

SHEET INDEX	
NO.	DESCRIPTION
1	COVER SHEET
2	EXISTING CONDITIONS PLAN
3	LAYOUT PLAN AND ROAD PROFILE & DETAILS
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15	LANDSCAPE PLAN & FOREST CONSERVATION WORKSHEET

ESD - SWM PRACTICES			
LOT NUMBER	ADDRESS	MICRO BIO-RETENTION (M-6) QUANTITY	SURFACE SAND FILTER (F-1) QUANTITY
1	6203 ELKRIDGE PLACE ELKRDGE MD, 21075	1	0
2	6207 ELKRIDGE PLACE ELKRDGE MD, 21075	1	0
3	6211 ELKRIDGE PLACE ELKRDGE MD, 21075	1	0
4	6212 ELKRIDGE PLACE ELKRDGE MD, 21075	1	0
5	6209 ELKRIDGE PLACE ELKRDGE MD, 21075	1	0
7	6205 ELKRIDGE PLACE ELKRDGE MD, 21075	1	0
O.S. 8	ELKRIDGE PLACE ELKRDGE MD, 21075	0	1

# FINAL CONSTRUCTION PLAN

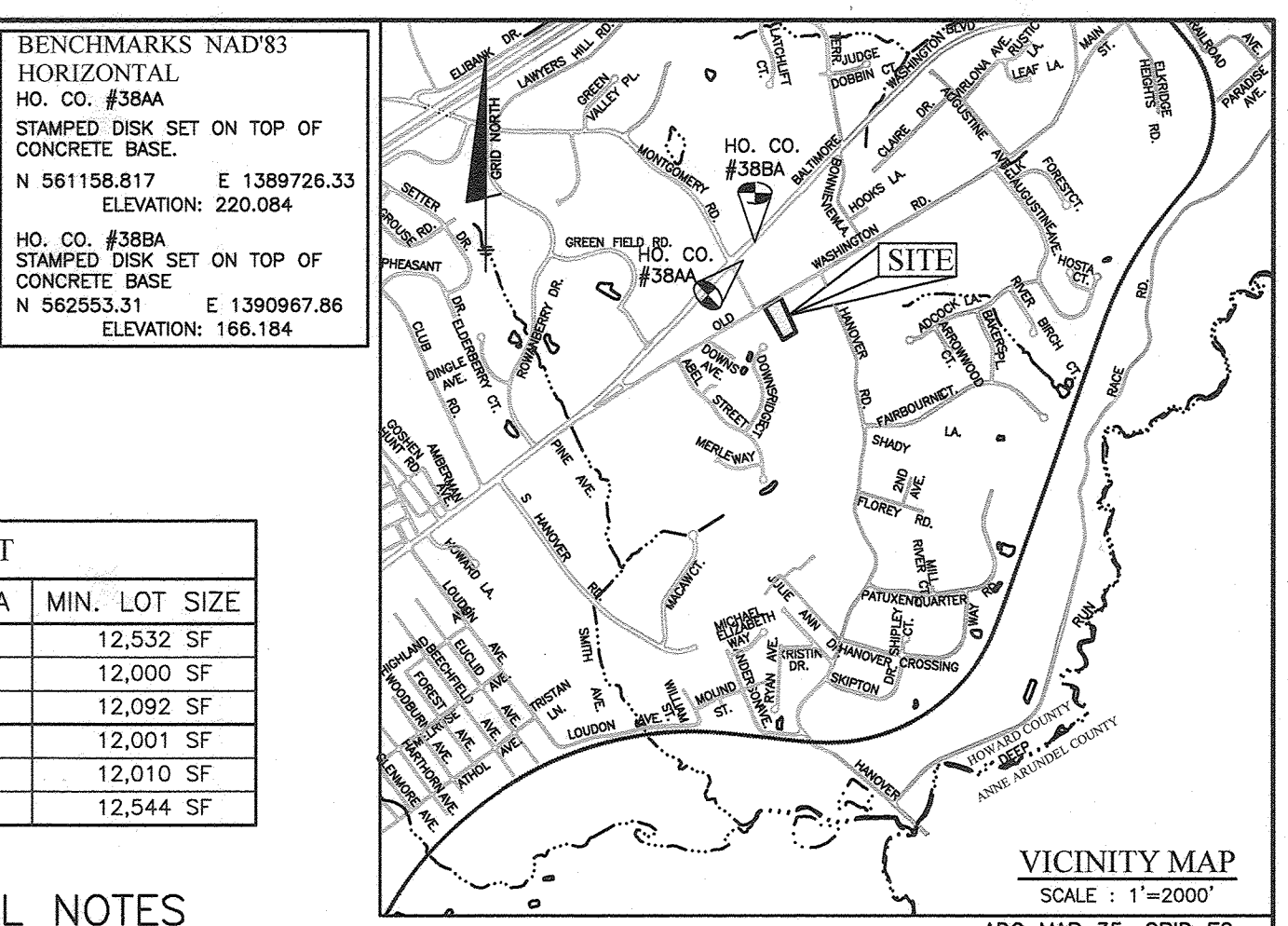
## ELKRIDGE HILL

### LOTS 1-7, OPEN SPACE LOT 8 1ST ELECTION DISTRICT

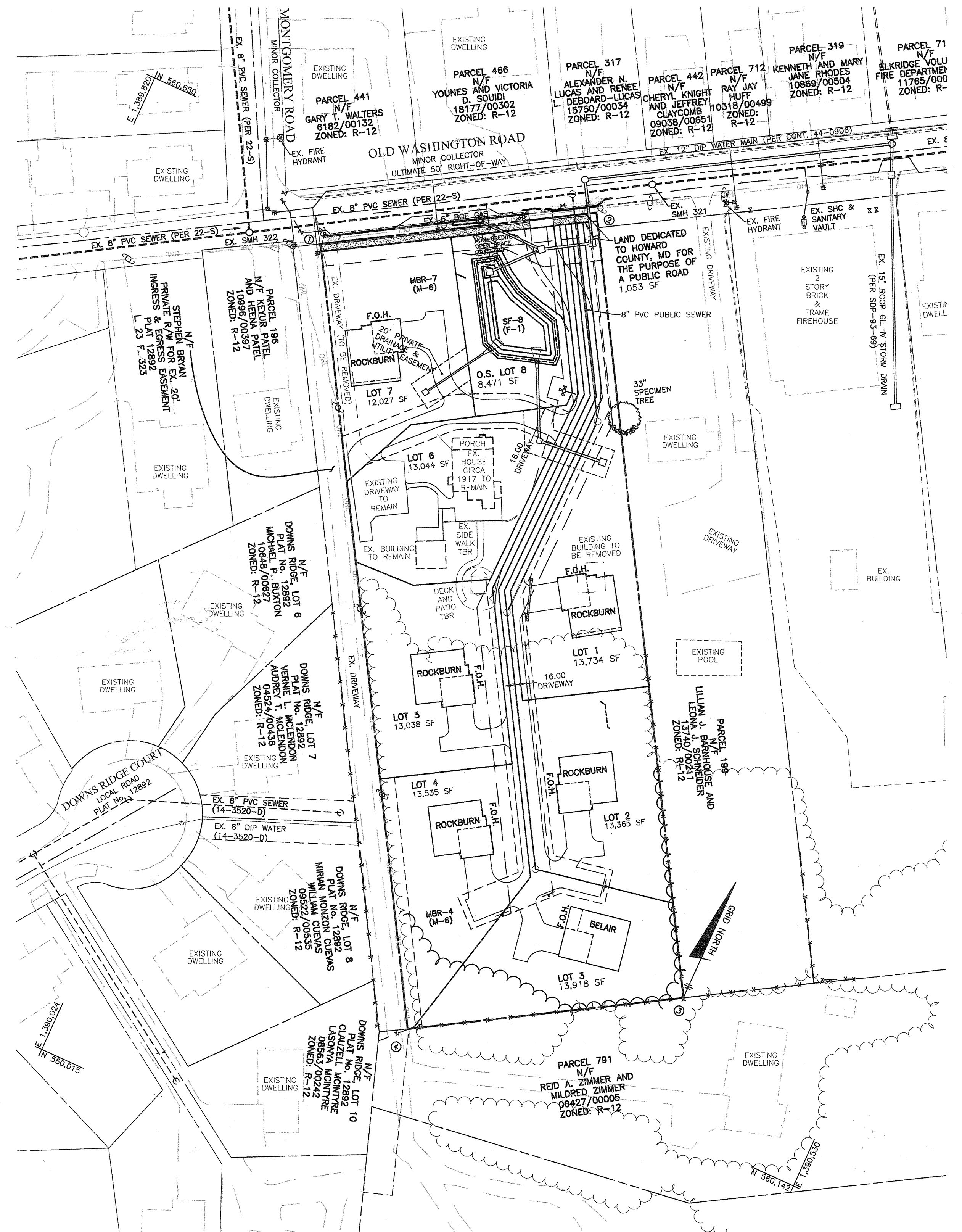
## HOWARD COUNTY, MARYLAND

BOUNDARY COORDINATES		
POINT #	NORTHING	EASTING
1	560593.7152	1389969.9348
2	560690.6358	1390132.8697
3	560227.5017	1390408.6009
4	560130.5810	1390245.6660

MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MIN. LOT SIZE
1	13,734 SF	1,202 SF	12,532 SF
2	13,365 SF	1,365 SF	12,000 SF
3	13,918 SF	1,826 SF	12,092 SF
4	13,535 SF	1,534 SF	12,001 SF
5	13,038 SF	1,028 SF	12,010 SF
6	13,044 SF	500 SF	12,544 SF



LEGEND	
PROPERTY BOUNDARY	---
ADJACENT PROPERTY OWNER	---
EXISTING EASEMENT	---
PROPOSED EASEMENT	---
PROPOSED LOT LINE	---
SOILS CLASSIFICATION	MaD
EXISTING WOODS LINE	---
PROPOSED TREE LINE	---
EXISTING WATER MAIN	---
EXISTING SEWER MAIN	---
EXISTING GAS LINE	---
EXISTING STORM DRAIN	---
PROPOSED STORM DRAIN	---
PROPOSED HOUSE	---



### GENERAL NOTES

- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- SUBJECT PROPERTY ZONED R-12 PER THE 10-06-2013 COMPREHENSIVE ZONING PLAN.
- DEED REFERENCE: 17498/00062.
- THE EXISTING TOPOGRAPHY ON-SITE IS TAKEN FROM FIELD SURVEY WITH 2 FOOT CONTOUR INTERVALS PREPARED BY BENCHMARK ENGINEERING, INC. DATED APRIL, 2017. SURROUNDING TOPOGRAPHY IS TAKEN FROM HOWARD COUNTY GIS.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NO. 38AA AND 38BA WERE USED FOR THIS PROJECT.
- PROJECT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. DATED APRIL, 2017.
- THIS LOT WILL UTILIZE A CUSTOM SEDIMENT AND EROSION PLAN SINCE THE LIMIT OF DISTURBANCE IS FORTY MORE THAN ONE LOT.
- PUBLIC WATER MAIN WILL CONNECT TO CONTRACT 44-0906, DRAINAGE IS MIDDLE PATUXENT.
- PUBLIC SEWER MAIN WILL CONNECT TO CONTRACT 22-5, DRAINAGE IS MIDDLE PATUXENT.
- THERE IS ONE EXISTING DWELLING ON SITE ON LOT 6. IT IS TO BE RETAINED. ONE ACCESSORY STRUCTURE IS TO BE REMOVED AND ONE IS TO BE RETAINED.
- EXISTING UTILITIES ARE BASED ON FIELD SURVEY LOCATIONS, CONTRACT DRAWINGS AND HOWARD COUNTY GIS.
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
- PUBLIC WATER AND SEWER ALLOCATION WILL BE GRANTED AT TIME OF ISSUANCE OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- TRAFFIC STUDY WAS PREPARED BY MARS GROUP ON MAY 3, 2017 AND APPROVED UNDER THE REVIEW OF S-18-004.
- FREE FLOW SPEED STUDY WAS PREPARED BY MARS GROUP ON MAY 10, 2017 AND THE SIGHT DISTANCE ANALYSIS WAS APPROVED UNDER S-18-004.
- THE FOREST STAND DELINEATION WAS PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC. THERE IS ONE SPECIMEN TREE LOCATED JUST OFF SITE AND THE TREE IS TO REMAIN. THE FSD WAS APPROVED UNDER S-18-004.
- THERE ARE NO WETLANDS, STREAMS, THEIR REQUIRED BUFFERS, 100-YEAR FLOODPLAIN OR STEEP SLOPES LOCATED ON THE SITE.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF THERE ARE NO CEMETERIES ON-SITE. THE EXISTING DWELLING ON-SITE IS HISTORIC AND IS LISTED ON THE HISTORIC SITES INVENTORY AS HO-803 AS PART OF THE OLD WASHINGTON ROAD SURVEY DISTRICT.
- EOP-18-026 WAS APPROVED BY DEED PER LETTER DATED APRIL 23, 2018. THE ORIGINAL MYLARS WERE SIGNED ON 10/17/18.
- THE REQUIRED PRESUBMISSION COMMUNITY MEETING WAS HELD ON MARCH 12, 2018 AT 6:00PM AT MELVILLE CHAPEL UMC.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT AND PUBLIC WATER AND SEWER SHALL BE UTILIZED WITHIN THIS DEVELOPMENT.
- A PRIVATE RANGE OF ADDRESS SIGN SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.
- THE FOREST CONSERVATION REQUIREMENTS FOR THIS SUBDIVISION SHALL BE ADDRESSED PRIOR TO RECORDEMENT OF THE FINAL SUBDIVISION PLAT AND SHALL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.1200 OF THE SUBDIVISION REGULATIONS AND FOREST CONSERVATION MANUAL. THE FOREST CONSERVATION OBLIGATION FOR THIS SUBDIVISION SHALL BE SATISFIED BY THE USE OF AN OFFSITE MITIGATION BANK AT PARCEL 9, PROPERTY OF FOREVER A FARM, LLC.
- FOREST MITIGATION BANK PLAN, S0P-IN-005, FOREST MITIGATION, IN THE AMOUNT OF 2.4 ACRES, AT THE FOREST BANK, (FULFILLING 1.2 ACRES OF OBLIGATION).
- THIS PROJECT, THE USE OF THE FOREST BANK WILL BE PROCESSED AS A REDLINE REVISION TO THE S0P-IN-005 PLAN. THIS PLAN IS GRANDFATHERED TO THE FOREST CONSERVATION REGULATIONS IN EFFECT PRIOR TO COUNCIL BILL C892-2019 ACCORDING TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.102(H) BECAUSE A PRELIMINARY PLAN, P-19-002, WAS APPROVED ON AUGUST 19, 2019.
- THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127 - RESIDENTIAL INFILL DEVELOPMENT - OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THE DEVELOPER OF THIS PROJECT SHALL CREATE COMPATIBILITY WITH THE EXISTING NEIGHBORHOOD THROUGH THE USE OF ENHANCED PERIMETER LANDSCAPING, BERMS, FENCES, SIMILAR HOUSING UNIT TYPES AND THE DIRECTIONAL ORIENTATION OF THE PROPOSED HOUSES.
- THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS, AS AMENDED BY COUNCIL BILL 75-2003. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT.
- LANDSCAPING FOR LOTS 1-8 IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THE ROAD CONSTRUCTION PLAN SET; IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$8,700 FOR 25 SHADE TREES AND 8 EVERGREEN TREES, SHALL BE POSTED IN ACCORDANCE WITH THE APPROVED FINAL LANDSCAPE PLAN. SURETY FOR THE 6 STREET TREES SHALL BE POSTED WITH THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$2,250.00.
- THE PROJECT IS SUBJECT TO SECTION 13.402 OF THE COUNTY CODE FOR MODERATE INCOME HOUSING UNITS (MIHU).
- THERE ARE ERODIBLE SOILS WITHIN THE PROPERTY LIMITS.
- OPEN SPACE LOT 8 IS NON-CREDITED AND OPEN SPACE REQUIREMENTS ARE PROVIDED WITH A FEE-IN-LIEU OF OPEN SPACE OF \$1500 PER LOT FOR SIX LOTS, PER RECREATION AND PARKS REVIEW, FOR A TOTAL OF \$9,000.00. SEE SITE ANALYSIS DATA CHART.
- THIS PLAN WENT BEFORE THE HISTORIC PRESERVATION COMMISSION FOR ADVISORY COMMENTS ON FEBRUARY 1, 2018 IN CASE HPC-18-05. THE COMMENTS OFFERED INCLUDE A REQUEST TO MOVE THE PROPOSED DRIVEWAY FURTHER FROM THE EAST SIDE OF THE HISTORIC

### SITE DATA TABULATION

1) GENERAL SITE DATA	
a. PRESENT ZONING:	R-12
b. LOCATION:	TAX MAP 38 - GRID 8 - PARCEL 198
c. APPLICABLE DPZ FILE REFERENCES:	EOP-18-026, S-18-004, WP-19-079, HPC-18-06, P-19-002
d. DEED REFERENCE:	L17498 / F.00062
e. PROPOSED USE OF SITE:	6 NEW SINGLE FAMILY DETACHED RESIDENCES, RETENTION OF 1 EXISTING SINGLE FAMILY DETACHED RESIDENCE.
f. PROPOSED WATER AND SEWER:	PUBLIC WATER AND PUBLIC SEWER.
2) AREA TABULATION	
a. TOTAL AREA OF SITE:	2.35 Ac.±
b. AREA OF 100 YEAR FLOODPLAIN (APPROX.):	0.00 Ac.±
c. AREA OF STEEP SLOPES (25% OR GREATER):	0.09 Ac.±
d. NET AREA OF SITE:	2.35 Ac.±
e. AREA OF THIS PLAN SUBMISSION:	2.35 Ac.±
f. LIMIT OF DISTURBANCE (APPROX.):	2.21 Ac.±
g. AREA OF PROPOSED BUILDABLE LOTS:	2.13 Ac.±
h. AREA OF OPEN SPACE LOTS:	0.19 Ac.±
i. AREA OF PROPOSED PUBLIC ROAD:	0.00 Ac.±
j. AREA OF PROPOSED PUBLIC R/W DEDICATION:	0.02 Ac.±
3) DENSITY TABULATION	
a. NET AREA OF SITE:	2.35 Ac.±
b. TOTAL NUMBER OF LOTS ALLOWED PER ZONING:	1 UNIT PER 12,000 GROSS SQUARE FEET ALLOWED BY RIGHT.....8
4) UNIT/LOT TABULATION	
a. TOTAL NUMBER OF BUILDABLE LOTS PROPOSED ON THIS SUBMISSION:	7
b. TOTAL NUMBER OF NON-BUILDABLE OPEN SPACE LOTS PROPOSED ON THIS SUBMISSION:	1
5) OPEN SPACE	
a. REQUIRED OPEN SPACE (FULL OBLIGATION):	8,189 sf
b. OPEN SPACE PROVIDED:	8,471 sf
c. NON-CREDIT OPEN SPACE PROVIDED:	8,471 sf
d. CREDITED OPEN SPACE:	0 sf
e. PERCENT OF OPEN SPACE PROVIDED:	0%
f. FEE IN LIEU OF OPEN SPACE REQUIREMENT (SIX LOTS):	\$9,000
FEE-IN-LIEU APPROVED UNDER S-18-004	

MODERATE INCOME HOUSING UNITS (MIHU) ALLOCATION EXEMPTIONS TRACKING	
Total Number of Lots/Units Proposed	7
Number of MIHU Required	0.7
Number of MIHU Provided Onsite (exempt from APFO allocations)	0
Number of APFO Allocations Required (remaining lots/units)	6
MIHU Fee-in-Lieu (indicate lot/unit numbers)	1-5, 7

NO.	DATE	REVISION
2	6-6-22	Revise Existing Gasline Location
1	6-9-21	ADJUST FOREST CONSERVATION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS, PLANNERS  
8480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(410) 465-6105 (F) 410-465-8644  
WWW.BE-CIVILENGINEERING.COM

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. 44397. Expiration Date: 06-08-2022.

