

BOHLER ENGINEERING

CORPORATE OFFICE:
 WARRICK, IN

CIVIL & CONSULTING ENGINEERS

SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

BOHLE, MD
 TOWSON, MD
 WARRICK, IN
 CHANTON, PA
 PORT CHARLOTTE, FL
 TAMPA, FL

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE: CALL 1-800-257-7777 (DC) 1-800-257-7777 (VA) 1-800-552-7001 (MD) 1-800-257-7777 (DE) 1-800-252-8555

NOT APPROVED FOR CONSTRUCTION

PROJECT NO: MD152015
 DRAWN BY: AVG
 DATE: 08/29/18
 SCALE: 1" = 50'
 CAD I.D.: SSS

FINAL ROAD CONSTRUCTION PLAN FOR ELKRIDGE WOODS LOTS 1-42 & OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 901
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 4088
 9/30/19

SHEET TITLE: EXISTING CONDITIONS, SOILS MAP AND DEMOLITION PLAN

SHEET NUMBER: 3 of 51

AG-BUILT

NOTE:
 1. THE EXISTING WELL MUST BE PROPERLY ABANDONED BY A LICENSED WELL DRILLER WITH AN ABANDONMENT REPORT SUBMITTED TO THE HEALTH DEPARTMENT. THE EXISTING SEWAGE HALLER AND PROPERLY ABANDONED WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO HEALTH DEPARTMENT APPROVAL OF THE RECORD PLAT.

LEGEND

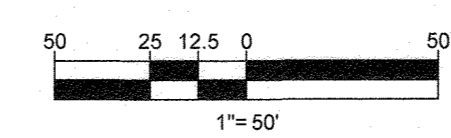
- LIMITS OF FOREST CLEARING
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)
- CRITICAL ROOT ZONE
- 100 YR. FLOODPLAIN

SOILS TABLE

SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR
CrD	Crom and Evesboro soils, 10 to 15 percent slopes	C	NO	0.32
Rsc	Russell fine sandy loam, 5 to 10 percent slopes	C	NO	0.28
Rsd	Russell fine sandy loam, 10 to 15 percent slopes	C	NO	0.28
SrE	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	B	YES	0.32
Ucd	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	C	YES	0.43

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

Scott Shanaberger
 Professional L.S. # 10849 Exp. Date 4/2/2024
 AS-BUILT DATE: 6/16/2022



- GENERAL DEMOLITION NOTES:**
- THIS PLAN REFERENCES TO FOLLOWING:
 THE TOPOGRAPHY SHOWN HEREON IS BASED ON HOWARD COUNTY GIS AND A BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING TITLED "BOUNDARY & TOPOGRAPHIC SURVEY, ELM STREET DEVELOPMENT, 5920 FLOREY ROAD, 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND", FILE NO. SD152015, DATED 05-08-15, FILE DATE 04/28/15 AND 08/10/17. TOPOGRAPHY SHOWN OUTSIDE "LIMIT OF FIELD RUN SURVEY" IS TAKEN FROM HOWARD COUNTY GIS.
 THE BOUNDARY LINES SHOWN HEREON ARE BASED ON HOWARD COUNTY GIS AND A BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING TITLED "BOUNDARY & TOPOGRAPHIC SURVEY, ELM STREET DEVELOPMENT, 5920 FLOREY ROAD, 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND", FILE NO. SD152015, DATED 05-08-15, FILE DATE 04/28/15 AND 08/10/17.
 - CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 et seq.), AS AMENDED AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.
 - BOHLER ENGINEERING HAS NO CONTRACTUAL, LEGAL, OR OTHER RESPONSIBILITY FOR JOB SITE SAFETY OR JOB SITE SUPERVISION, OR ANYTHING RELATED TO SAME.
 - THE DEMOLITION PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION ONLY. REGARDING ITEMS TO BE DEMOLISHED AND/OR REMOVED. THE CONTRACTOR MUST ALSO REVIEW THE OTHER SITE PLAN DRAWINGS AND INCLUDE DEMOLITION ACTIVITIES ALL INCIDENTAL WORK NECESSARY FOR THE CONSTRUCTION OF THE NEW SITE IMPROVEMENTS.
 - CONTRACTOR MUST RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS OR SPECIFICATIONS, CONCERNING REGARDING THE APPLICABLE SAFETY STANDARDS, OR THE SAFETY OF THE CONTRACTOR OR THIRD PARTIES IN PERFORMING THE WORK ON THIS PROJECT, WITH BOHLER ENGINEERING, IN WRITING, AND RESPONDED TO BY BOHLER, IN WRITING, PRIOR TO THE INITIATION OF ANY SITE ACTIVITY AND ANY DEMOLITION ACTIVITY. ALL DEMOLITION ACTIVITIES MUST BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, RULES, REQUIREMENTS, STATUTES, ORDINANCES AND CODES.
 - PRIOR TO STARTING ANY DEMOLITION, CONTRACTOR IS RESPONSIBLE FOR TO:
 A. OBTAINING ALL REQUIRED PERMITS AND MAINTAINING THE SAME ON SITE FOR REVIEW BY THE ENGINEER AND OTHER PUBLIC AGENCIES HAVING JURISDICTION THROUGHOUT THE DURATION OF THE PROJECT, SITE WORK AND DEMOLITION WORK.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/9/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10-22-18

DATE: 10-11-18

OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

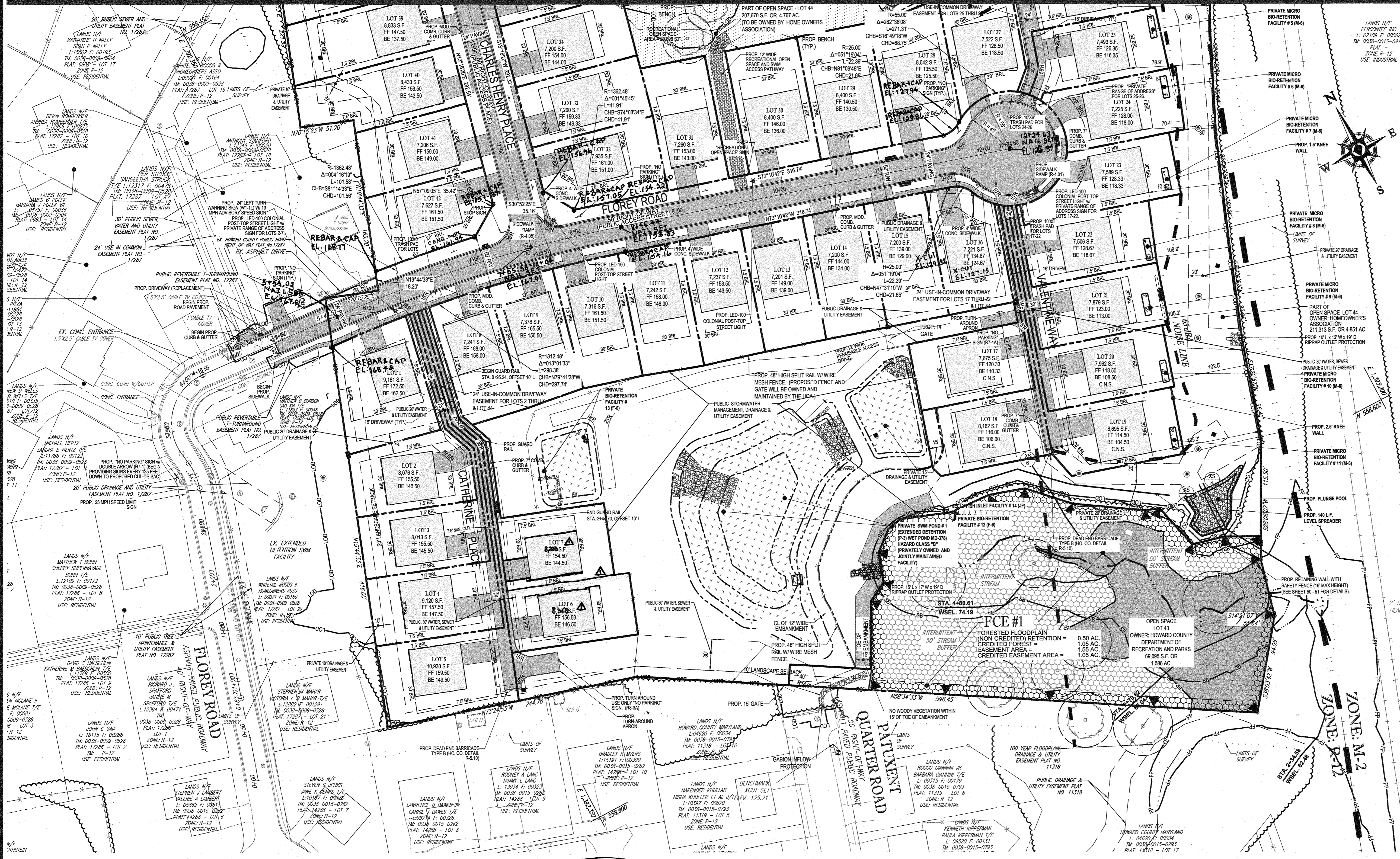
TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340

1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: ECP-16-008 P-17-001
 S-05-004 S-15-001
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

PROFESSIONAL CERTIFICATION
 I, BRANSON R. ROWE, 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. 4088, EXPIRATION DATE: 7/31/2019.

SEE MATCHLINE: SHEET 6



STANDARD DRAWING LEGEND

FOR ENTIRE PLAN SET (NOT TO SCALE)		
EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
	ONSITE PROPERTY LINE (C.O.W. LINE)	---
	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	---
	EASEMENT LINE	---
	SETBACK LINE	---
	CONCRETE CURB & GUTTER	---
	UTILITY POLE WITH LIGHT	---
	TYPICAL LIGHT	---
	TYPICAL SIGN	---
	TYPICAL END SECTION	---
	CLEAN OUT	---
	YARD/OVERFLOW INLET	---
WB	25' WETLAND BUFFER	---
SB	100' STREAM BUFFER	---
	100 YR. FLOODPLAIN	---
	WETLAND	---
	TREELINE	---
	FULL DEPTH PAVEMENT	---
	PERENNIAL STREAM	---
	BIORETENTION FACILITY	---
	WELL AREA	---
	LIMIT OF FIELD RUN SURVEY	---
	BIORETENTION FACILITY #1 (M-4)	---
	BIORETENTION FACILITY #2 (M-4)	---
	BIORETENTION FACILITY #3 (M-4)	---
	BIORETENTION FACILITY #4 (M-4)	---
	BIORETENTION FACILITY #5 (M-4)	---
	BIORETENTION FACILITY #6 (M-4)	---
	BIORETENTION FACILITY #7 (M-4)	---
	BIORETENTION FACILITY #8 (M-4)	---
	BIORETENTION FACILITY #9 (M-4)	---
	BIORETENTION FACILITY #10 (M-4)	---
	BIORETENTION FACILITY #11 (M-4)	---
	BIORETENTION FACILITY #12 (M-4)	---
	BIORETENTION FACILITY #13 (M-4)	---
	BIORETENTION FACILITY #14 (M-4)	---
	BIORETENTION FACILITY #15 (M-4)	---
	BIORETENTION FACILITY #16 (M-4)	---
	BIORETENTION FACILITY #17 (M-4)	---
	BIORETENTION FACILITY #18 (M-4)	---
	BIORETENTION FACILITY #19 (M-4)	---
	BIORETENTION FACILITY #20 (M-4)	---
	BIORETENTION FACILITY #21 (M-4)	---
	BIORETENTION FACILITY #22 (M-4)	---
	BIORETENTION FACILITY #23 (M-4)	---
	BIORETENTION FACILITY #24 (M-4)	---
	BIORETENTION FACILITY #25 (M-4)	---
	BIORETENTION FACILITY #26 (M-4)	---
	BIORETENTION FACILITY #27 (M-4)	---
	BIORETENTION FACILITY #28 (M-4)	---
	BIORETENTION FACILITY #29 (M-4)	---
	BIORETENTION FACILITY #30 (M-4)	---
	BIORETENTION FACILITY #31 (M-4)	---
	BIORETENTION FACILITY #32 (M-4)	---
	BIORETENTION FACILITY #33 (M-4)	---
	BIORETENTION FACILITY #34 (M-4)	---
	BIORETENTION FACILITY #35 (M-4)	---
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	BIORETENTION FACILITY #38 (M-4)	---
	BIORETENTION FACILITY #39 (M-4)	---
	BIORETENTION FACILITY #40 (M-4)	---
	BIORETENTION FACILITY #41 (M-4)	---
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	BIORETENTION FACILITY #45 (M-4)	---
	BIORETENTION FACILITY #46 (M-4)	---
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	BIORETENTION FACILITY #50 (M-4)	---
	BIORETENTION FACILITY #51 (M-4)	---
	BIORETENTION FACILITY #52 (M-4)	---
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	BIORETENTION FACILITY #72 (M-4)	---
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	BIORETENTION FACILITY #75 (M-4)	---
	BIORETENTION FACILITY #76 (M-4)	---
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	BIORETENTION FACILITY #82 (M-4)	---
	BIORETENTION FACILITY #83 (M-4)	---
	BIORETENTION FACILITY #84 (M-4)	---
	BIORETENTION FACILITY #85 (M-4)	---
	BIORETENTION FACILITY #86 (M-4)	---
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	BIORETENTION FACILITY #88 (M-4)	---
	BIORETENTION FACILITY #89 (M-4)	---
	BIORETENTION FACILITY #90 (M-4)	---
	BIORETENTION FACILITY #91 (M-4)	---
	BIORETENTION FACILITY #92 (M-4)	---
	BIORETENTION FACILITY #93 (M-4)	---
	BIORETENTION FACILITY #94 (M-4)	---
	BIORETENTION FACILITY #95 (M-4)	---
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	BIORETENTION FACILITY #97 (M-4)	---
	BIORETENTION FACILITY #98 (M-4)	---
	BIORETENTION FACILITY #99 (M-4)	---
	BIORETENTION FACILITY #100 (M-4)	---



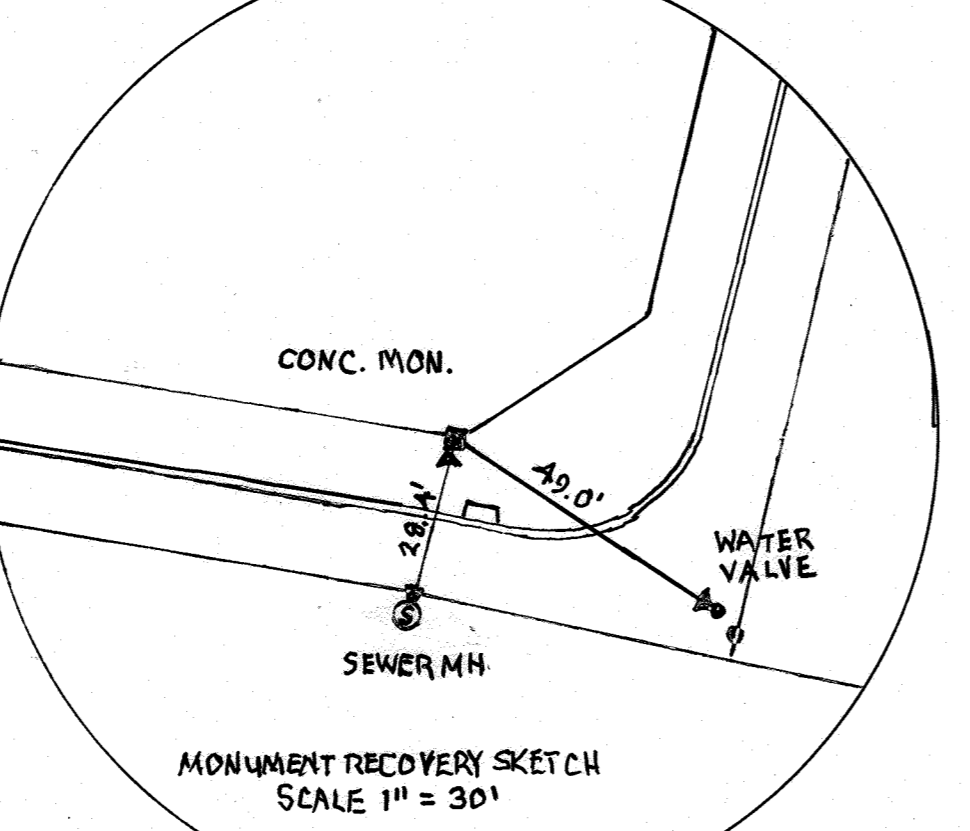
"NO PARKING" SIGN GRAPHIC NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/31/2018
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10-22-18
 CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 10-11-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

FOR REVISION ONLY
 B.R. ROWE
 10/29/18



AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN AND THAT I AM AN APPROVED PLANNING AND ZONING ENGINEER.
 G. SCOTT SHANABERGER
 PROFESSIONAL LAND SURVEYOR
 LICENSE EXPIRATION DATE: 5/31/2021
 AS-BUILT SURVEY DATE: 5/24/18 TO 6/10/18

PREVIOUS FILE NO.: ECP-16-008 P-17-001
 S-05-004
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 CORPORATE OFFICE: WARRINGTON, VA
 PROJECT MANAGERS: SOUTHROCK, VA; TOWSON, MD; WASHINGTON, DC; FORT LAUDERDALE, FL; CHANTON, PA; CHATEAUVILLE, PA
 LANDSCAPE ARCHITECTS: WARRINGTON, VA
 CIVIL & CONSULTING ENGINEERS: WARRINGTON, VA

REVISIONS

REV	DATE	COMMENT	BY
1	10/19	REVISED LOTS 6 & 7 LOT LINES PER COMMENTS	AVG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: (VA) 1-800-245-4848 (PA) 1-800-242-1778 (DC) 1-800-257-7177 (MD) 1-800-552-7001 (DE) 1-800-282-8589

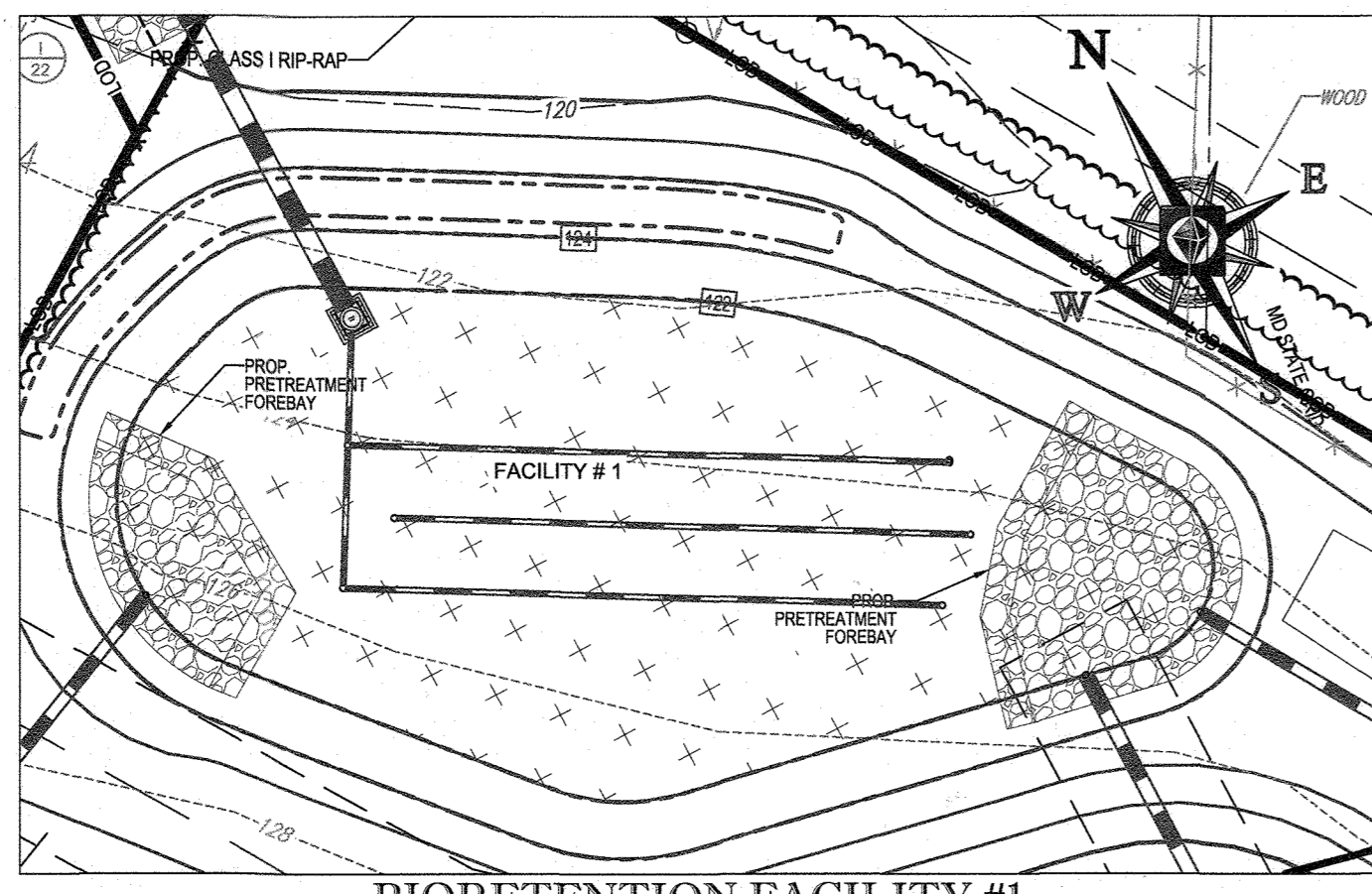
NOT APPROVED FOR CONSTRUCTION
 PROJECT NO.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BRB
 DATE: 08/29/18
 SCALE: 1" = 50'
 CAD I.D.: S53

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9
 PARCELS 756 & 340
 HOWARD COUNTY

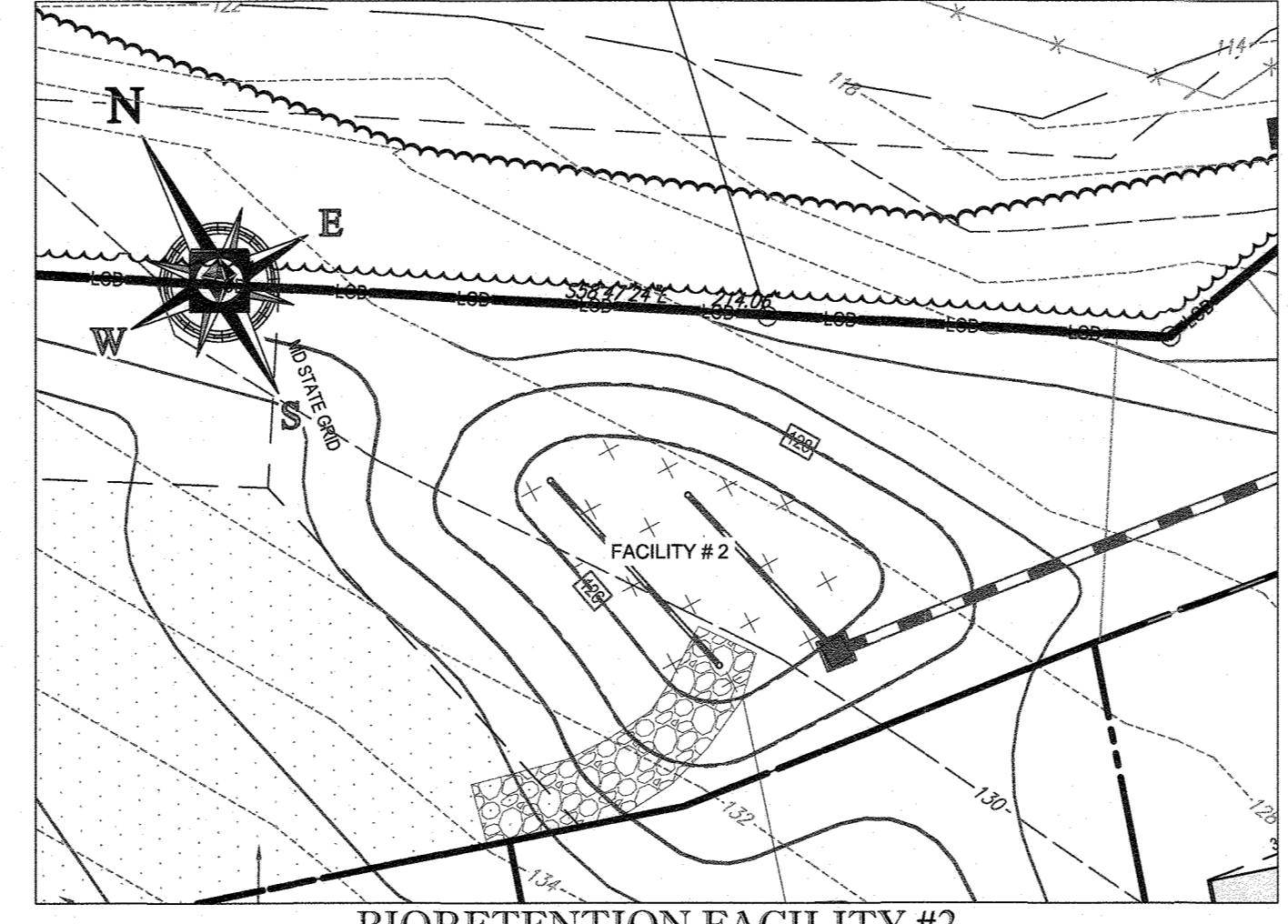
BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
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 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 4988
 10/30/18

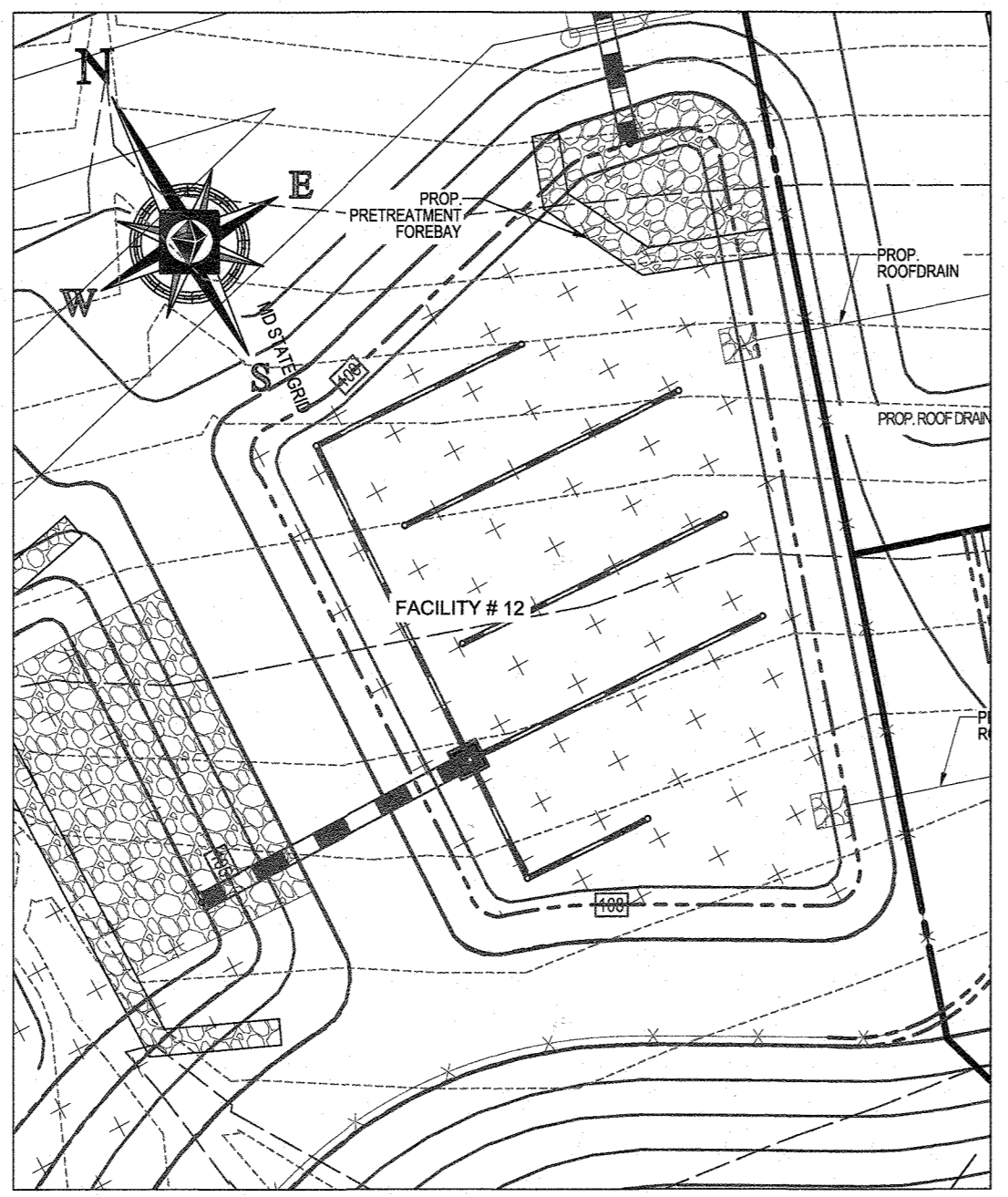
SHEET TITLE: **SITE LAYOUT PLAN**
 SHEET NUMBER: **5 of 51**
 AS-BUILT



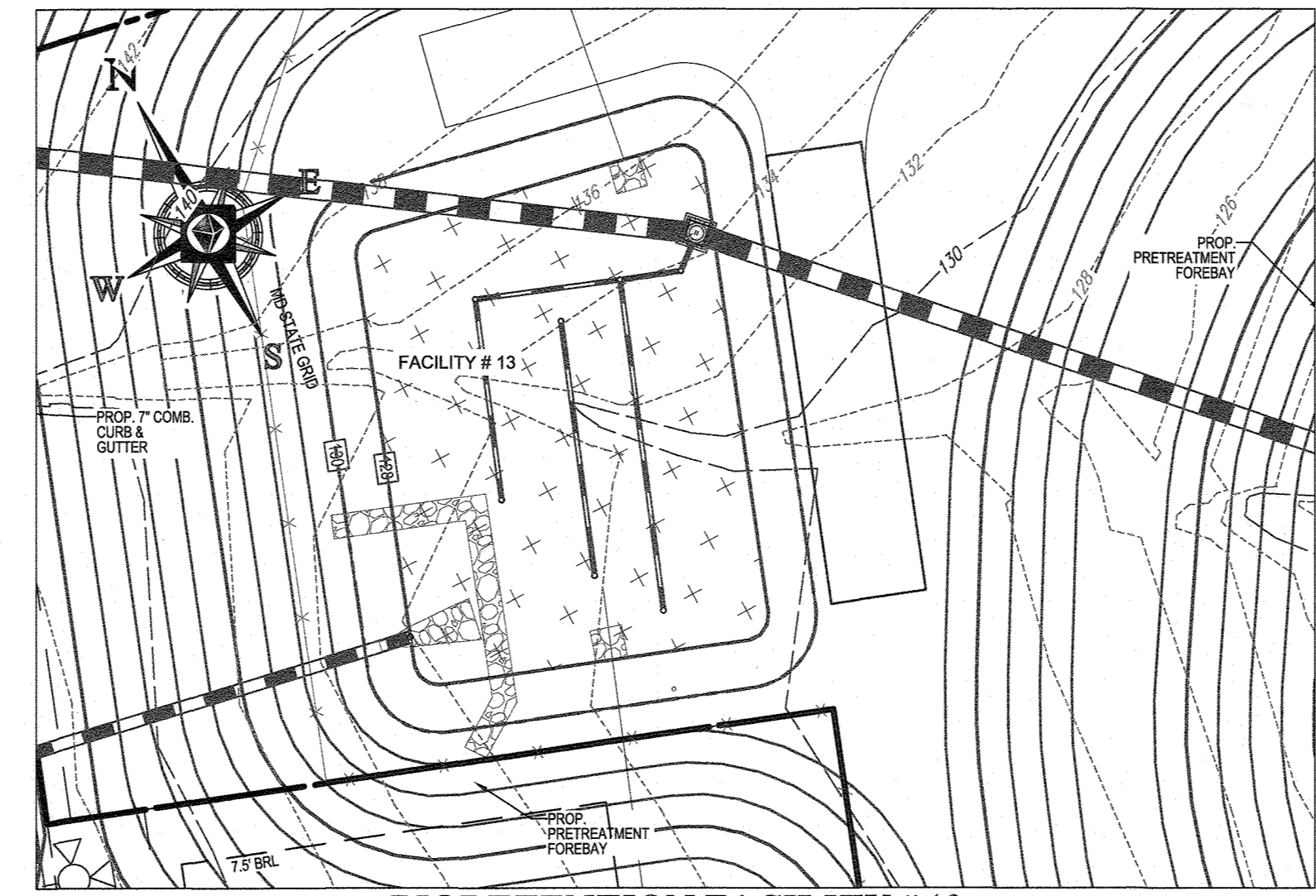
BIORETENTION FACILITY #1
SCALE: 1" = 20'



BIORETENTION FACILITY #2
SCALE: 1" = 20'



BIORETENTION FACILITY #12
SCALE: 1" = 20'



BIORETENTION FACILITY #13
SCALE: 1" = 20'

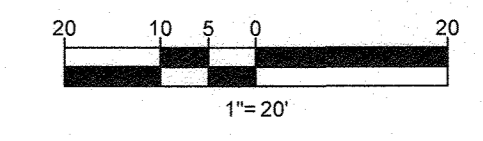
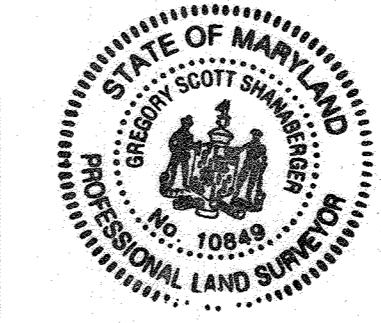
- LEGEND:**
- TREE PROTECTION
 - STEEP SLOPES (15%-25%)
 - STEEP SLOPES (>25%)
 - SOIL DIVIDE
 - SOIL LABEL
 - RIPRAP STABILIZATION
 - LIMIT OF DISTURBANCE
 - ROOT PRUNING
 - SPECIMEN TREE (TO BE REMOVED)
 - SPECIMEN TREE (TO BE REMOVED) CRITICAL ROOT ZONE (CRZ)
 - FOREST CONSERVATION EASEMENT
 - STORMWATER MANAGEMENT AREA

BIORETENTION AREAS PLANTING SCHEDULE									
SPECIES		TYPE	SPACING	SIZE	FACILITY 1 (4488 S.F.)	FACILITY 2 (780 S.F.)	FACILITY 12 (4370 S.F.)	FACILITY 13 (2614 S.F.)	TOTAL
BOTANICAL NAME	COMMON NAME								
ILEX GLABRA 'SHAMROCK'	SHAMROCK HOLLIBERRY HOLLY	SHRUB	30" O.C.	1 GAL. CONT.	79	14	116	75	284
ITEA VIRGINICA 'HENRY'S GARNET'	GARNET SWEETSPICE	SHRUB	30" O.C.	1 GAL. CONT.	79	14	116	75	284
IRIS VERSICOLOR	BLUE FLAG IRIS	PERENNIAL	12" O.C.	PLUG	741	129	622	432	1924
RUDBECKIA FULGIDA 'GOLDSTURM'	BLACK-EYED SUSAN	PERENNIAL	12" O.C.	PLUG	741	129	622	432	1924
ANDROPOGON SCOPARIUS	LITTLE BLUESTEM	GRASS	30" O.C.	1 GAL. CONT.	998	173	885	575	2631
PANICUM VIRGATUM	SWITCH GRASS	GRASS	30" O.C.	1 GAL. CONT.	998	173	885	575	2631

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 10/3/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 10-22-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-11-18

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE
 I, THE UNDERSIGNED, 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 LANDSCAPE MANUAL. I FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 DEVELOPER'S/OWNER'S NAME: KAR DATE: 9-5-18

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. Scott Shanabarger
 Professional L.S. # 10849 Exp. Date 4/2/2024
 AS-BUILT DATE: 6/16/2022
 Shanabarger & Lane



OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C.
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 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SUBDIVISION NAME: ELKRIDGE WOODS
 SECTION/AREA: N/A
 DEED # 11617700197 & 1117500393

PREVIOUS FILE NO.: ECP-16-008 P-17-001
 F-05-094 S-16-001
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

PROFESSIONAL CERTIFICATION
 I, ERIC R. WILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 3697, EXPIRATION DATE: 9/20/2019

BOHLER ENGINEERING

CORPORATE OFFICE: (410) 821-7900
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284

SUBOFFICES:
 SOUTHBRIDGE, MA
 ALBANY, NY
 CHALFONT, PA
 CHARLOTTE, NC
 TAMPA, FL

PROJECT MANAGERS:
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY
1	1/17/18	PER AGENCY COMMENTS	JCW

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811
 (WV 1-800-245-4848) (PA 1-800-342-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-6555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: 1" = 20'
 CAD I.D.: LPS

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
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 HOWARD COUNTY

BOHLER ENGINEERING
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E.R. WILLIAMS
 REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT
 LICENSE NO. 3697

SHEET TITLE:
SWM LANDSCAPE PLAN

SHEET NUMBER:
10 of 51

AS-BUILT

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:

THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SOODING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS

- GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- TOPSOIL - NATURAL, FRABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1") WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLOS.
 - LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORNANCE OR CLIENT, AND SEEDED OR SOODING IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
 - SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/FEST FREE WITH A UNIFORM THICKNESS.
 - SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.
- LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORNANCE OR CLIENT, AND SEEDED OR SOODING IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
 - LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
 - SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/FEST FREE WITH A UNIFORM THICKNESS.
 - SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.
- MULCH - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

3. PLANTING

- INSOFAE THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.
- PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.
- ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.
- ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.
- POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
- PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS: THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
 - PLANTS: MARCH 15 TO DECEMBER 15
 - LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1
- PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.
- FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPORT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:
 - ACER RUBRUM PLATANUS X ACERIFOLIA
 - BETULA VARIETIES POPULUS VARIETIES
 - CARPINUS VARIETIES PRUNUS VARIETIES
 - CRATAEGUS VARIETIES PYRUS VARIETIES
 - KOELREUTERIA QUERCUS VARIETIES
 - LIQUIDAMBER STYRACIFLUA TILIA TOMENTOSA
 - LIRIODENDRON TULIPFERA ZELKOVA VARIETIES

- PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
 - 1 PART PEAT MOSS
 - 1 PART COW MANURE
 - 3 PARTS TOPSOIL BY VOLUME
 - 21 GRAMS AGRIFORM PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
 - A) 2 TABLETS PER 1 GALLON PLANT
 - B) 3 TABLETS PER 5 GALLON PLANT
 - C) 4 TABLETS PER 15 GALLON PLANT
 - D) LARGER PLANTS: 2 TABLETS PER 1/2" CALIBER OF TRUNK
- FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.
- ALL PLANTS SHALL BE PLANTED THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.
- ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.
- GROUND COVER AREAS SHALL RECEIVE A 1/2" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT GRASSIC AS PER MANUFACTURER'S RECOMMENDATION.
- NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.
- ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.
- ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 18 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.
- A FORTY-EIGHT INCH (48") HIGH WOODEN SIGN FENCE OR ORANGE COLORED HIGH DENSITY "VISI-FENCE", OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.
- WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING AND ANY OTHER CONSTRUCTION. THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.
- AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

- CONTRACTOR SHALL ATAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.
- LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETERIORATIVE TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.
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 - TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
 - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

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 - 20 POUNDS "GROW POWER" OR APPROVED EQUAL
 - 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP
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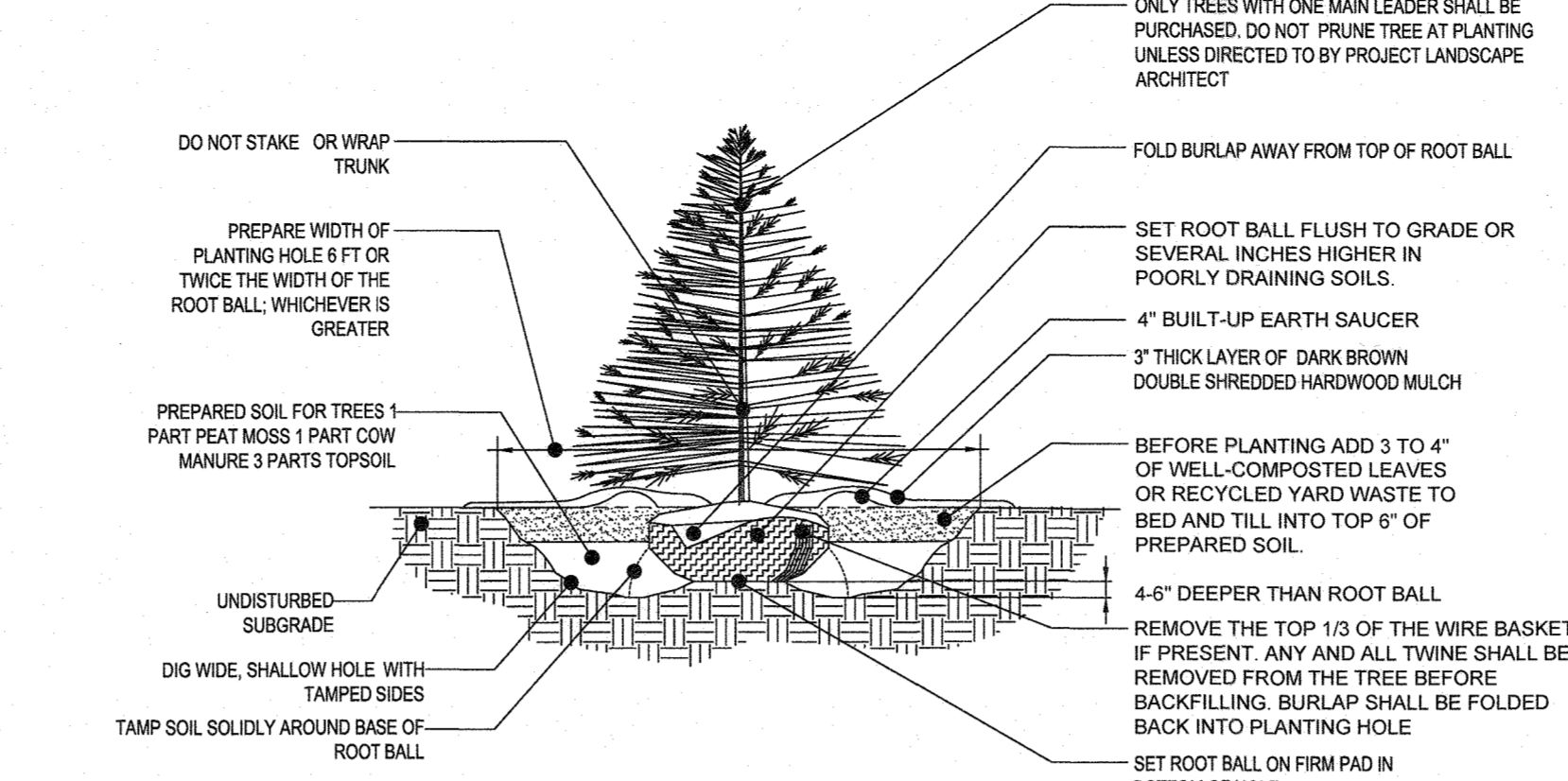
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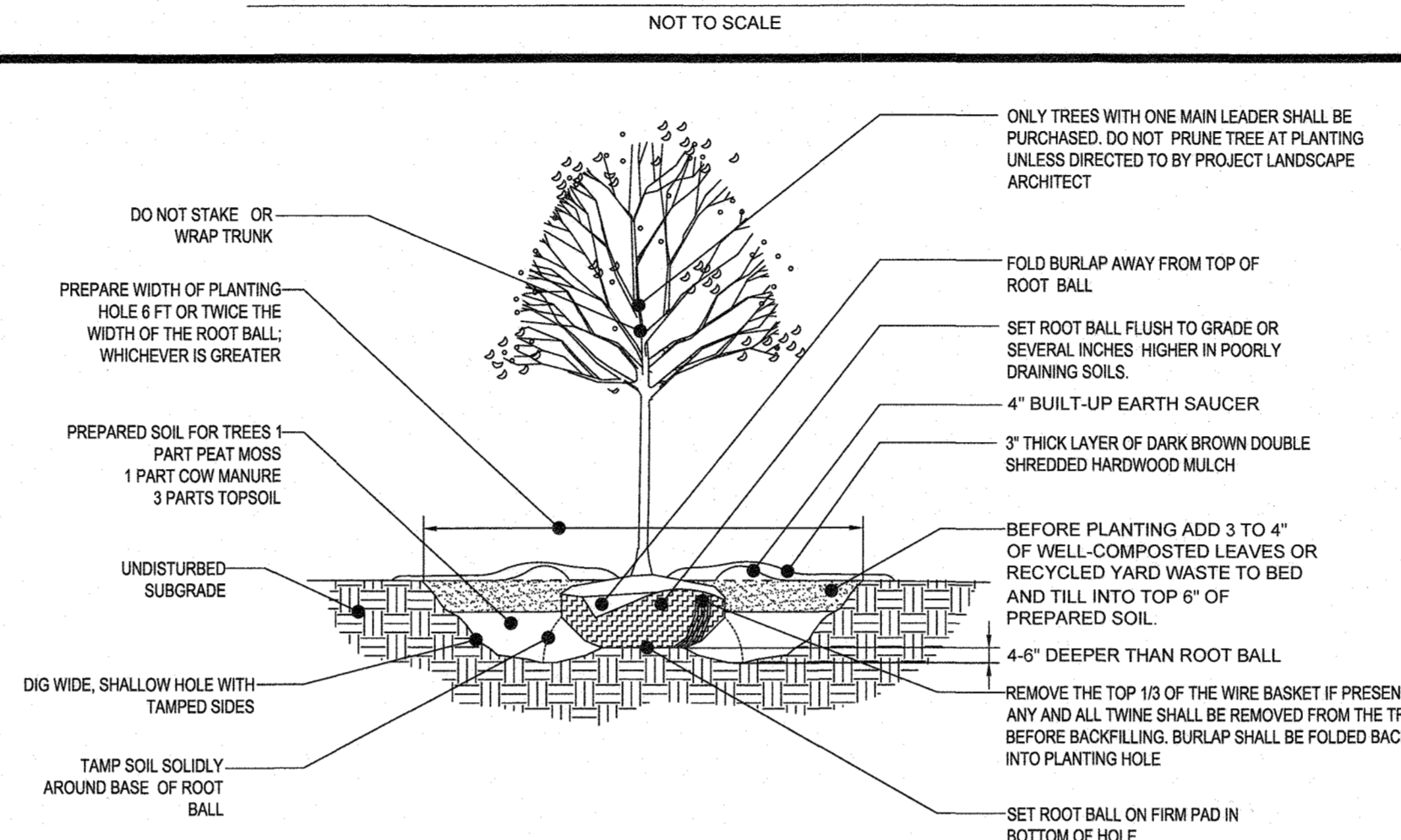
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- ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.
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- ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE FILLED INTO THE TOP FOUR INCHES (4") IN THE FURTHER CERTIFIED THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 - 20 POUNDS "GROW POWER" OR APPROVED EQUAL
 - 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP
- THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

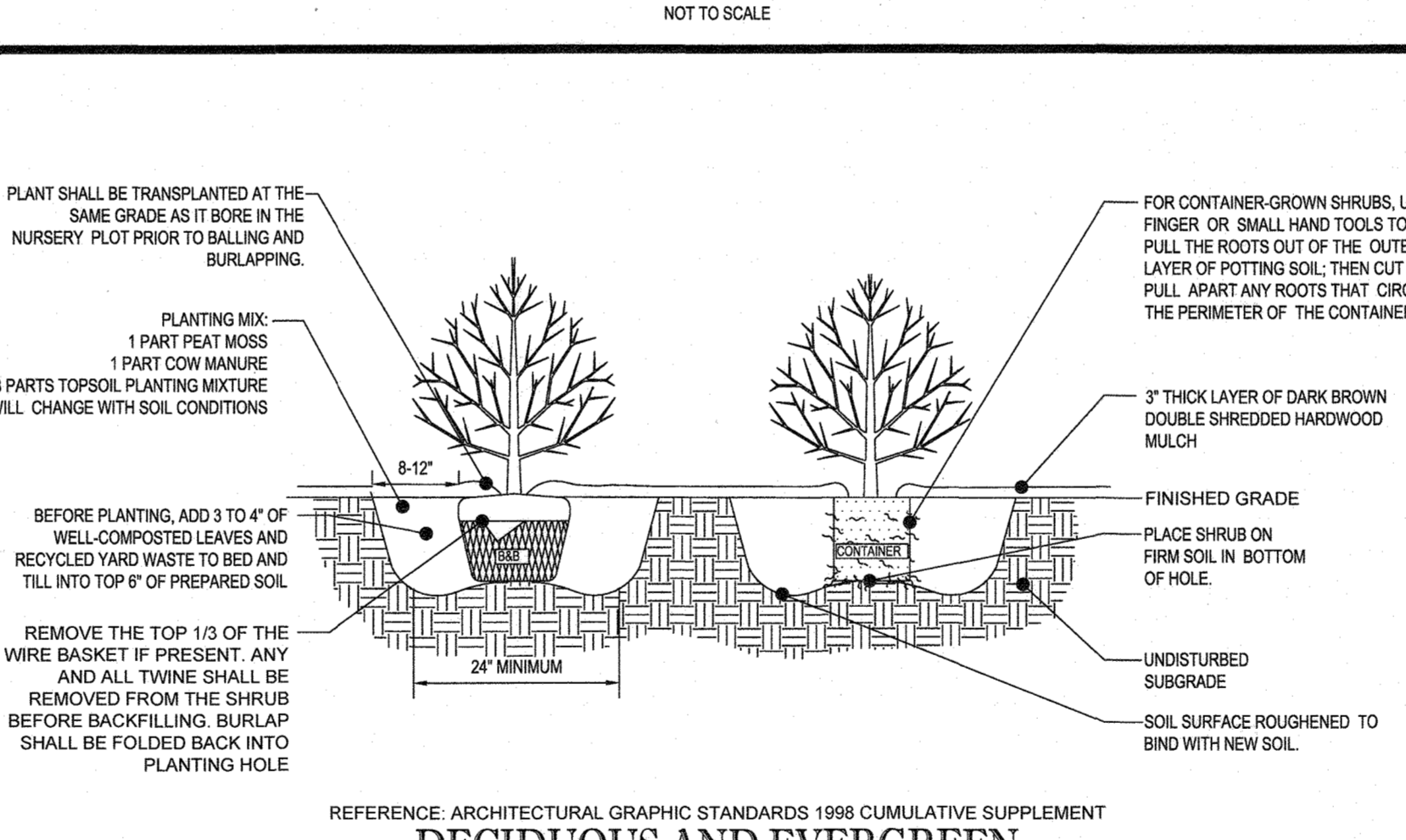
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 18 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.
- A FORTY-EIGHT INCH (48") HIGH WOODEN SIGN FENCE OR ORANGE COLORED HIGH DENSITY "VISI-FENCE", OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.
- WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING AND ANY OTHER CONSTRUCTION. THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.
- AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.



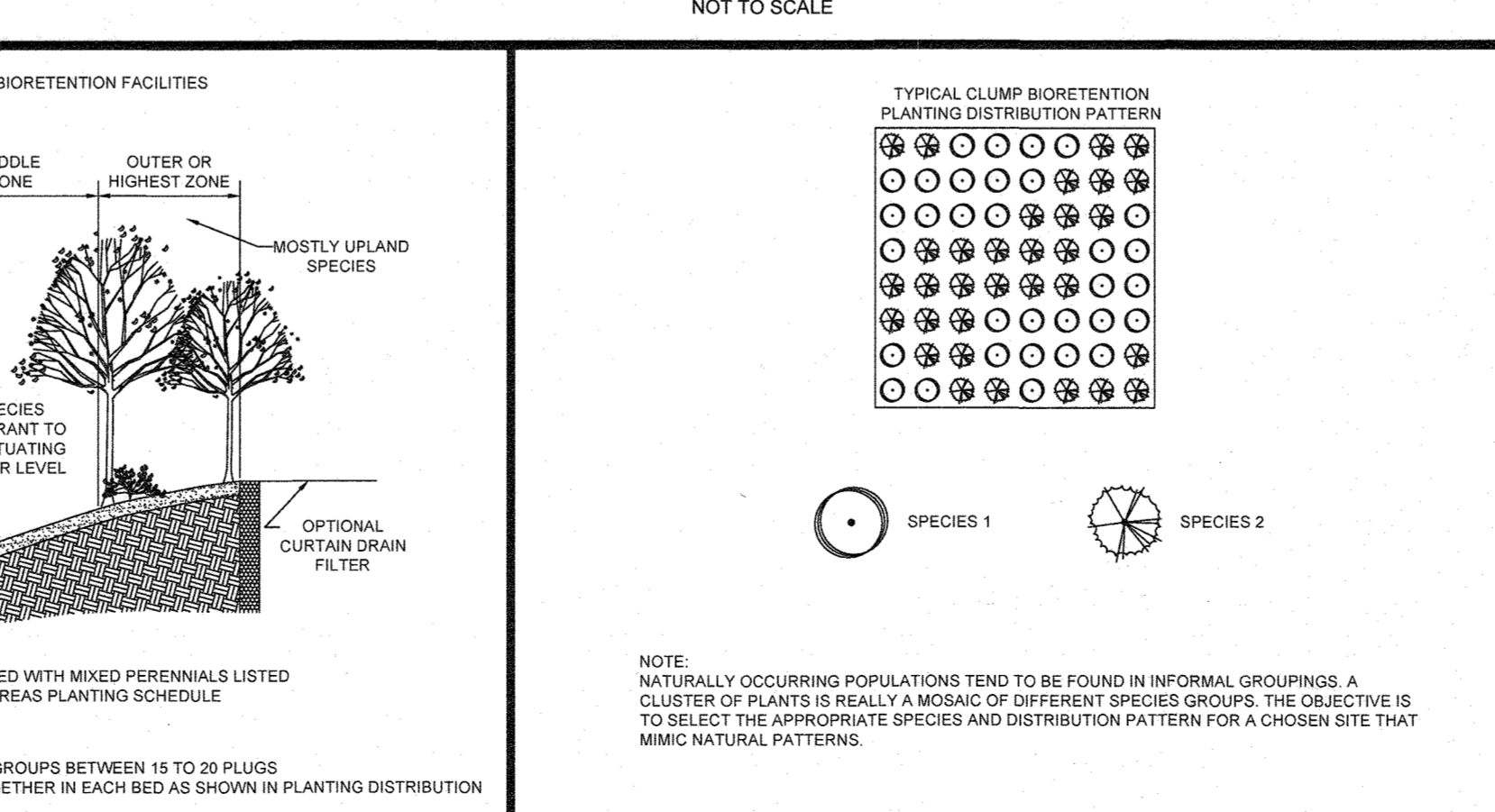
EVERGREEN TREE PLANTING DETAIL



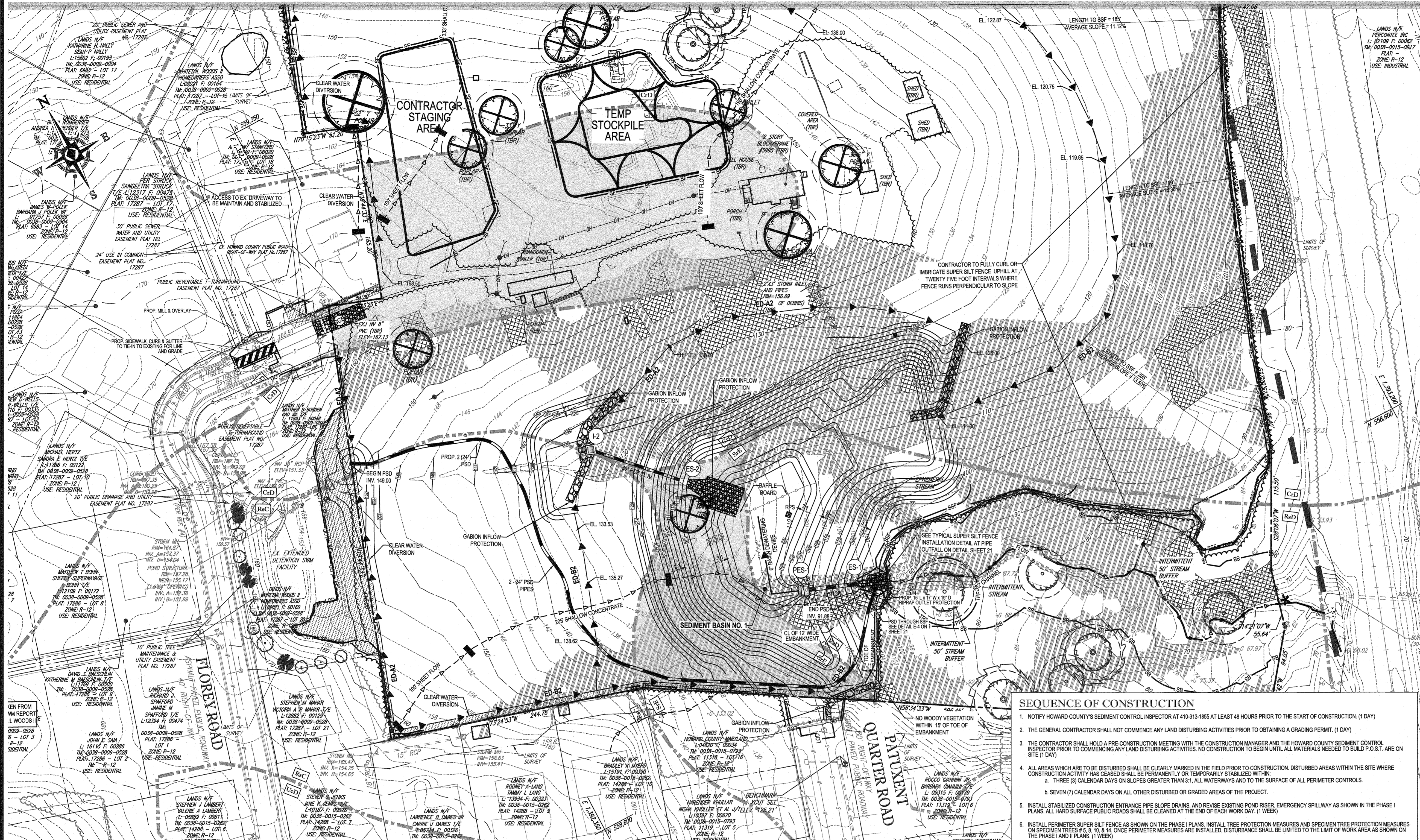
DECIDUOUS TREE PLANTING DETAIL



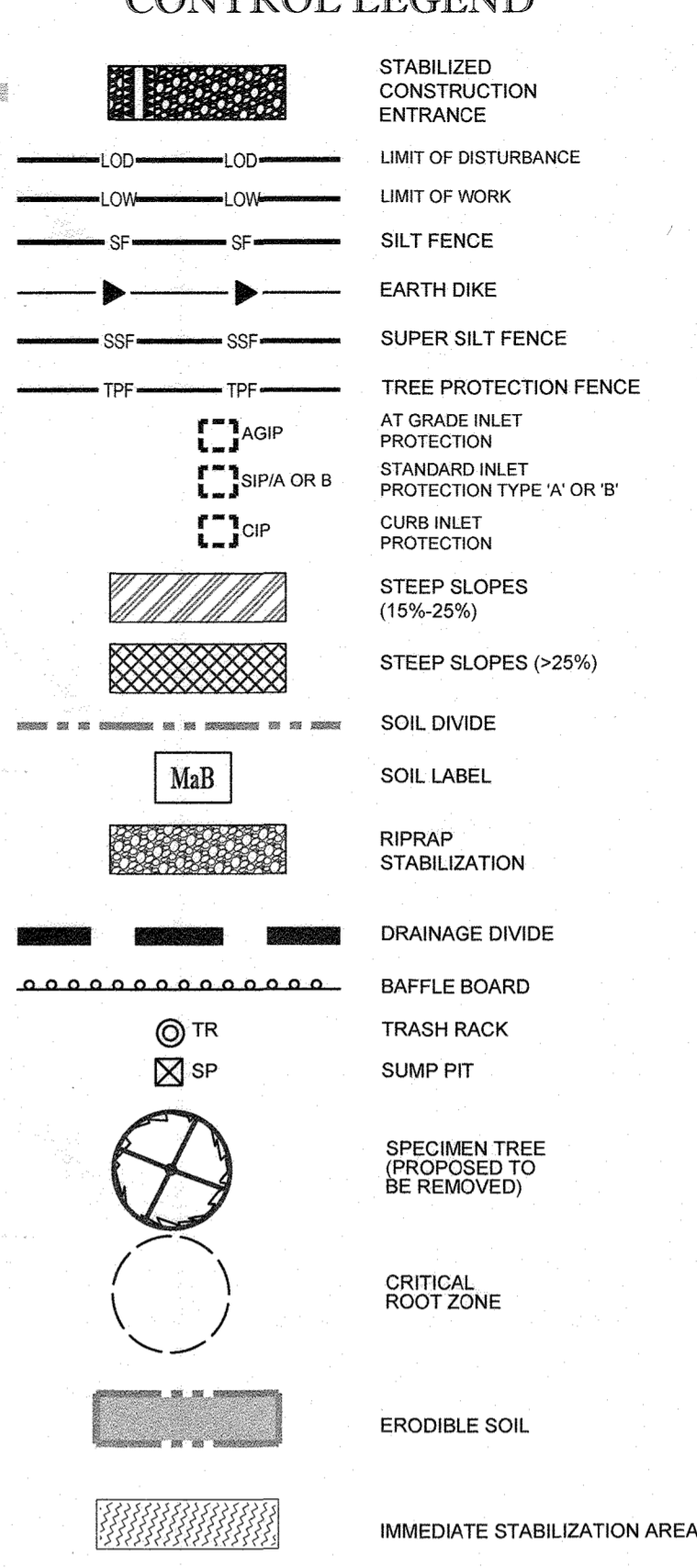
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL



SEE MATCHLINE: SHEET 13



EROSION AND SEDIMENT CONTROL LEGEND



INTERNAL DIKE NOTE
 CONTRACTOR TO PROVIDE ORANGE BLAZE FENCE ALONG ALL DIKES INTERNAL TO THE L.O.D. WITH INTERMITTENT MOUNTABLE BEAMS WHERE NEEDED FOR CONSTRUCTION TRAFFIC

EROSION AND SEDIMENT CONTROL QUANTITIES (PROJECT TOTAL)

TOTAL AREA OF DISTURBANCE (LOD):	14.71 AC.
SILT FENCE:	862 LF
SUPER SILT FENCE:	5,816 LF
STANDARD INLET PROTECTION:	12 EA.
CURB INLET PROTECTION:	11 EA.
AT GRADE INLET PROTECTION:	7 EA.
A-2 EARTH DIKE:	2,804 LF
TREE PROTECTION FENCE:	3,700 LF
12" HDPE:	53 LF
15" HDPE:	1,302 LF
18" HDPE:	259 LF
24" RCP:	31 LF
24" HDPE:	258 LF
30" RCP:	346 LF
42" RCP:	705 LF
2 (24") PIPE SLOPE DRAIN:	50.951 CY
TOTAL CUT =	50.951 CY
TOTAL FILL =	58.650 CY
TOTAL EXPORT =	8.699 CY

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN.
 EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BIDDING PURPOSES.
A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

SEQUENCE OF CONSTRUCTION

- NOTIFY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. (1 DAY)
- THE GENERAL CONTRACTOR SHALL NOT COMMENCE ANY LAND DISTURBING ACTIVITIES PRIOR TO OBTAINING A GRADING PERMIT. (1 DAY)
- THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION MANAGER AND THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES. NO CONSTRUCTION TO BEGIN UNTIL ALL MATERIALS NEEDED TO BUILD P.O.S.T. ARE ON SITE (1 DAY)
- ALL AREAS WHICH ARE TO BE DISTURBED SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DISTURBED AREAS WITHIN THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED SHALL BE PERMANENTLY OR TEMPORARILY STABILIZED WITH:
 - THREE (3) CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE STRUCTURE OF ALL PERIMETER SITES
 - SEVEN (7) CALENDAR DAYS ON ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE PIPE SLOPE DRAINS, AND REVISE EXISTING POND RISER, EMERGENCY SPILLWAY AS SHOWN IN THE PHASE I PLANS. ALL HARD SURFACE PUBLIC ROADS SHALL BE CLEANED AT THE END OF EACH WORK DAY. (1 WEEK)
- INSTALL PERIMETER SUPER SILT FENCE AS SHOWN ON THE PHASE I PLANS. INSTALL TREE PROTECTION MEASURES AND SPECIMEN TREE PROTECTION MEASURES ON SPECIMEN TREES # 5, 10, & 14. ONCE PERIMETER MEASURES ARE INSTALLED, DISTURBANCE SHALL BE LIMITED TO THE LIMIT OF WORK AREA AS SHOWN ON THE PHASE I AND II PLANS. (1 WEEK)
- INSTALL PIPE OUTLET SEDIMENT TRAPS, SEDIMENT BASIN, STORM DRAIN PIPES, SEWER OUTFALLS, AND EARTH DIKES AS SHOWN ON THE PHASE I PLANS. IN AREAS WHERE EARTH DIKES ARE LOCATED IN CUT OR ON FILL, CONTRACTOR SHALL GRADUALLY LOWER OR RAISE DIKES ALONG WITH PROPOSED GRADE. REMOVE 2" RCP UPON BASIN INSTALLATION. ENSURE POSITIVE DRAINAGE AT ALL TIMES. (3 WEEKS)
- UPON APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB THE AREAS IDENTIFIED ON THE PLANS. (2 WEEKS)
- ROUGH GRADE THE SITE TO PROPOSED SUBGRADE AS IDENTIFIED ON THE PLAN. ADJUST EARTH DIKES, PIPE SLOPE DRAIN AND SUPER SILT FENCE TO DIRECT FLOW TO SEDIMENT TRAP AND SEDIMENT BASIN UNTIL THE TRAP AND BASIN ARE CONVERTED TO SWM FACILITIES. (2 WEEKS)
- INSTALL REMAINING UTILITIES AND CONSTRUCT THE RETAINING WALL AS SHOWN ON THE PHASE II PLAN. MAINTAIN EARTH DIKES AND OTHER SEDIMENT CONTROL FEATURES DURING PHASE II. ADJUST THOSE BUMPS TO GRAD, AS NEEDED. INSTALL STANDARD INLET PROTECTION ON ALL PROPOSED INLETS IMMEDIATELY AFTER INSTALLATION. (12 WEEKS)
- INSTALL PROPOSED ROAD BASE COURSE, AND CURB & GUTTER FOR SUBDIVISION ROAD AS SHOWN ON THE PHASE II PLAN. (3 MONTHS)
- WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, COMPLETE PHASE II GRADING AND CONSTRUCTION. (4 WEEKS)
- AS THE SITE IS BROUGHT TO FINAL GRADE, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN SEVEN (7) CALENDAR DAYS. (1 WEEK)
- INSTALL PERMANENT LANDSCAPING. (1 WEEK)
- AS UPSTREAM DRAINAGE AREAS ARE PERMANENTLY STABILIZED AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CONVERT TRAP AND SEDIMENT BASIN TO SWM FACILITIES. FLUSH STORM DRAIN SYSTEMS AND INSTALL PLUNGE POOL, LEVEL SPREADER, ALL BORESTATION AND MICRO-BORESTATION FACILITY PIPING, STONE, SEDIMENT, AND MEDIA. STABILIZE ALL PROPOSED SLOPES AND BENCHES AROUND THE SITE. (1 WEEK)
- AFTER ALL CONSTRUCTIONS HAS BEEN COMPLETED AND UPON APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT CONTROL MEASURES.
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.
- CONTRACTOR TO PROVIDE A COPY OF THE HOWARD COUNTY SCD POND AS-BUILT APPROVED LETTER TO THE INSPECTOR.

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:
 1) ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE
 2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC
 ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. PAGE 2.21. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

EROSION AND SEDIMENT CONTROL NOTES

- TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
- CONTRACTOR TO ACCOUNT FOR BASEMENT CUL UNDER ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE REPAIRED IMMEDIATELY - SAME DAY.
- ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED WITH SOIL STABILIZATION MATTING AND SEED AT THE END OF EACH WORK DAY.
- PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE IN THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
- EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
- CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING ON ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
- IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHES.
- CONTRACTOR TO APPLY PERMANENT SOIL STABILIZATION METHODS FOR ALL NON-STONE AREAS BETWEEN THE INITIAL AND RELOCATED SILT FENCE WILL UTILIZE THE PSSM.

HERE IS NO AS-BUILT PROVIDED ON THIS SHEET
 Scott Shanabarger
 S. # 10849 Exp. Date 4/2/20
 DATE: 10-20-18
 Shanabarger & Lane

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. Scott Shanabarger
 PROFESSIONAL LAND SURVEYOR
 AS-BUILT DATE: 4/2/2024

SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR
CrD	Croon and Evesboro soils, 10 to 15 percent slopes	C	NO	0.32
RSc	Russett fine sandy loam, 5 to 10 percent slopes	C	NO	0.28
RsD	Russett fine sandy loam, 10 to 15 percent slopes	C	NO	0.28
SiE	Urban land-Chillum-Bettsville complex, 5 to 15 percent slopes	B	YES	0.32
UcD	Urban land-Chillum-Bettsville complex, 5 to 15 percent slopes	C	YES	0.43

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/3/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10-27-18
 APPROVED: CHIEF OF ENGINEERING DIVISION
 DATE: 10-11-18

ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF A TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS.
 DATE: 9/5/18

DEVELOPER'S CERTIFICATE
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF A TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS.
 DATE: 9-5-18

BOHLER ENGINEERING
 CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

CORPORATE OFFICE: WARRHEN NJ
 OFFICES: SOUTH BRIDGE CT, ALBANY NY, CHAMONT PA, CENTER VALLEY PA, FORT LAUDERDALE FL, FORT WORTH TX, GREENSBORO NC, HARRISBURG PA, HUNTSVILLE AL, JENKINS VA, LEXINGTON VA, RICHMOND VA, WASHINGTON DC

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

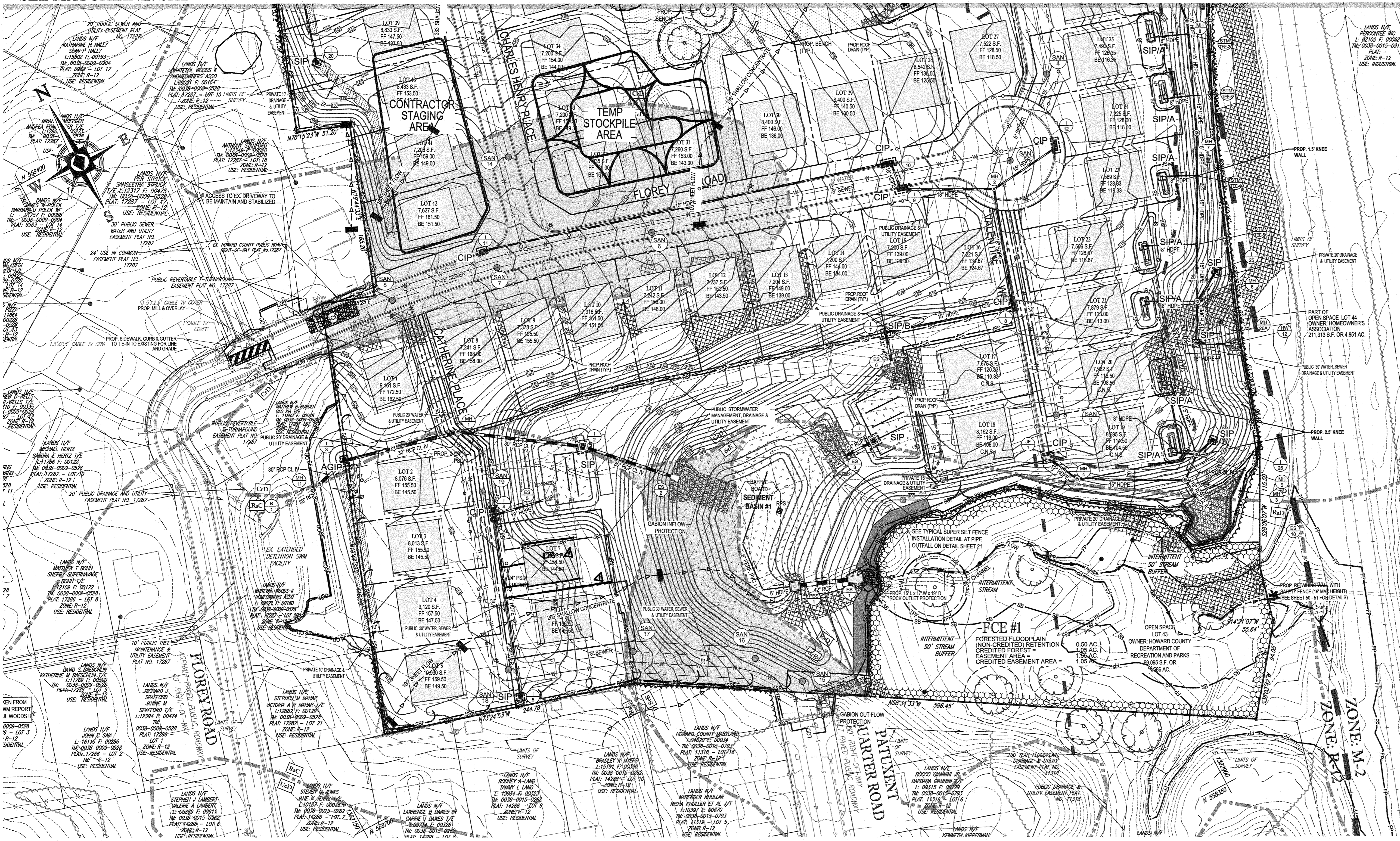
PROJECT NO: MD152015
 DRAWN BY: AVS
 CHECKED BY: BRB
 DATE: 08/29/18
 SCALE: 1" = 50'
 CAD I.D.: OAS

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9
 PARCELS 756 & 340
 HOWARD COUNTY

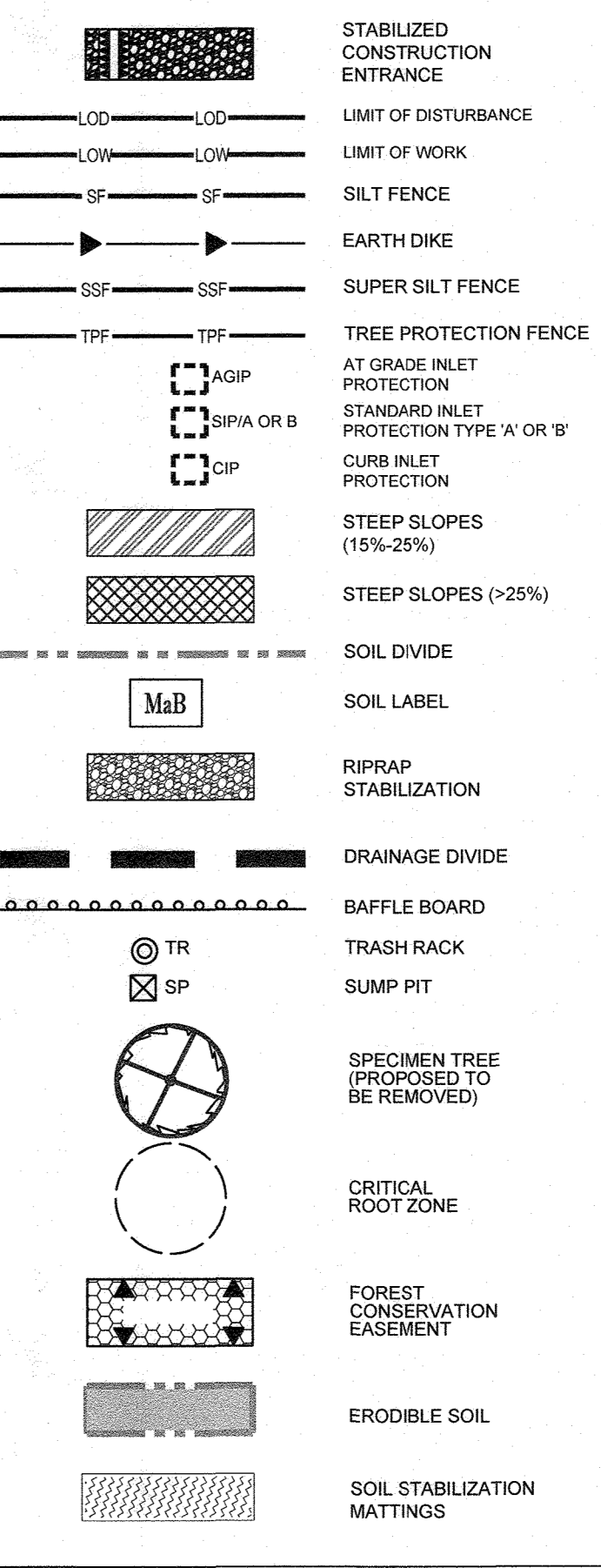
BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 10088
 DATE: 10/11/18

PHASE I EROSION & SEDIMENT CONTROL PLAN
 SHEET NUMBER: 12 of 51
 AS-BUILT



EROSION AND SEDIMENT CONTROL LEGEND



EROSION AND SEDIMENT CONTROL QUANTITIES (PROJECT TOTAL)

TOTAL AREA OF DISTURBANCE (LOD):	14.71 AC
SILT FENCE:	862 LF
SUPER SILT FENCE:	5,816 LF
STANDARD INLET PROTECTION:	12 EA
CURB INLET PROTECTION:	11 EA
AT GRADE INLET PROTECTION:	7 EA
A-2 EARTH DIKE:	2,504 LF
TREE PROTECTION FENCE:	3,700 LF
12" HOPE:	1,659 LF
15" HOPE:	259 LF
18" HOPE:	238 LF
24" RCP:	31 LF
24" HOPE:	258 LF
30" RCP:	348 LF
42" RCP:	45 LF
TOTAL CUT =	50,951 CY
TOTAL FILL =	59,850 CY
TOTAL EXPORT =	8,899 CY

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

FOR REVISION ONLY
B. B. ROWE
skt/19

- NOTE:**
- CONTRACTOR TO PROVIDE SAME DAY (IMMEDIATE) STABILIZATION FOR ALL LOD AREAS OUTSIDE THE SILT FENCE OR SUPER SILT FENCE.
 - THE CONTRACTOR IS RESPONSIBLE FOR PUMPING ALL STANDING WATER THROUGH A FILTERING DEVICE TO A CLEAR WATER OUT FALL WITHIN 24 HOURS OF A RAINFALL EVENT.

