

SHEET INDEX table with columns for SHEET NUMBER and DESCRIPTION. Rows include Title Sheet, Site Development Plan, Sediment and Erosion Control Plan, etc.

SITE DEVELOPMENT PLAN
SAPARIYA PROPERTY
LOTS 1 AND 2

SPECIMEN TREE LIST table with columns for Key, Species, Size (d.b.h.), CRZ (Ft Rad), Comment, Status, and IMPACTED AREA.

SWM PRACTICE CHART table with columns for LOT No. Address, FACILITY NAME & NUMBER, PRACTICE TYPE (QUANTITY), PUBLIC, PRIVATE, HOA MAINTAINS, and HISC.

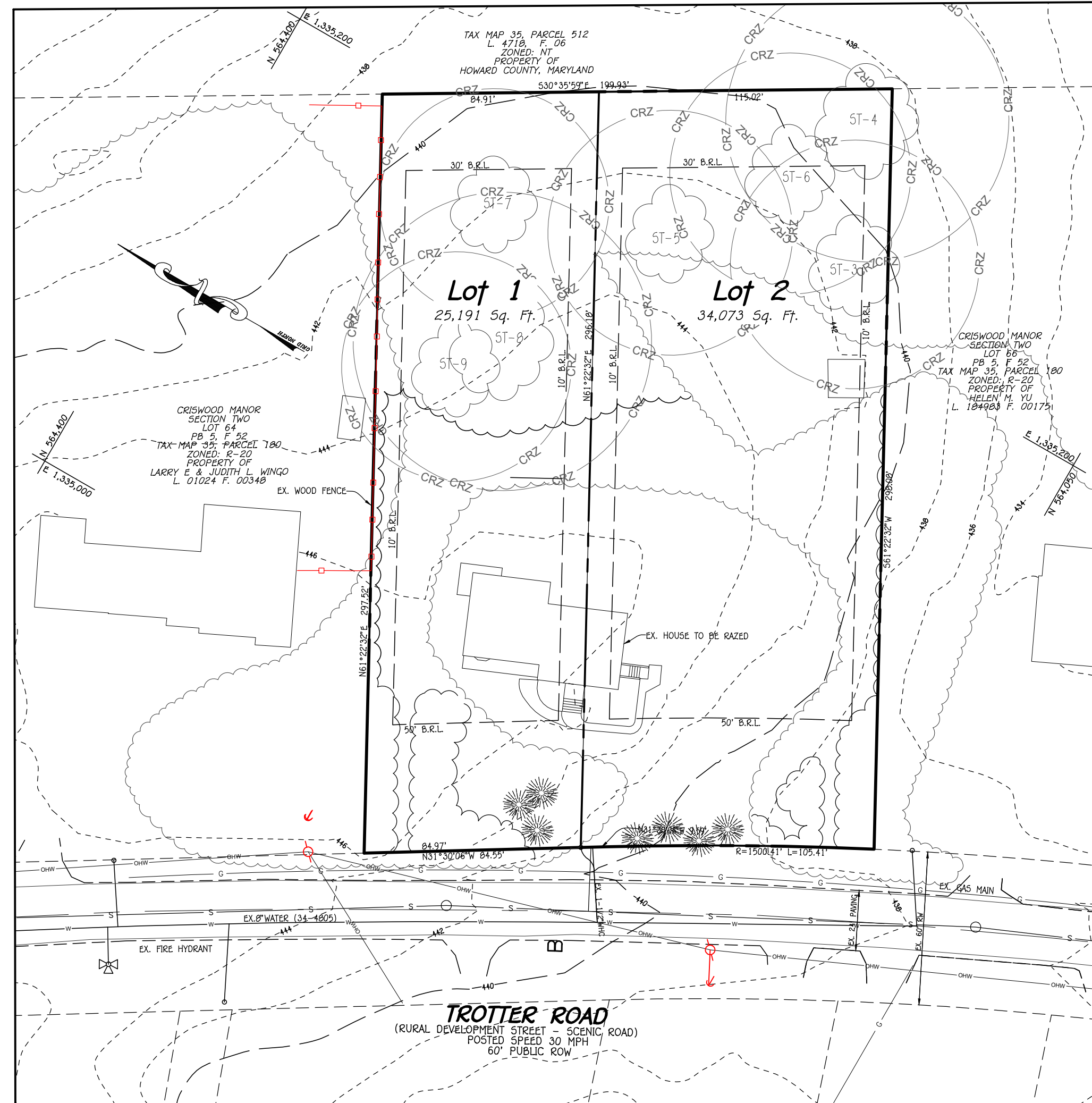
STORMWATER MANAGEMENT INFORMATION table with columns for PARCEL ID, FACILITY NAME & NUMBER, PRACTICE TYPE (QUANTITY), PUBLIC, PRIVATE, HOA MAINTAINED, and OWNER MAINTAINED.

STORMWATER MANAGEMENT PRACTICES table with columns for AREA ID, PERMEABLE PAVING, DISCONNECTION OF ROOFTOP RUNOFF, DISCONNECTION OF NON-ROOFTOP RUNOFF, FILTERS/INLETS, MICRO BIO-RETENTION, BIO-RETENTION, SUBMERGED GRAVEL WETLAND, and DRYWELL.

STORMWATER MANAGEMENT SUMMARY table with columns for AREA ID, DRAINAGE AREA AC., % IMPERVIOUS, ESDV REQUIRED CuFt., ESDV PROVIDED CuFt., and SURFACE AREA S.F.

ESDV REQUIRED = 2,142 CuFt.
ESDV PROVIDED = 2,471 CuFt.
WEIGHTED Pe REQUIRED = 1.87
Pe PROVIDED = 2.17

MODERATE INCOME HOUSING UNITS (MIHU) ALLOCATION EXEMPTIONS TRACKING TABULATION table with columns for Total Number of Lots/Units Proposed, Number of MIHU Provided Onsite, etc.



EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1" = 40'
0' 40' 80' 120'

GENERAL NOTES:

- 38. IN ACCORDANCE WITH SECTION 16.132 (4), THE PROPERTY OWNER SHALL NOT BE REQUIRED TO CONSTRUCT OR PROVIDE FOR CONSTRUCTION OF IMPROVEMENTS TO COUNTY MAINTAINED SCENIC ROADS...
39. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)...
40. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3" LONG...

LEGEND - PROP. CONDITIONS

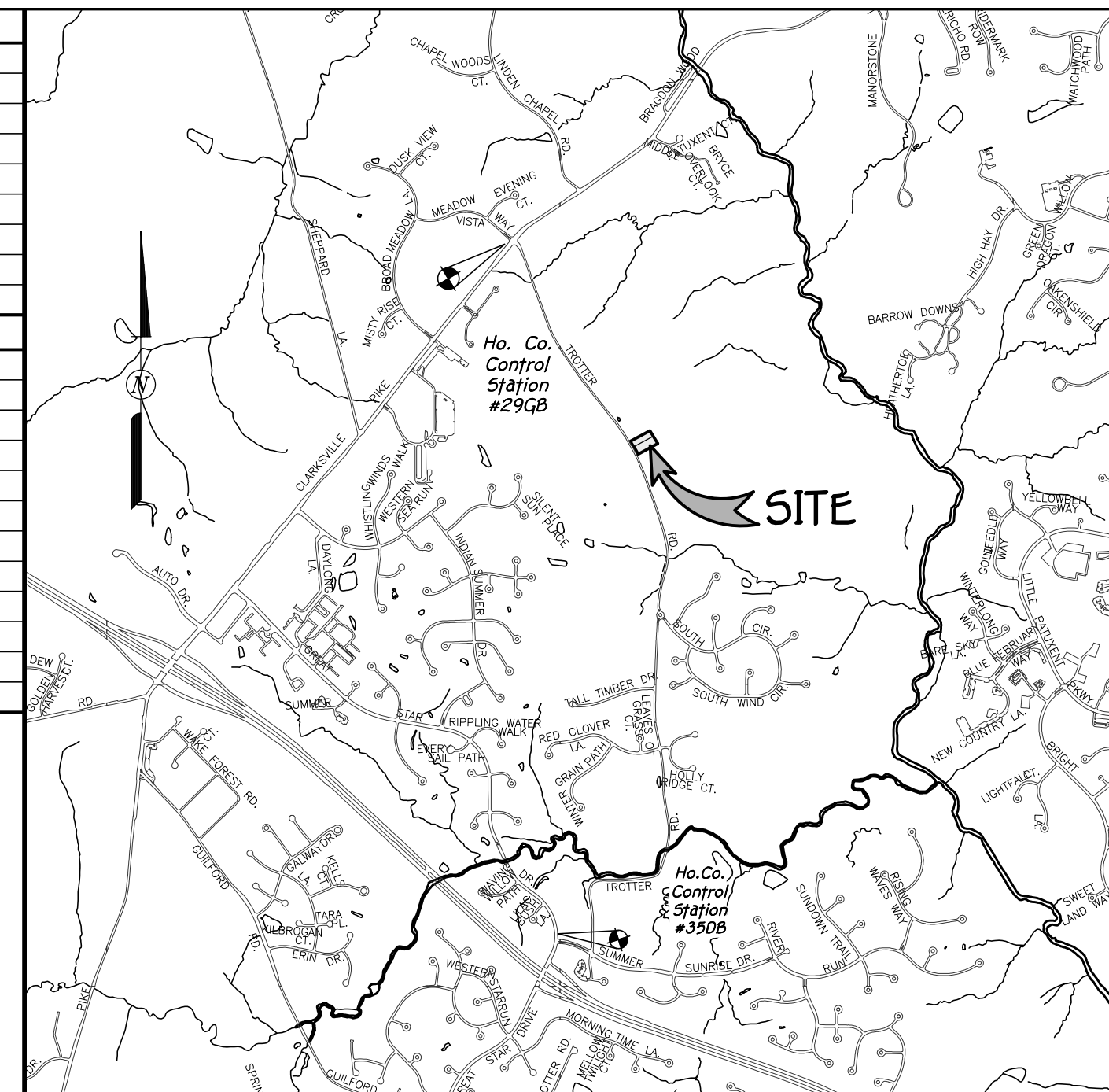
LEGEND - PROP. CONDITIONS table with columns for SYMBOL and DESCRIPTION. Includes items like PROPOSED CONTOUR 2' INTERVAL, PROPOSED CONTOUR 10' INTERVAL, PROPOSED SPOT ELEVATION, etc.

LEGEND - EX. CONDITIONS

LEGEND - EX. CONDITIONS table with columns for SYMBOL and DESCRIPTION. Includes items like EXISTING CONTOUR 2' INTERVAL, EXISTING CONTOUR 10' INTERVAL, EXISTING SAN SEWER LINE, etc.

SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF PROPERTY = 59,264 SQ.FT. OR 1.36 AC.+
B. LIMIT OF DISTURBED AREA = 38,369 SQ.FT. OR 0.88 AC.+
C. PRESENT ZONING DESIGNATION = R-20
D. PROPOSED USE: RESIDENTIAL
E. PREVIOUS HOWARD COUNTY FILES: ECP-20-051, F-21-046
F. TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC.



VICINITY MAP

SCALE: 1" = 2000'
HO. CO. ADC MAP 25, GRID E-8

GENERAL NOTES:

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. COORDINATES ARE BASED ON NAD 83 MARYLAND COORDINATES SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE: PARK - 10272 BALTIMORE NATIONAL PIKE
ELLSWORTH CRT, MARYLAND 21042
(410) 461-2095

\*PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24.\*

Paul G. Cavanaugh 11/6/2023
PAUL GERARD CAVANAUGH DATE

Table with columns for DATE, DESCRIPTION, REVISION BLOCK, APPROVED: DEPARTMENT OF PLANNING AND ZONING, Director - Department of Planning and Zoning, Chief, Division of Land Development, Chief, Development.

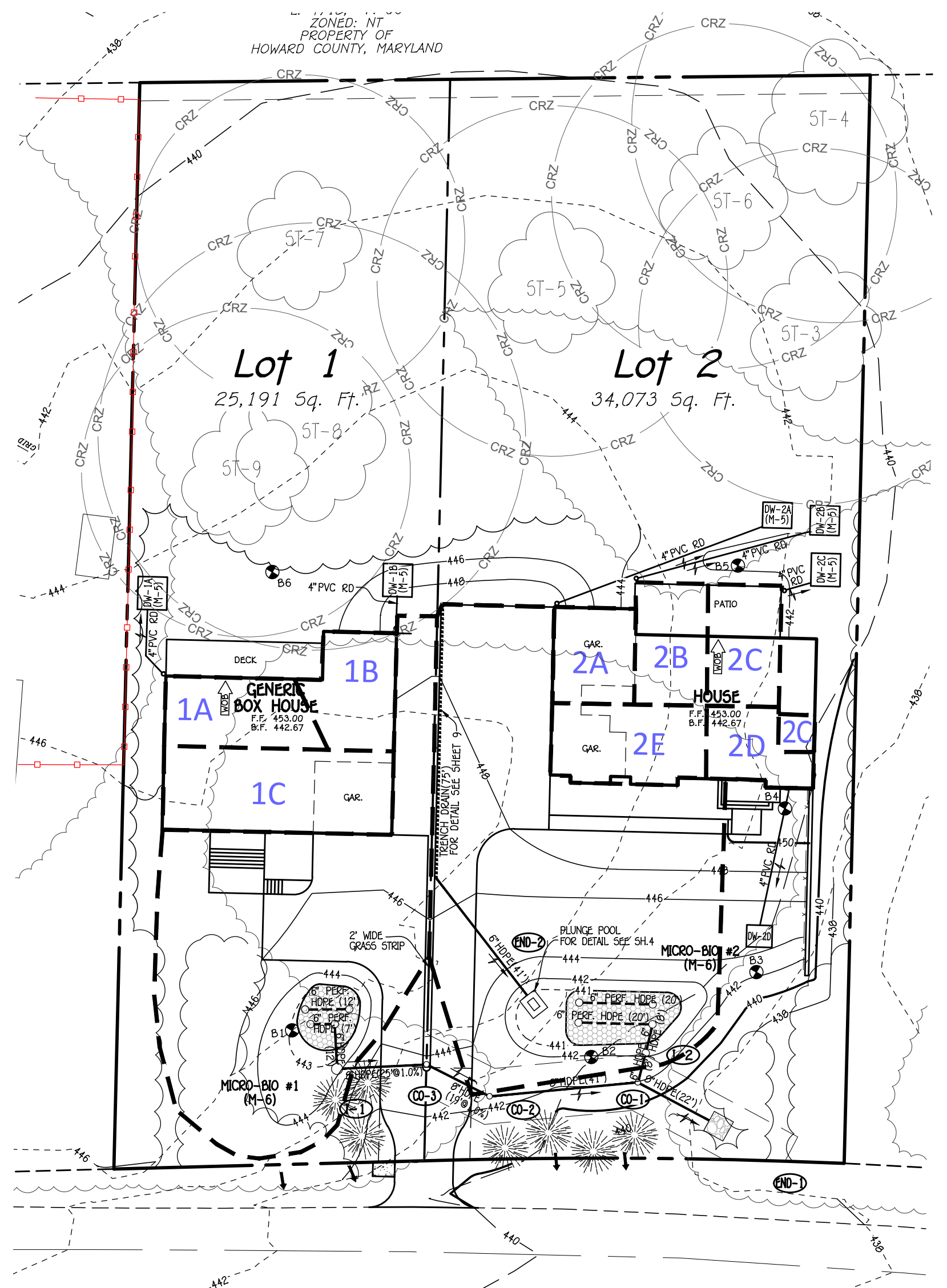
OWNER/DEVELOPER
DIVYESH SAPARIYA, SOHILRAJ SAPARIYA AND HITESH ANKOLA
5669 TROTTER ROAD
CLARKSVILLE, MARYLAND 21029
PH# 301-275-0762



ADDRESS CHART table with columns for PARCEL NO., LOT NO., STREET ADDRESS, PROJECT, SECTION/AREA, PARCEL, PLAT NOS., GRID NO., ZONE, TAX MAP, ELEC. DIST., CENSUS TR., WATER CODE, SEWER CODE.

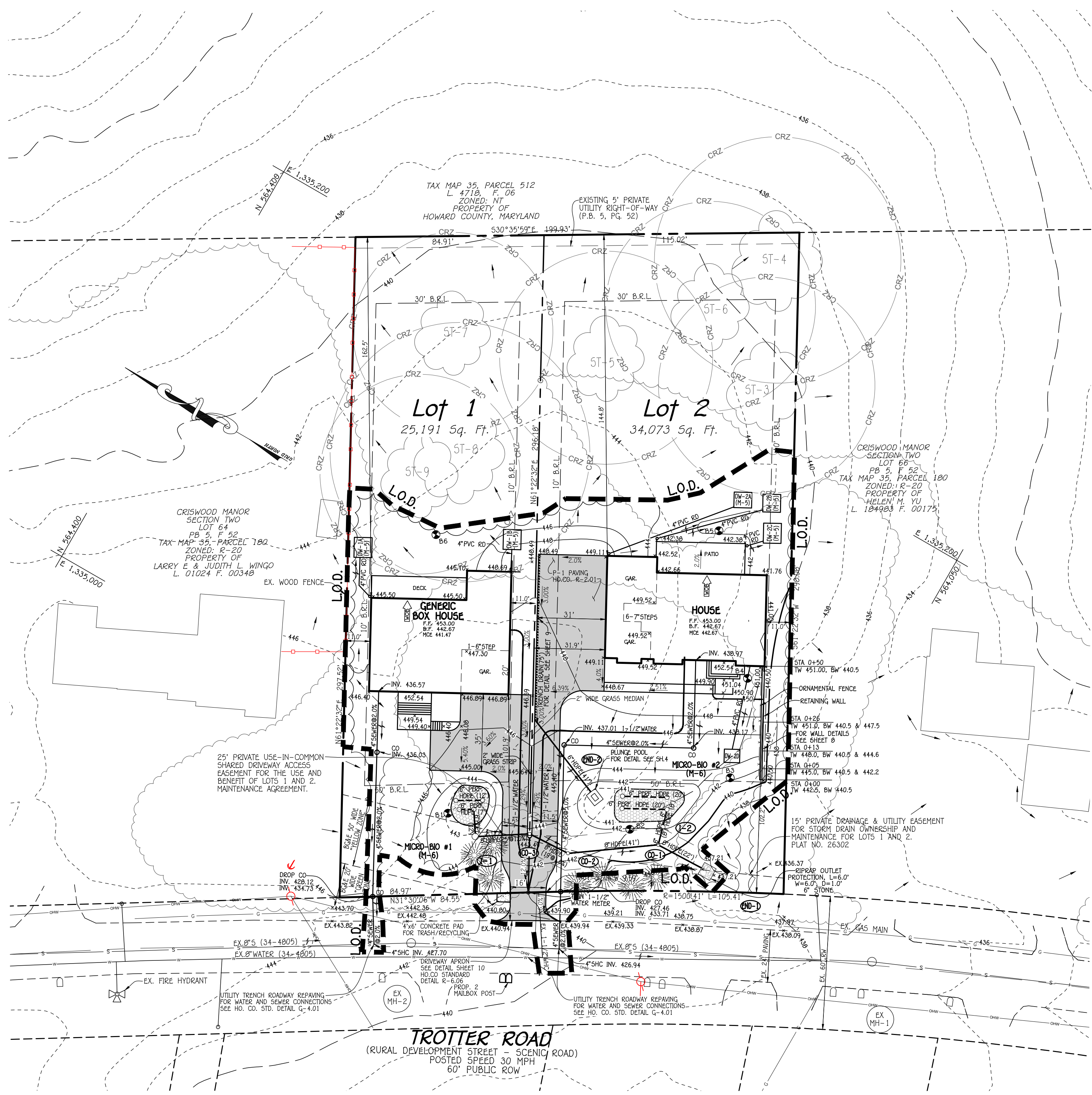
TITLE SHEET table with columns for PARCEL NO., LOT NO., STREET ADDRESS, PROJECT, SECTION/AREA, PARCEL, PLAT NOS., GRID NO., ZONE, TAX MAP, ELEC. DIST., CENSUS TR., WATER CODE, SEWER CODE.

