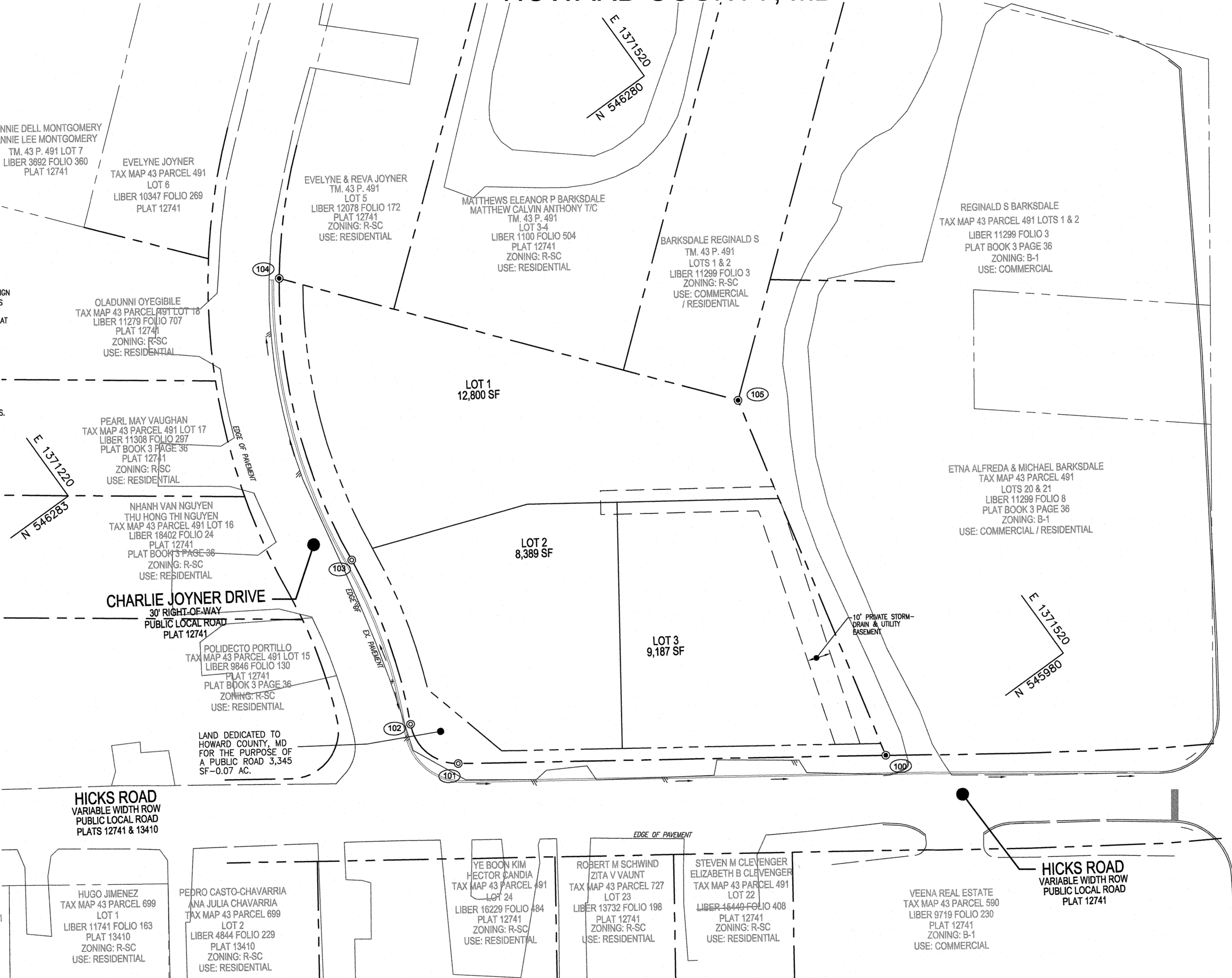


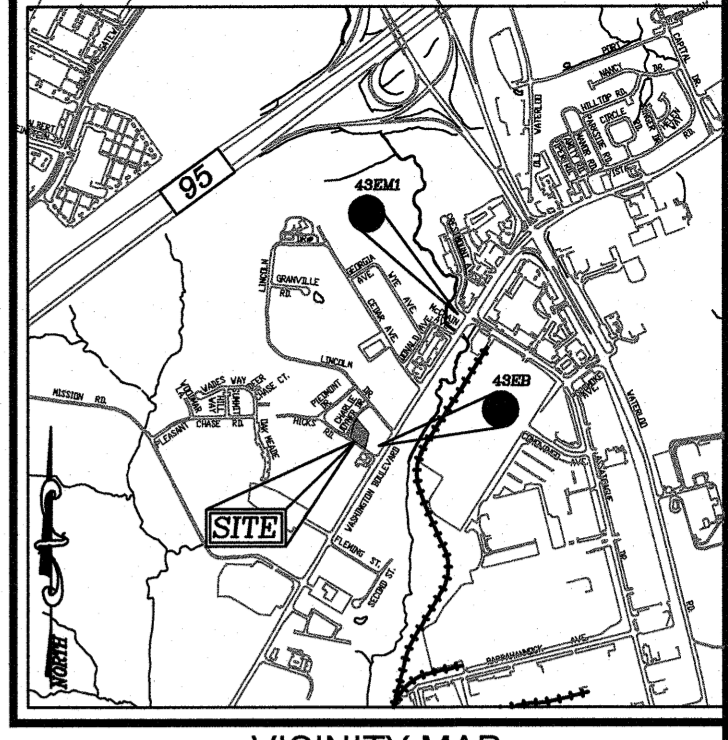
GENERAL NOTES

- 1. THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCE REQUEST HAS BEEN APPROVED... 2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE...

FINAL SUPPLEMENTAL PLAN GREENFIELDS COMMUNITY LIVING LOTS 1, 2 AND 3 A SUBDIVISION OF TAXMAP 43 AND PARCEL 491 LIBER 18385 FOLIO 491 HOWARD COUNTY, MD



BENCHMARKS HOWARD COUNTY BENCHMARK - 43EM1 N 545924.87 E 1371561.74 ELEV.: 200.14



LEGEND: PROPERTY LINE, RIGHT-OF-WAY LINE, ADJACENT PROPERTY LINE, EXISTING PAVING, PROPOSED CURB

SHEET INDEX table with columns: DESCRIPTION, SHEET NO. Includes entries for COVER SHEET, SITE LAYOUT, SOILS MAP, etc.

ADDRESS CHART table with columns: LOT #, STREET ADDRESS. Lists addresses for Lot 1, 2, and 3.

SITE DATA table with columns: ELECTION DISTRICT, LOCATION, EXISTING ZONING, GROSS AREA, etc.

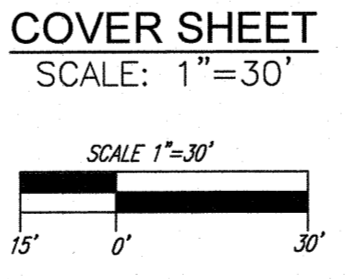
DEVELOPER: STANDARD ENERGY SOLUTIONS, 9520 GERWIG LANE, SUITES Q-T, COLUMBIA, MD 21046

Table with columns: NO., REVISION, DATE. Shows revision history.

NOTE: - HOUSES MAY NOT BE BUILT USING THIS PLAN.

- NOTES: 1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.

MINIMUM LOT SIZE CHART table with columns: LOT, GROSS AREA, PIPESTEM AREA, NET AREA, MIN. LOT SIZE.



OPEN SPACE TABULATION table with columns: LOT #, EL @ MAIN, TYPE, DIST. TO RW, EL @ RW, DIST. ESMT. TO HOUSE, EL @ HOUSE, MCE.

MCE CHART table with columns: LOT #, EL @ MAIN, TYPE, DIST. TO RW, EL @ RW, DIST. ESMT. TO HOUSE, EL @ HOUSE, MCE.

STORMWATER MANAGEMENT PRACTICE CHART table with columns: LOT #, STREET ADDRESS, MICRO-BIORETENTION, RAIN BARELL, MODIFIED DRYWELL(M-5).

PARKING TABULATION table with columns: OFF-STREET PARKING SPACES REQUIRED, PARKING SPACES PROVIDED, OVERFLOW / GUEST PARKING SPACES REQUIRED, TOTAL OVERFLOW PARKING SPACES PROVIDED.

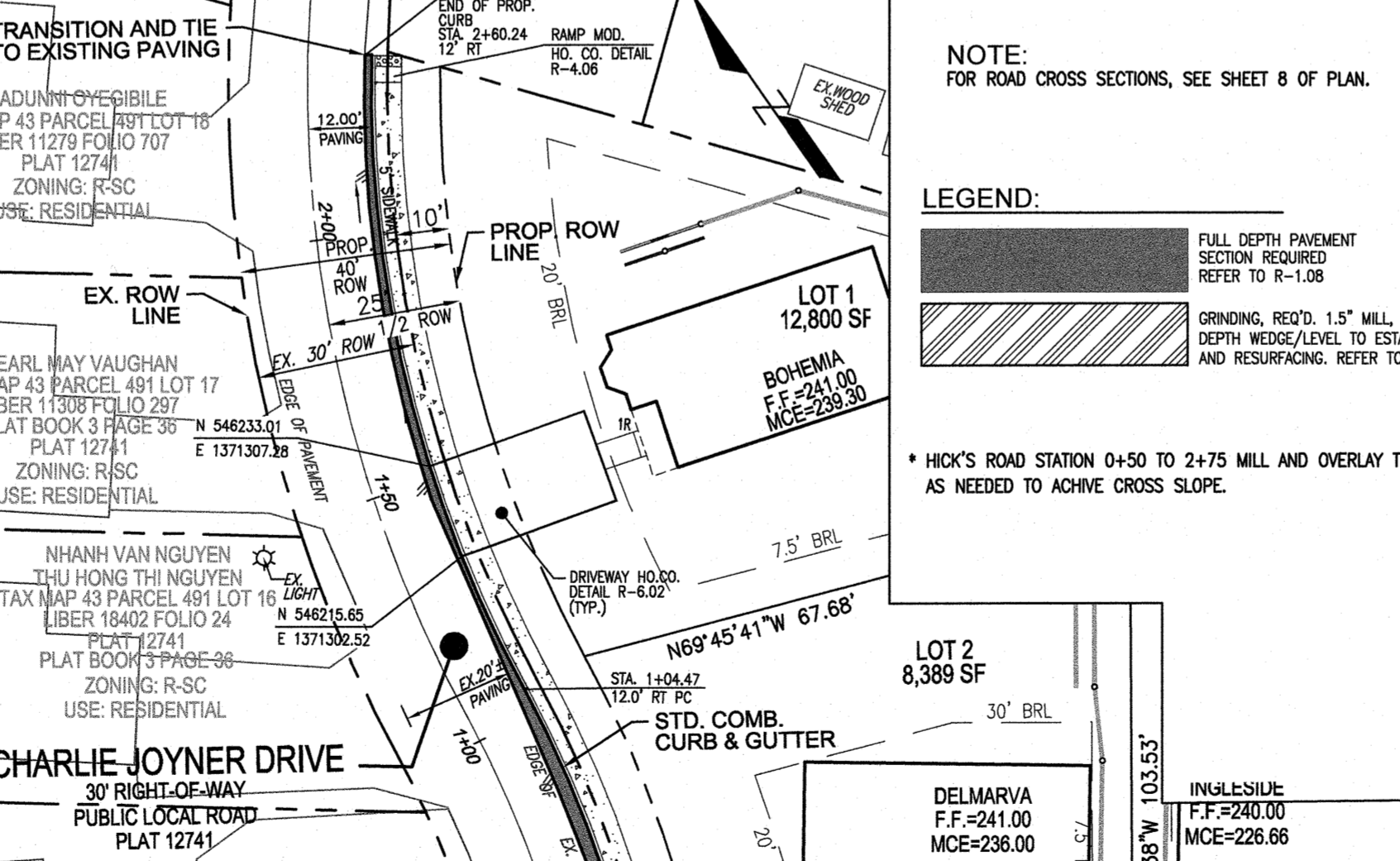
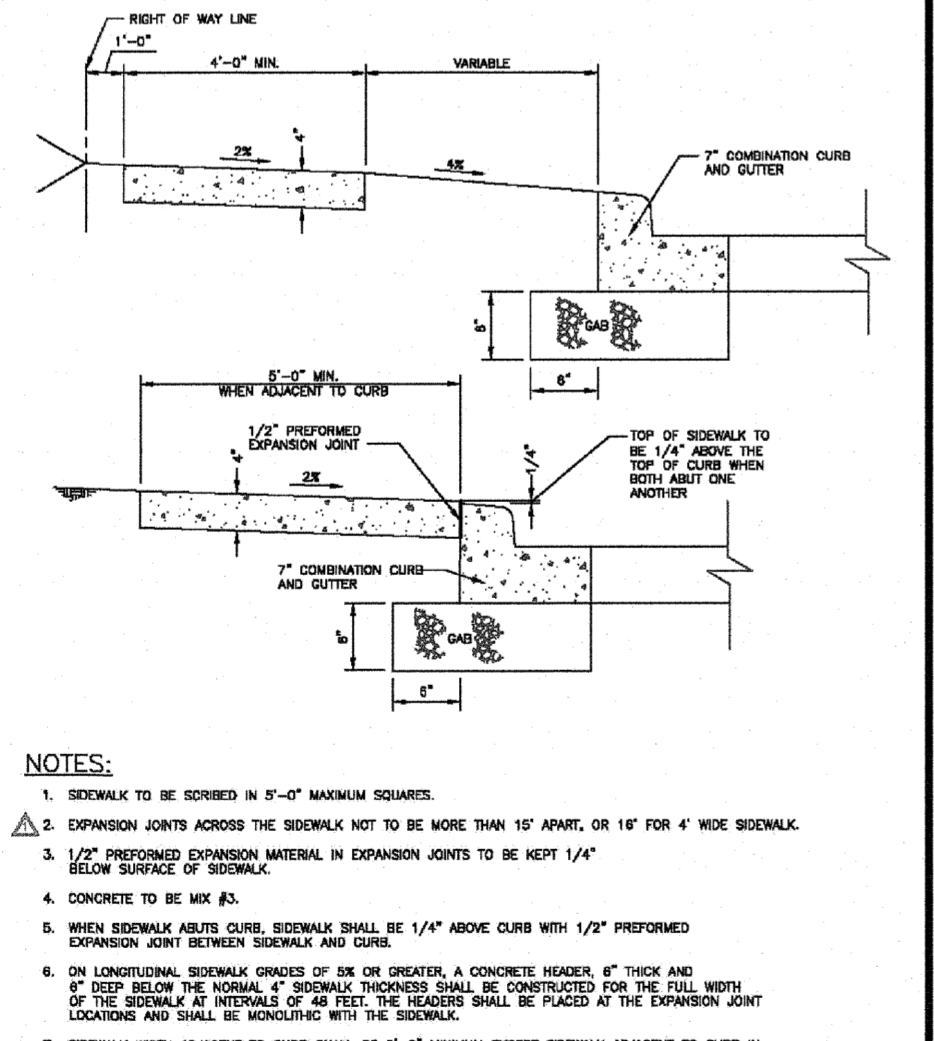
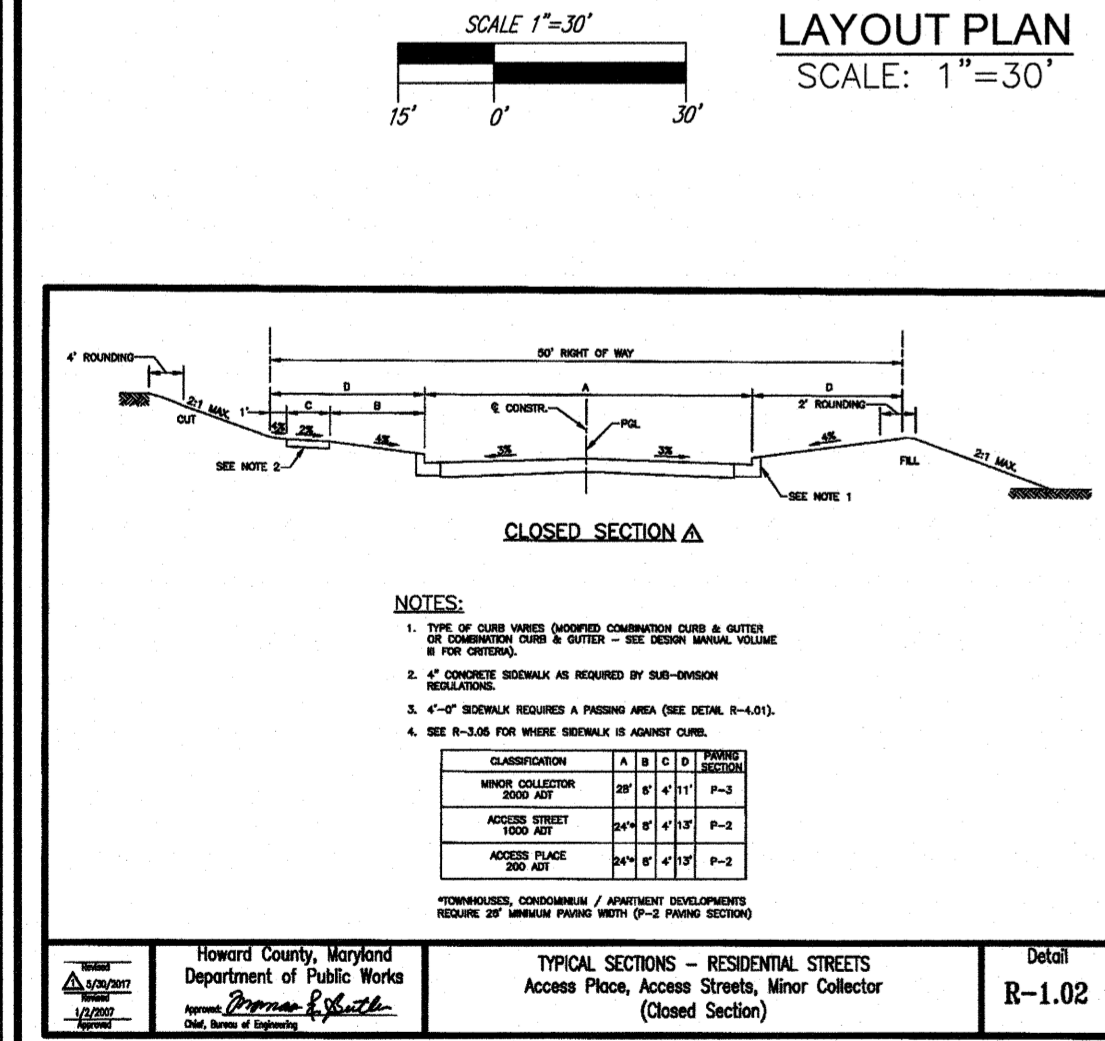
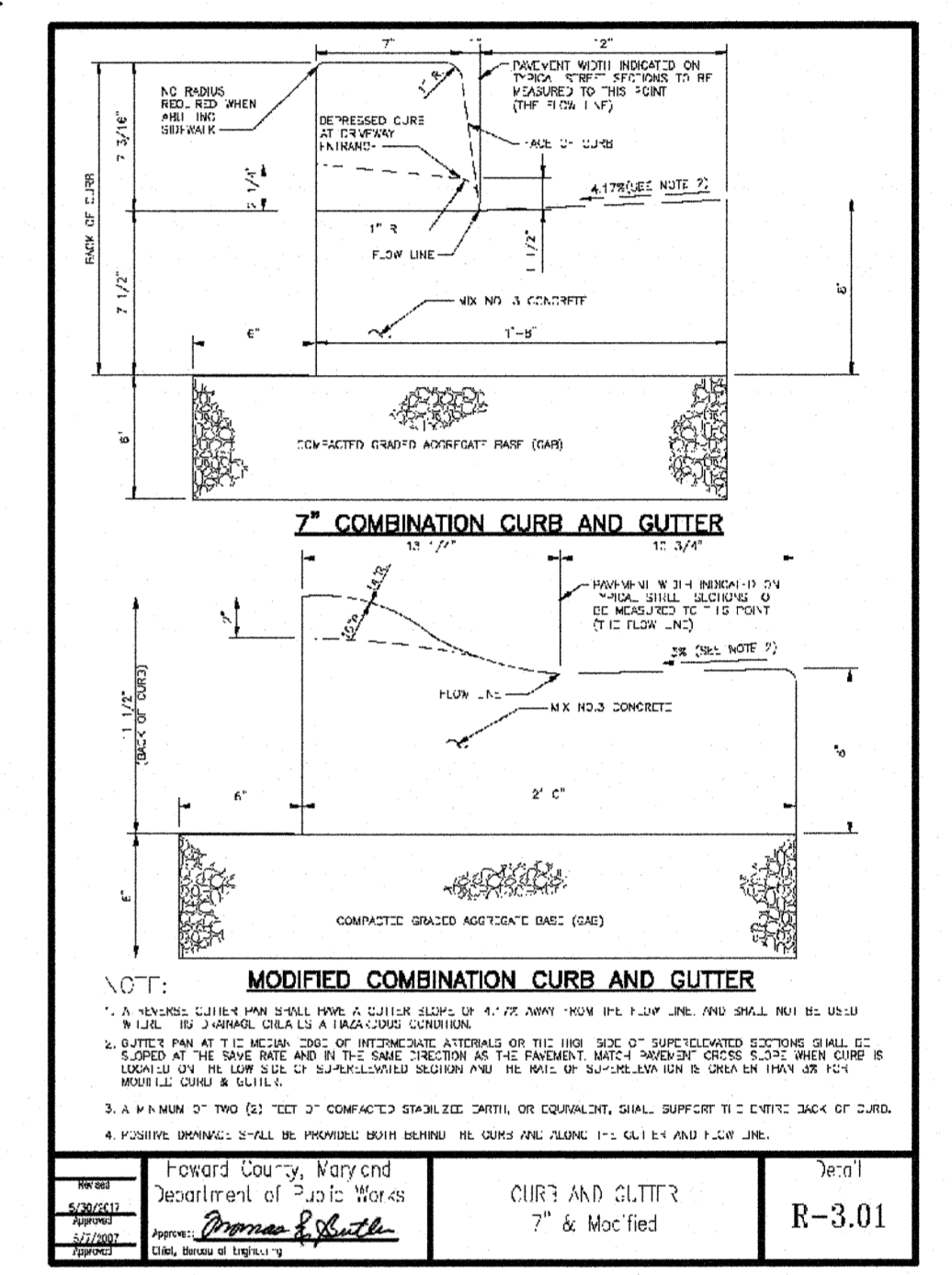
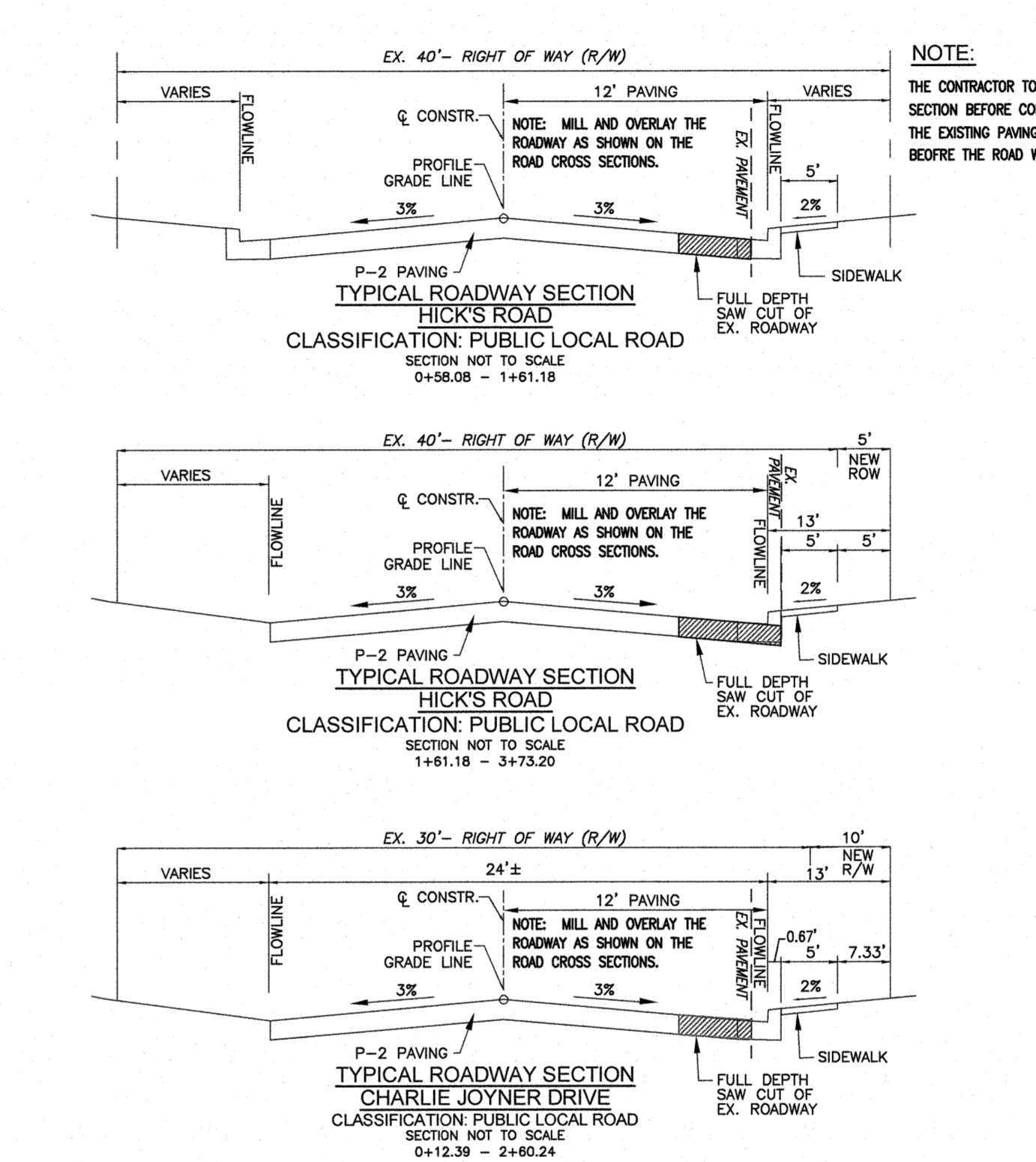
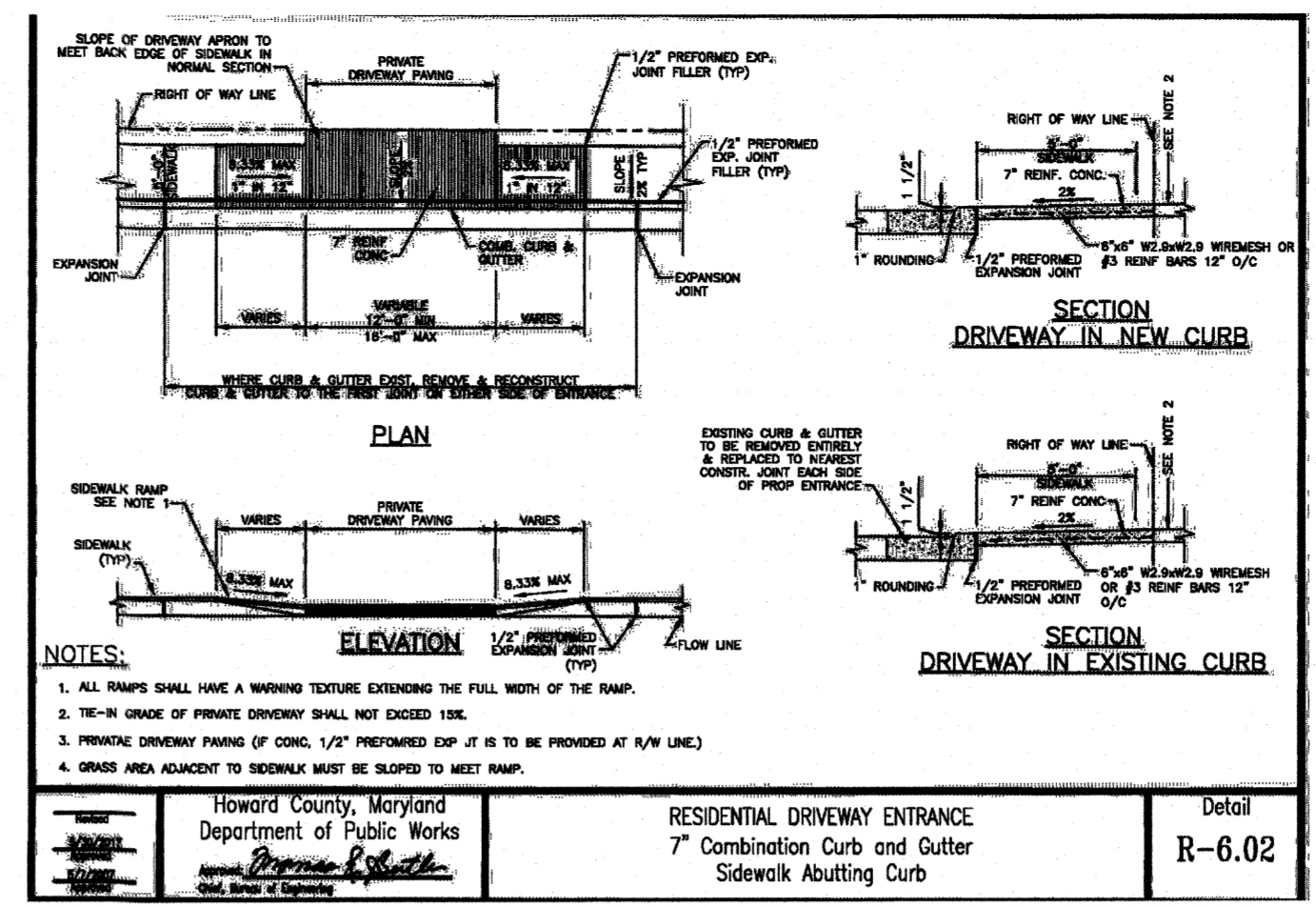
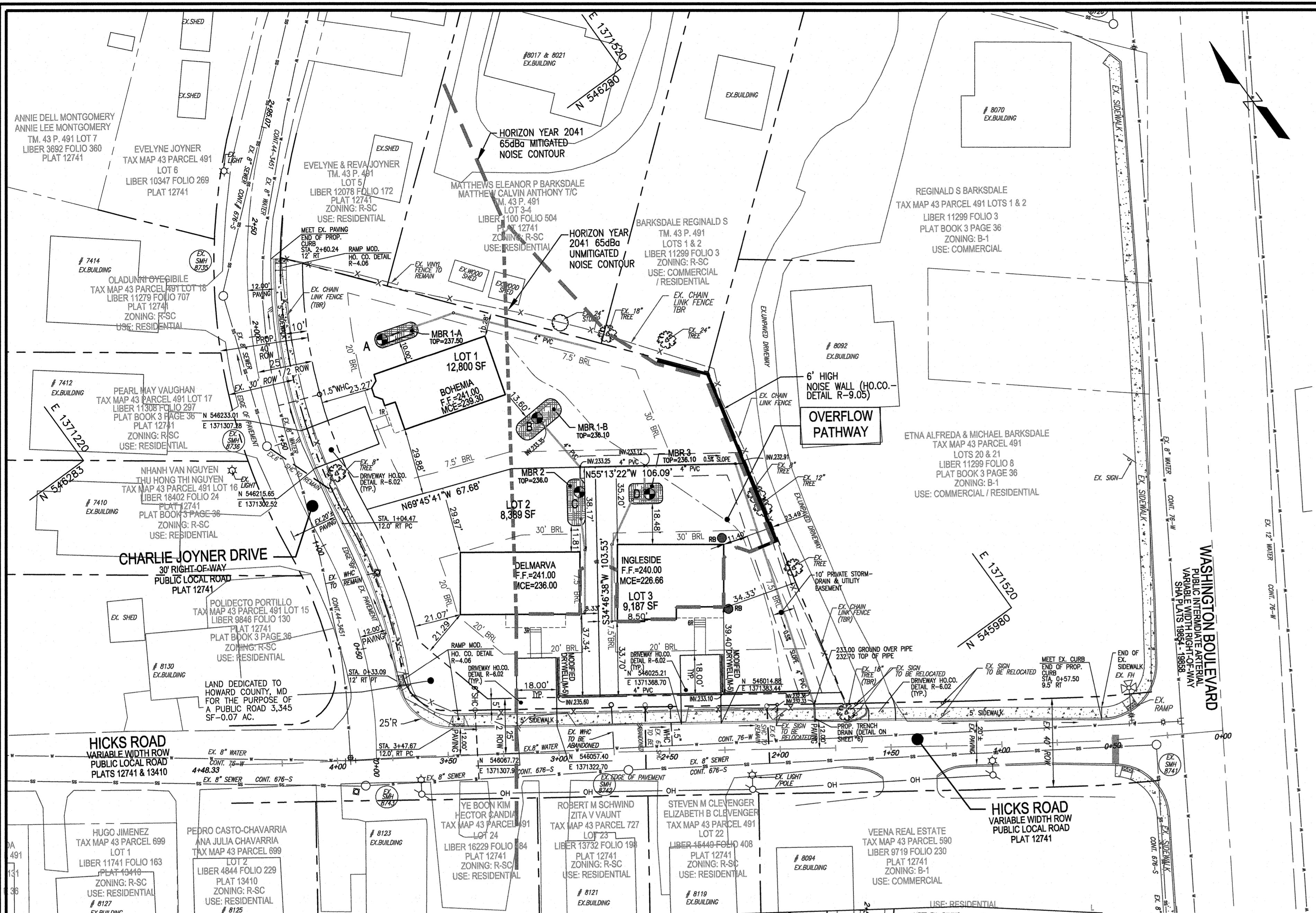
APPROVED: DEPARTMENT OF PUBLIC WORKS, CHIEF: BUREAU OF HIGHWAYS, DATE: 2/22/2022