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

- ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE.
- INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. PAGE 4.2.3. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

INTERNAL DIKE NOTE

CONTRACTOR TO PROVIDE ORANGE BLAZE FENCE ALONG ALL DIKES INTERNAL TO THE L.O.D. WITH INTERMITTENT MOUNTABLE BERMS WHERE NEEDED FOR CONSTRUCTION TRAFFIC.

SOILS TABLE

SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR
C/D	Croom and Evesboro soils, 10 to 15 percent slopes	C	NO	0.32
RaC	Russell fine sandy loam, 5 to 10 percent slopes	C	NO	0.28
RaD	Russell fine sandy loam, 10 to 15 percent slopes	C	NO	0.28
S/E	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	B	YES	0.32
UcD	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	C	YES	0.43

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
Scott Shanaberger
Professional L.S. # 110849 Exp. Date 4/2/2024
AS-BUILT DATE: 5/10/2022
Shanaberger & Sons

EROSION AND SEDIMENT CONTROL NOTES

- TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
- ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
- PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
- EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
- CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
- IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
- CONTRACTOR TO APPLY PERMANENT SOIL STABILIZATION METHODS FOR ALL NON-STONE AREAS BETWEEN THE INITIAL AND RELOCATED SILT FENCE WILL UTILIZE THE PSSM.



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

APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 10/9/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 10-22-18

APPROVED: CHIEF DIVISION OF LAND DEVELOPMENT
DATE: 10-11-18

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER: *Brandon R. Rowe* DATE: 10/30/18

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER: *Q. V. Rowe* DATE: 9-5-18

GEODETTIC SURVEY CONTROL

GEODETTIC SURVEY CONTROL - 38E1
ELEV. 32.408'
N 557,794.508
E 1,393,570.083

GEODETTIC SURVEY CONTROL - 0043
ELEV. 189.491'
N 558,479.021
E 1,386,642.122

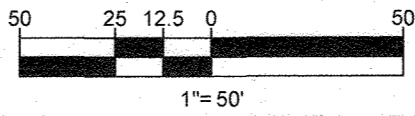
OWNER: ELK RIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
ELLCOTT CITY, MD 21042
PHONE: (410) 720-3021

DEVELOPER: ELK RIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SUBDIVISION NAME: ELK RIDGE WOODS
SECTION/AREA: N/A
DEED #: 1117103197 & 1117500393

PREVIOUS FILE NO.: ECP-16-008 P-17-001
F-05-094 S-16-001
CONTR. 14-4220-D S-03-02
WP-16-150 P-04-11



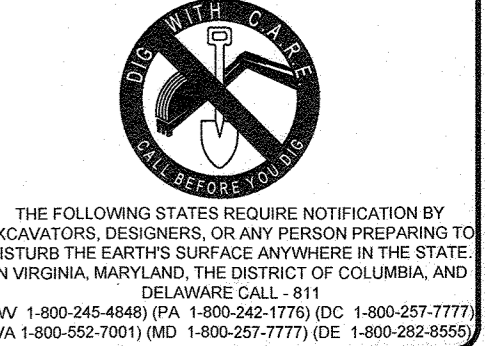
BOHLER ENGINEERING

CORPORATE OFFICE:
WYOMING
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

BRIDGEVILLE, PA
SOUTH BOROUGHS, MA
ALBANY, NY
CHALFONT, PA
TOWSON, MD
WARRINGTON, VA
PITTSBURGH, PA
TAMPA, FL
INDIANAPOLIS, IN

REVISIONS

REV	DATE	COMMENT	BY
Δ	4/14/19	REVISED LOTS 6 & 7 LOT LINES PER COMMENTS	AVG



NOT APPROVED FOR CONSTRUCTION

PROJECT NO: MD152015
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 08/29/18
SCALE: 1" = 50'
CAD I.D.: OBS

FINAL ROAD CONSTRUCTION PLAN

FOR
ELK RIDGE WOODS
LOTS 1-42 & OPEN SPACE LOTS 43 & 44
LOCATION OF SITE
5920 FLOREY ROAD
ELK RIDGE, MD
1ST ELECTION DISTRICT
TAX MAP 38, GRID 9,
PARCELS 756 & 340
HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
M.D. LICENSE NO. 40888

SHEET TITLE:
PHASE II EROSION & SEDIMENT CONTROL PLAN

SHEET NUMBER:
14 of 51

AS-BUILT



SEE MATCHLINE: SHEET 14

EROSION AND SEDIMENT CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF DISTURBANCE
- LIMIT OF WORK
- SILT FENCE
- EARTH DIKE
- SUPER SILT FENCE
- TREE PROTECTION FENCE
- STANDARD INLET PROTECTION TYPE 'A' OR 'B'
- CURB INLET PROTECTION
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
- SOIL DIVIDE
- SOIL LABEL
- RIPRAP STABILIZATION
- DRAINAGE DIVIDE
- BAFFLE BOARD
- TRASH RACK
- SUMP PIT
- SPECIMEN TREE (PROPOSED TO BE REMOVED)
- CRITICAL ROOT ZONE
- FOREST CONSERVATION EASEMENT
- ERODEABLE SOIL
- SOIL STABILIZATION MATTING

BOHLER ENGINEERING

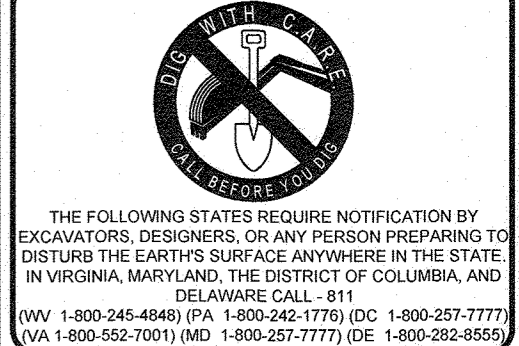
CORPORATE OFFICE:
 WYOMING, NJ
 SOUTH BRIDGE, MA
 TOWSON, MD
 ALBANY, NY
 CHARLESTON, SC
 CHATEAUX, VA
 WARRINGTON, VA
 WASHINGTON, VA
 WILMINGTON, DE
 WILMINGTON, PA
 WILMINGTON, PA
 WILMINGTON, PA

SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

CIVIL & CONSULTING ENGINEERS

REVISIONS

REV	DATE	COMMENT	BY



NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: 1" = 50'
 CAD I.D.: 0B3

FINAL ROAD CONSTRUCTION PLAN

FOR

ELKRIDGE WOODS
 LOTS 1-42 &
 OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD,
 SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 43088

SHEET TITLE:
**PHASE II
 EROSION &
 SEDIMENT
 CONTROL PLAN**

SHEET NUMBER:
15 of 51

AG-BUILT

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

- 1) ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE.
- 2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE INSPECTOR FOR ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

EROSION AND SEDIMENT CONTROL NOTES

1. TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
2. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
4. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
5. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
6. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
7. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
8. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
9. CONTRACTOR TO APPLY PERMANENT SOIL STABILIZATION METHODS FOR ALL NON-STONE AREAS BETWEEN THE INITIAL AND RELOCATED SILT FENCE WILL UTILIZE THE FRSMA.

EROSION AND SEDIMENT CONTROL QUANTITIES (PROJECT TOTAL)

TOTAL AREA OF DISTURBANCE (LOD): 14.71 AC.
 SILT FENCE: 862 LF
 SUPER SILT FENCE: 5,816 LF
 STANDARD INLET PROTECTION: 12 EA
 CURB INLET PROTECTION: 11 EA
 AT GRADE INLET PROTECTION: 7 EA
 A-2 EARTH DIKE: 2,804 LF
 TREE PROTECTION FENCE: 3,700 LF
 12" HDPE: 15 LF
 15" HDPE: 1,859 LF
 18" HDPE: 289 LF
 24" HDPE: 238 LF
 30" HDPE: 258 LF
 42" HDPE: 346 LF

TOTAL CUT = 50,951 CY
 TOTAL FILL = 59,650 CY
 TOTAL EXPORT = 8,699 CY

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BARRIAGE MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

SOILS TABLE

SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR
C/D	Croom and Evesboro soils, 10 to 15 percent slopes	C	NO	0.32
RaC	Russell fine sandy loam, 5 to 10 percent slopes	C	NO	0.28
RdE	Russell fine sandy loam, 10 to 15 percent slopes	C	NO	0.28
SE	Urban land-Chillum-Beltville complex, 5 to 15 percent slopes	B	YES	0.32
UcD	Urban land-Chillum-Beltville complex, 5 to 15 percent slopes	C	YES	0.43

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

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 10/3/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF DIVISION OF LAND DEVELOPMENT DATE: 10-22-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-11-18

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER: BRANDON R. ROWE, P.E.
 DATE: 9/3/18

DEVELOPER'S CERTIFICATE

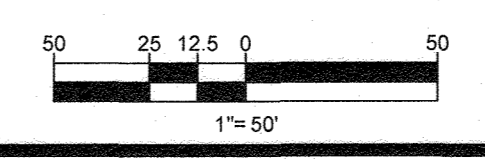
"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION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

SIGNATURE OF DEVELOPER: [Signature]
 DATE: 9-5-18

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

S. Scott Shanaberg
 Professional L.S. # 10849 Exp. Date 4/20/24
 AS-BUILT DATE: 5/16/2022

Shanaberg & Larie
 PROFESSIONAL LAND SURVEYORS



SUBDIVISION NAME: ELKRIDGE WOODS SECTION/AREA: N/A DEED # 1161700197 & 1117500393

PREVIOUS FILE NO.: ECP-16-008 S-15-001 CONTR. 14-4220-D S-03-02 WP-16-150

OWNER: ELKRIDGE WOODS L.C. 5074 DORSEY HALL ROAD, SUITE 205 ELLICOTT CITY, MD 21042 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C. 5074 DORSEY HALL ROAD, SUITE 205 COLUMBIA, MD 21042 CONTACT: JASON VAN KIRK PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12 PARCELS: 756 & 340

1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION: BRANDON R. ROWE 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. 43088, EXPIRATION DATE: 7/31/2019.

SOILS TABLE				
SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR
Cd	Croom and Evesboro soils, 10 to 15 percent slopes	C	NO	0.32
RaC	Russell fine sandy loam, 5 to 10 percent slopes	C	NO	0.28
RaD	Russell fine sandy loam, 10 to 15 percent slopes	C	NO	0.28
SrE	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	B	YES	0.32
UdD	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	C	YES	0.43

BOHLER ENGINEERING

CORPORATE OFFICE:
WARREN, NJ

OFFICES:
 BOSTON, MA
 CHICAGO, IL
 COLUMBIA, MD
 DALLAS, TX
 DENVER, CO
 FORT LAUDERDALE, FL
 HOUSTON, TX
 KANSAS CITY, MO
 LOS ANGELES, CA
 MIAMI, FL
 NEW YORK, NY
 PHILADELPHIA, PA
 RICHMOND, VA
 TAMPA, FL

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS			
REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No. MD152015
 DRAWN BY: AVG
 CHECKED BY: BRB
 DATE: 08/29/18
 SCALE: 1" = 100'
 CAD I.D.: OAS

FINAL ROAD CONSTRUCTION PLAN

FOR
ELKRIDGE WOODS
 LOTS 1-12 &
 OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
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 HOWARD COUNTY

BOHLER ENGINEERING

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 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 6082

SHEET TITLE:
**PHASE I
 EROSION &
 SEDIMENT CONTROL
 DRAINAGE AREA MAP**

SHEET NUMBER:
16 of 51

AS-BUILT

LEGEND

- LOD — LOD — LIMIT OF DISTURBANCE
- — — — — DRAINAGE AREA DIVIDE
- STEEP SLOPES >25%
- (D.A.1) DRAINAGE AREA DESIGNATION
- - - - - TO PATH

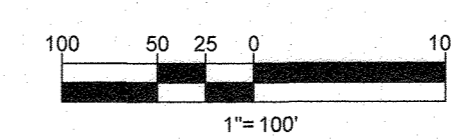
EROSION AND SEDIMENT CONTROL PHASE I DRAINAGE AREAS

- 1 DRAINAGE AREA TO SEDIMENT TRAP #1
TOTAL AREA: 169,293 S.F. OR 3.06 AC.
(INCLUDES D.A. 5)
- 2 DRAINAGE AREA TO SEDIMENT BASIN #1
TOTAL AREA: 292,287 S.F. OR 6.71 AC.
(INCLUDES D.A. 4, 6, 7, 8, & 9)
- 3 OFFSITE DRAINAGE AREA WITHIN LOD TO PSD PIPE (BYPASS)
TOTAL AREA: 300,084 S.F. OR 6.89 AC.
- 4 OFFSITE DRAINAGE AREA TO EARTH DIKE B2 (BYPASS)
TOTAL AREA: 27,246 S.F. OR 0.63 AC.
- 5 DRAINAGE AREA TO EARTH DIKE
TOTAL AREA: 97,960 S.F. OR 2.25 AC.
- 6 DRAINAGE AREA TO EARTH DIKE
TOTAL AREA: 60,976 S.F. OR 1.40 AC.
- 7 DRAINAGE AREA TO EARTH DIKE
TOTAL AREA: 43,970 S.F. OR 1.01 AC.
- 8 DRAINAGE AREA TO EARTH DIKE
TOTAL AREA: 35,299 S.F. OR 0.81 AC.
- 9 DRAINAGE AREA TO EARTH DIKE
TOTAL AREA: 26,550 S.F. OR 0.66 AC.
- 10 DRAINAGE AREA TO SUPER SILT FENCE
TOTAL AREA: 141,992 S.F. OR 3.26 AC.

PRESENT ZONING DESIGNATION = R-12

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

Scott Shanaberger
 G. Scott Shanaberger
 Professional L.S. # 10849 Exp. Date 4/2/2024
 AS-BUILT DATE: 9/14/2022
 Shanaberger & Lahe



SUBDIVISION NAME: ELKRIDGE WOODS SECTION/AREA: N/A DEED # 11017700197 & 1117500393	TAX MAP: 38 GRID: 9 ZONED: R-12 PARCELS: 756 & 340 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE No.: ECP-16-008 P-17-001 F-06-094 S-16-001 CONTR. 14-4220-D S-03-02 WP-16-150 P-04-11	PROFESSIONAL CERTIFICATION I, BRANDON R. ROWE, 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. 40688, EXPIRATION DATE: 7/3/2019



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

Scott Shanaberger
 9/13/18
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
James
 10/3/2018
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Kevin
 10-22-18
 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT
 10-11-18
 DATE

ENGINEER'S CERTIFICATE

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

Brandon R. Rowe
 9/20/18
 DATE

SIGNATURE OF ENGINEER
 BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

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

Brandon R. Rowe
 9-5-18
 DATE

SIGNATURE OF DEVELOPER

SOILS TABLE				
SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR
CrD	Croom and Evesboro soils, 10 to 15 percent slopes	C	NO	0.32
RaC	Russell fine sandy loam, 5 to 10 percent slopes	C	NO	0.28
RaD	Russell fine sandy loam, 10 to 15 percent slopes	C	NO	0.28
SrE	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	B	YES	0.32
UcD	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	C	YES	0.43

LEGEND	
	LIMIT OF DISTURBANCE
	DRAINAGE AREA DIVIDE
	STEEP SLOPES >25%
	DRAINAGE AREA DESIGNATION
	TO PATH
	SOIL STABILIZATION MATTINGS

EROSION AND SEDIMENT CONTROL PHASE II DRAINAGE AREAS

- SB-1** DRAINAGE AREA TO SEDIMENT BASIN #1
TOTAL AREA: 352,836 S.F. OR 8.10 AC.
- ST-1** DRAINAGE AREA TO MODIFIED SEDIMENT TRAP #1
TOTAL AREA: 174,240 S.F. OR 4.0 AC.
- SSF** DRAINAGE AREA TO SUPER SILT FENCE
TOTAL AREA: 163,142 S.F. OR 3.75 AC.
- OS-1A** DRAINAGE AREA TO EX. POND
TOTAL AREA: 263,448 S.F. OR 6.05 AC.

PRESENT ZONING DESIGNATION = R-12

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
G. Scott Shanaberger
 G. Scott Shanaberger
 Professional L.S. # 10849 Exp. Date 4/2/2024
 AS-BUILT DATE: 5/16/2022
 Shanaberger & Lane



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

Brandon R. Rowe
 HOWARD SCD DATE: 9/3/18

APPROVED: DEPARTMENT OF PUBLIC WORKS
James DATE: 10/9/2018
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Kate L. Lane DATE: 10-22-18
 CHIEF, DIVISION OF LAND DEVELOPMENT

Paul DATE: 10-11-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

ENGINEER'S CERTIFICATE

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

Brandon R. Rowe DATE: 9/30/18
 SIGNATURE OF ENGINEER DATE

DEVELOPER'S CERTIFICATE

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

Brandon R. Rowe DATE: 9-5-18
 SIGNATURE OF DEVELOPER DATE

SUBDIVISION NAME: ELKRIDGE WOODS
 SECTION/AREA: N/A
 DEED # 11617700197 & 1117500393

PREVIOUS FILE No.: ECP-16-008 P-17-001
 F-05-094 S-16-001
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SHEET TITLE:
**PHASE II
 EROSION &
 SEDIMENT CONTROL
 DRAINAGE AREA MAP**

SHEET NUMBER:
17 of 51

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, 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. 40868, EXPIRATION DATE: 7/3/2019.

AS-BUILT

BOHLER ENGINEERING

CORPORATE OFFICE:
 WARREN, NJ

OTHER OFFICES:
 BOWLING GREEN, OH
 CHICAGO, IL
 COLUMBIANA, OH
 COLUMBUS, OH
 DAYTON, OH
 FORT LAUDERDALE, FL
 GAITHERSBURG, MD
 GREENSBORO, NC
 HUNTSVILLE, AL
 KANSAS CITY, MO
 LITTLE ROCK, AR
 MEMPHIS, TN
 NASHVILLE, TN
 RICHMOND, VA
 TAMPA, FL
 WASHINGTON, DC
 WASHINGTON, VA

SURVEYORS
 CIVIL & CONSULTING ENGINEERS

PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BRB
 DATE: 08/29/18
 SCALE: 1" = 100'
 CAD I.D.: OES

FINAL ROAD CONSTRUCTION PLAN

FOR
ELKRIDGE WOODS
 LOTS 1-42 &
 OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
 5920 FLOREY ROAD
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 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
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BOHLER ENGINEERING

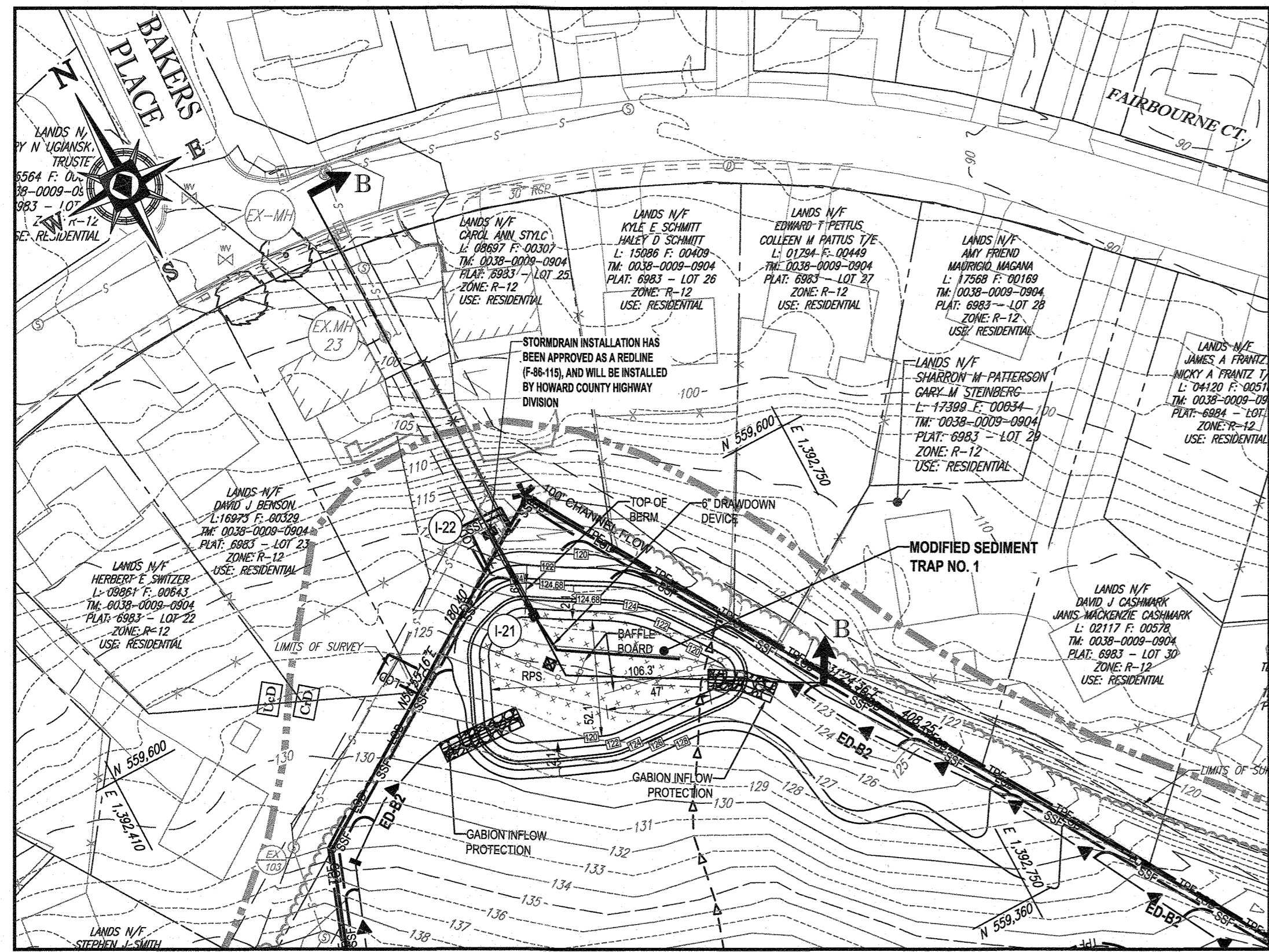
601 DULANEY VALLEY ROAD,
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 TOWSON, MARYLAND 21284
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 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40868

BR

10/15/2018 10:00 AM (PRINTED) PLAN SET/PLAN ROAD CONSTRUCTION PLAN/AS-BUILDING PRINTED BY: AGARDA 8:28:18 9:255 PM LUT SAID BY: AGARDA



MODIFIED SEDIMENT TRAP No.1

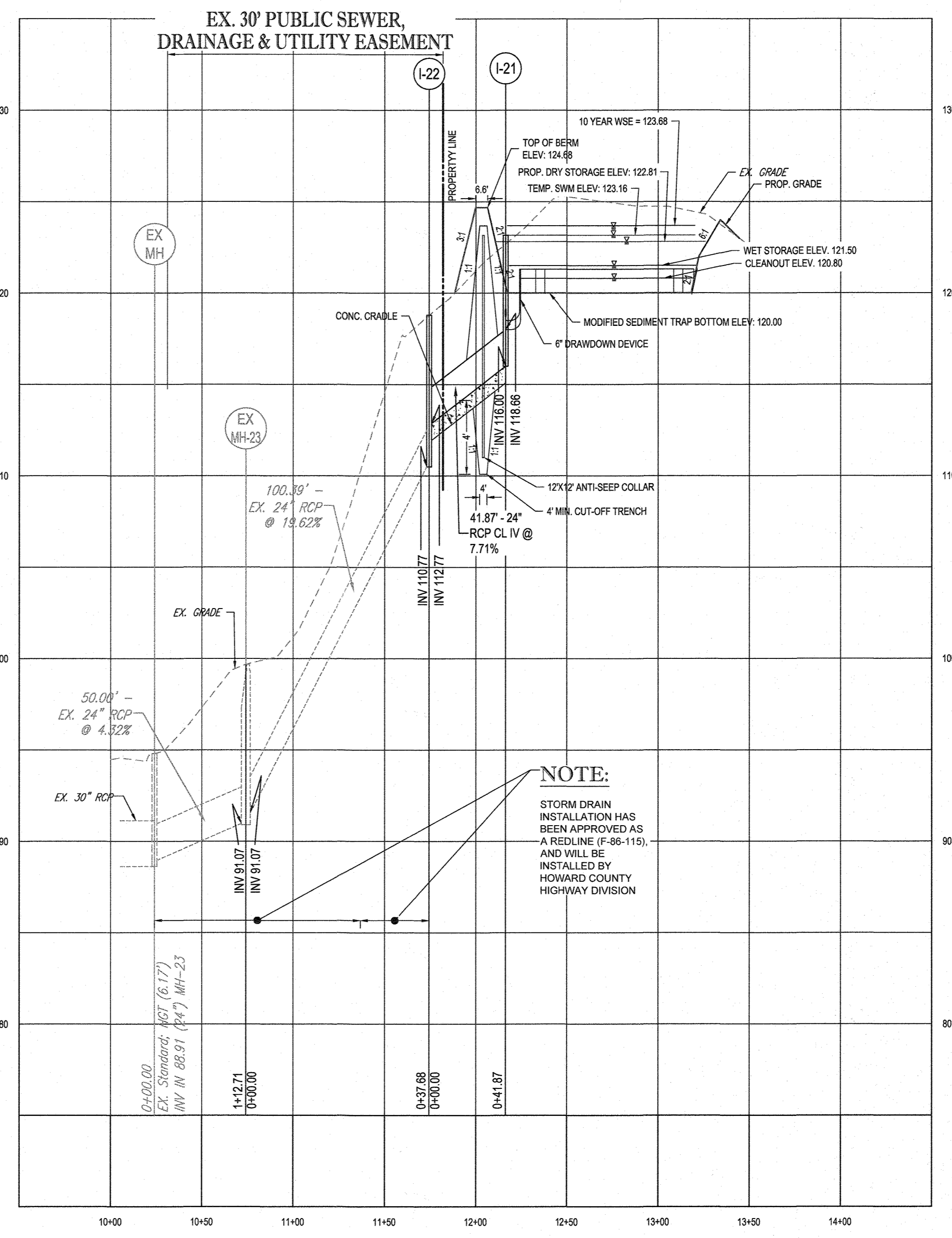
SCALE: 1" = 50'

MODIFIED SEDIMENT TRAP

MODIFIED SEDIMENT TRAP, TRAP NO. 1		
DRAINAGE AREA - INITIAL	3.06	ACRES
DRAINAGE AREA - INTERIM	4.0	ACRES
DRAINAGE AREA - FINAL	4.0	ACRES
TOTAL STORAGE REQUIRED	14,400	CF
TOTAL STORAGE PROVIDED	14,796	CF
WET STORAGE REQUIRED	7,200	CF
WET STORAGE PROVIDED	7,402	CF
DRY STORAGE REQUIRED	7,200	CF
DRY STORAGE PROVIDED	7,394	CF
MODIFIED SEDIMENT BOTTOM ELEVATION	120.0	FT
MODIFIED SEDIMENT BOTTOM DIMENSIONS	106 x 56	FT x FT
RISER CREST (DRY STORAGE) ELEVATION	122.80	FT
OUTLET (WET STORAGE) ELEVATION	121.50	FT
CLEANOUT ELEVATION	120.80	FT
TOP OF EMBANKMENT ELEVATION	124.50	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	6.7	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)	RCP	
RISER DIAMETER	N/A	IN
BARREL DIAMETER	24	IN
TRASH RACK DIAMETER	N/A	IN
TRASH RACK HEIGHT	N/A	IN
ANTI-SEEP COLLAR DIMENSIONS	N/A	FT
OUTLET PROTECTION - LENGTH	N/A	FT
OUTLET PROTECTION - WIDTH	N/A	FT
OUTLET PROTECTION - DEPTH	N/A	FT

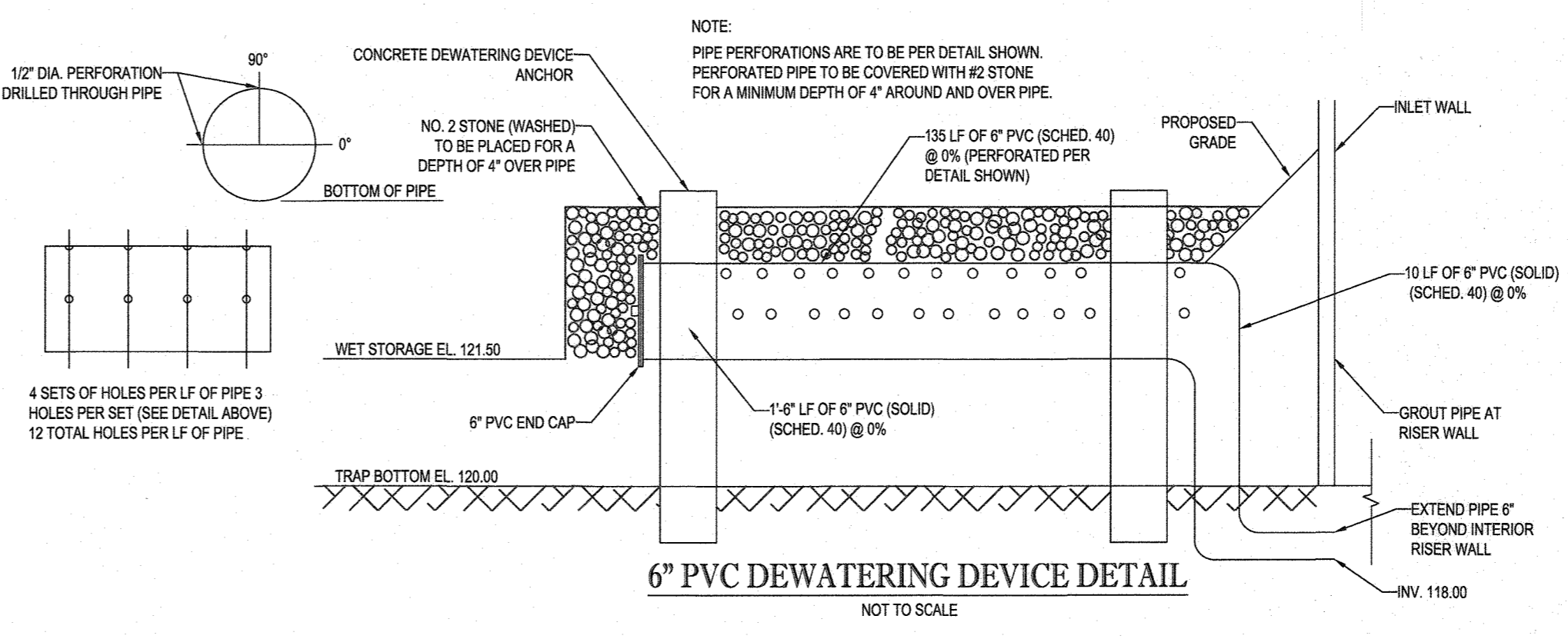
3 OF 3

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



MODIFIED SEDIMENT TRAP #1 - SECTION B-B

SCALE: 1" = 50' HORIZONTAL
 1" = 5' VERTICAL



6" PVC DEWATERING DEVICE DETAIL

NOT TO SCALE

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. Scott Shanberg
 Professional L.S. # 10349 Exp. Date 4/2/2024
 AS-BUILT DATE: 5/16/2022
 Shanberg & Lane



ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 SIGNATURE OF ENGINEER: BRANDON R. ROWE, P.E.
 DATE: 9/30/18

DEVELOPER'S CERTIFICATE
 I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 SIGNATURE OF DEVELOPER: [Signature]
 DATE: 9-5-18

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: [Signature] DATE: 10/3/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 10-22-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 10-11-18

BOHLER ENGINEERING
 CORPORATE OFFICE: WARREN, NJ
 SURVEYORS: BOWNE, MD; SOUTHBRIDGE, MA; ALBANY, NY; CHALFONT, PA; TOWSON, MD; WASHINGTON, VA; FORT LAUDERDALE, FL
 PROJECT MANAGERS: ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS: LANDSCAPE ARCHITECTS

REVISIONS

REV#	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE: CALL 811
 (WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7091) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION
 PROJECT No.: MD152015
 DRAWN BY: AVS
 CHECKED BY: BRB
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: ONS

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 901
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40808
 DATE: 9/30/18

OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SHEET TITLE:
SEDIMENT TRAP PLAN SECTIONS AND DETAILS
 SHEET NUMBER:
19 of 51
 AS-BUILT

SUBDIVISION NAME: ELKRIDGE WOODS
 SECTION/AREA: N/A
 DEED # 11617/00197 & 11175/00393

PREVIOUS FILE No.: ECP-16-008 P-17-001
 S-05-094 S-15-001
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, 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. 40808, EXPIRATION DATE: 7/31/2019.

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

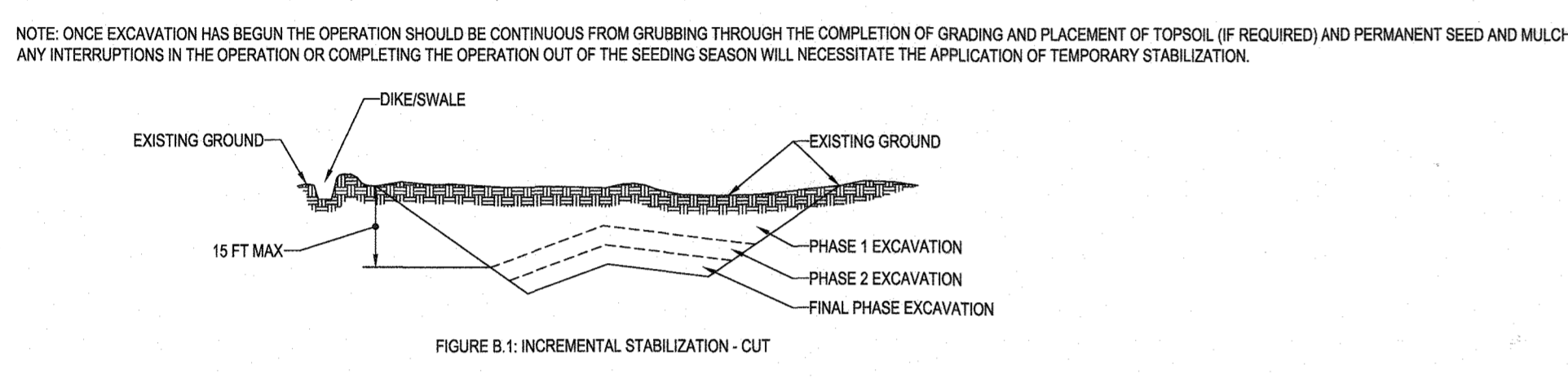
DEFINITION
USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.
PURPOSE
TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.
CONDITIONS WHERE PRACTICE APPLIES
ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS...

EFFECTS ON WATER QUALITY AND QUANTITY
STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL...

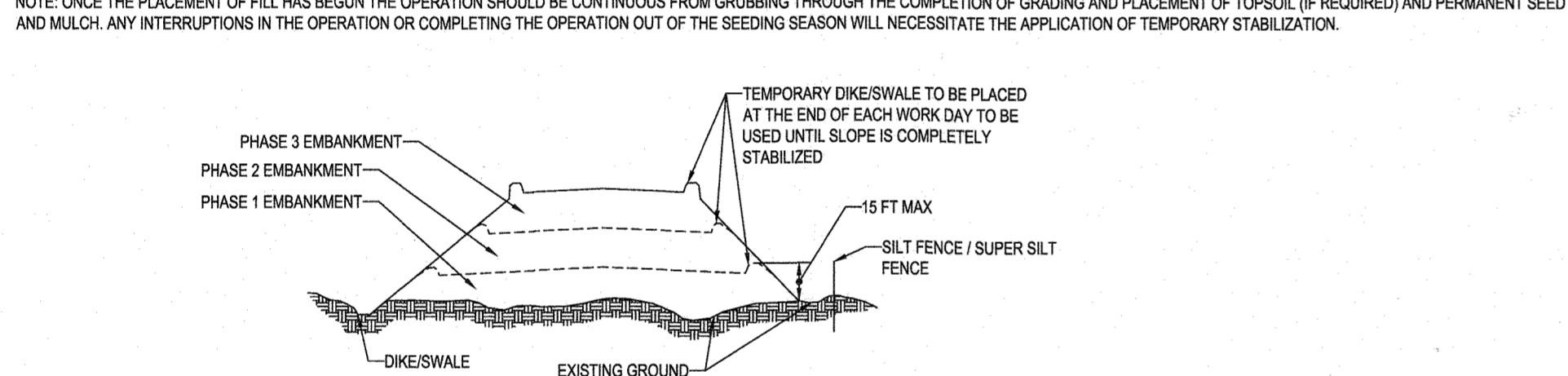
ADJUVANT VEGETATIVE ESTABLISHMENT
INSPECT SEEDING AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

DEFINITION
ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.
PURPOSE
TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.
CONDITIONS WHERE PRACTICE APPLIES
ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT...



INCREMENTAL STABILIZATION - CUT SLOPES
1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT...



INCREMENTAL STABILIZATION - FILL SLOPES
1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT...

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS
DEFINITION
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

SOIL PREPARATION
1. TEMPORARY STABILIZATION
a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT...

TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION...

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.
CONDITIONS WHERE PRACTICE APPLIES
TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

SEEDING
1. SPECIFICATIONS
a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW...

MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY...

TEMPORARY SEEDING SUMMARY
HARDINESS ZONE (from Figure B.3): ZONE 6B
SEED MIXTURE (from Table B.1)

Table with 5 columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, FERTILIZER RATE (10-20-20), LIME RATE.

TEMPORARY SEEDING SUMMARY (continued)
COOL SEASON GRASSES
1. ANNUAL RYEGRASS 40 3/1 - 5/15 0.5"

Table with 5 columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, FERTILIZER RATE (10-20-20), LIME RATE.

SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS...
SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS...

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION
DEFINITION
TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

TEMPORARY STABILIZATION
1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE...

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.
CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

PERMANENT STABILIZATION
1. GENERAL USE
a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE...

PERMANENT SEEDING SUMMARY
HARDINESS ZONE (from Figure B.3): ZONE 6B
SEED MIXTURE (from Table B.3)

PERMANENT STABILIZATION (continued)
2. TURFGRASS MIXTURES
a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES...

B-4-6 STANDARDS AND SPECIFICATIONS FOR SOIL STABILIZATION MATTING
DEFINITION
MATERIAL USED TO TEMPORARILY OR PERMANENTLY STABILIZE CHANNELS OR STEEP SLOPES UNTIL GROUND COVER IS ESTABLISHED.

SOIL STABILIZATION MATTING
1. GENERAL SPECIFICATIONS
a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED...

SOIL STABILIZATION MATTING (continued)
2. SOD INSTALLATION
a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL...

Professional Engineer seal for B. Rowe, Howard County, MD. Includes project details and approval stamps.

Bohler Engineering logo and contact information for various offices and services.

REVISIONS table with columns: REV, DATE, COMMENT, BY.

Professional Engineer seal for B. Rowe, Howard County, MD.

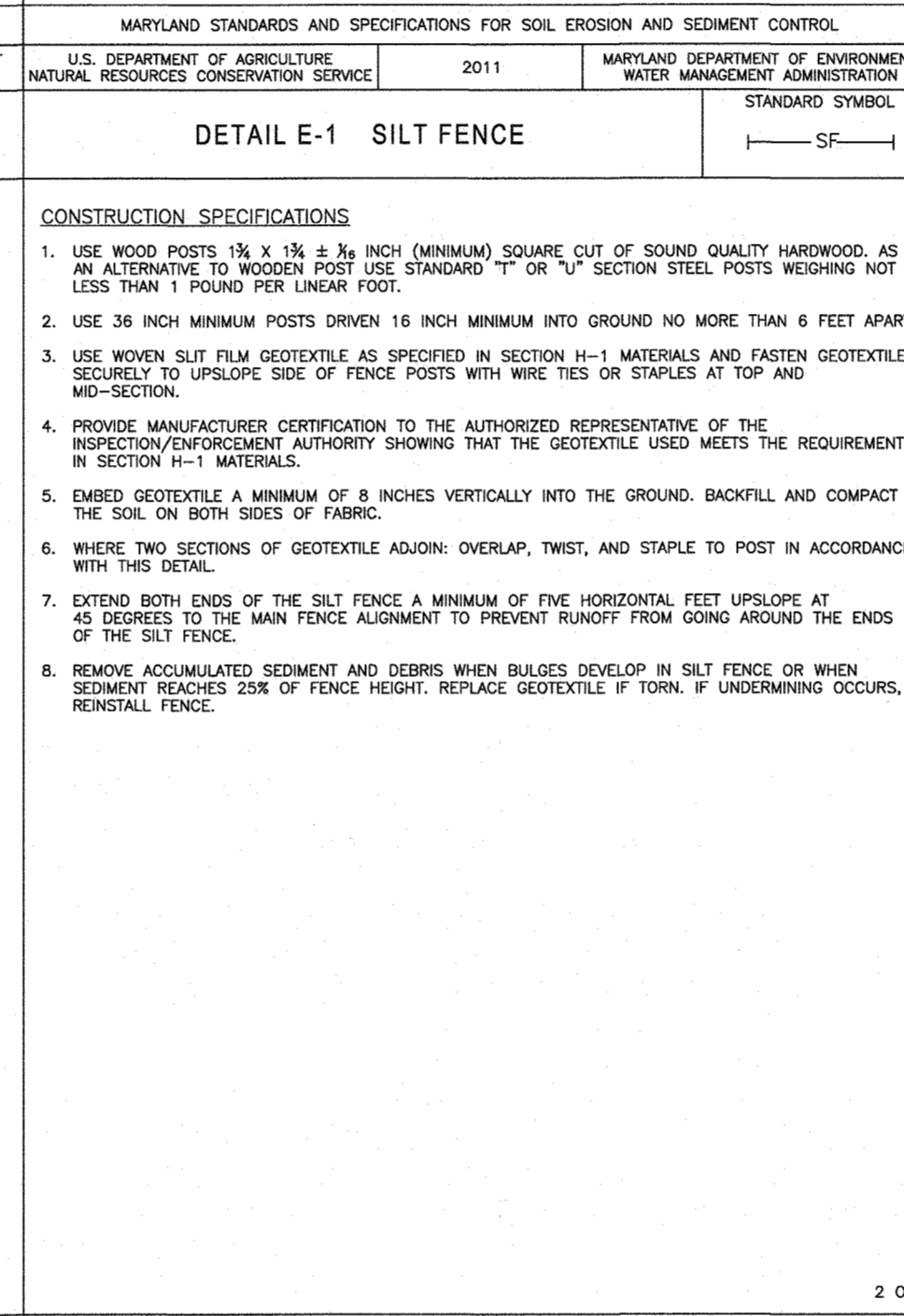
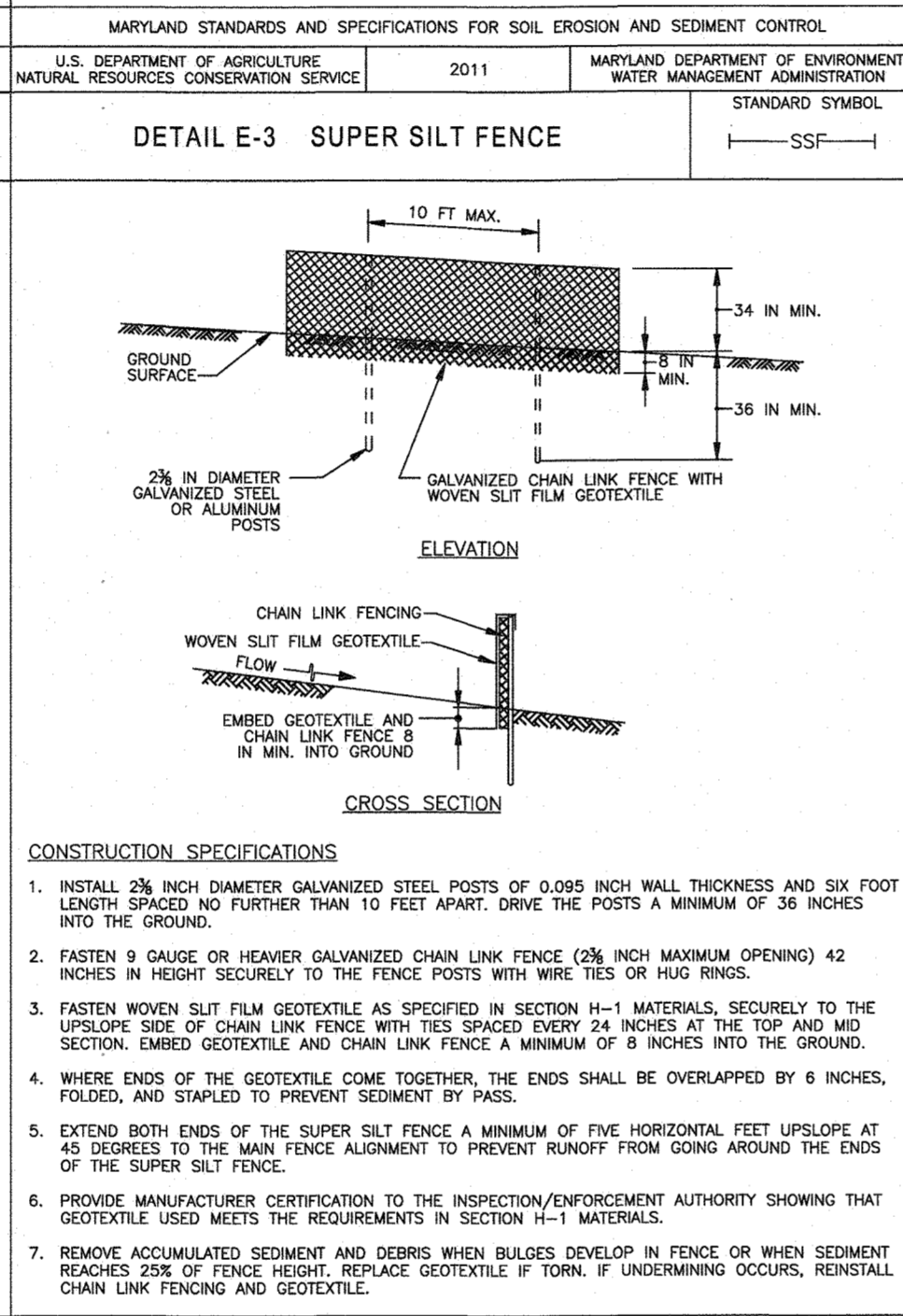
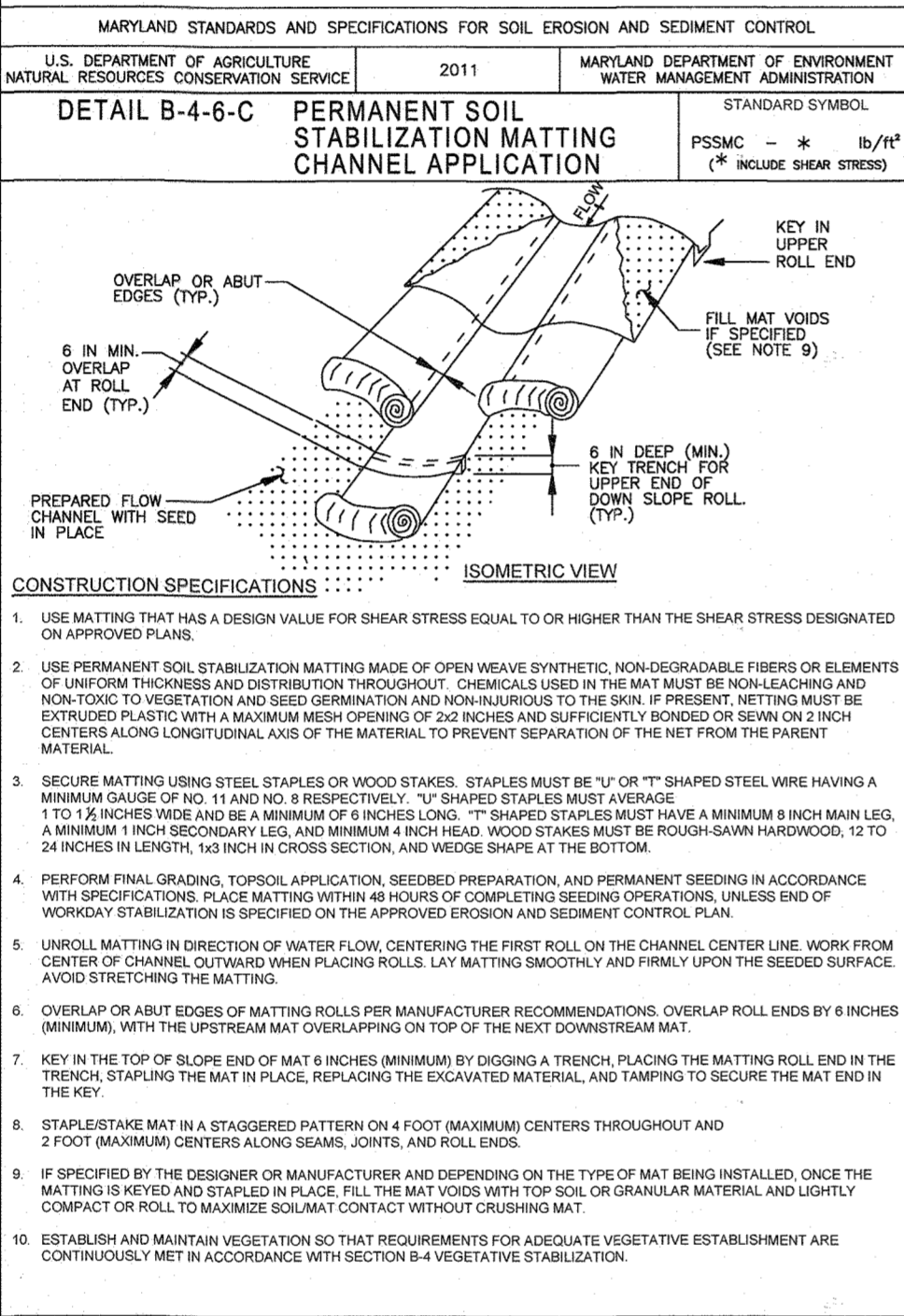
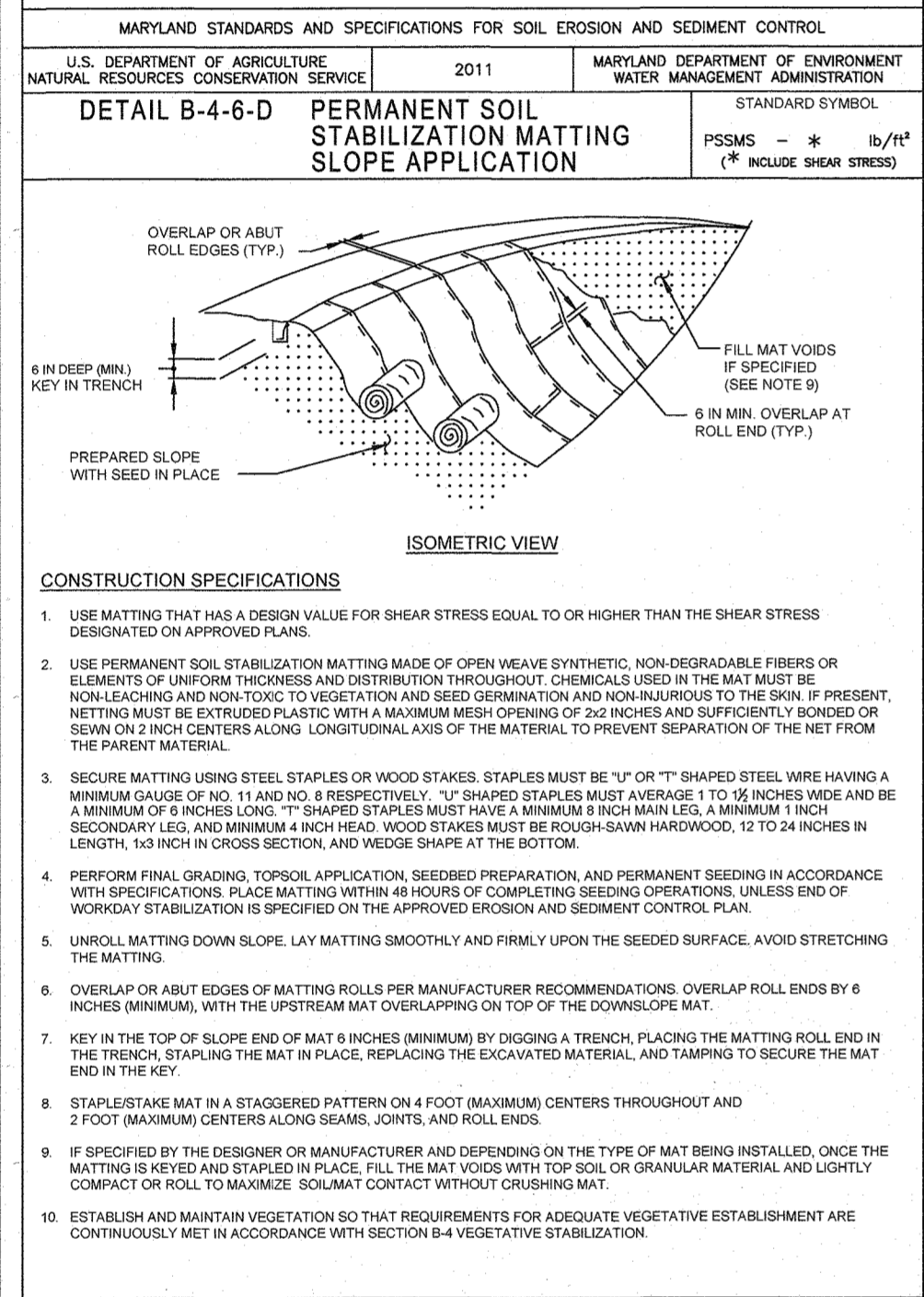
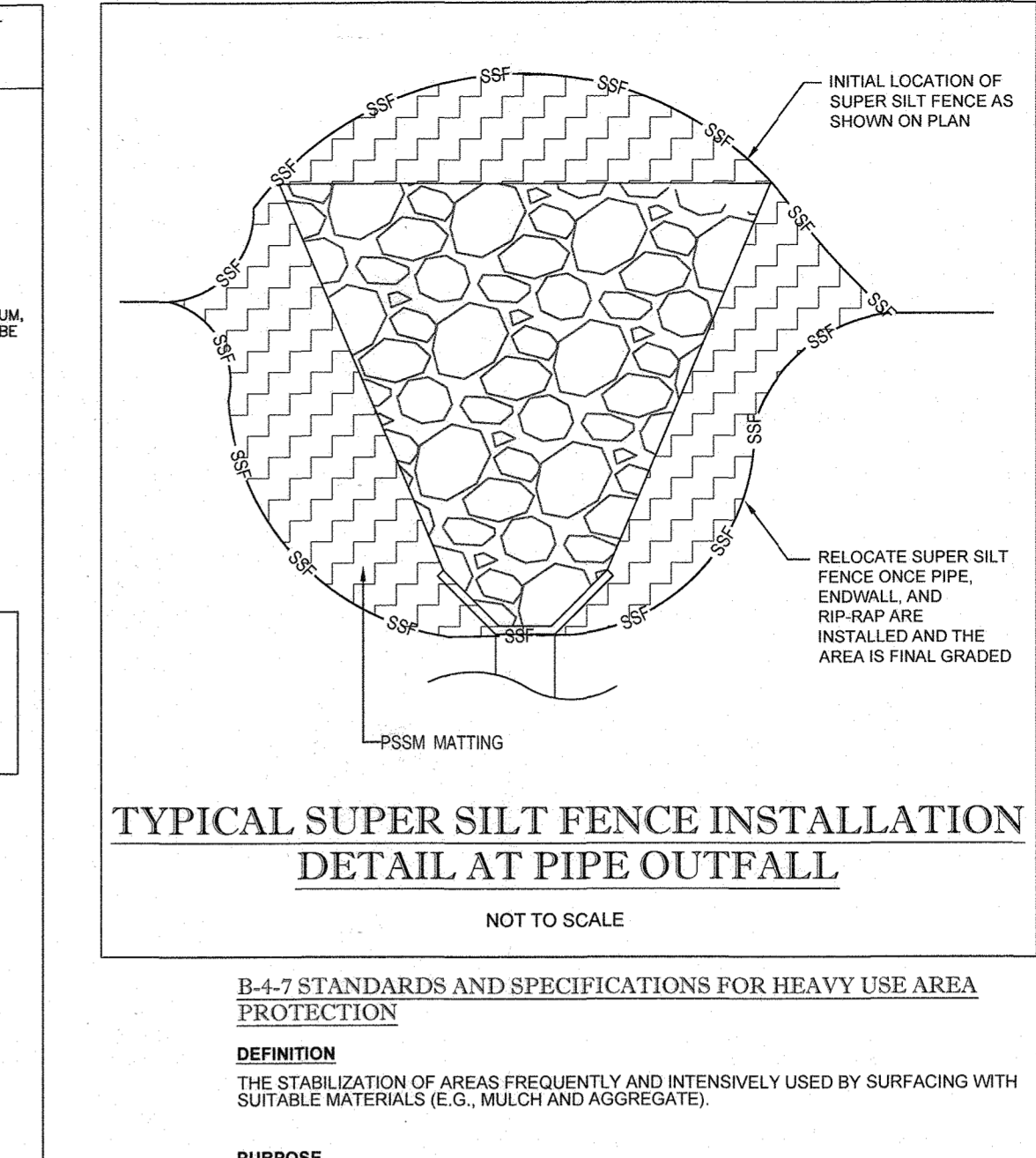
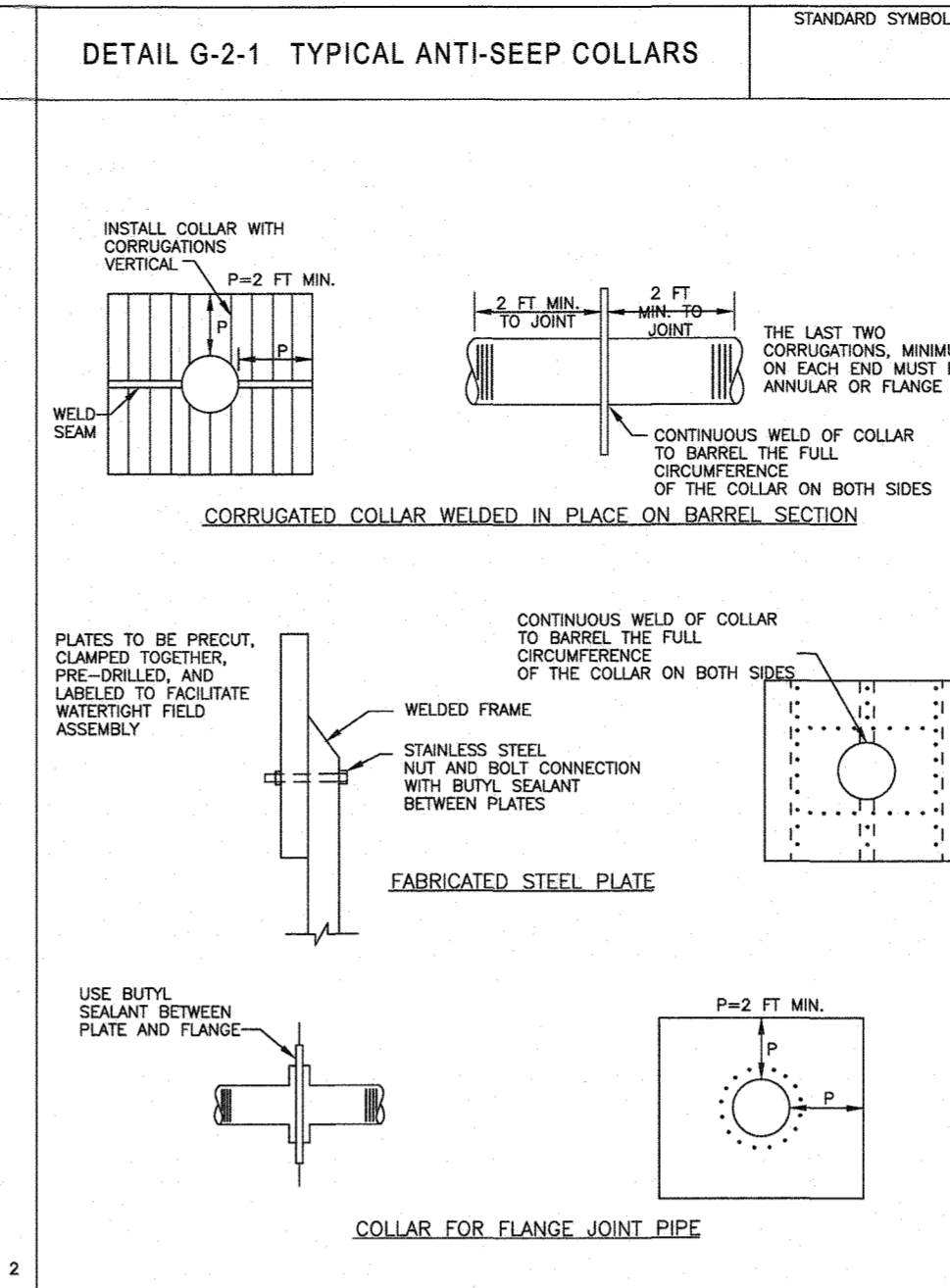
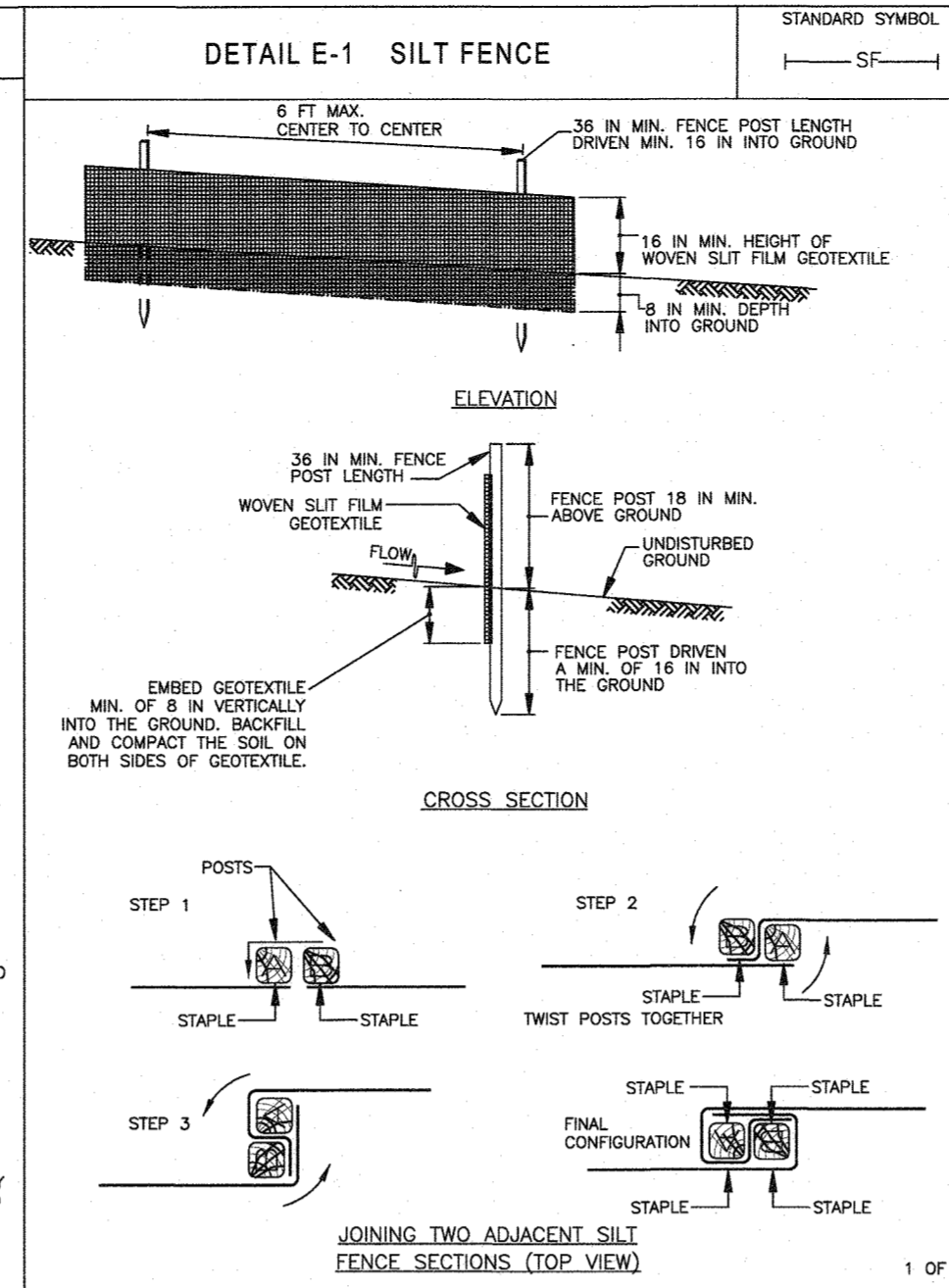
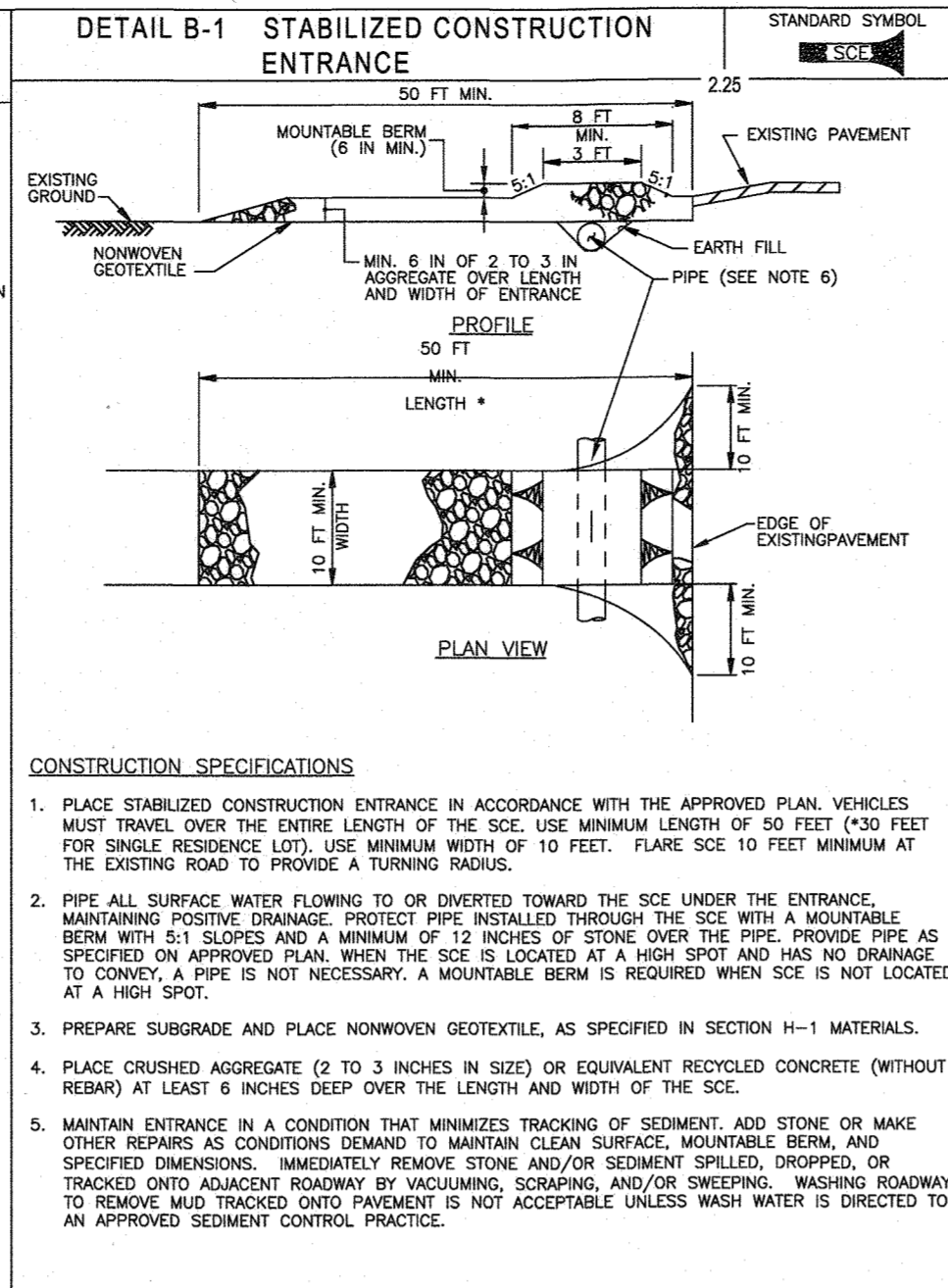
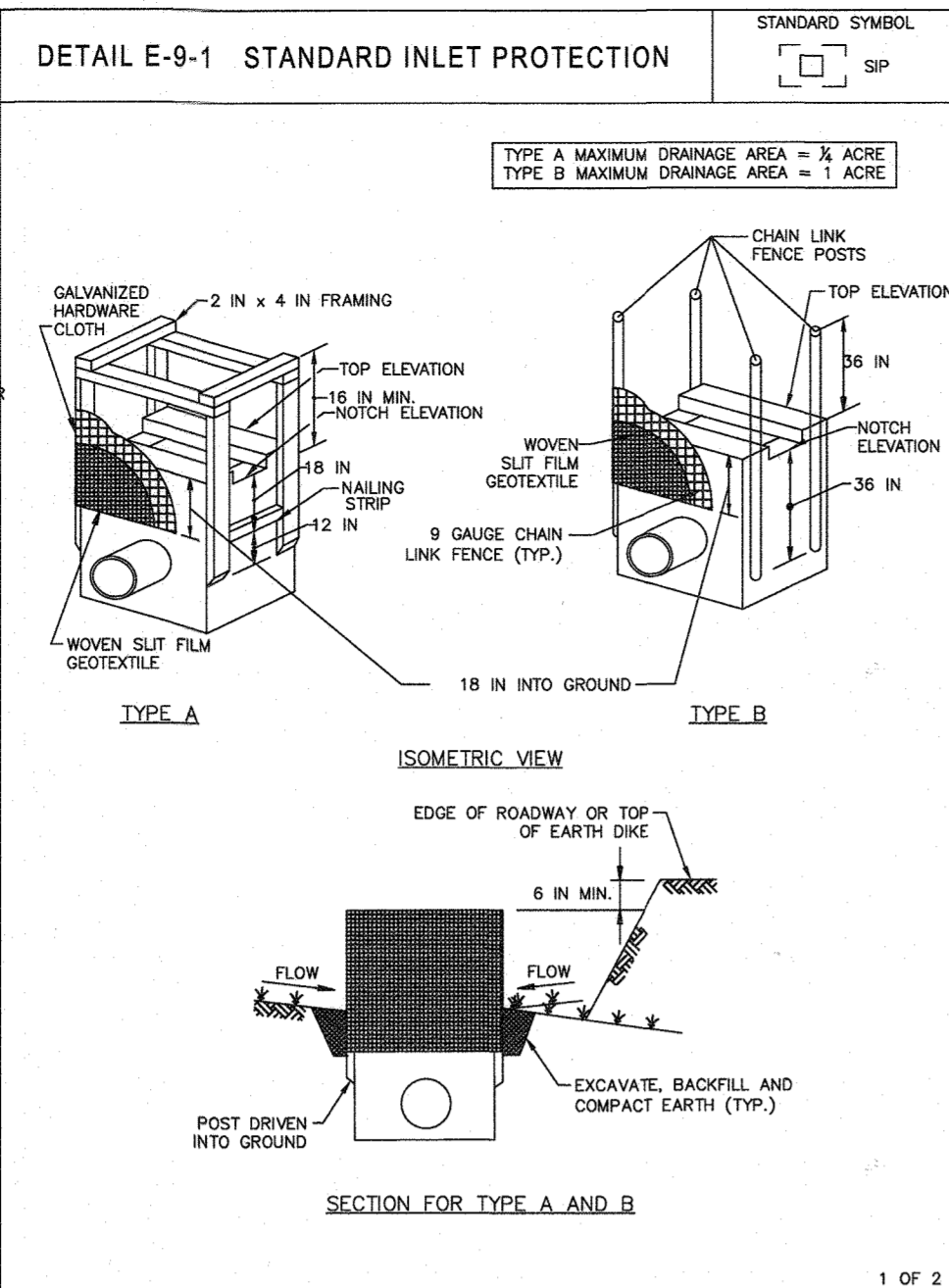
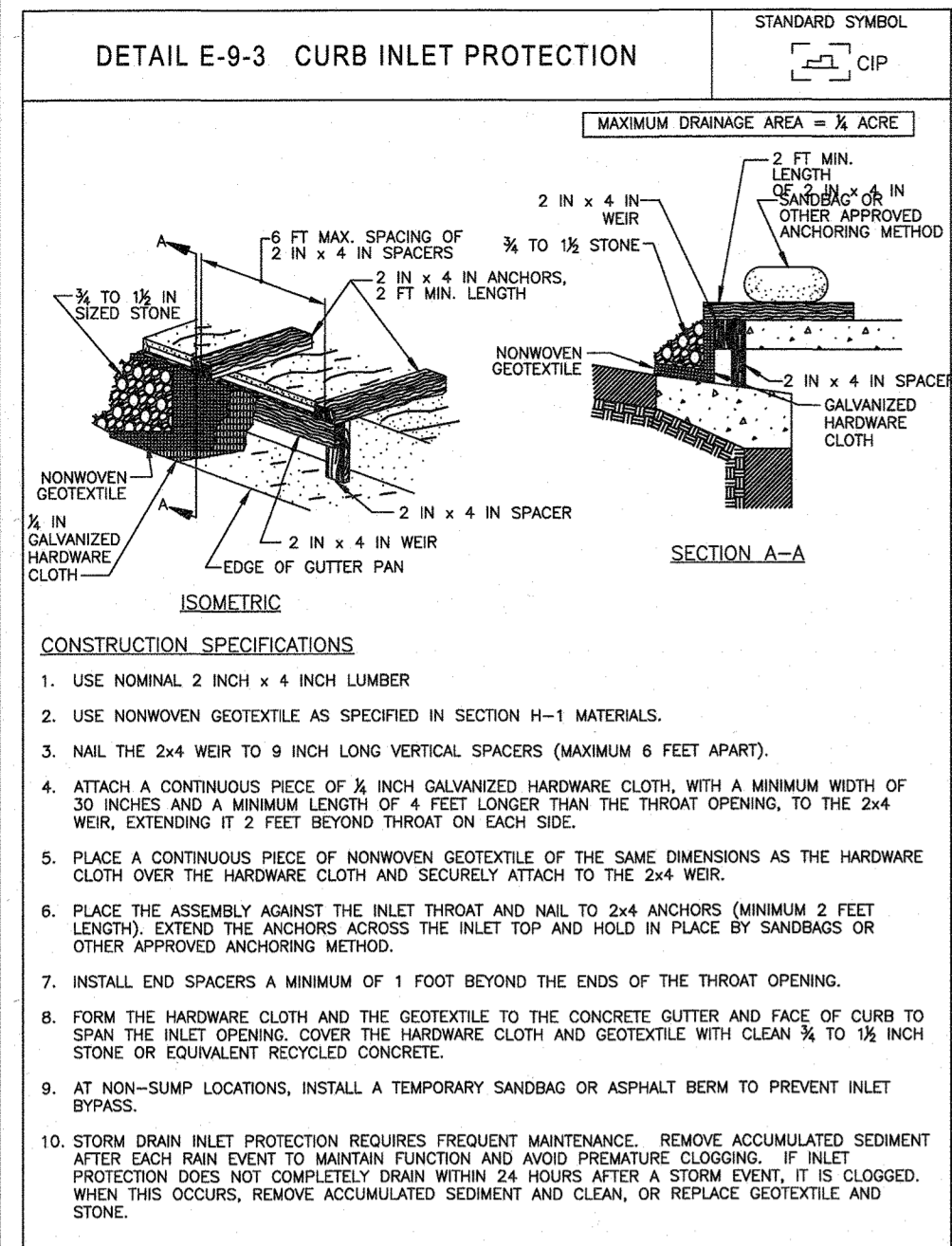
NOT APPROVED FOR CONSTRUCTION stamp.

FINAL ROAD CONSTRUCTION PLAN stamp for ELKRIDGE WOODS.

Professional Engineer seal for B. Rowe, Howard County, MD.

Professional Engineer seal for B. Rowe, Howard County, MD.

