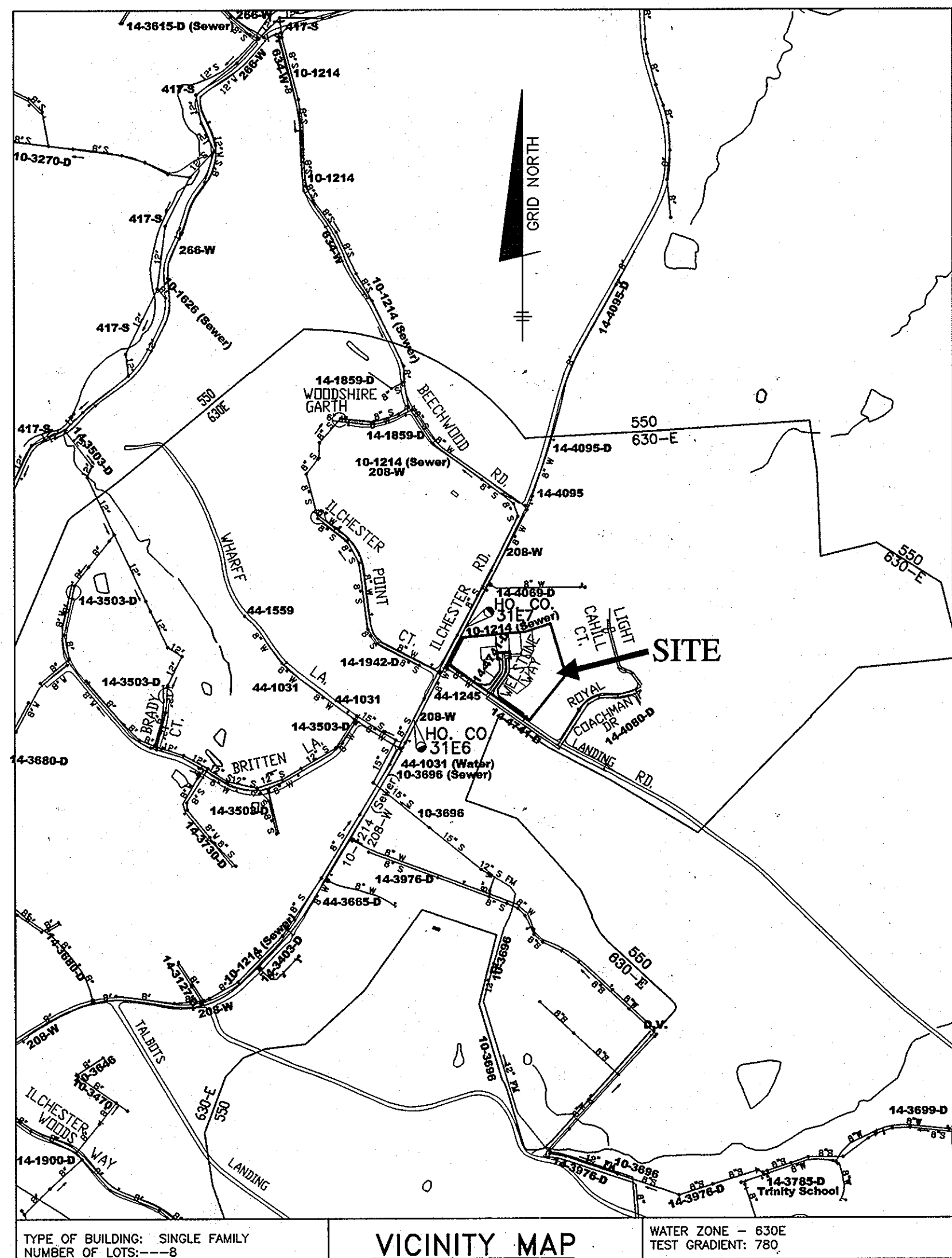
NAME OF UTILITY CONTRACTOR: C. J. MILLER
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:

1. ALL SEWER HOUSE CONNECTIONS SHALL BE 4 INCHES IN DIAMETER.
2. ALL WATER HOUSE CONNECTIONS SHALL BE 1 1/2 INCHES IN DIAMETER.
3. ALL SEWER STATIONS AND OFFSETS ARE TO THE MIDDLE OF MANHOLE.