*Shawn Casper*  
REGISTERED PROFESSIONAL ENGINEER

OWNER/DEVELOPER: **ELKRIDGE HILL**  
LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8  
HARMONY BUILDERS INC  
4228 COLUMBIA ROAD  
ELLICOTT CITY, MD 21042  
410-461-0833

TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12  
6289 OLD WASHINGTON ROAD  
ELKRIDGE, MD 21075  
ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

FINAL PLAN COVER SHEET

RELEVANT FILE NUMBERS:  
EOP-18-026, S-18-004, WP-19-079, P-19-002, & HPC-18-06

DESIGN: JC DRAWN: JC

DATE: OCTOBER, 2020 SHEET: 1 OF 15

BEI PROJECT NO: 2818

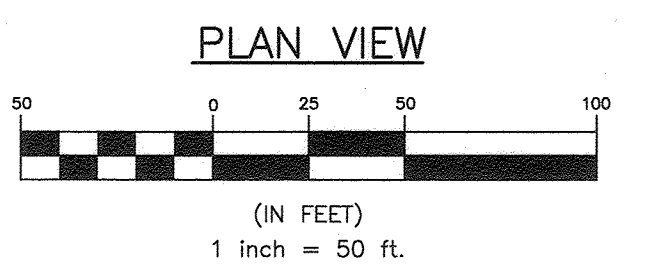
SCALE: AS SHOWN

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Shawn Casper* 11/19/20  
CHIEF, BUREAU OF HIGHWAYS

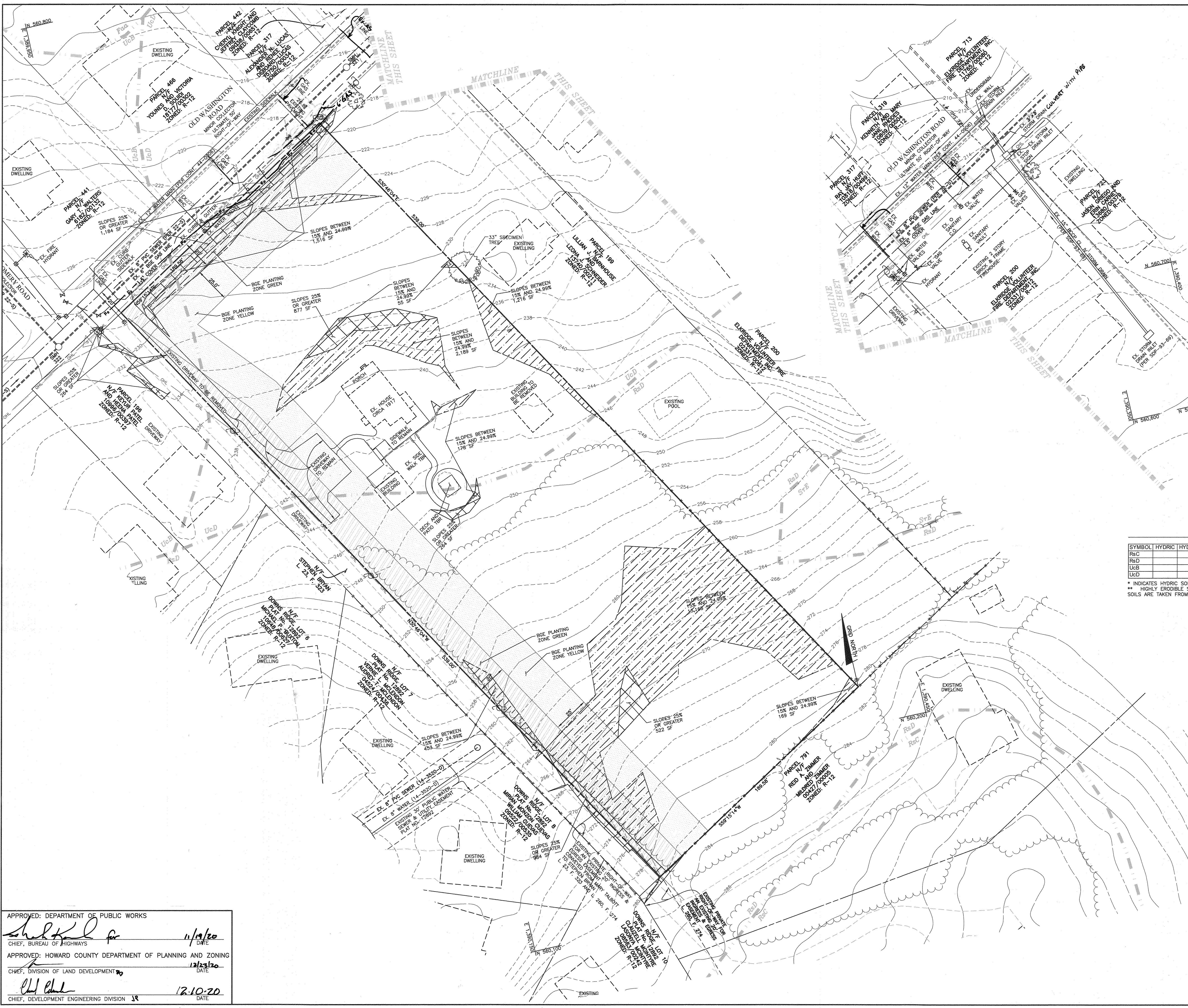
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*David Edwards* 12/23/20  
CHIEF, DIVISION OF LAND DEVELOPMENT

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	k-VALUE
R1D	C			RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.43
R1B	C			RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES	0.43
UB	D	B/C		URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	0.37
UD	D	B/C		URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES	0.37

\* INDICATES HYDRIC SOILS  
\*\* HIGHLY ERODIBLE SOILS WITH K OF 0.35 OR GREATER AND ON GRADES 5% OR STEEPER; OR SOILS ON GRADES 15% OR GREATER.  
SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL, 2017, MAP 20.





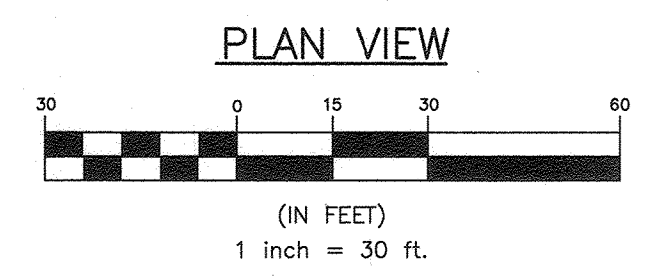


**LEGEND**

- PROPERTY BOUNDARY
- ADJACENT PROPERTY OWNER
- EXISTING EASEMENT
- SOILS CLASSIFICATION  
SOILS DELINEATION
- EXISTING WOODS LINE
- EXISTING WATER MAIN
- EXISTING SEWER MAIN
- EXISTING GAS LINE
- EXISTING STORM DRAIN
- EXISTING OVERHEAD LINES
- EXISTING STRUCTURE
- SLOPES 25% OR GREATER
- SLOPES BETWEEN 15% AND 25%
- BGE PLANTING ZONE: GREEN
- BGE PLANTING ZONE: YELLOW
- EXISTING FIBER OPTIC

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND					
SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
R5C		C		RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.24
R5D		C		RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES	0.24
UCB		D	B/C	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	0.37
UCD		D	B/C	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES	0.37

\* INDICATES HYDRIC SOILS  
 \*\* HIGHLY ERODIBLE SOILS: SOILS WITH K OF 0.35 OR GREATER AND ON GRADES 5% OR STEEPER; OR SOILS ON GRADES 15% OR GREATER. SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL 2017, MAP 20.



NO.	DATE	REVISION
3	7-26-23	REVISE EXISTING CULVERT @ OLD WASHINGTON ROAD
2	6-6-22	REVISE EX. GASLINE AND CONNECTIONS
1	6-9-21	ADD FIBER OPTIC LINE

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-8105 (F) 410-465-8644  
 WWW.BB-CIVLENGINEERING.COM

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. 45537, Expiration Date: 06-08-2022.

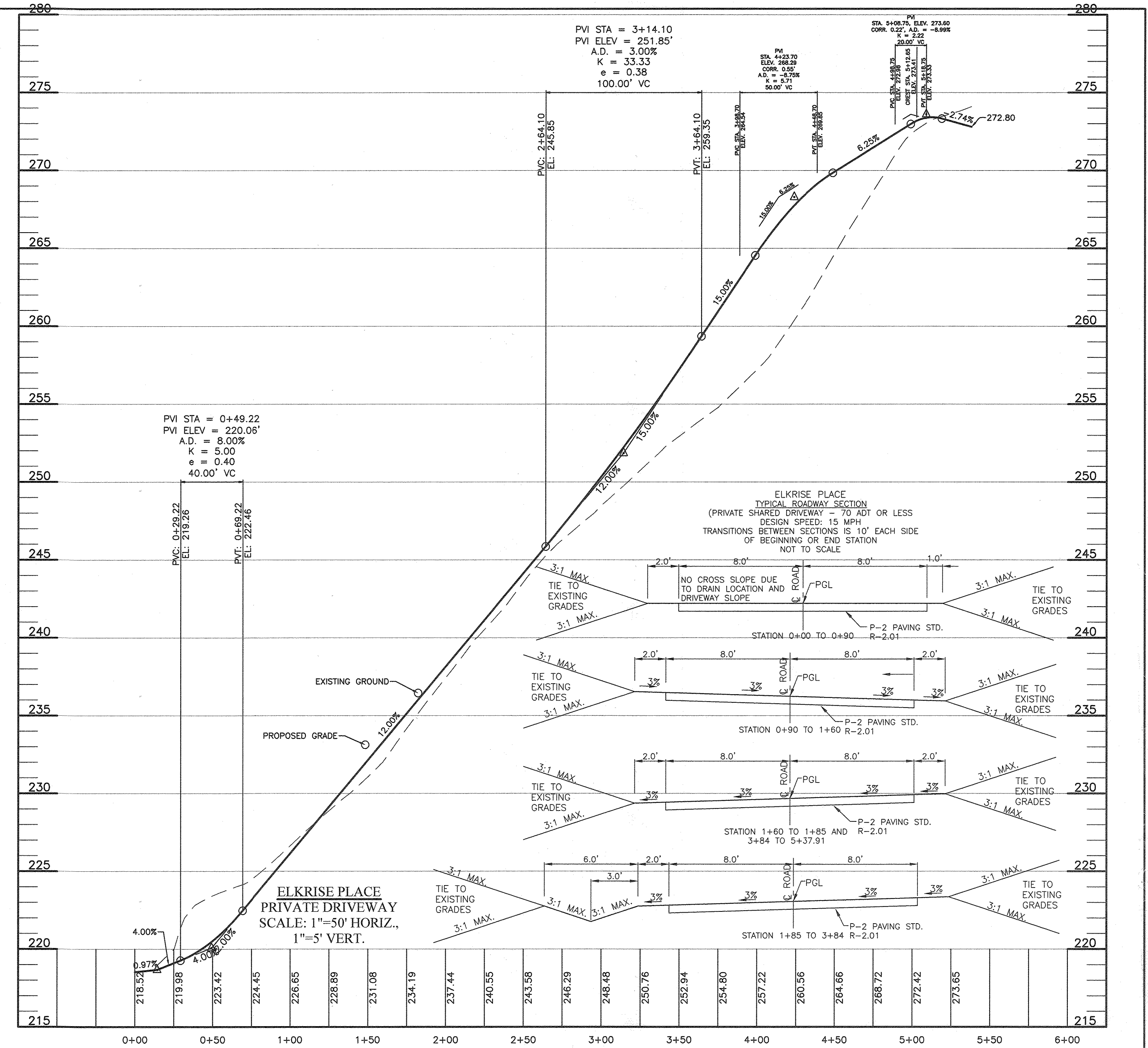
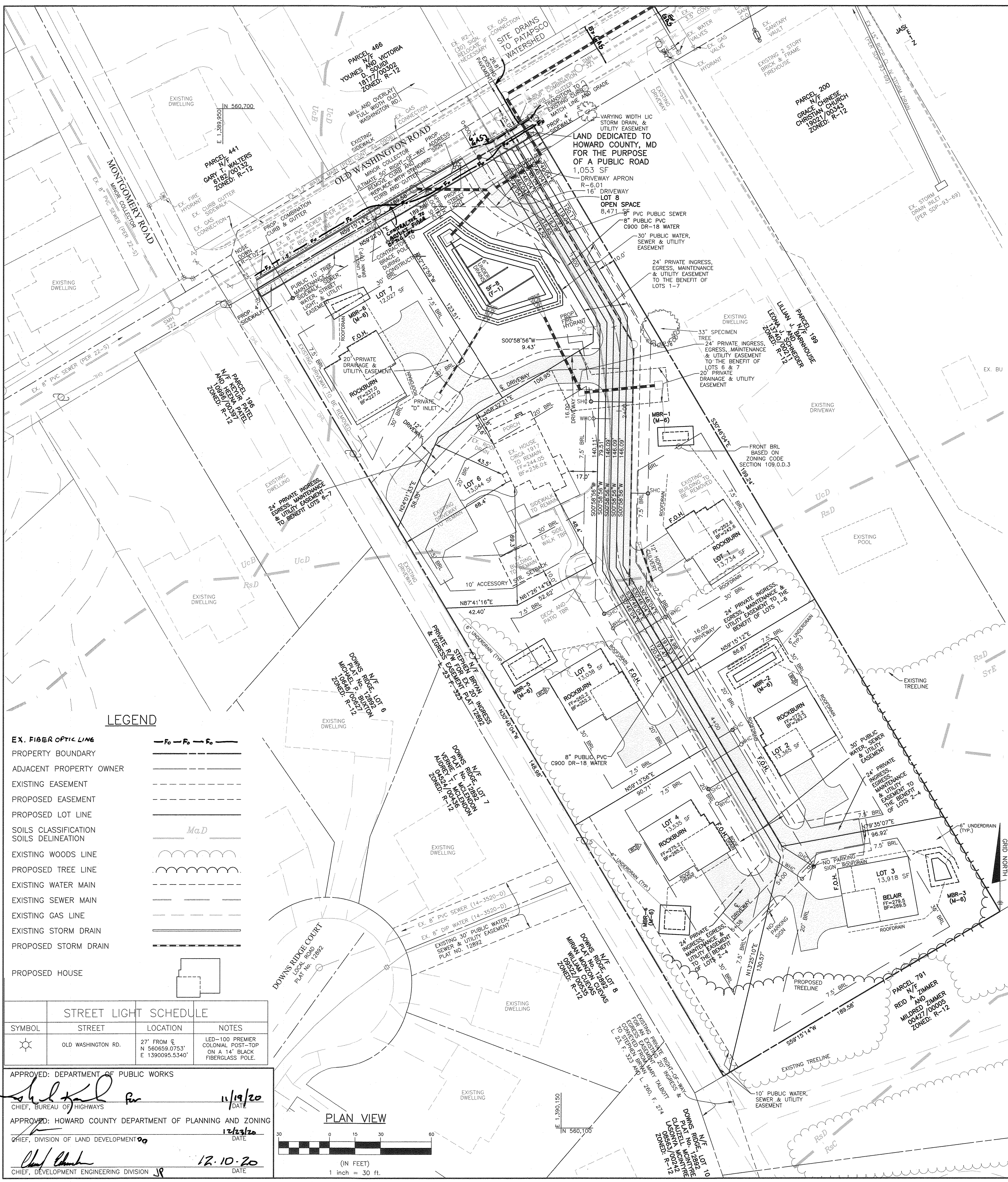
10/16/20

APPROVED: DEPARTMENT OF PUBLIC WORKS  
  
 CHIEF, BUREAU OF HIGHWAYS  
 DATE: 11/19/20

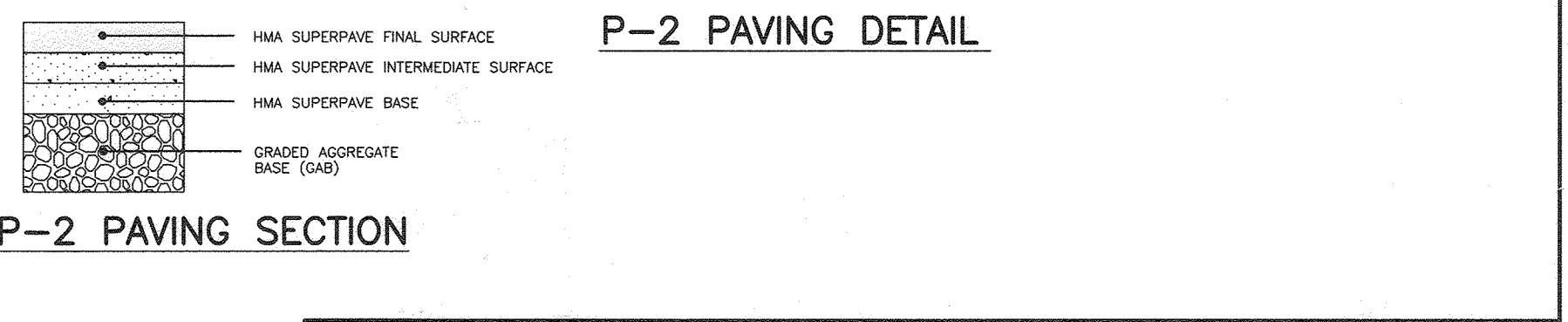
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 12/10/20

OWNER/DEVELOPER: HARMONY BUILDERS INC 4228 COLUMBIA ROAD ELICOTT CITY, MD 21042 410-461-0833	ELKRISE HILL LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12 6289 OLD WASHINGTON ROAD ELKRISE, MD 21075 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND
RELEVANT FILE NUMBERS: EQ-18-026, S-18-004, HP-19-079, P-19-002, & HPC-18-06	FINAL PLAN EXISTING CONDITIONS PLAN
DESIGN: JC DRAWN: JC	DATE: OCTOBER, 2020 SCALE: AS SHOWN BEI PROJECT NO: 2818 SHEET 2 OF 15





SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)					
		3 TO <5	5 TO <7	>7	3 TO <5	5 TO <7	>7
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	PAVEMENT MATERIAL (INCHES)					
		HMA SUPERPAVE FINAL SURFACE					
		HMA SUPERPAVE INTERMEDIATE SURFACE					
		HMA SUPERPAVE BASE					
		MIN	HMA WITH GAB	HMA WITH CONSTANT GAB			
		1.5	1.5	1.5	1.5	1.5	1.5
		1.5	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	3.5	2.0	2.0
		8.0	4.0	3.0	4.0	4.0	4.0



NO.	DATE	REVISION
2	6-6-22	Revise Location of 6" Gasline & Connections.
1	6-8-21	SHOW FIBER OPTIC LINE

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

**ELKRISE HILL**  
 LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8  
 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12  
 6289 OLD WASHINGTON ROAD  
 ELKRIDGE, MD 21075  
 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

**FINAL PLAN**  
 LAYOUT PLAN AND ROAD PROFILE & DETAILS

OWNER/DEVELOPER:  
 HARMONY BUILDERS INC  
 4228 COLUMBIA ROAD  
 ELLICOTT CITY, MD 21042  
 410-461-0833

RELEVANT FILE NUMBERS:  
 EOP-18-026, S-18-004, WP-19-079,  
 P-19-002, & HPC-18-06

DATE: OCTOBER, 2020  
 BEI PROJECT NO: 2818  
 SCALE: AS SHOWN  
 SHEET: 3 OF 15



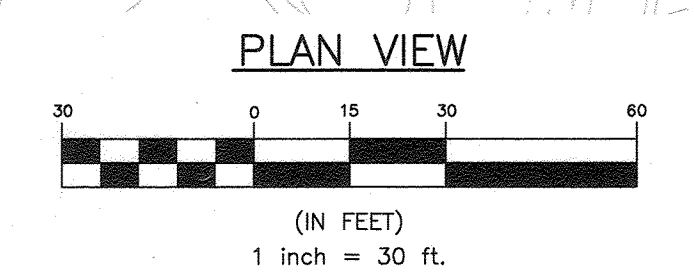
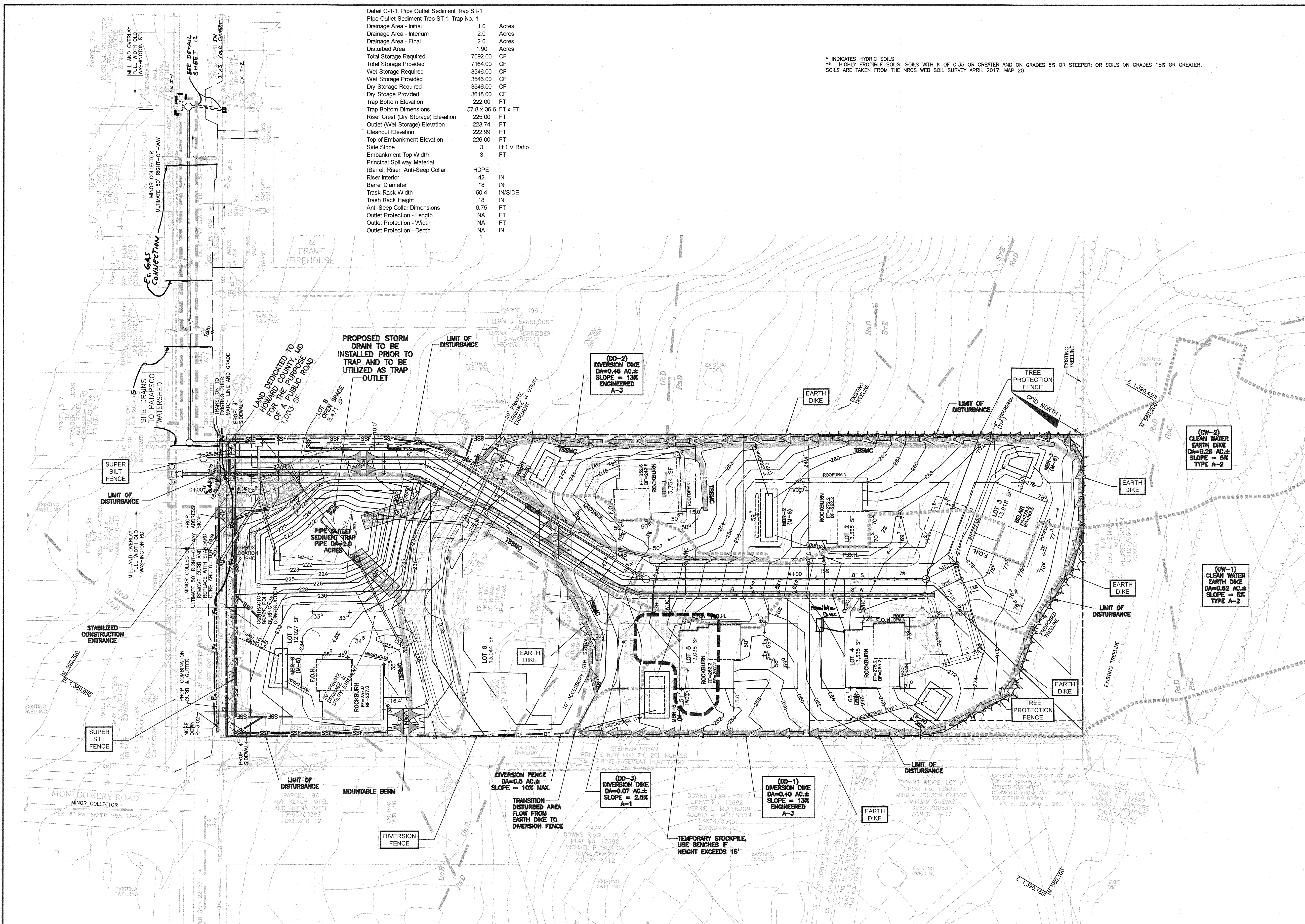
Detail G-1-1: Pipe Outlet Sediment Trap ST-1  
Pipe Outlet Sediment Trap ST-1, Trap No. 1