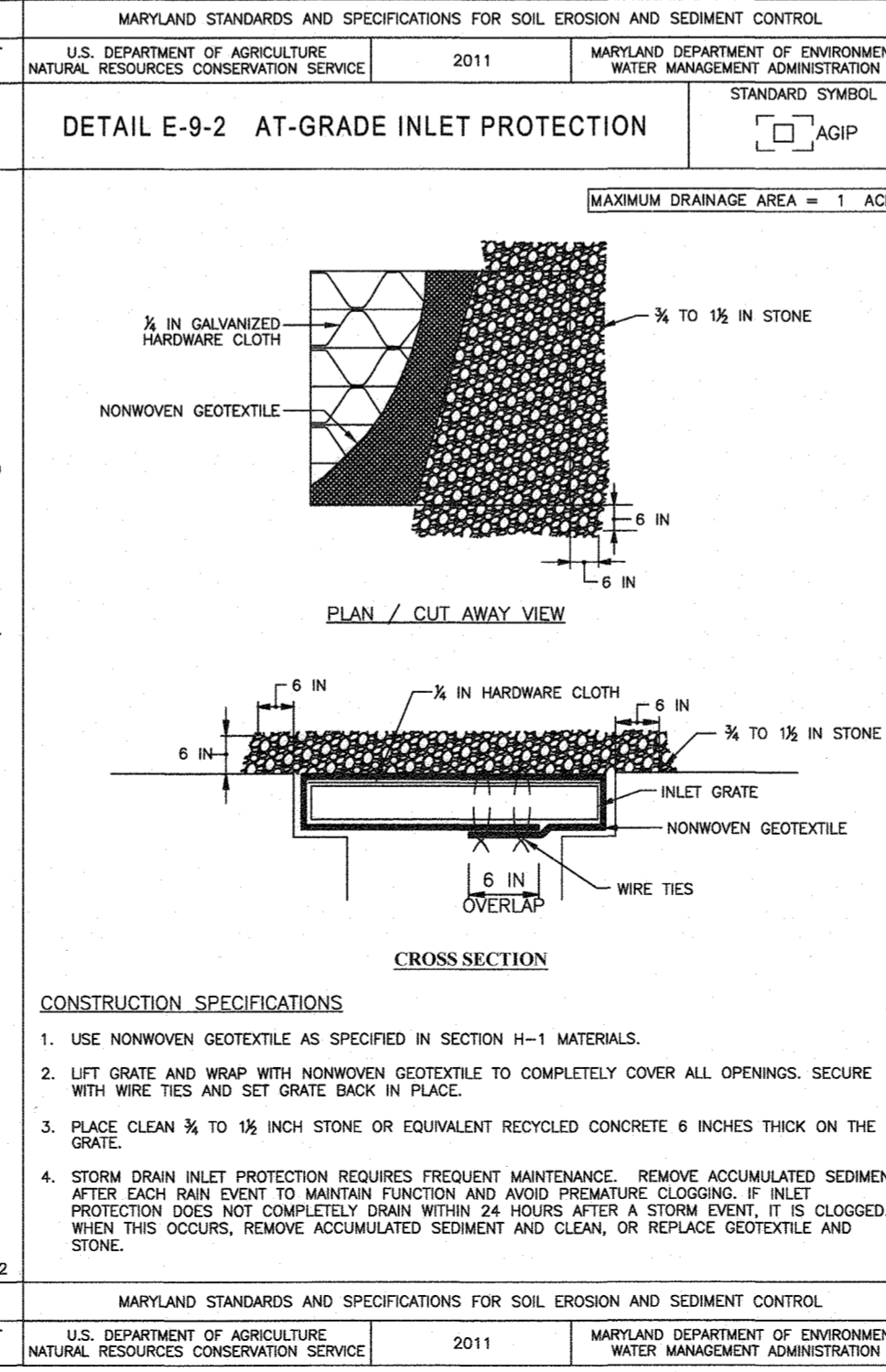
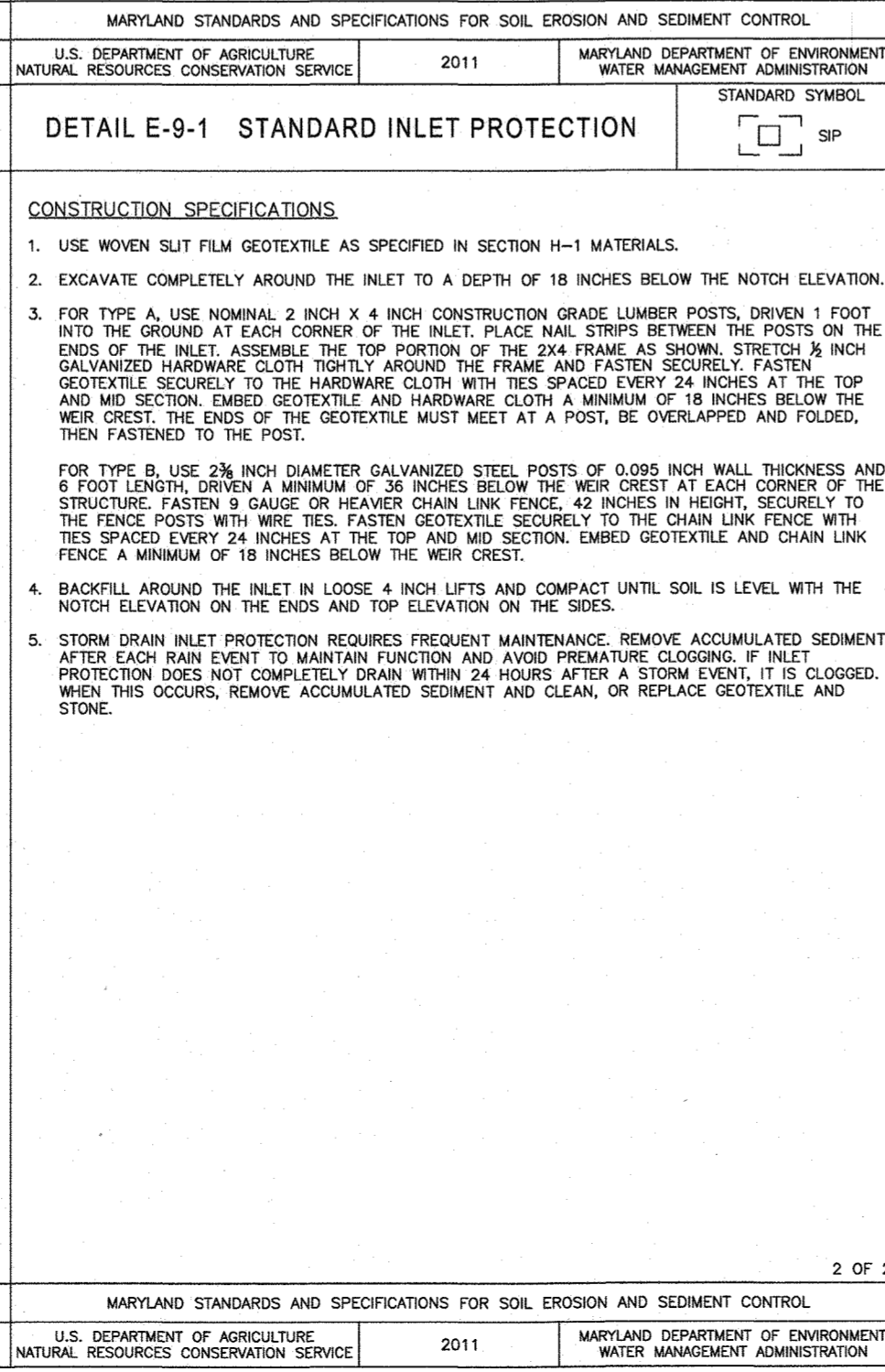
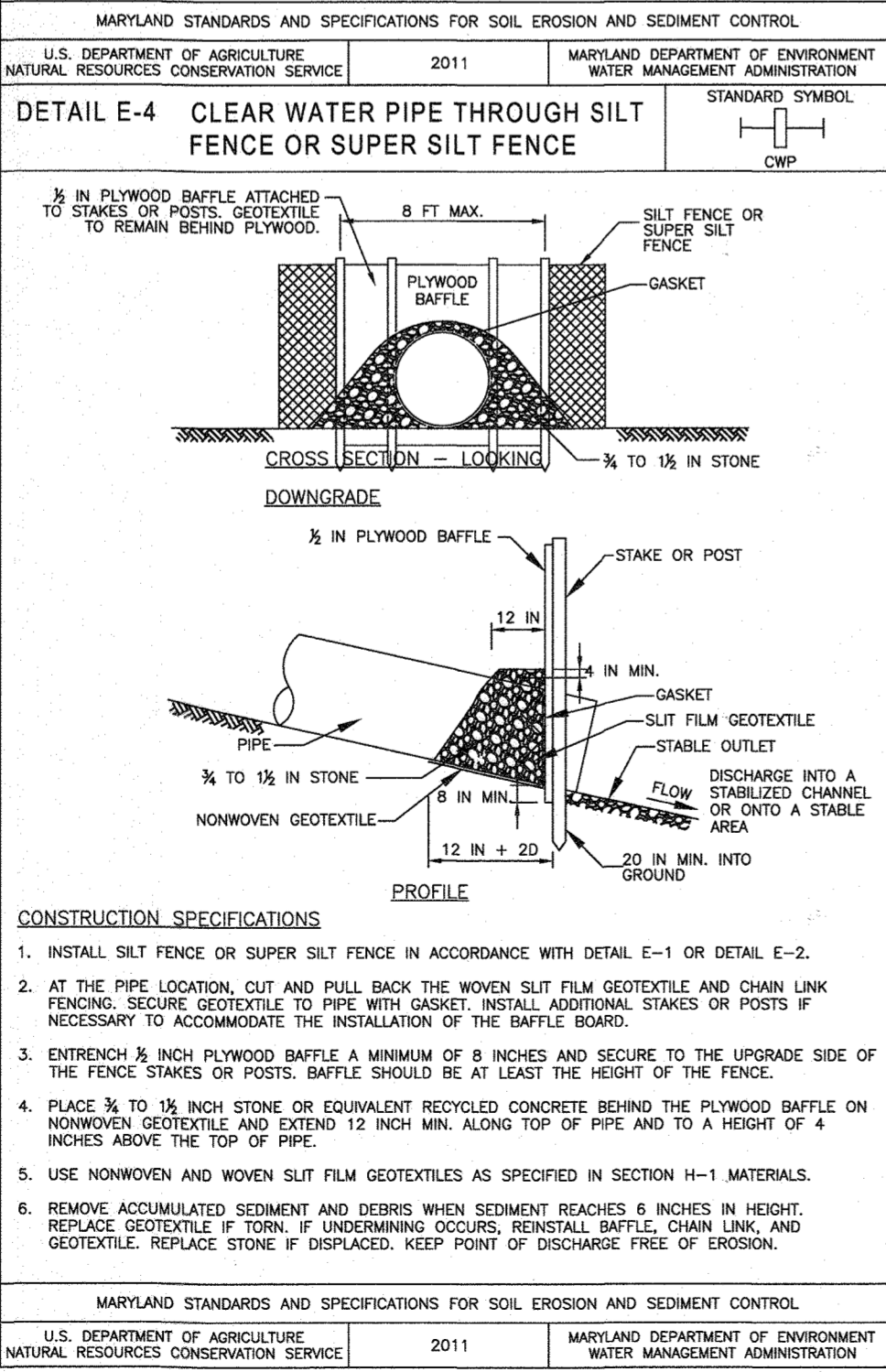
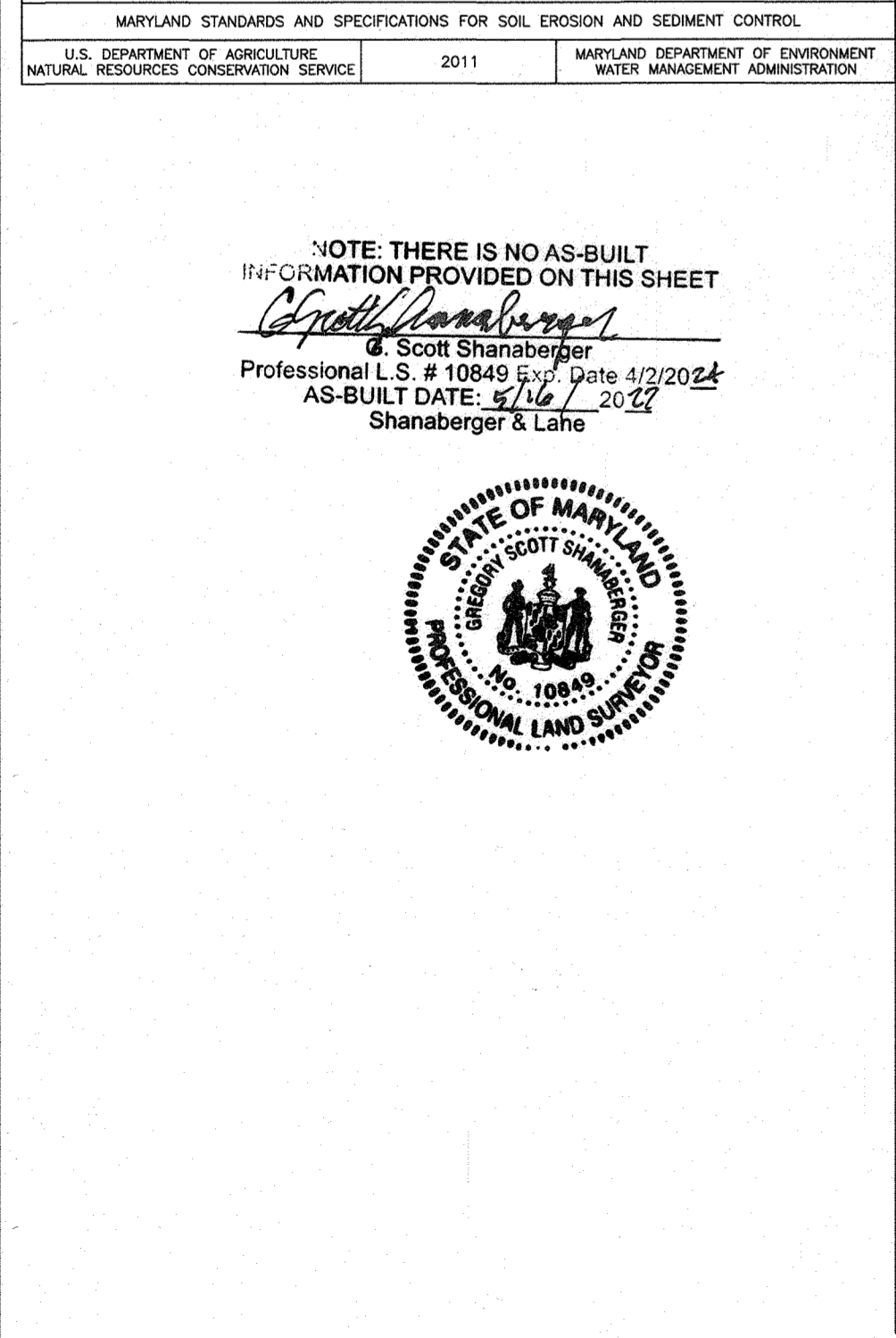
SHEET TITLE: EROSION AND SEDIMENT CONTROL NOTES AND DETAILS. SHEET NUMBER: 20 of 51.



HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-31855 AFTER THE FUTURE LEO AND PROTECTED AREAS ARE MARKED AND THE FIELD A MINIMUM OF 48 HOURS BEFORE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF CONSTRUCTION OF ANY EROSION AND SEDIMENT CONTROLS.
 - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
 - PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES, OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERE TO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROL DICES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. PERMANENT SEEDING (SEC. B-4-3), TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH 1% OF CUT AND/OR FILL, STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENTCHED WITH STABLE TOPSOIL ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
- SITE ANALYSIS:

TOTAL AREA OF SITE:	15.41 ACRES
AREA DISTURBED:	14.71 ACRES
AREA TO BE ROOFED OR PAVED:	4.04 ACRES
AREA TO BE VEGETATIVELY STABILIZED:	10.67 ACRES
TOTAL CUT:	50,951 CU. YDS.
TOTAL FILL:	59,650 CU. YDS.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID, THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT. A DAILY INSPECTION REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
 - INSPECTION DATE
 - INSPECTION TIME (ROUTINE, PRE-STORE EVENT, DURING RAIN EVENT)
 - NAME AND TITLE OF INSPECTOR
 - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
 - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
 - EVIDENCE OF SEDIMENT DISCHARGES
 - IDENTIFICATION OF PLAN DEFICIENCIES
 - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 - PHOTOGRAPHS
 - MONITORING/SAMPLING
 - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
- 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, WHICHEVER IS SHORTER.
- ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR APPROVED OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MAJOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
 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 ACREAGE 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 CID, 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.
 13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
 14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBERICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPWARD BY 2' IN ELEVATION.
 15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
 - USE I AND IIP MARCH 1 - JUNE 15
 - USE II AND IIP OCTOBER 1 - APRIL 30
 - USE IV 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.



APPROVED: DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

APPROVED: DEVELOPMENT ENGINEERING DIVISION

OWNER: ELKGRIDGE WOODS, L.C.
5074 DORSEY HALL ROAD, SUITE 205
ELLICOTT CITY, MD 21042
PHONE: (410) 720-3221

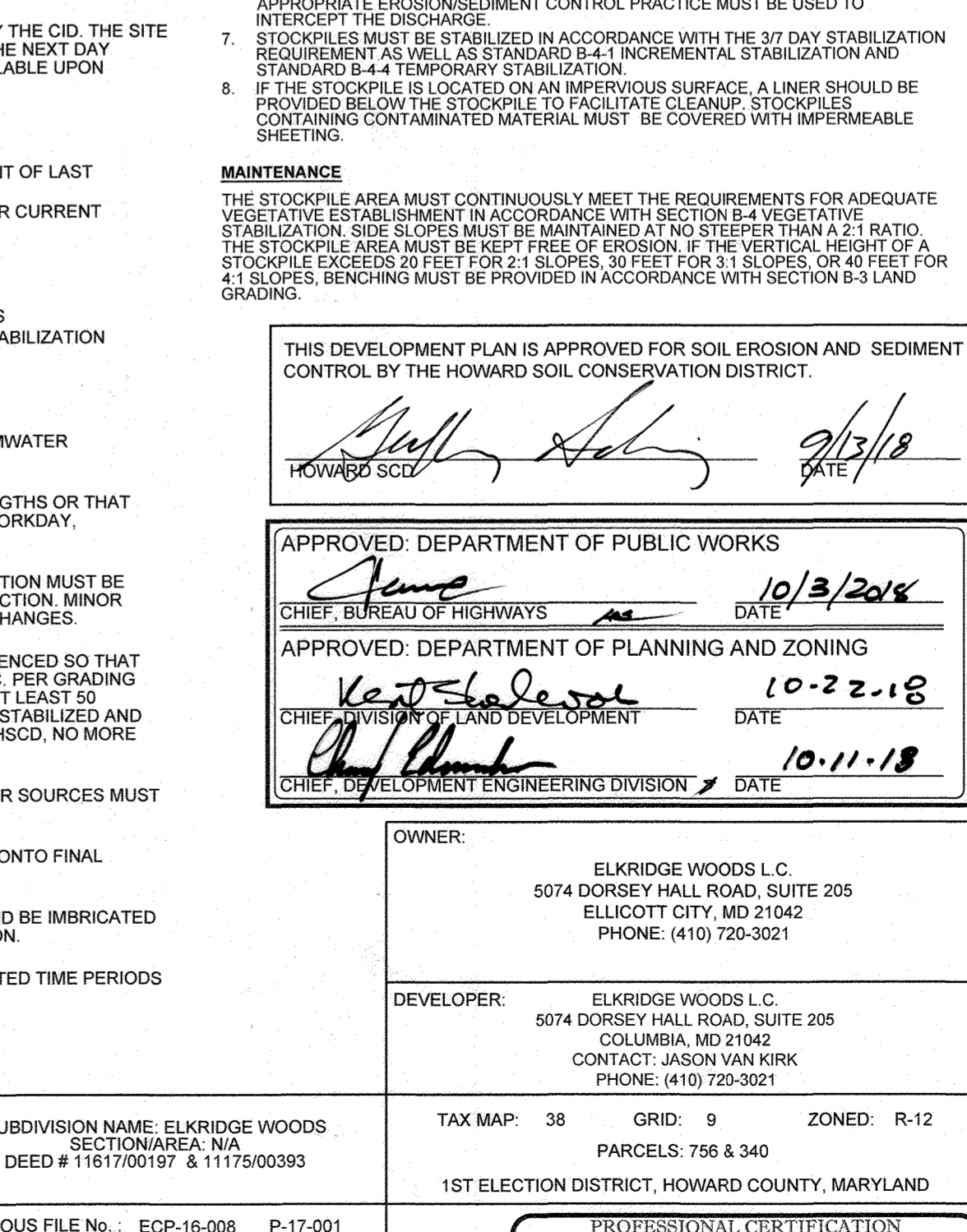
DEVELOPER: ELKGRIDGE WOODS, L.C.
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

SUBDIVISION NAME: ELKGRIDGE WOODS
SECTION/AREA: N/A
DEED #: 1161770197 & 1177500393

TAX MAP: 38 GRID: 9 ZONED: R-12
PARCELS: 756 & 340
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: ECP-16-008 P-17-001
S-05-061 S-16-001
CONTR. 14-2220-D S-03-02
WP-16-150 P-04-11

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE 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. 40908, EXPIRATION DATE: 7/30/19



BOHLER ENGINEERING

CORPORATE OFFICE:
WARREN, NJ

OFFICES:
SOUTHPORT, MA
ALBANY, NY
CHILMARK, MA
CHILMARK, PA
PORT LAUREL, DE
WARRINGTON, VA

PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CIVIL & CONSULTING ENGINEERS
SURVEYORS
LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT NO: MD152015
DRAWN BY: BRR
CHECKED BY: BRR
DATE: 08/29/18
SCALE: AS SHOWN
CAD I.D.: ODJ

FINAL ROAD CONSTRUCTION PLAN

FOR
ELKGRIDGE WOODS
LOTS 1-42 & OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
5920 FLOREY ROAD
ELKGRIDGE, MD
1ST ELECTION DISTRICT
TAX MAP 38, GRID 9
PARCELS 756 & 340
HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

APPROVED: DEPARTMENT OF PUBLIC WORKS
10/3/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING
10-22-18

APPROVED: DEVELOPMENT ENGINEERING DIVISION
10-11-18

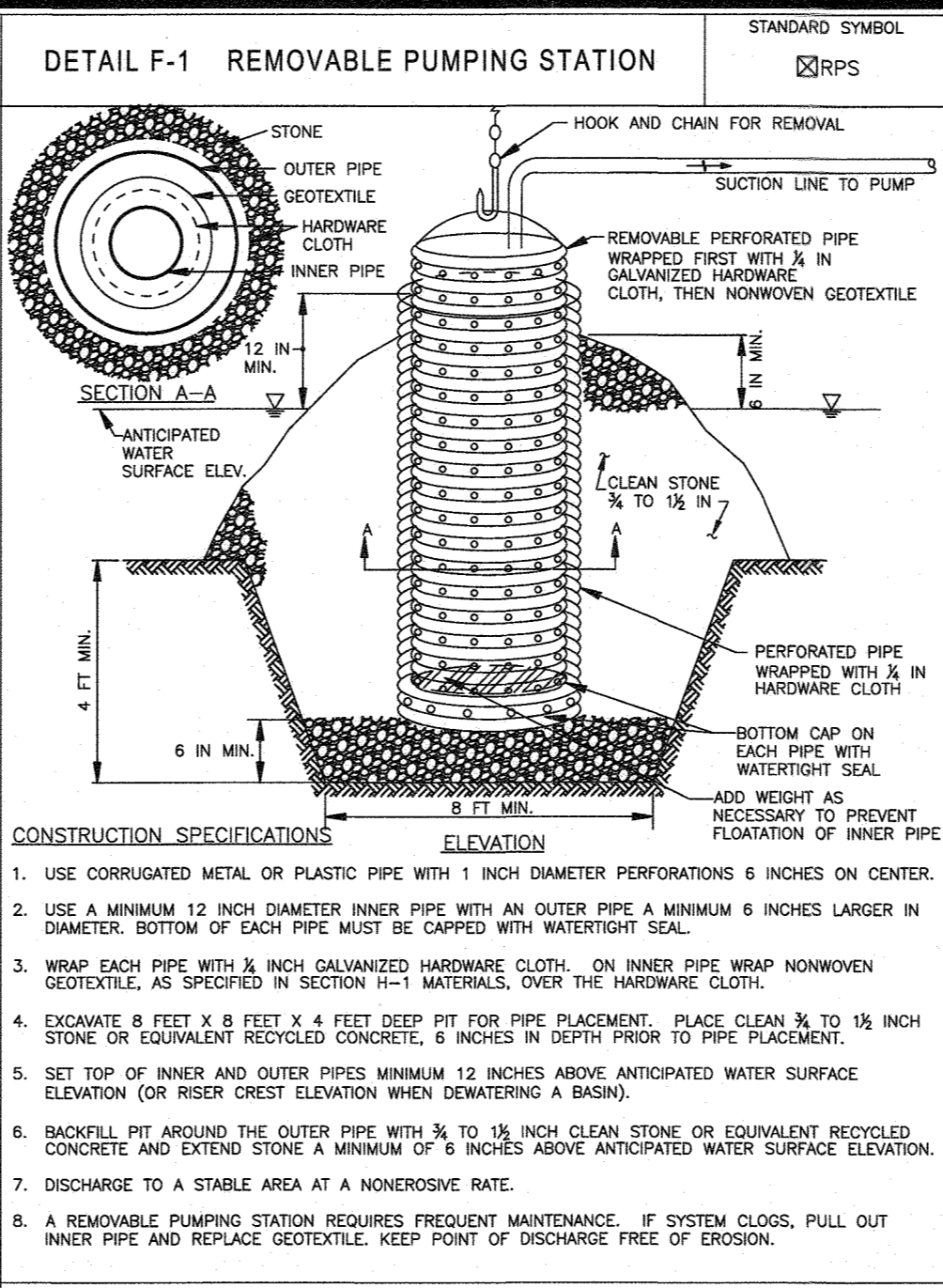
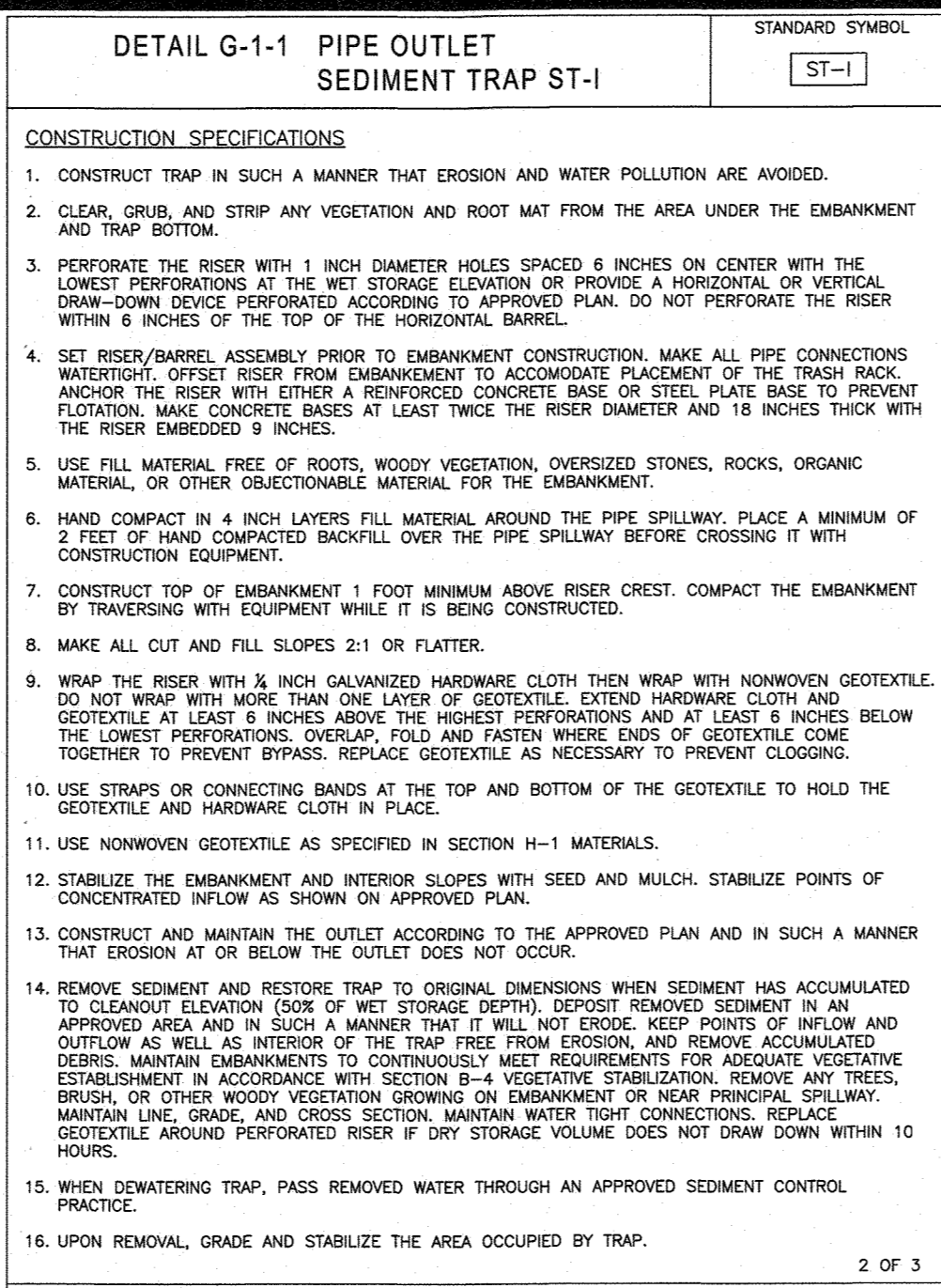
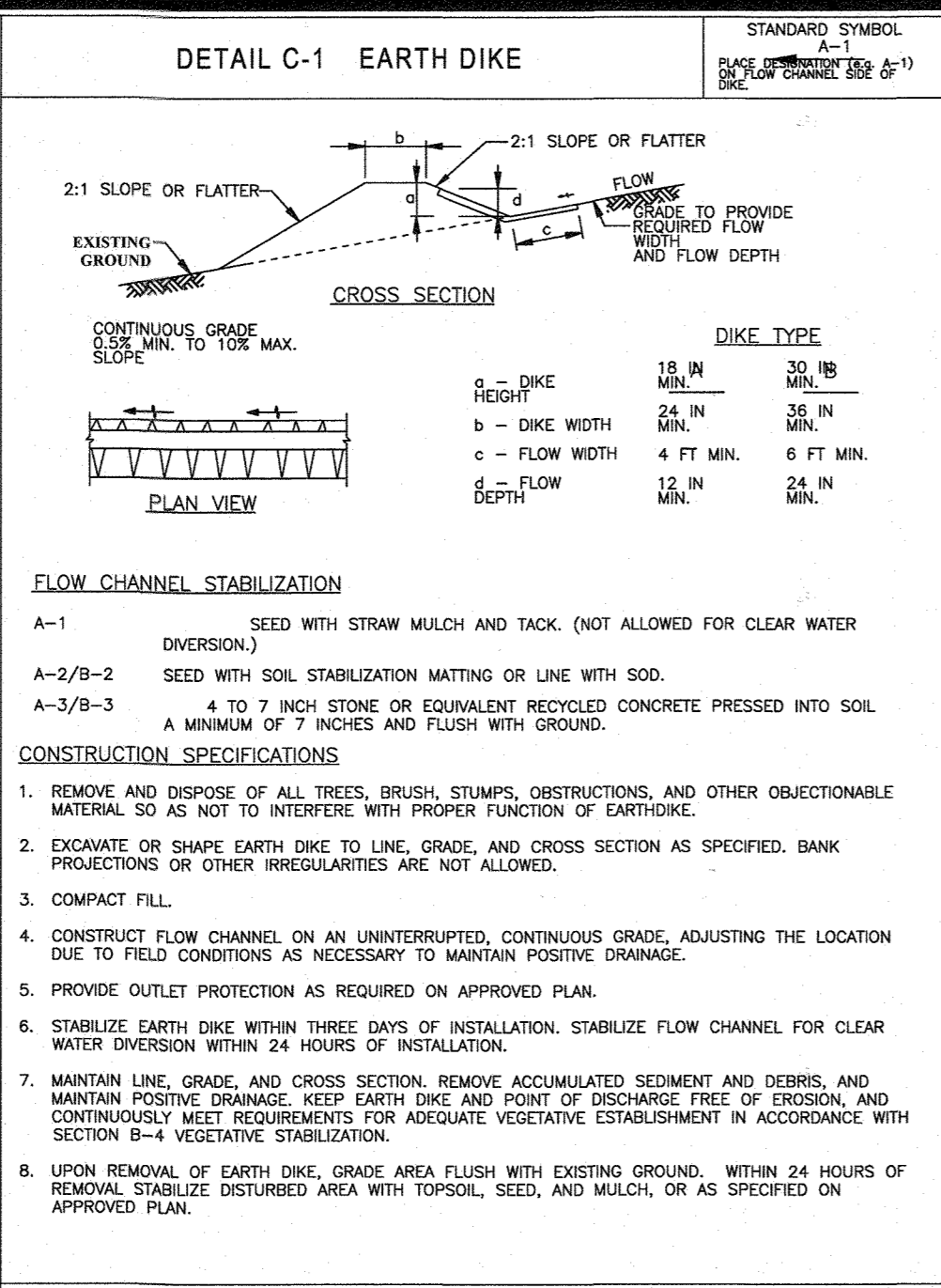
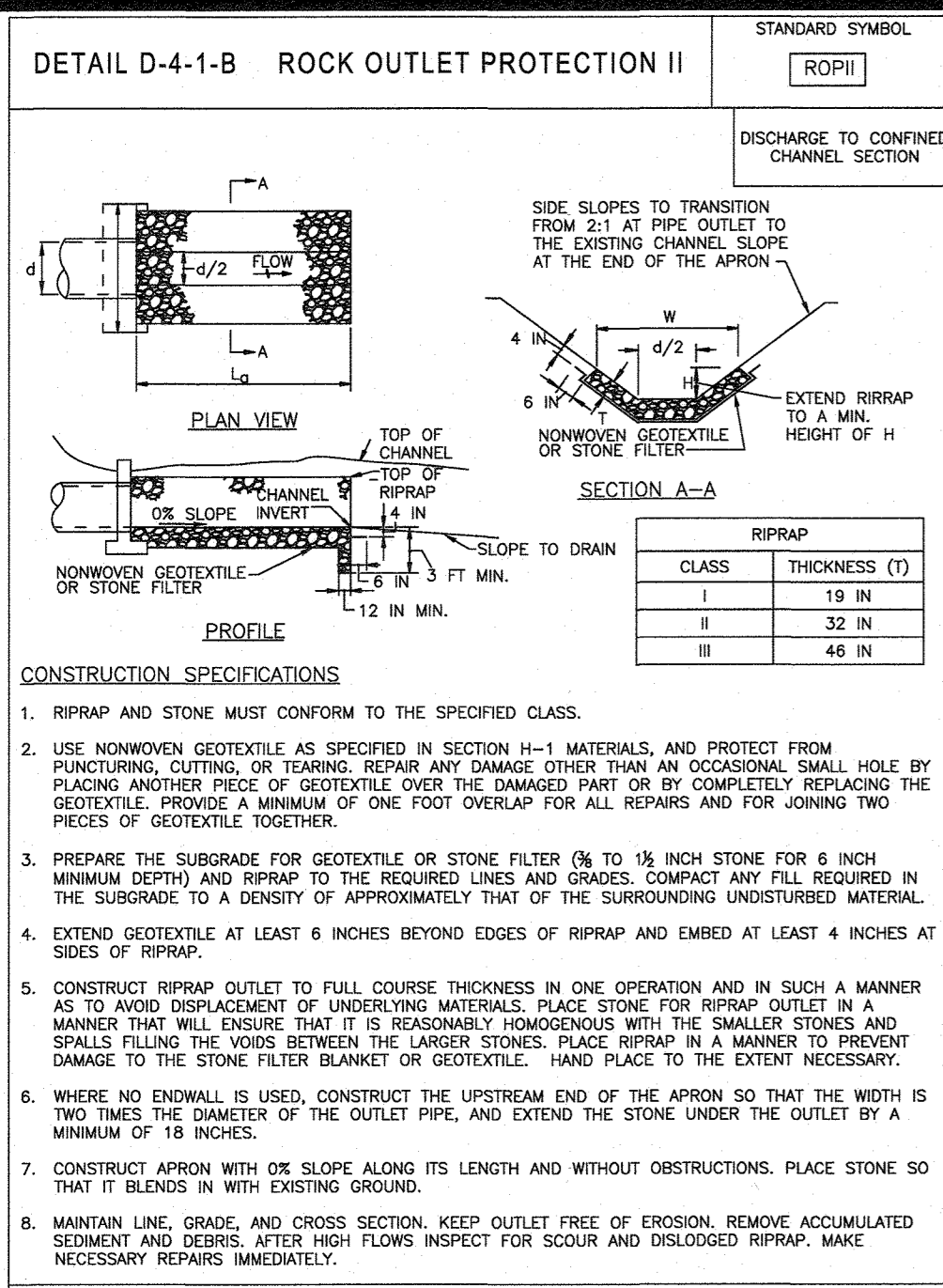
B.R. ROWE

PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 39028

DATE: 10/3/18

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

SHEET NUMBER:
21 of 51



F.1 STANDARDS AND SPECIFICATIONS

FOR
REMOVABLE PUMPING STATION

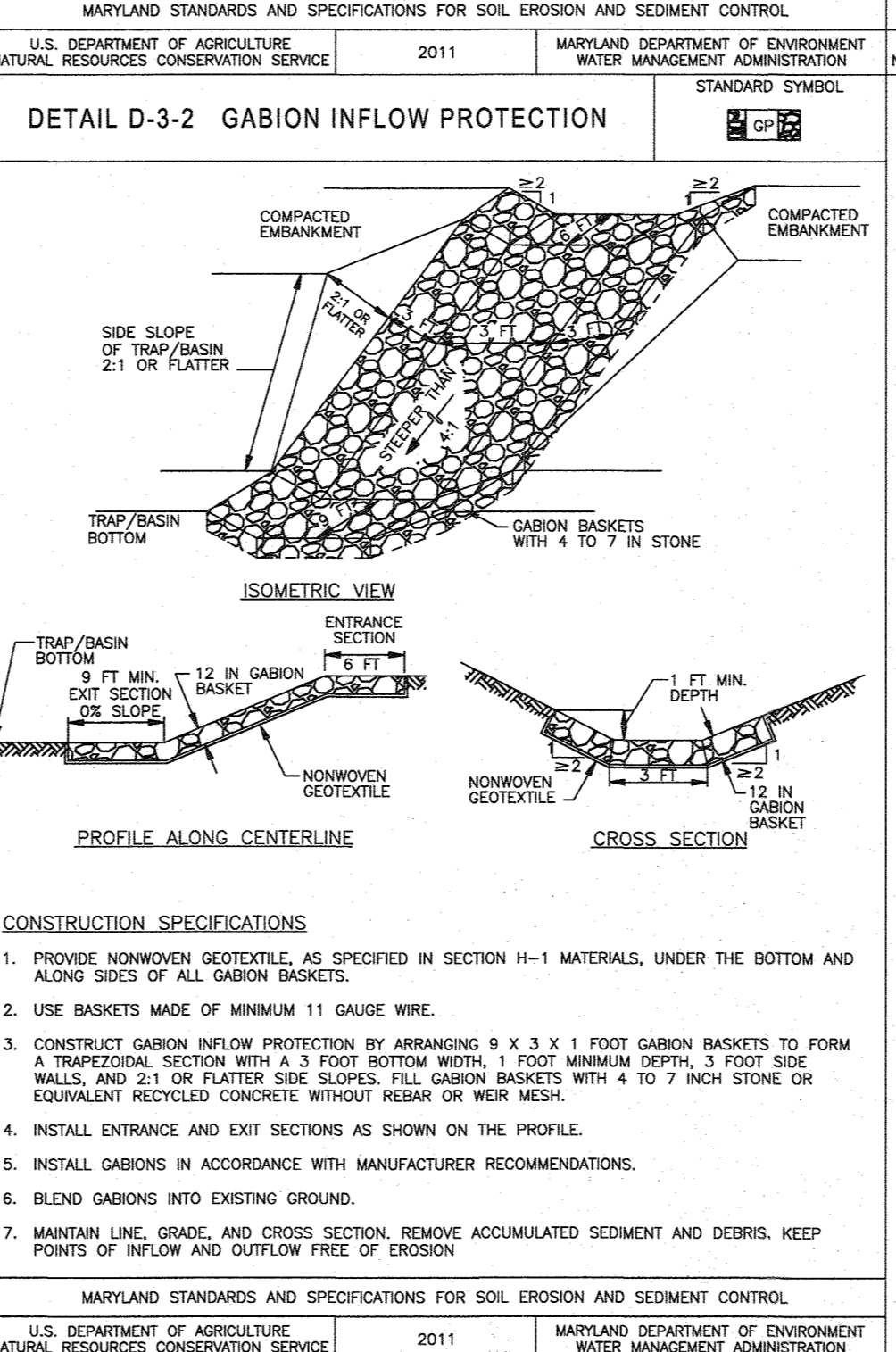
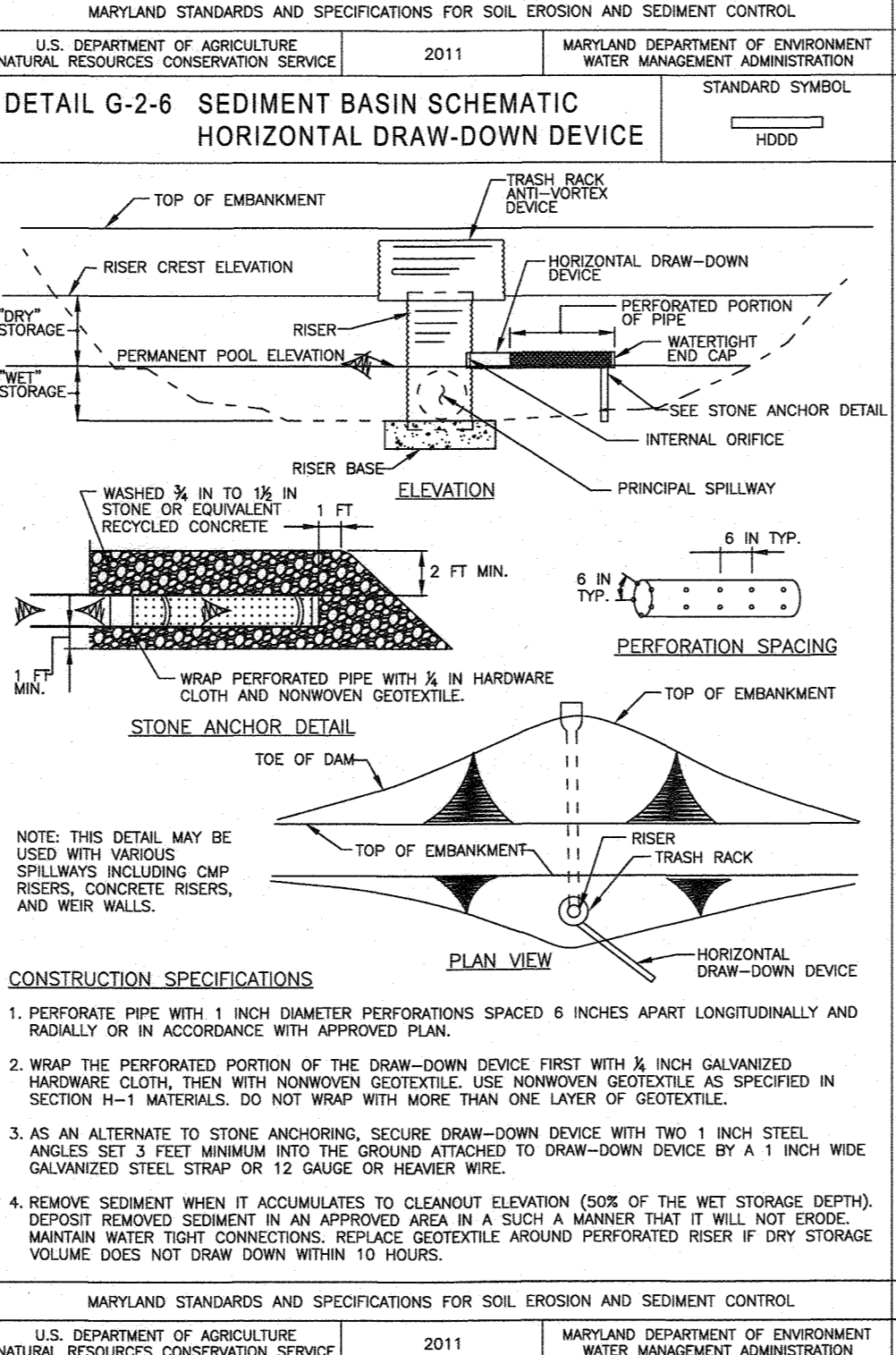
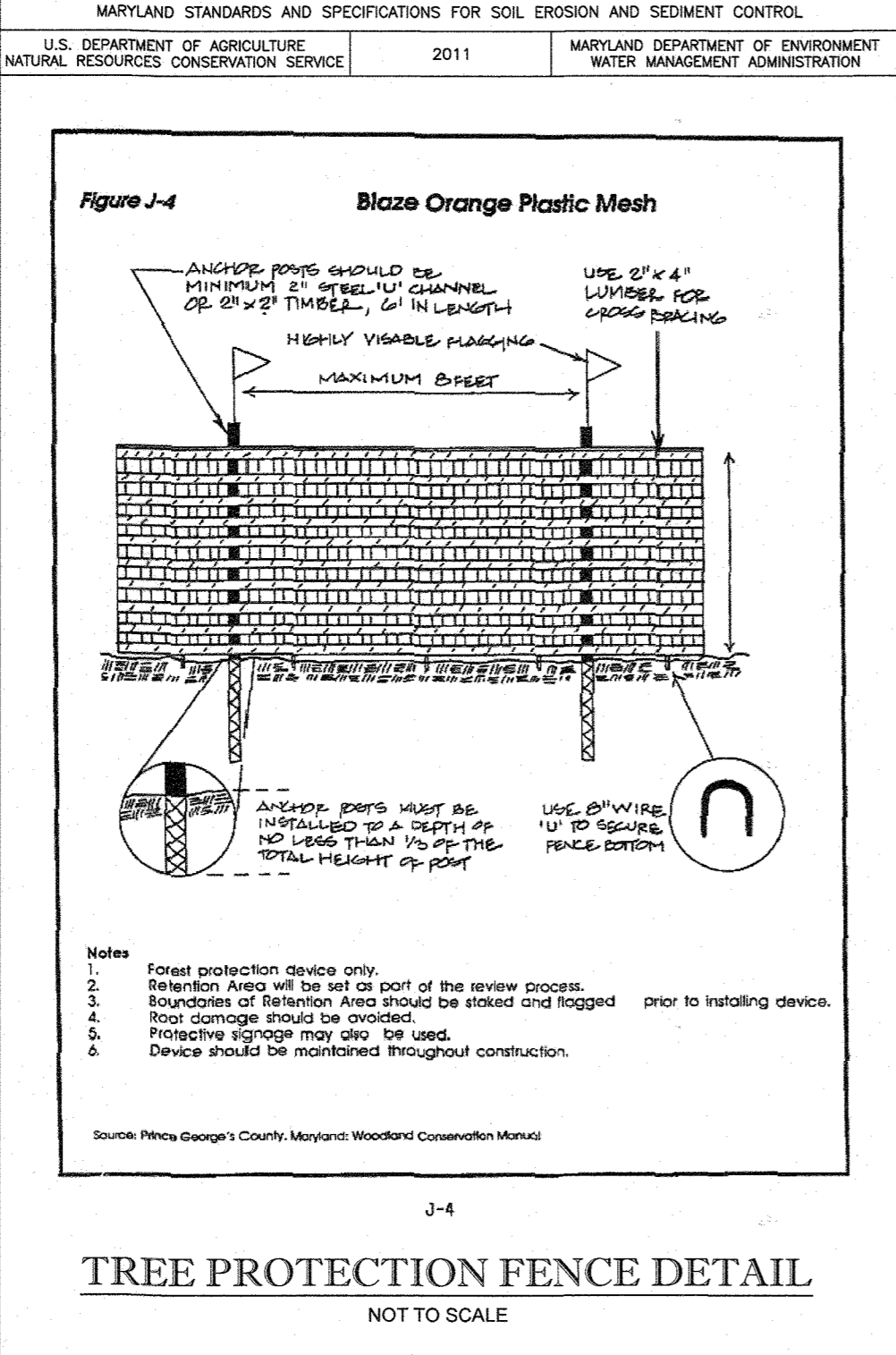
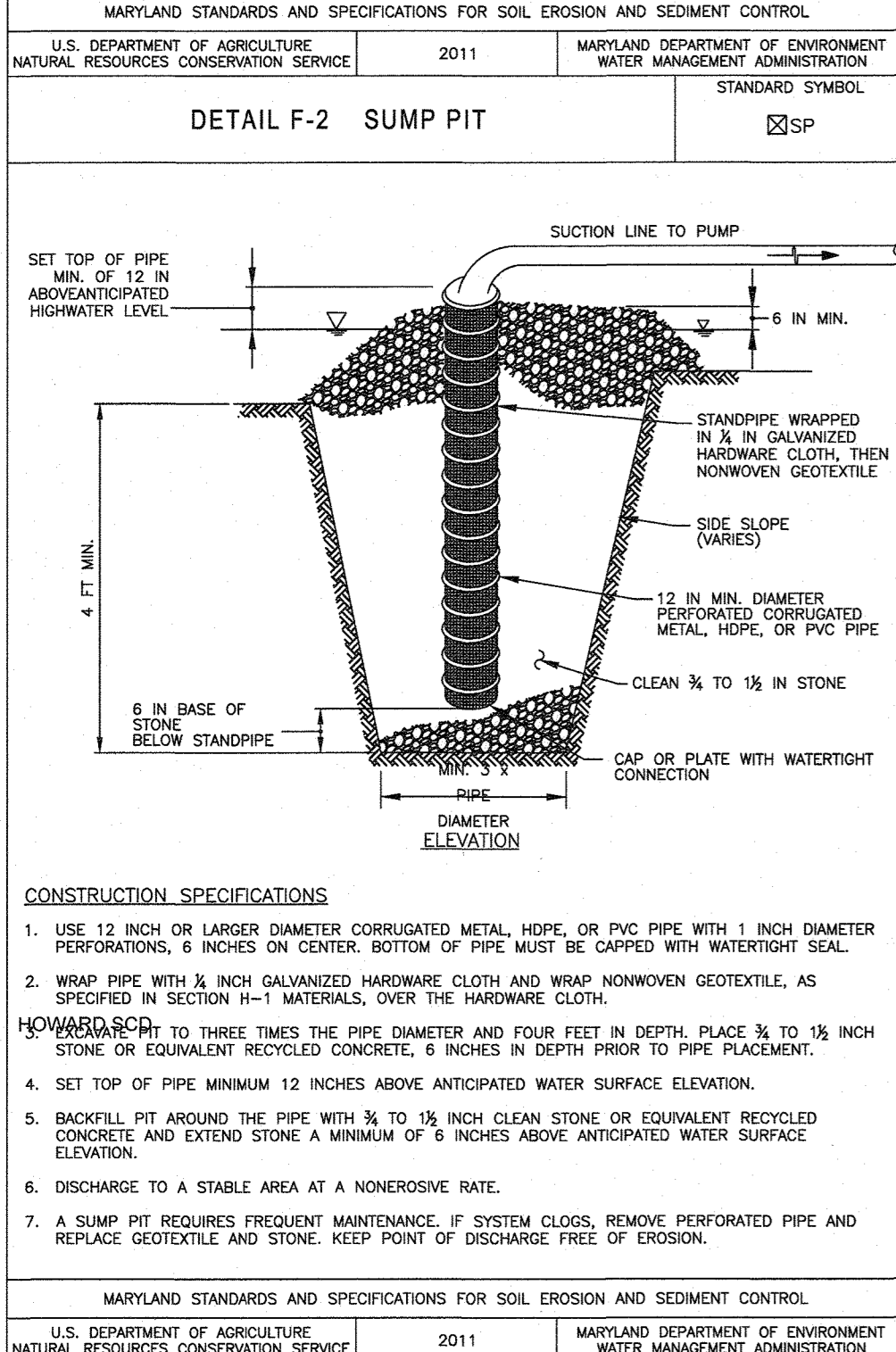
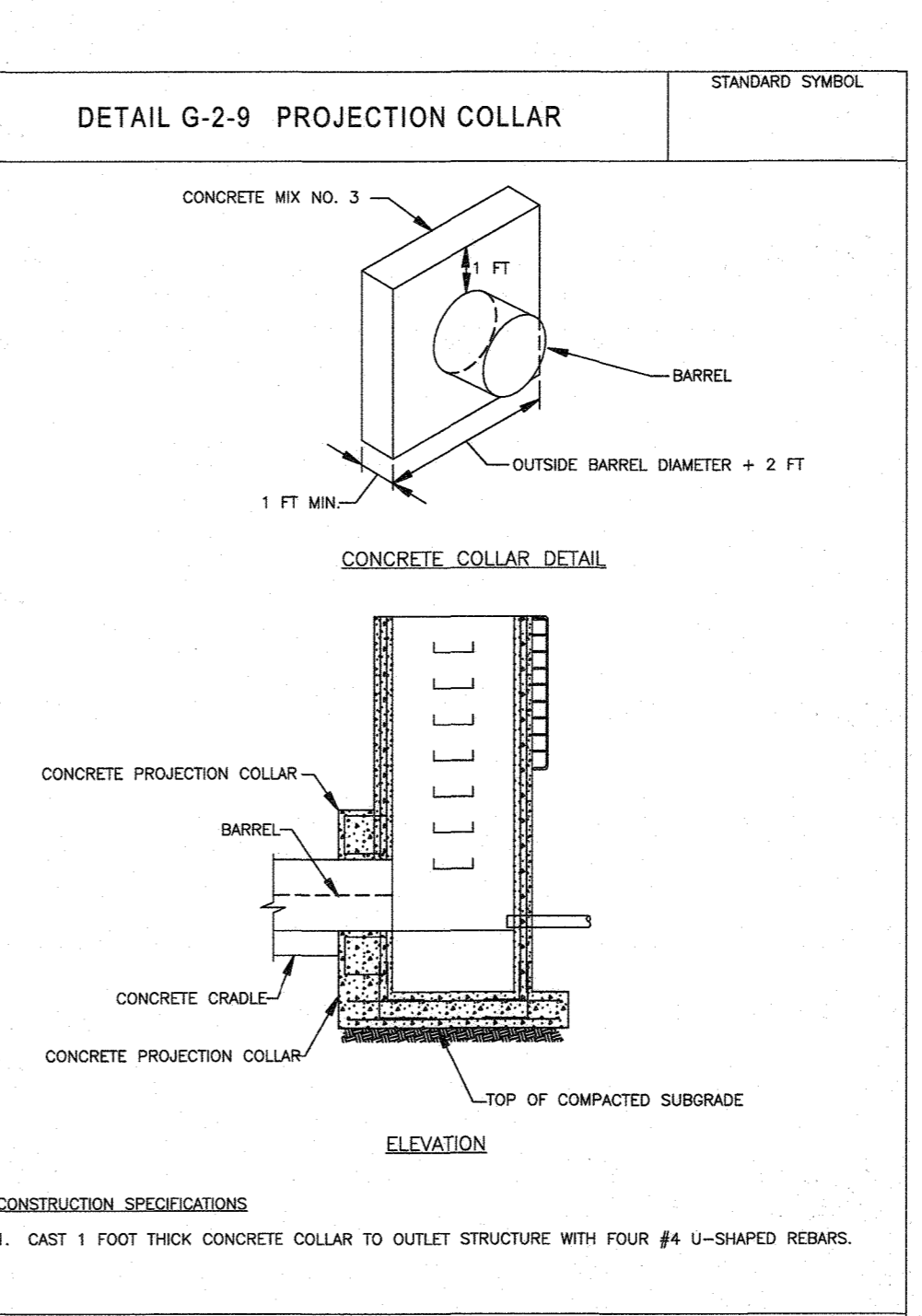
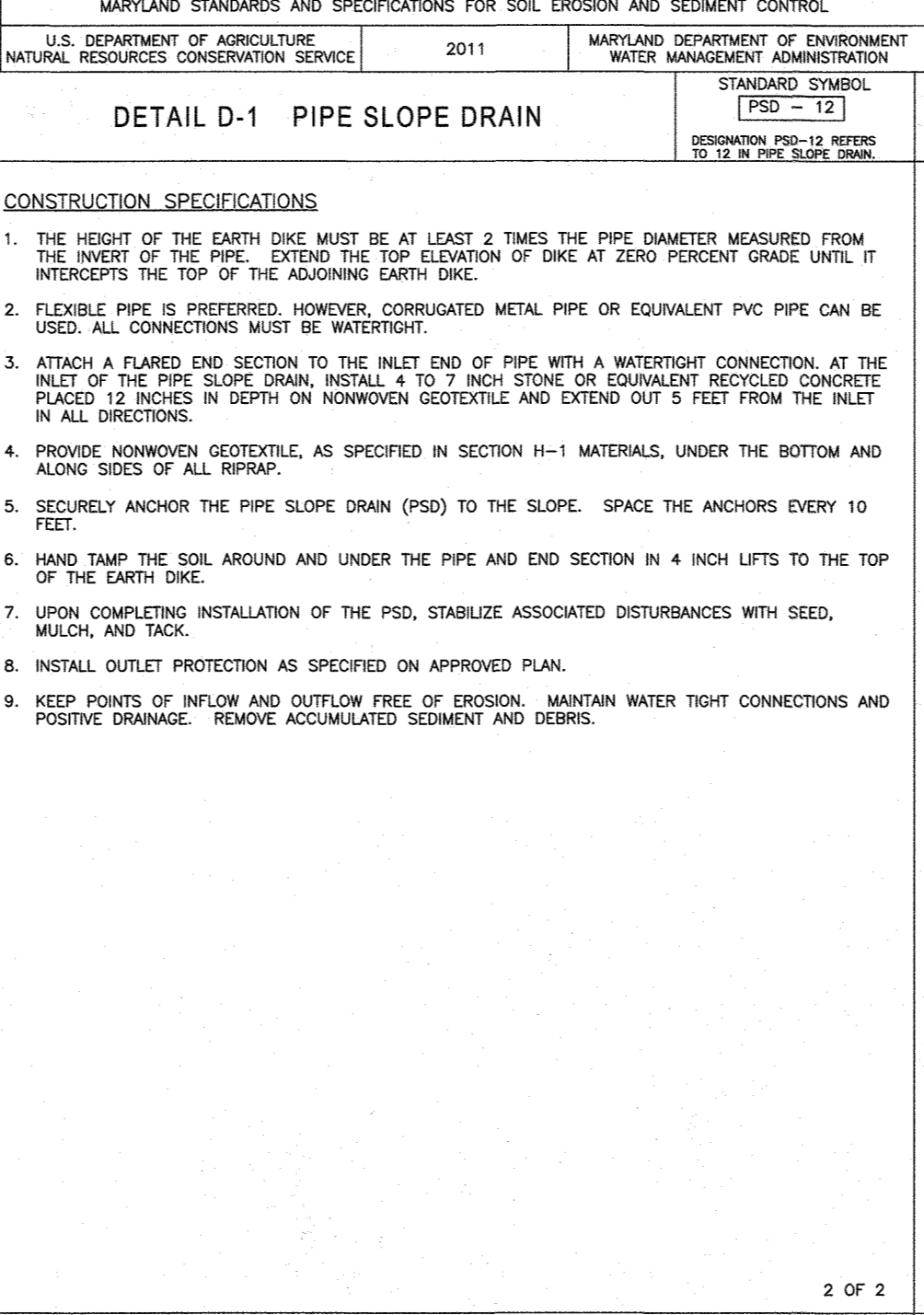
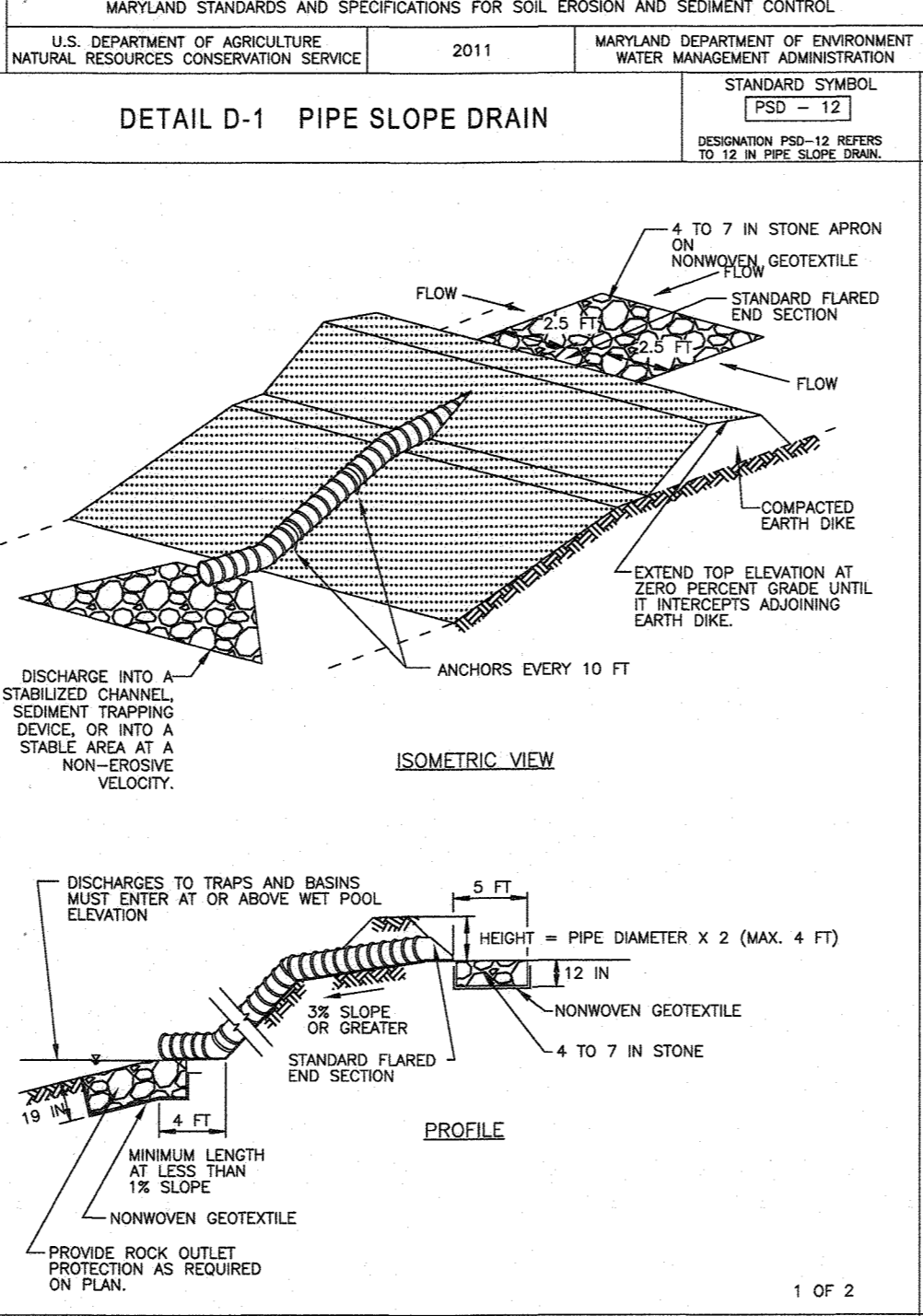
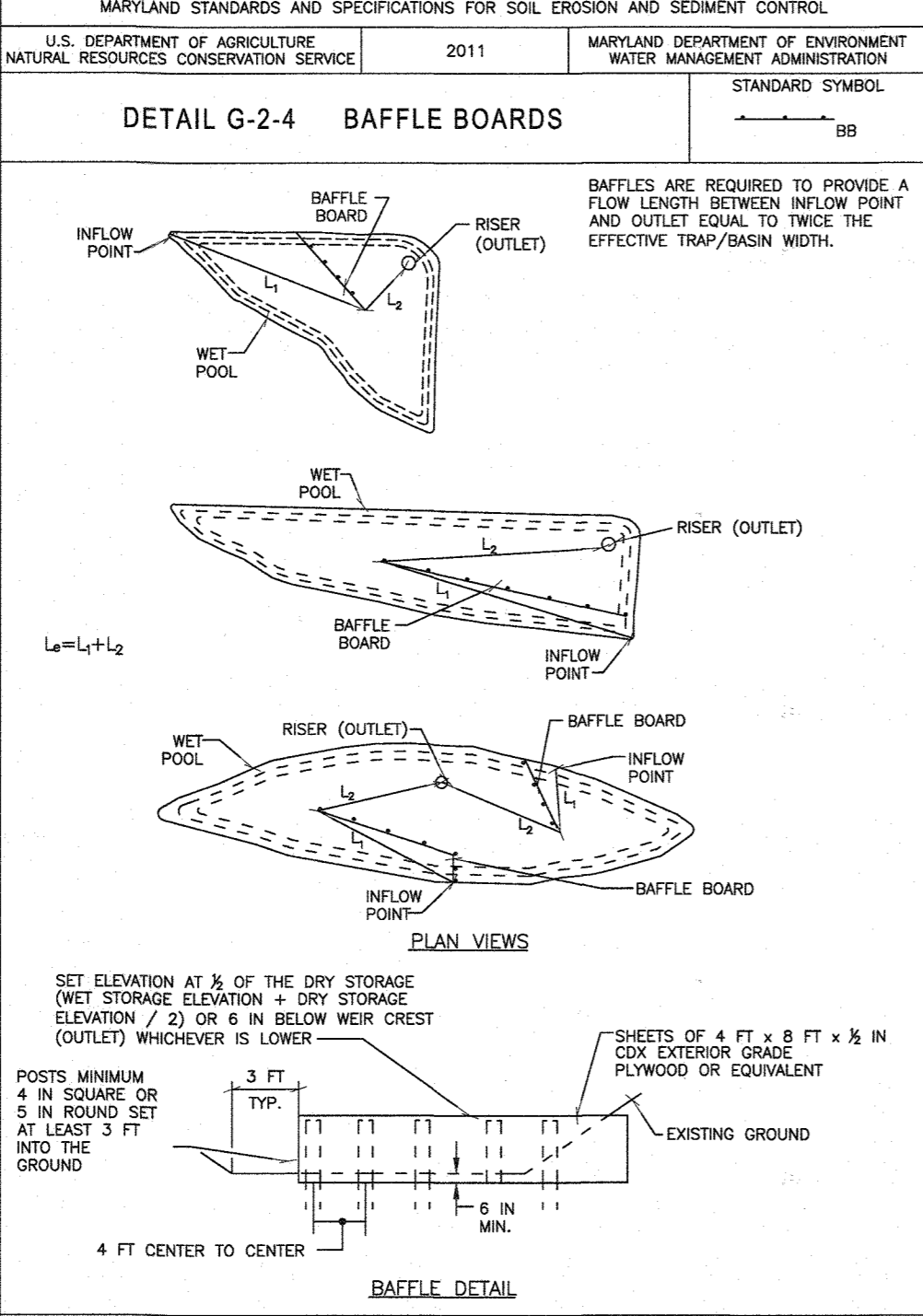
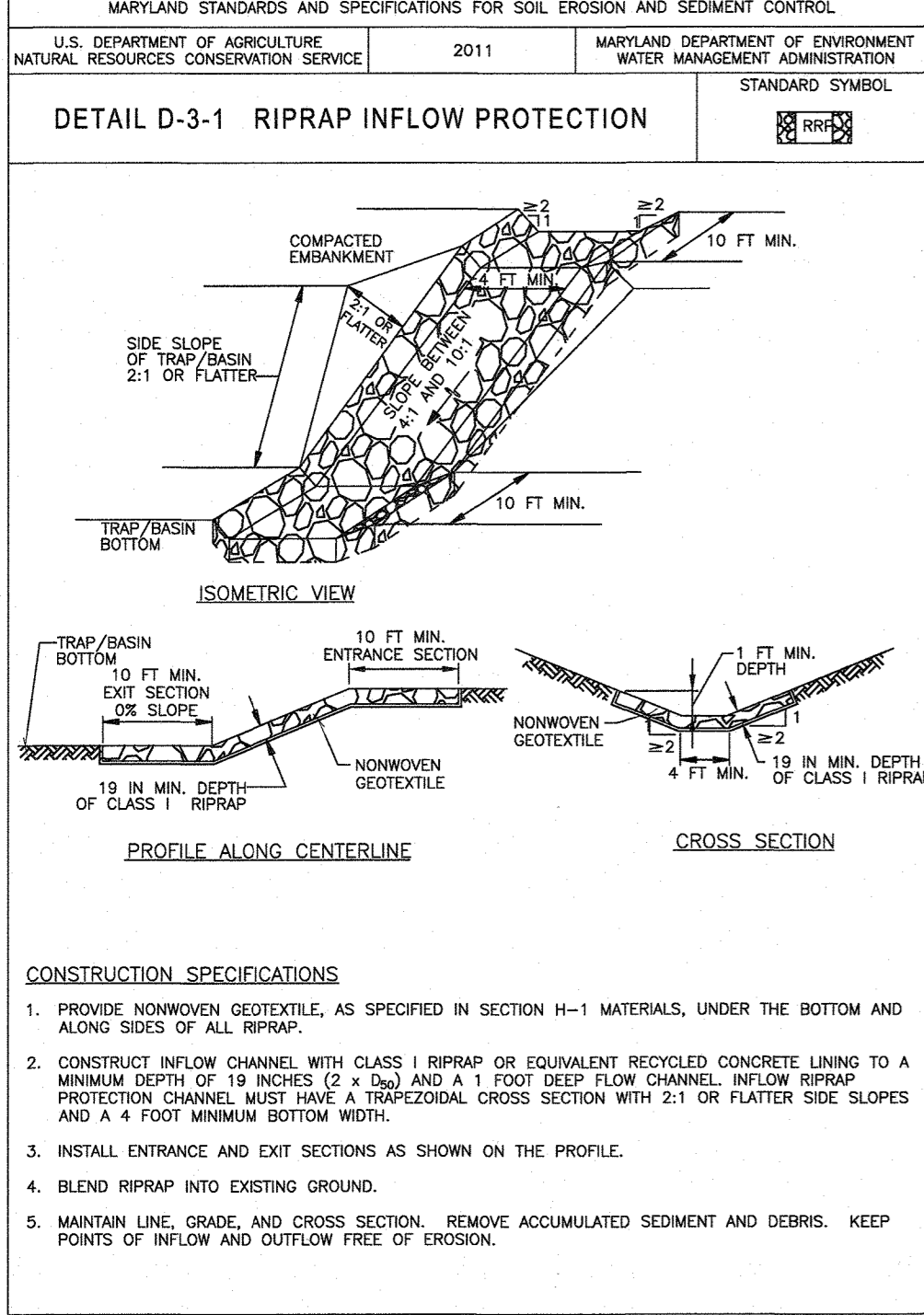
Definition:
A perforated, vertical standpipe wrapped with hardware cloth and geotextile and placed inside a larger perforated pipe. The outer pipe is enveloped by hardware cloth and washed stone. Water is pumped from the inner pipe and discharged to a stable area.

Purpose:
To remove and filter sediment-laden water from excavations, traps, or basins.

Conditions Where Practice Applies:
When dewatering is needed in association with excavations, trenches, Cofferdams, sediment traps or basins. This practice is preferred over pump pits on projects where a long duration of pumping is expected.

Design Criteria:
The location of removable pumping stations must be included on the plan. When used in a trap or basin, install pumping station concurrently with the construction of the trap or basin. A removable pumping station may be relocated to optimize its use, but changes to the discharge location must be coordinated with the appropriate enforcement authority.

Maintenance:
The removable pumping station requires frequent maintenance. If the system clogs, the inner pipe needs to be pulled out and the geotextile replaced. The point of discharge must be kept free of erosion.