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

John N. Roberts 11/29/12
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 ROAD CONSTRUCTION PLANS F-12-074



LEGEND:	
EXISTING WATER MAIN	— W — W —
EXISTING SANITARY MAIN	— S — S —
PROPOSED WATER MAIN	— W — W —
PROPOSED WATER HOUSE CONNECTION	— WHC —
PROPOSED WATER VALVE	— V —
PROPOSED WATER MAIN TEE	— T —
PROPOSED BLOW-OFF & PLUG	— B —
PROPOSED FIRE HYDRANT	— F —
PROPOSED WATER MAIN BEND	— B —
PROPOSED SANITARY MAIN	— S — S —
SANITARY FLOW DIRECTION	—>
EXISTING SANITARY MANHOLE	— S —
PROPOSED SANITARY HOUSE CONNECTION	— SHC —
EXISTING WETLANDS	— W —
EXISTING TREELINE	— T —
PROPOSED TREELINE	— P —
HOUSE BOX (NTS)	— H —

NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG LANDING ROAD.

NOTE: ALL JOINTS AND CONNECTIONS LOCATED WITHIN STRUCTURAL FILL AREAS SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION)

- ### GENERAL NOTES
- #### PART 1 - GENERAL
- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
 - TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON OR ABOUT MAY 2005 BY BENCHMARK ENGINEERING, INC. AND SUPPLEMENTED NOVEMBER 2011.
 - THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD83/91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 3166 AND NO. 3167.
 - ALL VERTICAL CONTROLS ARE BASED ON NAVD83 VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE BM#2745004 BY BENCHMARK ENGINEERING, INC.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON PLAN.
 - CLEAR ALL UTILITIES BY A MINIMUM OF 12". 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 COSTS INCURRED BY THE OWNER FOR BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED TO 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 LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
 - CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 - AT&T.....1-800-252-1133
 - BCE (CONTRACTOR SERVICES).....410-637-8713
 - BCE (EMERGENCY).....410-685-0123
 - BUREAU OF UTILITIES.....410-313-4900
 - COLONIAL PIPELINE CO.....410-795-1290
 - 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 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 (5) WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING, CONSTRUCTION OR IMPROVEMENTS TO COUNTY ROADS FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(G) OF THE HOWARD COUNTY CODE.
 - THE EXISTING SEPTIC SYSTEM AND WATER HOUSE CONNECTION AT 4916 LANDING ROAD WILL BE ABANDONED WITH THE DEVELOPMENT OF THIS PLAN.
- #### PART 2 - WATER
- ALL WATER MAINS TO BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED.
 - TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3.5' 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 THE 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 STANDARD DETAILS. SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND 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 WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
 - UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SEVENTEEN (17) POUND SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. 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.
 - THE FIRE SPRINKLER CODE REQUIRES A MINIMUM 1 1/2" HOUSE CONNECTION WITH 1" METER, OUTSIDE SETTING.
- #### PART 3 - SEWER
- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
 - ALL MANHOLES SHALL BE 4' - 0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
 - FORCE MAINS SHALL BE D.I.P. ONLY.
 - MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
 - MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERIGHT FRAME AND COVERS. STANDARD DETAIL G5.52. WHERE WATERIGHT MANHOLE FRAME AND COVER IS USED, SET TOP OF FRAME 1'-0" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED.
 - ALL SEWER HOUSE CONNECTIONS ARE 2% SLOPE UNLESS OTHERWISE NOTED.

OWNER/DEVELOPER:
CASCADE WALTHUR, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
PHONE: 410-465-4244

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John N. Roberts 12/21/12
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

John N. Roberts 11/29/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.

840 BALTIMORE NATIONAL PIKE & SUITE 418 A ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8108 (F) 410-465-8444

80 THOMAS JOHNSON DRIVE A FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BED-CIVILENGINEERING.COM

STATE OF MARYLAND
PROFESSIONAL ENGINEER
11/29/12

Professional Engineer Certificate No. 28376, Expiration Date: 01-01-2013.