LEGEND - EX. CONDITIONS		LEGEND - PROP. CONDITIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
--- 446 ---	EXISTING CONTOUR 2' INTERVAL	--- 446 ---	PROPOSED CONTOUR 2' INTERVAL
--- 440 ---	EXISTING CONTOUR 10' INTERVAL	--- 440 ---	PROPOSED CONTOUR 10' INTERVAL
S S	EXISTING SAN. SEWER LINE	+ 445.51	PROPOSED SPOT ELEVATION
W W	EXISTING WATER LINE	[Symbol]	PROPOSED CONCRETE WALK
OH	EXISTING OVERHEAD ELECTRIC LINE	[Symbol]	PROPOSED MACADAM PAVING
G	EXISTING GAS LINE	4" S	PROPOSED PRIVATE SEWER
[Symbol]	EXISTING TREES	1-1/2" W	PROPOSED PRIVATE WATER
[Symbol]	EXISTING PROPERTY LINE	8" HDPE	PROPOSED STORMDRAIN
[Symbol]	EXISTING RIGHT OF WAY LINE	[Symbol]	OVER FLOW PATH
[Symbol]	EXISTING WOODEN FENCE	[Symbol]	

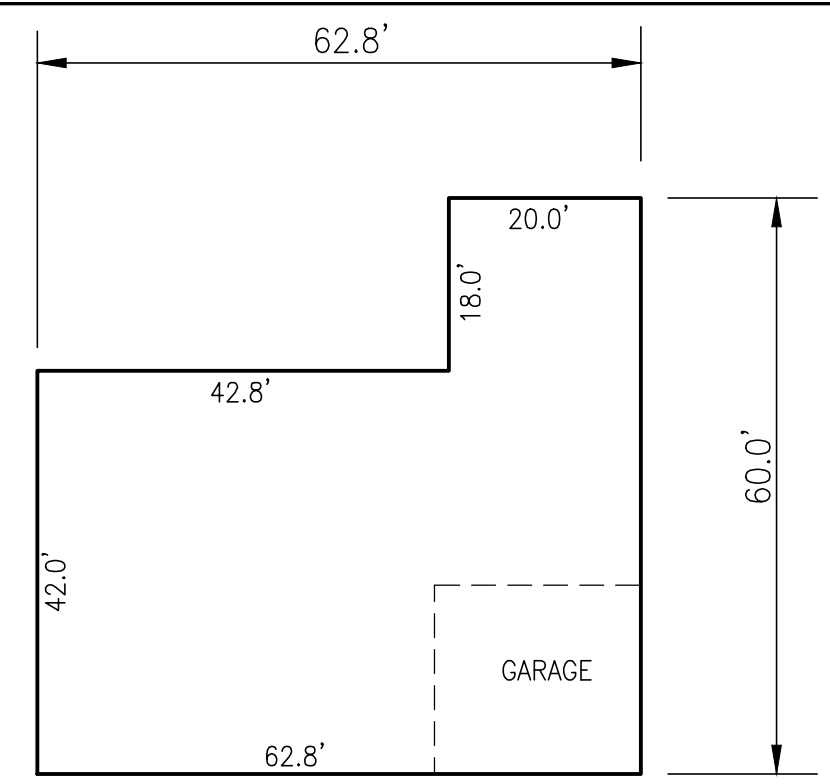


**DRAINAGE AREA MAP**  
SCALE: 1" = 30'

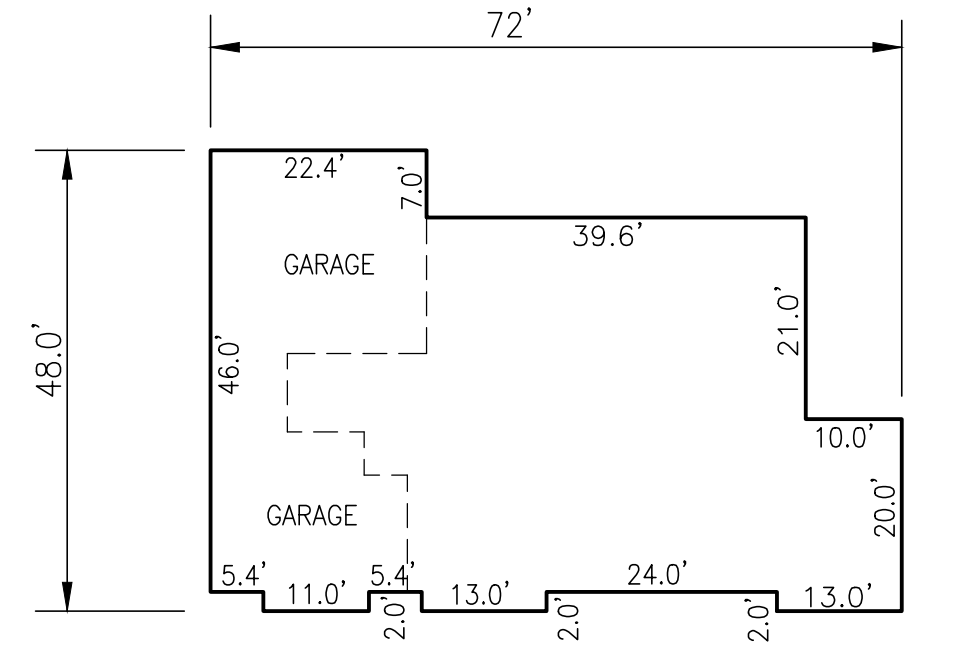
STORMWATER MANAGEMENT SUMMARY								
LOT NOS.	AREA ID.	ESDv REQUIRED CU.FT.	ESDv PROVIDED CU.FT.	Pe REQUIRED	Pe PROVIDED	Rev REQUIRED CU.FT.	Rev PROVIDED CU.FT.	REMARKS
1	ROOF	266	996	1.8"	1.8"	47	388	2 DRYWELLS (M-5)
1	DRIVEWAY AND ROOF	677						MICRO BIORETENTION (M-6)
2	ROOF	359						4 DRYWELLS (M-5)
2	DRIVEWAY AND ROOF	682	1,475	1.8"	2.5"	58	632	MICRO BIORETENTION (M-6)
	TOTAL SITE	2,142	2,471	1.8"	2.1"	105	1,020	



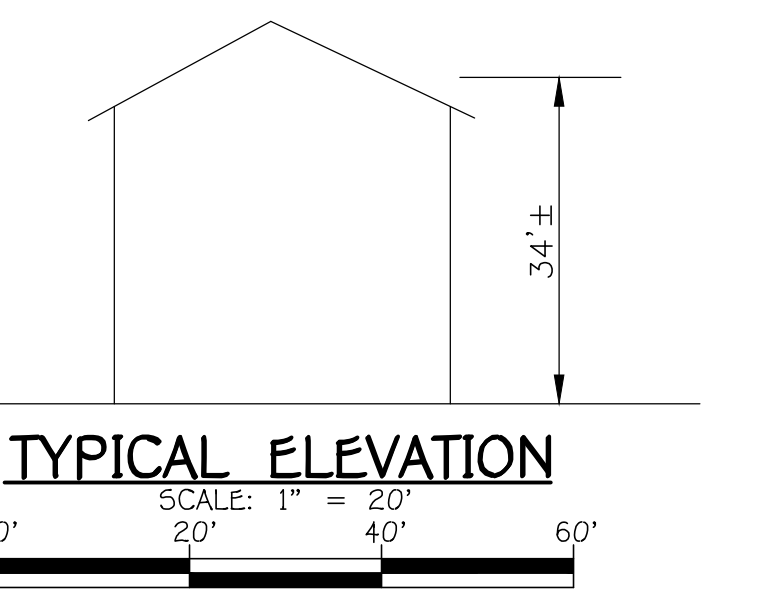
**SITE PLAN**  
SCALE: 1" = 30'



**LOT 1 HOUSE BOX**  
SCALE: 1" = 20'



**LOT 2 HOUSE BOX**  
SCALE: 1" = 20'



**TYPICAL ELEVATION**  
SCALE: 1" = 20'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE, PARC. 10272, BALTIMORE NATIONAL PLACE  
BALDWIN CITY, MARYLAND 21042  
(410) 461-2099

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24."

**Paul G. Cavanaugh** 11/6/2023  
PAUL GERARD CAVANAUGH DATE

DATE	DESCRIPTION	REVISION BLOCK
12/3/2023	APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>Lynnda Eisenberg</i>
11/29/2023	Director - Department of Planning and Zoning	
12/3/2023	Chief, Division of Land Use Planning	
	Chief, Development	

**OWNER/DEVELOPER**  
DIVYESH SAPARIYA,  
SOHILRAJ SAPARIYA AND  
HITESH ANKOLA  
5669 TROTTER ROAD  
CLARKSVILLE, MARYLAND 21029  
PH# 301-275-0762



ADDRESS CHART			
PARCEL NO.	LOT NO.	STREET ADDRESS	
0180	1	5669 TROTTER ROAD	
	2	5673 TROTTER ROAD	

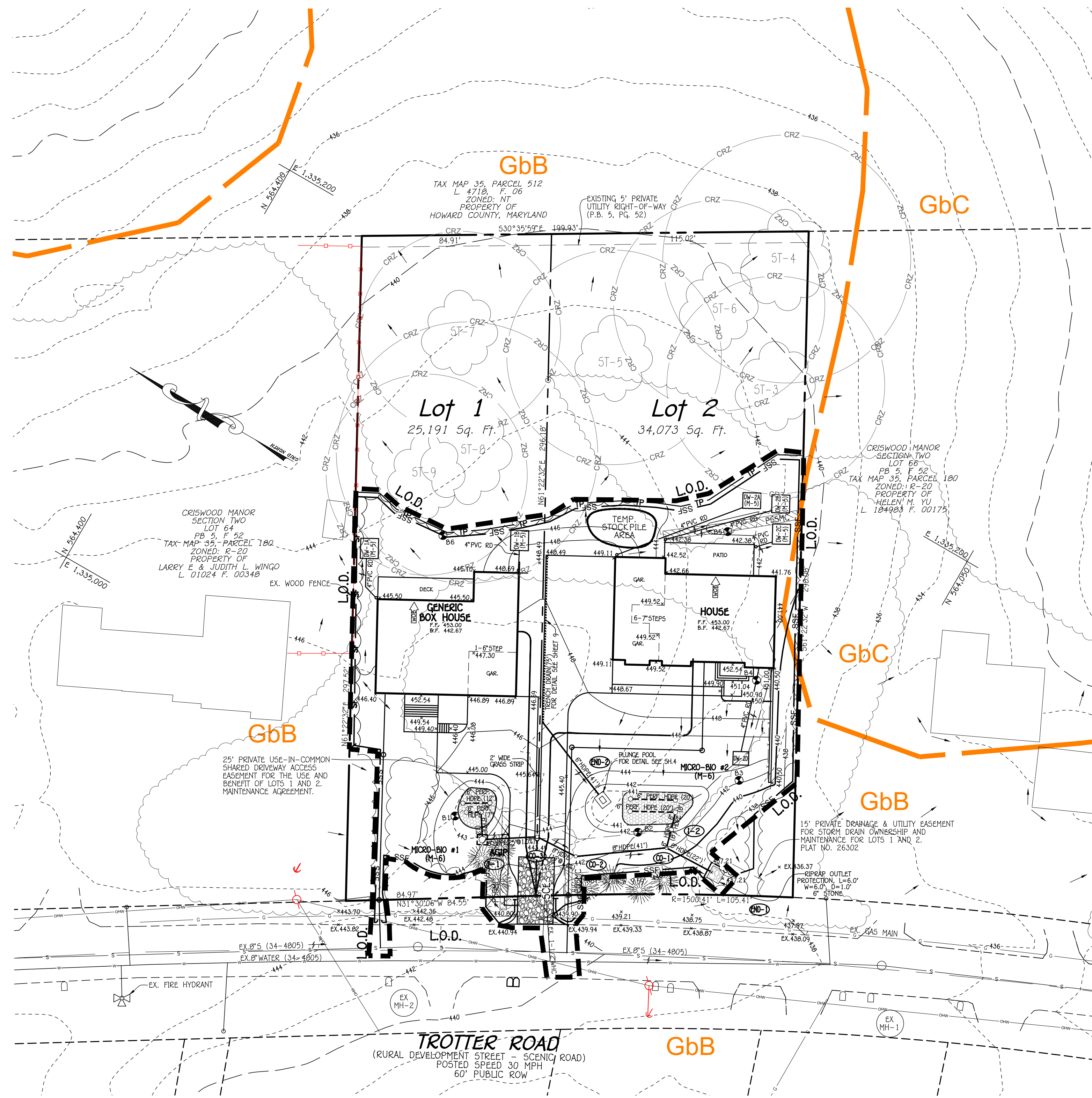
PROJECT	SECTION/AREA	PARCEL
SAPARIYA PROPERTY	5/2	0180

PLAT NOS.	GRID NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
26302	2	R-20	35	FIFTH	605505

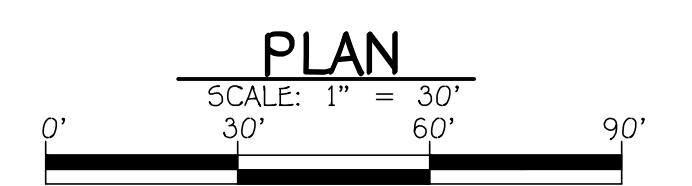
**SITE DEVELOPMENT PLAN**  
**SAPARIYA PROPERTY**  
**LOTS 1 AND 2**  
5669 TROTTER ROAD  
A RESUBDIVISION OF CRISWOOD MANOR  
SECTION TWO - LOT 65  
PLAT BOOK 5, PAGE 52  
ZONED: R-20  
TAX MAP: 35 GRID: 2 PARCEL: 0180  
FIFTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
DATE: NOVEMBER, 2023  
SHEET 2 OF 10  
SCALE: AS SHOWN

SOILS LEGEND			
SOIL	NAME	CLASS	K VALUE
GbB	Gladstone loam, 3 to 8 percent slopes	B	.32
GbC	Gladstone loam, 8 to 15 percent slopes	B	.32

HOWARD COUNTY WEBSOILS SURVEY 09/15/20



LEGEND - EX. CONDITIONS		LEGEND - PROP. CONDITIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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--- 440 ---	EXISTING CONTOUR 10' INTERVAL	--- 440 ---	PROPOSED CONTOUR 10' INTERVAL
--- S ---	EXISTING SAN. SEWER LINE	+ 445.91	PROPOSED SPOT ELEVATION
--- W ---	EXISTING WATER LINE	--- ---	PROPOSED CONCRETE WALK
--- ---	EXISTING OVERHEAD ELECTRIC LINE	--- ---	PROPOSED MACADAM PAVING
--- ---	EXISTING GAS LINE	--- 5 ---	PROPOSED PRIVATE SEWER
--- ---	EXISTING TREES	--- 1-1/2" W ---	PROPOSED PRIVATE WATER
--- ---	EXISTING PROPERTY LINE	--- 8" HDPE ---	PROPOSED STORMDRAIN
--- ---	EXISTING RIGHT OF WAY LINE		
--- ---	EXISTING WOODEN FENCE		



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 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2299

**ENGINEER'S CERTIFICATE**  
 "I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS 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."  
 Paul G. Cavanaugh 11/6/2023  
 SIGNATURE OF ENGINEER DATE

**DEVELOPER'S CERTIFICATE**  
 "I/WE HEREBY 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 THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."  
 Divyesh Sapariya 11/6/2023  
 SIGNATURE OF DEVELOPER DATE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24."  
 Paul G. Cavanaugh 11/6/2023  
 PAUL GERARD CAVANAUGH DATE

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Designated by: Alexander Bratchev 11/29/2023  
 HOWARD SOIL CONSERVATION DISTRICT DATE

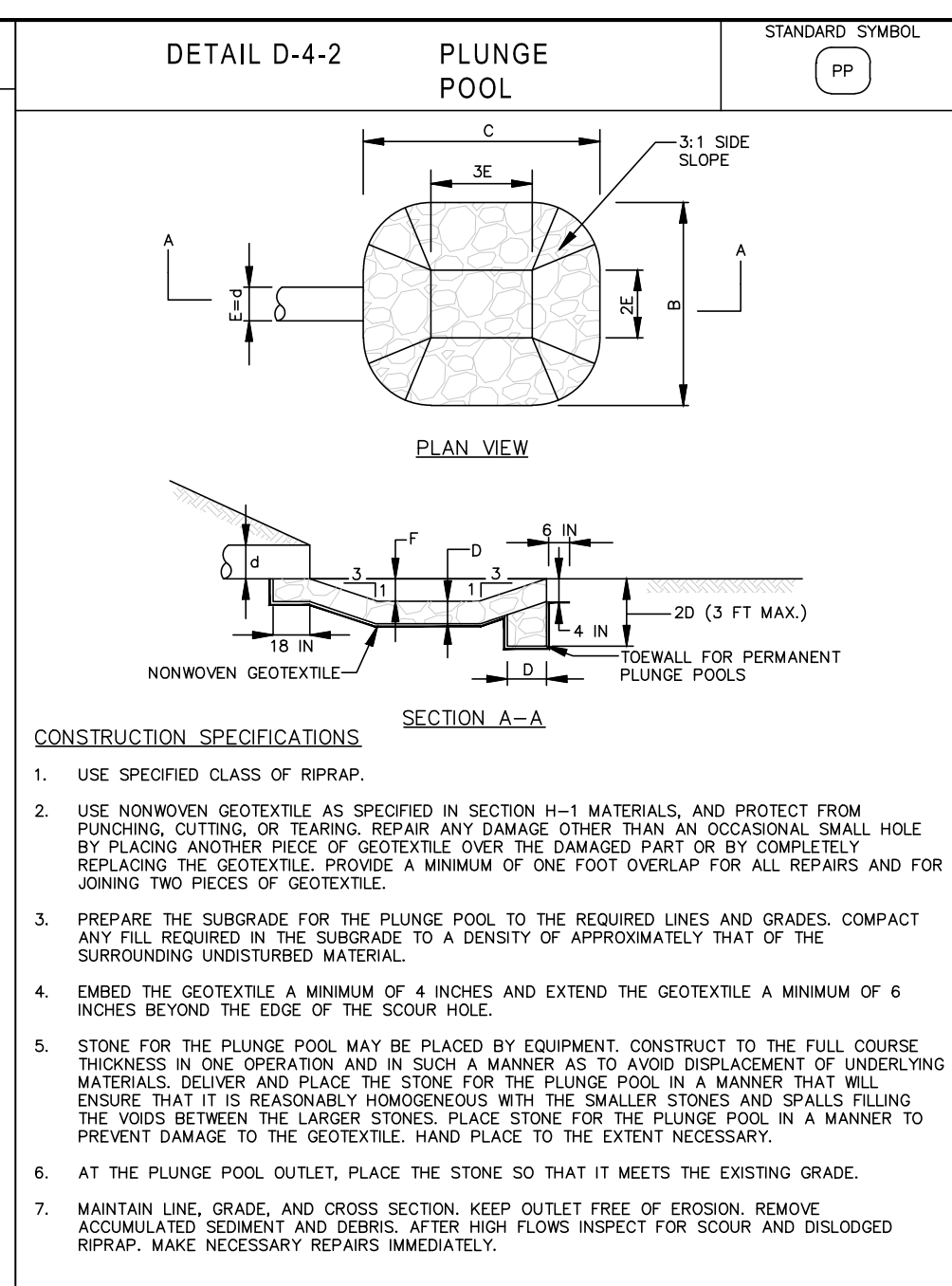
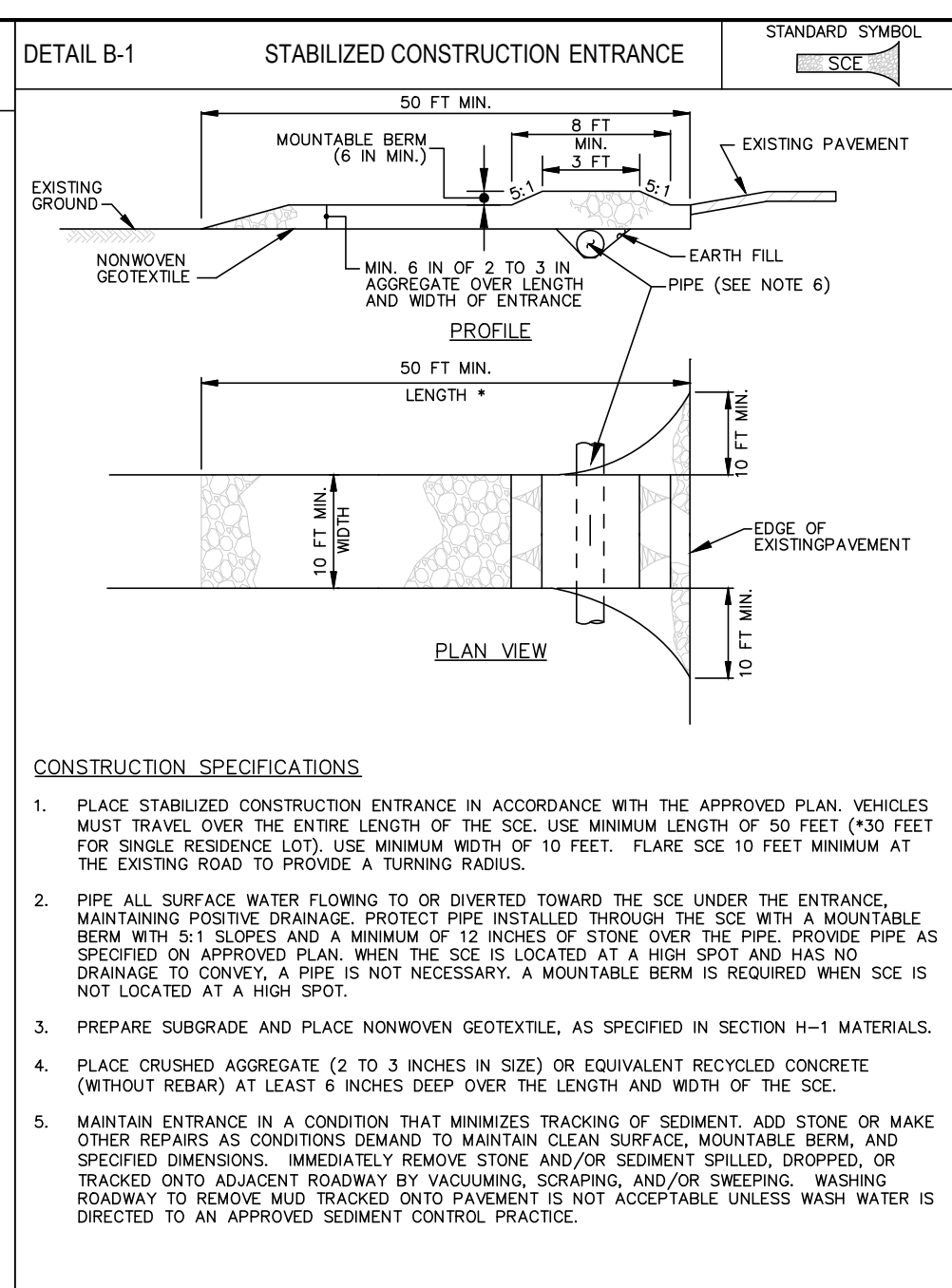
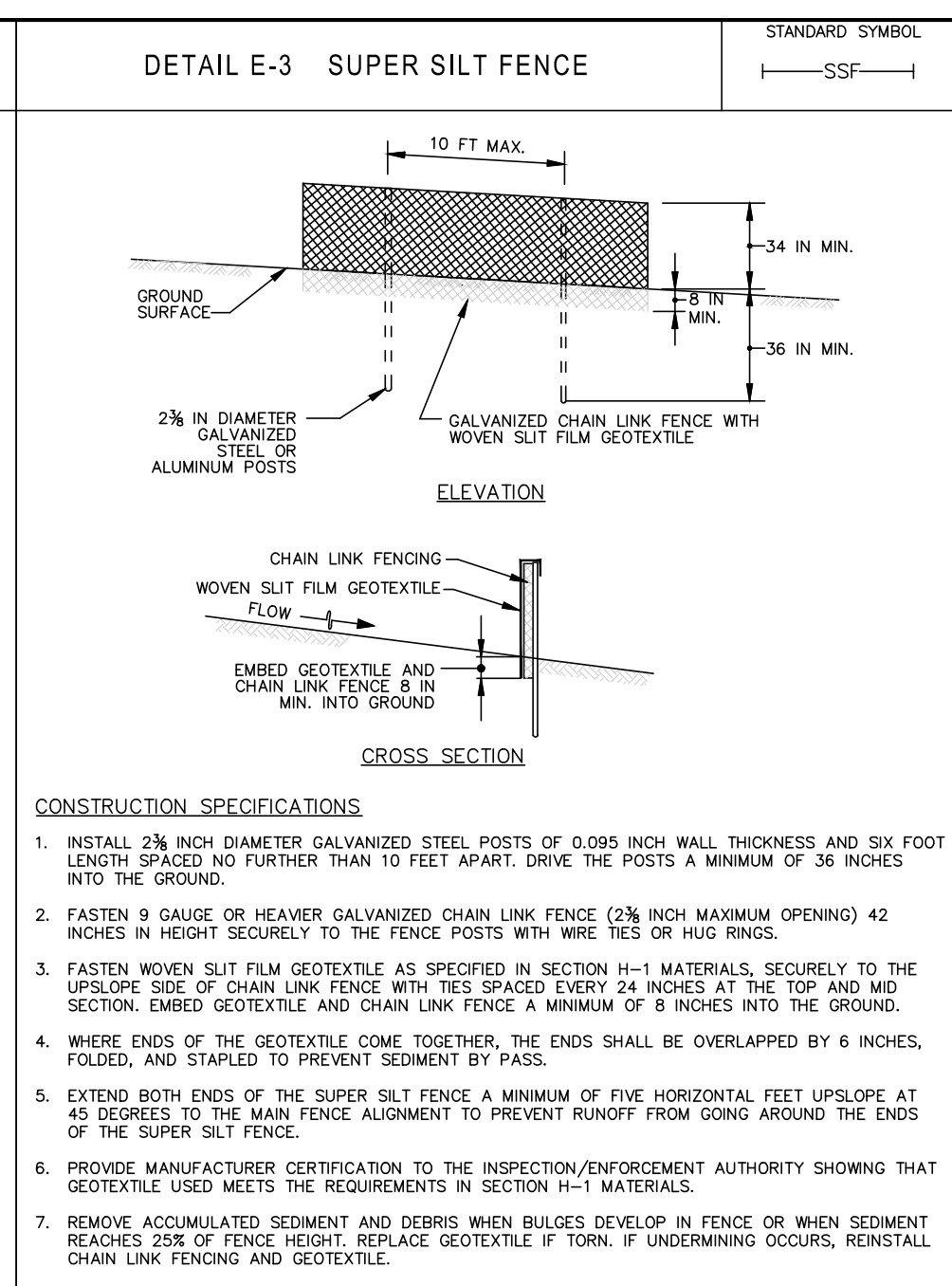
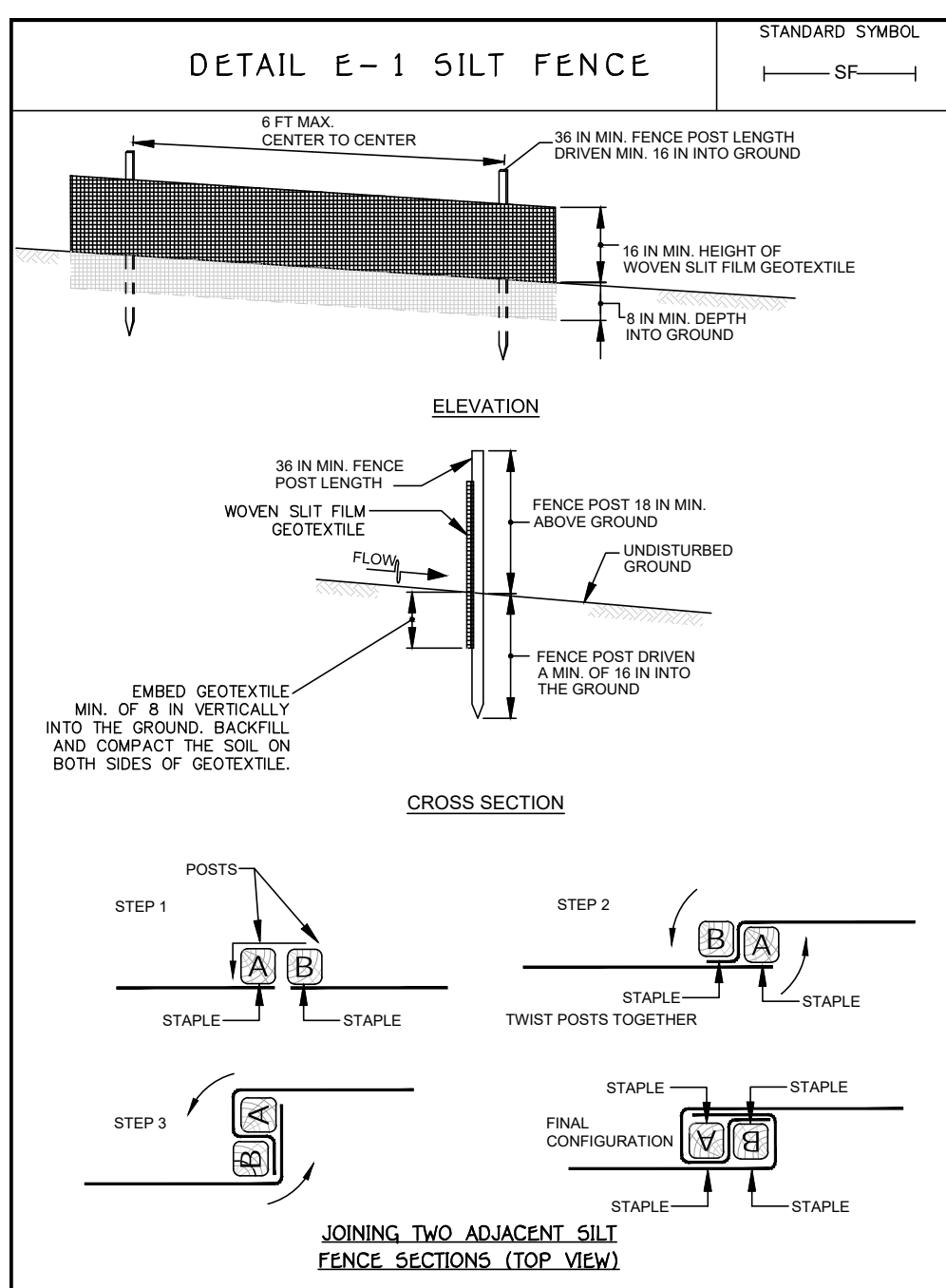
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning 12/3/2023  
 Date  
 11/29/2023  
 Chief, Division of Land Management 12/3/2023  
 Date  
 Chief, Development 12/3/2023  
 Date