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

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways: *[Signature]* DATE: 10/3/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development: *[Signature]* DATE: 10-22-18

APPROVED: DEPARTMENT OF ENGINEERING
 Chief, Development Engineering Division: *[Signature]* DATE: 10-11-18

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. Scott Shanberger
 Professional L.S. # 10849 Exp. Date 4/2/2024
 AS-BUILT DATE: 6/14/2022
 Shanberger & Lane

OWNER: ELK RIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELK RIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340

1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: ECP-16-008 P-17-001
 F-05-004 S-16-001
 CONTR. 14-220-D S-03-02
 WP-16-150 P-04-11

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, 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. 4808, EXPIRATION DATE: 7/31/2019

BOHLER ENGINEERING

CORPORATE OFFICE:
 WARREN, NJ

OFFICES:
 BOYLSTON, MA
 BOSTON, MA
 CHICAGO, IL
 COLUMBIA, MD
 FORT LAUDERDALE, FL
 FORT MYERS, FL
 FORT WORTH, TX
 GAITHERSBURG, MD
 GREENSBORO, NC
 HUNTSVILLE, AL
 JEFFERSONVILLE, IN
 LITTLE ROCK, AR
 MEMPHIS, TN
 NASHVILLE, TN
 PHOENIX, AZ
 RICHMOND, VA
 ROCKFORD, IL
 TAMPA, FL

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXAMINATORS, DESIGNERS, OR ANY PERSON PREPARING TO REGISTER THE EARTH SURFACE ANYWHERE IN THE STATES IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE: CALL 811 (WV 1-800-245-4848) (PA 1-800-242-1778) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8888)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD162015
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: OD3

FINAL ROAD CONSTRUCTION PLAN

FOR
ELK RIDGE WOODS
 LOTS 1-42 &
 OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
 5920 FLOREY ROAD
 ELK RIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING

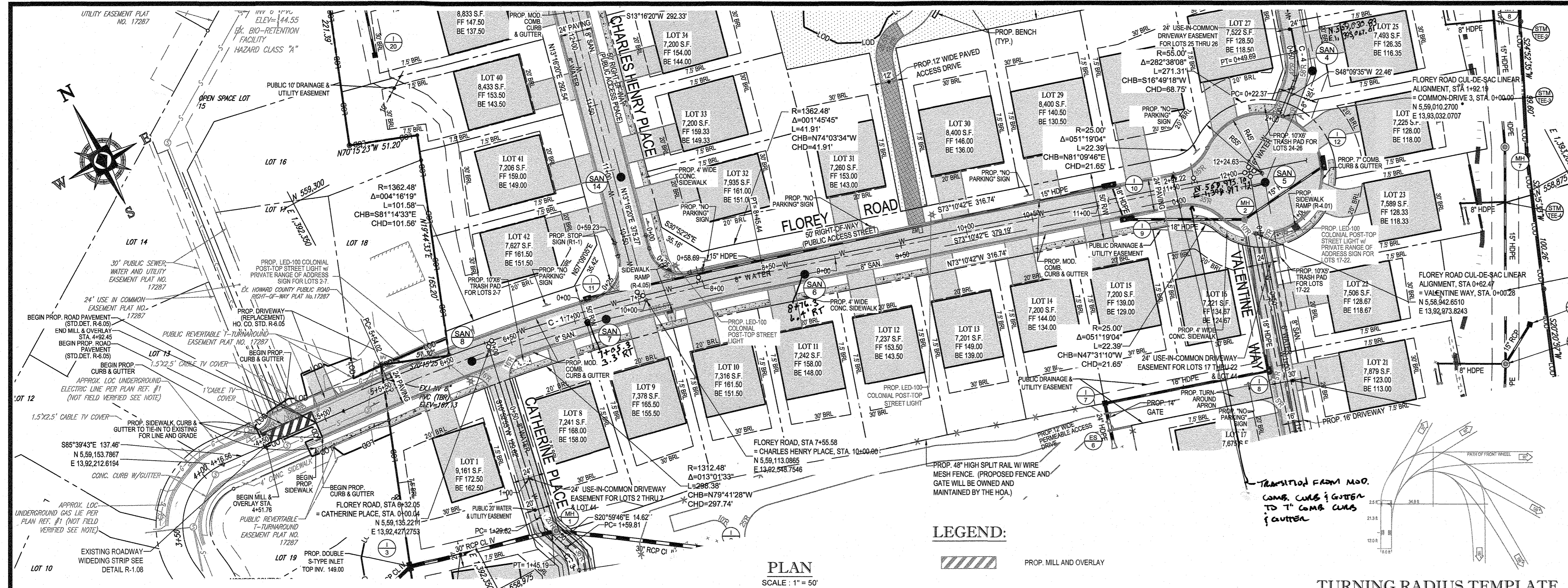
801 DULANEY VALLEY ROAD,
 SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 720-3021
 www.BohlerEngineering.com

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 4808

SHEET TITLE:
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

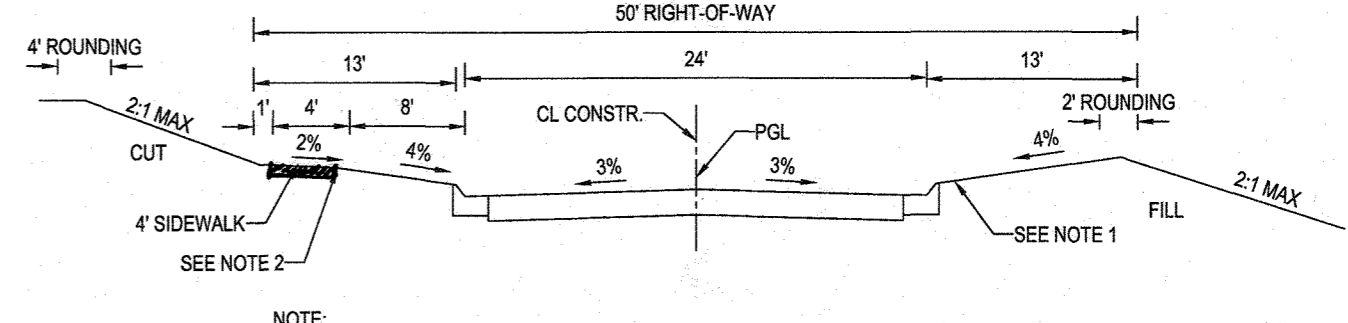
SHEET NUMBER:
22 of 51

AS-BUILT

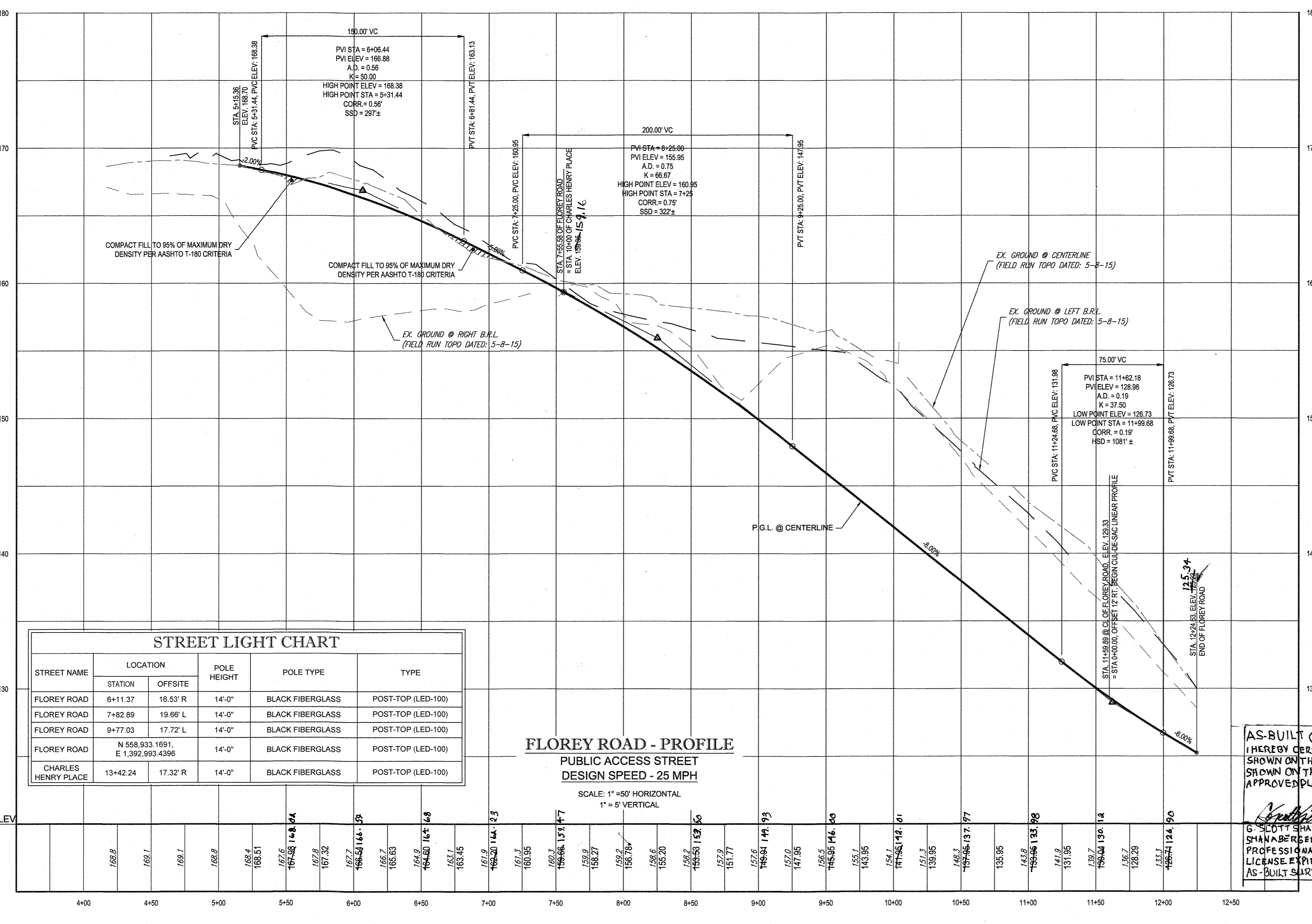
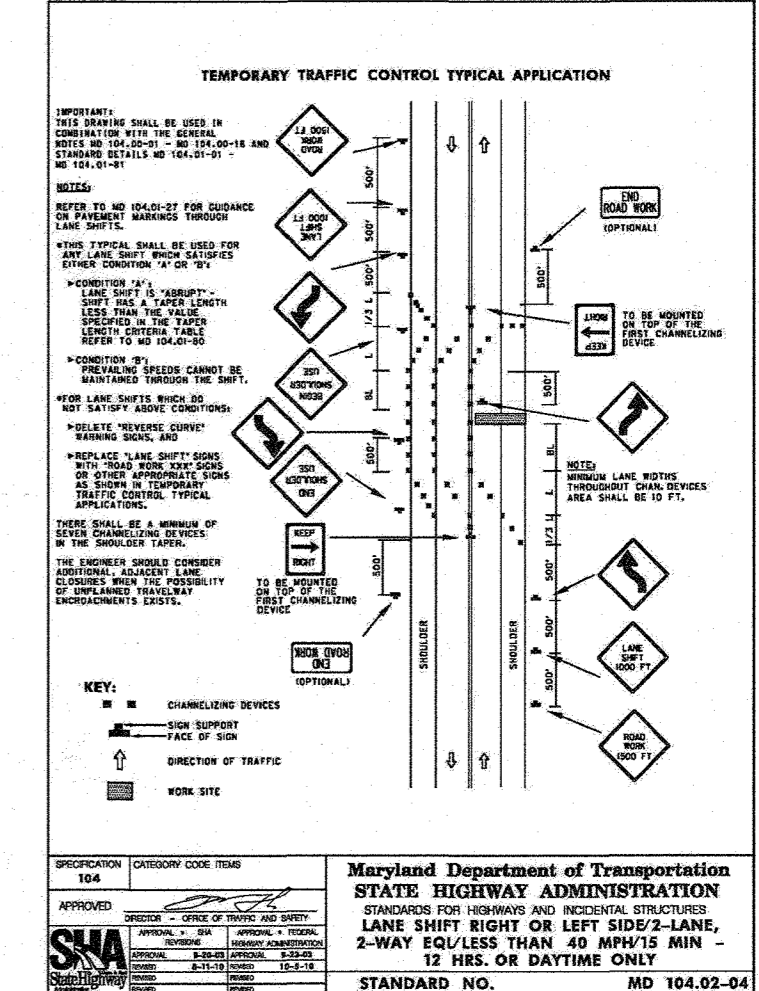
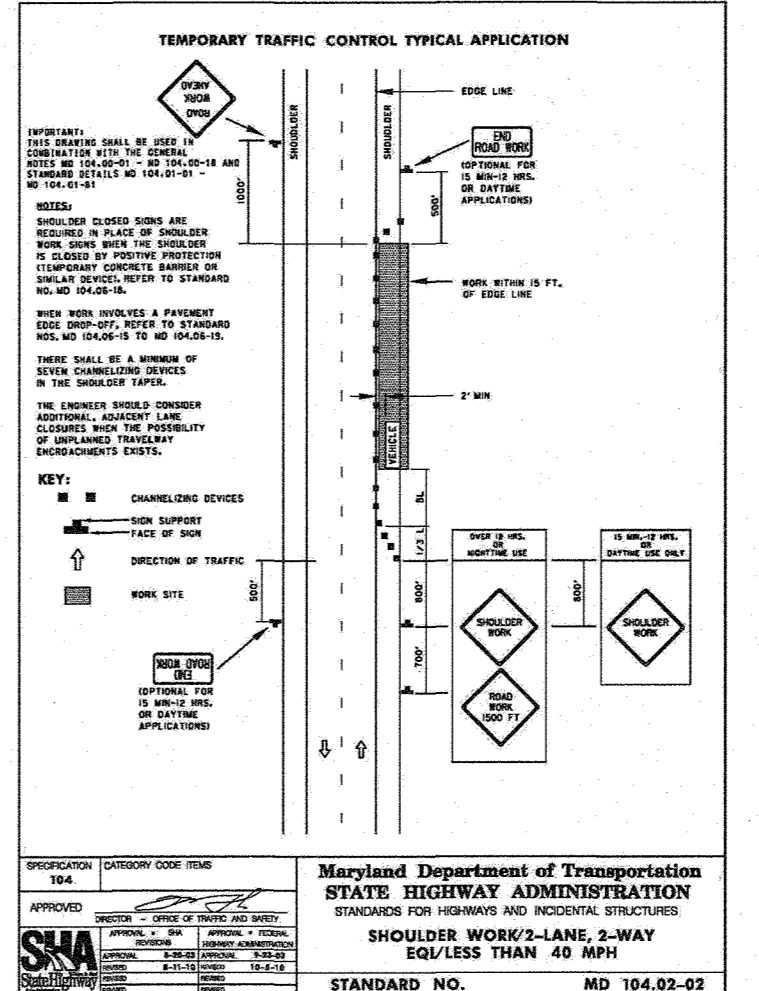
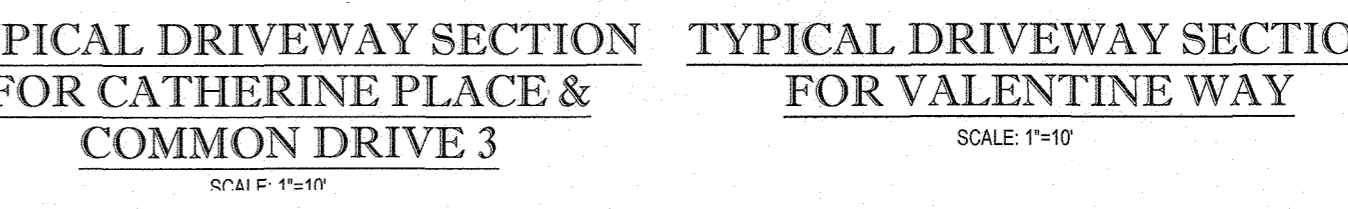
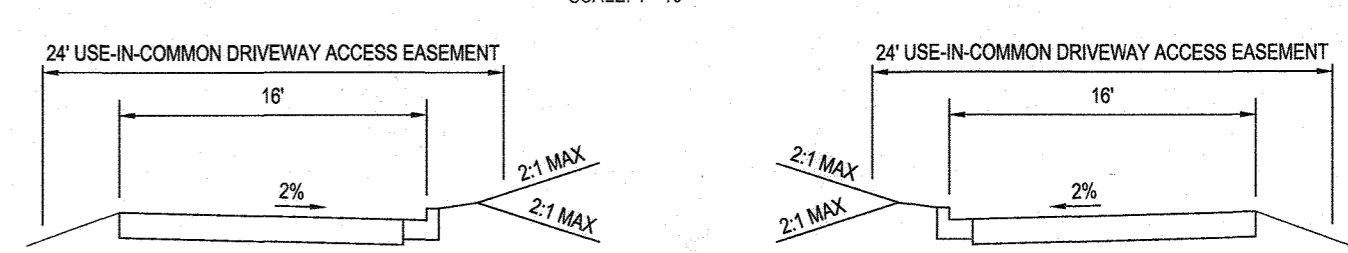


CURVE TABLE					
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	TANGENT
C-1	1337.48'	291.41'	N79°25'12\"	290.84'	012°29'01\"
					146.29'

ROADWAY INFORMATION CHART				
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH	STATION
FLOREY ROAD	PUBLIC ACCESS STREET	25 MPH	50 FT.	4+51.79 - 12+24.63



NOTE:
 1. TYPE OF CURB VARIES (MODIFIED COMBINATION CURB & GUTTER OR COMBINATION CURB & GUTTER - SEE DESIGN MANUAL VOLUME III FOR CRITERIA).
 2. 4\"



STREET LIGHT CHART				
STREET NAME	LOCATION		POLE TYPE	TYPE
	STATION	OFFSITE		
FLOREY ROAD	6+11.37	16.53' R	14'-0"	BLACK FIBERGLASS POST-TOP (LED-100)
FLOREY ROAD	7+82.89	19.66' L	14'-0"	BLACK FIBERGLASS POST-TOP (LED-100)
FLOREY ROAD	9+77.03	17.72' L	14'-0"	BLACK FIBERGLASS POST-TOP (LED-100)
FLOREY ROAD	N 558.933.1691, E 1.392.993.4396		14'-0"	BLACK FIBERGLASS POST-TOP (LED-100)
CHARLES HENRY PLACE	13+42.24	17.32' R	14'-0"	BLACK FIBERGLASS POST-TOP (LED-100)

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN AND IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.
 G. SCOTT SHAW
 SHAWBERGER & ASSOCIATES, INC.
 PROFESSIONAL LAND SURVEYOR
 LICENSE EXPIRES 05-17-21 TO 6-10-21
 AS-BUILT SURVEY DATES 5-17-21 TO 6-10-21

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF BUREAU OF HIGHWAYS DATE 10/3/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF DIVISION OF LAND DEVELOPMENT DATE 10-22-18
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE 10-11-18

OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021
 DEVELOPER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

SUBDIVISION NAME: ELKRIDGE WOODS SECTION AREA: N/A DEED #: 11917700197 & 1117500393
 TAX MAP: 38 GRID: 9 ZONED: R-12 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 PREVIOUS FILE NO.: ECP-16-008 P-17-001 S-16-09 CONTR. 14-4220-D S-03-02 WP-16-150 P-04-11
 PROFESSIONAL CERTIFICATION: I, BRANON R. ROWE, 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. 4808, EXPIRATION DATE: 7/30/19

BOHLER ENGINEERING
 CORPORATE OFFICE: WARREN, NJ
 OFFICES: BOULDER, CO; TOWSON, MD; WARRING, VA; CENTER VALLEY, PA; TAMPA, FL; PHILADELPHIA, PA
 SURVEYORS; PROJECT MANAGERS; ENVIRONMENTAL CONSULTANTS; LANDSCAPE ARCHITECTS
 CIVIL & CONSULTING ENGINEERS

REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL 811 (VA 1-800-245-4848; PA 1-800-245-1779; DC 1-800-257-7777; MD 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

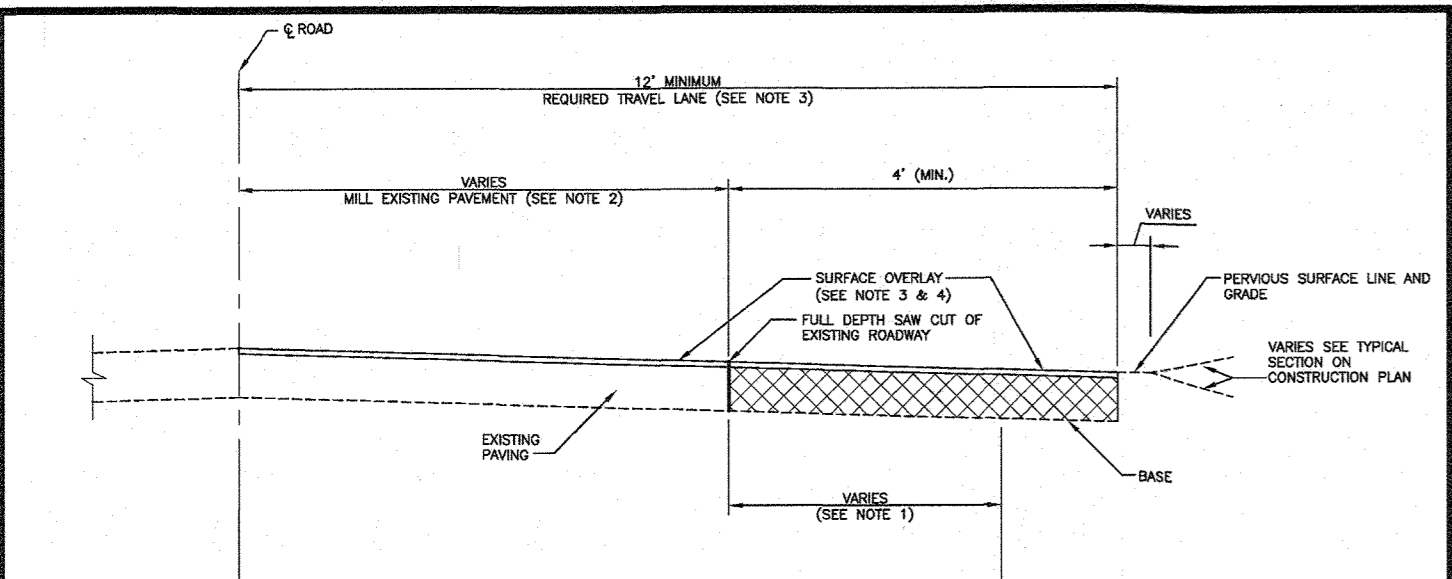
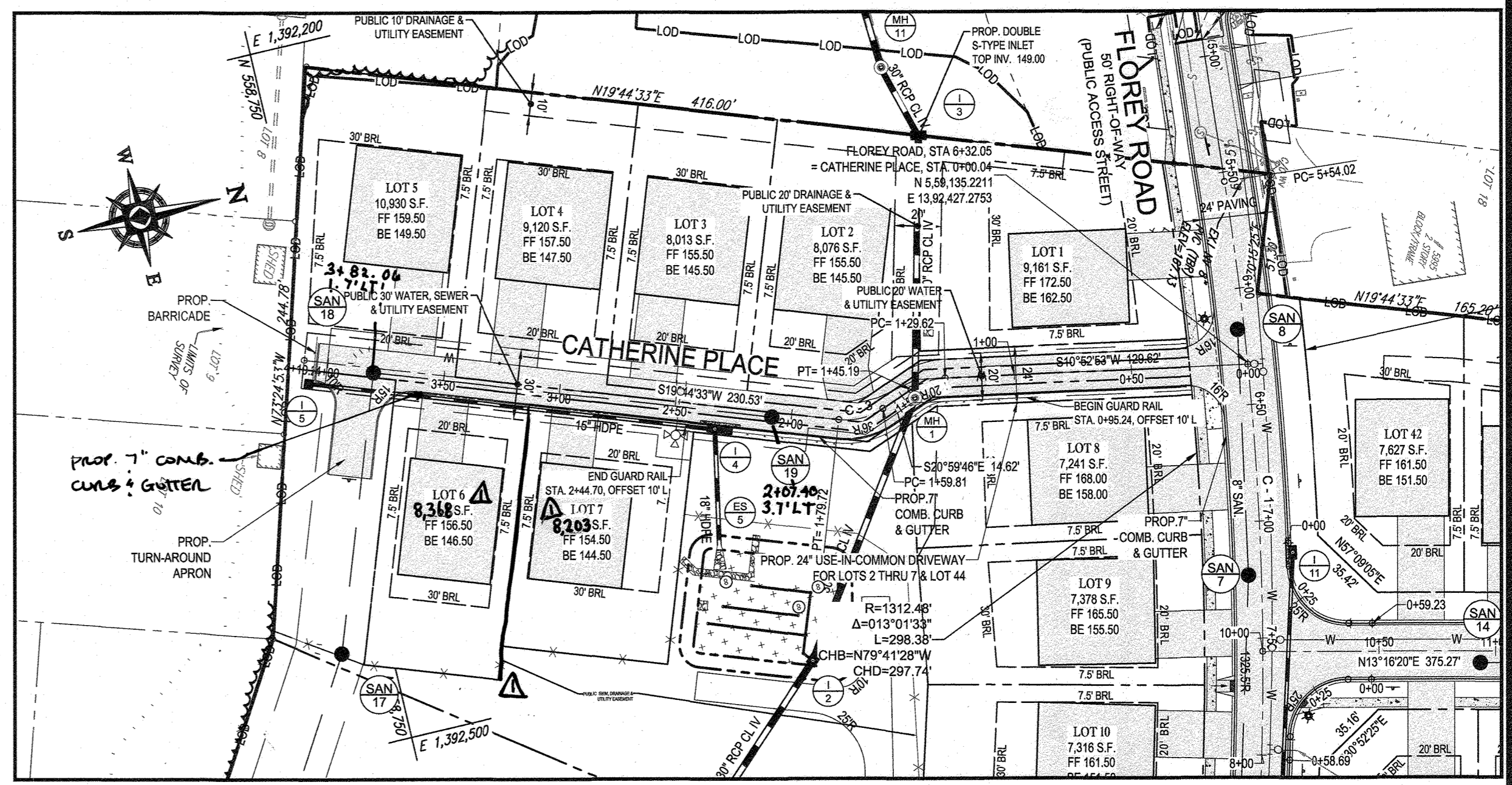
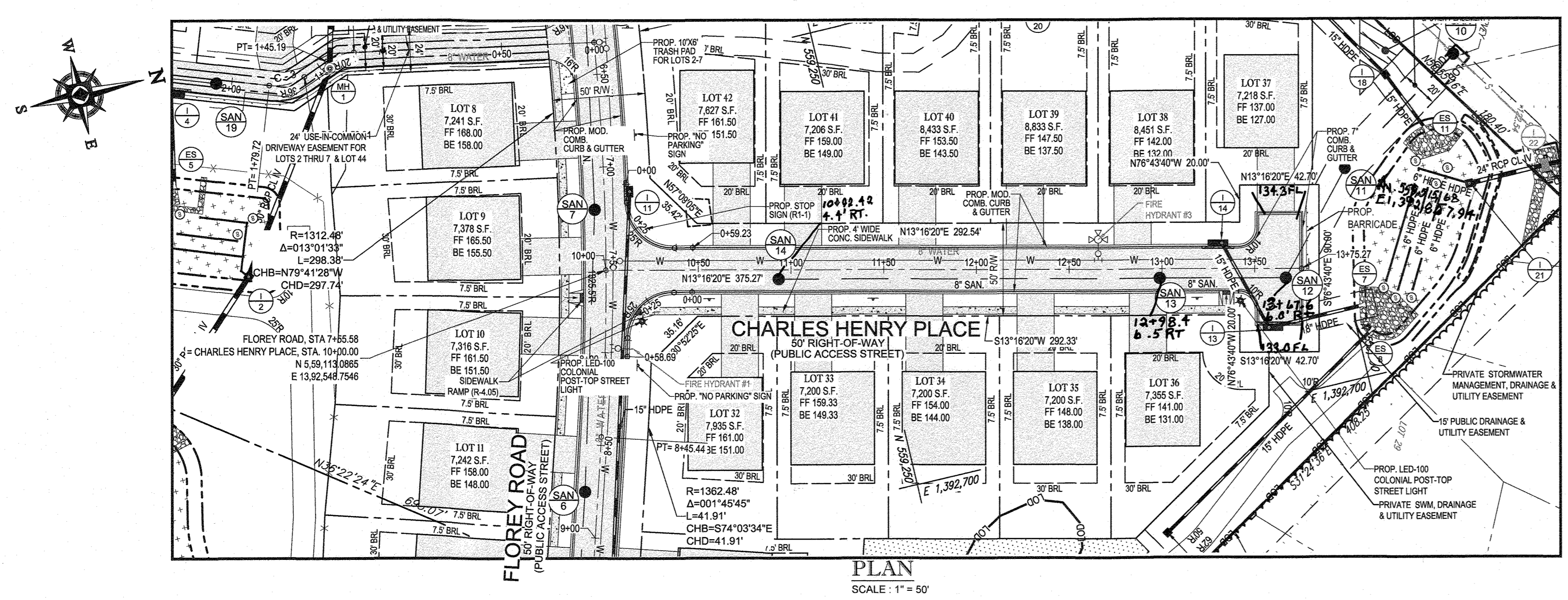
PROJECT No.: MD152015
 DRAWN BY: AVS
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: PP3

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING
 901 DALANEY VALLEY ROAD, SUITE 901
 TOWSON, MARYLAND 21042
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 4808
 EXPIRES 7/30/19

ROAD PLAN AND PROFILE
 SHEET TITLE:
23 of 51
 AS-BUILT



- NOTES:**
- WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE WIDTH CONTRACTOR SHALL REMOVE A MINIMUM OF 1" FULL DEPTH OF THE EXISTING ROADWAY. CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4" OF HOUSING FROM FACE OF GUTTER PAN.
 - THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" (MINIMUM).
 - THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
 - RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

Howard County, Maryland Department of Public Works Chief, Bureau of Engineering	Existing Roadway Widening Strip	Detail R-1.08
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CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-1	1337.48'	291.41'	N79°25'12"W	290.84'	012°29'01"	146.29'
C-2	28.00'	15.58'	S05°03'26"E	15.38'	031°52'39"	8.00'
C-3	28.00'	19.91'	N00°37'36"W	19.49'	040°44'19"	10.40'

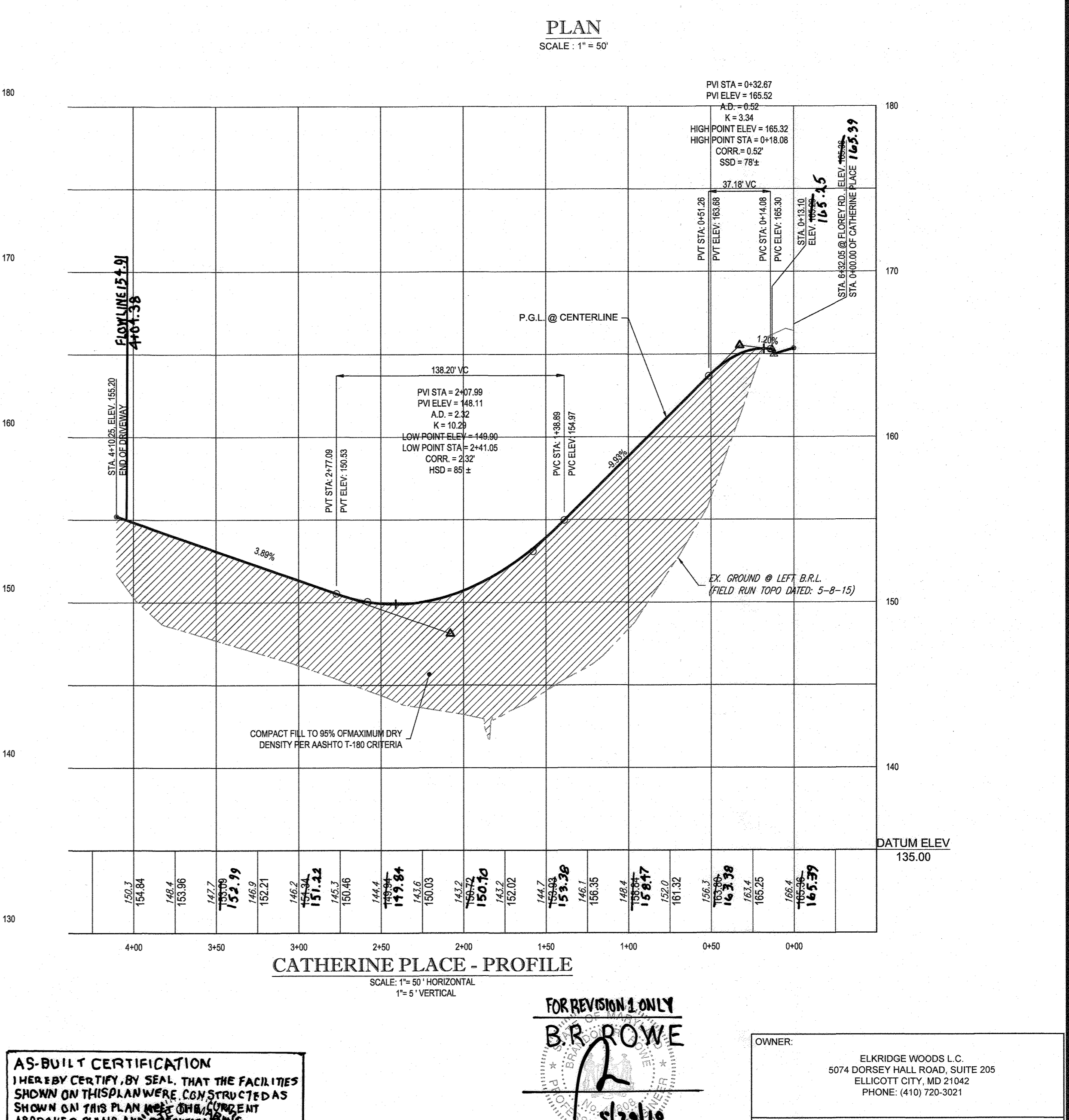
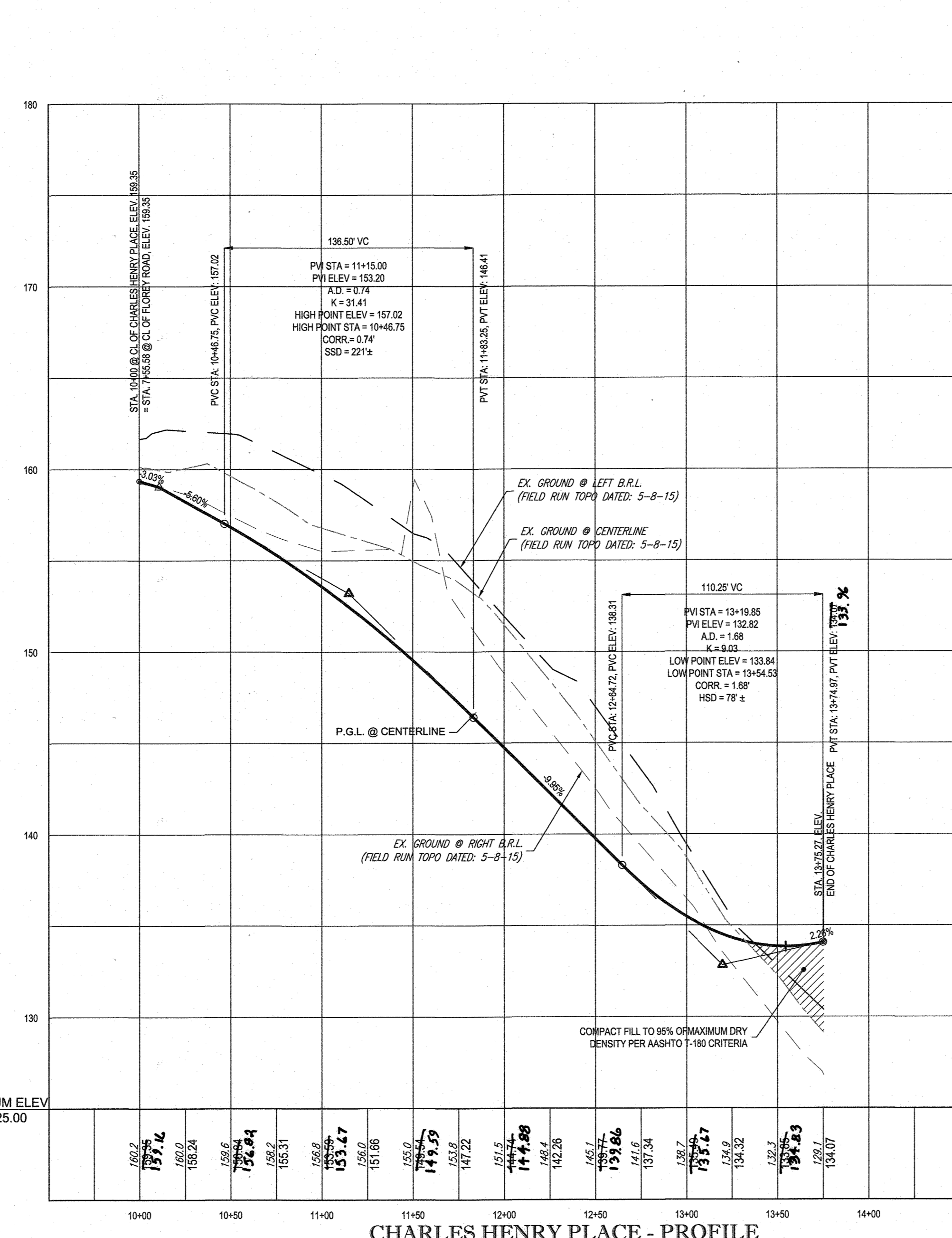
ROAD NAME	CLASSIFICATION	DESIGN SPEED	RAW WIDTH	STATION
CHARLES HENRY PLACE	PUBLIC ACCESS PLACE	25 MPH	50 FT.	10+00 - 13+75.27

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <4>	3 TO <4>	3 TO <4>	3 TO <4>	3 TO <4>	3 TO <4>
P-1	PARKING DRIVE RESIDENTIAL, NOT NON-RESIDENTIAL, WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-2	PARKING DRIVE RESIDENTIAL, NOT NON-RESIDENTIAL, WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-3	PARKING DRIVE RESIDENTIAL, NOT NON-RESIDENTIAL, WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-4	PARKING DRIVE RESIDENTIAL, NOT NON-RESIDENTIAL, WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0	2.0	2.0

Notes:

- HEAVY TRUCKS ARE DEFINED AS TRUCKS WITH GVW EXCEEDING 10,000 LBS.
- MINIMUM SUBGRADE SHALL BE 4% COMPACTED TO 95% RELATIVE DENSITY.
- GRANULAR AGGREGATE BASE (GAB) SHALL BE PLACED AND COMPACTED BY 4" MAXIMUM THICKNESS LAYERS.
- THE INTERMEDIATE SURFACE COURSE SHALL BE PLACED AND COMPACTED BY 4" MAXIMUM THICKNESS LAYERS.
- THE SURFACE COURSE SHALL BE PLACED AND COMPACTED BY 4" MAXIMUM THICKNESS LAYERS.
- THE FINISH SURFACE SHALL BE PLACED AND COMPACTED BY 4" MAXIMUM THICKNESS LAYERS.
- THE FINISH SURFACE SHALL BE PLACED AND COMPACTED BY 4" MAXIMUM THICKNESS LAYERS.
- THE FINISH SURFACE SHALL BE PLACED AND COMPACTED BY 4" MAXIMUM THICKNESS LAYERS.

Howard County, Maryland Department of Public Works Chief, Bureau of Engineering	PAVING SECTIONS P-1 to P-4	Detail R-2.01
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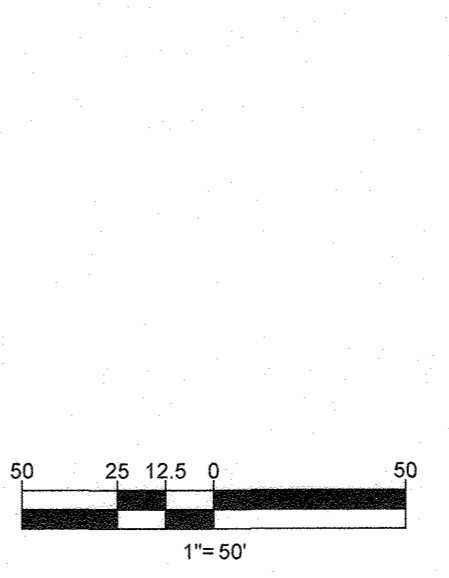


APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 10/9/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 10-22-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-11-18

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 10/9/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 10-22-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-11-18

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN WITH THE MOST RECENT APPROVED PLANS AND SURVEYS DATED 5-17-21 TO 6-10-21.

G. SCOTT SHANABERGER & LAW
 PROFESSIONAL LAND SURVEYORS
 LICENSE EXPIRATION DATE: 12-31-2024
 AS-BUILT SURVEY DATES: 5-17-21 TO 6-10-21



FOR REVISION 1 ONLY
 B.R. ROWE
 5/23/19

SUBDIVISION NAME: ELKRIDGE WOODS
 SECTION/AREA: N/A
 DEED #: 1117700197 & 1117700393

OWNER: ELKRIDGE WOODS, L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS, L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 CIVIL & CONSULTING ENGINEERS
 WARRREN, NJ

CORPORATE OFFICE:
 WARRREN, NJ

BRANCH OFFICES:
 SOUTH BEND, IN
 TOWSON, MD
 CHANTON, VA
 FORT LAUDERDALE, FL

PROJECT MANAGERS:
 ALBANY, NY
 CHANTON, VA
 FORT LAUDERDALE, FL

ENVIRONMENTAL CONSULTANTS:
 CHANTON, VA
 FORT LAUDERDALE, FL

LANDSCAPE ARCHITECTS:
 CHANTON, VA
 FORT LAUDERDALE, FL

REV	DATE	COMMENT	BY
1	4/16/17	REVISED LOTS 8 & 7 OUTLINE FOR COMMENTS	AVG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE: CALL 811 (TOLL FREE 1-800-345-4848) (PA 1-800-242-1776) (DC 1-800-357-7777) (VA 1-800-552-7501) (MD 1-800-257-7777) (DE 1-800-292-8844)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: PPS

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
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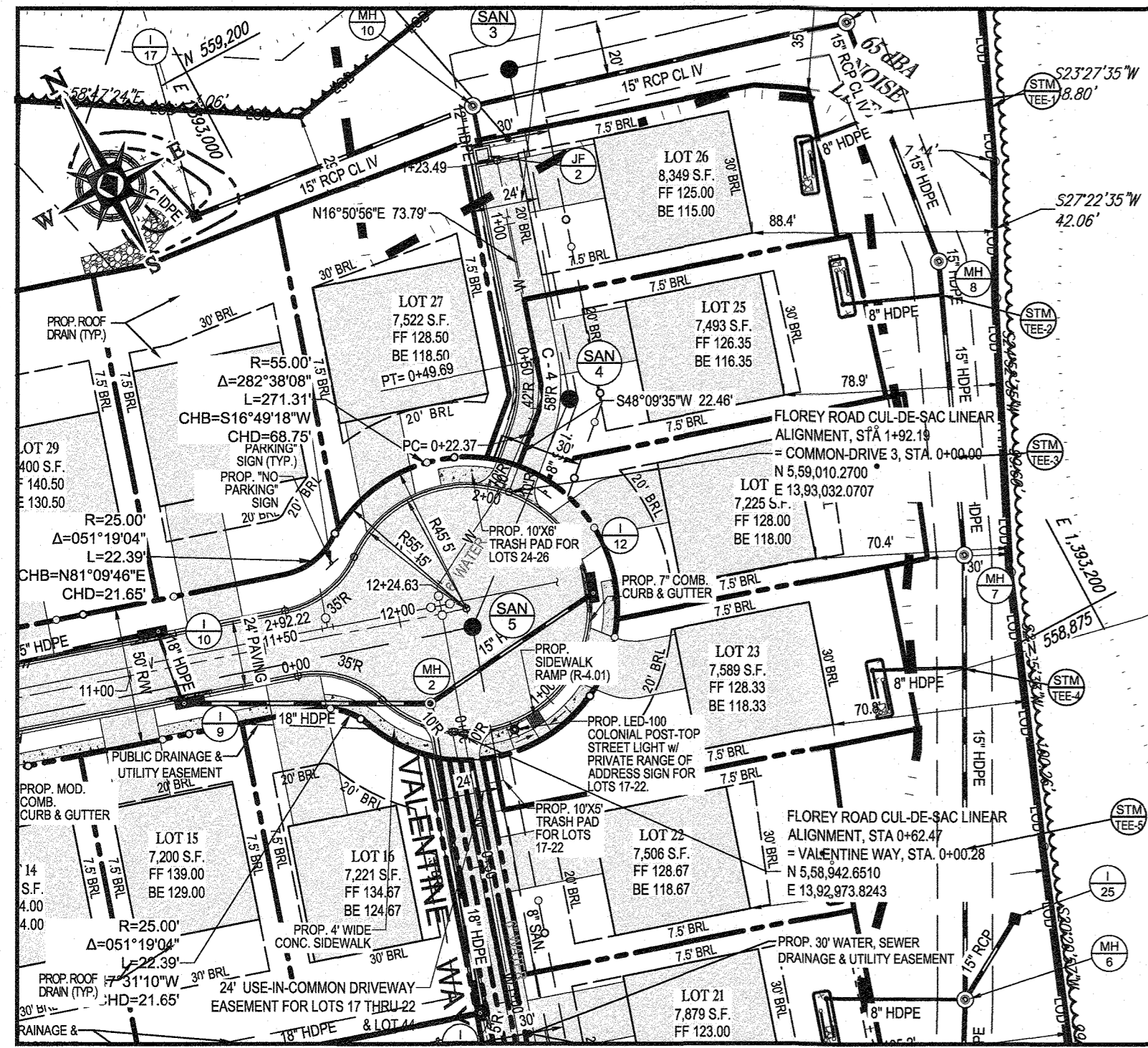
BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD,
 SUITE 901
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 License No. 1117700197 & 1117700393
 5/23/19

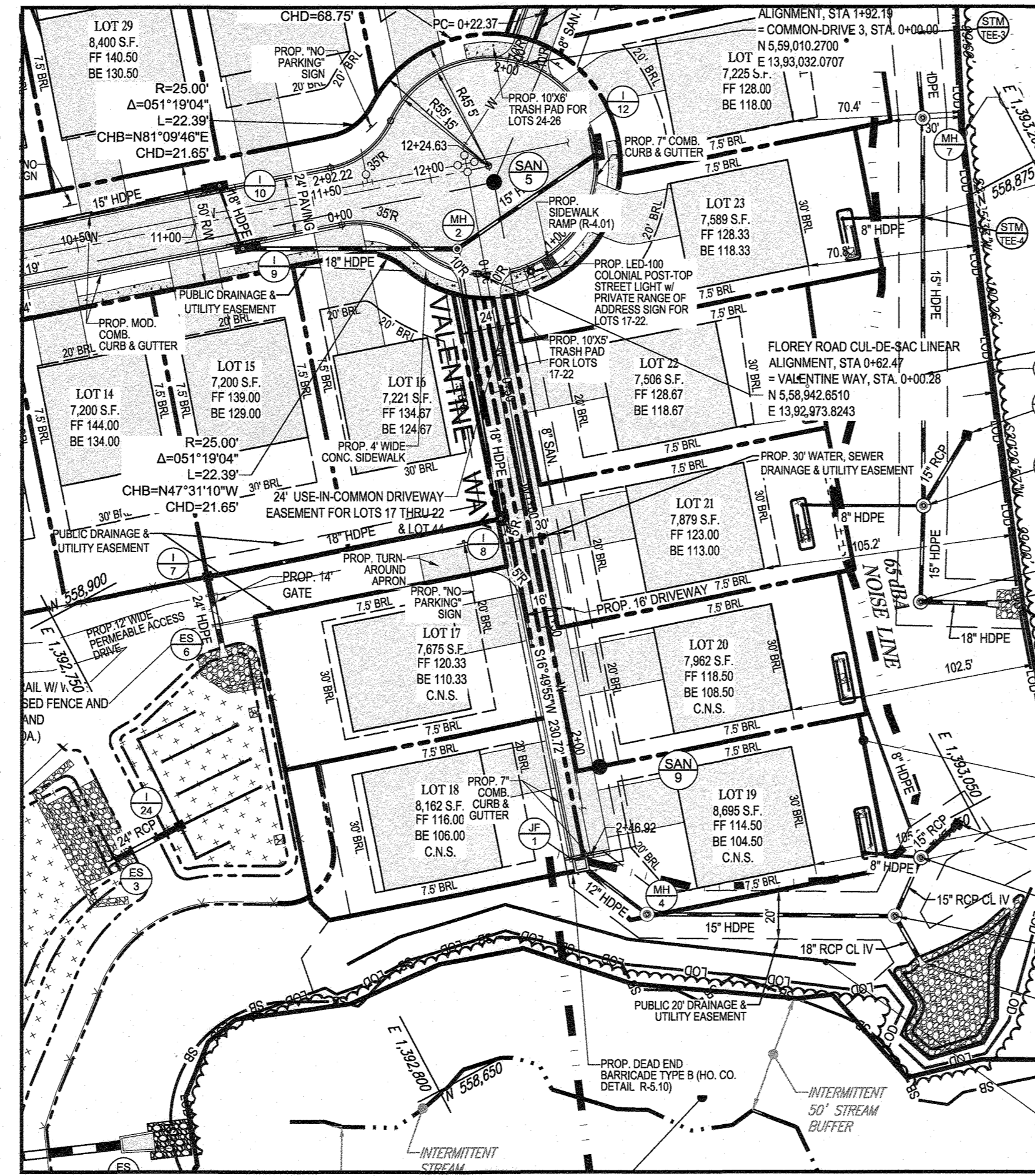
SHEET TITLE:
ROAD PLAN AND PROFILE

SHEET NUMBER:
24 of 51

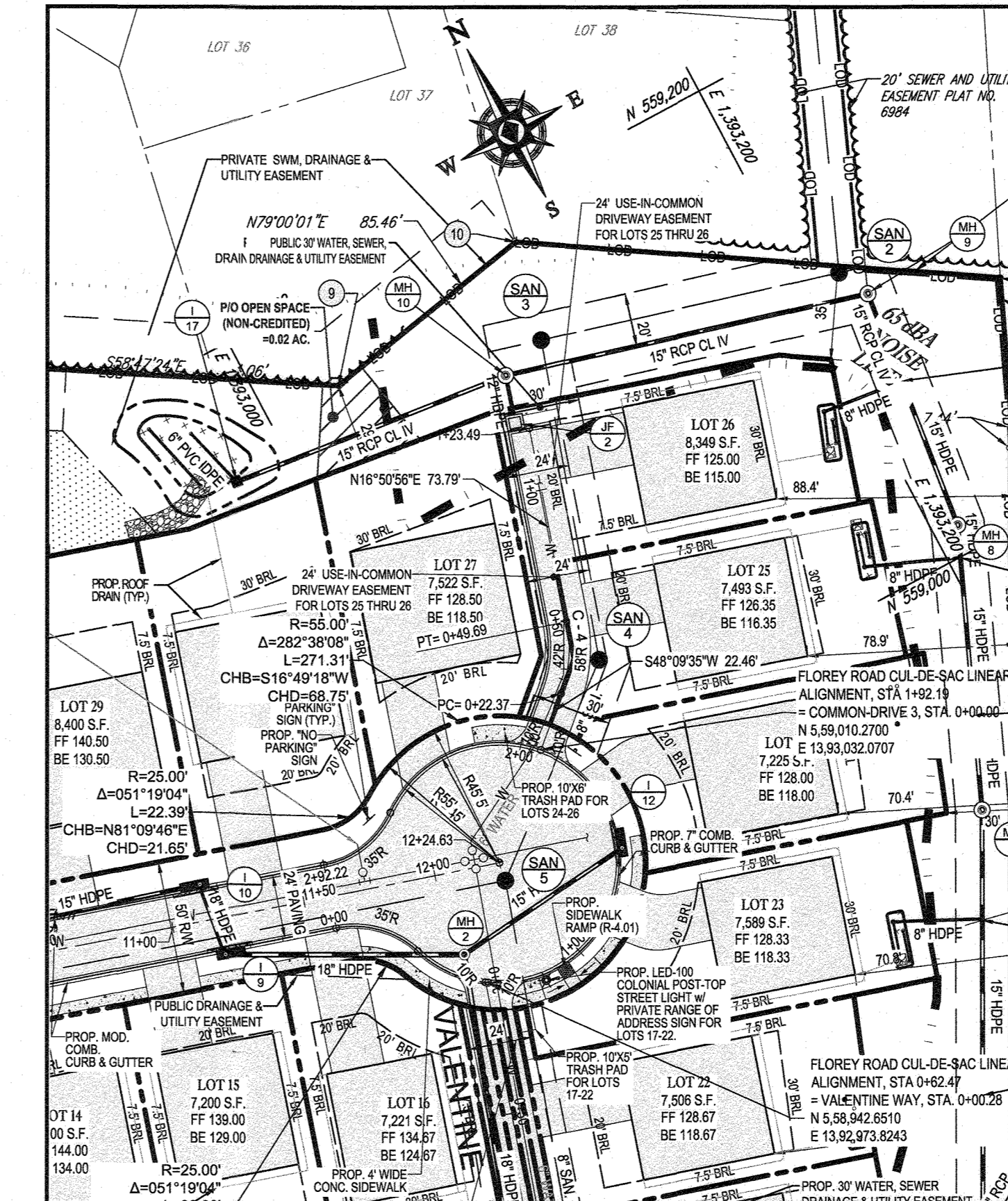
AS-BUILT



CUL-DE-SAC PLAN
SCALE: 1" = 50'

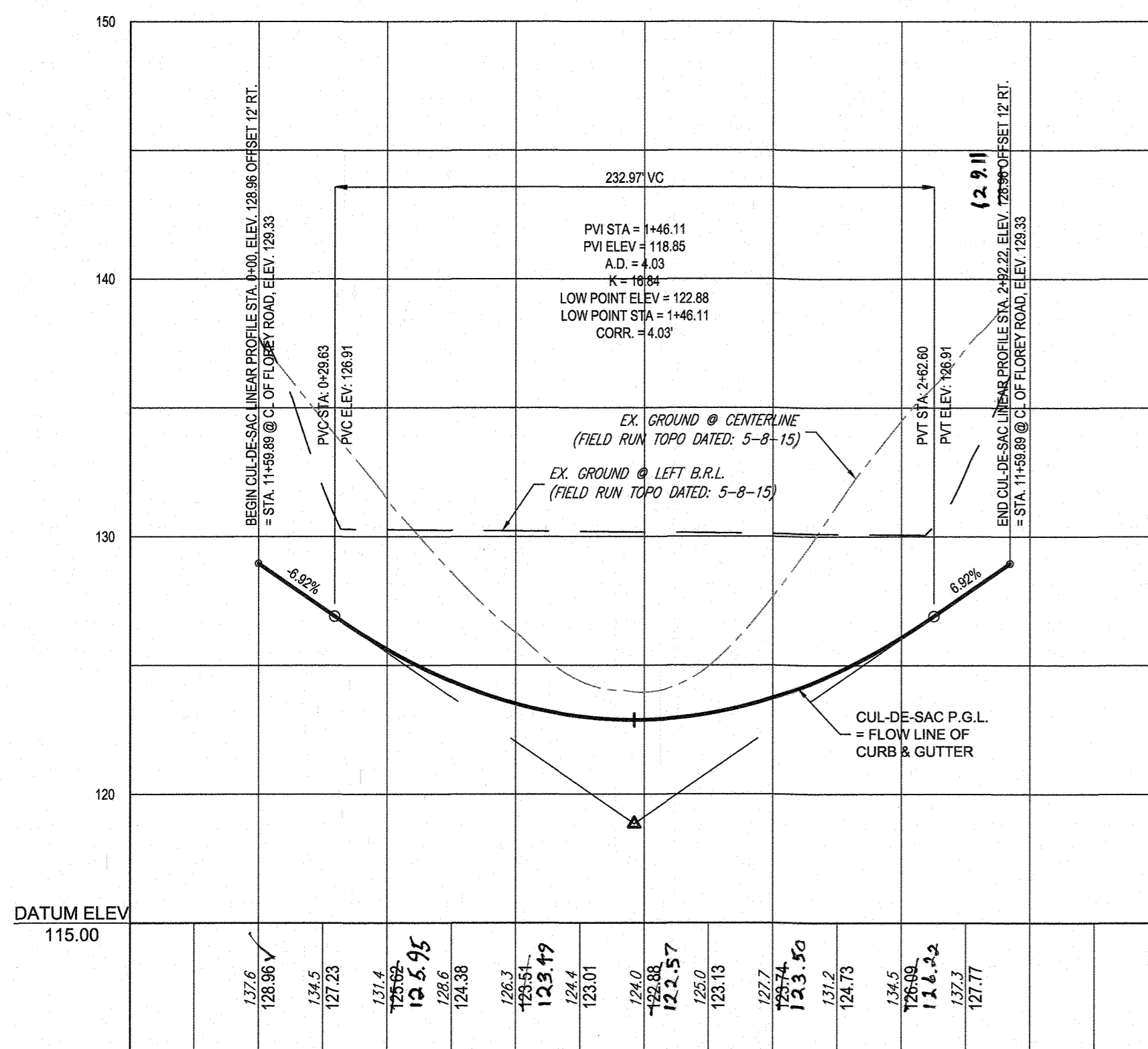


VALENTINE WAY - PLAN
SCALE: 1" = 50'

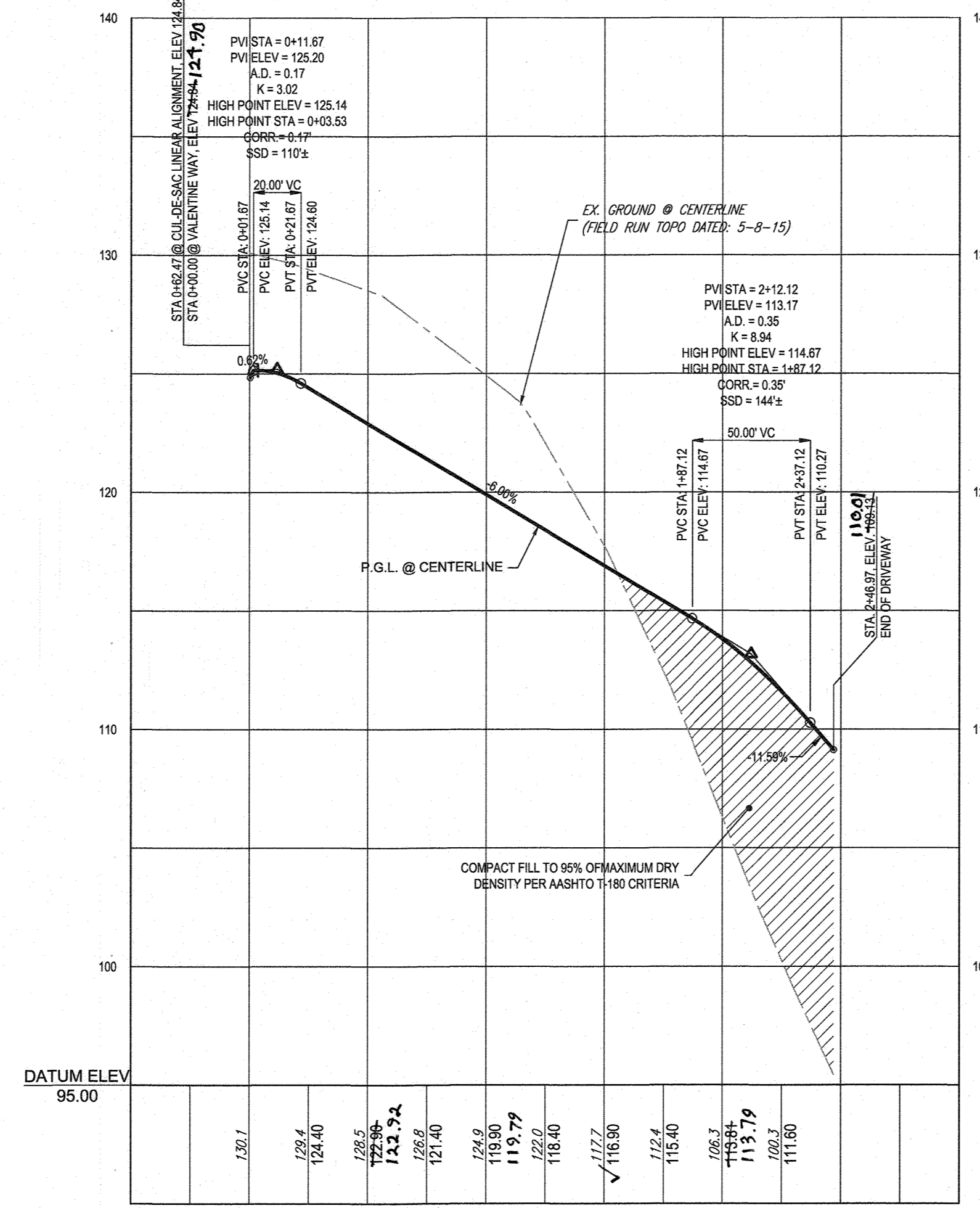


COMMON-DRIVE 3 - PLAN
SCALE: 1" = 50'

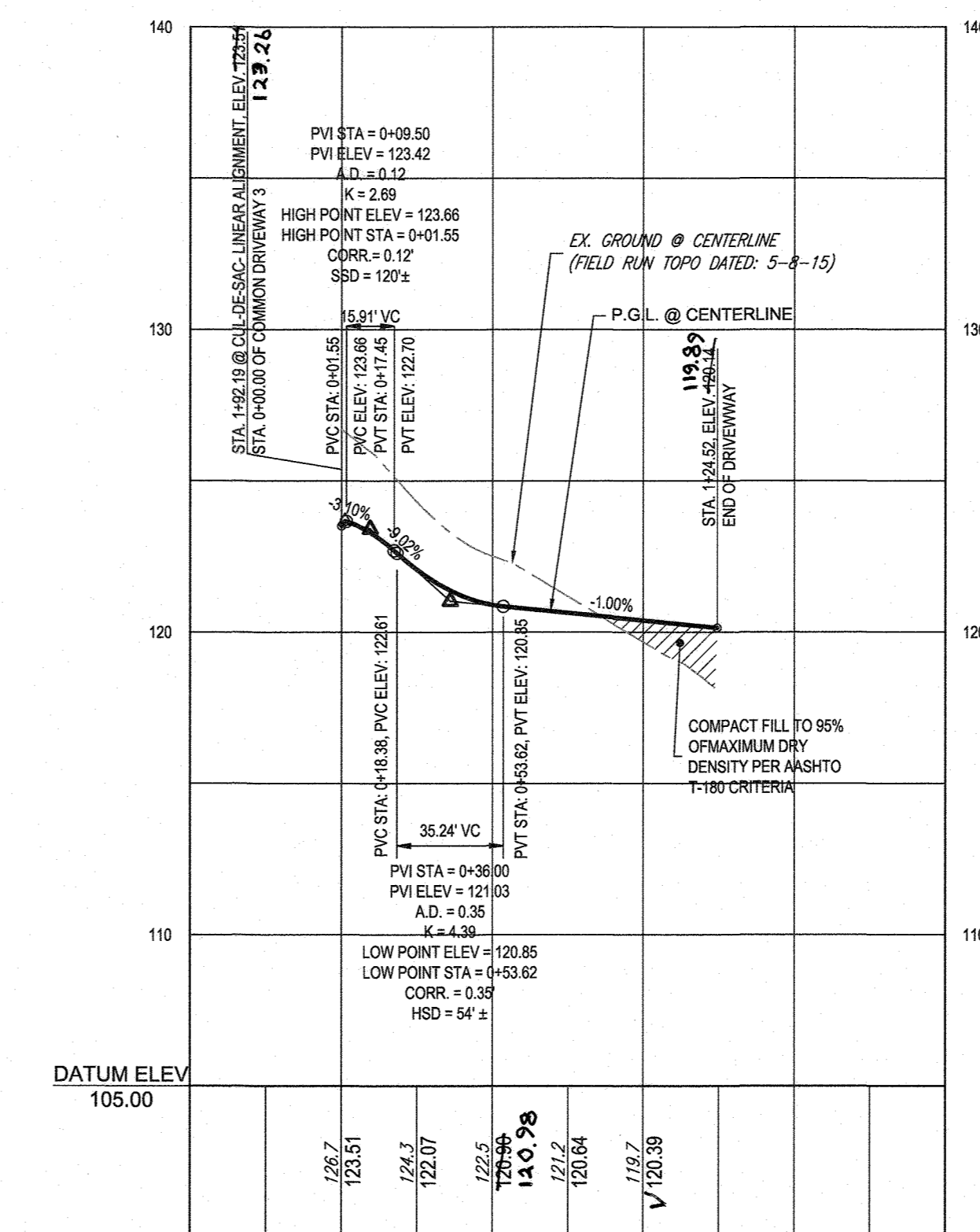
CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C - 4	50.00'	27.17'	N32°29'27"E	26.84'	031°08'11"	13.93'



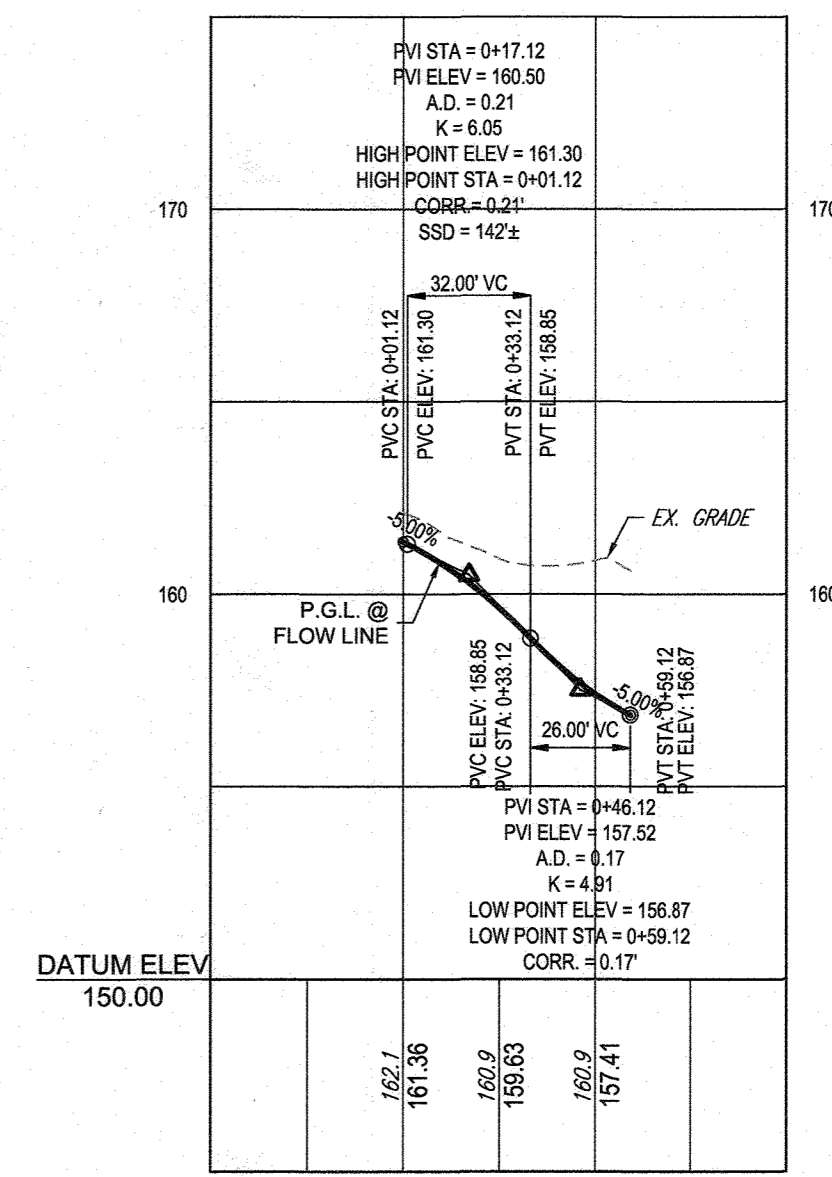
FLOREY ROAD - CUL DE SAC - LINEAR PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



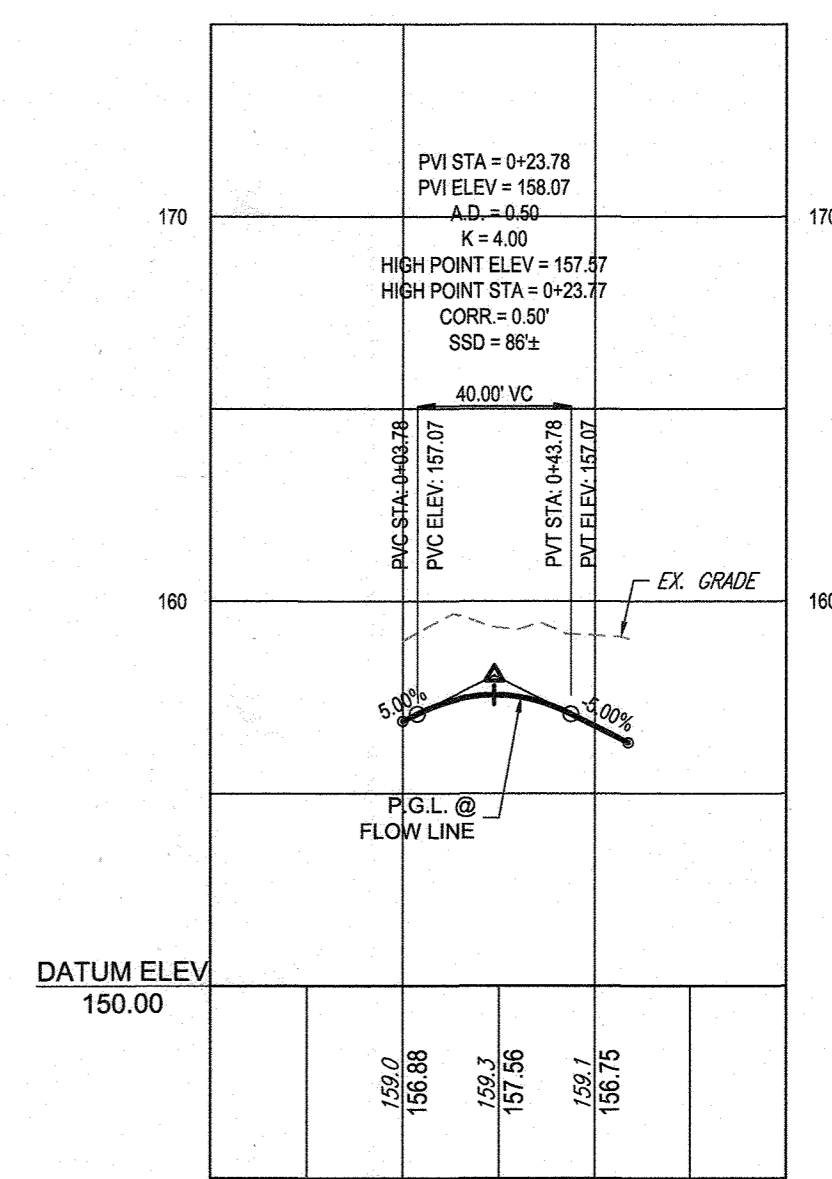
VALENTINE WAY - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



COMMON-DRIVE 3 - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



CURB RETURN TO CHARLES HENRY PL
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



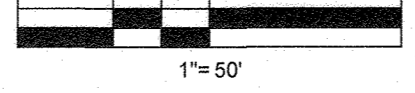
CURB RETURN TO FLOREY RD
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 DATE: 10/3/2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 DATE: 10-22-16

Chief, Development Engineering Division
 DATE: 10-11-18

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN AND IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
 G. SCOTT SHANABERGER
 SHANABERGER & LINT
 PROFESSIONAL LAND SURVEYORS
 LICENSE EXPIRATION DATE: 12/31/2021
 AS-BUILT SURVEY DATES: 5/12/17 TO 6/11/18



PREVIOUS FILE NO.: ECP-16-008 P-17-001
 F-05-004 CONTR. 14-4220-D S-03-02 WP-16-150 P-04-11

SUBDIVISION NAME: ELK RIDGE WOODS
 SECTION AREA: N/A
 DEED #: H1167/00197 & H1175/00393

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

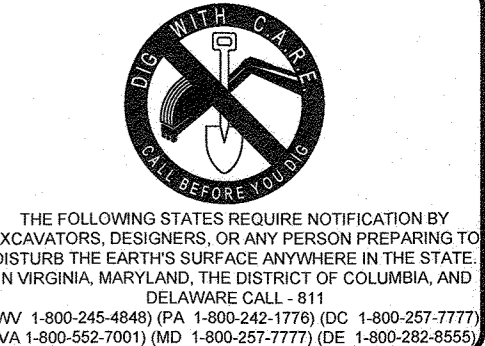
PROFESSIONAL CERTIFICATION
 I, BRANSON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 46828, EXPIRATION DATE: 7/31/2019.

BOHLER ENGINEERING

CORPORATE OFFICE: WARREN, NJ
 OFFICES: BOULDER, CO, IA; ALBANY, NY; CHANTON, PA; CENTER VALLEY, PA; FORT LAUDERDALE, FL; PHOENIX, AZ

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS			
REV	DATE	COMMENT	BY

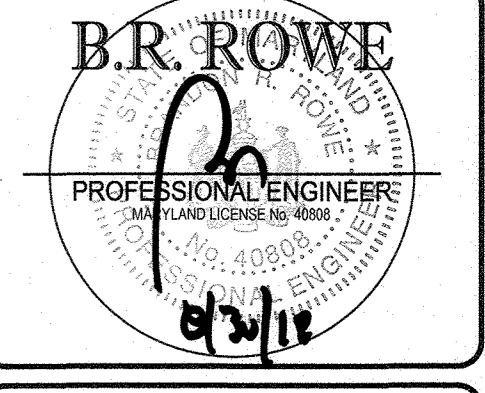


NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
 DRAWN BY: AVS
 CHECKED BY: BBR
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: PFP3

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELK RIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELK RIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9
 PARCELS 756 & 340
 HOWARD COUNTY

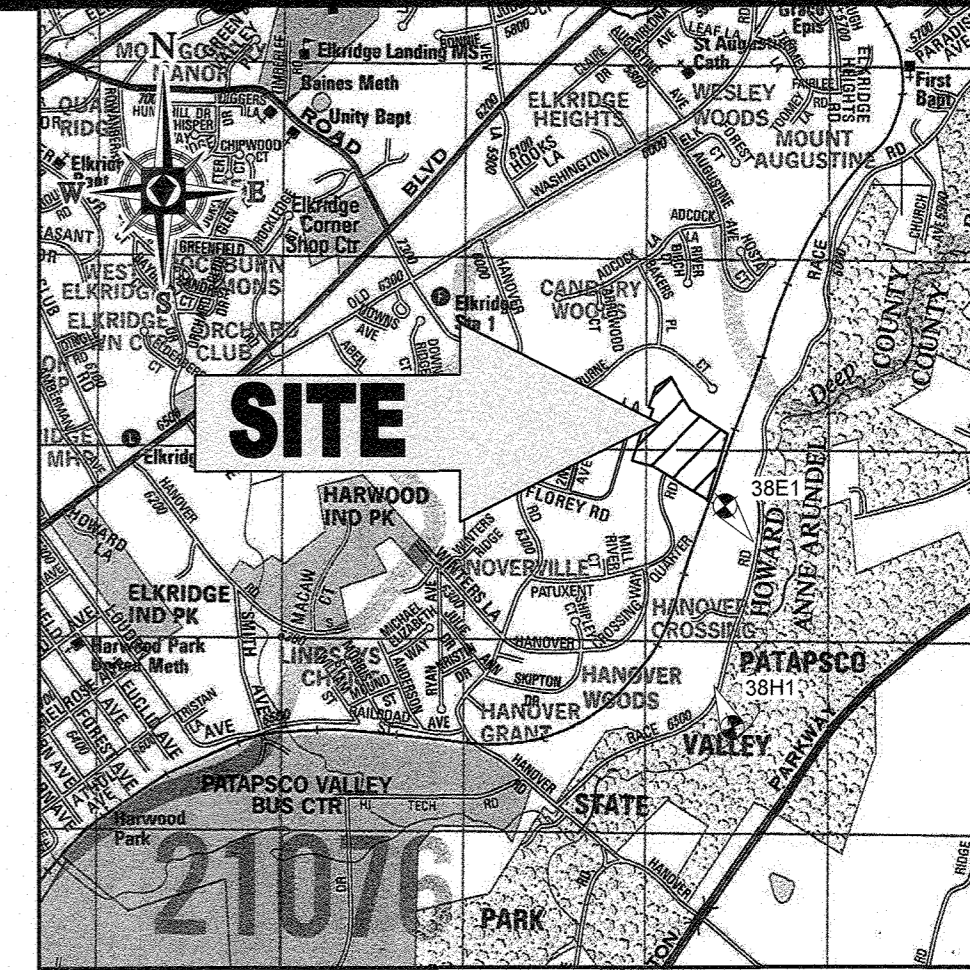
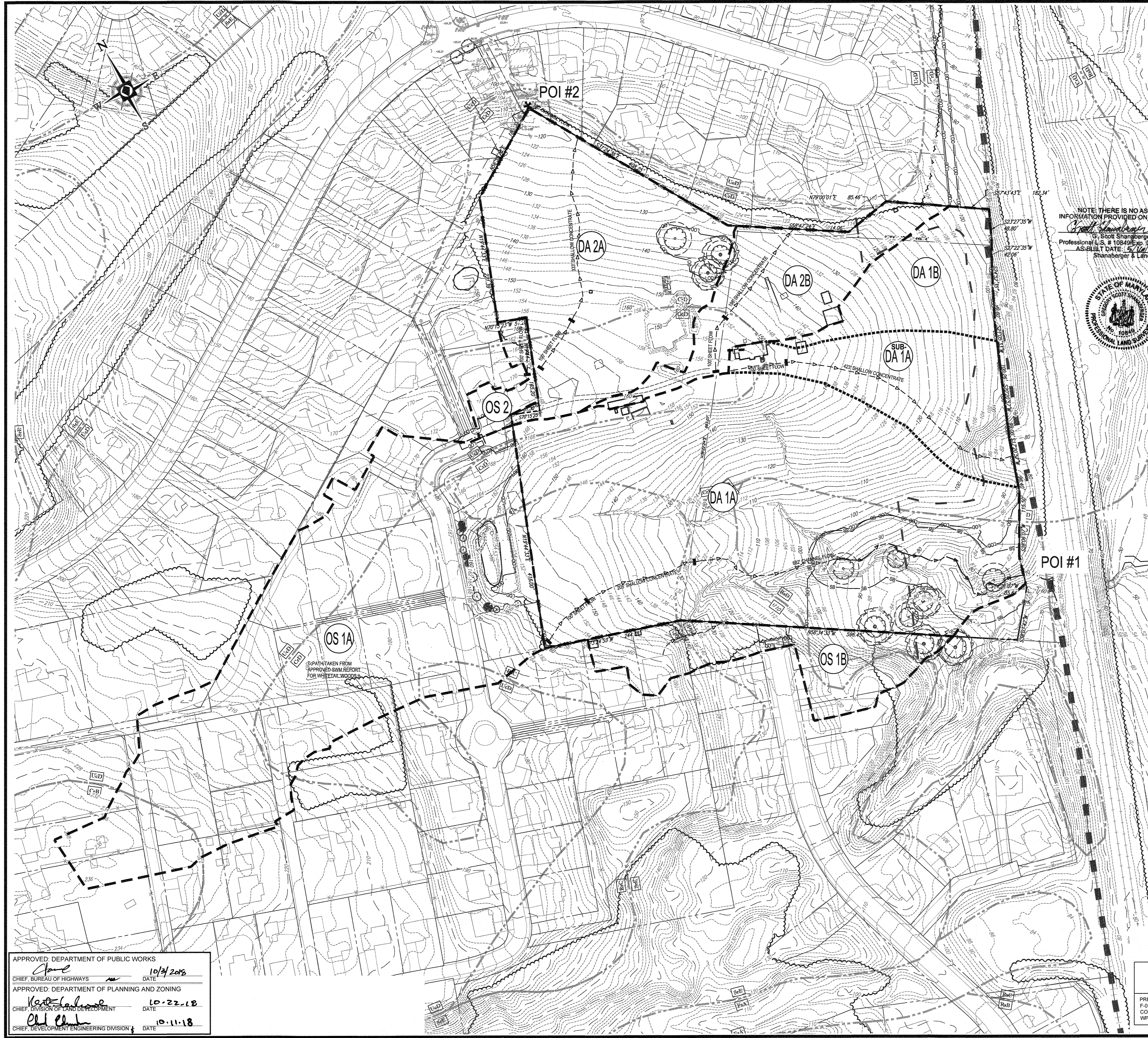
BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com



ROAD PLAN AND PROFILE

SHEET TITLE:
25 of 51

SHEET NUMBER:
 AS-BUILT



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. Scott Shanberger
 Professional L.S. # 10849 Exp. Date 4/2/2024
 AS-BUILT DATE: 5/1/2022
 Shanberger & Lane



LOCATION MAP
 COPYRIGHT ADC THE MAP PEOPLE
 PERMIT USE NO. 20602153-5
 SCALE: 1"=2000'
 ADC MAP COORDINATES: 4937-F8

EX. COND. DRAINAGE AREA SUMMARY TABLE						
DRAINAGE AREA	POINT OF INTEREST	TOTAL DA (AC)	RCN	Tc (MIN.)	Q ₁₀ (CFS)	Q ₁₀₀ (CFS)
OS 1A (TO EX SWM POND)	1	6.870	71	14.3	21.20	47.90
OS 1B	1	1.254	74	14.4	3.70	8.60
DA 1A	1	10.259	71	12.5	27.40	67.40
TOTAL		18.383				
POINT OF INTEREST #1	Q (cfs)					
POI #1 EX Q ₁₀ MAX=	52.30		TR-20			
POI #1 EX Q ₁₀₀ MAX=	123.90		TR-20			
DRAINAGE AREA	POINT OF INTEREST	TOTAL DA (AC)	RCN	Tc (MIN.)	Q ₁₀ (CFS)	Q ₁₀₀ (CFS)
OS 2	2	0.268	83	12.4	1.00	2.10
DA 2A	2	3.506	70	13.7	8.80	22.10
DA 2B	2	1.490	74	8.0	4.90	11.40
TOTAL		5.264				
POINT OF INTEREST #2	Q (cfs)					
POI #2 EX Q ₁₀ MAX=	14.70		TR-20			
POI #2 EX Q ₁₀₀ MAX=	35.60		TR-20			

SUB-DRAINAGE AREA 1A

TOTAL DA = 1.97 AC.
 RCN = 74
 Tc = 10.74 MIN.
 Q₁₀ = 6.57 CFS

LEGEND

- LIMIT OF DISTURBANCE
- - - DRAINAGE AREA DIVIDE
- - - TC PATH
- ▨ STEEP SLOPES >25%
- DA 1A DRAINAGE AREA DESIGNATION
- * POI #1 POINT OF INTEREST

NOTES:
 1. DRAINAGE AREA INFORMATION SHOWN HEREON IS PRIMARILY BASED OFF OF HOWARD COUNTY GIS TOPOGRAPHY AND LIMITED FIELD TOPOGRAPHY PREPARED BY BOHLER ENGINEERING DATED JANUARY 16, 2015.

