

STORMWATER MANAGEMENT PRACTICES table with columns: LOT/PARCEL, FACILITY NAME & NUMBER, PRACTICE TYPE (QUANTITY), PUBLIC, PRIVATE, HOA MAINTAINS, HOMEOWNER MAINTAINS, MISC.

MINIMUM LOT SIZE CHART table with columns: LOT No., GROSS AREA (SF), PIPE STEM, NET AREA.

OVERALL AREA TABULATION CHART table with columns: CATEGORY, TOTAL AREA TO BE RECORDED.

UTILITIES: THE FOLLOWING COMPANIES WERE NOTIFIED BY DELMARVA MISS UTILITY SYSTEM (1-800-257-7777) AND REQUESTED TO MARK OUT UNDERGROUND FACILITIES AFFECTING AND SERVING THIS SITE...

UTILITY COMPANY PHONE NUMBER table listing Verizon, BGE Electric-USJC, BGE Gas-USJC, Comcast-Fiber/UtilityQuest, Howard County Water/Sewer, Comcast/UtilityQuest, Colonial Pipeline, AT&T Transmission, Qwest Government Services.

TRAFFIC CONTROL SIGNS table with columns: ROAD NAME, CENTERLINE STA., OFFSET, POSTED SIGN, SIGN CODE.

ROADWAY INFORMATION CHART table with columns: ROAD NAME, CLASSIFICATION, DESIGN SPEED, RW WIDTH.

ESD SUMMARY TABLE table with columns: 'SITE AREA', ESDv, Rev, CPv, QP25, POI#1, POI#2, POI#3.

SITE ANALYSIS DATA / TABULATION table with columns: CATEGORY, LYHUS PROPERTY, LYHUS DEVELOPMENT, LLC.

APPROVED DEPARTMENT OF PUBLIC WORKS and DEPARTMENT OF PLANNING AND ZONING sections with signatures and dates.

BENCHMARK table with columns: GEODETIC SURVEY CONTROL, ELEVATION, NORTHING, WESTING.

FINAL ROAD PLAN FOR LYHUS PROPERTY LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F

LOCATION OF SITE 12170 LIME KILN ROAD 5TH ELECTION DISTRICT TAX MAP 40, GRID 24, PARCEL 135 HOWARD COUNTY, MARYLAND



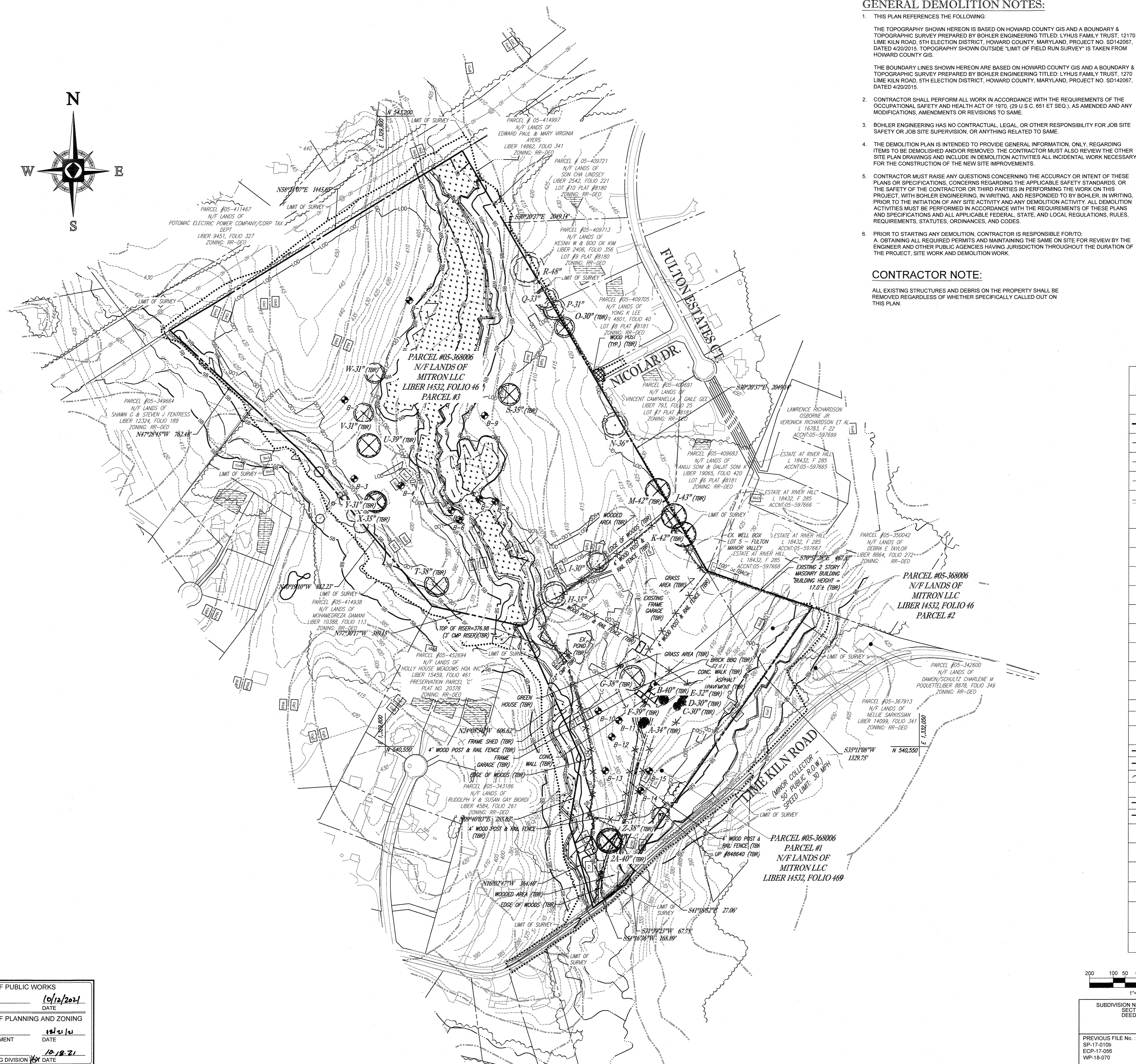
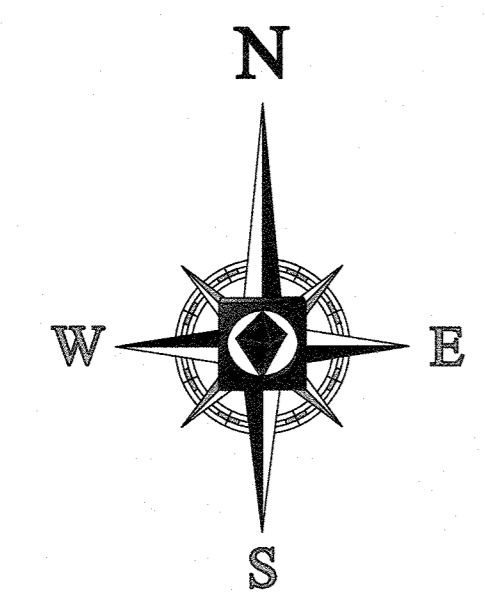
SHEET INDEX table listing various sheets such as COVER SHEET, GENERAL NOTES, EXISTING CONDITIONS, OVERALL GRADING, etc.

NECESSARY DISTURBANCES: A WAIVER TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116(a) TO ALLOW THE LYHUS PROPERTY PROJECT TO IMPACT STREAMBANK BUFFERS AND WETLAND BUFFERS...

GENERAL NOTE: ROAD PLANS SHOW PROPOSED ROADWAY AND ASSOCIATED PUBLIC INFRASTRUCTURE. LOTS SHOWN ARE FOR FUTURE BUILD OUT.

GENERAL NOTES (cont.) 41. THE SHARED SEWAGE DISPOSAL SYSTEM OF AT LEAST 40,000 SQ. FT. IS REQUIRED FOR LOTS 1, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28.

Bohler Engineering project details including Revisions, Project Information, and Cover Sheet. Includes contact info for Brandon Rowe, P.E. and address: 901 Dulaney Valley Road, Suite 801, Towson, Maryland 21284.



GENERAL DEMOLITION NOTES:

- 1. THIS PLAN REFERENCES THE FOLLOWING:
THE TOPOGRAPHY SHOWN HEREON IS BASED ON HOWARD COUNTY GIS AND A BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING TITLED: LYHUS FAMILY TRUST, 12170 LIME KILN ROAD, 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND, PROJECT NO. SD142067, DATED 4/20/2015. 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: LYHUS FAMILY TRUST, 12170 LIME KILN ROAD, 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND, PROJECT NO. SD142067, DATED 4/20/2015.
2. CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970...
3. BOHLER ENGINEERING HAS NO CONTRACTUAL, LEGAL, OR OTHER RESPONSIBILITY FOR JOB SITE SAFETY OR JOB SITE SUPERVISION...
4. THE DEMOLITION PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION, ONLY, REGARDING ITEMS TO BE DEMOLISHED AND/OR REMOVED...
5. CONTRACTOR MUST RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS OR SPECIFICATIONS...
6. PRIOR TO STARTING ANY DEMOLITION, CONTRACTOR IS RESPONSIBLE FOR:
A. OBTAINING ALL REQUIRED PERMITS AND MAINTAINING THE SAME ON SITE FOR REVIEW BY THE ENGINEER AND OTHER PUBLIC AGENCIES...

CONTRACTOR NOTE:

ALL EXISTING STRUCTURES AND DEBRIS ON THE PROPERTY SHALL BE REMOVED REGARDLESS OF WHETHER SPECIFICALLY CALLED OUT ON THIS PLAN.

MAPPED SOILS table with columns: MAP SYMBOL, MAP UNIT NAME, RATING, HYDRIC SOIL. Rows include BaA, Co, GaC, GbB, GbC, GgB, GgC, GmB, GnB, MaB, MaC, MaD.

BOHLER ENGINEERING logo and contact information: SITE CIVIL AND CONSULTING ENGINEERING, LAND SURVEYING, PROGRAM MANAGEMENT, LANDSCAPE ARCHITECTURE, SUSTAINABLE DESIGN, PERMITTING SERVICES, TRANSPORTATION SERVICES.

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

STANDARD DRAWING LEGEND table with columns: EXISTING NOTE, TYPICAL NOTE TEXT, PROPOSED NOTE. Includes symbols for property lines, easements, curbs, lights, signs, hydrants, manholes, valves, etc.

811 logo with text: Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD ID.: ECP6

FINAL ROAD PLAN
FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

BOHLER ENGINEERING logo and address: 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21284. Phone: (410) 821-7900. Fax: (410) 821-7987. MD@BohlerEng.com

B.R. ROWE logo and professional engineer information: PROFESSIONAL ENGINEER, LICENSE NO. 12088, EXPIRES 12/31/2023.

SHEET TITLE: EXISTING CONDITIONS, DEMOLITION, & SOILS PLAN
SHEET NUMBER: 3 OF 80
REVISION 5 - 07/07/2021

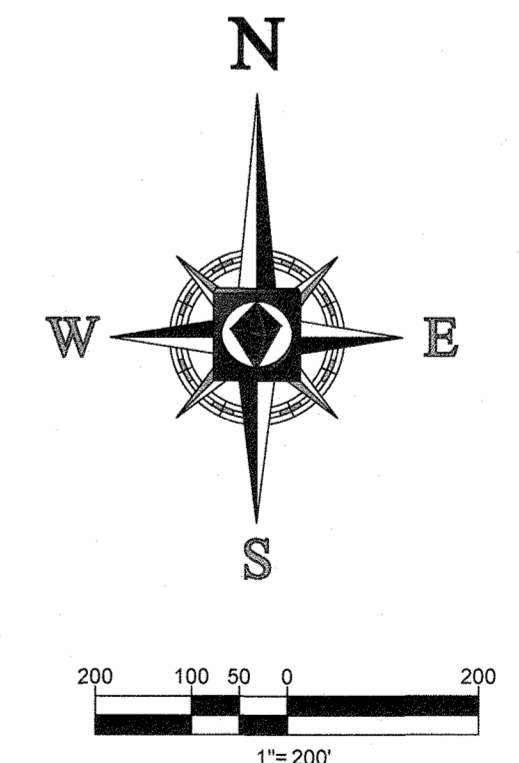
APPROVED - DEPARTMENT OF PUBLIC WORKS
10/12/2021
CHIEF, BUREAU OF HIGHWAYS
APPROVED - DEPARTMENT OF PLANNING AND ZONING
10/12/21
CHIEF, DIVISION OF LAND DEVELOPMENT
10/12/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
PREVIOUS FILE NO.: SP-17-010b, ECP-17-056, WP-16-070
TAX MAP: 40, GRID: 24, ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



STANDARD DRAWING LEGEND		
FOR SITE PLAN (NOT TO SCALE)		
EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
---	ONSITE PROPERTY LINE / R.O.W. LINE	---
---	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	---
---	EASEMENT LINE	---
---	SETBACK LINE	---
---	CONCRETE CURB & GUTTER	---
---	GRAVEL PAVEMENT EDGE	---
---	SEPTIC EASEMENT RESERVE AREA	---
WB	WETLAND BUFFER	---
SB	STREAM BUFFER	---
---	TREELINE	---
---	FULL DEPTH PAVEMENT	---
---	WETLAND	---
---	WELL AREA	---
---	DRY WELL	---
---	ROOF DRAIN	---
---	LIMIT OF FIELD RUN SURVEY	---
---	PERENNIAL STREAM	---
---	WETLAND EDGE	---
---	100 YR FLOODPLAIN	FP
---	TREE	---
---	BORING LOCATION	---

NOTE:
1. SEE SHEET 29 FOR BORING LOG INFORMATION.



APPROVED, DEPARTMENT OF PUBLIC WORKS
 [Signature] 10/11/2021
 CHIEF, BUREAU OF HIGHWAYS
 DATE

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 [Signature] 12/21/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

[Signature] 10/18/21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 09/24/2021
 CAD I.D.: GDO-5

PROJECT:
FINAL ROAD PLAN
 FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20866-EX-00000001 (DATE: 7/22/2022)

SHEET TITLE:
OVERALL GRADING & SWM PLAN
 SHEET NUMBER:
4 OF 30
 REVISION 5 - 09/24/2021

STANDARD DRAWING LEGEND

FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
---	ON-SITE PROPERTY LINE / R.O.W. LINE	---
---	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	---
---	EASEMENT LINE	---
---	SETBACK LINE	---
---	CONTOUR LINE	---
---	PERENNIAL STREAM	---
---	WETLAND	---
---	FLOODPLAIN LIMIT	PPF PPF
---	BASIN AREA	---
---	STORM SEWER	---
---	SANITARY FORCE MAIN	---
---	HYDRANT	---
---	SANITARY MANHOLE	---
---	STORM MANHOLE	---
---	LIMIT OF FIELD RUN SURVEY	LOW LOW
---	LIMIT OF DISTURBANCE	LOD LOD
---	LOW (PHASE 1)	---
---	LOW (PHASE 2)	---
---	WETLAND	---
---	RIPRAP	---
---	TREE PROTECTION FENCE	---
---	STEEP SLOPES (>25%)	---
---	STEEP SLOPES (15%-25%)	---
---	FULL DEPTH PAVEMENT	---
---	TREELINE	---
---	WETLAND BUFFER	---
---	STREAM BUFFER	---
---	SEPTIC EASEMENT RESERVE AREA	---
---	WELL AREA	---
---	TREE	---
---	PERCOLATION HOLE (PASSED)	---
---	PERCOLATION HOLE (FAILED)	---
---	WETLAND DELINEATION FLAG	---
---	SHARED SEPTIC	---

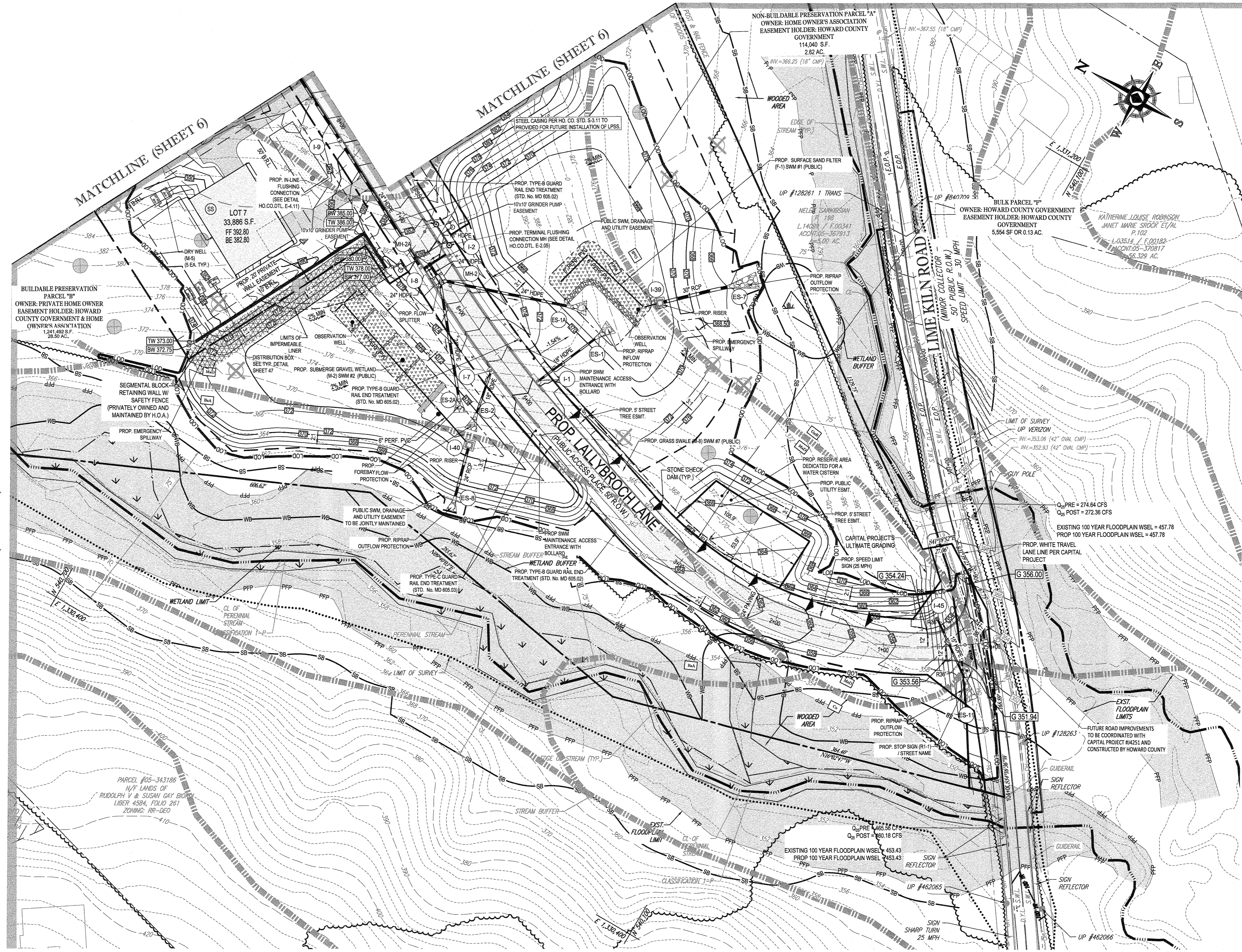
MAP SYMBOL	MAP UNIT NAME	RATING
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

APPROVED, DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/24/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

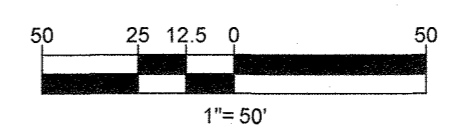
CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10.13.21

MATCHLINE (SHEET 8)



NOTE:

* ROAD GRADING WITHIN LIME KILN ROAD IS PER COORDINATION WITH CAPITAL IMPROVEMENT PROJECT #44251 PER 50% PLANS RECEIVED ON 02/10/2020. ROAD GRADING OF PROPOSED LALLYBROOCH LANE IS DESIGNED TO TIE INTO ULTIMATE BUILD-OUT OF LIME KILN ROAD AND IS SHOWN AS SUCH HERE-IN.



SUBDIVISION NAME: LYHUS PROPERTY
 SECTION/AREA: N/A
 DEED #: 14532/00489

PREVIOUS FILE No.:
 SP-17-010b
 ECP-17-056
 WP-18-070

NOTE: AS PART OF THE BUILDING PERMITS, A PLAN REDLINE WILL BE REQUIRED TO SHOW THE FINAL HOUSE LOCATION AND SWM PRACTICES. THE BUILDING PERMIT FOR THIS LOT WILL NOT BE APPROVED UNLESS A REASONABLE SIZED AREA IN THE REAR YARD IS PROVIDED FOR FUTURE DECKS, PATIOS, AND OUTDOOR LIVING AREAS THAT IS UNENCUMBERED WITH SWM DEVICES.

NOTE: ALL ROOF DRAINS WILL BE 6"

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT.

NOTE: 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.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1048

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 09/24/2021
 CAD I.D.: GDP-5

FINAL ROAD PLAN
 FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 40866
 EXPIRES 12/31/2023

SHEET TITLE:
GRADING & SWM PLAN

SHEET NUMBER:
5 OF 80

REVISION 5 - 09/24/2021



STANDARD DRAWING LEGEND
FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
	ONSITE PROPERTY LINE / R.O.W. LINE	
	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	
	EASEMENT LINE	
	SETBACK LINE	
	CONTOUR LINE	
	PERENNIAL STREAM	
	WETLAND	
	FLOODPLAIN LIMIT	
	BASIN AREA	
	STORM SEWER	
	SANITARY FORCE MAIN	
	HYDRANT	
	SANITARY MANHOLE	
	STORM MANHOLE	
	LIMIT OF FIELD RUN SURVEY	
	LIMIT OF DISTURBANCE	
	LOW (PHASE 1)	
	LOW (PHASE 2)	
	WETLAND	
	RIPRAP	
	TREE PROTECTION FENCE	
	STEEP SLOPES (>25%)	
	STEEP SLOPES (15%-25%)	
	FULL DEPTH PAVEMENT	
	TREELINE	
	WETLAND BUFFER	
	STREAM BUFFER	
	SEPTIC EASEMENT RESERVE AREA	
	WELL AREA	
	TREE	
	PERCOLATION HOLE (PASSED)	
	PERCOLATION HOLE (FAILED)	
	WETLAND DELINEATION FLAG	
	SHARED SEPTIC	

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
LANDSCAPE ARCHITECTURE
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DESIGNED BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's law.

APPROVED FOR CONSTRUCTION
PROJECT No.: MD1420671
DRAWN BY: AVS
CHECKED BY: BRR
DATE: 09/24/2021
CAD I.D.: GDP-5

FINAL ROAD PLAN
FOR
LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

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

B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 20866-02086-000108 (DATE 10/22/22)

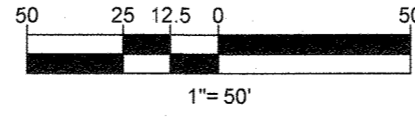
GRADING & SWM PLAN
SHEET NUMBER:
6 OF 30
REVISION 5 - 09/24/2021

APPROVED, DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 09/12/2021
APPROVED, DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/14/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10-18-21

NOTE: AS PART OF THE BUILDING PERMITS, A F-PLAN REDLINE WILL BE REQUIRED TO SHOW THE FINAL HOUSE LOCATION AND SWM PRACTICES. THE BUILDING PERMIT FOR THIS LOT WILL NOT BE APPROVED UNLESS A REASONABLE SIZED AREA IN THE REAR YARD IS PROVIDED FOR FUTURE DECKS, PATIOS, AND OUTDOOR LIVING AREAS THAT IS UNENCUMBERED WITH SWM DEVICES.

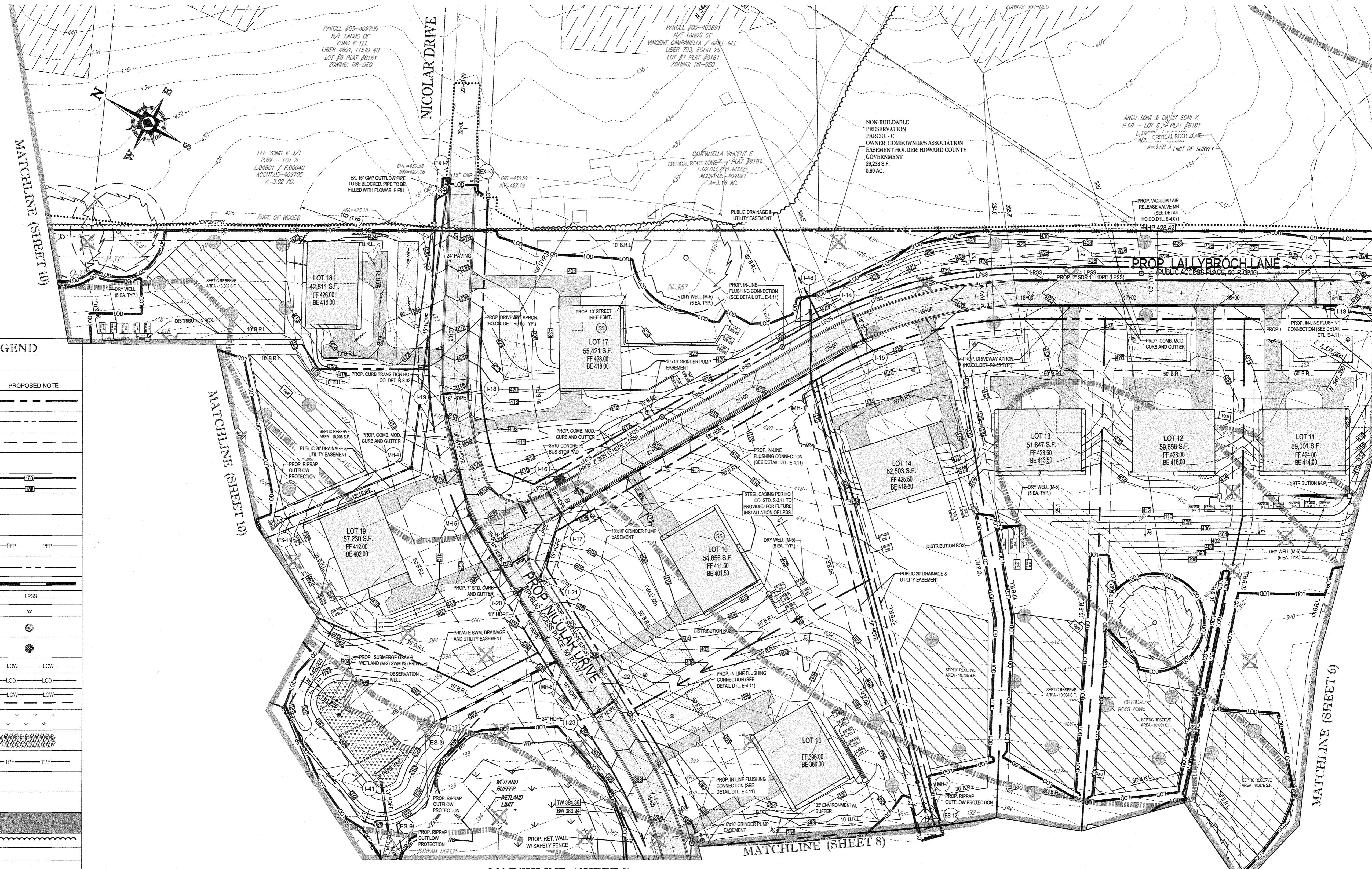
NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT.

NOTE: 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.



NOTE: ALL ROOF DRAINS WILL BE 6"
NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070	PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	



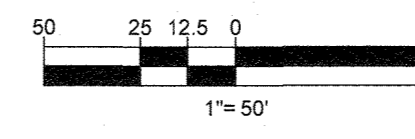
STANDARD DRAWING LEGEND
FOR ENTIRE PLAN SET (NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
---	ON-SITE PROPERTY LINE / R.O.W. LINE	---
---	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	---
---	EASEMENT LINE	---
---	SETBACK LINE	---
---	CONTOUR LINE	---
---	PERENNIAL STREAM	---
---	WETLAND	---
---	FLOODPLAIN LIMIT	---
---	BASIN AREA	---
---	STORM SEWER	---
---	SANITARY FORCE MAIN	---
---	HYDRANT	---
---	SANITARY MANHOLE	---
---	STORM MANHOLE	---
---	LIMIT OF FIELD RUN SURVEY	---
---	LIMIT OF DISTURBANCE	---
---	LOW (PHASE 1)	---
---	LOW (PHASE 2)	---
---	WETLAND	---
---	RIPRAP	---
---	TREE PROTECTION FENCE	---
---	STEEP SLOPES (>25%)	---
---	STEEP SLOPES (15%-25%)	---
---	FULL DEPTH PAVEMENT	---
---	TREELINE	---
---	WETLAND BUFFER	---
---	STREAM BUFFER	---
---	SEPTIC EASEMENT RESERVE AREA	---
---	WELL AREA	---
---	TREE	---
---	PERCOLATION HOLE (PASSED)	---
---	PERCOLATION HOLE (FAILED)	---
---	WETLAND DELINEATION FLAG	---
---	SHARED SEPTIC	---

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/12/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10/12/21



NOTE: ALL ROOF DRAINS WILL BE 6"

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT.

NOTE: 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.

NOTE: AS PART OF THE BUILDING PERMITS, A PLAN REDLINE WILL BE REQUIRED TO SHOW THE FINAL HOUSE LOCATION AND SWM PRACTICES. THE BUILDING PERMIT FOR THIS LOT WILL NOT BE APPROVED UNLESS A REASONABLE SIZED AREA IN THE REAR YARD IS PROVIDED FOR FUTURE DECKS, PATIOS, AND OUTDOOR LIVING AREAS THAT IS UNENCUMBERED WITH SWM DEVICES.

SUBDIVISION NAME: LYHUS PROPERTY
 SECTION/AREA: NA
 DEED # 14532/00469

PREVIOUS FILE No.:
 SP-17-010
 ECP-17-056
 WP-18-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-587-1049

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LAND MANAGEMENT
 LAND ACQUISITION
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRP
 DATE: 09/24/2021
 CAD I.D.: GDP-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 10088-EXPIRATION DATE: 10/31/2021

SHEET TITLE:
GRADING & SWM PLAN

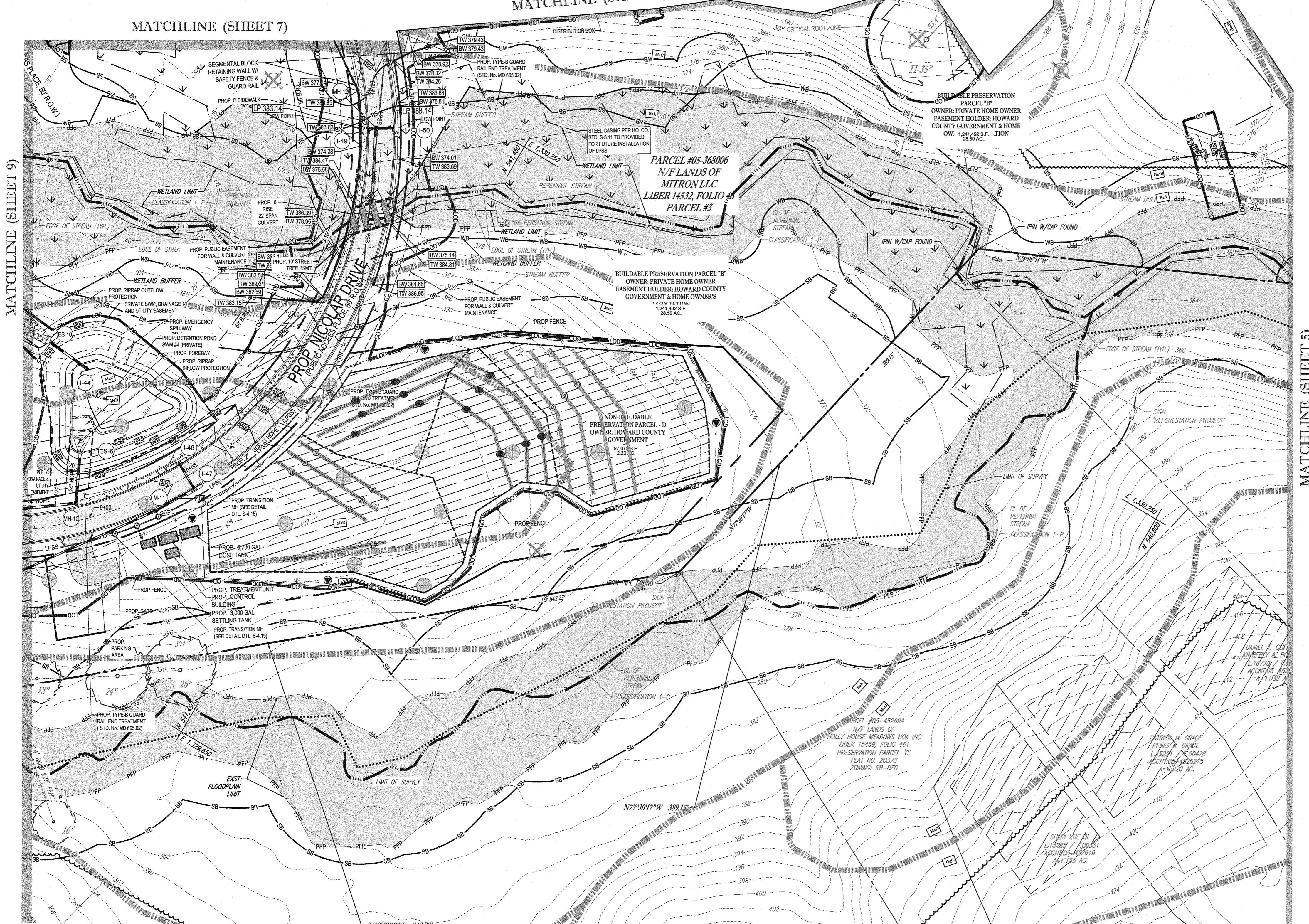
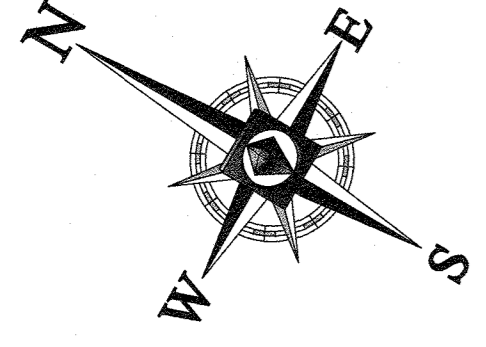
SHEET NUMBER:
7 OF 80

REVISION 5 - 09/24/2021

MATCHLINE (SHEET #)

MATCHLINE (SHEET 6)

MATCHLINE (SHEET 8)



STANDARD DRAWING LEGEND

FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
(Symbol)	ON-SITE PROPERTY LINE / R.O.W. LINE	(Symbol)
(Symbol)	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	(Symbol)
(Symbol)	EASEMENT LINE	(Symbol)
(Symbol)	SETBACK LINE	(Symbol)
(Symbol)	CONTOUR LINE	(Symbol)
(Symbol)	PERENNIAL STREAM	(Symbol)
(Symbol)	WETLAND	(Symbol)
(Symbol)	FLOODPLAIN LIMIT	(Symbol)
(Symbol)	BASIN AREA	(Symbol)
(Symbol)	STORM SEWER / SANITARY FORCE MAIN	(Symbol)
(Symbol)	HYDRANT	(Symbol)
(Symbol)	SANITARY MANHOLE	(Symbol)
(Symbol)	STORM MANHOLE	(Symbol)
(Symbol)	LIMIT OF FIELD RUN SURVEY	(Symbol)
(Symbol)	LIMIT OF DISTURBANCE	(Symbol)
(Symbol)	LOW (PHASE 1)	(Symbol)
(Symbol)	LOW (PHASE 2)	(Symbol)
(Symbol)	WETLAND	(Symbol)
(Symbol)	RIPRAP	(Symbol)
(Symbol)	TREE PROTECTION FENCE	(Symbol)
(Symbol)	STEEP SLOPES (>25%)	(Symbol)
(Symbol)	STEEP SLOPES (15%-25%)	(Symbol)
(Symbol)	FULL DEPTH PAVEMENT	(Symbol)
(Symbol)	TREELINE	(Symbol)
(Symbol)	WETLAND BUFFER	(Symbol)
(Symbol)	STREAM BUFFER	(Symbol)
(Symbol)	SEPTIC EASEMENT RESERVE AREA	(Symbol)
(Symbol)	WELL AREA	(Symbol)
(Symbol)	TREE	(Symbol)
(Symbol)	PERCOLATION HOLE (PASSED)	(Symbol)
(Symbol)	PERCOLATION HOLE (FAILED)	(Symbol)
(Symbol)	WETLAND DELINEATION FLAG	(Symbol)
(Symbol)	SHARED SEPTIC	(Symbol)

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PRELIMINARY PLANNING
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD1420671
DRAWN BY:	AVG
CHECKED BY:	BRB
DATE:	09/24/2021
CAD I.D.:	GDP-5

FINAL ROAD PLAN

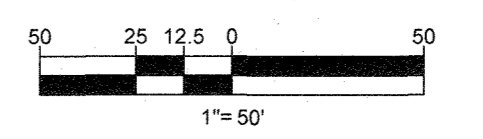
FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 100151
 STATE OF MARYLAND
 I, BRANTON ROY ROWE, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 47896. EXPIRATION DATE: 7/31/2023

SHEET TITLE:
GRADING & SWM PLAN
 SHEET NUMBER:
8 OF 80
 REVISION 5 - 09/24/2021

- NOTE: AS PART OF THE BUILDING PERMITS, A F-PLAN RECLINE WILL BE REQUIRED TO SHOW THE FINAL HOUSE LOCATION AND SWM PRACTICES. THE BUILDING PERMIT FOR THIS LOT WILL NOT BE APPROVED UNLESS A REASONABLE SIZED AREA IN THE REAR YARD IS PROVIDED FOR FUTURE DECKS, PATIOS, AND OUTDOOR LIVING AREAS THAT IS UNENCUMBERED WITH SWM DEVICES.
- NOTE: ALL ROOF DRAINS WILL BE 6"
- NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS 'A' DUE TO NO LIFE LOSS FOR FAILURE.
- NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT.
- NOTE: 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.

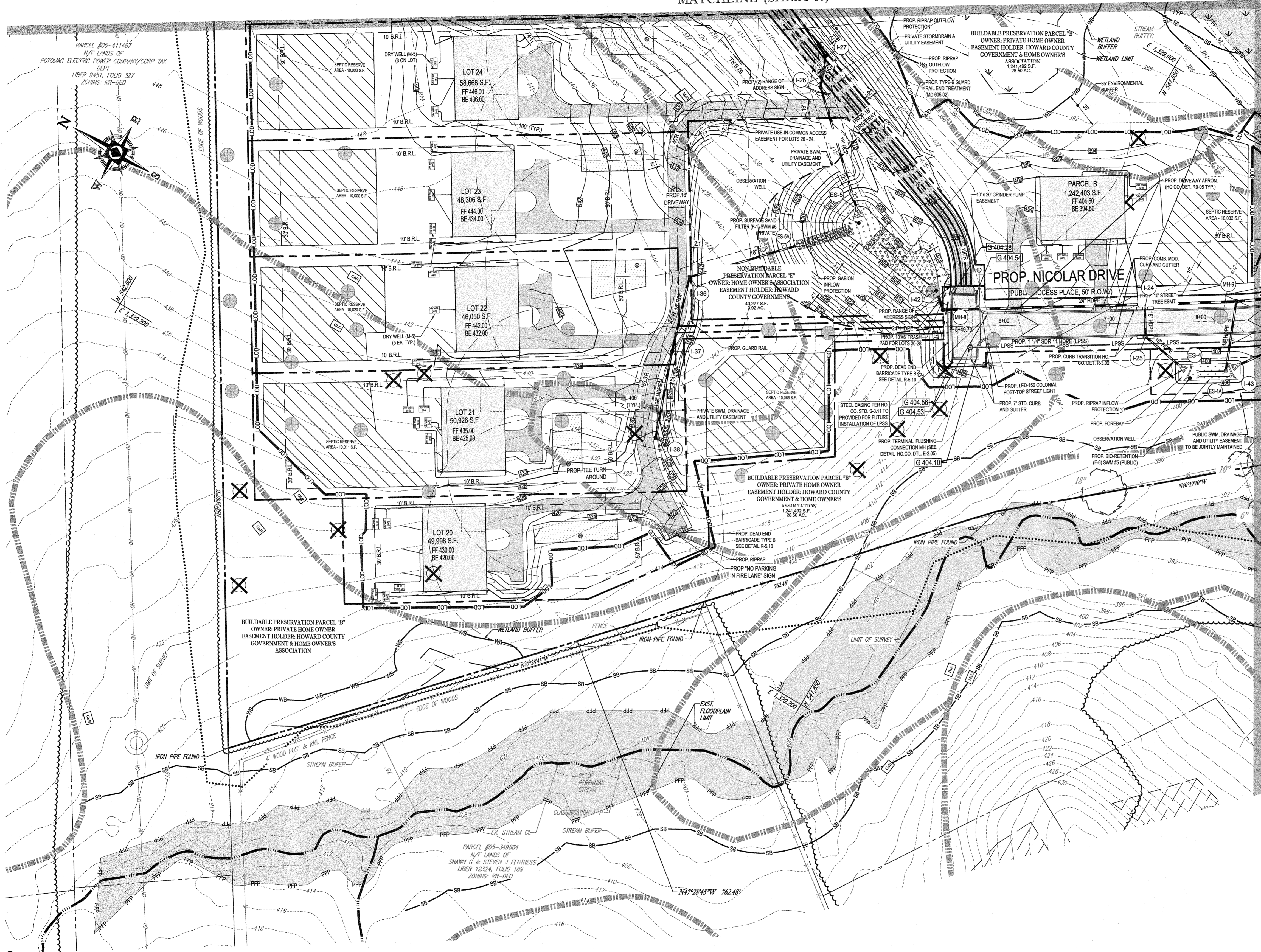


APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/18/21

SUBDIVISION NAME: LYHUS PROPERTY SECTION AREA: N/A DEED # 14532/0049	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-867-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PREVIOUS FILE No.: SP-17-0106 ECP-17-056 WP-18-070	5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	PARCEL: 135	

MATCHLINE (SHEET 10)



MATCHLINE (SHEET 8)

STANDARD DRAWING LEGEND		
FOR ENTIRE PLAN SET (NOT TO SCALE)		
EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
---	ONSITE PROPERTY LINE / R.O.W. LINE	---
---	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	---
---	EASEMENT LINE	---
---	SETBACK LINE	---
---	CONTOUR LINE	---
---	PERENNIAL STREAM	---
---	WETLAND	---
---	FLOODPLAIN LIMIT	---
---	BASIN AREA	---
---	STORM SEWER SANITARY FORCE MAIN HYDRANT	---
---	SANITARY MANHOLE	---
---	STORM MANHOLE	---
---	LIMIT OF FIELD RUN SURVEY	---
---	LIMIT OF DISTURBANCE	---
---	LOW (PHASE 1) LOW (PHASE 2)	---
---	WETLAND	---
---	RIPRAP	---
---	TREE PROTECTION FENCE	---
---	STEEP SLOPES (>25%)	---
---	STEEP SLOPES (15%-25%)	---
---	FULL DEPTH PAVEMENT	---
---	TREELINE	---
---	WETLAND BUFFER	---
---	STREAM BUFFER	---
---	SEPTIC EASEMENT RESERVE AREA	---
---	WELL AREA	---
---	TREE	---
---	PERCOLATION HOLE (PASSED)	---
---	PERCOLATION HOLE (FAILED)	---
---	WETLAND DELINEATION FLAG	---
---	SHARED SEPTIC	---

NOTE:
ON LOT 20, SEWER FORCEMAIN MUST MEET COMAR 26.04.04.B3 TO ALLOW IT TO PASS WITHIN 50 FEET OF THE WELL BOX.

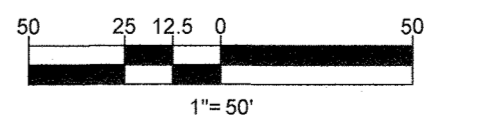
NOTE: AS PART OF THE BUILDING PERMITS, A FLAN REDLINE WILL BE REQUIRED TO SHOW THE FINAL HOUSE LOCATION AND SWM PRACTICES. THE BUILDING PERMIT FOR THIS LOT WILL NOT BE APPROVED UNLESS A REASONABLE SIZED AREA IN THE REAR YARD IS PROVIDED FOR FUTURE DECKS, PATIOS, AND OUTDOOR LIVING AREAS THAT IS UNENCUMBERED WITH SWM DEVICES.

NOTE: ALL ROOF DRAINS WILL BE 6"

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT.

NOTE: 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.



OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
SP-17-010b PARCEL: 135
ECP-17-056
WP-18-070

PREVIOUS FILE No.:
SP-17-010b
ECP-17-056
WP-18-070

APPROVED: DEPARTMENT OF PUBLIC WORKS
10/12/2021
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
12/21/21
DATE

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DESIGNED BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 09/24/2021
CAD I.D.: GDP-5

FINAL ROAD PLAN

FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

BOHLER ENGINEERING

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

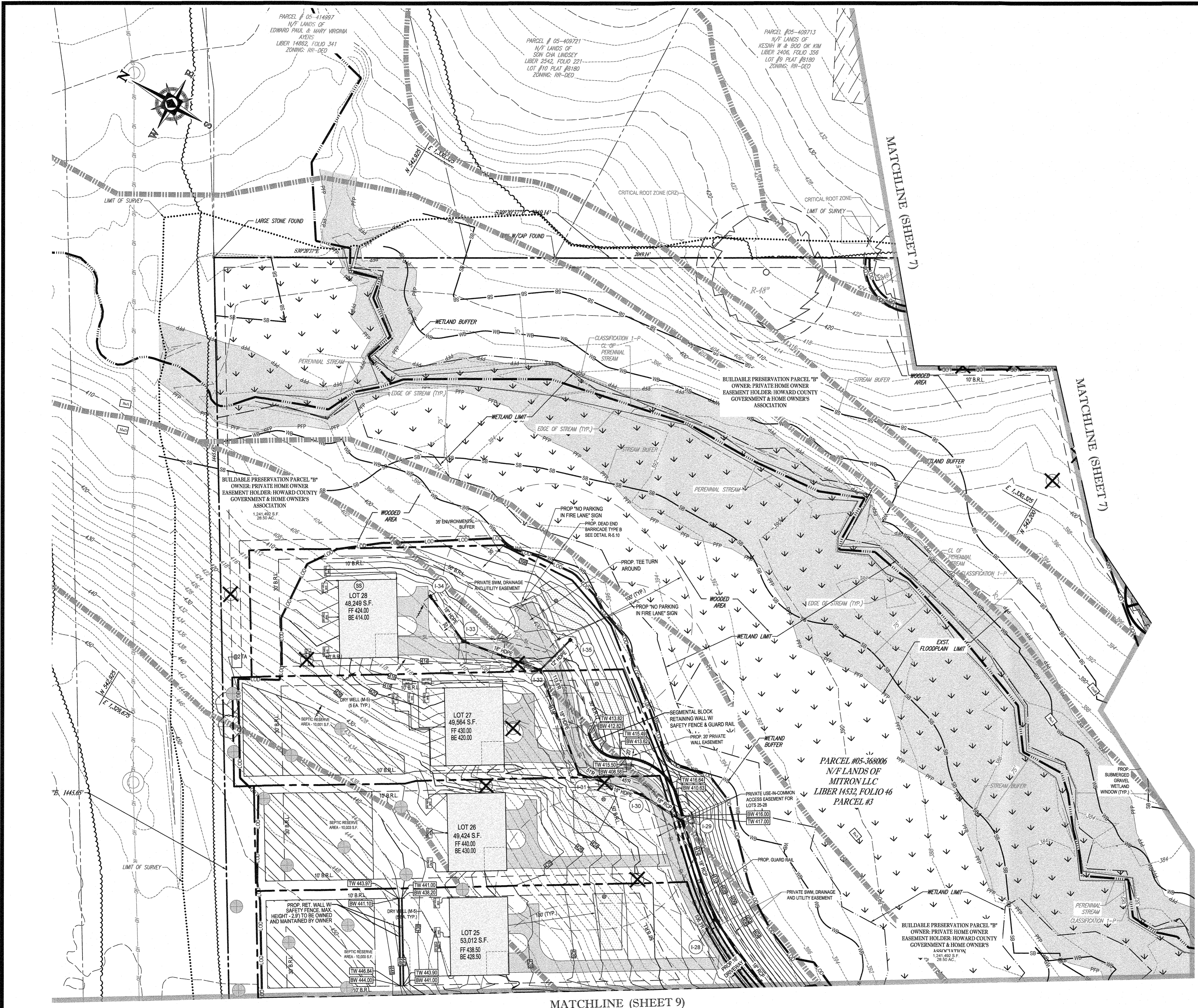
B.R. ROWE

PROFESSIONAL ENGINEER
I, BRANCO R. ROWE, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 30896-6-2008/RENEW DATE: 12/2023

SHEET TITLE:
GRADING & SWM PLAN

SHEET NUMBER:
9 OF 80

REVISION 5 - 09/24/2021



STANDARD DRAWING LEGEND		
FOR ENTIRE PLAN SET (NOT TO SCALE)		
EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
---	ONSITE PROPERTY LINE / R.O.W. LINE	---
---	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	---
---	EASEMENT LINE	---
---	SETBACK LINE	---
-170- -169-	CONTOUR LINE	100 150
---	PERENNIAL STREAM	---
---	WETLAND	---
---	FLOODPLAIN LIMIT	PPP PPP
---	BASIN AREA	---
---	STORM SEWER / SANITARY FORCE MAIN	---
---	HYDRANT	---
---	SANITARY MANHOLE	---
---	STORM MANHOLE	---
---	LIMIT OF FIELD RUN SURVEY	---
---	LIMIT OF DISTURBANCE	---
---	LOW (PHASE 1)	---
---	LOW (PHASE 2)	---
---	WETLAND	---
---	RIPRAP	---
---	TREE PROTECTION FENCE	---
---	STEEP SLOPES (>25%)	---
---	STEEP SLOPES (15%-25%)	---
---	FULL DEPTH PAVEMENT	---
---	TREELINE	---
WB	WETLAND BUFFER	---
SB	STREAM BUFFER	---
---	SEPTIC EASEMENT RESERVE AREA	---
---	WELL AREA	---
---	TREE	---
---	PERCOLATION HOLE (PASSED)	---
---	PERCOLATION HOLE (FAILED)	---
---	WETLAND DELINEATION FLAG	---
---	SHARED SEPTIC	---

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
 DRAWN BY: BRR
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: GDD-5

PROJECT: **FINAL ROAD PLAN**
 FOR **LYHUS PROPERTY**
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK FACILITY
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 10888-EX/06/02/02/2023

SHEET TITLE: **GRADING & SWM PLAN**
 SHEET NUMBER: **10 OF 80**
 REVISION 5 - 07/07/2021

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/15/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10-15-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NOTE: AS PART OF THE BUILDING PERMITS, A F-PLAN REDLINE WILL BE REQUIRED TO SHOW THE FINAL HOUSE LOCATION AND SWM PRACTICES. THE BUILDING PERMIT FOR THIS LOT WILL NOT BE APPROVED UNLESS A REASONABLE SIZED AREA IN THE REAR YARD IS PROVIDED FOR FUTURE DECKS, PATIOS, AND OUTDOOR LIVING AREAS THAT IS UNENCUMBERED WITH SWM DEVICES.
 NOTE: ALL ROOF DRAINS WILL BE 6"
 NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.
 NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR. STORM EVENT.
 NOTE: 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.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 8800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 8800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

SUBDIVISION NAME: LYHUS PROPERTY
 SECTION/AREA: N/A
 DEED #: 14532/00469

PREVIOUS FILE NO.: SP-17-010b
 ECP-17-059
 WP-18-070

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

KEY	SPECIES NAME	SIZE	CONDITION	TO REMAIN
A	WHITE PINE	34"	GOOD	N
B	WHITE PINE	40"	F. GOOD	N
C	WHITE PINE	30"	GOOD	N
D	WHITE PINE	30"	GOOD	N
E	LOBLOLLY PINE	32"	FAIR	N
F	WHITE PINE	39"	F. GOOD	N
G	SILVER MAPLE	38"	GOOD	N
H	WHITE OAK	35"	GOODFAIR	Y
I	SCARLET OAK	30"	FAIR	Y
J	RED OAK	43"	POOR	N
K	RED OAK	42"	FAIR	N
M	BLACK OAK	42"	V. POOR	N
N	SCARLET OAK	36"	V. POOR	Y
O	TULIP POPLAR	30"	V. POOR	N
P	TULIP POPLAR	31"	FAIR	Y
Q	SCARLET OAK	33"	FAIR	Y
R	SCARLET OAK	48"	F. GOOD	Y
S	SCARLET OAK	35"	FAIR	N
T	TULIP POPLAR	38"	F. GOOD	N
U	RED MAPLE	39"	F. GOOD	N
V	TULIP POPLAR	31"	F. GOOD	N
W	TULIP POPLAR	31"	F. GOOD	N
X	TULIP POPLAR	35"	F. GOOD	N
Y	TULIP POPLAR	31"	F. GOOD	N
Z	TULIP POPLAR	38"	F. GOOD	N
2A	TULIP POPLAR	40"	F. GOOD	N

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	AR2	16	ACER RUBRUM	RED MAPLE	3-4" CAL / 12-14'	B+B
	QP2	12	QUERCUS PALUSTRIS	PIN OAK	3-4" CAL / 12-14'	B+B
	OR2	12	QUERCUS RUBRA	RED OAK	3-4" CAL / 12-14'	B+B
NUMBER OF 3" CAL SHADE TREES REQUIRED UNDER WP-17-105		40				
NUMBER OF PLANTS PROVIDED: 3" CAL SHADE TREES		40				

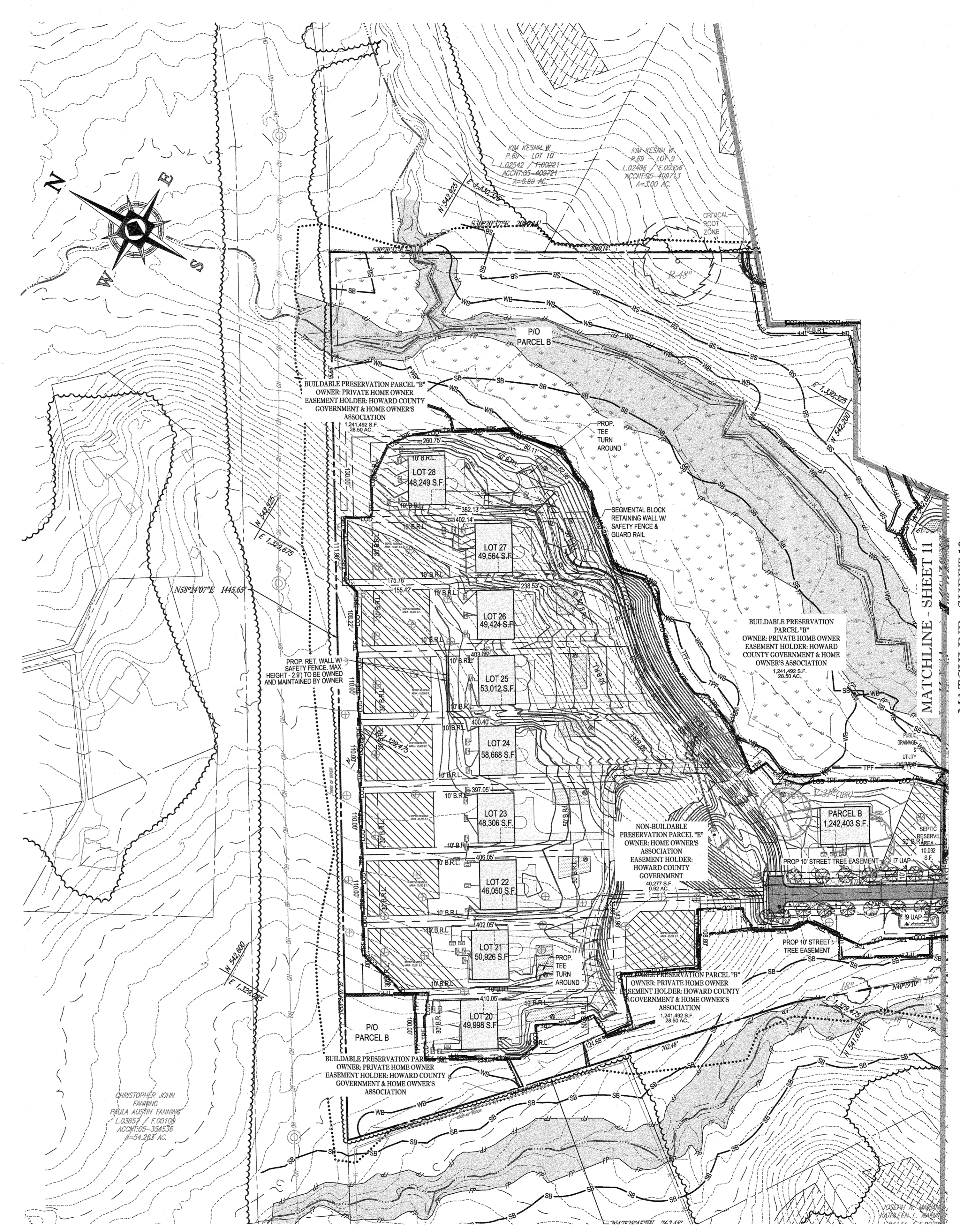
NOTE:
1) SEE STORMWATER DETAILS SHEETS FOR PLANTING INFORMATION.

STREET	LINEAR FEET	SPACING	TREES REQUIRED	TREES PROVIDED
PUBLIC ROAD "A"	2362 LF	40 L.F. (x2)	119 TREES	119 TREES
PUBLIC ROAD "B"	1559 LF - 24 LF (ENTRANCE) = 1535 LF	40 L.F. (x2)	77 TREES	77 TREES

KEY	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	CONT.
SHADE TREE(S)					
PXAB	119	PLATANUS X ACERIFOLIA BLOODGOOD	BLOODGOOD LONDON PLANETREE	2 1/2-3" CAL.	B+B
UAP	77	ULMUS AMERICANA PRINCETON	PRINCETON AMERICAN ELM	2 1/2-3" CAL / 12-14'	B+B
SUBTOTAL:		196			

HOWARD COUNTY STREET TREE NOTES:

- FINANCIAL SURETY IN THE AMOUNT OF \$58,800.00 (\$300 EACH) FOR THE REQUIRED 196 STREET TREES WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT, F-20-016.
- SHADE TREES MUST BE PLANTED A MINIMUM OF 40 FEET AND ORNAMENTAL TREES MUST BE PLANTED A MINIMUM OF 25 FEET FROM POWER LINES PER B.G.E. PLANTING GUIDE.
- FINAL PLACEMENT OF STREET TREES WILL OCCUR IN THE FIELD AND BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB. BE LOCATED WITH CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES AND MAINTAIN A MINIMUM 5 FEET DISTANCE FROM CENTER FROM A DRAIN INLET STRUCTURE, 5 FEET FROM AN OPEN ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
- THE HEALTH DEPARTMENT MAY REQUIRE DISTURBANCE TO THE TREES WITHIN THE VICINITY OF THE SRA. IF DAMAGE OCCURS, THE TREES MUST BE REPLACED IN KIND.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$12,000 FOR 40 SPECIMEN TREE MITIGATION SHADE TREES (\$300 EACH) WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS PLAN.



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- LIMIT OF DISTURBANCE
- WETLAND BUFFER LIMITS
- TREE PROTECTION FENCE
- ROOT PRUNING
- 6' HIGH CHAIN LINK FENCE
- SPECIMEN TREE (TO BE REMOVED)
- CRITICAL ROOT ZONE (CRZ)
- FOREST CONSERVATION EASEMENT
- SEPTIC RESERVE AREA
- SANITARY PERCOLATION TEST HOLE
- STEEP SLOPES 15-24 99%
- STEEP SLOPES 25% +
- STREAM BUFFER
- FLOODPLAIN
- WETLANDS

NOTE:
1) THIS PLAN SET IS INTENDED FOR PUBLIC IMPROVEMENTS ONLY. PERIMETER BUFFERYARD PLANTING REQUIREMENTS (SCHEDULE A) WILL BE PROVIDED DURING LOT DESIGN.

PREVIOUS FILE No.: SP-17-010b, ECP-17-056, WP-18-070	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC, c/o H & H ROCK COMPANIES, 6800 DEERPATH ROAD #100, ELK RIDGE, MARYLAND 21075
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES, 6800 DEERPATH ROAD #100, ELK RIDGE, MARYLAND 21075, CONTACT: JAMES FRASER, PHONE: 410-557-1046	TAX MAP: 40, GRID: 24, ZONED: RR-DEO, PARCEL: 135, 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

A SYMBOL "M" REPRESENTS MITIGATION FOR REMOVAL OF THE SPECIMEN TREE.
40 3-4" CALIPER TREES HAVE BEEN PLANTED FOR MITIGATION REQUIREMENT.
UNDER WP-18-070, SECTION 16.1205(A)(7) - A REQUEST HAS BEEN MADE TO DP2 FOR THE REMOVAL OF TWENTY-THREE (23) SPECIMEN TREES. THIS PLAN IS PROPOSING THE REMOVAL OF TWENTY (20) SPECIMEN TREES. MITIGATION FOR THE REMOVAL OF THESE TWENTY (20) SPECIMEN TREES IS TO CONSIST OF TWO (2) 3-4" CALIBER TREE FOR EACH ONE (1) REMOVED SIMILAR OR IDENTICAL SPECIES. THESE FORTY (40) TREES SHALL BE PLACED WITHIN CLOSE PROXIMITY TO THE LOCATION OF THE ORIGINAL SPECIMEN TREE AND WILL BE IN ADDITION TO THE REQUIRED PERIMETER LANDSCAPING. COSTS TO COVER THE INSTALLATION OF THESE TREES SHALL BE INCLUDED IN THE PERIMETER LANDSCAPING ESTIMATE, AND SURETY AND INSPECTION FEES SHALL BE POSTED WITH THE DPW DEVELOPER'S AGREEMENT AT THE FINAL PLAN STAGE FOR LOT CREATION FOR THIS DEVELOPMENT. THE SYMBOL "M" REPRESENTS PLANT MATERIAL TO MEET THIS REQUIREMENT.

HOWARD COUNTY LANDSCAPE NOTES:

- THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, BERMS, FENCES, AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITHIN LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OR REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

APPROVED: DEPARTMENT OF PUBLIC WORKS DATE: 10/12/2021	APPROVED: DEPARTMENT OF PLANNING AND ZONING DATE: 10/17/21
----------------------------------------------------------	---------------------------------------------------------------

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCEPTED BY AN EXERCISED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
DATE: 9/24/2021

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
PERMITTING SERVICES
TRANSPORTATION SERVICES

REV	DATE	COMMENT	DESIGNED BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

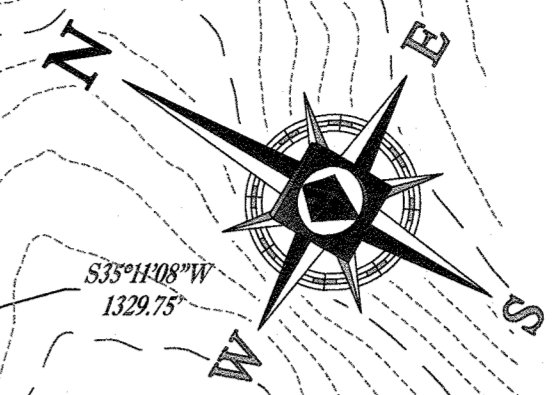
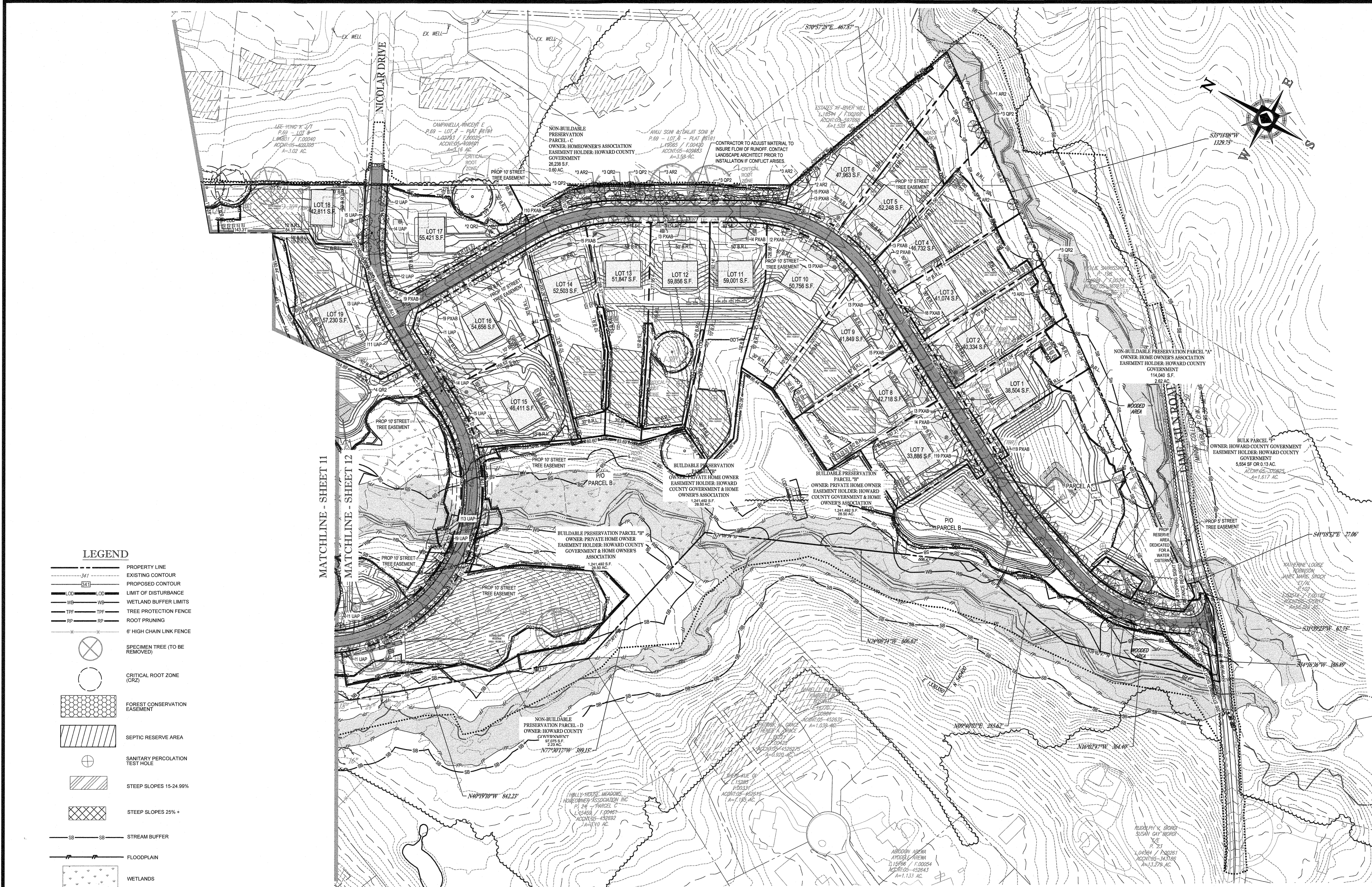
APPROVED FOR CONSTRUCTION
PROJECT No.: MD1420671
DRAWN BY: AVS
CHECKED BY: BRR
DATE: 09/24/2021
CAD I.D.: LSP-5

FINAL ROAD PLAN
FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL A
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

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

E.R. McWILLIAMS
REGISTERED PROFESSIONAL ARCHITECT
I, ERIC R. McWILLIAMS, CERTIFY THAT THESE DOCUMENTS HAVE BEEN PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3887, EXPIRATION DATE: 9/20/22

LANDSCAPE PLAN
SHEET NUMBER: 11 OF 80
REVISION 5 - 09/24/2021



BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DESIGNED BY

811

Know what's below.
Call before you dig.

ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD1420671
DRAWN BY:	AVG
CHECKED BY:	BRB
DATE:	09/24/2021
CAD I.D.:	LSP-5

FINAL ROAD PLAN

FOR LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

801 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

E.R. McWILLIAMS

09/24/2021

REGISTERED LANDSCAPE ARCHITECT
 PROFESSIONAL SEAL
 I, ERIC R. McWILLIAMS, CERTIFY THAT THESE DOCUMENTS WERE PREPARED AND APPROVED BY ME AND THAT I AM A LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3897, EXPIRATION DATE: 9/20/22

LANDSCAPE PLAN

SHEET NUMBER:
12 OF 80

REVISION 5 - 09/24/2021

APPROVED, DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/12/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

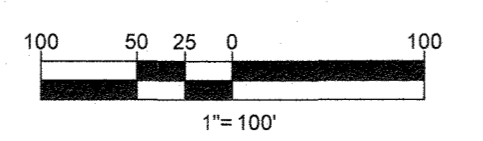
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE 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.

DATE: 9/24/2021

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-565-1049
SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED # 14532/00469	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070	

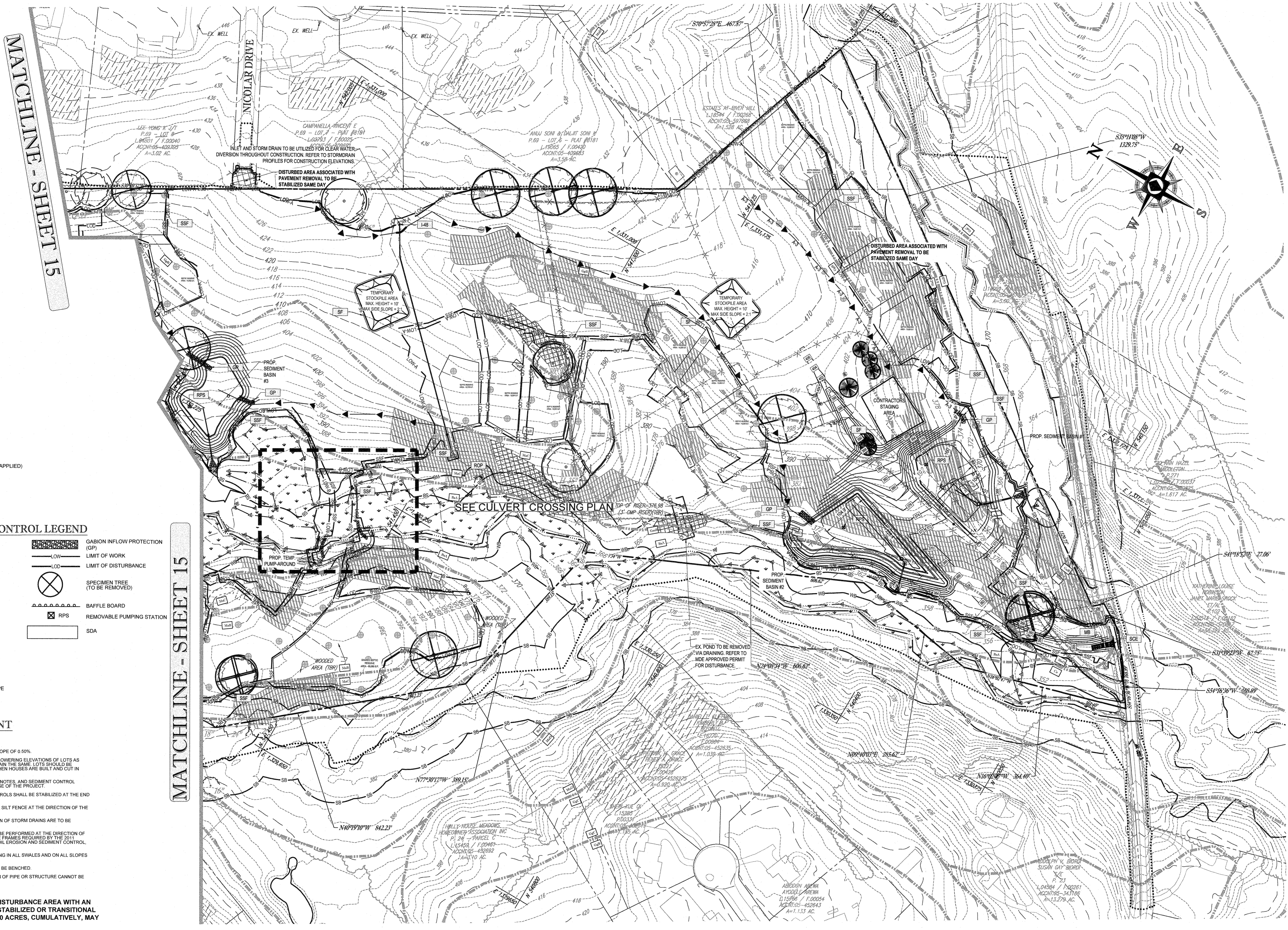


MATCHLINE - SHEET 11

MATCHLINE - SHEET 12

LEGEND

	PROPERTY LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	LIMIT OF DISTURBANCE
	WETLAND BUFFER LIMITS
	TREE PROTECTION FENCE
	ROOT PRUNING
	6' HIGH CHAIN LINK FENCE
	SPECIMEN TREE (TO BE REMOVED)
	CRITICAL ROOT ZONE (CRZ)
	FOREST CONSERVATION EASEMENT
	SEPTIC RESERVE AREA
	SANITARY PERCOLATION TEST HOLE
	STEEP SLOPES 15-24.99%
	STEEP SLOPES 25% +
	STREAM BUFFER
	FLOODPLAIN
	WETLANDS



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

CUT/FILL ANALYSIS

TOTAL CUT = 125,814 CY
 TOTAL FILL = 78,362 CY (15% SHRINKAGE FACTOR APPLIED)
 TOTAL EXPORT = 47,332 CY
 LIMIT OF DISTURBANCE: 40.68 AC.