Drainage Area - Initial	1.0	Acres
Drainage Area - Interim	2.0	Acres
Drainage Area - Final	2.0	Acres
Disturbed Area	1.90	Acres
Total Storage Required	7092.00	CF
Total Storage Provided	7164.00	CF
Wet Storage Required	3546.00	CF
Wet Storage Provided	3546.00	CF
Dry Storage Required	3546.00	CF
Dry Storage Provided	3618.00	CF
Trap Bottom Elevation	222.00	FT
Trap Dimensions	57.8 x 36.8	FT x FT
Riser Crest (Dry Storage) Elevation	225.00	FT
Outlet (Wet Storage) Elevation	223.74	FT
Cleanout Elevation	222.99	FT
Top of Embankment Elevation	226.00	FT
Side Slope	3	H:1 V Ratio
Embankment Top Width	3	FT
Principal Spillway Material		
Barrel Riser, Anti-Sleep Collar	HDPE	
Riser Interior	42	IN
Barrel Diameter	18	IN
Trash Rack Width	50.4	IN/SIDE
Trash Rack Height	18	IN
Anti-Sleep Collar Dimensions	6.75	FT
Outlet Protection - Length	NA	FT
Outlet Protection - Width	NA	FT
Outlet Protection - Depth	NA	IN

\* INDICATES HYDRIC SOILS  
\*\* HIGHLY ERODIBLE SOILS: SOILS WITH K OF 0.35 OR GREATER AND ON GRADES 5% OR STEEPER; OR SOILS ON GRADES 15% OR GREATER.  
SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL 2017, MAP 20.

LEGEND

- SOILS CLASSIFICATION *Ma.D*
- SOILS DELINEATION
- EXISTING CONTOURS (BEI 05/17)
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- SLOPES 20% OR GREATER
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- SILT FENCE
- SEDIMENT CONTROL DRAINAGE DIVIDE
- EROSION CONTROL MATTING
- DIVERSION FENCE
- EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- MOUNTABLE BERM
- GABION INFLOW PROTECTION
- SEC DRAINAGE DIVIDE
- TEMPORARY TREE PROTECTION FENCE
- EX. FIBER OPTIC LINE



NOTE: CONTRACTOR SHALL DELAY INSTALLATION OF CLEAR WATER DIKES UNTIL HOUSE CONSTRUCTION AND PERIMETER CONTROLS HAVE BEEN ESTABLISHED.

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

*John R. Blanton* 10/28/20  
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*John R. Blanton* 11/19/20  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John R. Blanton* 12/23/20  
CHIEF, DIVISION OF LAND DEVELOPMENT

*John R. Blanton* 12-10-20  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John M. Carney* 10/16/20  
DEVELOPER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*John M. Carney* 10/16/20  
ENGINEER - JOHN M. CARNEY #45677

HOUSES MAY NOT BE CONSTRUCTED USING THIS PLAN.

THIS PLAN IS FOR EROSION & SEDIMENT CONTROL PURPOSES ONLY.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.

3	7-26-23	SHOW EX. CULVERT IN OLD WASHINGTON ROAD
2	6-6-22	REVISE LOCATION OF EX. 6" GASLINE & CONNECTIONS
1	6-8-21	SHOW FIBER OPTIC LINE
NO.	DATE	REVISION

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**

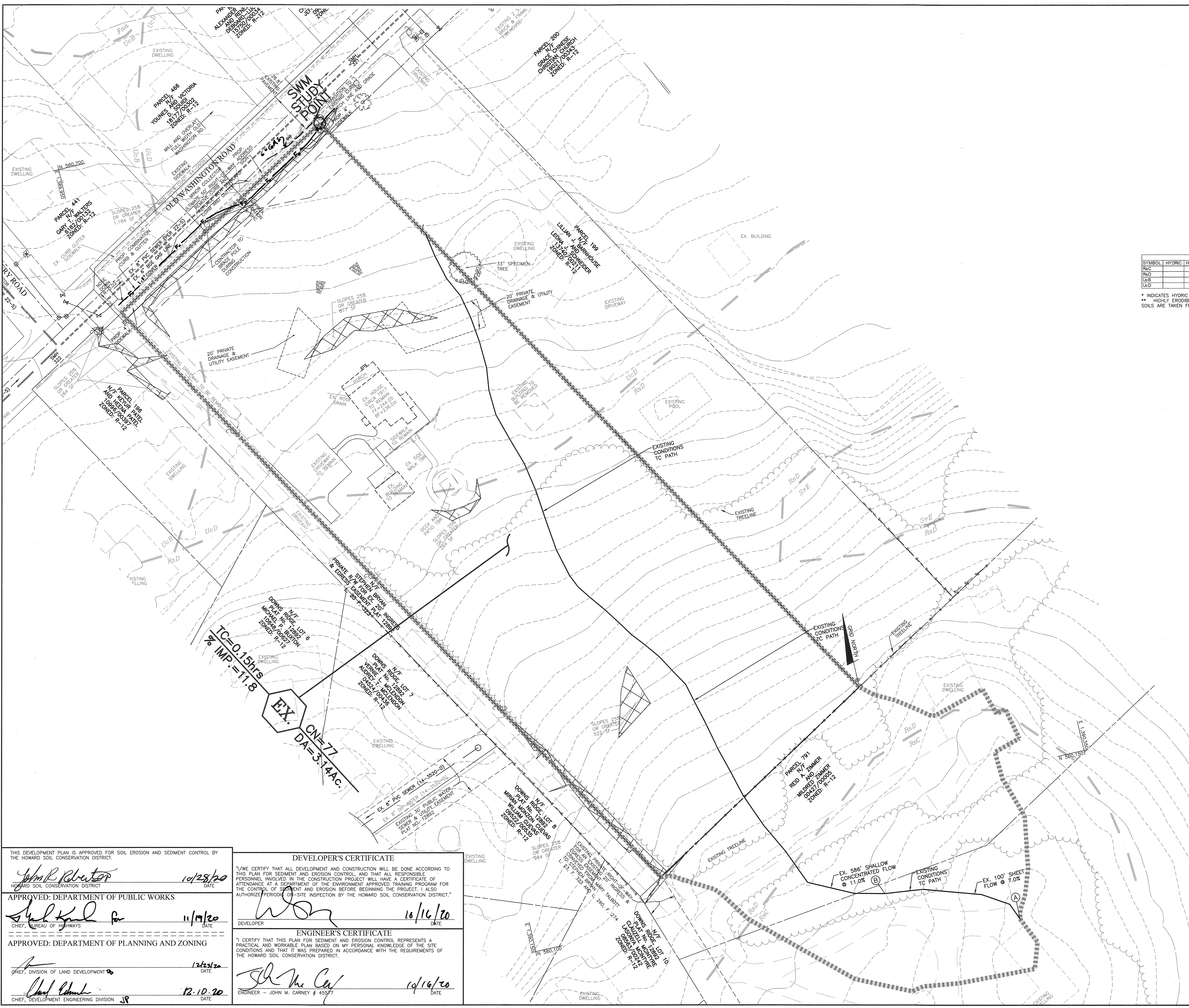
8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BE-CIVILENGINEERING.COM

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. 45577, Expiration Date: 05-08-2022.

*John M. Carney*  
10/16/20

OWNER/DEVELOPER: HARMONY BUILDERS INC 4228 COLUMBIA ROAD ELLICOTT CITY, MD 21042 410-461-0833	ELKRISE HILL LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12 6289 OLD WASHINGTON ROAD ELKRISE, MD 21075 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND
FINAL PLAN GRADING, SEDIMENT AND EROSION CONTROL PLAN	
RELEVANT FILE NUMBERS: EOP-18-026, S-18-004, WP-19-079, P-19-002, & HPC-18-06	DATE: OCTOBER, 2020 BEI PROJECT NO: 2818
DESIGN: JC DRAWN: JC	SCALE: AS SHOWN SHEET: 4 OF 15



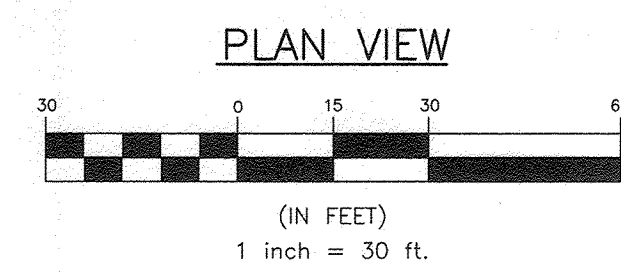


**LEGEND**

- SOILS CLASSIFICATION Ma.D
- SOILS DELINEATION ---
- EXISTING CONTOURS (BEI 05/17) - - - - -
- PROPOSED CONTOURS - - - - -
- EXISTING WOODS LINE ~~~~~
- PROPOSED WOODS LINE ~~~~~
- EXISTING STRUCTURE [ ]
- SLOPES 25% OR GREATER [X]
- SLOPES BETWEEN 15% AND 25% [//]
- EXISTING FIBER OPTIC LINE -F<sub>o</sub>-F<sub>o</sub>-F<sub>o</sub>-

SYMBOL	HYDRC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
R&D	C			RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.43
UcB	D	B/C		RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES	0.43
UcD	D	B/C		URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	0.37
UcD	D	B/C		URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES	0.37

\* INDICATES HYDRC SOILS  
 \*\* HIGHLY ERODIBLE SOILS: SOILS WITH K OF 0.35 OR GREATER AND ON GRADES 5% OR STEEPER; OR SOILS ON GRADES 15% OR GREATER.  
 SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL 2017, MAP 20.



<p>2 6-6-22 <i>Revise Location of Ex. 6" Gasline</i></p> <p>1 6-8-21 <i>SHOW FIBER OPTCL LINE</i></p>		<p>REVISION</p>
NO.	DATE	
<p><b>BENCHMARK ENGINEERING, INC.</b></p> <p>8480 BALTIMORE NATIONAL PIKE SUITE 315 ELICOTT CITY, MARYLAND 21043          (P) 410-465-6105 (F) 410-465-6644          WWW.BE-CIVILENGINEERING.COM</p>		<p>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. 45577, Expiration Date: 06-08-2022.</p> <p><i>John M. Carney</i> 10/16/20</p>
<p>OWNER/DEVELOPER:</p> <p>HARMONY BUILDERS INC          4228 COLUMBIA ROAD          ELICOTT CITY, MD 21042          410-461-0533</p>		
<p>RELEVANT FILE NUMBERS:          EDP-18-026, S-18-004, WP-19-079,          P-19-002, &amp; HPC-18-06</p>		<p>DATE: OCTOBER, 2020</p>
DESIGN: JC	DRAWN: JC	<p>BEI PROJECT NO: 2818</p> <p>SHEET 5 OF 15</p>

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

*John M. Carney* 10/25/20  
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Shelby K. ...* 11/17/20  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*...* 12/10/20  
 CHIEF, DIVISION OF LAND DEVELOPMENT

**DEVELOPER'S CERTIFICATE**

I, WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John M. Carney* 10/16/20  
 DEVELOPER

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*John M. Carney* 10/16/20  
 ENGINEER - JOHN M. CARNEY # 45577



SYMBOL	HYDRIC	HYDROLOGIC GROUP (ALTERNATE GROUP)	NAME	K-VALUE
R/C	C		RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.43
R/d	C		RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES	0.43
U/S	D	B/C	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX 0 TO 5 PERCENT SLOPES	0.37
U/D	D	B/C	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX 5 TO 15 PERCENT SLOPES	0.37

\* INDICATES HYDRIC SOILS  
 \*\* HIGHLY ERODIBLE SOILS: SOILS WITH K OF 0.35 OR GREATER AND ON GRADES 5% OR STEEPER; OR SOILS ON GRADES 15% OR GREATER.  
 SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL 2017, MAP 20.

**LEGEND**

SOILS CLASSIFICATION: *MaD*

SOILS DELINEATION:

EXISTING CONTOURS (BEI 05/17):

PROPOSED CONTOURS:

EXISTING WOODS LINE:

PROPOSED WOODS LINE:

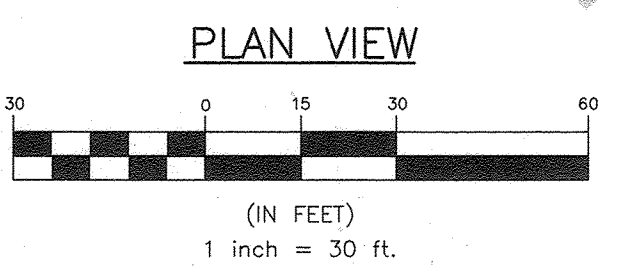
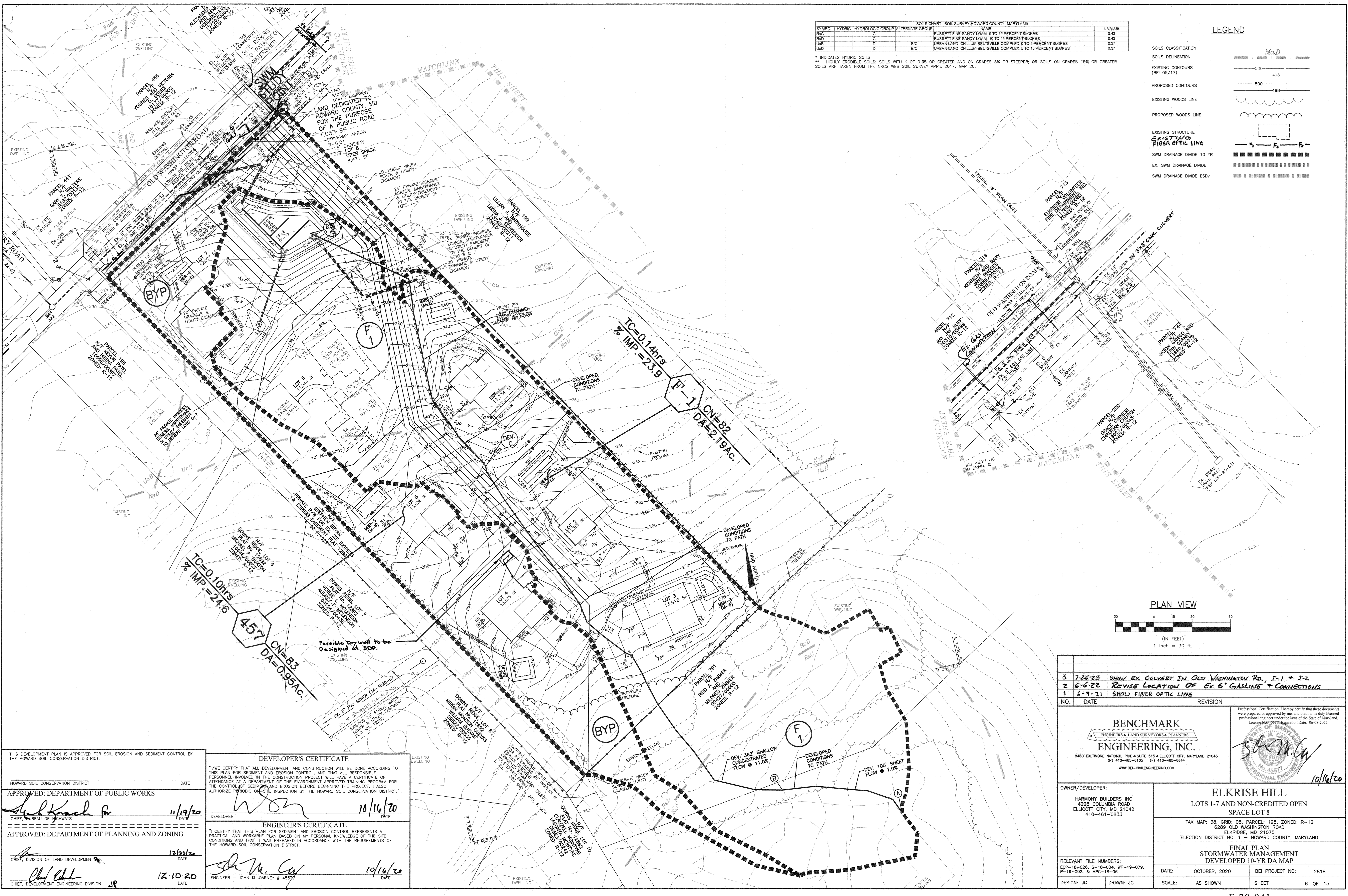
EXISTING STRUCTURE:

EXISTING FIBER OPTIC LINE:

SWM DRAINAGE DIVIDE 10 YR:

EX. SWM DRAINAGE DIVIDE:

SWM DRAINAGE DIVIDE ESDV:



NO.	DATE	REVISION
3	7-26-23	SHOW EX. CULVERT IN OLD WASHINGTON RD., I-1 + I-2
2	6-6-22	REVISE LOCATION OF EX. 6" GASLINE + CONNECTIONS
1	6-9-21	SHOW FIBER OPTIC LINE

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8490 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-8105 (F) 410-465-8644  
 WWW.BEI-CIVILENGINEERING.COM

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*John M. Carney*  
 PROFESSIONAL ENGINEER

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

HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Shelby Knoch*  
 CHIEF, BUREAU OF HIGHWAYS  
 11/19/20

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John M. Carney*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 12/23/20

12.10.20

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DEVELOPER: *John M. Carney* 10/16/20

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ENGINEER - JOHN M. CARNEY # 45577 10/16/20