* NOTE: PROPOSED IMPERVIOUS AREA DO NOT INCLUDE PROPOSED DWELLINGS.

OWNER:	ELKRIDGE WOODS L.C. 5074 DORSEY HALL ROAD, SUITE 205 ELLCOTT CITY, MD 21042 PHONE: (410) 720-3021
DEVELOPER:	ELKRIDGE WOODS L.C. 5074 DORSEY HALL ROAD, SUITE 205 COLUMBIA, MD 21042 CONTACT: JASON VAN KIRK PHONE: (410) 720-3021
TAX MAP:	38 GRID: 9 ZONED: R-12
	PARCELS: 756 & 340
	1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SUBDIVISION NAME: ELKRIDGE WOODS
 SECTION/AREA: N/A
 DEED # 1161700197 & 1117500393

PREVIOUS FILE NO.: ECP-16-008 P-17-001
 S-15-001 S-03-02
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

BOHLER ENGINEERING
 CIVIL & CONSULTING ENGINEERS
 SUBDIVISIONS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
 WYOMING, NJ
 SOUTHBRIDGE, MA
 ALBANY, NY
 ELKRIDGE, MD
 CHALFONT, PA
 TAMPA, FL
 PHILADELPHIA, PA

REVISIONS			
REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO PLOTTOR THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811
 (WV 1-800-245-4848) (PA 1-800-242-1778) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8559)

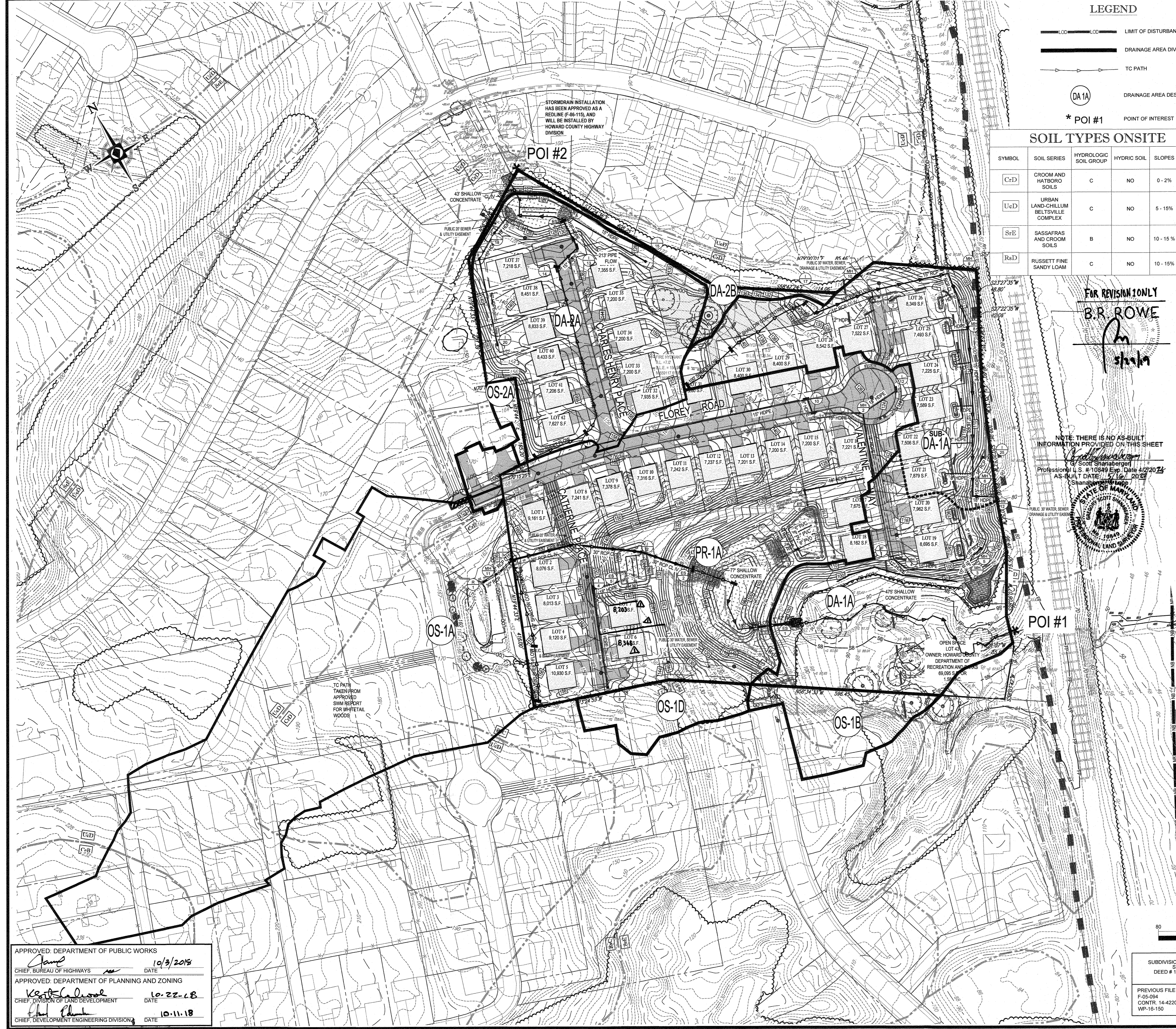
FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
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 TAX MAP 38, GRID 9,
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 Phone: (410) 821-7900
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 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE # 40808

SHEET TITLE:
EXISTING CONDITIONS DRAINAGE AREA MAP
 SHEET NUMBER:
26 of 51
 AS-BUILT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways DATE: 10/17/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development DATE: 10-22-18
 Chief, Development Engineering Division DATE: 10-11-18

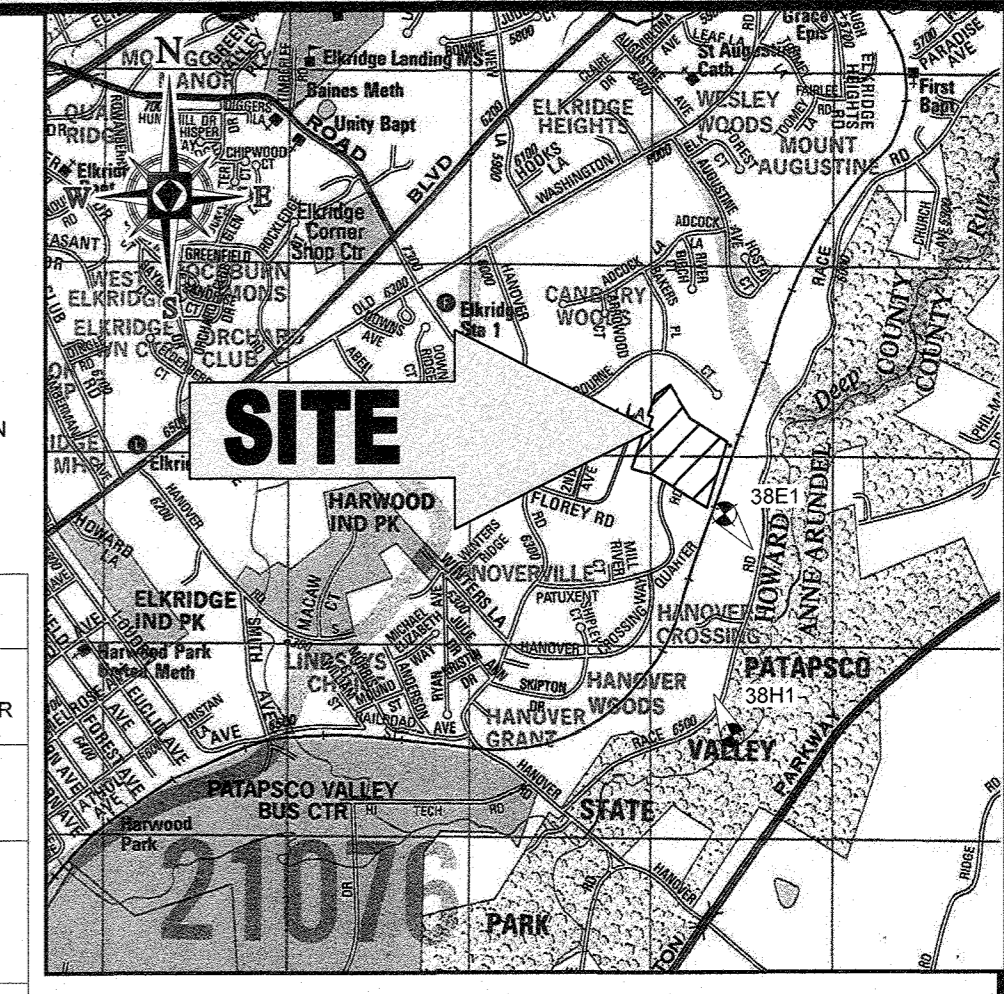


LEGEND

- LIMIT OF DISTURBANCE
- DRAINAGE AREA DIVIDE
- TC PATH
- DRAINAGE AREA DESIGNATION
- POINT OF INTEREST

SOIL TYPES ONSITE

SYMBOL	SOIL SERIES	HYDROLOGIC SOIL GROUP	HYDRIC SOIL	SLOPES	K FACTOR
CrD	CROOM AND HATBORO SOILS	C	NO	0 - 2%	32
UcD	URBAN LAND-CHILLUM BELTSVILLE COMPLEX	C	NO	5 - 15%	43
SrE	SASSAFRAS AND CROOM SOILS	B	NO	10 - 15 %	32
RaD	RUSSETT FINE SANDY LOAM	C	NO	10 - 15%	28



LOCATION MAP
 COPYRIGHT ADC THE MAP PEOPLE
 PERMIT USE NO. 20502153-5
 SCALE: 1"=2000'
 ADC MAP COORDINATES: 4937-F8

FOR REVISION ONLY
 B.R. ROWE
[Signature]

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 Scott Charabert
 Professional U.S. # 10849 Exp. Date 4/20/24
 AS-BUILT DATE: 5/16/2022
 Shangyan Wang
 STATE OF MARYLAND
 PROFESSIONAL LAND SURVEYOR
 10849

PR. COND. DRAINAGE AREA SUMMARY TABLE

DRAINAGE AREA	POINT OF INTEREST	TOTAL DA (AC)	RCN	Tc (MIN)	Q ₁₀ (CFS)	Q ₁₀₀ (CFS)
OS 1A (TO EX SWM POND)	1	6.810	76	14.4	29.99	47.59
OS-1B	1	0.700	75	6.0	2.72	4.63
OS-1D	1	0.550	70	6.0	2.47	4.15
DA-1A	1	6.220	80	6.0	23.85	38.55
PR-1A	1	6.715	84	12.8	36.24	53.63
TOTAL		19.995				

POINT OF INTEREST #1	Q ₁₀ (cfs)	Q ₁₀₀ (cfs)
BYPASS =	26.57	43.18
PROP SWM POND DISCHARGE =	25.68	44.13
POI #1 PR Q ₁₀ MAX =	24.75	TR-20
POI #1 PR Q ₁₀₀ MAX =	67.68	TR-20

DRAINAGE AREA	POINT OF INTEREST	TOTAL DA (AC)	RCN	Tc (MIN)	Q ₁₀ (CFS)	Q ₁₀₀ (CFS)
OS-2A	2	0.110	74	6.0	0.41	0.71
DA-2A	2	3.066	85	10.0	12.84	22.13
DA-2B	2	0.280	79	6.0	1.25	2.04
TOTAL		3.456				

POINT OF INTEREST #2	Q ₁₀ (cfs)	Q ₁₀₀ (cfs)
BYPASS =	1.25	2.94
PROP ESD FACILITY DISCHARGE =	11.40	27.90
POINT OF INTEREST	Q (cfs)	
POI #2 PR Q ₁₀ MAX =	12.65	TR-20
POI #2 PR Q ₁₀₀ MAX =	29.94	TR-20

CANBURY SUBDIVISION (INFORMATION TAKEN FROM F-86-083)

DRAINAGE AREA	POINT OF INTEREST	TOTAL DA (AC)	RCN	Tc (MIN)	Q ₁₀ (CFS)	Q ₁₀₀ (CFS)
J	2	4.200	85	6.0	19.25	29.66
L	2	1.488**	85	6.0	7.01	10.80
TOTAL		5.688			26.26	40.46

**NOTE: DENOTES AREA WITHIN PROPOSED SUBDIVISION ONLY

DISCHARGE SUMMARY

POINT OF INTEREST	EX Q ₁₀ (CFS)	PR Q ₁₀ (CFS)	CANBURY PR Q ₁₀ (CFS)
1	52.30	> 24.75	n/a
2	14.70	> 12.65	< 26.26
POINT OF INTEREST	EX Q ₁₀₀ (CFS)	PR Q ₁₀₀ (CFS)	CANBURY PR Q ₁₀₀ (CFS)
1	123.90	> 67.68	n/a
2	35.60	> 29.94	< 40.46

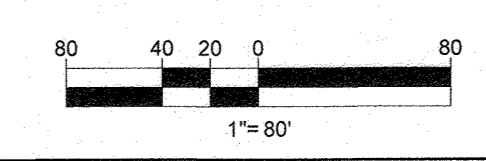
SUB-DRAINAGE AREA 1A

TOTAL DA = 1.66 AC
 RCN = 83
 TC = 15.96 MIN
 Q₁₀ = 6.19 CFS

OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



SUBDIVISION NAME: ELKRIDGE WOODS
 SECTION/AREA: N/A
 DEED # 11517700197 & 1117500393

PREVIOUS FILE NO.: ECP-16-008 P-17-001
 F-05-004 S-16-001
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, 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. 40808, EXPIRATION DATE: 7/31/2019

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] DATE: 10/3/2015
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] DATE: 10-22-18
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 10-11-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

BOHLER ENGINEERING

CORPORATE OFFICE: WARRREN, NJ
 OFFICES: BOULDER, CO; ALBANY, NY; CHAMONT, PA; CENTER VALLEY, PA; FORT LAUDERDALE, FL; FORT WORTH, TX; HANOVER, VA; PHILADELPHIA, PA; PITTSBURGH, PA; RICHMOND, VA; WASHINGTON, DC

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY
Δ	4/16/19	REVISED LOTS & LOT LINES PER COMMENTS	AVG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE: CALL 811 (WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-3777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: 1" = 80'
 CAD I.D.: DA3

FINAL ROAD CONSTRUCTION PLAN

FOR
ELKRIDGE WOODS
 LOTS 1-12 & OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD,
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 TOWSON, MARYLAND 21204
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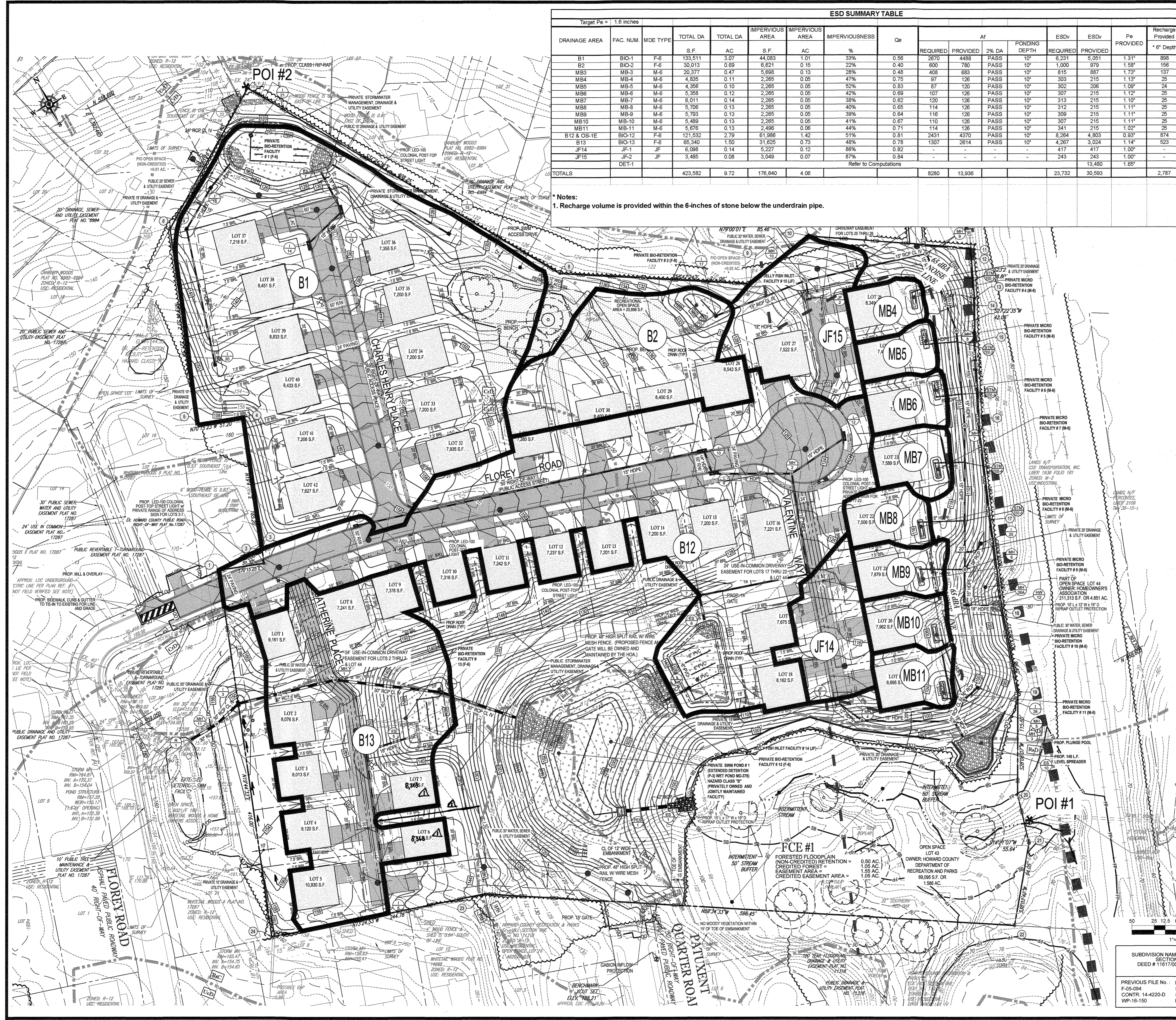
B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE # 40808
 EXPIRES 7/31/2019

SHEET TITLE:
PROPOSED CONDITIONS DRAINAGE AREA MAP

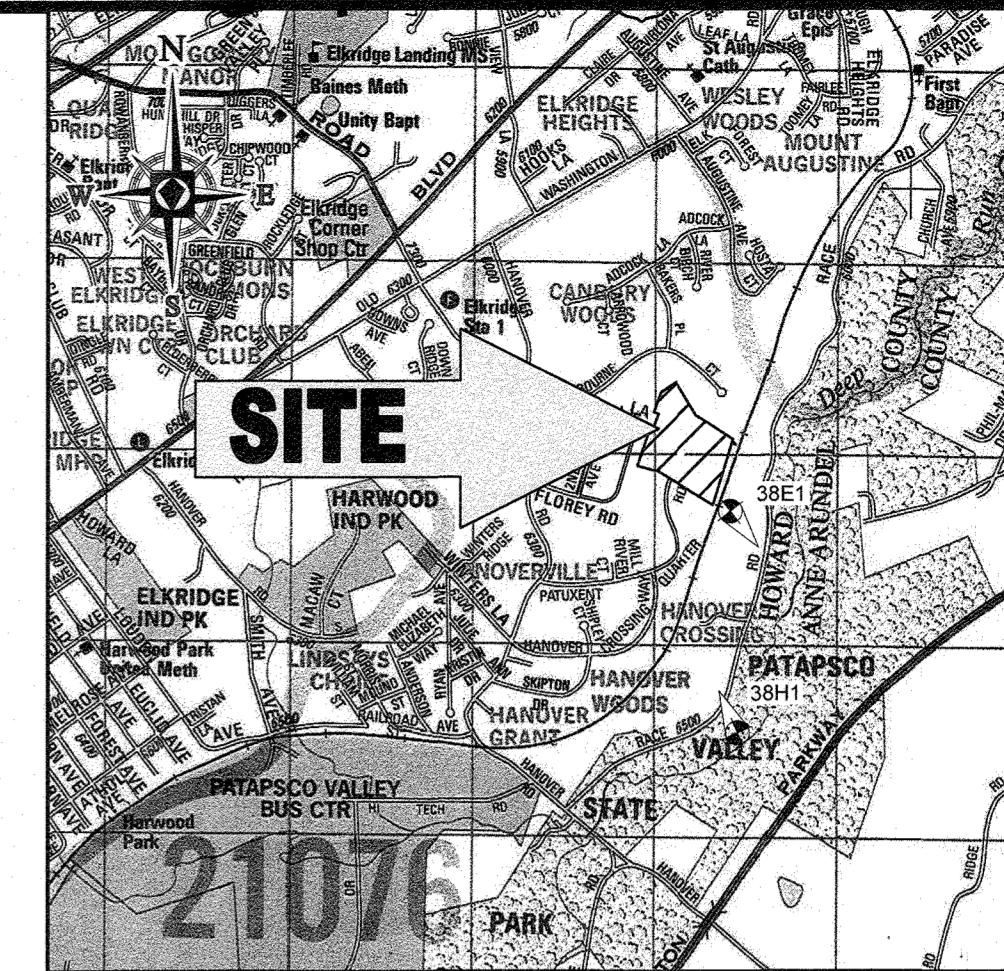
SHEET NUMBER:
27 of 51

AS-BUILT



ESD SUMMARY TABLE																
Target Pe = 1.6 inches																
DRAINAGE AREA	FAC. NUM.	MDE TYPE	TOTAL DA		IMPERVIOUS AREA		IMPERVIOUSNESS	Cp	AF			ESDV		Pe PROVIDED	Recharge Provided	
			S.F.	AC	S.F.	AC			REQUIRED	PROVIDED	% DA	PONDING DEPTH	REQUIRED			PROVIDED
B1	BIO-1	F-6	133,511	3.07	44,083	1.01	33%	0.56	2670	4488	PASS	10"	6,231	5,051	1.31"	898
B2	BIO-2	F-6	30,013	0.69	6,621	0.15	22%	0.40	600	780	PASS	10"	1,000	979	1.58"	166
MB3	MB-3	M-6	20,377	0.47	5,698	0.13	28%	0.48	408	683	PASS	10"	815	887	1.73"	137
MB4	MB-4	M-6	4,838	0.11	2,265	0.06	47%	0.75	97	126	PASS	10"	303	215	1.10"	25
MB5	MB-5	M-6	4,356	0.10	2,265	0.05	52%	0.83	87	120	PASS	10"	302	206	1.09"	24
MB6	MB-6	M-6	5,358	0.12	2,265	0.05	42%	0.69	107	126	PASS	10"	307	215	1.12"	26
MB7	MB-7	M-6	6,011	0.14	2,265	0.05	38%	0.62	120	126	PASS	10"	313	215	1.10"	26
MB8	MB-8	M-6	5,706	0.13	2,265	0.05	40%	0.65	114	126	PASS	10"	312	215	1.11"	25
MB9	MB-9	M-6	5,793	0.13	2,265	0.05	39%	0.64	116	126	PASS	10"	309	215	1.11"	25
MB10	MB-10	M-6	5,489	0.13	2,265	0.05	41%	0.67	110	126	PASS	10"	307	215	1.11"	25
MB11	MB-11	M-6	5,676	0.13	2,496	0.06	44%	0.71	114	126	PASS	10"	341	215	1.02"	25
B12 & OS-1E	BIO-12	F-6	121,522	2.79	61,986	1.42	51%	0.81	2431	4370	PASS	10"	8,264	4,803	0.93"	874
B13	BIO-13	F-6	65,340	1.50	31,625	0.73	48%	0.78	1307	2614	PASS	10"	4,267	3,024	1.14"	523
JF14	JF-1	JF	6,088	0.14	5,227	0.12	86%	0.82	-	-	-	-	417	417	1.00"	-
JF15	JF-2	JF	3,485	0.08	3,049	0.07	87%	0.84	-	-	-	-	243	243	1.00"	-
TOTALS	DET-1							Refer to Computations					23,732	30,593	1.65"	2,787

* Notes:
1. Recharge volume is provided within the 6-inches of stone below the underdrain pipe.



LOCATION MAP
COPYRIGHT ADC THE MAP PEOPLE
PERMIT USE NO. 20602163-5
SCALE: 1"=2000'
ADC MAP COORDINATES: 4937-F8

- LEGEND**
- LIMIT OF DISTURBANCE
 - DRAINAGE AREA DIVIDE
 - - - TC PATH
 - DA 1A DRAINAGE AREA DESIGNATION

BOHLER ENGINEERING
CORPORATE OFFICE: WARRINGTON, VA
OFFICES: WASHINGTON, DC; ANNAPOLIS, MD; FORT LAUDERDALE, FL
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

REV	DATE	COMMENT	BY
Δ	4/16/19	REVISED LOTS 8 & 7 LOT LINES PER COMMENTS AVG	

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NOT APPROVED FOR CONSTRUCTION

PROJECT No. MD152015
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 08/29/18
SCALE: 1"=50'
CAD I.D.: DAB

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
Scott Shanaberger
G. Scott Shanaberger
Professional L.S. # 10849 Exp. Date 4/2/20 24
AS-BUILT DATE: 5/16/2022
Shanaberger & Lane



FINAL ROAD CONSTRUCTION PLAN
FOR
ELKRIDGE WOODS
LOTS 1-42 & OPEN SPACE LOTS 43 & 44
LOCATION OF SITE
5920 FLOREY ROAD
ELKRIDGE, MD
1ST ELECTION DISTRICT
TAX MAP 38, GRID 9
PARCELS 756 & 340
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
No. 40808
9/15/10

APPROVED: DEPARTMENT OF PUBLIC WORKS
10/3/2018
APPROVED: DEPARTMENT OF PLANNING AND ZONING
10-22-18
10-11-18

OWNER: ELKRIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
ELLCOTT CITY, MD 21042
PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
PARCELS: 756 & 340
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

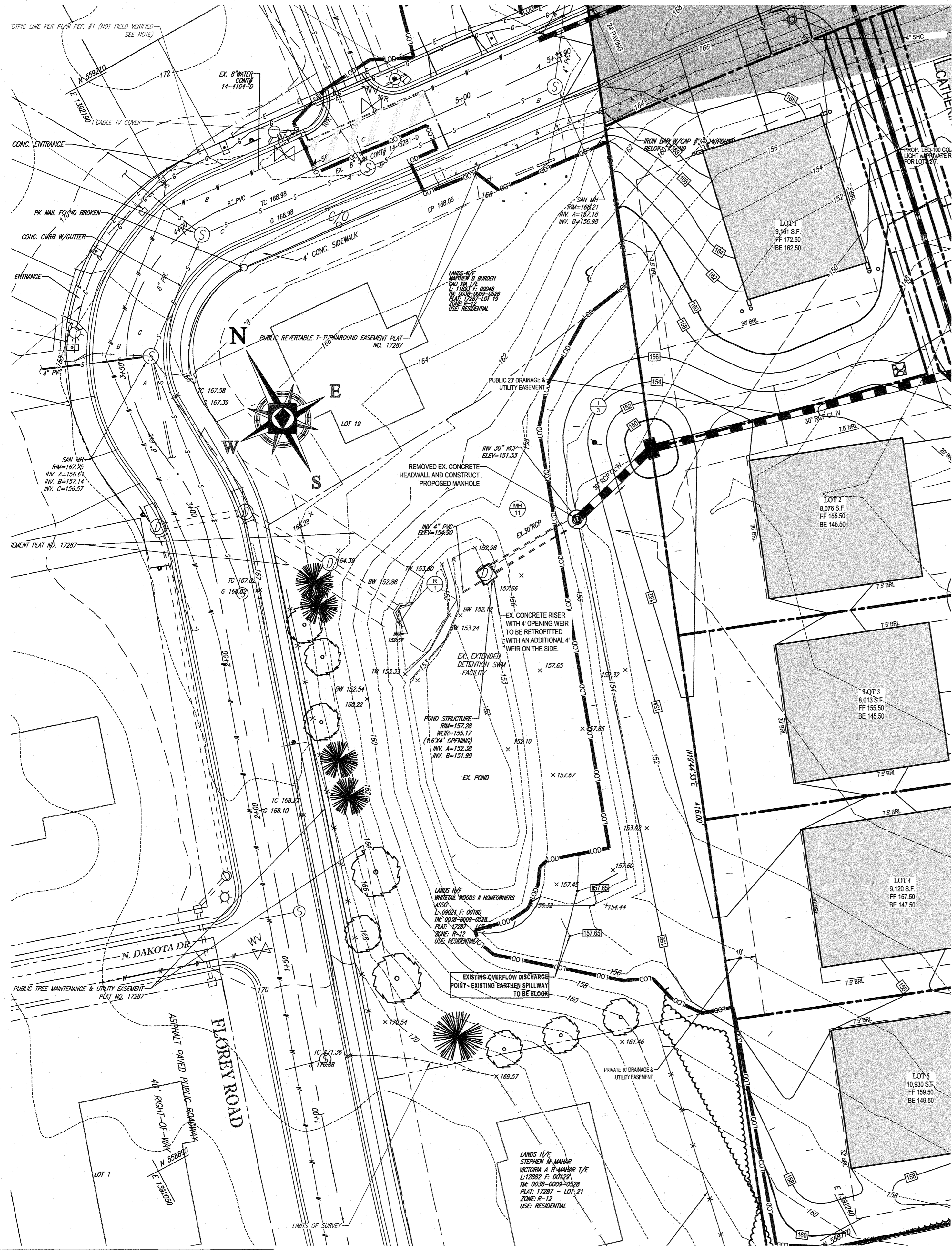
PREVIOUS FILE NO.: ECP-16-008 P-17-001
F-25-094
CONTR. 14-4220-D S-03-02
WP-16-150 P-04-11

PROFESSIONAL CERTIFICATION
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SHEET TITLE:
PROPOSED ESD FACILITY DRAINAGE AREA MAP

SHEET NUMBER:
28 of 51

AS-BUILT

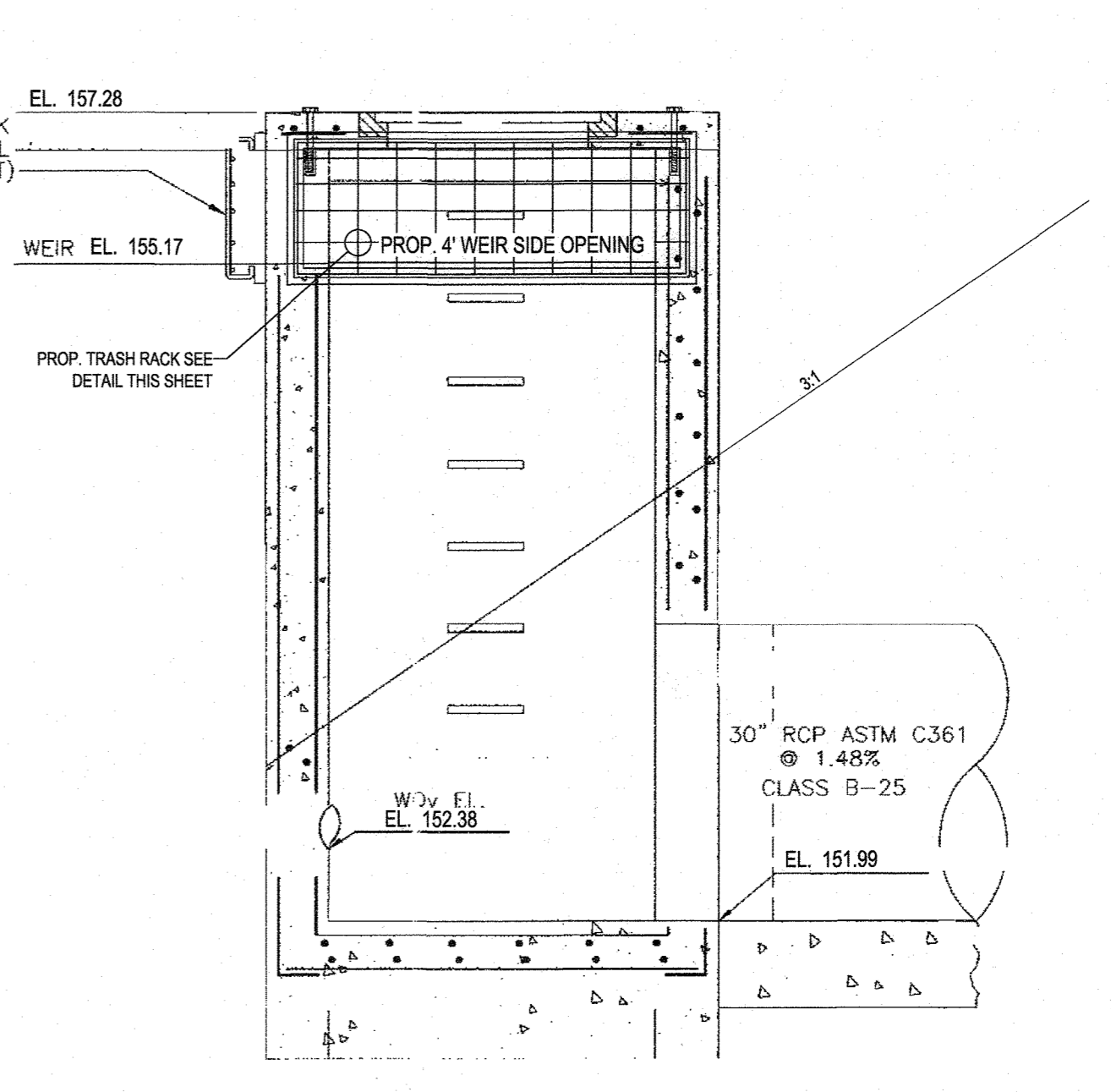
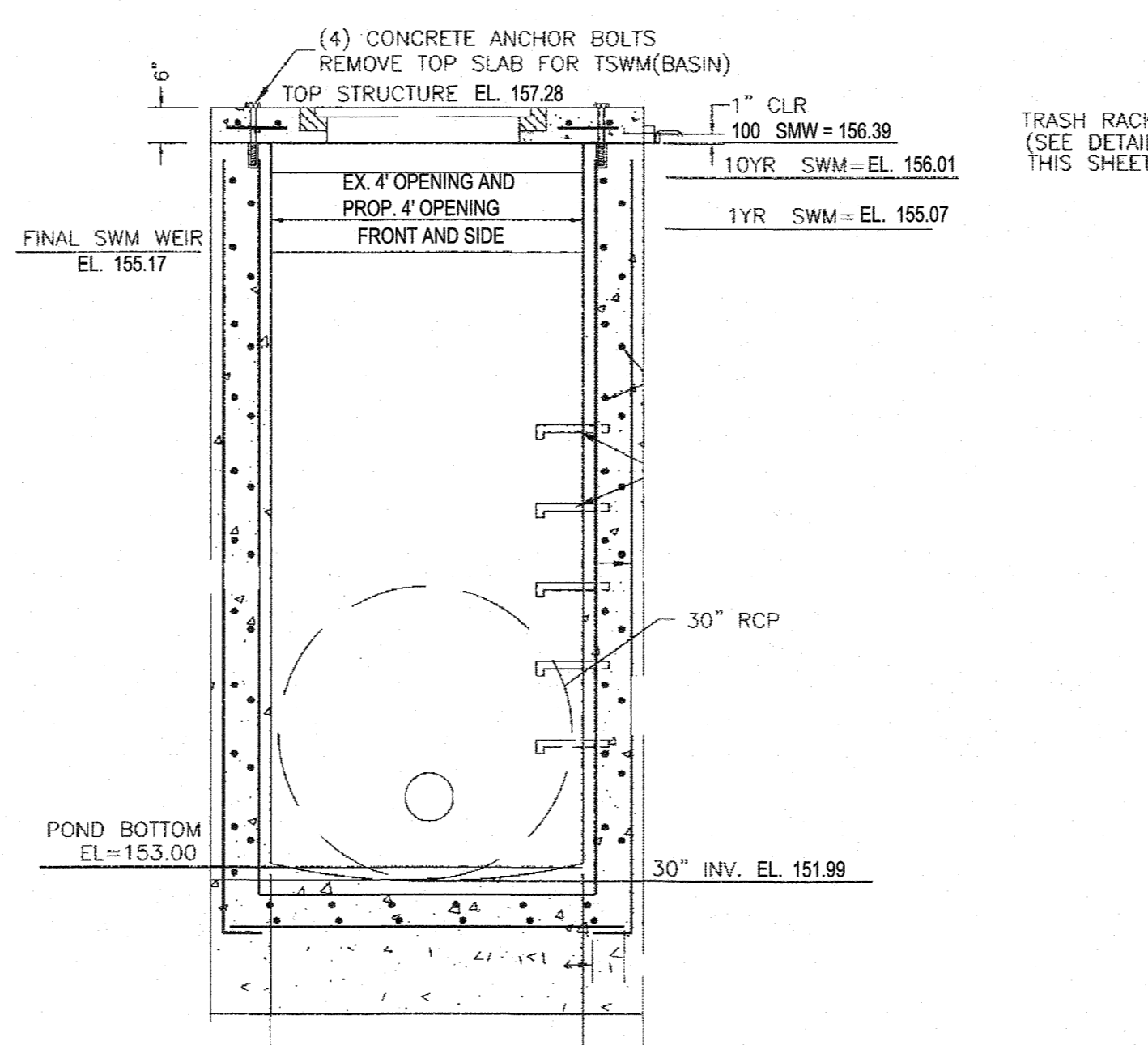
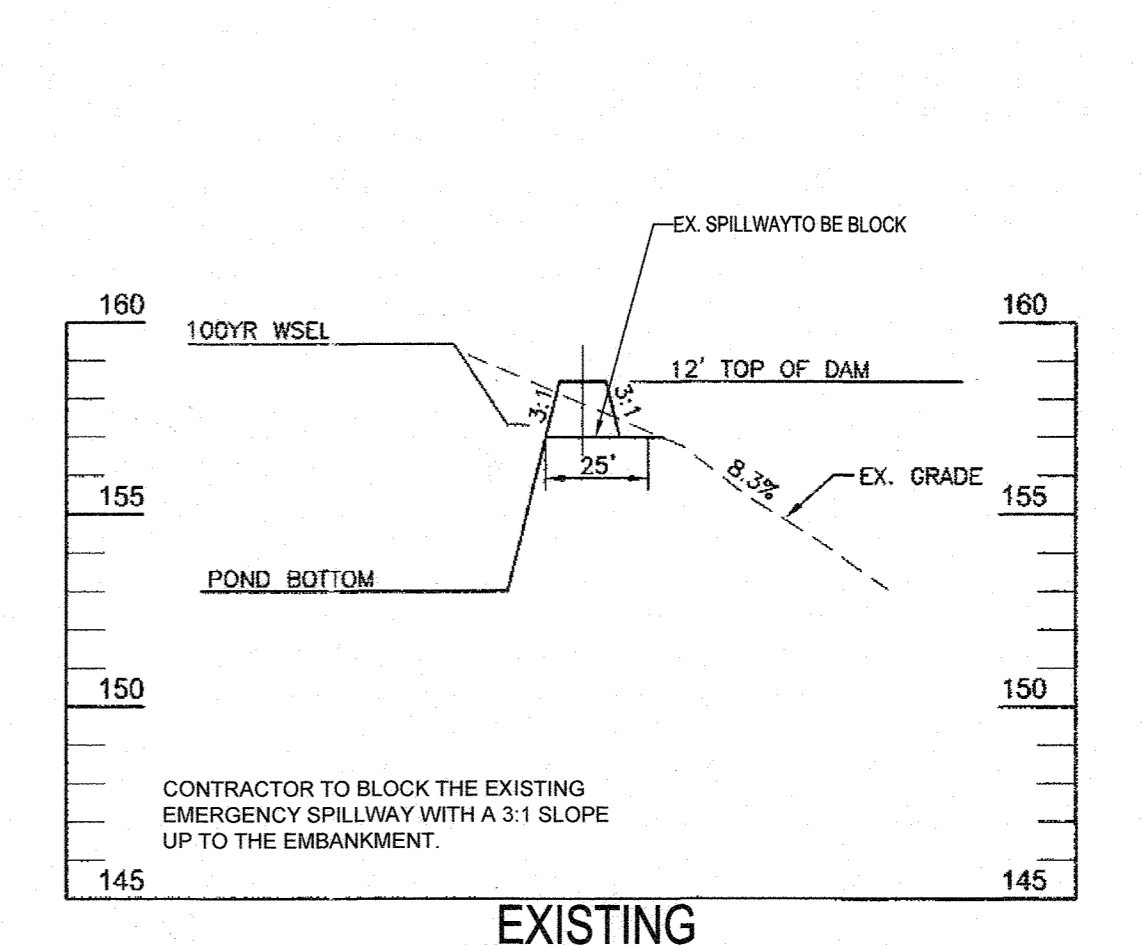
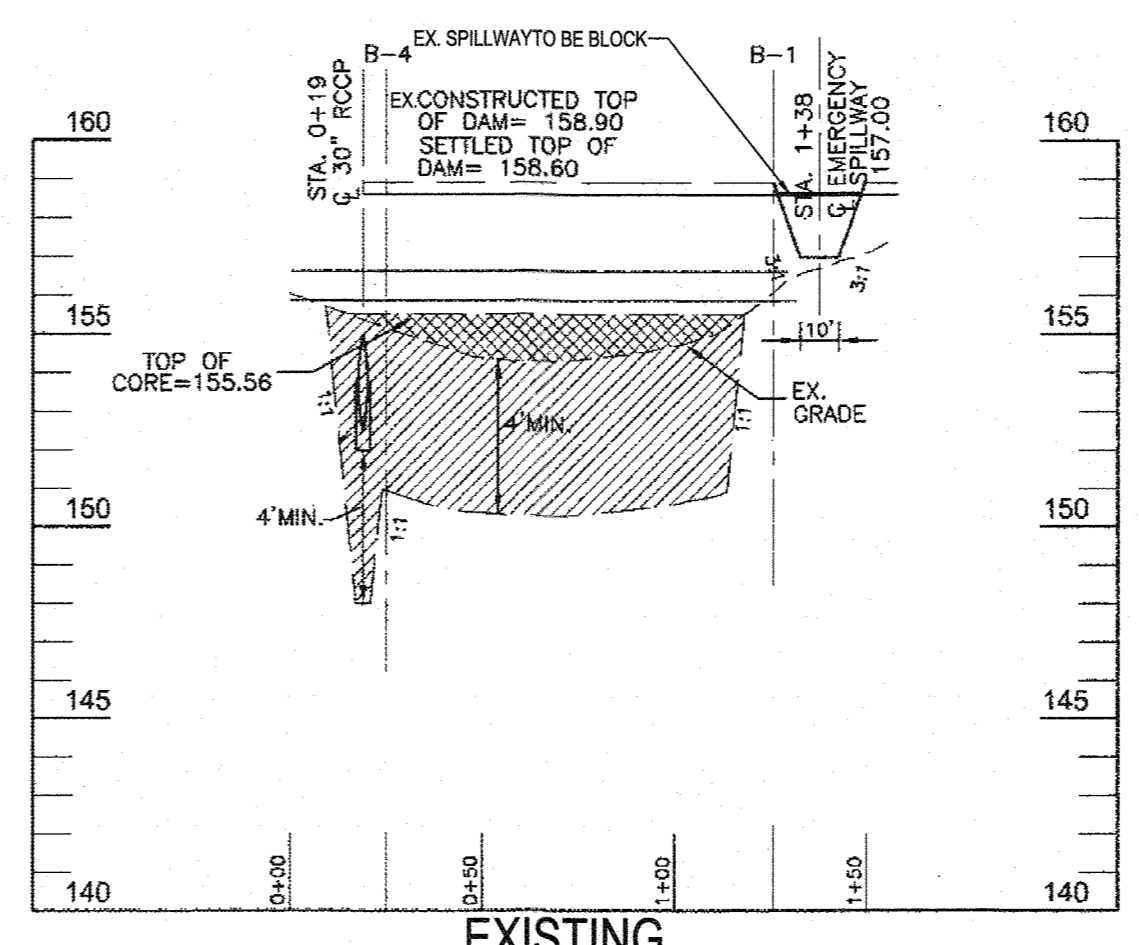
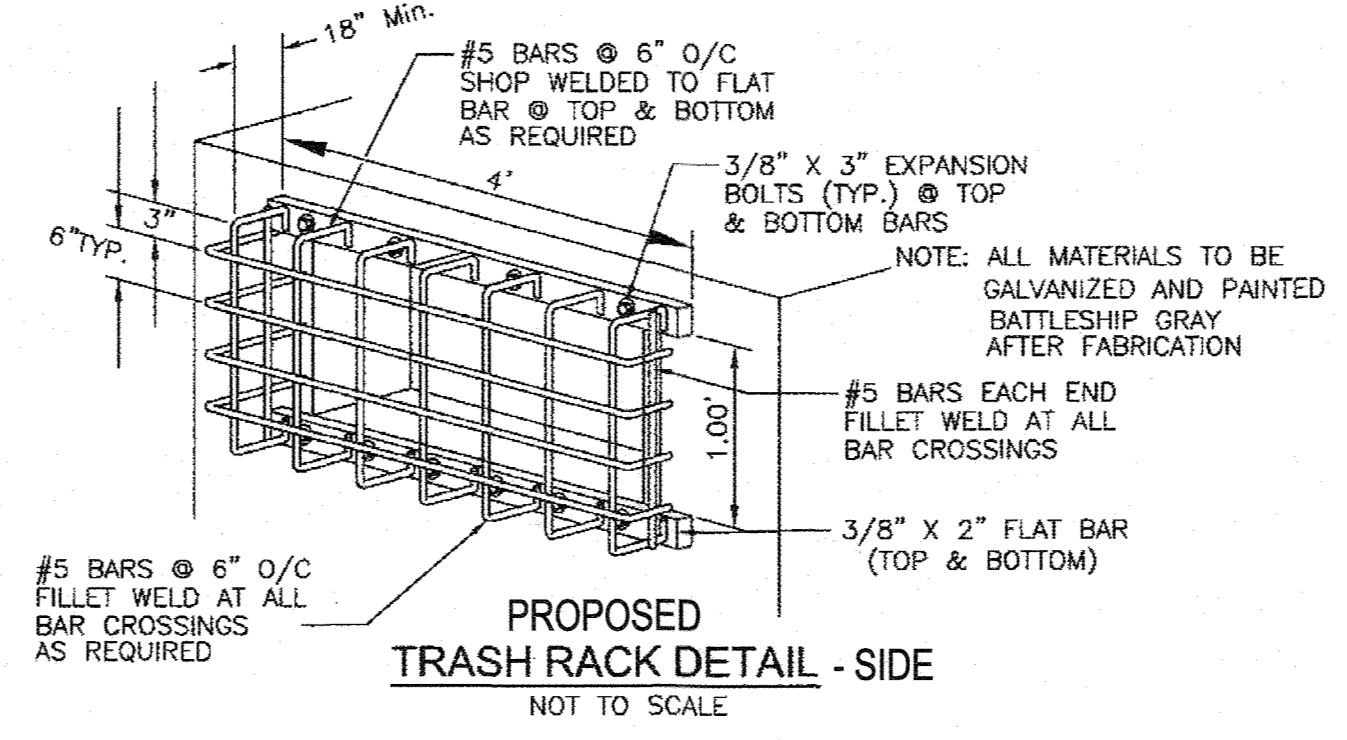
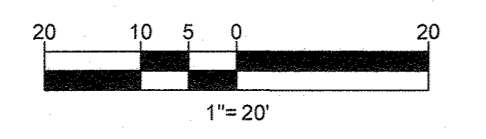


APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/3/2018
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10-22-18
 CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 10-11-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

EXISTING WHITETAIL WOODS POND MODIFICATION



EXISTING FRONT SECTION
 EXISTING PRECAST STRUCTURE S-1 DETAIL
 NOT TO SCALE

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 S. Scott Shanabarger
 Professional L.S. # 10849 Exp. Date 4/20/24
 AS-BUILT DATE: 5/16/2022
 Shanabarger & Lurie



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. _____	EXPIRATION DATE: _____
DESIGN CERTIFICATION	
"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGN 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."	
DESIGNER'S SIGNATURE: _____	DATE: _____
SUBDIVISION NAME: ELKRIDGE WOODS SECTION/AREA: N/A DEED # 1161700197 & 1117500393	TAX MAP: 38 GRID: 9 ZONED: R-12 PARCELS: 756 & 340
PREVIOUS FILE No.: ECP-16-008 P-17-001 F-05-094 CONTR. 14-4220-D S-03-02 WP-16-150	P-17-001 S-16-001 S-03-02 P-04-11

OWNER:	ELKRIDGE WOODS L.C. 5074 DORSEY HALL ROAD, SUITE 205 ELLCOTT CITY, MD 21042 PHONE: (410) 720-3021
DEVELOPER:	ELKRIDGE WOODS L.C. 5074 DORSEY HALL ROAD, SUITE 205 COLUMBIA, MD 21042 CONTACT: JASON VAN KIRK PHONE: (410) 720-3021
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

BOHLER ENGINEERING

CORPORATE OFFICE:
 WARREN, NJ

OFFICES:
 WARREN, NJ
 BRIDGEWATER, NJ
 ALBANY, NY
 ROSELAND, NJ
 CENTER VALLEY, PA
 TAMPA, FL

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811

(WV 1-800-245-4545; PA 1-800-245-1778; DC 1-800-257-7777; VA 1-800-552-7001; MD 1-800-257-7777; DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: SN3

FINAL ROAD CONSTRUCTION PLAN

FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD,
 SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

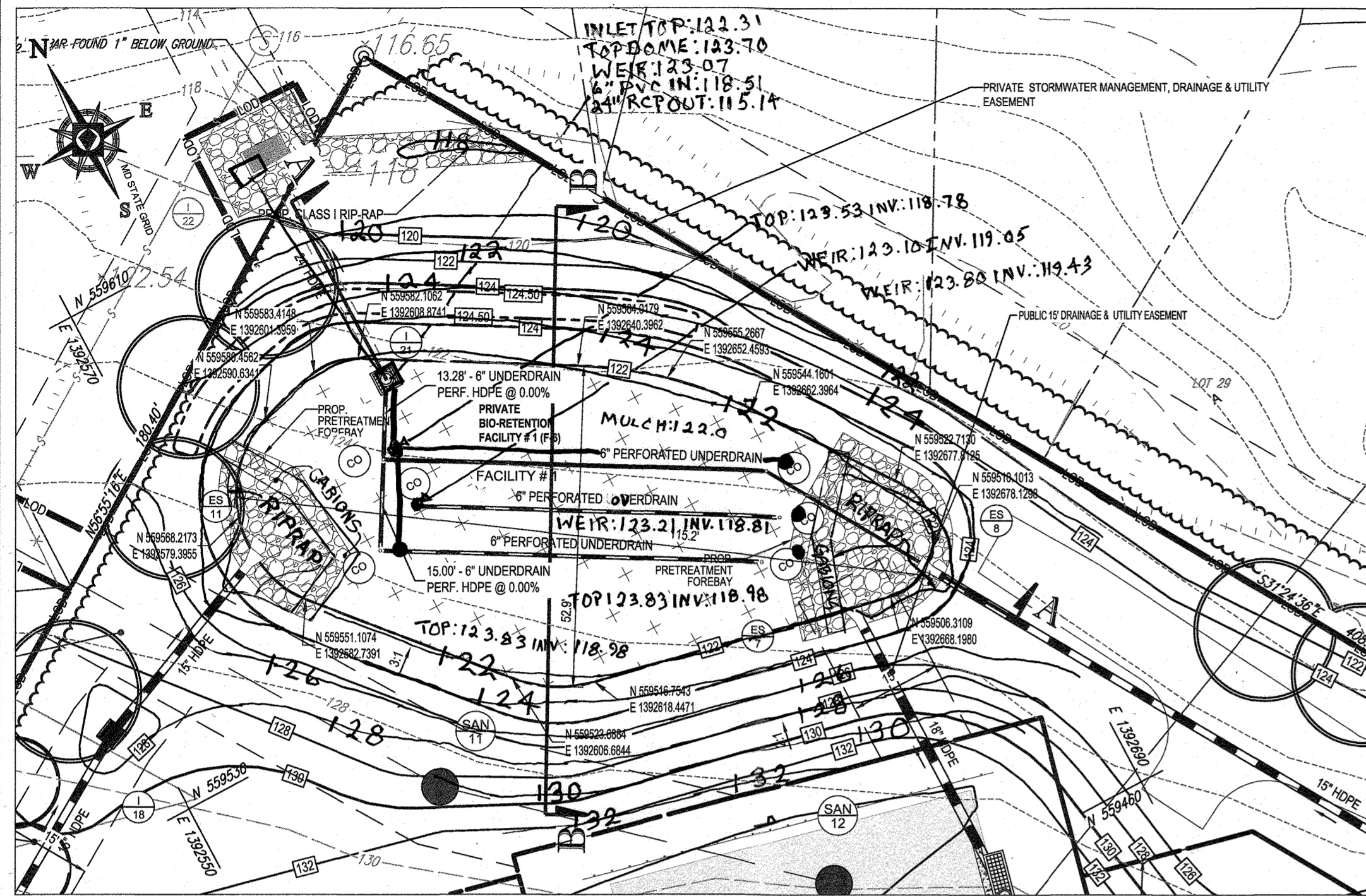
B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE # 40900
 PROFESSIONAL ENGINEER

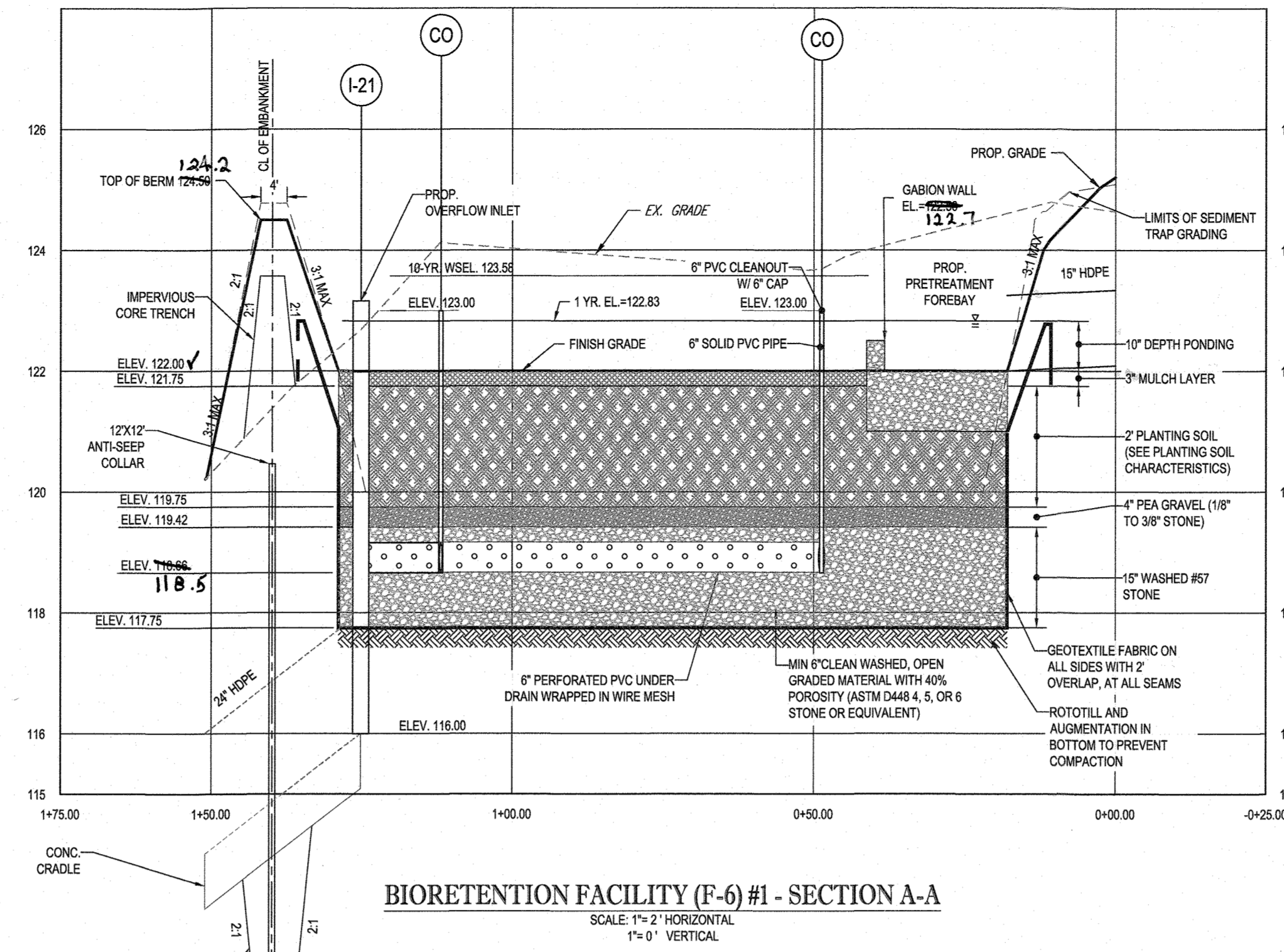
SHEET TITLE:
EXISTING SWM POND MODIFICATION

SHEET NUMBER:
32 of 51

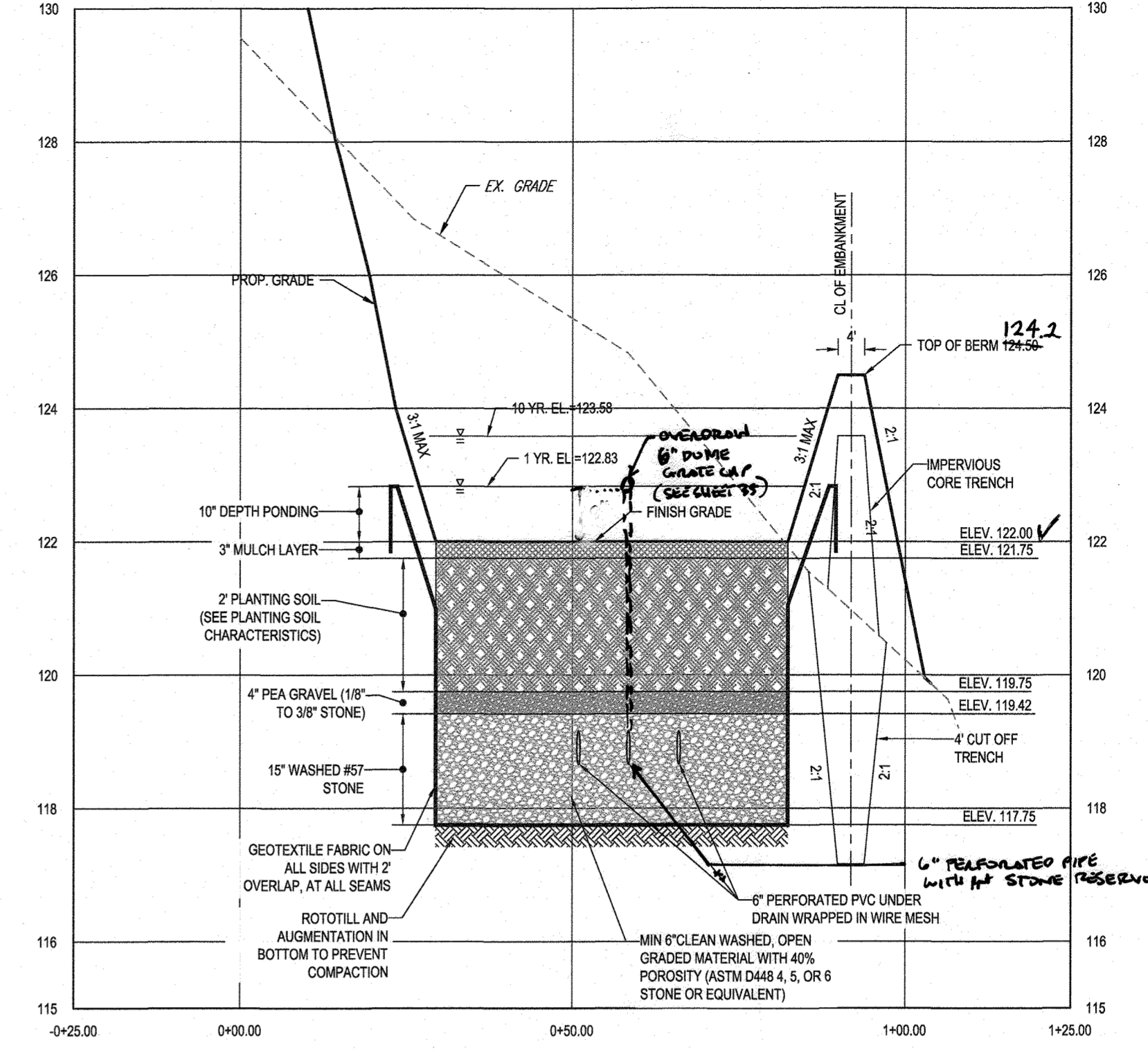
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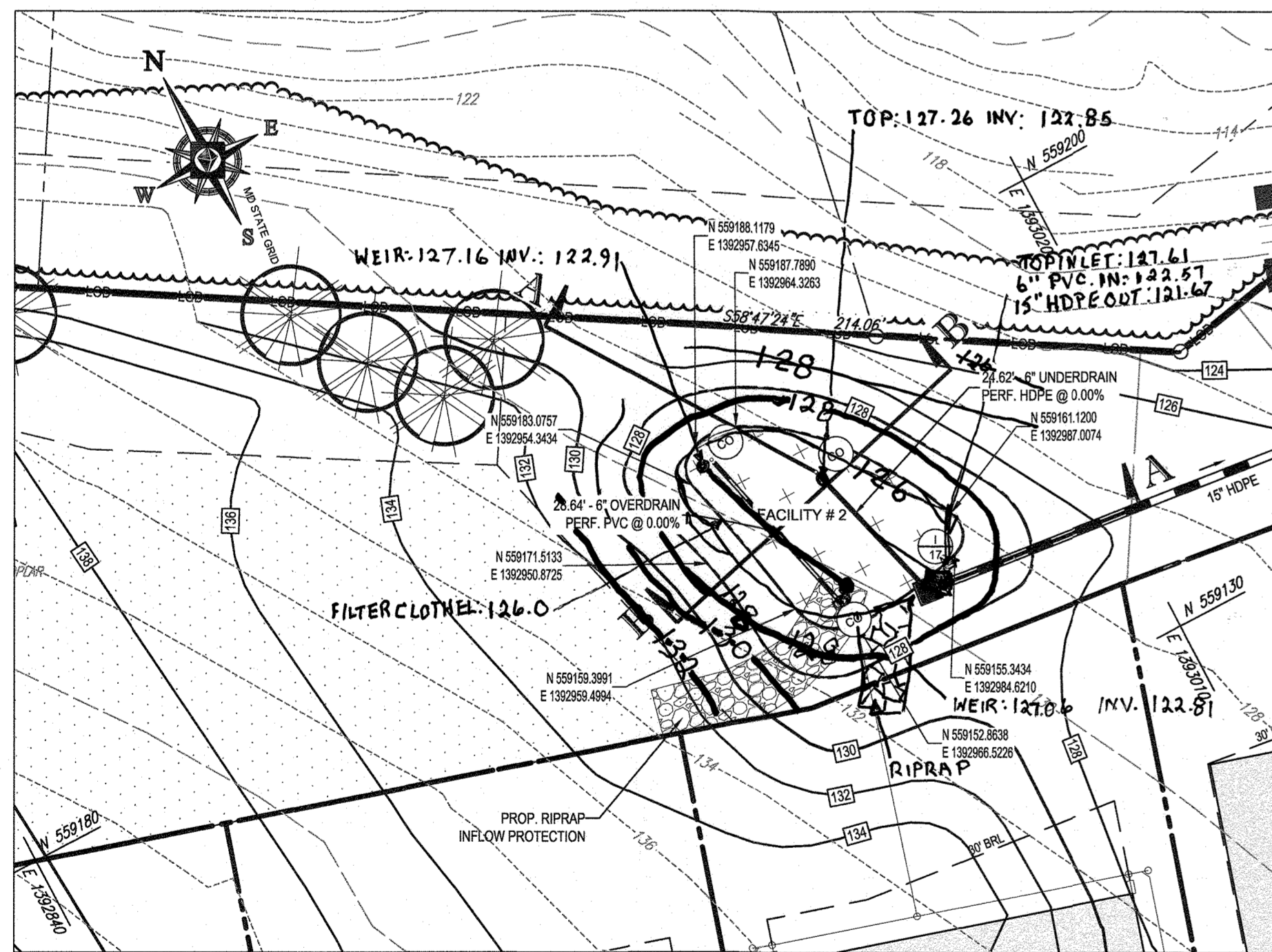
BIORETENTION (F-6) FACILITY #1 PLAN VIEW
SCALE: 1" = 20'



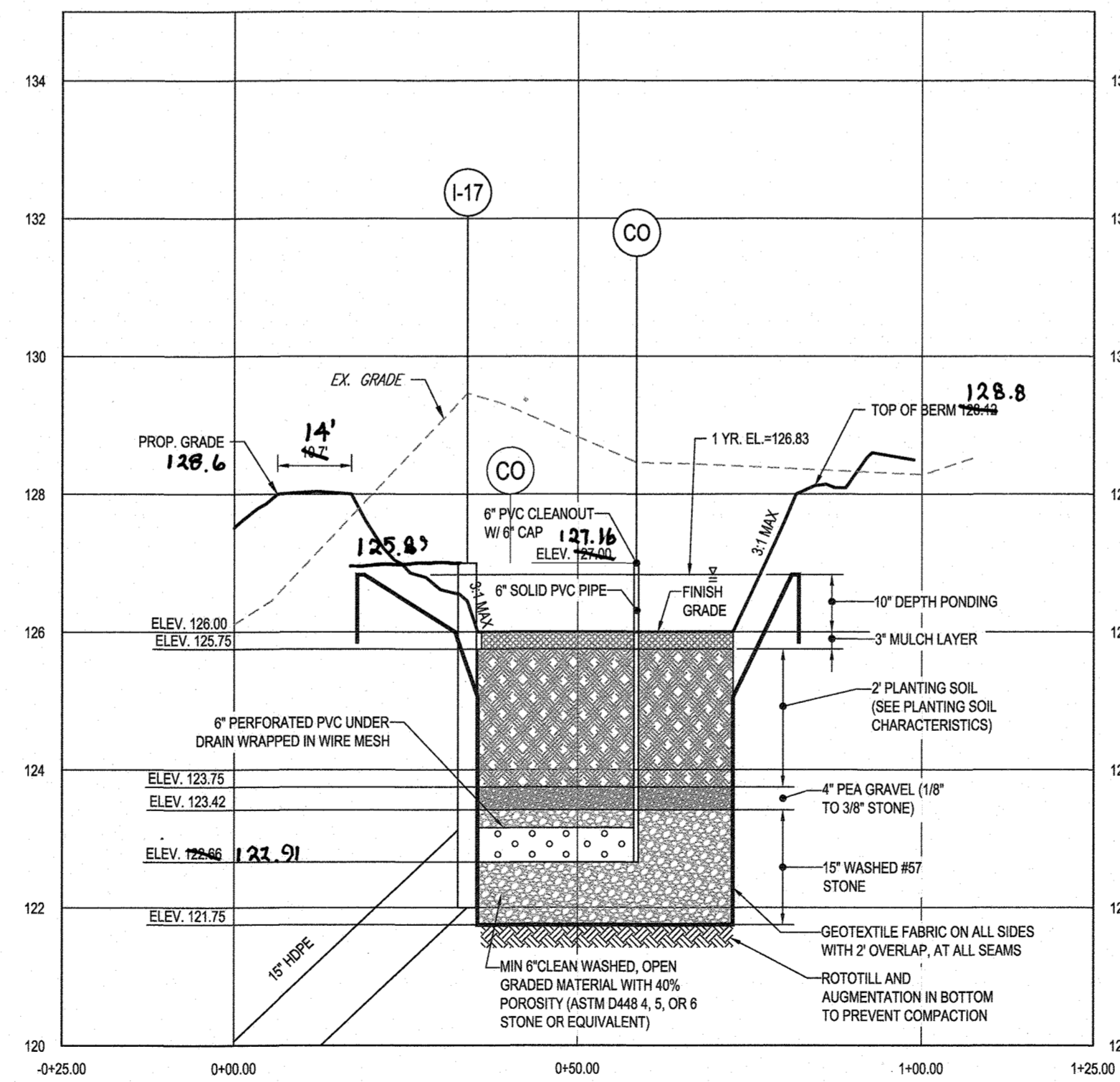
BIORETENTION FACILITY (F-6) #1 - SECTION A-A
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



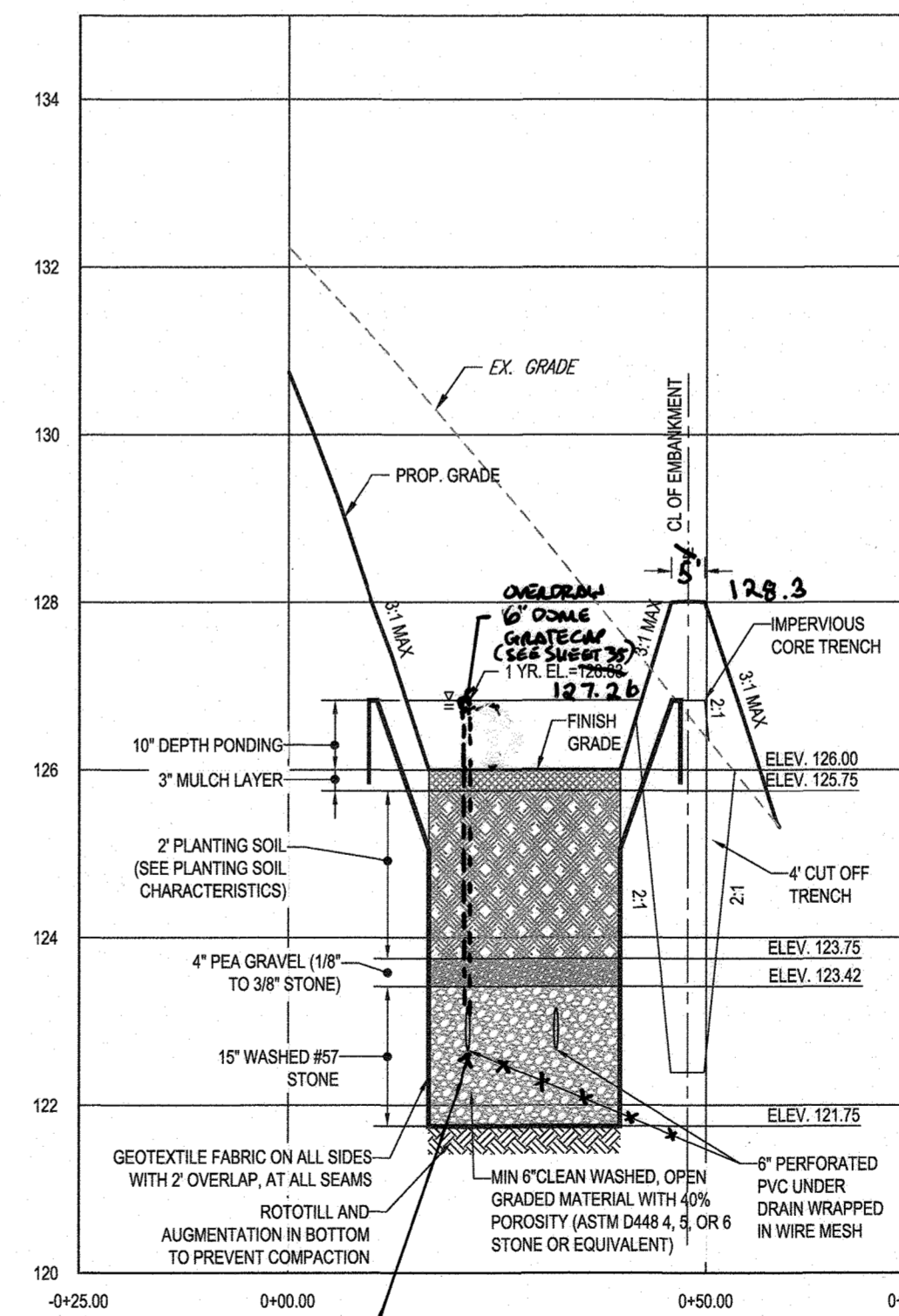
BIORETENTION FACILITY (F-6) #1 - SECTION B-B
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



BIORETENTION (F-6) FACILITY #2 PLAN VIEW
SCALE: 1" = 20'



BIORETENTION FACILITY (F-6) #2 - SECTION A-A
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



BIORETENTION FACILITY (F-6) #2 - SECTION B-B
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL

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

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER: BRANDON R. ROWE, P.E. DATE: 8/30/18

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER: DATE: 9-5-18

APPROVED: DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

APPROVED: DEPARTMENT OF LAND DEVELOPMENT

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION

BOHLER ENGINEERING
CORPORATE OFFICE: WARRREN, NJ
SURVEYORS: WARRREN, NJ
PROJECT MANAGERS: BOHME, MD; TOWSON, MD; SOUTHBRIDGE, MA; ALBANY, NY; WASHINGTON, VA
ENVIRONMENTAL CONSULTANTS: CHAMBERS, VA; GARDNER, VA; HANCOCK, VA
LANDSCAPE ARCHITECTS: GARDNER, VA; HANCOCK, VA
PROFESSIONAL ENGINEERS: BOHME, MD; TOWSON, MD; SOUTHBRIDGE, MA; ALBANY, NY; WASHINGTON, VA; CHAMBERS, VA; GARDNER, VA; HANCOCK, VA
PROFESSIONAL LAND SURVEYORS: BOHME, MD; TOWSON, MD; SOUTHBRIDGE, MA; ALBANY, NY; WASHINGTON, VA; CHAMBERS, VA; GARDNER, VA; HANCOCK, VA

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE: CALL 811 (TOLL FREE) 1-800-245-3777 (DC) 1-800-257-7777 (VA) 1-800-552-7001 (MD) 1-800-257-7777 (DE) 1-800-282-8255

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
DRAWN BY: AVG
CHECKED BY: BRK
DATE: 08/29/18
SCALE: AS SHOWN
CAD I.D.: SM3

FINAL ROAD CONSTRUCTION PLAN
FOR
ELKRIDGE WOODS
LOTS 1-42 &
OPEN SPACE LOTS 43 & 44
LOCATION OF SITE
5920 FLOREY ROAD
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TAX MAP 38, GRID 9,
PARCELS 756 & 340
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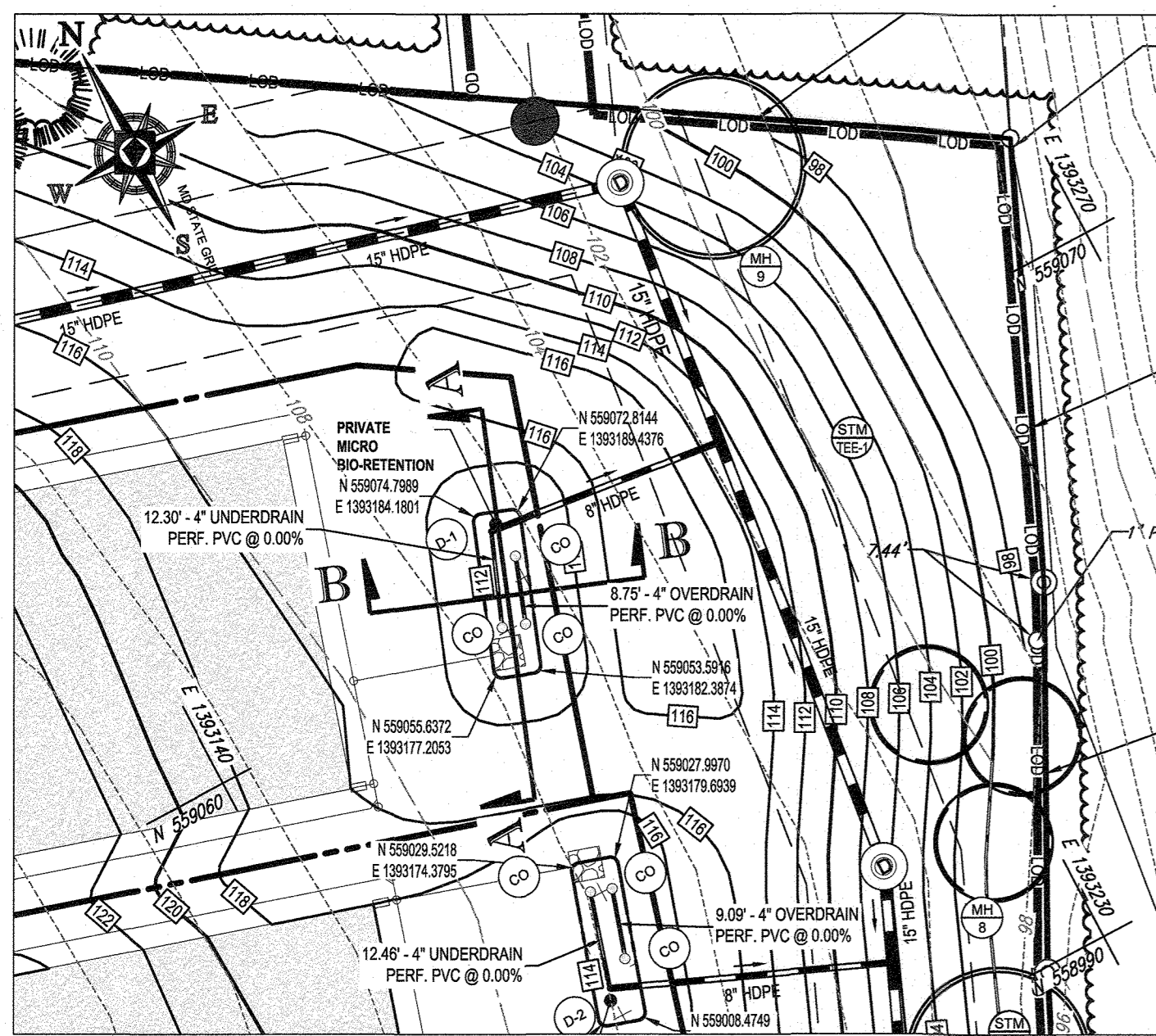
B.R. ROWE
PROFESSIONAL ENGINEER
LAND LICENSE #16-0008
AS-BUILT SURVEY DATES 5-17-21 TO 6-10-21