EROSION AND SEDIMENT CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF WORK
- LIMIT OF DISTURBANCE
- GABION INFLOW PROTECTION (GP)
- SILTS FENCE
- DIVERSION DIKE
- SUPER SILT FENCE
- TREE PROTECTION FENCE
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
- SOIL DIVIDE
- SOIL LABEL
- HIGH VISIBILITY ORANGE SAFETY FENCE
- TEMP. & HIGH CHAIN LINK SAFETY FENCE
- CLEAR WATER DIVERSION PIPE
- SPECIMEN TREE (TO BE REMOVED)
- BAFFLE BOARD
- RPS
- SDA

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. SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS WILL BE PROVIDED DURING FINAL PLAN PHASE OF THE PROJECT.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
7. 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.
8. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
9. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
10. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

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.

HOUSES CANNOT BE CONSTRUCTED USING THESE PLANS.

APPROVED - DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE 10/12/2021
 APPROVED - DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 10-18-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 10-18-21

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 SIGNATURE OF DEVELOPER DATE 7/27/21
 HOWARD SCD

DEVELOPER'S CERTIFICATE
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONAL 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 7/19/2021
 MICK L. LEVY

ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 SIGNATURE OF ENGINEER DATE 7/19/2021
 BRIAN R. ROWE P.E.

NOTE: ALL SEDIMENT BASINS MUST BE REMOVED A MAXIMUM OF THREE (3) YEARS FROM THE DATE OF HOWARD SCD SIGNATURE APPROVAL

100 50 25 0 100
 1" = 100'
 SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED # 14532/00469
 PREVIOUS FILE NO.: SP-17-010b ECP-17-056 WP-18-070
 OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC 206 H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075
 DEVELOPER: ROCK REALTY INC. 206 H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1048
 TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED FOR CONSTRUCTION DOCUMENTS UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: OAP-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 4089-63064/09/01 DATE: 03/2023

SHEET TITLE:
PHASE I EROSION & SEDIMENT CONTROL PLAN
 SHEET NUMBER:
14 OF 30
 REVISION 5 - 07/07/2021

REVISIONS				
REV	DATE	COMMENT	DESIGN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED FOR CONSTRUCTION DOCUMENTS UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: OAP-5

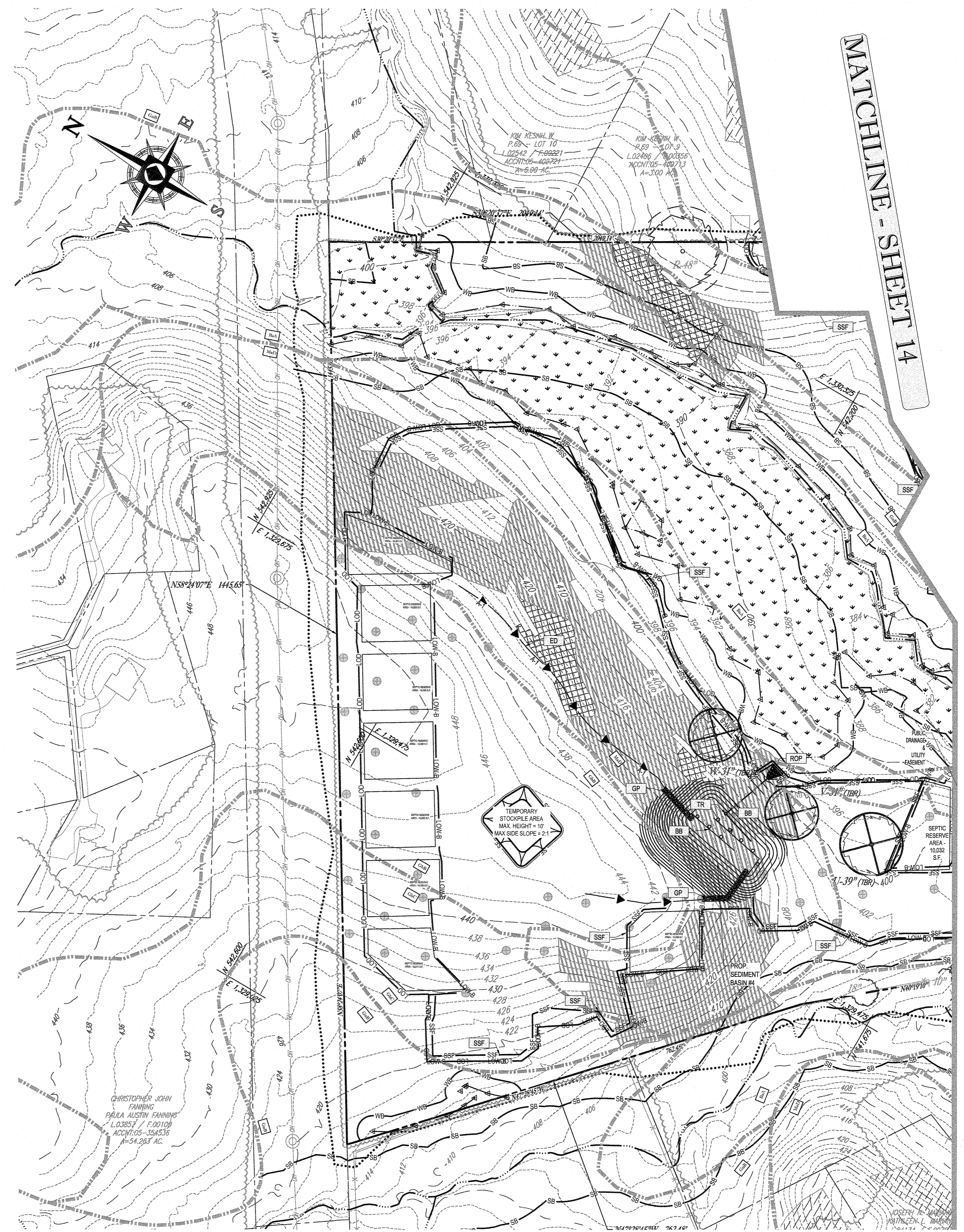
FINAL ROAD PLAN

FOR **LYHUS PROPERTY**
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 20866, EXPIRES 07/07/2023

SHEET TITLE:
PHASE I EROSION & SEDIMENT CONTROL PLAN
 SHEET NUMBER:
15 OF 80
 REVISION 5 - 07/07/2021



EROSION AND SEDIMENT CONTROL LEGEND

	STABILIZED CONSTRUCTION ENTRANCE		GABION INFLOW PROTECTION (GP)
	SILT FENCE		LIMIT OF WORK
	DIVERSION DIKE		LIMIT OF DISTURBANCE
	SUPER SILT FENCE		SPECIMEN TREE (TO BE REMOVED)
	TREE PROTECTION FENCE		BAFFLE BOARD
	STEEP SLOPES (15%-25%)		REMOVABLE PUMPING STATION
	STEEP SLOPES (>25%)		SDA
	SOIL DIVIDE		
	SOIL LABEL		
	HIGH VISIBILITY ORANGE SAFETY FENCE		
	TEMP. & HIGH CHAIN LINK SAFETY FENCE		

EROSION AND SEDIMENT CONTROL NOTES

- TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.55%.
- 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.
- SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS WILL BE PROVIDED DURING FINAL PLAN PHASE OF THE PROJECT.
- 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.
- IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

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

CUT/FILL ANALYSIS

TOTAL CUT = 125,614 CY
 TOTAL FILL = 78,382 CY (15% SHRINKAGE FACTOR APPLIED)
 TOTAL EXPORT = 47,232 CY
 LIMIT OF DISTURBANCE: 40.68 AC.

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.

HOUSES CANNOT BE CONSTRUCTED USING THESE PLANS.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 12/21/21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES
 [Signature] 10-18-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 7/27/21
 HOWARD SCD DATE

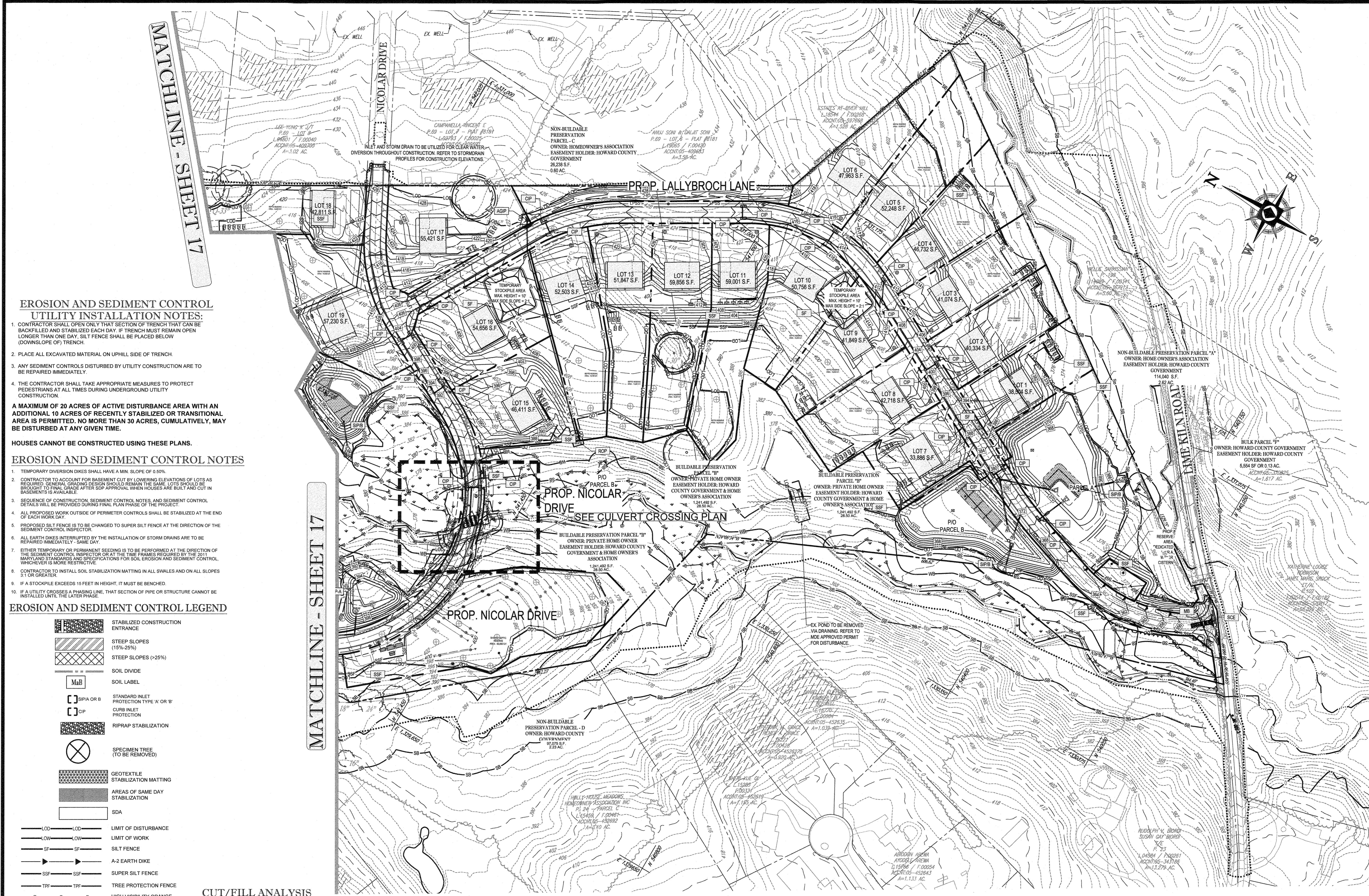
DEVELOPER'S CERTIFICATE
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONAL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED 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] 7/19/2021
 SIGNATURE OF DEVELOPER DATE
 (NAME) Mark L. Levy

ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 [Signature] 7/19/21
 SIGNATURE OF ENGINEER DATE
 (NAME) BRANON R. ROWE P.E.

NOTE: ALL SEDIMENT BASINS MUST BE REMOVED A MAXIMUM OF THREE (3) YEARS FROM THE DATE OF HOWARD SCD SIGNATURE APPROVAL

100 50 25 0 100
 1" = 100'
 SUBDIVISION NAME: LYHUS PROPERTY
 SECTION/AREA: N/A
 DEED # 14532/00469
 PREVIOUS FILE NO.:
 SP-17-010b
 ECP-17-056
 WP-19-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 20 H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKDRIDGE, MARYLAND 21075
 DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKDRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046
 TAX MAP: 40 GRID: 24 ZONED: RR-OEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 GEOTECHNICAL ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

- CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) TRENCH.
- PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
- ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
- THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

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.

HOUSES CANNOT BE CONSTRUCTED USING THESE PLANS.

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 SUP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
- SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS WILL BE PROVIDED DURING FINAL PLAN PHASE OF THE PROJECT.
- 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.
- IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

- EROSION AND SEDIMENT CONTROL LEGEND**
- [Symbol] STABILIZED CONSTRUCTION ENTRANCE
 - [Symbol] STEEP SLOPES (15%-25%)
 - [Symbol] STEEP SLOPES (>25%)
 - [Symbol] SOIL DIVIDE
 - [MaB] SOIL LABEL
 - [Symbol] STANDARD INLET PROTECTION TYPE 'A' OR 'B'
 - [CIP] CURB INLET PROTECTION
 - [Symbol] RIPRAP STABILIZATION
 - [Symbol] SPECIMEN TREE (TO BE REMOVED)
 - [Symbol] GEOTEXTILE STABILIZATION MATTING
 - [Symbol] AREAS OF SAME DAY STABILIZATION
 - [Symbol] SDA
 - LOD --- LIMIT OF DISTURBANCE
 - LOW --- LIMIT OF WORK
 - SF --- SILT FENCE
 - A-2 --- A-2 EARTH DIKE
 - SSF --- SUPER SILT FENCE
 - TPF --- TREE PROTECTION FENCE
 - --- HIGH VISIBILITY ORANGE SAFETY FENCE
 - --- TEMP. 6' HIGH CHAIN LINK SAFETY FENCE

CUT/FILL ANALYSIS

TOTAL CUT = 125,614 CY
 TOTAL FILL = 78,382 CY (15% SHRINKAGE FACTOR APPLIED)
 TOTAL EXPORT = 47,232 CY

LIMIT OF DISTURBANCE: 40.68 AC.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/15/21

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

Alexander Britton
 HOWARD SCD
 DATE: 09/28/21

DEVELOPER'S CERTIFICATE

I WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONAL 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 BEGING THE PROJECT. I ALSO AUTHORITY PERSON ON-SITE INSPECTION BY THE HOWARD COUNTY CONSERVATION DISTRICT.

Signature: [Signature]
 DATE: 9/24/2021

ENGINEER'S CERTIFICATE

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

Signature: [Signature]
 DATE: 9/28/21

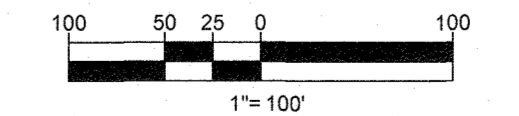
INLET PROTECTION NOTE

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 E-21. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

NOTE: ALL SEDIMENT BASINS MUST BE REMOVED A MAXIMUM OF THREE (3) YEARS FROM THE DATE OF HOWARD SCD SIGNATURE APPROVAL



SUBDIVISION NAME: LYLUS PROPERTY
 SECTION/AREA: N/A
 DEED # 14332/00469

PREVIOUS FILE NO.: SP-17-0106, ECP-17-056, WP-18-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1049

TAX MAP: 40
 GRID: 24
 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

811

Know what's below. Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BBR
 DATE: 09/24/2021
 CAD I.D.: OBP-5

FINAL ROAD PLAN

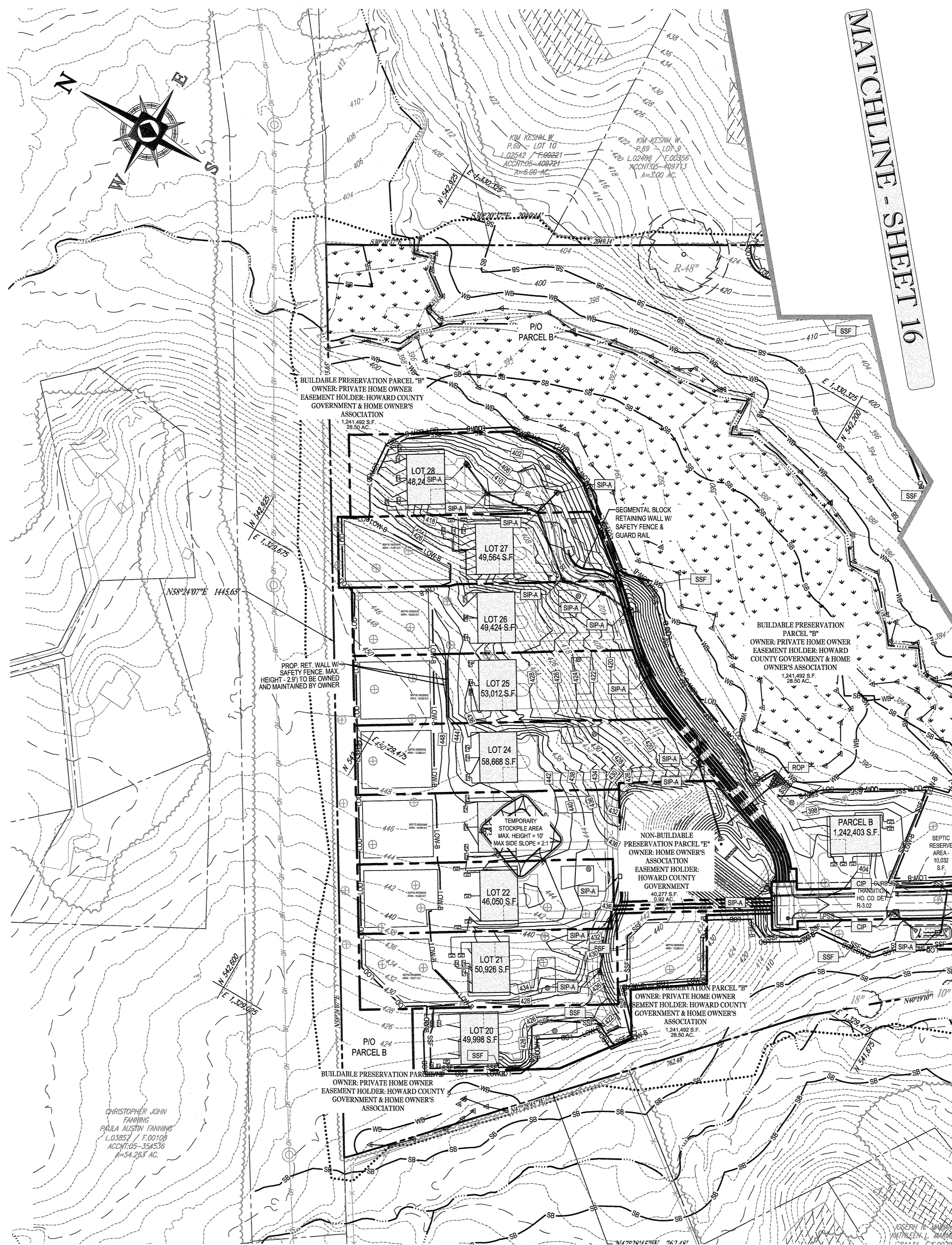
FOR LYLUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 23815

SHEET TITLE:
PHASE II EROSION & SEDIMENT CONTROL PLAN
 SHEET NUMBER:
16 OF 80
 REVISION 5 - 09/24/2021



EROSION AND SEDIMENT CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
- SOIL DIVIDE
- SOIL LABEL
- STANDARD INLET PROTECTION TYPE 'A' OR 'B'
- CURB INLET PROTECTION
- RIPRAP STABILIZATION
- SPECIMEN TREE (TO BE REMOVED)
- GEOTEXTILE STABILIZATION MATTING
- AREAS OF SAME DAY STABILIZATION
- SDA
- LIMIT OF DISTURBANCE
- LIMIT OF WORK
- SILT FENCE
- A-2 EARTH DIKE
- SUPER SILT FENCE
- TREE PROTECTION FENCE
- HIGH VISIBILITY ORANGE SAFETY FENCE
- TEMP. 6' HIGH CHAIN LINK SAFETY FENCE

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

1. CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

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.

HOUSES CANNOT BE CONSTRUCTED USING THESE PLANS.

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 SHALL REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS WILL BE PROVIDED DURING FINAL PLAN PHASE OF THE PROJECT.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
7. 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.
8. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 2:1 OR GREATER.
9. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
10. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

DEVELOPER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONAL 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: *[Signature]* DATE: 09/28/21

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER: *[Signature]* DATE: 09/28/21

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 E-23 THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

NOTE: ALL SEDIMENT BASINS MUST BE REMOVED A MAXIMUM OF THREE (3) YEARS FROM THE DATE OF HOWARD SCD SIGNATURE APPROVAL

APPROVED, DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/21

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10-19-21

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD SCD
 DATE: 09/28/21

100 50 25 0 100
 1"=100'

SUBDIVISION NAME: LYLHUS PROPERTY
 SECTION/AREA: N/A
 DEED # 14532/00469

PREVIOUS FILE No.:
 SP-17-010
 ECP-17-056
 WP-18-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 8800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1049

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

811
 Know what's Below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420571
 DRAWN BY: AVG
 CHECKED BY: BRB
 DATE: 09/24/2021
 CAD I.D.: OBP-5

FINAL ROAD PLAN

FOR
LYLHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20866
 DATE: 12/22/23

SHEET TITLE:
EROSION & SEDIMENT CONTROL PLAN
 SHEET NUMBER:
17 OF 80
 REVISION 5 - 09/24/2021

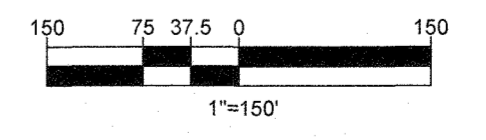
BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LEASING
 LAND ACQUISITION
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES



SOILS TABLE		
SOIL NAME	SOILS DESCRIPTION	HYDROLOGIC SOIL GROUP
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D
GmC	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

LEGEND

- PROPERTY LINE
- - - - - EXISTING CONTOUR
- - - - - PROPOSED CONTOUR
- L.O.D. — L.O.D. — LIMIT OF DISTURBANCE
- - - - - WETLAND BUFFER LIMITS
- - - - - TREE PROTECTION FENCE
- RP — RP — ROOT PRUNING
- X — X — 6' HIGH CHAIN LINK FENCE
- ⊗ SPECIMEN TREE (TO BE REMOVED)
- CRITICAL ROOT ZONE (CRZ)
- ▨ FOREST CONSERVATION EASEMENT
- ▨ SEPTIC RESERVE AREA
- ⊙ SANITARY PERCOLATION TEST HOLE
- Dr: SOIL LABEL
- - - - - SOIL BOUNDARY LINE
- - - - - PRE-DEVELOPMENT E&S DRAINAGE AREA DIVIDE



SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED #: 14532/00469	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC 60 H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075
PREVIOUS FILE NO.: SP-17-010b EGP-17-056 WP-18-070	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
TAX MAP: 40 GRID: 24 ZONED: RR-DEO	PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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

John R. Kuntz 7/27/21
 HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 12/16/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-18-21

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER: *Mark L. Levy* DATE: 7/19/2021
 (NAME) Mark L. Levy

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER: *James Fraser* DATE: 7/19/21
 BRANCO R. ROWE P.E.

PRE-DEVELOPMENT

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED FOR CONSTRUCTION DOCUMENTS UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: EAH-S

PROJECT:
FINAL ROAD PLAN
 FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 10000
 EXPIRES 07/01/2025
 I, BRANCO R. ROWE, HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 10000, EXPIRES 07/01/2025.

SHEET TITLE:
PRE-DEVELOPMENT E&S DRAINAGE AREA MAPS
 SHEET NUMBER:
18 OF 80
 REVISION 5 - 07/07/2021



SOILS TABLE		
SOIL NAME	SOILS DESCRIPTION	HYDROLOGIC SOIL GROUP
BaA	BAILLE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D
GmC	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

- LEGEND**
- PROPERTY LINE
 - EXISTING CONTOUR
 - PROPOSED CONTOUR
 - LIMIT OF DISTURBANCE
 - WETLAND BUFFER LIMITS
 - TREE PROTECTION FENCE
 - ROOT PRUNING
 - 6' HIGH CHAIN LINK FENCE
 - SPECIMEN TREE (TO BE REMOVED)
 - CRITICAL ROOT ZONE (CRZ)
 - FOREST CONSERVATION EASEMENT
 - SEPTIC RESERVE AREA
 - SANITARY PERCOLATION TEST HOLE
 - SOIL LABEL
 - SOIL BOUNDARY LINE
 - INTERIM E&S DRAINAGE AREA DIVIDE

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS				
REV	DATE	COMMENT	DESIGN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED FOR CONSTRUCTION DOCUMENTS UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: EAH-5

PROJECT: **FINAL ROAD PLAN**

FOR **LYHUS PROPERTY**
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

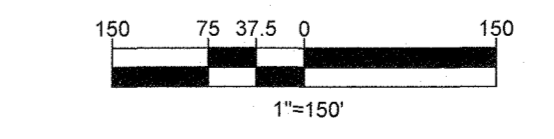
B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 10088-63022 (DATE: 03/2023)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 APPROVED: *[Signature]* 7/27/21
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

DEVELOPER'S CERTIFICATE
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONAL 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]*
 NAME: Mark L. Levy
 DATE: 7/19/2021

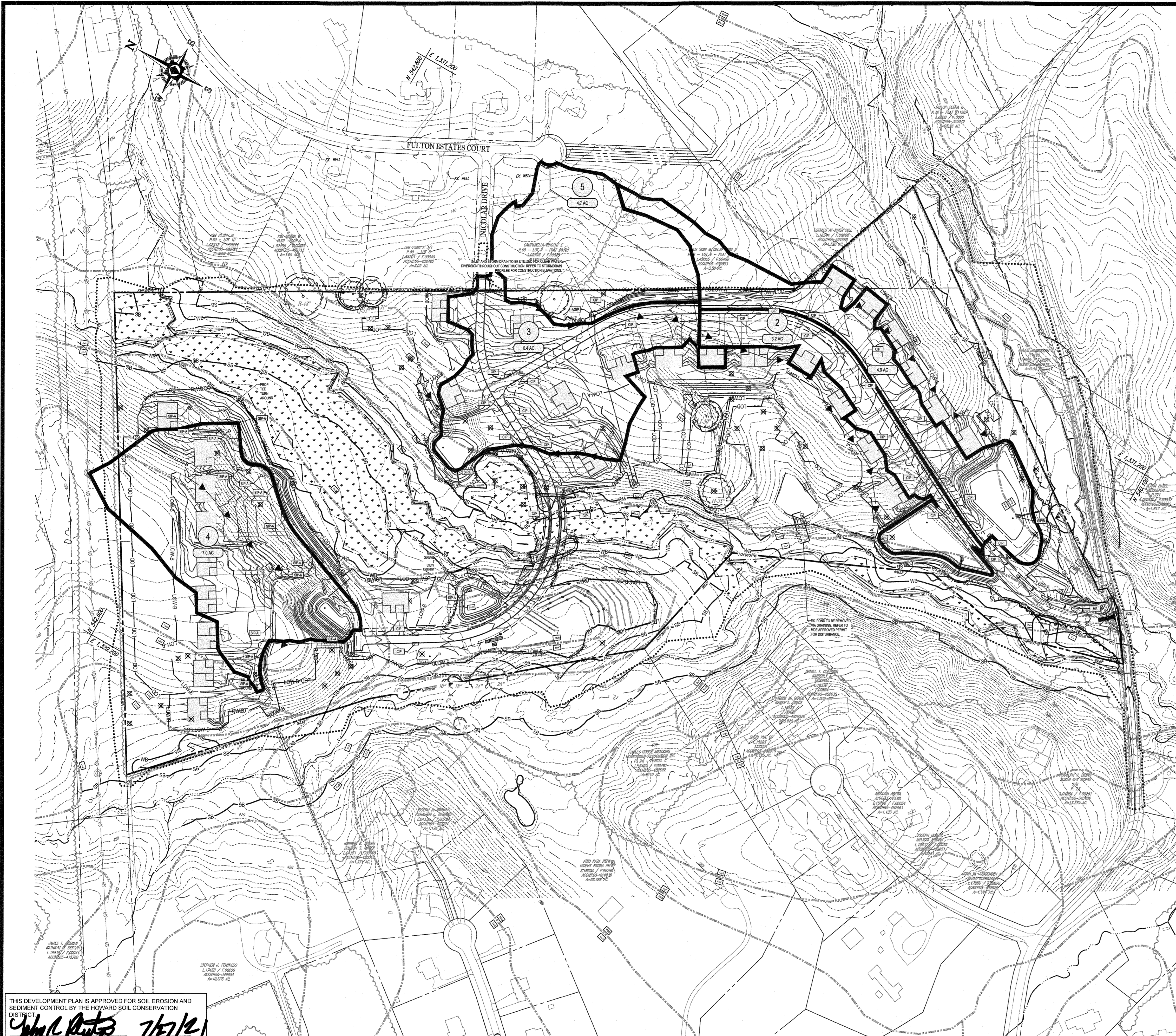
ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 SIGNATURE OF ENGINEER: *[Signature]*
 NAME: B. ROWE P.E.
 DATE: 7/27/21

INTERIM



SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED # 14532/00469	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	
PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	
TAX MAP: 40	GRID: 24	ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	PARCEL: 135	

SHEET TITLE: **INTERIM E&S DRAINAGE AREA MAPS**
 SHEET NUMBER: **19 OF 80**
 REVISION 5 - 07/07/2021



THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
James L. Fraser 7/17/21
APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE 10/12/2021
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF DIVISION OF LAND DEVELOPMENT DATE 12/11/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 10-18-21

DEVELOPER'S CERTIFICATE
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SOIL EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
SIGNATURE OF DEVELOPER (NAME): Mark L. Levy DATE 7/19/2021

ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
SIGNATURE OF ENGINEER BRANTON R. ROWE P.E. DATE 7/19/21

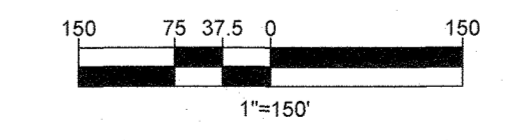
POST-DEVELOPMENT

SOILS TABLE

SOIL NAME	SOILS DESCRIPTION	HYDROLOGIC SOIL GROUP
BaA	BATTLE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D
GmC	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

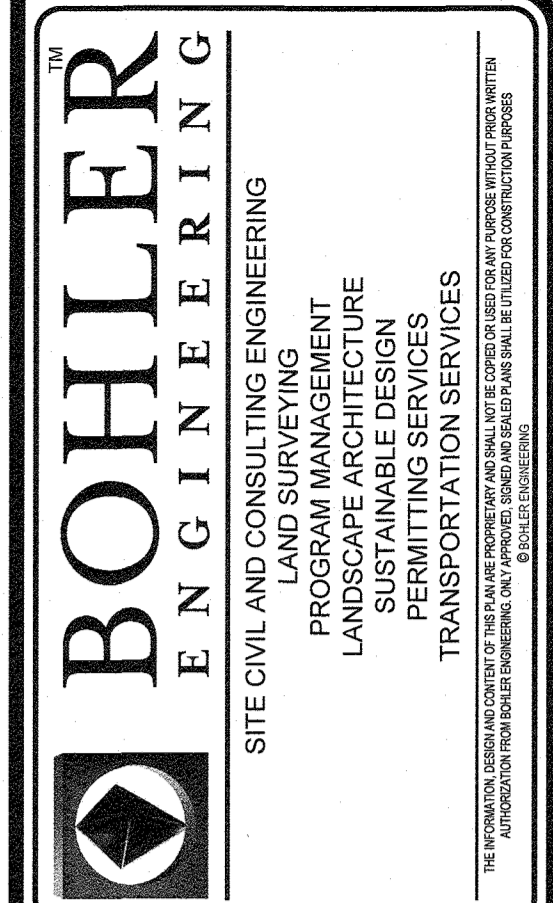
LEGEND

- PROPERTY LINE
- - - - - EXISTING CONTOUR
- - PROPOSED CONTOUR
- LOD-LOD- LIMIT OF DISTURBANCE
- - - - - WETLAND BUFFER LIMITS
- TFF- TFF- TREE PROTECTION FENCE
- RP- RP- ROOT PRUNING
- X-X- 6' HIGH CHAIN LINK FENCE
- CRITICAL ROOT ZONE (CRZ)
- ▨ FOREST CONSERVATION EASEMENT
- ▨ SEPTIC RESERVE AREA
- SANITARY PERCOLATION TEST HOLE
- D+E SOIL LABEL
- - - - - SOIL BOUNDARY LINE
- - - - - POST-DEVELOPMENT E&S DRAINAGE AREA DIVIDE



OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
26 H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKBRIDGE, MARYLAND 21075
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKBRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046
TAX MAP: 40 **GRID:** 24 **ZONED:** RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.:
SP-17-010p
EGP-17-356
WP-18-070



REVISIONS

REV	DATE	COMMENT	DRAWN BY

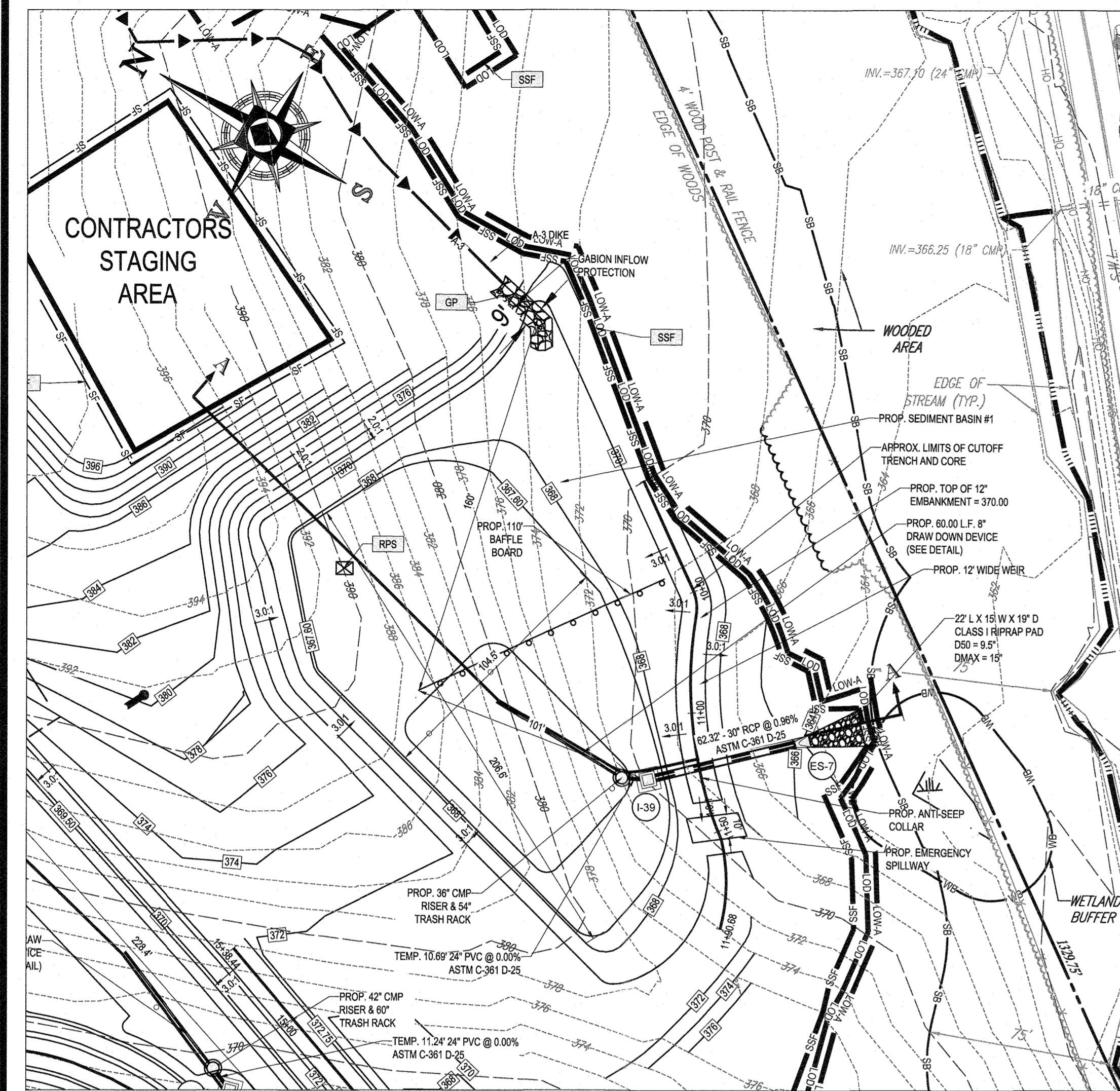
811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION
PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: EAH-S
FINAL ROAD PLAN
FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

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

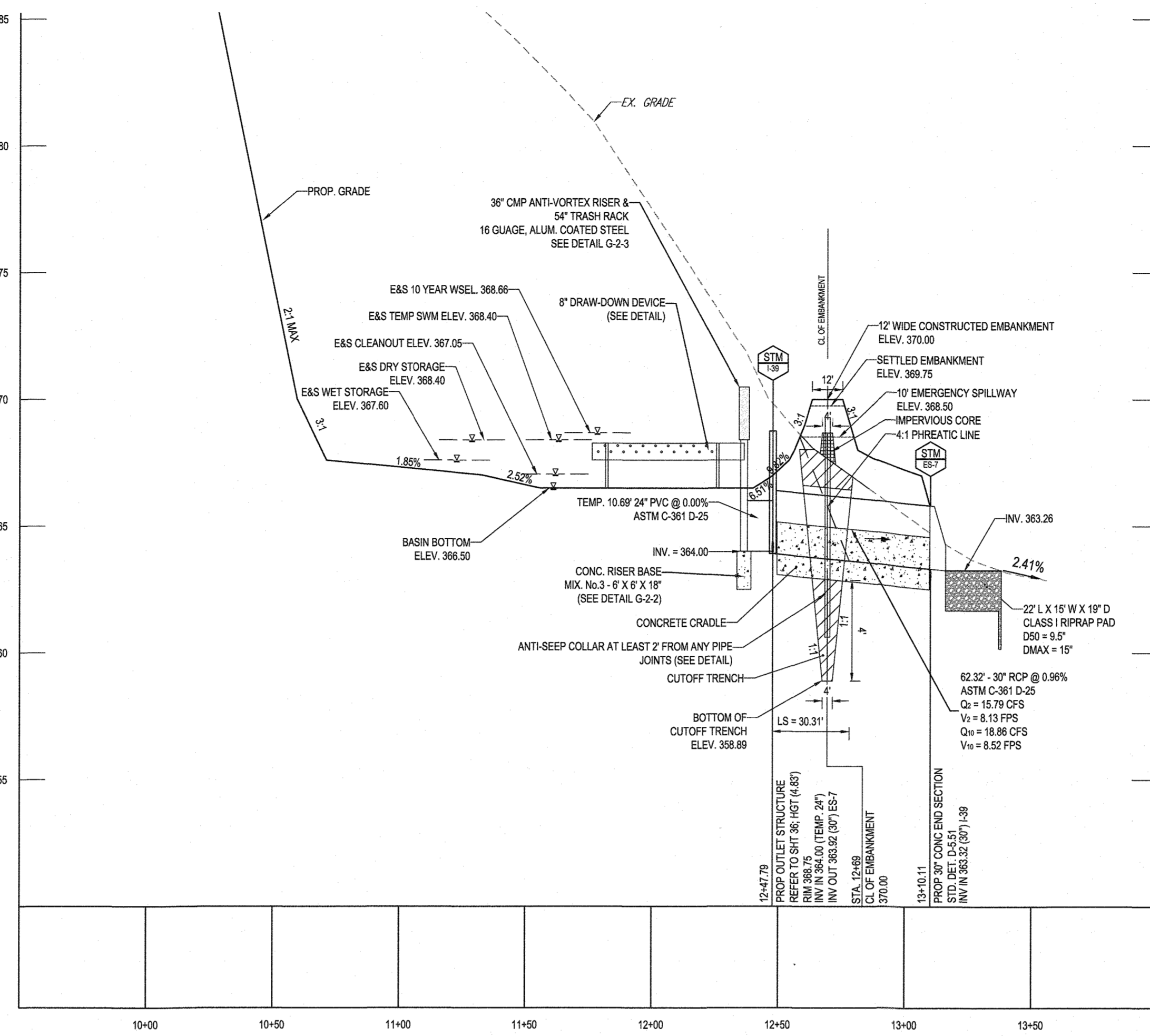
B.R. ROWE
PROFESSIONAL ENGINEER
BRANTON R. ROWE
LICENSE NO. 10886-028240709 (DATE: 10/20/23)

POST-DEVELOPMENT E&S DRAINAGE AREA MAPS
SHEET NUMBER:
20 OF 80
REVISION 5 - 07/07/2021



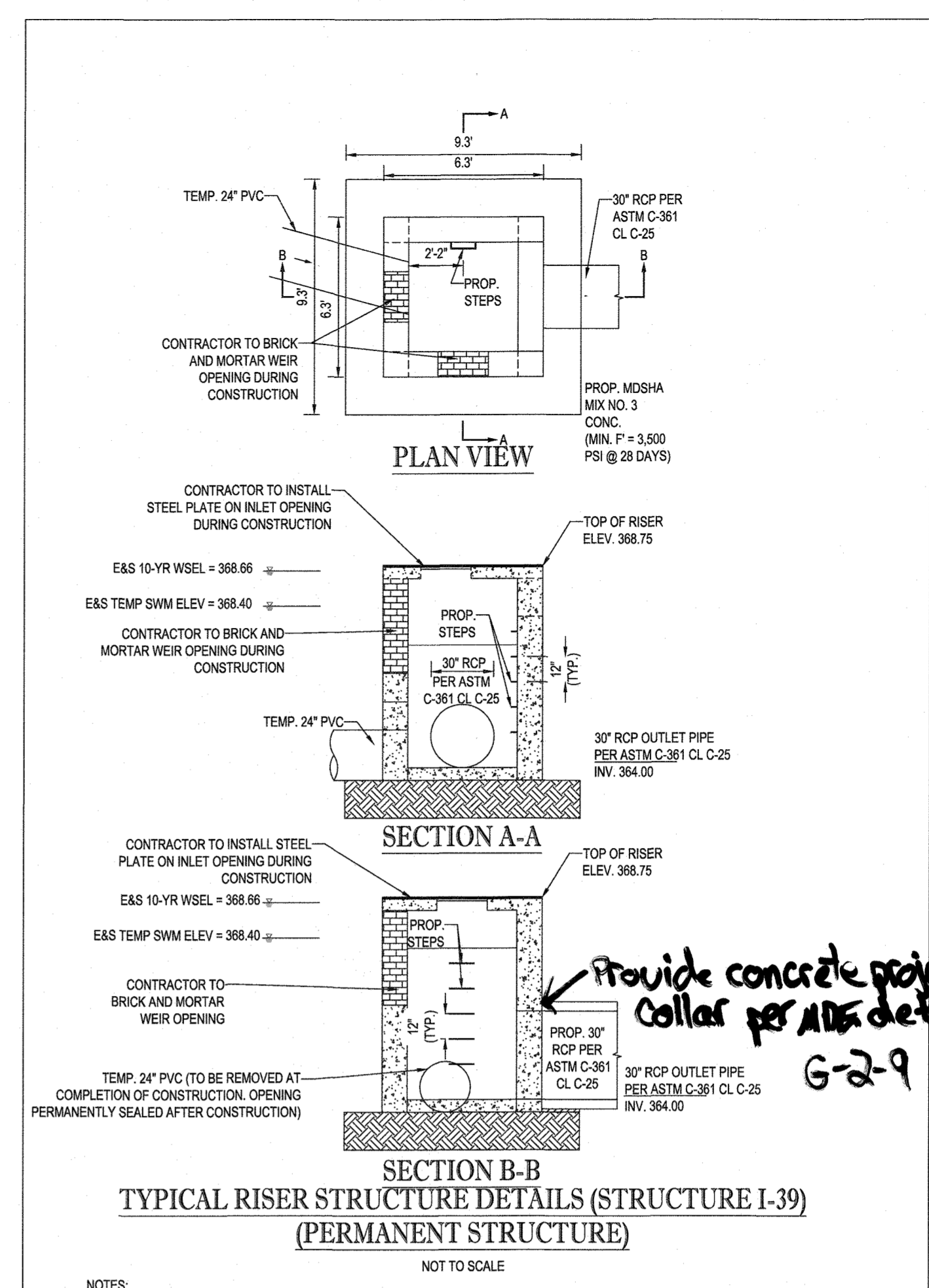
TEMPORARY SEDIMENT BASIN #1 SPILLWAY - PLAN

SCALE: 1" = 40'



TEMPORARY SEDIMENT BASIN #1 SPILLWAY - SECTION A-A

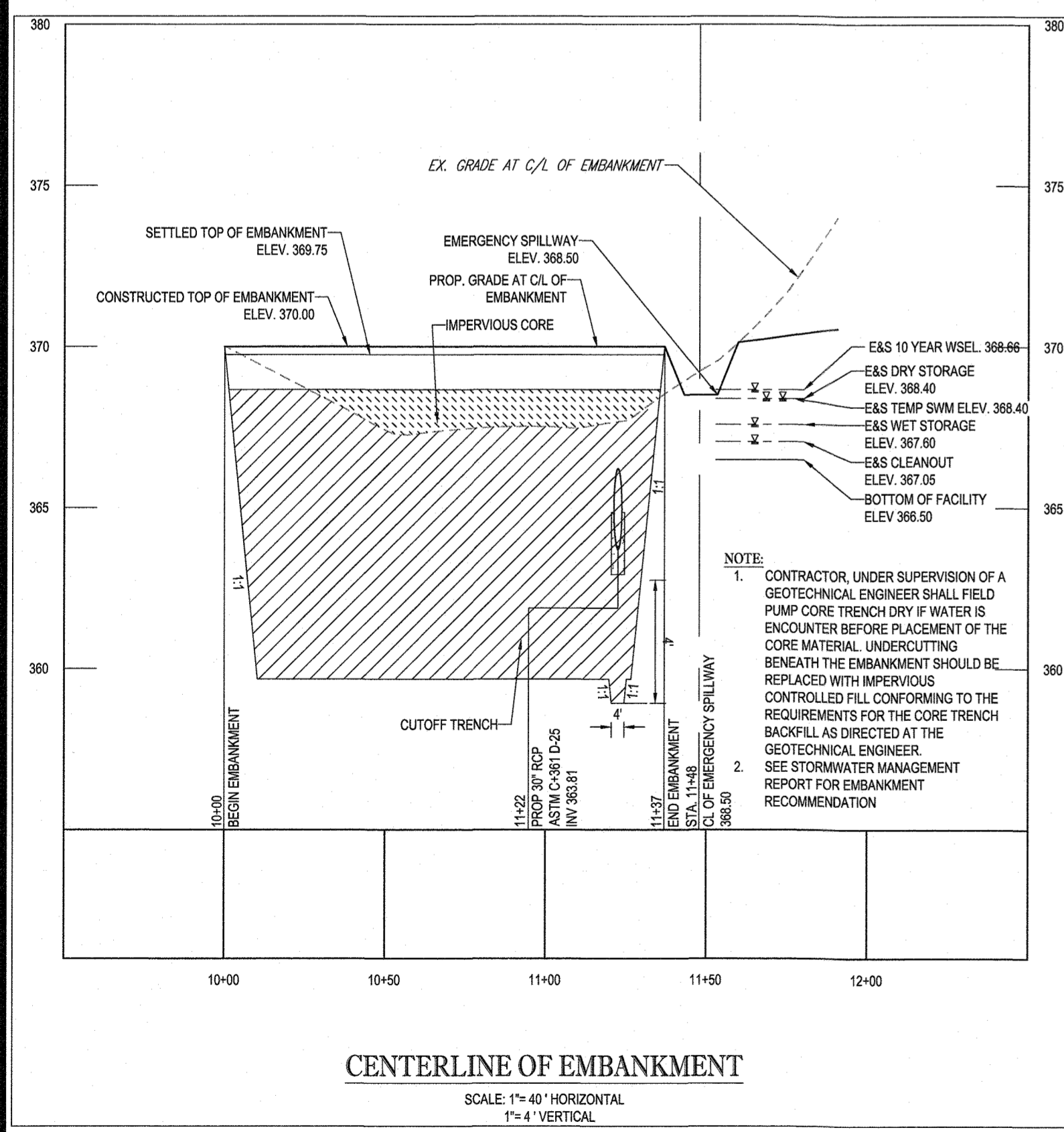
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE I-39)
(PERMANENT STRUCTURE)

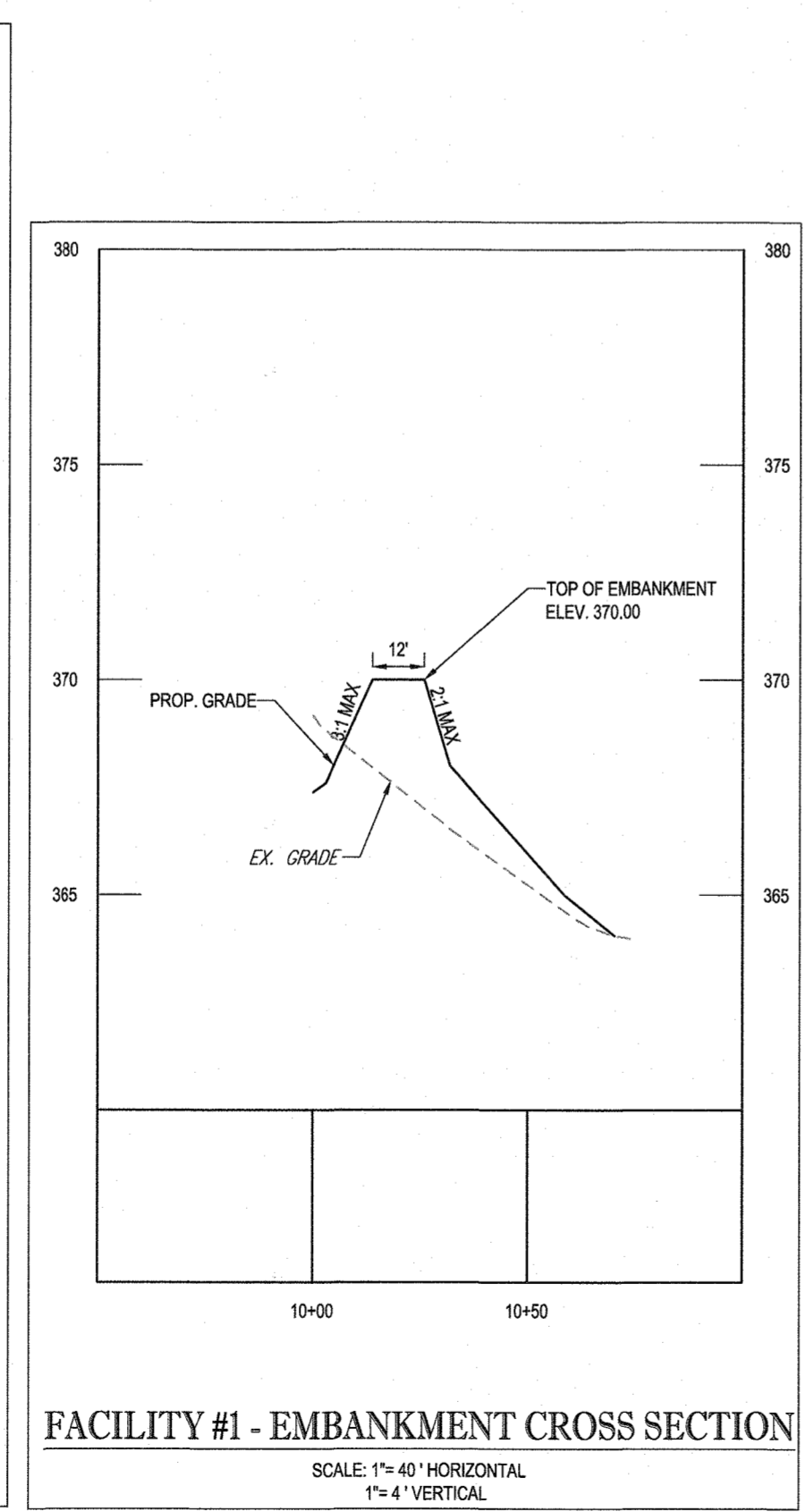
NOT TO SCALE

- NOTES:
1. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.
 2. RISER STRUCTURE TO BE CONSTRUCTED WITH SEDIMENT TRAP FOR OUTFALL, HOWEVER ALL WEIRS/SIFACES ARE TO BE BLOCKED DURING CONSTRUCTION. STRUCTURE NOT TO BE USED AS TEMPORARY DEWATERING OR DRAINAGE DEVICE FOR BASIN.
 3. RISER STRUCTURE WEIRS/SIFACES TO BE UNBLOCKED AT THE COMPLETION OF CONSTRUCTION.
 4. OUTFALL PIPE TO BE FLUSHED AFTER CONSTRUCTION.



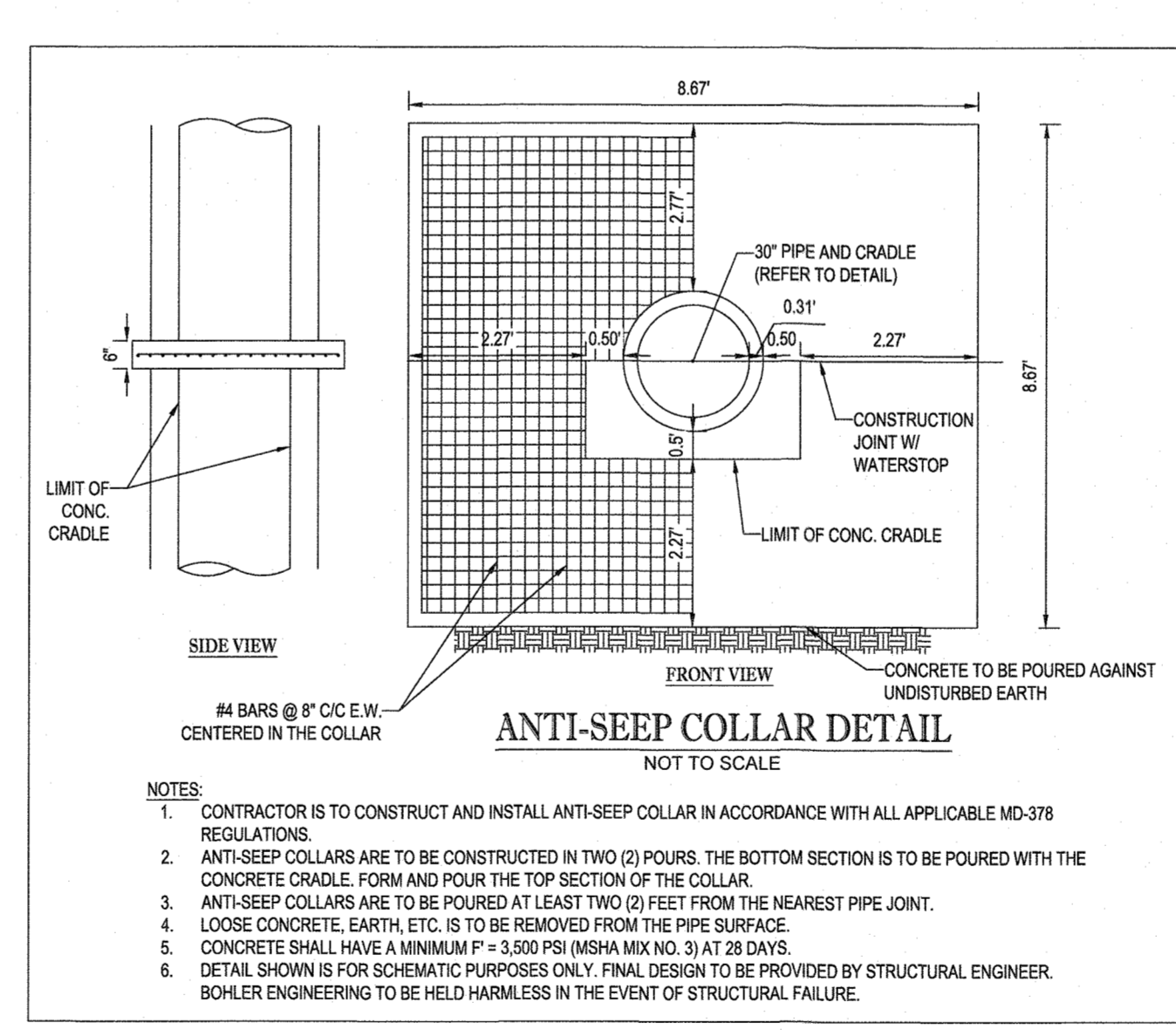
CENTERLINE OF EMBANKMENT

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



FACILITY #1 - EMBANKMENT CROSS SECTION

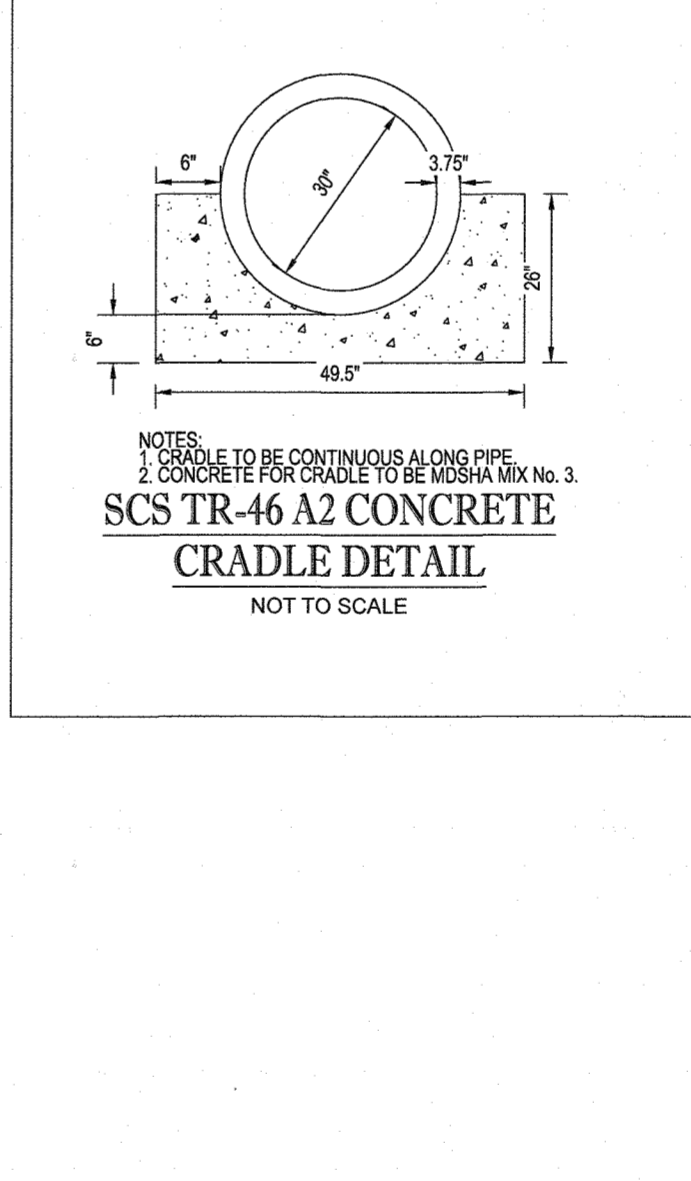
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



ANTI-SEEP COLLAR DETAIL

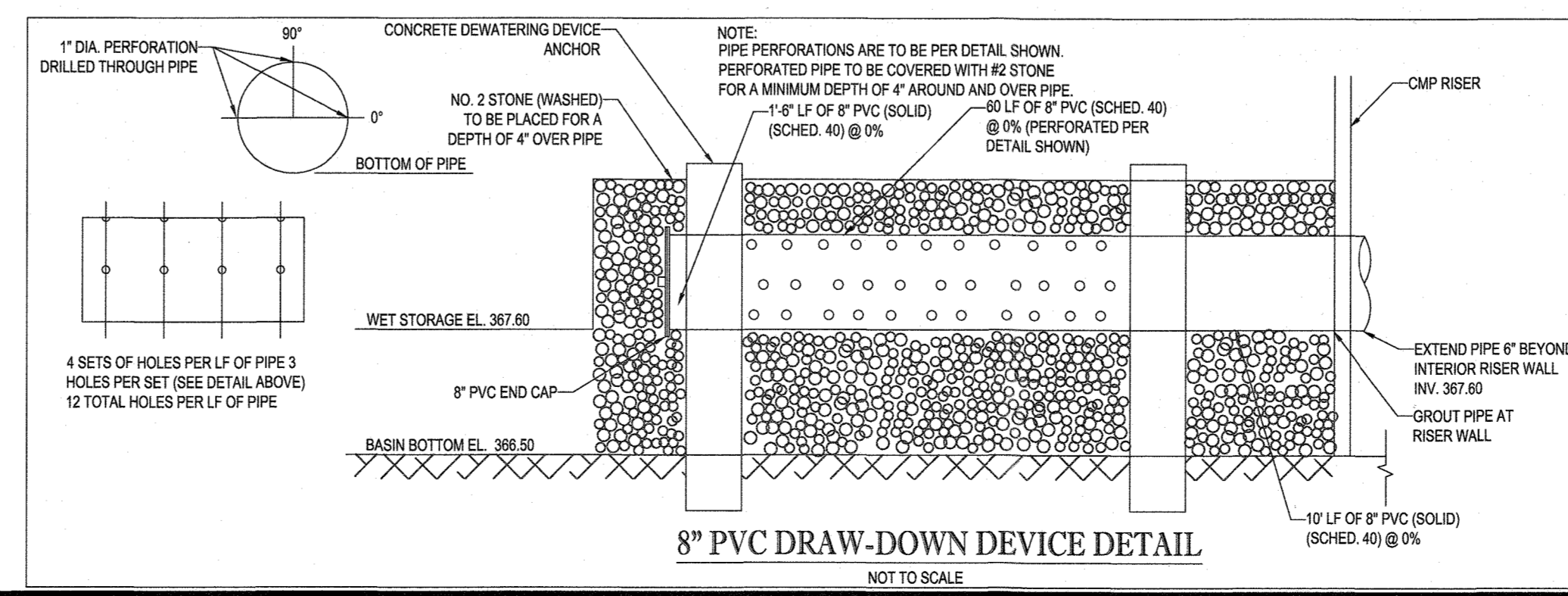
NOT TO SCALE

- NOTES:
1. CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 2. ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURD WITH THE CONCRETE CRADLE FORM AND POUR THE TOP SECTION OF THE COLLAR.
 3. ANTI-SEEP COLLARS ARE TO BE POURD AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 4. LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
 5. CONCRETE SHALL HAVE A MINIMUM F' = 3,500 PSI (MPSA MIX NO. 3) AT 28 DAYS.
 6. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



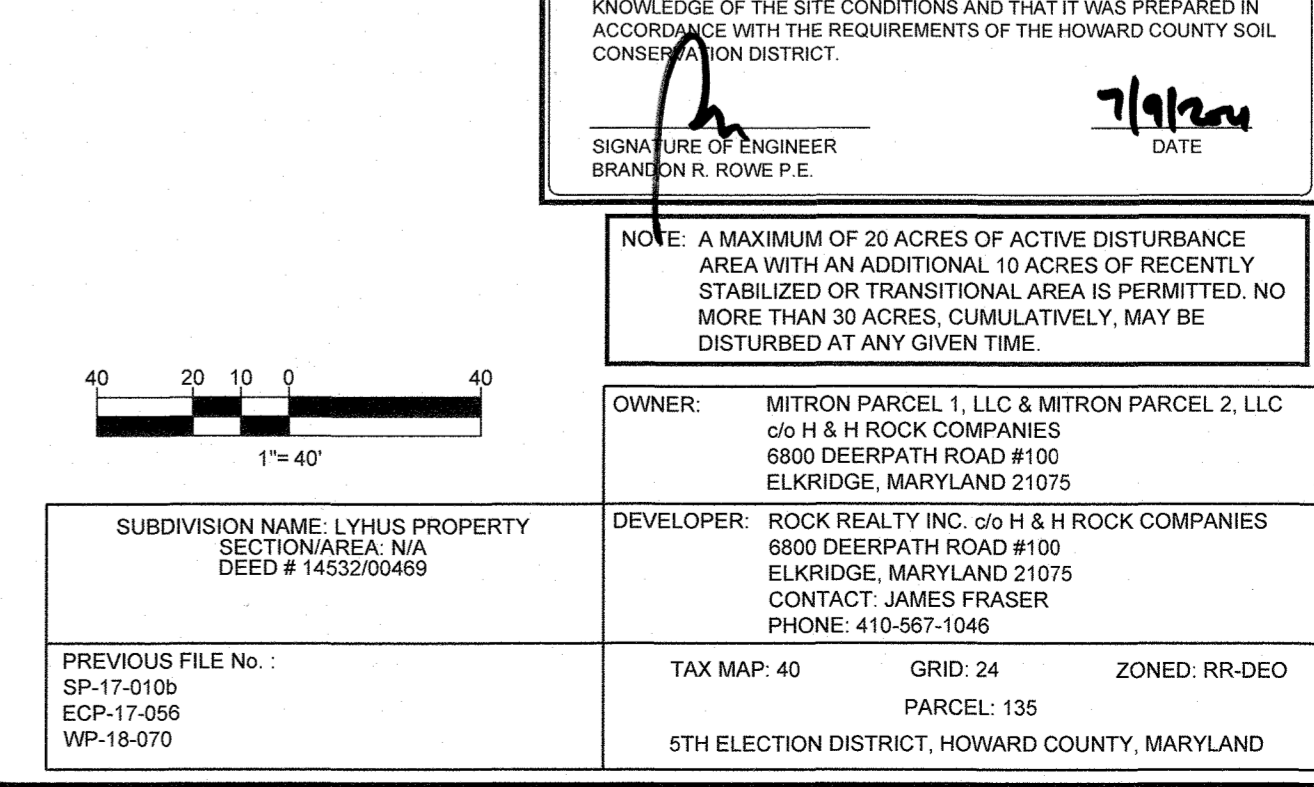
SCS TR-46 A2 CONCRETE CRADLE DETAIL

NOT TO SCALE



8" PVC DRAW-DOWN DEVICE DETAIL

NOT TO SCALE



PIPE OUTLET SEDIMENT BASIN BASIN NO. 1

DRAINAGE AREA - INITIAL	3.0	ACRES
DRAINAGE AREA - INTERIM	5.3	ACRES
DRAINAGE AREA - FINAL	4.9	ACRES
TOTAL STORAGE REQUIRED	19,080	CF
TOTAL STORAGE PROVIDED	26,975	CF
WET STORAGE REQUIRED	9,540	CF
WET STORAGE PROVIDED	11,163	CF
DRY STORAGE REQUIRED	9,540	CF
DRY STORAGE PROVIDED	15,812	CF
BASIN BOTTOM ELEVATION	366.50	FT
BASIN BOTTOM DIMENSIONS	VARIES - SEE PLANS	FT X FT
RISER CREST (DRY STORAGE) ELEVATION	369.40	FT
OUTLET (WET STORAGE) ELEVATION	367.60	FT
CLEANOUT ELEVATION	367.05	FT
TOP OF EMBANKMENT ELEVATION	370.00	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	12	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)	EARTH	
RISER DIAMETER	36	IN
BARREL DIAMETER	30	IN
TRASH RACK DIAMETER	54	IN
TRASH RACK HEIGHT	25	IN
ANTI-SEEP COLLAR DIMENSIONS	8.67 X 8.67	FT
OUTLET PROTECTION - LENGTH	13	FT
OUTLET PROTECTION - WIDTH	15	FT
OUTLET PROTECTION - DEPTH	19	IN

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER: [Signature]
DATE: 7/19/2021

NOTE: 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.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
TAX MAP: 40 GRID: 24 ZONED: RR-DEO
SP-17-010b PARCEL: 135
ECP-17-056 WP-18-070

APPROVED DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/12/2021

APPROVED DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10-18-21

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

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

SIGNATURE OF DEVELOPER: [Signature]
DATE: 7/19/2021

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS
REV. DATE COMMENT DRAWN BY CHECKED BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: ODB-5

PROJECT:
FINAL ROAD PLAN
FOR
LYHUS
PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL A
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

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

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

SIGNATURE OF ENGINEER: [Signature]
DATE: 7/19/2021

NOTE: 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.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
TAX MAP: 40 GRID: 24 ZONED: RR-DEO
SP-17-010b PARCEL: 135
ECP-17-056 WP-18-070