**OWNER/DEVELOPER:**  
 HARMONY BUILDERS INC  
 4228 COLUMBIA ROAD  
 ELLICOTT CITY, MD 21042  
 410-461-0833

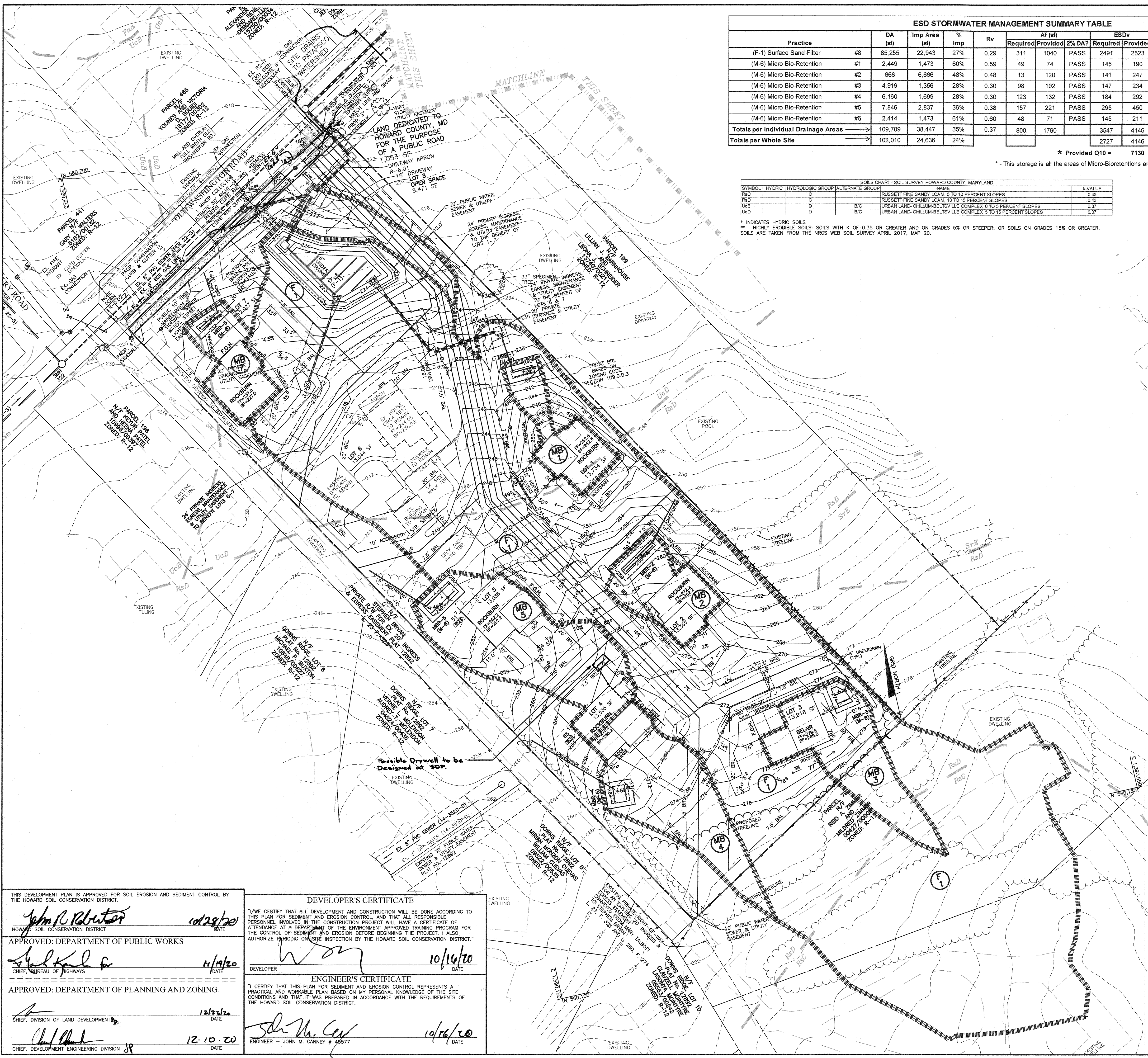
**ELKRISE HILL**  
 LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8  
 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12  
 6289 OLD WASHINGTON ROAD  
 ELKRISE, MD 21075  
 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

**FINAL PLAN**  
 STORMWATER MANAGEMENT  
 DEVELOPED 10-YR DA MAP

RELEVANT FILE NUMBERS:  
 EOP-18-026, S-18-004, WP-19-079,  
 P-19-002, & HPC-18-06

DATE: OCTOBER, 2020 BEI PROJECT NO: 2818  
 SCALE: AS SHOWN SHEET 6 OF 15





**ESD STORMWATER MANAGEMENT SUMMARY TABLE**

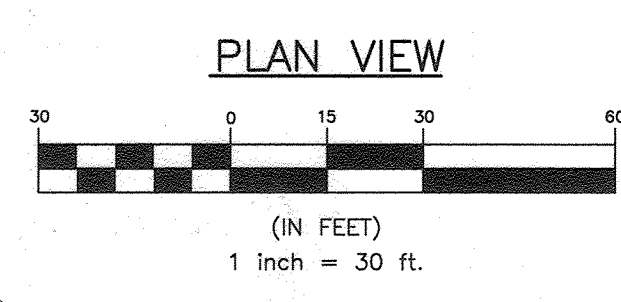
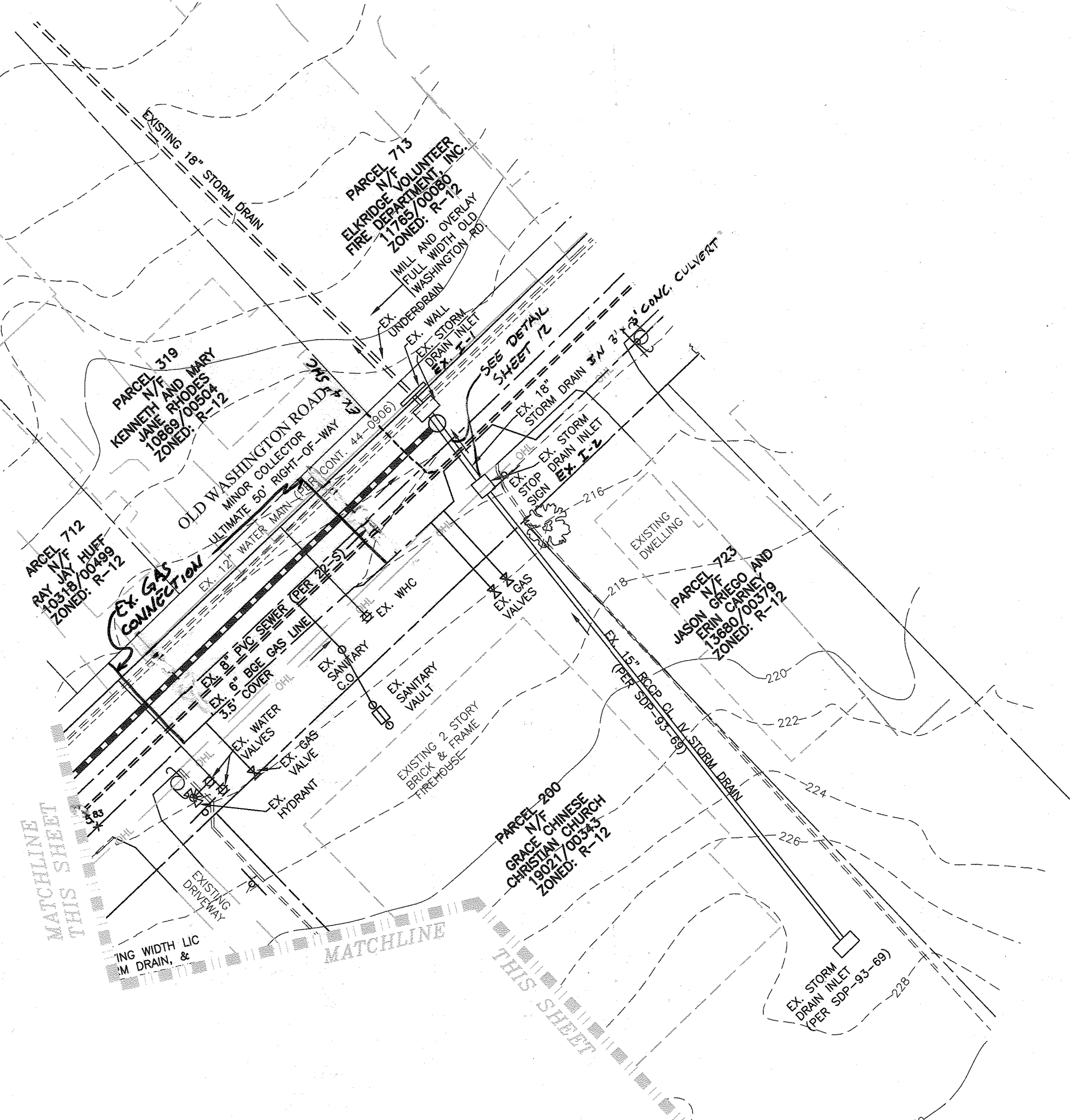
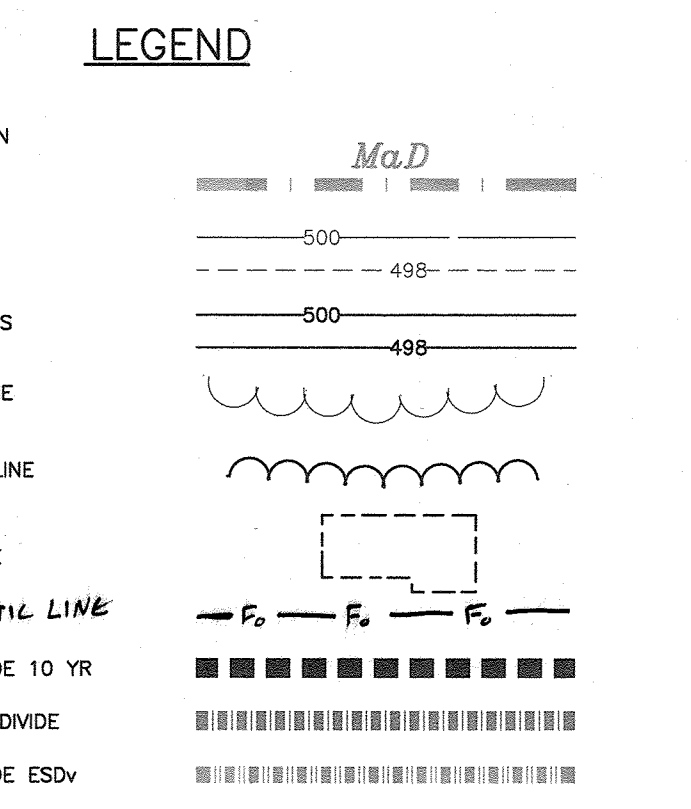
Practice	DA (sf)	Imp Area (sf)	% Imp	Rv	At (sf)			ESDv		Po Provided	Rev (ac-ft)		Ownership
					Required	Provided	2% DA?	Required	Provided		Required	Provided	
(F-1) Surface Sand Filter	#8	85,255	22,943	27%	0.29	311	1040	PASS	2491	2523	1.62	0.0096	Private
(M-6) Micro Bio-Retention	#1	2,449	1,473	60%	0.59	49	74	PASS	145	190	1.57	0.0008	Private
(M-6) Micro Bio-Retention	#2	666	6,666	48%	0.48	13	120	PASS	141	247	9.23	0.0009	Private
(M-6) Micro Bio-Retention	#3	4,919	1,356	28%	0.30	98	102	PASS	147	234	1.92	0.0012	Private
(M-6) Micro Bio-Retention	#4	6,160	1,699	28%	0.30	123	132	PASS	184	292	1.91	0.0011	Private
(M-6) Micro Bio-Retention	#5	7,846	2,837	36%	0.38	157	221	PASS	295	450	1.83	0.0017	Private
(M-6) Micro Bio-Retention	#6	2,414	1,473	61%	0.60	48	71	PASS	145	211	1.75	0.0009	Private
<b>Totals per individual Drainage Areas</b>		<b>109,709</b>	<b>38,447</b>	<b>35%</b>	<b>0.37</b>	<b>800</b>	<b>1760</b>		<b>3547</b>	<b>4146</b>	<b>1.24</b>	<b>0.0091</b>	<b>0.0181</b>
<b>Totals per Whole Site</b>		<b>102,010</b>	<b>24,636</b>	<b>24%</b>					<b>2727</b>	<b>4146</b>			

\* Provided Q10 = 7130 cf  
 \* This storage is all the areas of Micro-Biorententions and the total storage provide within the composite "F-1"

**SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND**

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
RcC	C			RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.43
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NO.	DATE	REVISION
3	7.26.23	SHOW 3'x3' CULVERT IN OLD WASHINGTON RD, I-1 & I-2
2	6.6.22	REVISE LOCATION OF EX. 6" GASLINE + CONNECTION
1	6-8-21	SHOW FIBER OPTIC LINE

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

*John M. Carney* 10/16/20  
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Shelby K. ...* 11/19/20  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*...* 12/23/20  
 CHIEF, DIVISION OF LAND DEVELOPMENT

12.10.20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

**DEVELOPER'S CERTIFICATE**

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 DEVELOPER

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*John M. Carney* 10/16/20  
 ENGINEER - JOHN M. CARNEY # 45577

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 ENGINEERS & LAND SURVEYORS & PLANNERS  
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*John M. Carney* 10/16/20

OWNER/DEVELOPER:  
 HARMONY BUILDERS INC  
 4228 COLUMBIA ROAD  
 ELLICOTT CITY, MD 21042  
 410-461-0833

**ELKRISE HILL**  
 LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8  
 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12  
 6289 OLD WASHINGTON ROAD  
 ELKRISE, MD 21075  
 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