**OWNER/DEVELOPER**  
 DIVYESH SAPARIYA,  
 SOHILRAJ SAPARIYA AND  
 HITESH ANKOLA  
 5669 TROTTER ROAD  
 CLARKSVILLE, MARYLAND 21029  
 PH# 301-275-0762

ADDRESS CHART					
PARCEL NO.	LOT NO.	STREET ADDRESS			
0180	1	5669 TROTTER ROAD			
	2	5673 TROTTER ROAD			
PROJECT	SECTION/AREA	PARCEL			
SAPARIYA PROPERTY	5/2	0180			
PLAT NOS.	GRID NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
26302	2	R-20	35	FIFTH	605505
WATER CODE	---		SEWER CODE	---	

**SEDIMENT AND EROSION CONTROL PLAN**

**SAPARIYA PROPERTY**  
 LOTS 1 AND 2  
 5669 TROTTER ROAD  
 A RESUBDIVISION OF CRISWOOD MANOR  
 SECTION TWO - LOT 65  
 PLAT BOOK 5, PAGE 52  
 ZONED: R-20  
 TAX MAP: 35 GRID: 2 PARCEL: 0180  
 FIFTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 DATE: NOVEMBER, 2023  
 SHEET 3 OF 10  
 SCALE: AS SHOWN



**CONSTRUCTION SPECIFICATIONS**

- USE WOOD POSTS 1 1/2 X 1 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 3/8 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF CHAIN LINK FENCE WITH WIRE TIES OR STAPLES AT TOP AND MID SECTION.
- EMBED GEOTEXTILE A MINIMUM OF 6 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF GEOTEXTILE.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

**MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL**

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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**DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION**

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.

2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SOIL. PRESENT NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 3/4 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.

3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/8 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 10 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.

4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFIC CONDITIONS. PLACE MATTING WITHIN 48 HOURS OF SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDING SURFACE, AVOID STRETCHING THE MATTING.

6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.

7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, RE-ROLLING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.

8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, UNFOLD THE MATTING KEYS AND STAPLES IN PLACE. FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAINTAIN SOIL CONTACT WITHOUT CRUSHING MAT.

10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

**MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL**

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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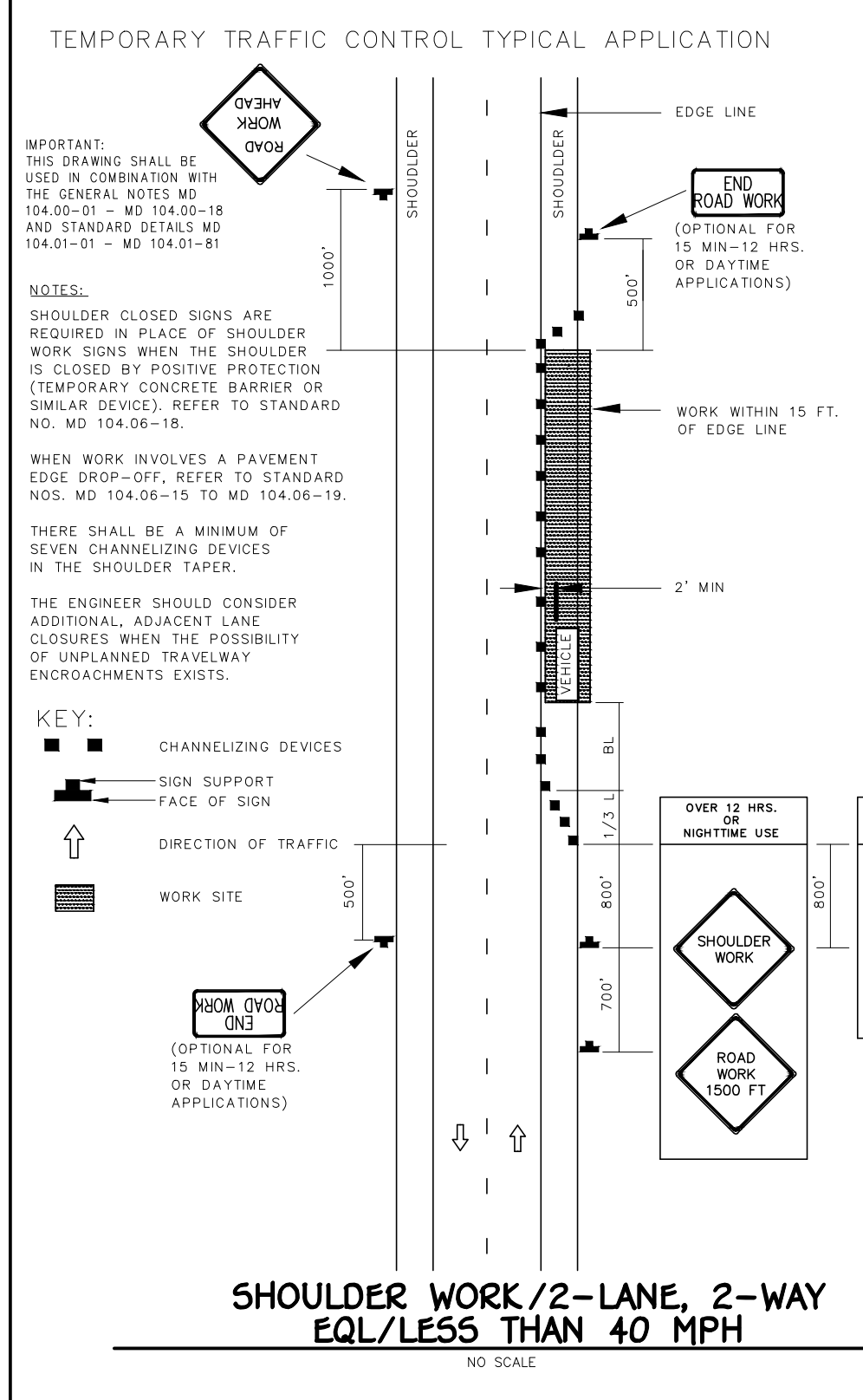
**DETAIL E-9-2 AT-GRADE INLET PROTECTION**

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.

2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.

3. PLACE CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.

4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY COVER ALL OPENINGS AFTER A STORM EVENT, IT IS CLOGGED, WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.



**MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL**

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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**CONSTRUCTION SPECIFICATIONS**

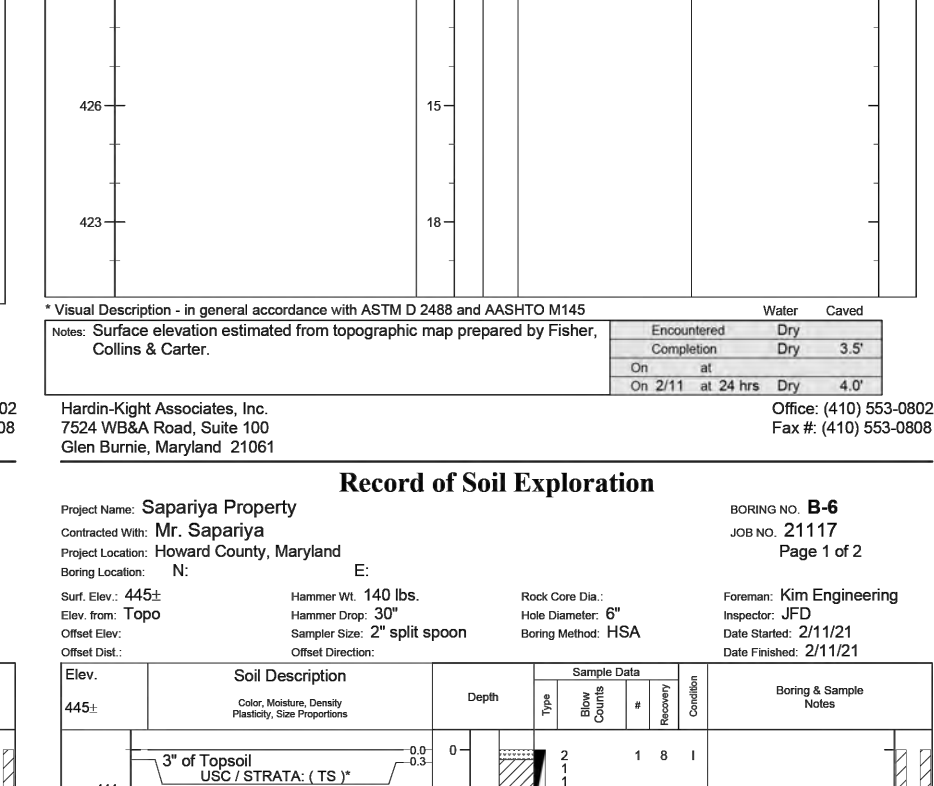
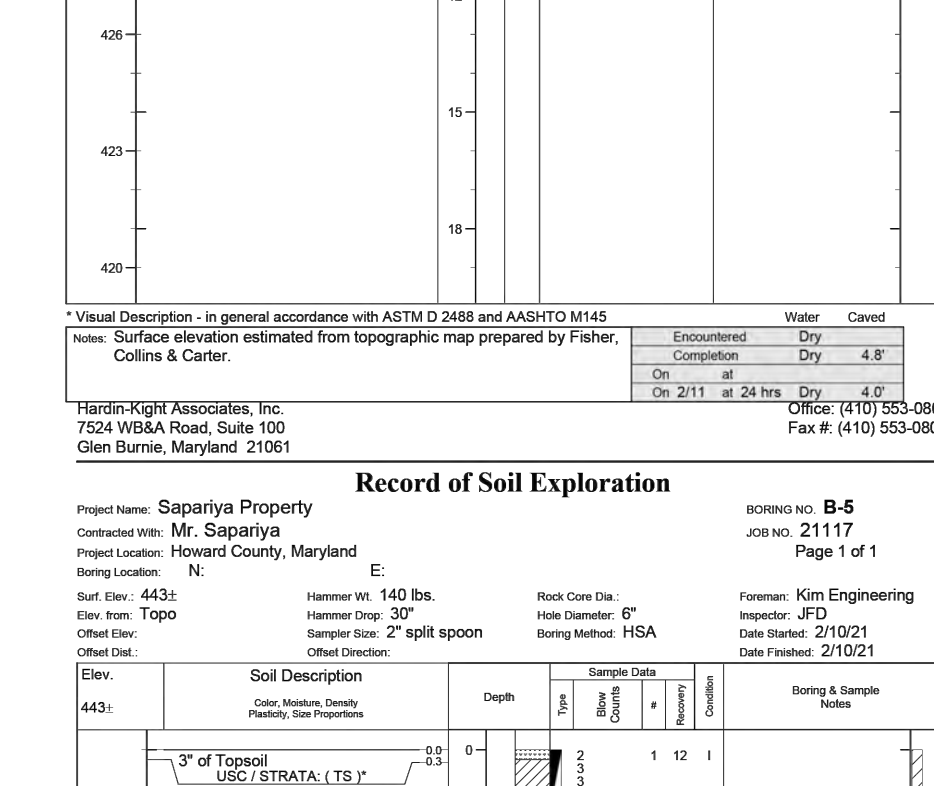
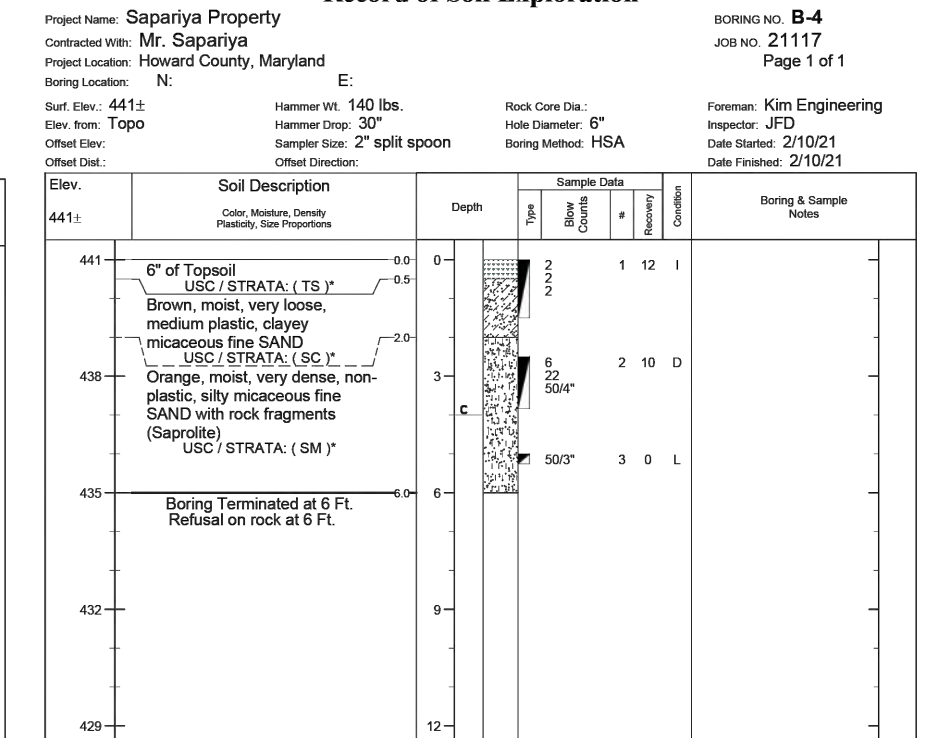
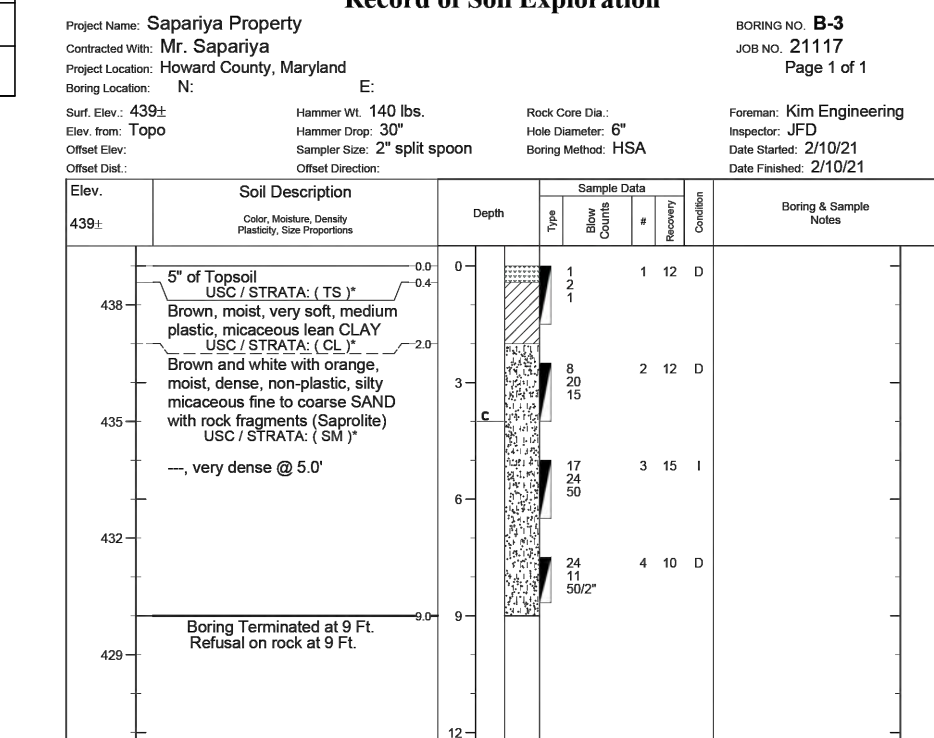
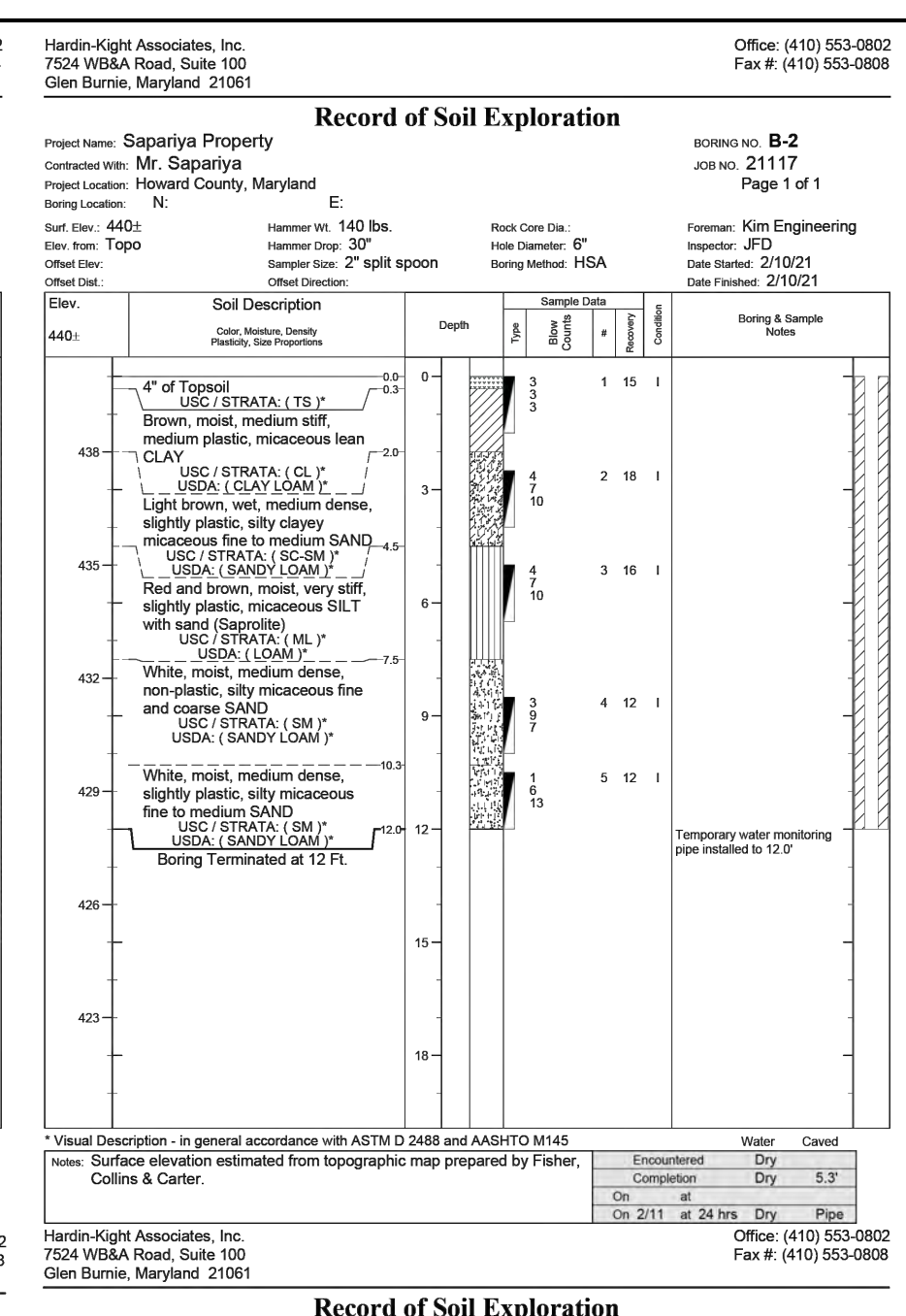
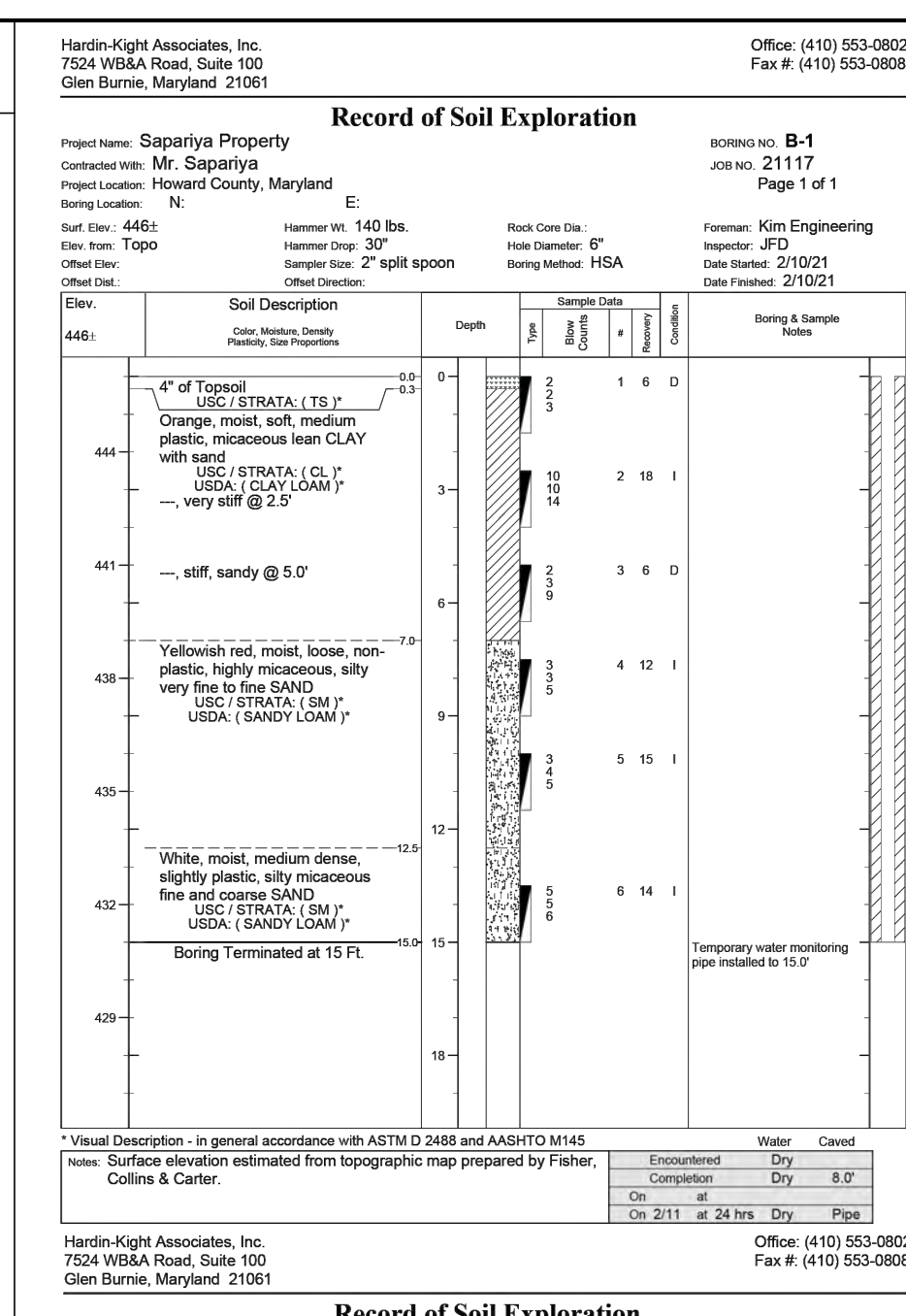
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SOIL. PRESENT NETTING MUST BE EXTENDED PLASTIC WITH A MAXIMUM MESH OPENING OF 3/4 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/8 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 10 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFIC CONDITIONS. PLACE MATTING WITHIN 48 HOURS OF SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDING SURFACE, AVOID STRETCHING THE MATTING.
- OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, RE-ROLLING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, UNFOLD THE MATTING KEYS AND STAPLES IN PLACE. FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAINTAIN SOIL CONTACT WITHOUT CRUSHING MAT.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

**MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL**

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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**CONSTRUCTION SPECIFICATIONS**

- USE SPECIFIED CLASS OF RIPRAP.
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE THROUGH AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.
- PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. CONTACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
- STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE HAND PLACE TO THE EXTENT NECESSARY.
- AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOADED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.



**FISHER, COLLINS & CARTER, INC.**  
ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE: PARC - 10772 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2855

**ENGINEER'S CERTIFICATE**

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS 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."

**Paul G. Cavanaugh** 11/6/2023  
SIGNATURE OF ENGINEER DATE

**DEVELOPER'S CERTIFICATE**

"I/WE HEREBY 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 THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

**Divesh Sapariya** 11/6/2023  
SIGNATURE OF DEVELOPER DATE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24."

**Paul G. Cavanaugh** 11/6/2023  
PAUL GERARD CAVANAUGH DATE

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

Designed by: **Alexander Bratovich** 11/29/2023  
HOWARD SOIL CONSERVATION DISTRICT DATE

**OWNER/DEVELOPER**

DIVESH SAPARIYA,  
SOHILRAJ SAPARIYA AND  
HITESH ANKOLA  
5669 TROTTER ROAD  
CLARKSVILLE, MARYLAND 21029  
PH# 301-275-0762

APPROVED: DEPARTMENT OF PLANNING AND ZONING 12/3/2023  
Date  
Director - Department of Planning and Zoning 11/29/2023  
Date  
Chief, Division of Planning and Zoning 12/3/2023  
Date  
Chief, Development 11/29/2023  
Date

**ADDRESS CHART**

PARCEL NO.	LOT NO.	STREET ADDRESS
0180	1	5669 TROTTER ROAD
	2	5673 TROTTER ROAD

**SECTION/AREA** 5/2  
**PARCEL** 0180  
**PLAT NOS.** 26302  
**GRID NO.** 2  
**ZONE** R-20  
**TAX MAP** 35  
**ELEC. DIST.** FIFTH  
**CENSUS TR.** 605505  
**WATER CODE** ---  
**SEWER CODE** ---

**SEDIMENT AND EROSION CONTROL DETAILS AND BORING LOGS**

**SAPARIYA PROPERTY**  
LOTS 1 AND 2  
5669 TROTTER ROAD  
A RESUBDIVISION OF CRISWOOD MANOR  
SECTION TWO - LOT 65  
PLAT BOOK 5, PAGE 52  
ZONED: R-20  
TAX MAP: 35 GRID-2 PARCEL: 0180  
FIFTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
DATE: NOVEMBER, 2023  
SHEET 4 OF 10  
SCALE: AS SHOWN

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

- A. Soil Preparation
1. Temporary Stabilization
a. Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment...

B. Topsoiling

- 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetation. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications...

- 4. Erosion and sediment control practices must be maintained when applying topsoil.
b. Uniformly distribute topsoil in a 5 to 6 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sods are covered with a minimum of additional soil preparation and tillage...

C. Soil Amendments (Fertilizer and Lime Specifications)

- 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment...

TEMPORARY SEEDING NOTES (B-4-4)

- 1. To stabilize disturbed soils with vegetation for up to 6 months.
2. To use fast growing vegetation that provides cover on disturbed soils.

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Table with columns: Hardness Zone, Species, Application Rate (lb/ac), Seeding Dates, Seeding Depths, Fertilizer Rate (10-20-20), Lime Rate. Rows include BARLEY, OATS, RYE.

PERMANENT SEEDING NOTES (B-4-5)

- A. Seed Mixtures
1. General Use
a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2.
2. Turfgrass Mixtures
a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will require a medium to high level of maintenance.

PERMANENT SEEDING NOTES (B-4-5) - continued

- Notes:
1. Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"
2. Choose certified material. Certified material is the best guarantee of cultivar purity.
3. Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1...

Permanent Seeding Summary table with columns: Hardness Zone, Seed Mixture, Application Rate, Seeding Dates, Seeding Depths, N, P2O5, K2O, Lime Rate.

STANDARD STABILIZATION NOTE table with columns: Fertilizer Rate, Lime Rate. Includes instructions for application and maintenance.

STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA (B-4-8)

- 1. The mound or pile of soil protected by appropriately designed erosion and sediment control measures.
2. To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMITS. (2 WEEKS)
2. NOTIFY "MHS UTILITY" AT LEAST 48 HOURS BEFORE ANY WORK AT 1-800-257-7777. NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTOR ON-SITE AT 410-313-1800 AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
3. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND PERMETER SILT FENCE AS SHOWN ON THE PLANS. (3 DAYS)

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

- 1. General Use
2. To protect disturbed soils from erosion during and at the end of construction.
3. To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMITS. (2 WEEKS)
2. NOTIFY "MHS UTILITY" AT LEAST 48 HOURS BEFORE ANY WORK AT 1-800-257-7777. NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTOR ON-SITE AT 410-313-1800 AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
3. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND PERMETER SILT FENCE AS SHOWN ON THE PLANS. (3 DAYS)

SEQUENCE OF CONSTRUCTION - continued

- 4. CONSTRUCT RETAINING WALL AND DRYNELLS. INSTALL FINAL PAVING COURSE. (6 MONTHS)
5. BEGIN HOUSE FOUNDATION AND HOUSE CONSTRUCTION. (7 MONTHS)
6. INSTALL WATER HOUSE CONNECTIONS AND SEWER HOUSE CONNECTIONS AS SHOWN ON THE PLANS. (1 WEEK)
7. INSTALL MICRO-BIODETENTION FACILITY OUTFALL INCLUDING I-1 AND I-2. INSTALL INLET PROTECTION.

SEQUENCE OF CONSTRUCTION - continued

- 8. UNIFORM PERMETER FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED. INSTALL BASE COURSE PAVING. (1 WEEK)
9. CONSTRUCT RETAINING WALL AND DRYNELLS. INSTALL FINAL PAVING COURSE. (6 MONTHS)
10. UNIFORM PERMETER FROM THE SEDIMENT CONTROL INSPECTOR. THE CONSTRUCTION OF THE BIO-RETENTION FACILITY CAN BE INSTALLED ALONG WITH THE REMAINING STORM DRAIN. (2 WEEKS)

SEQUENCE OF CONSTRUCTION - continued

- 11. UNIFORM PERMETER FROM THE SEDIMENT CONTROL INSPECTOR. REMOVE ALL SEDIMENT CONTROL DEVICES AND STABILIZE ALL REMAINING DISTURBED AREAS ON-SITE WITH PERMANENT SEEDING OR ARTIFICIAL SOODING. (1 WEEK)
12. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS.

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1895 AFTER THE FUTURE LOO AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING PLACES:
A. PRIOR TO THE START OF EARTH DISTURBANCE, BEFORE PROCEEDING.
B. UPON COMPLETION OF THE INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS, BUT ANY OTHER EARTH WITH DISTURBANCE OR EROSION.

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES - continued

- 6. SITE ANALYSIS:
TOTAL AREA OF SITE: 1.36 ACRES
TOTAL ACRES: 0.8 ACRES
AREA TO BE ROOFED OR PAVED: 0.3 ACRES
AREA TO BE VEGETATIVELY STABILIZED: 0.5 ACRES
TOTAL CUT: 599 CU. YDS.
TOTAL FILL: 695 CU. YDS.
WATER/ROOFWATER AREA LOCATION: SITE WITH ACTIVE GRADING PERMIT
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES - continued

- 11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM AREA OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE HSCD. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.

INTEGRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC), AND SO ON. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR QP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS.

DESIGN CONSTRAINTS:

- 1. PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
2. DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES. SEE FIGURE A.5 AND TABLE A.4 FOR PLANTING MATERIAL GUIDANCE).
3. PLANTS KNOWN TO SEND DOWN DEEP TAPROOTS SHOULD BE AVOIDED IN SYSTEMS WHERE FILTER FABRIC IS USED AS PART OF FACILITY DESIGN.

BIO-RETENTION

SOIL BED CHARACTERISTICS

- THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION FACILITY ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME. THE SOIL MUST BE PERMEABLE ENOUGH TO ALLOW RUNOFF TO FILTER THROUGH THE MEDIA, WHILE HAVING CHARACTERISTICS SUITABLE TO PROMOTE AND SUSTAIN A ROBUST VEGETATIVE COVER CROP. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED THROUGH ABSORPTION AND MICROBIAL ACTIVITY WITHIN THE SOIL PROFILE. THEREFORE, SOILS MUST BALANCE THEIR CHEMICAL AND PHYSICAL PROPERTIES TO SUPPORT BIOTIC COMMUNITIES ABOVE AND BELOW GROUND.
THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM OF 10% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME (ENVIRONMENTAL QUALITY RESOURCES (EQ2), 1996; ENGINEERING TECHNOLOGY INC. AND BIOHABITATS, INC. (ETAB), 1993). SOILS SHOULD FALL WITHIN THE SM, ML, SC CLASSIFICATIONS OR THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR) IS REQUIRED (A CONSERVATIVE VALUE OF 0.5 FEET PER DAY IS USED) FOR DESIGN. THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. BRUSH OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUGWORT, NUTSEDGE, AND CANADA THISTLE OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMPAR 15.08.01.05.) SHOULD NOT BE PRESENT IN THE SOIL. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12 TO 18 LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS). THE SPECIFIC CHARACTERISTICS ARE PRESENTED IN TABLE A.3.

B.4.C SPECIFICATIONS FOR BIORETENTION, LANDSCAPE INFILTRATION & INFILTRATION BERMS

- 1. MATERIAL SPECIFICATIONS
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
2. 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 SUBSTANCES SHALL BE USED UNLESS SPECIFICALLY IDENTIFIED IN THIS SECTION. THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).

B.4.C SPECIFICATIONS FOR BIORETENTION, LANDSCAPE INFILTRATION & INFILTRATION BERMS - continued

- 5. PLANT INSTALLATION
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE. IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INNER AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTABLE MULCH. FINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDED MULCH MUST BE WELL KEPT (6 TO 12 MONTHS) FOR ACCEPTANCE.
6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
PIPE- SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIDGE PLASTIC PIPE (ASTM F798, TYPE F5 2B, OR ASHITO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4 RIGID PIPE (E.G., PVC OR HDPE).
PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH 1/4" (NO. 4 OR 4X4) GALVANIZED HARDWARE CLOTH.

B.4.C SPECIFICATIONS FOR BIORETENTION, LANDSCAPE INFILTRATION & INFILTRATION BERMS - continued

- 12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION UNTIL FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-COUNTOUR, AND BE IMBERICATED AT 25° MINIMUM INTERVALS, WITH LOWER ENDS CURVED UPHILL BY 2" IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUDES):
USE 1 AND IF MARCH - JUNE
USE 2 AND IF MARCH - APRIL
USE 3 AND IF MARCH - APRIL
USE 4 MARCH 1 - MAY 31
16. A COPY OF THIS 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.

INTEGRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS

Table A.3 PLANTING SOIL CHARACTERISTICS with columns: PARAMETER, VALUE. Rows include PH RANGE, ORGANIC MATTER, MAGNESIUM, PHOSPHORUS (PHOSPHATE - P2O5), POTASSIUM (POTASH - K2O), SOLUBLE SALTS, CLAY, SILT, SAND.

MULCH LAYER

- THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION SYSTEM. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE SEALING, WHICH REDUCES PERMEABILITY. MULCH HELPS PREVENT EROSION, AND PROVIDES A MICROENVIRONMENT SUITABLE FOR SOIL LIFE. IT ALSO SERVES AS A PRETREATMENT LAYER, TRAPPING THE FINER SEDIMENTS, WHICH REMAIN SUSPENDED AFTER THE PRIMARY PRETREATMENT.
THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.
PLANTING GUIDANCE
PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND-SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES, BUT HAVE DISTINCT COMMUNITY OF UNDERSTORY TREES, SHRUBS AND HERBACEOUS MATERIALS BY CREATING A DIVERSE DENSE PLANT COVER. A BIORETENTION FACILITY WILL BE ABLE TO TREAT STORMWATER RUNOFF AND WITHSTAND URBAN STRESSES FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND, AND EXPOSURE. THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS THE KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION FACILITY (FIGURE A.5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT LIKE DRYER SOIL CONDITIONS, BUT CAN STILL TOLERATE OCCASIONAL INUNDATION BY WATER. THE OUTER EDGE IS THE HIGHEST ELEVATION AND GENERALLY SUPPORTS PLANTS ADAPTED TO DRYER CONDITIONS. A SAMPLE OF APPROPRIATE PLANT MATERIALS FOR BIORETENTION FACILITIES ARE INCLUDED IN TABLE A.4. THE LAYOUT OF PLANT MATERIAL SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPALS DESCRIBED IN TABLE A.5. THE OBJECTIVE IS TO HAVE A SYSTEM, WHICH RESEMBLES A RANDOM, AND NATURAL PLANT LAUNY, WHILE MAINTAINING OPTIMAL CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. FOR A MORE EXTENSIVE BIORETENTION PLAN, CONSULT ETAB, 1993 OR CLAYTON AND SCHUELER, 1997.

ENGINEER'S CERTIFICATE and DEVELOPER'S CERTIFICATE sections. Includes signatures of Paul G. Cavanaugh and Danysh Sapariya, dates, and project details for Howard Soil Conservation District.

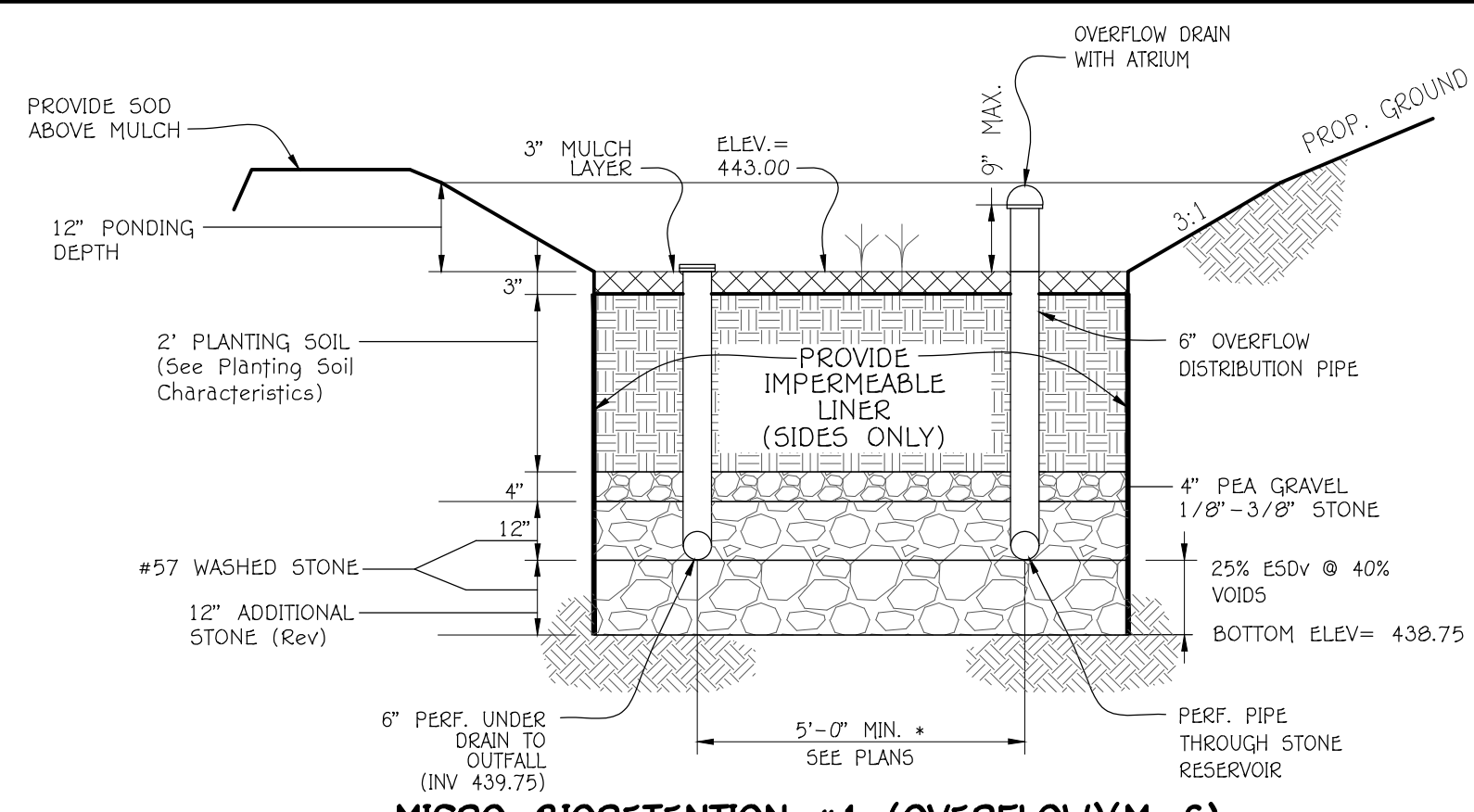
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 27020, EXPIRATION DATE: 01/25/24.