FINAL SUPPLEMENTAL PLAN COVER SHEET GREENFIELDS COMMUNITY LIVING LOTS 1, 2 & 3 A SUBDIVISION OF TAX MAP 43 PARCEL 491 LIBER 18385 FOLIO 341

VOGEL ENGINEERING TIMMONS GROUP 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043

Professional Engineer seal for Robert H. Vogel, PE No. 16193, and project details including design and drawing dates.





APPROVED: DEPARTMENT OF PUBLIC WORKS  
DATE: 2/22/2022

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 2/22/2022

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 2/22/2022

CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 2/22/2022

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 2/22/2022

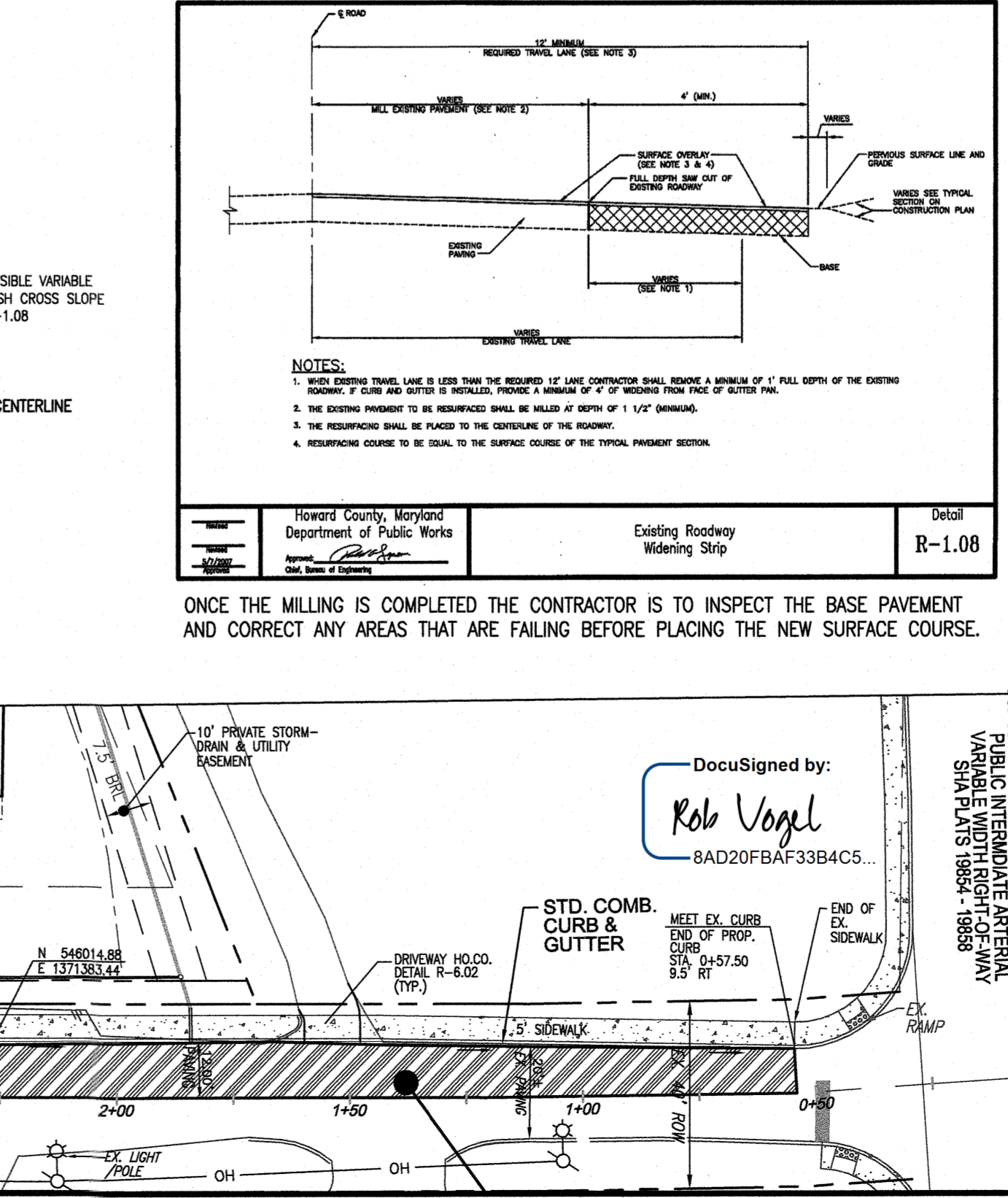
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 2/22/2022

CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 2/22/2022

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 2/22/2022

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 2/22/2022

CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 2/22/2022



**DEVELOPER**  
STANDARD ENERGY SOLUTIONS  
9520 GERWIG LANE, SUITES Q-1  
COLUMBIA, MD 21046  
PHONE: 410-844-3800  
STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

**OWNER**  
IHOMES, INC  
6355 WOODSIDE COURT  
COLUMBIA, MD 21046  
PHONE: 443-218-8558

NO.	REVISION	DATE

**FINAL SUPPLEMENTAL PLAN**  
**SITE LAYOUT AND ROAD IMPROVEMENTS PLAN**

**GREENFIELDS COMMUNITY LIVING**  
LOTS 1, 2 & 3  
A SUBDIVISION OF TAX MAP 43 PARCEL 491  
LIBER 18385 FOLIO 341

TAX MAP 43 BLOCK 14  
6TH ELECTION DISTRICT

PARCEL 491, ZONE: R-SC  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

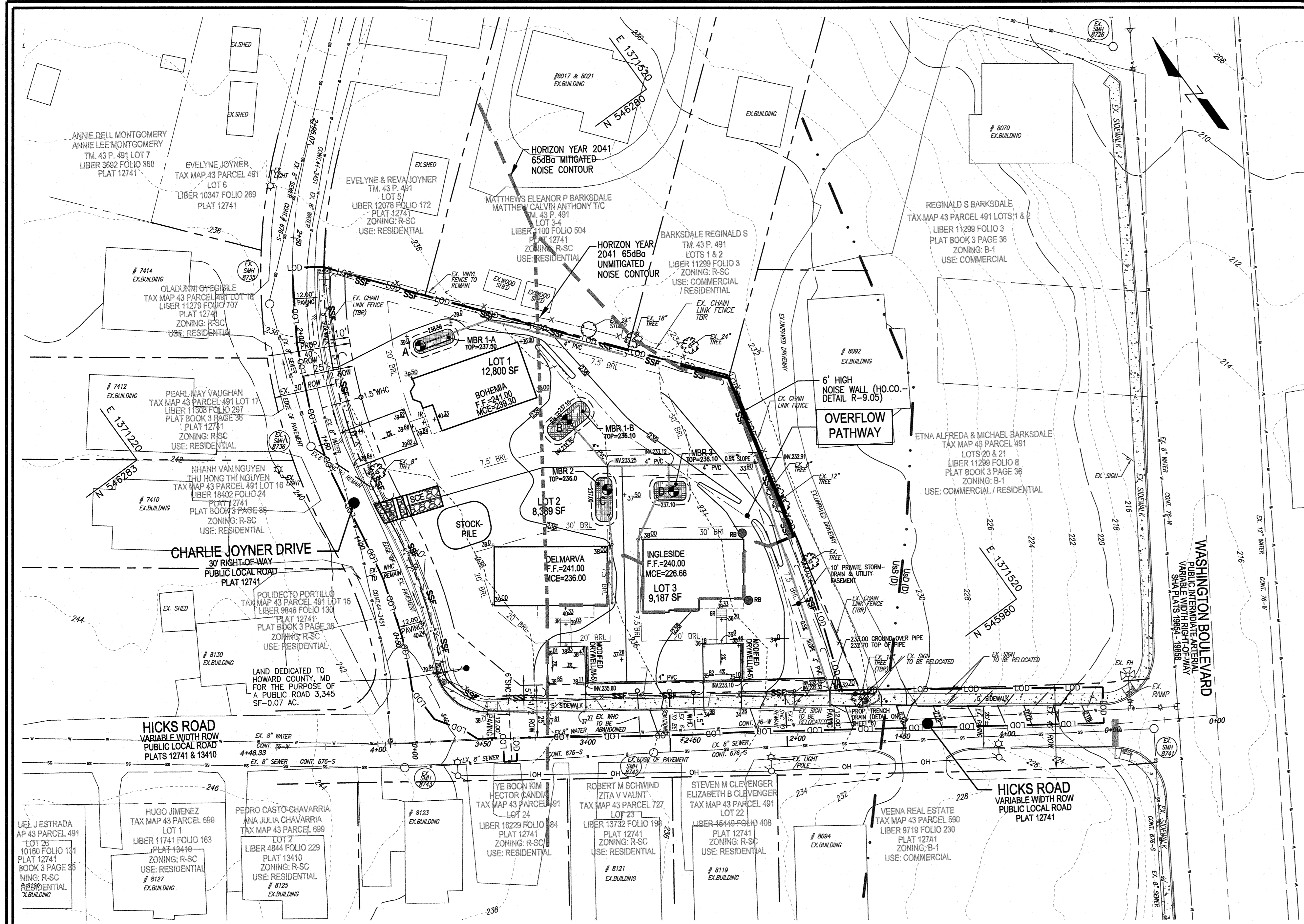
DESIGN BY: RHV  
DRAWN BY: KG  
CHECKED BY: RHV  
DATE: JANUARY 2022  
SCALE: 1"=30'  
W.C. NO.: 43808

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18183, EXPIRATION DATE: 09-27-2022.

ROBERT H. VOGEL, PE No.16193

2 SHEET OF 8





**GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN**  
SCALE: 1" = 30'

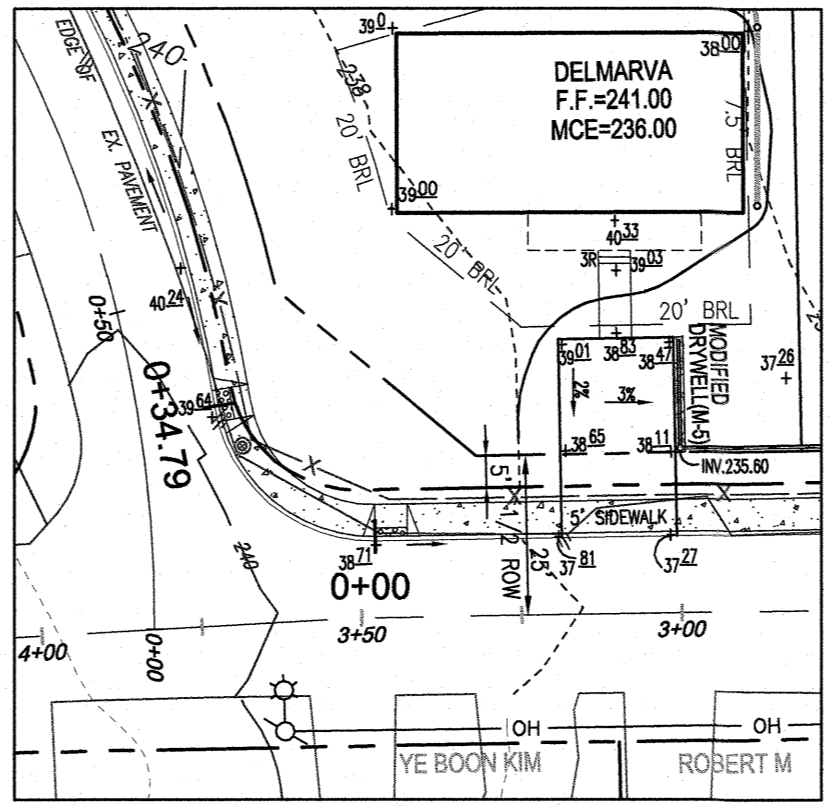
**NOTE:**  
ON LOT GRADING AND SEDIMENT CONTROL TO BE PERFORMED IN CONJUNCTION WITH SDP.