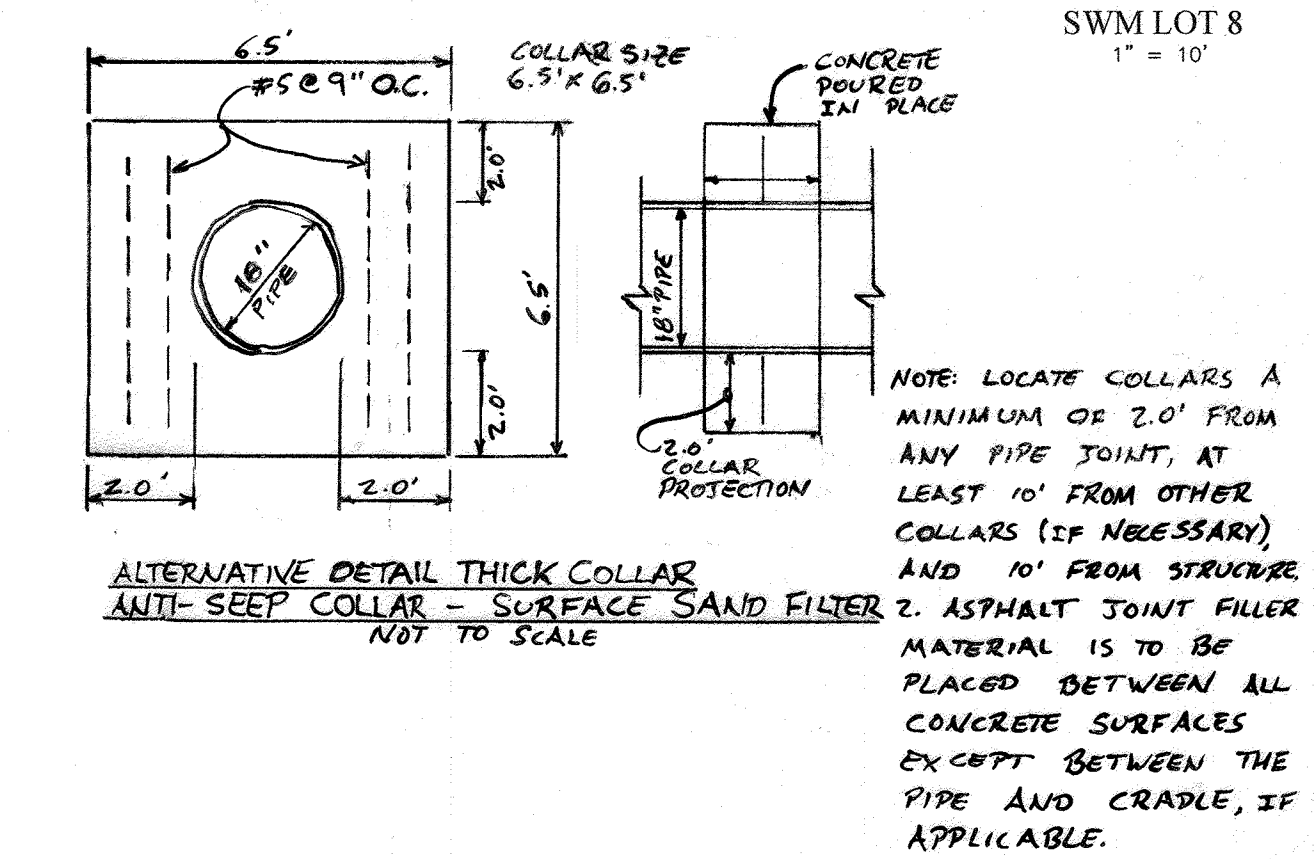
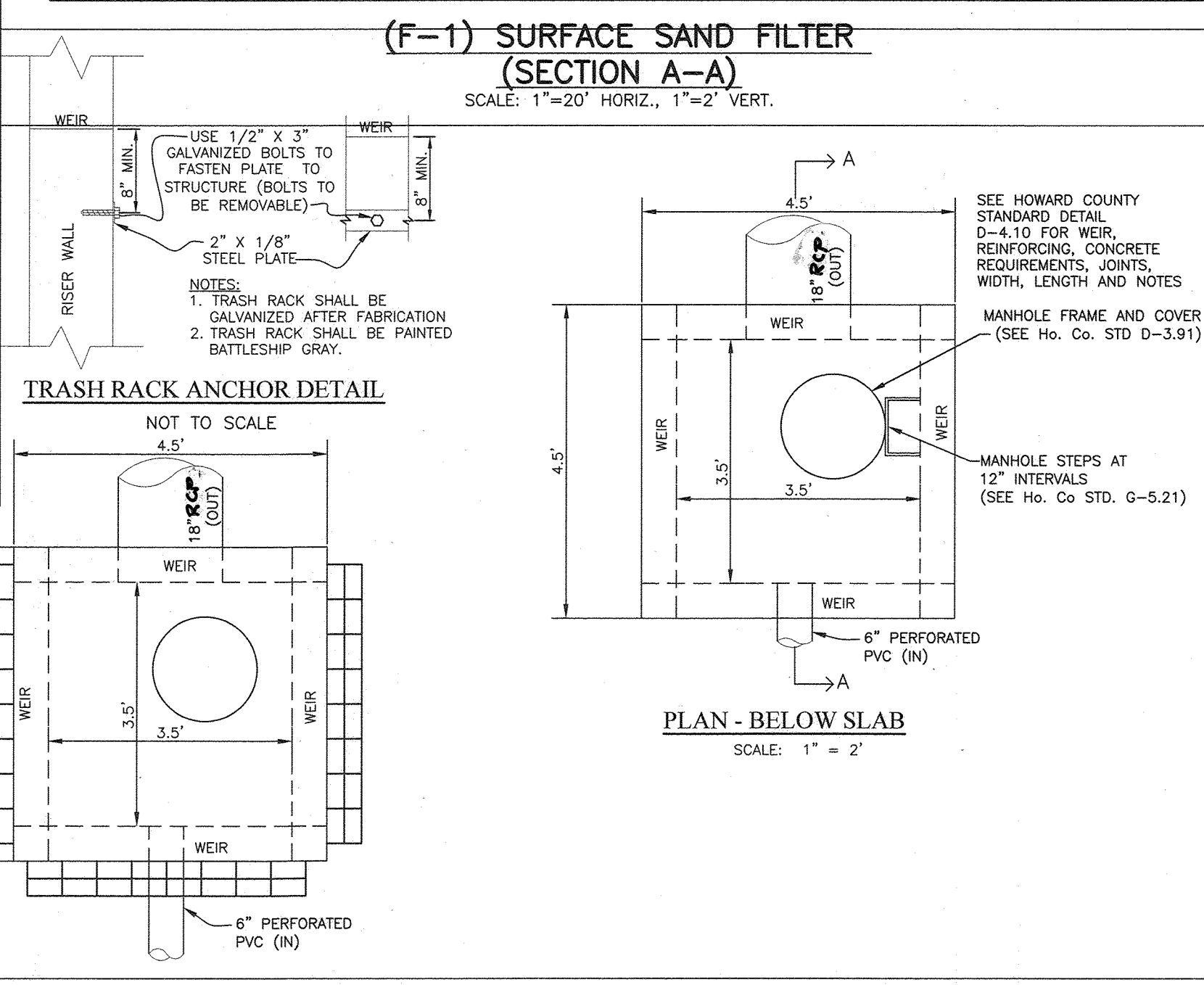
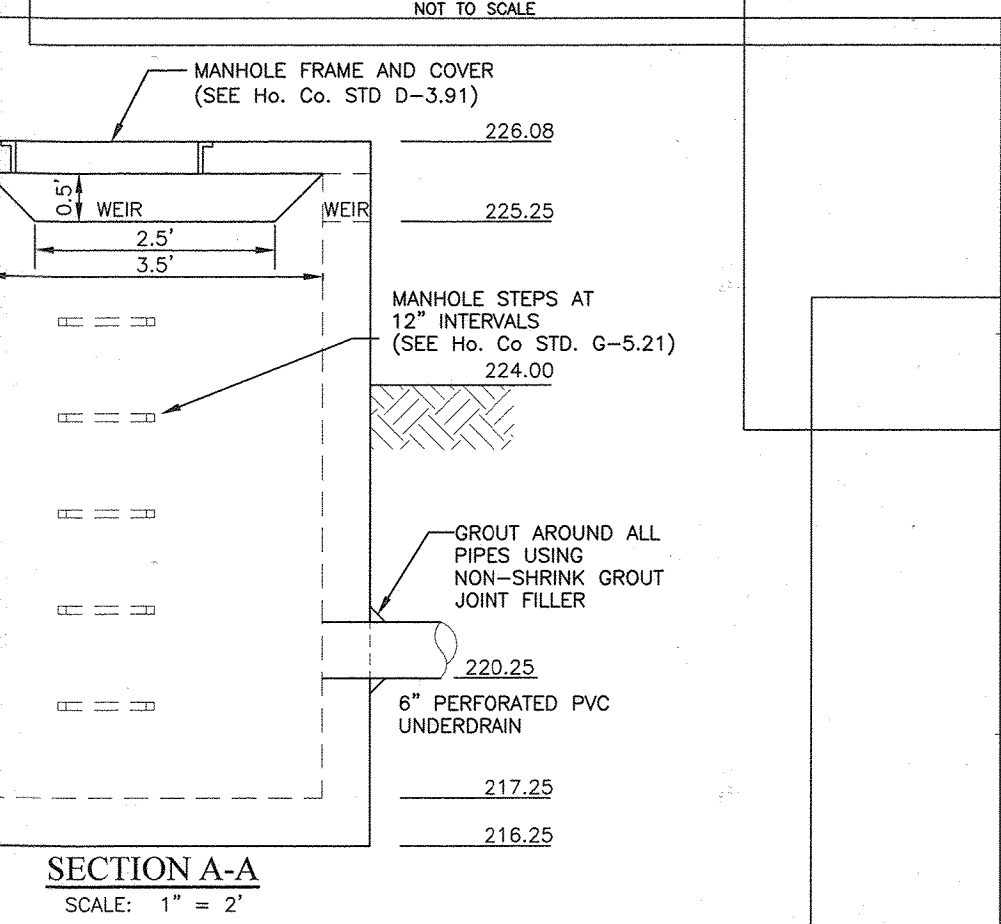
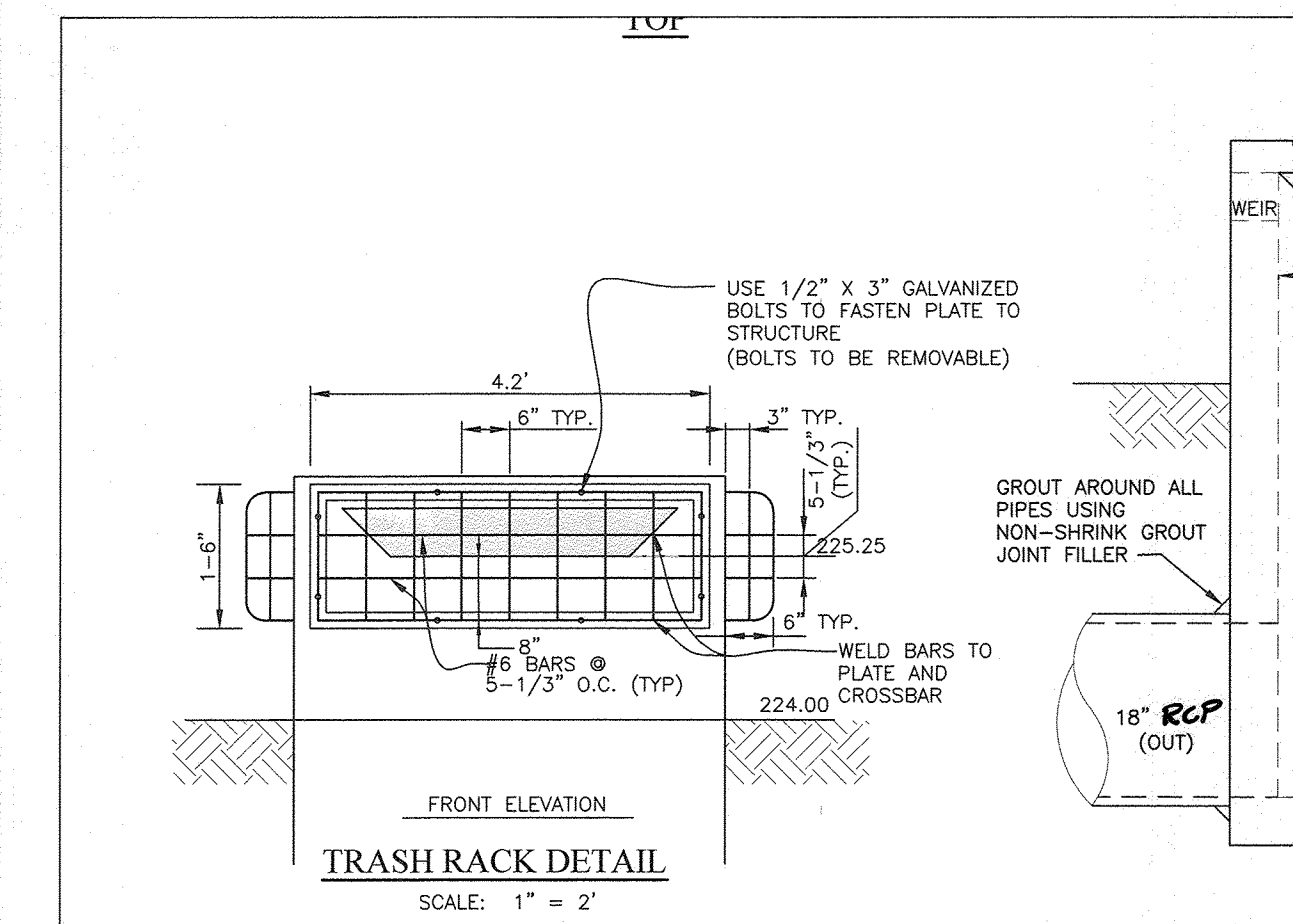
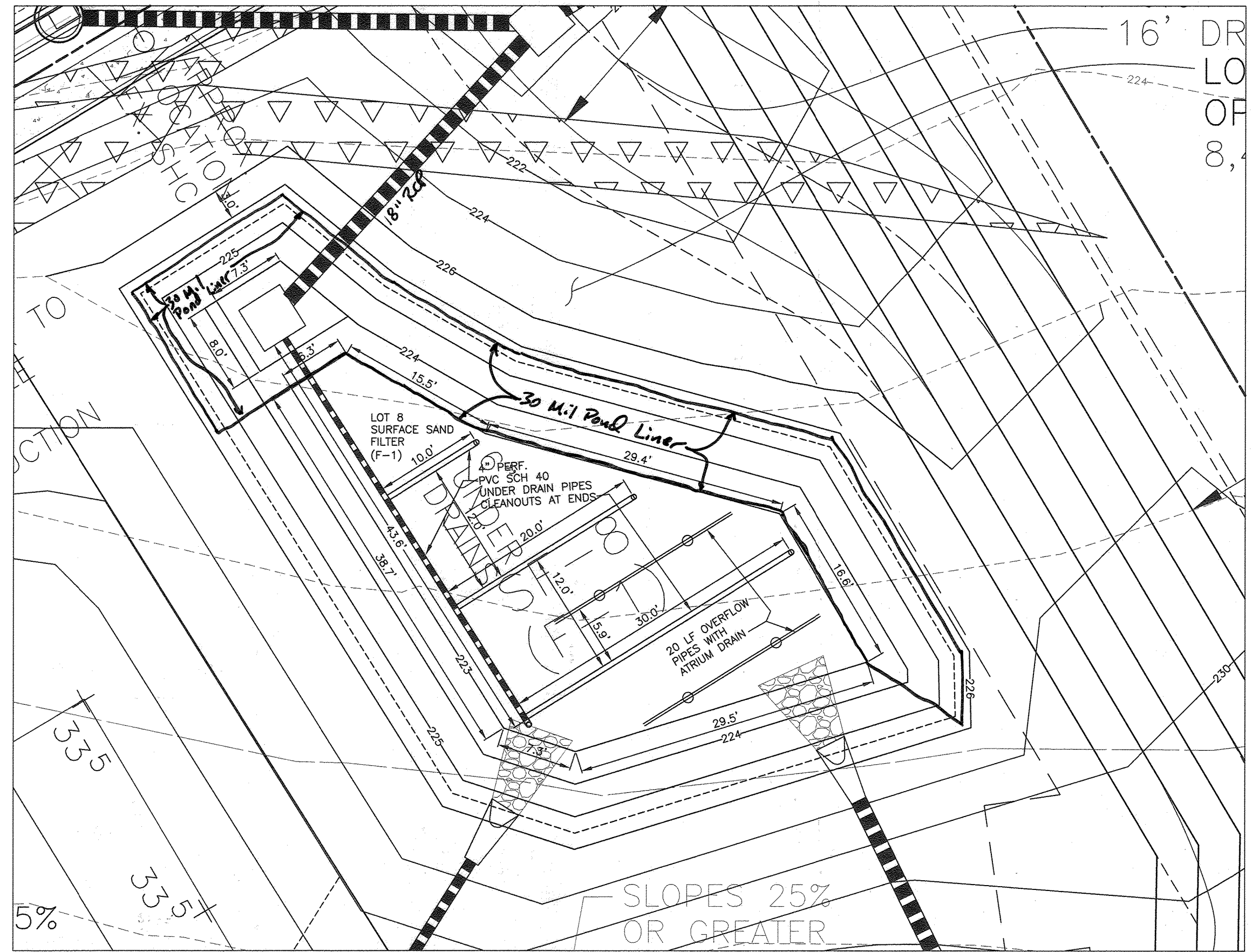
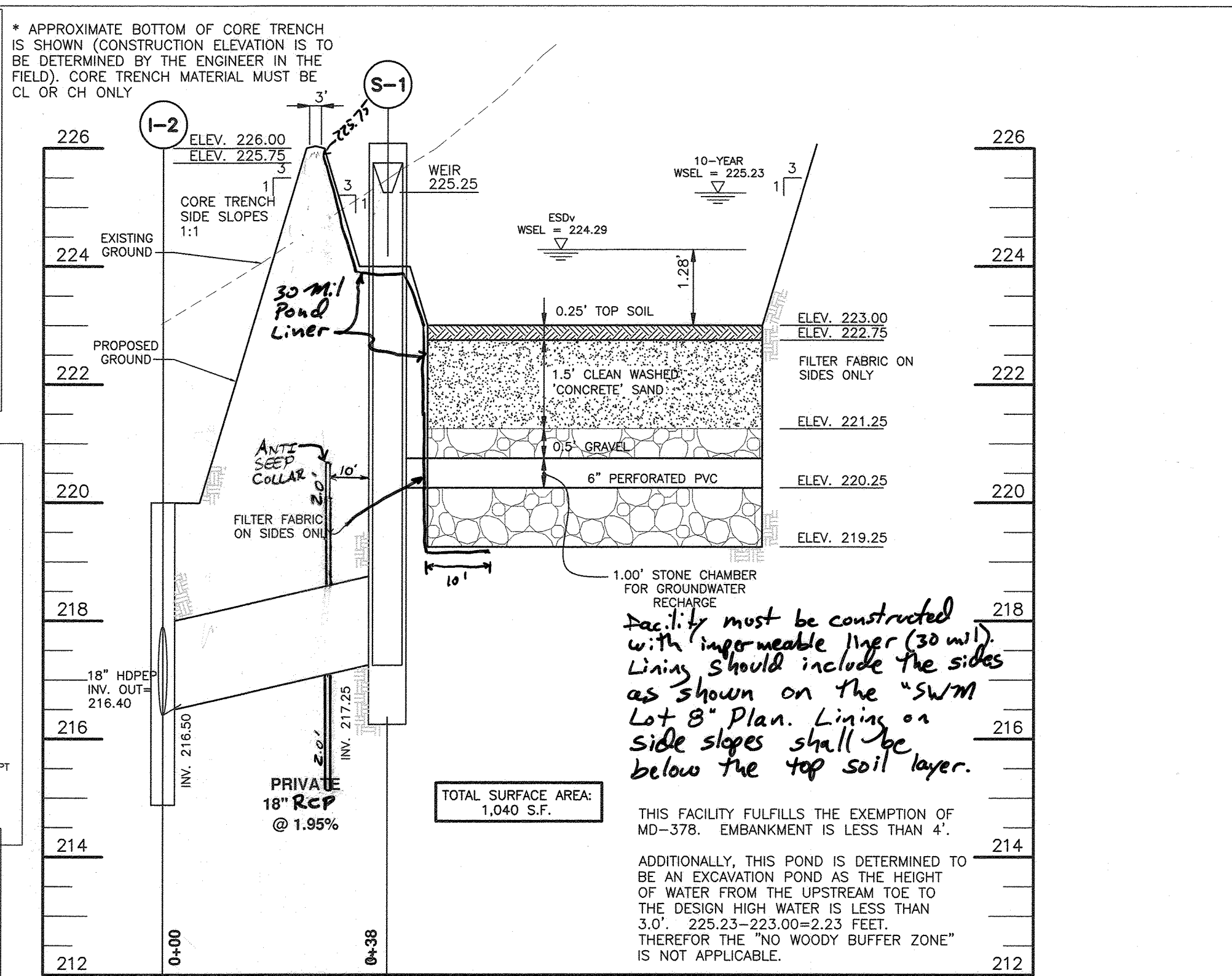
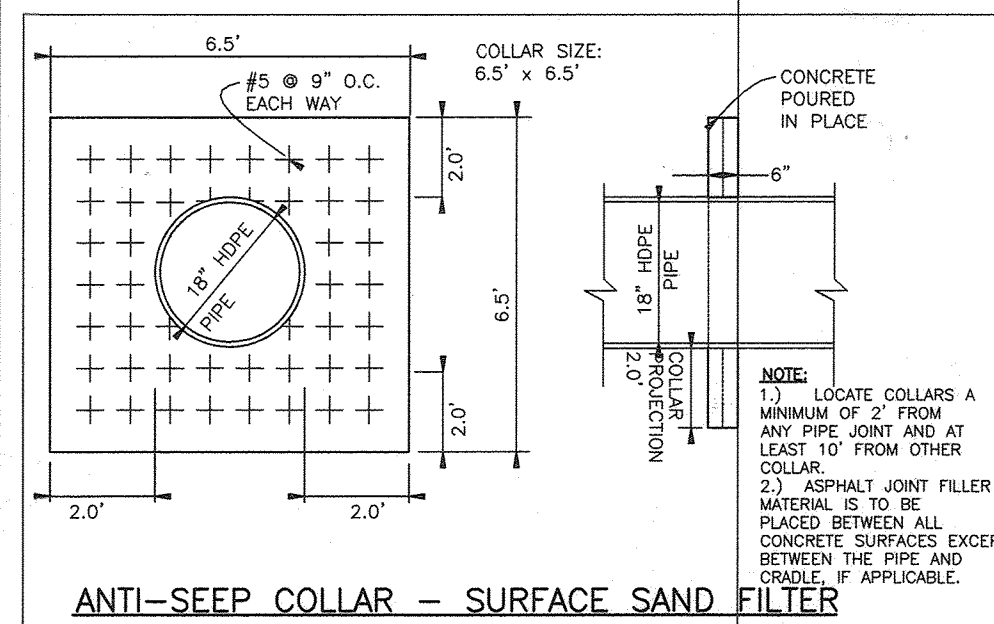
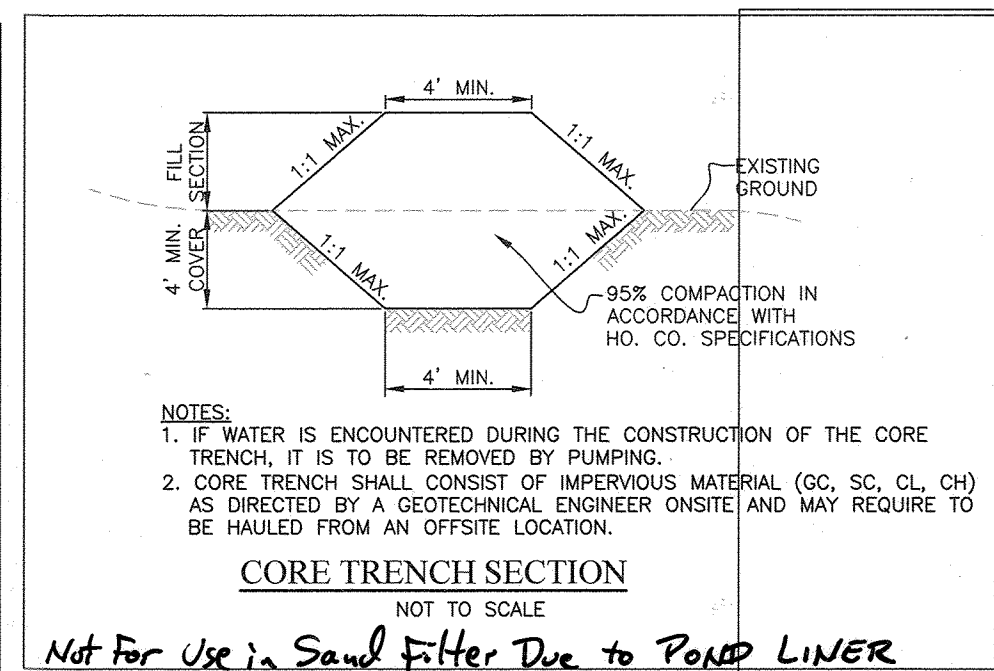
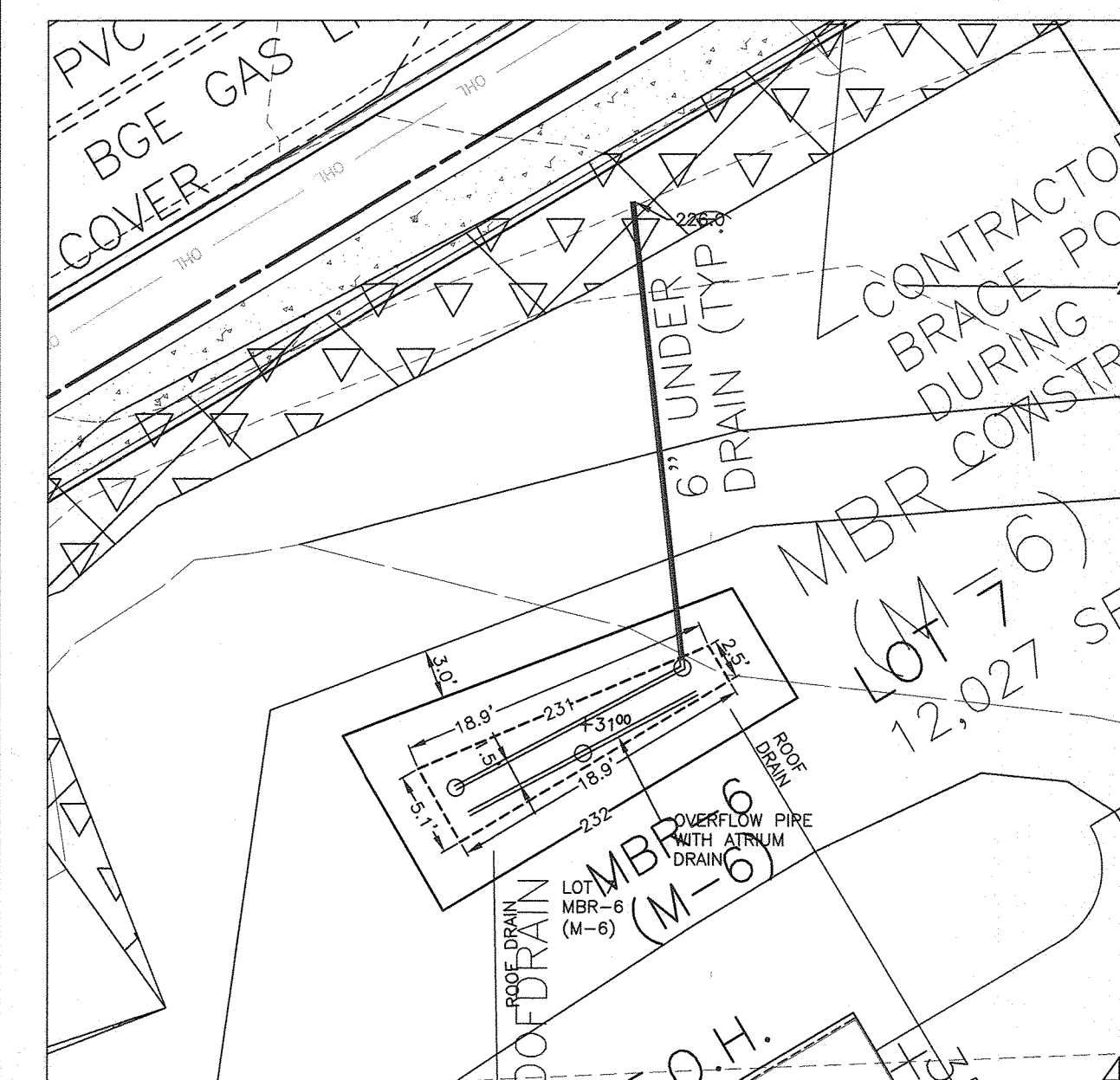
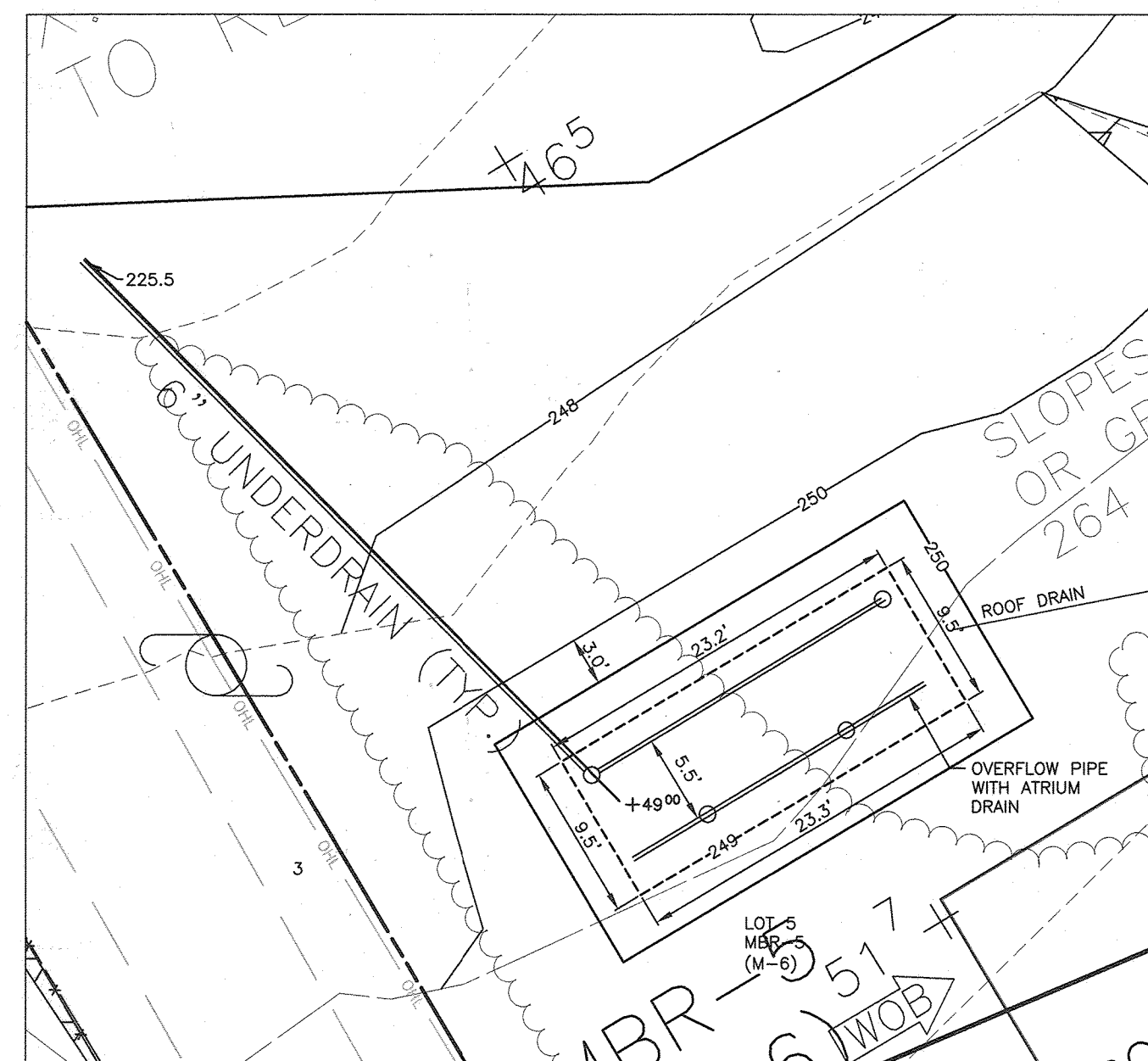
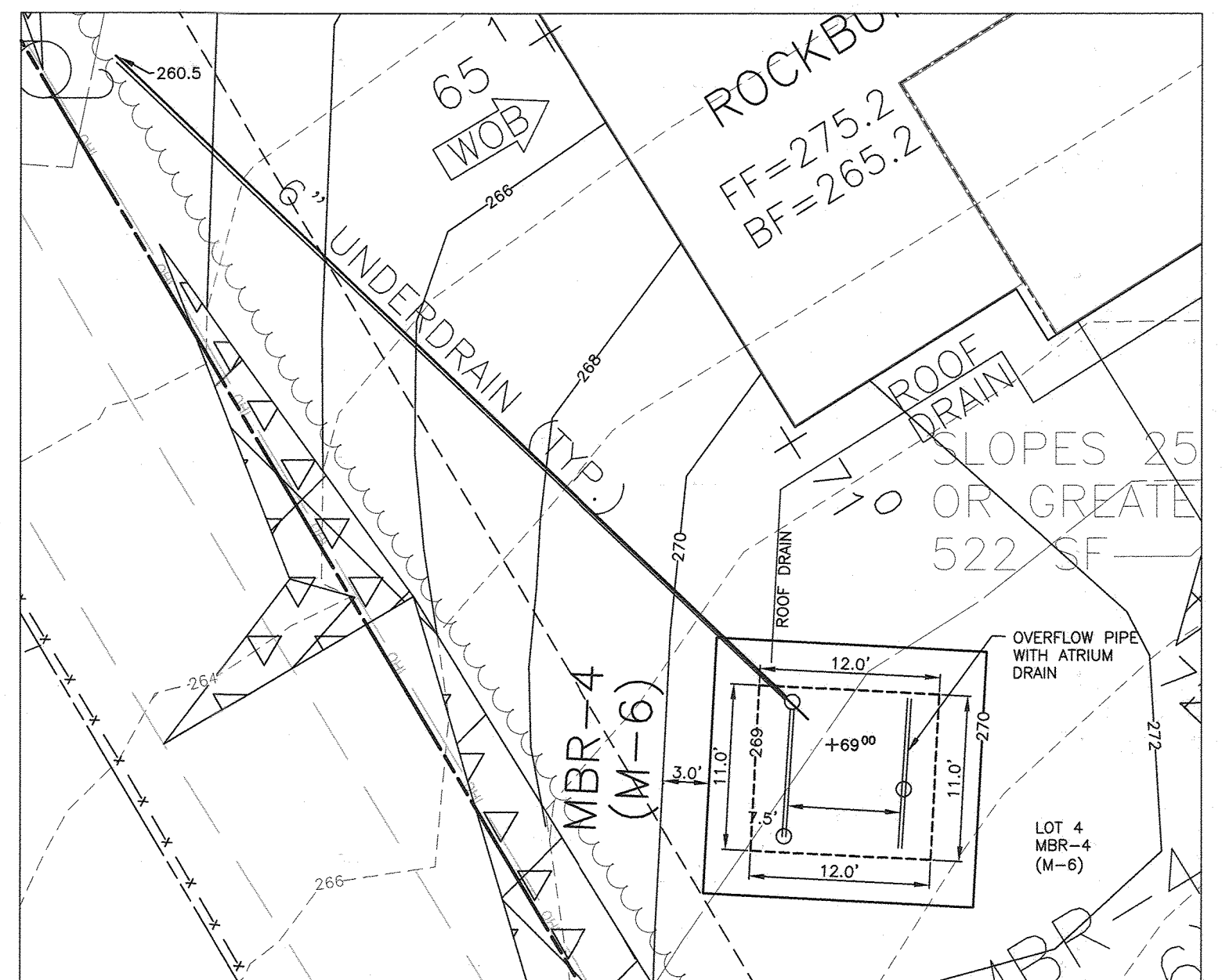
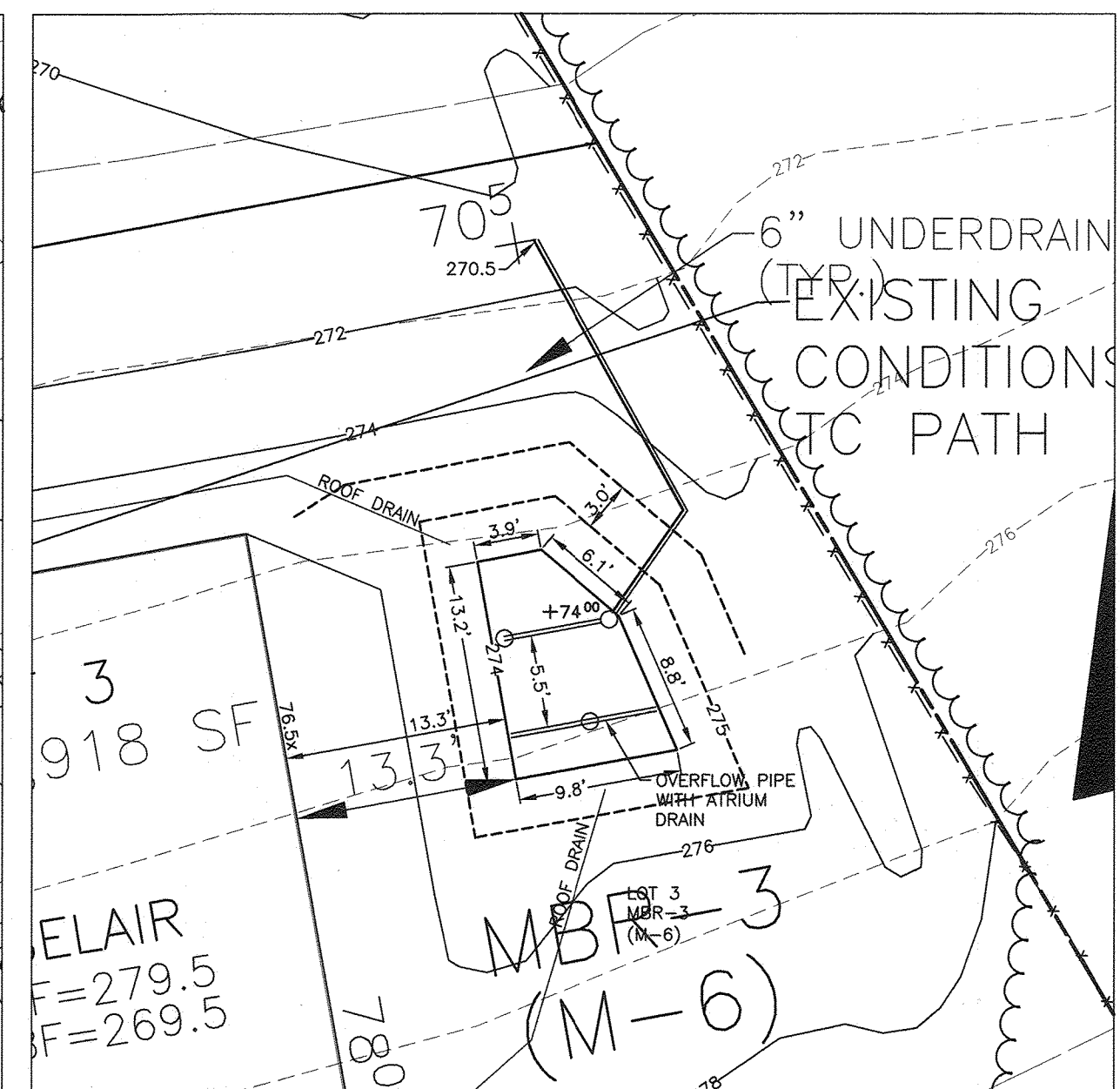
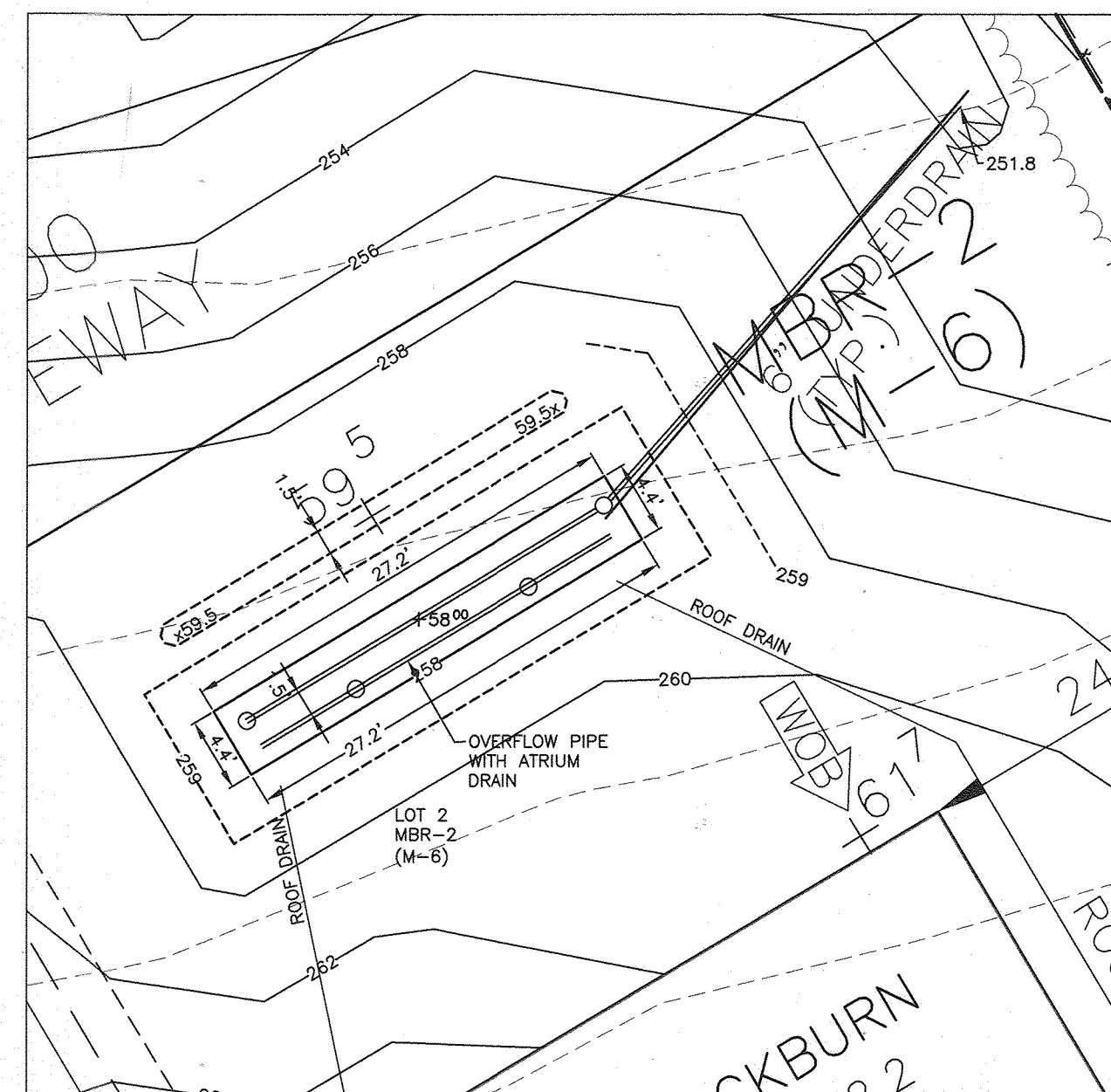
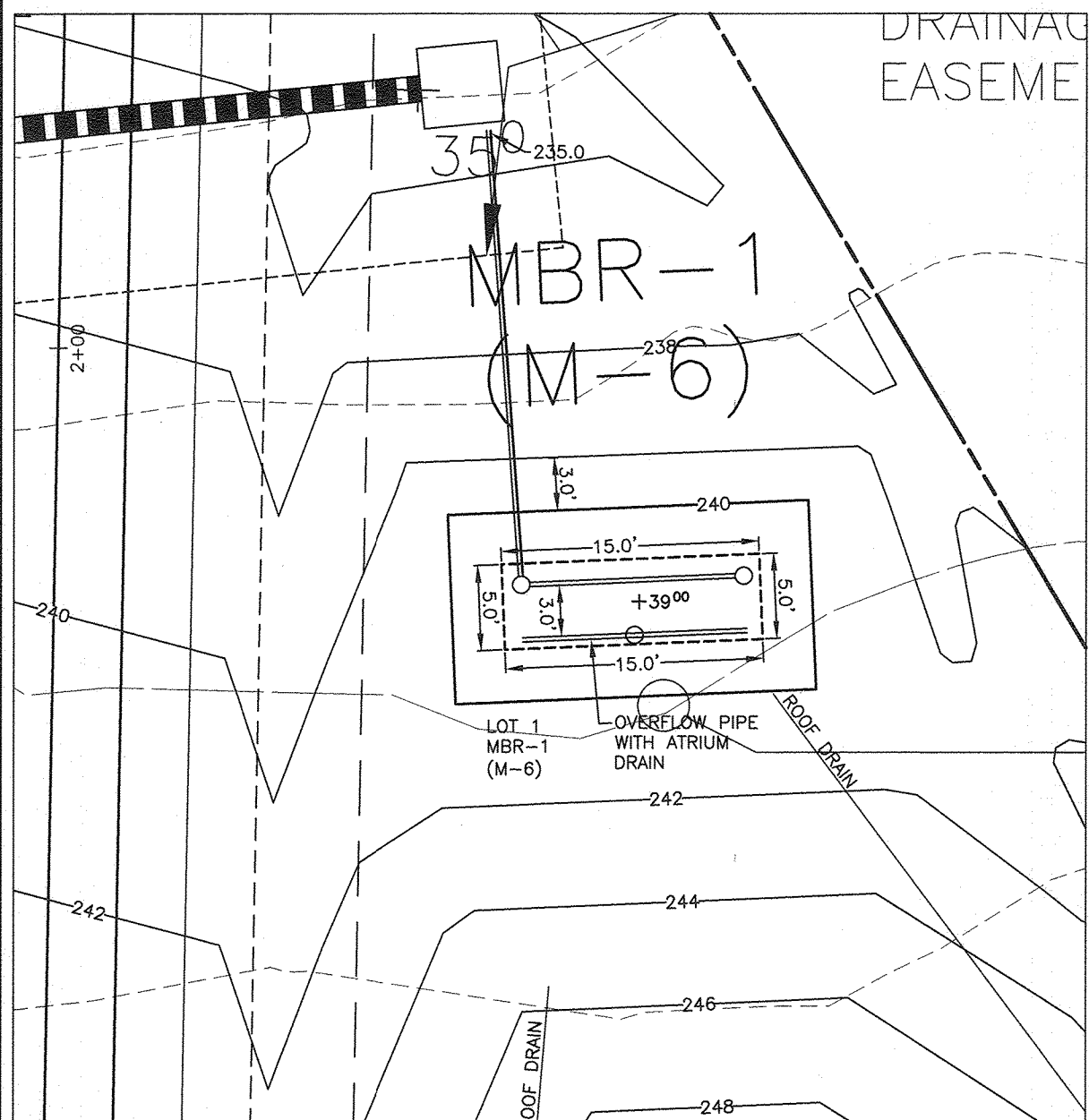
**FINAL PLAN**  
 STORMWATER MANAGEMENT  
 DEVELOPED ESDV DA MAP