AS-BUILT CERTIFICATION
I HEREBY CERTIFY BY SEAL THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN AND ARE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

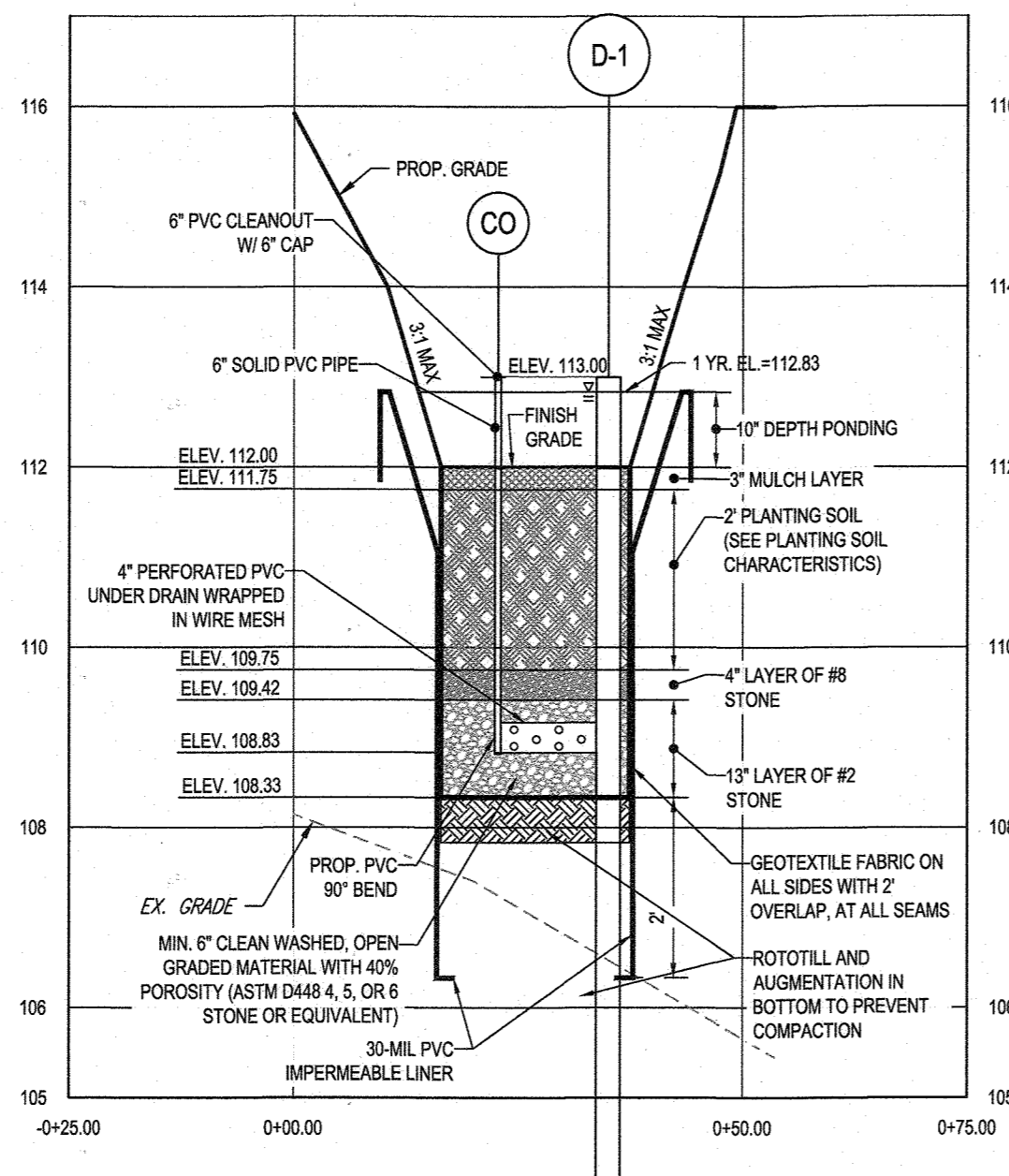
OWNER: ELKRIDGE WOODS L.C., 5074 DORSEY HALL ROAD, SUITE 205, ELLICOTT CITY, MD 21042, PHONE: (410) 720-3021
DEVELOPER: ELKRIDGE WOODS L.C., 5074 DORSEY HALL ROAD, SUITE 205, COLUMBIA, MD 21042, CONTACT: JASON VAN KIRK, PHONE: (410) 720-3021

SUBDIVISION NAME: ELKRIDGE WOODS SECTION/AREA: N/A DEED # 1161700197 & 1117500393
TAX MAP: 38 GRID: 9 ZONED: R-12 PARCELS: 756 & 340
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE No.: ECP-16-008 P-17-001 F-25-094 S-16-001 CONTR. 14-4220-D S-03-02 WP-16-150 P-04-11

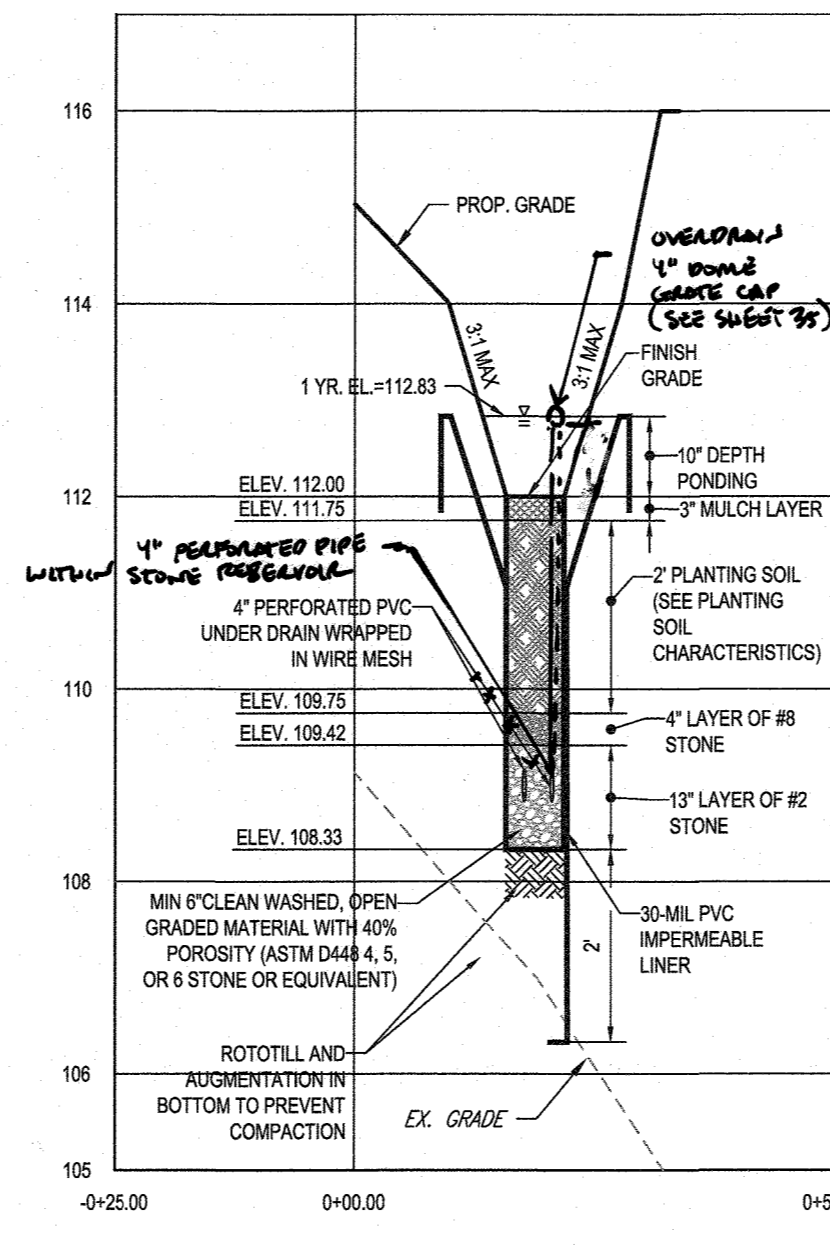
STORMWATER MANAGEMENT NOTES & DETAILS
SHEET NUMBER: 33 of 51
AS-BUILT



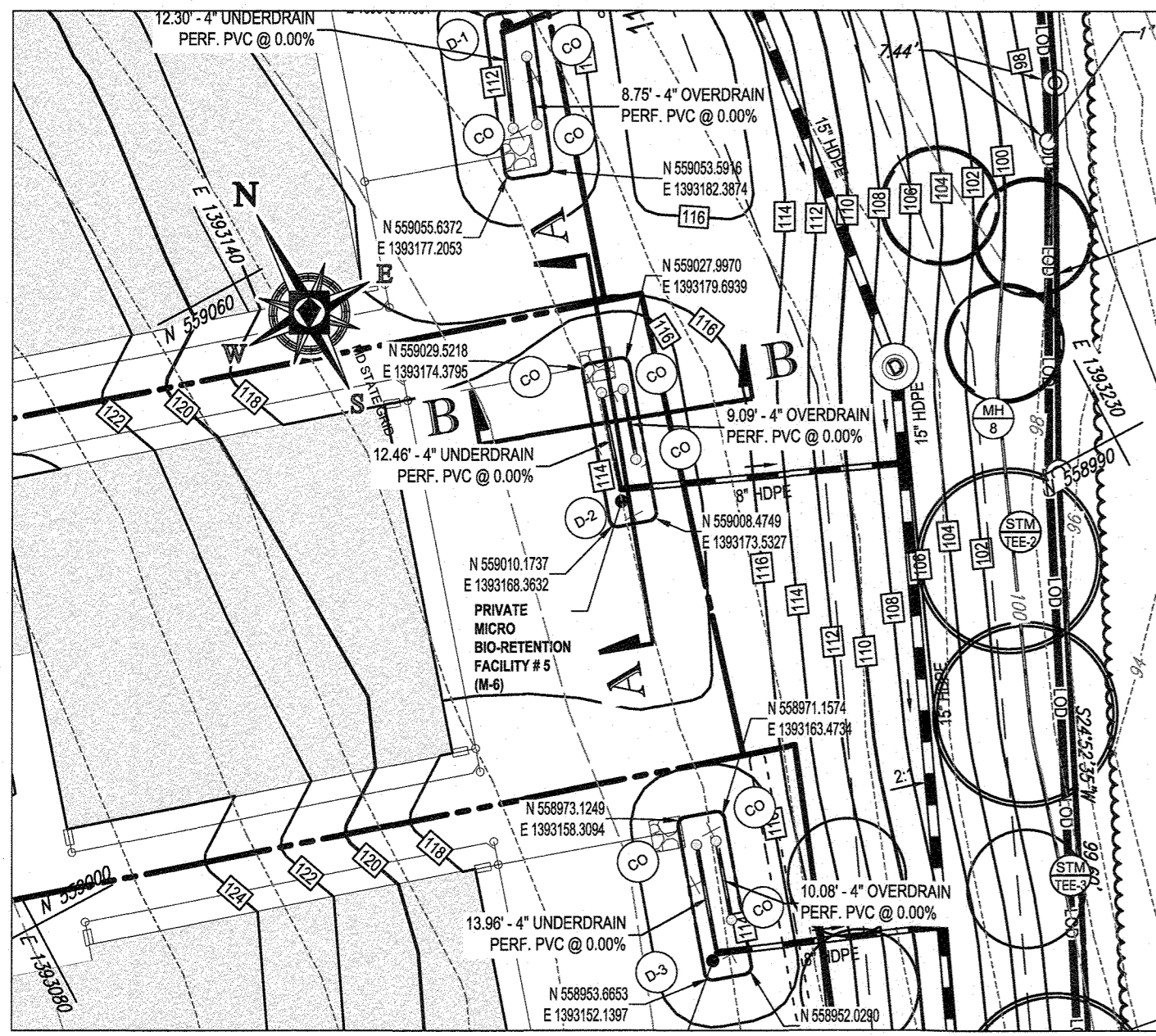
MICRO-BIORETENTION (M-6) FACILITY #4 PLAN VIEW
SCALE: 1" = 20'



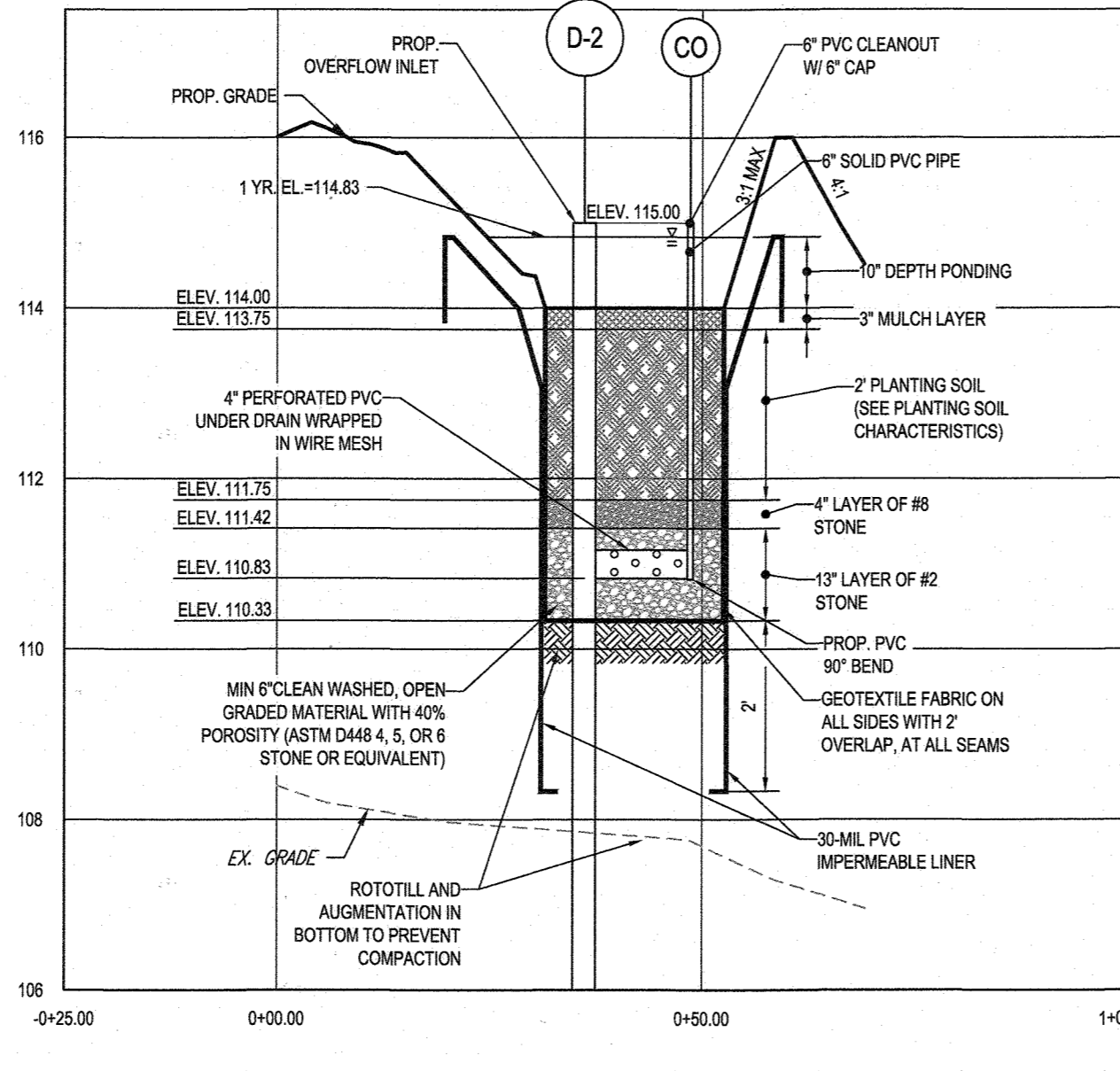
MICRO-BIORETENTION FACILITY (M-6) #4 - SECTION A-A
SCALE: 1"= 2' HORIZONTAL
1"= 0' VERTICAL



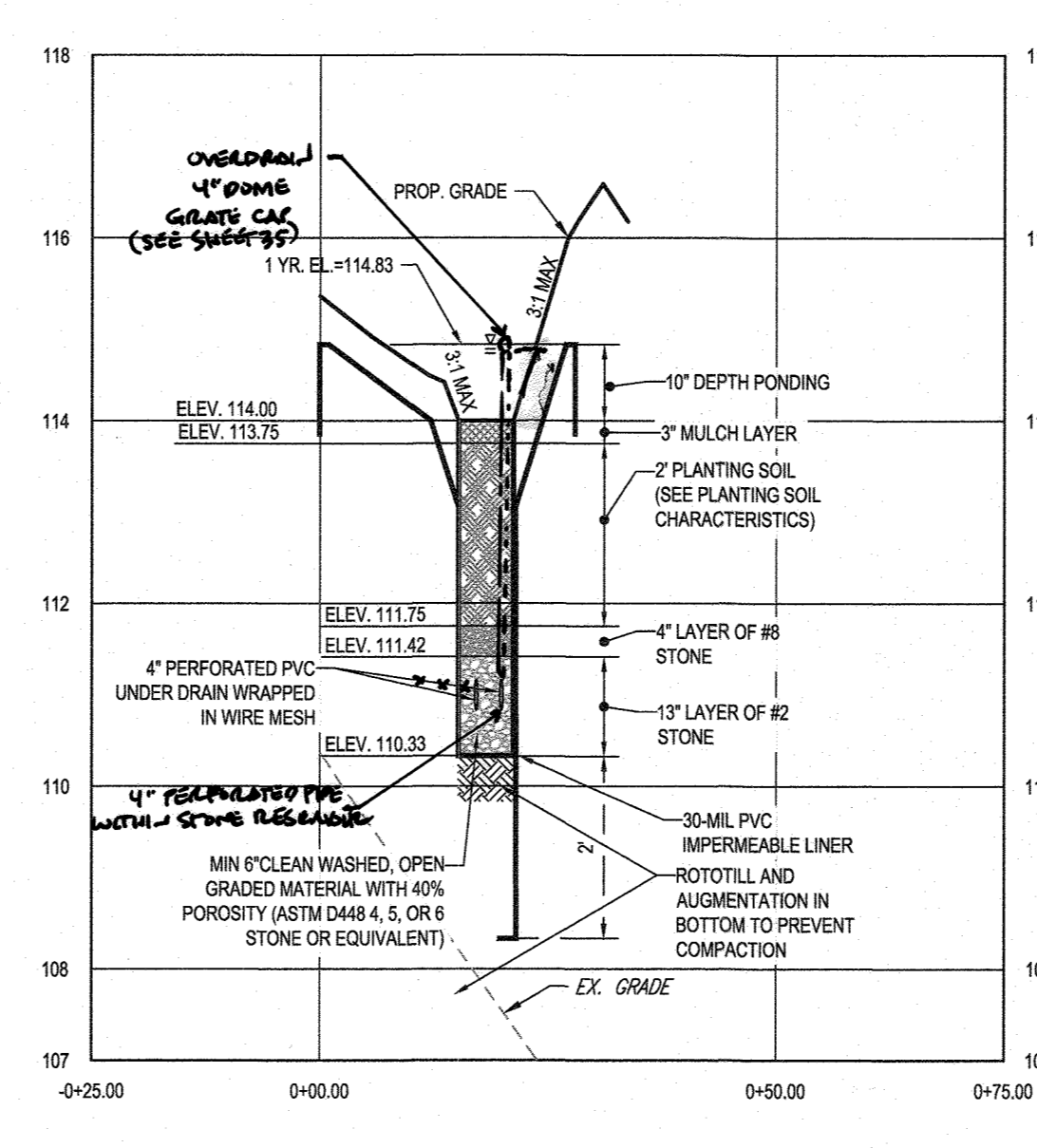
MICRO-BIORETENTION FACILITY (M-6) #4 - SECTION B-B
SCALE: 1"= 2' HORIZONTAL
1"= 0' VERTICAL



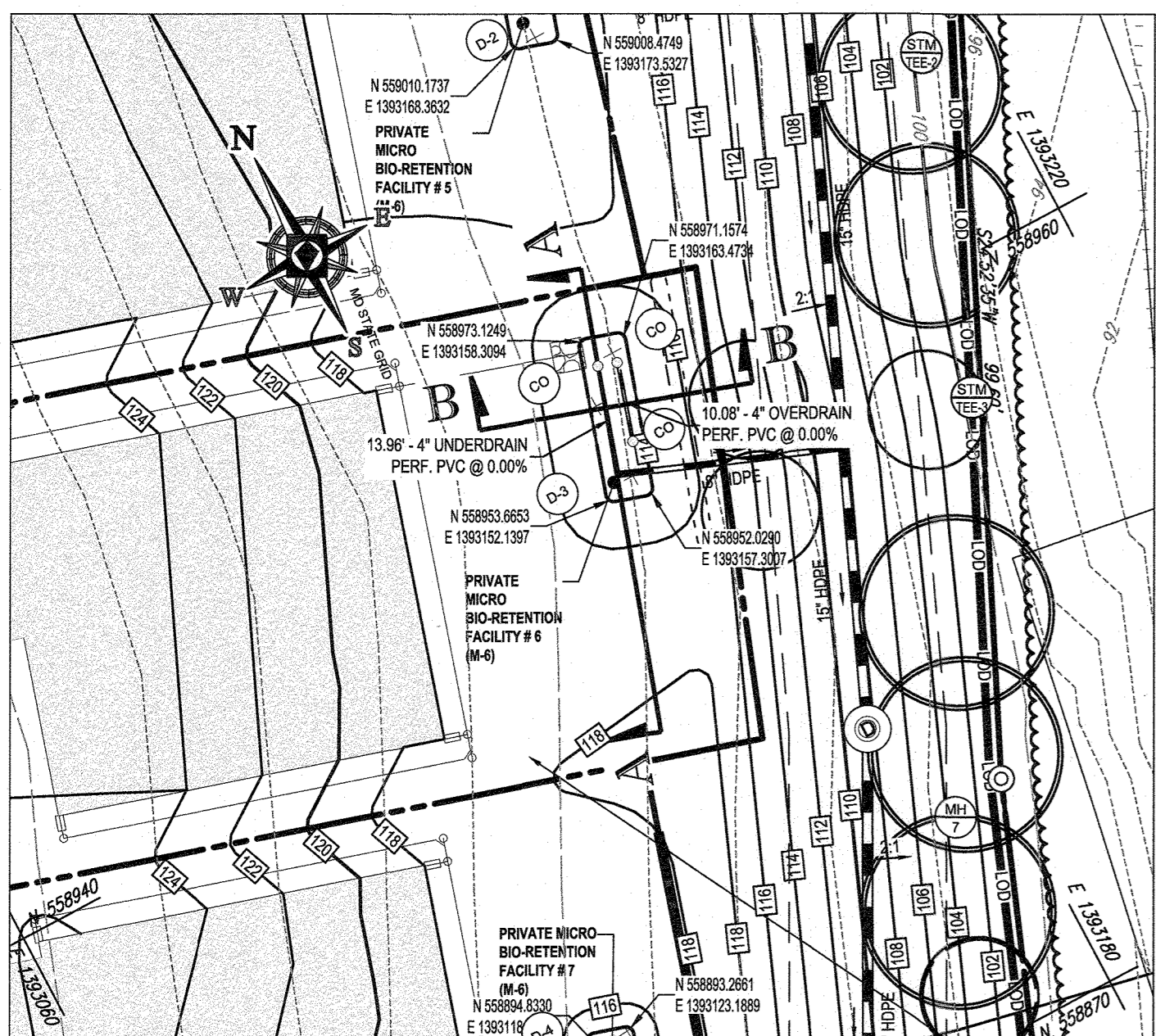
MICRO-BIORETENTION (M-6) FACILITY #5 PLAN VIEW
SCALE: 1" = 20'



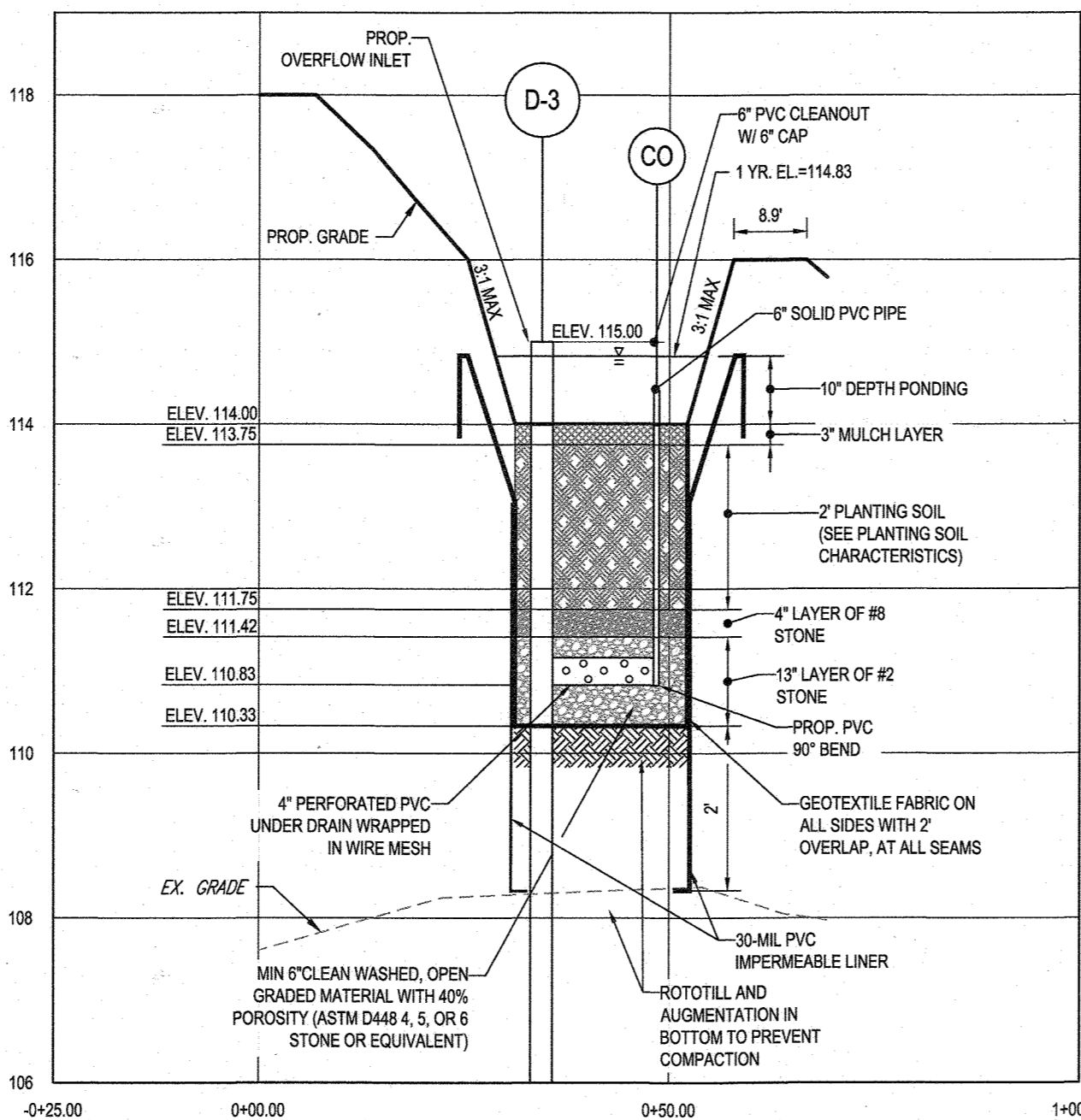
MICRO-BIORETENTION FACILITY (M-6) #5 - SECTION A-A
SCALE: 1"= 2' HORIZONTAL
1"= 0' VERTICAL



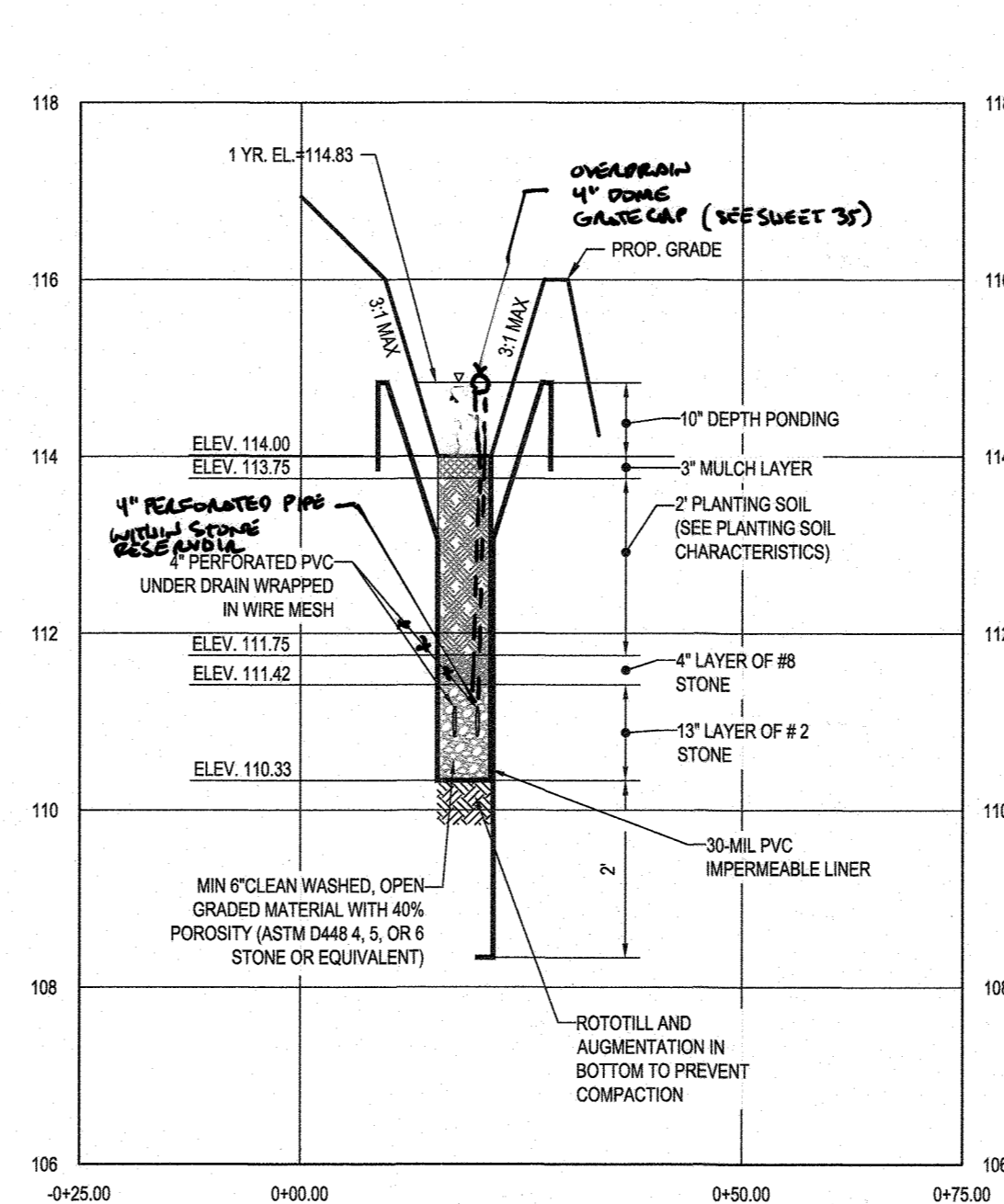
MICRO-BIORETENTION FACILITY (M-6) #5 - SECTION B-B
SCALE: 1"= 2' HORIZONTAL
1"= 0' VERTICAL



MICRO-BIORETENTION (M-6) FACILITY #6 PLAN VIEW
SCALE: 1" = 20'



MICRO-BIORETENTION FACILITY (M-6) #6 - SECTION A-A
SCALE: 1"= 2' HORIZONTAL
1"= 0' VERTICAL



MICRO-BIORETENTION FACILITY (M-6) #6 - SECTION B-B
SCALE: 1"= 2' HORIZONTAL
1"= 0' VERTICAL

OPERATION AND MAINTENANCE SCHEDULE
FOR MICRO-BIORETENTION (M-6),
BIO-SWALES (M-8), AND BIORETENTION (F-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 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.
- THE OWNER SHOULD REMOVE AND REPLACE THE TOP FEW INCHES OF FILTER MEDIA IF WATER REMAINS IN THE FACILITY FOR LONGER THAN 24 HOURS FOLLOWING A STORM EVENT.

JELLYFISH MAINTENANCE REQUIREMENTS:

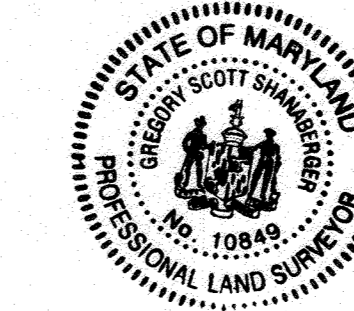
- SEDIMENT REMOVAL FOR DEPTHS REACHING 12 INCHES OR GREATER, OR WITHIN 3 YEARS OF THE MOST RECENT SEDIMENT CLEANING, WHICHEVER OCCURS SOONER.
- FLOATABLE TRASH, DEBRIS, AND OIL REMOVAL.
- DECK CLEANED AND FREE FROM SEDIMENT.
- FILTER CARTRIDGES RINSED AND RE-INSTALLED AS REQUIRED BY THE MOST RECENT INSPECTION RESULTS, OR WITHIN 12 MONTHS OF THE MOST RECENT FILTER RINSING, WHICHEVER OCCURS SOONER.
- REPLACE TENTACLES IF RINSING DOES NOT RESTORE ADEQUATE HYDRAULIC CAPACITY, REMOVE ACCUMULATED SEDIMENT, OR IF DAMAGED OR MISSING. IT IS RECOMMENDED THAT TENTACLES SHOULD REMAIN IN SERVICE NO LONGER THAN 5 YEARS BEFORE REPLACEMENT.
- DAMAGED OR MISSING CARTRIDGE DECK COMPONENTS MUST BE REPAIRED OR REPLACED AS INDICATED BY RESULTS OF THE MOST RECENT INSPECTION.
- THE UNIT MUST BE CLEANED OUT AND FILTER CARTRIDGES INSPECTED IMMEDIATELY AFTER AN UPSTREAM OIL, FUEL, OR CHEMICAL SPILL. FILTER CARTRIDGE TENTACLES SHOULD BE REPLACED IF DAMAGED OR COMPROMISED BY THE SPILL.

JELLYFISH MAINTENANCE PROCEDURE

- PROVIDE TRAFFIC CONTROL MEASURES AS NECESSARY.
- OPEN ALL COVERS AND HATCHES. USE VENTILATION EQUIPMENT AS REQUIRED, ACCORDING TO CONFINED SPACE ENTRY PROCEDURES.
- CAUTION: DROPPING OBJECTS ONTO THE CARTRIDGE DECK MAY CAUSE DAMAGE.
- PERFORM INSPECTION PROCEDURE PRIOR TO MAINTENANCE ACTIVITY.
- TO ACCESS THE CARTRIDGE DECK FOR FILTER CARTRIDGE SERVICE, DESCEND THE LADDER AND STEP DIRECTLY ONTO THE DECK. CAUTION: DO NOT STEP ONTO THE MAINTENANCE ACCESS WALL (MAW) OR BACKWASH POOL WEIR, AS DAMAGE MAY RESULT. NOTE THAT THE CARTRIDGE DECK MAY BE SLIPPY.
- MAXIMUM WEIGHT OF MAINTENANCE CREW AND EQUIPMENT ON THE CARTRIDGE DECK NOT TO EXCEED 450 LBS.

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

Scott Shanaberger
G. Scott Shanaberger
Professional L.S. # 10849 Exp. Date 4/2/2024
AS-BUILT DATE: 5/11/2022
Shanaberger & Little



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

APPROVED: DEPARTMENT OF PUBLIC WORKS
10/3/2018
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
10-27-18
DATE

APPROVED: DEPARTMENT OF LAND DEVELOPMENT
10-11-18
DATE

SUBDIVISION NAME: ELKRIDGE WOODS SECTION A/AREA A
DEED # 1161700197 & 11175000393

PREVIOUS FILE No.: ECP-16-008 P-17-001
F-05-004 S-15-001
CONTR. 14-4220-D S-03-02
WP-16-150 P-04-11

ENGINEER'S CERTIFICATE

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

DEVELOPER'S CERTIFICATE

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

OWNER:
ELKRIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
ELLCOTT CITY, MD 21042
PHONE: (410) 720-3021

DEVELOPER:
ELKRIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
PARCELS: 756 & 340
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, 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. 40898, EXPIRATION DATE: 7/31/2019.

BOHLER ENGINEERING
CORPORATE OFFICE: WARREN, NJ
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
SOUTH BRIDGE, MA
ALBANY, NY
CHAMONT, PA
GLENVIEW, IL
FORT LAUDERDALE, FL
NEW YORK, NY
PHOENIX, AZ
RICHMOND, VA
TOWSON, MD
WARRINGTON, VA

REVISIONS

REV#	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811
VA 1-800-245-4444 | PA 1-800-262-3779 | DC 1-800-257-7777
MD 1-800-552-7001 | DE 1-800-283-8555

NOT APPROVED FOR CONSTRUCTION

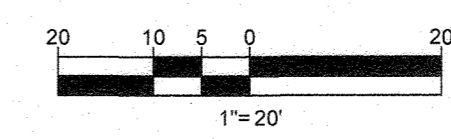
PROJECT No.: MD152015
DRAWN BY: AVG
CHECKED BY: BBR
DATE: 08/29/18
SCALE: AS SHOWN
CAD I.D.: SM3

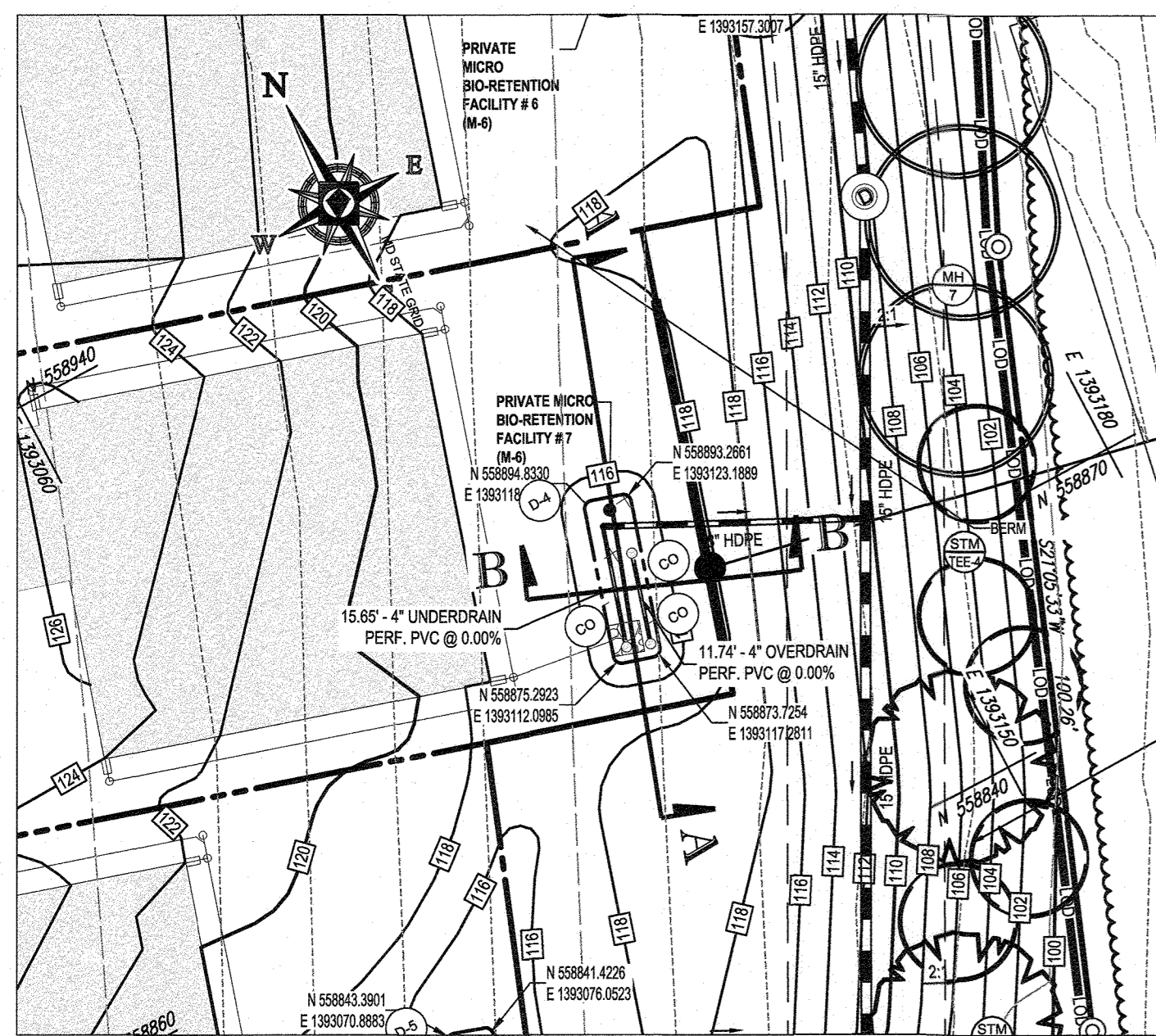
FINAL ROAD CONSTRUCTION PLAN
FOR
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OPEN SPACE LOTS 43 & 44
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1ST ELECTION DISTRICT
TAX MAP 38, GRID 9,
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BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
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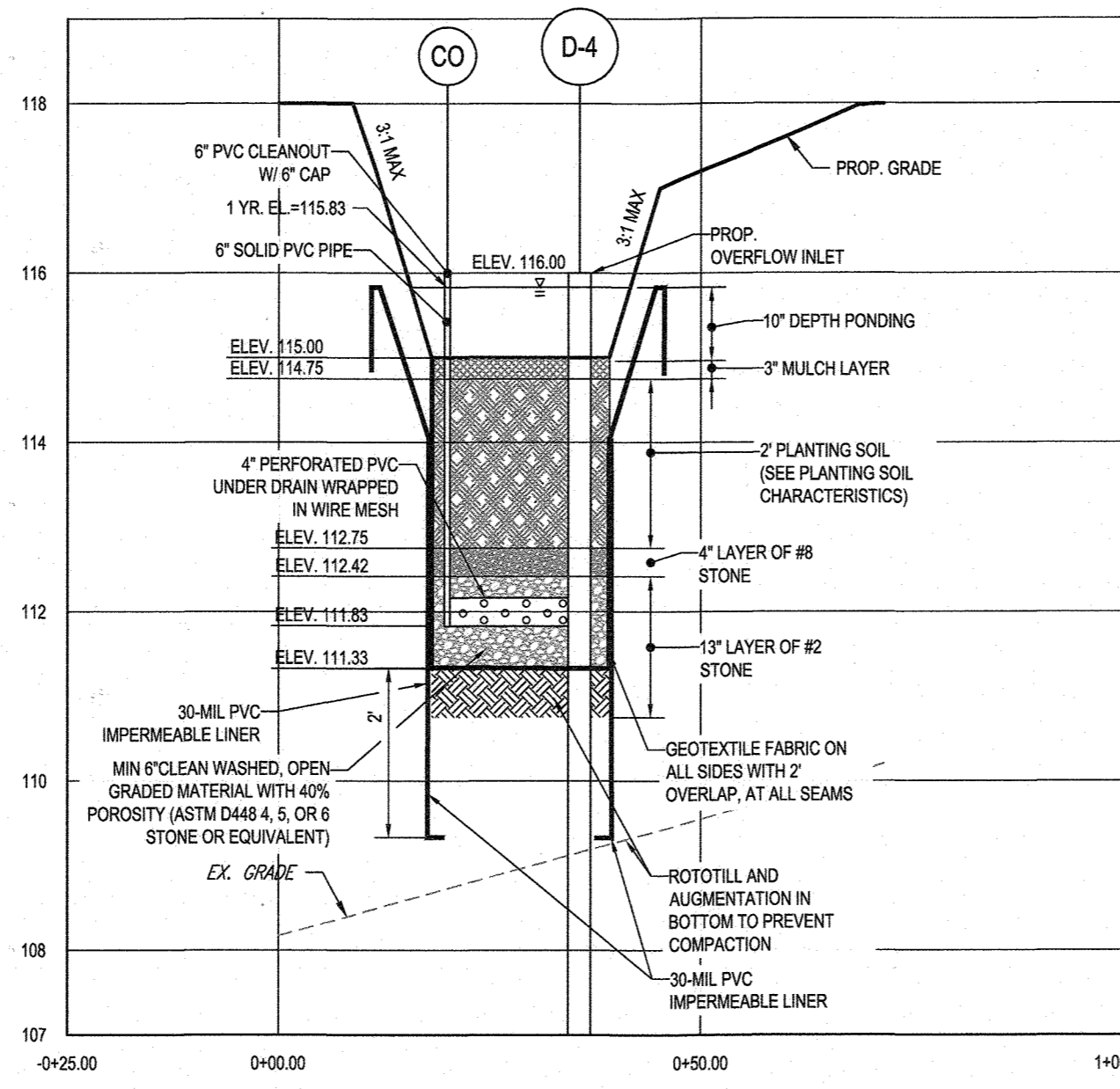
B.R. ROWE
PROFESSIONAL ENGINEER
M.D. LICENSE NO. 40898
DATE: 8/30/18

SHEET TITLE:
STORMWATER MANAGEMENT NOTES & DETAILS
SHEET NUMBER:
34 of 51
AS-BUILT

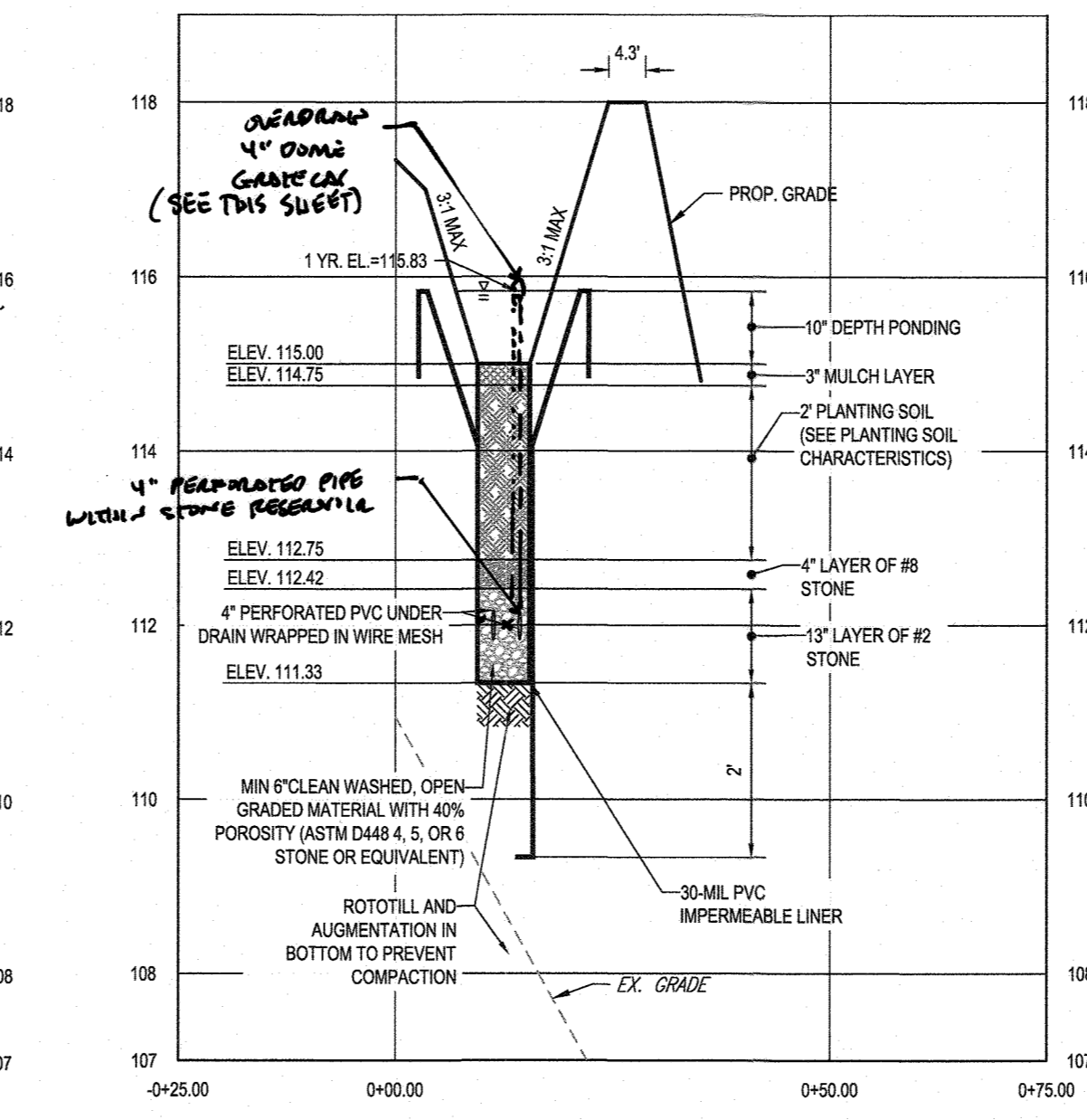




MICRO-BIORETENTION (M-6) FACILITY #7 PLAN VIEW
SCALE: 1" = 20'



MICRO-BIORETENTION FACILITY (M-6) #7 - SECTION A-A
SCALE: 1 1/2" 2" HORIZONTAL, 1" = 0' VERTICAL



MICRO-BIORETENTION FACILITY (M-6) #7 - SECTION B-B
SCALE: 1 1/2" 2" HORIZONTAL, 1" = 0' VERTICAL

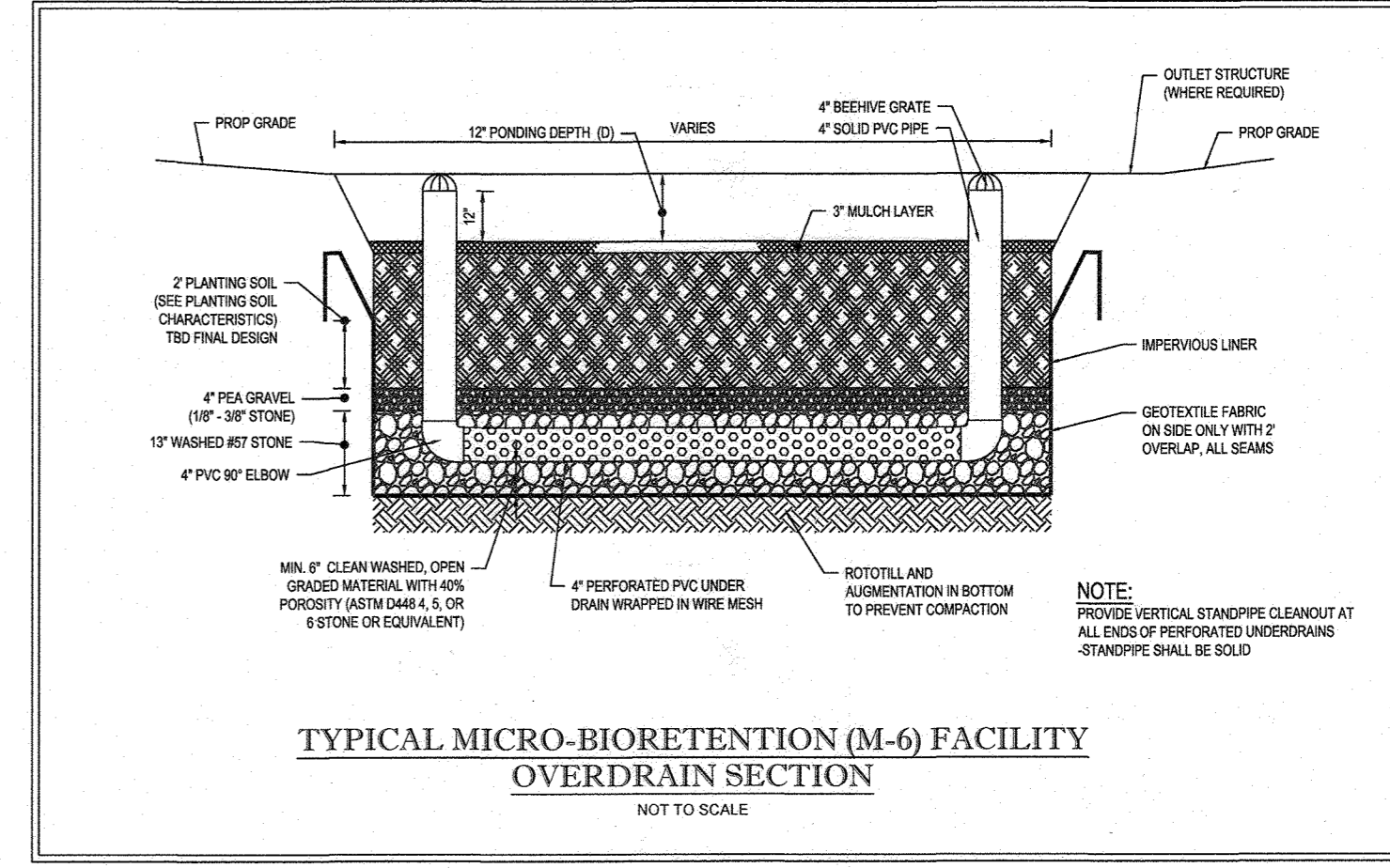
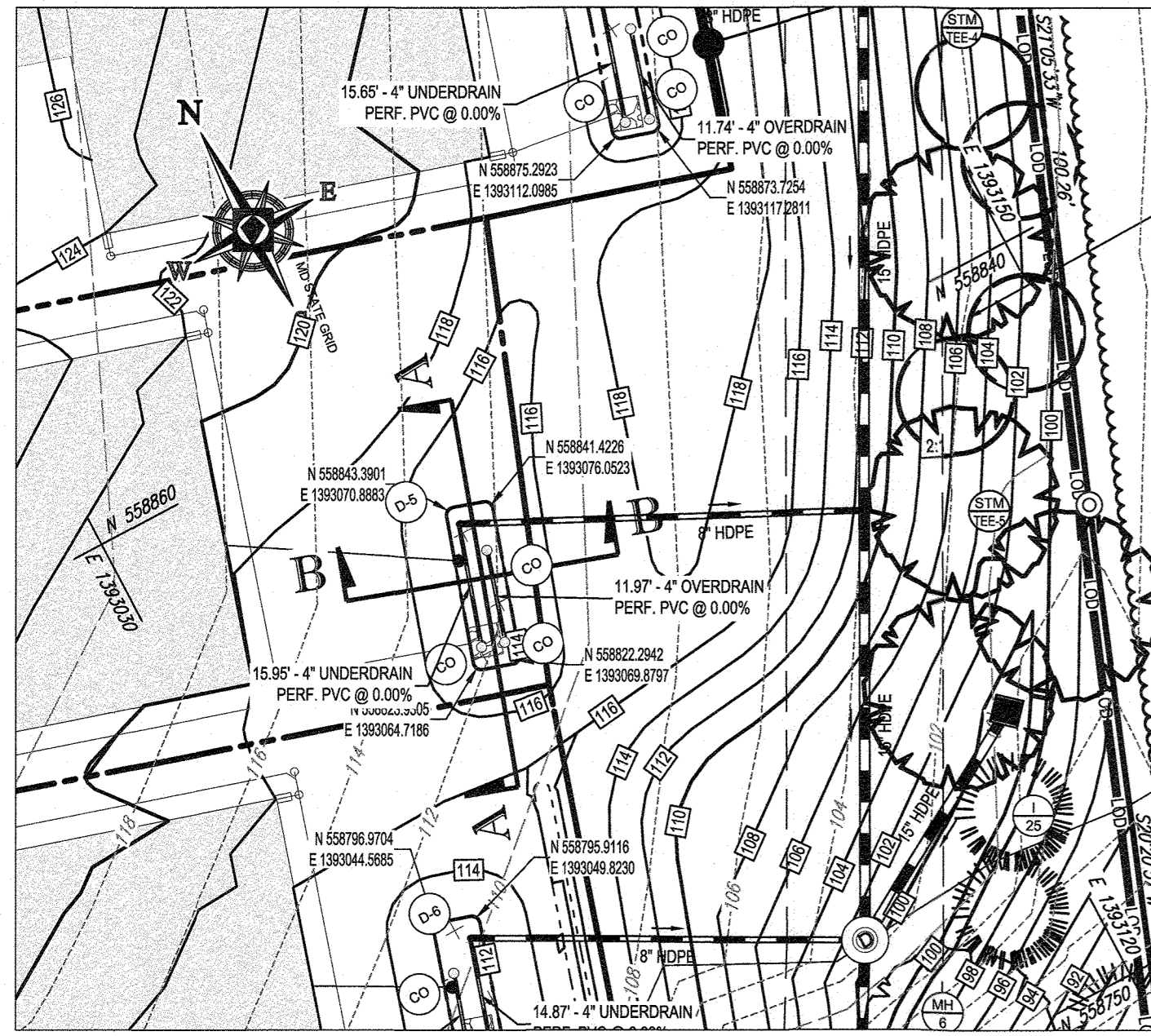
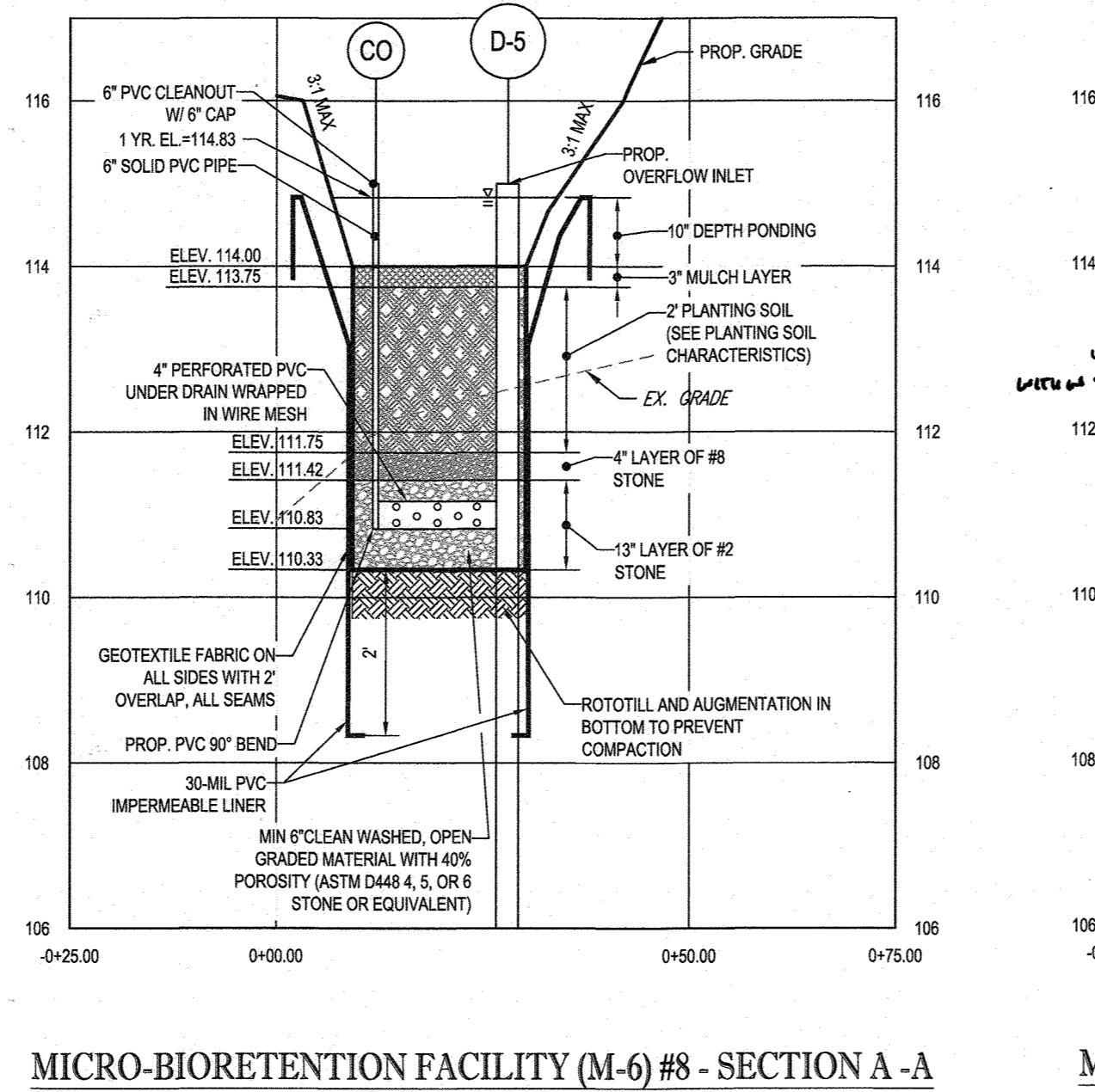


Table B.4 - Materials Specifications for Micro-Bioretentation, Rain Gardens & Landscape Infiltration.

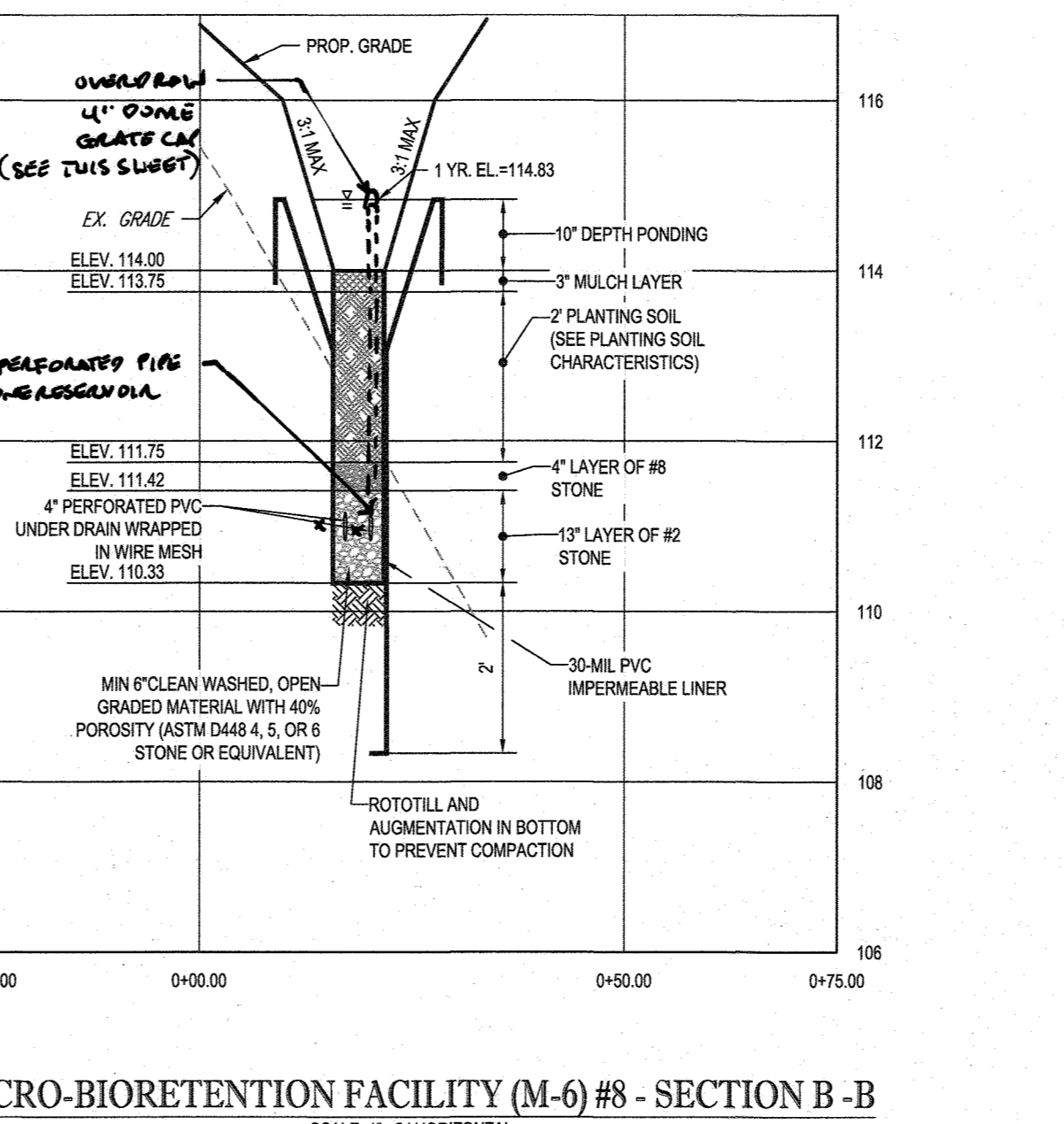
Material	Specification	Notes
Planting soil	see Appendix A, Table A.4	planting soil - site-specific
Planting soil (2" to 4" deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)	aged 6 months, minimum; no pine or wood chips
Mulch	shredded hardwood	
Top gravel discharge	see Appendix A, Table A.4	
Curbside drain	ornamental stone: washed cobble	stone: 2" to 3"
Geotextile	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (28" x 34")
Gravel (sand/drainage and infiltration berm)		4" to 6" rigid schedule 40 PVC or SDR35
Underdrain piping	F 78, Type PS 28 or AASHTO M-278	Sloped or perforated pipe: 3/8" per' @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; and necessary underdrain pipe. Perforated pipe shall be wrapped with 1/2-inch geotextile fabric.
Form in place concrete (if required)	MSEA Mix No. 3, F = 3500 psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM C-616-02	concrete testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved data or local concrete requires design drawings sealed and approved by a professional structural engineer (licensed in the State of Maryland - design to include meeting ACT Code 30.3.2.10: vertical loading [16-10 or 18-20] allowable horizontal loading (based on soil pressure), and minimum of potential cracking. Sand substitution such as Dole and Capstone (AASHTO) #10 are not acceptable. No calcium carbide or dolomitic sand substitution are acceptable. No "rock dust" can be used for sand.
Sand	AASHTO M-6 or ASTM C-33	0.02" to 0.04"



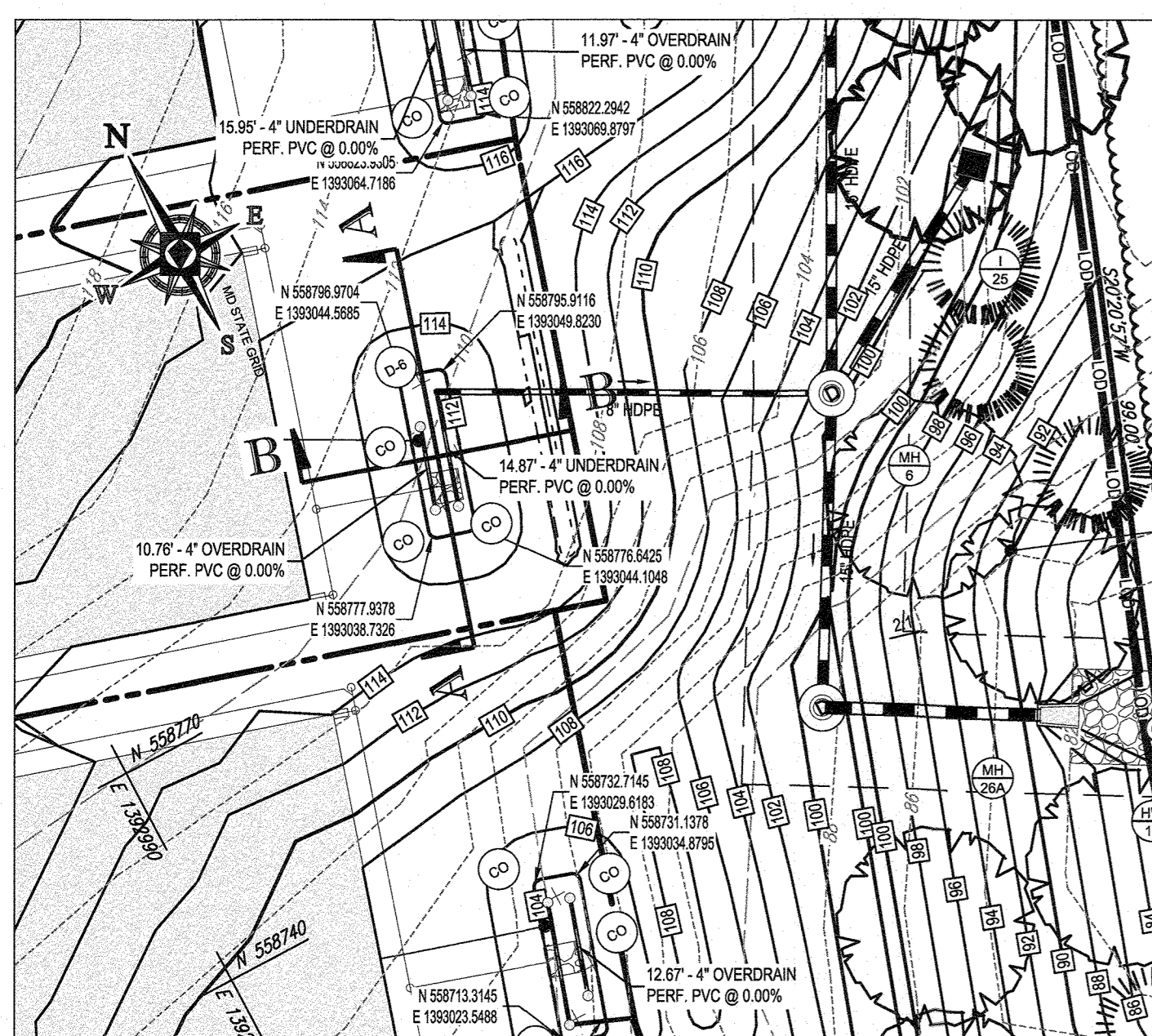
MICRO-BIORETENTION (M-6) FACILITY #8 PLAN VIEW
SCALE: 1" = 20'



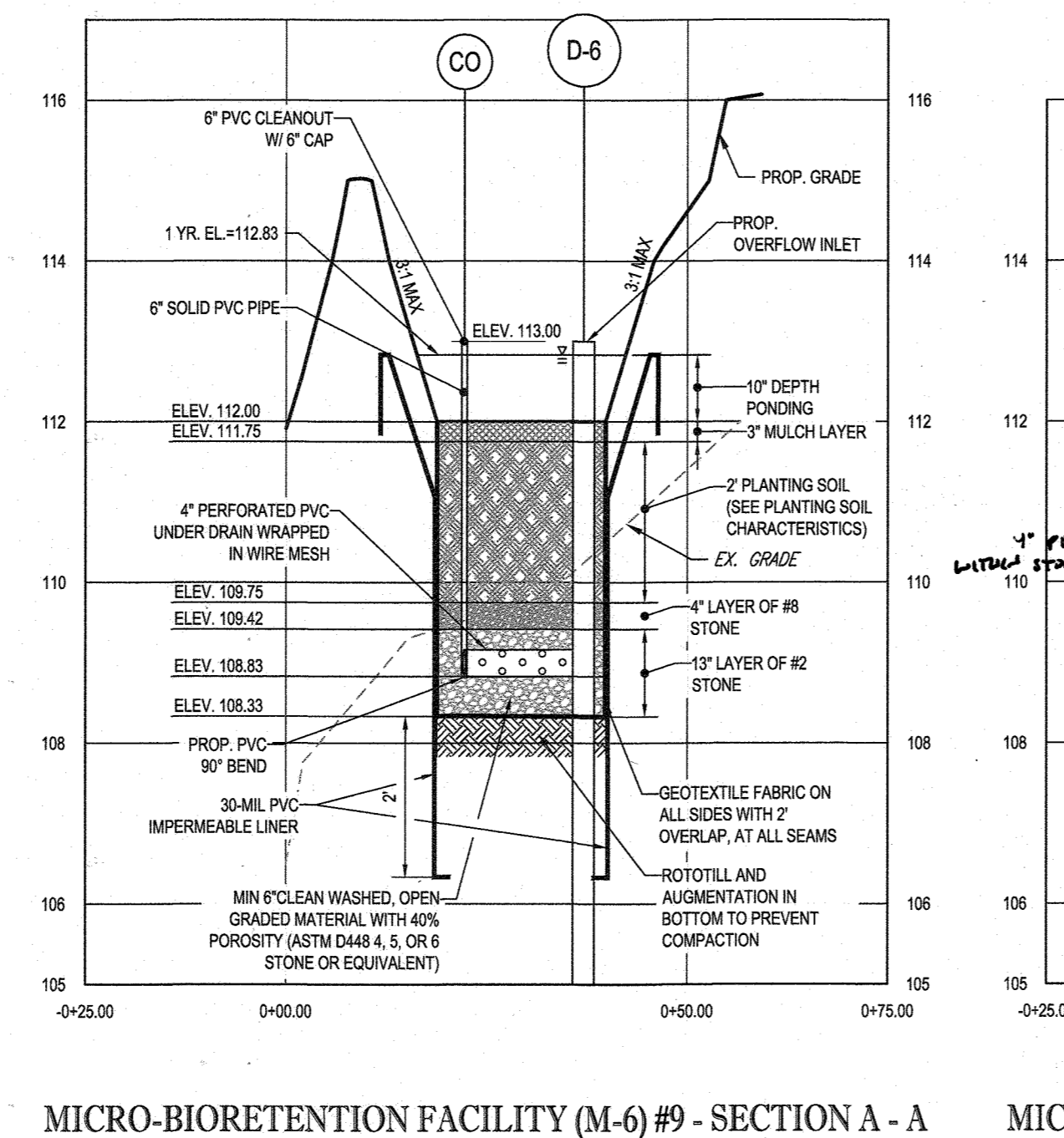
MICRO-BIORETENTION FACILITY (M-6) #8 - SECTION A-A
SCALE: 1 1/2" 2" HORIZONTAL, 1" = 0' VERTICAL



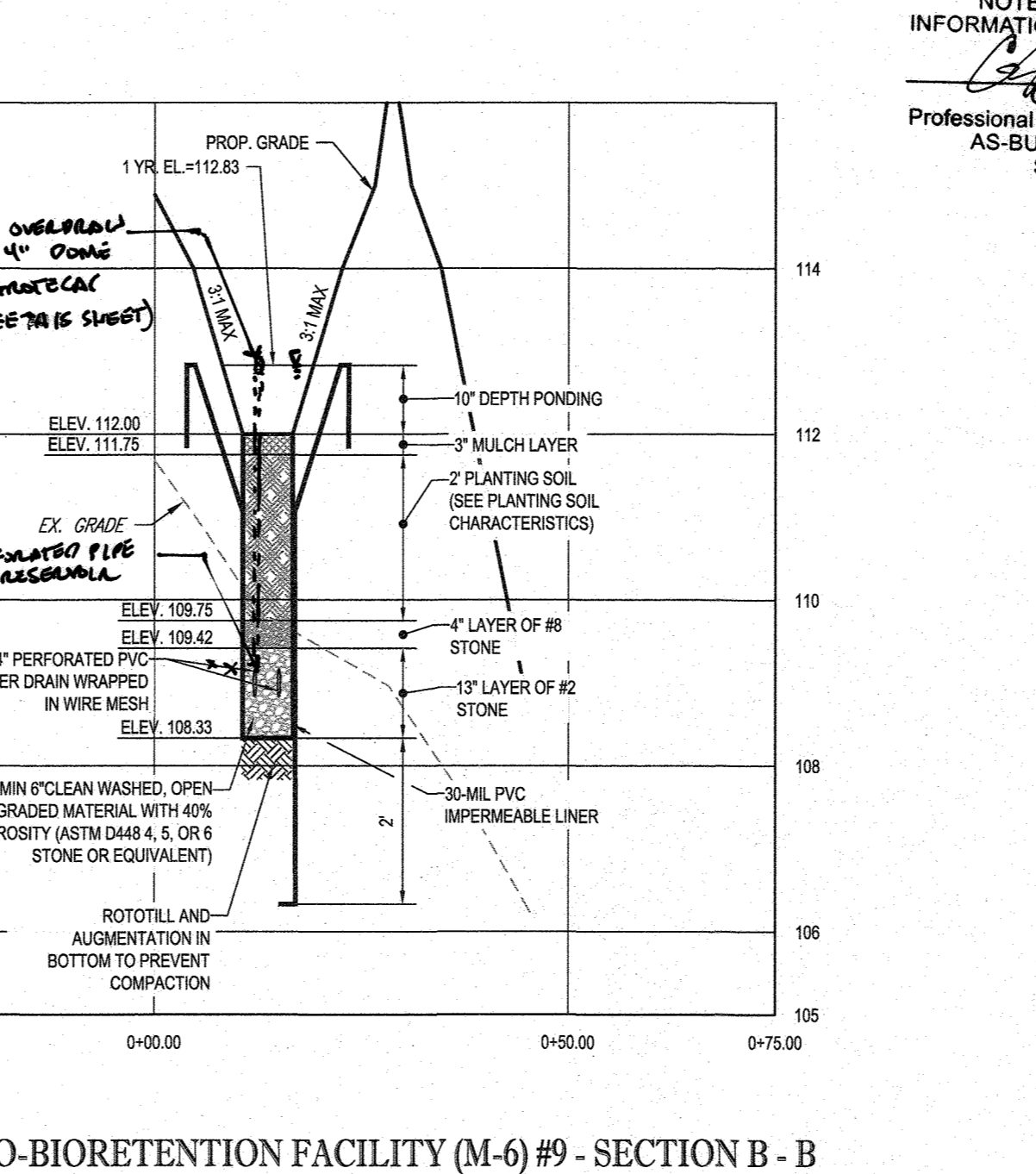
MICRO-BIORETENTION FACILITY (M-6) #8 - SECTION B-B
SCALE: 1 1/2" 2" HORIZONTAL, 1" = 0' VERTICAL