DESIGN: AAM				
DRAFT: AAM				
CHK: CAM				
DATE: 11/12	K.C.T. 1	AS BUILT	10/17/13	
BY NO.				
REVISIONS				

FINAL
PUBLIC WATER AND SEWER

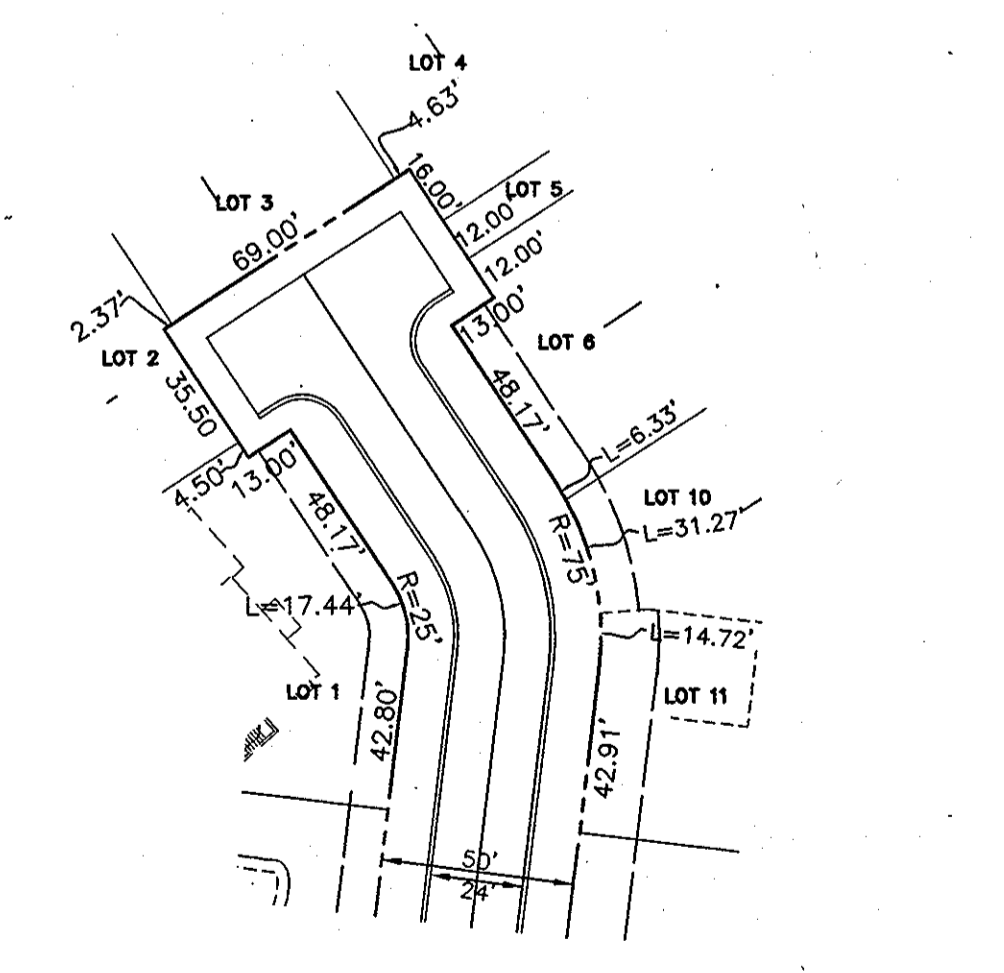
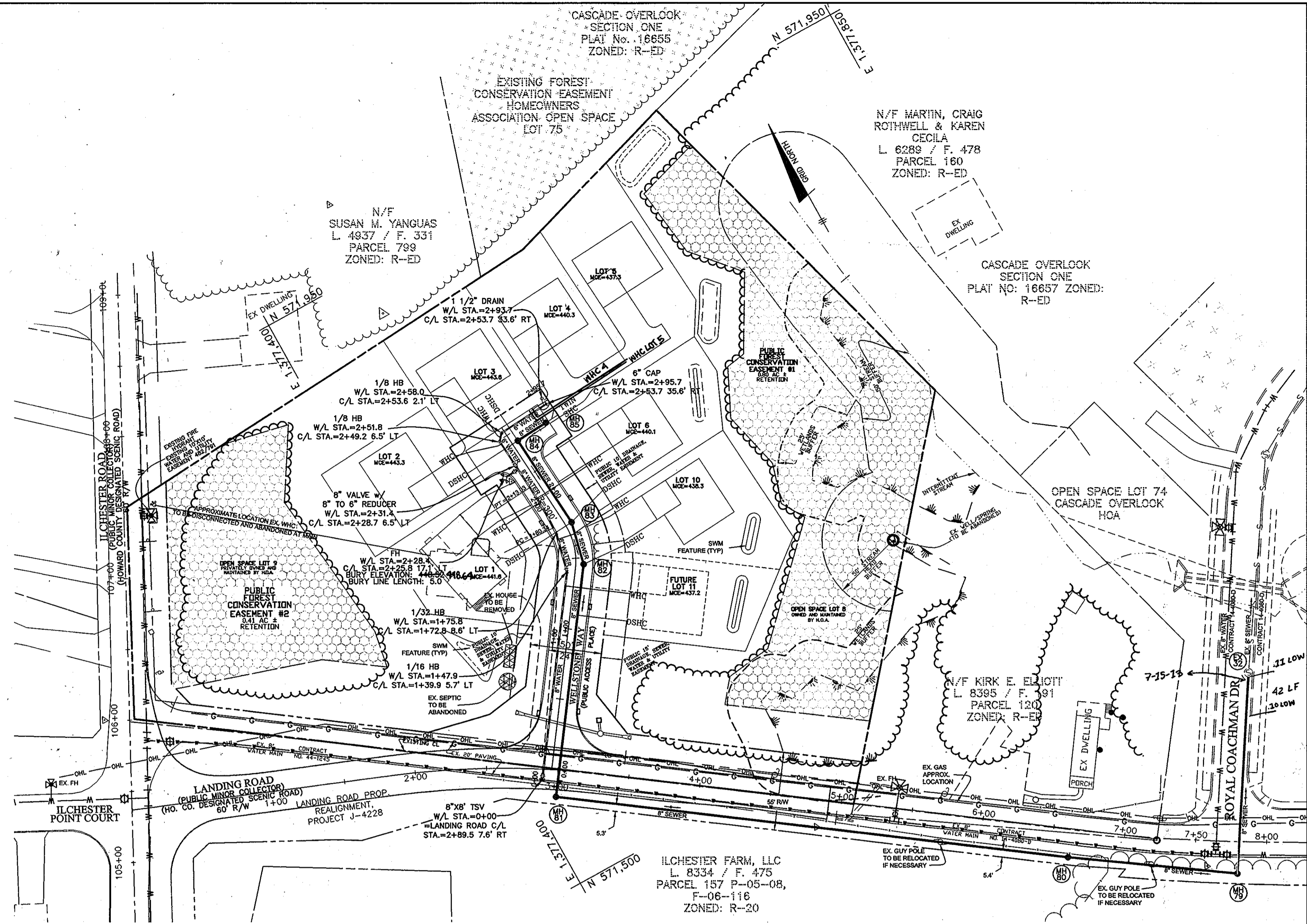