OWNER/DEVELOPER section. Includes signature of Divesh Sapariya, date 11/29/2023, and approval from Howard County Department of Planning and Zoning.

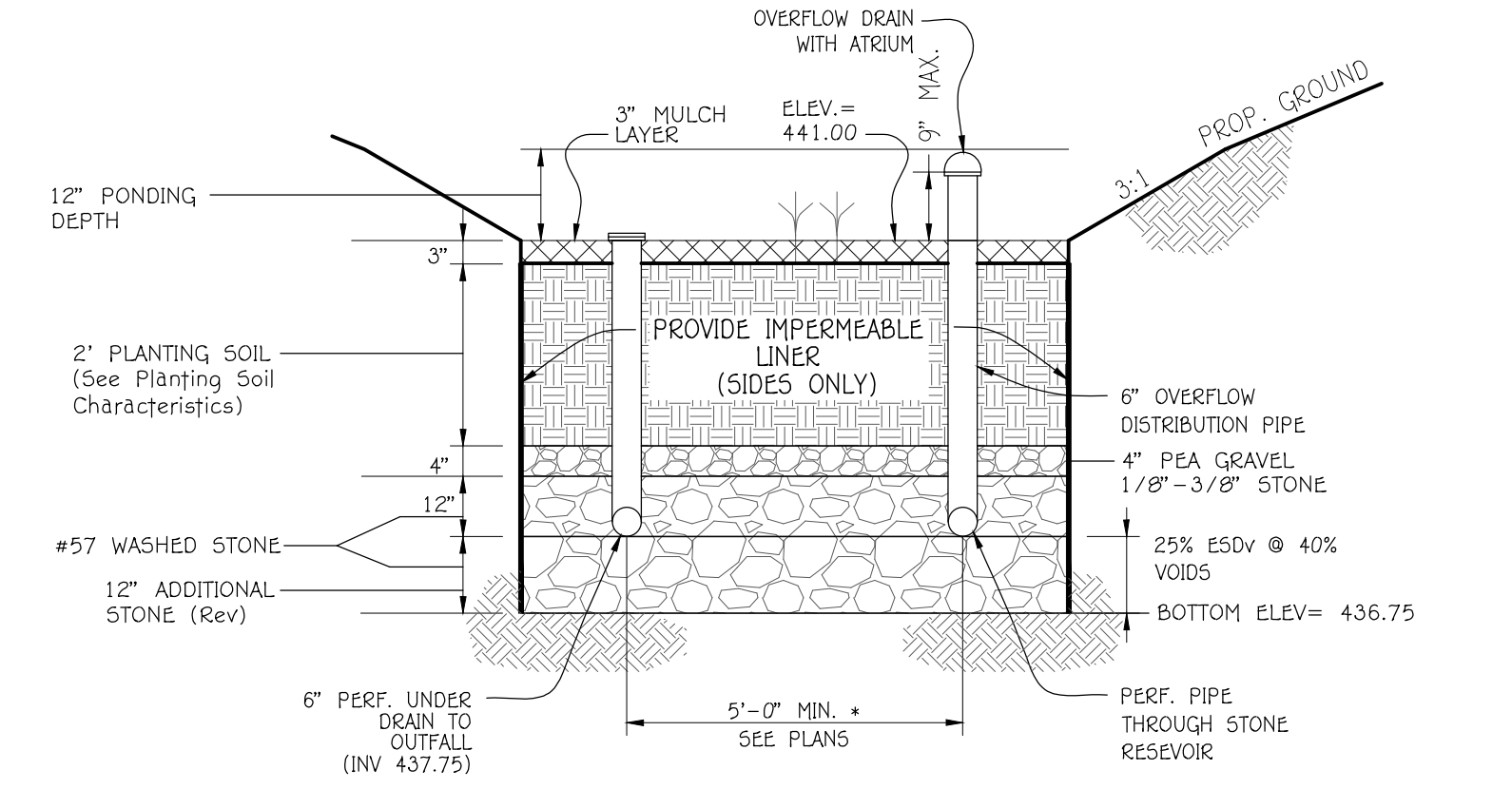
ADDRESS CHART table with columns: PARCEL NO., LOT NO., STREET ADDRESS. Shows parcels 0180 and 26302.

SEDIMENT AND EROSION CONTROL NOTES section. Includes project name SAPARIYA PROPERTY LOTS 1 AND 2, address 5669 TROTTER ROAD, and zoning information.



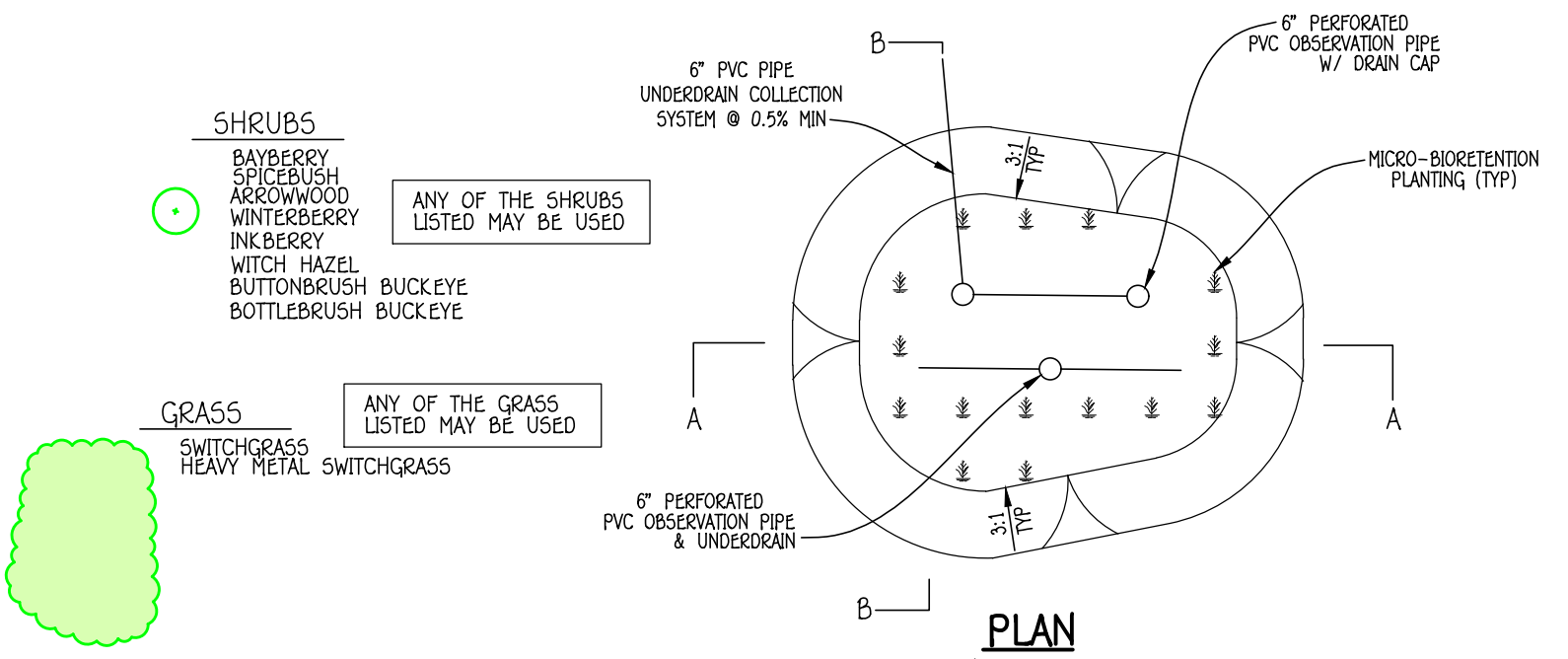


**MICRO-BIORETENTION #1 (OVERFLOW)(M-6)**  
NO SCALE



**MICRO-BIORETENTION #2 (OVERFLOW)(M-6)**  
NO SCALE

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

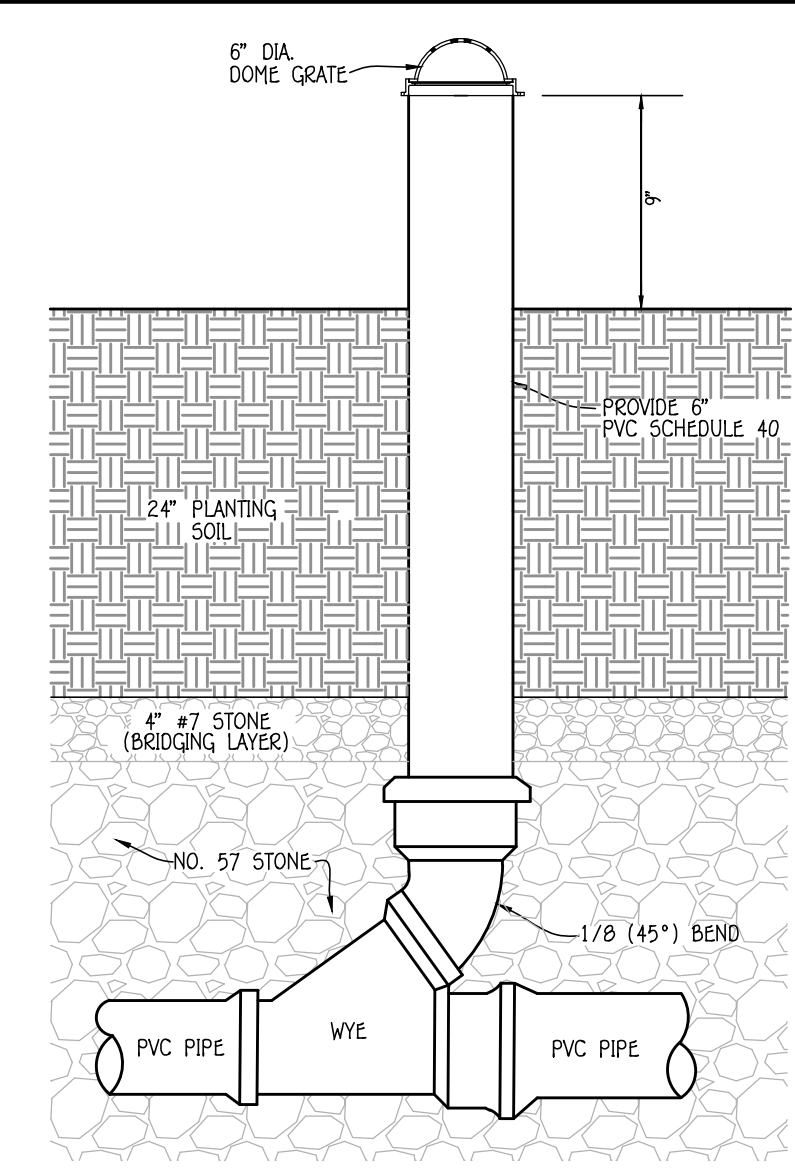


- MICRO-BIORETENTION NOTES**
- ONLY THE SIDES OF THE MICRO-BIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICRO-BIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
  - WRAP THE PERFORATED MBR UNDER DRAIN PIPE WITH 1/4" MESH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

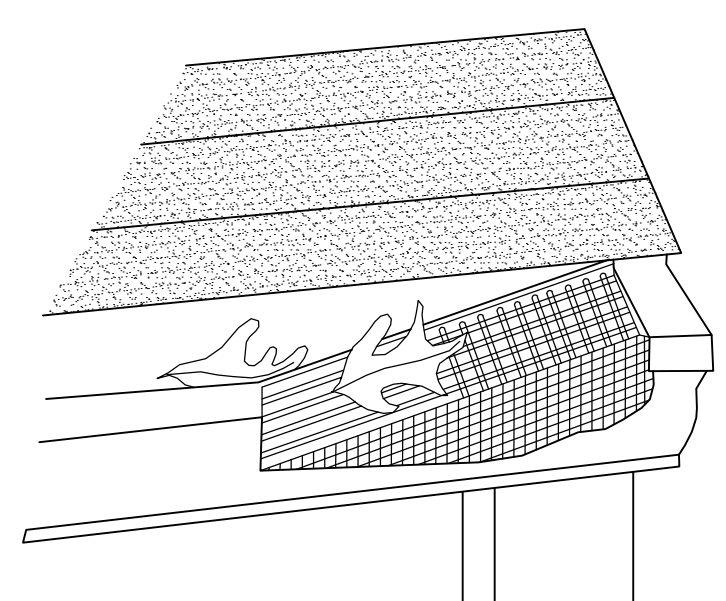
**OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION AREAS (M-6)**

- 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 and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased 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 previous 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.

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10572 BALTIMORE NATIONAL PIKE  
BELLGATE CITY, MARYLAND 21042  
(410) 461-2095



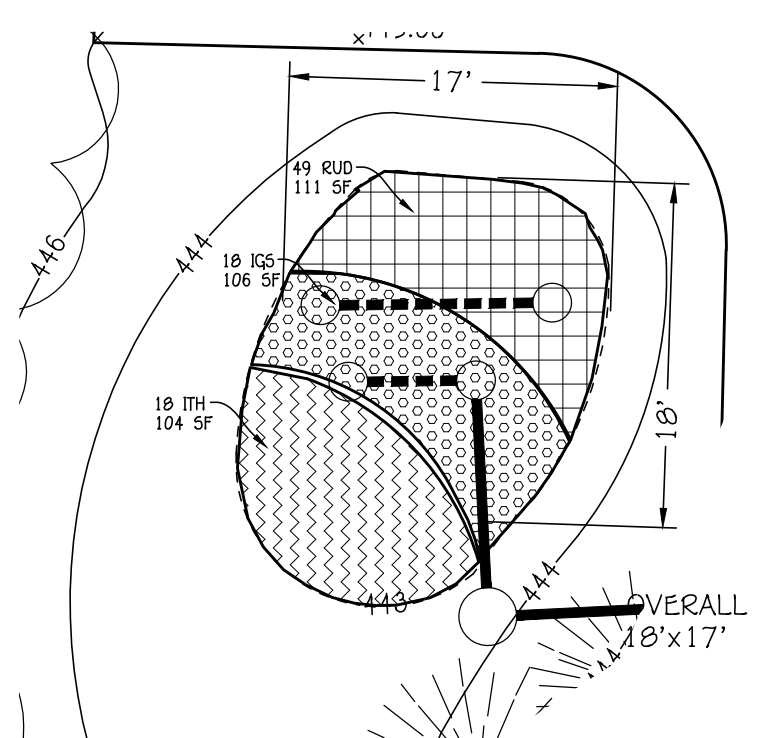
**TYPICAL CLEAN-OUT DETAIL**



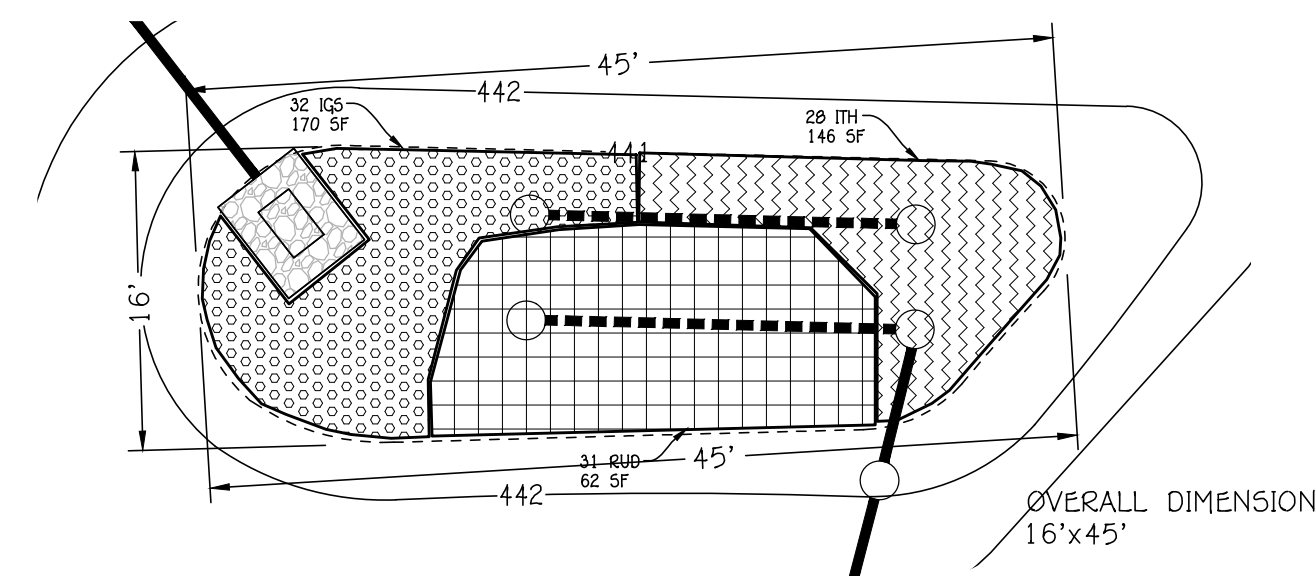
**GUTTER DRAIN FILTER DETAIL**  
NOT TO SCALE

\*A GUTTER GUARD OR A SUITABLE EQUIVALENT SHALL BE USED FOR EACH DOWNSPOUT DIRECTED TO A DRYWELL.

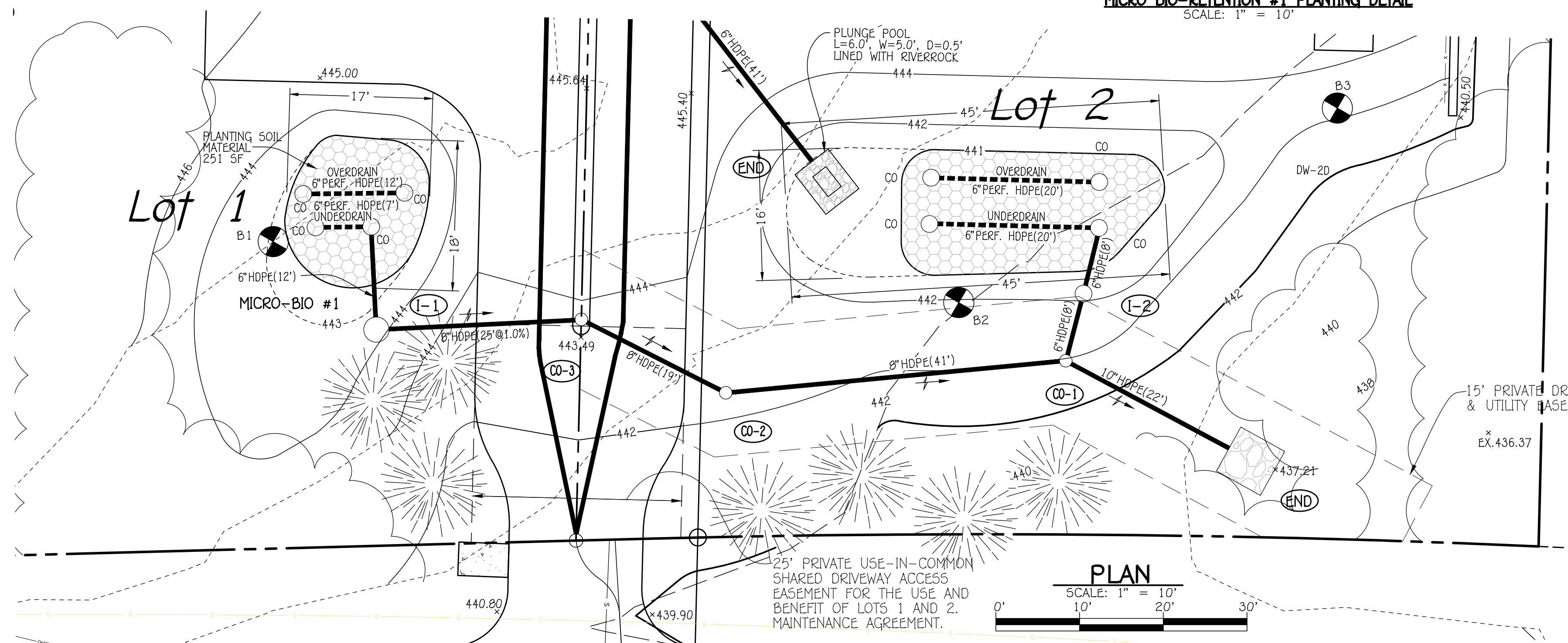
MICRO-BIORETENTION PLANT MATERIAL					
QTY.	SYM.	BOTANICAL/COMMON NAME	SIZE	CONT.	REMARKS
80	RUD	RUDBECKIA FULGIDA ORANGE CONEFLOWER	24" HT.	CONT.	18" O.C. MIN.
50	IGS	ILEX GLABRA 'SHAMROCK' INKBERRY	24"-30" HT.	CONT.	30" O.C./MALE CULTIVAR
46	ITH	ITEA VIRGINICA 'LITTLE HENRY' DWARF VIRGINIA SWEETSPICE	18" - 24" HT.	3 GAL.	30" O.C. MIN.