MICRO-BIORETENTION (M-6) FACILITY #9 PLAN VIEW
SCALE: 1" = 20'



MICRO-BIORETENTION FACILITY (M-6) #9 - SECTION A-A
SCALE: 1 1/2" 2" HORIZONTAL, 1" = 0' VERTICAL



MICRO-BIORETENTION FACILITY (M-6) #9 - SECTION B-B
SCALE: 1 1/2" 2" HORIZONTAL, 1" = 0' VERTICAL

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
Scott Shanabarger
G. Scott Shanabarger
Professional L.S. # 10349 Exp. Date 4/2/2024
AS-BUILT DATE: 6/11/2024
Shanabarger & Lane



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

APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 10/3/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 10-22-18

CHIEF: DEVELOPMENT ENGINEERING DIVISION
DATE: 10-11-18

SUBDIVISION NAME: ELK RIDGE WOODS
SECTION/AREA: N/A
DEED #: 1161700197 & 1117500393

PREVIOUS FILE NO.: ECP-16-008 P-17-001
P-05-094
CONTR. 14-4220-D
WP-16-150

ENGINEER'S CERTIFICATE
"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
DATE: 4/30/18
SIGNATURE OF ENGINEER: BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE
"I HAVE HEREBY CERTIFIED THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
DATE: 9-5-18
SIGNATURE OF DEVELOPER: [Signature]

OWNER: ELK RIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
ELICOTT CITY, MD 21042
PHONE: (410) 720-3021

DEVELOPER: ELK RIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
PARCELS: 756 & 340
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, 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. 4808, EXPIRATION DATE: 7/3/2019

BOHLER ENGINEERING
CORPORATE OFFICE: WARREN, NJ
OFFICES: BOSTON, MA; TOWSON, MD; WASHINGTON, VA; FORT LAUDERDALE, FL; CHARLOTTE, NC; CENTER VALLEY, PA; TAMPA, FL
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
DRAWN BY: AVS
CHECKED BY: BRR
DATE: 08/29/18
SCALE: AS SHOWN
CAD I.D.: SM3

FINAL ROAD CONSTRUCTION PLAN

FOR
ELK RIDGE WOODS
LOTS 1-42 & OPEN SPACE LOTS 43 & 44

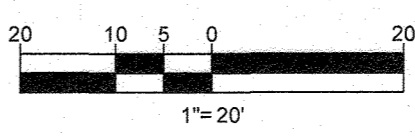
LOCATION OF SITE
5920 FLOREY ROAD
ELK RIDGE, MD
1ST ELECTION DISTRICT
TAX MAP 38, GRID 9,
PARCELS 756 & 340
HOWARD COUNTY

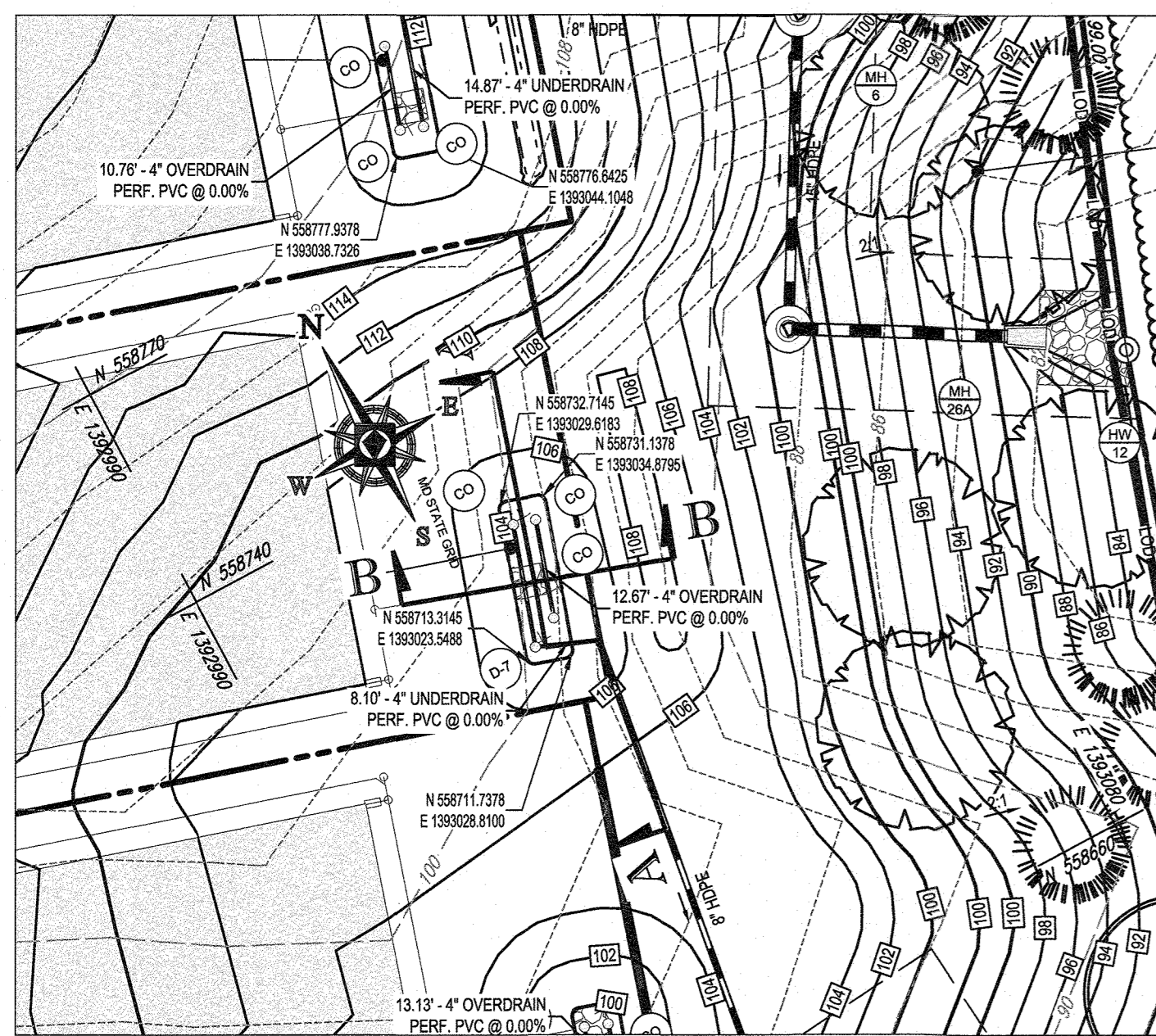
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 4808
4/30/18

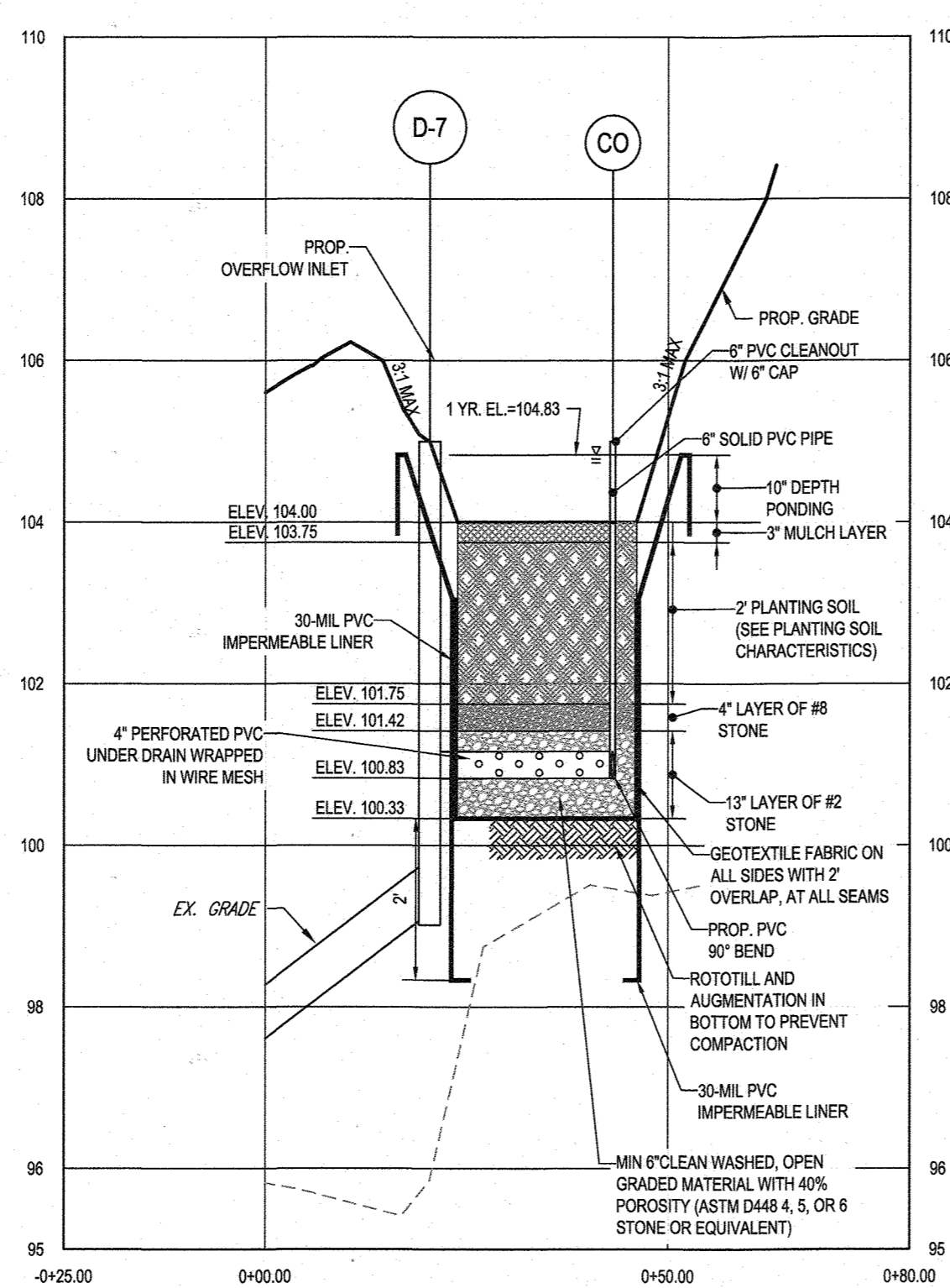
SWM DETAILS

SHEET NUMBER: 35 of 51
AS-BUILT

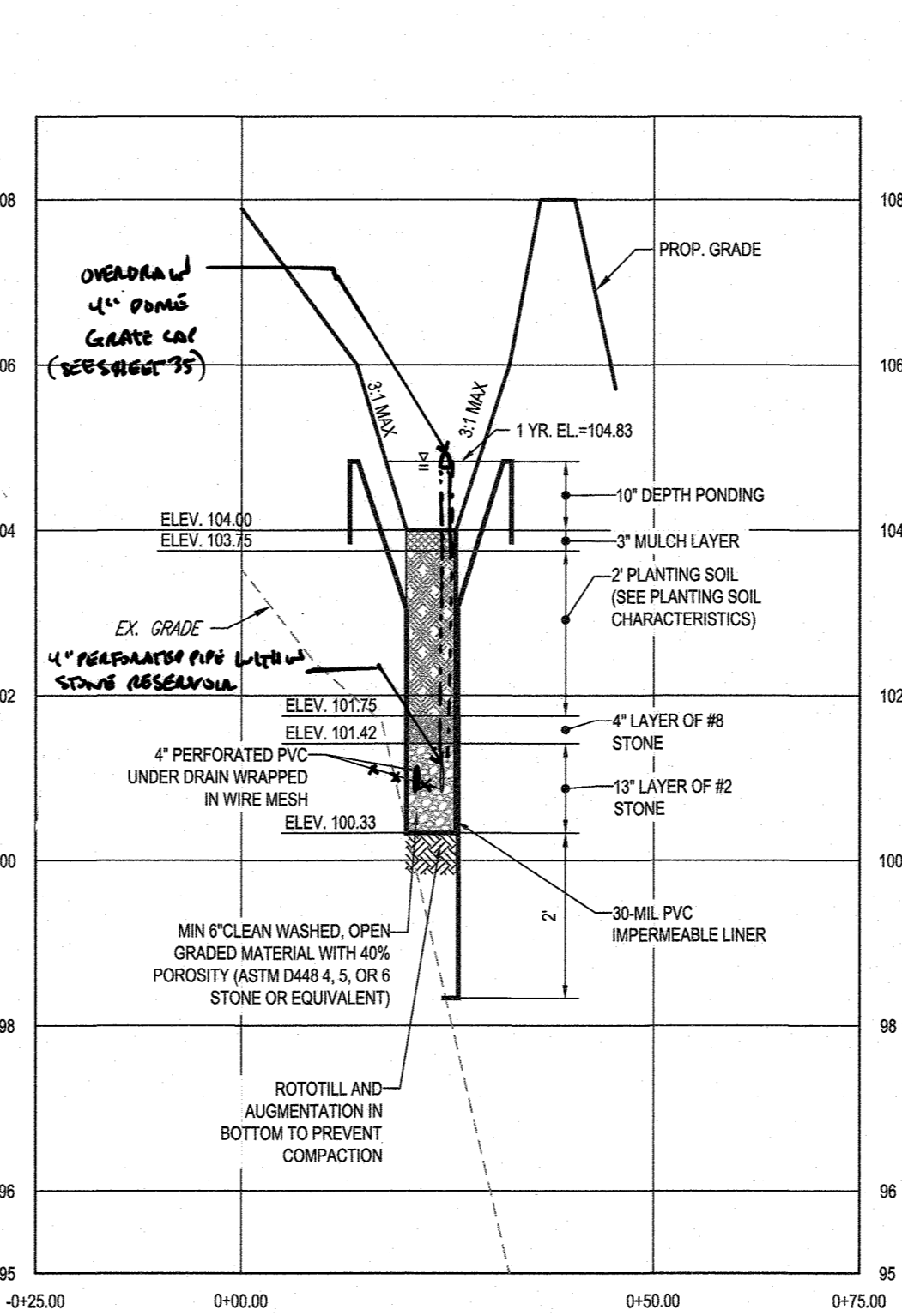




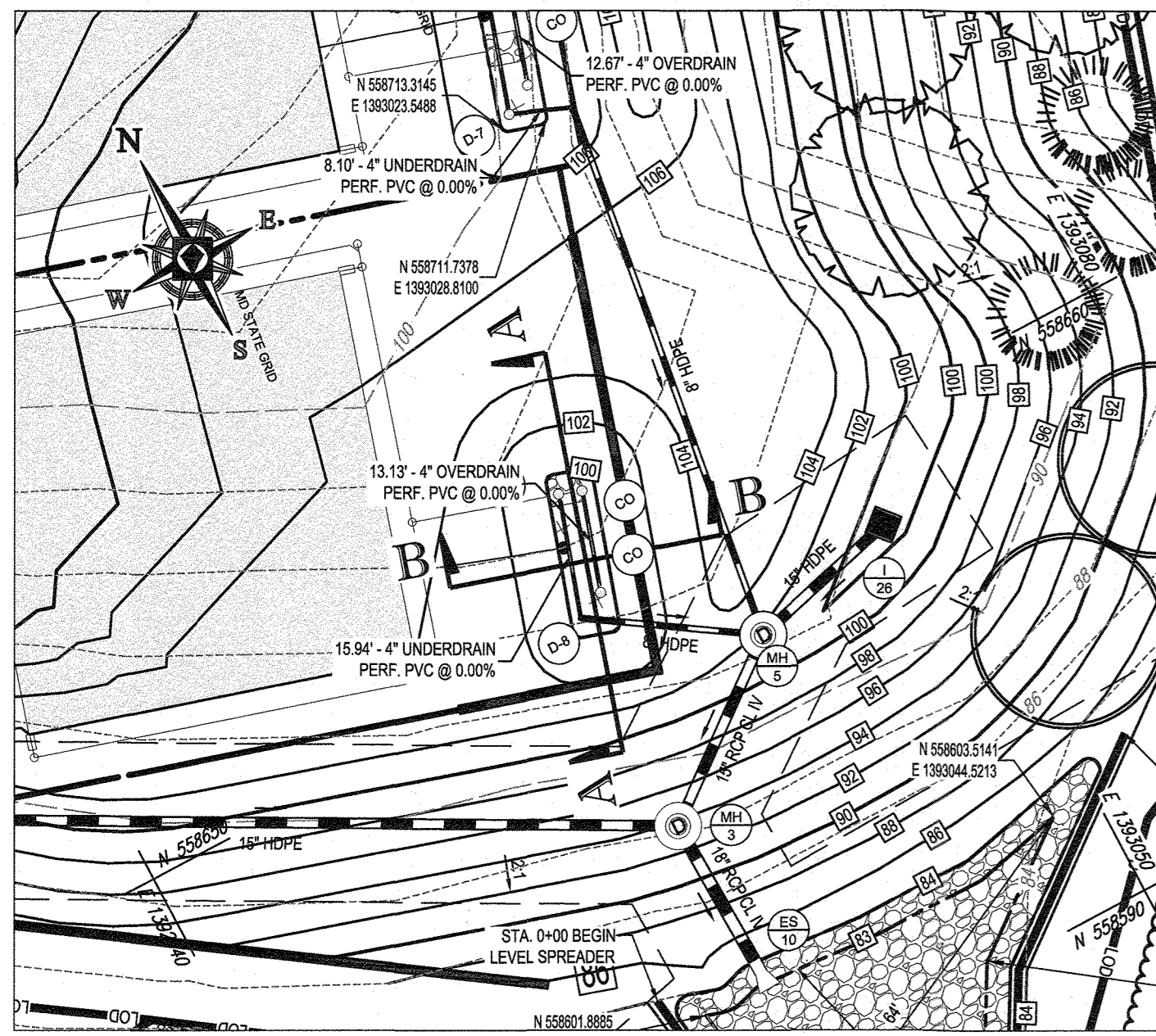
MICRO-BIORETENTION (M-6) FACILITY #10 PLAN VIEW
SCALE: 1" = 20'



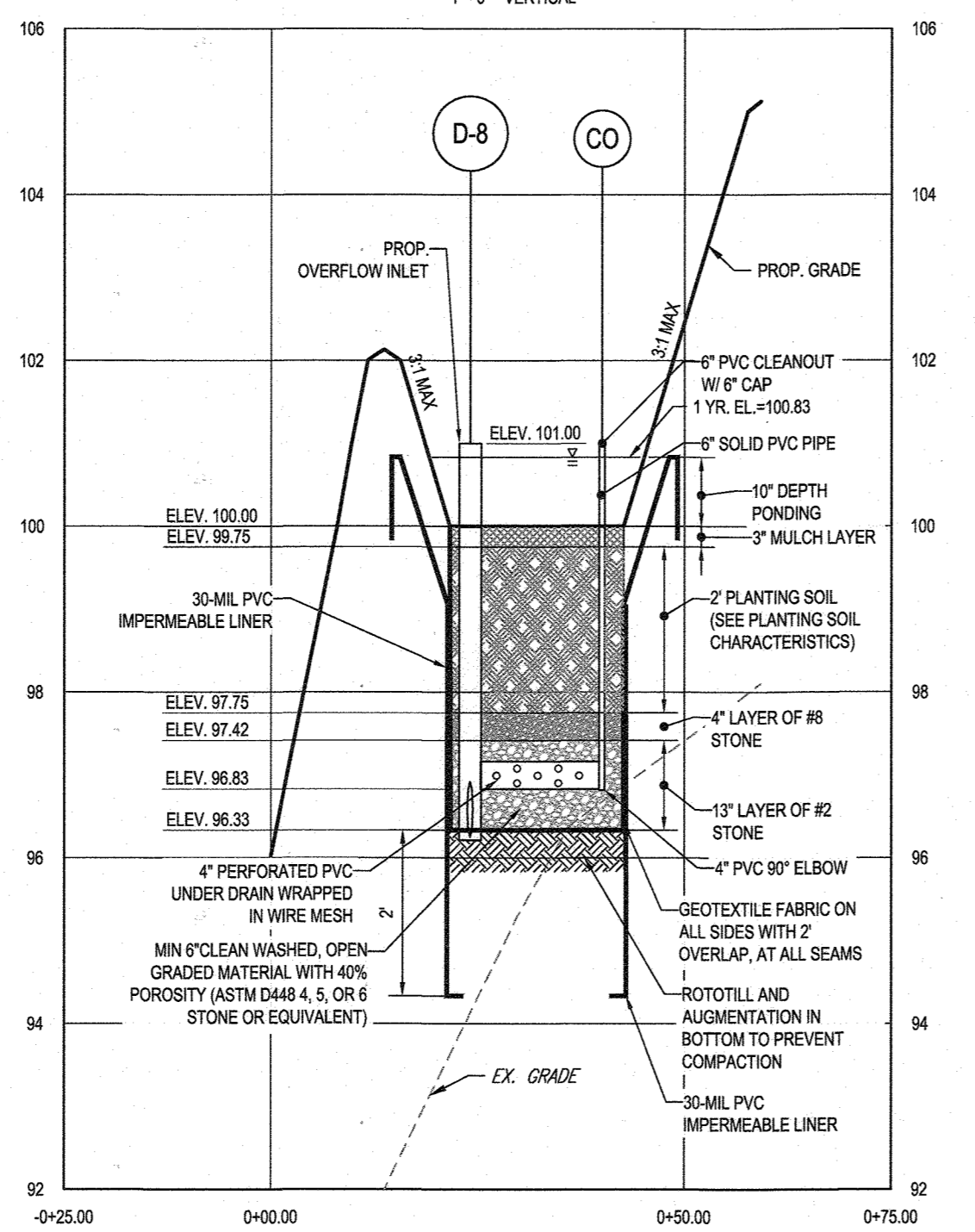
MICRO-BIORETENTION FACILITY (M-6) #10 - SECTION A - A
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



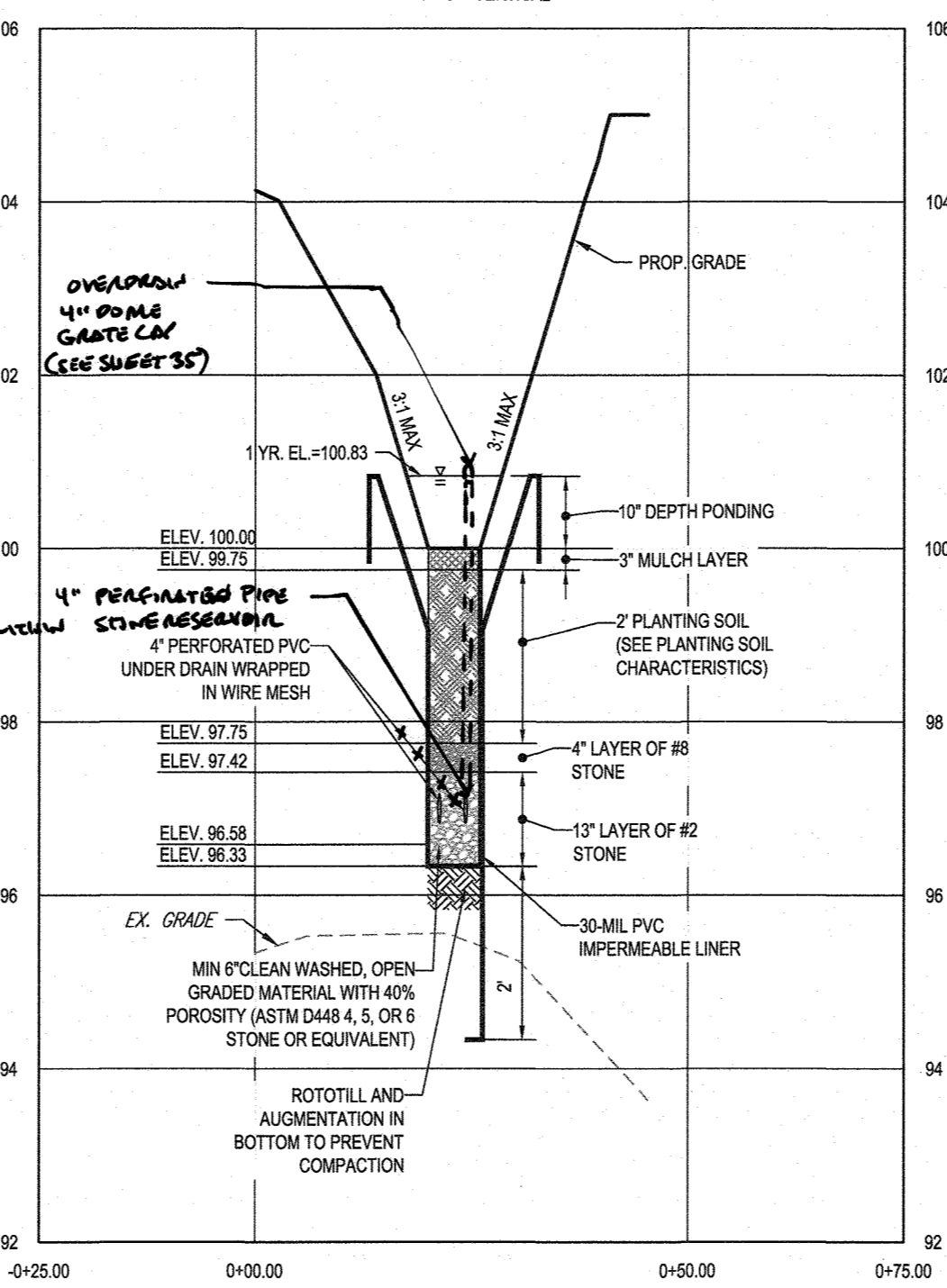
MICRO-BIORETENTION FACILITY (M-6) #10 - SECTION B - B
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



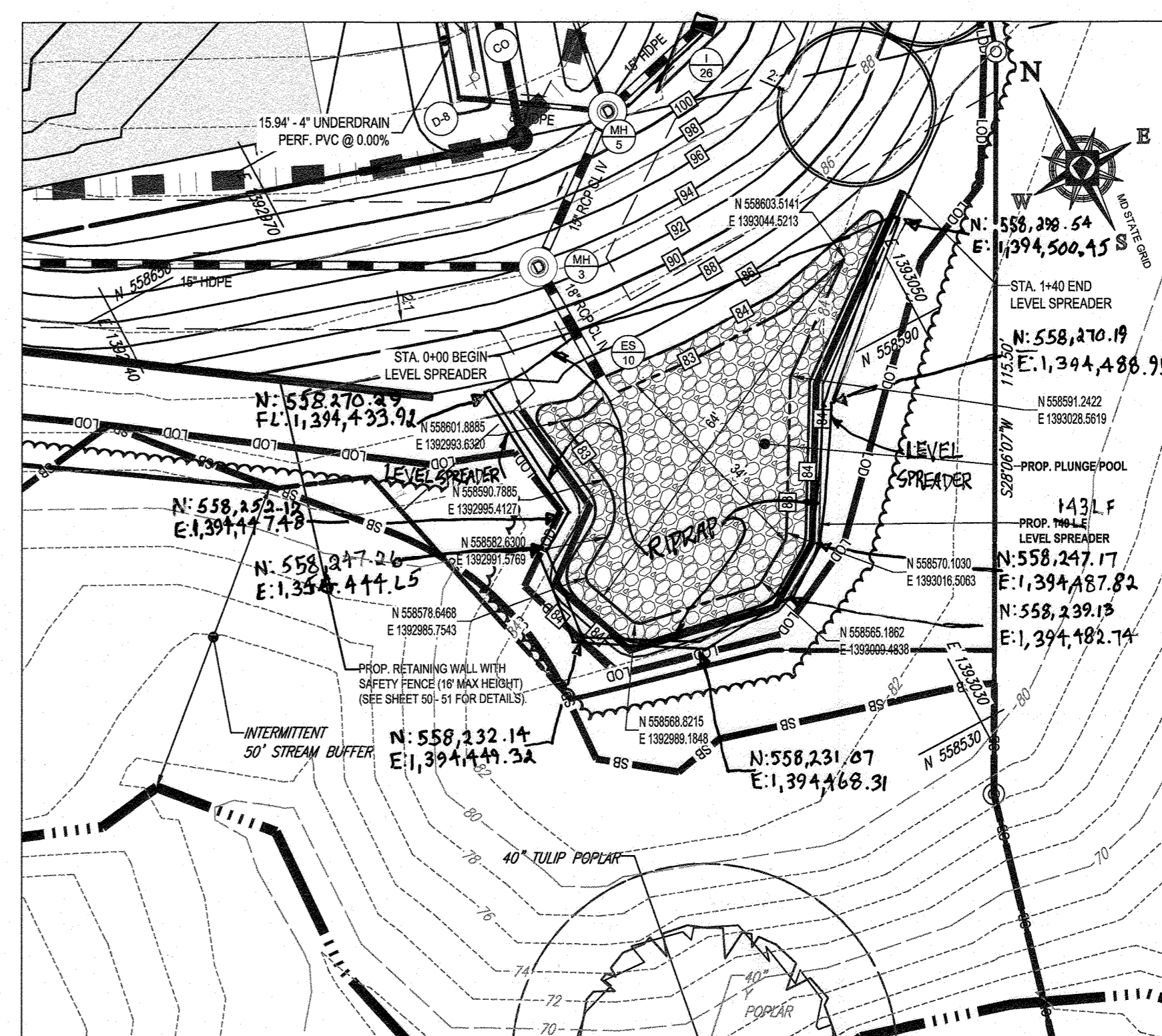
MICRO-BIORETENTION (M-6) FACILITY #11 PLAN VIEW
SCALE: 1" = 20'



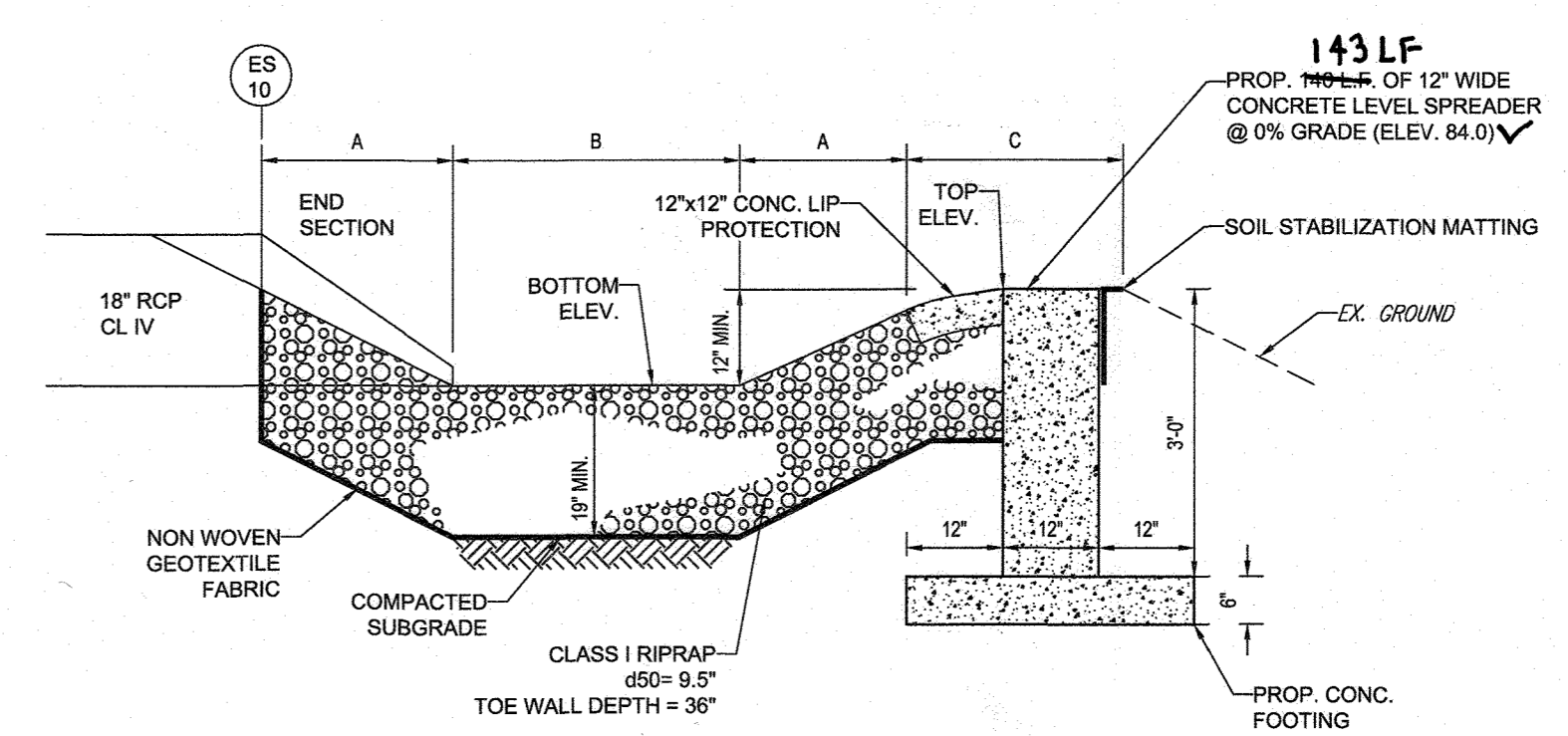
MICRO-BIORETENTION FACILITY (M-6) #11 - SECTION A - A
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



MICRO-BIORETENTION FACILITY (M-6) #11 - SECTION B - B
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



PLUNGE POOL & LEVEL SPREADER FACILITY
SCALE: 1" = 20'



PLUNGE POOL & LEVEL SPREADER DETAIL
SCALE: 1" = 2'

DIMENSION CHART

LEVEL SPREADER AND PLUNGE POOL	A	B	C	BOTTOM ELEV.	TOP ELEV.
1	3'-0.5"	35'	3.1' AVG.	81.9'	84.6'

MAINTENANCE AND REPAIR SCHEDULE FOR THE LEVEL SPREADER AND PLUNGE POOL

- AT A MINIMUM, THE LEVEL SPREADER AND PLUNGE POOL SHALL BE INSPECTED BI-ANNUALLY FOR THE FOLLOWING ITEMS:
- CONDITION OF THE DOWNSTREAM SLOPE FROM THE LEVEL SPREADER.
 - DEPTH OF PLUNGE POOL AND CONDITION OF THE RIPRAP.
 - STABILITY OF LEVEL SPREADER AND GRADES AROUND.

OPERATION AND MAINTENANCE SCHEDULE FOR THE LEVEL SPREADER AND PLUNGE POOL

- THE OWNER IS RESPONSIBLE FOR YEARLY MAINTENANCE FOR THE LEVEL SPREADER AND PLUNGE POOL TO REMOVED TREES, LEAVES, SHRUBS AND SEDIMENT.
- THE OWNER IS ALSO RESPONSIBLE FOR MAINTAINING THE OPERATIONAL CONDITION OF THE LEVEL SPREADER AND PLUNGE POOL AFTER EVERY MAJOR STORM EVENT TO MAKE SURE PROPER DRAINAGE IS MAINTAINED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AS NEEDED BASIS FOR THE LEVEL SPREADER AND PLUNGE POOL.

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

APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 10/3/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 10-22-18

APPROVED: CHIEF DEVELOPMENT ENGINEERING DIVISION
DATE: 10-11-18

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

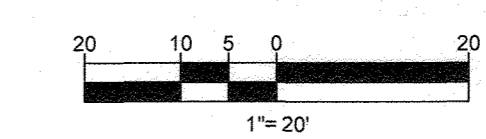
DATE: 9/30/18

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

DATE: 9-5-18

AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN AND THE CURRENT APPROVED PLANS AND SPECIFICATIONS.

DATE: 5-11-21



SUBDIVISION NAME: ELKCRIDGE WOODS
SECTION/AREA: N/A
DEED # 11617/00197 & 11175/00393

PREVIOUS FILE NO.: ECP-16-008 P-17-001
F-25-094 S-16-001
WP-16-150 P-04-11

OWNER: ELKCRIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
ELLCOTT CITY, MD 21042
PHONE: (410) 720-3021

DEVELOPER: ELKCRIDGE WOODS L.C.
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12
PARCELS: 756 & 340
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

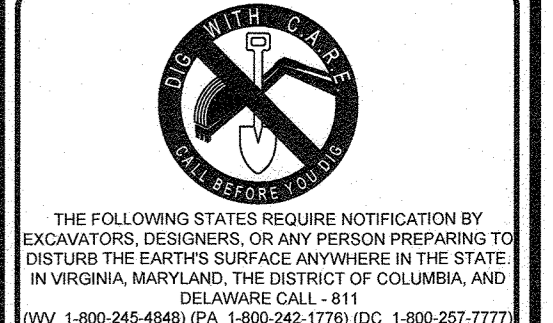
BOHLER ENGINEERING

CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTH BRUNSWICK, NJ; ALBANY, NY; FORT LAUDERDALE, FL; PHILADELPHIA, PA

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY



NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
DRAWN BY: AVG
CHECKED BY: BBR
DATE: 08/29/18
SCALE: AS SHOWN
SM3

FINAL ROAD CONSTRUCTION PLAN

FOR **ELKCRIDGE WOODS**
LOTS 1-42 & OPEN SPACE LOTS 43 & 44
LOCATION OF SITE
5920 FLOREY ROAD
ELKCRIDGE, MD
1ST ELECTION DISTRICT
TAX MAP 38, GRID 9
PARCELS 756 & 340
HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 8988

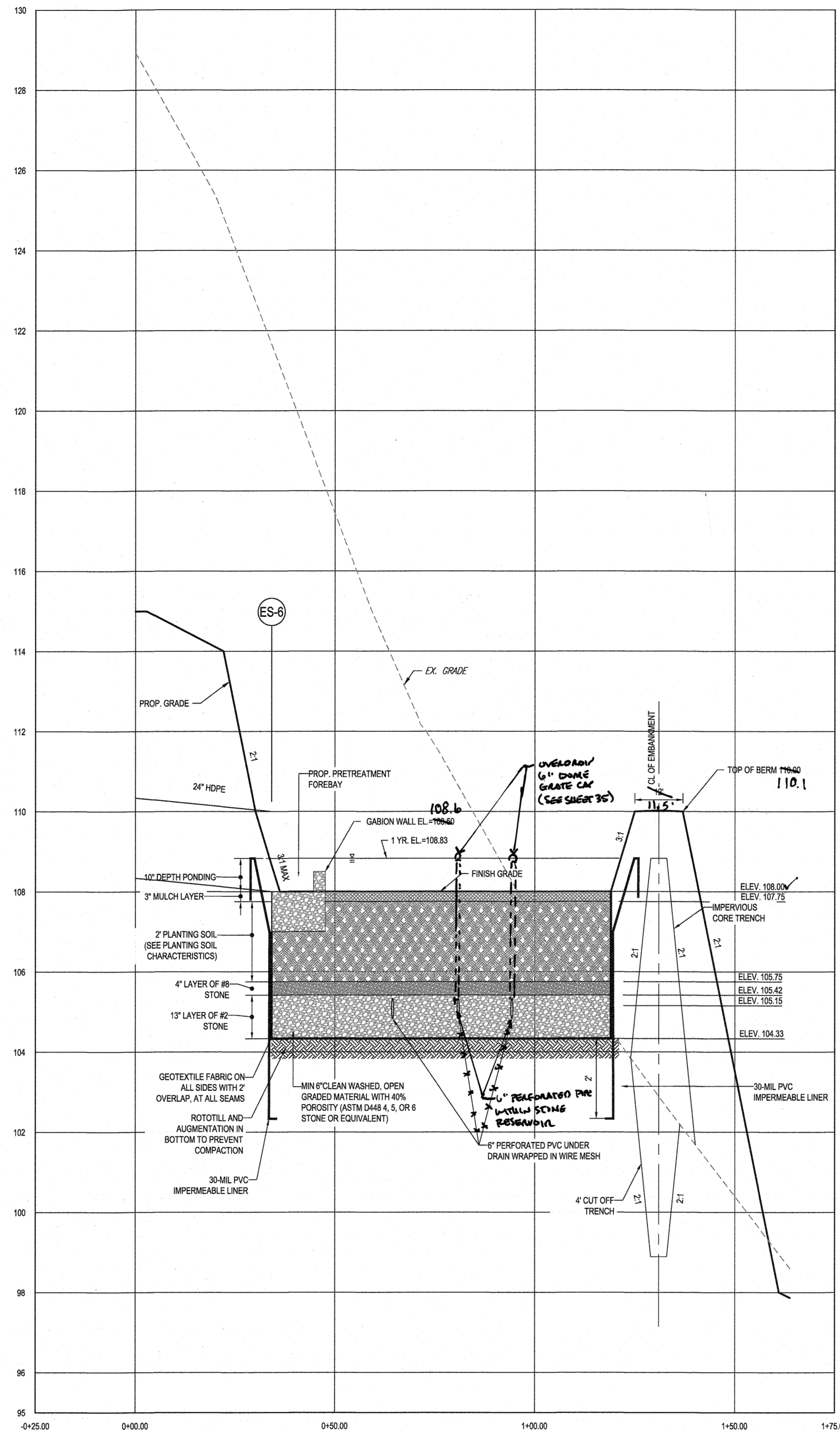
SHEET TITLE: **STORMWATER MANAGEMENT NOTES & DETAILS**

SHEET NUMBER: **36 of 51**

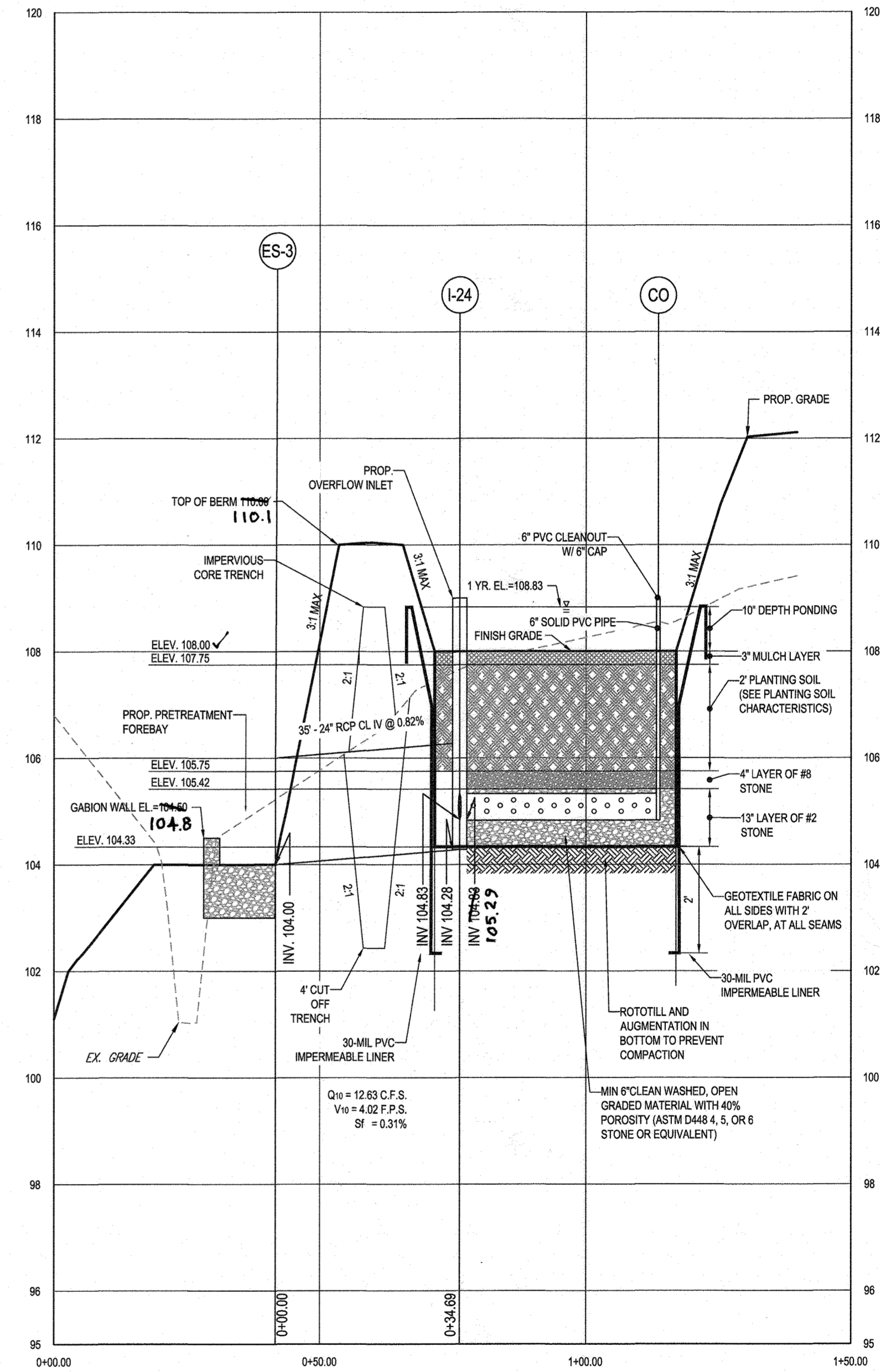
AS-BUILT



BIORETENTION (F-6) FACILITY #12 PLAN VIEW
SCALE: 1" = 20'



BIO-RETENTION FACILITY #12 (M-6) - SECTION A - A
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL



BIO-RETENTION FACILITY #12 (M-6) - SECTION B - B
SCALE: 1" = 2' HORIZONTAL
1" = 0' VERTICAL

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

HOWARD SCD DATE: 10/3/2018

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS DATE: 10/3/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 10-22-18

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-11-18

ENGINEER'S CERTIFICATE

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

DATE: 10/3/18

SIGNATURE OF ENGINEER: BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

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

DATE: 9-5-18

SIGNATURE OF DEVELOPER: [Signature]

AS-BUILT CERTIFICATION

I HEREBY CERTIFY BY SEAL THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN AND AS APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.

DATE: 10/12/18

SIGNATURE: [Signature]

PROFESSIONAL LAND SURVEYOR #0049

LICENSE EXPIRATION DATE: 11/14/24

AS-BUILT SURVEY DATES: 5/17/18 TO 6/10/18

1" = 20'

SUBDIVISION NAME: ELKRIDGE WOODS SECTION AREA, N/A DEED # 11617/00197 & 11175/00393

PREVIOUS FILE NO.: ECP-16-008 P-17-001 F-25-094 CONTR. 14-4220-D S-03-02 WP-16-150

S-16-001 S-03-02 P-04-11

OWNER: ELKRIDGE WOODS L.C. SUITE 801 5074 DORSEY HALL ROAD, SUITE 205 ELLICOTT CITY, MD 21042 PHONE: (410) 720-3021

DEVELOPER: ELKRIDGE WOODS L.C. SUITE 801 5074 DORSEY HALL ROAD, SUITE 205 ELLICOTT CITY, MD 21042 CONTACT: JASON VAN KIRK PHONE: (410) 720-3021

TAX MAP: 38 GRID: 9 ZONED: R-12 PARCELS: 756 & 340

1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION: I, BRANDON R. ROWE, 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. 4088, EXPIRATION DATE: 7/3/2019.

BOHLER ENGINEERING

CORPORATE OFFICE: WARREN, NJ

OFFICES:

- BOULDER, CO
- CHICAGO, IL
- DES MOINES, IA
- EL PASO, TX
- HOUSTON, TX
- INDIANAPOLIS, IN
- KANSAS CITY, MO
- MINNEAPOLIS, MN
- NEW YORK, NY
- PHILADELPHIA, PA
- PORTLAND, ME
- RICHMOND, VA
- SAN ANTONIO, TX
- SARASOTA, FL
- TAMPA, FL
- WASHINGTON, DC

CIVIL & CONSULTING ENGINEERS

SURVEYORS

PROJECT MANAGERS

ENVIRONMENTAL CONSULTANTS

LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811 (VA 1-800-245-4545) (PA 1-800-245-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 08/29/18
SCALE: AS SHOWN
CAD I.D.: SM3

FINAL ROAD CONSTRUCTION PLAN

FOR **ELKRIDGE WOODS**
LOTS 1-42 & OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
5920 FLOREY ROAD
ELKRIDGE, MD
1ST ELECTION DISTRICT
TAX MAP 38, GRID 9,
PARCELS 756 & 340
HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
M.D. AND LICENSE NO. 4088
1100 W. BALTIMORE AVENUE, SUITE 400
BALTIMORE, MD 21201
DATE: 10/12/18

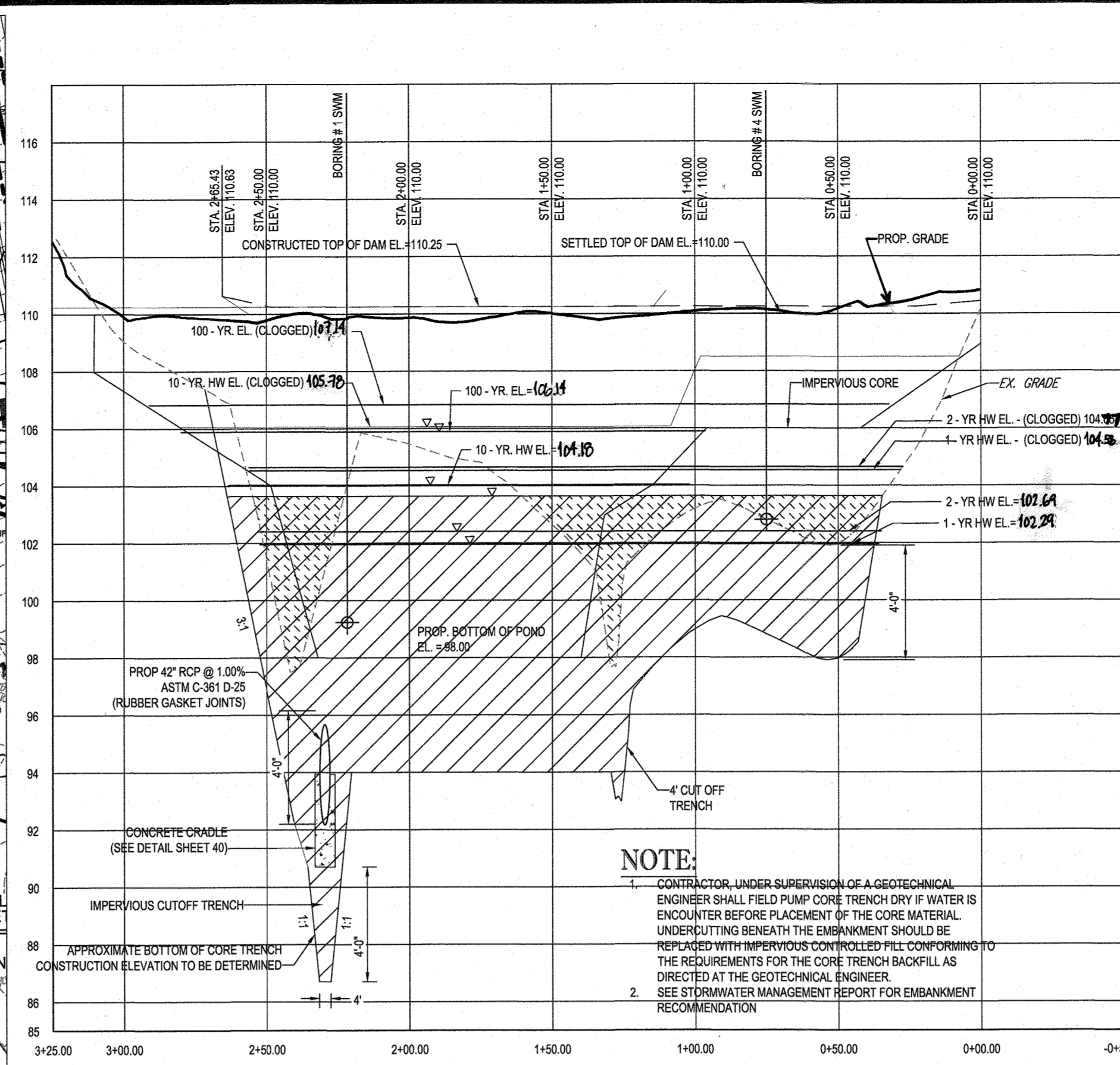
SHEET TITLE: **STORMWATER MANAGEMENT NOTES & DETAILS**

SHEET NUMBER: **37 of 51**

AS-BUILT

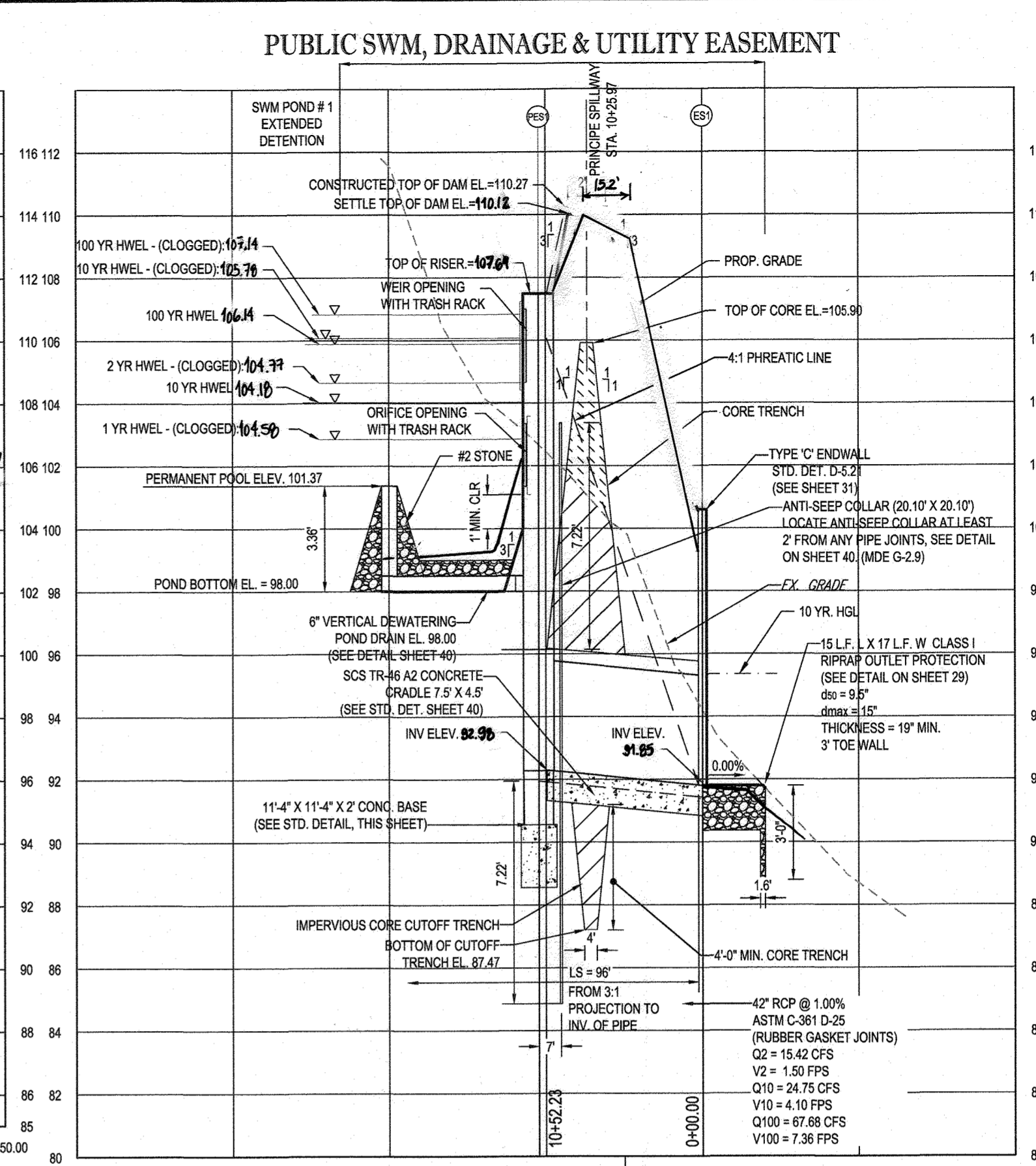


STORMWATER MANAGEMENT POND #1
SCALE: 1" = 40'



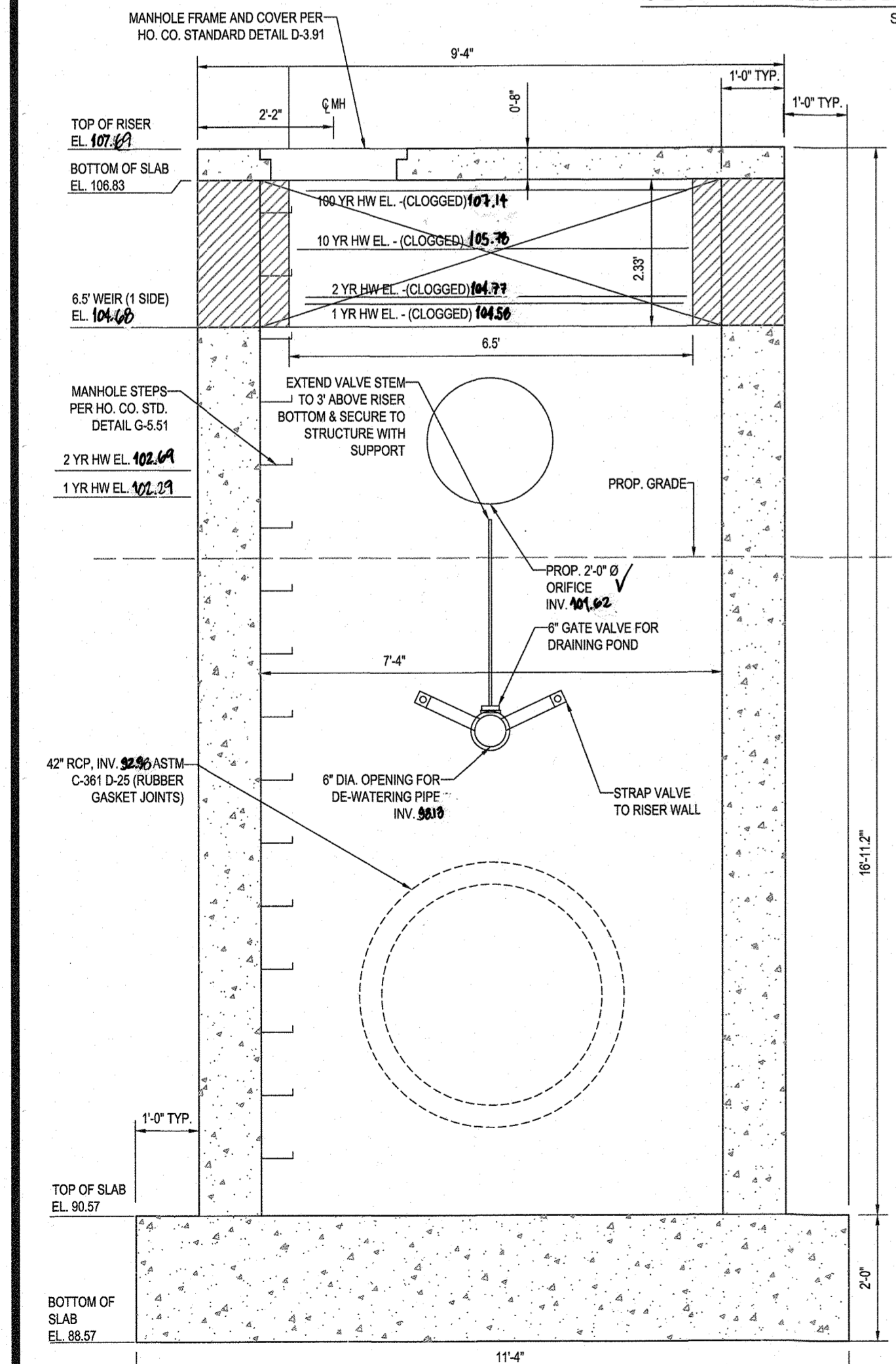
PROFILE ALONG CENTERLINE OF EMBANKMENT
SCALE: 1" = 40' HORIZONTAL
SCALE: 1" = 4' VERTICAL

NOTE: CONTRACTOR UNDER SUPERVISION OF A GEOTECHNICAL ENGINEER SHALL FIELD PUMP CORE TRENCH DRY IF WATER IS ENCOUNTERED BEFORE PLACEMENT OF THE CORE MATERIAL. UNDERPINNING BENEATH THE EMBANKMENT SHOULD BE REPLACED WITH IMPERVIOUS CONTROLLED FILL CONFORMING TO THE REQUIREMENTS FOR THE CORE TRENCH BACKFILL AS DIRECTED AT THE GEOTECHNICAL ENGINEER. SEE STORMWATER MANAGEMENT REPORT FOR EMBANKMENT RECOMMENDATION.

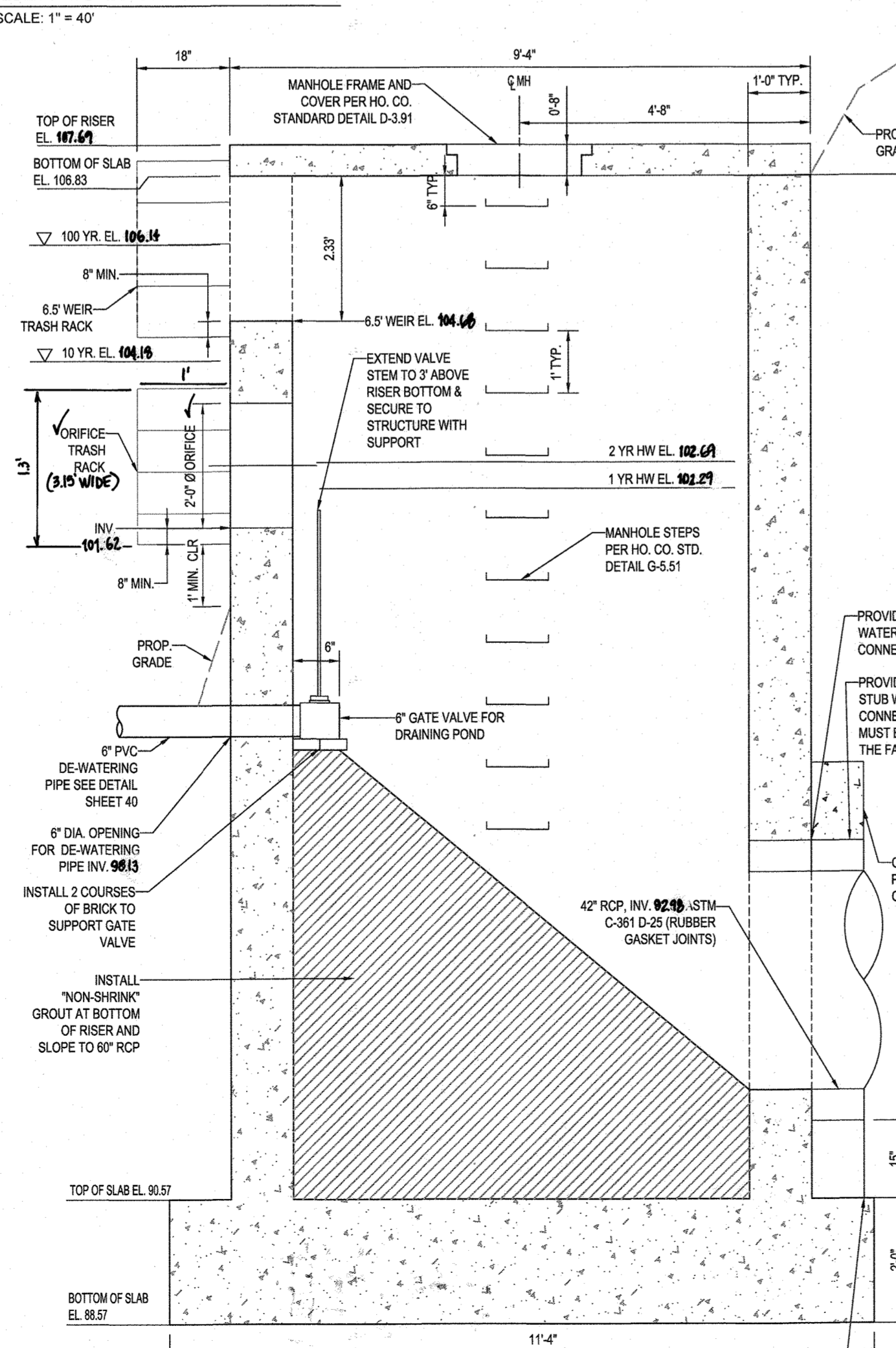


SECTION B-B THROUGH SPILLWAY
SCALE: 1" = 40' HORIZONTAL
SCALE: 1" = 4' VERTICAL

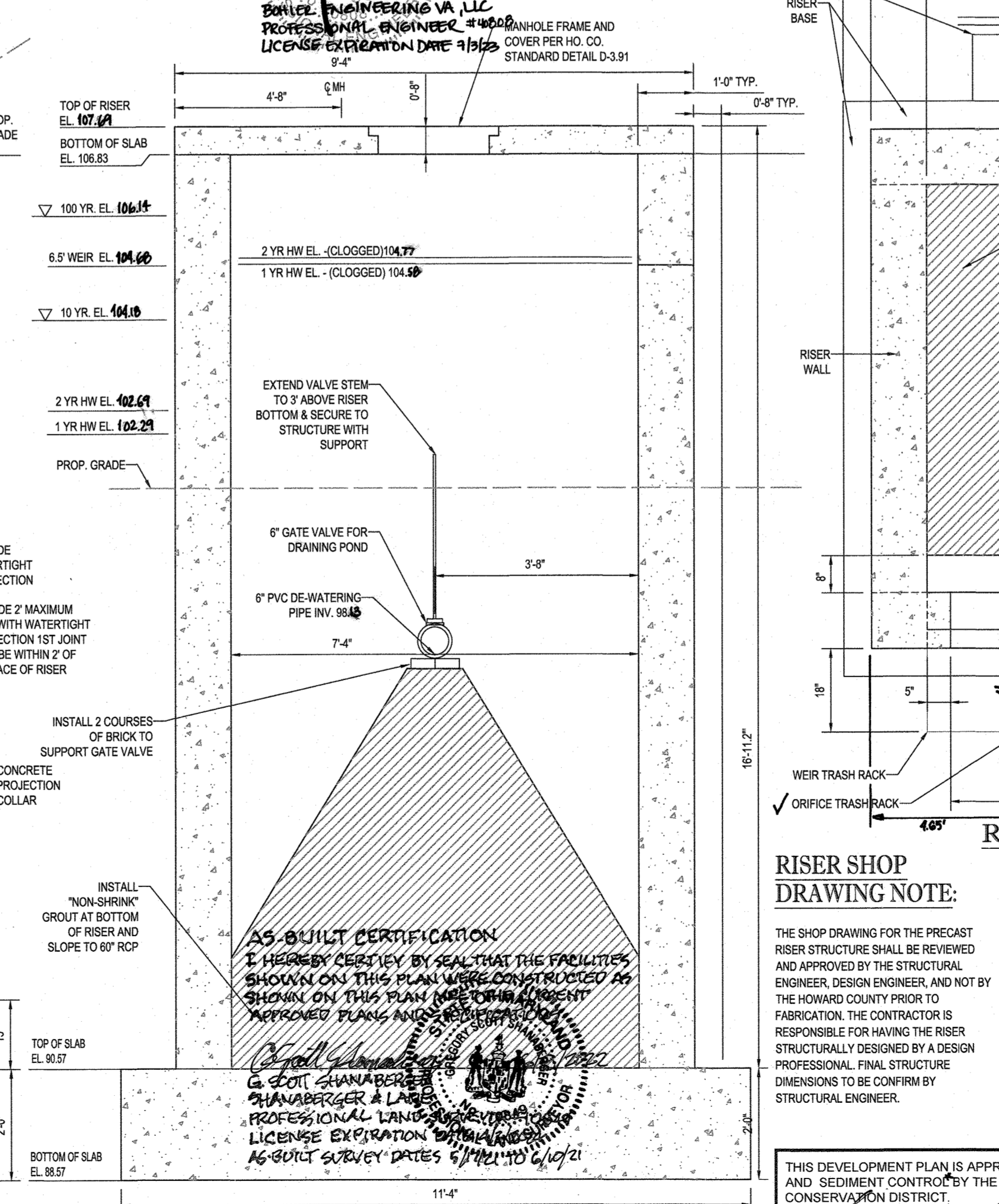
NOTE: CONTRACTOR UNDER SUPERVISION OF A GEOTECHNICAL ENGINEER SHALL FIELD PUMP CORE TRENCH DRY IF WATER IS ENCOUNTERED BEFORE PLACEMENT OF THE CORE MATERIAL. UNDERPINNING BENEATH THE EMBANKMENT SHOULD BE REPLACED WITH IMPERVIOUS CONTROLLED FILL CONFORMING TO THE REQUIREMENTS FOR THE CORE TRENCH BACKFILL AS DIRECTED AT THE GEOTECHNICAL ENGINEER. SEE STORMWATER MANAGEMENT REPORT FOR EMBANKMENT RECOMMENDATION.



RISER SECTION A-A
SCALE: 1" = 2'

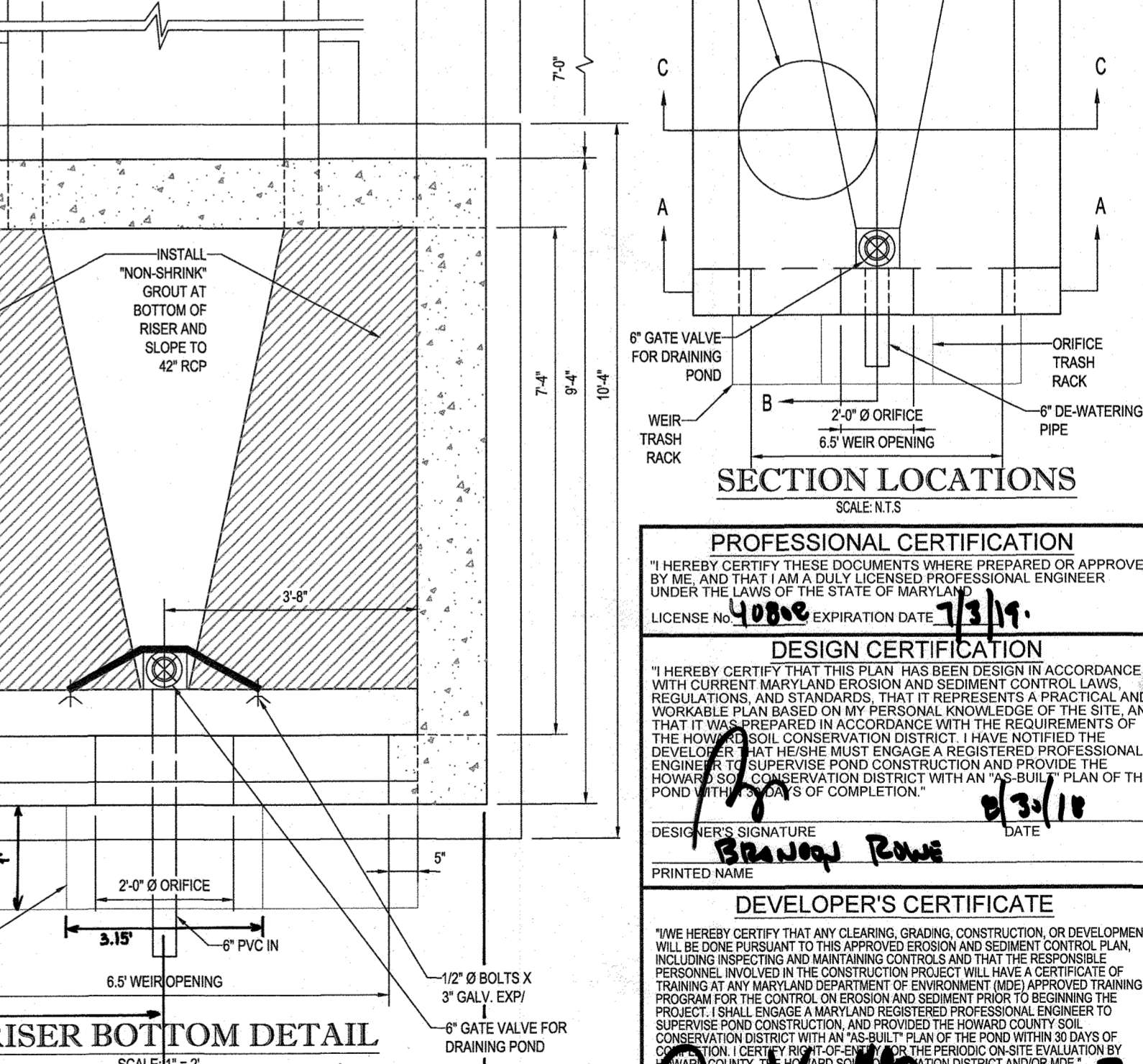


RISER SECTION B-B
SCALE: 1" = 2'



RISER SECTION C-C
SCALE: 1" = 2'

PRE-CAST CONCRETE RISER - DETAILS (STRUCTURE PES-1)
SCALE: 1" = 2'



RISER BOTTOM DETAIL
SCALE: 1" = 2'

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS APPROVED ON THIS PLAN AND THE CHECKLIST APPROVED PLANS AND SPECIFICATIONS.
DATE: 6/15/22
BRANDON R. ROWE
BOHLER ENGINEERING VA, LLC
PROFESSIONAL ENGINEER #44800
LICENSE EXPIRATION DATE 9/15/25

APPROVED: DEPARTMENT OF PUBLIC WORKS
JANE JACOBSON
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/2/2018
APPROVED: DEPARTMENT OF PLANNING AND ZONING
KEVIN L. WILSON
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10-22-18
APPROVED: DEPARTMENT OF DEVELOPMENT ENGINEERING DIVISION
ANDREW CLARK
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10-11-18

SUBDIVISION NAME: ELK RIDGE WOODS
SECTION AREA: N/A
DEED # 11617100197 & 11175600393
TAX MAP: 38 GRID: 9 ZONED: R-12
PARCELS: 756 & 340
1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: ECP-16-008 P-17-001
F-46-004 S-16-011
CONTR. 14-4220-D S-03-02
WP-16-150 P-04-11

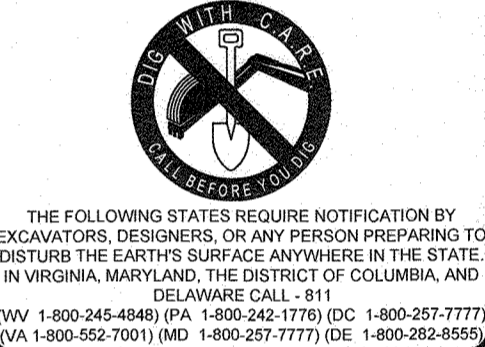
PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 40808, EXPIRATION DATE: 7/3/2019

BOHLER ENGINEERING
CORPORATE OFFICE:
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DENVER, CO
FORT LAUDERDALE, FL
HARTFORD, CT
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SAN ANTONIO, TX
TOWSON, MD
WASHINGTON, DC
WEST PALM BEACH, FL
WICHITA, KS
YUKON, AK

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY
1	6/1/22	SWM POND #1 MODIFIED BY SWIMMER BLANK	AK



NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
DRAWN BY: AVS
CHECKED BY: BRR
DATE: 08/29/18
SCALE: AS SHOWN
CAD I.D.: SW3

FINAL ROAD CONSTRUCTION PLAN
FOR
ELK RIDGE WOODS
LOTS 1-42 & OPEN SPACE LOTS 43 & 44
LOCATION OF SITE
5920 FLOREY ROAD
ELK RIDGE, MD
1ST ELECTION DISTRICT
TAX MAP 38, GRID 9,
PARCELS 756 & 340
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
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www.BohlerEngineering.com

BR ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE #44800
DATE: 01/31/18

SHEET TITLE:
SWM DETAILS
SHEET NUMBER:
39 of 51

MD-378 STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

I. SITE PREPARATION
 AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL, ALL TREES, VEGETATION, ROOTS AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE REMOVED OR GRUBBED UNDER 18 FEET OF THE TOP OF THE EMBANKMENT AREAS TO BE COVERED BY THE EARTH OR COMPACTED TO PROVIDE ADEQUATE SUPPORT.
 UNLESS OTHERWISE DESIGNATED ON THE PLANS, TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED. ALL CLEARED AND GRUBBED MATERIAL SHALL BE STOCKPILED OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

II. EARTH FILL
A. MATERIAL
 THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBER, STONES GREATER THAN FOUR INCHES IN DIAMETER, AND OTHER MATERIALS WHICH WOULD BE A HAZARD TO THE CENTER OF THE EMBANKMENT, AND CUT OFF SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CL, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS FOR EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

B. PLACEMENT
 AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8" THICK BEDS (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE EMBANKMENT. THE MOST FAVORABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

C. COMPACTION
 THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION FROM VARIOUS PARTS OF THE FILL AND FOR MAKING THE EXCAVATIONS, FOUNDATION, AND OTHER WORK. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT IT WILL NOT CRUMBLE, YET NOT SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 0.5% OF THE OPTIMUM MOISTURE CONTENT. THE FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASTHO METHOD T-99 (STANDARD PROCTOR).