MAPPED SOILS TYPES - HOWARD COUNTY, MARYLAND					
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRC	Kw RANGE	HIGHLY ERODIBLE
UWB	URBAN LAND - SASSPARAS BELTSVILLE COMPLEX, 0 TO 3% SLOPES	D	NO	0.37	YES

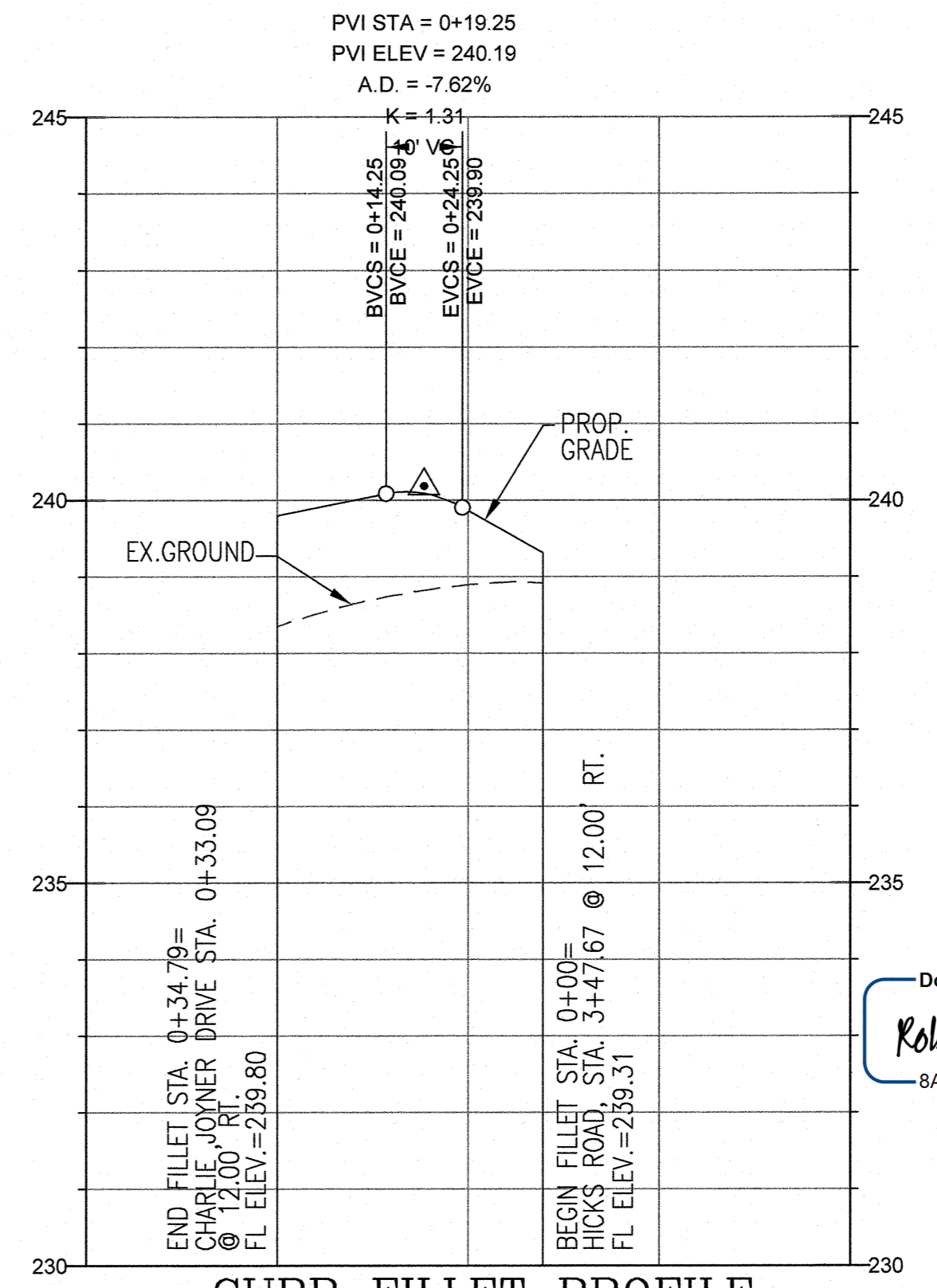
NOTE:  
TAKEN FROM: USDA, SCS - WEB SOIL SURVEY, AND HOWARD COUNTY SOIL CONSERVATION DISTRICT WEBSITE DOCUMENTS  
HTPS://WWW.HOWARDSCD.ORG/DOCUMENTS  
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K<sub>w</sub> GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

**NOTE:**  
- LOT GRADING AND HOUSE CONSTRUCTION MAY NOT BE BUILT USING THIS PLAN. SEE SITE DEVELOPMENT PLAN.  
- THE HOWARD SCD STANDARD SEDIMENT CONTROL PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR THIS PROJECT.

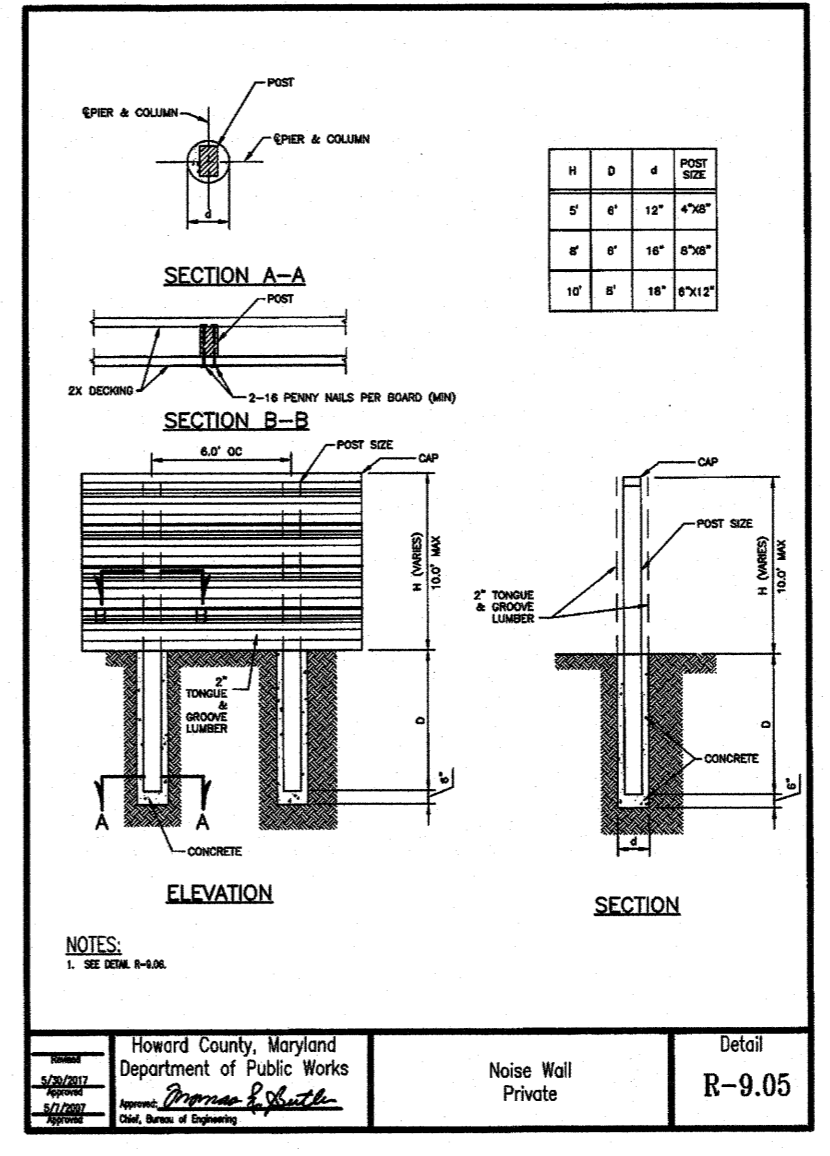
**NOTE:**  
1. STABILIZATION IS TO BE DONE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 STDs. & SPECS. WHICHEVER IS MORE RESTRICTIVE.  
2. LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. ANY STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.  
3. SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.  
4. SILT FENCE SHALL BE CURLED UPHILL. NO MORE THAN 35 FEET APART  
5. DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.



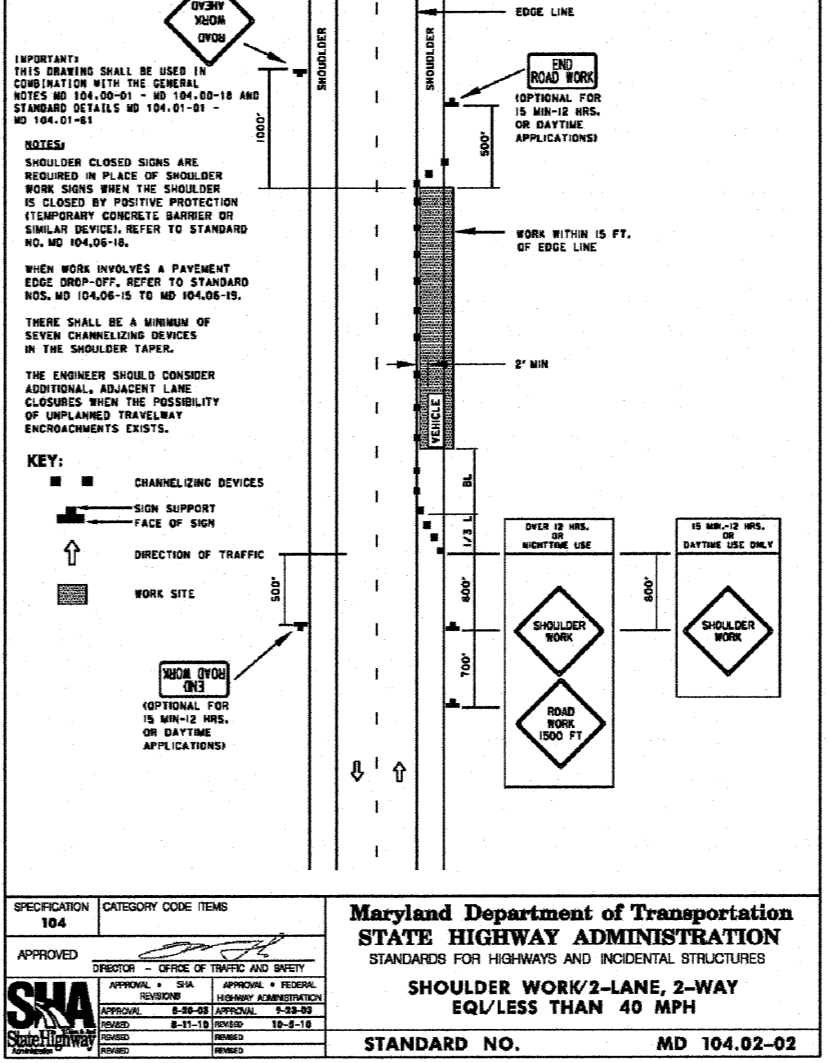
**CURB FILLET PLAN**  
SCALE: 1" = 30'



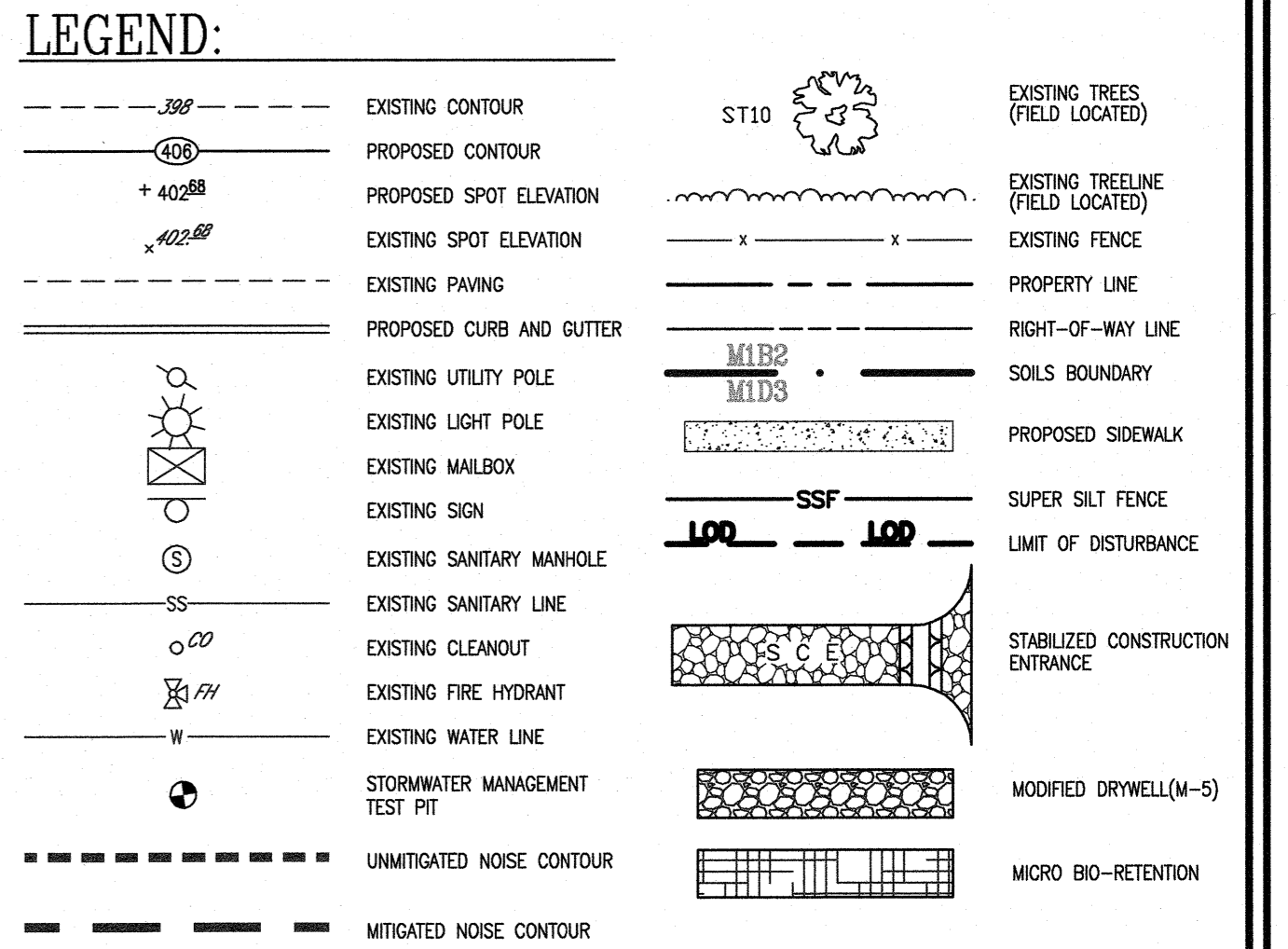
**CURB FILLET PROFILE**  
SCALE: HORIZONTAL - 1" = 20'  
VERTICAL - 1" = 2'



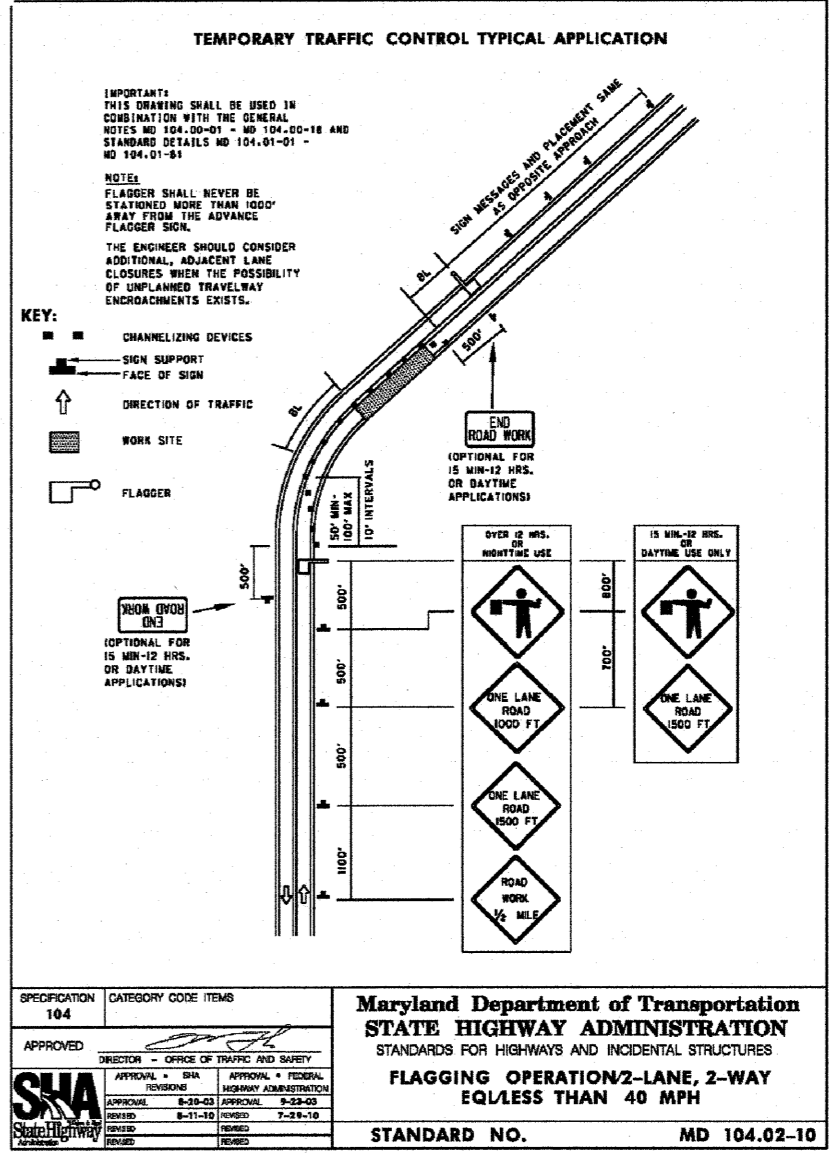
**SECTION A-A**  
**SECTION B-B**  
ELEVATION SECTION



**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**  
SHOULDER WORK/2-LANE, 2-WAY  
FLAGGING OPERATIONS/2-LANE, 2-WAY



**LEGEND:**



**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**  
FLAGGING OPERATIONS/2-LANE, 2-WAY

**DEVELOPER**  
STANDARD ENERGY SOLUTIONS  
9520 GERWIG LANE, SUITES Q-1  
COLUMBIA, MD 21046  
PHONE: 410-844-3800  
STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

**OWNER**  
I HOMES, INC  
6355 WOODSIDE COURT  
COLUMBIA, MD 21046  
PHONE: 443-218-8558

NO. \_\_\_\_\_ REVISION \_\_\_\_\_ DATE \_\_\_\_\_

**FINAL SUPPLEMENTAL PLAN**  
**SOILS MAP, GRADING, SOIL EROSION AND**  
**SEDIMENT CONTROL PLAN**

**GREENFIELDS**  
**COMMUNITY LIVING**  
LOTS 1, 2 & 3  
A SUBDIVISION OF TAX MAP 43 PARCEL 491  
LIBER 18385 FOLIO 341

TAX MAP 43 BLOCK 14  
6TH ELECTION DISTRICT

**VOGEL ENGINEERING**

**TIMMONS GROUP**  
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: RHV  
DRAWN BY: KG  
CHECKED BY: RHV  
DATE: JANUARY 2022  
SCALE: 1" = 30'  
W.O. NO.: 43808

DESIGNED BY: RHV  
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. 19143  
EXPIRATION DATE: 08-27-2022

3 SHEET OF 8

APPROVED: DEPARTMENT OF PUBLIC WORKS  
2/22/2022

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
2/22/2022

CHEF, DEVELOPMENT ENGINEERING DIVISION  
2/22/2022

CHIEF, DIVISION OF LAND DEVELOPMENT  
2/22/2022

**OWNER/DEVELOPER CERTIFICATION:**  
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SCD CONSERVATION DISTRICT AND/OR MDE.

OWNER/DEVELOPER SIGNATURE: *Robert Young*  
DATE: 2/24/22  
PRINTED NAME & TITLE: Robert Young, Principal

**DESIGN CERTIFICATION:**  
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DESIGNED BY: *Robert H. Vogel*  
DATE: 2/22/2022  
PRINTED NAME: Robert H. Vogel  
MD REGISTRATION NO. 16193  
P.E., R.L.S., OR R.L.A. (circle one)

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

DocuSigned by:  
*Alexander Bratchie*  
DATE: 2/22/2022  
HOWARD SCD: \_\_\_\_\_ DATE: \_\_\_\_\_



HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS... 2. PRIOR TO THE START OF EARTH DISTURBANCE... 3. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT... 4. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES...

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION. PURPOSE TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS. CRITERIA TO EXPOSE SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

R-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

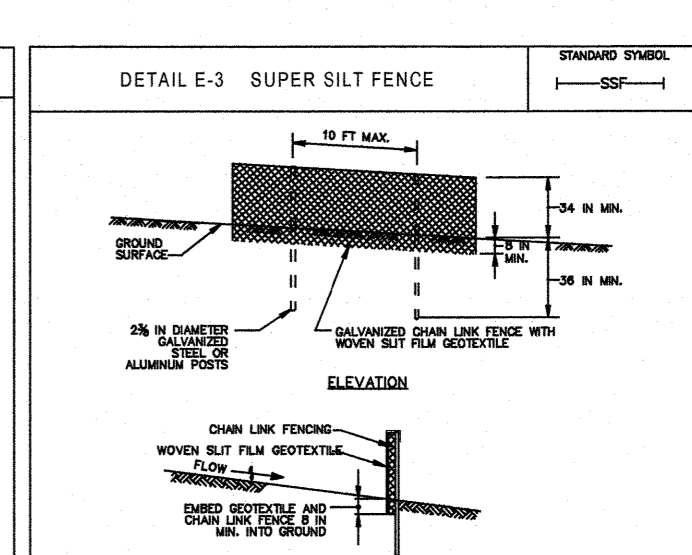
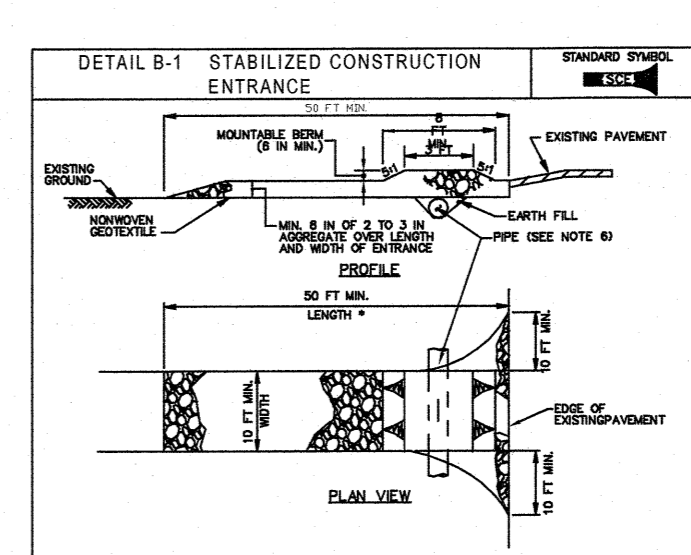
DEFINITION THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION. PURPOSE TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. CRITERIA WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER. PURPOSE TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION. CRITERIA TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT. - 1 DAY. 2. DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO CONSTRUCTION. 3. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1800) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. (1 DAY)...