RELEVANT FILE NUMBERS:  
 ESD-18-026, S-18-004, WP-19-079, P-19-002, & HPC-18-06

DESIGN: JC DRAWN: JC

DATE: OCTOBER, 2020 BEI PROJECT NO: 2818  
 SCALE: AS SHOWN SHEET 7 OF 15





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

APPROVED: DEPARTMENT OF PUBLIC WORKS  
11/19/20

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
12/10/20

**DEVELOPER'S CERTIFICATE**

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DEVELOPER: *John M. Carney* 10/16/20

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ENGINEER: JOHN M. CARNEY # 45577 10/16/20

2. 7-26-23 SHOW OPTIONAL ANTI-SEEP COLLAR 1. 6-7-22. Add Pond Liner, Remove SF-1 Core Trench, Pipe Material NO. DATE REVISION	
<b>BENCHMARK</b> ENGINEERS & LAND SURVEYORS & PLANNERS <b>ENGINEERING, INC.</b> 8490 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21104 (P) 410-465-6105 (F) 410-465-6844 WWW.BE-CIVILENGINEERING.COM	
OWNER/DEVELOPER: HARMONY BUILDERS INC 4228 COLUMBIA ROAD ELLICOTT CITY, MD 21075 410-461-0833	
ELKRISE HILL LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12 6289 OLD WASHINGTON ROAD ELKRISE, MD 21075 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND	
<b>FINAL PLAN</b> STORMWATER MANAGEMENT NOTES AND DETAILS	
RELEVANT FILE NUMBERS: ECP-18-026, S-18-004, WP-19-079, P-18-002, & HPC-18-06	DATE: OCTOBER, 2020 SCALE: AS SHOWN
DESIGN: JC DRAWN: JC	BEI PROJECT NO: 2818 SHEET 9 OF 15



AREA AND "C" FACTOR TABULATION

PROJECT: ELKRISE HILL DATE: 3/20/2020 BY: JC

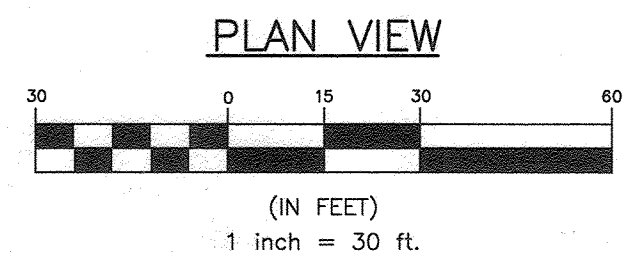
PHASE	INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR (C)<25	"C" FACTOR (C)>25	% IMPERVIOUS (P)<25
N/A	I-1	R-12		0.02	0.34	0.45	30.0
N/A	I-2	R-12		0.06	0.34	0.45	30.0
N/A	S-1	R-12		2.19	0.33	0.43	26.7
N/A	I-3	R-12		0.17	0.34	0.45	30.0
N/A	I-4	R-12		1.60	0.33	0.43	25.4
N/A	I-5	R-12		0.19	0.34	0.45	30.0
N/A	I-6	R-12		3.78	0.36	0.47	30.7
N/A	EX-I-2	R-12		2.63	0.52	0.66	51.3
N/A	EX-I-1	R-12		0.18	0.67	0.97	100.0

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
R/C	C			RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.43
R/D	C			RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES	0.43
U/B	D	B/C		URBAN LAND-CHILLUM-BELTSVILLE COMPLEX 0 TO 5 PERCENT SLOPES	0.37
U/D	D	B/C		URBAN LAND-CHILLUM-BELTSVILLE COMPLEX 5 TO 15 PERCENT SLOPES	0.37

\* INDICATES HYDRIC SOILS  
 \*\* HIGHLY ERODIBLE SOILS: SOILS WITH K OF 0.35 OR GREATER AND ON GRADES 5% OR STEEPER; OR SOILS ON GRADES 15% OR GREATER.  
 SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL 2017, MAP 20.