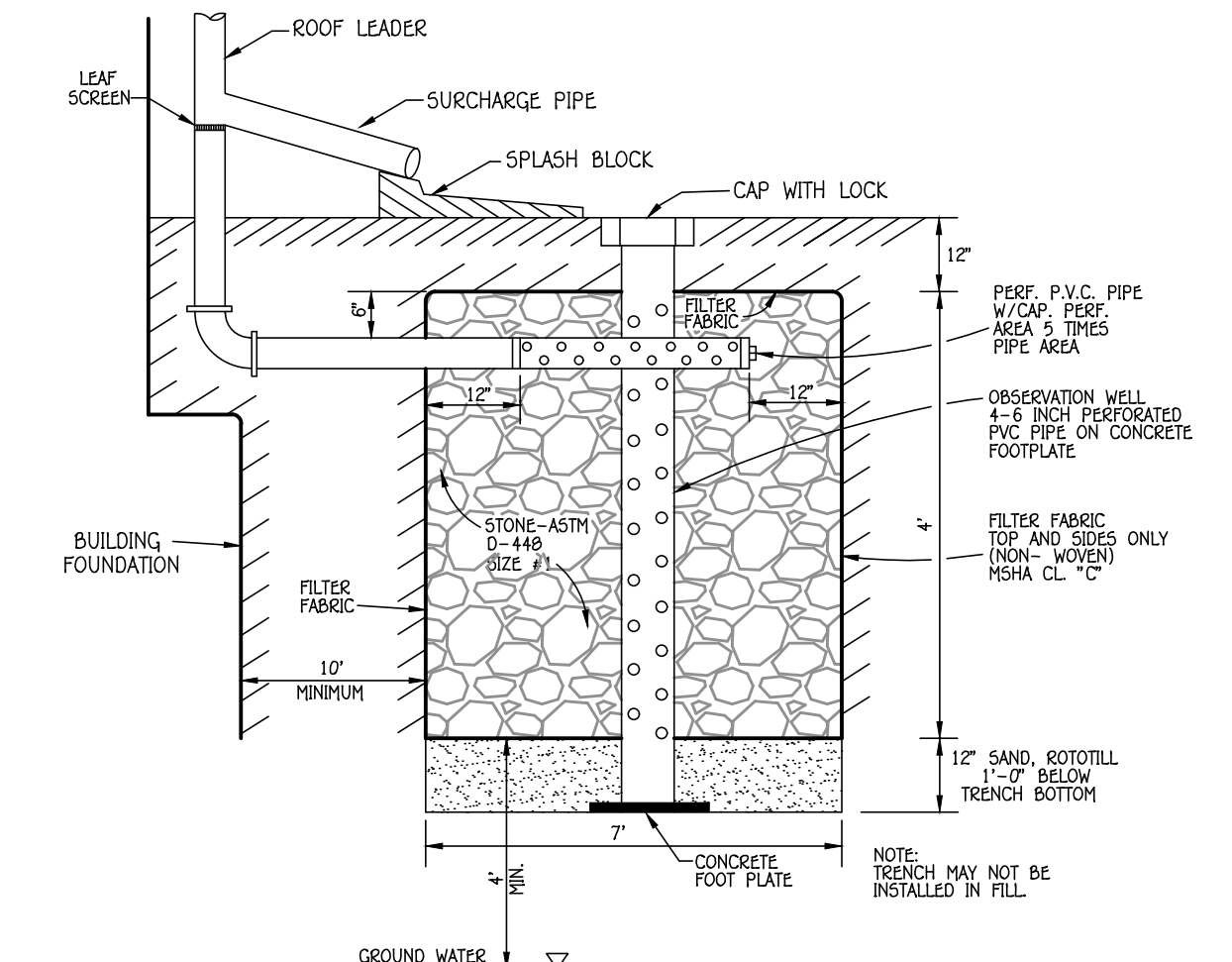
**MICRO BIO-RETENTION #1 PLANTING DETAIL**  
SCALE: 1" = 10'



**MICRO BIO-RETENTION #2 PLANTING DETAIL**  
SCALE: 1" = 10'



**PLAN**  
SCALE: 1" = 10'



**DRYWELL (M-5)**  
NO SCALE

DRYWELL CHART						
LOT No.	DRYWELL No.	AREA OF ROOF PER DRYWELL	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L x W x D
LOT 1	DW-1A	763 SQ. FT.	118 C.F.	144 C.F.	100%*	9' x 8' x 5'
LOT 1	DW-1B	700 SQ. FT.	108 C.F.	144 C.F.	100%*	9' x 8' x 5'
LOT 2	DW-2A	587 SQ. FT.	84 C.F.	112 C.F.	100%*	8' x 7' x 5'
LOT 2	DW-2B	662 SQ. FT.	95 C.F.	128 C.F.	100%*	8' x 8' x 5'
LOT 2	DW-2C	764 SQ. FT.	109 C.F.	144 C.F.	100%*	9' x 8' x 5'
LOT 2	DW-2D	497 SQ. FT.	71 C.F.	84 C.F.	100%*	7' x 6' x 5'

\* AREA OF TREATMENT EXCEEDS THAT REQUIRED.

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24."

**Paul G. Cavanaugh** 11/6/2023  
PAUL GERARD CAVANAUGH DATE

DATE	DESCRIPTION	REVISION BLOCK
12/3/2023	APPROVED: DEPARTMENT OF PLANNING AND ZONING	
11/29/2023	Director - Department of Planning and Zoning	
12/3/2023	Chief, Division of Land Development	
	Chief, Development Engineering Division	

**OWNER/DEVELOPER**  
DIVYESH SAPARIYA,  
SOHILRAJ SAPARIYA AND  
HITESH ANKOLA  
5669 TROTTER ROAD  
CLARKSVILLE, MARYLAND 21029  
PH# 301-275-0762



ADDRESS CHART			
PARCEL NO.	LOT NO.	STREET ADDRESS	
0180	1	5669 TROTTER ROAD	
	2	5673 TROTTER ROAD	

PROJECT	SECTION/AREA	PARCEL
SAPARIYA PROPERTY	5/2	0180

PLAT NOS.	GRID NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
26302	2	R-20	35	FIFTH	605505

**STORMWATER MANAGEMENT DETAILS AND LANDSCAPING**  
**SAPARIYA PROPERTY**  
**LOTS 1 AND 2**  
5669 TROTTER ROAD  
A RESUBDIVISION OF CRISWOOD MANOR  
SECTION TWO - LOT 65  
PLAT BOOK 5, PAGE 52  
ZONED: R-20  
TAX MAP: 35 GRID: 2 PARCEL: 0180  
FIFTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
DATE: NOVEMBER, 2023  
SHEET 7 OF 10  
SCALE: AS SHOWN

GENERAL NOTES

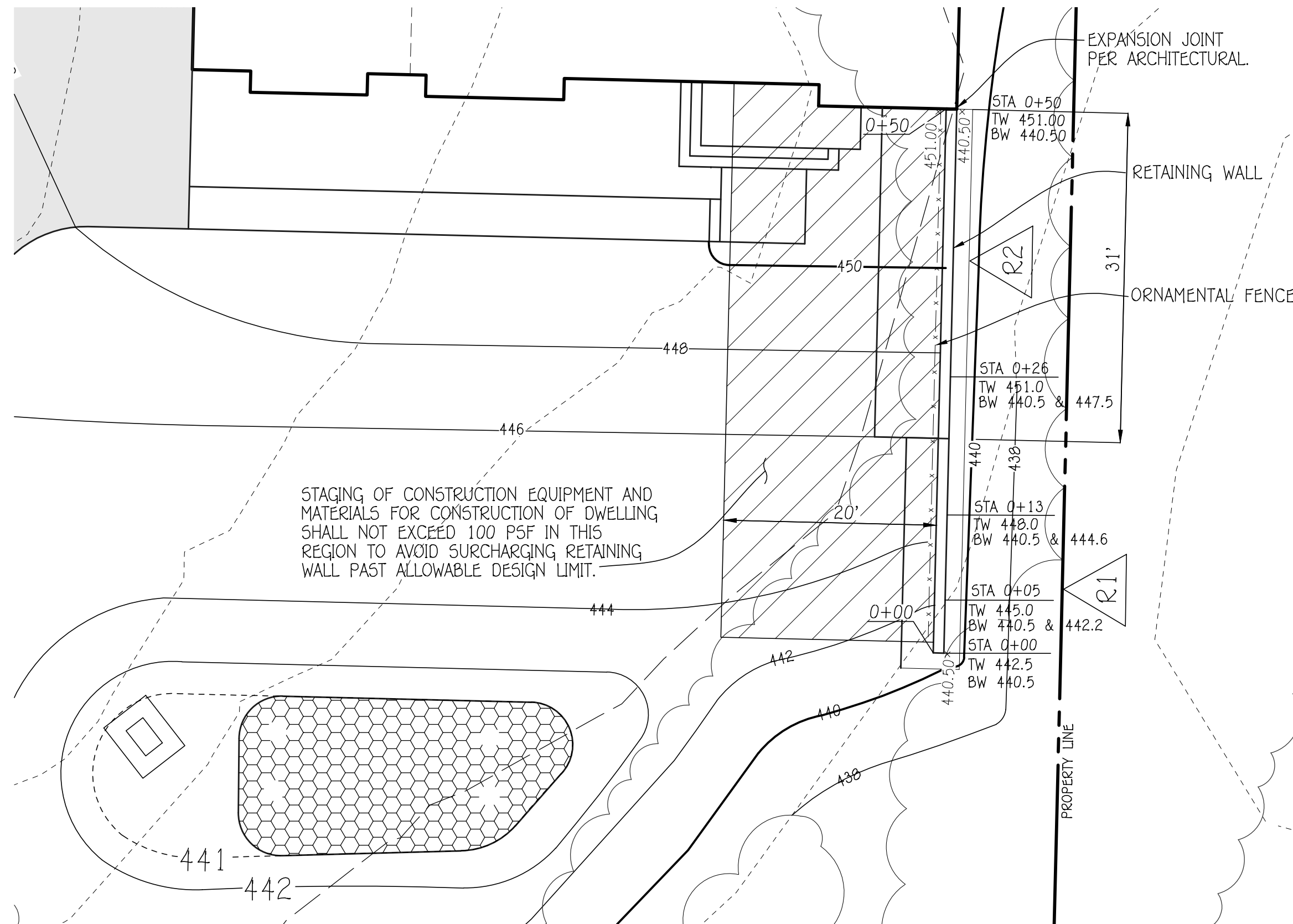
- 1. BUILDING CODE
THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE 2018. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THIS CODE, ITS LATEST ADOPTED AMENDMENTS AND LOCAL REQUIREMENTS.
2. SUBMITTALS
A. THE FOLLOWING ITEMS REQUIRE SUBMITTAL OF SHOP AND ERECTION DRAWINGS, FOR REVIEW AND APPROVAL:
a. REINFORCING STEEL FOR CAST-IN-PLACE CONCRETE
b. THE FOLLOWING ITEMS REQUIRE SUBMITTAL OF SHOP AND ERECTION DRAWINGS AND STRUCTURAL CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THIS PROJECT FOR REVIEW AND APPROVAL:
a. EXCAVATION SUPPORT, SHEETING, OR BENCHING WHERE SOILS REQUIRE SUCH BY VIRTUE OF OSHA REQUIREMENTS (ALL EXCAVATIONS GREATER THAN 5' REQUIRE SPECIFIC TRENCHING CONSIDERATIONS) OR SOIL CONDITIONS
b. CONCRETE MIX DESIGNS
c. SUBMITTALS ISSUED TO THE DESIGN TEAM FOR REVIEW SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL, CERTIFYING THAT ALL FIELD MEASUREMENTS, CONSTRUCTION CRITERIA, MATERIALS, ETC. HAVE BEEN VERIFIED AND EACH SHEET HAS BEEN REVIEWED FOR COMPLETENESS, COORDINATION BETWEEN TRADES, AND COMPLIANCE WITH THE CONTRACT DOCUMENTS. FURTHER, STRUCTURAL SHOP DRAWINGS WILL ONLY BE REVIEWED ONCE ANY REQUIRED CALCULATION PACKAGES FOR THAT WORK HAS BEEN ISSUED ALONG WITH A SIGNED AND SEALED LETTER BY THE CONTRACTOR'S ENGINEER CERTIFYING THAT THE SHOP DRAWINGS HAVE PROPERLY INCORPORATED THEIR DESIGN IN ACCORDANCE WITH THE 2010 AISC CODE OF STANDARD PRACTICE-SECTION 3.1.2 (OPTION 3), OTHERWISE THE SUBMITTAL PACKAGE WILL BE REJECTED.
3. SPECIAL INSPECTIONS: AS PER IBC CHAPTER 17, THE FOLLOWING ITEMS ARE SUBJECT TO SPECIAL INSPECTION BY AN INDEPENDENT INSPECTION AND/OR TESTING AGENCY HIRED BY THE OWNER AND APPROVED BY THE ARCHITECT AND BUILDING OFFICIAL. OWNERS/SPECIAL INSPECTOR SHALL PROVIDE SPECIAL INSPECTION REPORTS WITHIN 5 DAYS OF PERFORMING THE INSPECTION AND IMMEDIATELY NOTIFY THE ENGINEER.
A. CONCRETE CONSTRUCTION (1705.3)
B. SOILS (1705.6)
4. DESIGN LOADS:
A. GRAVITY SURCHARGE LOAD- YARD 100 PSF
5. THE CONTRACTOR SHALL CHECK THE BUILDING LOCATION WITH REGARD TO PROPERTY LINE, AND VERIFY ALL EXISTING CONDITIONS BEFORE EXCAVATION AND SHOP DRAWING PREPARATION. NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
6. IN CASE OF CONTRADICTION BETWEEN THE DRAWINGS, THE SPECIFICATIONS, AND THE CODES, OR IF ANY CHANGE IS REQUIRED, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY. NO CHANGE SHALL BE MADE WITHOUT WRITTEN APPROVAL OF THE ARCHITECT.
7. THE STABILITY OF STRUCTURE, ADJACENT STRUCTURES IMPACTED BY THE WORK, AND SITE SAFETY ARE THE CONTRACTOR'S RESPONSIBILITY UNTIL CONSTRUCTION IS COMPLETE AND THE STRUCTURE HAS REACHED ITS FINAL CONDITION. THE CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY BRACING, ERECTION PIECES, CONSTRUCTION SUPPORTS, FALL PROTECTION, DEBRIS CATCHES, TEMPORARY SHORING, ETC. AS REQUIRED TO SAFEGUARD THE SITE THROUGHOUT THE COURSE OF CONSTRUCTION.
8. THE CONTRACTOR SHALL VERIFY THAT ANY CONSTRUCTION LOADS DO NOT EXCEED THE DESIGN CAPACITY OF THE STRUCTURE.

FOUNDATION NOTES

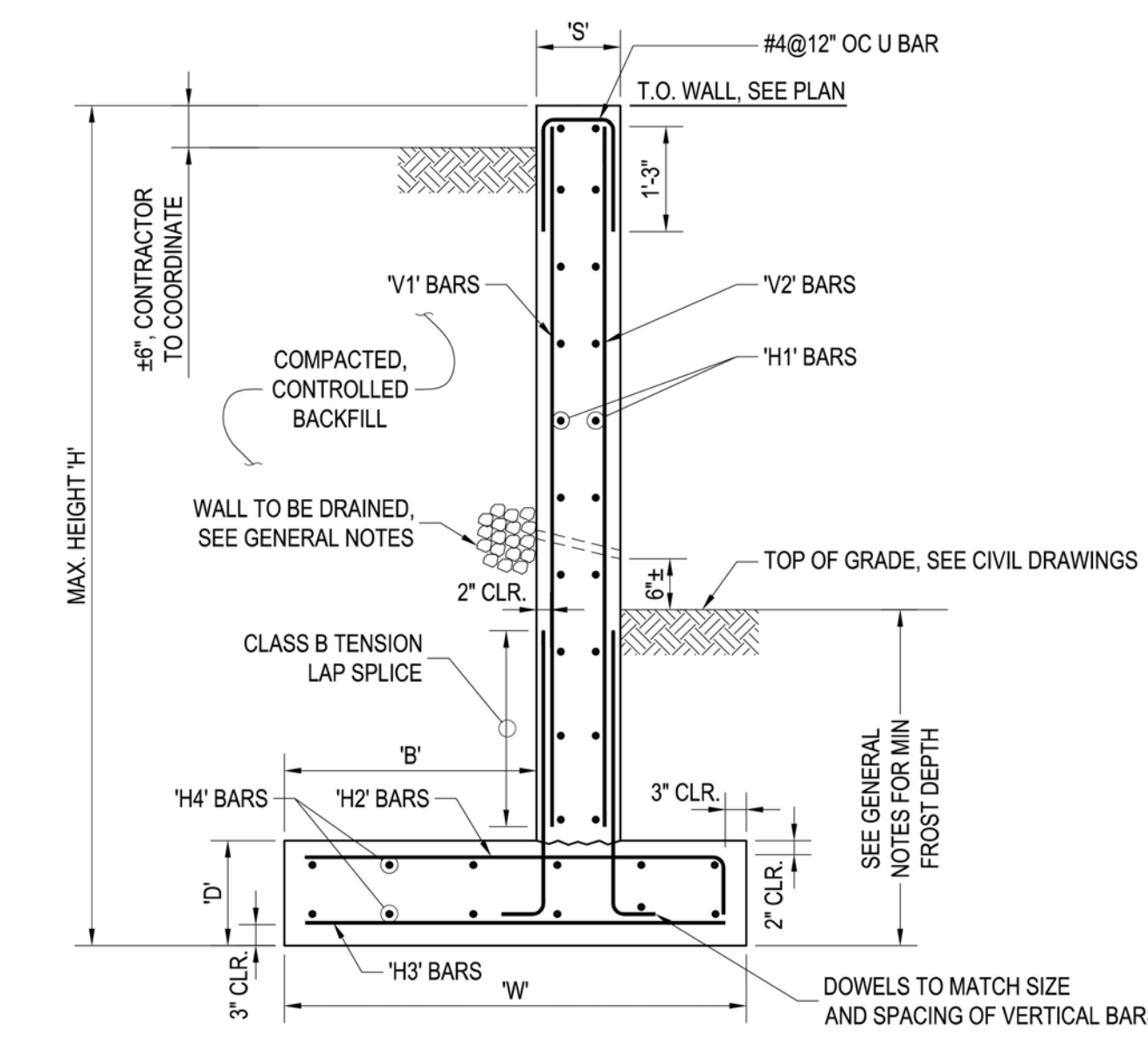
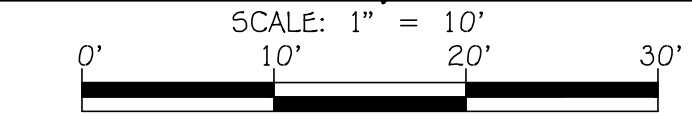
- 1. GENERAL
A. FOUNDATIONS HAVE BEEN DESIGNED TO AN ALLOWABLE SOIL BEARING PRESSURE OF 3,500 PSF, BASED ON A SOILS REPORT ISSUED BY HARDIN-KIGHT ASSOCIATES, INC. DATED FEBRUARY 18, 2021. THIS CAPACITY SHALL BE VERIFIED BY A REGISTERED SOILS ENGINEER. SHOULD CONDITIONS VARY FROM THOSE ASSUMED, THE ARCHITECT SHALL BE NOTIFIED BEFORE CONTINUATION OF WORK.
B. ALL FOOTINGS SHALL BE PLACED DIRECTLY ON COMPETENT NATURAL, GRANULAR SOILS OR ENGINEERED CERTIFIED COMPACTED FILL OVER COMPETENT NATURAL SOILS.
C. ALL FILL SHALL BE PLACED IN EIGHT INCH LOOSE LIFTS (MAXIMUM) COMPACTED WITH VIBRATORY ROLLERS. FILL MATERIAL SHALL BE TESTED BY MODIFIED PROCTOR DENSITY METHOD (ASTM D1557) AND MUST QUALIFY AS SELECT, WITH LESS THAN 10% PASSING THROUGH THE NO. 200 SIEVE. SOIL SHALL BE PLACED WITH MOISTURE CONTENT AND ENERGY TO PROVIDE 92% OF MAXIMUM DRY DENSITY BELOW SLABS ON GRADE AND 95% BELOW FOOTINGS. IN PLACE DENSITY TESTS SHALL BE TAKEN FOR EACH 10,000 s.f. IN EACH LIFT. FOR ACCEPTANCE OF SOIL, AVERAGE OF DENSITY TESTS MUST EXCEED THE SPECIFIED COMPACTION. NO TESTS SHALL BE PERMITTED TO FALL BELOW 88% COMPACTION BELOW SLABS ON GRADE OR 90% COMPACTION BELOW FOOTINGS.
D. ALL FOUNDATION WALLS AND RETAINING WALLS SHALL BE DRAINED. SEE SOILS REPORT MENTIONED IN NOTE 'A' ABOVE FOR REQUIREMENTS.
2. SHALLOW FOUNDATIONS
A. ALL EXTERIOR FOOTINGS SHALL BE PLACED A MINIMUM OF 2'-6" BELOW FINAL GRADE WHEN BEARING ON SOIL.
B. WHERE NECESSARY, FOOTING STEPS SHALL BE CONSTRUCTED AT MAXIMUM SLOPE OF 1 VERTICAL TO 2 HORIZONTAL.
C. EXCAVATIONS SHALL BE DEWATERED TO ALLOW INSTALLATION OF FOOTINGS IN DRY ATMOSPHERE.
D. DIFFERENTIAL BACKFILL AGAINST FOUNDATION WALLS SHALL NOT EXCEED FOUR FEET UNTIL TOP BRACING SLAB OR FRAMEWORK HAS BEEN IN PLACE FOR A MINIMUM OF THREE DAYS. CANTILEVERED RETAINING WALLS MAY BE BACKFILLED AFTER 14 DAYS FROM CONCRETE PLACEMENT, BUT IN NO CASE SHALL DIFFERENTIAL OF BACKFILL, ON OPPOSITE SIDES OF THE WALL, EXCEED THE FINAL DESIGN DIFFERENTIAL.
E. ALL BOTTOM OF FOOTING ELEVATIONS ARE SUBJECT TO CHANGE UPON INSPECTION OF SOIL CONDITION. ELEVATION OF ADJACENT FOOTING BOTTOMS SHALL NOT EXCEED A MAXIMUM SLOPE OF:
2.1.1. 1H:1V FOR COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF
2.1.2. 1 1/2H:1V FOR COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH OF 0.5 TSF OR LESS.
F. THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHERE BOTTOM OF FOOTING ELEVATION IS CHANGED AND OBTAIN REVISED DESIGN OF THE FOUNDATION AND RETAINING WALLS AS REQUIRED.