CONSTRUCTION NOTES 1. PLACE AT LEAST 20' FROM THE DISTURBED AREA... 2. PREPARE SURFACE AND PLACE NUTRIENT ENRICHED MULCH... 3. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES THE RISK OF EROSION... 4. PLACE MULCH AT LEAST 10' TO 15' FROM THE DISTURBED AREA... 5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES THE RISK OF EROSION... 6. PLACE MULCH AT LEAST 10' TO 15' FROM THE DISTURBED AREA...

CONSTRUCTION NOTES 1. PATEN A GAUGE OR HEAVY GALVANIZED CHAIN LINK FENCE WITH NO MAXIMUM OPENING OF 42 INCHES... 2. PATEN A GAUGE OR HEAVY GALVANIZED CHAIN LINK FENCE WITH NO MAXIMUM OPENING OF 42 INCHES... 3. PATEN A GAUGE OR HEAVY GALVANIZED CHAIN LINK FENCE WITH NO MAXIMUM OPENING OF 42 INCHES... 4. PATEN A GAUGE OR HEAVY GALVANIZED CHAIN LINK FENCE WITH NO MAXIMUM OPENING OF 42 INCHES...

- 5. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL... 6. SITE ANALYSIS: TOTAL AREA OF SITE: 0.77 ACRES... 7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY... 8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED... 9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY... 10. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BE ON ONE GRADING UNIT (MAXIMUM AREA OF 20 AC PER GRADING UNIT) AT A TIME... 11. REGARDING PROJECT DISTURBANCE IS NO LONGER A REQUIREMENT.

1. KENTUCKY BLUEGRASS: FULL SUN MIXTURE FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT... 2. TURFGRASS: FULL SUN MIXTURE FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT... 3. TOPSOILING: TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION... 4. MULCHING: MULCH MATERIALS (IN ORDER OF PREFERENCE) A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY... B. WOOD CELLULOSE FIBER MULCH... C. TOPSOIL SUBSTITUTES OR AMENDMENTS... 5. SOIL MAINTENANCE: A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOST SOIL TO A DEPTH OF 4 INCHES... B. AFTER THE FIRST WEEK, SOIL MAINTENANCE IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT... C. DO NOT MOW UNTIL THE SOIL IS FIRMLY ROOTED...

6. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES - WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 10 TO OCTOBER 1 (HARDNESS ZONES: SB, 6A) - CENTRAL MD: MARCH 15 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 6B) - SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 7A, 7B) 7. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES... 8. SOIL TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER). 9. SPECIAL SPECIFICATIONS A. CLASS OF TURFGRASS SOO MUST BE MARYLAND STATE CERTIFIED... B. SOO MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH... C. STANDARD SIZE SECTIONS OF SOO MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH GRASP ON THE UPPER 10 PERCENT OF THE SECTION... D. WATER THE SOO IMMEDIATELY FOLLOWING COLLING AND TAMPING UNTIL THE UNDERSIDE OF EACH SOO IS MOIST AND SOIL SURFACE BELOW THE SOO ARE THOROUGHLY WET... E. SOO NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

10. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BE ON ONE GRADING UNIT (MAXIMUM AREA OF 20 AC PER GRADING UNIT) AT A TIME... 11. REGARDING PROJECT DISTURBANCE IS NO LONGER A REQUIREMENT. 12. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS... 13. PRIOR TO THE START OF EARTH DISTURBANCE... 14. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT... 15. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES... 16. A COPY OF THE PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 10 MONTHS. PURPOSE TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS. CRITERIA TO EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS.

PERMANENT SEEDING SUMMARY table with columns: HARDNESS ZONE, SEED MIXTURE, APPLICATION RATE, SEEDING DATES, SEEDING DEPTHS, N, P2O5, K2O, LIME RATE.

TEMPORARY SEEDING SUMMARY table with columns: HARDNESS ZONE, SEED MIXTURE, APPLICATION RATE, SEEDING DATES, SEEDING DEPTHS, N, P2O5, K2O, LIME RATE.

NOTES DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN HEREON.

- A. 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1. B. 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

Approval/Signature section with fields for APPROVED BY, CHECKED BY, DATE, and SIGNATURE for various roles including Development Engineering Division and Land Development.

OWNER/DEVELOPER CERTIFICATION section with fields for NAME, ADDRESS, PHONE, and SIGNATURE.

DESIGN CERTIFICATION section with fields for NAME, ADDRESS, PHONE, and SIGNATURE.

DocuSigned by: Alexander Bratich section with fields for NAME, ADDRESS, PHONE, and SIGNATURE.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

DEFINITION A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES. PURPOSE TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

- 1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN... 2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1... 3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE... 4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE... 5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION FENCE SUCH AS AN EARTH DICE, TEMPORARY SHALE OR DIVERSION FENCE... 6. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-2 PERMANENT STABILIZATION... 7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-2 PERMANENT STABILIZATION...

DEVELOPER STANDARD ENERGY SOLUTIONS 9520 GERWIG LANE, SUITES Q-T COLUMBIA, MD 21046 PHONE: 410-844-3800 STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

OWNER IHOMES, INC 6355 WOODSIDE COURT COLUMBIA, MD 21046 PHONE: 443-218-8558

Table with columns: NO., REVISION, DATE.

FINAL SUPPLEMENTAL PLAN SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN GREENFIELDS COMMUNITY LIVING LOTS 1, 2 & 3 A SUBDIVISION OF TAX MAP 43 PARCEL 491 LIBER 18385 FOLIO 341 TAX MAP 43 BLOCK 14 6TH ELECTION DISTRICT

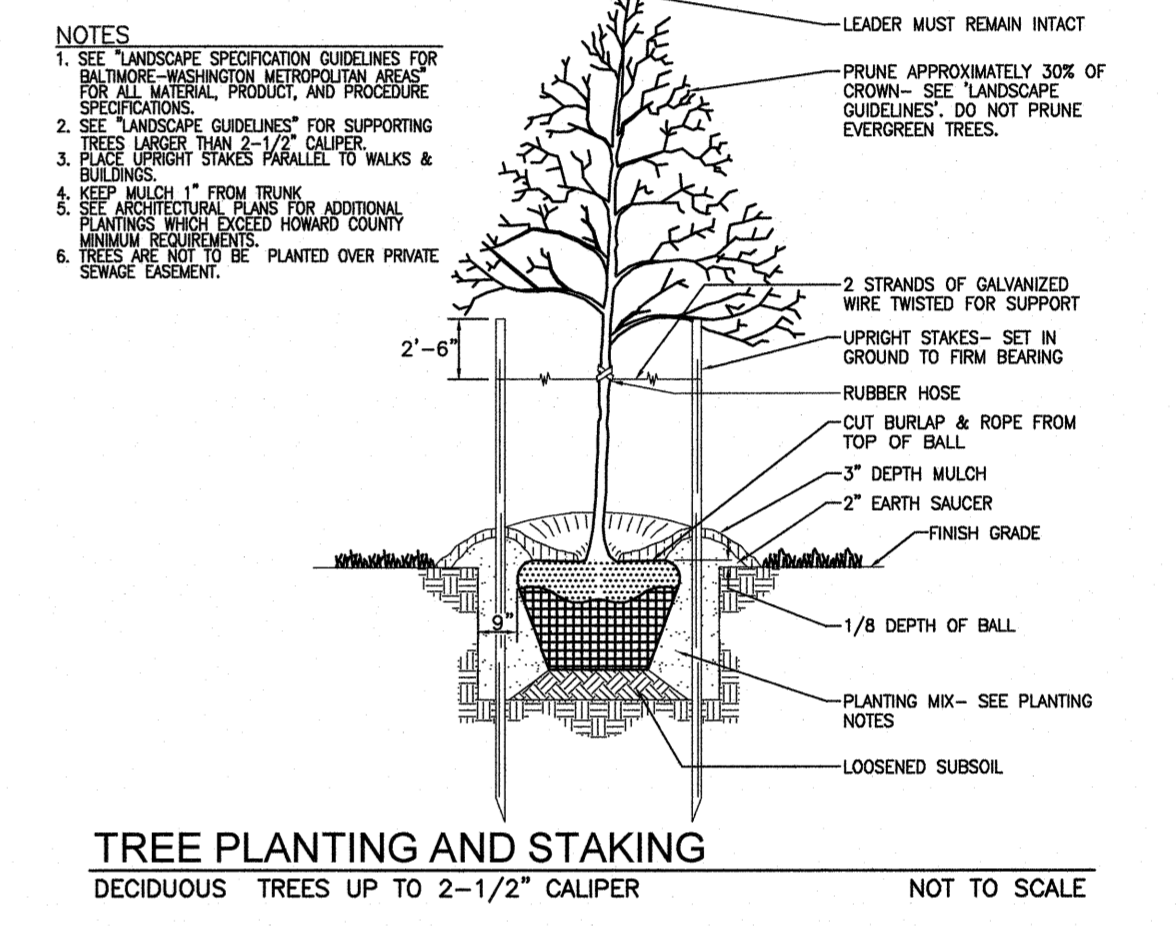
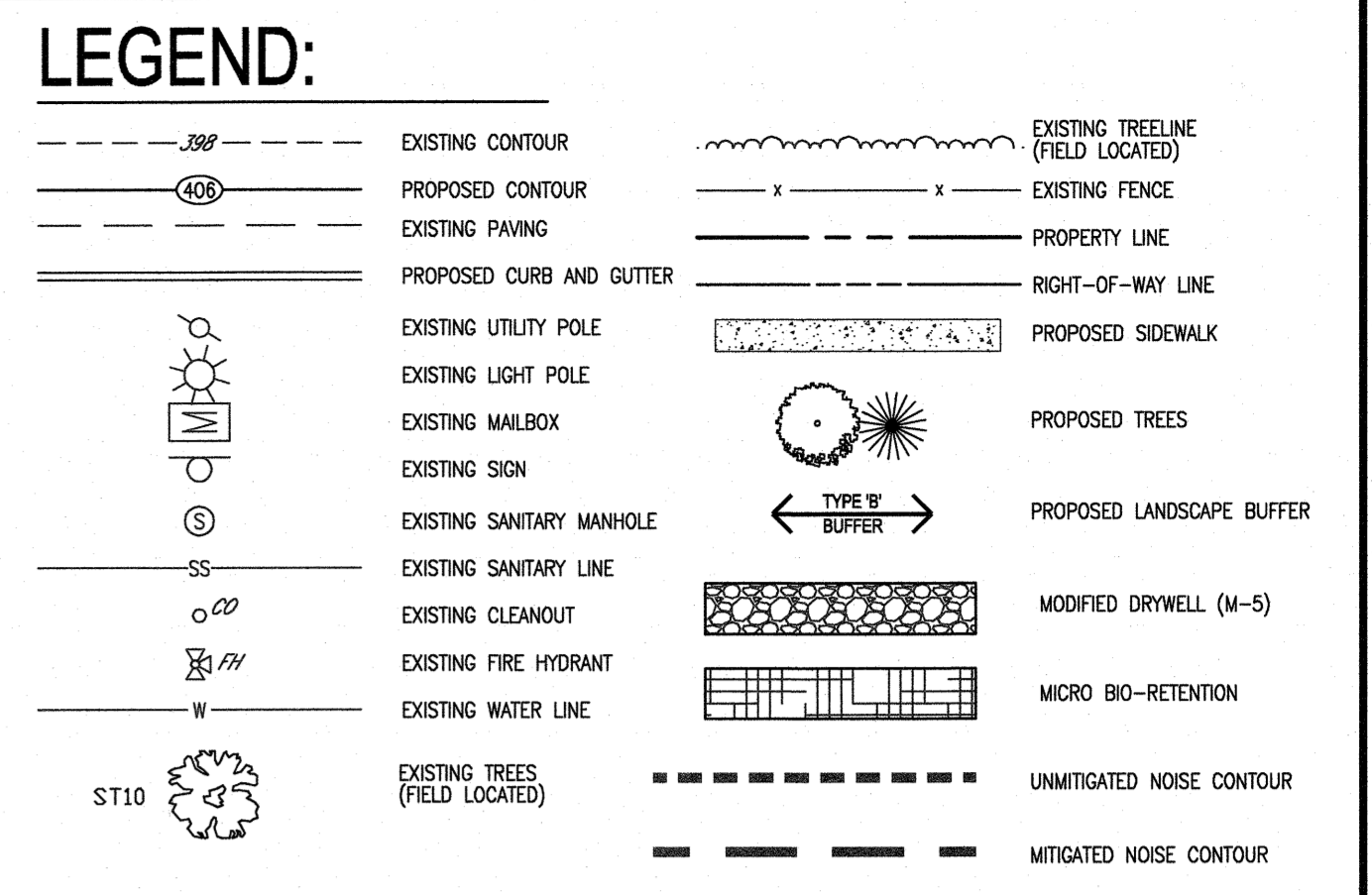
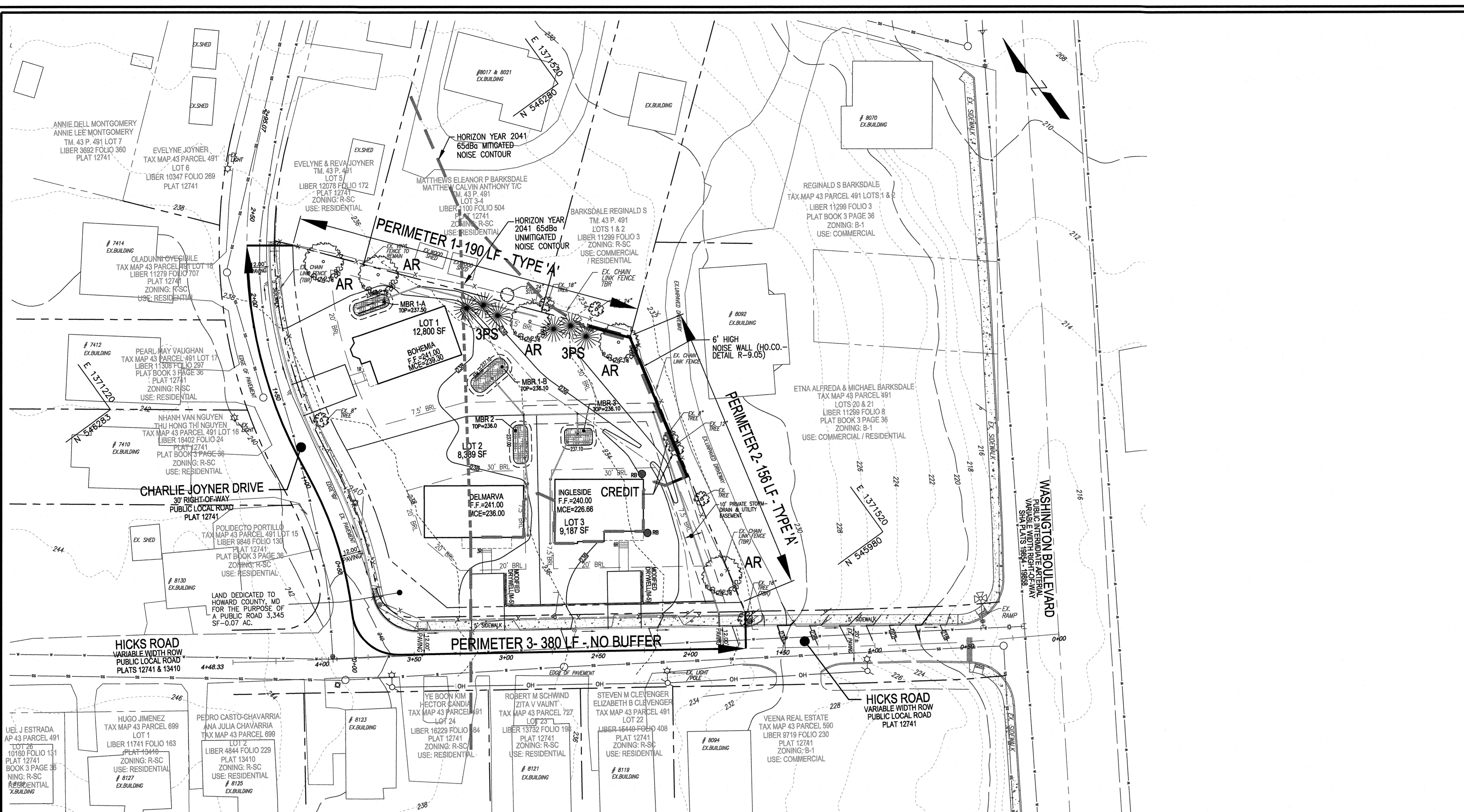
VOGEL ENGINEERING TIMMONS GROUP 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043 P: 410.461.7666 F: 410.461.8961 www.timmons.com

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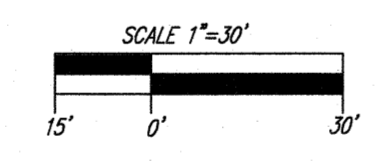
PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 08-27-2022

DESIGN BY: RHV DRAWN BY: KH CHECKED BY: RV DATE: JANUARY 2022 SCALE: 1"=30' W.O. NO.: 43808 4 SHEET OF 8





LANDSCAPE PLAN  
SCALE: 1"=30'



#### SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS	TOTAL
PERIMETER/FRONTAGE DESIGNATION	1 2 3	
LANDSCAPE TYPE	A A NONE	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	190' 156' 380'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO YES NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO NO NO	
NUMBER OF PLANTS REQUIRED	1:60 4 1:60 3	7
SHADE TREES	- - -	-
EVERGREEN TREES	- - -	-
SHRUBS	- - -	-
NUMBER OF PLANTS PROVIDED	4 * 1 -	5
SHADE TREES	6 - -	6
EVERGREEN TREES	- - -	-
EX SHADE TREES	- - -	-
OTHER TREES (2:1 SUBSTITUTION)	- - -	-
SHRUBS (10:1 SUBSTITUTION)	- - -	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED		

\* TAKE CREDIT FOR EXISTING 2 TREES.  
\*\* 6 ADDITIONAL EVERGREEN TREES HAVE BEEN PROVIDED TO MEET SECTION 16.127 OF RESIDENTIAL INFILL DEVELOPMENT.

#### SCHEDULE A PERIMETER LANDSCAPE EDGE

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
	5	ACER RUBRUM 'RED MAPLE' OCTOBER GLORY RED MAPLE	2.5"-3" CAL	B & B
	6	PINUS STROBUS EASTERN WHITE PINE	6'-8' HGT.	B & B

#### LANDSCAPE SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AND SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HED PLANTING SPECIFICATIONS.
  - CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
  - FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SHOULDS.
  - CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING; IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- #### GENERAL NOTES:
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.
  - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF \$2,000.00 FOR THE REQUIRED 7 SHADE TREES.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
DATE: 2/22/2022  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 2/22/2022  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DIVISION OF LAND DEVELOPMENT  
DATE: 2/22/2022  
CHIEF

#### 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 CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

ROBERT V. BOND, PRINCIPAL  
DATE: 2/14/22

**DEVELOPER**  
STANDARD ENERGY SOLUTIONS  
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STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

**OWNER**  
IHOMES, INC  
6355 WOODSIDE COURT  
COLUMBIA, MD 21046  
PHONE: 443-218-8558

NO.	REVISION	DATE

### FINAL SUPPLEMENTAL PLAN

#### LANDSCAPE PLAN, NOTES & DETAILS

### GREENFIELDS COMMUNITY LIVING

LOTS 1, 2 & 3  
A SUBDIVISION OF TAX MAP 43 PARCEL 491  
LIBER 18385 FOLIO 341

TAX MAP 43 BLOCK 14  
6TH ELECTION DISTRICT

PARCEL 491, ZONE: R-SC  
HOWARD COUNTY, MARYLAND

## VOGEL ENGINEERING

### TIMMONS GROUP

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P: 410.461.7666 F: 410.461.8961 www.timmons.com

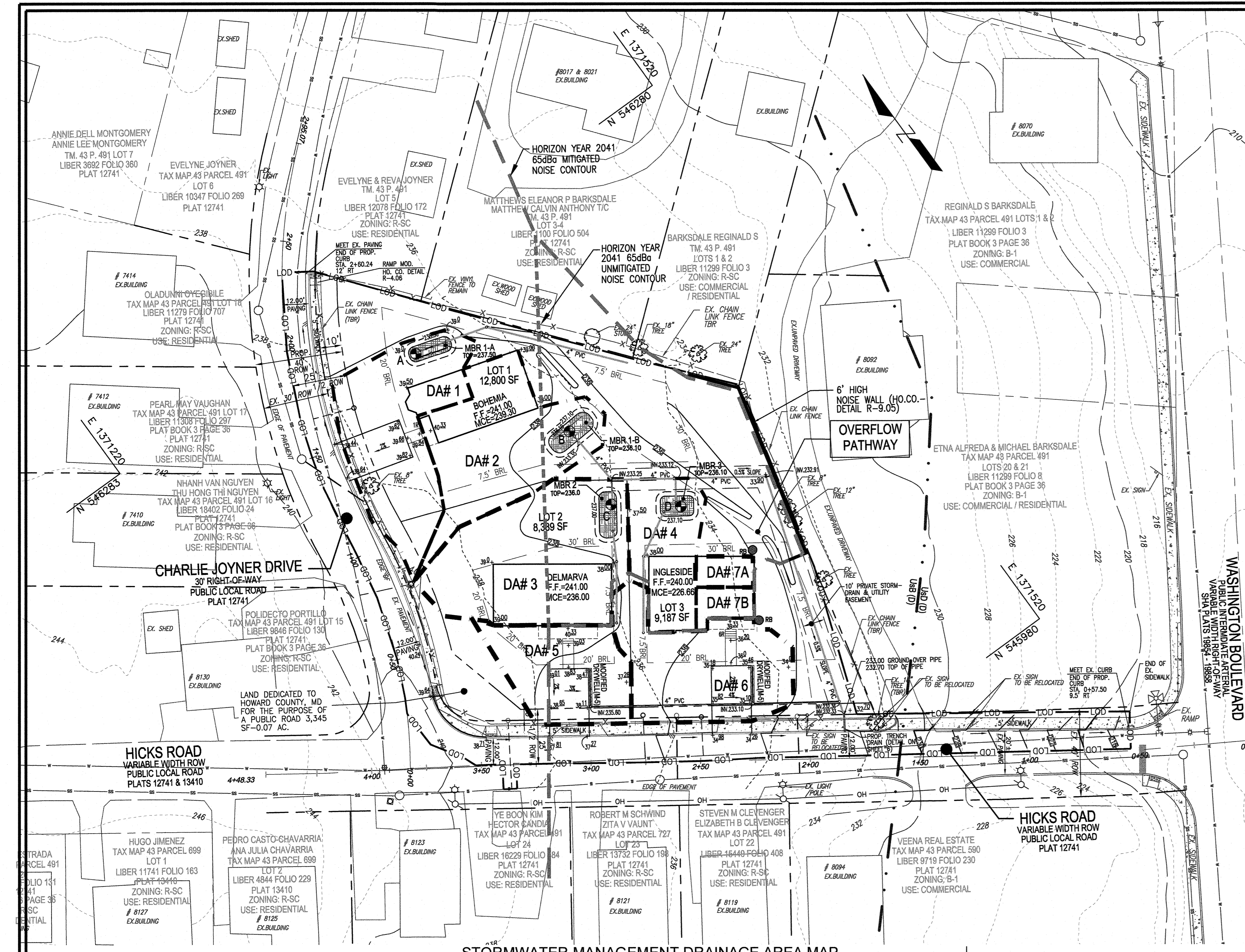
DESIGN BY: RHV  
DRAWN BY: KG  
CHECKED BY: RHV  
DATE: JANUARY 2022  
SCALE: 1"=30'  
W.O. NO.: 43808