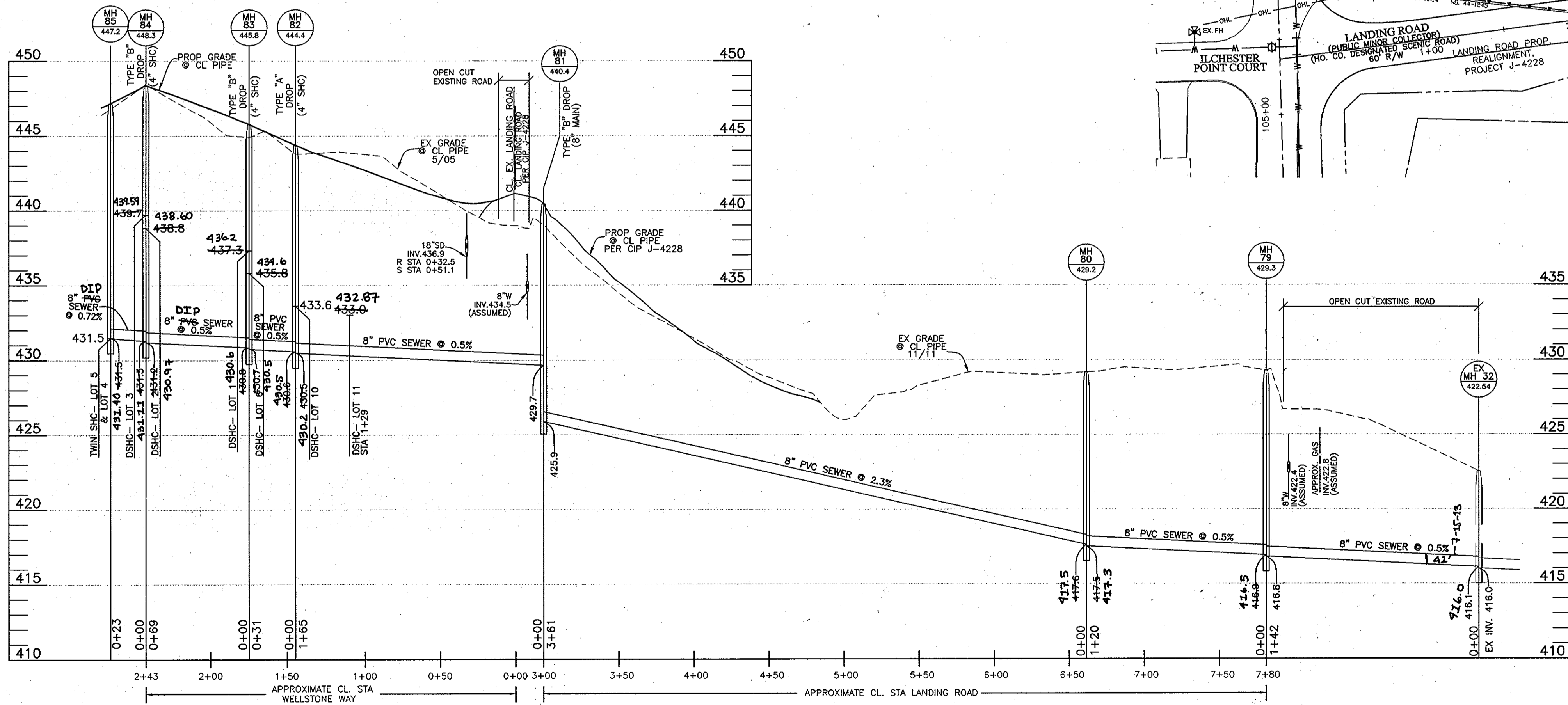
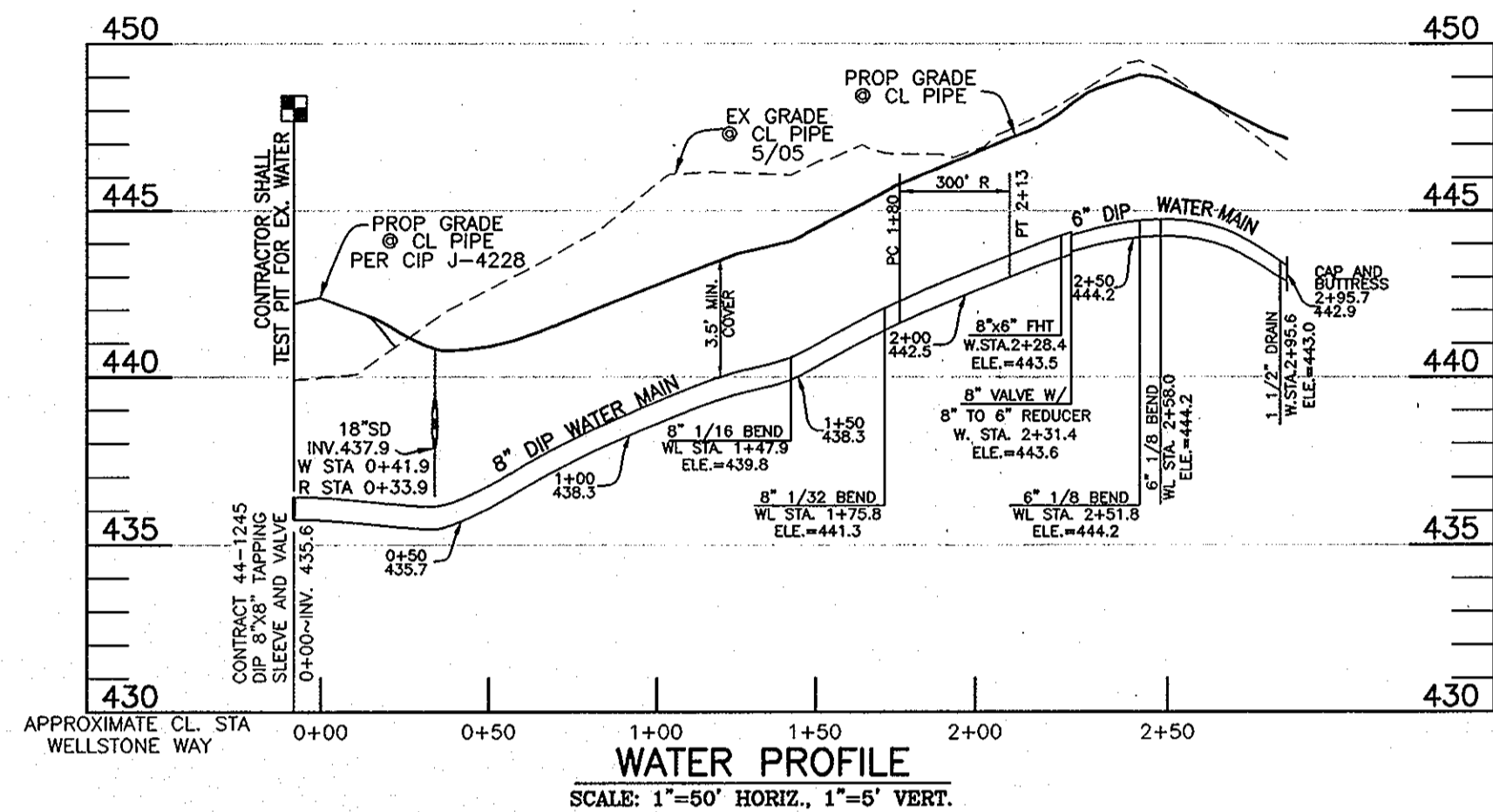
600 SCALE MAP NO. 50 BLOCK 3