D. CUT OFF TRENCH
 THE CUT OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION. WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

E. EMBANKMENT CORE
 THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

F. STRUCTURE BACKFILL
 BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADDING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDED SHALL BE OBTAINED FROM THE SAME SOURCE AS THAT USED FOR THE EMBANKMENT. THE BACKFILL SHALL BE PLACED TO THE TOP OF THE STRUCTURE OR PIPE. UNLESS THERE IS A COMPACTION FILL OF 2" OR GREATER OVER THE STRUCTURE OR PIPE, THE BACKFILL SHALL BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 113 AS MODIFIED. THE FILL SHALL HAVE A 100-200 PSF 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 8" MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE OR FLOWABLE FILL SHALL BE UNDER BEDDING. ON THE SIDES OF THE PIPE, IT MUST BE EXTENDED TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE TO ASSURE FLOWABILITY. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADDITIONAL SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNLESS NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTION FILL OF 2" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURE BACKFILL FLOWABLE FILL ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

G. PIPE CONDUITS
 ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.
1. CORRUGATED METAL PIPE
 MATERIALS - POLYMER COATED STEEL PIPE - STEEL PIPES WITH POLYMER COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THE PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M426 & M246 WITH WATER TIGHT COUPLING BANDS OR FLANGES. MATERIALS - ALUMINUM COATED STEEL PIPE - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M426 & M246 WITH WATER TIGHT COUPLING BANDS OR FLANGES. PIPE WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATIONS M426 & M246. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. ALUMINUM PIPES SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATIONS M426 & M246. ALUMINUM PIPES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC. MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM POSSIBLE CORROSION WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 2 MILS IN THICKNESS.
CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER THAT THE COLLAR AND BANDS ARE NOT CONSIDERED TO BE WATER TIGHT. ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET. WHEN JOINING PIPE SECTIONS, THE END OF EACH PIPE SHALL BE REINFORCED TO ACCOMMODATE THE NUMBER OF CORRUGATIONS TO BE JOINED. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER. FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE SLOTS. DISKS JOINTED BETWEEN ADJACENT FLANGES. A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET, AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTIONS WITH A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE. HEAVILY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CALKING ON A NEOPRENE BEAD.
BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

B. REINFORCED CONCRETE PIPE
 MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-801.
BEDDING - REINFORCED CONCRETE PIPE OUTSIDE SHALL BE LAID IN A CONCRETE BEDDING COURSE FOR THEIR ENTIRE LENGTH. THIS BEDDING COURSE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 4 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD GRADE BEDDING IS NOT PERMITTED.
LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE AND AT THE JOINTS SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.
BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

C. PLASTIC PIPE
 MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" THROUGH 10" NCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M294 AND 12" THROUGH 24" NCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE E.

C. PLASTIC PIPE (CONTINUED)
JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER TIGHT.
BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

II. DRAINAGE INFRASTRUCTURE
 WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

III. CONCRETE STRUCTURES
A. CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.
B. REINFORCEMENT
 REINFORCEMENT SHALL MEET THE MINIMUM REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 418. REINFORCEMENT FOR CONCRETE STRUCTURES, SECTION 609 (REINFORCING STEEL - GRADE 60, WIRE ROPE AND WIRE FASCIA), AND SECTION 609.02 (STEEL FOR MISCELLANEOUS USE).

D. ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311. GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 619. CLASS C.
X. CARE OF WATER DURING CONSTRUCTION
 ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DRAINAGE AREAS, AND STREAM DIVERSIONS SHALL BE STABILIZED BY SEEDING NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER WORK. THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK AFTER HAVING SERVED THEIR PURPOSE. ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE AND THE FLOW OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL BOTTOM CONTRACTOR'S PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REVEALED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPERS FROM WHICH THE WATER SHALL BE PUMPED.

XI. STABILIZATION
 ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SOIL AND SERVIS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.
A. SOO
 SPECIFICATIONS - SOO SHALL BE "K-31" TALL FESCUE OR KENTUCKY BLUEGRASS/SEED FESCUE MIXTURE OR APPROVED EQUAL. CLASS OF TURFGRASS SOO SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED SOO.

SITE PREPARATION - WHERE SOIL IS ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 100 LBS/1000 SQ. FT. IN ALL SOILS 5-10 PH OR APPROVED EQUAL SHALL BE APPLIED AT THE RATE OF 50 LBS/1000 SQ. FT. FERTILIZER SHALL BE APPLIED AT THE RATE OF 3 LBS/1000 SQ. FT. OF SOIL WITH THE REQUIRED LIME. SLOW RELEASE NITROGEN AT THE RATE OF 3 LBS/1000 SQ. FT. SHALL BE APPLIED TO THE PREPARED SOIL. FERTILIZER AND LIME SHALL BE APPLIED TO THE SOIL PRIOR TO SOO INSTALLATION. THIS RATE SHALL BE MODIFIED BY AVAILABLE AND TWO-THIRD WATER INSOLUBLE NITROGEN. UREA FORMALDEHYDE (UF) AND ISOBUTYLENE (IBU) MEET THESE STANDARDS.
SOO INSTALLATION - THE FIRST ROW OF SOO SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACE PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS. ON SLOPING AREAS WHERE EROSION MAY BE A PROBLEM, SOO SHALL BE LAID WITH LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SECURE THE SOO BY TAMPING AND ROLLING OR OTHER APPROVED METHODS. AS SOON AS POSSIBLE IN THE SPRING, THE ENTIRE AREA SHALL BE ROLLED OR TAMPED TO INSURE SOLID CONTACT OF ROOTS WITH THE SOIL SURFACE. SOO SHALL BE WATERED THOROUGHLY TO ASSURE FLOWABILITY. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE SOO ARE THOROUGHLY WET. THE OPERATION OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOO SHALL BE COMPLETED WITHIN EIGHT HOURS.

B. PERMANENT SEEDING
 ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:
SEEDING PREPARATION - LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCOING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. SOIL AMENDMENTS - APPLY 2 TONS PER ACRE OF CALCIUM CHLORIDE LIMESTONE @ 92 LBS/1000 SQ. FT., 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.) AND 400 LBS PER ACRE OF 30-0-40 UREA FERTILIZER (92 LBS/1000 SQ. FT.). HARROW OR DISC LIME AND FERTILIZER INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE (100 LBS/1000 SQ. FT.) OF 30-0-40 UREA FERTILIZER AND 500 LBS PER ACRE (115 LBS/1000 SQ. FT.) OF 10-10-10 FERTILIZER.
SEEDING - FOR PERIOD MARCH 1 THROUGH APRIL 30, SEED WITH 40 LBS PER ACRE KENTUCKY 31 TALL FESCUE AND 15 LBS PER ACRE INCULCATED CROWN VETCH. FOR PERIOD MAY 1 THROUGH JULY 31 SEED WITH 60 LBS PER ACRE KENTUCKY 31 TALL FESCUE AND 12 LBS PER ACRE INCULCATED WHEAT LOVEGRASS. FOR PERIOD OF AUGUST 1 THROUGH OCTOBER 15 SEED WITH 40 LBS PER ACRE FESCUE AND 20 LBS PER ACRE INCULCATED WHEAT LOVEGRASS. FOR PERIOD OF NOVEMBER 1 THROUGH FEBRUARY 28, SEED WITH 15 LBS PER ACRE WHEAT LOVEGRASS. FOR PERIOD OF MARCH 1 THROUGH FEBRUARY 28, PROTECT SITE BY OPTION (1) - 2 TONS PER ACRE OF WELLS ANDERSON STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) - USE SOO. OPTION (3) - SEED WITH 80 LBS PER ACRE KENTUCKY 31 TALL FESCUE AND 20 LBS PER ACRE INCULCATED WHEAT LOVEGRASS. FOR THE PERIOD OF MAY 1 THROUGH FEBRUARY 28, INCULCATED CROWN VETCH SHALL BE APPLIED DURING THE SUBSEQUENT PERIOD OF SEEDING THROUGH APRIL 30 AT THE RATE OF 15 LBS PER ACRE.
MULCHING - APPLY 1.5 TO 2 TONS PER ACRE OF UNLIMITED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 218 GALLONS PER ACRE OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE FOR ANCHORING.
MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDING.

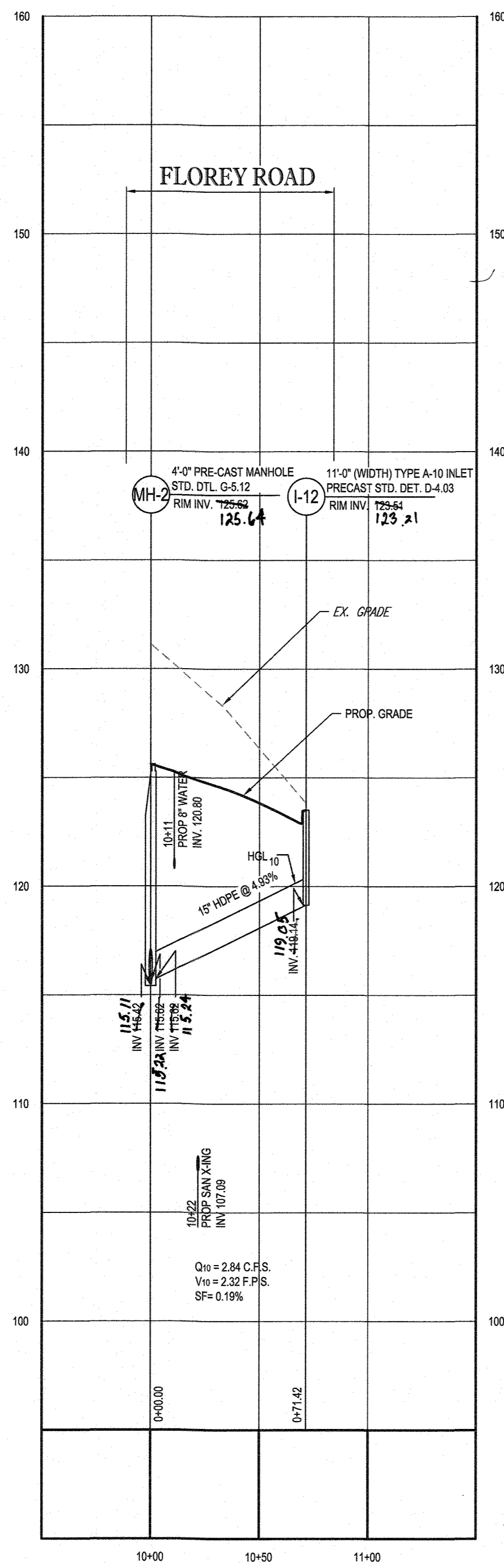
C. TEMPORARY SEEDING
SEEDING PREPARATION - LOOSEN UPPER 3 INCHES OF SOIL BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. SOIL AMENDMENTS - APPLY 100 LBS PER ACRE OF 15-10-10 FERTILIZER. WHERE SOIL IS ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE (92 LBS/1000 SQ. FT.).
SEEDING - FOR PERIODS MARCH 1 THROUGH APRIL 30, AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2.5 BUSHELS PER ACRE ANNUAL RYE. FOR PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3.5 LBS PER ACRE OF WHEAT LOVEGRASS. FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELLS ANDERSON STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOO.
MULCHING - SAME AS PERMANENT SEEDING.

XII. EROSION AND SEDIMENT CONTROL
 CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.
XIII. FENCING
 FENCING SHALL BE 42" HIGH CHAIN LINK FENCE CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 615.02 AND 615.03. THE SPECIFICATIONS FOR A 6'-0" FENCE SHALL BE USED. SUBSTITUTING 42" FABRIC AND 8" LINE POSTS. GATE SHALL BE CONSTRUCTED IN ACCORDANCE WITH STATE HIGHWAY ADMINISTRATION STANDARD DETAIL 692.01 WITH 42" FABRIC. FABRIC FOR FENCE AND GATE SHALL CONFORM TO AASHTO DESIGNATION M-12. DARK VIBRANT COATING IS REQUIRED FOR ALL FENCE POSTS AND WIRE FABRIC IN ACCORDANCE WITH THE LANDSCAPE MANUAL ADOPTED BY RESOLUTION 56-00, OCTOBER 1, 1990.

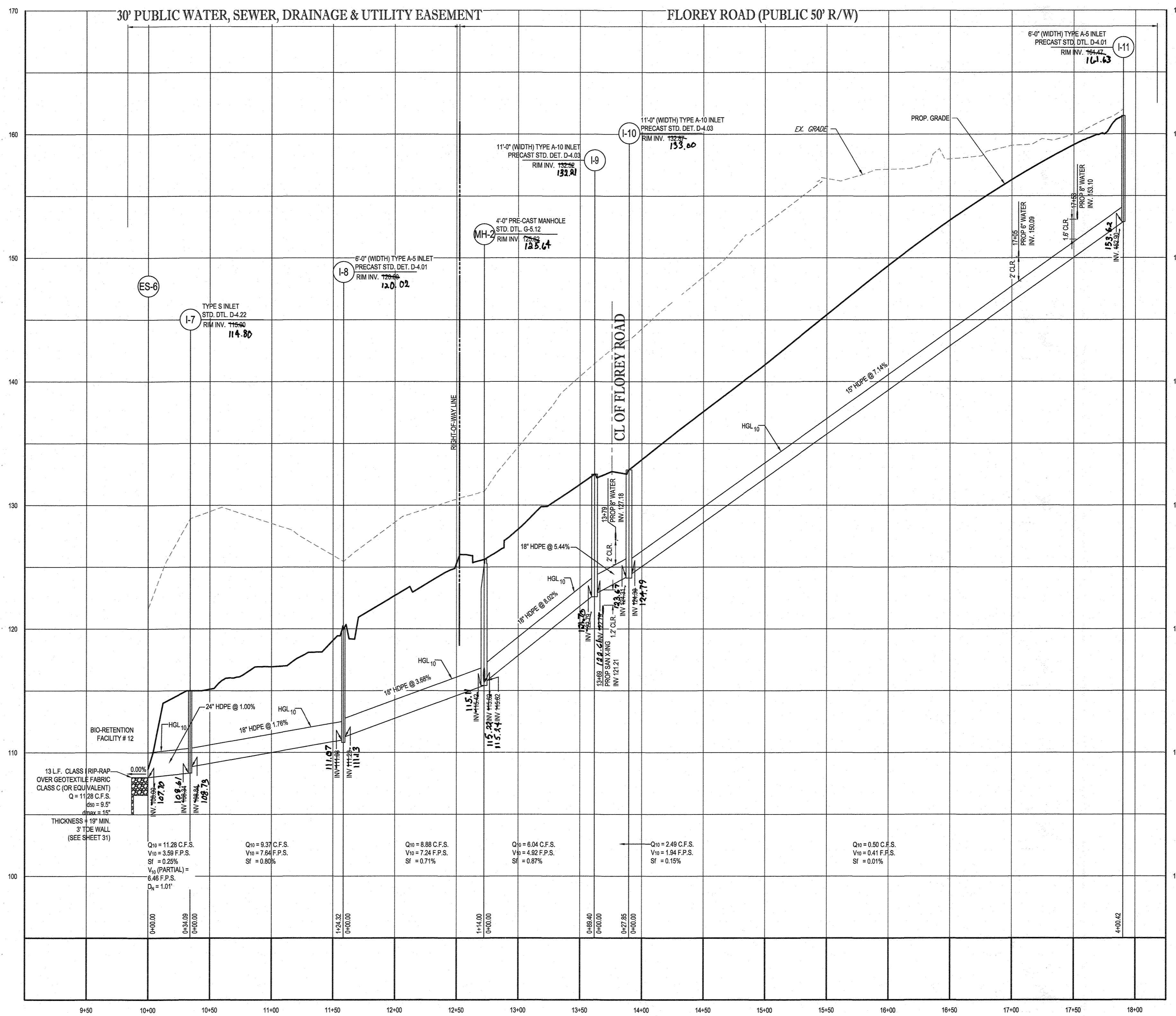
XIV. FILTER CLOTH
 FILTER CLOTH TO BE MIRAFLON 400 OR APPROVED EQUAL.
XV. GABIONS
 GABIONS TO BE FABRICATED AND INSTALLED PER MD SHA OR ANNE ARUNDEL COUNTY STANDARD SPECIFICATIONS AND DETAILS.
XVI. INSPECTION
 THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 5 WORKING DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS SO THAT STORMWATER MANAGEMENT POND MAY BE INSPECTED DURING CONSTRUCTION.
XVII. REFERENCES
 UNLESS OTHERWISE NOTED, ALL MATERIALS AND CONSTRUCTION PRACTICES SHALL CONFORM TO THE FOLLOWING: "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" FOR ANNE ARUNDEL COUNTY, MARYLAND, DEPARTMENT OF PUBLIC WORKS, AND ANY ADDENDA THERETO.
 "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS", 1993, OF THE MARYLAND STATE HIGHWAY ADMINISTRATION, AND AS AMENDED.
 "STANDARD AND SPECIFICATIONS FOR PONDS" OF THE SOIL CONSERVATION SERVICE OF MARYLAND (MD-378), JANUARY 2000 AND AS AMENDED.
 "ANNE ARUNDEL COUNTY STORMWATER MANAGEMENT PRACTICES & PROCEDURES MANUAL," DATED SEPTEMBER, 2001, AND ALL ADDENDA THERETO.

OPERATION, MAINTENANCE AND INSPECTION
 INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNERS AND THE HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNERS SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

Material	Specification	Size	Notes
Plastics	see Appendix A, Table A.1	as	plastics are site-specific.
Gravel	see Appendix A, Table A.2	as	USDA soil types sandy loam to sandy loess; clay content < 5% (2" to 8-sieve)
Organic content	Min. 10% by dry weight (ASTM D 2910)	as	
Gravel	see Appendix A, Table A.3	as	see Appendix A, Table A.3
Gravel	see Appendix A, Table A.4	as	see Appendix A, Table A.4
Gravel	see Appendix A, Table A.5	as	see Appendix A, Table A.5
Gravel	see Appendix A, Table A.6	as	see Appendix A, Table A.6
Gravel	see Appendix A, Table A.7	as	see Appendix A, Table A.7
Gravel	see Appendix A, Table A.8	as	see Appendix A, Table A.8
Gravel	see Appendix A, Table A.9	as	see Appendix A, Table A.9
Gravel	see Appendix A, Table A.10	as	see Appendix A, Table A.10
Gravel	see Appendix A, Table A.11	as	see Appendix A, Table A.11
Gravel	see Appendix A, Table A.12	as	see Appendix A, Table A.12
Gravel	see Appendix A, Table A.13	as	see Appendix A, Table A.13
Gravel	see Appendix A, Table A.14	as	see Appendix A, Table A.14
Gravel	see Appendix A, Table A.15	as	see Appendix A, Table A.15
Gravel	see Appendix A, Table A.16	as	see Appendix A, Table A.16
Gravel	see Appendix A, Table A.17	as	see Appendix A, Table A.17
Gravel	see Appendix A, Table A.18	as	see Appendix A, Table A.18
Gravel	see Appendix A, Table A.19	as	see Appendix A, Table A.19
Gravel	see Appendix A, Table A.20	as	see Appendix A, Table A.20
Gravel	see Appendix A, Table A.21	as	see Appendix A, Table A.21
Gravel	see Appendix A, Table A.22	as	see Appendix A, Table A.22
Gravel	see Appendix A, Table A.23	as	see Appendix A, Table A.23
Gravel	see Appendix A, Table A.24	as	see Appendix A, Table A.24
Gravel	see Appendix A, Table A.25	as	see Appendix A, Table A.25
Gravel	see Appendix A, Table A.26	as	see Appendix A, Table A.26
Gravel	see Appendix A, Table A.27	as	see Appendix A, Table A.27
Gravel	see Appendix A, Table A.28	as	see Appendix A, Table A.28
Gravel	see Appendix A, Table A.29	as	see Appendix A, Table A.29
Gravel	see Appendix A, Table A.30	as	see Appendix A, Table A.30
Gravel	see Appendix A, Table A.31	as	see Appendix A, Table A.31
Gravel	see Appendix A, Table A.32	as	see Appendix A, Table A.32
Gravel	see Appendix A, Table A.33	as	see Appendix A, Table A.33
Gravel	see Appendix A, Table A.34	as	see Appendix A, Table A.34
Gravel	see Appendix A, Table A.35	as	see Appendix A, Table A.35
Gravel	see Appendix A, Table A.36	as	see Appendix A, Table A.36
Gravel	see Appendix A, Table A.37	as	see Appendix A, Table A.37
Gravel	see Appendix A, Table A.38	as	see Appendix A, Table A.38
Gravel	see Appendix A, Table A.39	as	see Appendix A, Table A.39
Gravel	see Appendix A, Table A.40	as	see Appendix A, Table A.40
Gravel	see Appendix A, Table A.41	as	see Appendix A, Table A.41
Gravel	see Appendix A, Table A.42	as	see Appendix A, Table A.42
Gravel	see Appendix A, Table A.43	as	see Appendix A, Table A.43
Gravel	see Appendix A, Table A.44	as	see Appendix A, Table A.44
Gravel	see Appendix A, Table A.45	as	see Appendix A, Table A.45
Gravel	see Appendix A, Table A.46	as	see Appendix A, Table A.46
Gravel	see Appendix A, Table A.47	as	see Appendix A, Table A.47
Gravel	see Appendix A, Table A.48	as	see Appendix A, Table A.48
Gravel	see Appendix A, Table A.49	as	see Appendix A, Table A.49
Gravel	see Appendix A, Table A.50	as	see Appendix A, Table A.50
Gravel	see Appendix A, Table A.51	as	see Appendix A, Table A.51
Gravel	see Appendix A, Table A.52	as	see Appendix A, Table A.52
Gravel	see Appendix A, Table A.53	as	see Appendix A, Table A.53
Gravel	see Appendix A, Table A.54	as	see Appendix A, Table A.54
Gravel	see Appendix A, Table A.55	as	see Appendix A, Table A.55
Gravel	see Appendix A, Table A.56	as	see Appendix A, Table A.56
Gravel	see Appendix A, Table A.57	as	see Appendix A, Table A.57
Gravel	see Appendix A, Table A.58	as	see Appendix A, Table A.58
Gravel	see Appendix A, Table A.59	as	see Appendix A, Table A.59
Gravel	see Appendix A, Table A.60	as	see Appendix A, Table A.60
Gravel	see Appendix A, Table A.61	as	see Appendix A, Table A.61
Gravel	see Appendix A, Table A.62	as	see Appendix A, Table A.62
Gravel	see Appendix A, Table A.63	as	see Appendix A, Table A.63
Gravel	see Appendix A, Table A.64	as	see Appendix A, Table A.64
Gravel	see Appendix A, Table A.65	as	see Appendix A, Table A.65
Gravel	see Appendix A, Table A.66	as	see Appendix A, Table A.66
Gravel	see Appendix A, Table A.67	as	see Appendix A, Table A.67
Gravel	see Appendix A, Table A.68	as	see Appendix A, Table A.68
Gravel	see Appendix A, Table A.69	as	see Appendix A, Table A.69
Gravel	see Appendix A, Table A.70	as	see Appendix A, Table A.70
Gravel	see Appendix A, Table A.71	as	see Appendix A, Table A.71
Gravel	see Appendix A, Table A.72	as	see Appendix A, Table A.72
Gravel	see Appendix A, Table A.73	as	see Appendix A, Table A.73
Gravel	see Appendix A, Table A.74	as	see Appendix A, Table A.74
Gravel	see Appendix A, Table A.75	as	see Appendix A, Table A.75
Gravel	see Appendix A, Table A.76	as	see Appendix A, Table A.76
Gravel	see Appendix A, Table A.77	as	see Appendix A, Table A.77
Gravel	see Appendix A, Table A.78	as	see Appendix A, Table A.78
Gravel	see Appendix A, Table A.79	as	see Appendix A, Table A.79
Gravel			



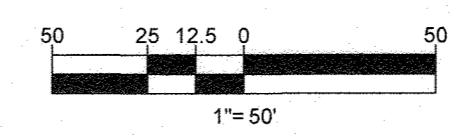
PROPOSED STORM DRAIN MH-2 TO I-12
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



PROPOSED STORM DRAIN ES-6 TO I-11
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE 10/3/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 10-22-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 10-11-18

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY SEAL, THAT THE UTILITIES SHOWN ON THIS PLAN WERE EXISTING AND SHOWN ON THIS PLAN WERE EXISTING AND APPROVED PLANS AND SURVEYS.
 G. SCOTT SHANABERGER
 SHANABERGER & LANE
 PROFESSIONAL LAND SURVEYORS
 LICENSE EXPIRATION DATE 4/2/2024
 AS-BUILT SURVEY DATES 5-17-21 TO 6/1/21



SUBDIVISION NAME: ELKRIDGE WOODS
 SECTION/AREA: N/A
 DEED #: 11617/00197 & 11175/00393
 PREVIOUS FILE No.: ECP-16-008 P-17-001
 F-05-094 S-16-001
 CONTR. 14-4220-D S-03-02
 WP-16-150 P-04-11

OWNER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021
 DEVELOPER: ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021
 TAX MAP: 38 GRID: 9 ZONED: R-12
 PARCELS: 756 & 340
 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 PROFESSIONAL CERTIFICATION
 I, BRANSON R. ROWE, 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. 4868, EXPIRATION DATE: 7/3/2019.

BOHLER ENGINEERING
 CORPORATE OFFICE: WARREN, NJ
 OFFICES: SOUTH BROOKFIELD, MA; SOUTH BRIDGE, MA; TOWSON, MD; ALBANY, NY; CHAMFORD, PA; CENTER VALLEY, PA; FORT LAUDERDALE, FL
 SURVEYORS; PROJECT MANAGERS; ENVIRONMENTAL CONSULTANTS; LANDSCAPE ARCHITECTS
 CIVIL & CONSULTING ENGINEERS

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811
 (WV 1-800-245-4848) (PA 1-800-245-1778) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-283-8556)

NOT APPROVED FOR CONSTRUCTION
 PROJECT No.: MD152015
 DRAWN BY: AVS
 CHECKED BY: BRR
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: SP3

FINAL ROAD CONSTRUCTION PLAN
 FOR
ELKRIDGE WOODS
 LOTS 1-42 & OPEN SPACE LOTS 43 & 44
 LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING
 501 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 4868
 10/30/18

SHEET TITLE:
STORM DRAIN PROFILES
 SHEET NUMBER:
43 of 51
 AS-BUILT

FOREST CONSERVATION SPECIFICATIONS

9. PLANTING

- INSOFARE THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.
- PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.
- ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.
- ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.
- POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
- PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
 - PLANTS: MARCH 15 TO DECEMBER 15
 - LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

10. TRANSPLANTING (WHEN REQUIRED)

- ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.
- IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.
- PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.
- UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.
- TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.
- IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING

- NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.
- SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.
- IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE

- THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.
- ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.
- TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.
- LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOVING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP

- UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.
- THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

REFORESTATION PLAN

THE REFORESTATION AREA WILL BE PLACED INTO A FOREST CONSERVATION EASEMENT.

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED BY THE LANDSCAPE ARCHITECT. THE REFORESTATION COSTS, IF BAREROOT STOCKS ARE USED TO HELP CONTROL EROSION, SHALL BE BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

REFORESTATION WILL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF WHIPS AND BRANCHED TRANSPLANTS. CONTAINER GROWN STOCK IS RECOMMENDED BUT BAREROOT STOCK MAY BE USED TO HELP CONTROL EROSION AND NUTRIENT DEFICIENCY. THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PREVENTING ROOT COLLAPSE AND ROOT ROT DURING PLANTING OPERATIONS IS CRITICAL. REMOVAL OF THE ROOTS MAY BE PERFORMED WITH WETTING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE PROGRAM IS RECOMMENDED. HERBICIDE TREATMENTS SHALL OCCUR ON 1 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR THE FOLLOWING SEASONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT HERBICIDE APPLICATIONS BE MADE AT LEAST SIX MONTHS PRIOR TO PLANTING.

B. PLANTING AND SOIL SPECIFICATIONS

PLANT MATERIAL WILL BE INSTALLED IN ACCORDANCE WITH THE PLANTING DETAIL AND PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. AMENDMENTS TO EXISTING SOIL WILL BE IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. SOIL DISTURBANCE WILL BE LIMITED TO INDIVIDUAL PLANTING LOCATIONS.

C. MAINTENANCE OF PLANTINGS

SEE POST CONSTRUCTION NOTES

D. GUARANTEE REQUIREMENTS

A 75 PERCENT SURVIVAL RATE OF THE REFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

E. SECURITY FOR REFORESTATION

SECTION 16-1029 OF THE HOWARD COUNTY FOREST CONSERVATION ACT REQUIRES THAT A DEVELOPER SHALL POST A SECURITY (BOND, LETTER OF CREDIT, ETC.) WITH THE COUNTY TO INSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF ITS ROOTS MAY BE FOUND. THE MAJORITY OF ROOTS RESIDE WITHIN 25 FEET OF THE TRUNK OF THE TREE. THE SOIL PROTECTION AREA SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

CRITICAL ROOT ZONE LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STARTING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY OFFICIALS TO DISCUSS THE PROPOSED REFORESTATION PLAN AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPIILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT WILL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT. CLEANING OF EQUIPMENT WILL BE LIMITED TO AREA WITHIN THE USE OF THE FOREST CONSERVATION EASEMENT. CLEANING FROM EQUIPMENT STORAGE WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION.

- INSTALL ALL SIGNAGE AND SEDIMENT CONTROL DEVICES.
- HOLD PRE-CONSTRUCTION MEETING WITH DEVELOPER, CONTRACTOR AND COUNTY INSPECTOR.
- BUILD ACCESS ROADS, INSTALL WELL AND SEPTIC SYSTEMS, AND CONSTRUCT HOUSING. STABILIZE ALL DISTURBED AREAS ACCORDINGLY.
- INSTALL PERMANENT PROTECTIVE SIGNAGE FOR EASEMENTS AND INITIATE PLANTINGS IN ACCORDANCE WITH FOREST CONSERVATION PLAN. PLANTINGS WILL BE COMPLETED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.
- REMOVE SEDIMENT CONTROL.
- HOLD POST-CONSTRUCTION MEETING WITH COUNTY INSPECTORS TO ASSURE COMPLIANCE WITH FCP. SUBMIT CERTIFICATION OF INSTALLATION.
- MONITOR AND MAINTAIN PLANTINGS FOR 2 YEARS.

E. CONSTRUCTION MONITORING

ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO ENSURE THAT ALL WORK IS IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.

F. POST-CONSTRUCTION MEETING

UPON COMPLETION OF CONSTRUCTION, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL NOTIFY THE COUNTY THAT CONSTRUCTION IS COMPLETE AND REQUEST A MEETING TO REVIEW THE PROJECT SITE. THE MEETING WILL ALLOW THE COUNTY INSPECTOR TO VERIFY THAT AFFORESTATION PLANTINGS HAVE BEEN INSTALLED.

POST-CONSTRUCTION MANAGEMENT PLAN

HOWARD COUNTY REQUIRES A TWO YEAR POST-CONSTRUCTION MANAGEMENT PLAN BE PREPARED AS PART OF THE FOREST CONSERVATION PLAN. THE PLAN GOES INTO EFFECT UPON ACCEPTANCE OF THE CONSTRUCTION CERTIFICATION OF COMPLETION BY THE COUNTY. ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THE POST-CONSTRUCTION MANAGEMENT PLAN.

A. FENCING AND SIGNAGE

PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/REFORESTATION AREA SHALL BE MAINTAINED.

B. GENERAL SITE INSPECTIONS/MAINTENANCE OF PLANTINGS

INSPECTIONS WILL BE CONDUCTED A MINIMUM OF THREE TIMES DURING THE GROWING SEASON. THE PURPOSE OF THE INSPECTIONS WILL BE TO ASSESS THE HEALTH OF THE AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE.

IN ADDITION, MAINTENANCE OF THE AFFORESTATION PLANTINGS WILL INVOLVE THE FOLLOWING STEPS:

- WATERING: ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, MORE OR LESS FREQUENTLY DEPENDING ON WEATHER CONDITIONS. DURING THE SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
- REMOVAL OF INVASIVE EXOTICS AND NOXIOUS WEEDS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
- IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES. TREATMENT WITH APPROPRIATE AGENT.
- PRUNING OF DEAD BRANCHES.
- AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.

C. EDUCATION

THE DEVELOPER WILL PROVIDE APPROPRIATE MATERIALS TO PROPERTY OWNERS INFORMING THEM OF THE LOCATION AND PURPOSE OF THE AFFORESTATION AREA. MATERIALS MAY INCLUDE SITE PLANS AND INFORMATION EXPLAINING THE INTENT OF THE FOREST CONSERVATION PLAN.

D. FINAL INSPECTION

AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL, WILL SUBMIT TO THE COUNTY TO VERIFY THE HEALTH OF THE AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE. UPON ACCEPTANCE OF THIS CERTIFICATION, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE DEVELOPER'S BOND.

PLANTING/SOIL SPECIFICATIONS

- PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH - NOVEMBER 15TH.
- PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.
- ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICCANT GEL PRIOR TO PLANTING.
- PLANTS SHALL BE INSTALLED SO THAT THE TOP OF THE ROOT BALL IS LEVEL WITH THE TOP OF EXISTING GRADE. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART FINE FINES OR EQUIVALENT.
- REMOVE SEDIMENT CONTROL.
- PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.
- ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

- SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLANS.
- PERMANENT SIGNAGE SHALL BE TOPSOILED AND STABILIZED AS PER #2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
- PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND THE PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
- PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

- MAINTENANCE OF PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
- ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON. WATERING MAY BE MORE OR LESS FREQUENT DEPENDING ON WEATHER CONDITIONS. DURING THE SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
- REMOVAL OF INVASIVE EXOTICS AND NOXIOUS WEEDS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
- IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES. TREATMENT WITH APPROPRIATE AGENT.
- PRUNING OF DEAD BRANCHES.
- AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.

GUARANTEE REQUIREMENTS

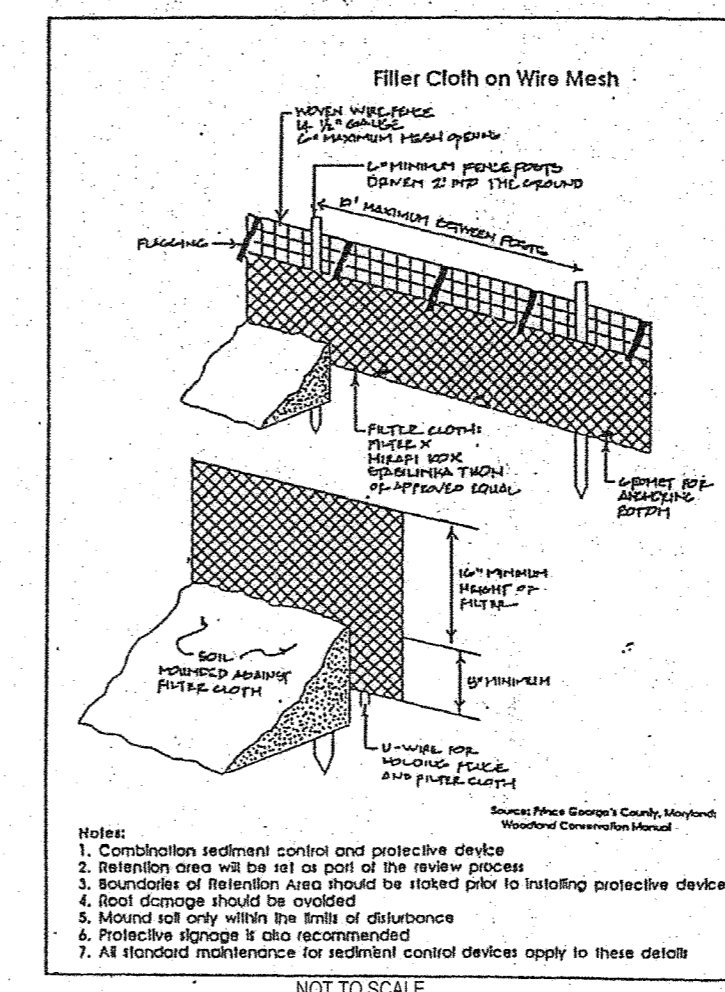
A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON.

SURETY FOR REFORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT FORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

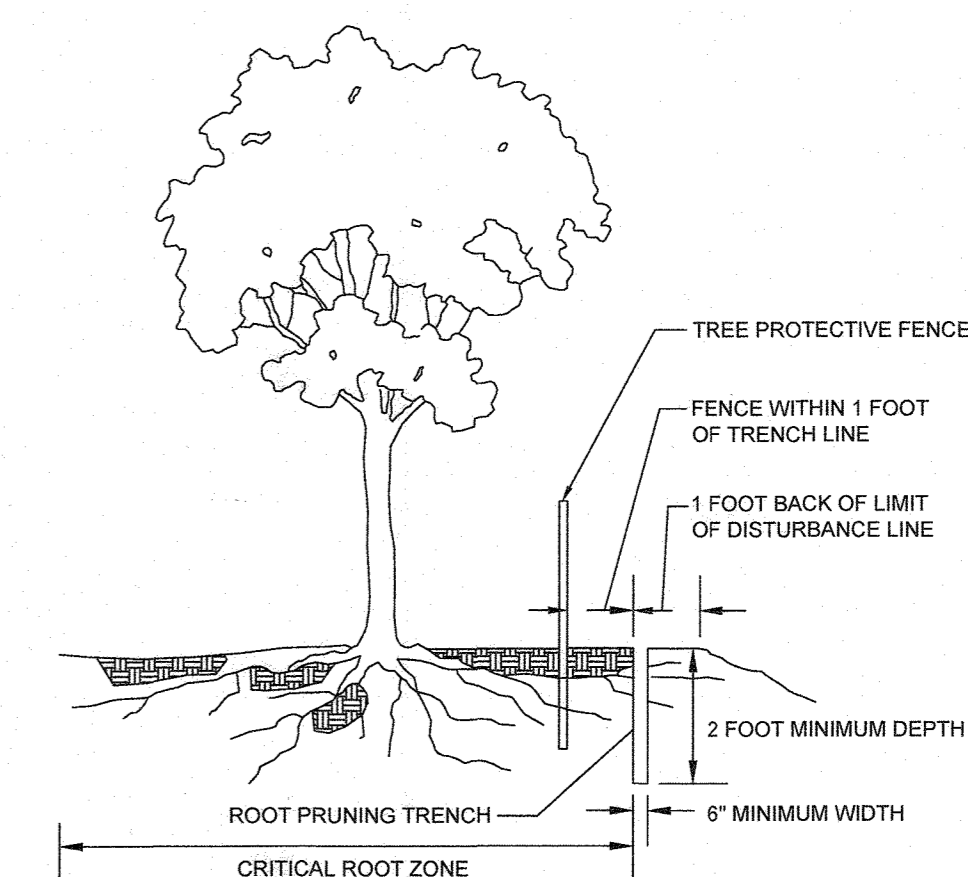
FCP NOTES

- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- EXISTING AREAS OCCURRING OUTSIDE OF THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
- LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SPECIFIED BY THE HOWARD COUNTY OFFICIALS.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. FENCING SHALL BE INSTALLED ALONG LIMITS OF DISTURBANCE OCCURRING WITHIN 25 FEET OF THE PROPOSED FCE LIMITS.
- PERMANENT SIGNAGE WILL BE POSTED AT A 50-100 FOOT INTERVALS ALONG ALL FCE LIMITS.



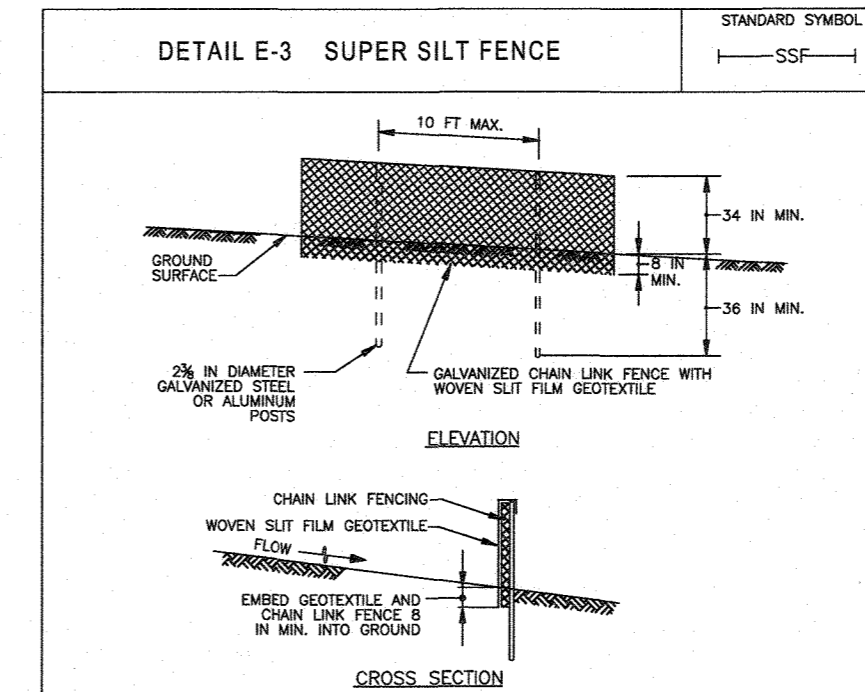
PROTECTIVE TREE FENCE DETAIL

NOT TO SCALE.
THIS DETAIL IS FOR FLAGGING PATTERNS ONLY AND CAN BE USED FOR BOTH SILT FENCE AND SUPER SILT FENCE.



ROOT PRUNING DETAIL

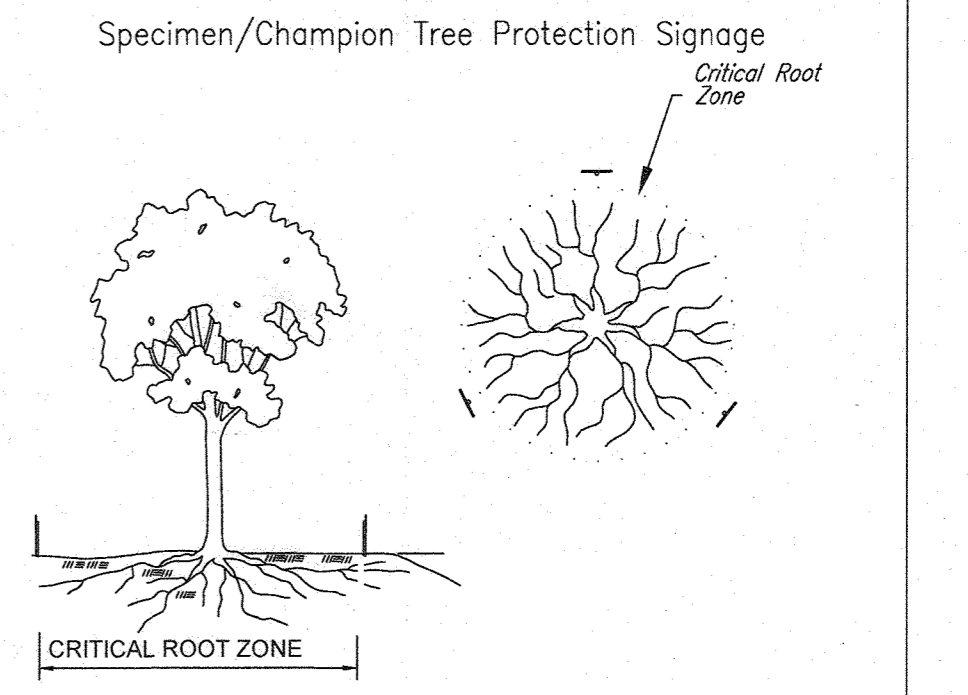
NOT TO SCALE.



DETAIL E-3 SUPER SILT FENCE

- CONSTRUCTION SPECIFICATIONS
- INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
 - FASTEN 3 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (36 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HDG RINGS.
 - FASTEN WOVEN SILT FABRIC GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. ENBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 6 INCHES INTO THE GROUND.
 - 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.
 - PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
 - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BEING 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. NATURE RESOURCES CONSERVATION SERVICE. 2011. MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT. ADMINISTRATION.



Specimen/Champion Tree Protection Signage

- Notes:
- Retention Areas will be set as part of the review process.
 - Boundaries of Retention Areas/Critical Root Zones should be marked with signage prior to construction.
 - Signs should be placed at edge or 1-foot outside the Critical Root Zone.
 - Signs should be placed around each specimen tree as indicated on the plan.

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS PROHIBITED

VIOLATORS ARE SUBJECT TO FINES IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

SPECIMEN TREE

DO NOT REMOVE

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS PROHIBITED

VIOLATORS ARE SUBJECT TO FINES IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

Forest Conservation Area

REFORESTATION PROJECT

Trees for Your Future

FOREST CONSERVATION SIGN DETAIL

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 Chief, Development Engineering Division

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. Scott Shanaberger
 Professional L.S. # 10849 Exp. Date 4/2/2024
 AS-BUILT DATE: 10-11-18



OWNER:
 ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 ELLICOTT CITY, MD 21042
 PHONE: (410) 720-3021

DEVELOPER:
 ELKRIDGE WOODS L.C.
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

SUBDIVISION NAME: ELKRIDGE WOODS SECTION/AREA, N/A DEED # 1161700197 & 11175/00393

TAX MAP: 38 GRID: 9 ZONED: R-12 PARCELS: 756 & 340 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: ECP-16-008 P-17-001 F-05-094 S-16-001 CONTR. 14-4220-D S-03-02 WP-16-150

PROFESSIONAL CERTIFICATION
 I, E.R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3897, EXPIRATION DATE: 8/08/18

BOHLER ENGINEERING

CORPORATE OFFICE: WARREN, NJ

OFFICES:

- BOULDER, CO
- BOULDER, MD
- TOWSON, MD
- ALBANY, NY
- ALBANY, VT
- CHAMONT, PA
- FOUR MOUNTAINS, VA
- PORT LAUDERDALE, FL
- ROSELAND, NJ
- SHARPSVILLE, PA
- VALLEY VIEW, VA

PROJECT MANAGERS

ENVIRONMENTAL CONSULTANTS

LANDSCAPE ARCHITECTS

CIVIL & CONSULTING ENGINEERS

SURVEYORS

STATE OF MARYLAND REGISTERED PROFESSIONAL LAND SURVEYOR

REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811

(WV 1-800-345-4444) (DC 1-800-242-3778) (DC 1-800-237-7777) (VA 1-800-552-7001) (MD 1-800-227-7777) (DE 1-800-292-8559)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD152015
 DRAWN BY: AVG
 CHECKED BY: BBR
 DATE: 08/29/18
 SCALE: AS SHOWN
 CAD I.D.: F03

FINAL ROAD CONSTRUCTION PLAN

FOR

ELKRIDGE WOODS

LOTS 1-42 & OPEN SPACE LOTS 43 & 44

LOCATION OF SITE
 5920 FLOREY ROAD
 ELKRIDGE, MD
 1ST ELECTION DISTRICT
 TAX MAP 38, GRID 9,
 PARCELS 756 & 340
 HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7800
 Fax: (410) 821-7987
 www.BohlerEngineering.com

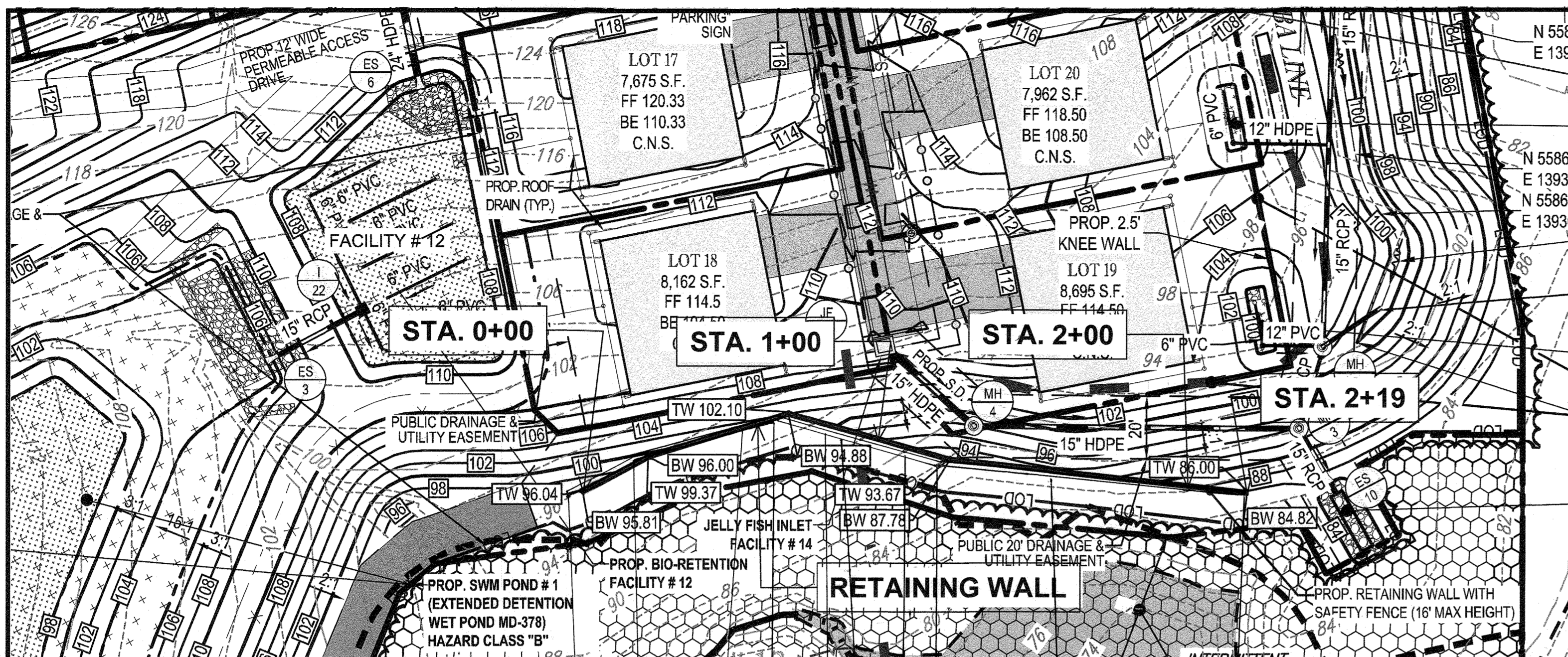
E.R. McWILLIAMS

REGISTERED PROFESSIONAL LAND SURVEYOR

SHEET TITLE:
FOREST CONSERVATION NOTES & DETAILS

SHEET NUMBER:
47 of 51

AS-BUILT



WALL LOCATION PLAN

TW: 96.07	BW: 95.91	TW: 94.97	BW: 94.81	TW: 93.93	BW: 93.77	TW: 92.89	BW: 92.73	TW: 91.85	BW: 91.69	TW: 90.81	BW: 90.65	TW: 89.77	BW: 89.61
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GENERAL NOTES:

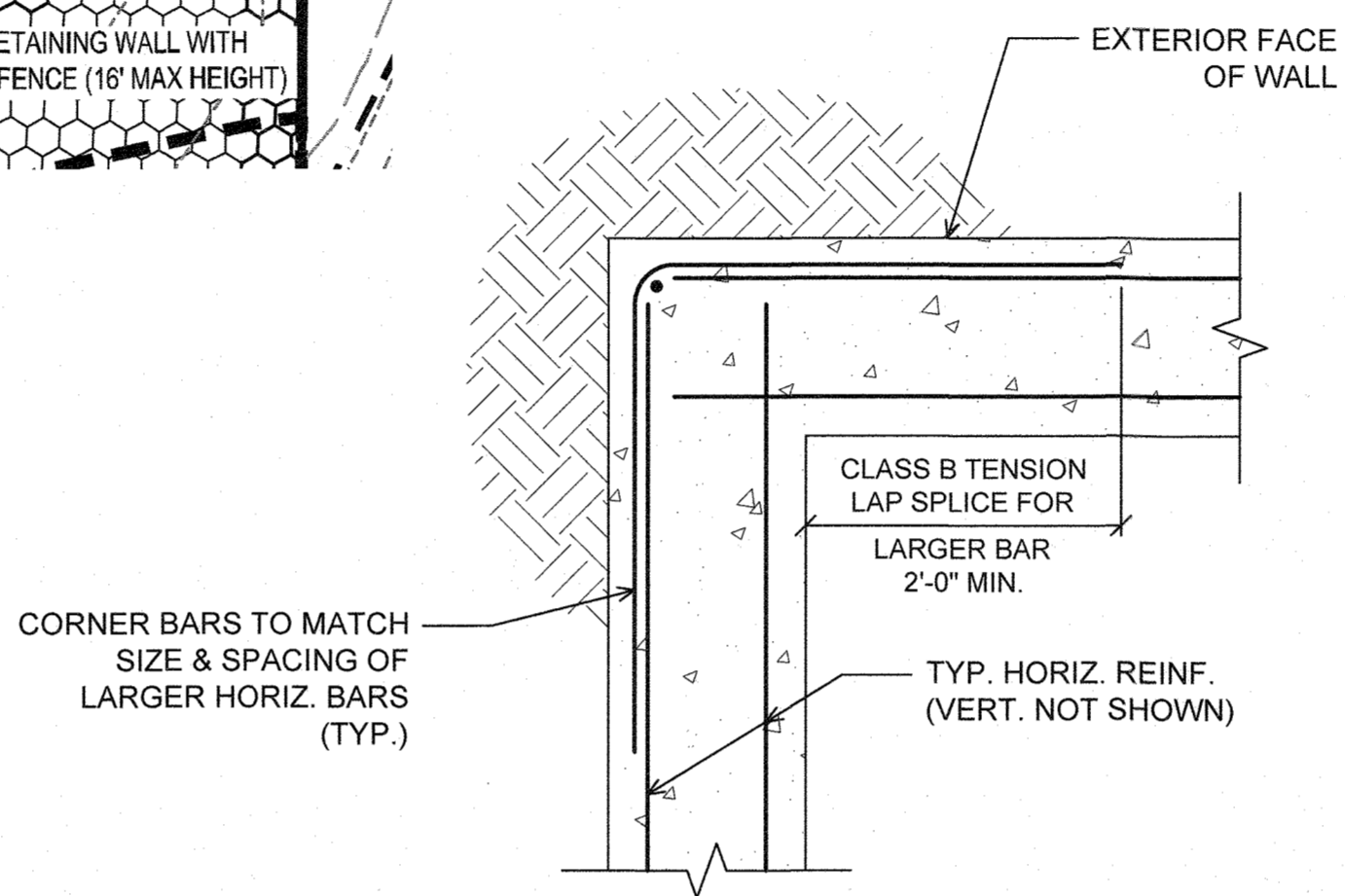
- RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIV.) CERTIFIED SOILS TECHNICIAN.
- THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
- THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.

CONCRETE NOTES:

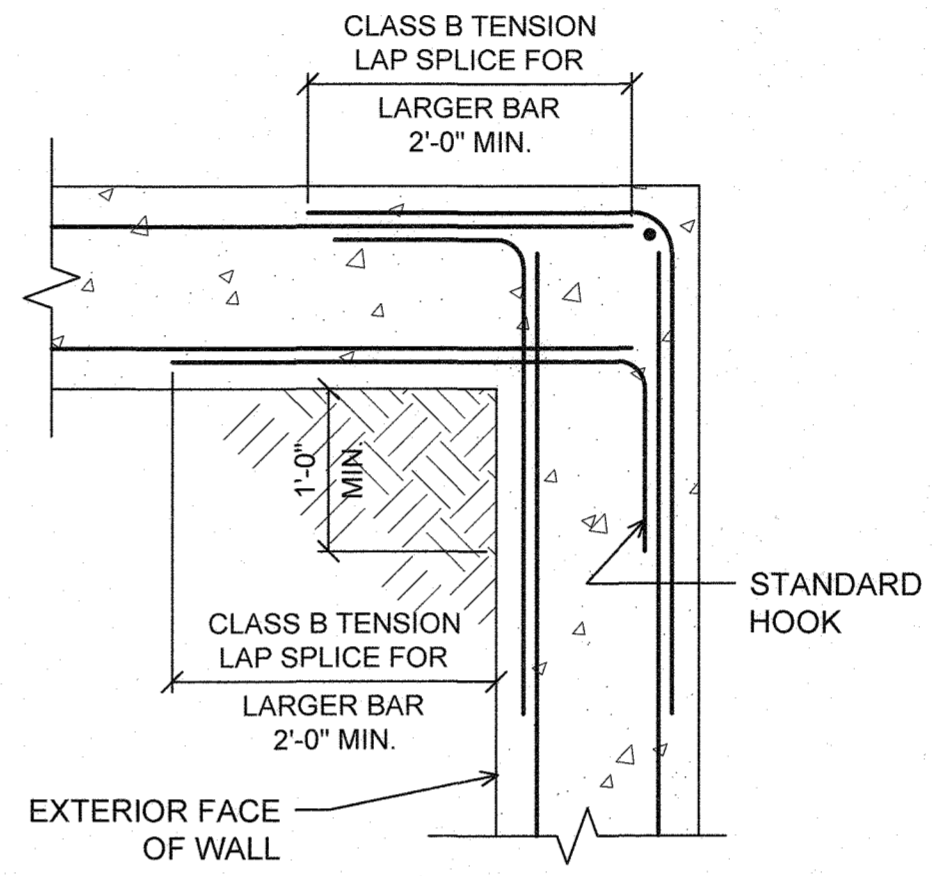
- CONCRETE WORK SHALL CONFORM TO ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE.
- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS WITH A MINIMUM CEMENT CONTENT OF 600 POUNDS PER CUBIC YARD.
- ALL CONCRETE SHALL HAVE A SLUMP OF NO GREATER THAN 4" TO WITHIN A TOLERANCE OF 1".
- ALL EXPOSED CONCRETE SHALL BE AIR-ENTRAINED, 6% (WITHIN 1% TOLERANCE), CONFORMING TO ASTM C260.
- ALL EXPOSED CONCRETE CORNERS SHALL BE FORMED WITH 3/4" x 3/4" MILLED CHAMFERED STRIPS.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
- ALL REINFORCING STEEL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 45 BAR DIAMETERS.

SOILS NOTES:

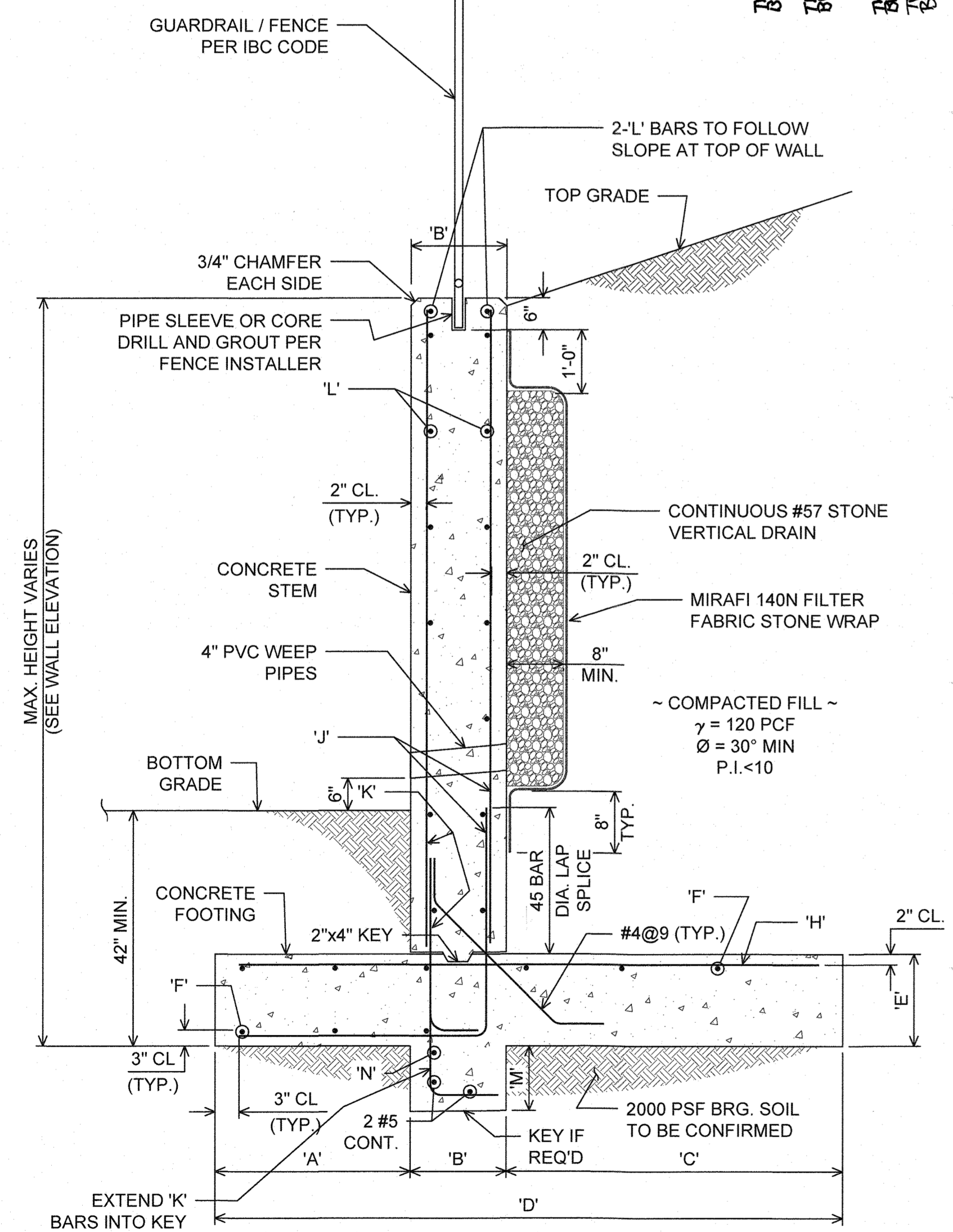
- FOOTING DESIGN BASED ON MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2500 PSF AS RECOMMENDED IN SOILS REPORT BY HILLIS-CARNES ENGINEERING ASSOCIATES, DATED DECEMBER 2017. NOTIFY ENGINEER IF SOIL BEARING CAPACITY IS NOT ADEQUATE AT FOOTING ELEVATIONS INDICATED.
- SUBGRADE TO BE FREE OF ORGANICS AND BE SUITABLE COMPACTED MATERIAL.
- BACKFILL SHALL BE PERFORMED IN 8" LIFTS COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D 698).
- BACKFILL MATERIAL SHALL BE SM OR MORE GRANULAR IN ACCORDANCE WITH ASTM D2487.



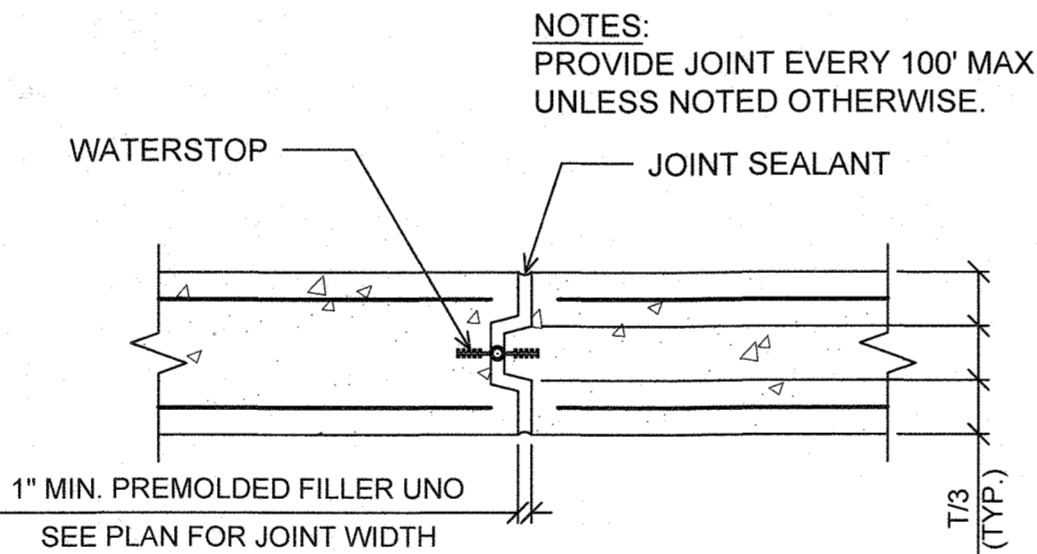
OUTSIDE CORNER NOT TO SCALE



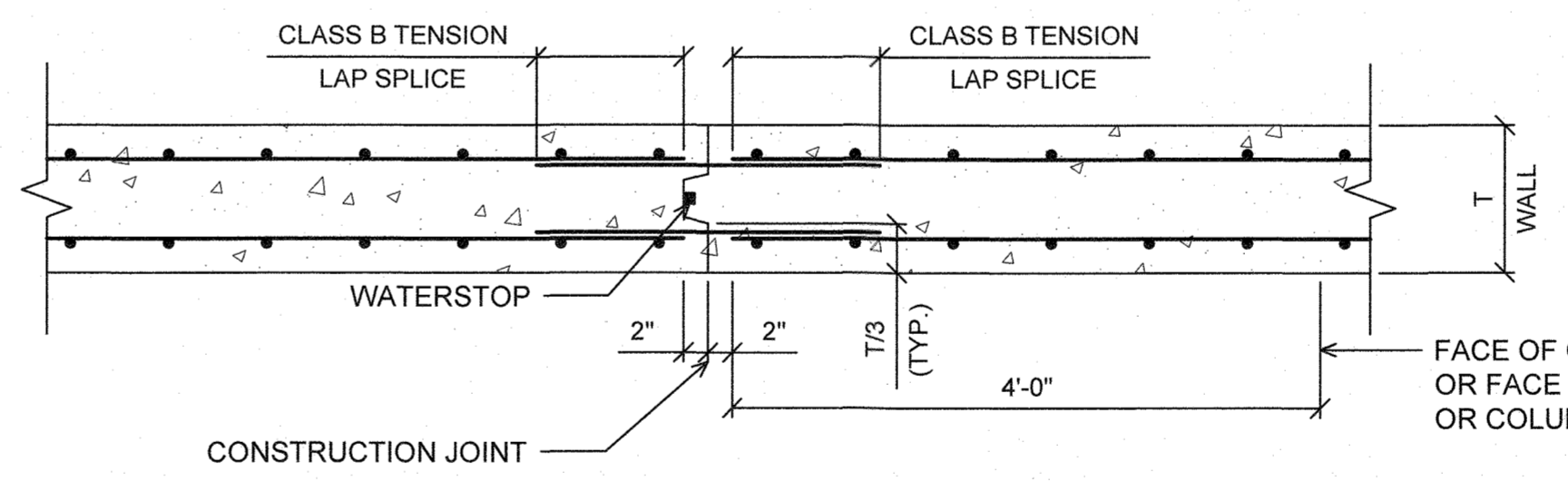
INSIDE CORNER NOT TO SCALE



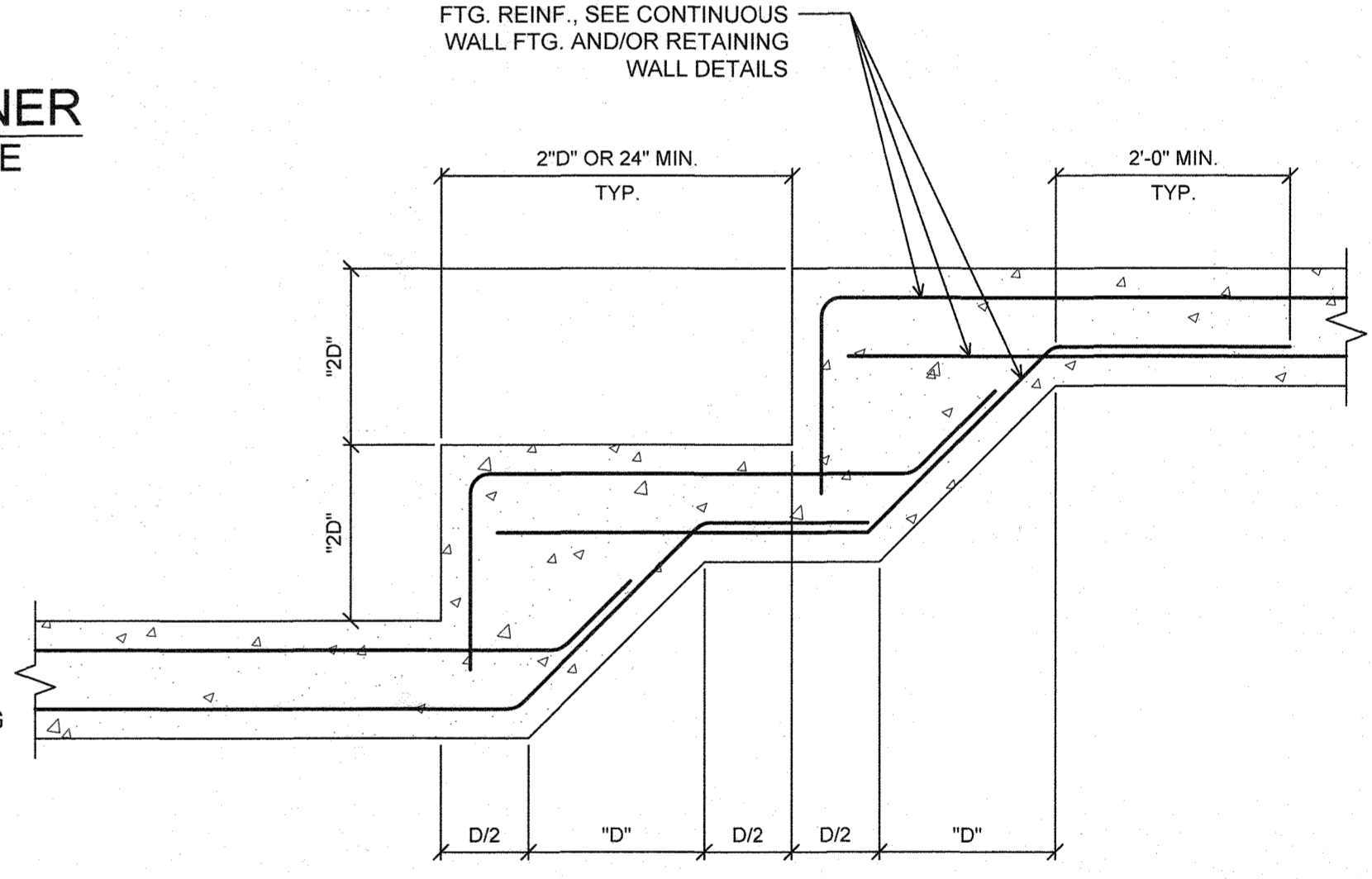
TYPICAL CONCRETE RETAINING WALL SECTION NOT TO SCALE



EXPANSION JOINT IN CONCRETE RETAINING WALL NOT TO SCALE



TYPICAL VERTICAL CONSTRUCTION JOINT IN WALL NOT TO SCALE



CONCRETE WALL STEP DETAIL NOT TO SCALE

"CONCRETE WALL SCHEDULE"

WALL TYPE	WALL MAX. HT.	"WALL STEM & FOOTING DIMENSION"					FOOTING REINF.					STEM REINF.					KEY
		TOE 'A'	STEM 'B'	HEEL 'C'	WIDTH 'D'	THICK 'E'	'F'	'H'	'J'	'K'	'L'	'M'	'N'				
A	7'-0"	2'-0"	1'-0"	1'-9"	4'-9"	1'-0"	#5@12"	#5@12"	#4@12"	#4@12"	#4@12"	-	-				
B	9'-0"	2'-6"	1'-0"	3'-0"	6'-6"	1'-4"	#5@12"	#5@10"	#5@10"	#4@12"	#4@12"	-	-				
C	12'-0"	3'-9"	1'-0"	5'-3"	10'-0"	1'-4"	#5@10"	#6@10"	#6@6"	#4@12"	#4@12"	1'-6"	#4@12"				

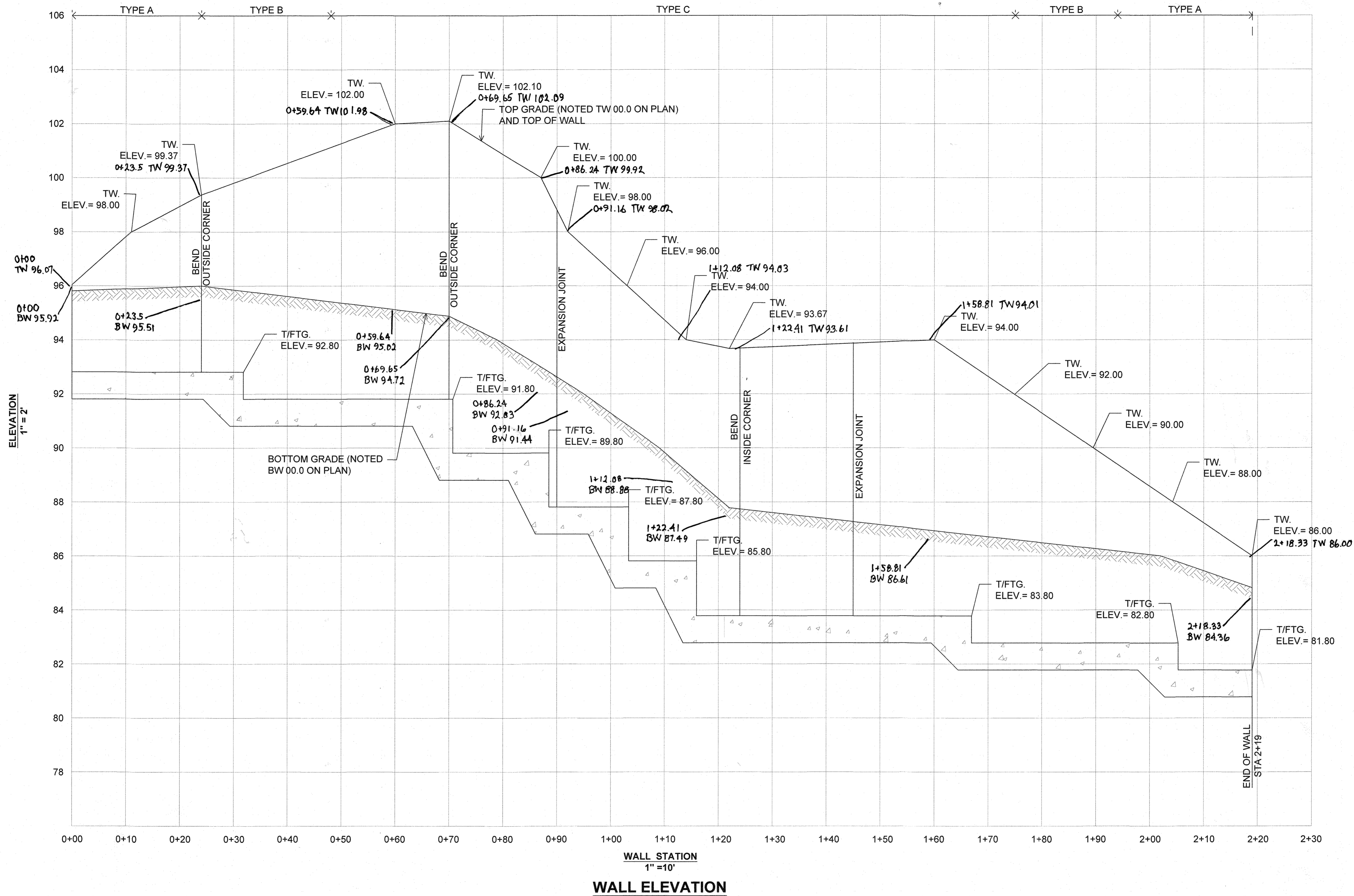
AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN MEETING THE MOST APPROVED PLANS AND SPECIFICATIONS.

Scott Shuman
 G. SCOTT SHUMAN, LICENSED PROFESSIONAL LAND SURVEYOR
 LICENSE EXPIRATION DATE: 4-1-2018
 AS-BUILT SURVEY DATES: 5-17-21 TO 6/10/21

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 10/21/2018
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 10-23-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-11-18

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 13491, EXPIRATION DATE: 06/16/19





AS-BUILT CERTIFICATION
I HEREBY CERTIFY BY SEAL THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN AND ACCORDING TO APPROVED PLANS AND SPECIFICATIONS.

Scott Shanaberger
G. SCOTT SHANABERGER
SHANABERGER & LANE
PROFESSIONAL LAND SURVEYOR
LICENSE NO. 13491
EXPIRATION DATE: 4/1/2025
AS-BUILT SURVEY PAGES 5, 17, 21 TO 6/10/21

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 10/3/2018
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 10-23-18
CHIEF, DIVISION OF PLANNING AND DEVELOPMENT

APPROVED: DEPARTMENT OF ENGINEERING DIVISION
[Signature] 10-11-18
CHIEF, DEPARTMENT OF ENGINEERING DIVISION

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 13491, EXPIRATION DATE: 06/16/19



HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
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CONCRETE RETAINING WALL PLAN AND DETAILS
5920 FLOREY ROAD
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE

JOB NUMBER:	17598A	DESIGNED BY:	AR	AS-BUILT
SCALE:	AS SHOWN	DRAWN BY:	AR	51 of 51
DATE:	12/28/2017	APPROVED BY:	TC	SHEET