PROFESSIONAL CERTIFICATE  
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. 16193, EXPIRATION DATE: 10-27-2022

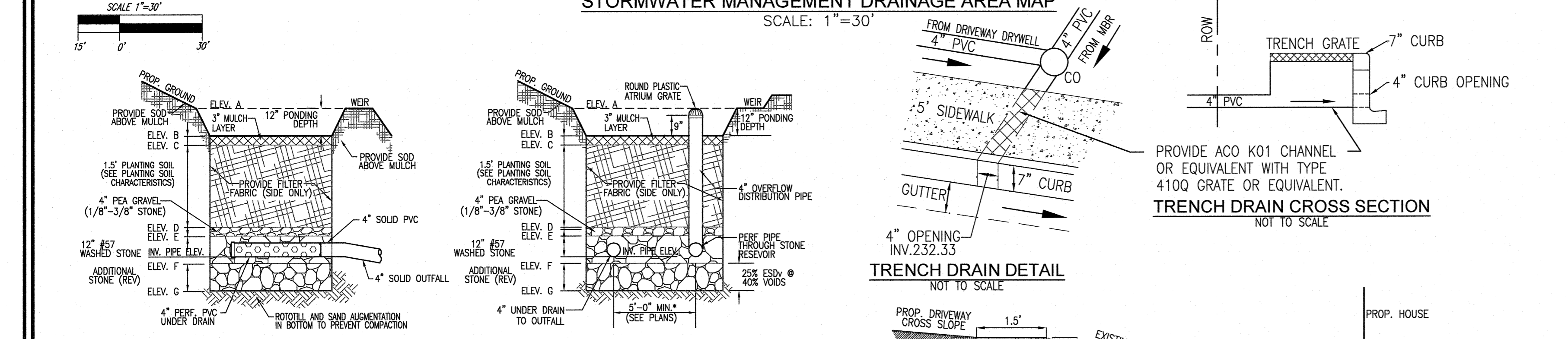
ROBERT H. VOGEL, PE No.16193

5 SHEET OF 8





STORMWATER MANAGEMENT DRAINAGE AREA MAP SCALE: 1" = 30'



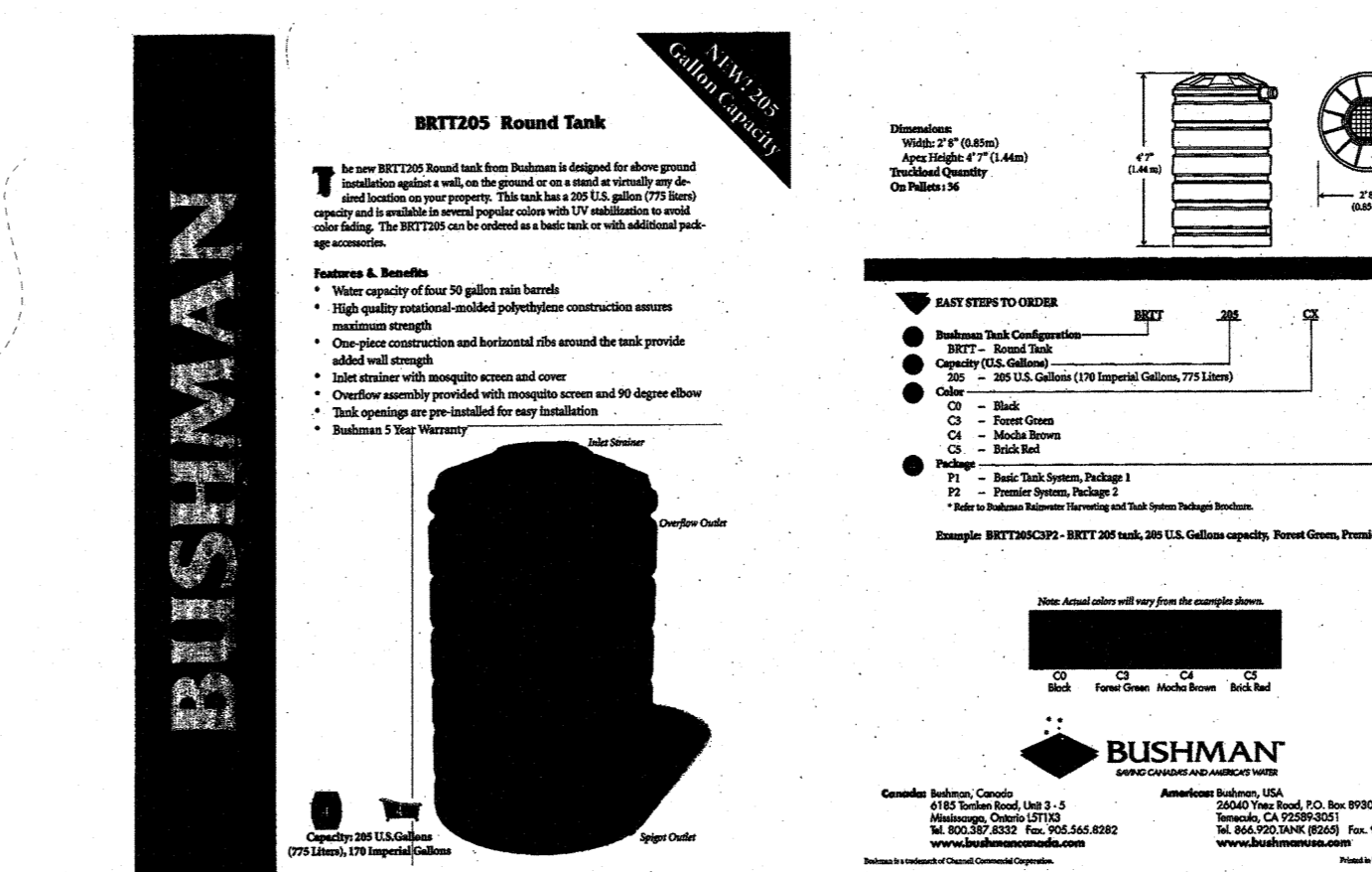
MICRO-BIORETENTION (UNDERDRAIN) (M-6) MICRO-BIORETENTION (OVERFLOW) (M-6)

**MICRO-BIORETENTION NOTES:**  
 1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.  
 2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.  
 3. PROVIDE 5" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SCHEDULE 40 PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

MBR Facility	Ponding Depth (ft)	Ponding Elevation	Top of Mulch	Bottom of Mulch	Depth of Plant Mix	Bottom of Plant Mix	Bottom of Invert	Depth of Stone	Bottom of Underdrain	Bottom of Stone	Invert of Underdrain	Bottom of Stone
		ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K
1A	1.00	238.50	237.60	237.25	1.50	235.75	235.42	1.00	234.42	234.75	233.42	
1B	1.00	237.10	236.10	235.85	1.50	234.35	234.02	1.00	233.02	233.35	232.02	
2	1.00	237.00	236.00	235.75	1.50	234.25	233.92	1.00	232.92	233.25	231.92	
3	1.00	237.10	236.10	235.85	1.50	234.35	234.02	1.00	233.02	233.35	232.02	

- APPENDIX B.4-C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS
- MATERIAL SPECIFICATIONS**  
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
  - FILTERING MEDIA OR PLANTING SOIL**  
THE SOIL SHALL BE A UNIFORM MIX FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTITUTES SHALL BE MIXED OR COMBINED WITH THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HAZARD TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERBERIS GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOxious WEEDS AS SPECIFIED UNDER 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:  
 • SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)  
 • ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-85%) AND COMPOST (20% TO 40%); OR SANDY LOAM (20%), COMPOST SAND (60%), AND COMPOST (40%).  
 • CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 2%.  
 • PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. ADJUSTMENTS (E.G., LIME, IRON SULFATE PLUS SUCRYL) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.  
 THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS FOR ORGANIC MATTER, AND SOLUBLE PHAN ANALYSIS WHICH IS REQUIRED TO DETERMINE THE REQUIRED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
  - COMPACTION**  
IT IS VERY IMPORTANT TO MAINTAIN COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN PROBABLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED UNDER LOADS, THE CONTRACTOR SHOULD USE WIDE TRACK OR WASH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TIRE TRESSES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LOGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.  
 COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHisel PLow, RIPPERS, OR SUBSOILERS. THESE TILLING OPERATIONS ARE TO REPRODUCE THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTILLERS TYPICALLY DO NOT WILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION CRITERIA.  
 ROTILL TO 2 TO 3 INCHES OF SAND WHOSE BASE OF BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDING WATER BEFORE ROTILLING (ROTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTILL TO LINK THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
  - PLANT MATERIAL**  
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
  - PLANT INSTALLATION**  
COMPOST IS A BETTER ORGANIC SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED SUPERIMPOSED TO A UNIFORM THICKNESS OF 2" TO 3" SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.  
 BOTTOMSOIL OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANTING PIT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUMES SHOWN SHOULD BE PLANTED. AT LEAST ONE (1) GRASS AND LEGUME SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDE ORGANIC MATTER TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DETAILS AT A MINIMUM. FERTILIZERS SHOULD ONLY BE USED IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.  
 THE MAIN COLLECTOR PIPE SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5% OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
  - MISCELLANEOUS**  
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

BUSHMAN BRT205 RAIN HARVESTING SYSTEM OR EQUIVALENT RAIN BARREL DETAIL NOT TO SCALE



TYPICAL RAIN BARREL DESIGN 100 GAL = 13.37 CF 7.48 GAL/CF

- OPERATION AND MAINTENANCE SCHEDULE FOR WASHING MACHINE WASHERS (M-6)
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL. PRUNING ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STRAWBERRY DESIGN MANUAL, VOLUME 8, TABLE 4.1.1 AND 4.1.2.
  - THE OWNER SHALL PERFORM A PLANT IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BROWN TREES AND SHRUBS. AND REPLACE ALL DEFICIENT STAKES AND WIRES.
  - THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PERVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
  - THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.
- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED RAINWATER HARVESTING (M-1)**
- THE OWNER SHALL EMPTY BARRELS ON A MONTHLY BASIS AND CLEAN BARRELS WITH A BRUSH.
  - THE OWNER SHALL VERIFY INTEGRITY OF LEAD SCREENS, OUTLETS, DOWNPOUTS, SPOOTS, AND MOSQUITO SCREENS, AND CLEAN AND REMOVE ANY DEBRIS.
  - THE OWNER SHALL REPLACE DAMAGED COMPONENTS AS NEEDED.
  - THE OWNER SHALL ALLOW THE BARREL TO DRAIN BY BOTTOM SPOOT DURING THE WINTER SEASON.
- ENVIRONMENTAL CONCEPT PLAN NOTES:**
- APPROVAL OF THIS EOP DOES NOT CONSTITUTE OR IMPLY APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED BUILDING AND/OR GRADING PERMIT.
  - REVIEW OF THIS PLAN FOR COMPLETE COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SITE DEVELOPMENT STAGE AND THEREFORE THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN PROGRESSES THROUGH THE SITE DEVELOPMENT PROCESS.
- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER DRYWELLS (M-5)**
- THE MONITORING WELLS AND CLEANOUTS SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
  - WATER LEVELS AND SEVERITY OF THE MONITORING WELLS SHALL BE RECORDED. RECORDS SHALL BE MAINTAINED FOR SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
  - A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
  - WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 12 HOUR PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
  - THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATIONS AND MAINTENANCE CRITERIA.
  - ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

**LEGEND:**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING PAVING
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED PAVING
- PROPOSED CONTOUR
- EXISTING MAILBOX
- EXISTING JUNCTION BOX
- EXISTING UTILITY POLE
- EXISTING SPECIMEN TREE
- LIMIT OF DISTURBED AREA
- DRAINAGE AREA
- MODIFIED DRYWELL (M-5)
- MICRO BIO-RETENTION
- STORMWATER MANAGEMENT TEST PIT
- UNMITIGATED NOISE CONTOUR
- MITIGATED NOISE CONTOUR

**MAPPED SOILS TYPES - HOWARD COUNTY, MARYLAND**

SYMBOL NAME / DESCRIPTION	GROUP	HYDRC	Kw RANGE	HEAVY ERODIBLE
LMB LURBAN LAND-SANITARIUM BELTSVILLE COMPLEX 0 TO 5% SLOPES	D	NO	0.37	YES

NOTE:  
TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, AND HOWARD COUNTY SOIL CONSERVATION DISTRICT WEBSITE DOCUMENTS  
HTTS://WWW.HOWARDSCS.DOC.GOV/DOCUMENTS

HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR Kt GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

Table B.4.1 Materials Specifications for Micro-Bio-retention, Rain Gardens & Landscape Infiltration

Material	Specification	Rates	Notes
Planting	See Appendix A, Table A.4.1	n/a	None
Flintstone (2" or 4" deep)	Locally sourced (60-65% silica, composed 0.5 - 4.0% iron, mostly limestone (90%), coarse sand (10%) and compost (10%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)	n/a	aged 6 months, minimum no pine or wood chips
Mulch	Shredded hardwood	n/a	
Pee gravel (diaphragm)	pea gravel ASTM-D-448	NO. 8 OR NO. 9 (10" TO 3/4")	
Curbs (drain)	conventional stone washed cobble	stone: 2" to 5"	
Geotextile (underdrain and infiltration basins)	AASHTO M-43	n/a	FE Type 1 nonwoven
Underdrain piping	7.5" Type PS 28 - AASHTO M-278	40" to 34"	Slotted or perforated pipe, 3/8" perf. @ 6" on center, 4 holes per row, minimum of 3" of gravel over pipe, not necessary underdrain pipe. Perforated pipe shall be wrapped with 1/2 inch galvanized hardware cloth
Flow in place concrete (if required)	MIXED MAX. NO. 3, F. = 5000 psi @ 28 days, normal weight, air-entrained, conforming to meet ASTM-A1104	n/a	on-site testing of poured-in-place concrete required; 28 day strength and slump testing; all concrete design (cast-in-place or pre-cast) not using previously approved form or local professional engineer design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 19.4.3.3; vertical loading [14-18 or 19-20]; allowable horizontal loading (based on soil parameters) and analysis of potential cracking.
Sand	AASHTO M-6 or ASTM-C-33	0.075 to 0.425"	Small substitutions such as Diabase and Gneiss (AASHTO #10) are not acceptable. No carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand

**DEVELOPER:** STANDARD ENERGY SOLUTIONS, 9520 GERIWC LANE, SUITES Q-T, COLUMBIA, MD 21046, PHONE: 410-844-3800, STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

**OWNER:** IHOMES, INC., 6355 WOODSIDE COURT, COLUMBIA, MD 21046, PHONE: 443-218-8558

NO.	REVISION	DATE

FINAL SUPPLEMENTAL PLAN  
 STORMWATER MANAGEMENT DRAINAGE  
 AREA MAP & DETAILS  
 GREENFIELDS COMMUNITY LIVING  
 LOT 1, 2 & 3  
 A SUBDIVISION OF TAX MAP 43 PARCEL 491  
 LIBER 18385 FOLIO 341  
 PARCEL 491, ZONE: R-SC  
 HOWARD COUNTY, MARYLAND

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 P: 410.461.7666 F: 410.461.8961 www.timmons.com

**PROFESSIONAL CERTIFICATE**

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. 16183, EXPIRATION DATE: 08-27-2022