CAST-IN-PLACE CONCRETE

- 1. GENERAL
A. ALL CONCRETE WORK SHALL CONFORM TO REQUIREMENTS OF THE A.C.I. BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE (318-14 ULTIMATE STRENGTH DESIGN).
B. 28 DAY MINIMUM COMPRESSIVE STRENGTH AND RELATED PROPERTIES FOR CONCRETE SHALL BE AS FOLLOWS:
F'c MAX W/C RATIO MAX DENSITY
FOOTINGS 4,500PSI 0.40 NWC (145 PCF)
C. CONCRETE COVERING OF REINFORCING STEEL (INCLUDING TIES AND STIRRUPS) SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS:
2" FOUNDATION WALL, FOOTING & GRADE BEAM FACES NOT CAST AGAINST EARTH
3" CONCRETE CAST AGAINST EARTH
D. ALL CONCRETE, INCLUDING FOUNDATIONS, EXPOSED TO WEATHER AND/OR OUTSIDE THE BUILDING ENVELOPE SHALL BE AIR ENTRAINED, 6%±1.5% BY VOLUME FOR 3/4" COARSE AGGREGATE. AIR ENTRAINING ADMIXTURE TO COMPLY WITH ASTM C260.
E. ALL PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE I.
F. ALL NORMAL WEIGHT CONCRETE AGGREGATE SHALL CONFORM TO ASTM C33.
G. MAXIMUM CONCRETE SLUMP SHALL BE 4" FOR CONCRETE NOT RECEIVING HIGH-RANGE WATER REDUCING ADMIXTURES.
H. ALL BARS MARKED CONTINUOUS SHALL BE LAPPED AT SPLICES AND CORNERS IN ACCORDANCE WITH THE SCHEDULE SHOWN ON THESE DRAWINGS, EXCEPT AS OTHERWISE SHOWN OR REQUIRED.
I. WELDING OF REINFORCEMENT IS PROHIBITED U.O.N.
J. ALL REINFORCING BARS SHALL BE OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60 (Fy = 60,000 PSI)
K. VERTICAL CONSTRUCTION JOINTS USING APPROVED BULKHEADS MAY BE MADE WITHIN THE MIDDLE THIRD OF BEAM, WALL, OR SLAB SPANS WHERE STOP IN CONCRETE WORK IS NECESSARY. A PLAN SHOWING PROPOSED JOINTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. HORIZONTAL CONSTRUCTION JOINTS ARE PERMITTED ONLY AS SHOWN ON DRAWINGS. CONSTRUCTION JOINTS SHALL CONFORM TO ACI 318, SECTION 6.4. ALL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINTS U.O.N. FOR ALL CONSTRUCTION JOINTS BELOW WATER TABLE. PROVIDE WATERSTOPS.
L. ALL HORIZONTAL JOINTS IN CONCRETE POURS (WHERE SHOWN ON STRUCTURAL DRAWINGS OR EXPLICITLY APPROVED BY THE ENGINEER IN WRITING) SHALL BE RAKED TO 1/2" AMPLITUDE WHILE CONCRETE IS FRESH.
M. ALL CONCRETE SHALL BE MIXED, TRANSPORTED AND PLACED IN ACCORDANCE WITH ACI STANDARDS 318 AND 304.
N. ALL REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE TO ACI 315.
O. TEST CYLINDERS SHALL BE TAKEN FROM THE MIXER IN ACCORDANCE WITH ASTM C172 AND THE PROJECT SPECIFICATIONS.
P. STONE AGGREGATE USED IN CONCRETE MIX SHALL BE FREE OF MATERIALS WITH HARMFUL REACTIVITY TO ALKALI IN CEMENT.
Q. THE MAXIMUM WATER SOLUBLE CHLORIDE ION (CL-) CONTENT IN CONCRETE FROM ALL INGREDIENTS SHALL BE LESS THAN 0.06% OF WEIGHT OF CEMENT, PER ASTM C1218.
2. CONCRETE FOR FOUNDATIONS
A. ALL VERTICAL SURFACES OF CONCRETE SHALL BE FORMED FOR WALLS, FOOTINGS, AND GRADE BEAMS.
B. CONTRACTOR SHALL PROVIDE A MINIMUM AREA OF STEEL REINFORCEMENT EQUAL TO .0018 TIMES THE GROSS CONCRETE AREA IN CONCRETE SLABS AND FOOTINGS, EXCEPT WHERE CONCRETE IS PRESTRESSED. PROVIDE MINIMUM BONDED REINFORCEMENT FOR PRESTRESSED CONCRETE IN ACCORDANCE WITH ACI 318 - SECTION 18.9. FOR WALLS, PROVIDE MINIMUM REINFORCING IN ACCORDANCE WITH ACI 318 - SECTION 14.3.

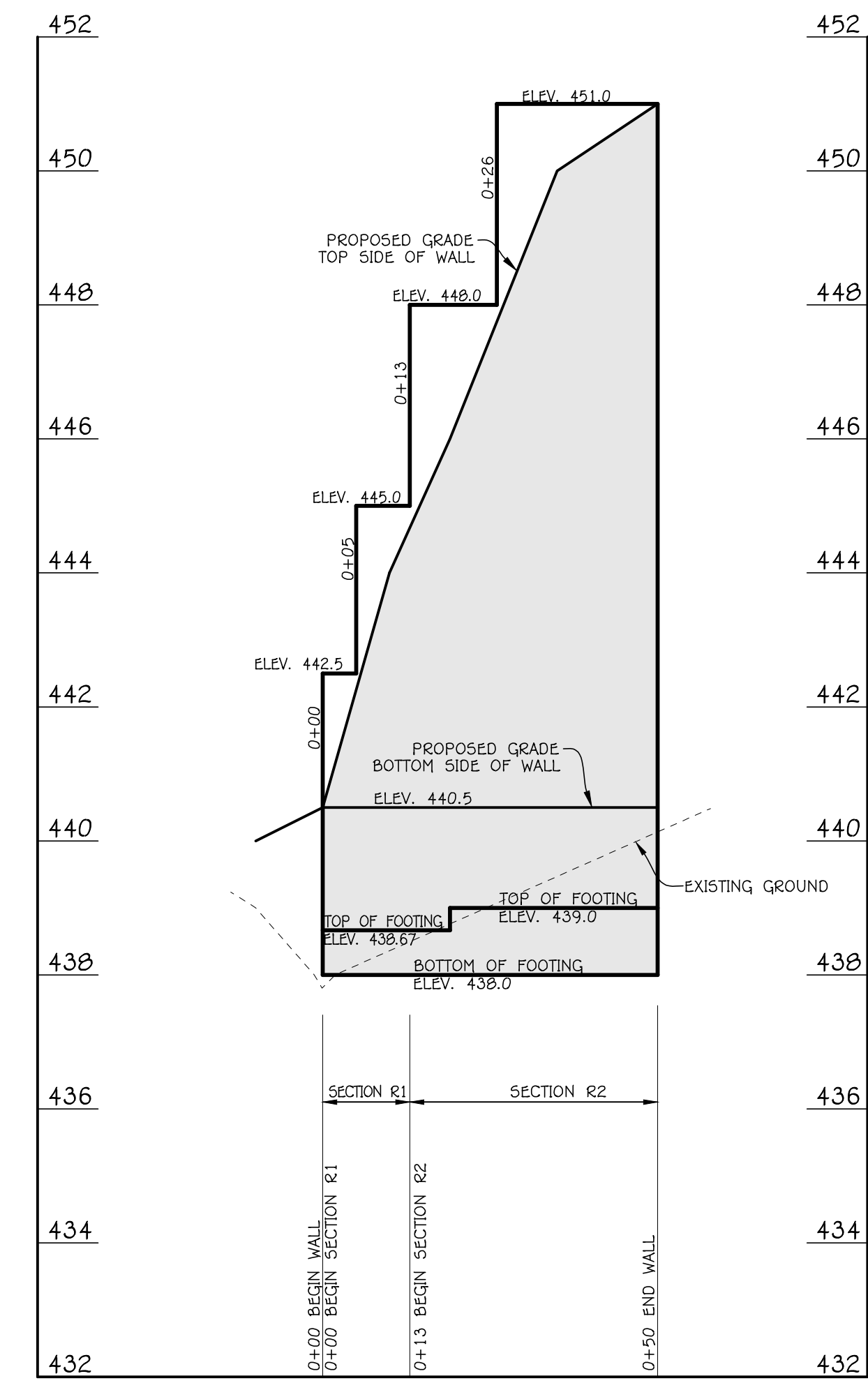


SITE RETAINING WALL PLAN



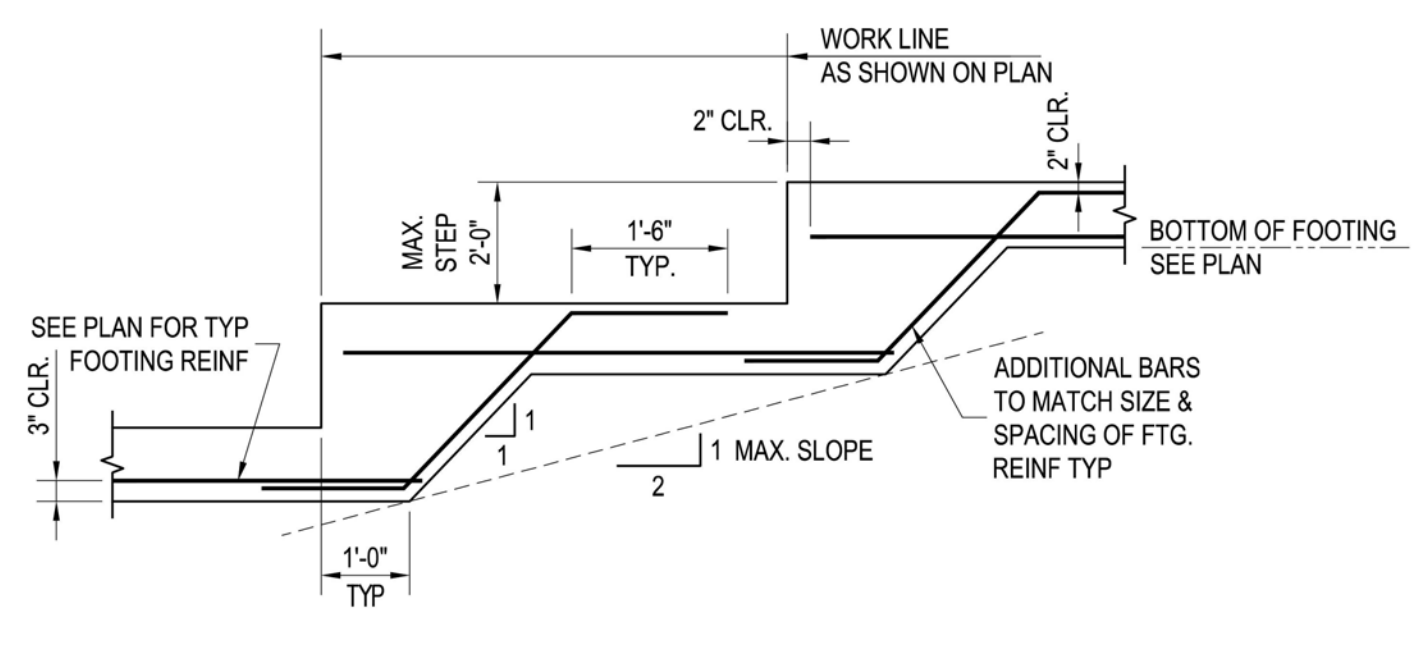
RETAINING WALL SCHEDULE table with columns for SECTION NUMBER, WIDTH, HEEL, FTG, STEM, V1 BARS, V2 BARS, H1 BARS, H2 BARS, H3 BARS, H4 BARS, MAX. HEIGHT.

A TYP. RETAINING WALL DETAIL & SCHEDULE



WALL PROFILE

- NOTES:
1. ELEVATION OF BOTTOM OF WALL FOOTINGS ARE INDICATED ON PLAN THUS: (000.00).
2. REINFORCED CONCRETE RETAINING WALLS ARE INDICATED ON PLAN THUS: [Symbol] REFER TO RETAINING WALL SCHEDULE SHOWN IN DETAIL A.
3. TOP OF WALL ELEVATION TO BE WITHIN 6" ABOVE OR BELOW FINISHED GRADE ELEVATION, REFER TO CIVIL DRAWINGS. CONTRACTOR TO STEP TOP OF WALL, AS REQUIRED.
4. EQUIPMENT AND MATERIALS ARE NOT TO BE STAGED IN A MANNER THAT THE LOADING WOULD EXCEED 100 PSF IN REGION SHOWN ON PLAN THUS: [Symbol]



B TYP. STEPPED FOOTING DETAIL

FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

McLaren ENGINEERING GROUP applied ingenuity McLaren Technical Services, Inc.

STATE OF MARYLAND PROFESSIONAL ENGINEER SEAL

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24.

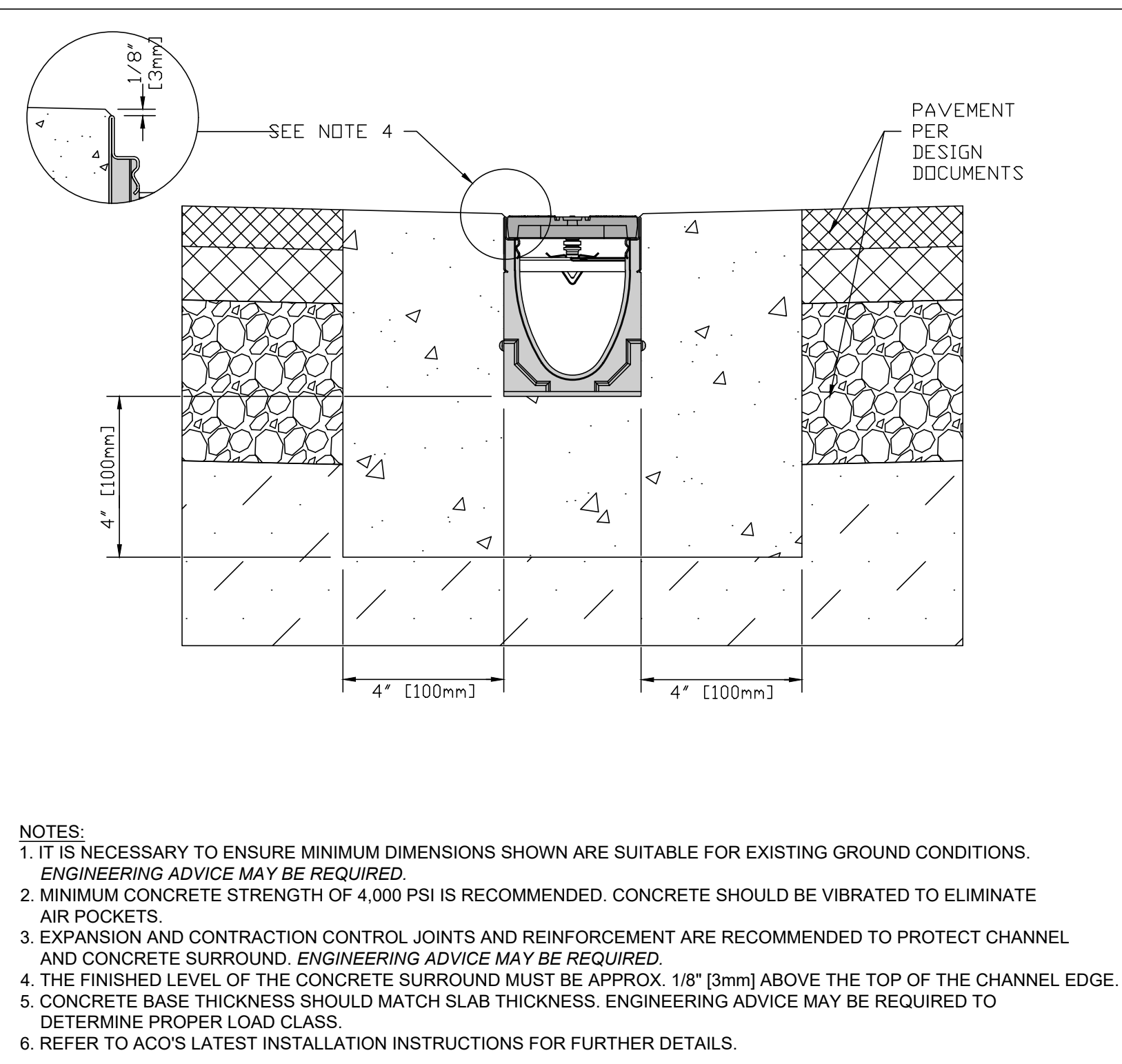
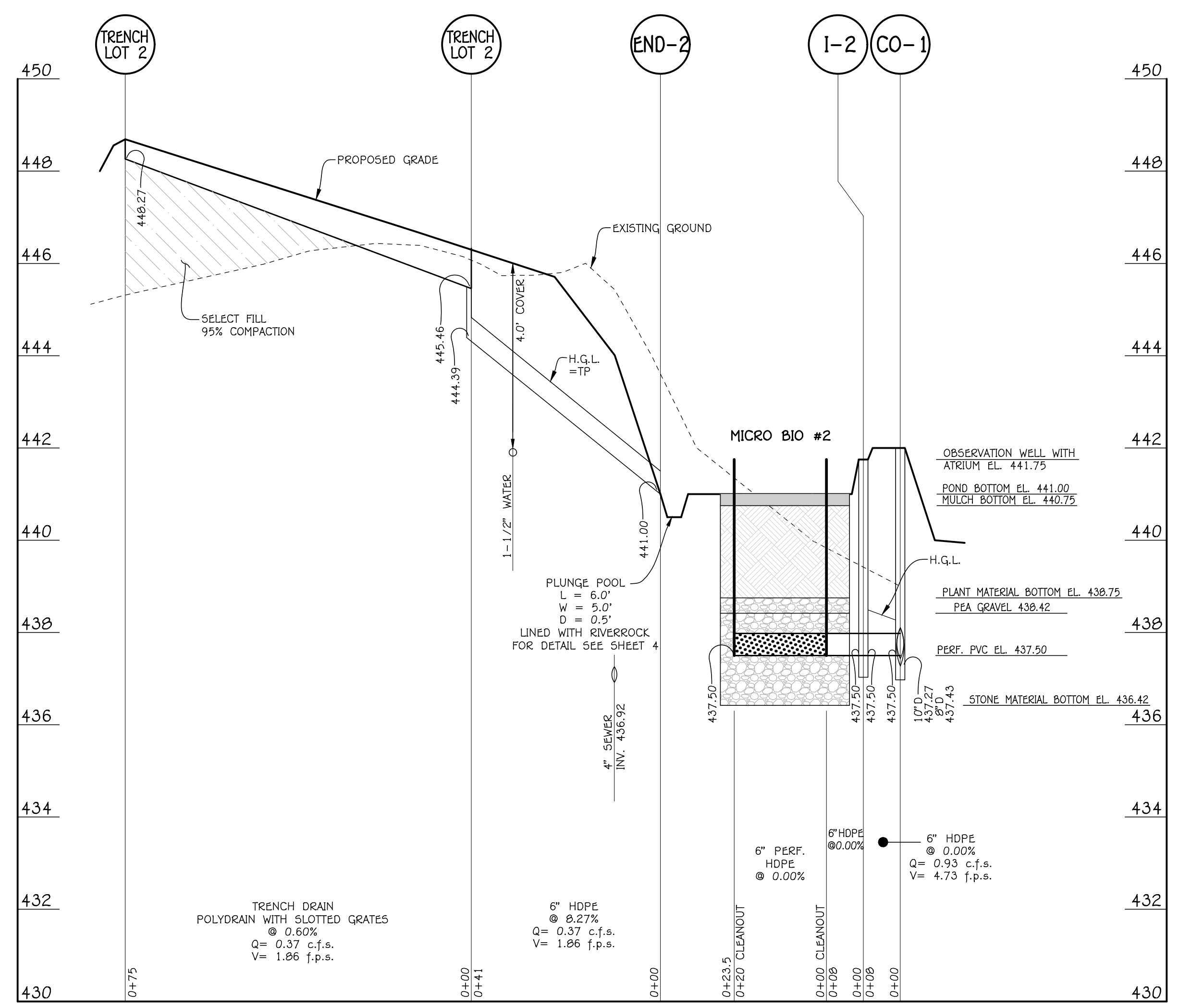
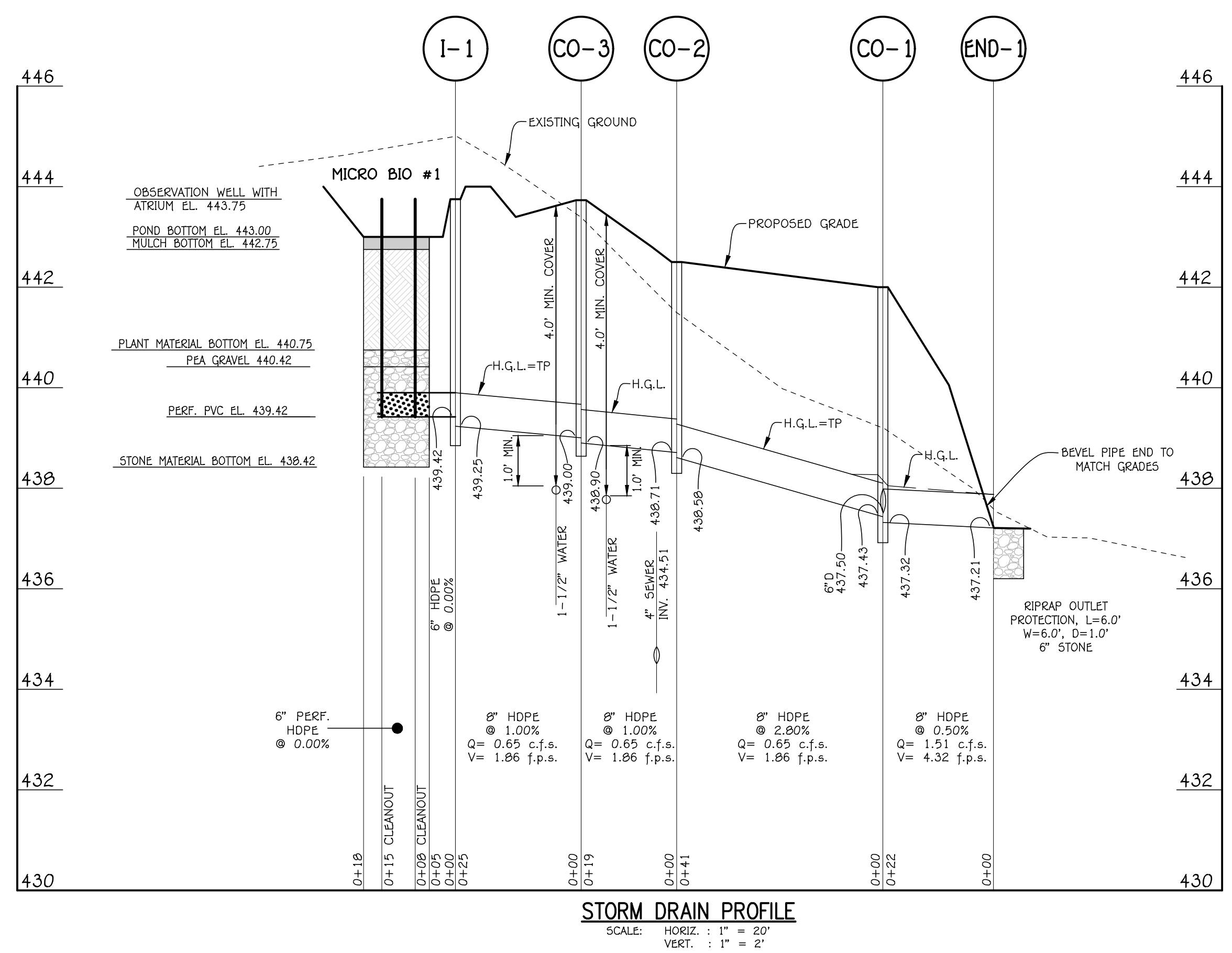
APPROVED: DEPARTMENT OF PLANNING AND ZONING, Director - Department of Planning and Zoning, Chief, Division of Land Development, Chief, Development Engineering Division