SUBDIVISION NAME: LYHUS PROPERTY
SECTION/AREA: N/A
DEED # 14532/00469

PREVIOUS FILE NO.:
SP-17-010b
ECP-17-056
WP-18-070

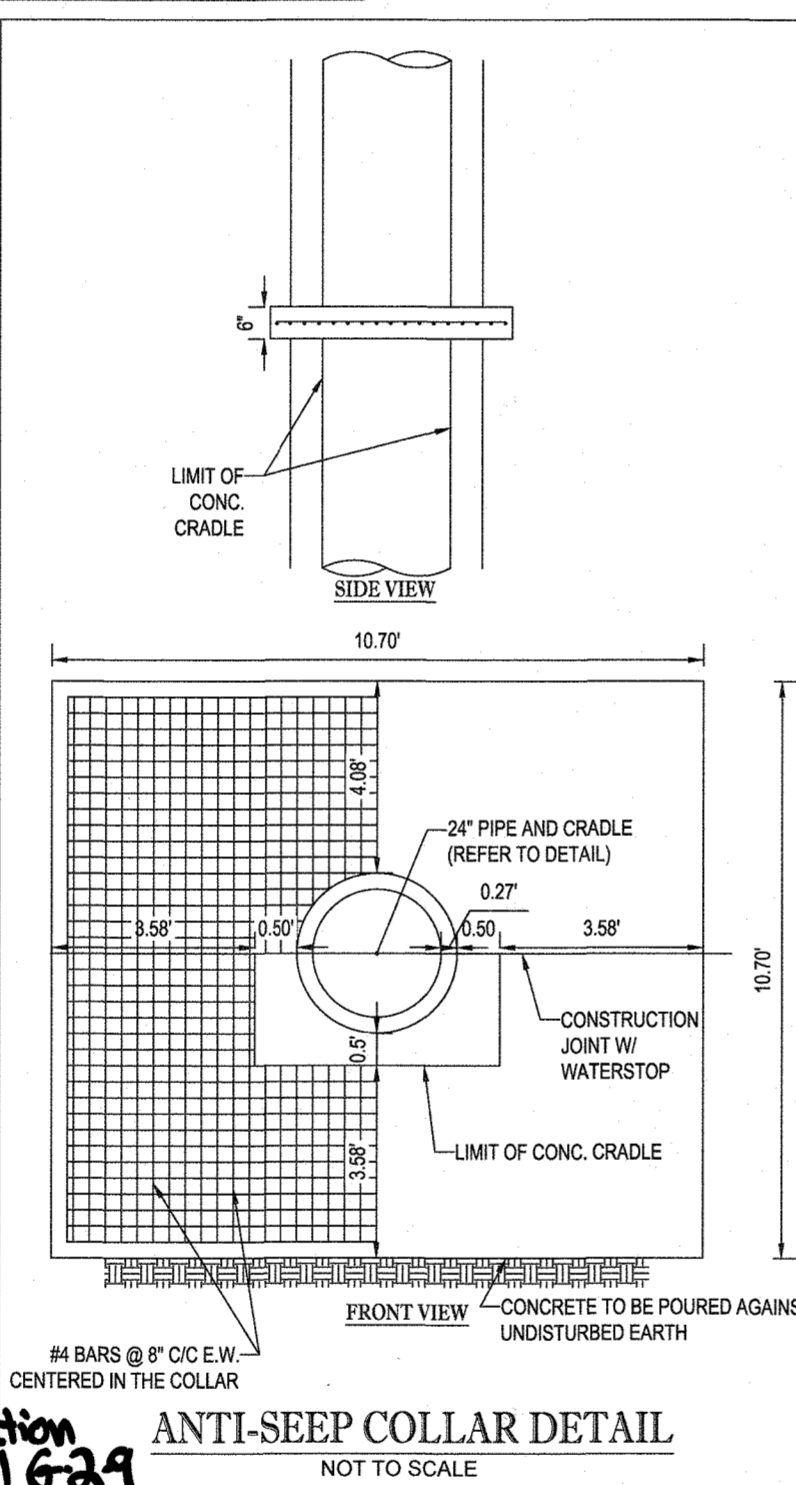
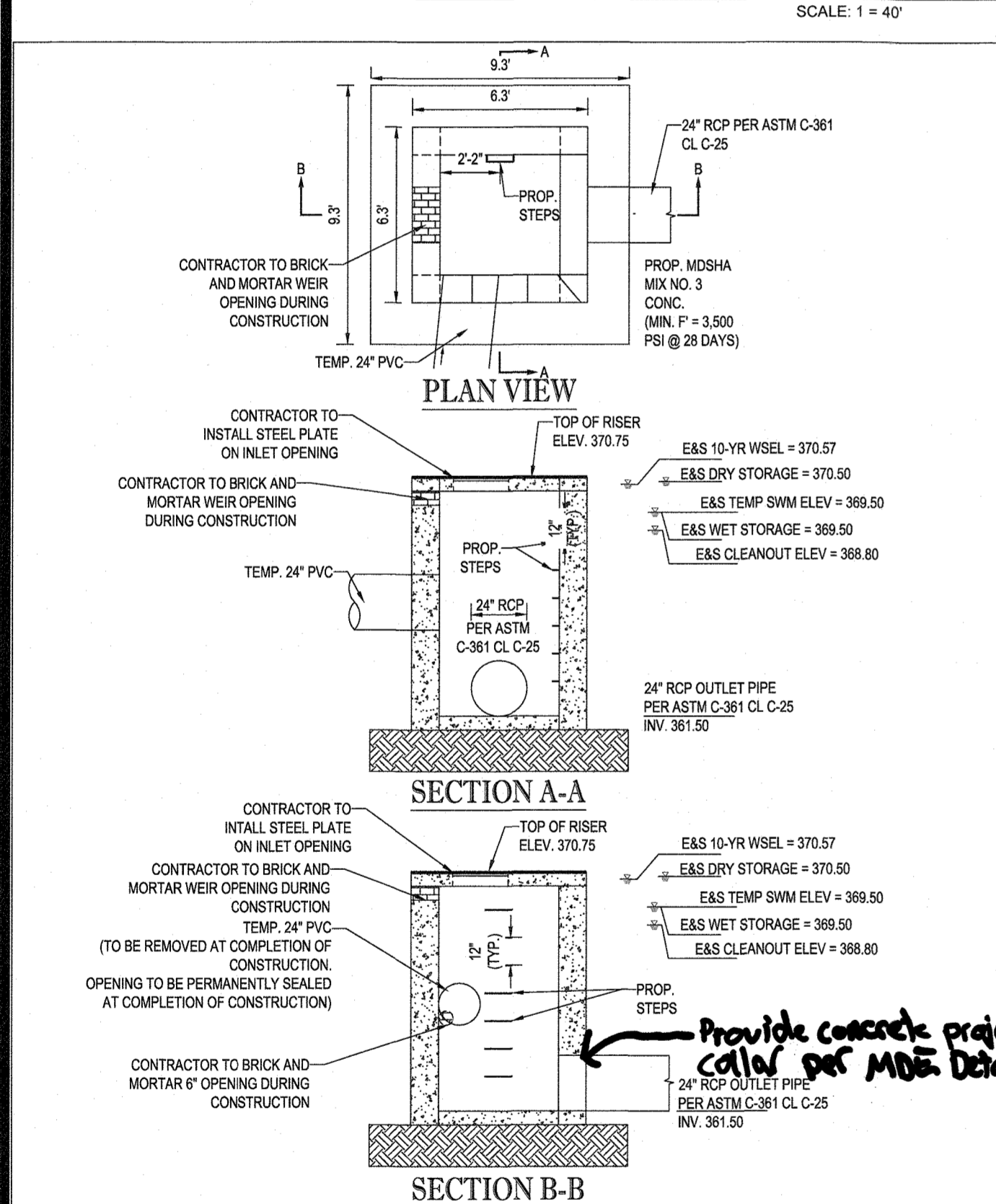
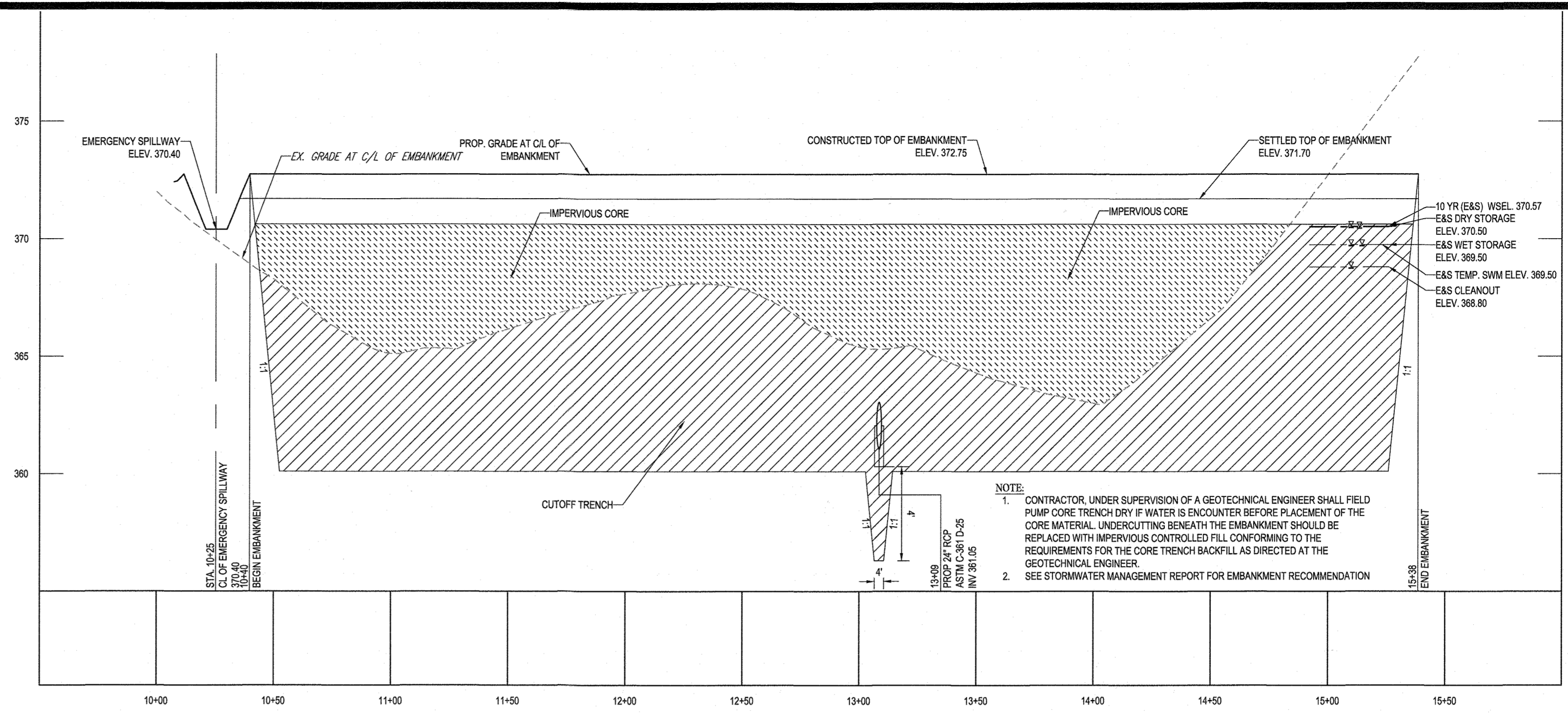
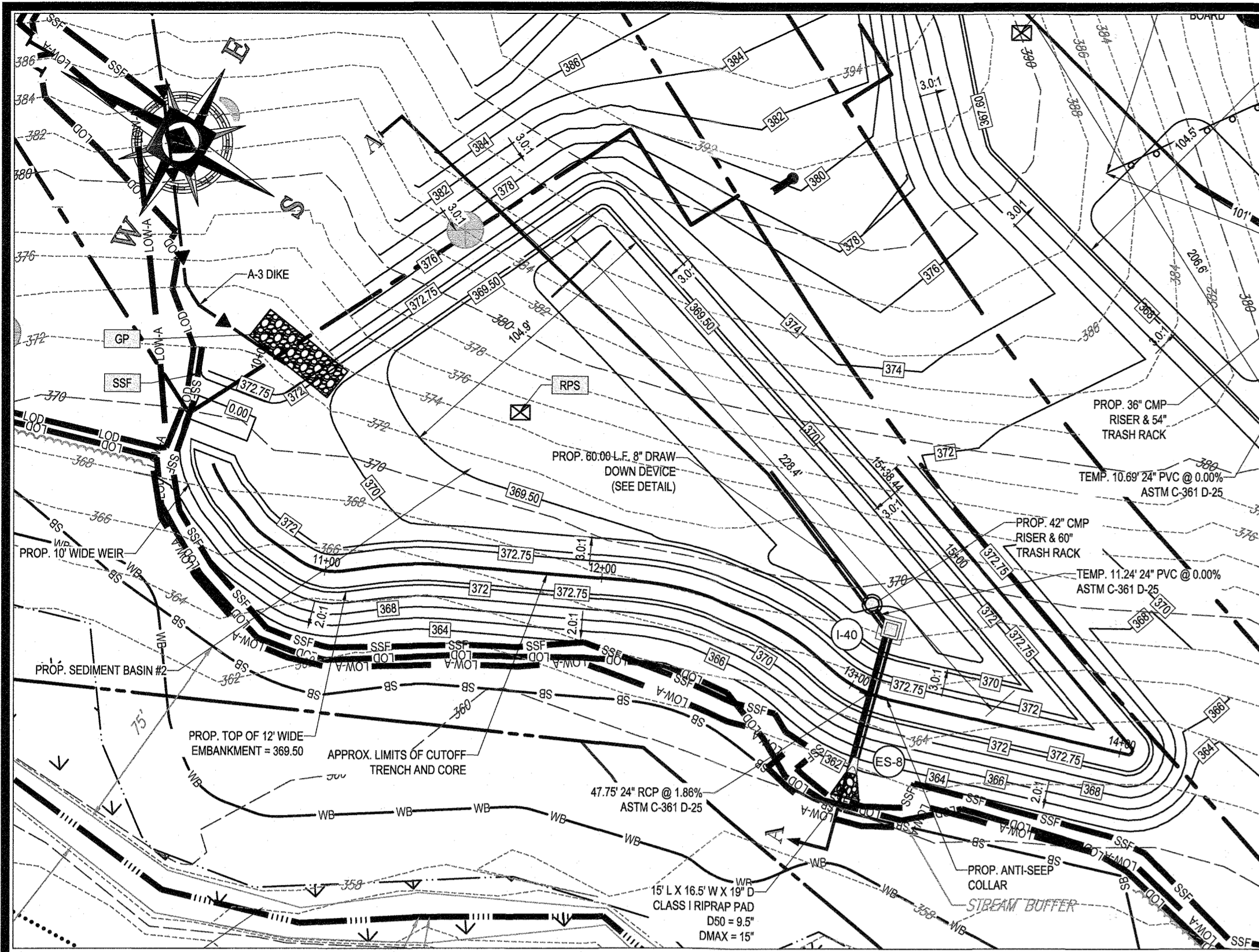
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SHEET TITLE:
EROSION & SEDIMENT CONTROL - PHASE I
SEDIMENT BASIN #1
PLAN, SECTION & DETAILS

SHEET NUMBER:
21 OF 80

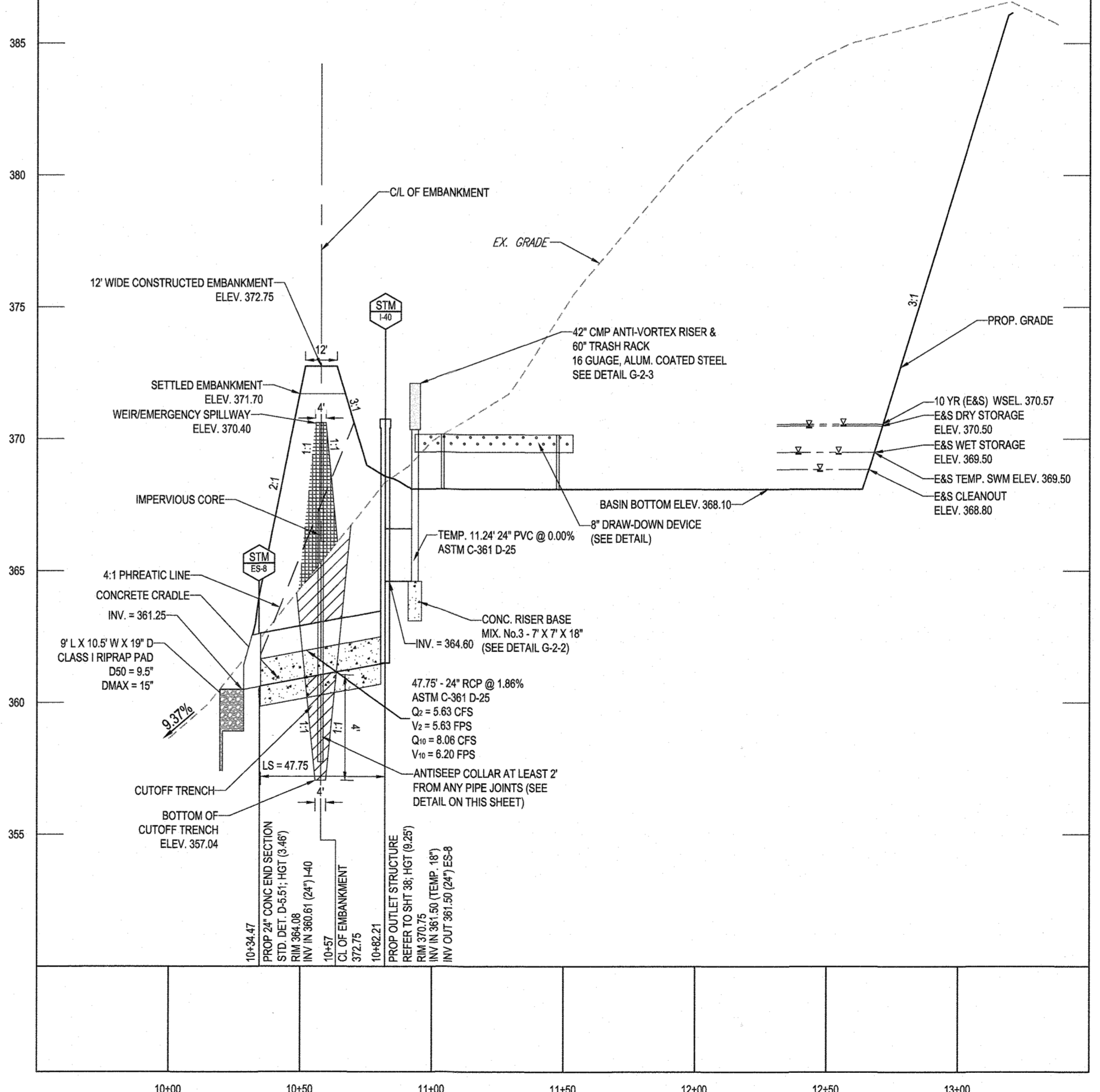
REVISION 6 - 07/07/2021

F-20-016



PIPE OUTLET SEDIMENT BASIN BASIN NO. 2

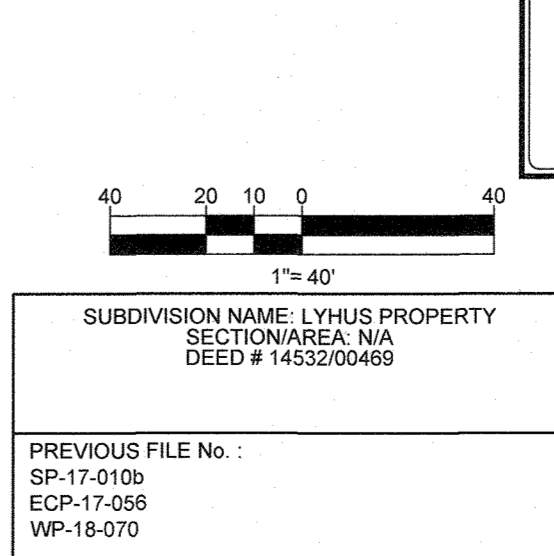
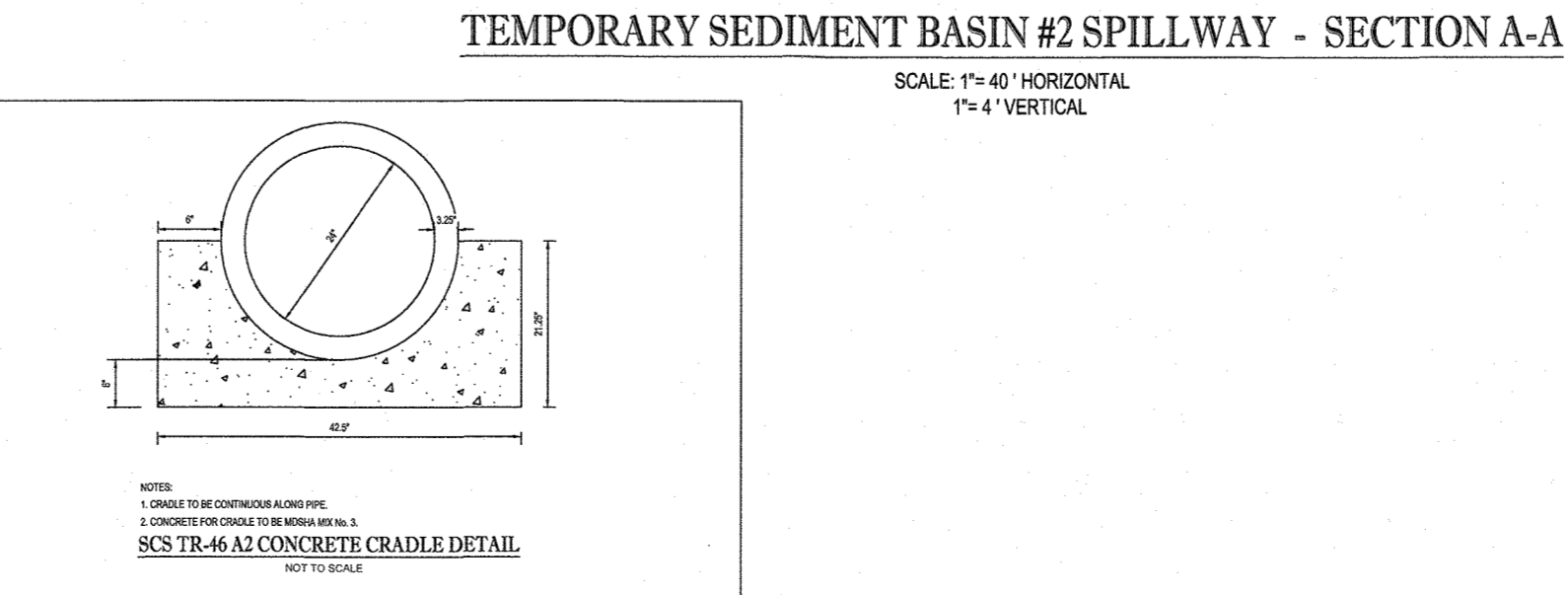
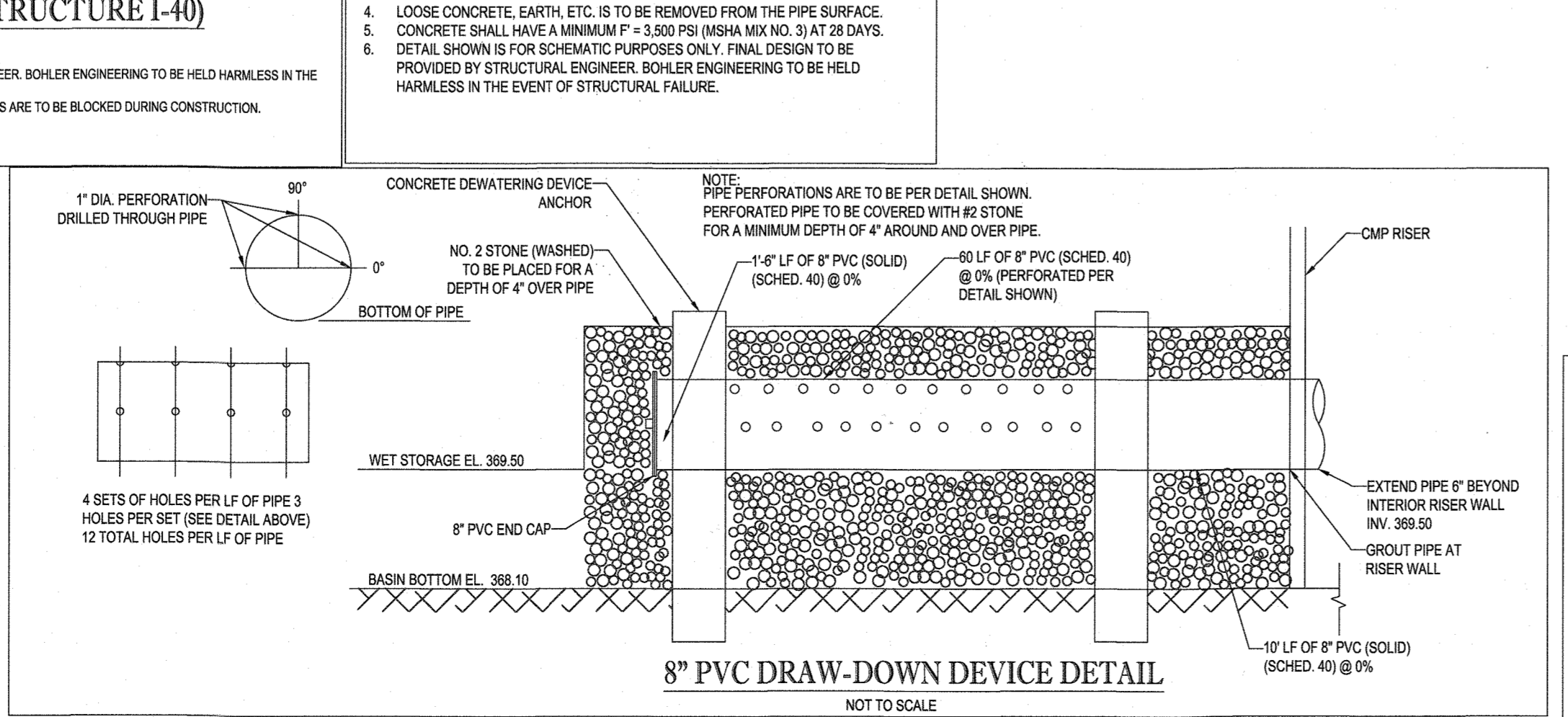
DRAINAGE AREA - INITIAL	7.5	ACRES
DRAINAGE AREA - INTERIM	4.1	ACRES
DRAINAGE AREA - FINAL	3.2	ACRES
TOTAL STORAGE REQUIRED	27,000	CF
TOTAL STORAGE PROVIDED	30,501	CF
WET STORAGE REQUIRED	13,500	CF
WET STORAGE PROVIDED	13,631	CF
DRY STORAGE REQUIRED	13,500	CF
DRY STORAGE PROVIDED	16,870	CF
BASIN BOTTOM ELEVATION	368.10	FT
BASIN BOTTOM DIMENSIONS	VARIABLES - SEE PLANS	FT X FT
RISER CREST (DRY STORAGE) ELEVATION	370.50	FT
OUTLET (WET STORAGE) ELEVATION	369.50	FT
CLEANOUT ELEVATION	368.80	FT
TOP OF EMBANKMENT ELEVATION	372.75	FT
BANK SLOPE	3:1	H:V RATIO
EMBANKMENT TOP WIDTH	12	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)	EARTH	
RISER DIAMETER	42	IN
BARREL DIAMETER	24	IN
TRASH RACK DIAMETER	60	IN
TRASH RACK HEIGHT	25	IN
ANTI-SEEP COLLAR DIMENSIONS	10.70 X 10.70	FT
ANTI-SEEP COLLAR LENGTH	15	FT
OUTLET PROTECTION - WIDTH	16.5	FT
OUTLET PROTECTION - DEPTH	19	IN



APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 10-13-21

CHIEF, DEVELOPMENT ENGINEERING DIVISION



ENGINEER'S CERTIFICATE

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

BRANDON R. ROWE
DATE: 7/9/2021

DEVELOPER'S CERTIFICATE

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

MARK L. LEVY
DATE: 7/9/2021

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
6800 DEERPATH ROAD #100
ELKBRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKBRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED FOR CONSTRUCTION DOCUMENTS UNLESS INDICATED OTHERWISE.

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: ODB-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

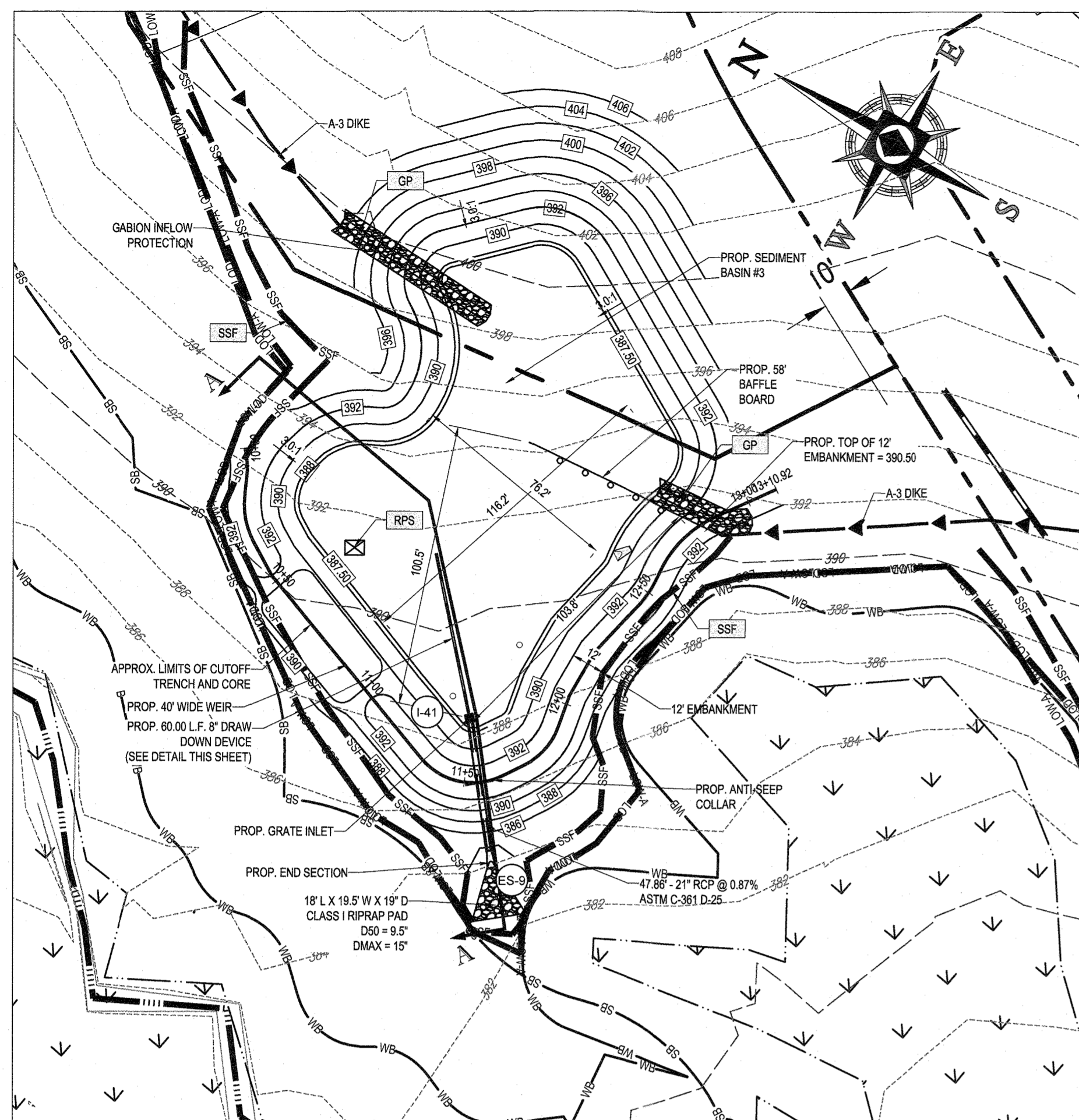
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
BRANDON R. ROWE, P.E.
LICENSE NO. 42966-022624 (DATE: 10/2023)

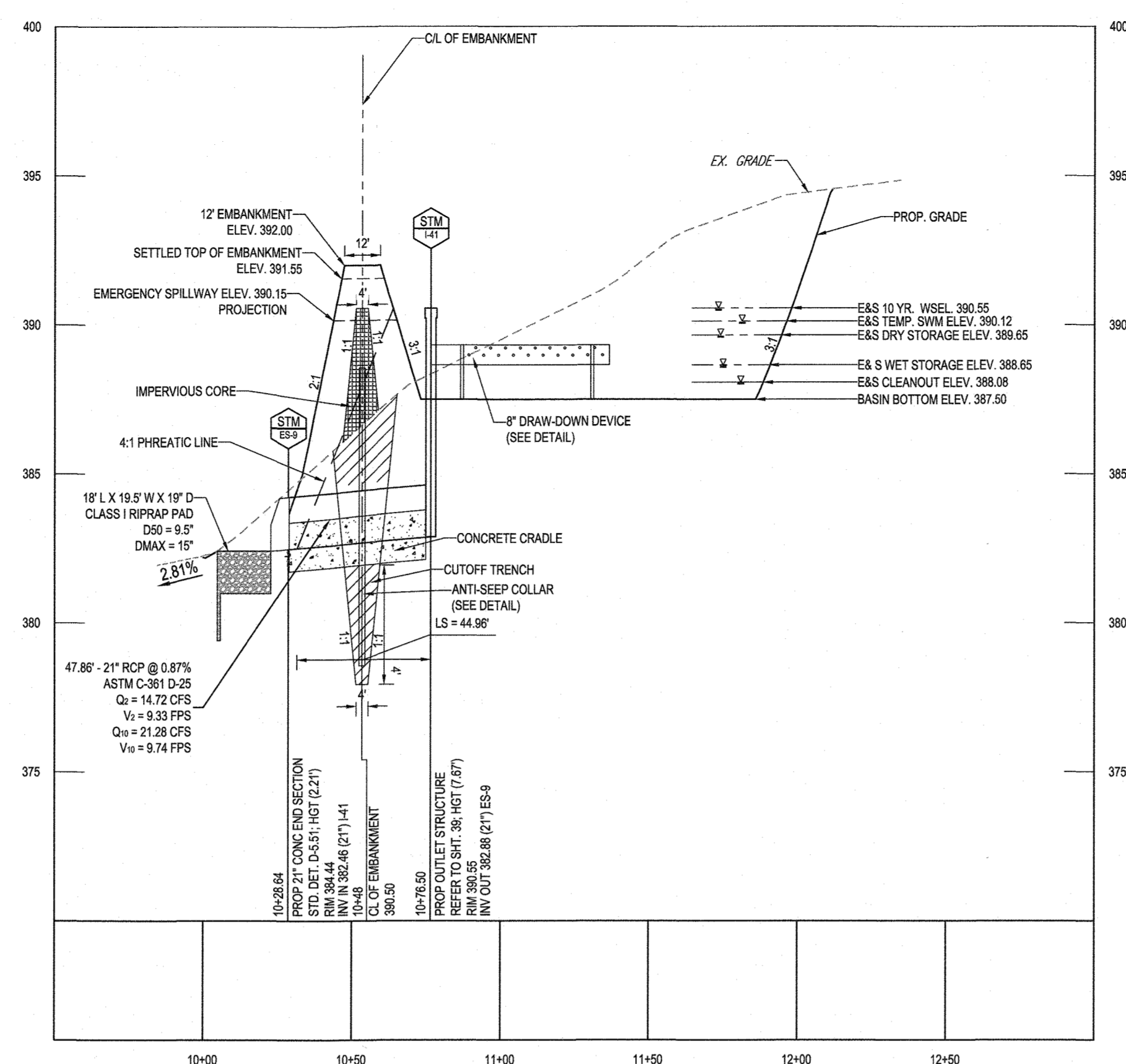
EROSION & SEDIMENT CONTROL - PHASE I
SEDIMENT BASIN #2
PLAN, SECTION & DETAILS

SHEET NUMBER:
22 OF 80

REVISION 5 - 07/07/2021

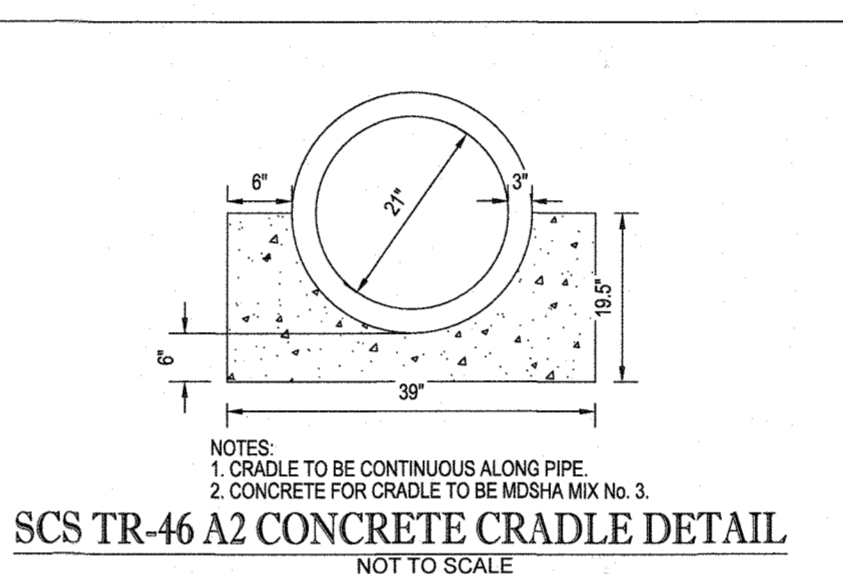


TEMPORARY SEDIMENT BASIN #3 SPILLWAY - PLAN
SCALE: 1" = 40'

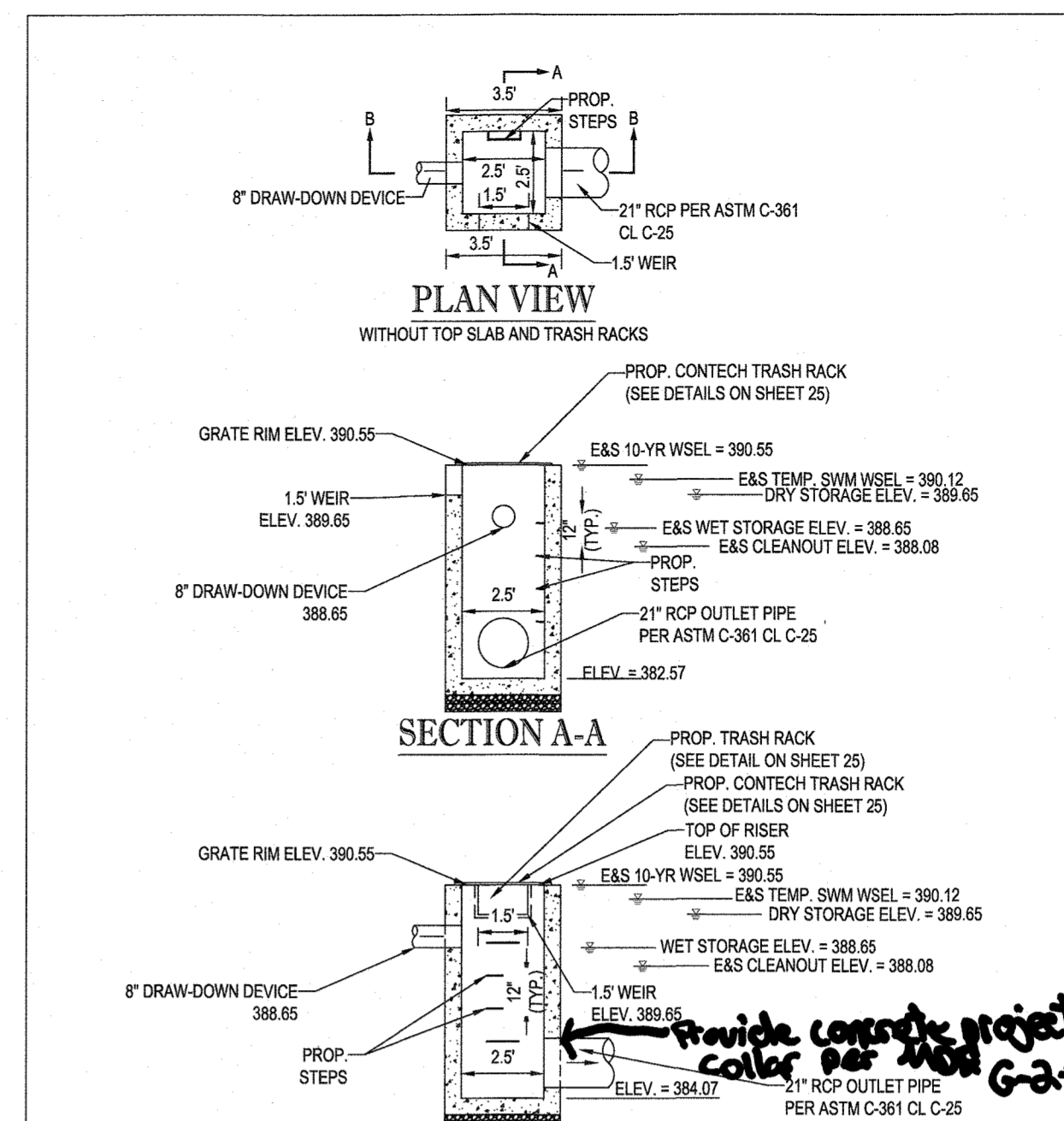


TEMPORARY SEDIMENT BASIN #3 - SECTION A-A
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

PIPE OUTLET SEDIMENT BASIN BASIN NO. 3		
DRAINAGE AREA - INITIAL	5.7	ACRES
DRAINAGE AREA - INTERIM	7.9	ACRES
DRAINAGE AREA - FINAL	6.4	ACRES
TOTAL STORAGE REQUIRED	28,440	CF
TOTAL STORAGE PROVIDED	29,524	CF
WET STORAGE REQUIRED	14,220	CF
WET STORAGE PROVIDED	14,902	CF
DRY STORAGE REQUIRED	14,220	CF
DRY STORAGE PROVIDED	14,622	CF
BASIN BOTTOM ELEVATION	387.50	FT
BASIN BOTTOM DIMENSIONS	VARIES - SEE PLANS	FT X FT
RISER CREST (DRY STORAGE) ELEVATION	389.65	FT
OUTLET (WET STORAGE) ELEVATION	388.65	FT
CLEANOUT ELEVATION	388.08	FT
TOP OF EMBANKMENT ELEVATION	392.00	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	12	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)	EARTH	
RISER DIAMETER	N/A	IN
BARREL DIAMETER	21	IN
TRASH RACK DIAMETER	N/A	IN
TRASH RACK HEIGHT	N/A	IN
ANTI-SEEP COLLAR DIMENSIONS	9.99 X 9.99	FT
OUTLET PROTECTION - LENGTH	18	FT
OUTLET PROTECTION - WIDTH	19.5	FT
OUTLET PROTECTION - DEPTH	19	IN

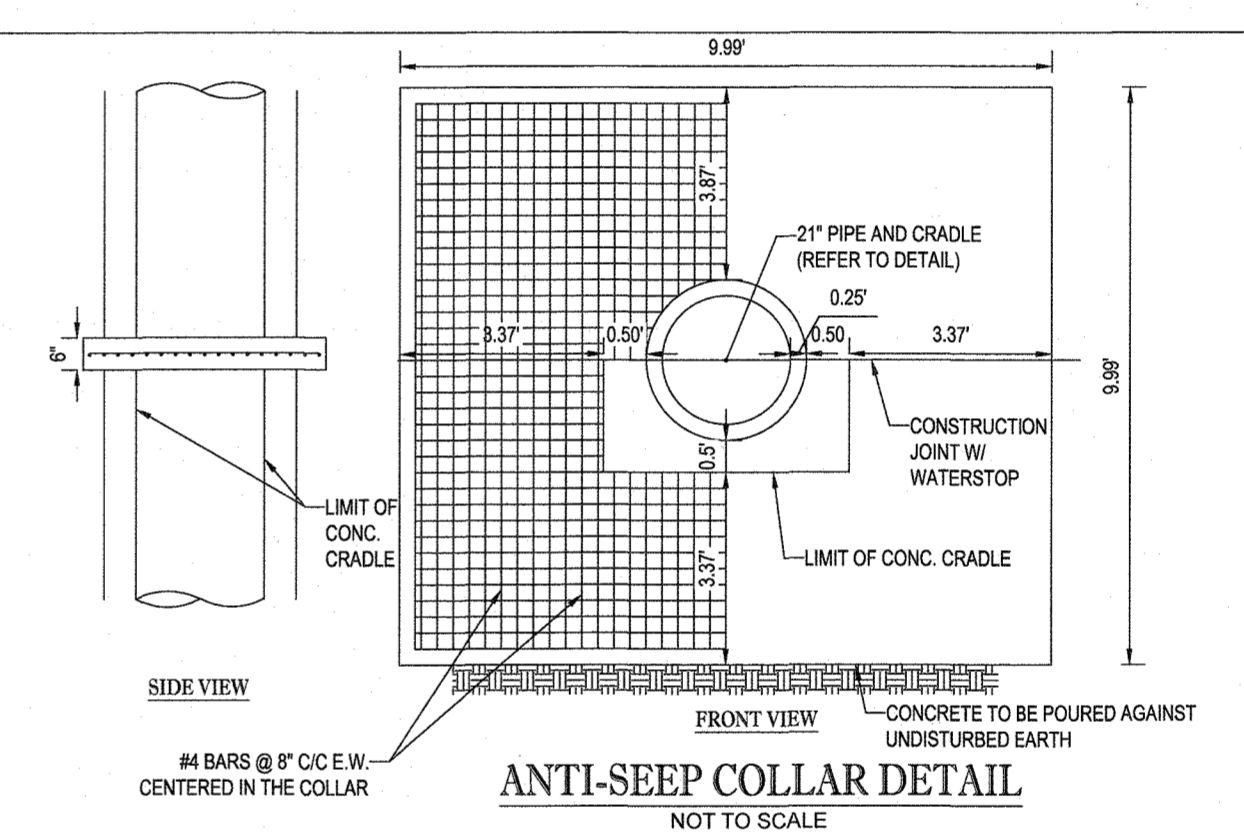


SCS TR-46 A2 CONCRETE CRADLE DETAIL
NOT TO SCALE



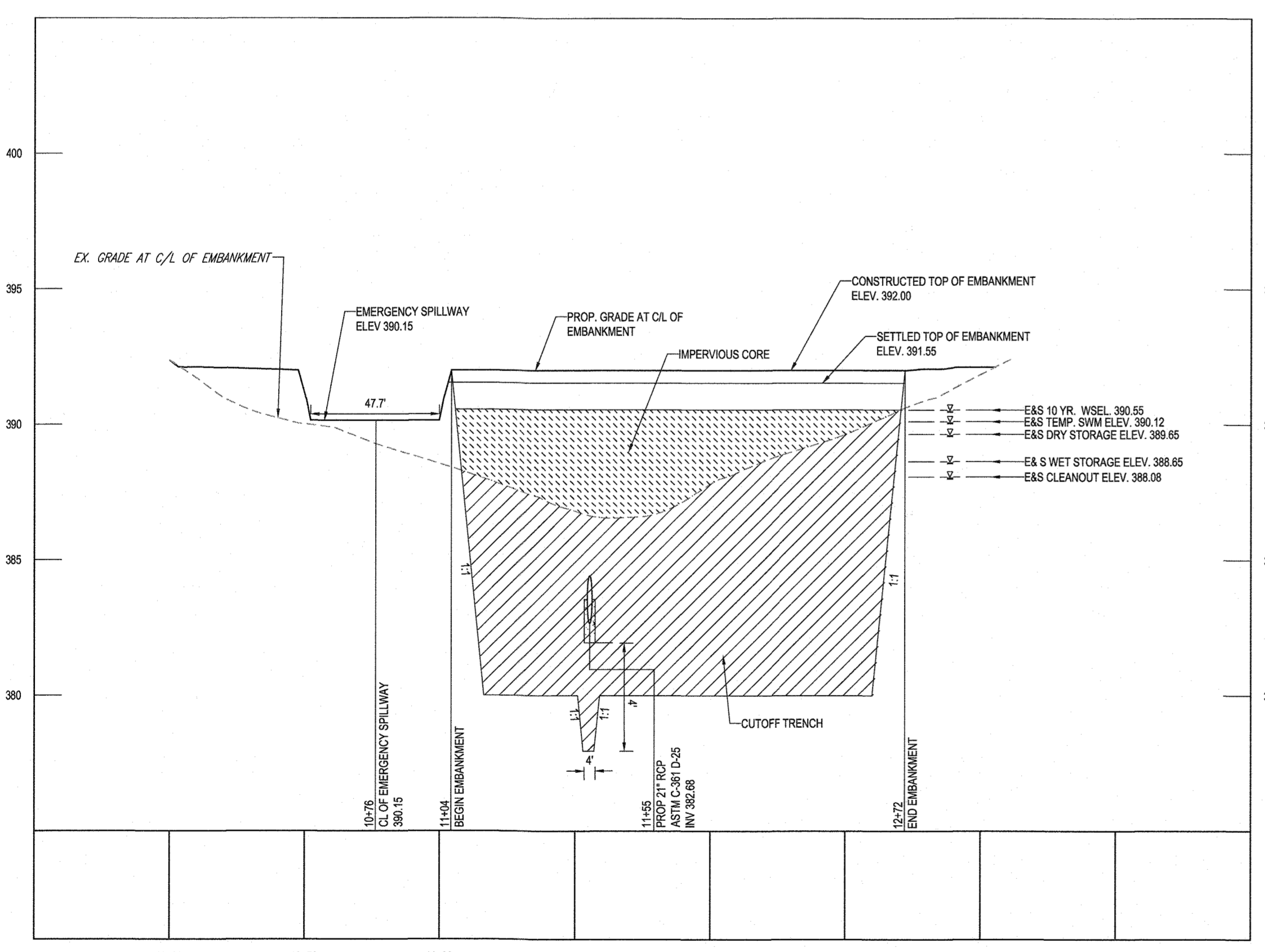
RISER STRUCTURE DETAILS (STRUCTURE I-4)
NOT TO SCALE

- NOTES:
- MODIFIED HOWARD COUNTY PRECAST YARD INLET (STD. D-4.12)
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER, BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

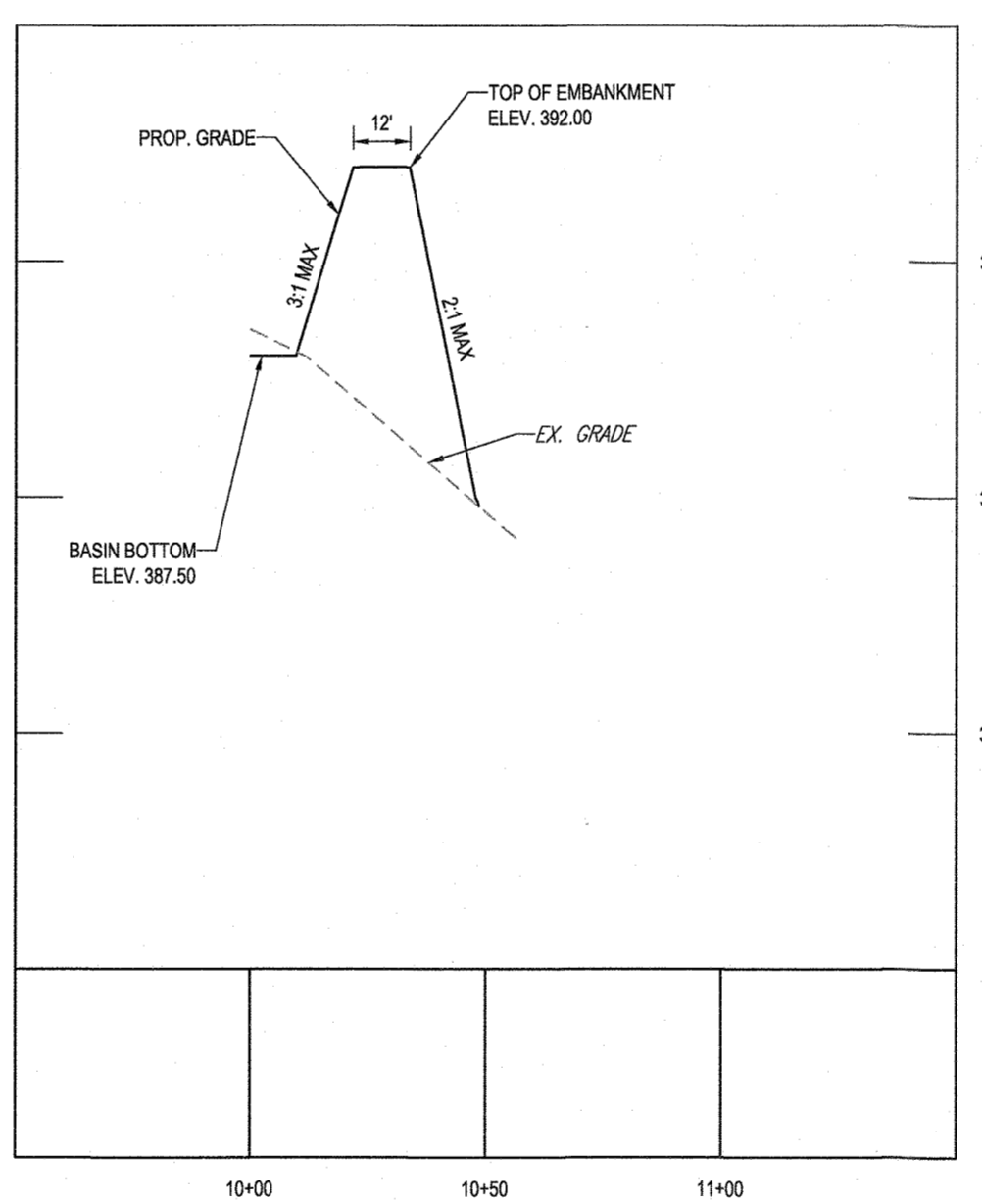


ANTI-SEEP COLLAR DETAIL
NOT TO SCALE

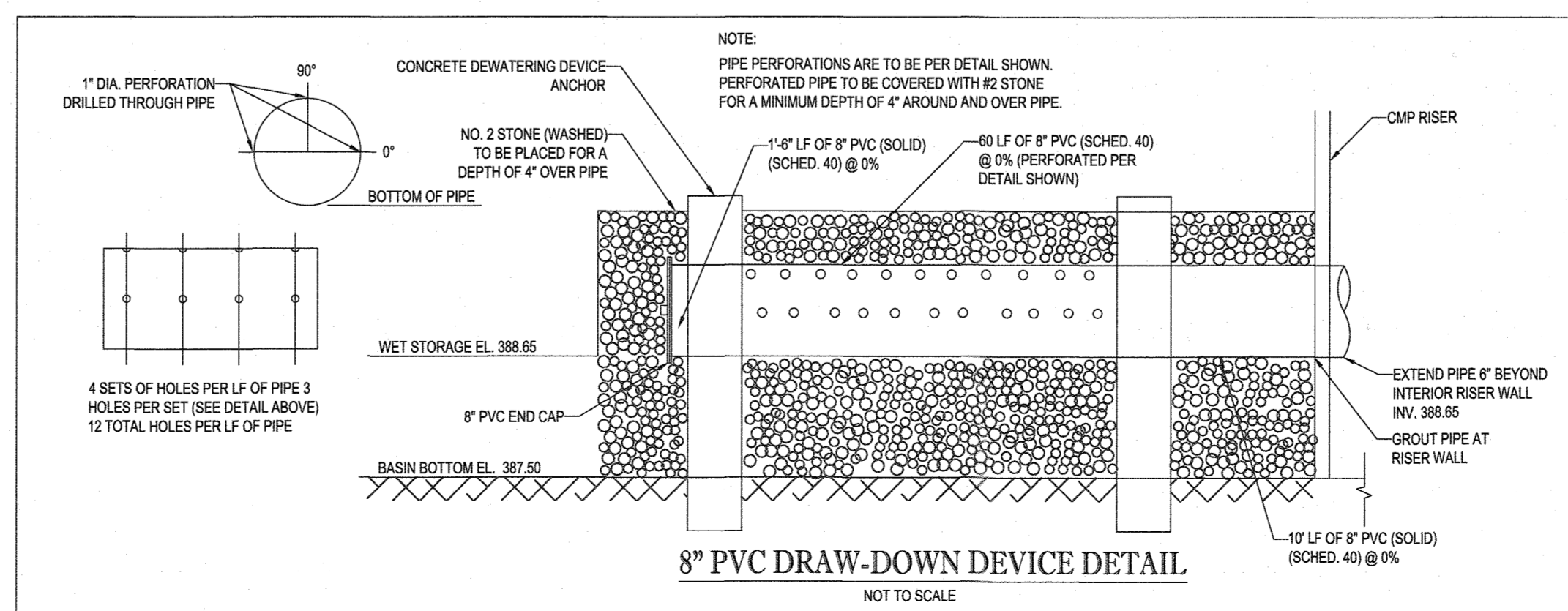
- NOTES:
- CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 - ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE, FORM AND POUR THE TOP SECTION OF THE COLLAR.
 - ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 - LOOSE CONCRETE, EARTH, ETC IS TO BE REMOVED FROM THE PIPE SURFACE.
 - CONCRETE SHALL HAVE A MINIMUM F' = 3,500 PSI (MSHA MIX NO. 3) AT 28 DAYS.
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER, BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



FACILITY #3 - CENTERLINE OF EMBANKMENT
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



FACILITY #3 - EMBANKMENT CROSS SECTION - (8)
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



8" PVC DRAW-DOWN DEVICE DETAIL
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
10/12/2021
CHIEF, BUREAU OF HIGHWAYS
APPROVED: DEPARTMENT OF PLANNING AND ZONING
10/18/21
CHIEF, DIVISION OF LAND DEVELOPMENT
CHIEF, DEVELOPMENT ENGINEERING DIVISION

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
7/27/21

DEVELOPER'S CERTIFICATE
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONAL 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.
7/19/2021
SIGNATURE OF DEVELOPER: Mark L. Levy
DATE

ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
10/12/21
SIGNATURE OF ENGINEER: Brandon R. Rowe P.E.
DATE
OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
DEVELOPER: ROCK REALTY INC. & H & H ROCK COMPANIES
SUBDIVISION NAME: LYHUS PROPERTY
PREVIOUS FILE NO.: SP-17-010b
TAX MAP: 40
GRID: 24
ZONED: RR-DEO
EGP-17-056
PARCEL: 135
WP-18-070
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

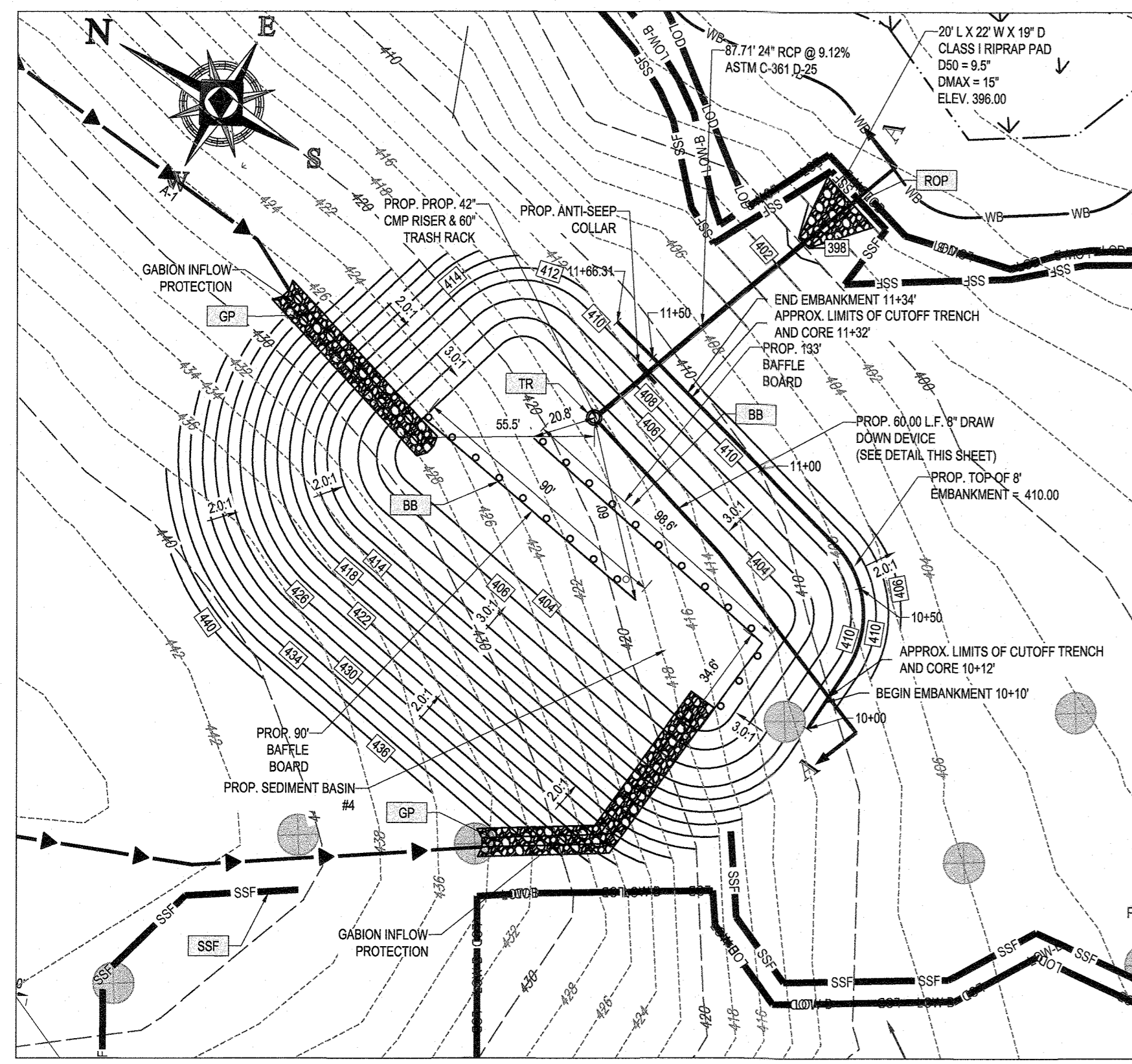
NOT APPROVED FOR CONSTRUCTION
PROJECT NO.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: ODB-S

PROJECT: FINAL ROAD PLAN
FOR LYHUS PROPERTY
PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

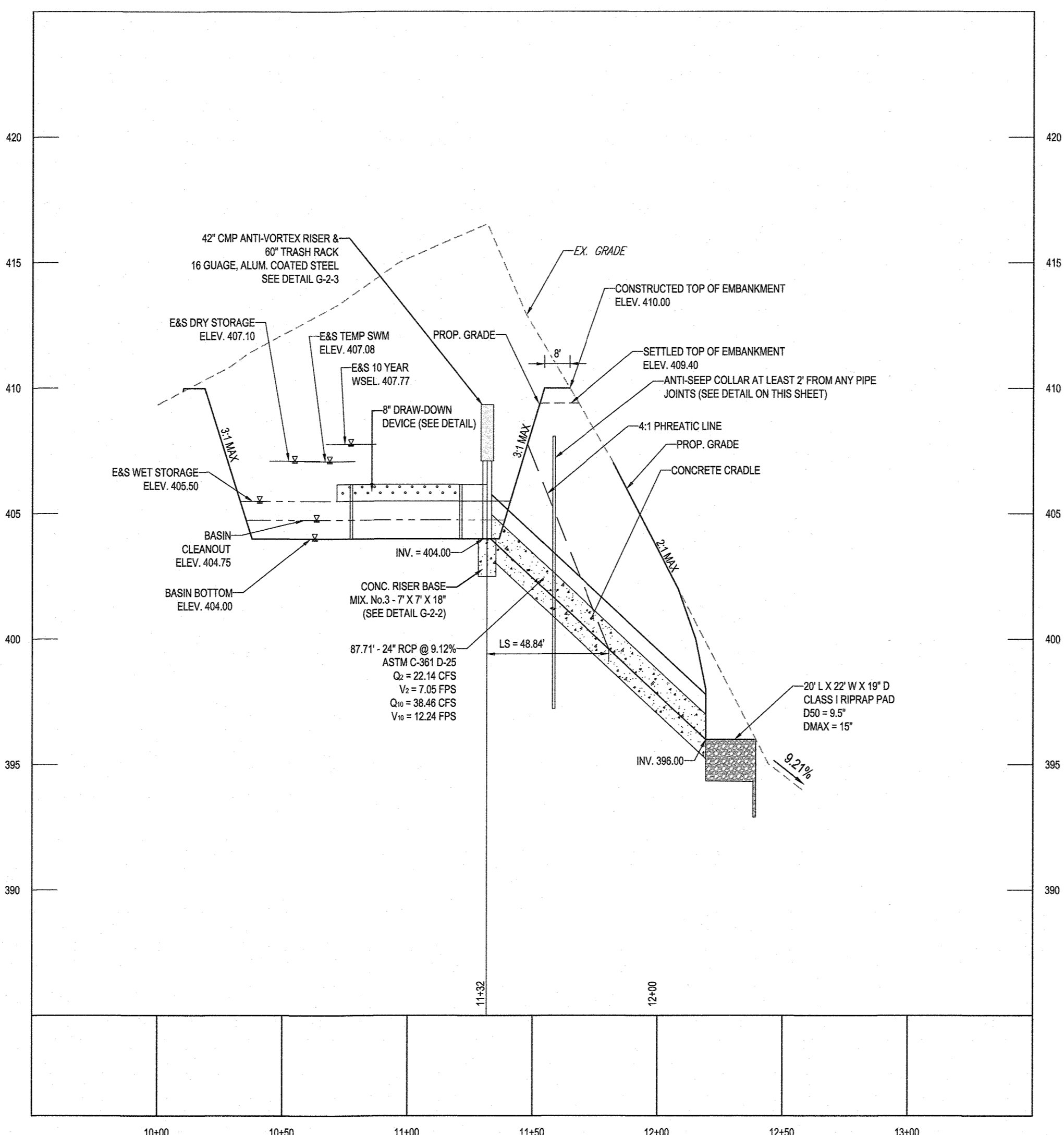
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

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

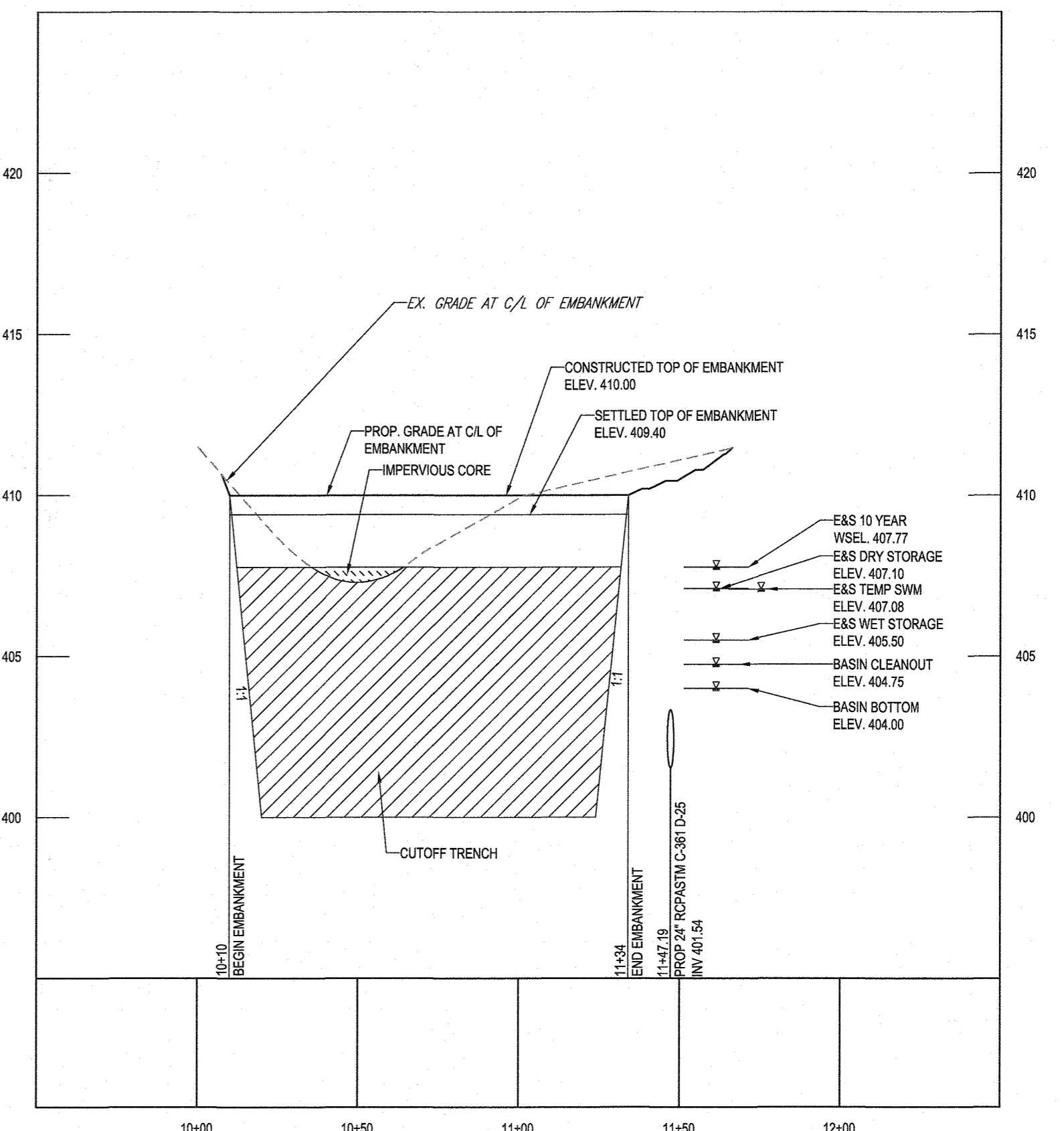
SHEET TITLE: EROSION & SEDIMENT CONTROL - PHASE I
SEDIMENT BASIN #3
PLAN, SECTION & DETAILS
SHEET NUMBER: 23 OF 80
REVISION 5 - 07/07/2021



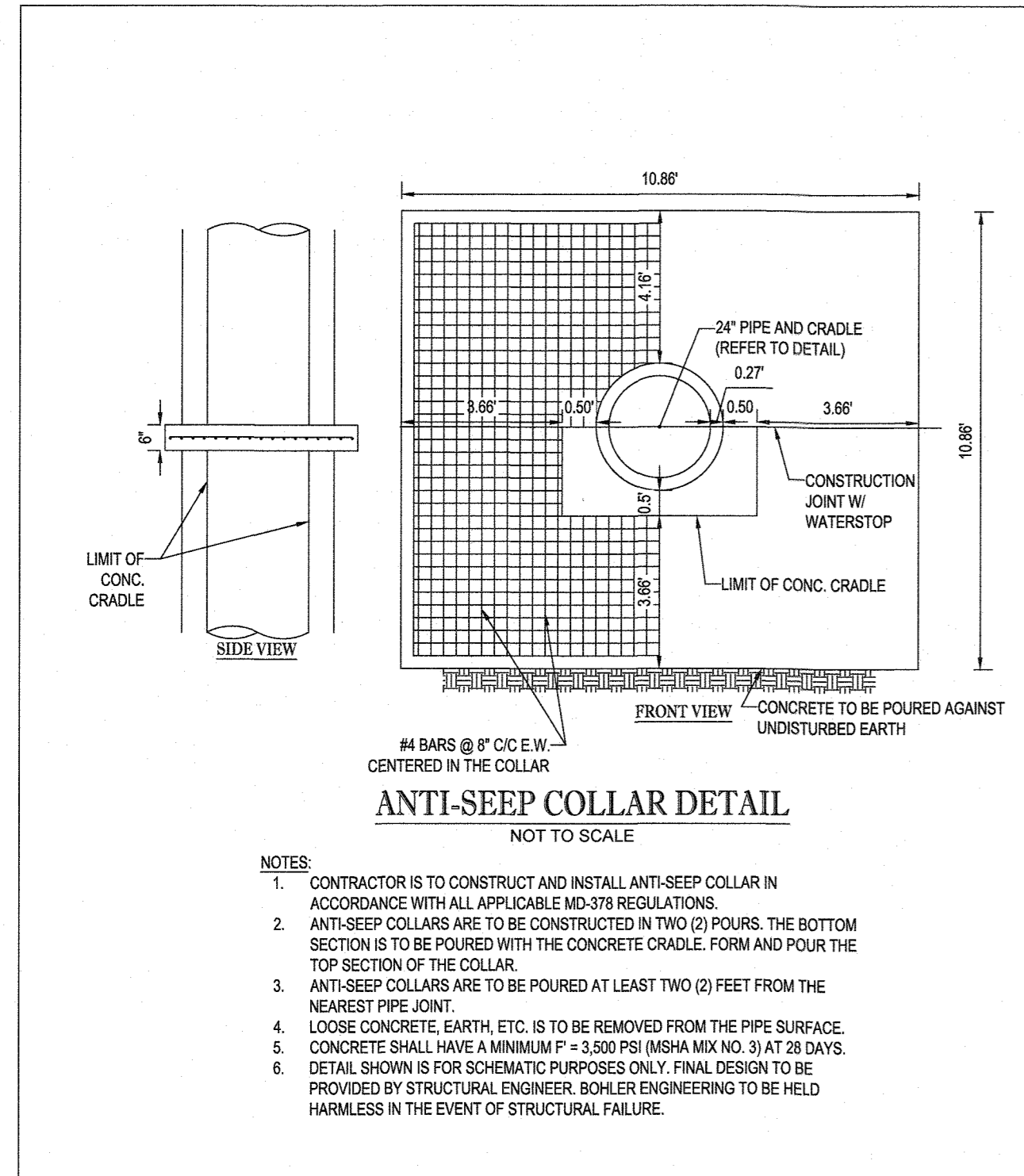
TEMPORARY SEDIMENT BASIN #4 SPILLWAY - PLAN
SCALE: 1" = 40'



TEMPORARY SEDIMENT BASIN #4 SPILLWAY - SECTION A-A
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

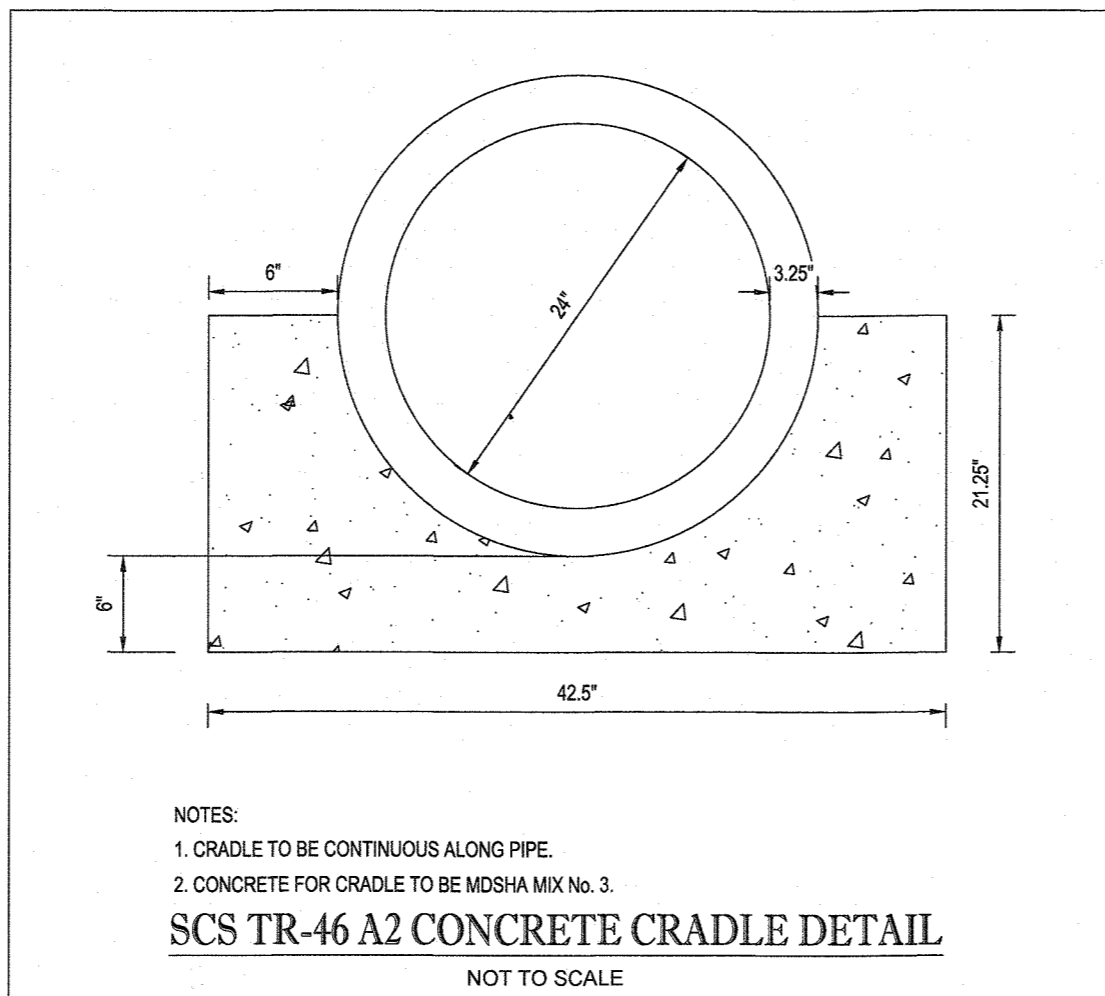


BASIN #4 - CENTERLINE OF EMBANKMENT
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



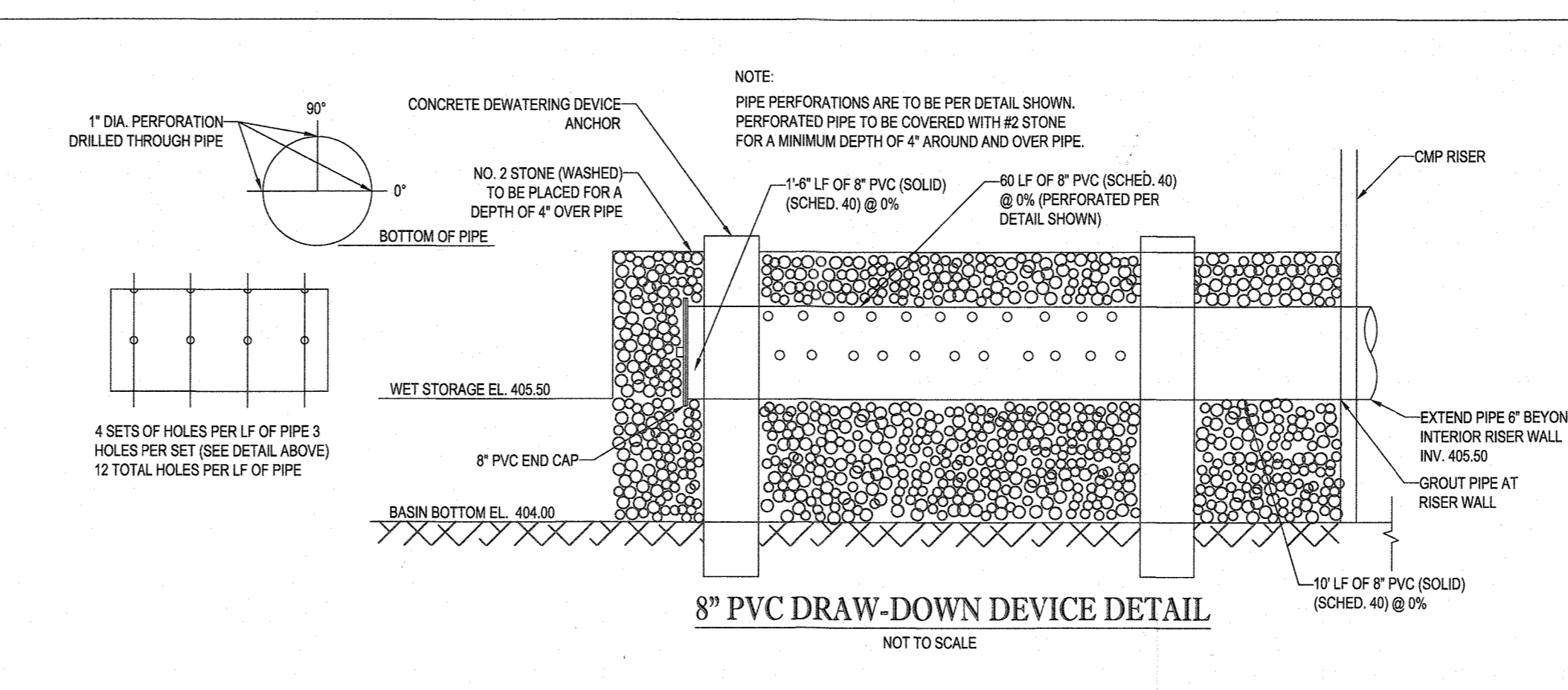
ANTI-SEEP COLLAR DETAIL
NOT TO SCALE

- NOTES:
- CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 - ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
 - ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 - LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
 - CONCRETE SHALL HAVE A MINIMUM P = 3,500 PSI (MSHA MIX NO. 3) AT 28 DAYS.
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



SCS TR-46 A2 CONCRETE CRADLE DETAIL
NOT TO SCALE

- NOTES:
- CRADLE TO BE CONTINUOUS ALONG PIPE.
 - CONCRETE FOR CRADLE TO BE MDSHA MIX NO. 3.