CASCADE OVERLOOK, SECTION 4
LOTS 1-6, 10-11 AND OPEN SPACE LOTS 8 & 9
TAX MAP 31 - GRID 10
PARCEL 133 - ZONE: R-ED
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET NO. 1 OF 2

CONTRACT NO. 14-4741-D



NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG LANDING ROAD.

NOTE: ALL JOINTS AND CONNECTIONS LOCATED WITHIN STRUCTURAL FILL AREAS SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION)

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

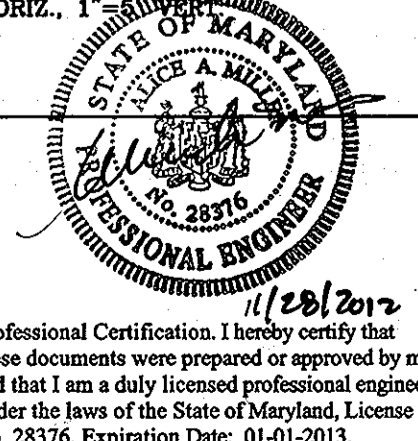
Silvia Chan
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

William D. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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DESIGN:	AAM
DRAFT:	AAM
CHK:	CAM
DATE:	11/12
BY:	K.C.I. 1
NO.:	AS BUILT
REVISIONS:	10/17/13

PRELIMINARY PUBLIC WATER AND SEWER PLAN AND PROFILES

600 SCALE MAP NO. 50

BLOCK 3

CASCADE OVERLOOK, SECTION 4
LOTS 1-7 AND OPEN SPACE LOTS 8 & 9
TAX MAP 31 - GRID 10
PARCEL 133 - ZONE: R-ED
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

CONTRACT NO. 14-4741-D

SCALE: AS SHOWN
SHEET NO. 2 OF 2