OWNER/DEVELOPER DIVYESH SAPARIYA, SOHILRAJ SAPARIYA AND HITESH ANKOLA 5669 TROTTER ROAD CLARKSVILLE, MARYLAND 21029 PH# 301-275-0762

ADDRESS CHART PARCEL NO. LOT NO. STREET ADDRESS. PROJECT SAPARIYA PROPERTY SECTION/AREA 5/2 PARCEL 0180

SITE RETAINING WALL, DETAILS AND NOTES SAPARIYA PROPERTY LOTS 1 AND 2 5669 TROTTER ROAD A RESUBDIVISION OF CRISWOOD MANOR SECTION TWO - LOT 65





**SPECIFICATION CLAUSE**

**K100 KLASIKRAIN 'QUICKLOK' LOAD CLASS A**

**GENERAL**  
 THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE K100 CHANNEL SYSTEM WITH GALVANIZED STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

**MATERIALS**  
 CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN GALVANIZED STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:  
 COMPRESSIVE STRENGTH: 14,000 PSI  
 FLEXURAL STRENGTH: 4,000 PSI  
 TENSILE STRENGTH: 1,500 PSI  
 WATER ABSORPTION: 0.07%  
 FROST PROOF: YES  
 DILUTE ACID AND ALKALI RESISTANT: YES  
 B117 SALT SPRAY TEST COMPLIANT: YES

THE SYSTEM SHALL BE 4" (100mm) NOMINAL INTERNAL WIDTH WITH A 5.1" (130mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'QUICKLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

- NOTES:**
- IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. ENGINEERING ADVICE MAY BE REQUIRED.
  - MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
  - EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. ENGINEERING ADVICE MAY BE REQUIRED.
  - THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" (3mm) ABOVE THE TOP OF THE CHANNEL EDGE.
  - CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
  - REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SIZE	CLASS	LENGTH
6"	HOPE	63 L.F.
6"	PERF. PVC	59 L.F.
8"	HOPE	107 L.F.

STRUCTURE NO.	OWNERSHIP AND MAINTENANCE	TOP ELEVATION	INV. IN	INV. OUT	COORDINATES	INTERIOR WIDTH	TYPE	REMARKS
I-1	PRIVATE	443.75 *	439.42 (6")	439.25 (8")	N 564,175.60 E 1,334,983.80	24"	NYLOPLAST DRAIN BASIN	PERFORATED GRATE
I-2	PRIVATE	443.75 *	439.75 (6")	440.25 (8")	N 564,104.61 E 1,335,029.77	24"	NYLOPLAST DRAIN BASIN	PERFORATED GRATE
CO-3	PRIVATE	443.73	439.00 (8")	438.90 (8")	N 564,155.00 E 1,334,997.11	8"	NYLOPLAST DRAIN BASIN	REMOVABLE CAP
CO-2	PRIVATE	442.50	438.71 (8")	438.58 (8")	N 564,135.68 E 1,334,998.14	8"	NYLOPLAST DRAIN BASIN	REMOVABLE CAP
CO-1	PRIVATE	442.00	437.43 (8"), 437.50 (6")	437.32 (8")	N 564,102.43 E 1,335,021.77	8"	NYLOPLAST DRAIN BASIN	REMOVABLE CAP
END-2	PRIVATE	-	-	441.00 (6")	N 564,140.57 E 1,335,027.23	6"	BEVEL PIPE END TO MATCH GRADES	-
END-1	PRIVATE	-	-	437.21 (10")	N 564,080.30 E 1,335,022.48	10"	BEVEL PIPE END TO MATCH GRADES	-
TRENCH DRAIN - 1	PRIVATE	SEE PLAN	-	445.46 (6")	N 564,178.13 E 1,335,042.61 N 564,214.03 E 1,335,108.44	6"	POLYDRAIN TRENCH DRAIN	LOAD CLASS LIGHT TRAFFIC

\* - DENOTES GRATE ELEVATION



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALDWIN NATIONAL PIKE  
 ELLSWORTH CITY, MARYLAND 21042  
 (410) 461-2099

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24."

*Paul G. Cavanaugh*  
 PAUL GERARD CAVANAUGH  
 11/6/2023  
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning  
 Chief, Division of Land Use Management  
 Chief, Development Engineering

12/3/2023  
 11/29/2023  
 12/3/2023

**OWNER/DEVELOPER**  
 DIVYESH SAPARIYA,  
 SOHILRAJ SAPARIYA AND  
 HITESH ANKOLA  
 5669 TROTTER ROAD  
 CLARKSVILLE, MARYLAND 21029  
 PH# 301-275-0762

PARCEL NO.	LOT NO.	STREET ADDRESS
0180	1	5669 TROTTER ROAD
	2	5673 TROTTER ROAD

PROJECT	SECTION/AREA	PARCEL
SAPARIYA PROPERTY	5/2	0180

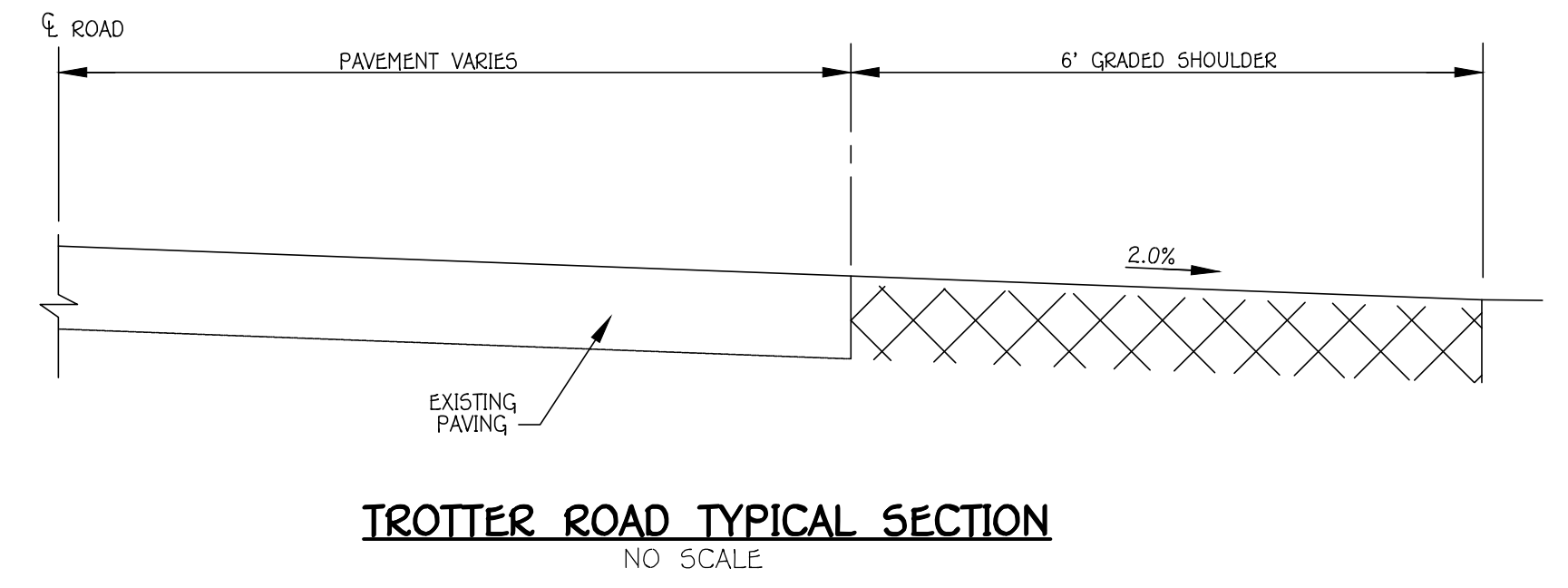
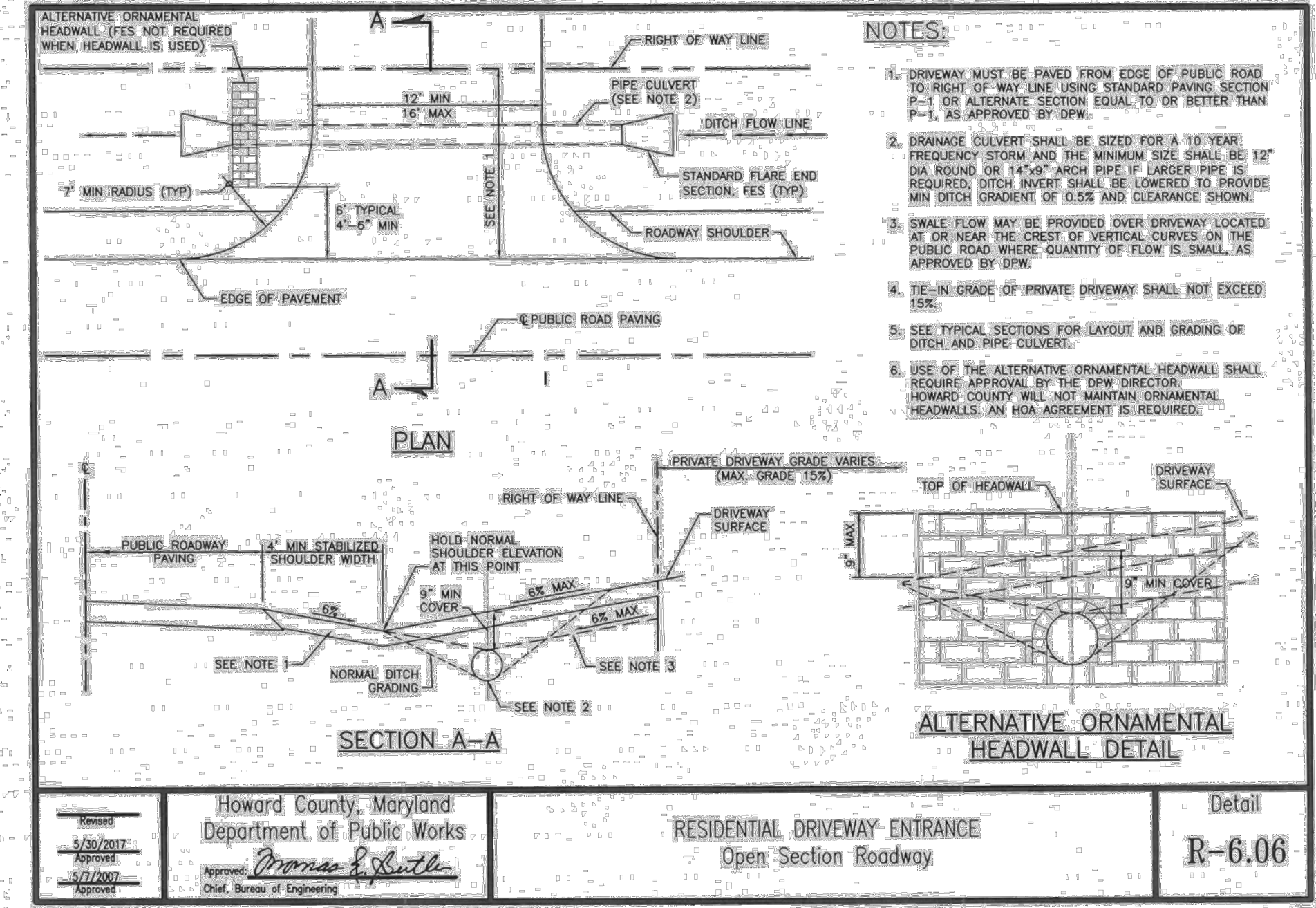
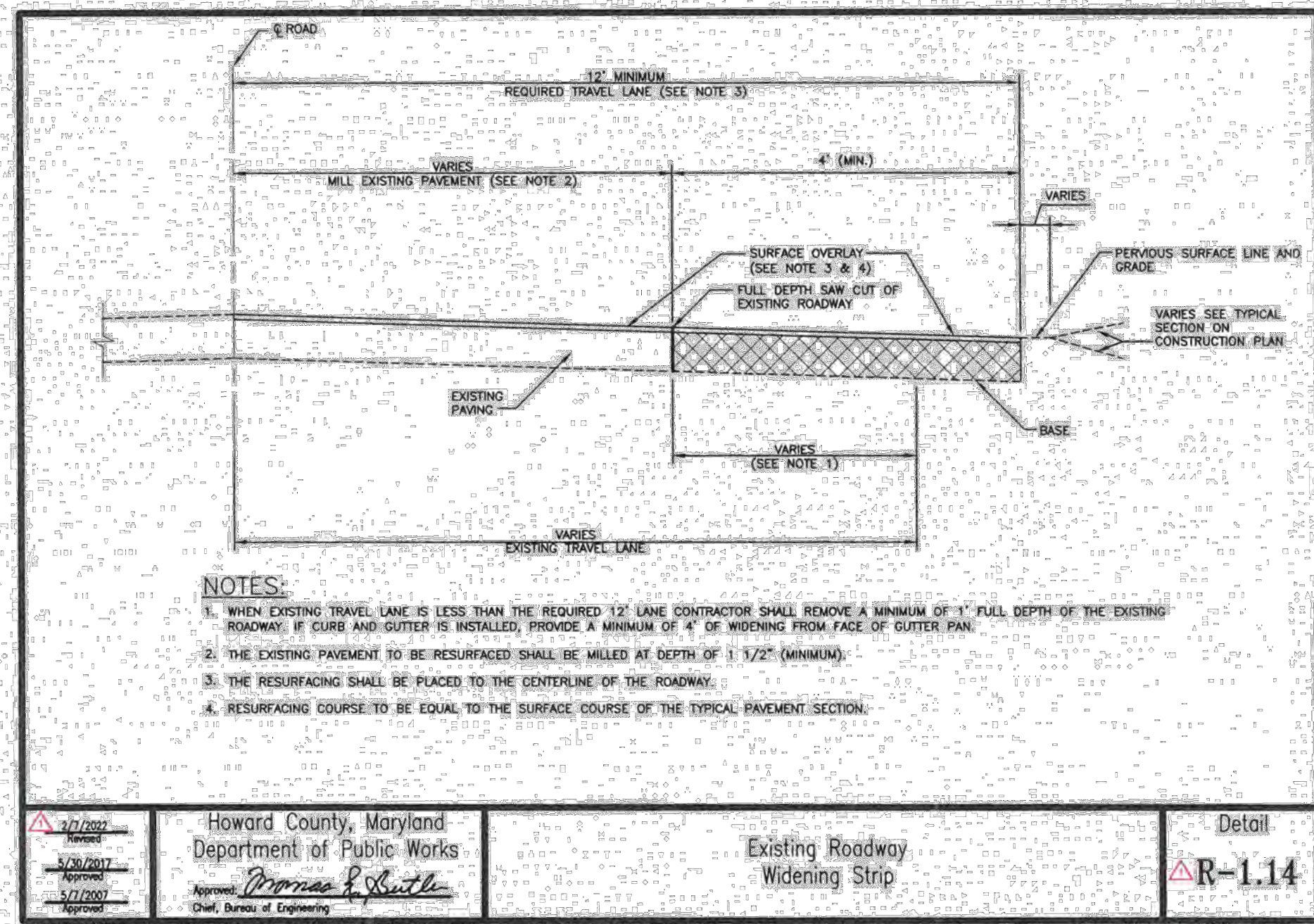
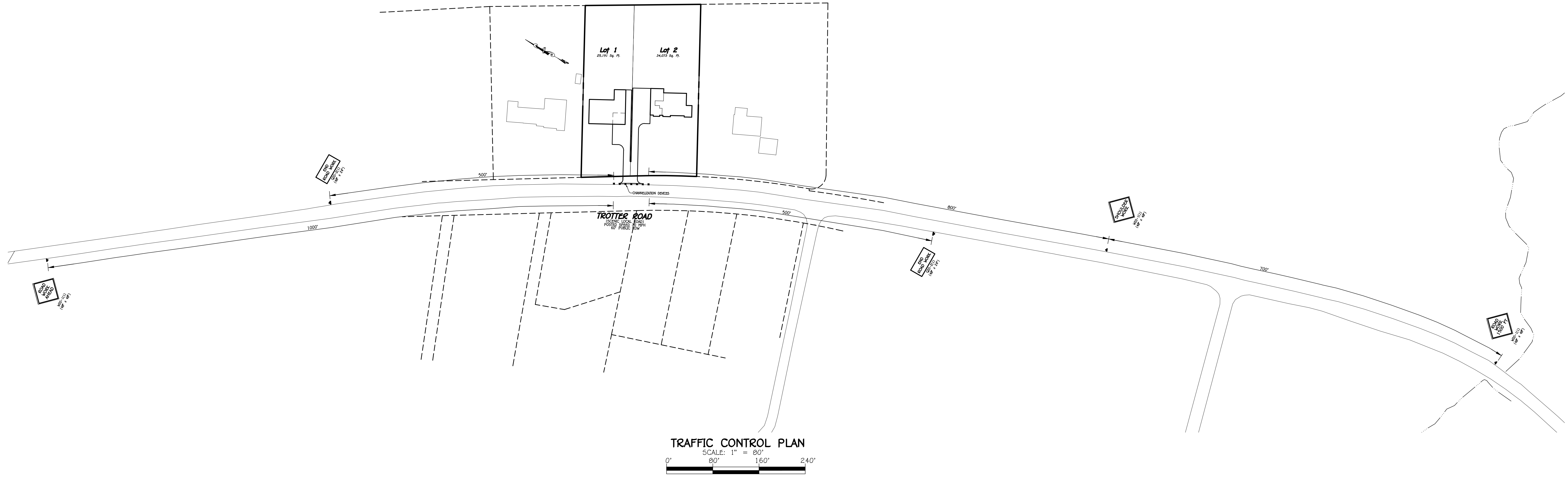
PLAT NOS.	GRID NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
26302	2	R-20	35	FIFTH	605505

WATER CODE: --- SEWER CODE: ---

**PROFILES**

**SAPARIYA PROPERTY**  
 5669 TROTTER ROAD  
 A RESUBDIVISION OF CRISWOOD MANOR  
 SECTION TWO - LOT 65  
 PLAT BOOK 5, PAGE 52

ZONED: R-20  
 TAX MAP: 35 GRID: 2 PARCEL: 0180  
 FIFTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 DATE: NOVEMBER, 2023  
 SHEET 9 OF 10  
 SCALE: AS SHOWN



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-1	PARKING BAYS: RESIDENTIAL AND NON-RESIDENTIAL PARKING DRIVE ASILES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	PAVEMENT MATERIAL (INCHES)		MIN HMA WITH GAB		HMA WITH CONSTANT GAB		
		HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (ESAL)		1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE N/A		N/A	N/A	N/A	N/A	N/A
		HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 1 (ESAL)		2.0	2.0	2.0	3.5	3.0
		GRADED AGGREGATE BASE (GAB)		0.5	7.0	5.0	4.0	4.0

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE: PARK - 10572 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2295

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 27020, EXPIRATION DATE: 01/25/24."

**Paul G. Cavanaugh**  
PAUL GERARD CAVANAUGH  
DATE: 11/6/2023

DATE: \_\_\_\_\_ DESCRIPTION: \_\_\_\_\_ REVISION BLOCK: \_\_\_\_\_

APPROVED: DEPARTMENT OF PUBLIC WORKS AND ZONING  
**Linda Eisenberg**  
Director - Department of Public Works and Zoning  
Date: 12/3/2023

Chief, Division of Land Development  
**CHAD Edmondson**  
Date: 12/3/2023

**OWNER/DEVELOPER**  
DIVYESH SAPARIYA,  
SOHILRAJ SAPARIYA AND  
HITESH ANKOLA  
5669 TROTTER ROAD  
CLARKSVILLE, MARYLAND 21029  
PH# 301-275-0762

STATE OF MARYLAND  
COUNTY OF HOWARD  
NOTARIAL SEAL

**ADDRESS CHART**

PARCEL NO.	LOT NO.	STREET ADDRESS
0180	1	5669 TROTTER ROAD
	2	5673 TROTTER ROAD

PROJECT: SAPARIYA PROPERTY  
SECTION/AREA: 5/2  
PARCEL: 0180

PLAT NOS.	GRID NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
26302	2	R-20	35	FIFTH	605505

WATER CODE: --- SEWER CODE: ---

**TRAFFIC CONTROL PLAN**  
**SAPARIYA PROPERTY**  
**LOTS 1 AND 2**  
5669 TROTTER ROAD  
A RESUBDIVISION OF CRISWOOD MANOR  
SECTION TWO - LOT 65  
PLAT BOOK 5, PAGE 52  
ZONED: R-20  
TAX MAP: 35 GRID: 2 PARCEL: 0180  
FIFTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
DATE: NOVEMBER, 2023  
SHEET 10 OF 10  
SCALE: AS SHOWN