8" PVC DRAW-DOWN DEVICE DETAIL
NOT TO SCALE

- NOTE:
- PIPE PERFORATIONS ARE TO BE PER DETAIL SHOWN. PERFORATED PIPE TO BE COVERED WITH 40 STONE FOR A MINIMUM DEPTH OF 4" AROUND AND OVER PIPE.
- NO. 2 STONE (WASHED) TO BE PLACED FOR A DEPTH OF 4" OVER PIPE.
- 1" DIA. PERFORATION DRILLED THROUGH PIPE.
- 4 SETS OF HOLES PER LF OF PIPE 3 HOLES PER SET (SEE DETAIL ABOVE) 12 TOTAL HOLES PER LF OF PIPE.

PIPE OUTLET SEDIMENT BASIN BASIN NO. 4		
DRAINAGE AREA - INITIAL	3.1	ACRES
DRAINAGE AREA - INTERIM	3.8	ACRES
DRAINAGE AREA - FINAL	7.0	ACRES
TOTAL STORAGE REQUIRED	25,200	CF
TOTAL STORAGE PROVIDED	29,294	CF
WET STORAGE REQUIRED	12,600	CF
WET STORAGE PROVIDED	12,753	CF
DRY STORAGE REQUIRED	12,600	CF
DRY STORAGE PROVIDED	16,541	CF
BASIN BOTTOM ELEVATION	404.00	FT
BASIN BOTTOM DIMENSIONS	VARIABLES - SEE PLANS	FT X FT
RISER CREST (DRY STORAGE) ELEVATION	407.10	FT
OUTLET (WET STORAGE) ELEVATION	405.50	FT
CLEANOUT ELEVATION	404.75	FT
TOP OF EMBANKMENT ELEVATION	410.00	FT
SIDE SLOPE	3:1	H:V RATIO
EMBANKMENT TOP WIDTH	8	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)	RCP	
RISER DIAMETER	42	IN
BARREL DIAMETER	24	IN
TRASH RACK DIAMETER	60	IN
TRASH RACK HEIGHT	27	IN
ANTI-SEEP COLLAR DIMENSIONS	10.86 X 10.86	FT
OUTLET PROTECTION - LENGTH	20	FT
OUTLET PROTECTION - WIDTH	22	FT
OUTLET PROTECTION - DEPTH	19	IN

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 12/15/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10-18-21

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

HOWARD SCD
 DATE: 7/27/21

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

DATE: 7/19/2021
 SIGNATURE OF DEVELOPER: Mark L. Lewis

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

DATE: 7/19/21
 SIGNATURE OF ENGINEER: James Fraser

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 20 H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-587-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: ODB-5

FINAL ROAD PLAN

FOR LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20896-032624 (STATE OF MARYLAND)
 LICENSE NO. 20896-032624 (STATE OF MARYLAND)

SHEET TITLE:
EROSION & SEDIMENT CONTROL - PHASE I SEDIMENT BASIN #4 PLAN, SECTION & DETAILS

SHEET NUMBER:
24 OF 80

REVISION 5 - 07/07/2021

MGWC 1.5: SANDBAGSTONE CHANNEL DIVERSION

Temporary measure for diverting the channel construction sites

DESCRIPTION
The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS
Diversion are used to isolate work areas from flow during the construction of in-stream projects. Diversion which have an insufficient flow capacity can fail and severely erode the channel section under construction.

MATERIAL SPECIFICATIONS
Materials for sandbag and stone stream diversions should meet the following requirements:
Riprap Riprap should be washed and have a minimum diameter of 6 inches (15 centimeters).

TEMPORARY INSTREAM CONSTRUCTION MEASURES
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES
REVISED NOVEMBER 2000

MGWC 1.5: SANDBAGSTONE CHANNEL DIVERSION

Temporary measure for diverting the channel construction sites

DESCRIPTION
The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS
Diversion are used to isolate work areas from flow during the construction of in-stream projects. Diversion which have an insufficient flow capacity can fail and severely erode the channel section under construction.

MATERIAL SPECIFICATIONS
Materials for sandbag and stone stream diversions should meet the following requirements:
Riprap Riprap should be washed and have a minimum diameter of 6 inches (15 centimeters).

TEMPORARY INSTREAM CONSTRUCTION MEASURES
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES
REVISED NOVEMBER 2000

MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for diverting the channel construction sites

DESCRIPTION
The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

EFFECTIVE USES & LIMITATIONS
Sediment control measures, pump-around practice, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

IMPLEMENTATION SEQUENCE
1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary assessments and/or right-of-way have been acquired.

MGWC 1.2: PUMP-AROUND PRACTICE

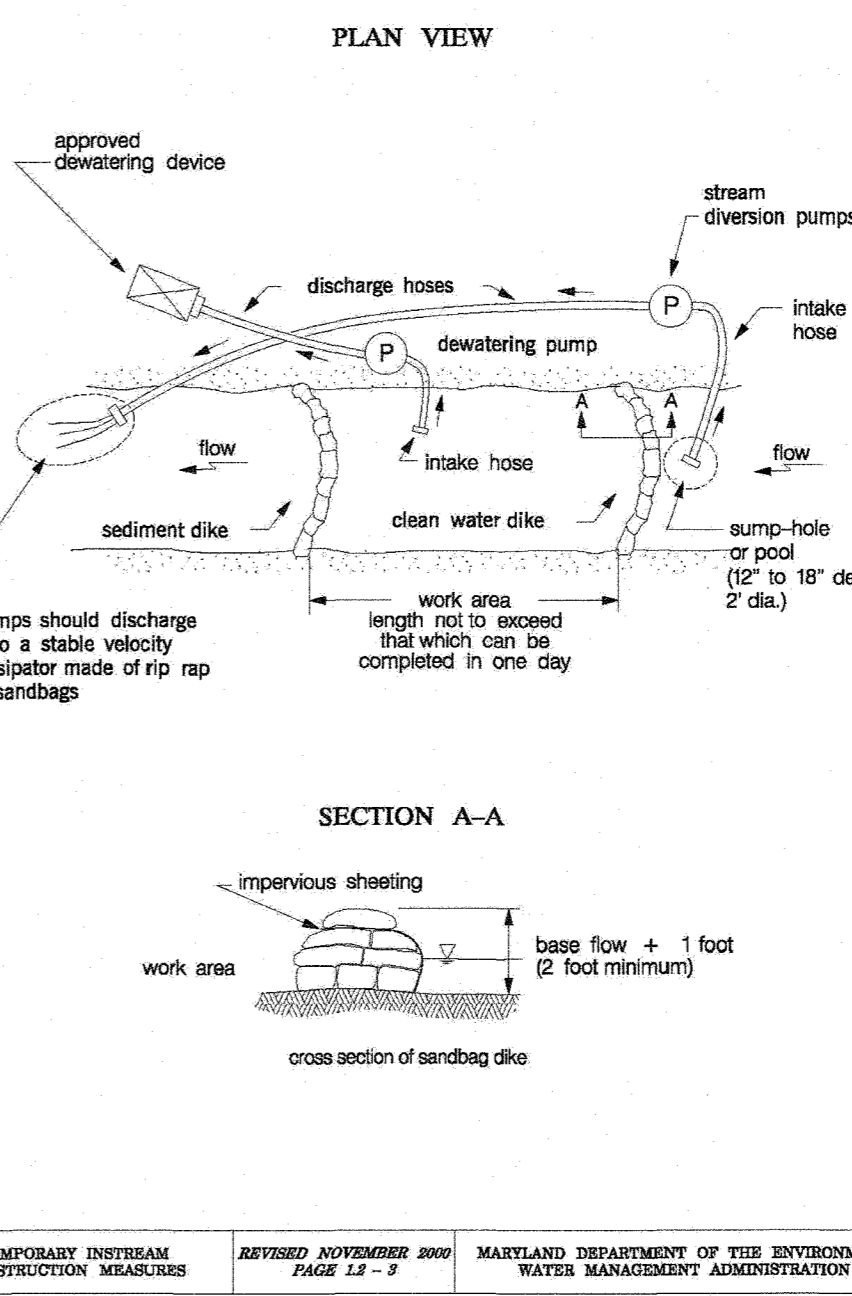
Temporary measure for diverting the channel construction sites

DESCRIPTION
The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

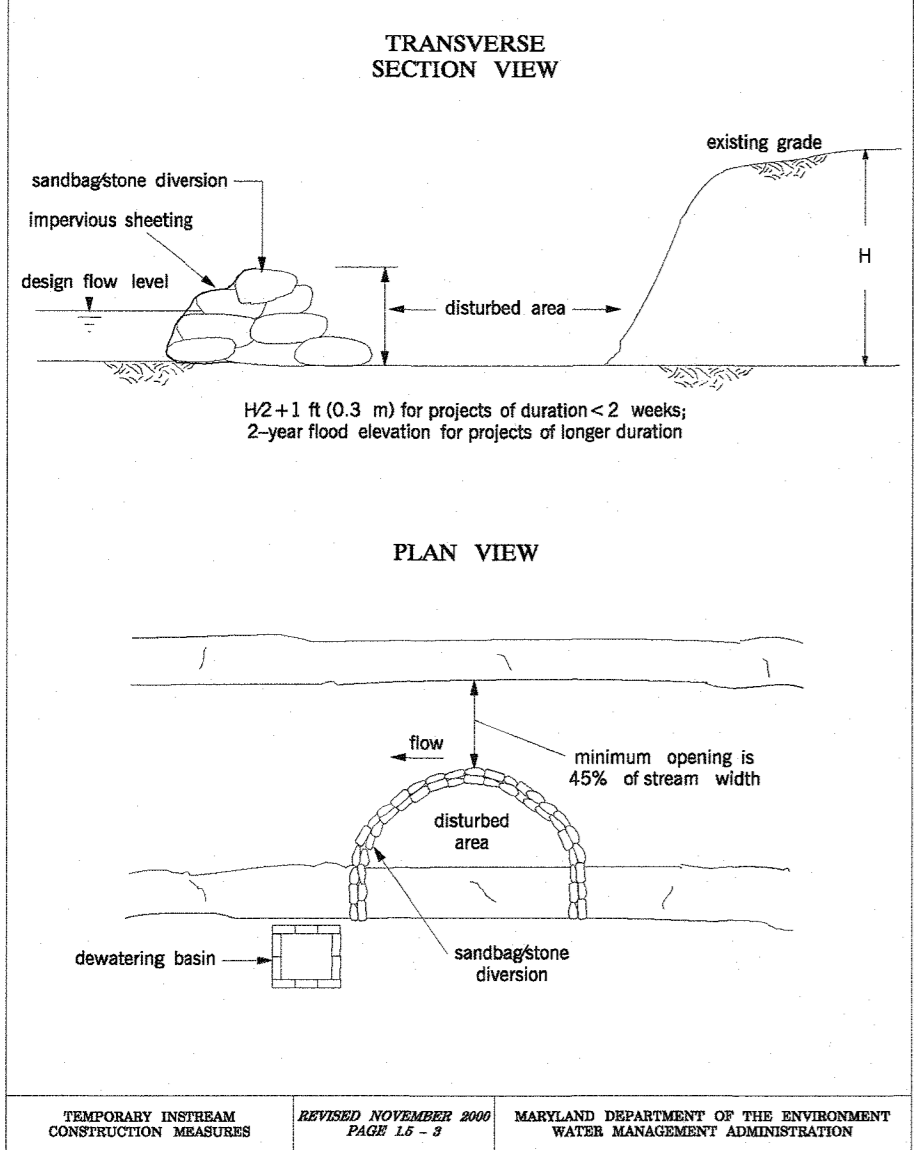
EFFECTIVE USES & LIMITATIONS
Sediment control measures, pump-around practice, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

IMPLEMENTATION SEQUENCE
1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary assessments and/or right-of-way have been acquired.

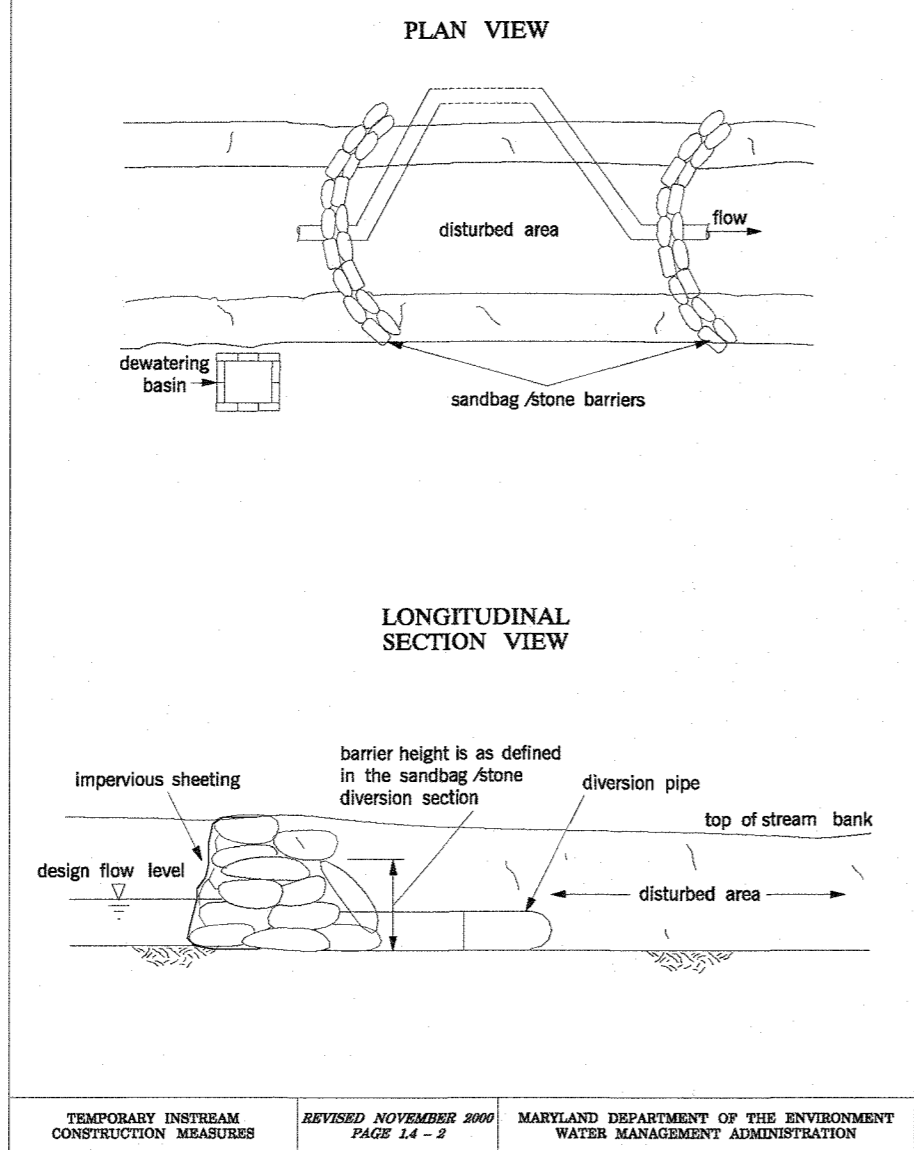
Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE



Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAGSTONE DIVERSION



Maryland's Guidelines To Waterway Construction
DETAIL 1.4: DIVERSION PIPE



MGWC 4.3: CULVERT INSTALLATION

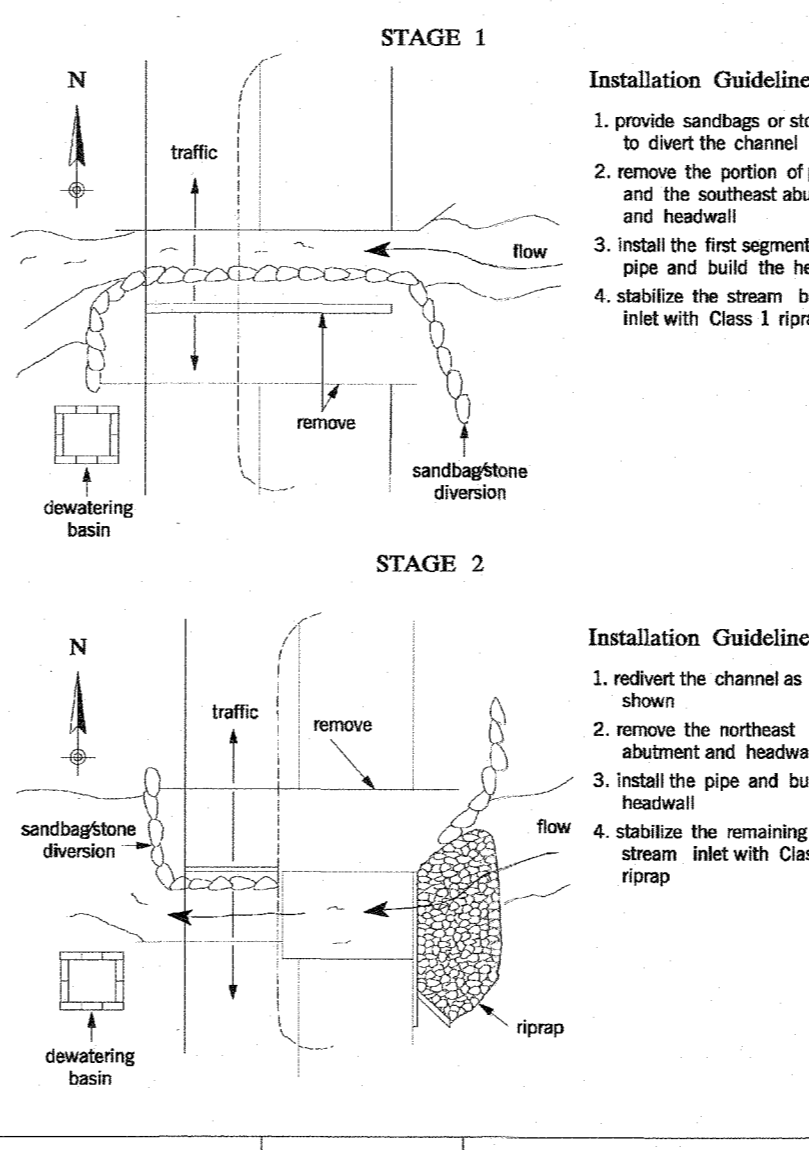
Proposed installation sequence for culverts

DESCRIPTION
The following is a typical installation sequence for culverts which details the minimum requirements to be incorporated into the project.

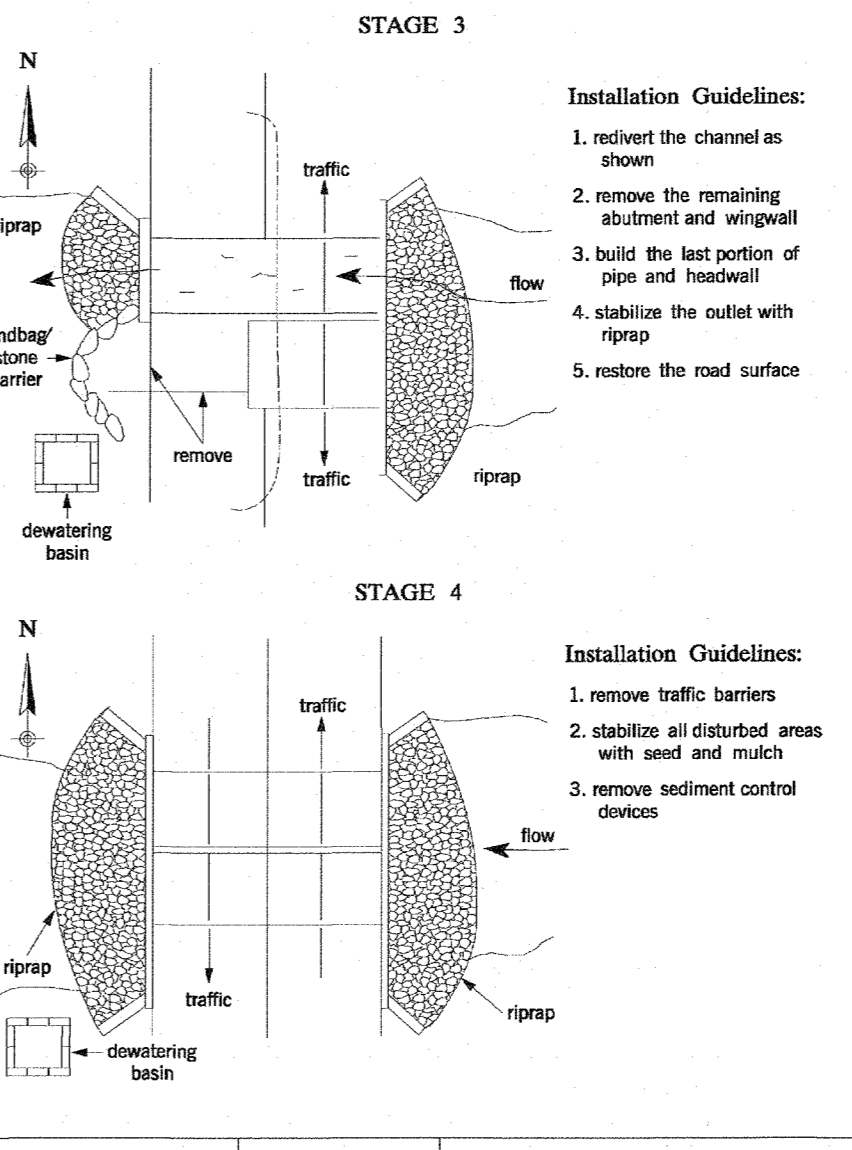
EFFECTIVE USES & LIMITATIONS
This method has been chosen in order to illustrate a general sequence of construction and is not suitable for all projects.

CONSTRUCTION SEQUENCE
1. All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority.

Maryland's Guidelines To Waterway Construction
DETAIL 4.3: CULVERT INSTALLATION-STAGES 1&2



Maryland's Guidelines To Waterway Construction
DETAIL 4.3: CULVERT INSTALLATION-STAGES 3&4



STONE SPECIFICATIONS

- 1. FOOTING OR BURIED STONE SHALL CONSIST OF ANGULAR FLAT ROCK SIMILAR IN COLOR, TEXTURE AND DENSITY TO THAT SUPPLIED BY THE LAFARGE CORPORATION - TEXAS QUARRY (COCKEYSVILLE MARBLE WITH MICA LAYERS), OR THE LAFARGE CORPORATION CHURCHVILLE QUARRY (AMPHIBOLITE GRAY - BLACK).
- 2. EXPOSED STONE SHALL CONSIST OF ANGULAR FLAT ROCK SIMILAR IN COLOR, TEXTURE, AND DENSITY TO THAT SUPPLIED BY THE LAFARGE CORPORATION - CHURCHVILLE QUARRY (AMPHIBOLITE GRAY-BLACK).

ENGINEER'S CERTIFICATE

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

DEVELOPER'S CERTIFICATE

WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONAL 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.

APPROVED, DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS

APPROVED, DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED, DEPARTMENT OF PUBLIC WORKS
CHIEF, DEVELOPMENT ENGINEERING DIVISION

MGWC 1.4: DIVERSION PIPE

Temporary measure for diverting the channel construction sites

DESCRIPTION
The work should consist of installing flow diversion pipes in combination with sandbag or stone diversions when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS
Diversion pipes with an insufficient flow capacity can cause the channel diversion to fail thereby resulting in severe erosion of the disturbed channel section under construction.

MATERIAL SPECIFICATIONS
Materials for stream diversions should meet the following requirements:
Riprap Stone should be washed and have a minimum diameter of 6 inches (15 centimeters).

IMPLEMENTATION SEQUENCE
1. Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5. Sandbag/Stone Diversion. The materials should be sized to withstand baseflow velocities.

TEMPORARY INSTREAM CONSTRUCTION MEASURES
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES
REVISED NOVEMBER 2000

Table with project information including Owner, Developer, Previous File No., and Tax Map details.

BOHLER ENGINEERING logo and contact information for site civil and consulting engineering, program management, landscape architecture, sustainable design, permitting services, and transportation services.

REVISIONS table with columns for REV, DATE, COMMENT, and DRAWN BY.

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED FOR CONSTRUCTION DOCUMENTS UNLESS INDICATED OTHERWISE.

811 Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420871
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: ODP-5

FINAL ROAD PLAN FOR LYHUS PROPERTY. LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F. LOCATION OF SITE: 12170 LIME KILN ROAD, FULTON, MARYLAND, HOWARD COUNTY.

BOHLER ENGINEERING logo and contact information for 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21284.

B.R. ROWE logo and professional engineer information for James Fraser, License No. 01966-43824-1700 (DATE: 7/3/2023).

SHEET TITLE: EROSION & SEDIMENT CONTROL NOTES & DETAILS. SHEET NUMBER: 26 OF 80. REVISION 5 - 07/07/2021.

REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL OF THE PROJECT AND DOES NOT CONSTITUTE A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD ID: CIP-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCELS A, C, D, E
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 14368
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 14368-REGISTRATION DATE: 10/2023

SHEET TITLE:
BORING PLAN & BORING LOGS

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 8600 DEERPATH ROAD #100
 ELKDRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 8600 DEERPATH ROAD #100
 ELKDRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: SP-17-010b
 ECP-17-055
 WP-18-070

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

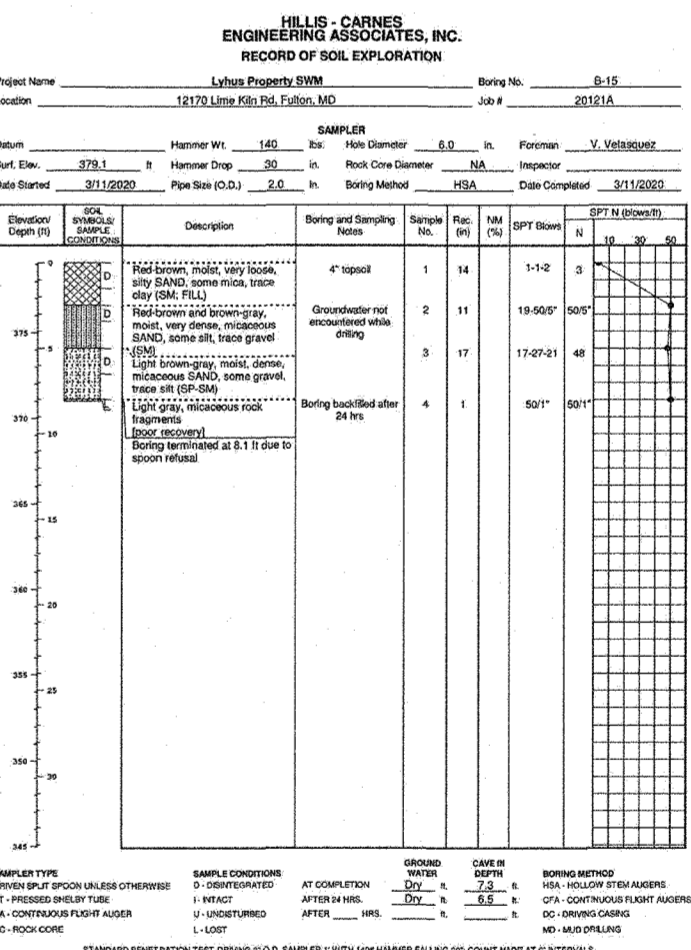
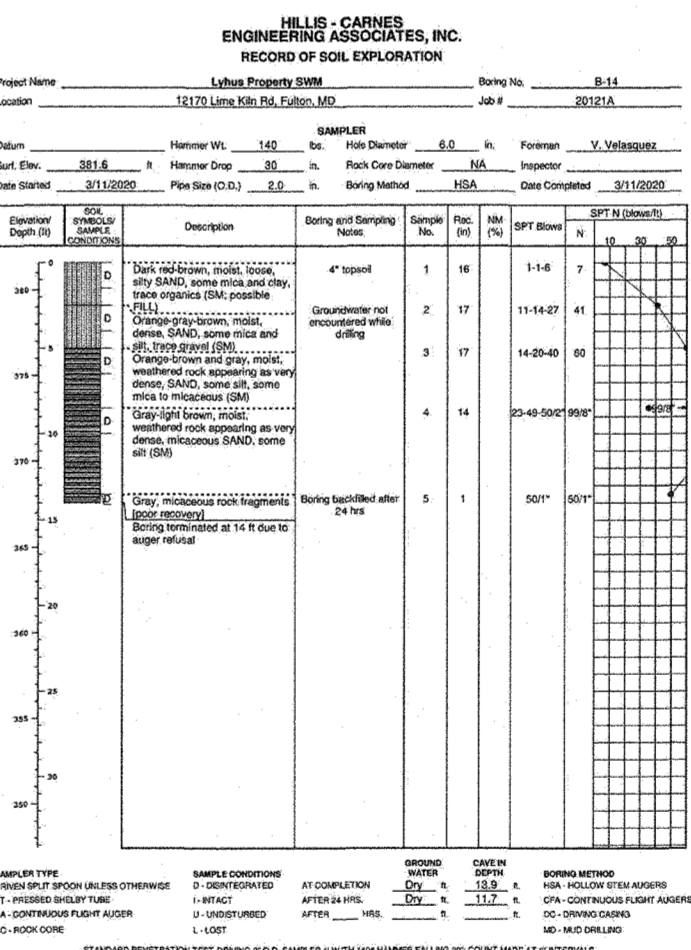
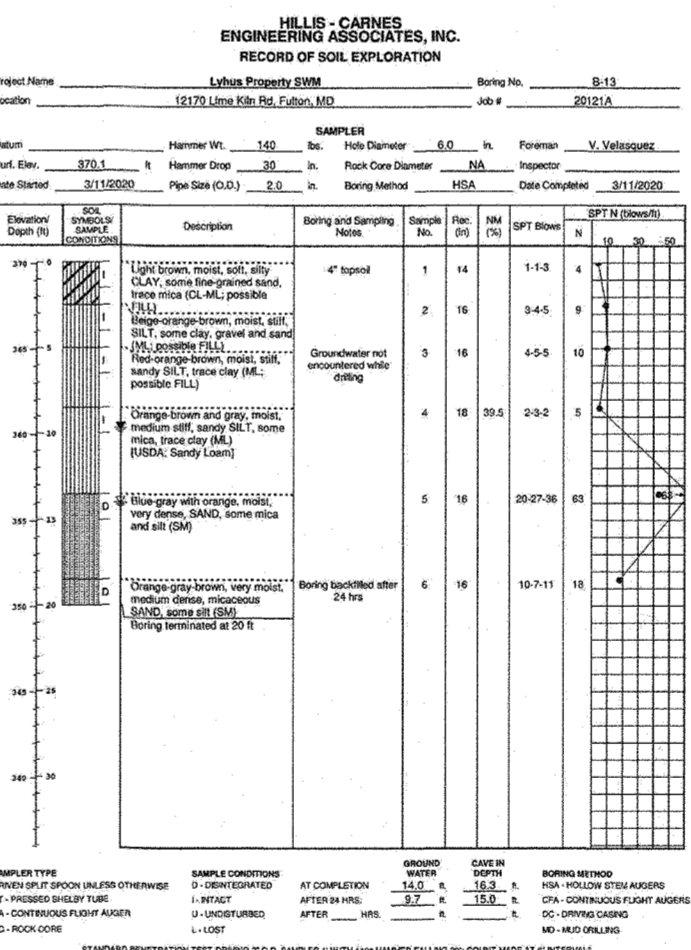
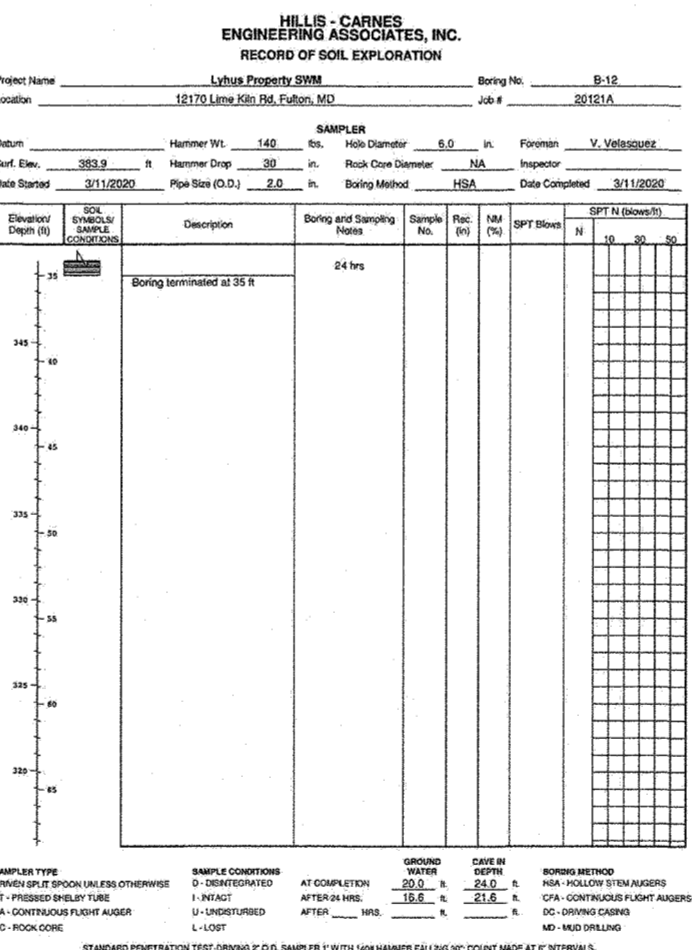
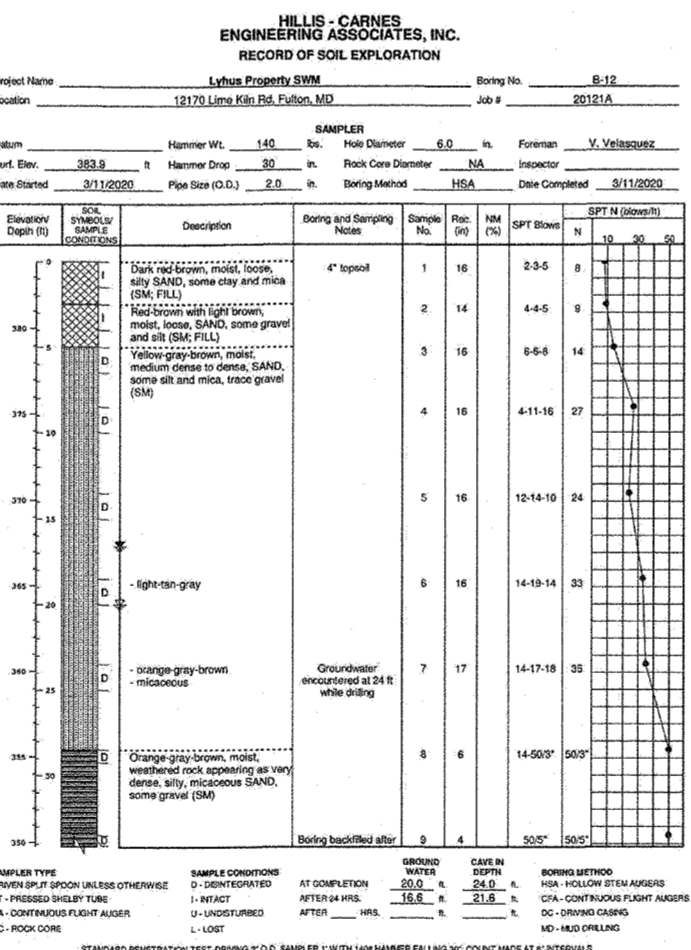
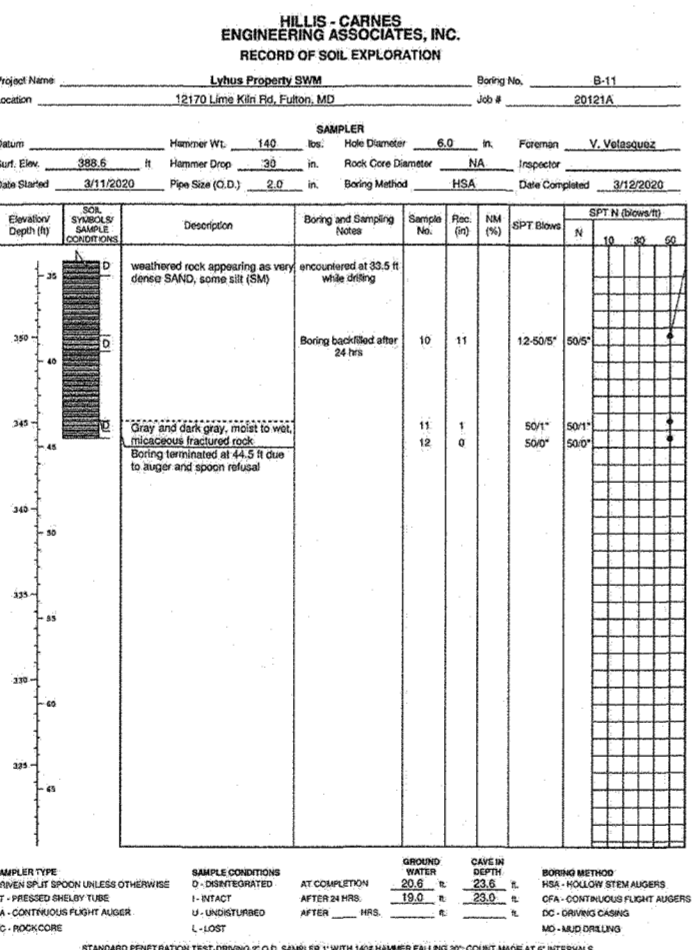
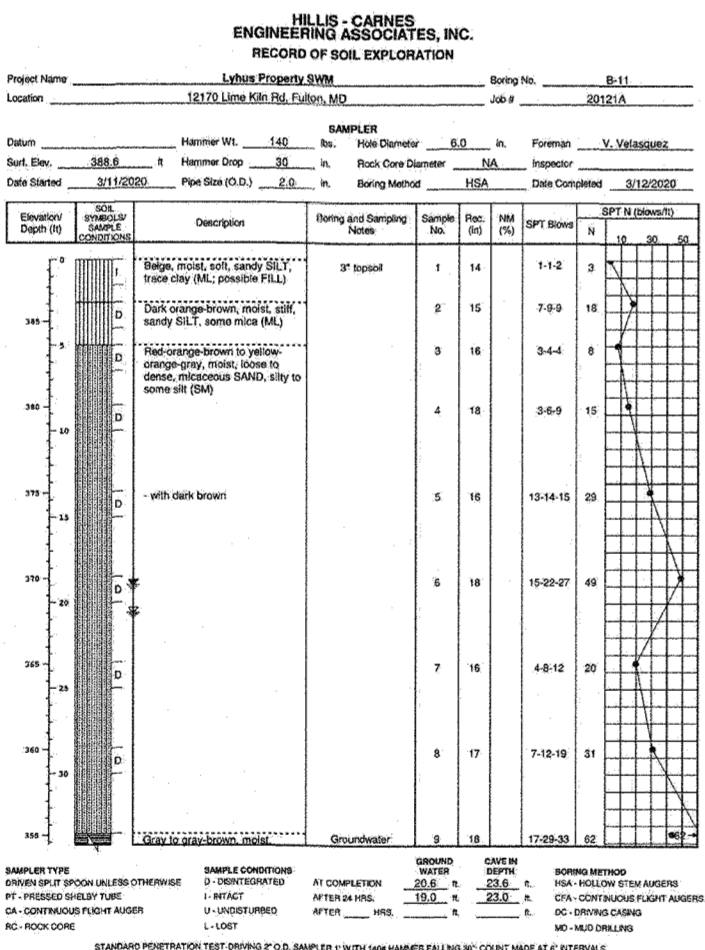
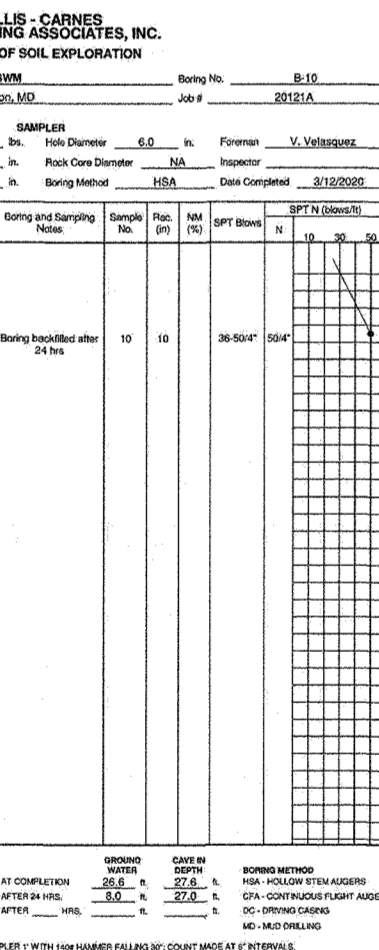
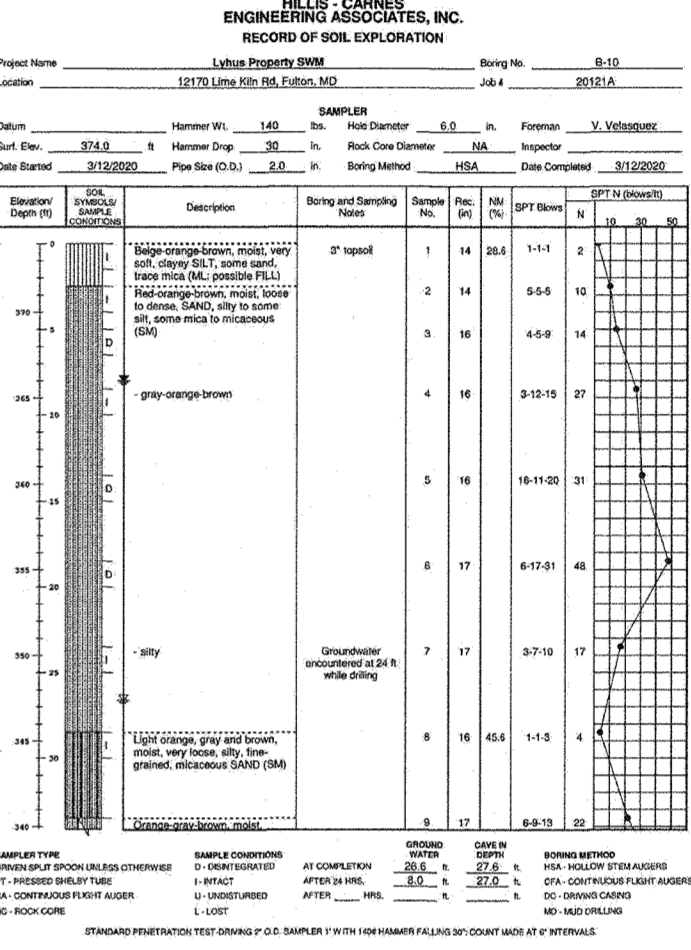
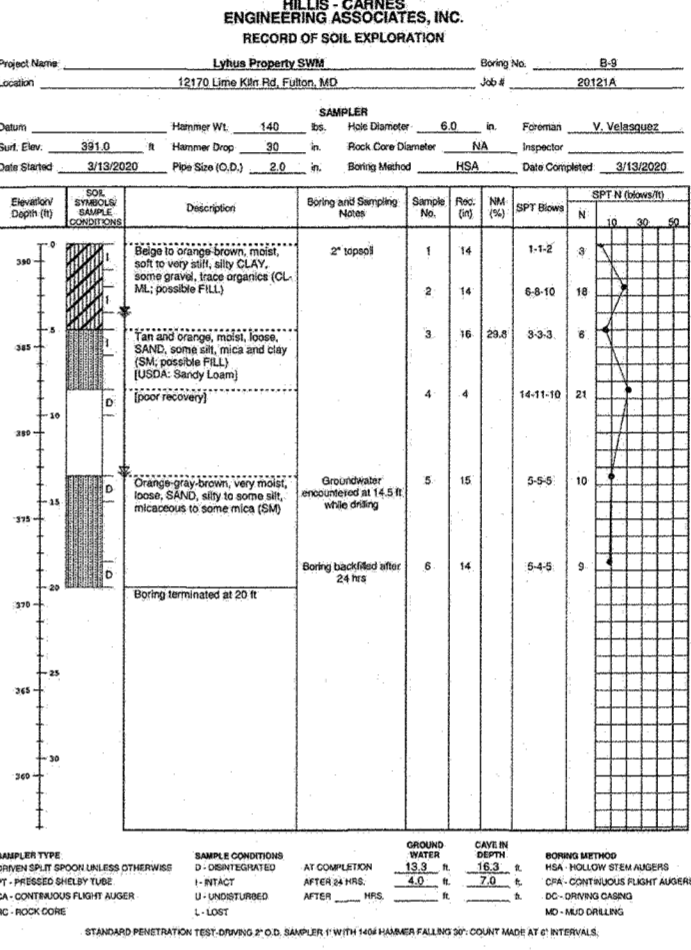
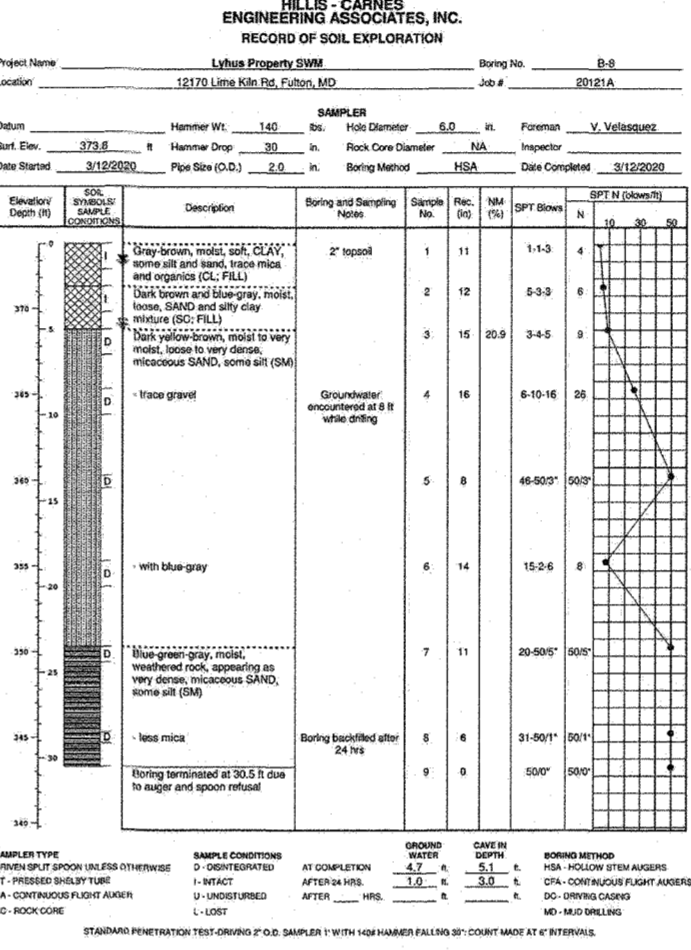
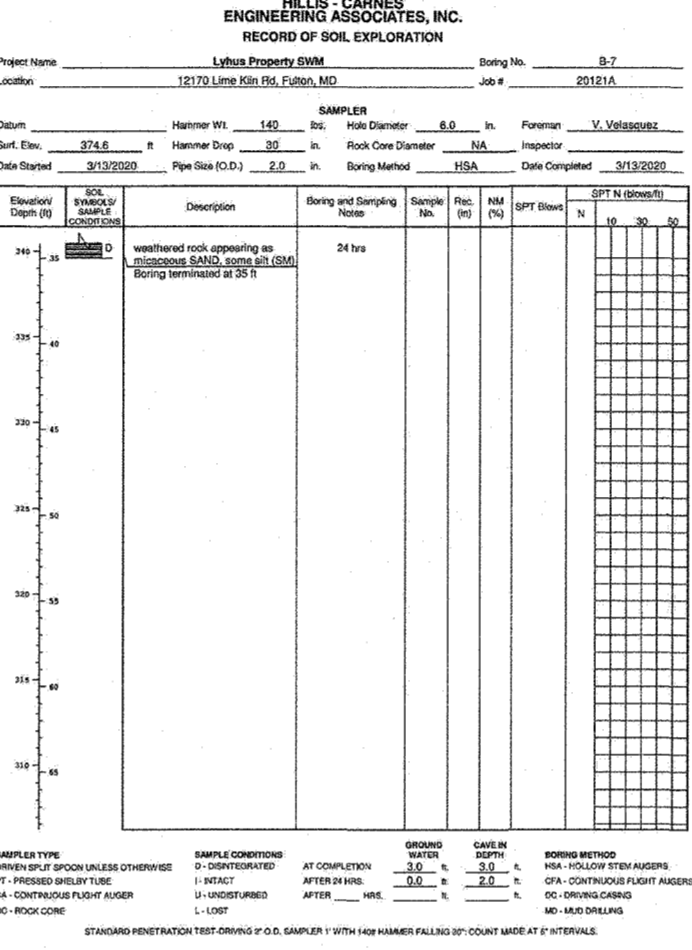
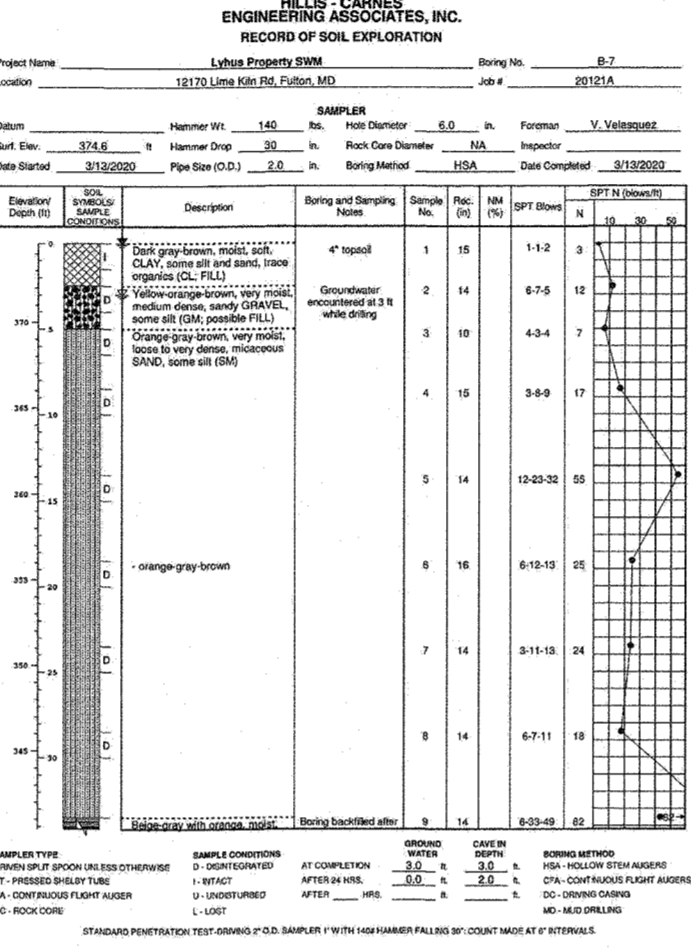
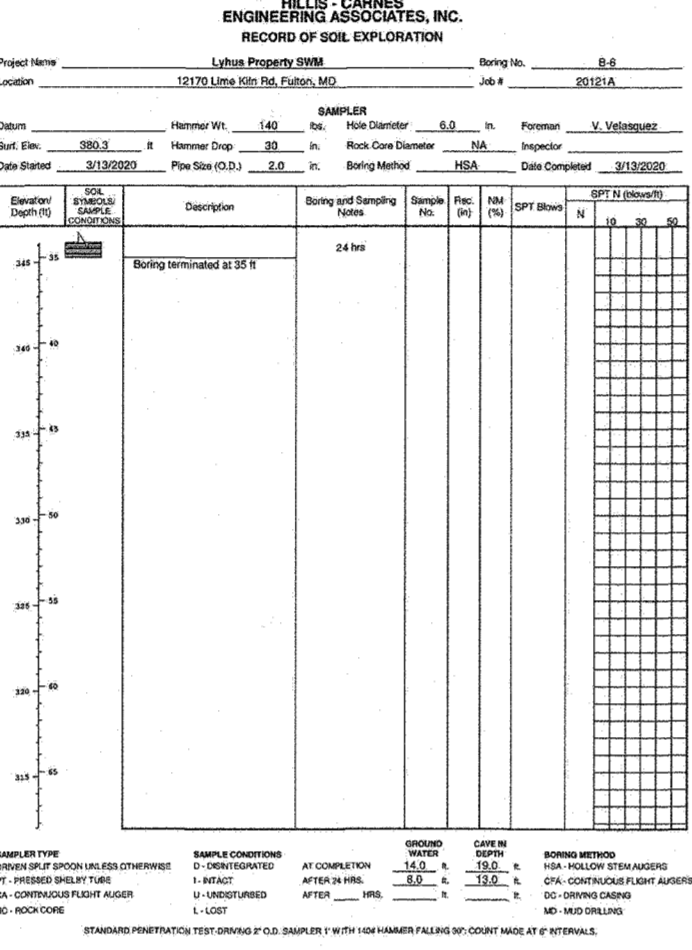
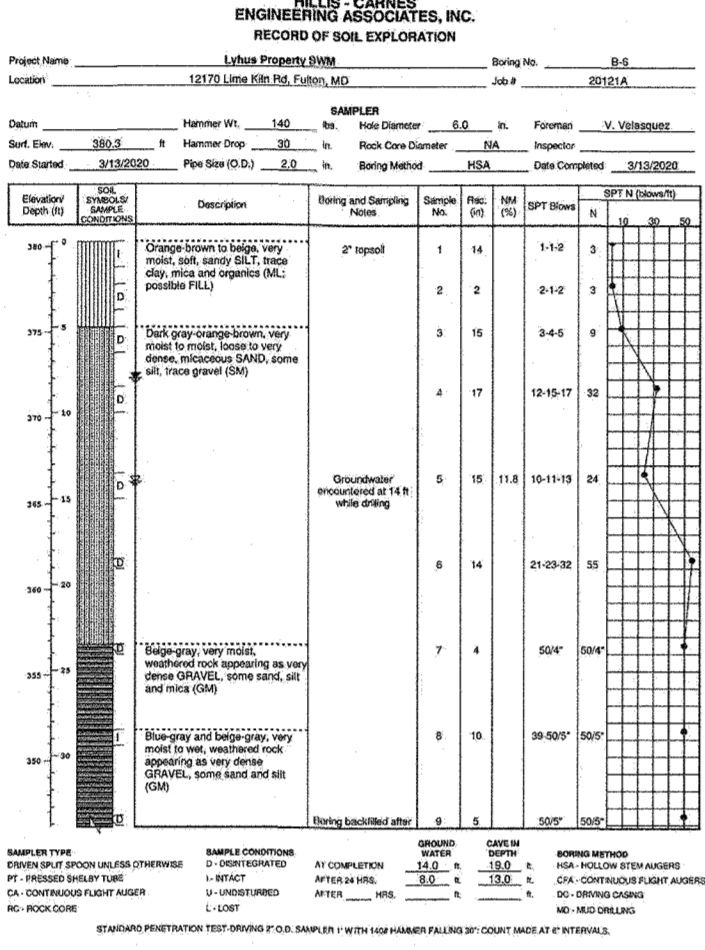
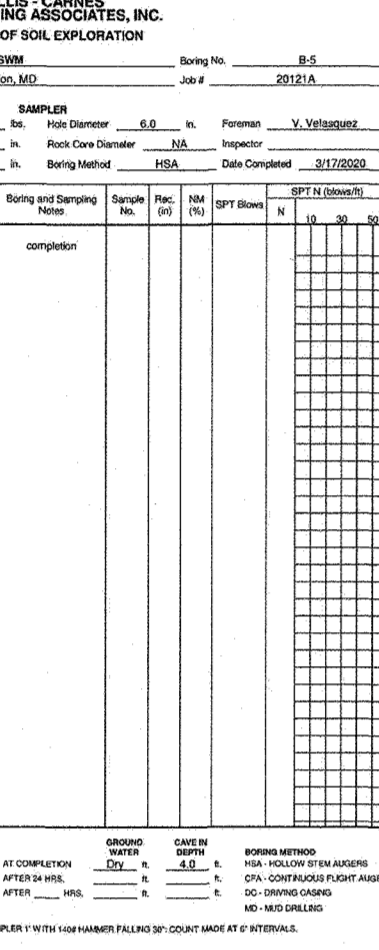
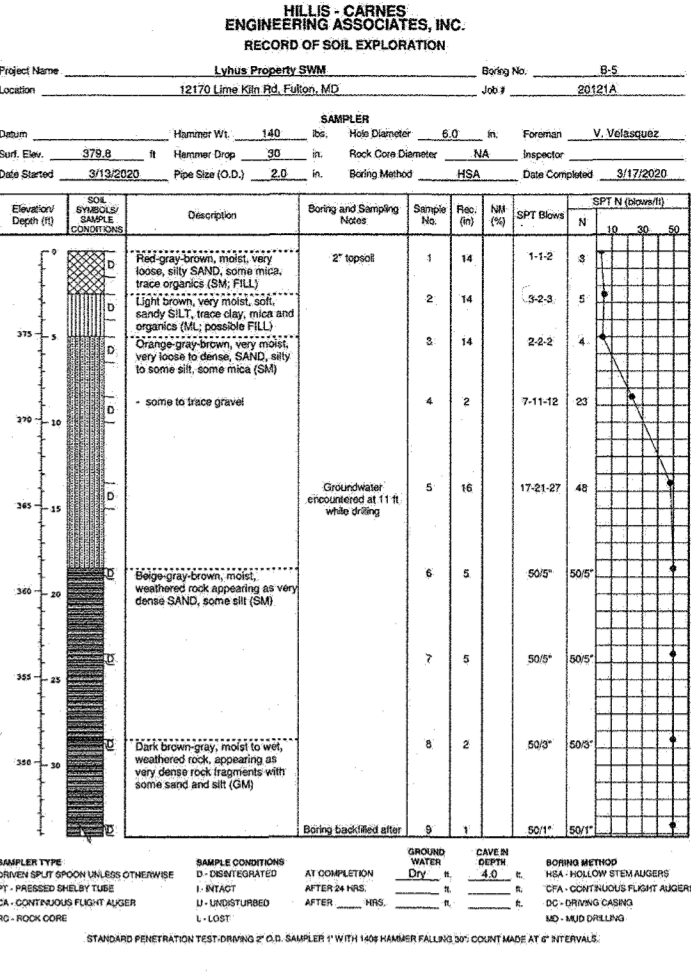
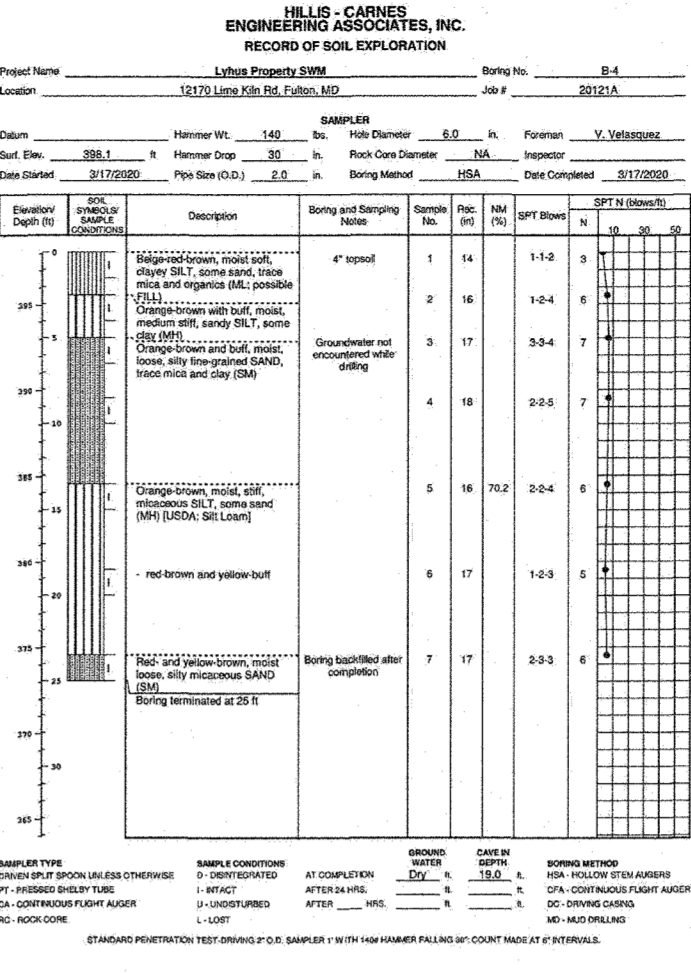
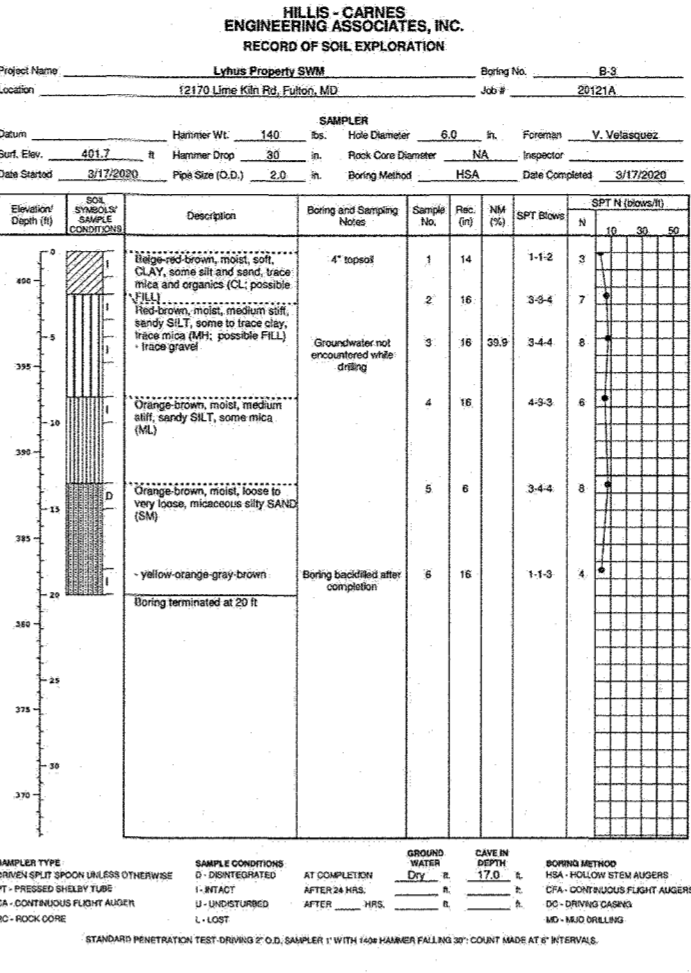
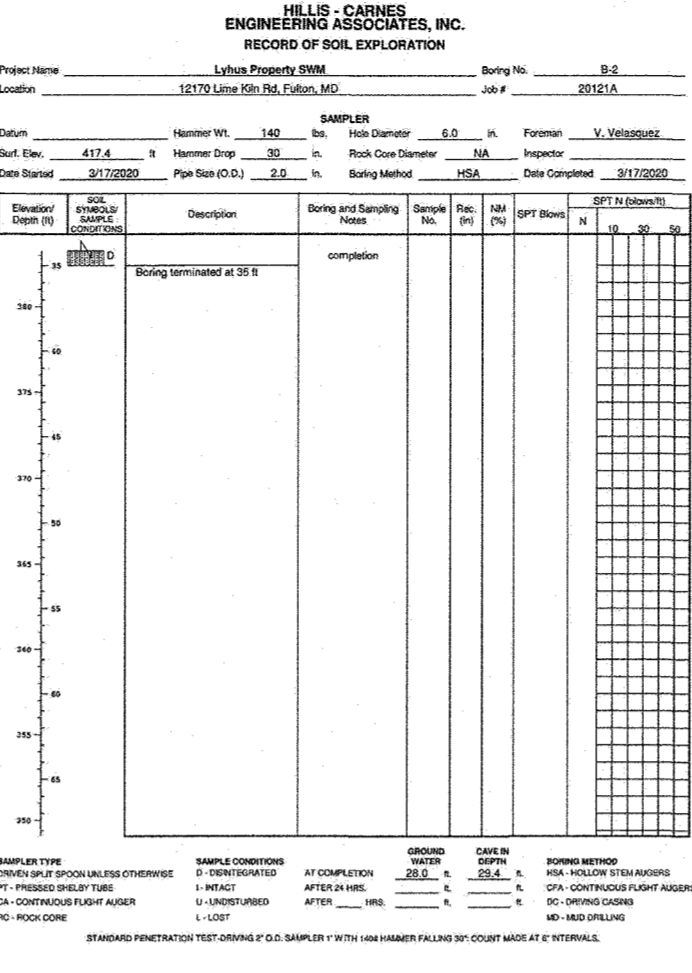
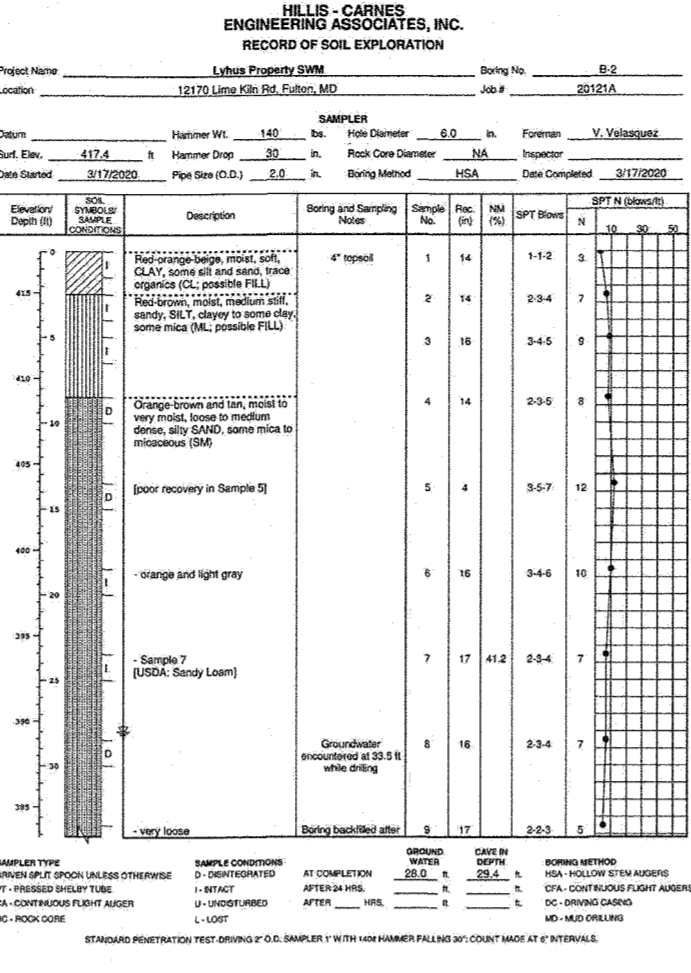
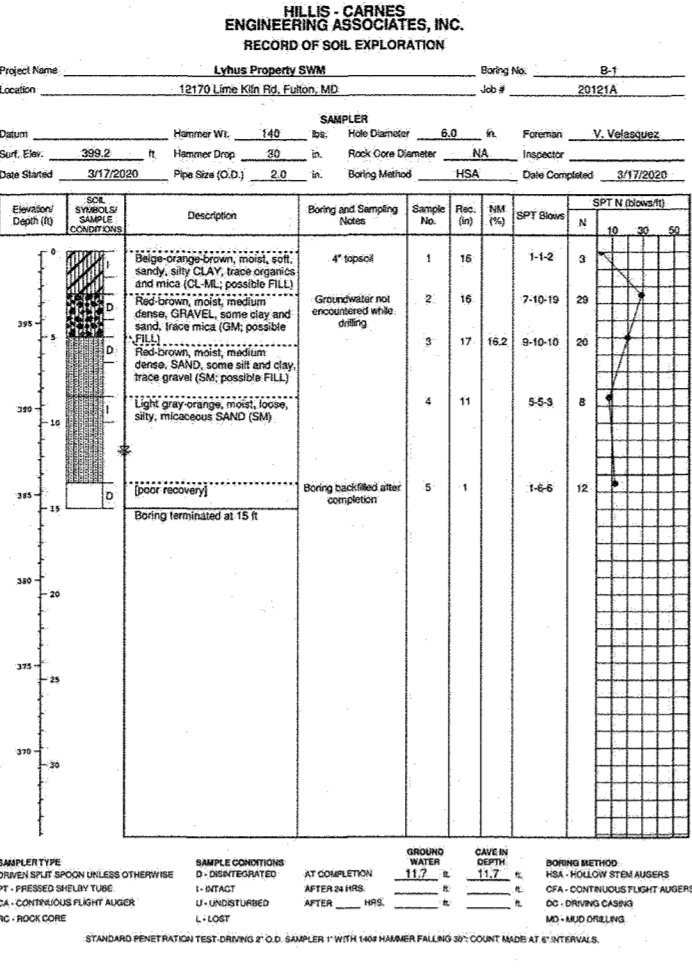
SHEET NUMBER:
29 OF 80

REVISION 5 - 07/07/2021

BORING SUMMARY TABLE

Project Name: Lyhus Property
 Section: 2022A
 Date: 4/2/20

Boring No.	Depth (ft)	Soil Description	Moisture (%)	Specific Gravity	Unit Weight (pcf)	Penetration (blows/ft)	Remarks
B-1	0-1	Fill #2	39.2	No	10	8.6	11.7
B-2	1-2	Fill #1	41.7	No	36	8.5	26.0
B-3	3-4	Fill #1	40.1	No	21	8.5	DNE
B-4	5-6	Fill #1	39.1	No	20	8.5	DNE
B-5	7-8	Fill #1	37.8	No	38	8.0	11
B-6	9-10	Fill #1	38.3	No	38	8.0	14
B-7	11-12	Fill #1	37.6	No	33	8.0	3
B-8	13-14	Fill #1	37.8	Yes	30.4	8.0	8
B-9	15-16	Fill #1	39.0	No	20	8.5	13.5
B-10	17-18	Fill #1	37.4	No	46	2.5	24
B-11	19-20	Fill #1	38.6	Yes	44.5	2.5	33.5
B-12	21-22	Fill #1	39.8	No	30	8.0	24
B-13	23-24	Fill #1	37.0	No	20	8.5	DNE
B-14	25-26	Fill #1	38.1	Yes	11	2.5	DNE
B-15	27-28	Fill #1	37.1	Yes	3.1	2.5	DNE



NOTE:
 1. SEE SHEET 4, OVERALL GRADING PLAN, FOR BORING LOCATIONS

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

[Signature] 7/16/21
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/12/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10-18-21

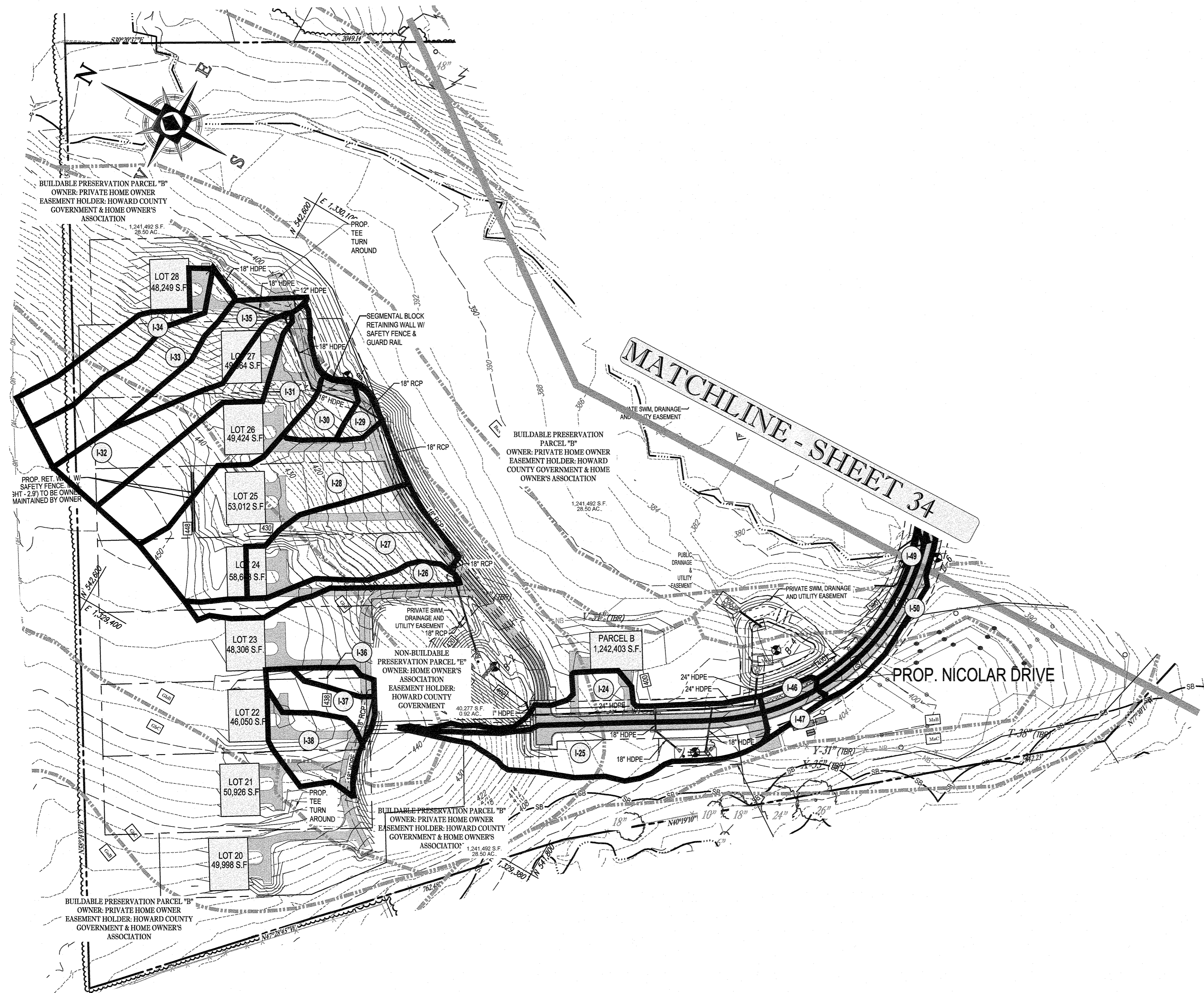
ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 7/16/21
 DATE

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 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] 7/19/2021
 DATE

SIGNATURE OF DEVELOPER: Mark L. Levy



MATCHLINE - SHEET 34

PROP. NICOLAR DRIVE

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/2021

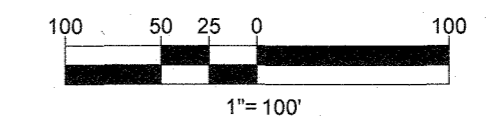
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10-18-21

LEGEND

— DRAINAGE AREA DIVIDE

— LIMIT OF DISTURBANCE

(1) DRAINAGE AREA LABEL



SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED # 14532/0469	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075
PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
TAX MAP: 40	GRID: 24 ZONED: RR-DEO
	PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

NOTE:
 PROPOSED IMPERVIOUS AREA LIMITS SHOWN AND UTILIZED IN CALCULATIONS EXTEND BEYOND WHAT IS SHOWN ON THE F-PLAN LAYOUT IN ORDER TO PROVIDE OVER MANAGEMENT WITHIN THE PROPOSED SWM FACILITIES TO ALLOW FOR ADDITIONAL DRIVEWAYS IN THE FUTURE, IF DESIRED.