LEGEND

- PROPERTY BOUNDARY
- ADJACENT PROPERTY OWNER
- PROPOSED CONTOURS
- EXISTING CONTOURS
- SOILS CLASSIFICATION
- SOILS DELINEATION
- EXISTING WOODS LINE
- PROPOSED TREE LINE
- STORM DRAIN DRAINAGE AREA DIVIDE
- STORM DRAIN DRAINAGE AREA DIVIDE
- EX. FIBER OPTIC LINE



NO.	DATE	REVISION
3	7-26-23	SHOW CULVERT IN OLD WASHINGTON RD, I-1 + I-2
2	6-7-22	Revis Location of Ex 6" Gasline and Connections.
1	8-8-21	SHOW FIBER OPTIC LINE

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS & PLANNERS  
 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 WWW.BE-CIVILENGINEERING.COM

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. 45577, Expiration Date: 06-08-2022.

*Shawn Cui*  
 10/16/20

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Shawn Cui* for 11/19/20  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 12/23/20  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 12-10-20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER/DEVELOPER:  
 HARMONY BUILDERS INC  
 4228 COLUMBIA ROAD  
 ELLICOTT CITY, MD 21042  
 410-461-0633

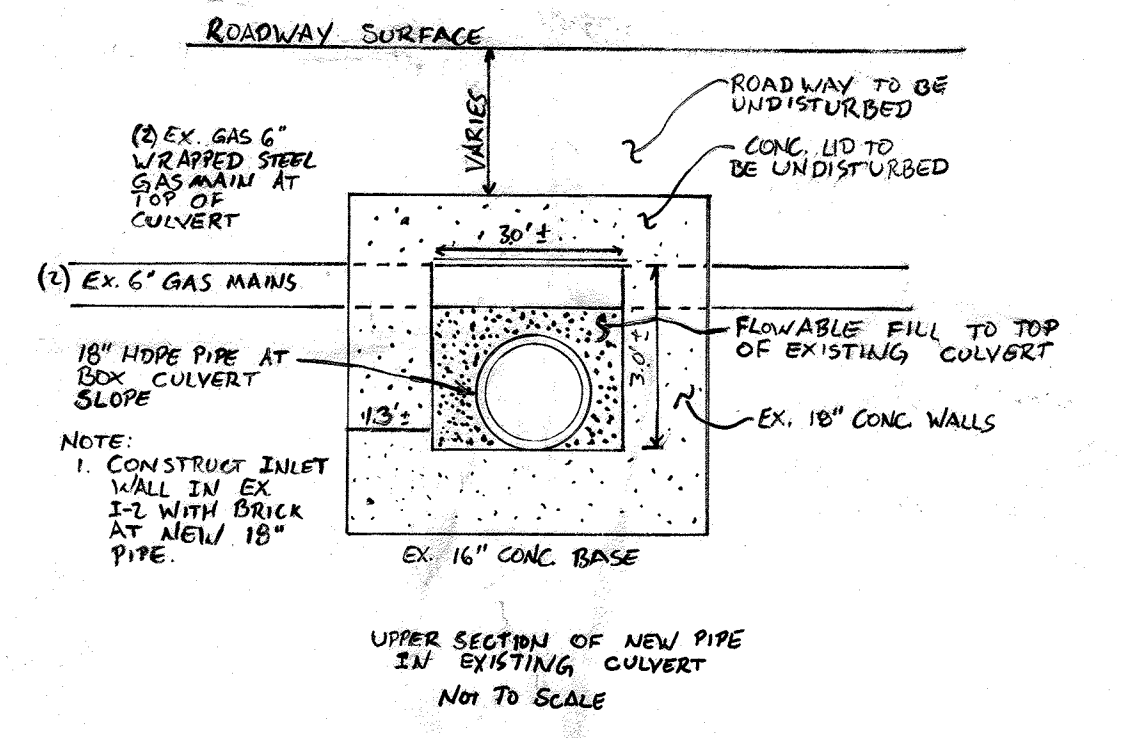
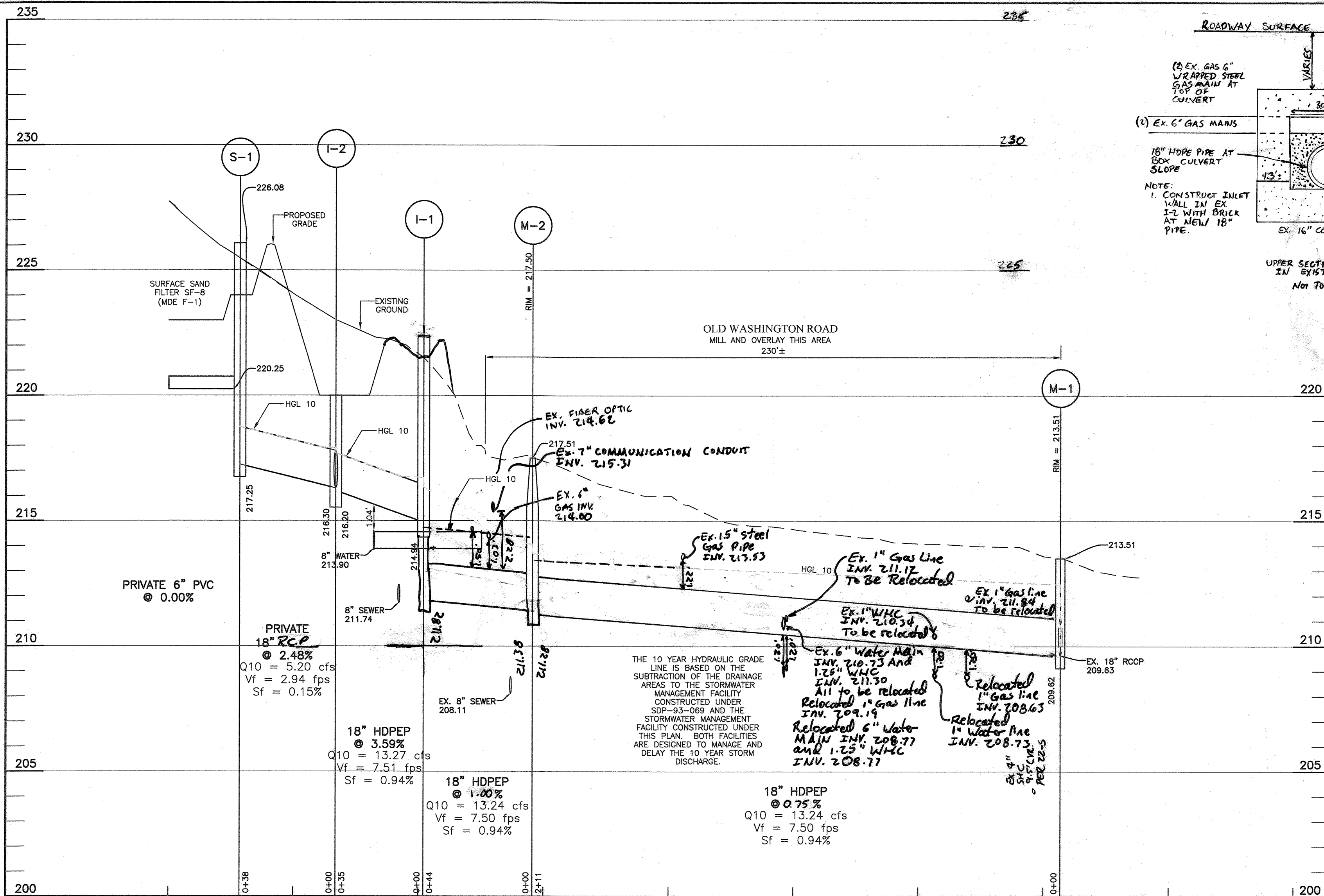
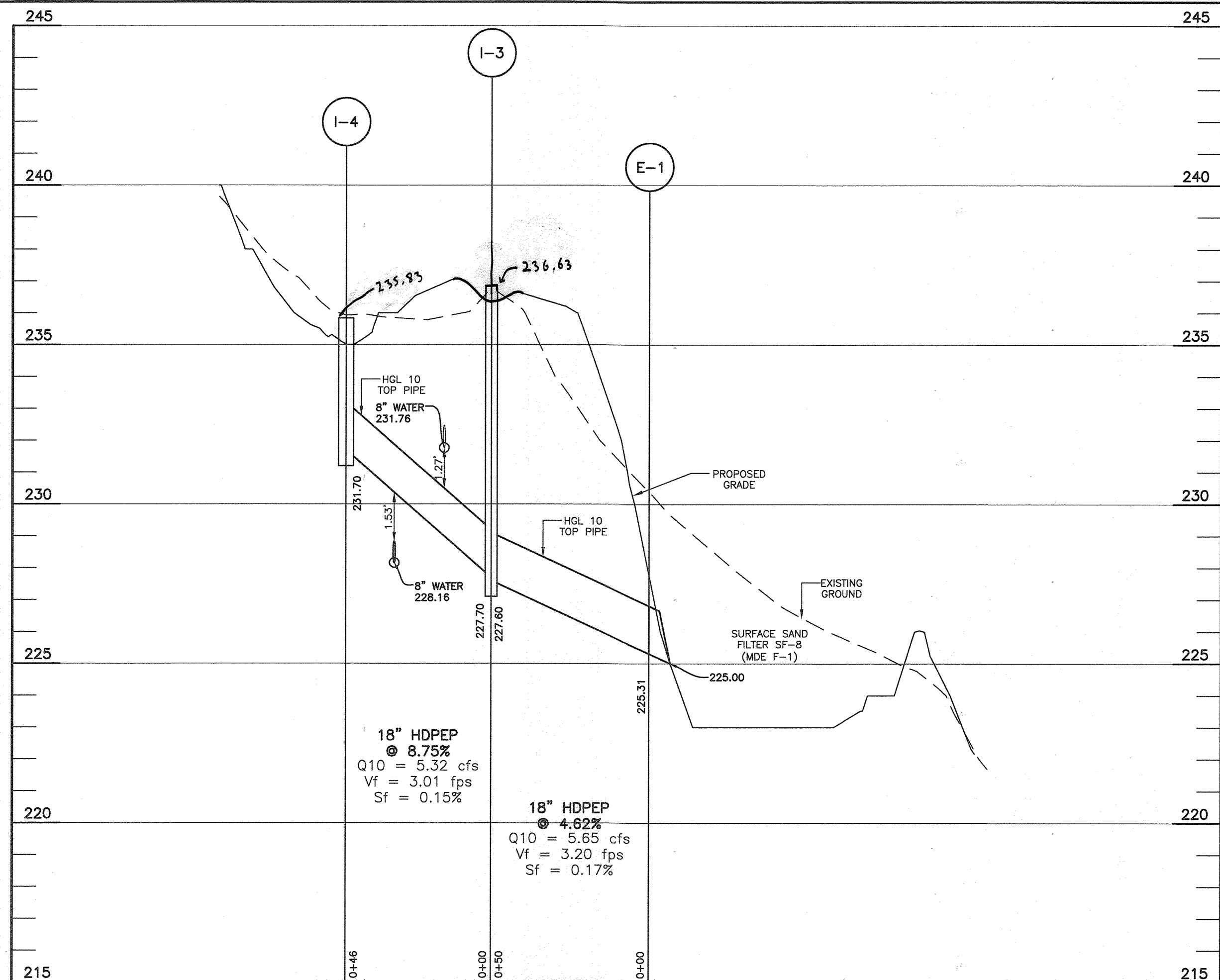
**ELKRISE HILL**  
 LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8  
 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12  
 6289 OLD WASHINGTON ROAD  
 ELKRISE, MD 21075  
 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

FINAL PLAN  
 STORM DRAINAGE AREA MAP

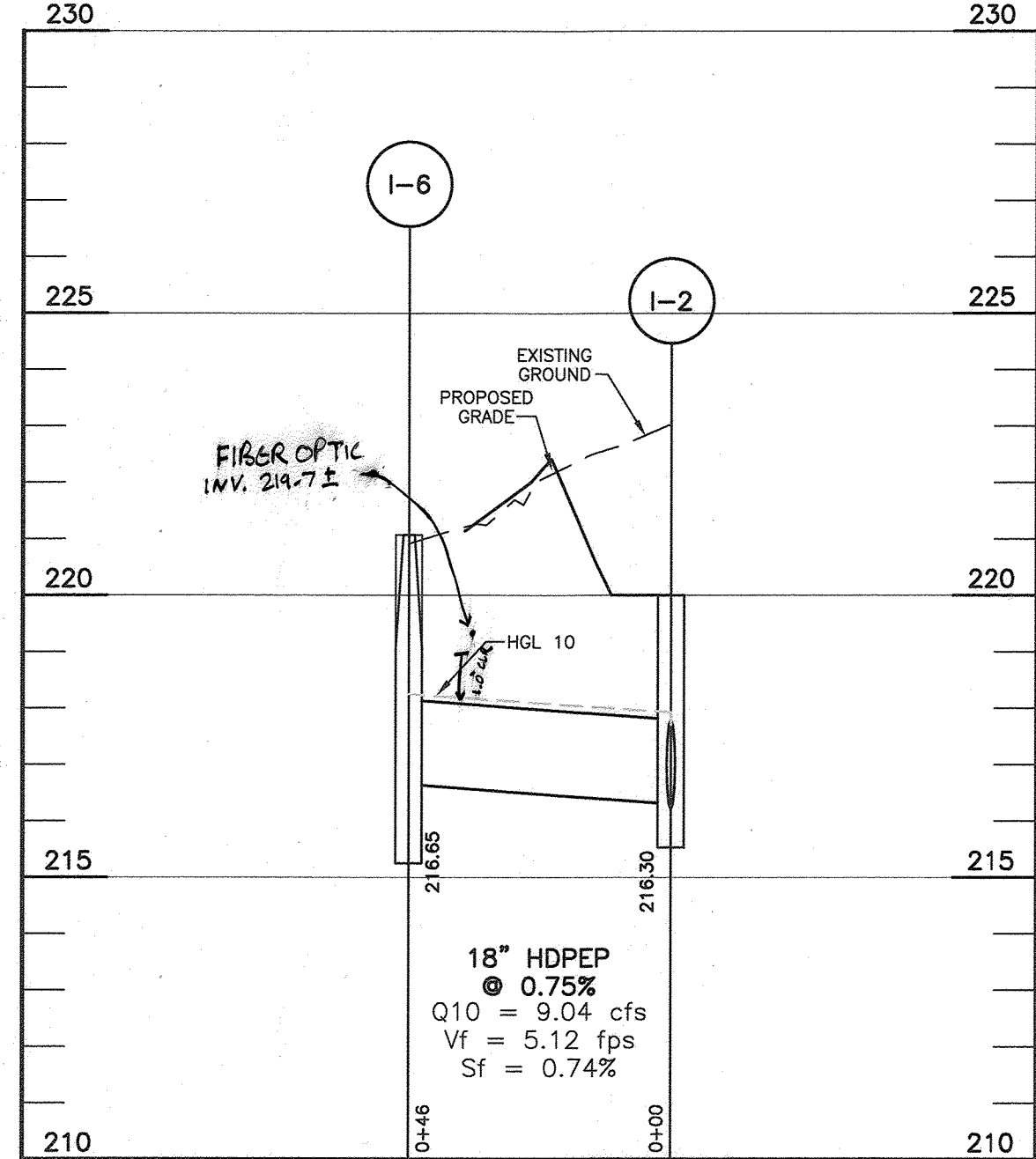
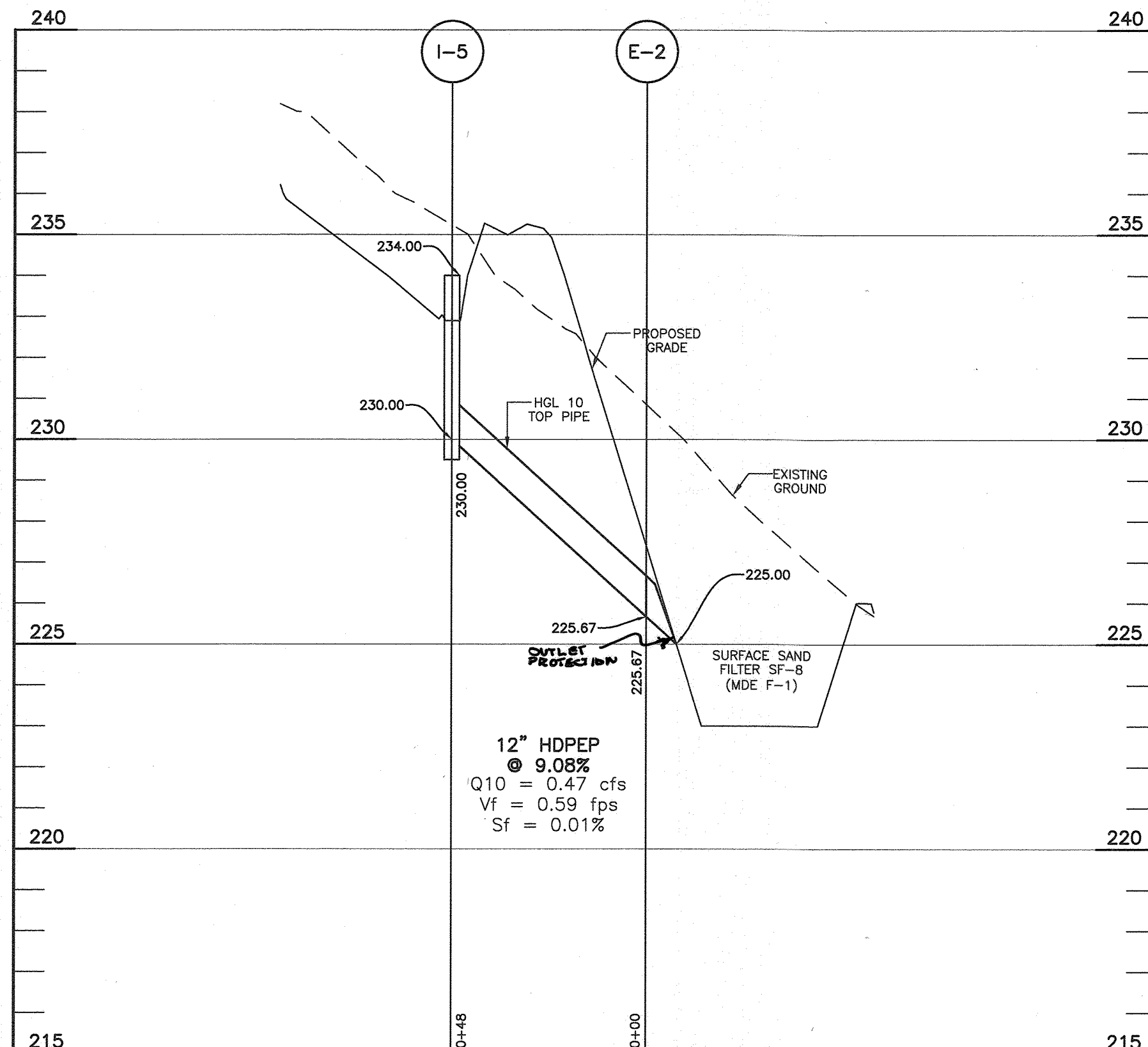
RELEVANT FILE NUMBERS:  
 EOP-18-026, S-18-004, WP-19-079,  
 P-18-002, & HPC-18-06

DATE: OCTOBER, 2020 BEI PROJECT NO: 2818  
 SCALE: AS SHOWN SHEET 10 OF 15





EXISTING CULVERT:  
 REMOVE EX. I-1 TO CENTERLINE OF OLD WASHINGTON ROAD. USE DETAIL ABOVE FROM CENTERLINE OF ROAD TO EX. I-2.