DESIGN BY: R.V.  
 DRAWN BY: K.G.  
 CHECKED BY: R.V.  
 DATE: JANUARY 2022  
 SCALE: 1" = 30'  
 W.O. NO.: 43808

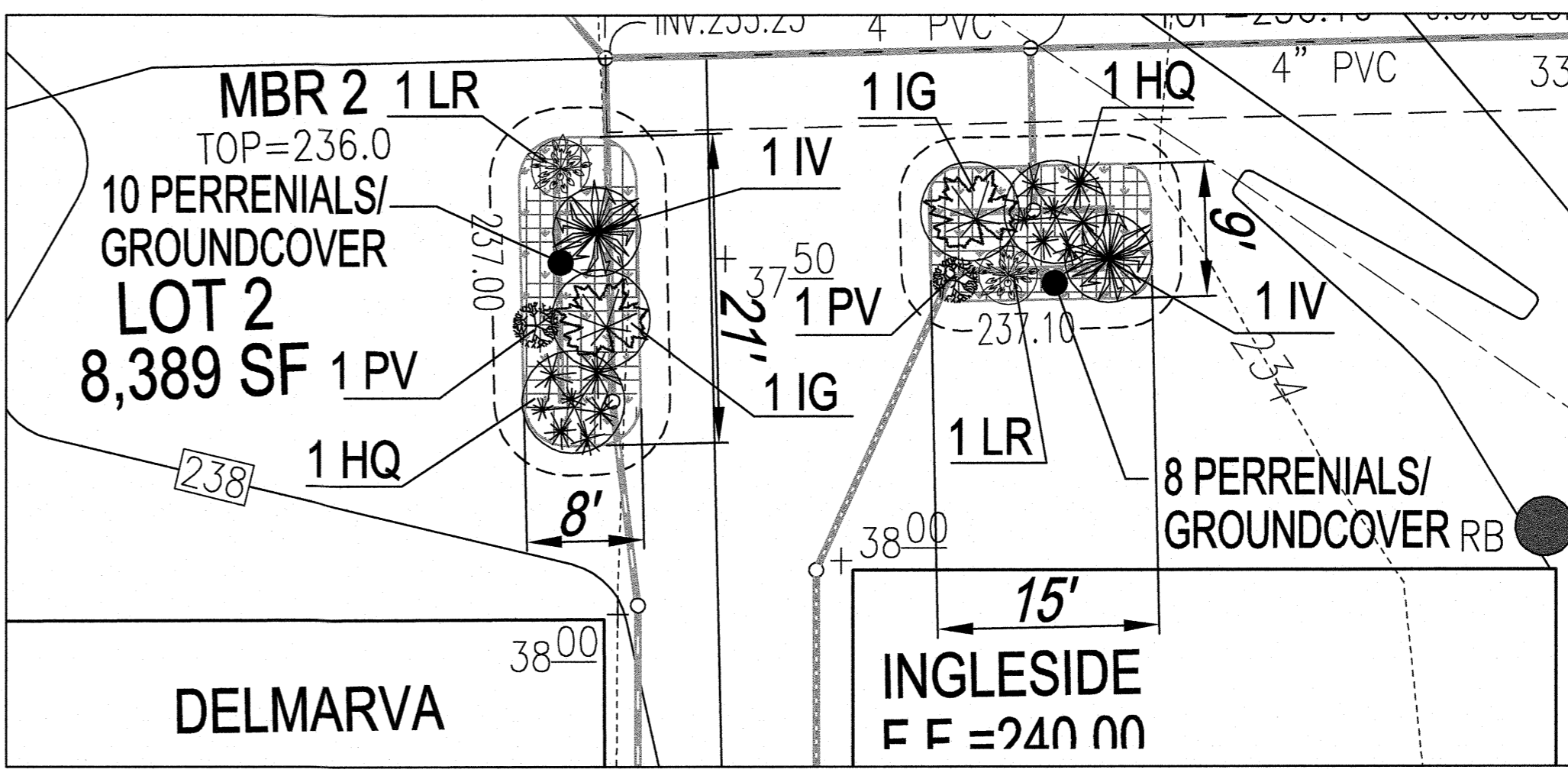
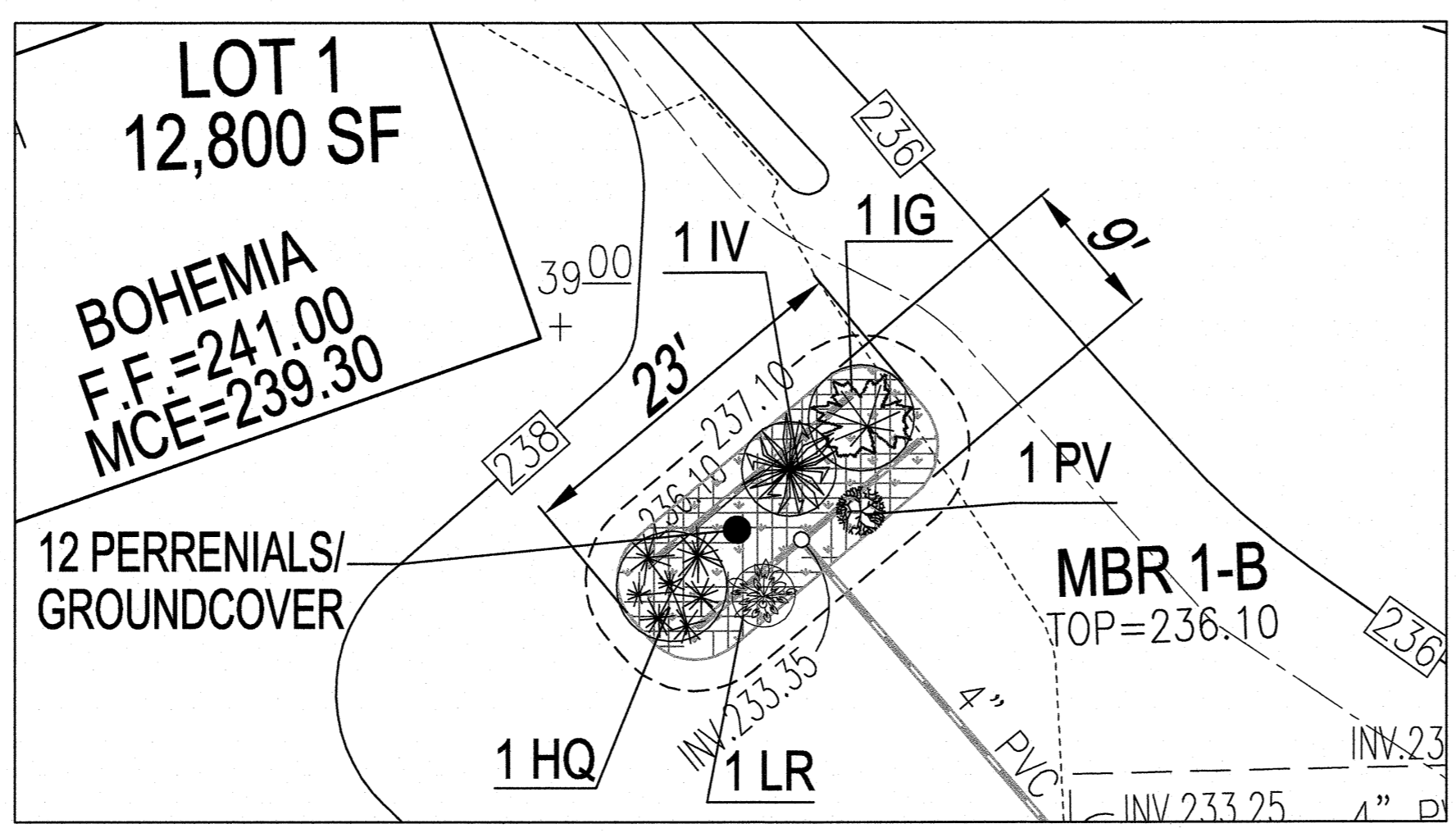
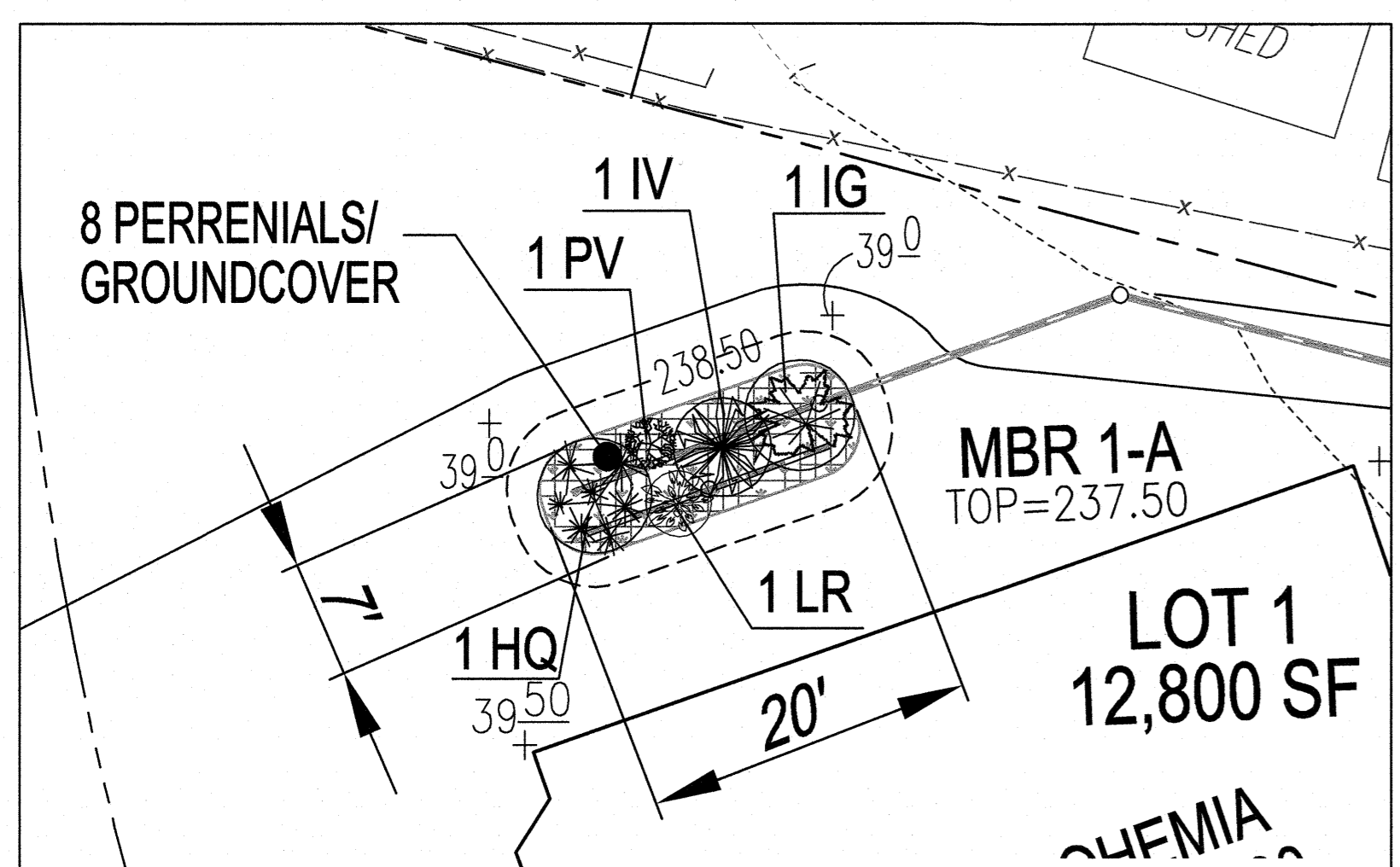
6 SHEET OF 8

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 DATE: 2/22/2022

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 DATE: 2/22/2022

APPROVED: DIVISION OF LAND DEVELOPMENT  
 DATE: 2/22/2022



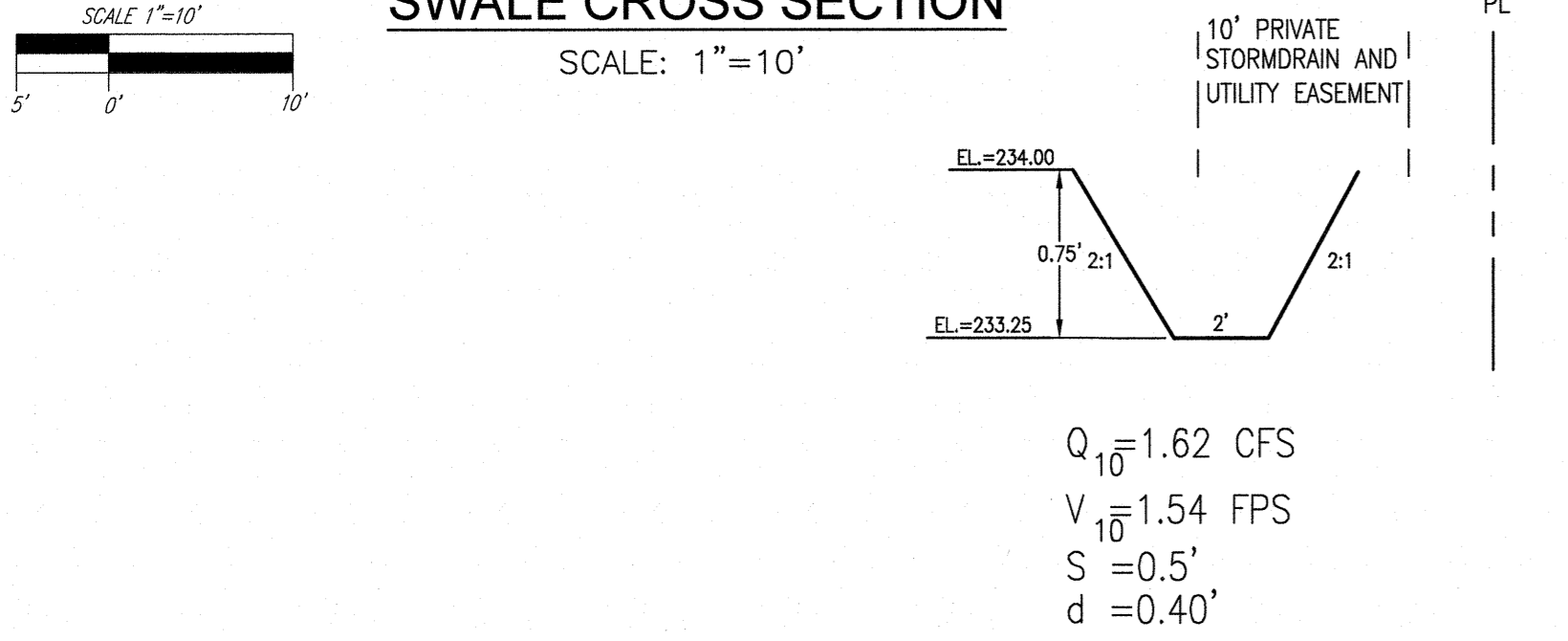
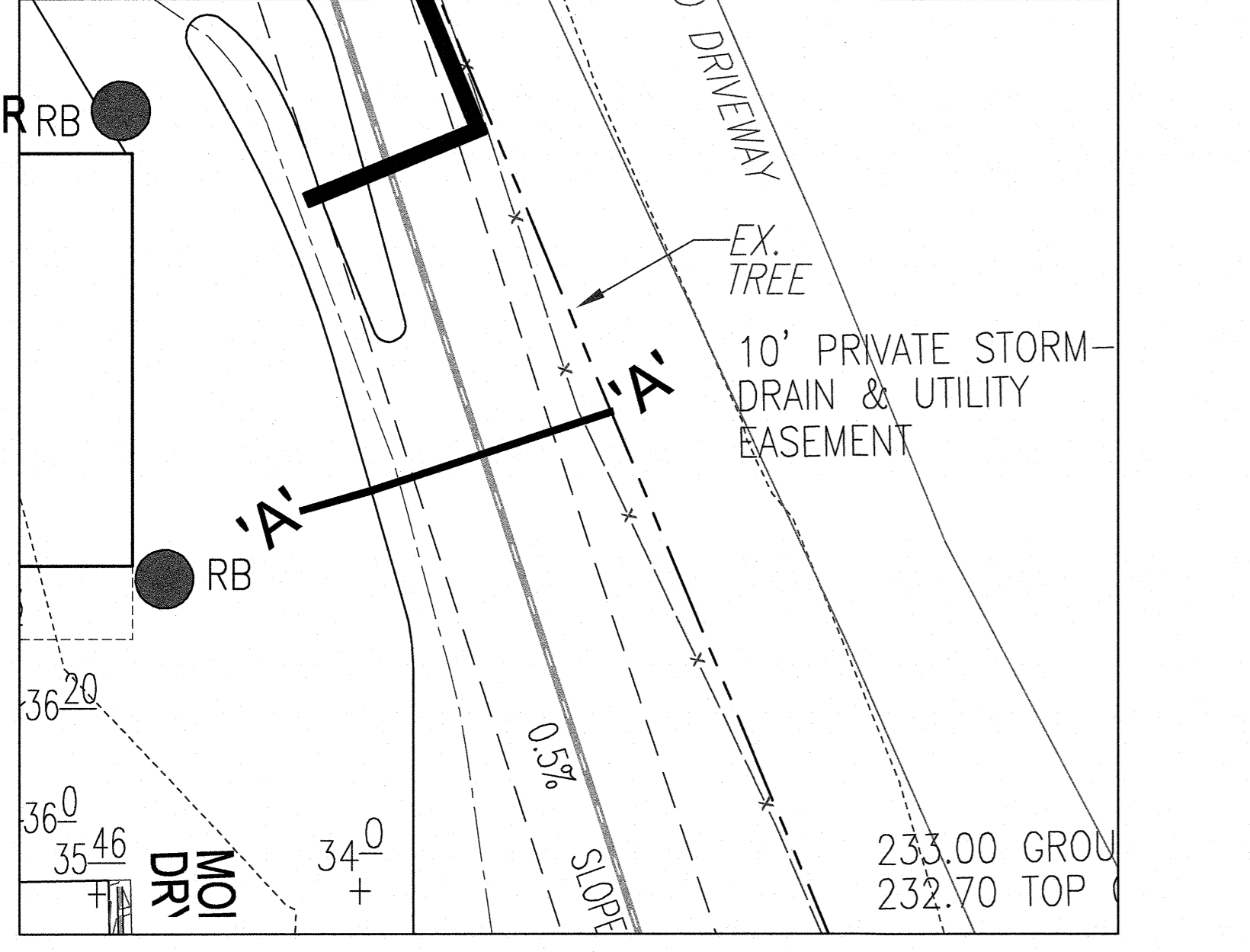
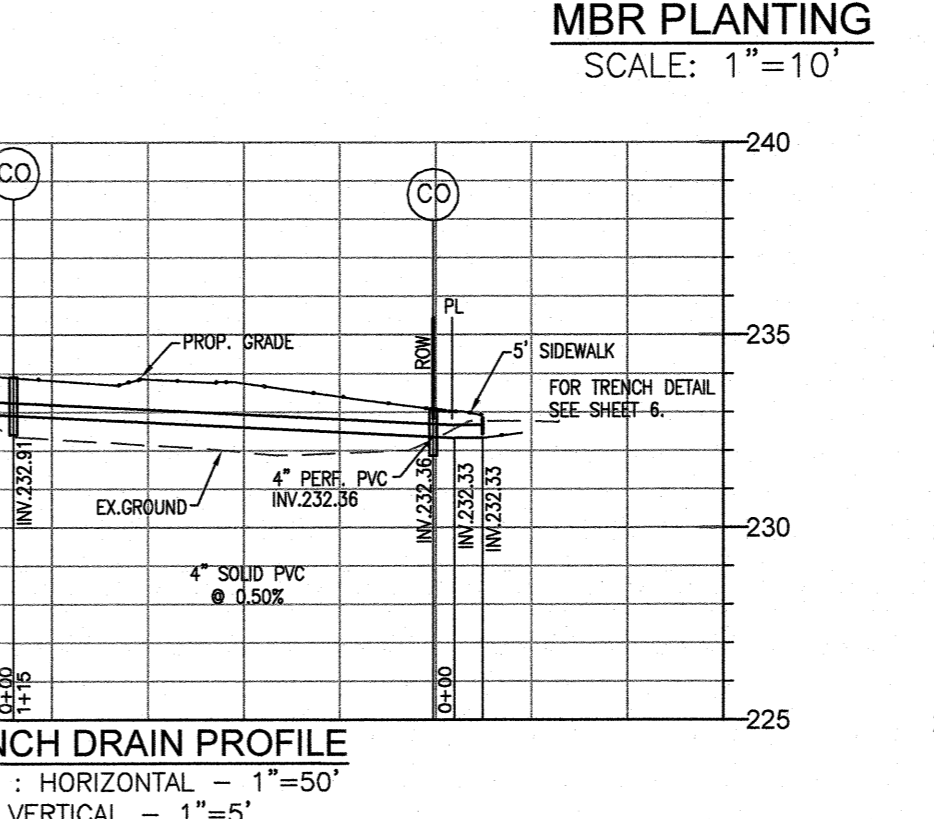
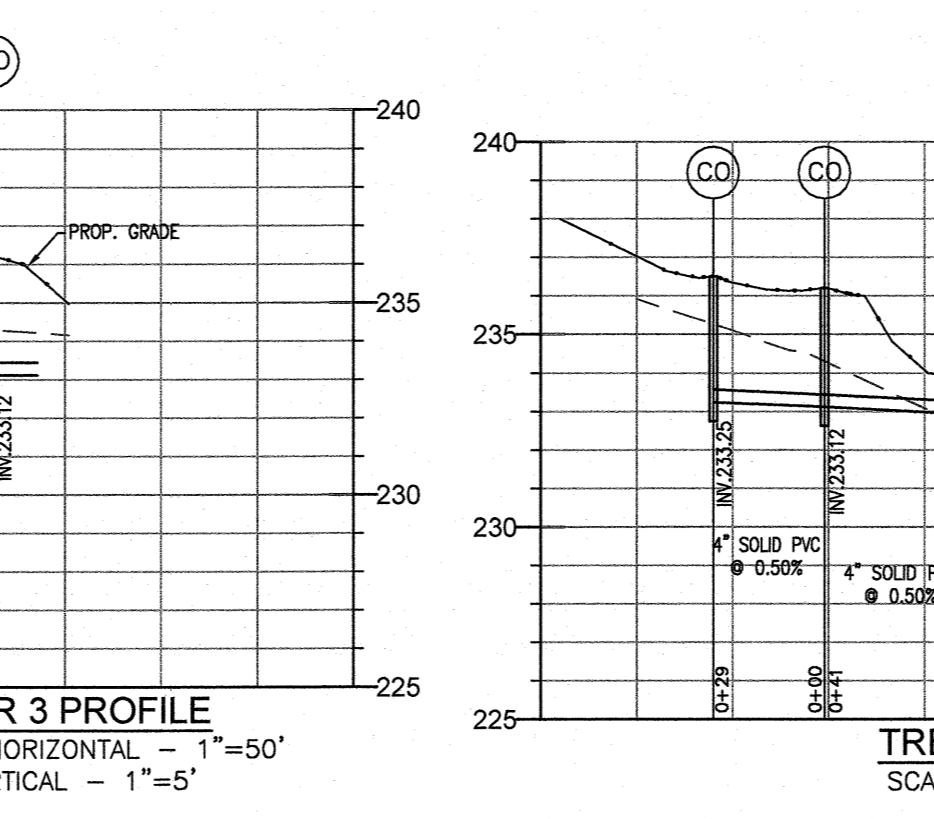
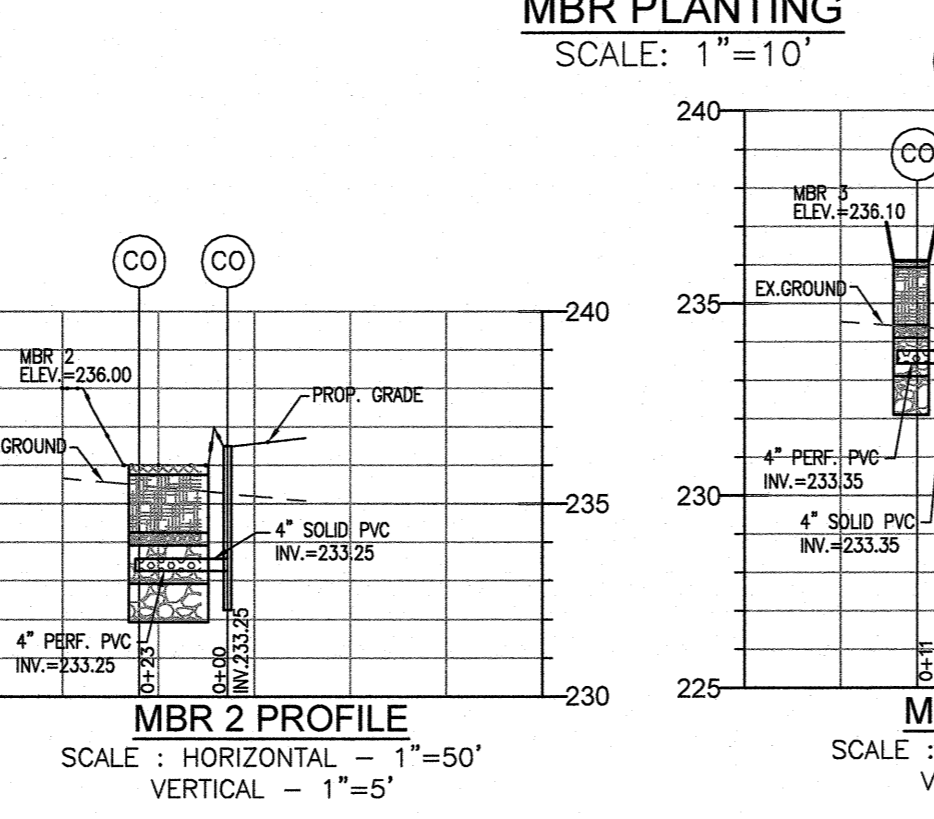
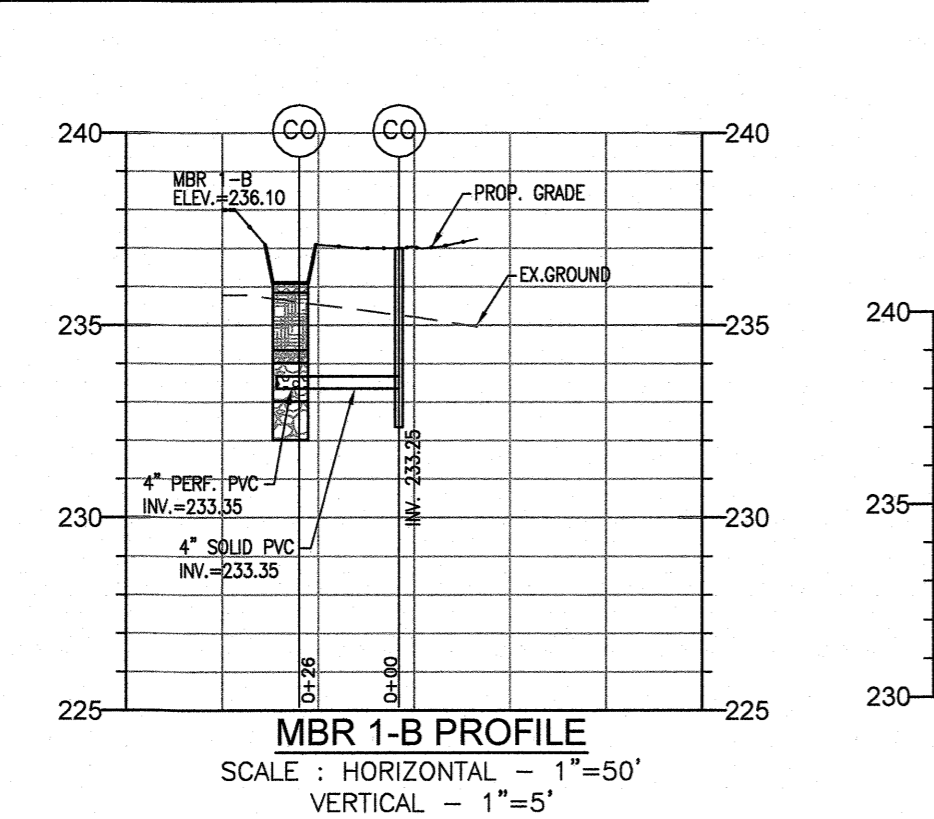
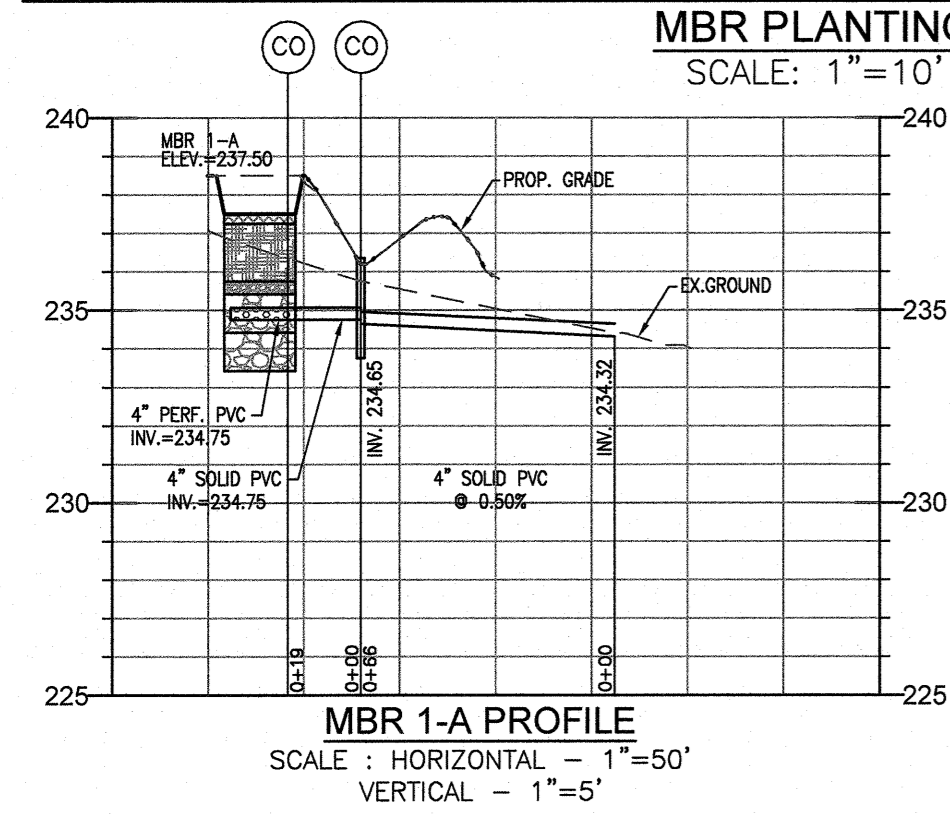