**PIPE SCHEDULE**

SIZE	TYPE	LENGTH (L.F.)	MAINTENANCE
12"	HDPEP	48	PRIVATE
18"	HDPEP	36	PRIVATE
18"	HDPEP	336	PUBLIC
18"	RCP	36	PRIVATE

All hdpe pipes shall have smooth interior. No interior corrugations.

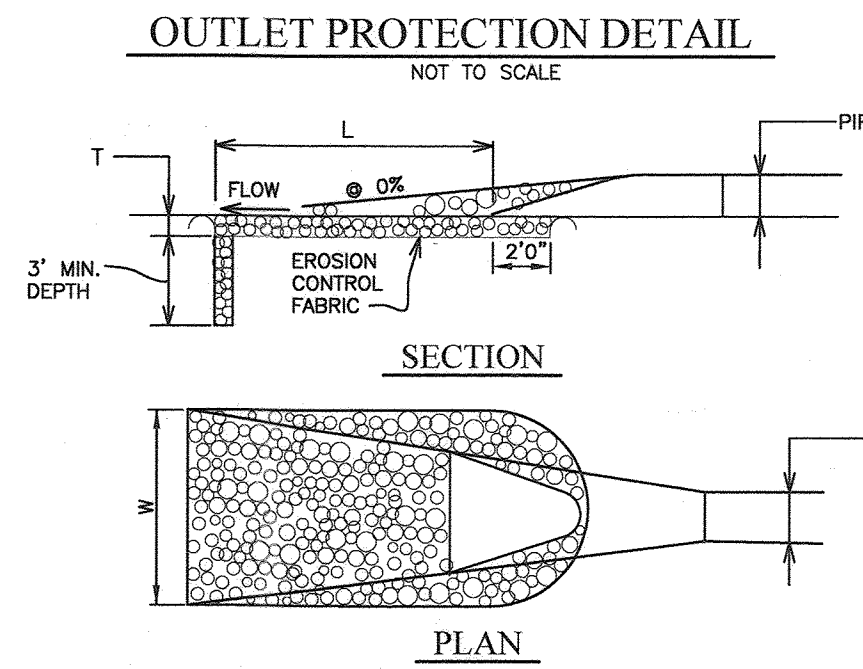
**STRUCTURE SCHEDULE**

STRUCTURE	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	THROAT ELEV.	STD. DETAIL	MAINTENANCE
<b>INLETS</b>								
I-1	D' Pre-Cast	N 660,670.62 E 1,390,138.83	214.84	214.84	222.33	221.50	D-4-10	PUBLIC
I-2	S' Pre-Cast	N 660,652.24 E 1,390,108.89	216.30	216.30	220.00	220.00	D-4-24	PUBLIC
I-3	D' Pre-Cast	N 660,632.87 E 1,390,161.65	227.70	227.70	226.60	236.63	D-4-10	PRIVATE
I-4	D' Pre-Cast	N 660,637.41 E 1,390,207.13			231.70	235.83	D-4-10	PRIVATE
I-5	D' Pre-Cast	N 660,631.10 E 1,390,077.08			230.00	234.00	D-4-10	PRIVATE
I-6	COG 20 CIRCULAR	N 660,650.03 E 1,390,054.88			216.65	221.07	D-4-03	PUBLIC
<b>MANHOLES</b>								
M-1	4'dia. Pre-Cast	N 660,616.76 E 1,390,297.32	209.62	209.62	213.61		G-5-12 SHALLOW	PUBLIC
M-2	4'dia. Pre-Cast	N 660,707.89 E 1,390,116.40	211.38	211.38	217.51		G-5-12	PUBLIC
<b>END SECTIONS</b>								
E-1	HDPE End Section	N 660,682.89 E 1,390,137.02			225.00	225.00	Manufacturer Specs.	PRIVATE
E-2	HDPE End Section	N 660,676.72 E 1,390,105.65			225.00	225.00	Manufacturer Specs.	PRIVATE
<b>HEADWALLS</b>								
S-1	Modified D Inlet	N 660,623.87 E 1,390,083.06	220.75	217.25	225.83	225.00	D-4-10	PRIVATE

STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE RIM.  
 STRUCTURE LOCATION FOR END SECTIONS IS AT THE CONNECTION OF THE PIPE AND THE STRUCTURE.  
 STRUCTURE LOCATION FOR HEADWALLS IS AT THE MIDPOINT OF THE FACE OF THE STRUCTURE.  
 PRECAST STRUCTURES MEETING HS-20 LOADINGS MAY BE USED.

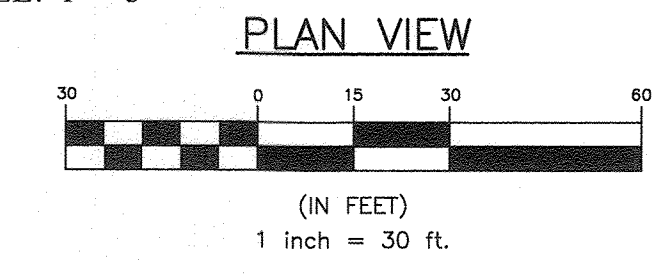
- CONSTRUCTION SPECIFICATIONS**
- THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
  - THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
  - GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
  - STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
  - THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	9.5'	10'	10'	18"	I
E-2	9.5'	10'	10'	18"	I



APPROVED: DEPARTMENT OF PUBLIC WORKS  
 [Signature]  
 CHIEF, Bureau of Highways  
 11/19/20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 [Signature]  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 12/23/20



3	7-26-23	SHOW CULVERT REPAIR ON OLD WASHINGTON ROAD
2	6-7-22	Reuse Profile and Chart for 04.14 Elevations
1	6-9-21	ADD FIBER OPTIC LINE, ADJUST GAS AND STORM DRAIN
NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6844  
 WWW.BE-CMLENGINEERING.COM

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. 45577, Expiration Date: 06-08-2022.

OWNER/DEVELOPER:  
 HARMONY BUILDERS INC  
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 ELLICOTT CITY, MD 21042  
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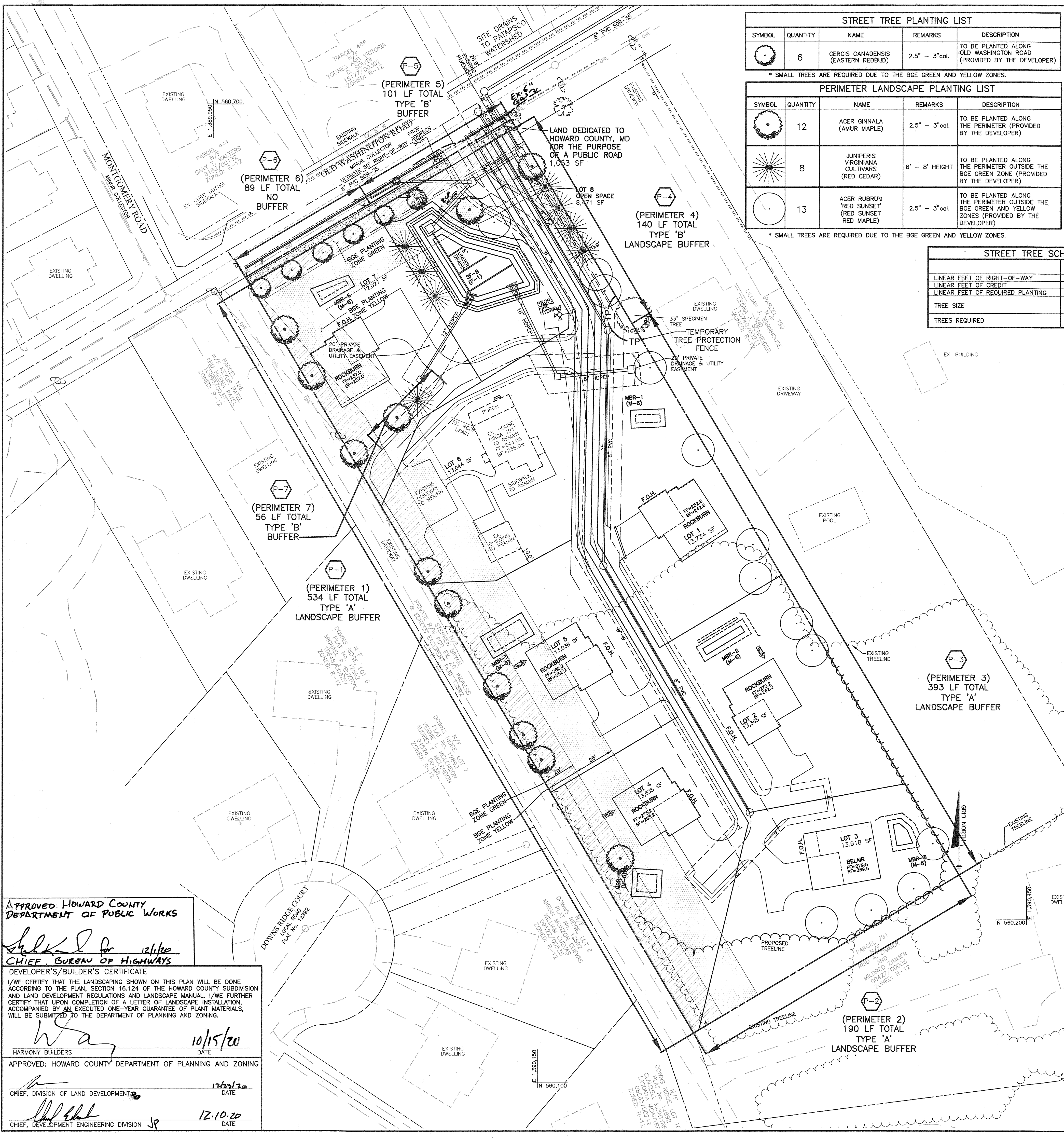
**ELKRISE HILL**  
 LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8  
 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12  
 6289 OLD WASHINGTON ROAD  
 ELKRISE, MD 21075  
 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

FINAL PLAN  
 STORM DRAINAGE PROFILES

RELEVANT FILE NUMBERS:  
 ECP-18-026, S-18-004, WP-19-079,  
 P-19-002, & HPC-18-006

DATE: OCTOBER, 2020  
 BEI PROJECT NO: 2818  
 SCALE: AS SHOWN  
 SHEET 12 OF 15





STREET TREE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	6	CERCIS CANADENSIS (EASTERN REDBUD)	2.5" - 3" cal.	TO BE PLANTED ALONG OLD WASHINGTON ROAD (PROVIDED BY THE DEVELOPER)
* SMALL TREES ARE REQUIRED DUE TO THE BGE GREEN AND YELLOW ZONES.				
PERIMETER LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	12	ACER GINNALA (AMUR MAPLE)	2.5" - 3" cal.	TO BE PLANTED ALONG THE PERIMETER (PROVIDED BY THE DEVELOPER)
	8	JUNIPER VIRGINIANA CULTIVARS (RED CEDAR)	6' - 8' HEIGHT	TO BE PLANTED ALONG THE PERIMETER OUTSIDE THE BGE GREEN ZONE (PROVIDED BY THE DEVELOPER)
	13	ACER RUBRUM 'RED SUNSET' (RED SUNSET RED MAPLE)	2.5" - 3" cal.	TO BE PLANTED ALONG THE PERIMETER OUTSIDE THE BGE GREEN AND YELLOW ZONES (PROVIDED BY THE DEVELOPER)
* SMALL TREES ARE REQUIRED DUE TO THE BGE GREEN AND YELLOW ZONES.				

SCHEDULE A PERIMETER LANDSCAPE EDGE									
CATEGORY	ADJACENT TO PERIMETER PROPERTIES	P-1	P-2	P-3	P-4	P-5	P-6	P-7	TOTAL
		A	A	A	B	B	NONE	B	
PERIMETER NO. / LANDSCAPE TYPE		1:60 shade	1:60 shade	1:60 shade	1:50 shade	1:50 shade	1:50 shade	1:50 shade	
LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY)		534	190	393	140	101	89	56	1257
CREDIT FOR EXISTING VEGETATION: NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO	NO	NO	NO	
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING		534	190	393	140	101	89	56	1257
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED: SHADE TREES 1:60		9	3	7	3	2	-	1	25
EVERGREEN TREES - OTHER TREES (2:1 SUBSTITUTE)		-	-	-	4	3	-	1	8
NUMBER OF PLANTS PROVIDED: SHADE TREES 1:60		9	3	7	3	2	-	1	25
EVERGREEN TREES - OTHER TREES (2:1 SUBSTITUTE)		-	-	-	4	3	-	1	8
SHRUBS (10:1 SUBSTITUTE) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)		-	-	-	-	-	-	-	-

FOREST CONSERVATION WORKSHEET VERSION 1.0 (Enter in Yellow Cells)					
NET TRACT AREA:					
A. Total tract area.....	=	2.40			
B. Area within 100 year floodplain.....	=	0.00			
C. Area to remain in agricultural production.....	=	0.00			
D. Net tract area.....	=	2.40			
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)					
Input the number "1" under the appropriate land use zoning, and limit to only one entry.					
ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0
E. Afforestation Threshold.....	15% x D =	0.40			
F. Conservation Threshold.....	20% x D =	0.50			

STREET TREE SCHEDULE	
OLD WASHINGTON RD.	
LINEAR FEET OF RIGHT-OF-WAY	165'
LINEAR FEET OF CREDIT	0
LINEAR FEET OF REQUIRED PLANTING	165'
TREE SIZE	MEDIUM 1:30 LF
TREES REQUIRED	6
TOTAL	6

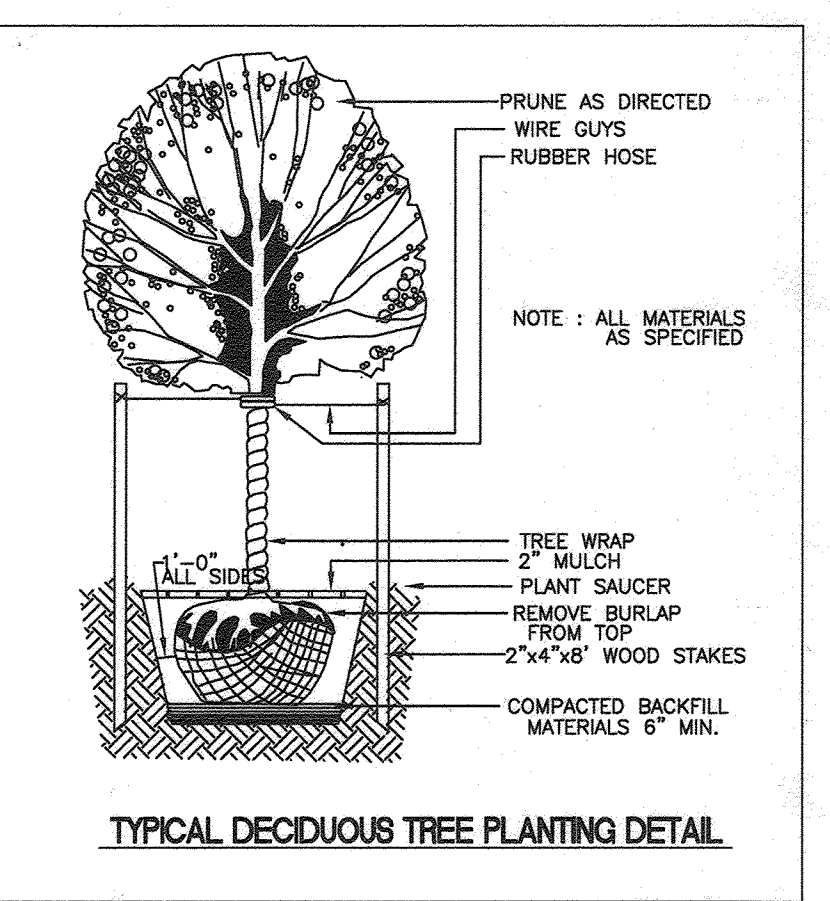
**LANDSCAPING NOTES**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
- THE LANDSCAPING SHOWN ON THIS PLAN IS PICTORIAL FOR REQUIREMENT PURPOSES ONLY. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$8,700 FOR 25 SHADE TREES AND 8 EVERGREEN TREES, SHALL BE POSTED IN ACCORDANCE WITH THE APPROVED FINAL LANDSCAPE PLAN. SURETY SHALL BE POSTED WITH THE DPW DEVELOPER'S AGREEMENT.
- THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
- NO CREDIT IS TAKEN FOR THE RETAINED WOODED AREA AT THE SOUTHERN MOST CORNER.

**Myra Brosius**  
ISA Certified Arborist #MA5411A  
MD DNR FCA Qualified Professional  
myra.brosius@gmail.com

**Eco-Science Professionals, Inc.**  
CONSULTING ECOLOGISTS  
1000 W. BELT RD. SUITE 100, WASHINGTON, DC 20007  
Tel: 202-462-7800  
www.ecosciencenature.com

PLAN PREPARED BY:  
**JOHN CANOLES**  
MD DNR FCA QUALIFIED PROFESSIONAL



EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain).....	=	1.10
H. Area of forest above afforestation threshold.....	=	0.70
I. Area of forest above conservation threshold.....	=	0.60

BREAK EVEN POINT (BEP):

J. Forest retention above threshold with no mitigation (BEP).....	0.60
K. Clearing permitted without mitigation.....	0.50

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared.....	1.10
M. Total area of forest to be retained.....	0.00

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold..=	0.20
P. Reforestation for clearing below conservation threshold..=	1.00
Q. Credit for retention above conservation threshold.....=	0.00
R. Total reforestation required.....=	1.20
S. Total afforestation required.....=	0.00
T. Total reforestation and afforestation required.....=	1.20

THE FOREST CONSERVATION OBLIGATION IS FULFILLED BY THE USE OF A FOREST BANK. A REDLINE REVISION TO THE FOREST BANK SITE DEVELOPMENT PLAN WILL NEED TO BE PROCESSED PRIOR TO FINAL PLAT SIGNATURE.

THE FOREST CONSERVATION REQUIREMENTS FOR THIS SUBDIVISION SHALL BE ADDRESSED PRIOR TO RECORDATION OF THE FINAL SUBDIVISION PLAT AND SHALL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.1200 OF THE SUBDIVISION REGULATIONS AND FOREST CONSERVATION MANUAL. THE FOREST CONSERVATION OBLIGATION FOR THIS SUBDIVISION SHALL BE SATISFIED BY THE USE OF AN OFFSITE MITIGATION BANK AT **PARCEL 2, PROPERTY OF FOREVER A FAIR, LLC, FOREST MITIGATION BANK PLAN, SOP-14-005 FOREST MITIGATION, IN THE AMOUNT OF 2.41 ACRES, AT THE FOREST BANK, (FULFILLING 1.2 AC OF OBLIGATION)** WILL FULFILL THE FOREST OBLIGATION FOR THIS PROJECT. THE USE OF THE FOREST BANK WILL BE PROCESSED AS A REDLINE REVISION TO THE SOP-14-005 PLAN. THIS PLAN IS GRANDFATHERED TO THE FOREST CONSERVATION REGULATIONS IN EFFECT PRIOR TO COUNCIL BILL CSB2-2019 ACCORDING TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.102(H) BECAUSE A PRELIMINARY PLAN, P-19-002, WAS APPROVED ON AUGUST 19, 2019.

**LEGEND**

SOILS CLASSIFICATION	M&D
SOILS DELINEATION	---
EXISTING WOODS LINE	~ ~ ~ ~ ~
PROPOSED WOODS LINE	~ ~ ~ ~ ~
EXISTING STRUCTURE	---
BGE PLANTING ZONE: GREEN	▨
BGE PLANTING ZONE: YELLOW	▨

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Shelley* 12/16/20  
CHIEF, BUREAU OF HIGHWAYS

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

*W.A.* 10/15/20  
HARMONY BUILDERS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Shelley* 12/23/20  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Shelley* 12.10.20  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
2	6-7-22	Show Ex. 6" Gasline
1	6-9-21	ADJUST FOREST CONSERVATION NOTE

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. AS572, Expiration Date: 05-08-2022.

**BENCHMARK ENGINEERING, INC.**  
8490 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-8644  
WWW.BE-CIVILENGINEERING.COM

OWNER/DEVELOPER:  
HARMONY BUILDERS INC  
4228 COLUMBIA ROAD  
ELLICOTT CITY, MD 21042  
410-461-0533

**ELKRISE HILL**  
LOTS 1-7 AND NON-CREDITED OPEN SPACE LOT 8  
TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12  
6289 OLD WASHINGTON ROAD  
ELKRISE, MD 21075  
ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

FINAL PLAN LANDSCAPE PLAN & FOREST CONSERVATION WORKSHEET

RELEVANT FILE NUMBERS:  
ECP-18-026, S-18-004, WP-19-079, P-18-002, & HPC-18-06

DATE: OCTOBER, 2020  
SCALE: AS SHOWN  
SHEET: 15 OF 15

BEI PROJECT NO: 2818