Appendix A. Landscaping Guidance for Stormwater BMPs.....Specific Landscaping Criteria

Table A.4 Commonly Used Species for Bioretention Areas

Trees	Shrubs	Herbaceous/Grasses
Acer rubrum	Arctostaphylos	Andropogon virginicus
Red Maple	Buddleia	Broomrape
Amelanchier	Cypripedium	Diarrhena
Black Birch	Hamamelis virginiana	Scirpus pungens
Juniperus virginiana	Witch Hazel	Three Square Blurbush
Eastern Red Cedar	Vaccinium corymbosum	Iris versicolor
Chionodoxa	Highbush Blueberry	Blue Flag
Fringetree	Blackberry	Cardinal Flower
Black Gum	Blackberry	Cardinal Flower
Myrica	Blackberry	Cardinal Flower
Black Gum	Blackberry	Cardinal Flower
Diopyros virginiana	Blackberry	Cardinal Flower
Persea	Blackberry	Cardinal Flower
Platanus	Blackberry	Cardinal Flower
Sycamore	Blackberry	Cardinal Flower
Quercus	Blackberry	Cardinal Flower
Pine	Blackberry	Cardinal Flower
Quercus phellos	Blackberry	Cardinal Flower
Willow	Blackberry	Cardinal Flower
Black willow	Blackberry	Cardinal Flower
		Vernonia noveboracensis
		New York Ironweed

Note 1: For more options on plant selection for bioretention, consult Bioretention Manual (ET&B, 1993) or the Design of Stormwater Filtration Systems (Cherrie and Schaefer, 1997).



APPROVED: [Signature] 2/22/2022  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 DocuSigned by:  
 Chad Edmondson 2/22/2022  
 CHIEF, ENVIRONMENTAL ENGINEERING DIVISION  
 APPROVED: [Signature] 2/22/2022  
 CHIEF, DIVISION OF LAND DEVELOPMENT

- "MICRO-BIORETENTION/RAINGARDEN" PLANTING SCHEDULE NOTES:**
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT JAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
  - CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
  - FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
  - CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
  - MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESD SUMMARY.
  - FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH.

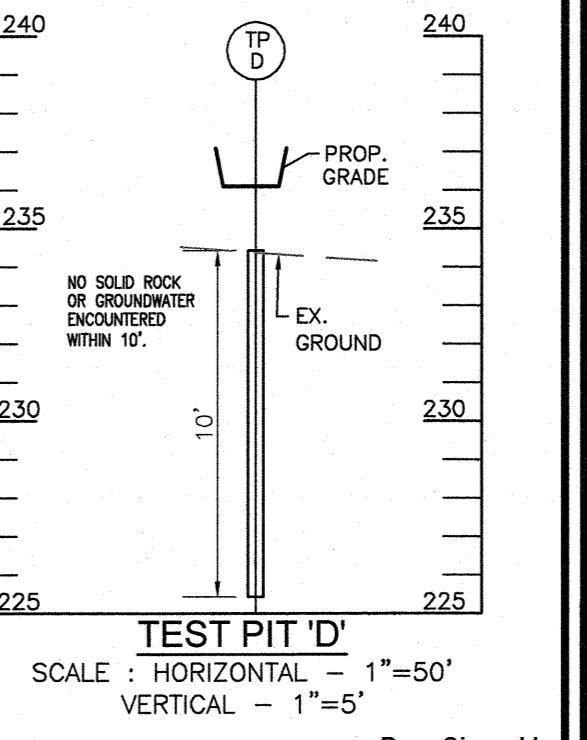
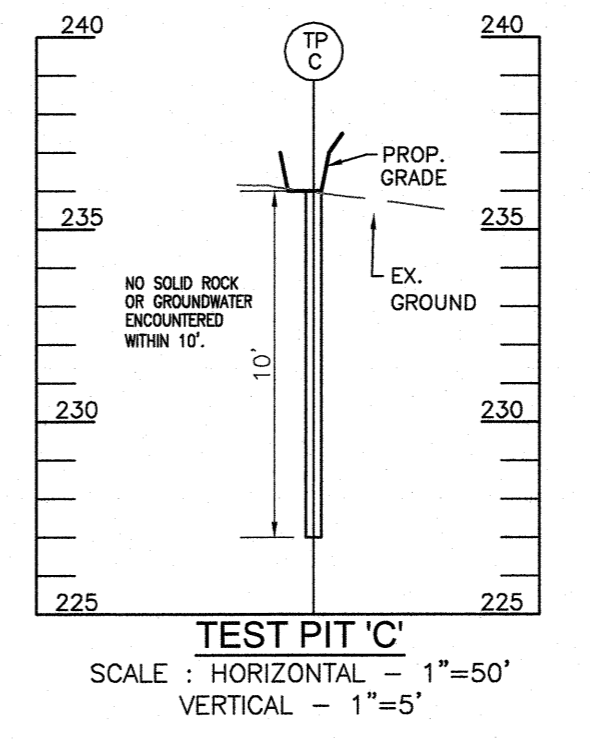
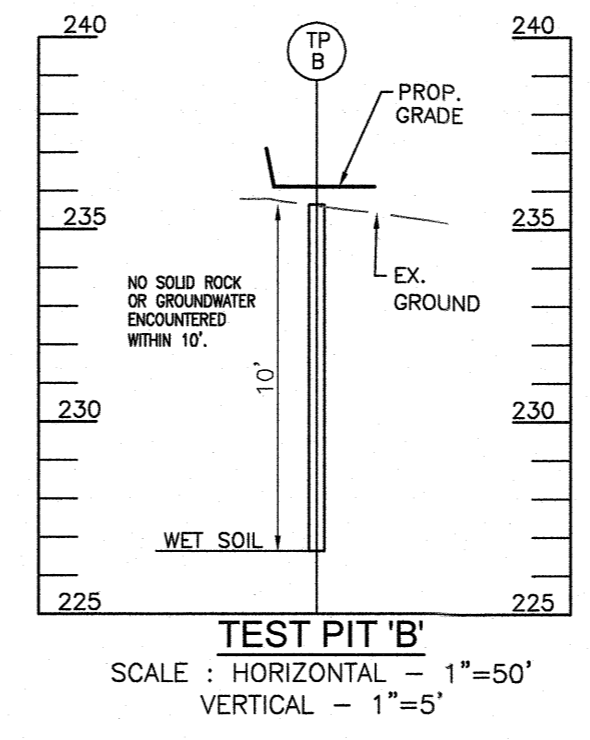
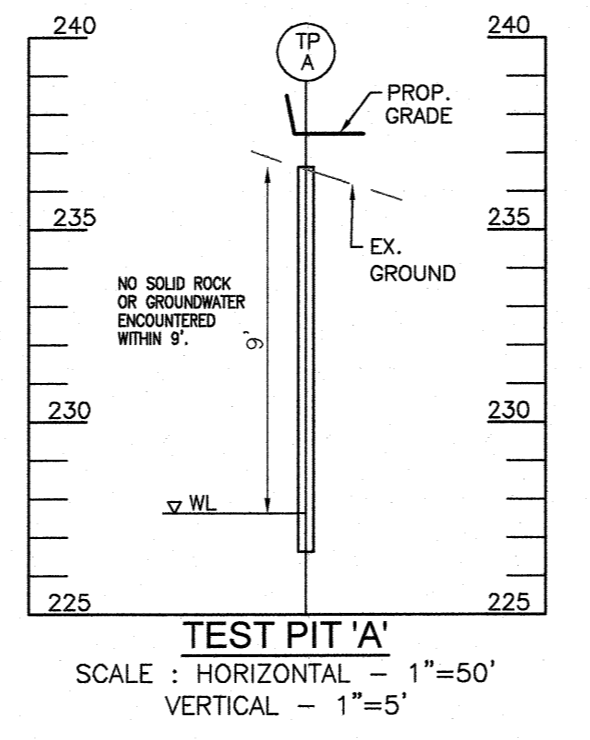
**BIORETENTION PLANTING SCHEDULE (SHRUB/ORNAMENTAL GRASSES)**

LEGEND/KEY	QTY	BOTANICAL NAME/Common Name	SIZE	REMARKS
IG	4	ILEX GLABRA "SHAMROCK" INKBERRY HOLLEY	1 GALLON	-
IV	4	ITEA VIRGINICA "HENRY'S GARNETT" VIRGINIA SWEETSPIRE	1 GALLON	-
HQ	4	HYDRANGEA QUERCIFOLIA OAKLEAF HYDRANGEA	1 GALLON	-
LR	4	LEUCOCTHEO RACEMOSA FETTERBUSH	1 GAL.	-
PV	4	PANICUM VIRGATUM SWITCHGRASS	1 GAL.	-

**BIORETENTION PERENNIALS/GROUNDCOVER PLANTING SCHEDULE**

LEGEND	QTY	BOTANICAL NAME/Common Name	SIZE	REMARKS
[Symbol]	19	BAPTISIA AUSTRALIS FALSE INDIGO	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP
[Symbol]	19	ACORUS GRAMINEUS "OGON" GOLDEN VARIEGATED SWEET FLAG	1 QT.	

NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN TABLE A-4 AS SHOWN HEREON.



- NOTES:**
- TABLE A.4 IS TAKEN FROM THE "2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II - APPENDIX A."
  - CONTRACTOR SHALL BE FAMILIAR WITH APPENDIX B.4.C. CONSTRUCTION SPECIFICATIONS AND TABLE B.4.1 MATERIAL SPECIFICATIONS. IN ADDITION THE "2000 MARYLAND STORMWATER DESIGN MANUAL - VOLUME II - APPENDIX A OFFERS ADDITIONAL HELPFUL INFORMATION."
  - NO TREES SHALL BE PLANTED WITHIN A MICRO BIORETENTION FACILITY. USE ONLY SHRUBS OR HERBACEOUS SPECIES.
  - ABOVE TABLE A.4 IS FOR INFORMATIONAL PURPOSES ONLY. LANDSCAPE CONTRACTOR SHALL INSTALL PLANTINGS SPECIFIED OR USE APPROVED EQUAL SPECIES WHICH ARE TOLERANT TO FLUCTUATING WATER LEVELS.
  - PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THIS FINAL PLAN.

**DEVELOPER:** STANDARD ENERGY SOLUTIONS, 9520 GERWIG LANE, SUITES Q-T, COLUMBIA, MD 21046, PHONE: 410-844-3800, STEVE.WELSH@STANDARDENERGYSOLUTIONS.COM

**OWNER:** IHOMES, INC., 6355 WOODSIDE COURT, COLUMBIA, MD 21046, PHONE: 443-218-8558

NO.	REVISION	DATE

**FINAL SUPPLEMENTAL PLAN**  
**MICRO-BIORETENTION - NOTES & DETAILS**  
**GREENFIELDS COMMUNITY LIVING**  
 LOTS 1, 2 & 3  
 A SUBDIVISION OF TAX MAP 43 PARCEL 491  
 LIBER 18385 FOLIO 341 PARCEL 491, ZONE: R-SC  
 HOWARD COUNTY, MARYLAND

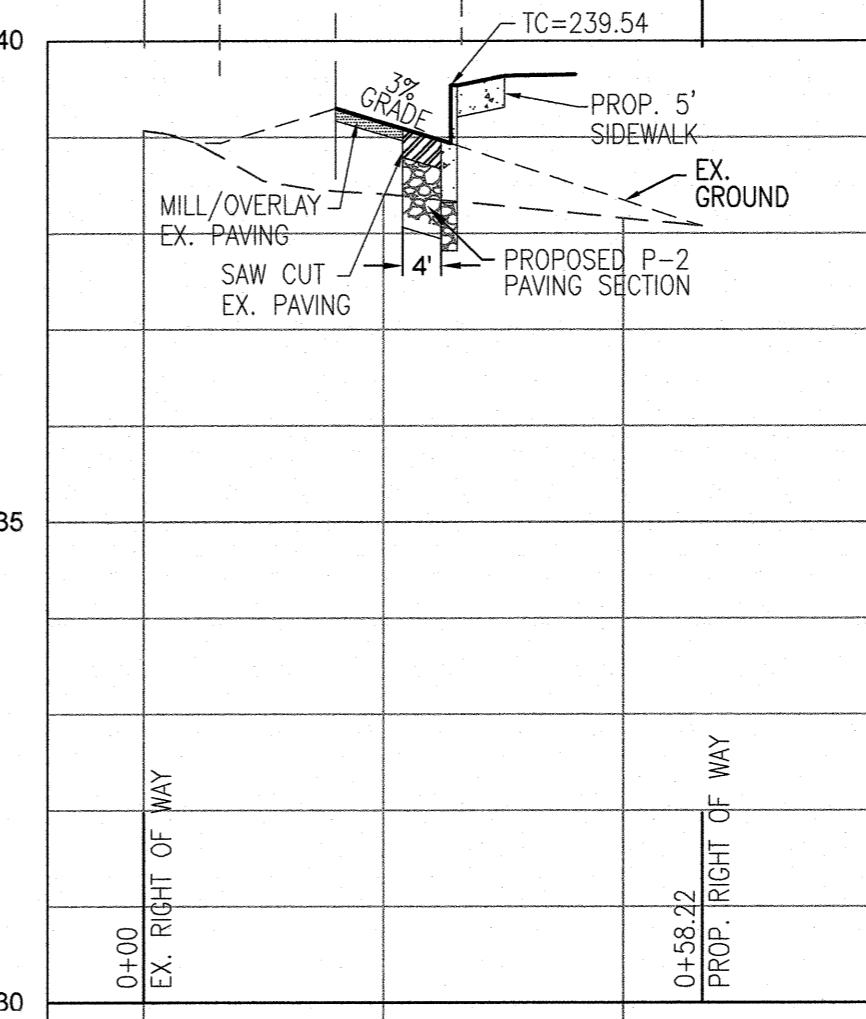
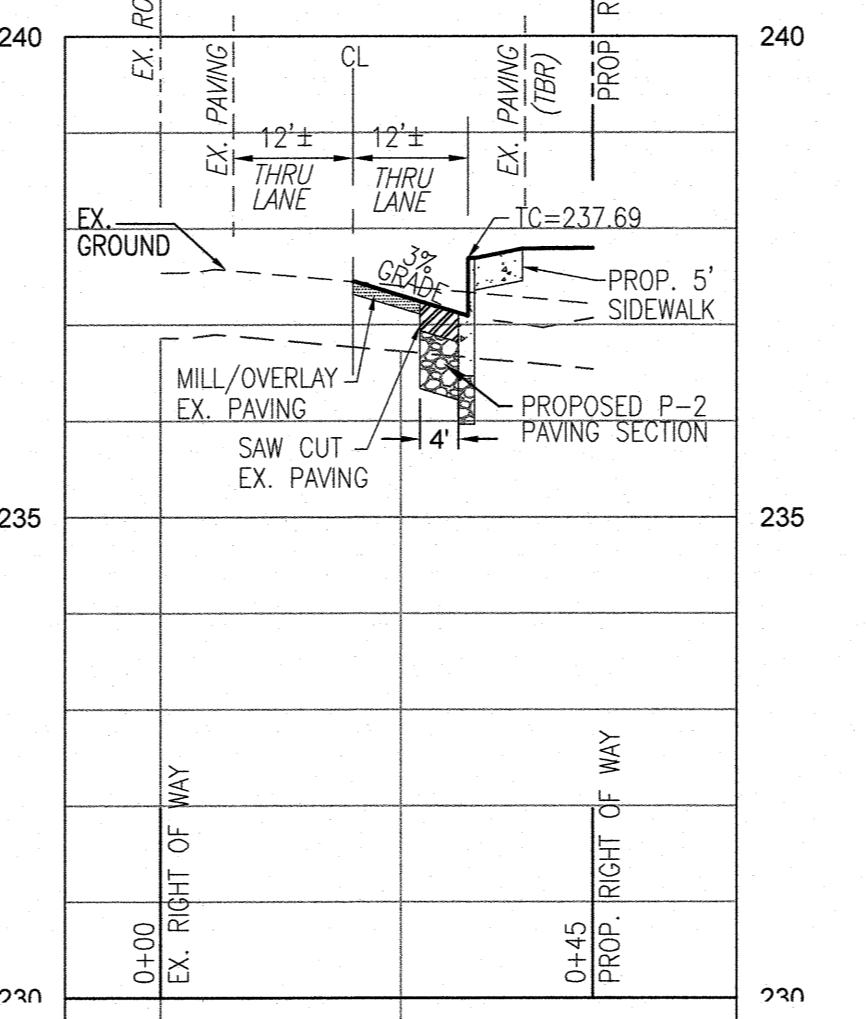
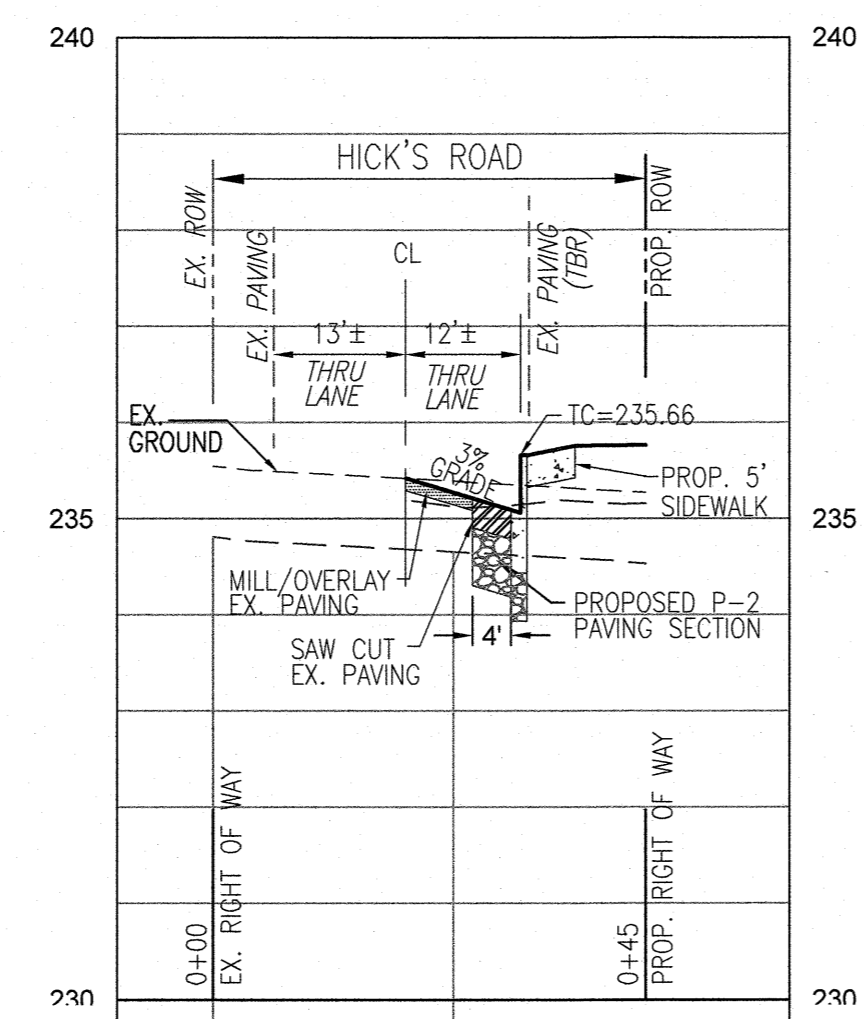
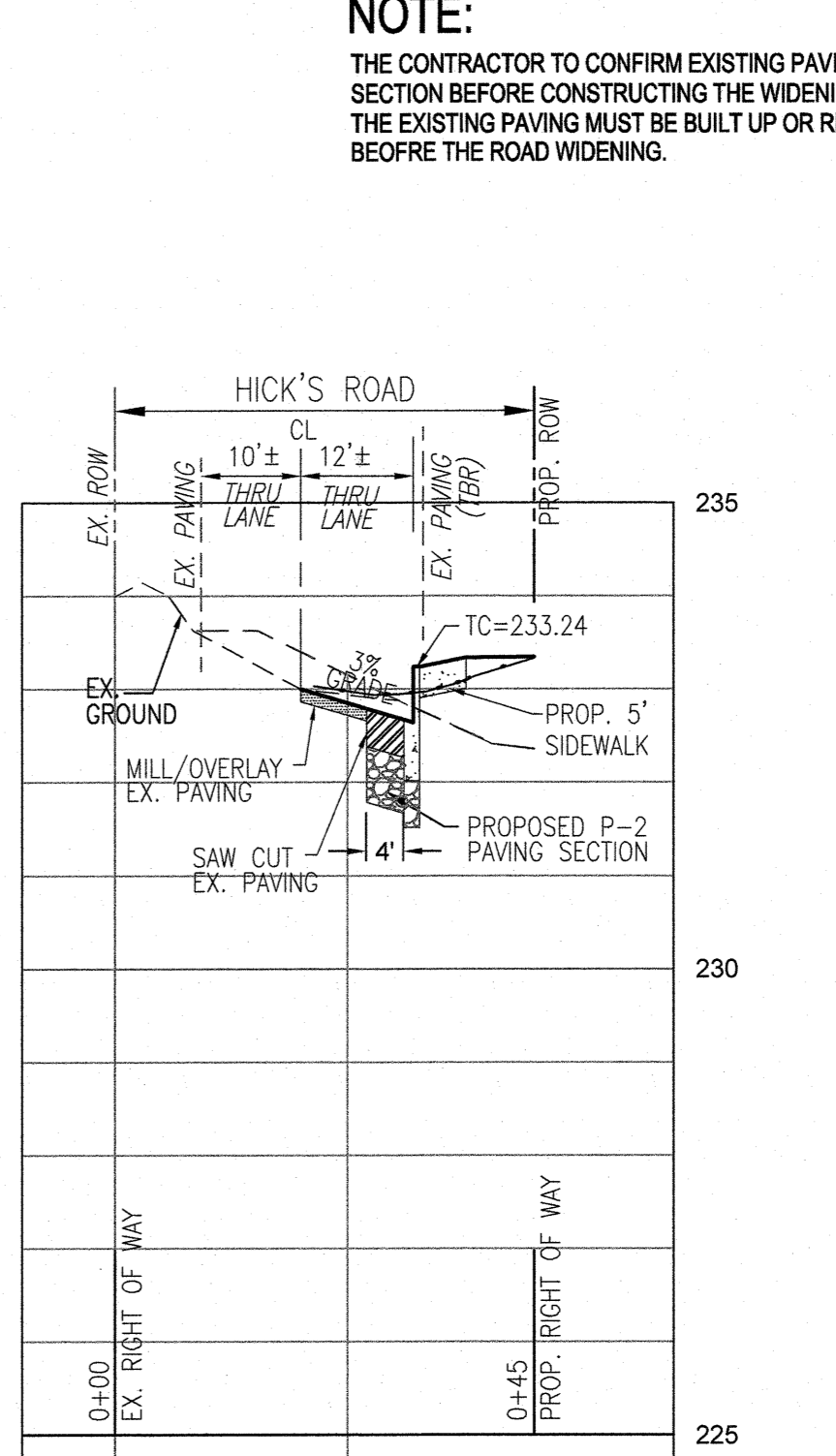
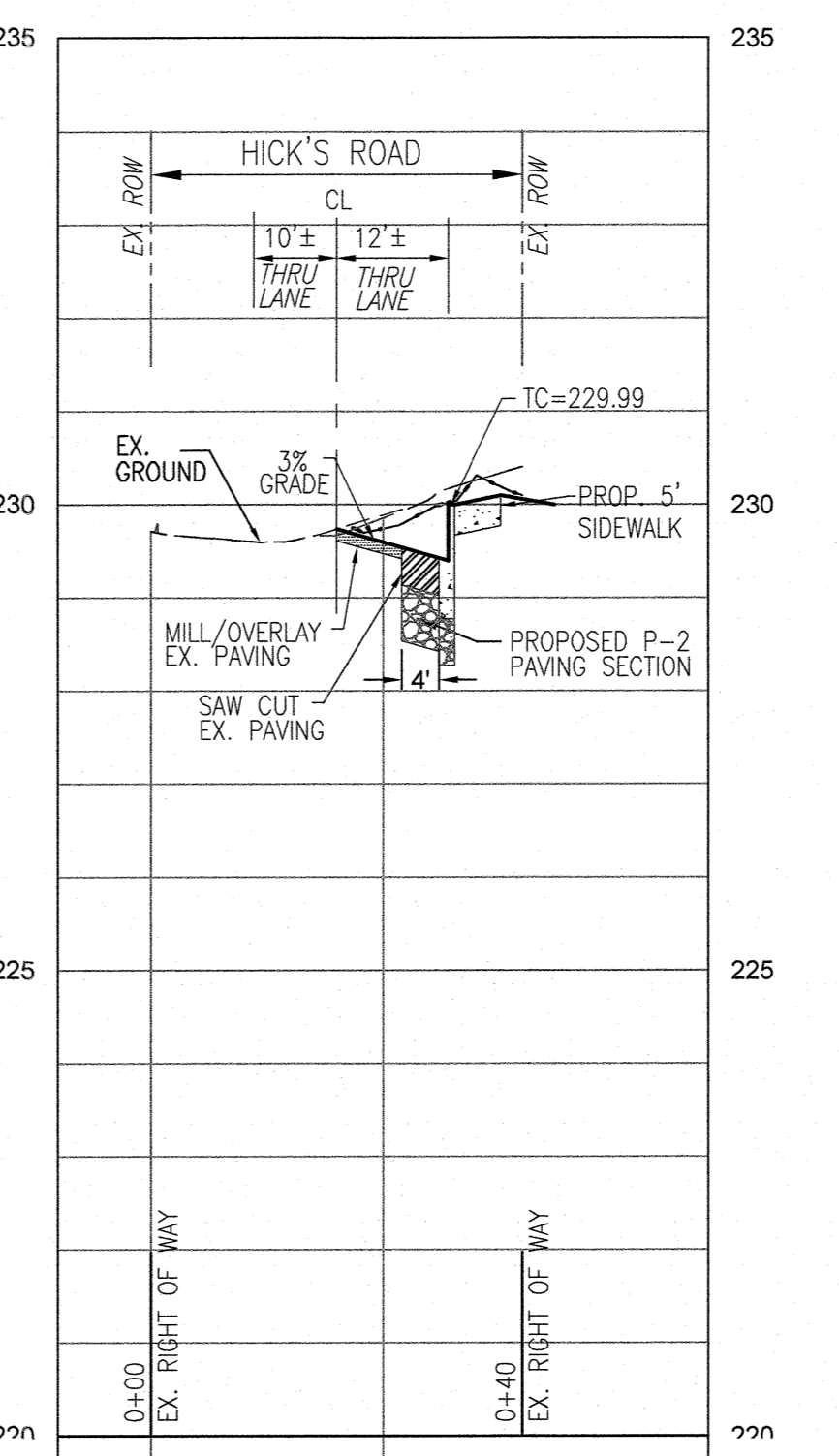
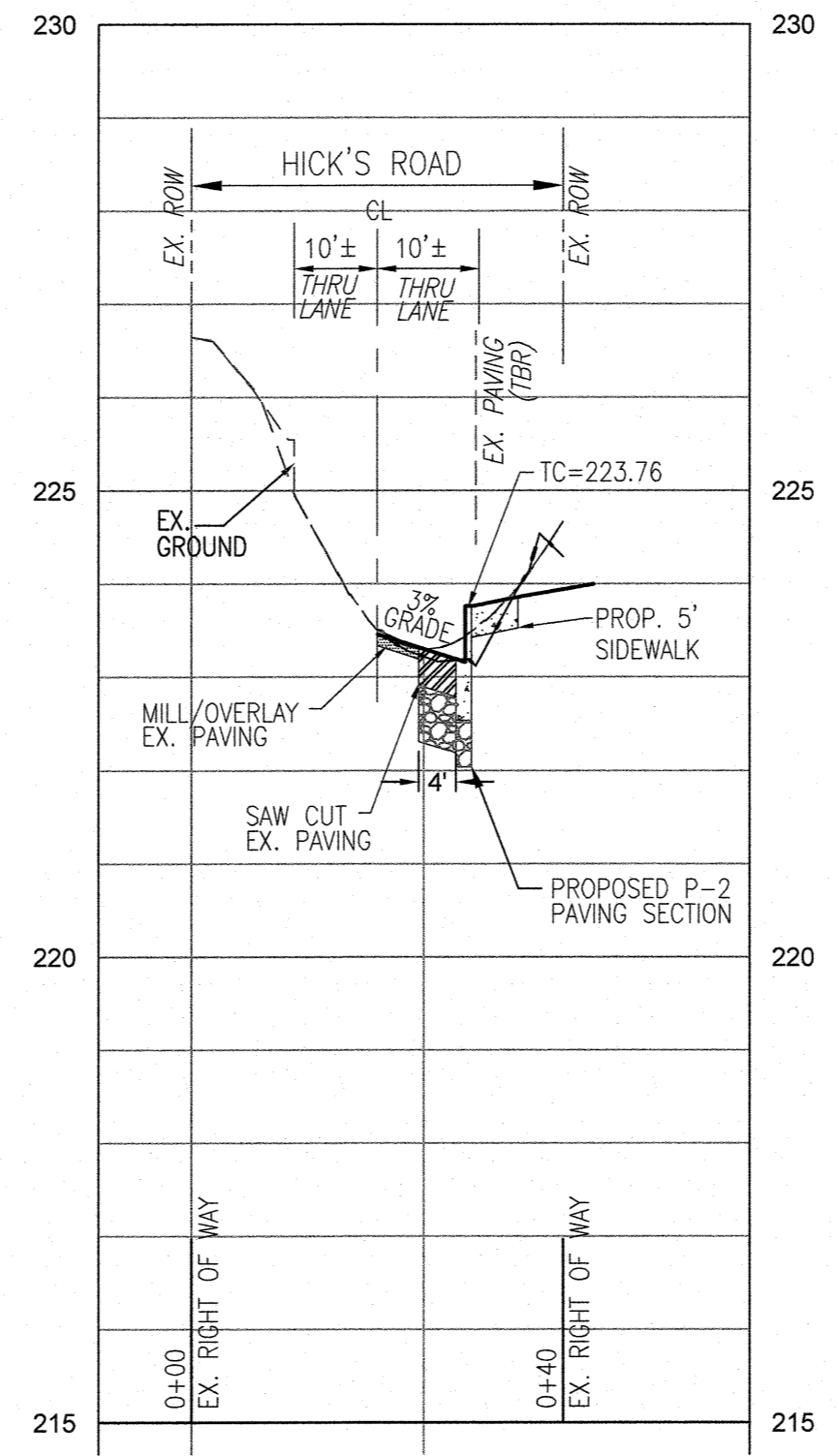
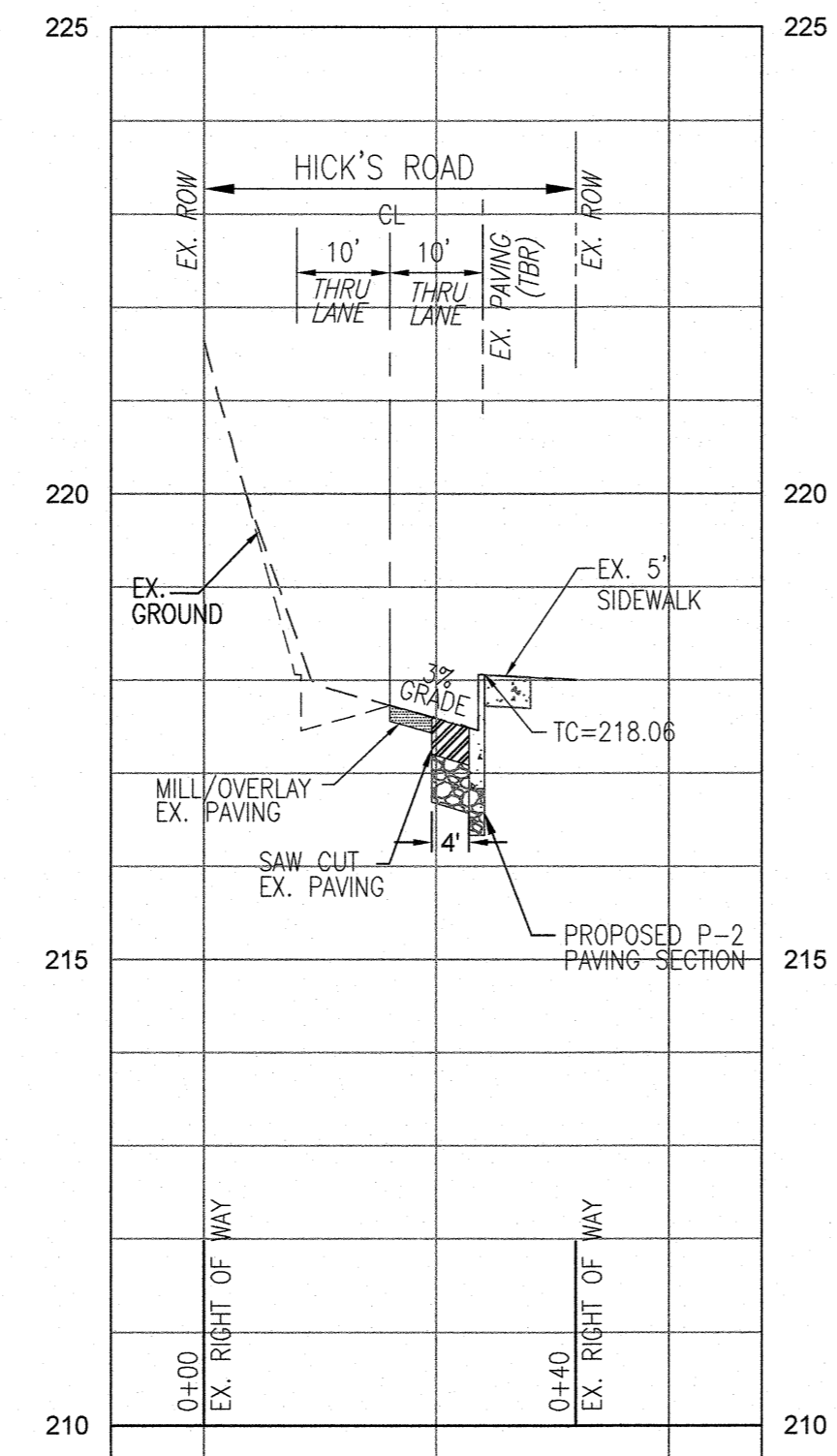
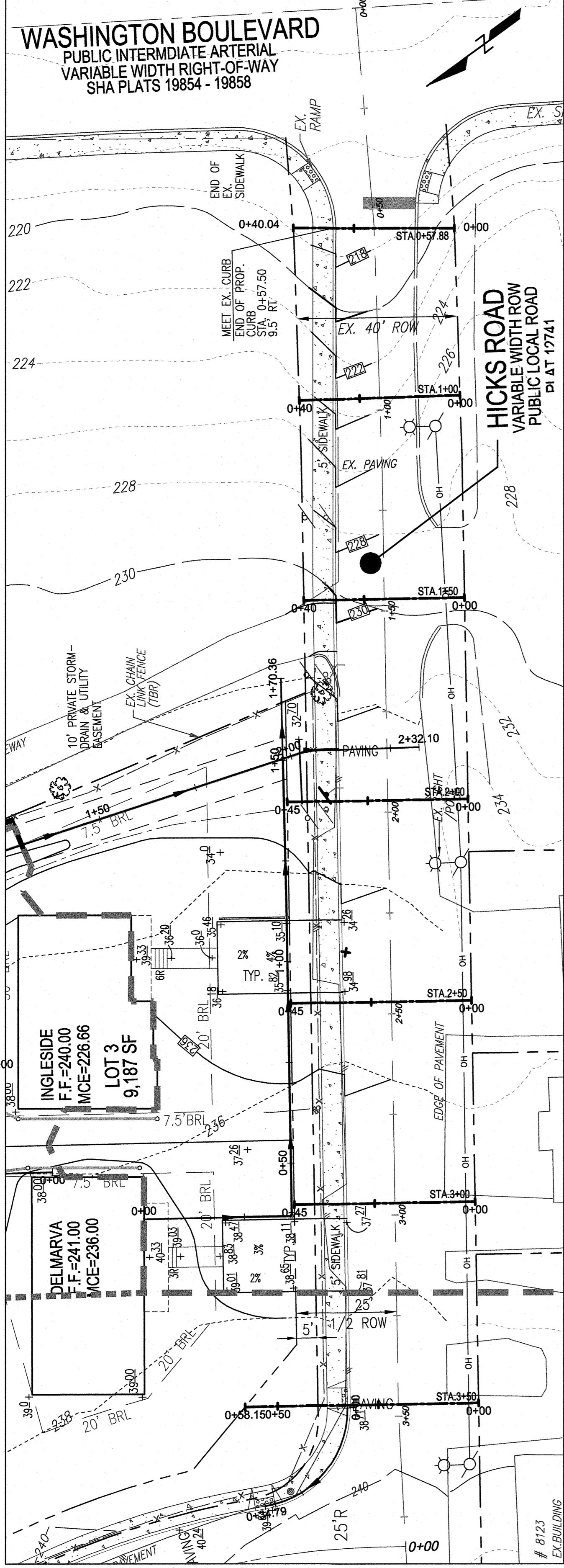
**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE  
 DESIGN BY: RHV  
 DRAWN BY: KG  
 CHECKED BY: RHV  
 DATE: JANUARY 2022  
 SCALE: 1"=30'  
 W.O. NO.: 43808

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. 16193, EXPIRATION DATE: 06-27-2022

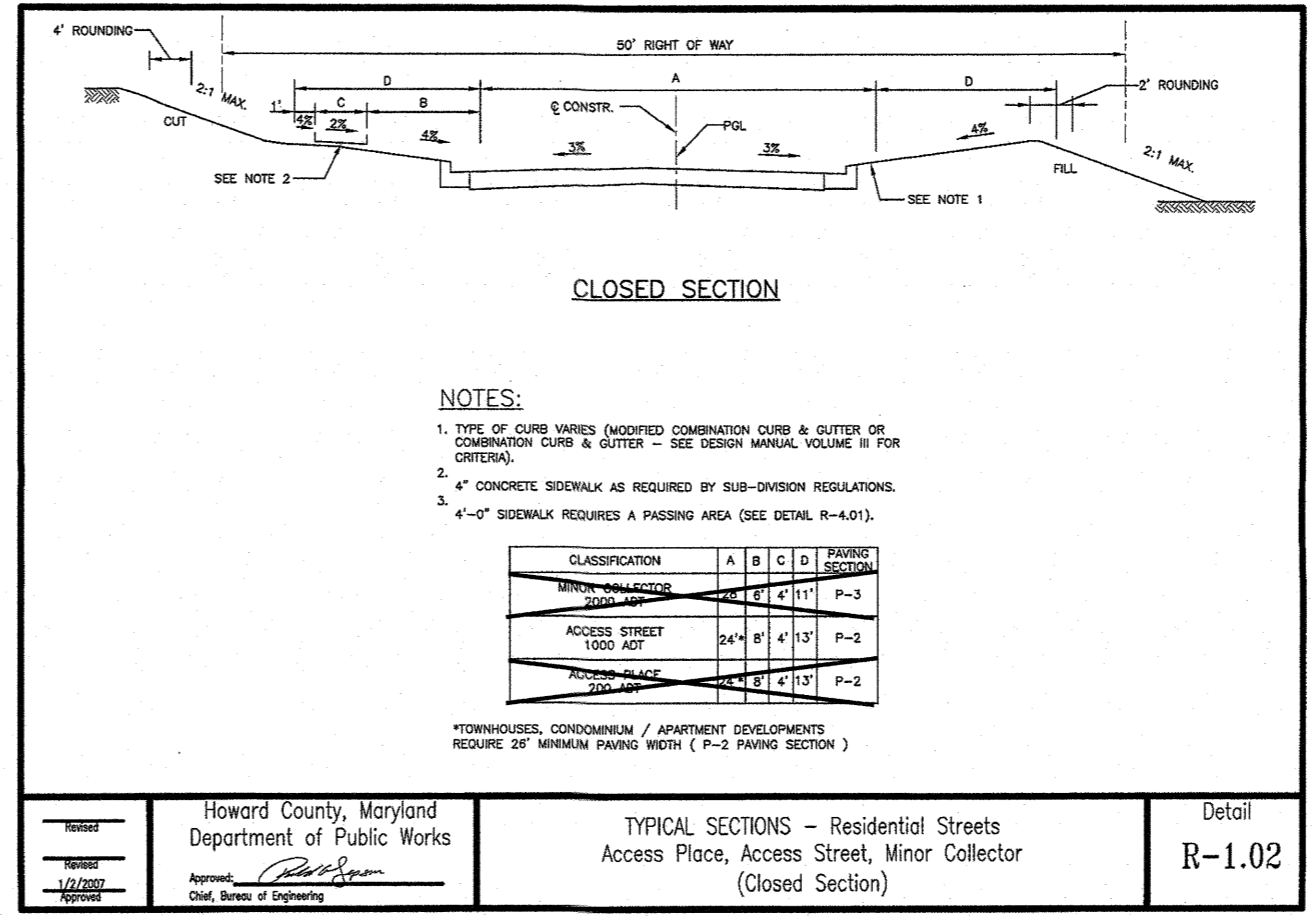
7 OF 8





**NOTE:**  
THE CONTRACTOR TO CONFIRM EXISTING PAVING SECTION BEFORE CONSTRUCTING THE WIDENING. THE EXISTING PAVING MUST BE BUILT UP OR REPAIR BEFORE THE ROAD WIDENING.

**NOTE:**  
ROAD CROSS SLOPE FROM CENTERLINE TO CURB AND GUTTER MAY VARY 2%-3% TO ACOMODATE CONDITIONS.



**DEVELOPER**  
STANDARD ENERGY SOLUTIONS  
9520 GERWIG LANE, SUITES Q-T  
COLUMBIA, MD 21046  
PHONE: 410-844-3800  
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**OWNER**  
HOMES, INC  
6355 WOODSIDE COURT  
COLUMBIA, MD 21046  
PHONE: 443-218-8558

NO.	REVISION	DATE

FINAL SUPPLEMENTAL PLAN  
**HICK'S ROAD - CROSS SECTIONS**  
GREENFIELDS  
COMMUNITY LIVING  
LOTS 1, 2 & 3  
A SUBDIVISION OF TAX MAP 43 PARCEL 491  
LIBER 18385 FOLIO 341 PARCEL 491, ZONE: R-SC  
TAX MAP 43 BLOCK 14 18TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
TIMMONS GROUP  
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE  
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. 16193, EXPIRATION DATE: 09-27-2022

DESIGN BY: RHY  
DRAWN BY: KG  
CHECKED BY: RHY  
DATE: JANUARY 2022  
SCALE: 1"=30'  
W.O. NO.: 4380B

8 SHEET OF 8

APPROVED: DEPARTMENT OF PUBLIC WORKS  
2/22/2022

CHIEF, BUREAU OF TRIMMINGS  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DocuSigned by:  
Chad Edmondson  
2/22/2022

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE

CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE