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED FOR CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: HIP-5

PROJECT:
FINAL ROAD PLAN

FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

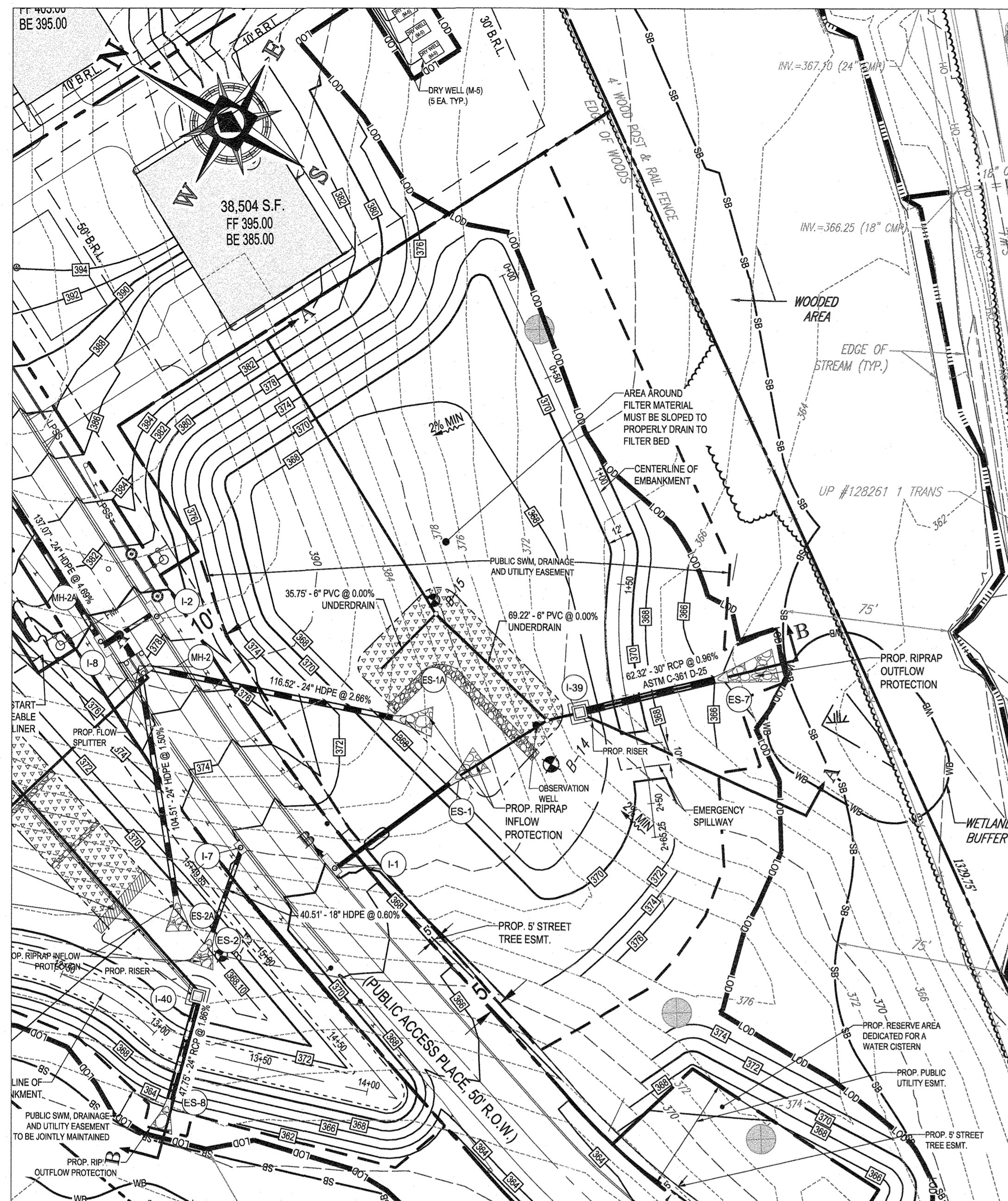
BOHLER ENGINEERING
 801 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 17166
 EXPIRES 12/31/2023

STORMDRAIN DRAINAGE AREA MAP

SHEET NUMBER:
30 OF 80

REVISION 5 - 07/07/2021



SURFACE SAND FILTER (F-1) SWM #1 (PUBLIC)

SCALE: 1" = 40'

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)

ERNST SEEDS
 Catalog | Price List | Project Planner | Contact | 800-873-3321
 Products | Resource Center | About Us | News & Media

Seed Finder TOOL

Home / Stormwater Management / Native Detention Area Mix

Back to List

Native Detention Area Mix

Mix Composition

- 26.0% *Panicum clandestinum*, Tioga (Deertongue, Tioga)
- 25.0% *Panicum virgatum*, Shelter (Switchgrass, Shelter)
- 20.0% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
- 20.0% *Elymus virginicus*, Madison (Virginia Wildrye, Madison)
- 4.0% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Autumn Bentgrass, Albany Pine Bush-NY Ecotype)
- 3.0% *Juncus effusus* (Soft Rush)
- 1.0% *Panicum rigidulum*, PA Ecotype (Rush Path, PA Ecotype)

General Product Information:

The native grasses, sedges and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it can achieve native establishment with minimum risk and tolerate low fertility. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNMX-183
 Product Categories: Stormwater Management
 Height: 0.3 - 5.0 Ft.
 Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

PRINT | EMAIL | SHARE

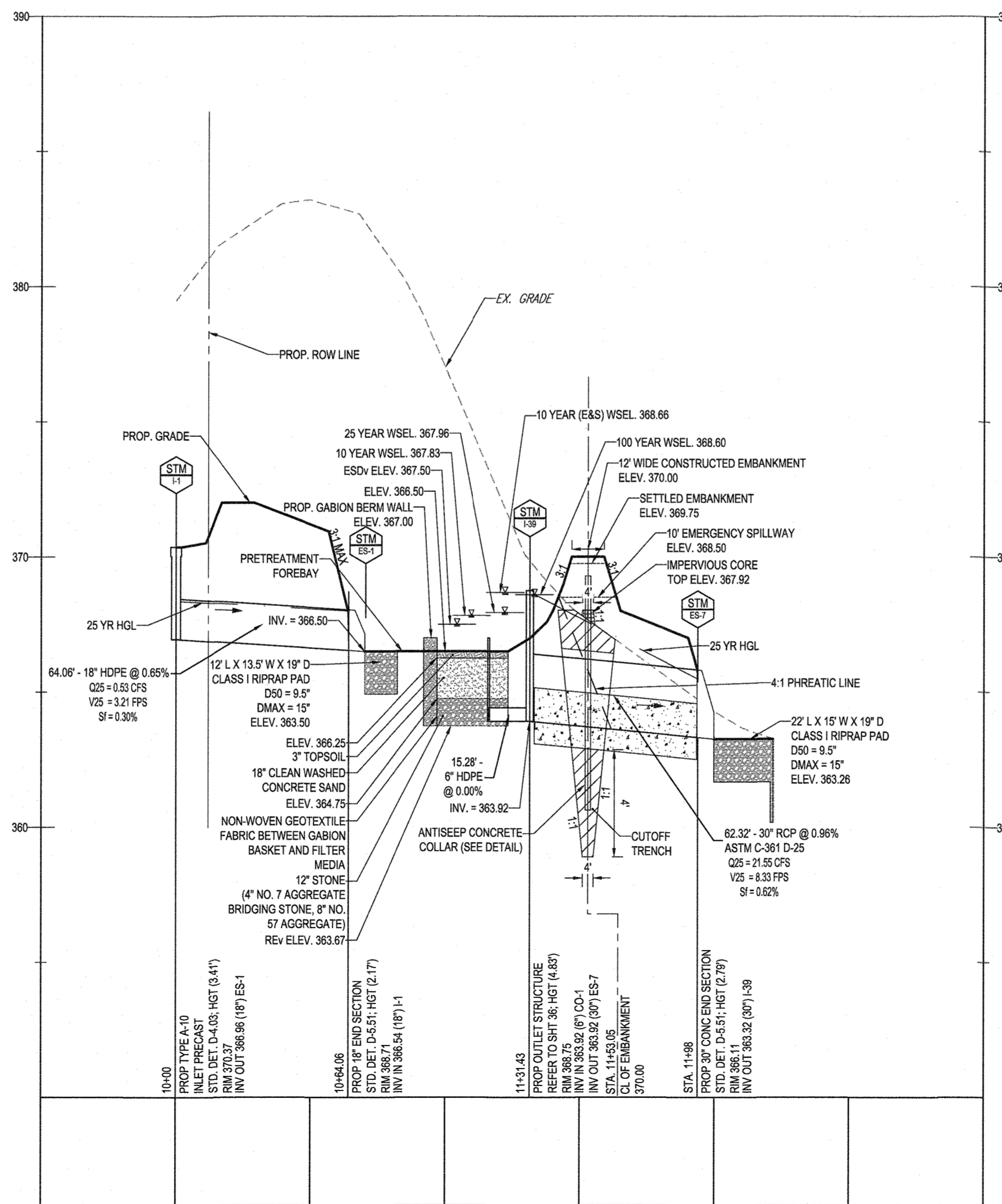
Price: \$15.98/lb

ADD TO PLANNER

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS

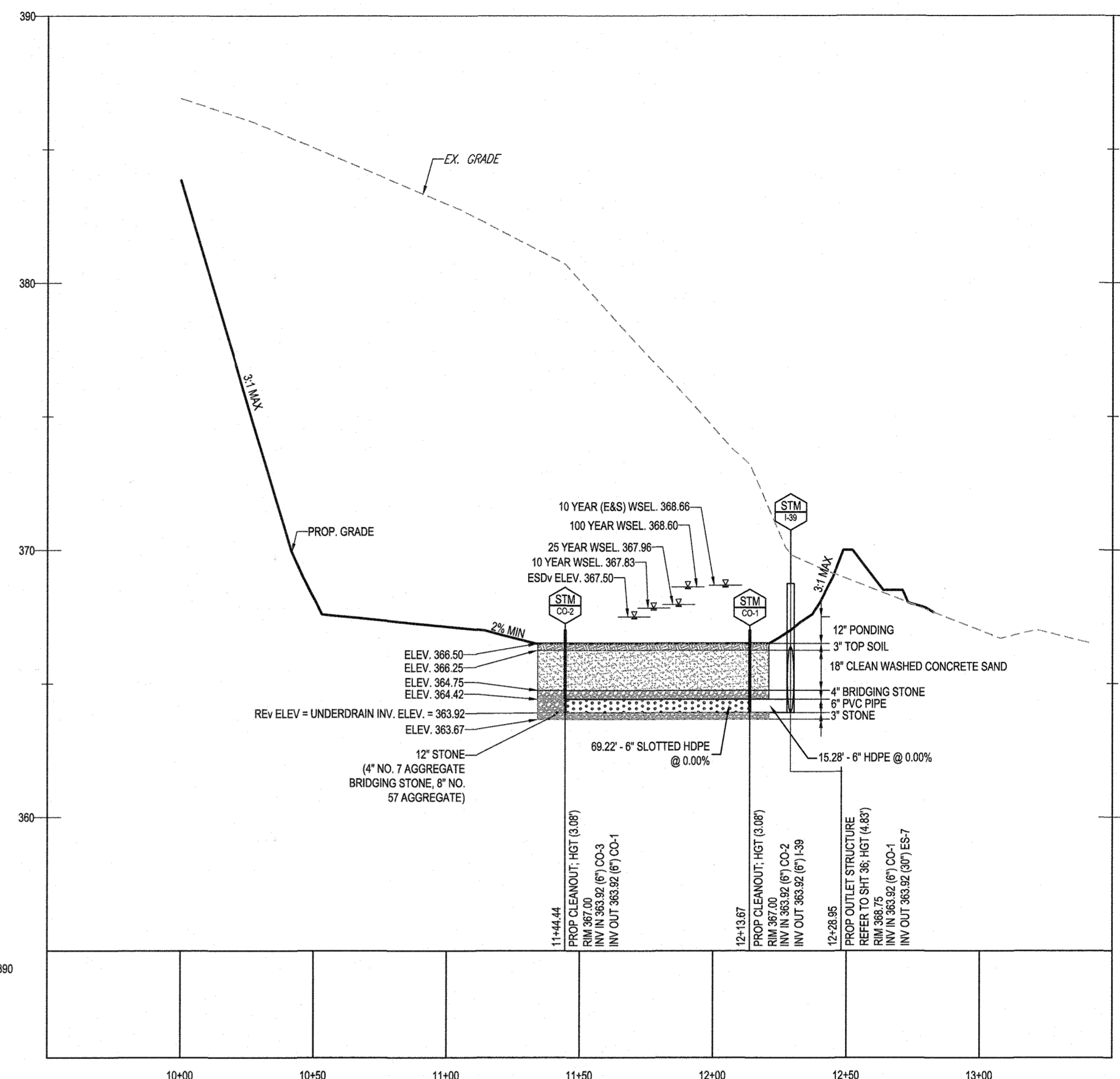
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/12/2021
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10/13/21



SWM FACILITY #1 - SAND FILTER (F-1) - SECTION B-B/PRINCIPLE SPILLWAY PROFILE

SCALE: 1" = 40' HORIZONTAL
 1" = 4' VERTICAL



SWM FACILITY #1 - SAND FILTER (F-1) - SECTION A-A

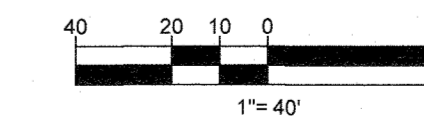
SCALE: 1" = 40' HORIZONTAL
 1" = 4' VERTICAL

NOTE: ALL ROOF DRAINS WILL BE 6"

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS 'A' DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT, WITH THE EXCEPTION OF STORMDRAIN OUTFALLING TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YEAR STORM EVENT.

NOTE: 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.



SUBDIVISION NAME: LYHUS PROPERTY
 SECTION/AREA: N/A
 DEED # 14532/00489

PREVIOUS FILE No.:
 SP-17-010b
 ECP-17-056
 WP-18-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1048

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROJECT ARCHITECTURE
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVS
 CHECKED BY: BRR
 DATE: 09/24/2021
 CAD I.D.: SWM-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

801 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7500
 Fax: (410) 821-7987
 MD@BohlerEng.com

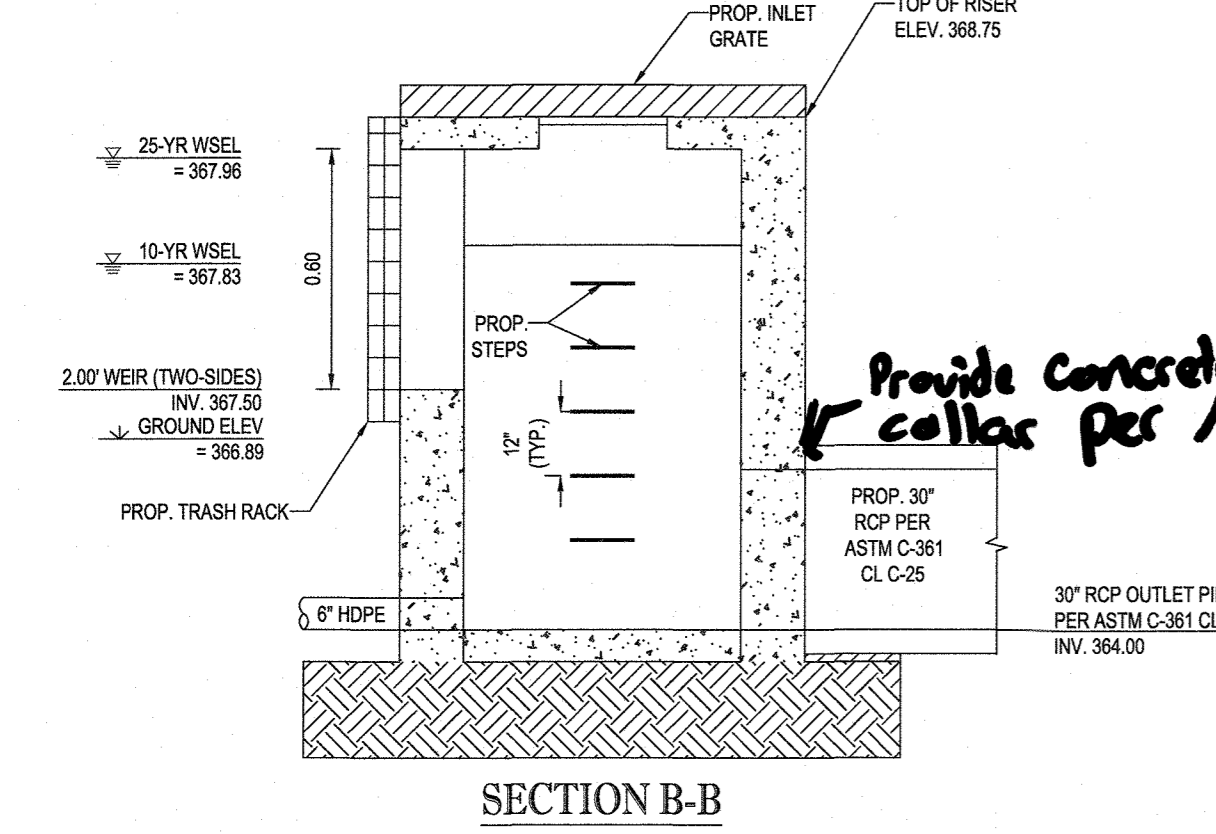
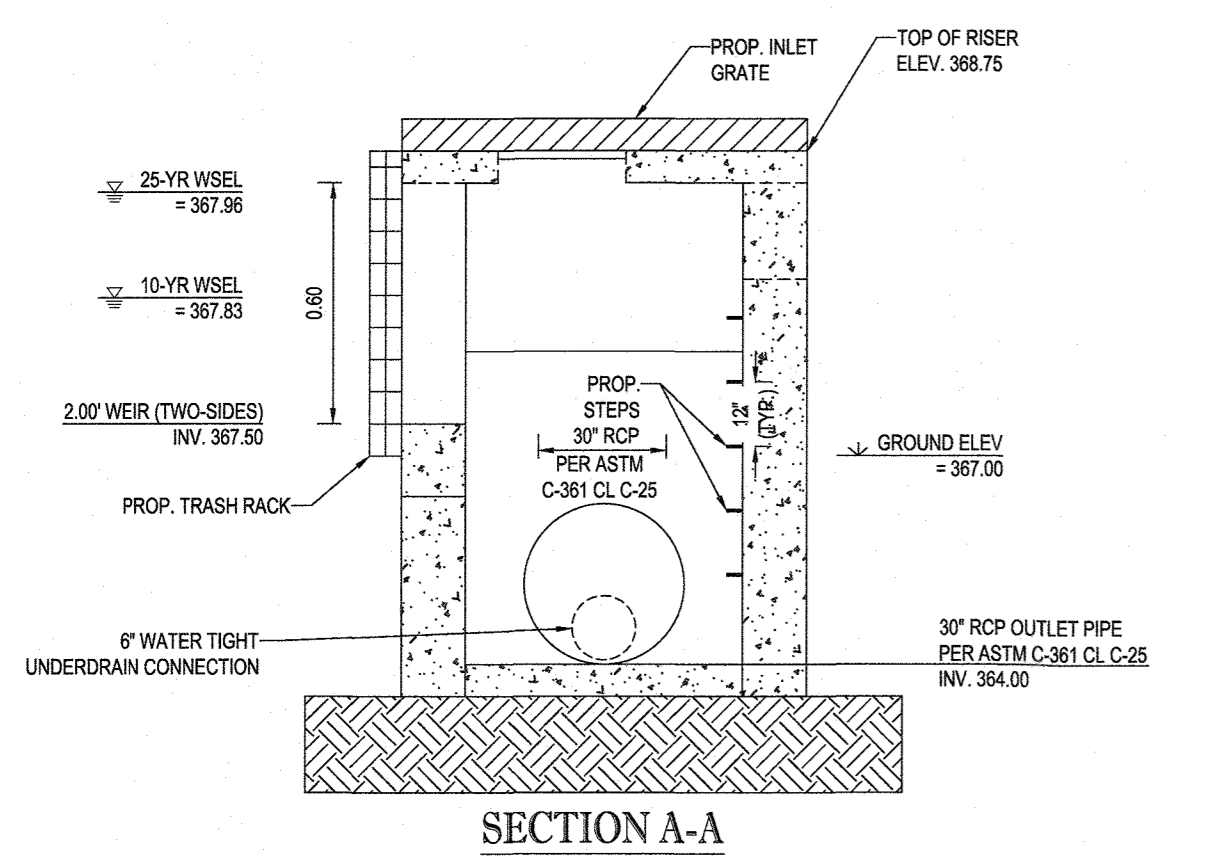
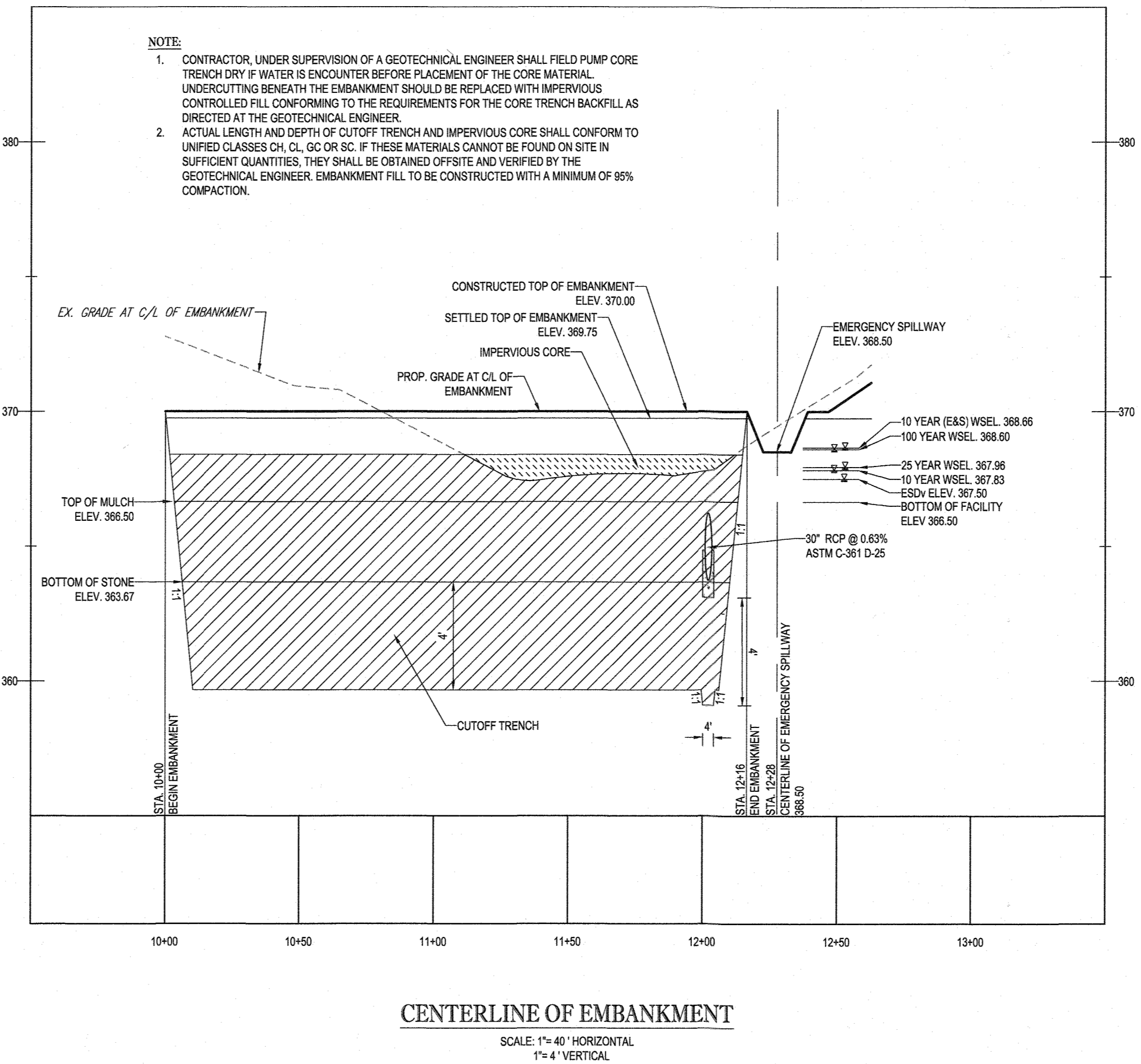
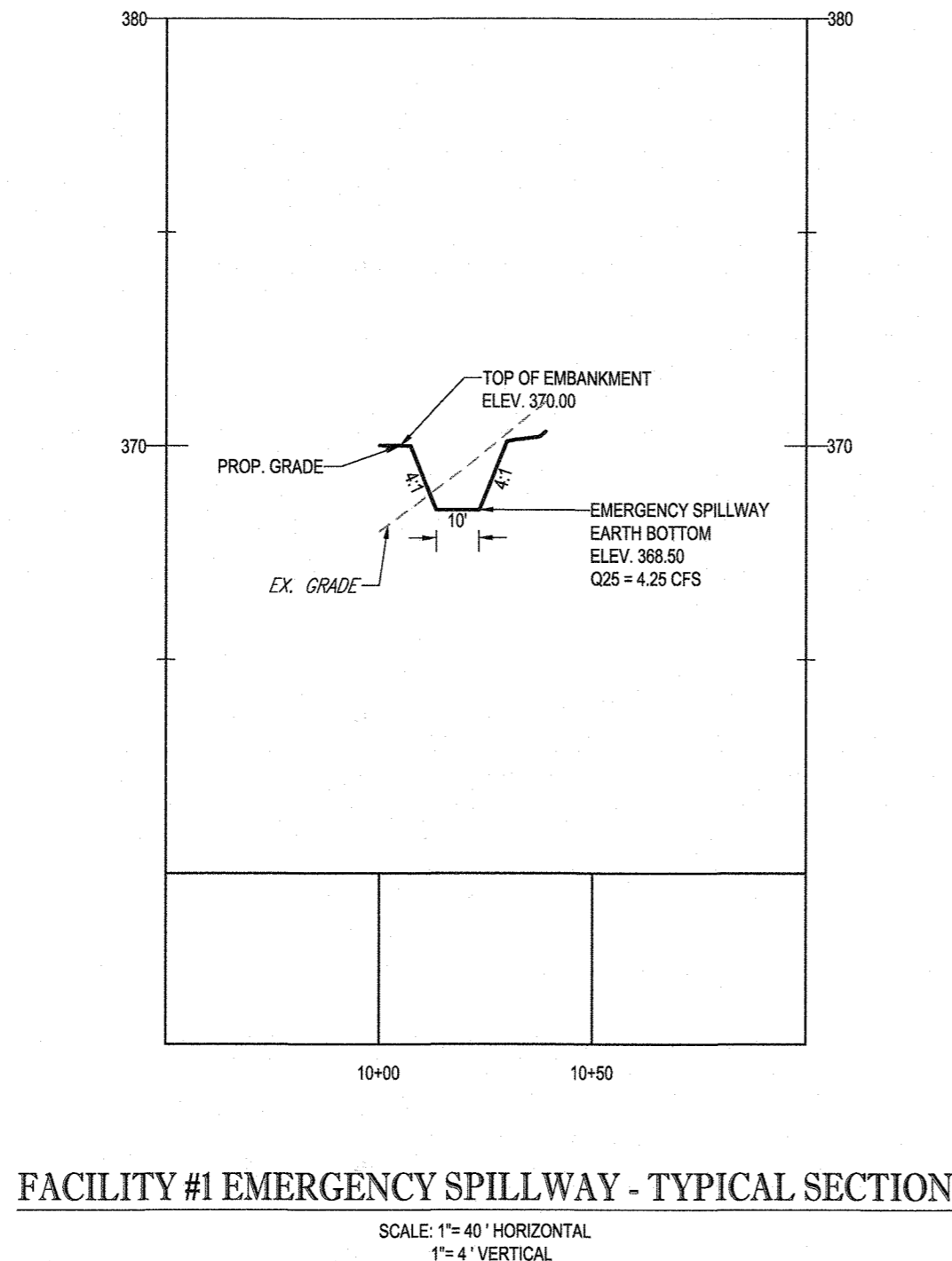
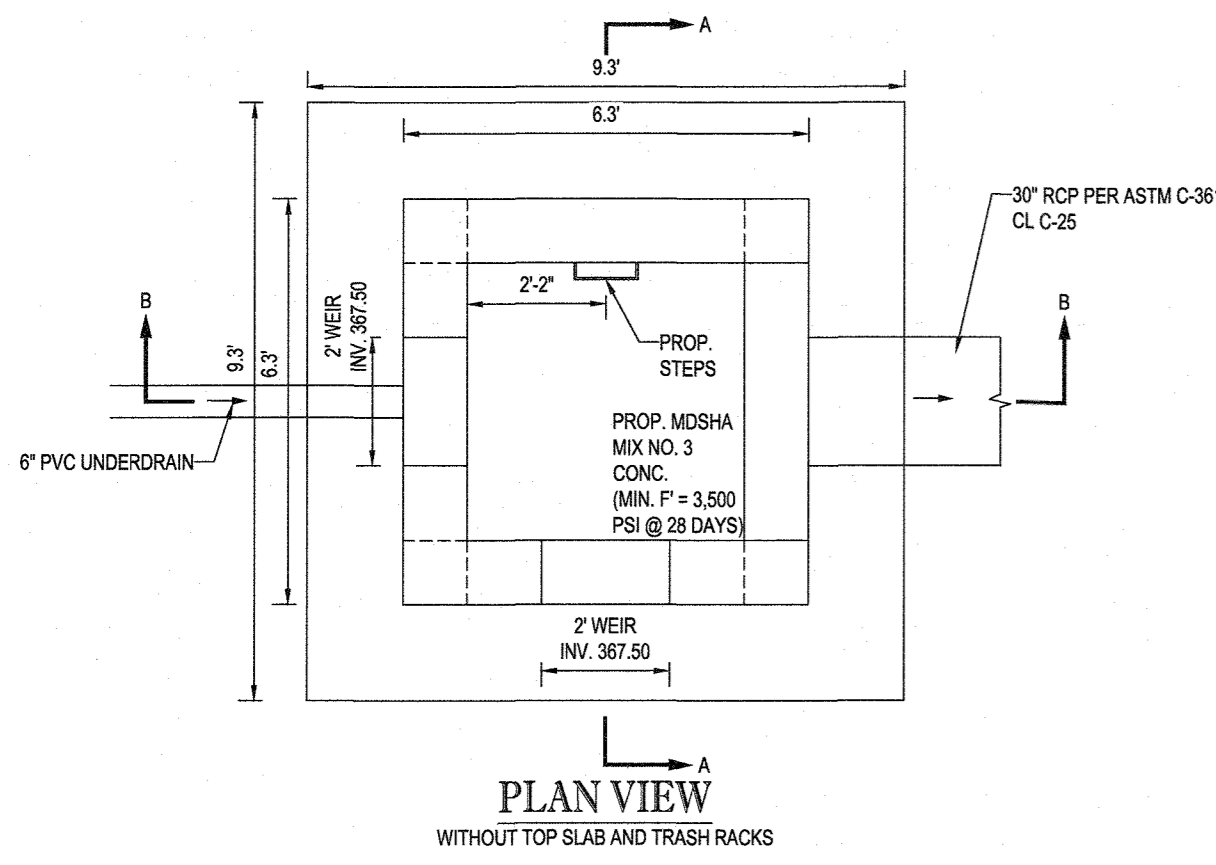
B. R. BOWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20866-EXPIRATION DATE: 7/22/2023

SWM NOTES & DETAILS

SHEET TITLE:
3a OF 80

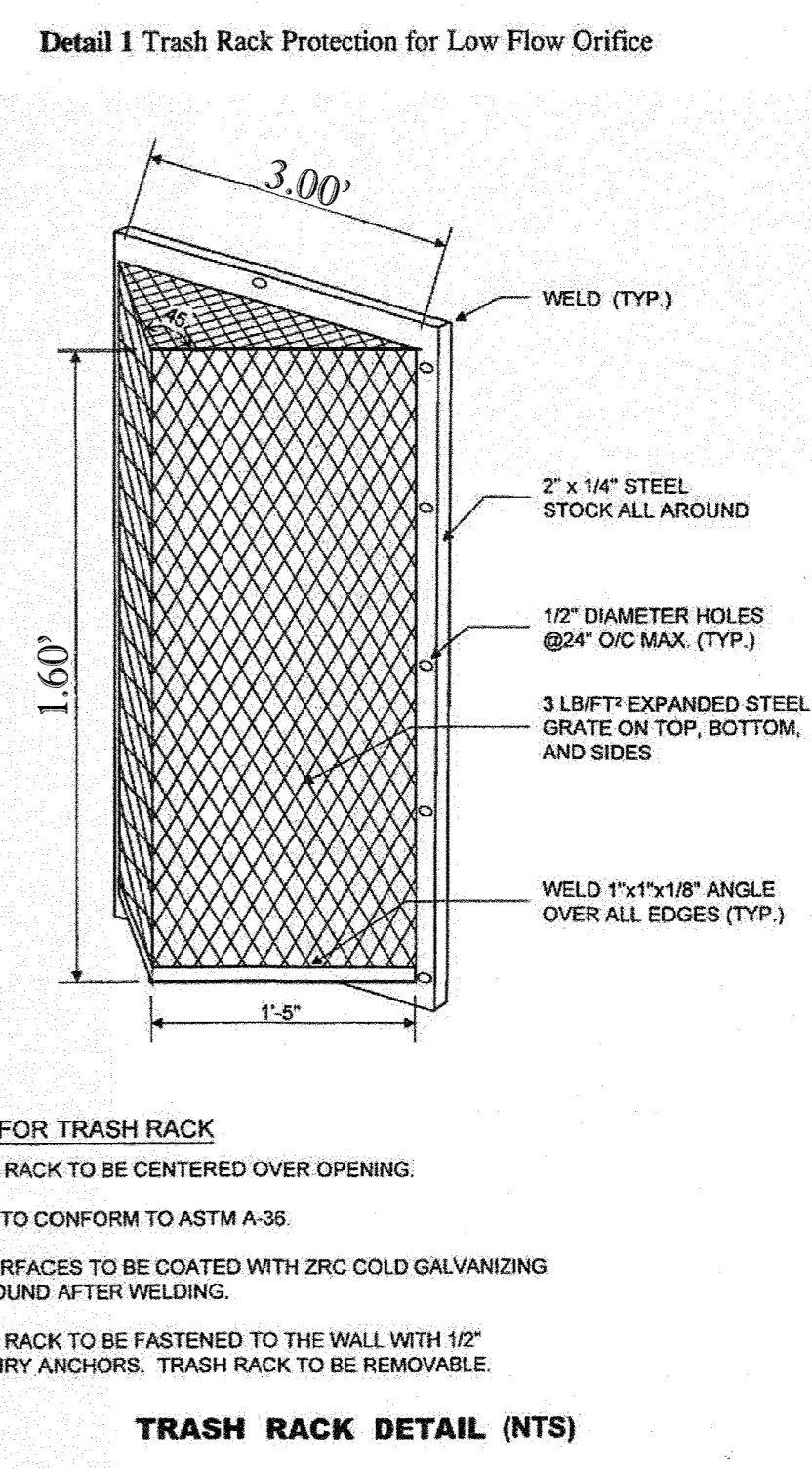
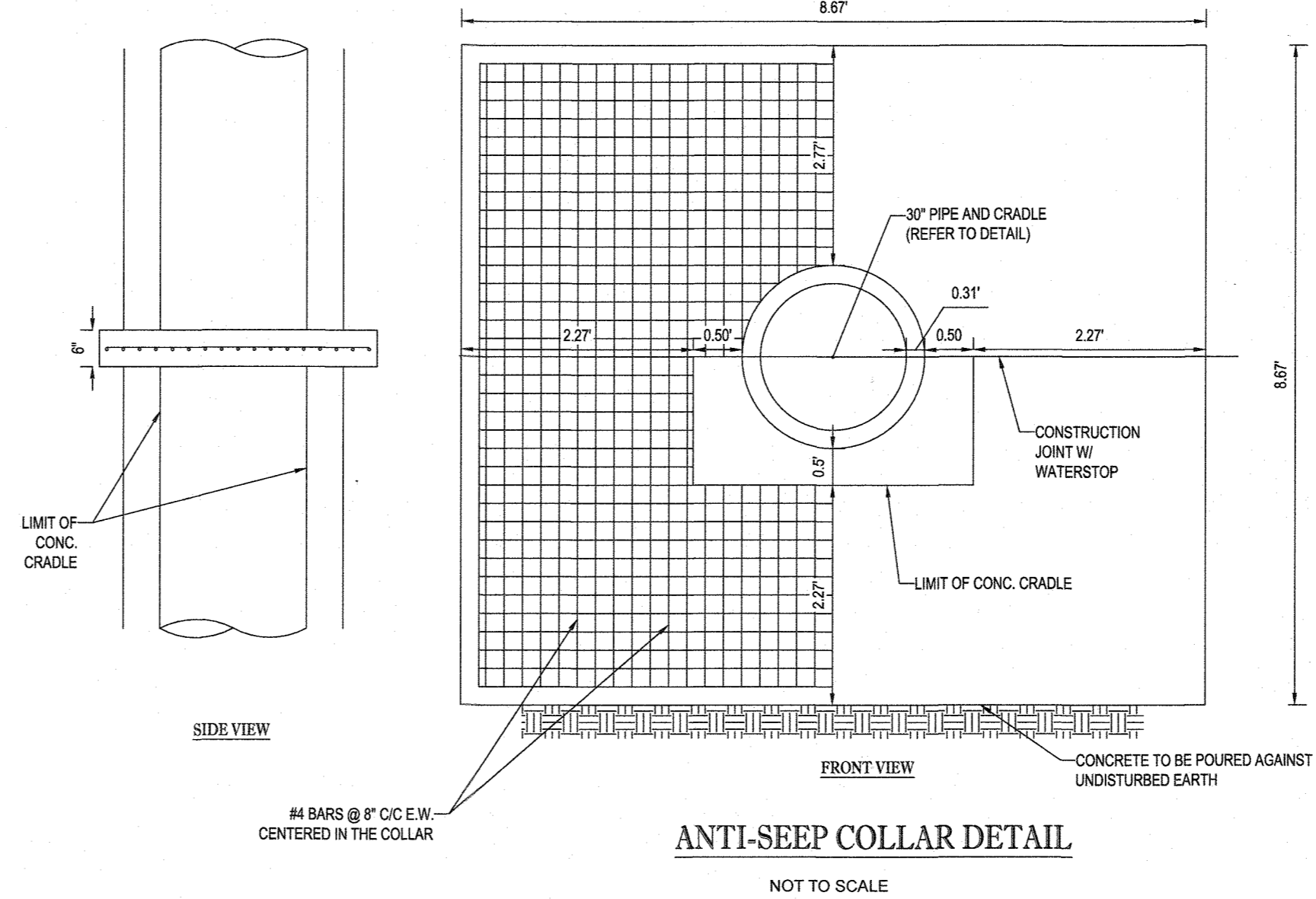
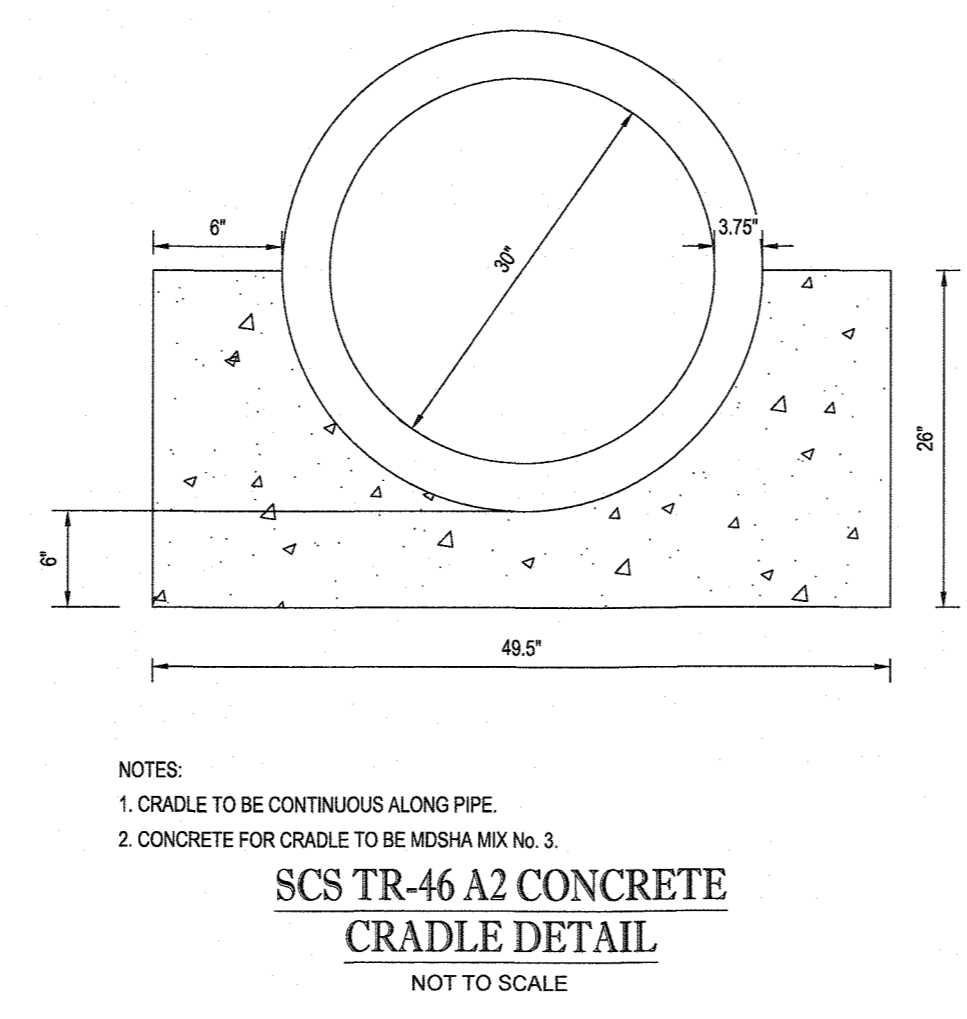
SHEET NUMBER:
3a OF 80

REVISION 6 - 09/24/2021



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE I-39)
NOT TO SCALE

NOTES:
1. MODIFIED HOWARD COUNTY PRECAST YARD INLET (STD. D-4.12). MODIFY WITH RELEVANT DRIFICE(S) AS SHOWN ABOVE.
2. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



Appendix D.8. Miscellaneous Details for Compliance with Performance Criteria

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

1800 WASHINGTON BLVD., SUITE 100
FULTON, MARYLAND 21048
PHONE: (410) 821-7900
FAX: (410) 821-7987
WWW.BOHLERENG.COM

REVISIONS				
REV	DATE	COMMENT	DESIGN BY	CHECKED BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: SWM-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

BOHLER ENGINEERING

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

B.R. ROWE
PROFESSIONAL ENGINEER

NOTES:
NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.
NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT, WITH THE EXCEPTION OF STORMDRAIN OUTFALLS TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YEAR STORM EVENT.
NOTE: 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.

SWM NOTES & DETAILS

SHEET NUMBER:
33 OF 80

REVISION 8 - 07/07/2021

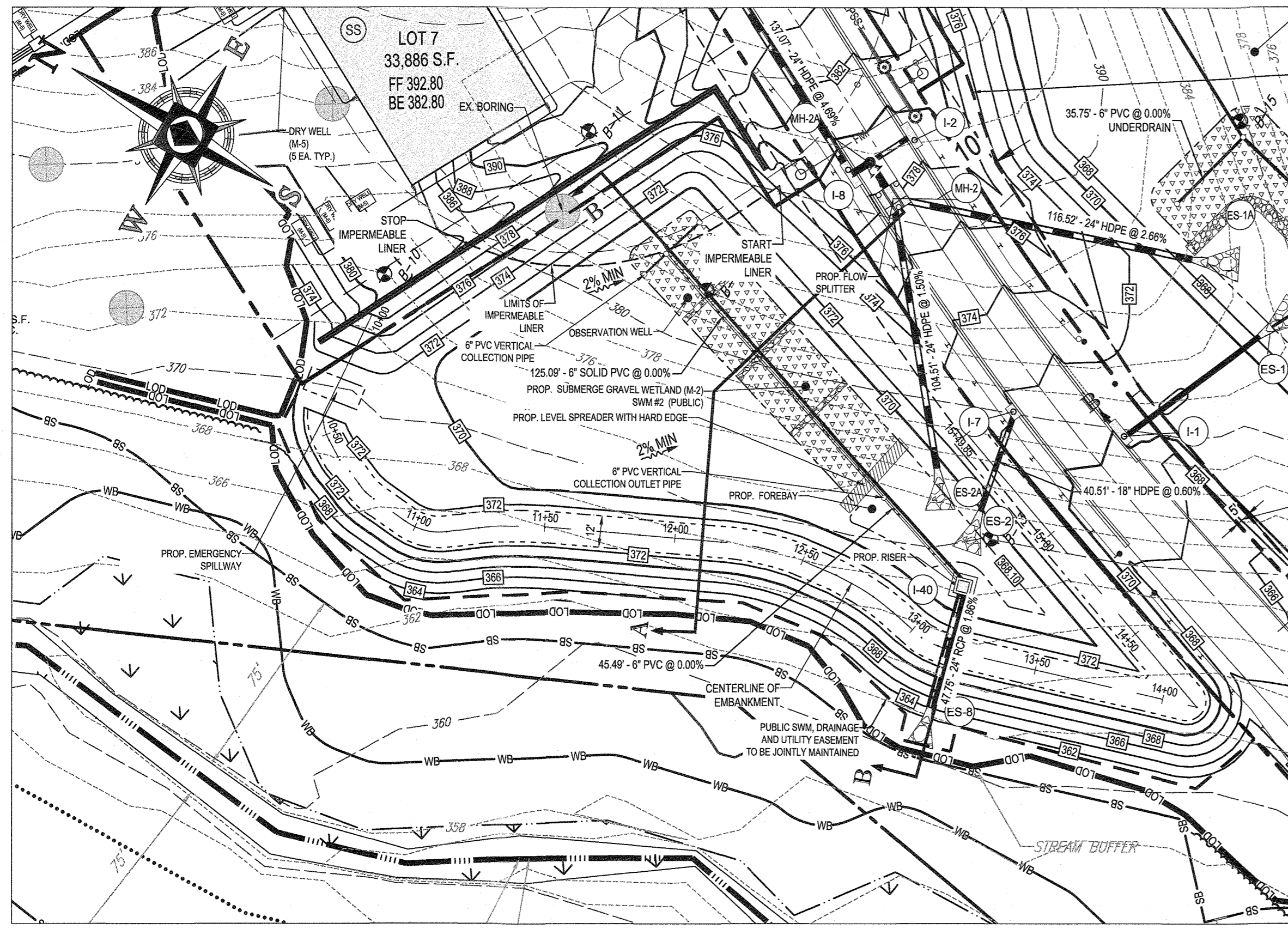
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 10/12/2021
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 12/21/21
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

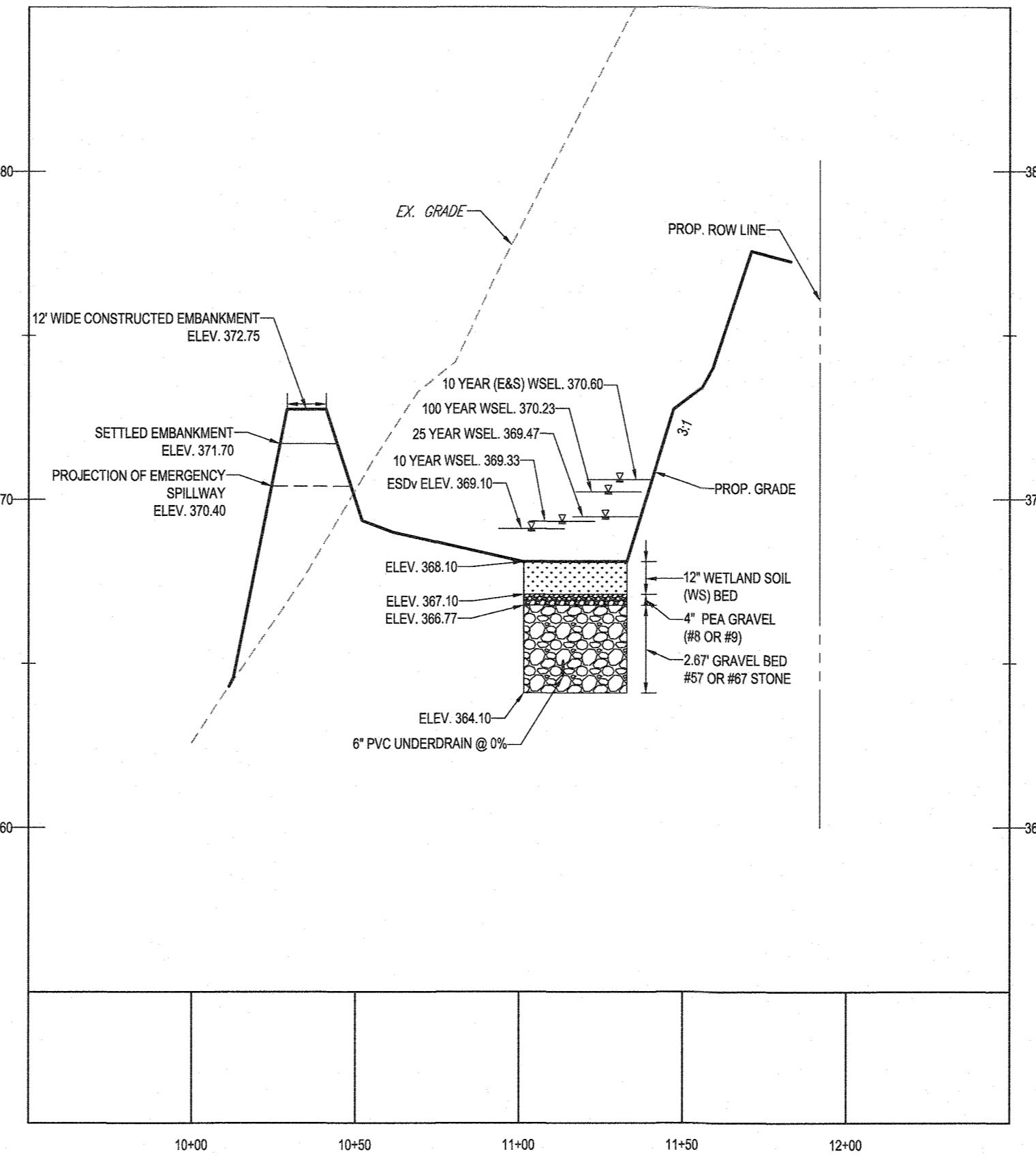
CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature] 10-13-21
DATE

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO
SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED #: 1453200469	PREVIOUS FILE NO.: SP-17-010b PARCEL: 135 ECP-17-056 WP-18-070	5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

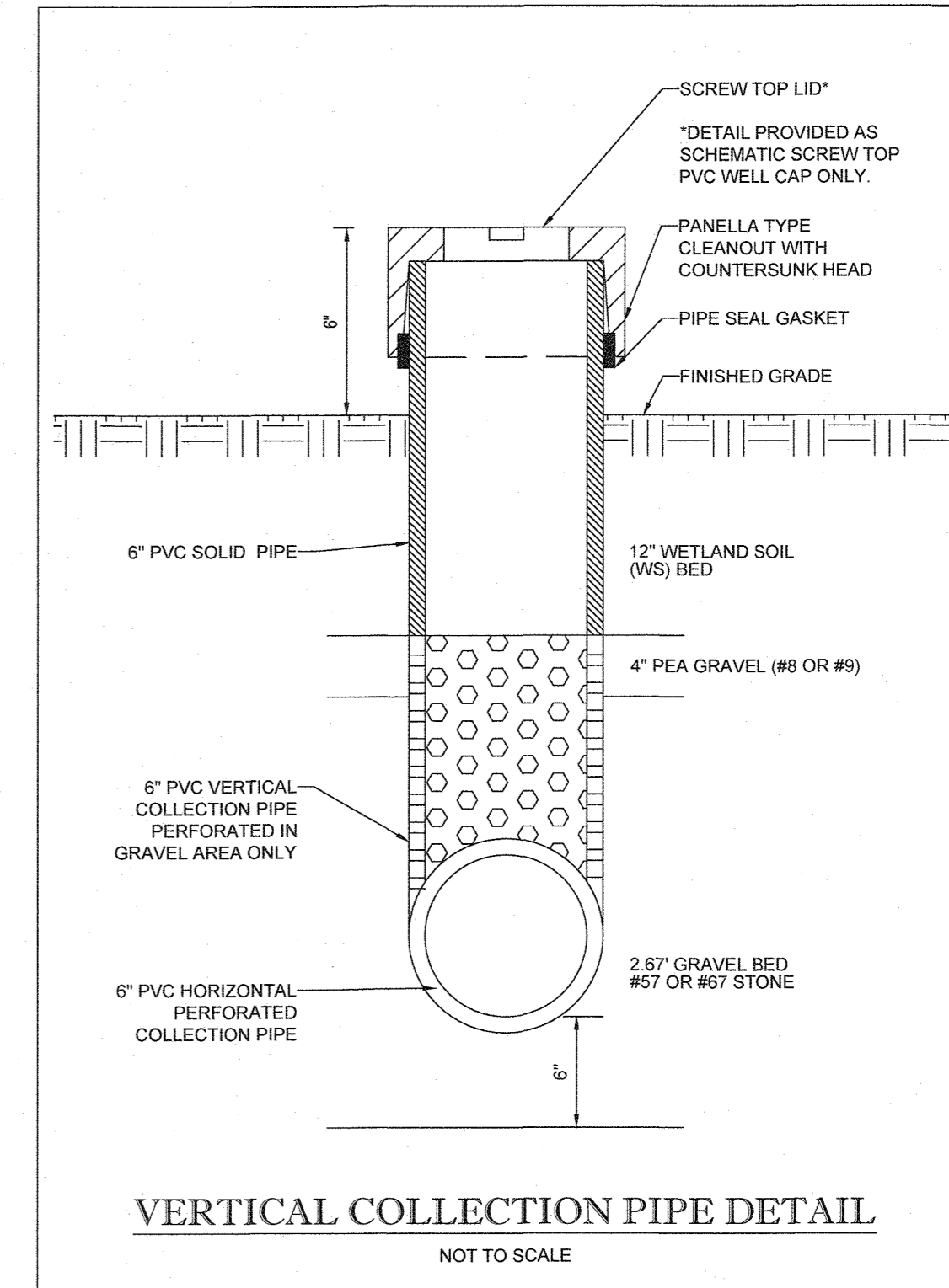
H:\MD1420671\DRAWINGS\PLAN SET\FINAL ROAD PLANS\MD1420671-SWM-5.DWG PRINTED BY: RBOVEN 7:08:21 @ 11:47 AM LAST SAVED BY: RBOVEN



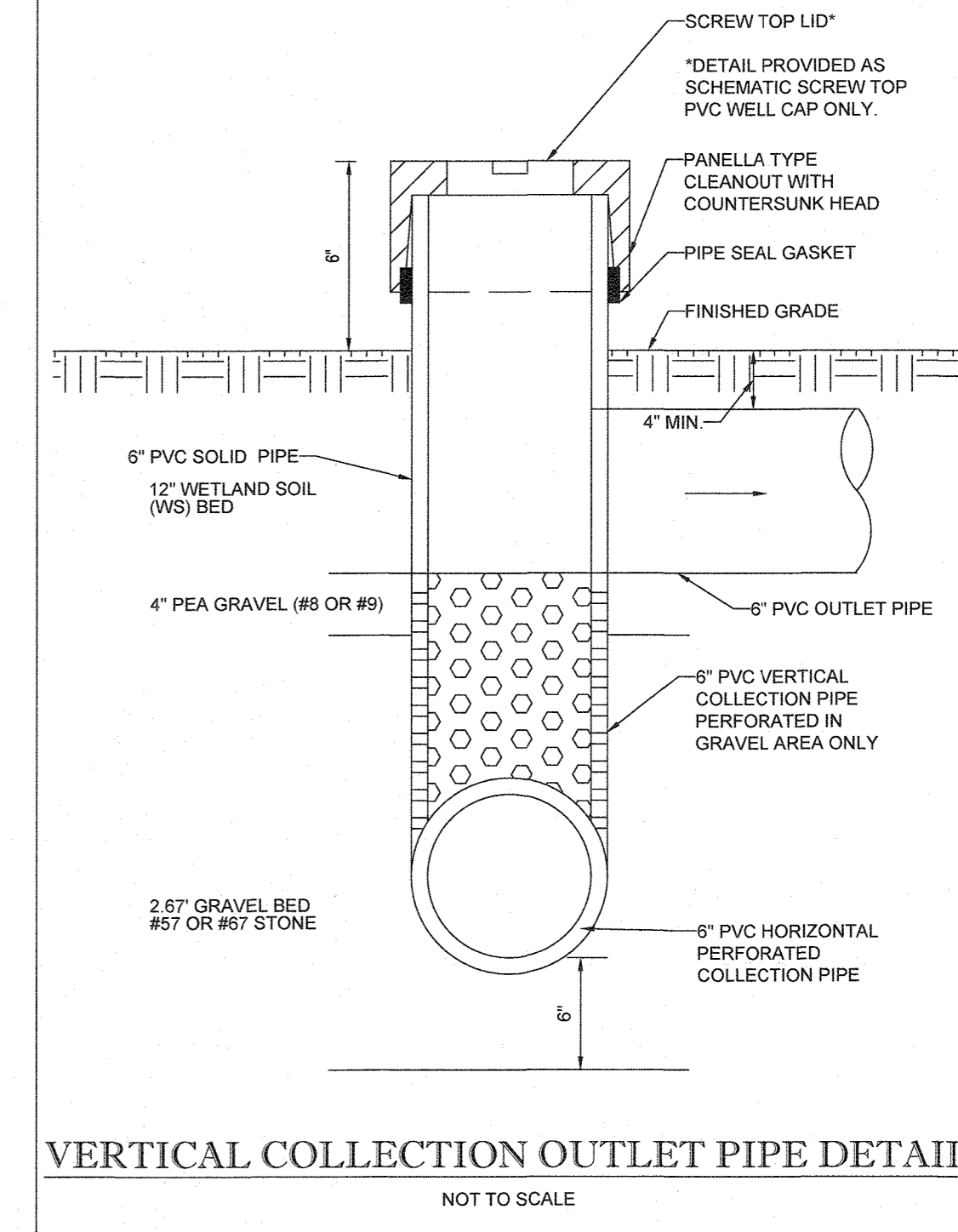
SUBMERGED GRAVEL WETLAND (M-2) SWM #2 (PUBLIC)
SCALE: 1" = 40'



SWM FACILITY #2 - SUBMERGED GRAVEL WETLAND (M-2) - SECTION A-A
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



VERTICAL COLLECTION PIPE DETAIL
NOT TO SCALE



VERTICAL COLLECTION OUTLET PIPE DETAIL
NOT TO SCALE

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)

ERNST SEEDS
Catalog | Price List | Project Planner | Contact | 800-873-3323
Products | Resource Center | About Us | News & Media | **Seed Finder TOOL**

Home / Stormwater Management / Native Detention Area Mix

« Back to List

Native Detention Area Mix

Mix Composition

- 26.0% *Panicum clandestinum*, Tiger (Deertrough, Tioga)
- 25.0% *Panicum virgatum*, Shatter (Switchgrass, Shatter)
- 20.0% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
- 20.0% *Elymus virginicus*, Madison (Virginia Wildrye, Madison)
- 4.0% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Astrum Bentgrass, Albany Pine Bush-NY Ecotype)
- 3.0% *Juncus effusus* (Soft Rush)
- 1.0% *Juncus tenuis*, PA Ecotype (Path Rush, PA Ecotype)
- 1.0% *Panicum rigidulum*, PA Ecotype (Redtop Panicgrass, PA Ecotype)

General Product Information:

The native grasses, sedges and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it can achieve native establishment with minimum risk and tolerate low-fertility. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNMX-183

Product Categories:

Stormwater Management

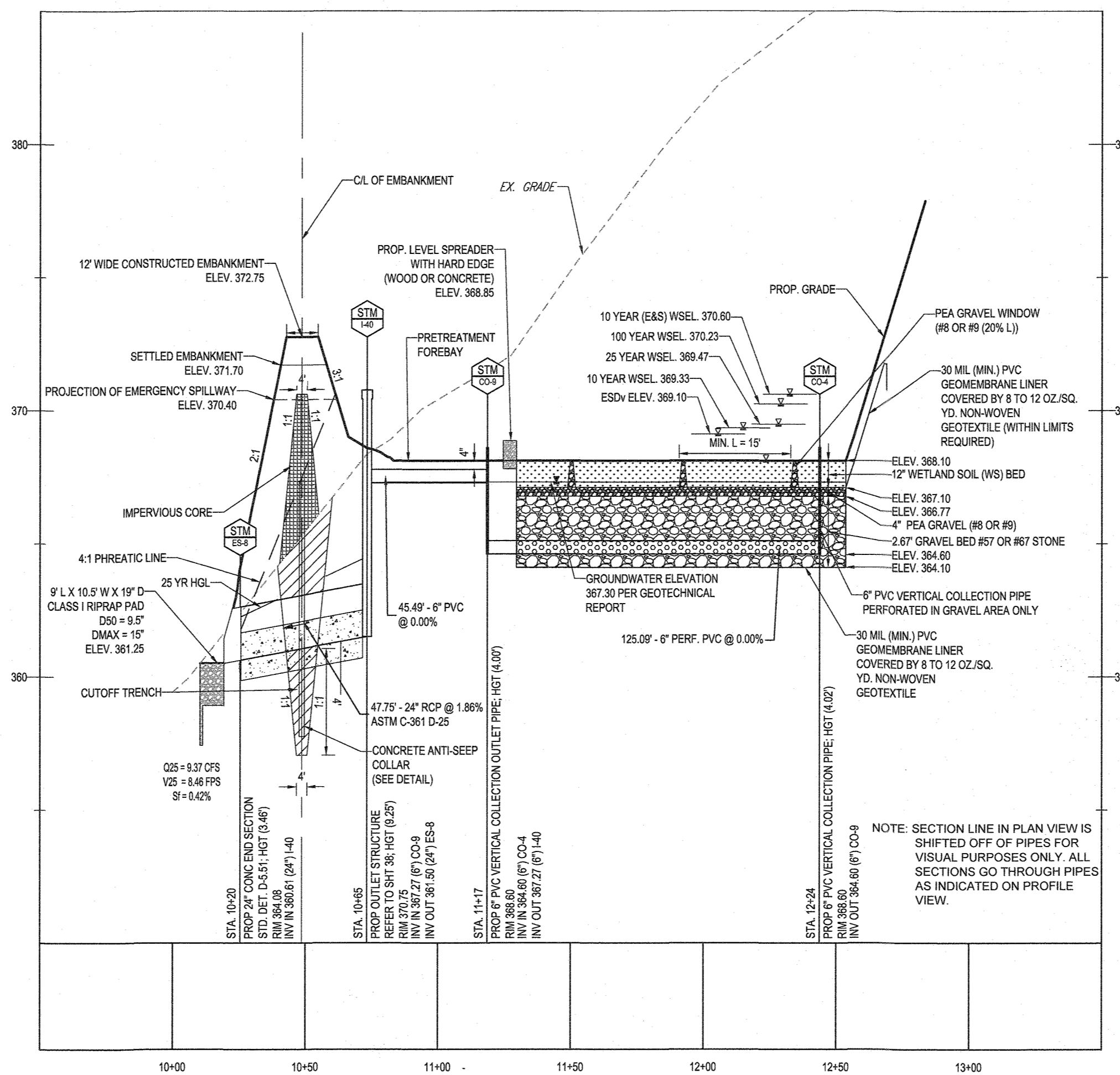
Height: 0.3 - 5.0 Ft

Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

PRINT | EMAIL | SHARE

Price: \$15.98/lb

ADD TO PLANNER



SWM FACILITY #2 - SUBMERGED GRAVEL WETLAND (M-2) - SECTION B-B/PRINCIPLE SPILLWAY PROFILE
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

FACILITY NOTES

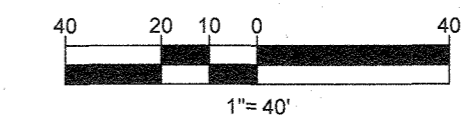
SUBMERGED GRAVEL WETLANDS WILL HAVE A PUBLIC DRAINAGE UTILITY EASEMENT AROUND THE FACILITY. IT WILL BE A JOINTLY MAINTAINED FACILITY. THE COUNTY WILL BE RESPONSIBLE FOR THE INFLOW PIPES/RIP-RAP, CONTROL STRUCTURE, OUTLET PIPE AND RIP-RAP. ALL OTHER ROUTINE AND NON-ROUTINE MAINTENANCE IS THE RESPONSIBILITY OF THE HOA.

NOTE: ALL ROOF DRAINS WILL BE 6"

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT. WITH THE EXCEPTION OF STORM DRAIN OUTFALLING TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YEAR STORM EVENT.

NOTE: 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.



SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED # 14532/00499

PREVIOUS FILE NO.: SP-17-010b ECP-17-056 WP-18-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-957-1046
TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/12/2021
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/21/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10-28-21

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES
1101 E. HARRIS DRIVE, SUITE 200, ELK RIDGE, MARYLAND 21075
TEL: 410-957-1046
WWW.BOHLERENG.COM

REV	DATE	COMMENT	DESIGNED BY

811
Know what's Below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION
PROJECT NO.: MD1420671
DRAWN BY: AVC
CHECKED BY: BRR
DATE: 09/24/2021
CAD I.D.: SWM-5

FINAL ROAD PLAN
FOR
LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

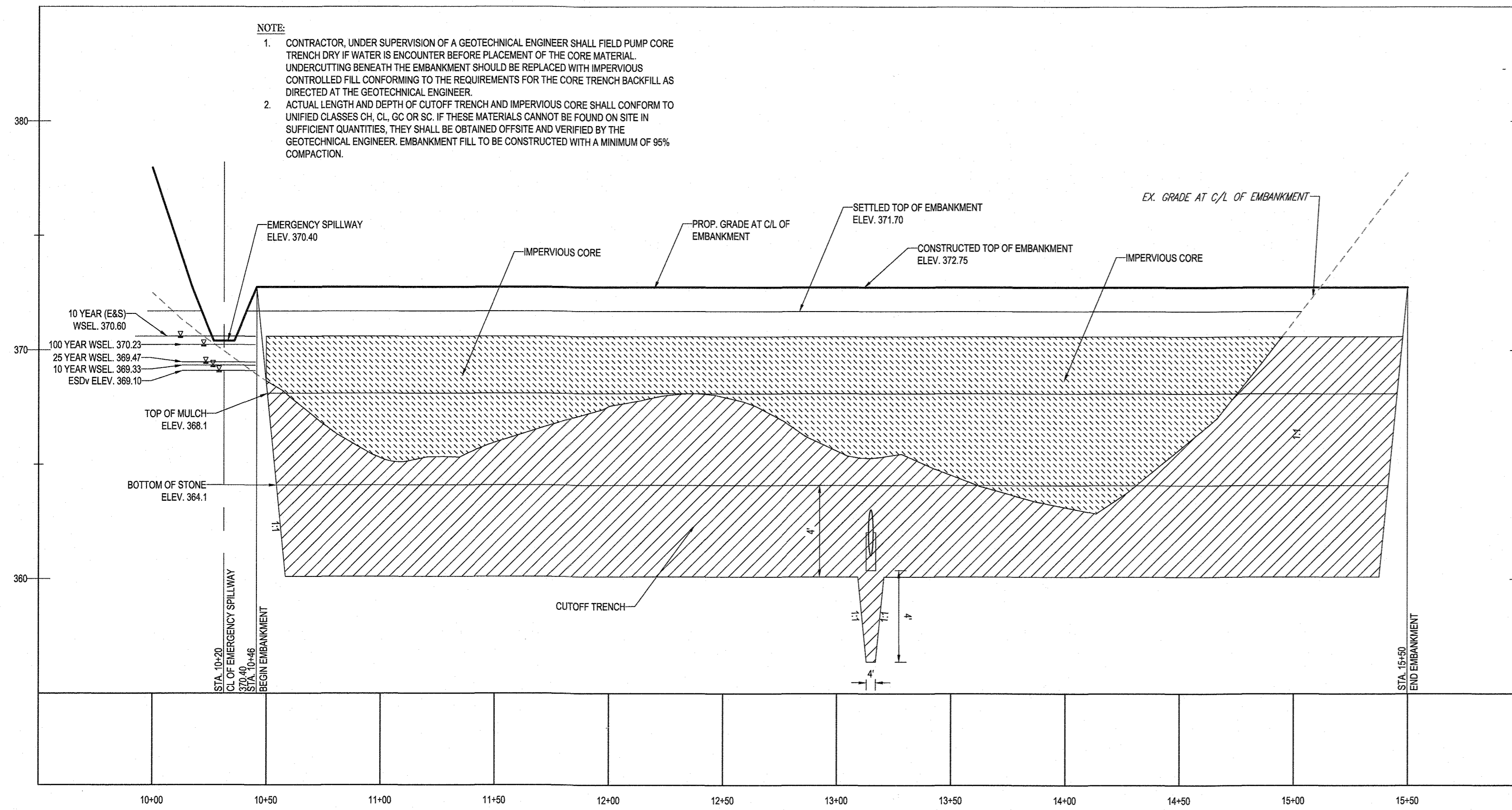
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 4008
PROFESSIONAL CERTIFICATION
J. BRANDON ROWE, HEREBY CERTIFIES 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. 42986, EXPIRATION DATE: 7/30/2023

SHEET TITLE:
SWM NOTES & DETAILS
SHEET NUMBER:
34 OF 80
REVISION 5 - 09/24/2021

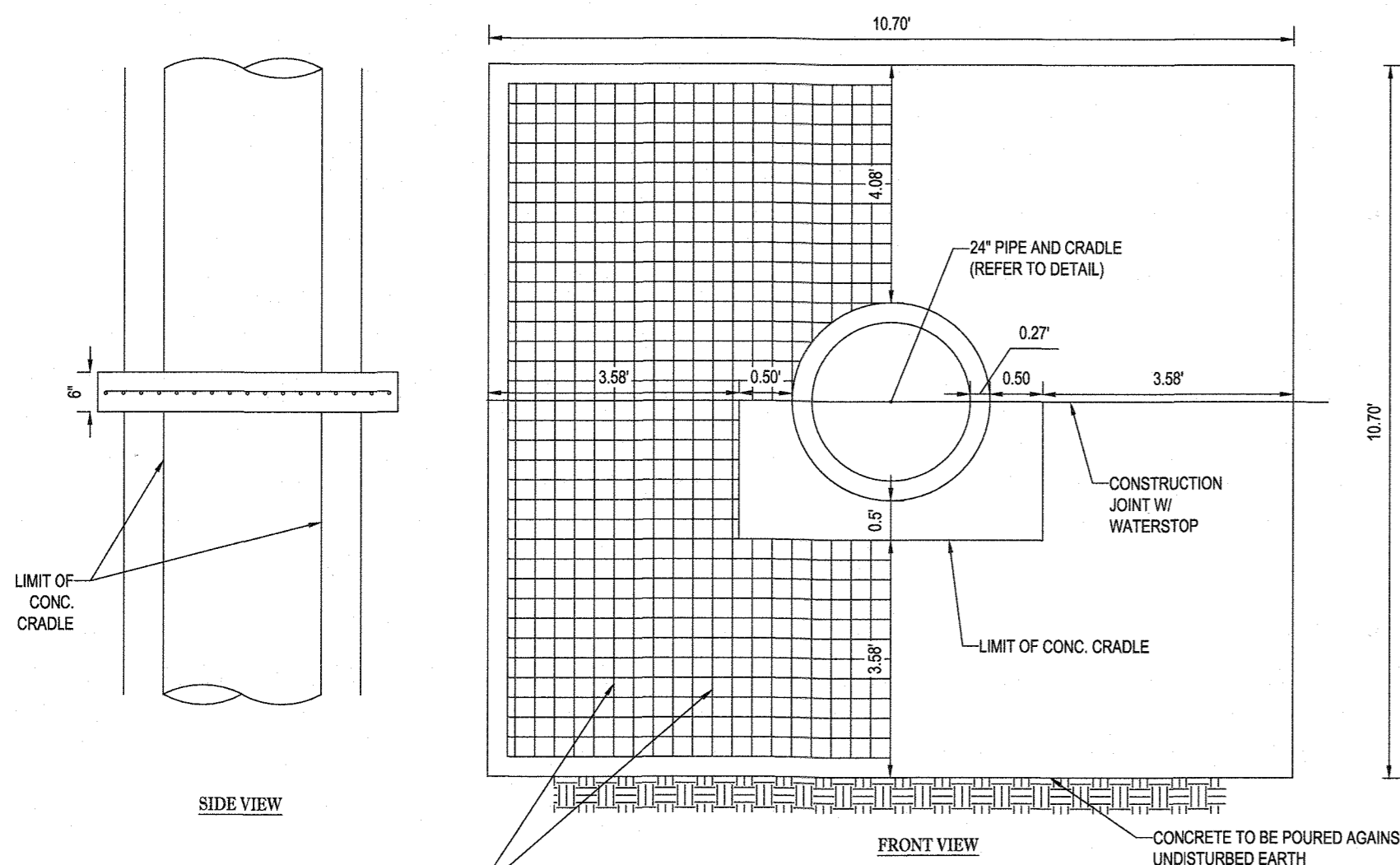
NOTE:

- CONTRACTOR, UNDER SUPERVISION OF A GEOTECHNICAL ENGINEER SHALL FIELD PUMP CORE TRENCH DRY IF WATER IS ENCOUNTERED BEFORE PLACEMENT OF THE CORE MATERIAL. UNDERCUTTING 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.
- ACTUAL LENGTH AND DEPTH OF CUTOFF TRENCH AND IMPERVIOUS CORE SHALL CONFORM TO UNIFIED CLASSES CH, CL, CC OR SC. IF THESE MATERIALS CANNOT BE FOUND ON SITE IN SUFFICIENT QUANTITIES, THEY SHALL BE OBTAINED OFFSITE AND VERIFIED BY THE GEOTECHNICAL ENGINEER. EMBANKMENT FILL TO BE CONSTRUCTED WITH A MINIMUM OF 96% COMPACTION.



FACILITY #2 - CENTERLINE OF EMBANKMENT - (5)

SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL



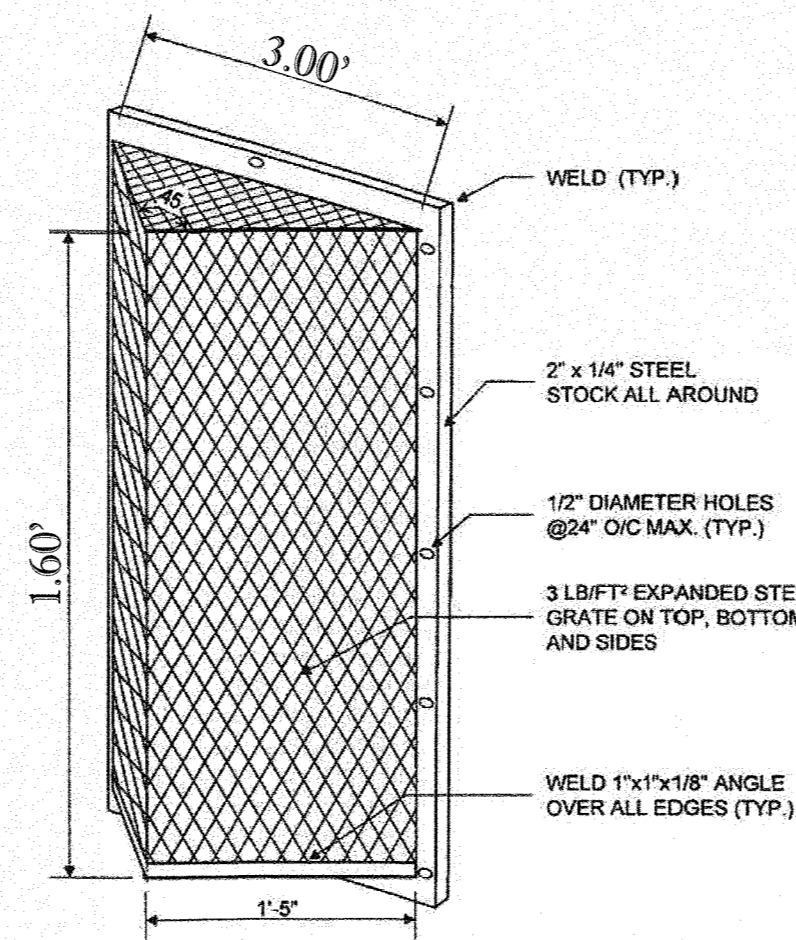
ANTI-SEEP COLLAR DETAIL

NOT TO SCALE

NOTES:

- CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
- ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
- ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
- LOOSE CONCRETE, DIRT, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
- CONCRETE SHALL HAVE A MINIMUM F' = 3,500 PSI (MESH NO. 3) AT 28 DAYS.
- DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

Detail 1 Trash Rack Protection for Low Flow Orifice

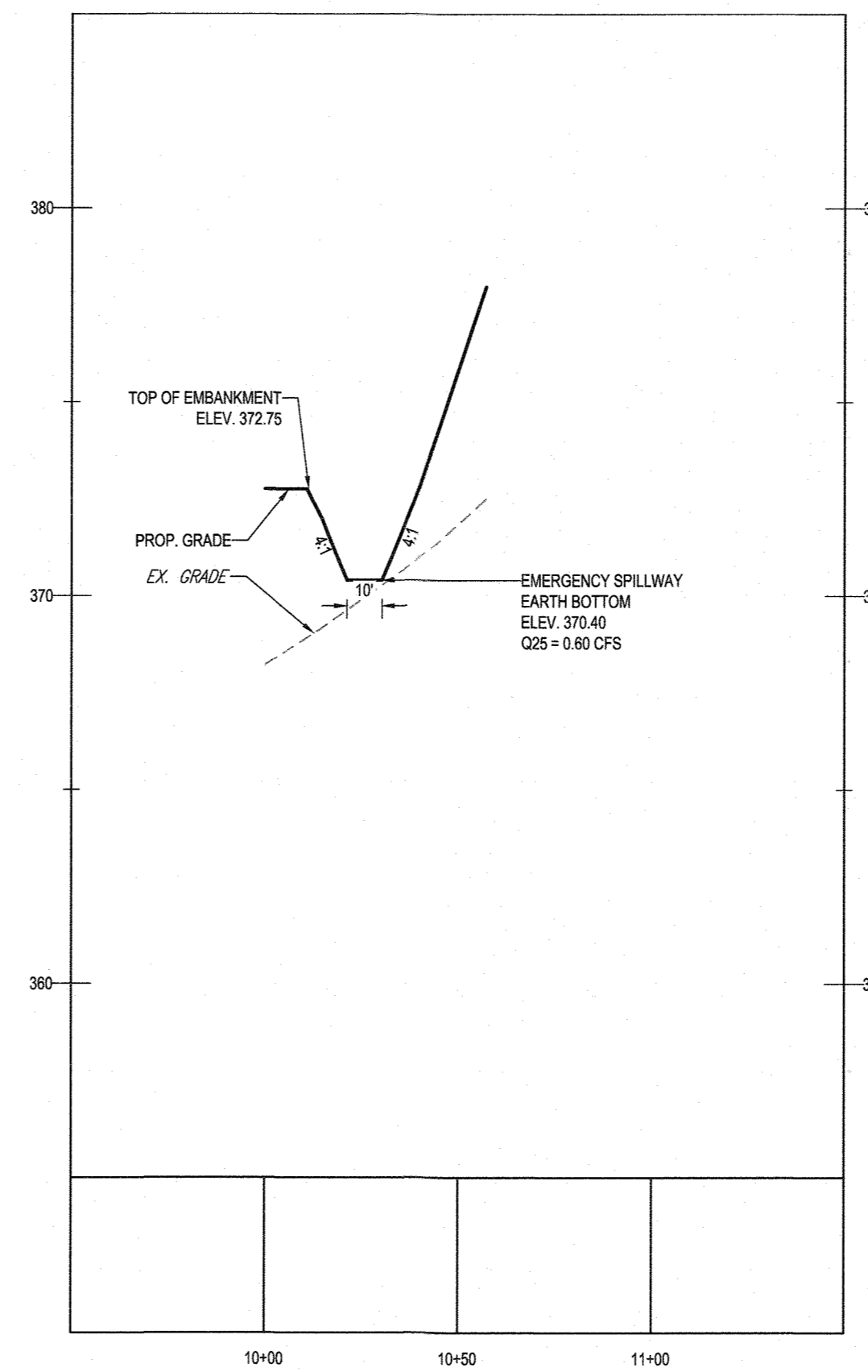


NOTES FOR TRASH RACK

- TRASH RACK TO BE CENTERED OVER OPENING.
- STEEL TO CONFORM TO ASTM A-36
- ALL SURFACES TO BE COATED WITH ZRC COLORED GALVANIZING COMPOUND AFTER WELDING.
- TRASH RACK TO BE FASTENED TO THE WALL WITH 1/2" MASONRY ANCHORS. TRASH RACK TO BE REMOVABLE.

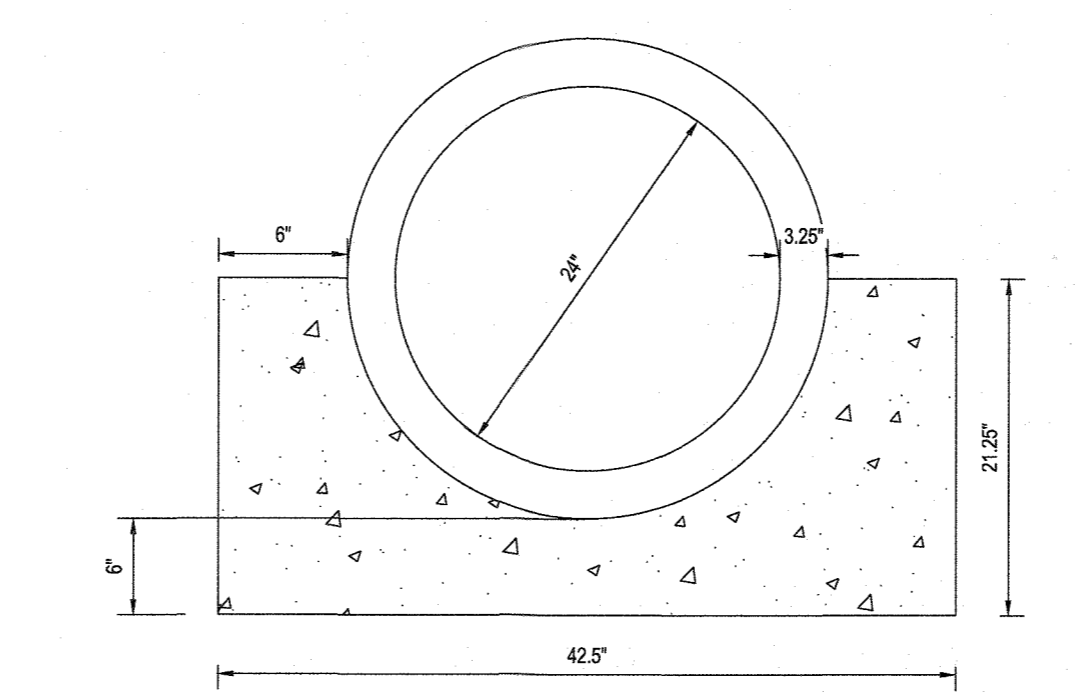
TRASH RACK DETAIL (NTS)

D.8.2



FACILITY #2 EMERGENCY SPILLWAY - TYPICAL SECTION

SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL

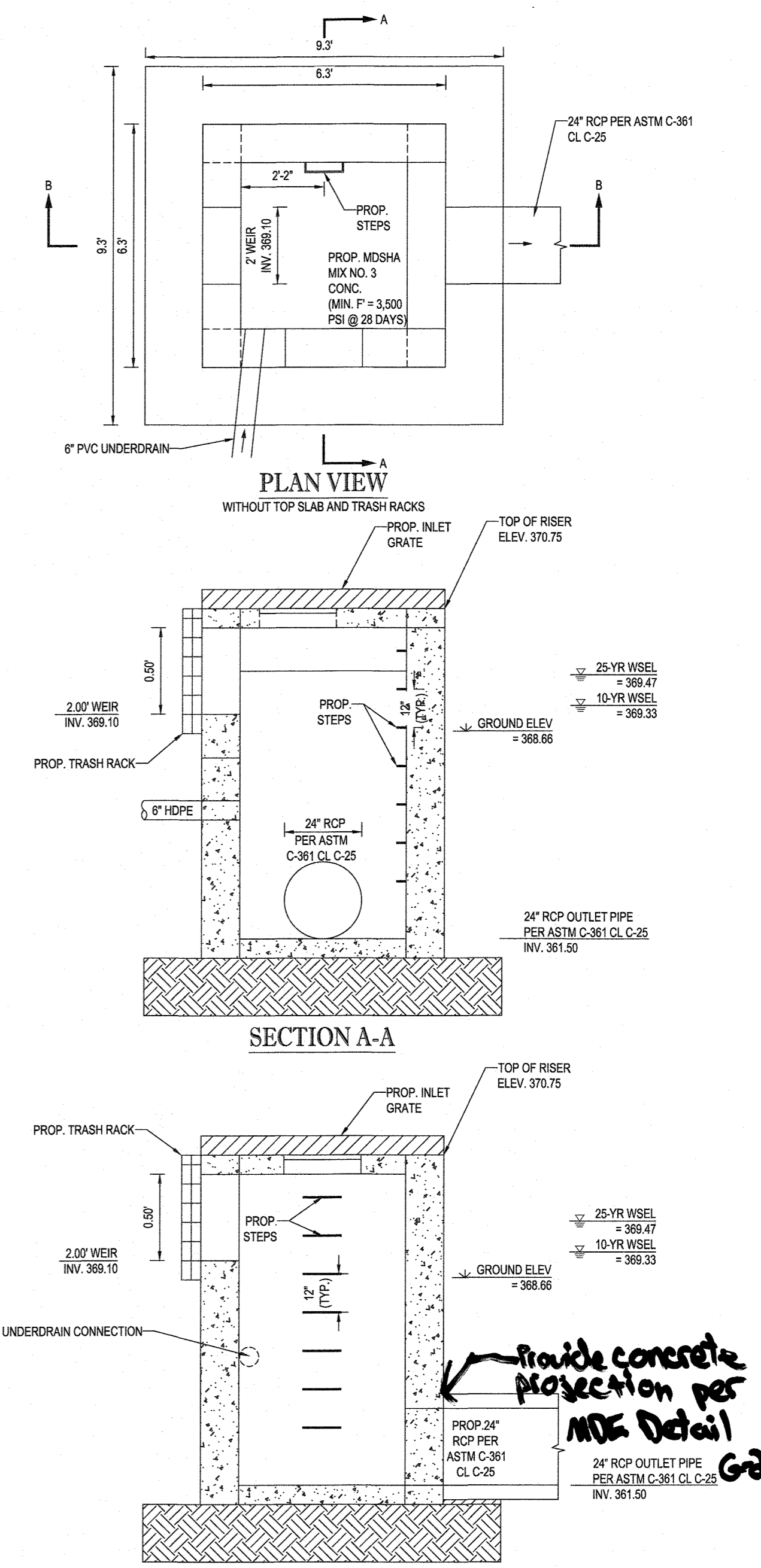


SCS TR-46 A2 CONCRETE CRADLE DETAIL

NOT TO SCALE

NOTES:

- CRADLE TO BE CONTINUOUS ALONG PIPE.
- CONCRETE FOR CRADLE TO BE MSHA MIX NO. 3.



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE I-40)

NOT TO SCALE

NOTES:

- MODIFIED HOWARD COUNTY PRECAST YARD INLET (STD. D-4.12). MODIFY WITH RELEVANT ORIFICE(S) AS SHOWN ABOVE.
- DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

NOTE: ALL ROOF DRAINS WILL BE 6"

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

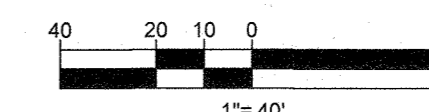
NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT, WITH THE EXCEPTION OF STORM DRAIN OUTFALLING TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YEAR STORM EVENT.

NOTE: A MAXIMUM OF 30 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.

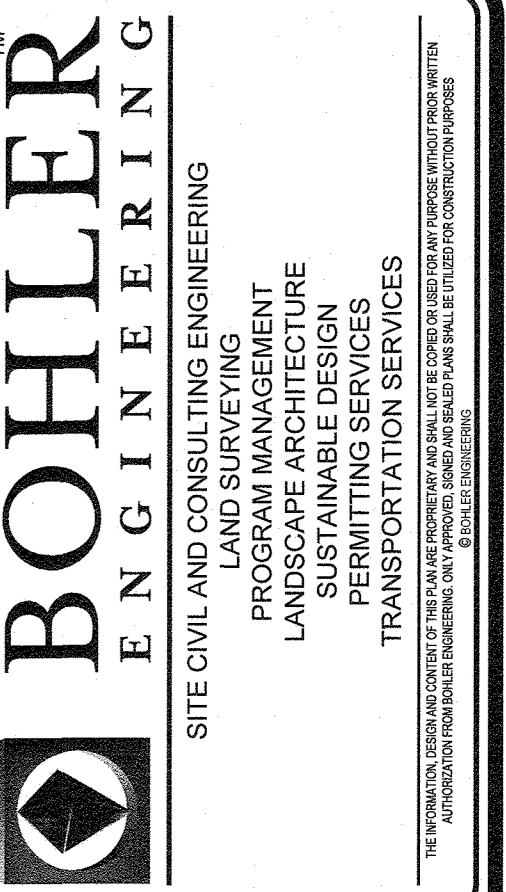
OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-967-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



PREVIOUS FILE NO.: SP-17-010b ECP-17-056 WP-18-070	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-967-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
-------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------



REVISIONS			
REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY USE ONLY. REVIEW AND APPROVAL IS REQUIRED FOR ALL SUBMITTED DOCUMENTS. CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: SWM-5

PROJECT:
FINAL ROAD PLAN

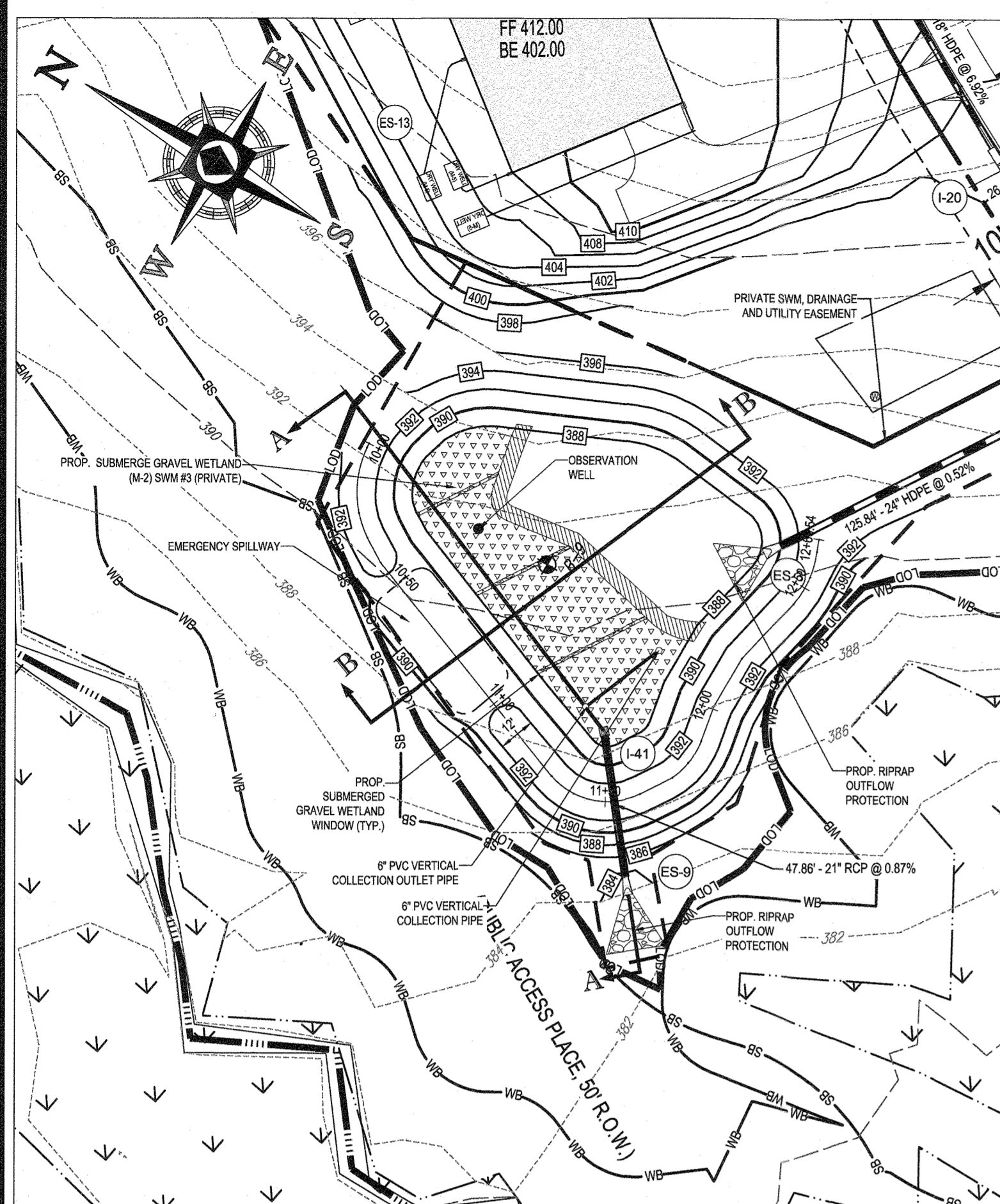
FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

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

B.R. ROWE
PROFESSIONAL ENGINEER
1. BRANDED/REGISTERED PROFESSIONAL ENGINEER THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM QUALIFIED TO SIGN THESE DOCUMENTS UNDER THE LAWS OF MARYLAND, LICENSE NO. 42886, EXPIRATION DATE: 7/31/2023

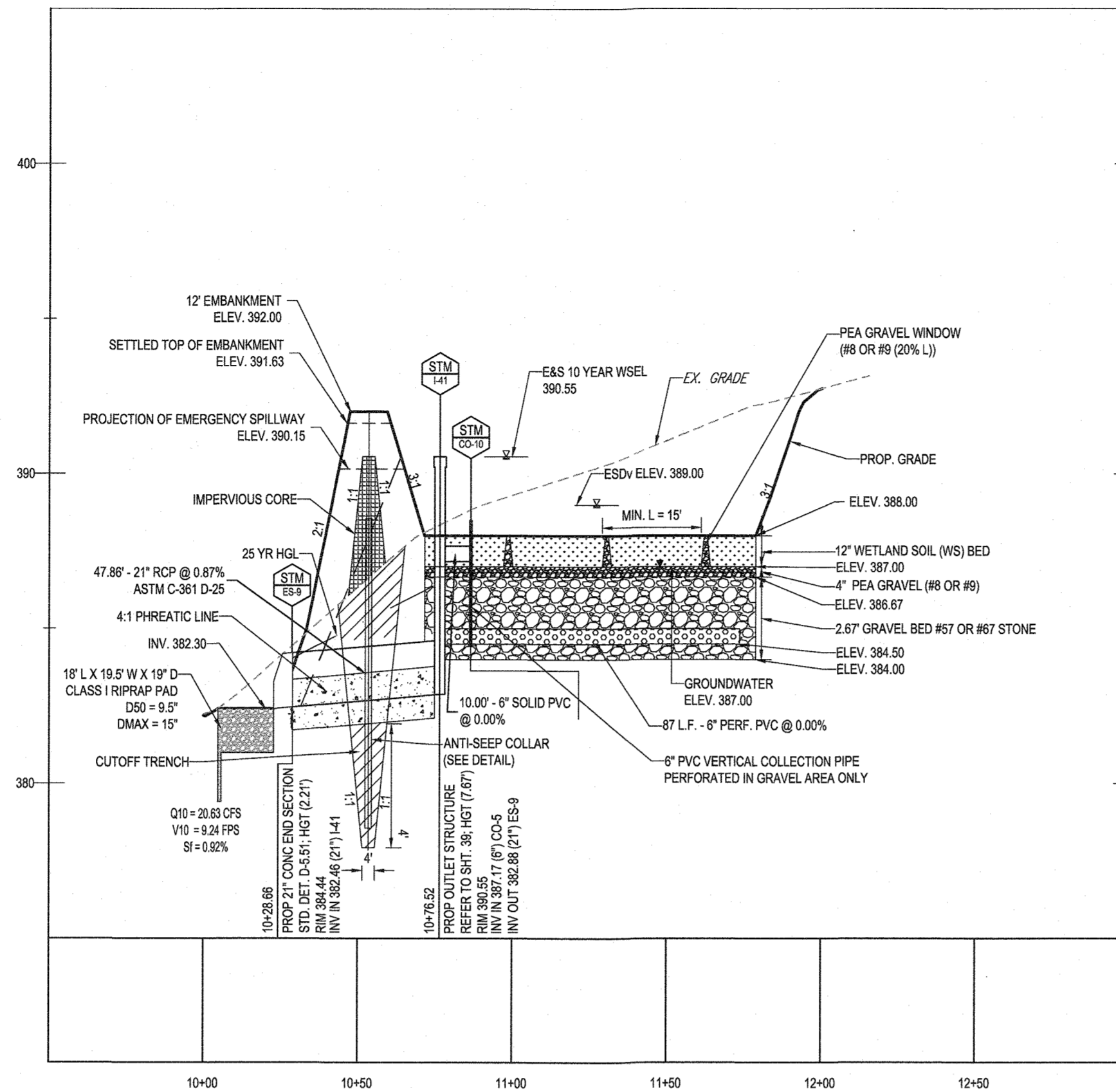
SHEET TITLE:
SWM NOTES & DETAILS
SHEET NUMBER:
35 OF 80
REVISION 5 - 07/07/2021

APPROVED: DEPARTMENT OF PUBLIC WORKS 	10/12/2021 DATE
CHIEF, BUREAU OF HIGHWAYS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING 	12/1/21 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	10-16-21 DATE



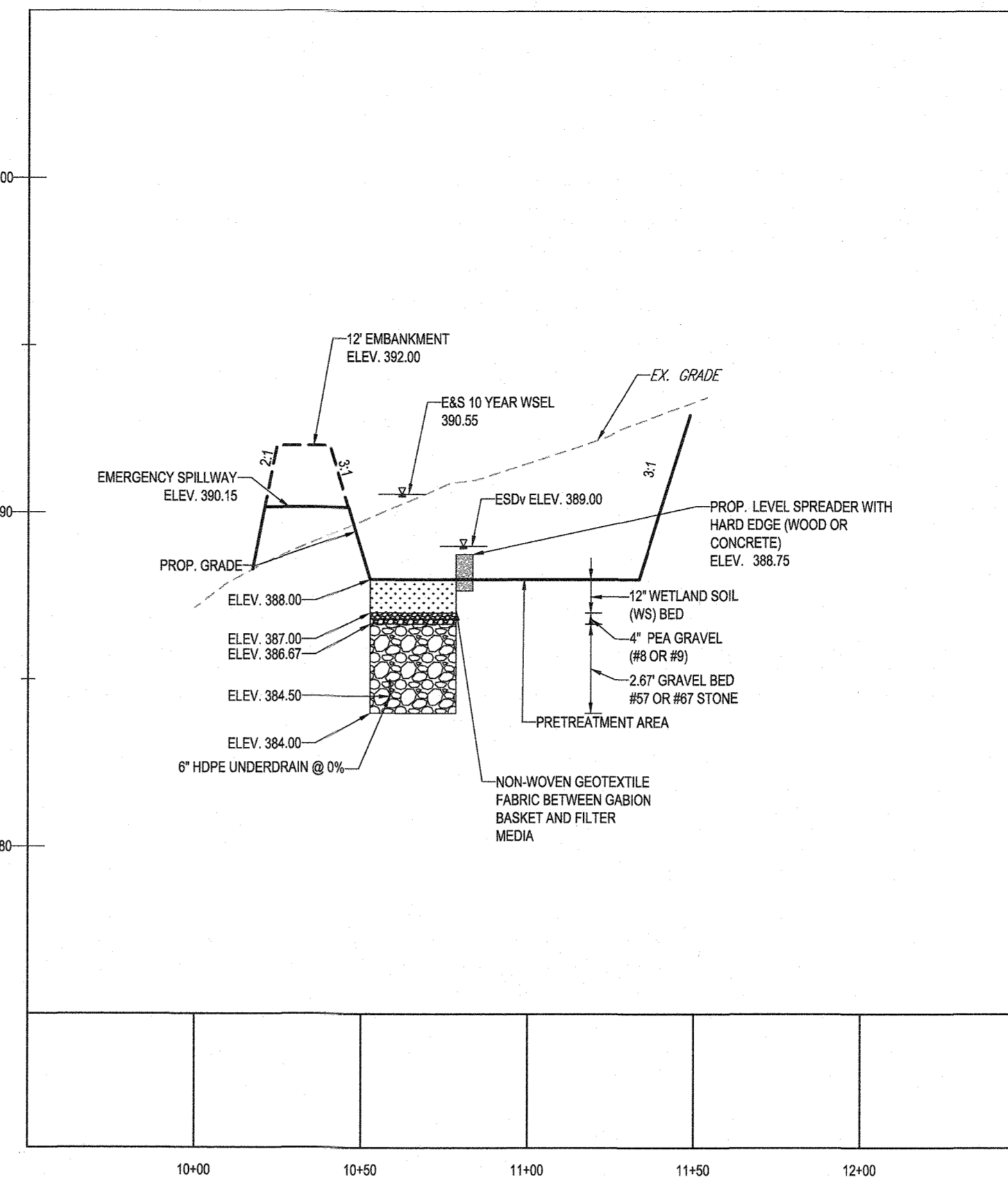
SUBMERGED GRAVEL WETLAND (M-2) SWM #3 (PRIVATE)

SCALE: 1" = 40'
NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)



SWM FACILITY #3 - SUBMERGED GRAVEL WETLAND (M-2) - SECTION A-A

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



SWM FACILITY #3 - SUBMERGED GRAVEL WETLAND (M-2) - SECTION B-B

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

ERNST SEEDS
Seed Finder TOOL

Home | Stormwater Management / Native Detention Area Mix

Native Detention Area Mix

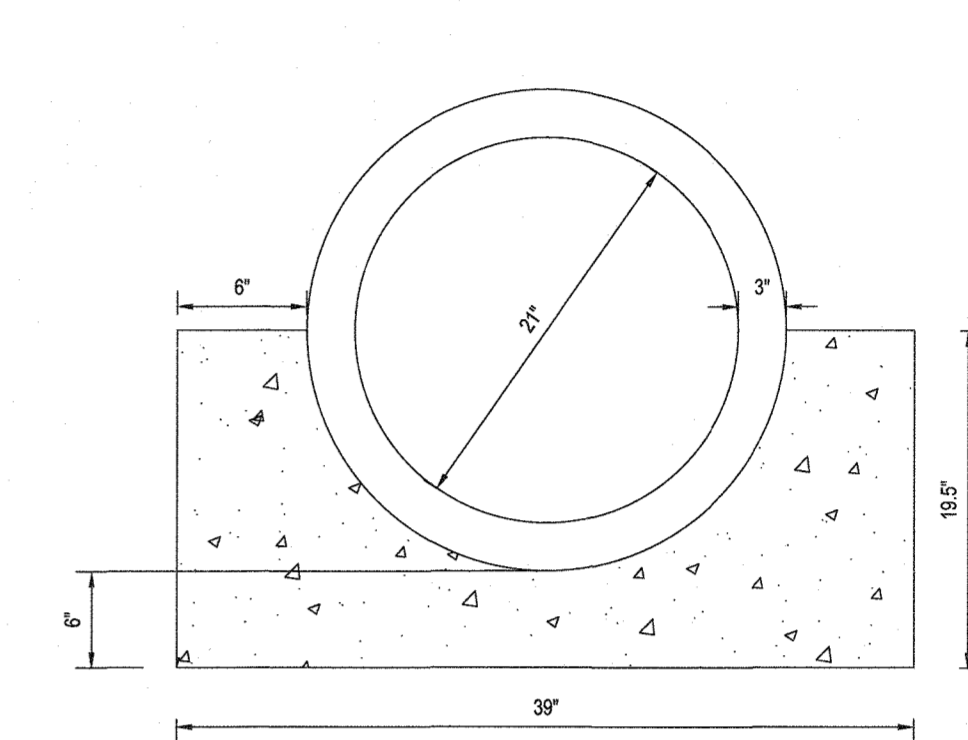
Mix Composition:

- 24.5% Passion (Hansons, Penn.) (20/40, 10/20)
- 25.0% Passion (Hansons, Penn.) (20/40, 10/20)
- 20.0% Core (Hansons, Penn.) (10/20, 10/20)
- 20.0% Passion (Hansons, Penn.) (20/40, 10/20)
- 1.0% Passion (Hansons, Penn.) (20/40, 10/20)
- 1.0% Passion (Hansons, Penn.) (20/40, 10/20)
- 1.0% Passion (Hansons, Penn.) (20/40, 10/20)

General Product Information:
The native grasses, legumes and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it is an excellent native establishment with minimum till and fertilizer low fertility. We formulate mixes to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

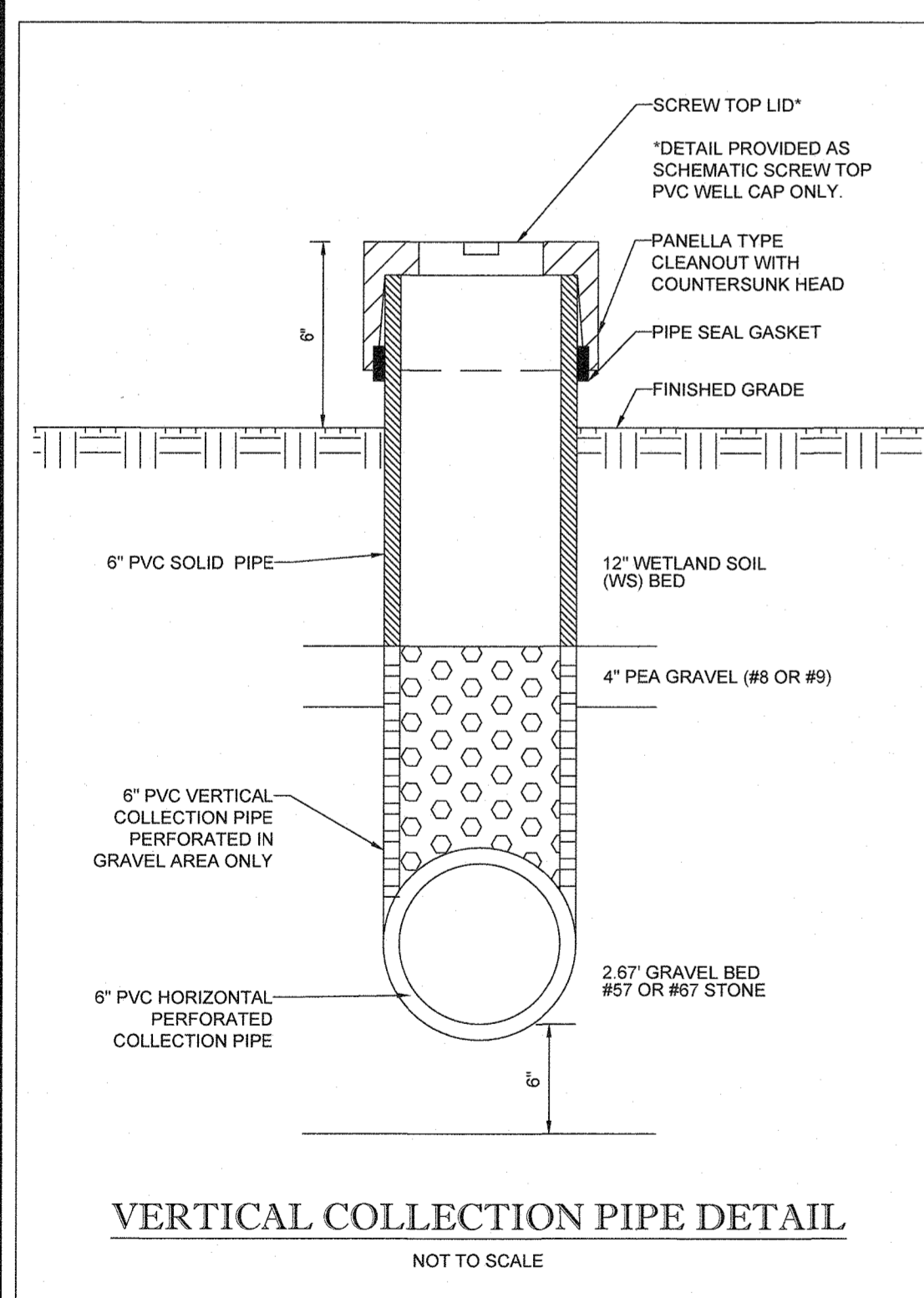
Item Number: ERN000-183
Product Category: Stormwater Management
Height: 3.0 - 5.0 ft.
Seeding Rate: 20 lbs per acre, or 1.2 lb per 1,000 sq ft

PRINT | EMAIL | SHARE
Price: \$15.98/lb
ADD TO FAVORITE



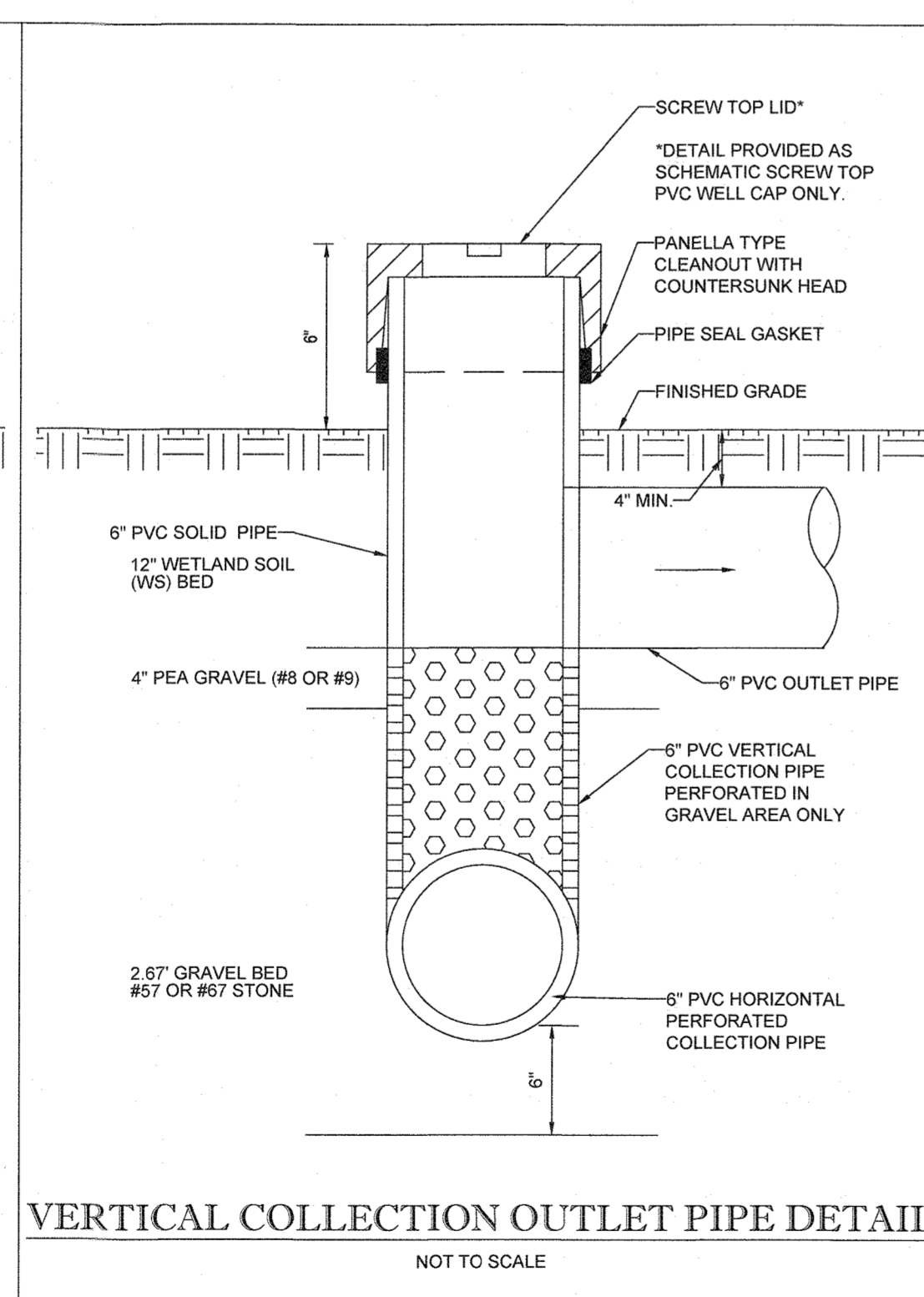
SCS TR-46 A2 CONCRETE CRADLE DETAIL
NOT TO SCALE

NOTES:
1. CRADLE TO BE CONTINUOUS ALONG PIPE.
2. CONCRETE FOR CRADLE TO BE MDSA MIX No. 3.



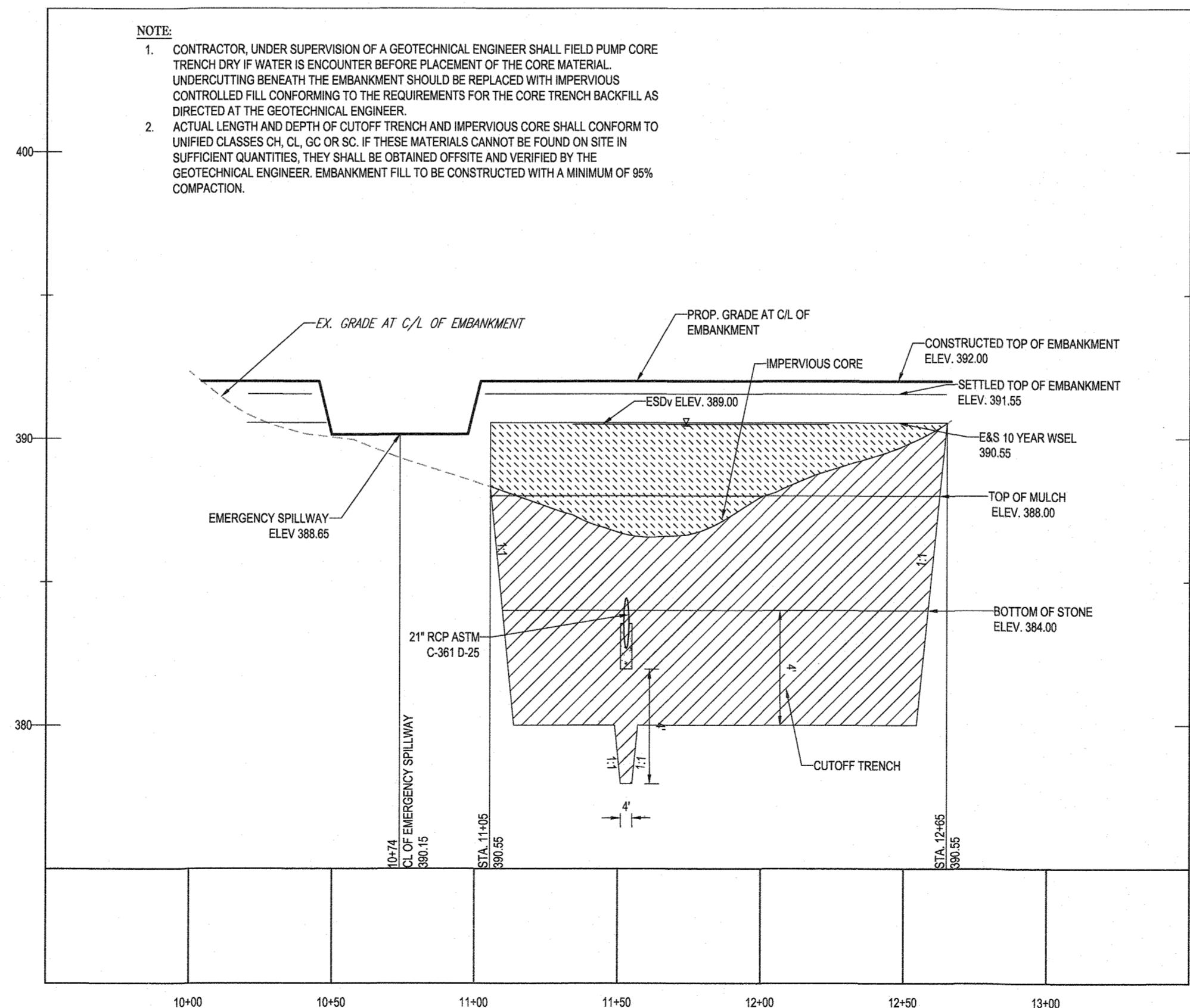
VERTICAL COLLECTION PIPE DETAIL

NOT TO SCALE



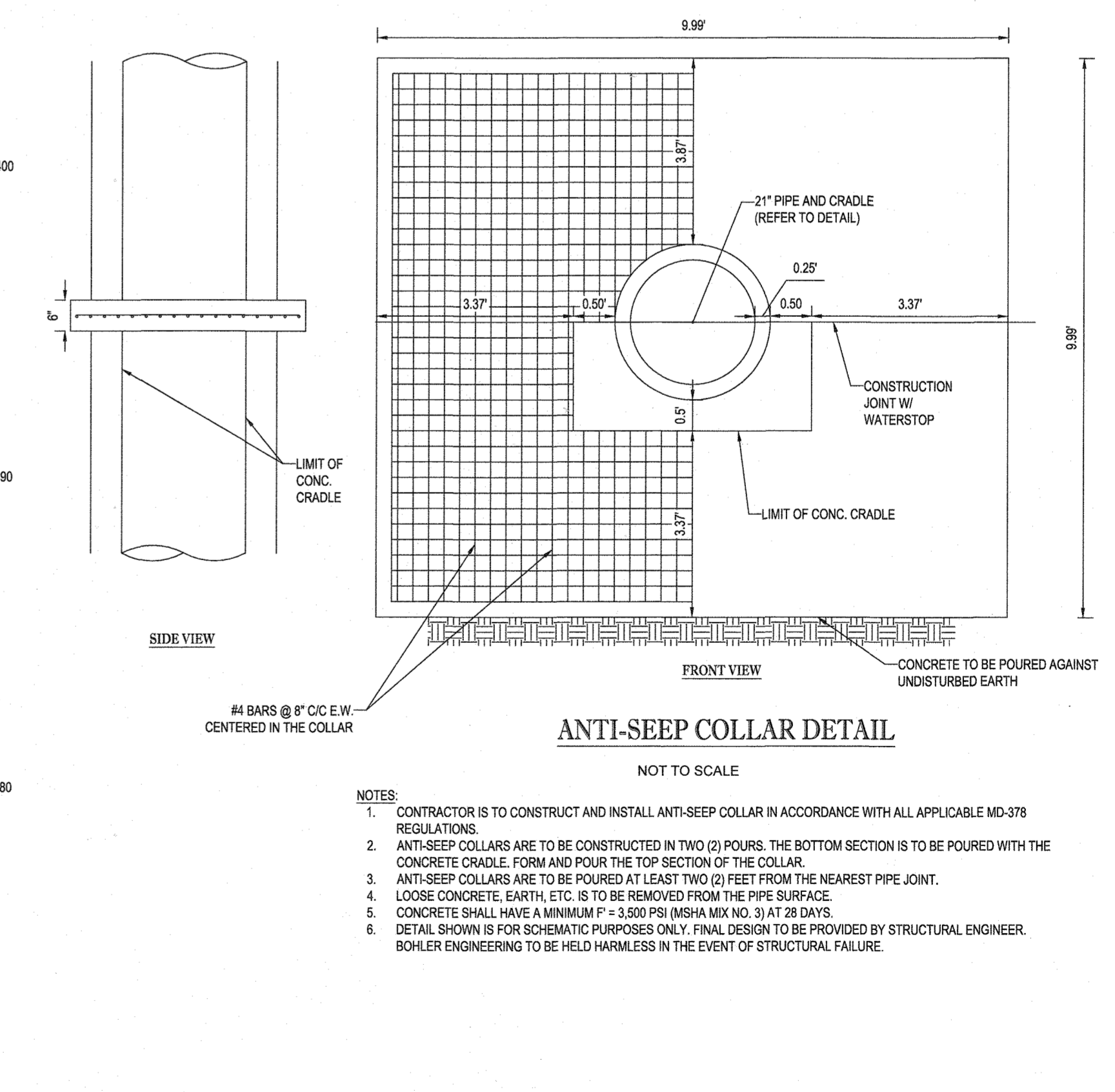
VERTICAL COLLECTION OUTLET PIPE DETAIL

NOT TO SCALE



FACILITY #3 - CENTERLINE OF EMBANKMENT

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



ANTI-SEEP COLLAR DETAIL

NOT TO SCALE

NOTES:
1. CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
2. ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
3. ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
4. LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
5. CONCRETE SHALL HAVE A MINIMUM F' = 3,500 PSI (MDSA MIX NO. 3) AT 28 DAYS.
6. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: SP-17-010b
ECP-17-056
WP-18-070

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135

5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

APPROVED DEPARTMENT OF PUBLIC WORKS
10/12/2021
CHIEF, BUREAU OF HIGHWAYS

APPROVED DEPARTMENT OF PLANNING AND ZONING
12/21/21
CHIEF, DIVISION OF LAND DEVELOPMENT

10-18-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REV	DATE	COMMENT	DESIGNED BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT. UNLESS NOTICED OTHERWISE.

811
Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT: FINAL ROAD PLAN

FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

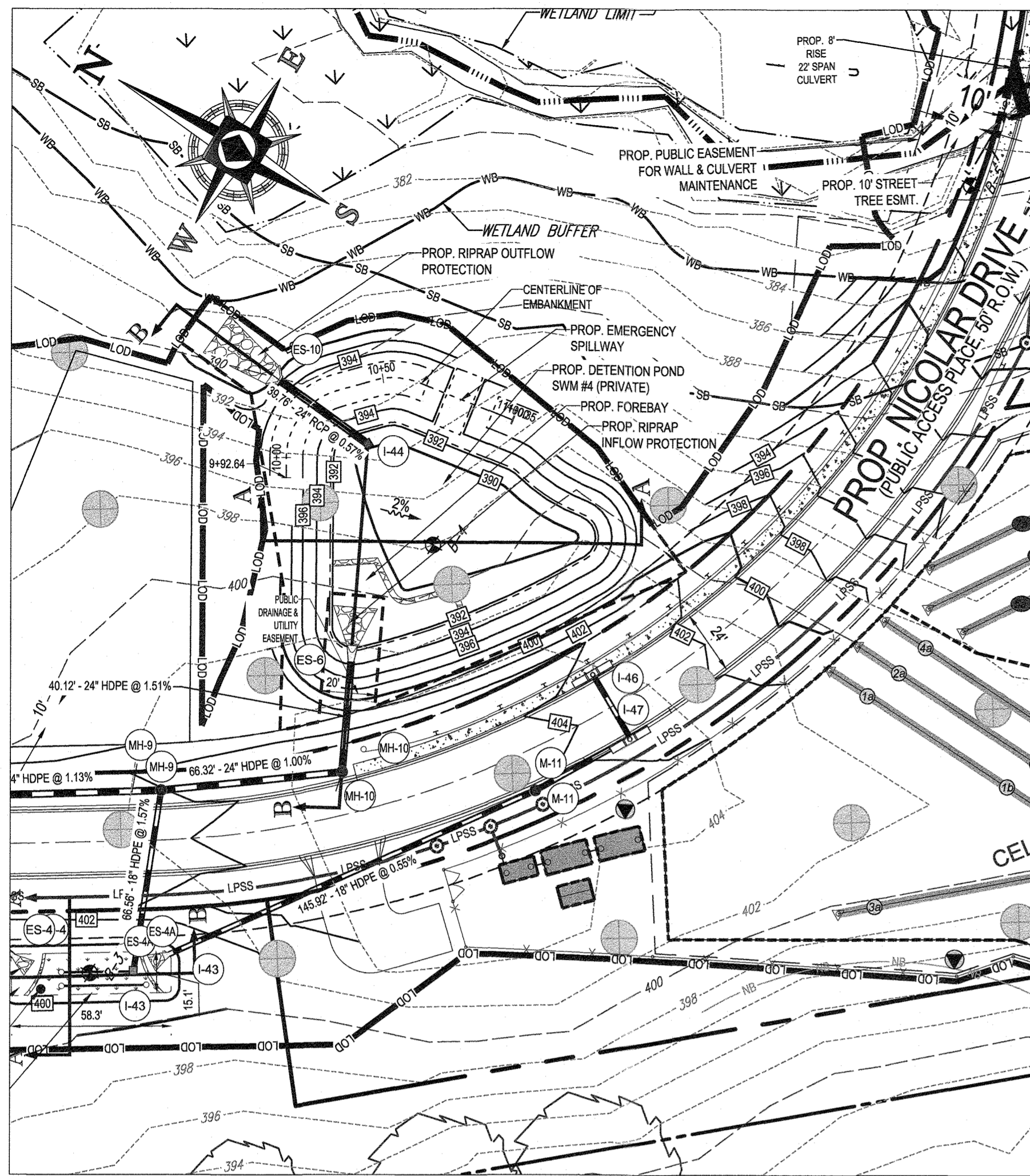
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
(410) 821-7987
Fax: MD@BohlerEng.com

B.B. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40508
PROFESSIONAL CERTIFICATION: I BRANDED THESE HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAW OF THE STATE OF MARYLAND. LICENSE NO. 40996 EXPIRATION DATE: 10/30/23

SWM NOTES & DETAILS

SHEET NUMBER:
36 OF 40

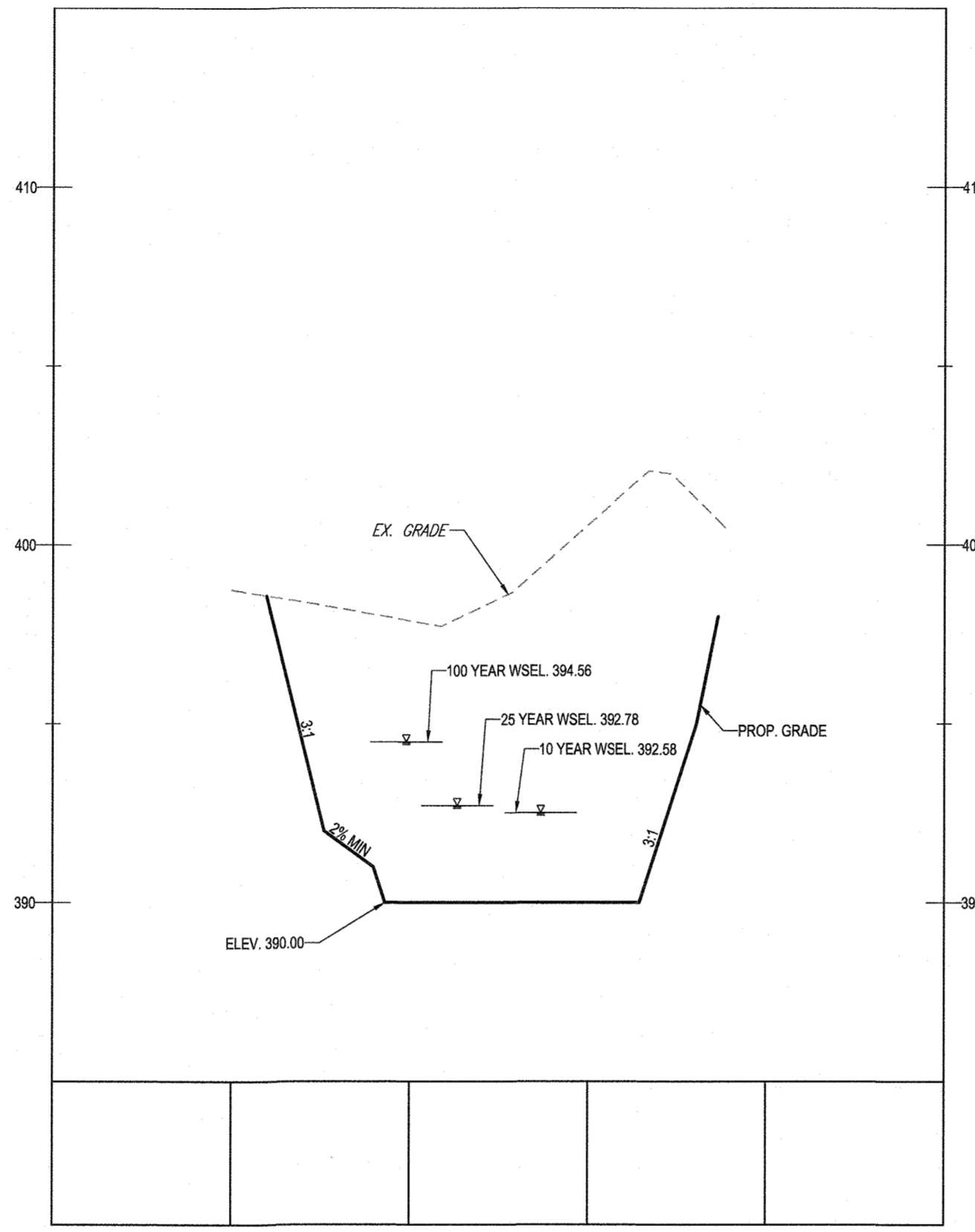
REVISION 5 - 09/24/2021



SWM FACILITY #4 - DETENTION POND (PRIVATE)

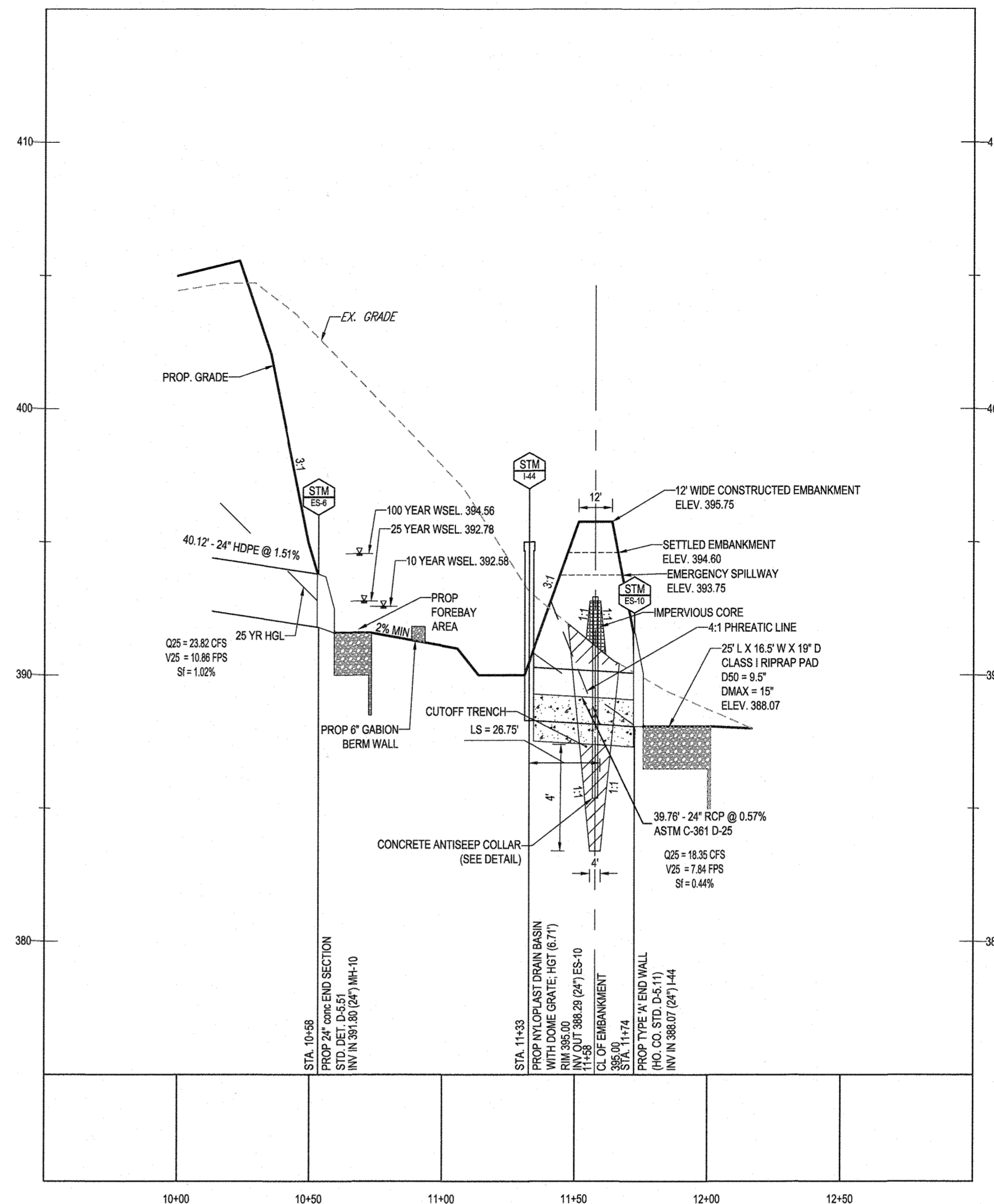
SCALE: 1" = 40'

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)



SWM FACILITY #4 - DETENTION POND - SECTION A-A

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



SWM FACILITY #4 - DETENTION POND - SECTION B-B/PRINCIPLE SPILLWAY PROFILE

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

- NOTE: ALL ROOF DRAINS WILL BE 6"
- NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.
- NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT, WITH THE EXCEPTION OF STORMDRAIN OUTFALLING TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YEAR STORM EVENT.
- NOTE: 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.

SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: NA DEED # 14532/00469	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1043	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 155 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE No.: SP-17-010d ECP-17-056 WP-18-070	PREVIOUS FILE No.: MD1420671 AVG BRK 09/24/2021 SWM-5

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/12/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-12-21

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 LAND USE PLANNING
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

811
 Know what's Below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRK
 DATE: 09/24/2021
 CAD I.D.: SWM-5

FINAL ROAD PLAN
 FOR
LYHUS PROPERTY
 LOTS 1-26, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20886 EXPIRATION DATE: 10/2023

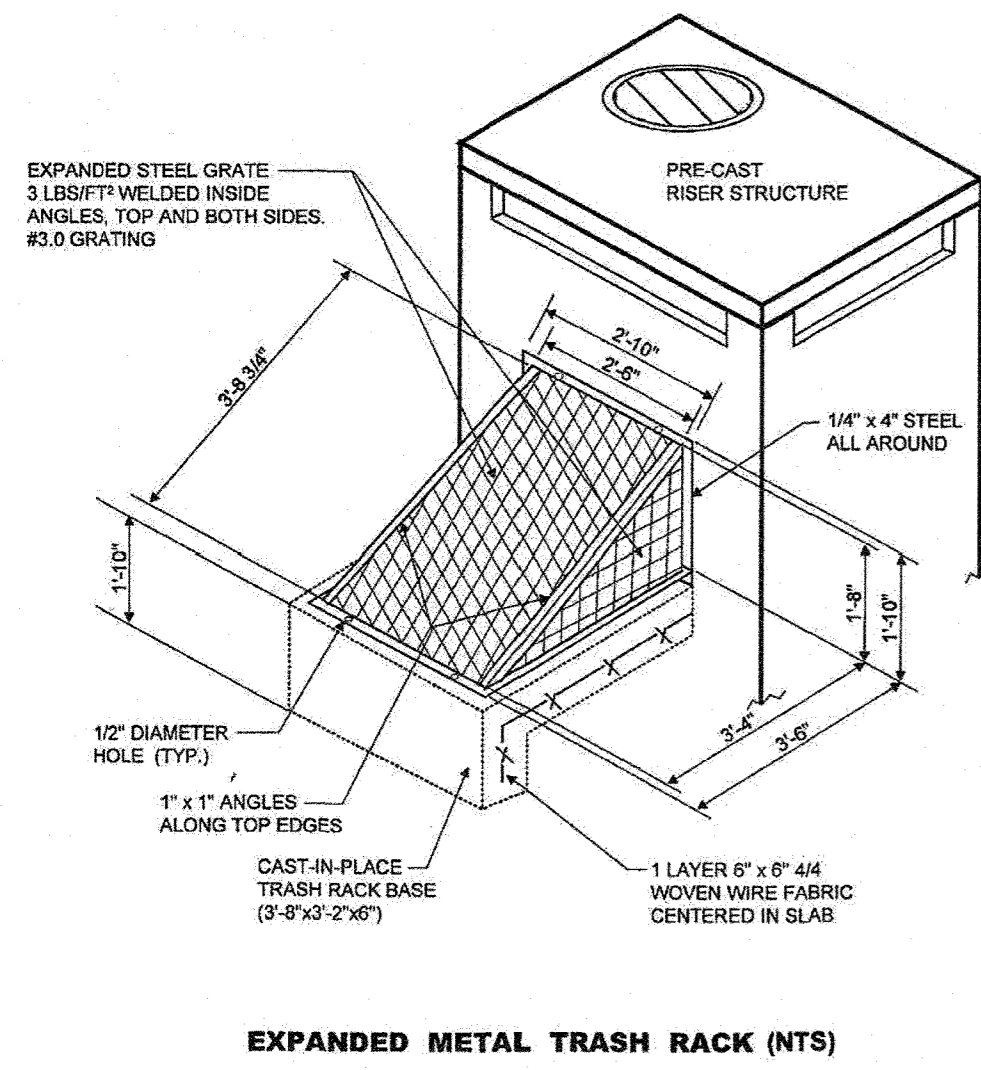
SHEET TITLE:
SWM NOTES & DETAILS

SHEET NUMBER:
37 OF 80

REVISION 5 - 09/24/2021

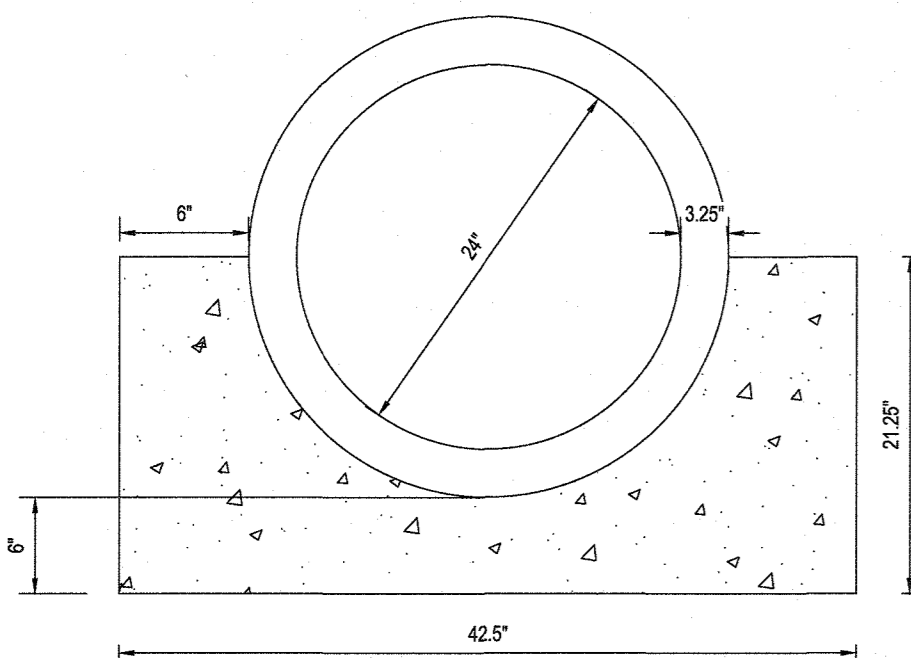
Appendix D.8. Miscellaneous Details for Compliance with Performance Criteria

Detail 2 Expanded Trash Rack Protection for Low Flow Orifice



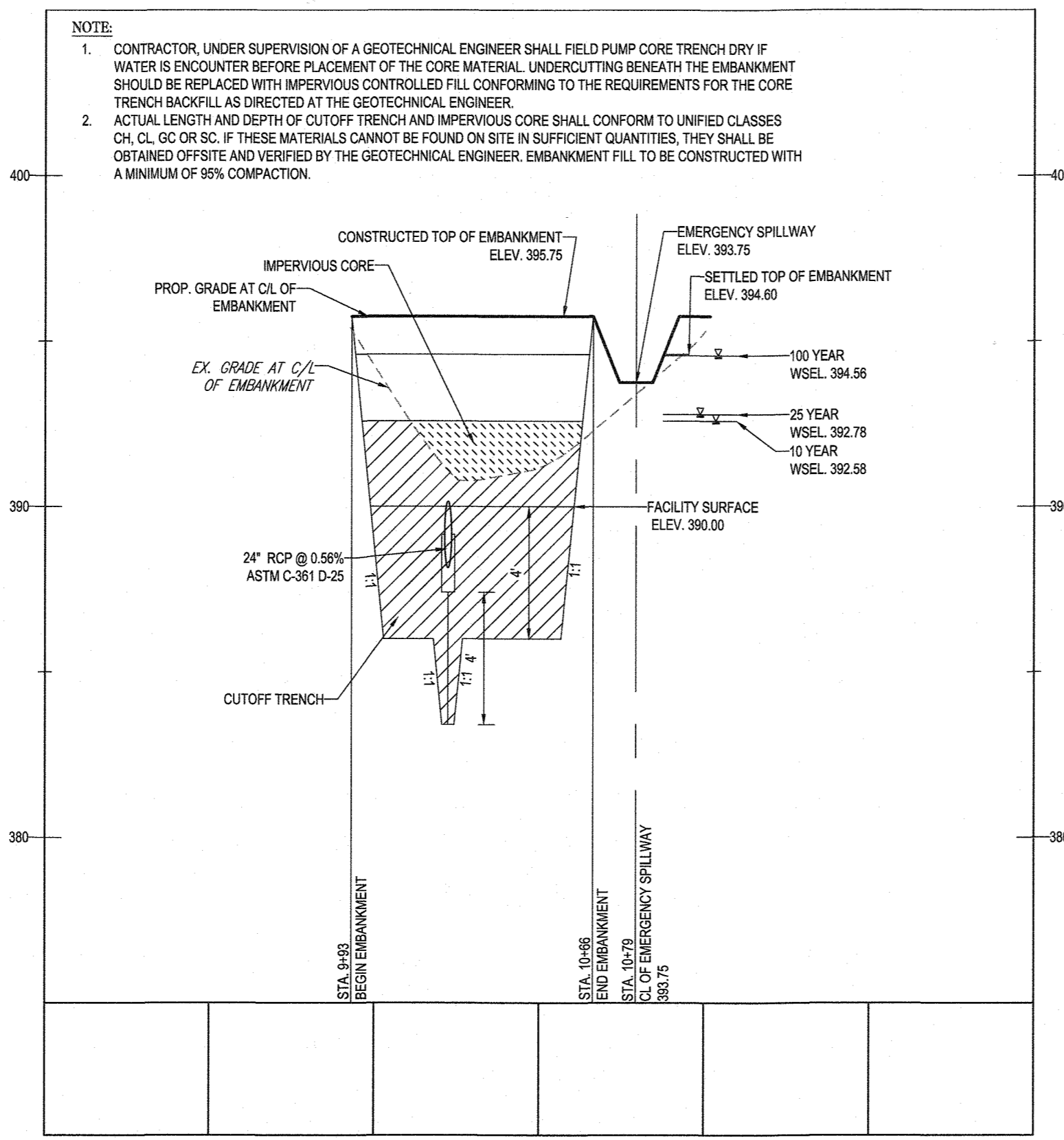
EXPANDED METAL TRASH RACK (NTS)

D.8.3



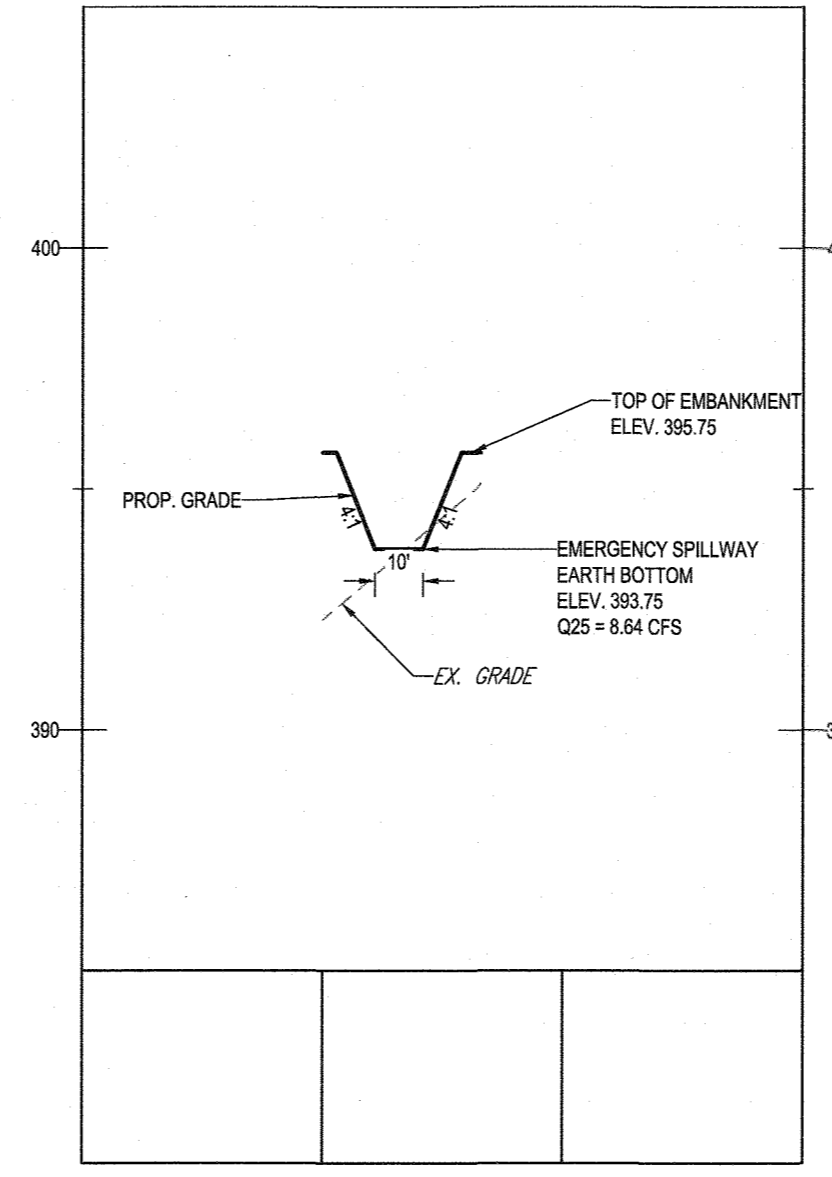
- NOTES:
 1. CRADLE TO BE CONTINUOUS ALONG PIPE
 2. CONCRETE FOR CRADLE TO BE MSHA MIX NO. 3

SCS TR-46 A2 CONCRETE CRADLE DETAIL
 NOT TO SCALE



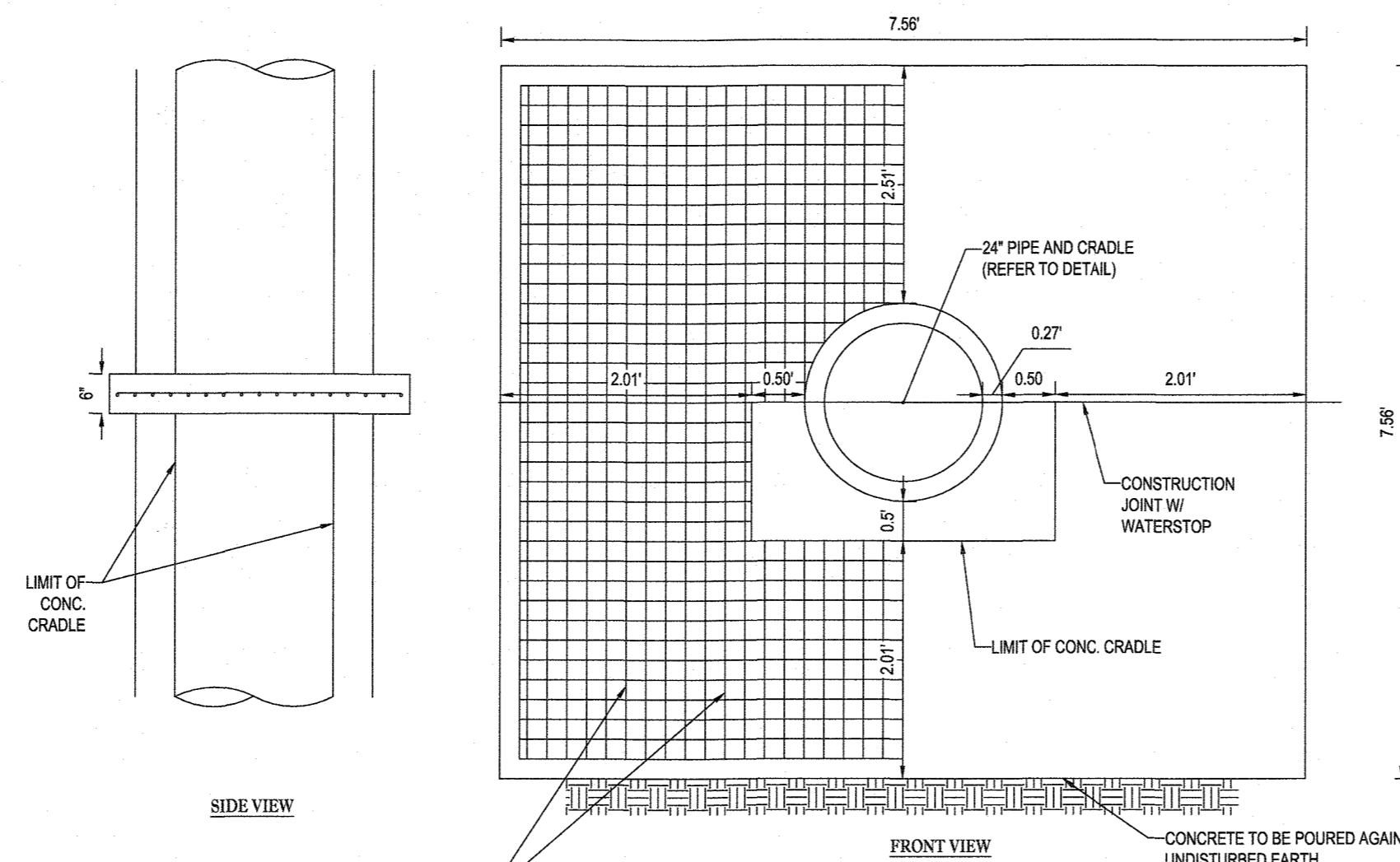
FACILITY #4 - DETENTION POND - CENTERLINE OF EMBANKMENT

SCALE: 1" = 40' HORIZONTAL
 1" = 4' VERTICAL



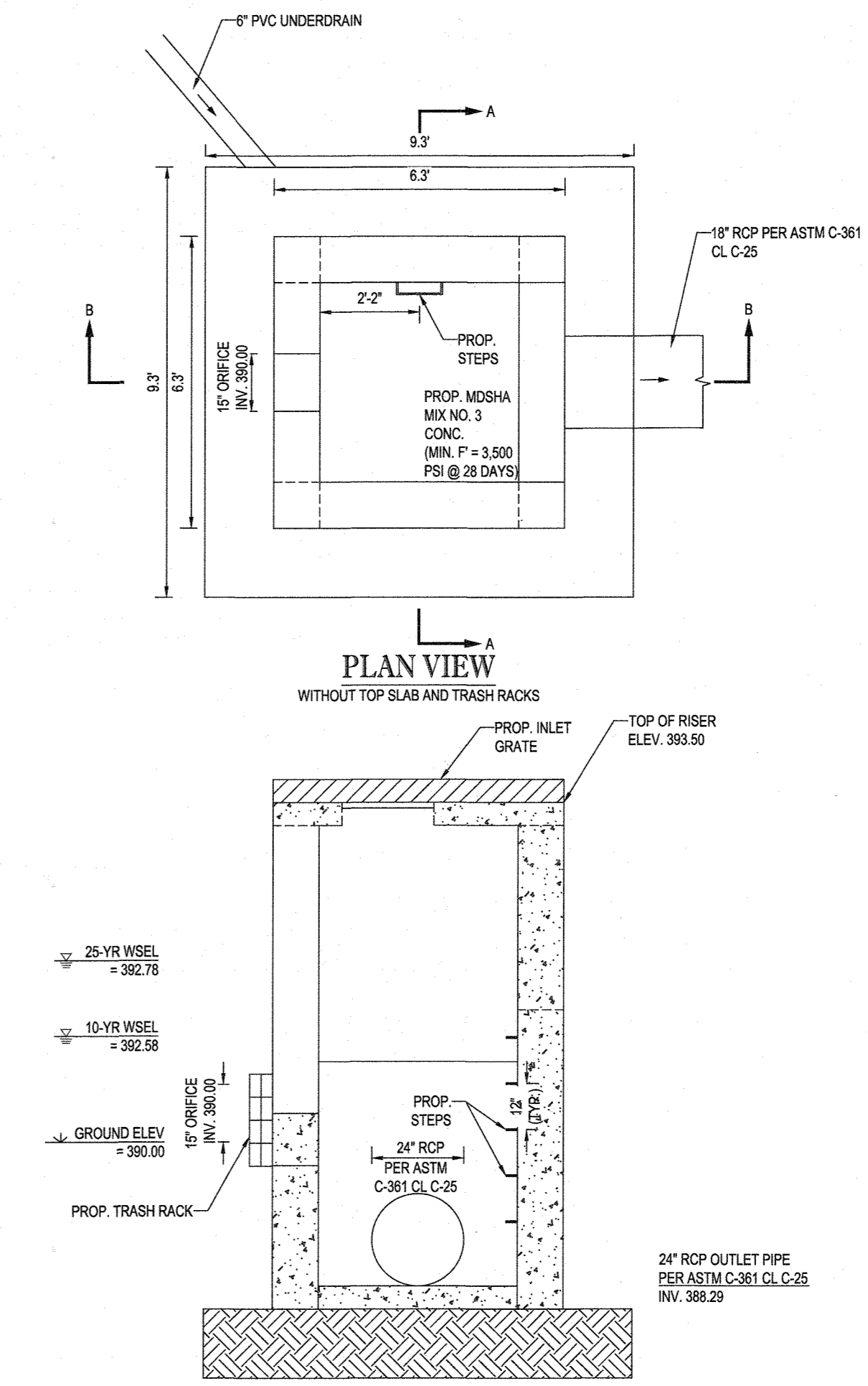
FACILITY #4 EMERGENCY SPILLWAY - TYPICAL SECTION

SCALE: 1" = 40' HORIZONTAL
 1" = 4' VERTICAL



ANTI-SEEP COLLAR DETAIL
 NOT TO SCALE

- NOTES:
 1. CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 2. ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
 3. ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 4. LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
 5. CONCRETE SHALL HAVE A MINIMUM $F' = 3,500$ PSI (MSHA MIX NO. 3) AT 28 DAYS.
 6. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE I-44)
 NOT TO SCALE

NOTE: DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

- NOTE: ALL ROOF DRAINS WILL BE 6"
- NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.
- NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT, WITH THE EXCEPTION OF STORM DRAIN OUTFALLING TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YEAR STORM EVENT.
- NOTE: A MAXIMUM OF 30 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.

OWNER:	MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075
DEVELOPER:	ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
PREVIOUS FILE NO.:	SP-17-010b PARCEL: 135 ECP-17-056 WP-18-070
TAX MAP:	40 GRID: 24 ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: SWM-5

PROJECT:
FINAL ROAD PLAN
 FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING
 801 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20886-EXPIRATION DATE: 7/31/2023

SHEET TITLE:
SWM NOTES & DETAILS

SHEET NUMBER:
38 OF 60

REVISION 5 - 07/07/2021

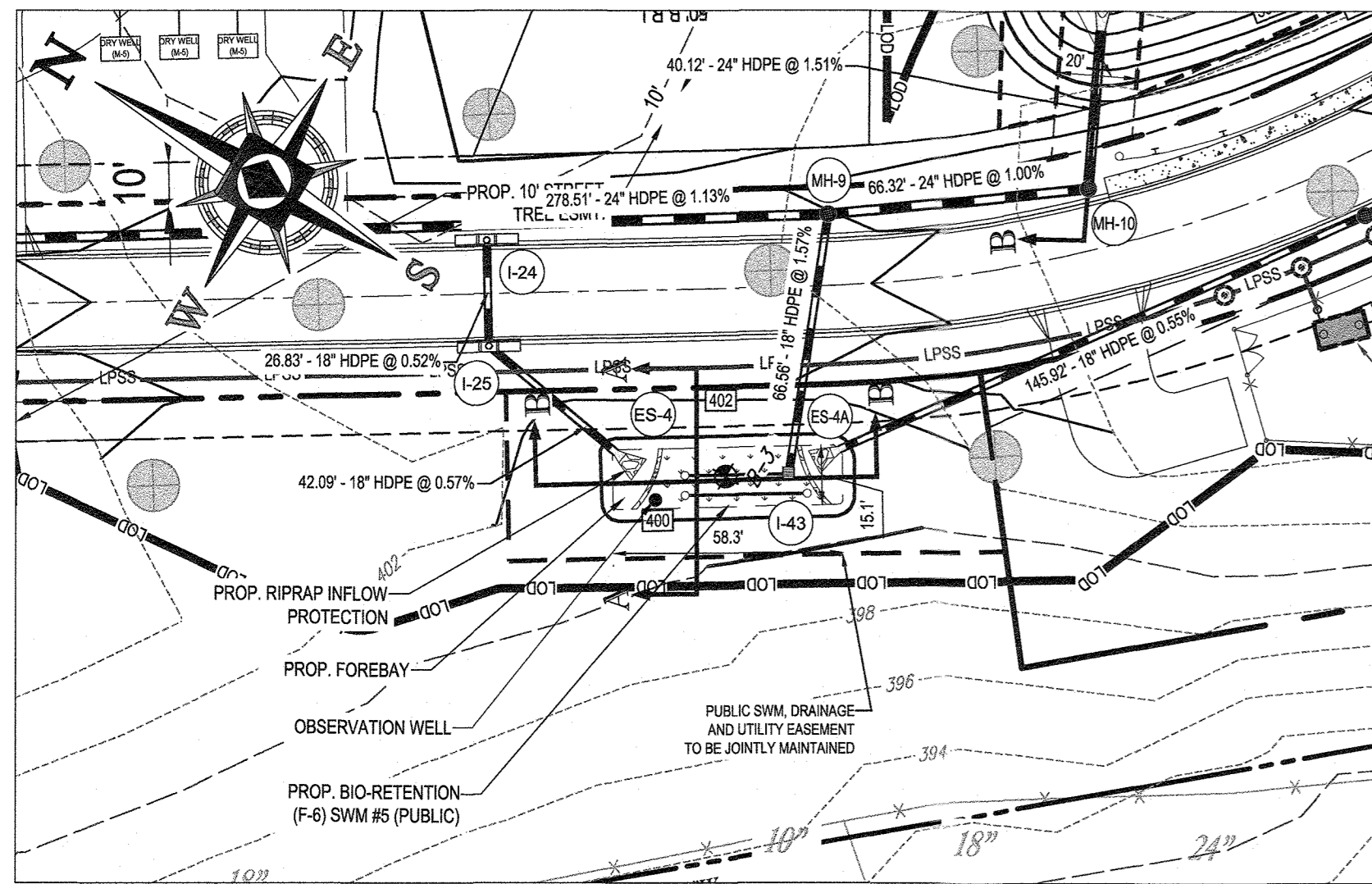
APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021

CHIEF, BUREAU OF HIGHWAYS

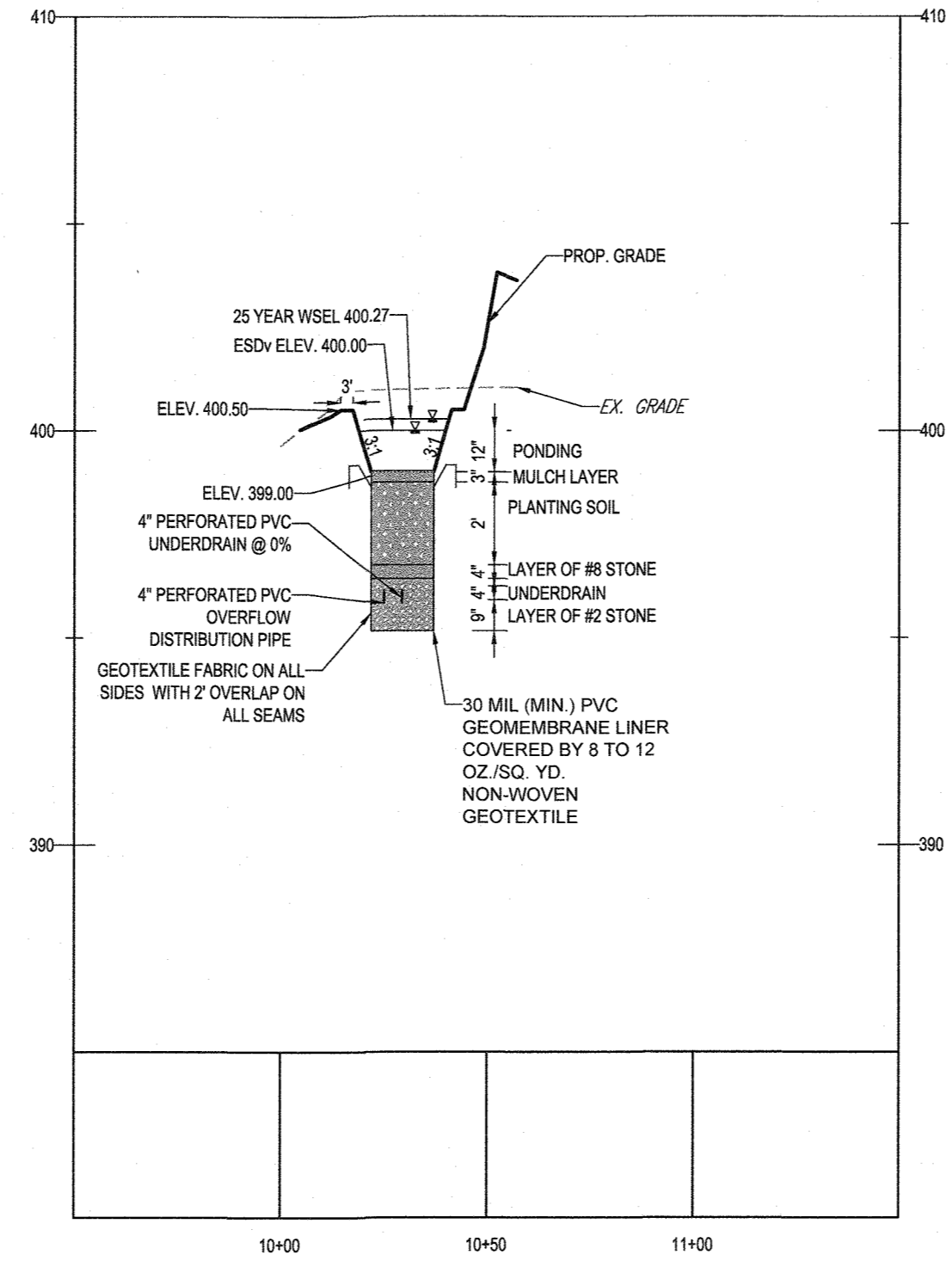
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/16/21

CHIEF, DIVISION OF LAND DEVELOPMENT

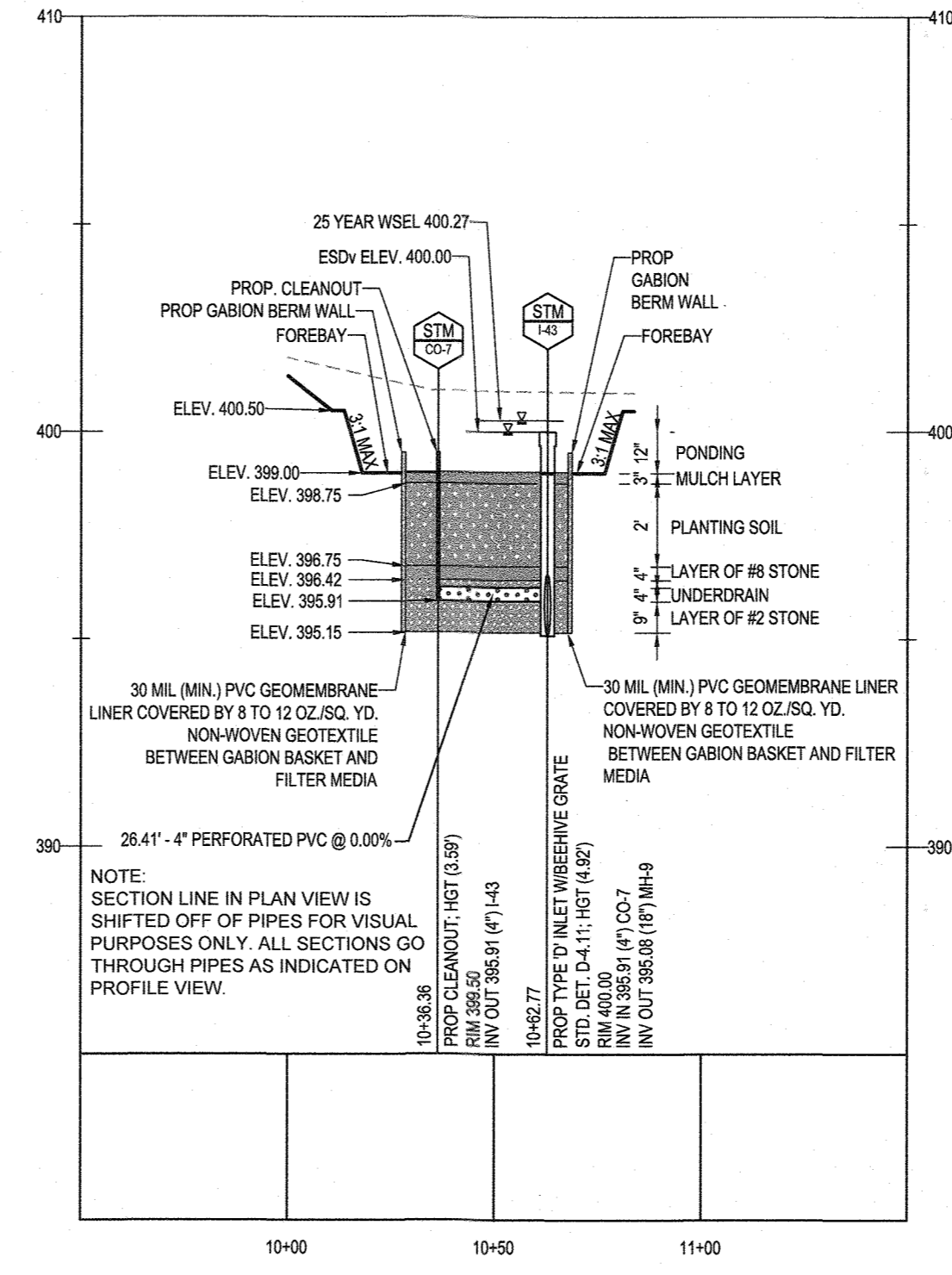
CHIEF, DEVELOPMENT ENGINEERING DIVISION



BIORETENTION (F-2) SWM #5 (PUBLIC, JOINTLY MAINTAINED)
SCALE: 1" = 40'

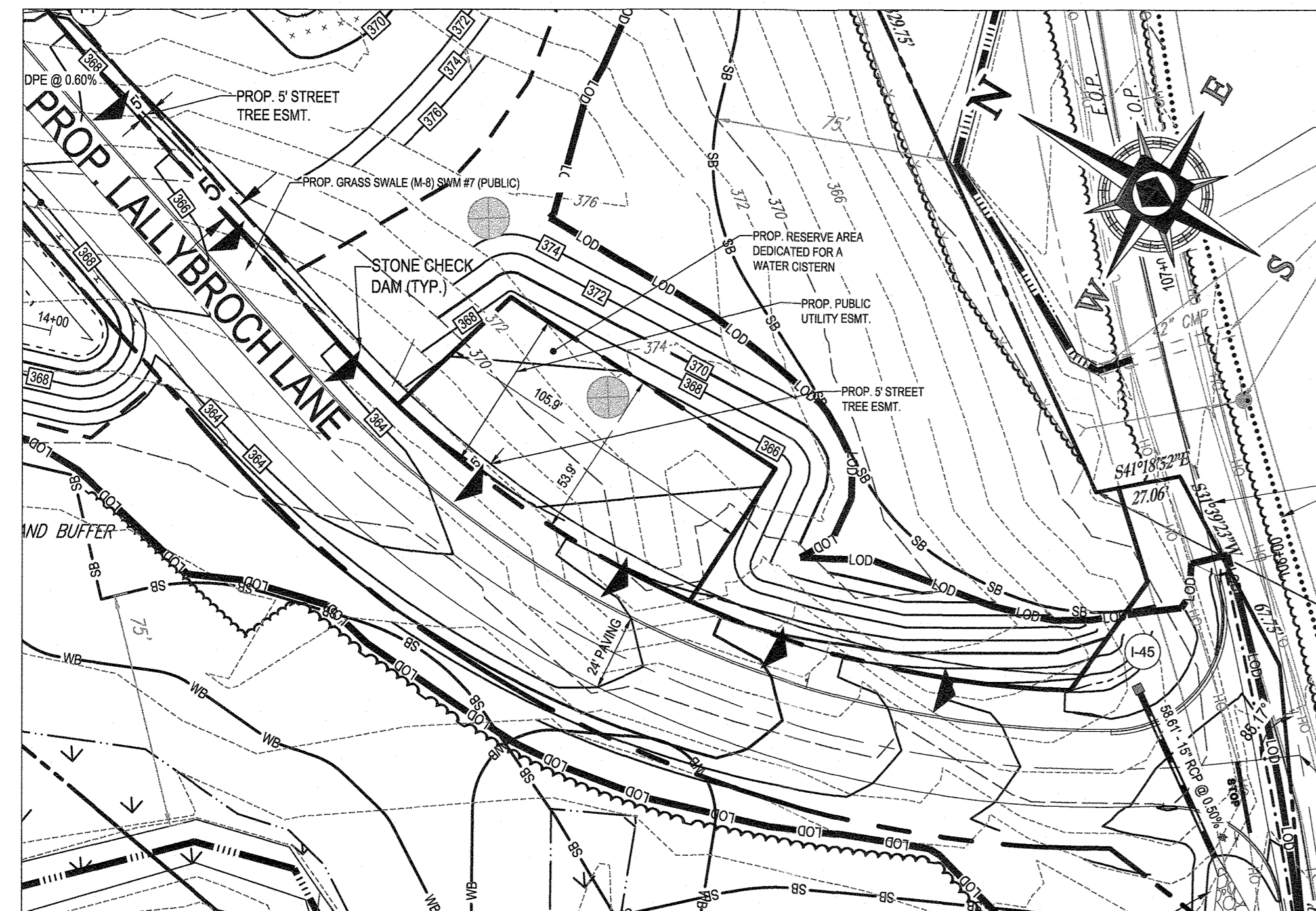


SWM FACILITY #5 - BIO-RETENTION (M-6) - SECTION A-A
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



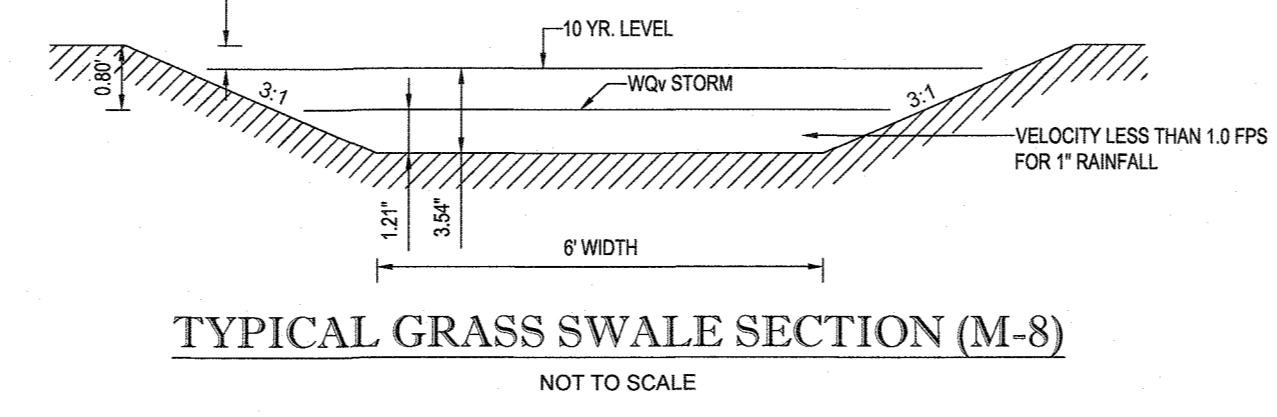
SWM FACILITY #5 - BIO-RETENTION (M-6) - SECTION B-B
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

BIORETENTION AREAS PLANTING SCHEDULE					
SPECIES	COMMON NAME	TYPE	SPACING	SIZE	SWM #5 (1330 S.F.)
CLETHERA ALNIFOLIA	SWEET PEPPERBUSH	SHRUB	30' O.C.	1 GAL. CONT.	30
CORNUS AMOMUM	SILKY DOGWOOD	SHRUB	30' O.C.	1 GAL. CONT.	30
RUDBECKIA HIRTA	BLACK EYE SUSAN	PERENNIAL	12" O.C.	PLUG	190
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	PERENNIAL	12" O.C.	PLUG	190
RUDBECKIA LACINIATA	TALL CONEFLOWER	PERENNIAL	12" O.C.	PLUG	190
JUNCUS EFFUSUS	SOFT RUSH	PERENNIAL	12" O.C.	PLUG	380
SCIRPUS ACUTUS	HARDSTEMMED BULLRUSH	PERENNIAL	12" O.C.	PLUG	380

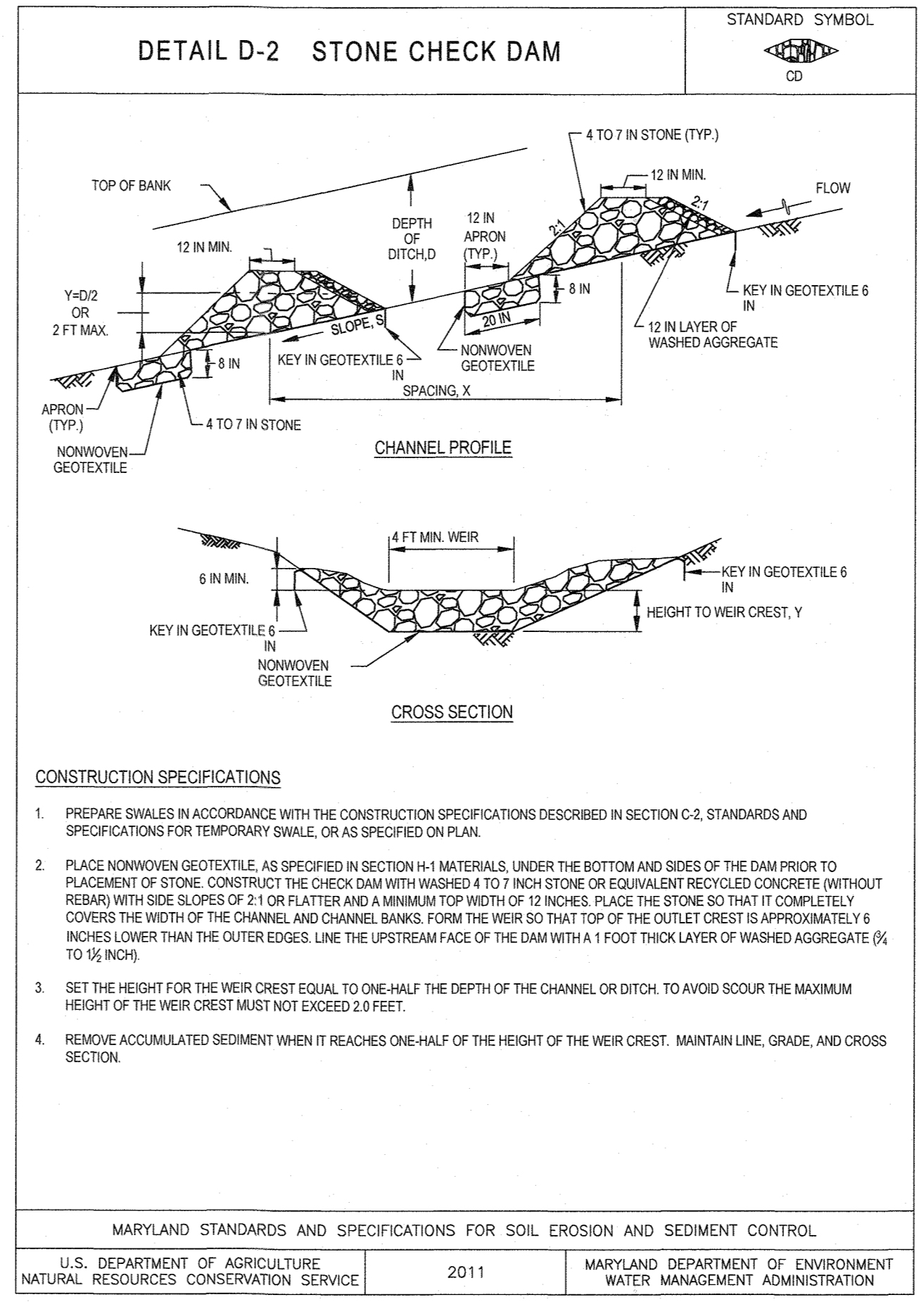


GRASS SWALE (M-6) SWM #7 (PUBLIC)
SCALE: 1" = 40'

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE C SOIL STABILIZATION MATTING (SSM)



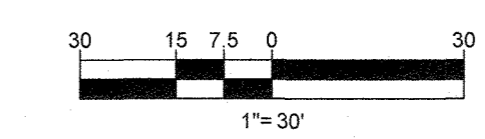
TYPICAL GRASS SWALE SECTION (M-8)
NOT TO SCALE



- CONSTRUCTION SPECIFICATIONS**
- PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2, STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN.
 - PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM TOP WIDTH OF 12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS. FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 FOOT THICK LAYER OF WASHED AGGREGATE (2 TO 1/2 INCH).
 - SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE-HALF THE DEPTH OF THE CHANNEL OR DITCH. TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET.
 - REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION.

- NOTE: ALL ROOF DRAINS WILL BE 6"
- NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.
- NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT, WITH THE EXCEPTION OF STORMDRAIN OUTFALLING TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YEAR STORM EVENT.
- NOTE: 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.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 10/14/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10/14/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: [Signature] 10/14/21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



SUBDIVISION NAME: LYHUS PROPERTY
 DEED # 14532/00469

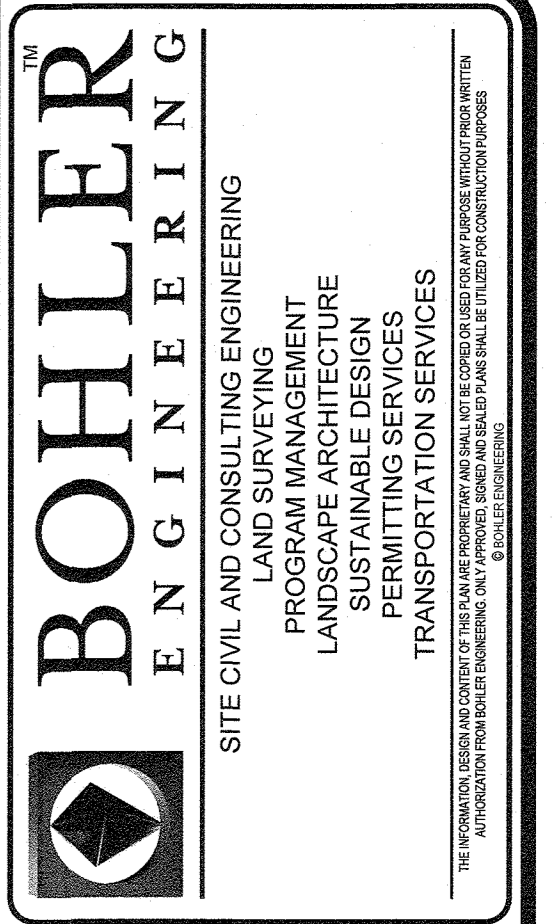
PREVIOUS FILE No.:
 SP-17-010b
 ECP-17-056
 WP-18-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKBRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKBRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-587-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 155

5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



REVISIONS			
REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE CONSIDERED A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

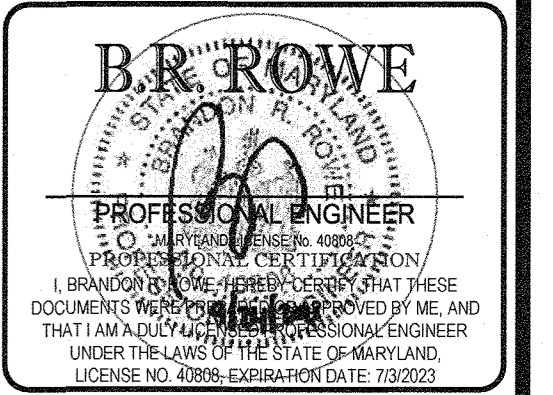
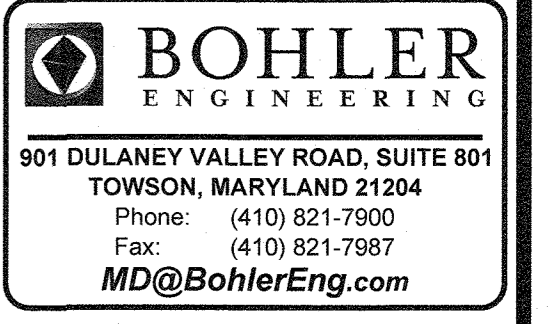


APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVS
 CHECKED BY: BRB
 DATE: 09/24/2021
 CAD I.D.: SWM-5

FINAL ROAD PLAN

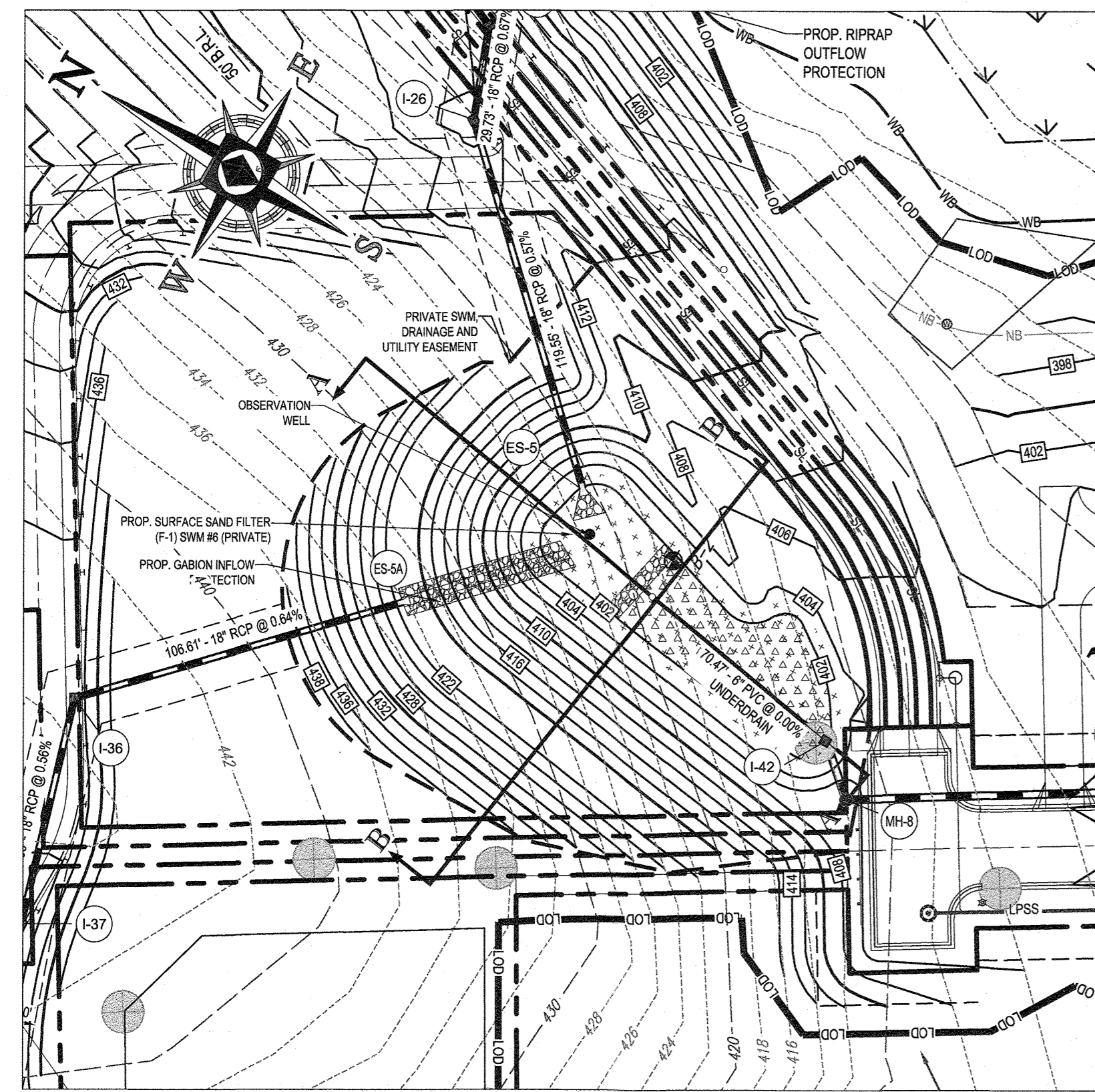
FOR
 LYHUS
 PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY



SHEET TITLE:
SWM NOTES & DETAILS

SHEET NUMBER:
39 OF 80

REVISION 5 - 09/24/2021



SURFACE SAND FILTER (F-1) SWM #6 (PRIVATE)
SCALE: 1" = 40'

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)

ERNST SEEDS
Catalog | Price List | Project Planner | Contact | 800-873-3321
Products | Resource Center | About Us | News & Media
Seed Finder TOOL

Home / Stormwater Management / Native Detention Area Mix
« Back to List

Native Detention Area Mix

Mix Composition

- 26.0% *Panicum clandestinum*, Tlopa (Deertongue, Tlopa)
- 25.0% *Panicum virgatum*, Shelter (Switchgrass, Shelter)
- 20.0% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
- 20.0% *Elymus virginicus*, Madison (Virginia Wildrye, Madison)
- 4.0% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Autumn Bentgrass, Albany Pine Bush-NY Ecotype)
- 3.0% *Juncus effusus* (Soft Rush)
- 1.0% *Juncus tenuis*, PA Ecotype (Path Rush, PA Ecotype)
- 1.0% *Panicum rigidulum*, PA Ecotype (Reedtop Panicgrass, PA Ecotype)

General Product Information:

The native grasses, sedges and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it can achieve native establishment with minimum risk and tolerance to low fertility. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNM-183
Product Categories: Stormwater Management
Height: 0.3 - 5.0 Ft
Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

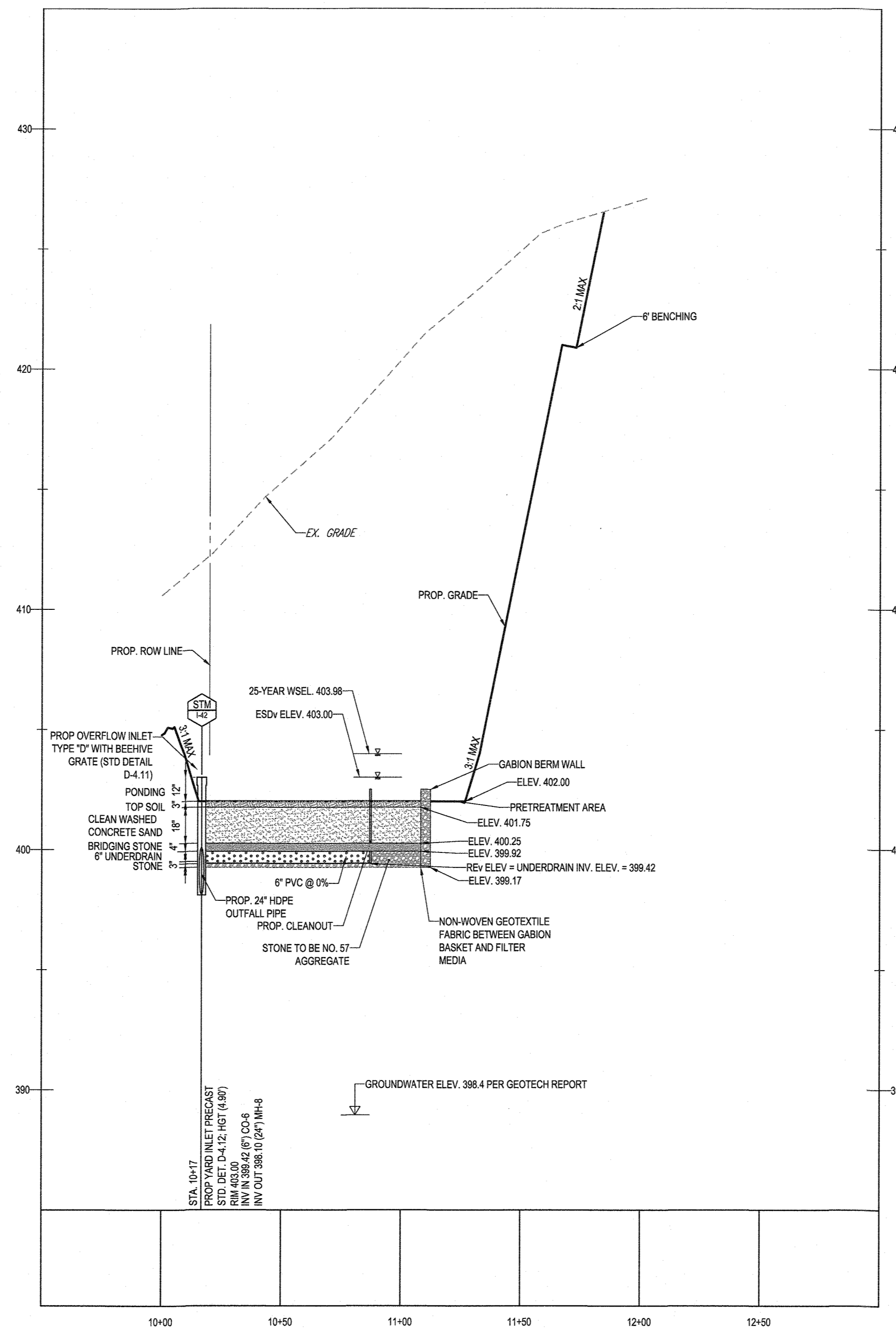
PRINT | EMAIL | SHARE

Price: \$15.98/lb

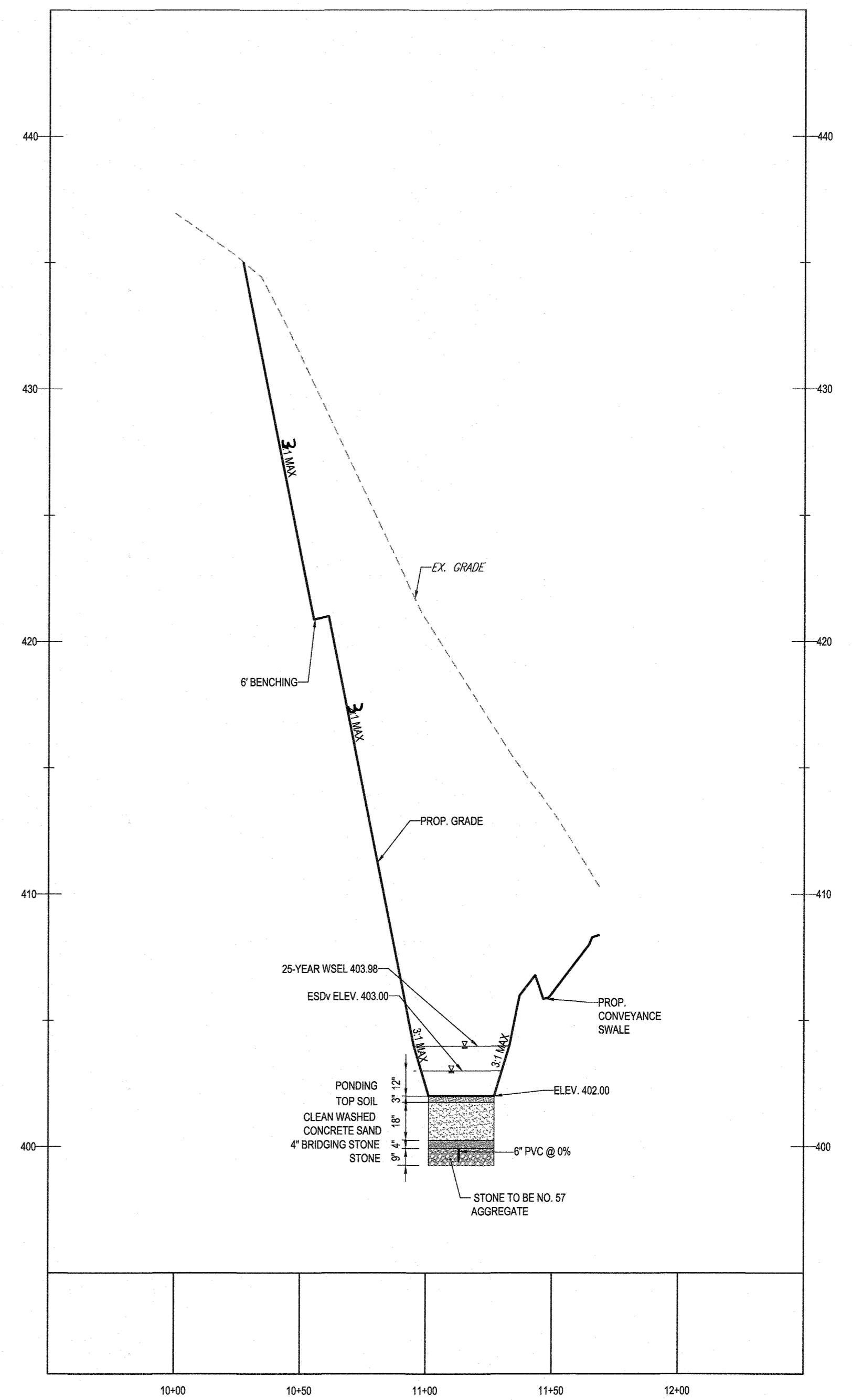
ADD TO PLANNER

OPERATION AND MAINTENANCE NOTES FOR JOINTLY MAINTAINED SAND FILTER

- SAND FILTERS SHALL BE INSPECTED AND CLEANED ANNUALLY BY THE HOME OWNERS ASSOCIATION.
- HOWARD COUNTY SHALL REPAIR EROSION AND MAINTAIN ACCESS SURFACE IN GOOD CONDITION.
- THE HOME OWNERS ASSOCIATION SHALL CHECK FOR DEWATERING WITHIN 48 HOURS OF RAINFALL. NOTICEABLE ODORS, WATER STAINS ON THE FILTER SURFACE OR AT THE OUTLET AND PRESENCE OF ALGAE OR AQUATIC VEGETATION.
- THE COUNTY SHALL REMOVE AND REPLACE FILTER MEDIA AS NEEDED.
- FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE TIMES PER YEAR TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12" BY THE HOME OWNERS ASSOCIATION.
- THE HOME OWNERS ASSOCIATION SHALL CHECK FLOW SPLITTER FOR PROPER FUNCTIONING.



SWM FACILITY #6 - SAND FILTER (F-1) - SECTION A-A
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



SWM FACILITY #6 - SAND FILTER (F-1) - SECTION B-B
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

NOTE: ALL ROOF DRAINS WILL BE 6"
DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A"
DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE 10-YR STORM EVENT, WITH THE EXCEPTION OF STORM DRAIN OUTFALLING TO QUANTITY MANAGEMENT STORMWATER FACILITIES, WHICH HAVE BEEN DESIGNED BASED ON THE 25-YR STORM EVENT.

NOTE: 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.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKCRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKCRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-557-1065

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070

SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED #: 14532/00469

SCALE: 1" = 40'

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 10/12/2021
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 12/21/21
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 10-19-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS SPECIFICALLY STATED OTHERWISE.

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BPR
DATE: 09/24/2021
CAD I.D.: SWM-5

FINAL ROAD PLAN

FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

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

B.R. ROWE
PROFESSIONAL ENGINEER
I BRANCH OF THE PROFESSION OF CIVIL ENGINEERS (P.C.E.) THESE DOCUMENTS WERE PREPARED AND REVIEWED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 07066, EXPIRES 10/31/2023

SHEET TITLE:
SWM NOTES & DETAILS

SHEET NUMBER:
40 OF 80

REVISION 5 - 09/24/2021

CONSTRUCTION SPECIFICATIONS FOR SUBMERGED GRAVEL WETLAND FACILITY

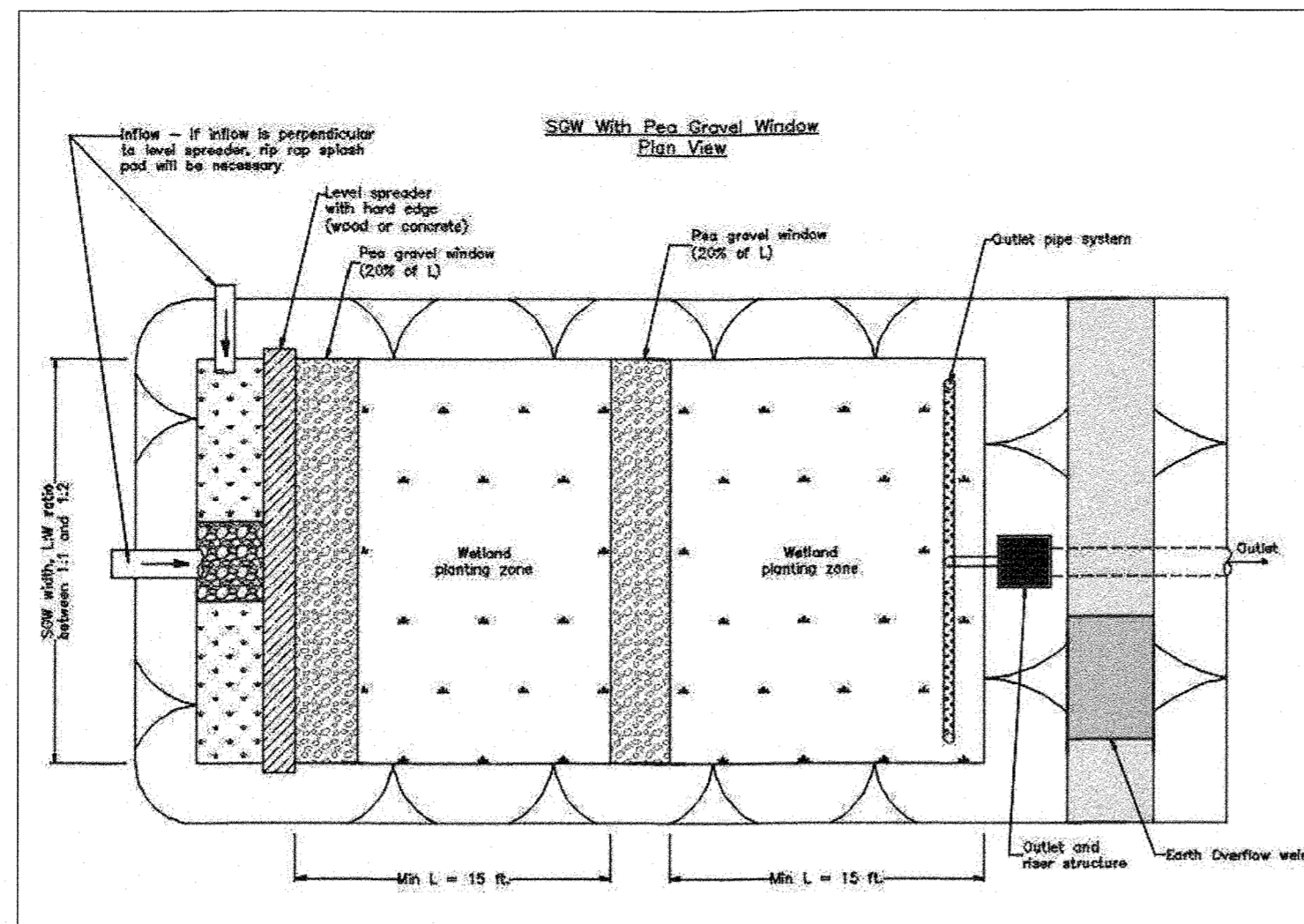
- UNDERDRAIN INSTALLATION:** GRAVEL FOR THE UNDERDRAIN SYSTEM SHOULD BE CLEAN, WASHED, AND FREE OF FINES. UNDERDRAIN PIPES SHOULD BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS. THE UPSTREAM ENDS OF THE UNDERDRAIN PIPE SHOULD BE CAPPED PRIOR TO INSTALLATION.
- FILTER MEDIA INSTALLATION:** BSM MAY BE MIXED ON-SITE BEFORE PLACEMENT. HOWEVER, BSM SHOULD NOT BE PLACED UNDER SATURATED CONDITIONS. BSM SHOULD BE PLACED AND GRADED USING EXCAVATORS OR BACKHOES OPERATING ADJACENT TO THE PRACTICE AND BE PLACED IN HORIZONTAL LAYERS (12 INCHES PER LIFT MAXIMUM). PROPER COMPACTION OF THE BSM WILL OCCUR NATURALLY. SPRAYING OR SPRINKLING WATER ON EACH LIFT UNTIL SATURATED MAY QUICKEN SETTLING TIMES.
- LANDSCAPE INSTALLATION:** THE OPTIMUM PLANTING TIME IS DURING THE FALL. SPRING PLANTING IS ALSO ACCEPTABLE BUT MAY REQUIRE WATERING.

SUBMERGED GRAVEL WETLAND SEQUENCE OF CONSTRUCTION

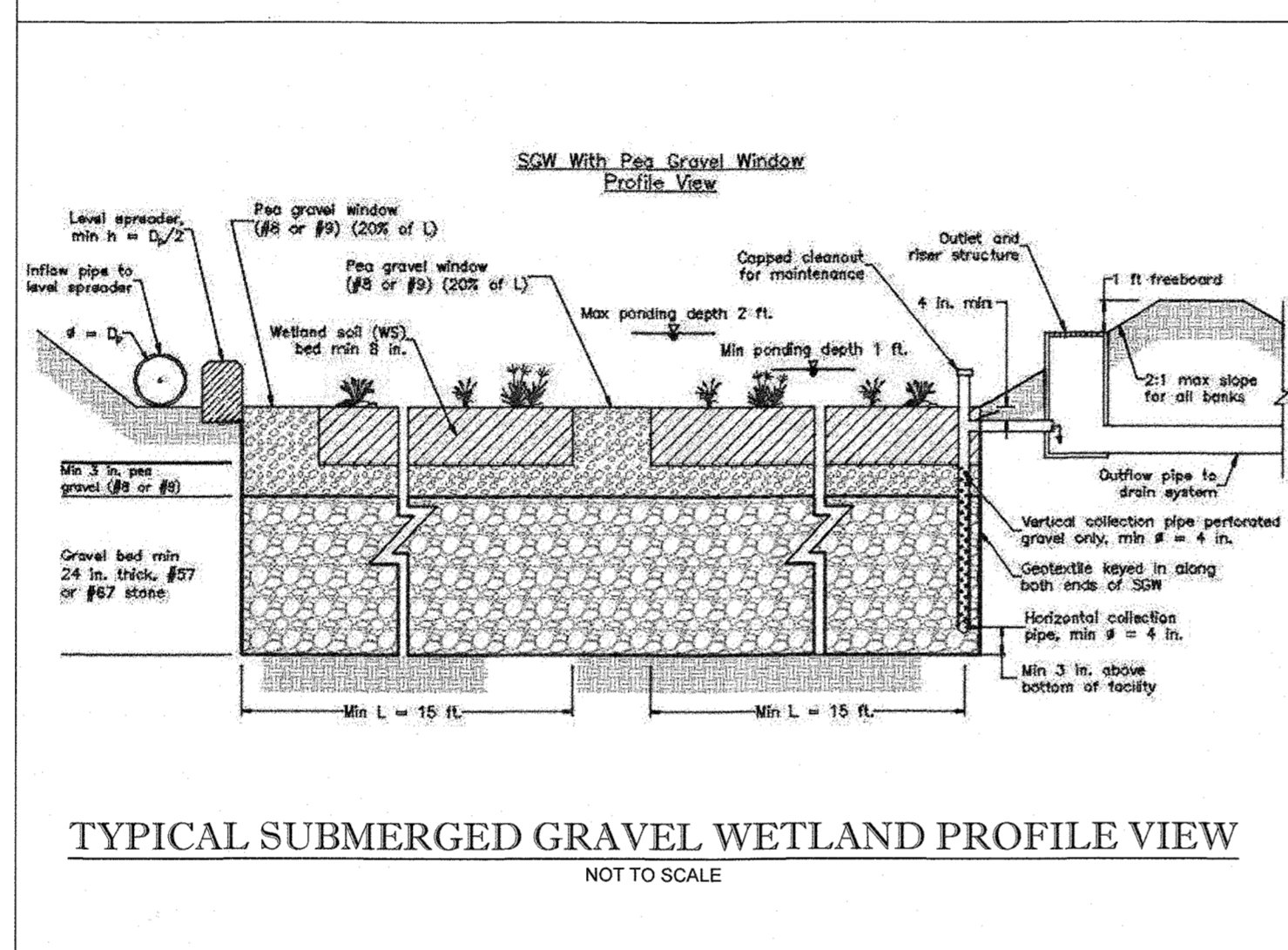
- CONSTRUCTION OF STORMWATER MANAGEMENT FACILITY SHALL BE COORDINATED WITH EROSION AND SEDIMENT CONTROL SEQUENCE OF CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY AS-BUILT CERTIFYING ENGINEER AND THE SEDIMENT CONTROL INSPECTOR PRIOR TO BEGINNING CONSTRUCTION ON STORMWATER MANAGEMENT FACILITY.
- THE PROPOSED STORMWATER FACILITY IS NOT TO BE INSTALLED UNTIL THE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED. DELAY INSTALLATION OF FILTER MEDIA UNTIL SITE HAS BEEN PERMANENTLY STABILIZED.
- EXCAVATE PROPOSED FACILITY TO SUBGRADE.
- PLACE PROPOSED 30-MIL PVC POLYMER GEOTEXTILE FABRIC ALONG ALL SIDES OF THE FACILITY. WORK AREA SHALL BE DEWATERED AS NEEDED USING PUMPS AND PST OR OTHER ME APPROVED DEVICE.
- INSTALL PROPOSED PIPING AND FILTER MEDIA LAYERS. CONSTRUCT GABION WEIR.
- FINAL GRADE AREAS AROUND PROPOSED FACILITY.
- PERMANENTLY STABILIZE DISTURBED AREAS AND INSTALL PROPOSED LANDSCAPE MATERIAL.

GRAVEL WETLAND: Operation and Maintenance

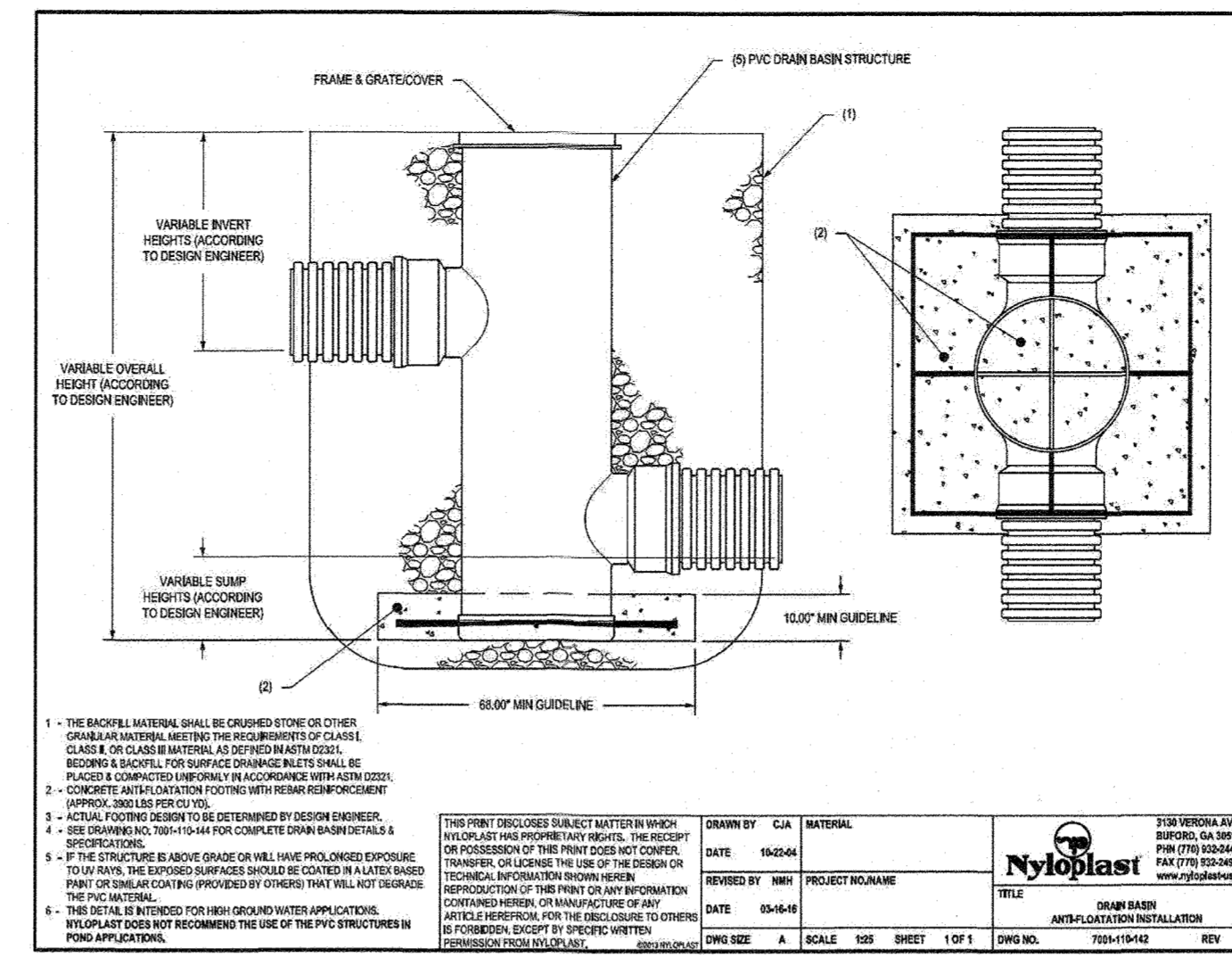
- During the first year of operation, inspections should be conducted after every major storm and poorly established areas revegetated.
- Sediment accumulation in the pretreatment areas should be removed as necessary.
- Signs of uneven flow distribution within the wetland may mean that the gravel or underdrain is clogged. The gravel and/or underdrain may need to be removed, cleaned and replaced.
- A dense stand of wetland vegetation should be maintained throughout the life of the facility with plantings replaced as needed.
- Inlets and outlets to each submerged gravel wetland cell should be free from debris to prevent clogging.
- Erosion at inflow points should be repaired. Flow splitters should be functional to prevent bypassing of the facility.



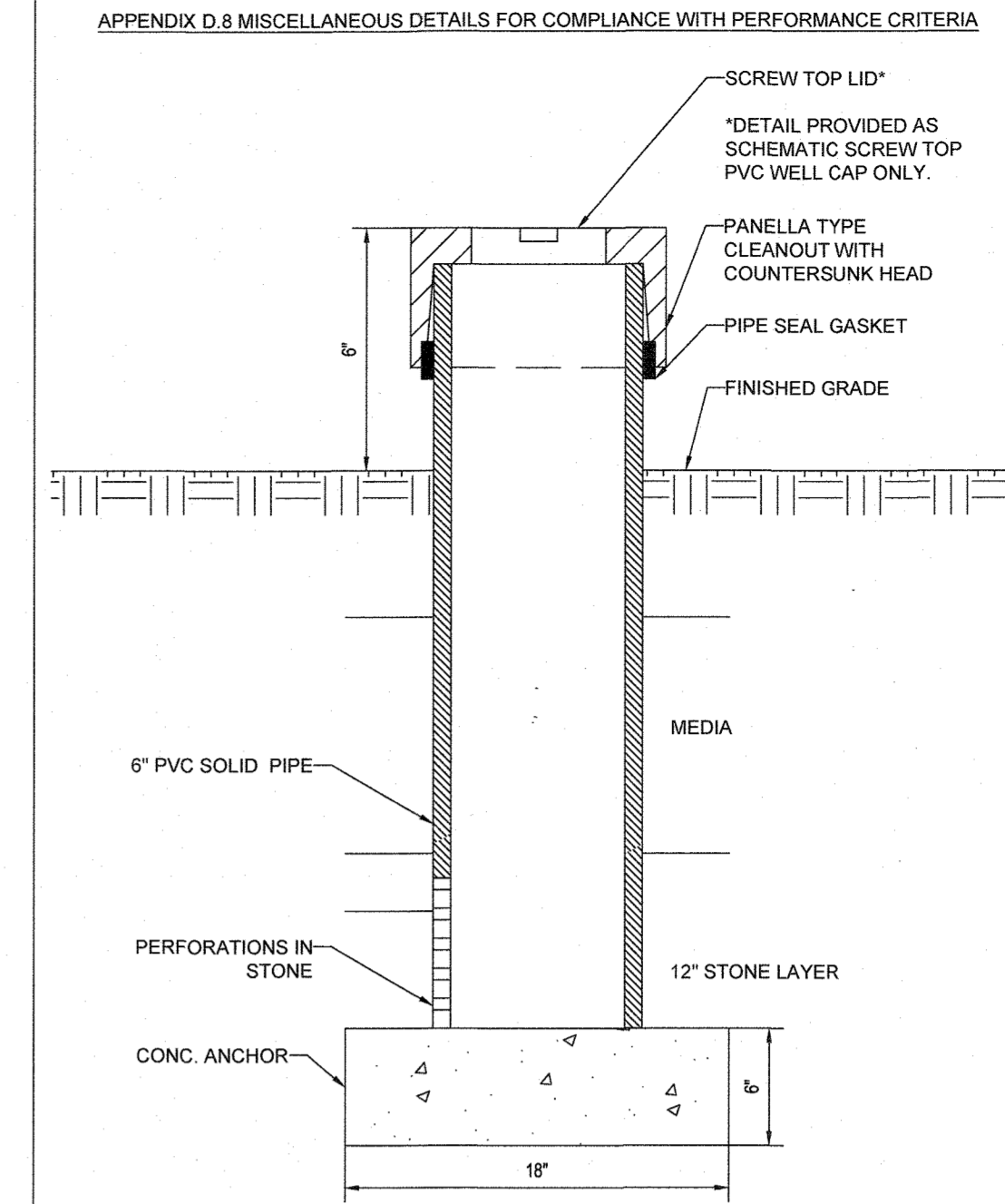
TYPICAL SUBMERGED GRAVEL WETLAND PLAN VIEW
NOT TO SCALE



TYPICAL SUBMERGED GRAVEL WETLAND PROFILE VIEW
NOT TO SCALE



SUBMERGED GRAVEL WETLAND CLEANOUT DETAIL
NOT TO SCALE

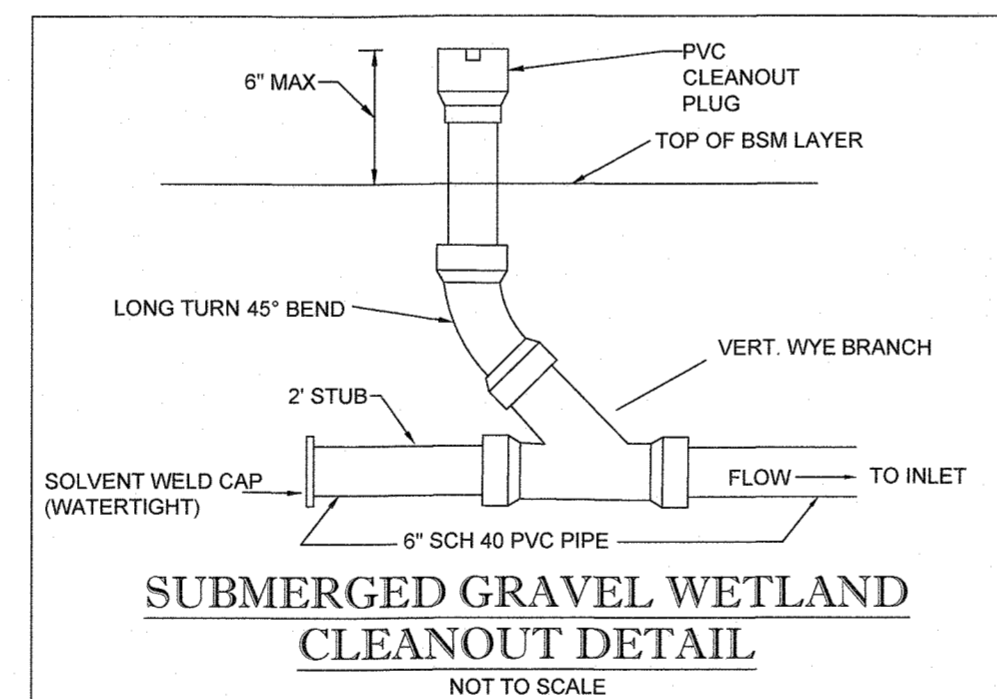


OBSERVATION WELL DETAIL

- EACH OBSERVATION WELL/CLEANOUT MUST INCLUDE THE FOLLOWING:
- FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL/CLEANOUT, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.
 - THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.
 - OBSERVATION WELL TO EXTEND 6" ABOVE THE TOP OF MULCH. THE 6" PVC PIPE IS TO BE PERFORATED WITH 3/8" PERFORATIONS AT 6" ON CENTER, 4 PER ROW WITHIN THE STONE LAYER.
- NOTE: WELL CAP MUST BE PERMANENTLY MARKED WITH AS-BUILT DEPTH TO INVERT.

MATERIALS SPECIFICATIONS FOR SUBMERGED GRAVEL WETLANDS

MATERIAL	SPECIFICATIONS	SIZE	NOTES
PLANTINGS	SEE LANDSCAPE PLAN	N/A	PLANTINGS ARE SITE-SPECIFIC
BIORETENTION SOIL MIX	MDSHA SPECIFICATION 920	N/A	
WINDOW STONE	ASTM-D-448	WASHED NO. 7	
GEOTEXTILE	CLASS 'C' - APPARENT OPENING SIZE (ASTM D-457), GRAB TENSILE STRENGTH (ASTM D-4632), PUNCTURE RESISTANCE (ASTM D-4633)	N/A	SIDES ONLY, NOT ON BOTTOM UNLESS SPECIFIED ON PLANS
UNDERDRAIN AND RESERVOIR GRAVEL	AASHTO M-43	WASHED NO. 8	
UNDERDRAIN PIPING AND DRAWDOWN PIPE	SLOTTED PVC OR SLOTTED HDPE TYPE 'SP' PIPES SOLID SCHEDULE 40 PVC OR HDPE TYPE 'S'		ALL PIPES MUST BE DOUBLE WALLED (SMOOTH CORE) AND SLOTTED (NO CIRCULAR HOLES)
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MIX NO. 3, Fc = 3500 psi @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED, REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF POUR-IN-PLACE CONCRETE REQUIRED; 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MEETING ACI CODE 309 R-85 VERTICAL LOADING (H-10 OR H-20), ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND	ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
GABION BASKET	MIN 11 GAUGE WIRE		
GABION STONES		4" TO 7" STONES	



SUBMERGED GRAVEL WETLAND CLEANOUT DETAIL
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE: 10/12/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-15-21

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED #: 14532/0469	TAX MAP: 40 GRID: 24 ZONED: RR-DEO SP-17-010b PARCEL: 135 ECP-17-059 WP-18-070
PREVIOUS FILE NO.: SP-17-010b ECP-17-059 WP-18-070	5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REV	DATE	COMMENT	DESIGNED BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: SWM-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F

LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

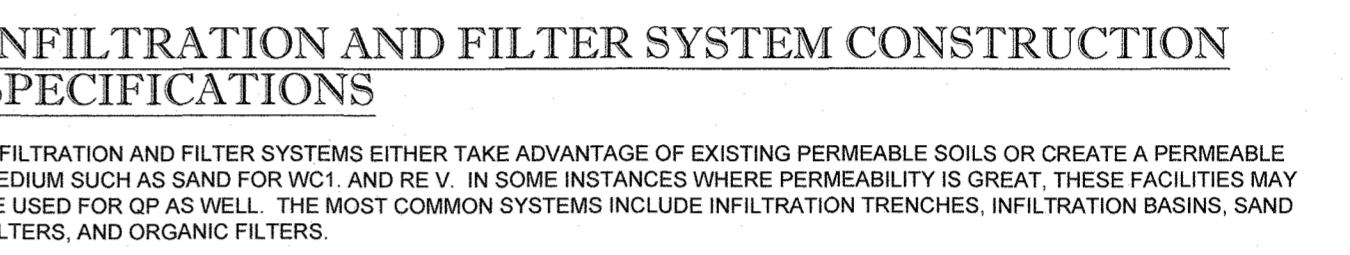
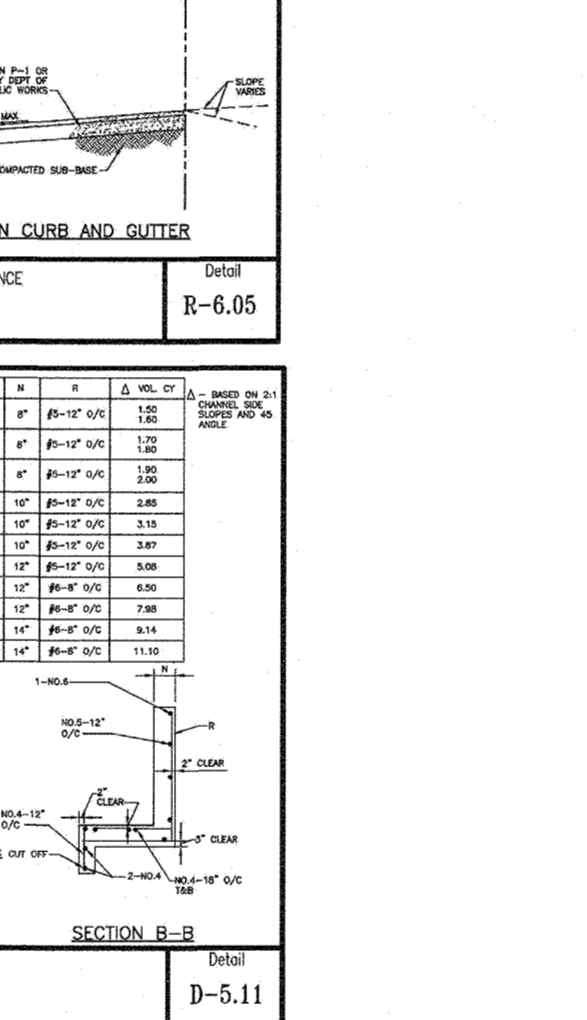
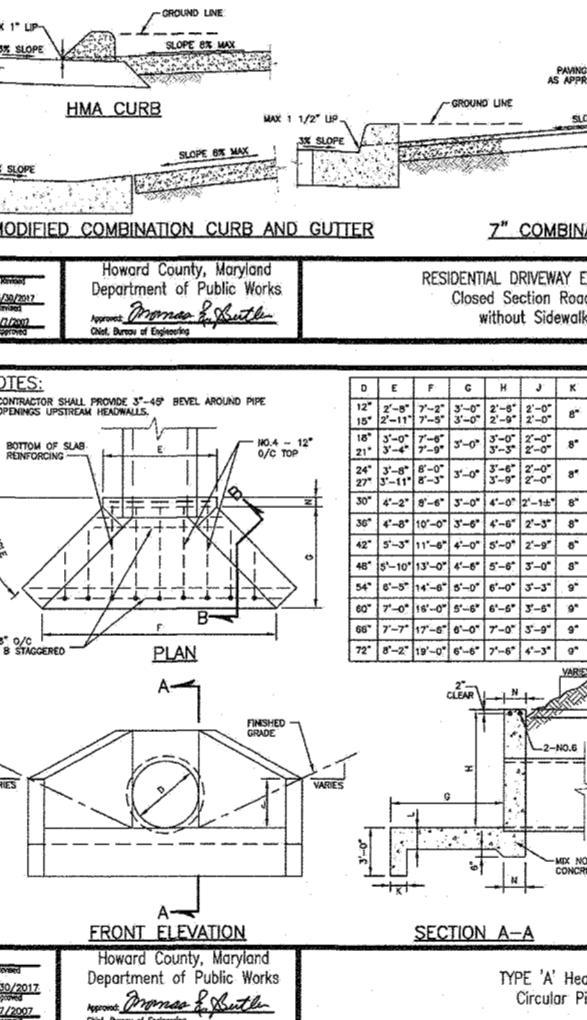
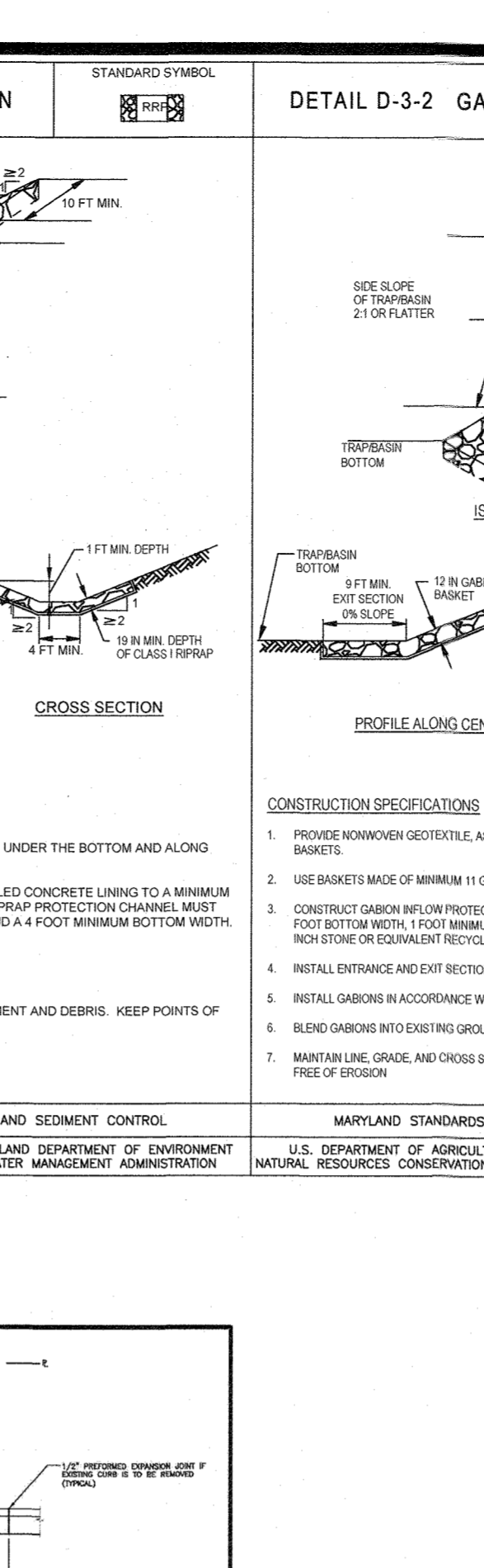
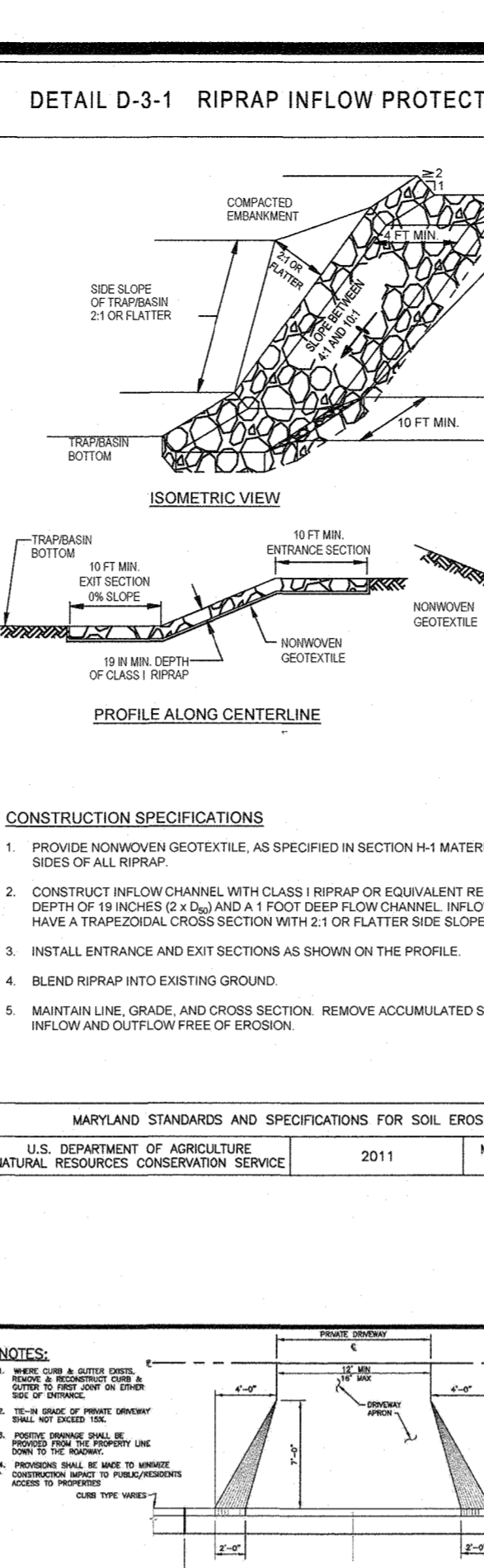
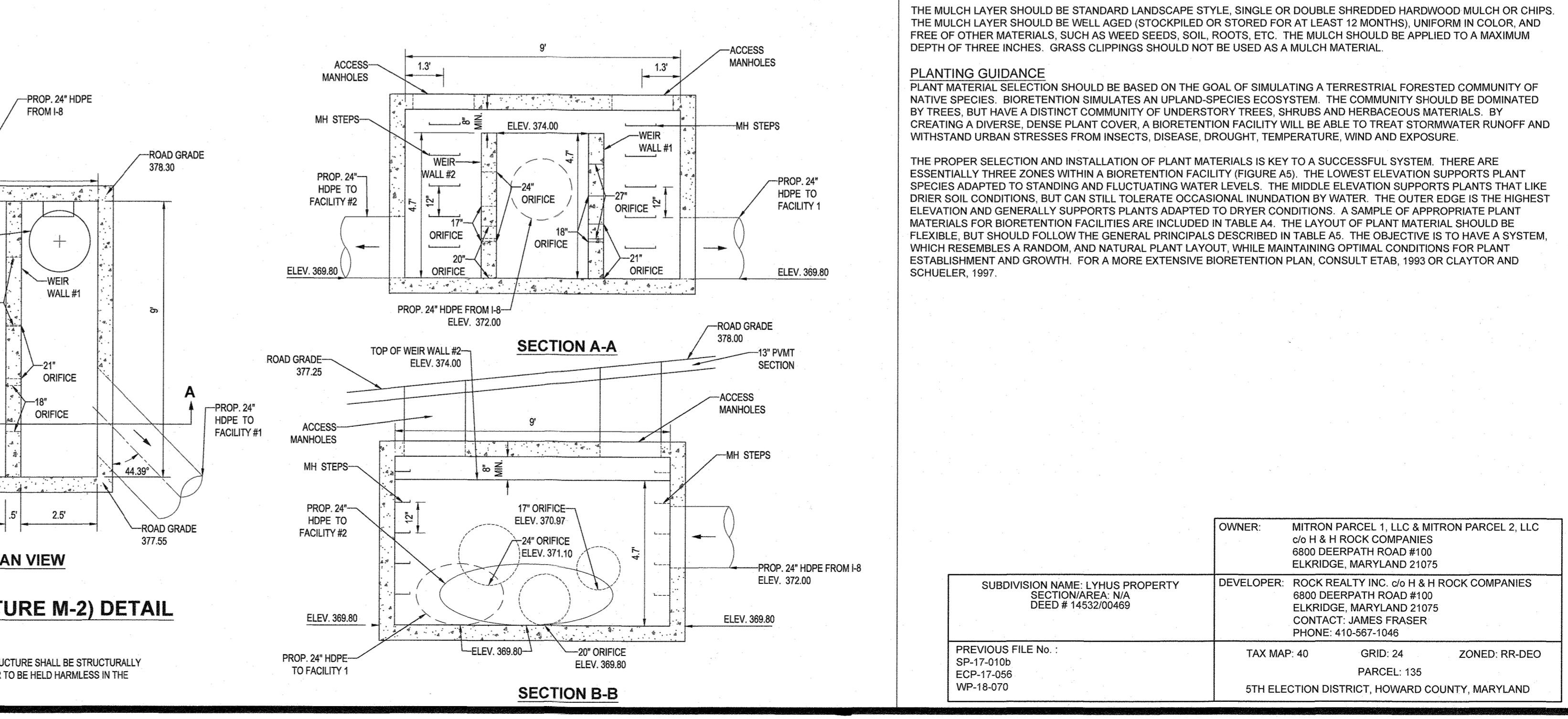
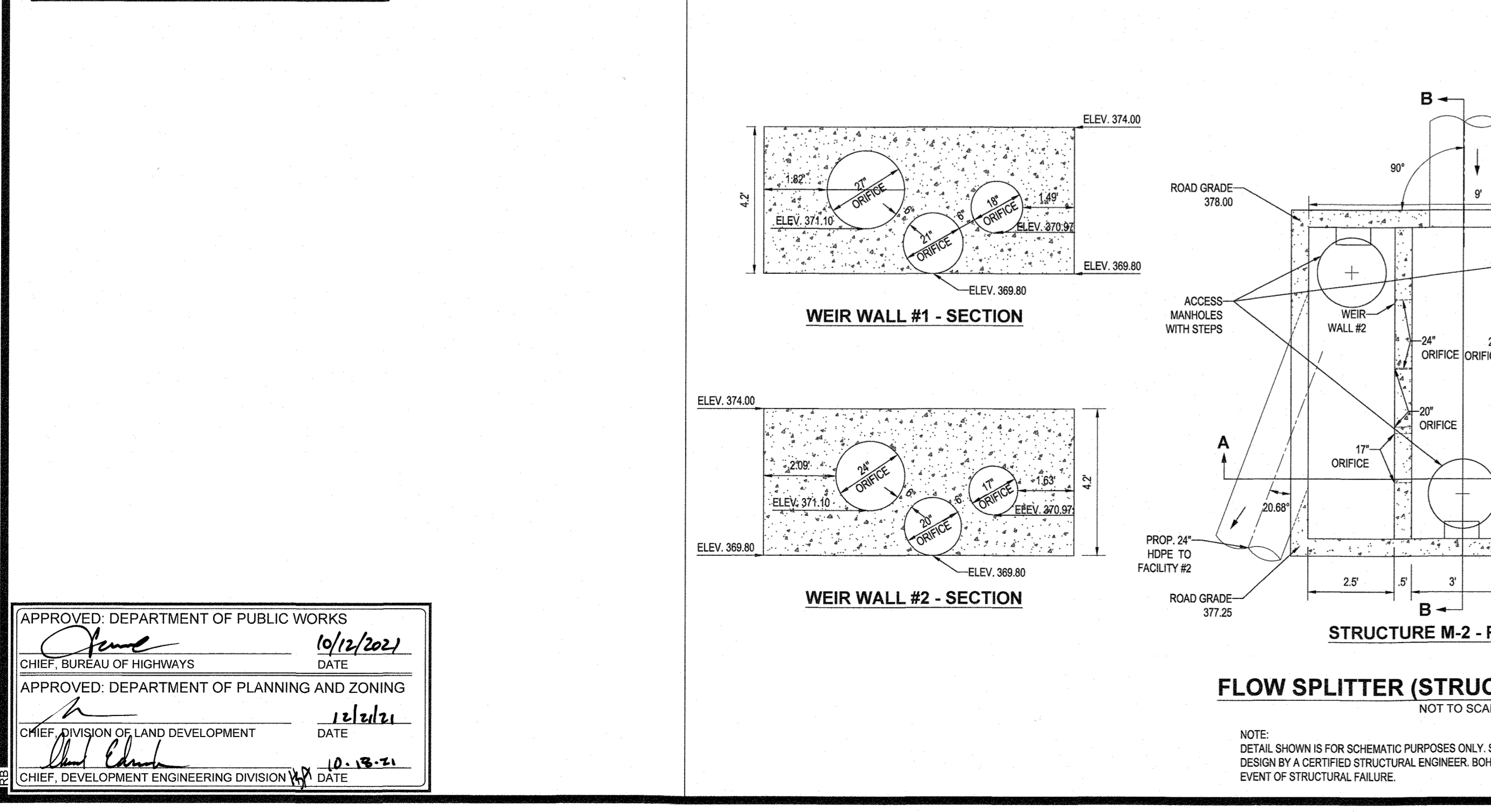
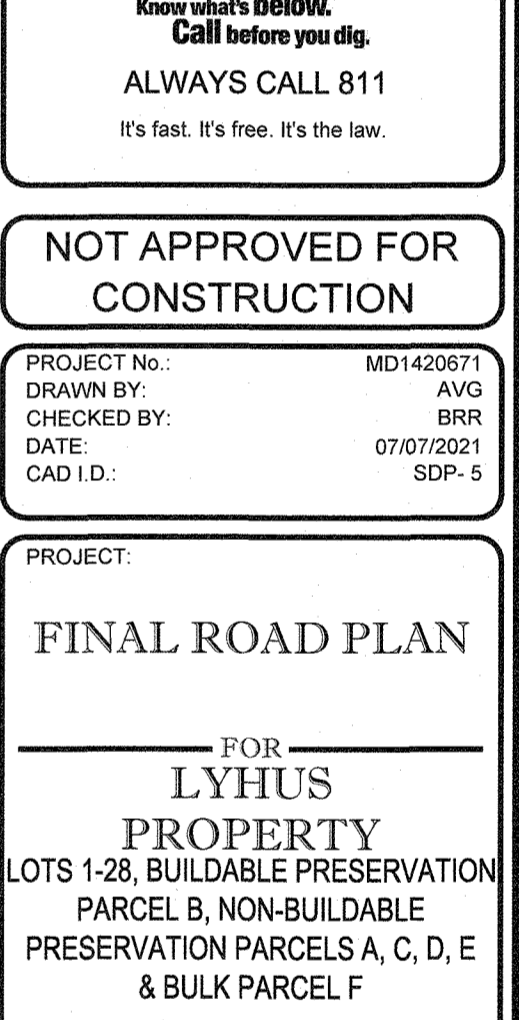
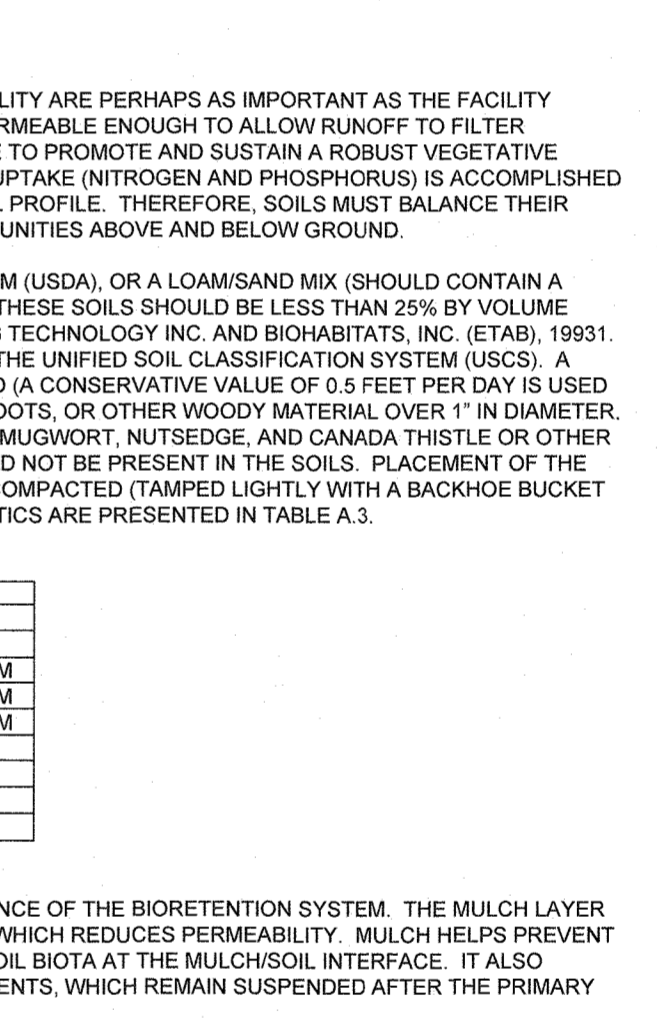
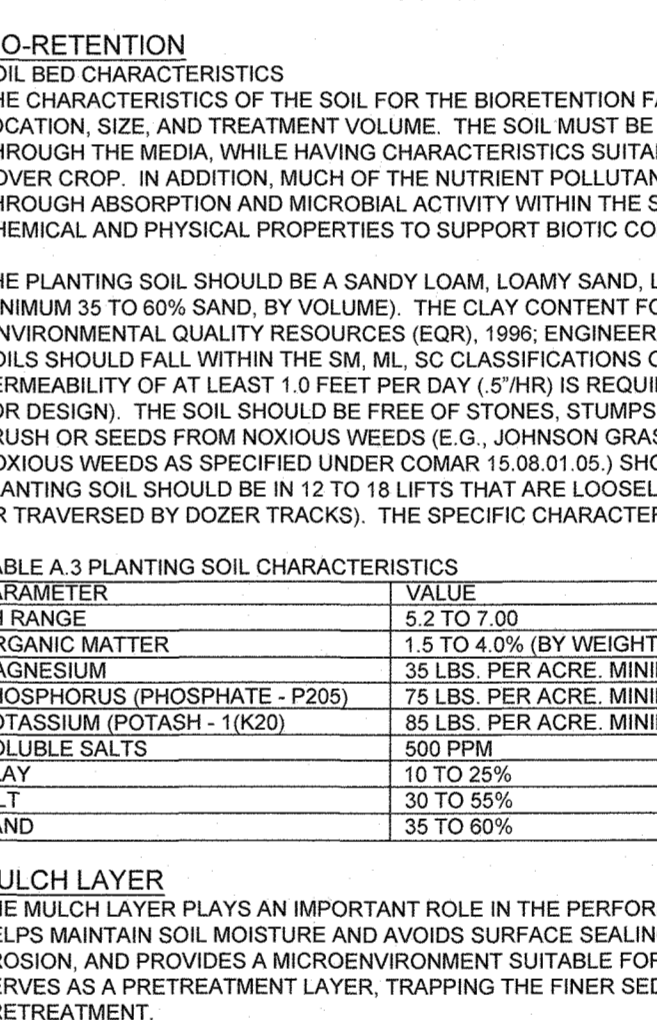
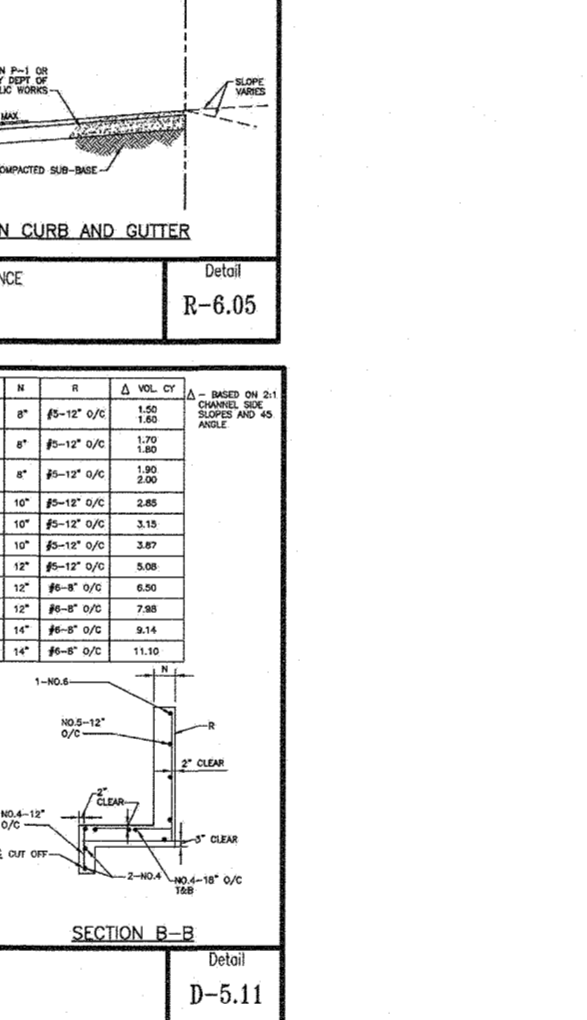
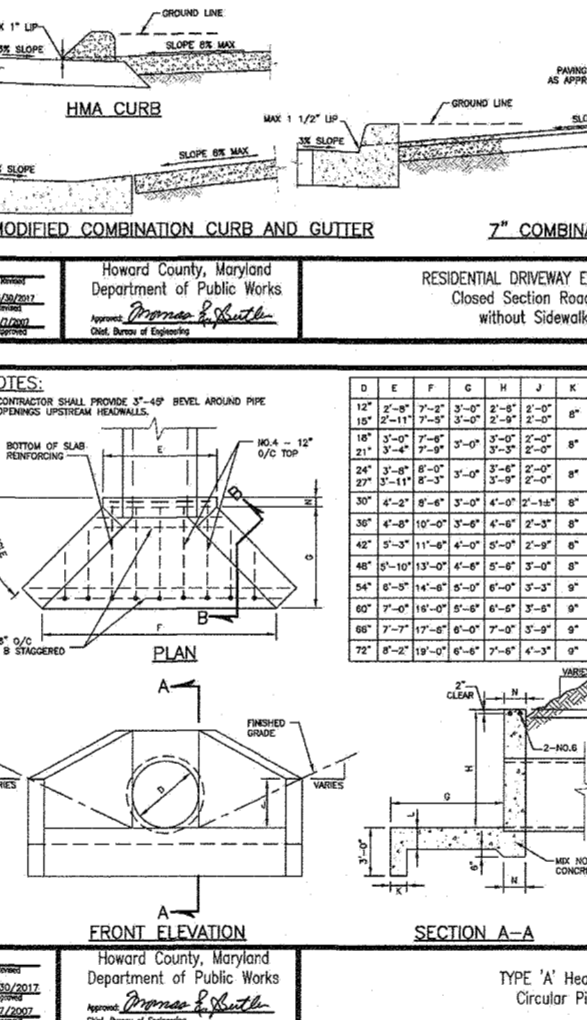
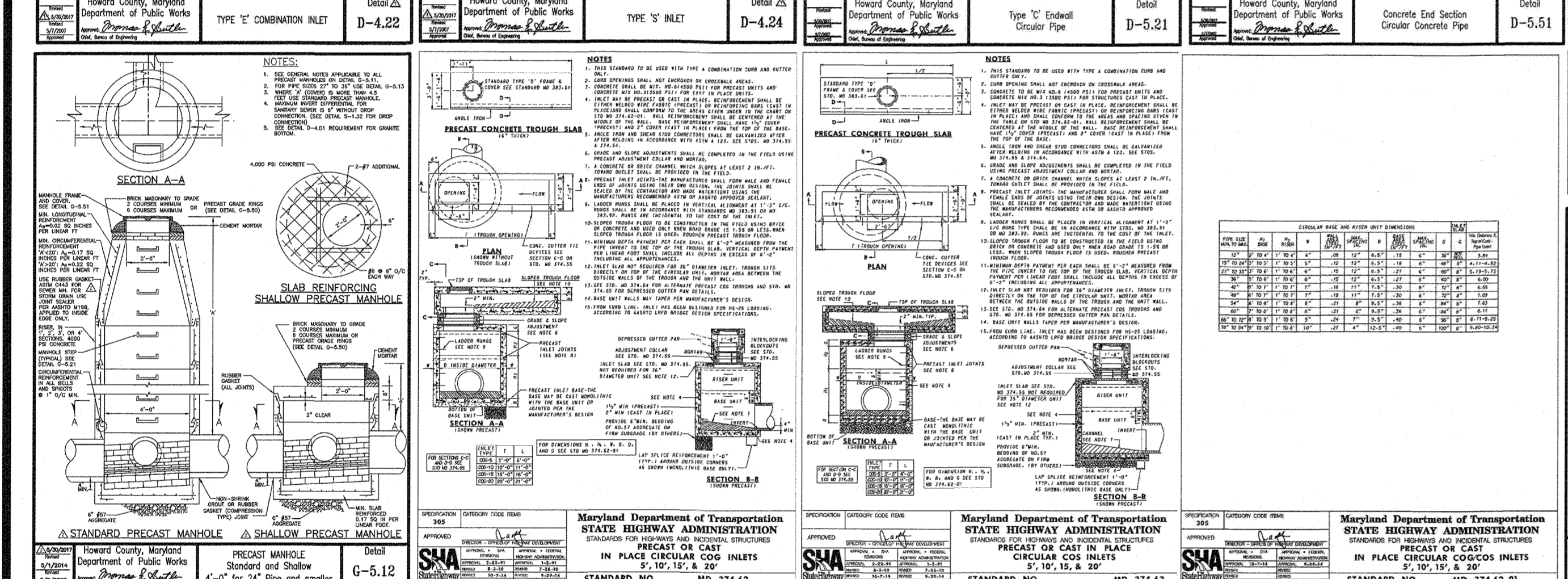
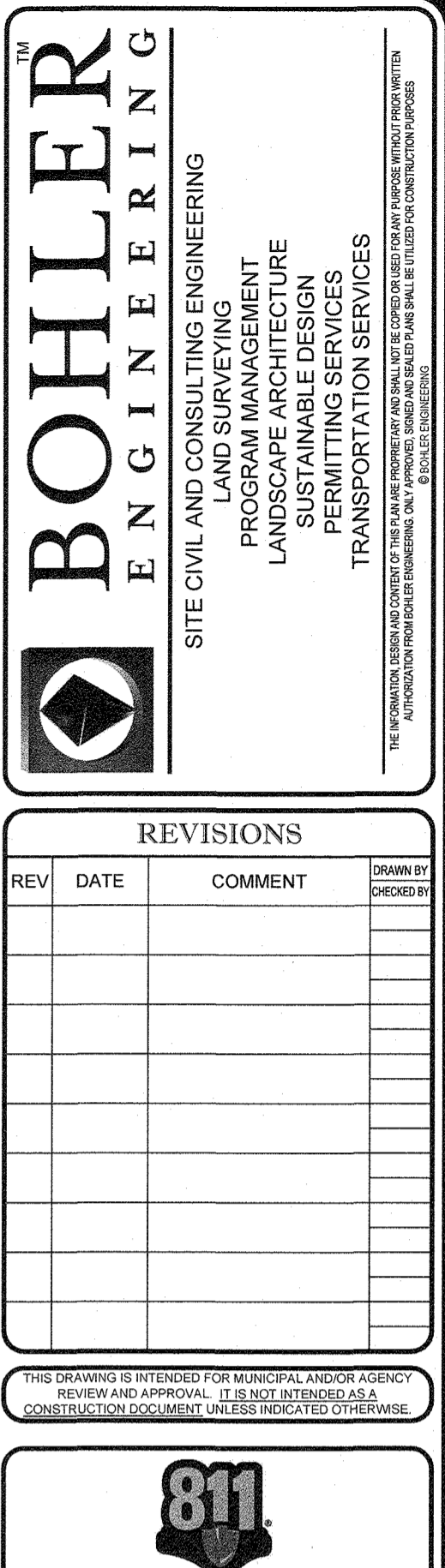
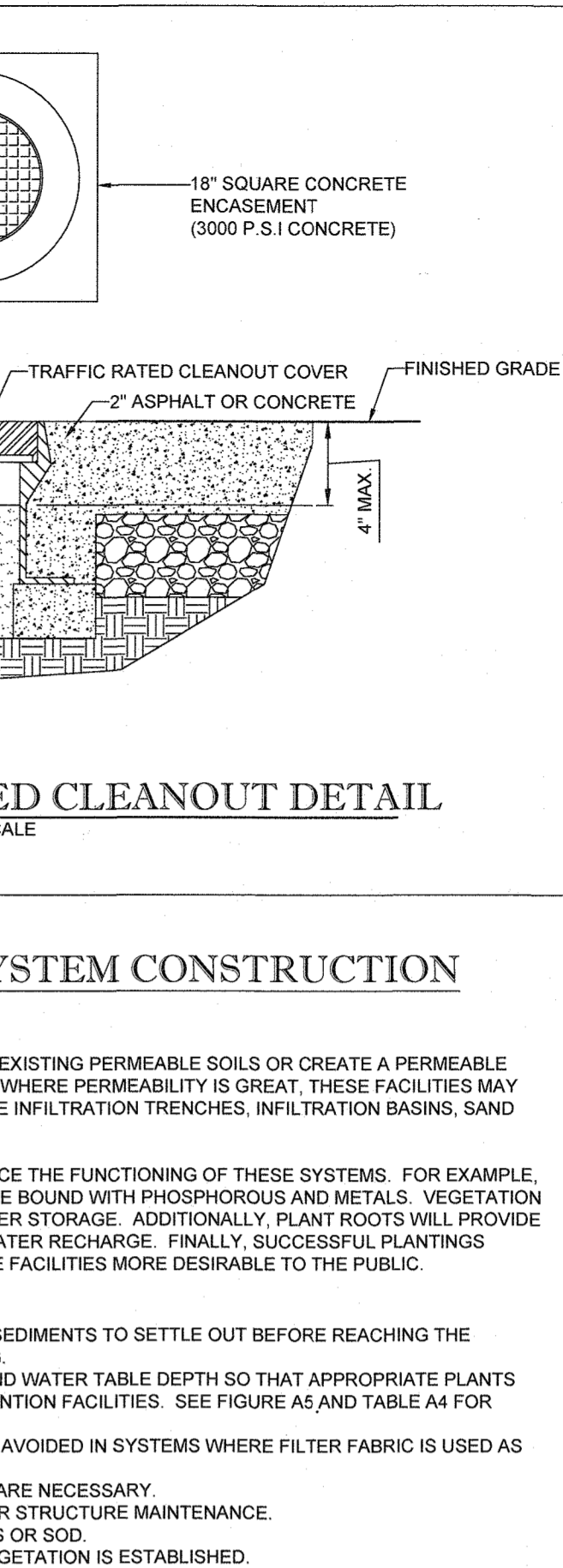
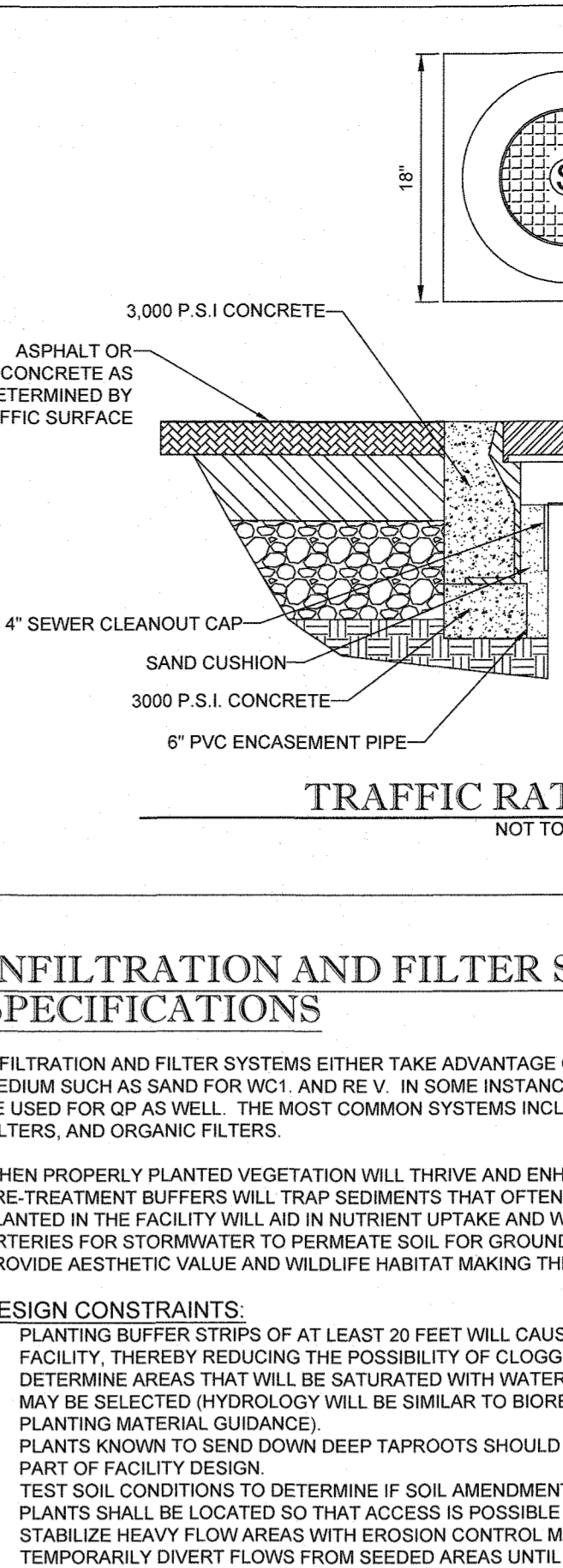
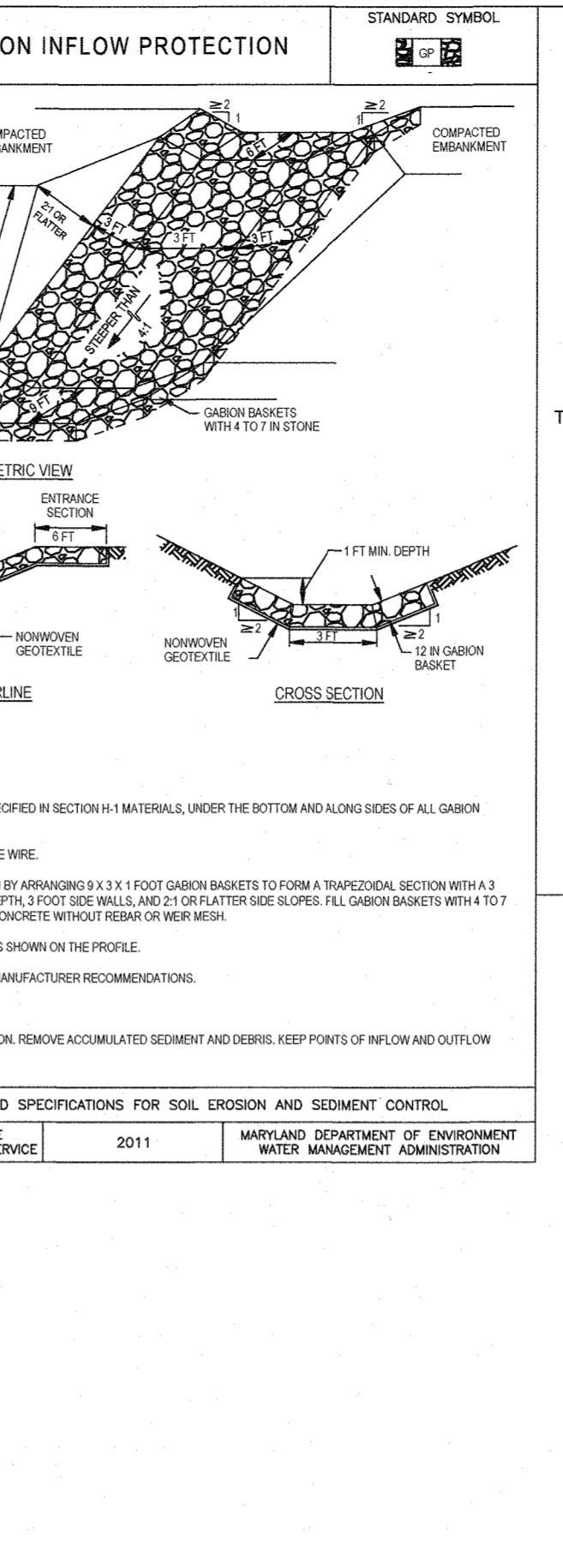
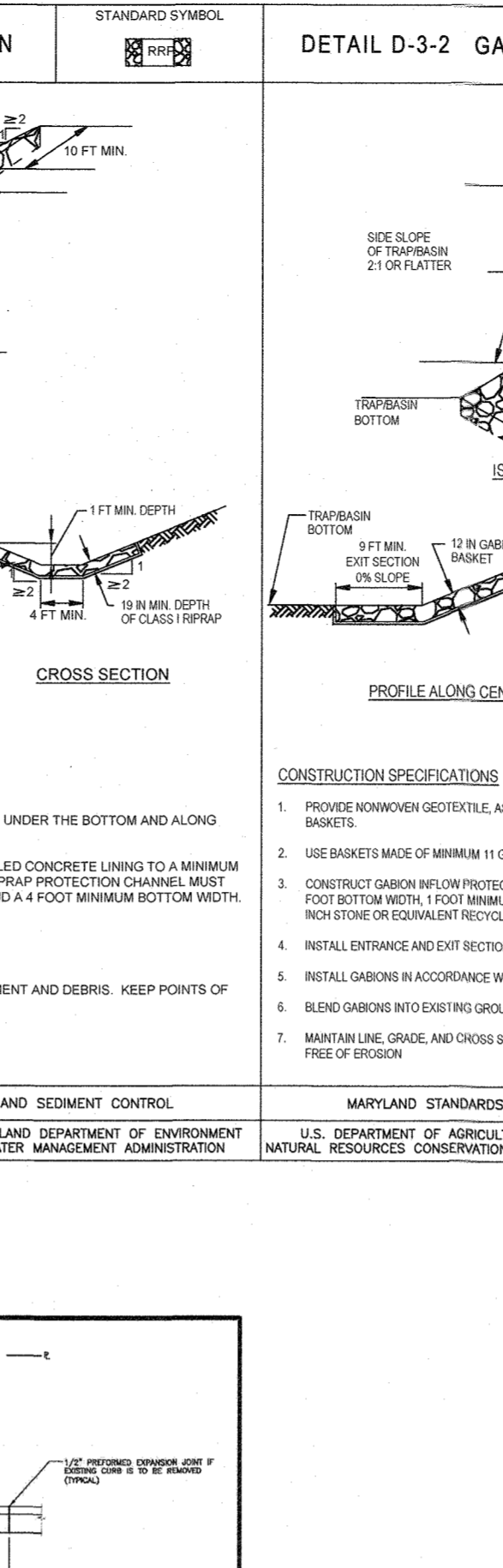
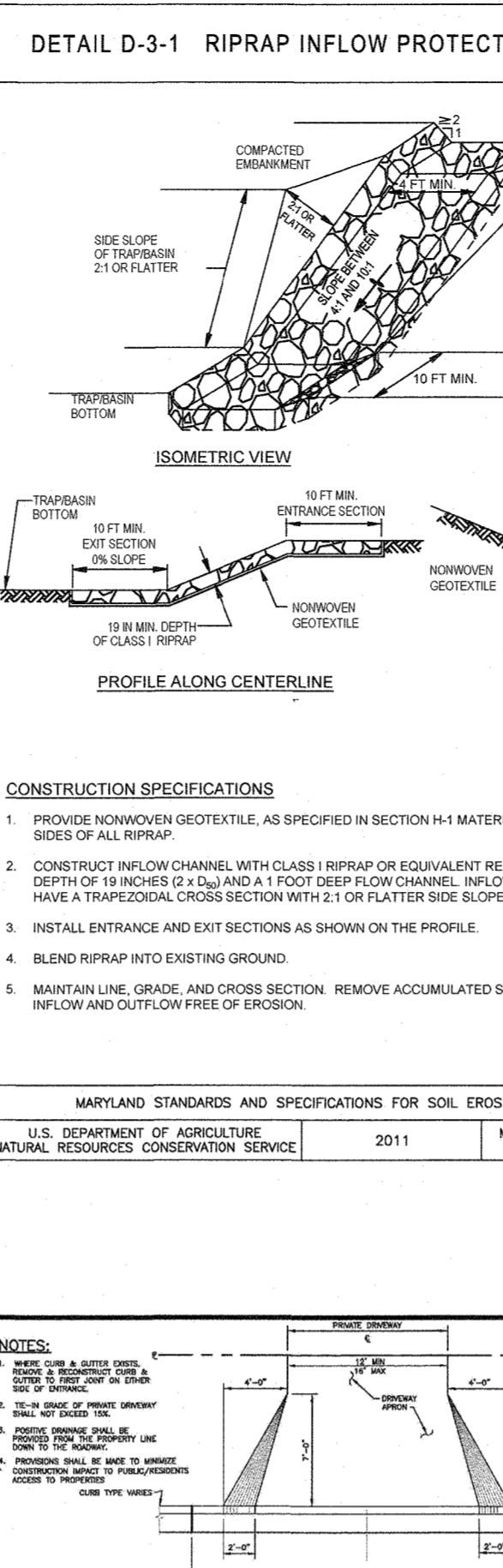
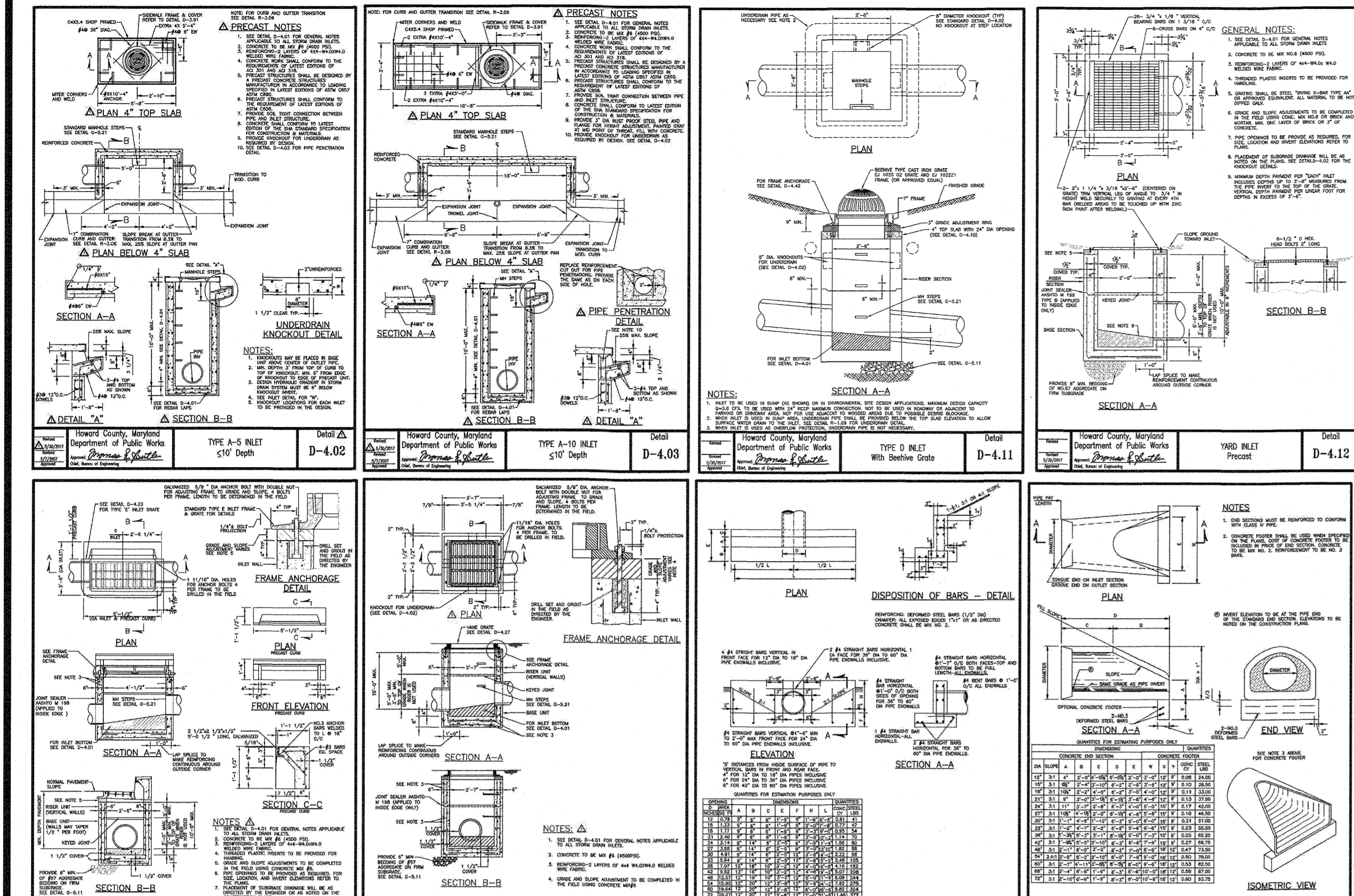
901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 27398
 I, BRANDON ROWE, MEMBER NO. 27398, HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40886, EXPIRATION DATE: 7/31/2023

SHEET TITLE:
SWM NOTES & DETAILS

SHEET NUMBER:
43 OF 80

REVISION 5 - 07/07/2021



INFILTRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS

INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC1 AND R.V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR QP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS.

WHEN PROPERLY PLANTED VEGETATION WILL THRIVE AND ENHANCE THE FUNCTIONING OF THESE SYSTEMS. FOR EXAMPLE, PRE-TREATMENT BUFFERS WILL TRAP SEDIMENTS THAT OFTEN ARE BOUND WITH PHOSPHORUS AND METALS. VEGETATION PLANTED IN THE FACILITY WILL AID IN NUTRIENT UPTAKE AND WATER STORAGE. ADDITIONALLY, PLANT ROOTS WILL PROVIDE ARTERIES FOR STORMWATER TO PERMEATE SOIL FOR GROUNDWATER RECHARGE. FINALLY, SUCCESSFUL PLANTINGS PROVIDE AESTHETIC VALUE AND WILDLIFE HABITAT MAKING THESE FACILITIES MORE DESIRABLE TO THE PUBLIC.

DESIGN CONSTRAINTS:

- PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
- DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES). SEE FIGURE A5 AND TABLE A4 FOR PLANTING MATERIAL GUIDANCE.
- PLANTS KNOWN TO SEND DOWN DEEP TAPROOTS SHOULD BE AVOIDED IN SYSTEMS WHERE FILTER FABRIC IS USED AS PART OF FACILITY DESIGN.
- TEST SOIL CONDITIONS TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY.
- PLANTS SHALL BE LOCATED SO THAT ACCESS IS POSSIBLE FOR STRUCTURE MAINTENANCE.
- STABILIZE HEAVY FLOW AREAS WITH EROSION CONTROL MATS OR SO2.
- TEMPORARILY DIVERT FLOWS FROM SEED AREAS UNTIL VEGETATION IS ESTABLISHED.
- SEE TABLE A5 FOR ADDITIONAL DESIGN CONSIDERATIONS.

BIO-RETENTION
SOIL BED CHARACTERISTICS
THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION FACILITY ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME. THE SOIL MUST BE PERMEABLE ENOUGH TO ALLOW RUNOFF TO FILTER THROUGH THE MEDIA, WHILE HAVING CHARACTERISTICS SUITABLE TO PROMOTE AND SUSTAIN A ROBUST VEGETATIVE COVER CROP. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED THROUGH ABSORPTION AND MICROBIAL ACTIVITY WITHIN THE SOIL PROFILE. THEREFORE, SOILS MUST BALANCE THEIR CHEMICAL AND PHYSICAL PROPERTIES TO SUPPORT BIORETENTION COMMUNITIES ABOVE AND BELOW GROUND.

THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM 35 TO 50% SAND BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME (ENVIRONMENTAL QUALITY REGULATIONS (EQR), 1995; ENGINEERING TECHNOLOGY INC. AND BIOHABITATS, INC. (ETAB), 1995). SOILS SHOULD FALL WITHIN THE SM, ML, SC CLASSIFICATIONS OR THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (5.78 IN) IS REQUIRED (A CONSERVATIVE VALUE OF 0.5 FEET PER DAY IS USED FOR DESIGN). THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER, BRUSH OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUGWORT, NUTSEDGE, AND CANADA THISTLE) OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMMENT 15.08 (05). SHOULD NOT BE PRESENT IN THE SOILS. THE PLANTING SOIL SHOULD BE IN 12 TO 18 LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS). THE SPECIFIC CHARACTERISTICS ARE PRESENTED IN TABLE A.3.

PARAMETER	VALUE
PH RANGE	6.2 TO 7.00
ORGANIC MATTER	1.5 TO 4.0% (BY WEIGHT)
MAGNESIUM	56 LBS PER ACRE MINIMUM
PHOSPHORUS (PHOSPHATE - P205)	75 LBS PER ACRE MINIMUM
POTASSIUM (POTASH - 1(K2O))	85 LBS PER ACRE MINIMUM
SOLUBLE SALTS	500 PPM
CLAY	10 TO 25%
SILT	30 TO 55%
SAND	35 TO 60%

MULCH LAYER
THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION SYSTEM. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE SEALING, WHICH REDUCES PERMEABILITY. MULCH HELPS PREVENT EROSION, AND PROVIDES A MICROENVIRONMENT SUITABLE FOR SOIL BIOTA AT THE MULCH/SOIL INTERFACE. IT ALSO SERVES AS A PRETREATMENT LAYER, TRAPPING THE FINER SEDIMENTS, WHICH REMAIN SUSPENDED AFTER THE PRIMARY PRETREATMENT.

THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

PLANTING GUIDANCE
PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES, BUT HAVE A DISTINCT COMMUNITY OF UNDERSTORY TREES, SHRUBS AND HERBACEOUS MATERIALS. BY CREATING A DIVERSE, DENSE PLANT COVER, A BIORETENTION FACILITY WILL BE ABLE TO TREAT STORMWATER RUNOFF AND WITHSTAND URBAN STRESSES FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND AND EXPOSURE.

THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION FACILITY (FIGURE A5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT LIKE DRIER SOIL CONDITIONS, BUT CAN STILL TOLERATE OCCASIONAL INUNDATION BY WATER. THE OUTER EDGE IS THE HIGHEST ELEVATION AND GENERALLY SUPPORTS PLANTS ADAPTED TO DRIER CONDITIONS. A SAMPLE OF APPROPRIATE PLANT MATERIALS FOR BIORETENTION FACILITIES ARE INCLUDED IN TABLE A4. THE LAYOUT OF PLANT MATERIAL SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPALS DESCRIBED IN TABLE A5. THE OBJECTIVE IS TO HAVE A SYSTEM, WHICH RESEMBLES A RANDOM, AND NATURAL PLANT LAYOUT, WHILE MAINTAINING OPTIMAL CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. FOR A MORE EXTENSIVE BIORETENTION PLAN, CONSULT ETAB, 1995 OR CLAYTON AND SCHUELER, 1997.

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS				
REV	DATE	COMMENT	DRAWN BY	

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT APPROVED AS A CONSTRUCTION DOCUMENT UNLESS NOTED OTHERWISE.

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRB
DATE: 07/07/2021
CAD ID: SDP-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7000
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER

STORMWATER MANAGEMENT AND STORM DRAIN NOTES & DETAILS

SHEET NUMBER: **44 OF 80**

REVISION 5 - 07/07/2021

APPROVED: DEPARTMENT OF PUBLIC WORKS
10/12/2021
CHIEF, BUREAU OF HIGHWAYS
APPROVED: DEPARTMENT OF PLANNING AND ZONING
10-13-21
CHIEF, DIVISION OF LAND DEVELOPMENT
CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

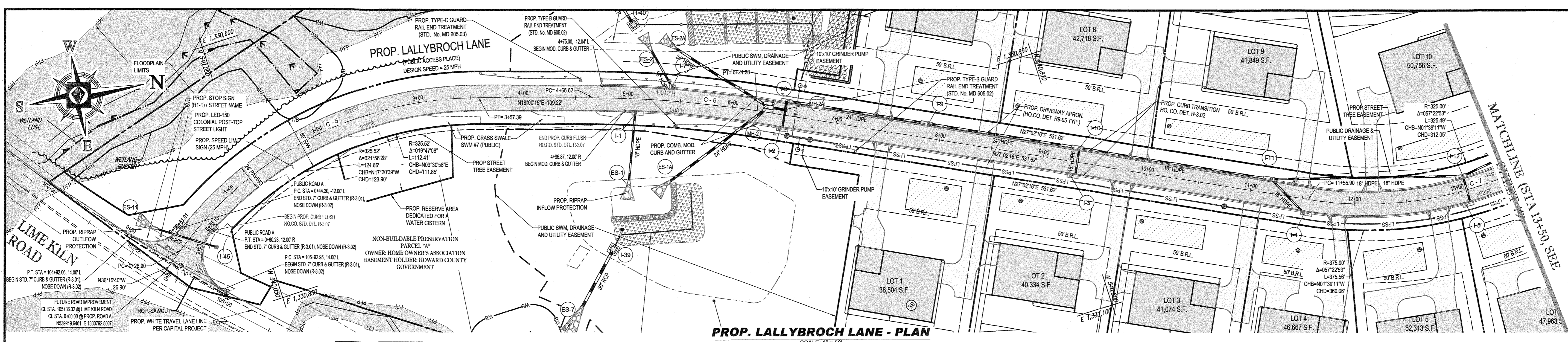
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: SP-17-010b, ECP-17-056, WP-18-070

TAX MAP: 40 GRID: 24 ZONED: RR-DEO

PARCEL: 135

5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



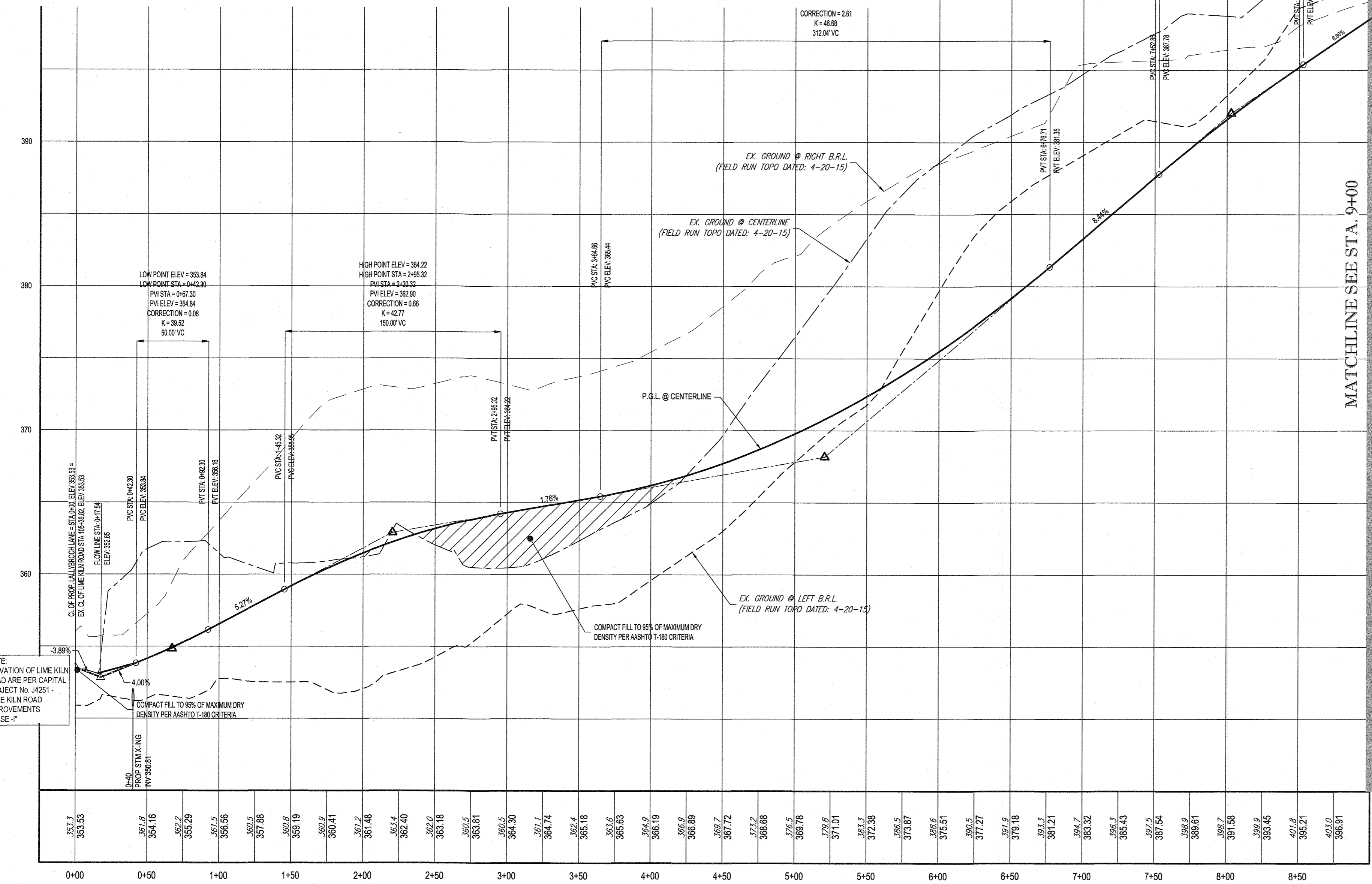
PROP. LALLYBROCH LANE - PLAN

Curve Table

Curve #	Radius	Length	Chord Bearing	Chord	Delta	Tangent
C - 5	349.487	330.494	N09° 05' 12.10"W	318.317	016.3942	178.772
C - 6	1000.000	157.664	N22° 31' 15.76"E	157.501	005.7296	78.996
C - 7	350.000	350.523	N01° 39' 10.51"W	336.057	016.3702	191.546

STREET LIGHT CHART

STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
LALLYBROCH LANE (PUBLIC)	0+27.09	23.26' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100 COLONIAL)

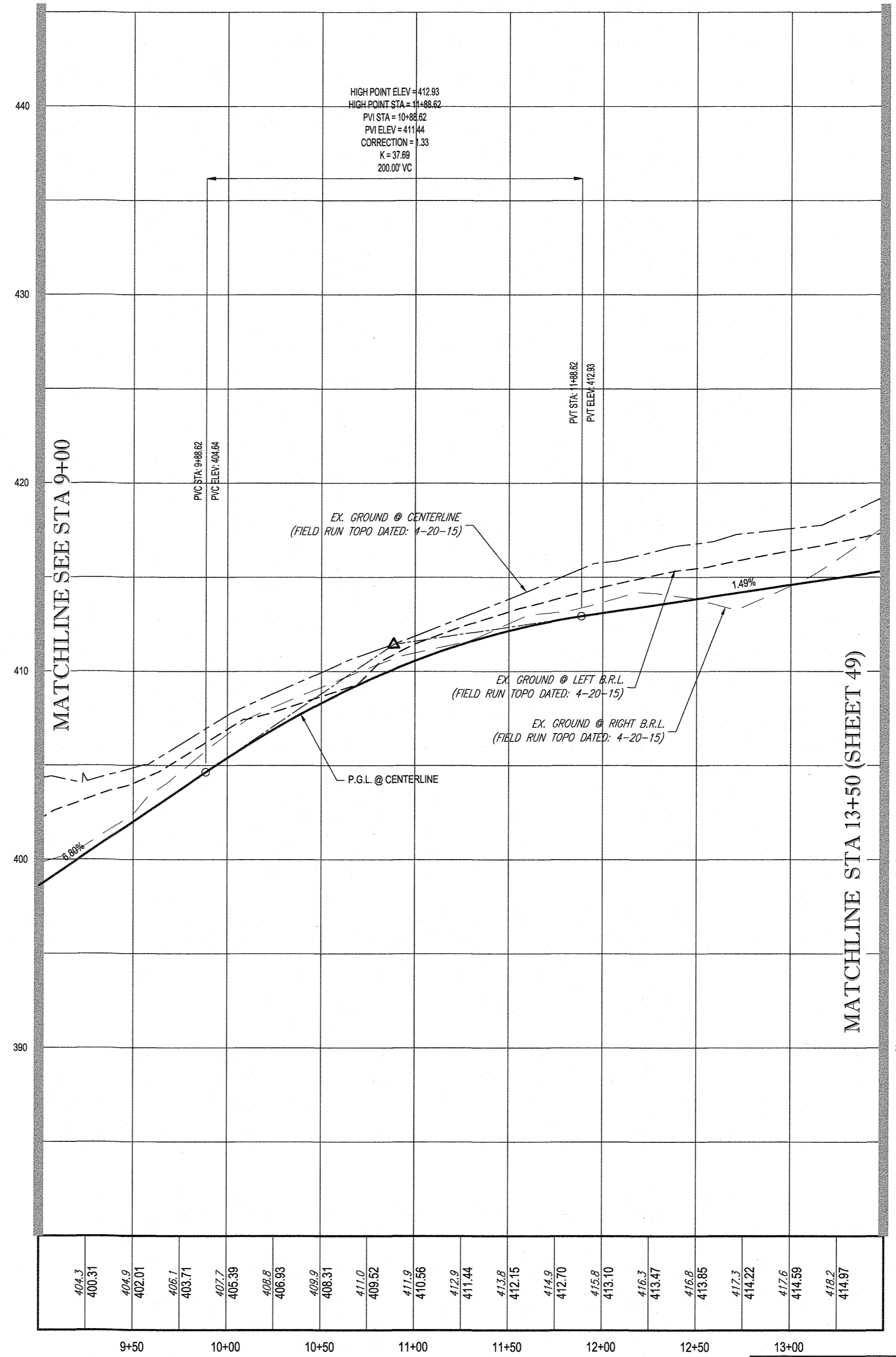


PROP. LALLYBROCH LANE - PROFILE

PUBLIC ACCESS PLACE
DESIGN SPEED - 25 MPH
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	CL STATION LIMITS	PAVING SECTION
LALLYBROCH LANE (PUBLIC)	PUBLIC ACCESS PLACE	25 M.P.H.	STA 0+00.00 TO STA 13+50.00	P-2



PROP. LALLYBROCH LANE - PROFILE

PUBLIC ACCESS PLACE
DESIGN SPEED - 25 MPH
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

SUBDIVISION NAME: LYHUS PROPERTY SECTION AREA: N/A DEED # 14532/00469	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKDRIDGE, MARYLAND 21075
PREVIOUS FILE NO.: SP-17-010b ECP-17-056 WP-18-070	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKDRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
TAX MAP: 40	GRID: 24
PARCEL: 135	ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/01/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10/20/21

NOTE:
ROAD GRADING WITHIN LIME KILN ROAD IS PER COORDINATION WITH CAPITAL IMPROVEMENT PROJECT #4251 PER 50% PLANS RECEIVED ON 02/10/2020. ROAD GRADING OF PROPOSED LALLYBROCH LANE IS DESIGNED TO TIE INTO ULTIMATE BUILD-OUT OF LIME KILN ROAD AND IS SHOWN AS SUCH HERE-IN.

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
DRAWN BY: AVS
CHECKED BY: BRB
DATE: 09/24/2021
CAD I.D.: PPP-B

FINAL ROAD PLAN
FOR
LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

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

B.R. ROWE
PROFESSIONAL ENGINEER
LICENSE NO. 40866 EXPIRATION DATE: 10/20/23

ROAD PLAN & PROFILE

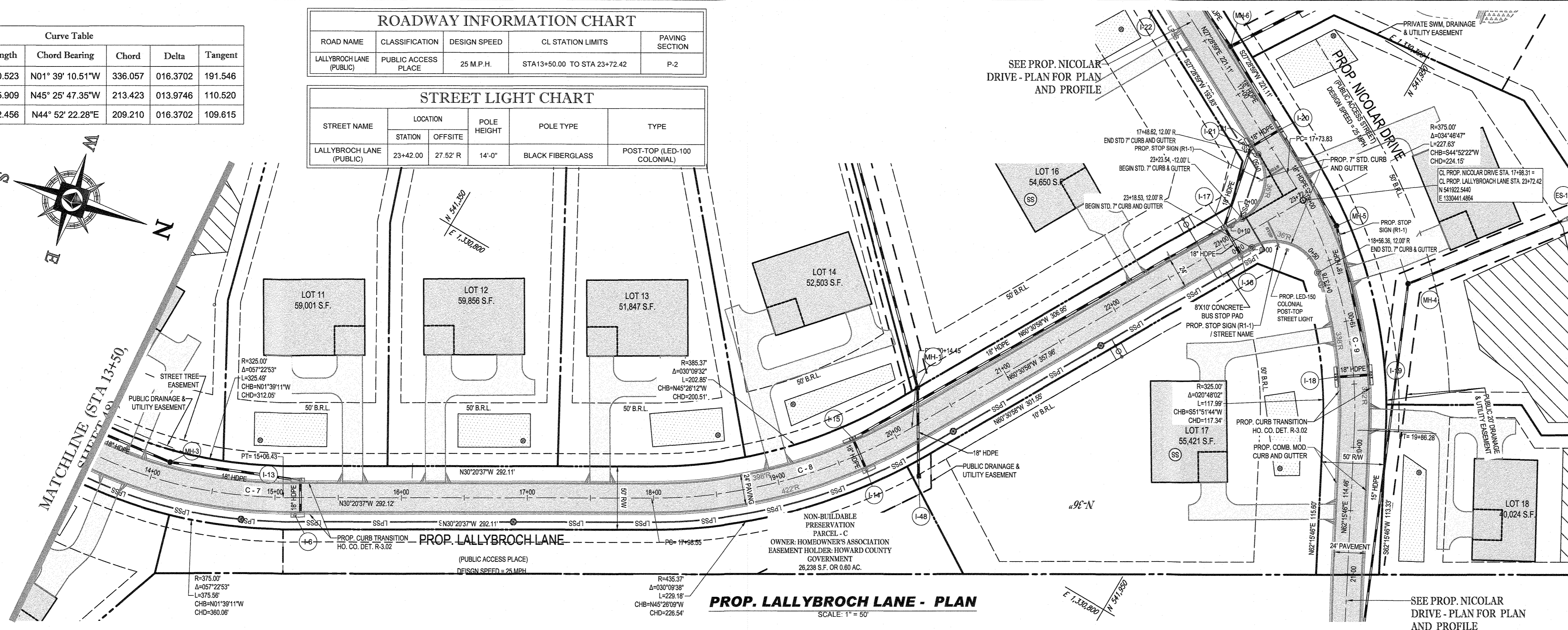
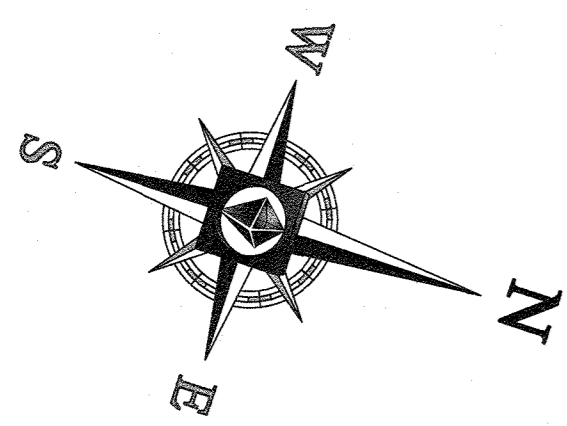
SHEET TITLE:
45 OF 80

REVISION 5 - 09/24/2021

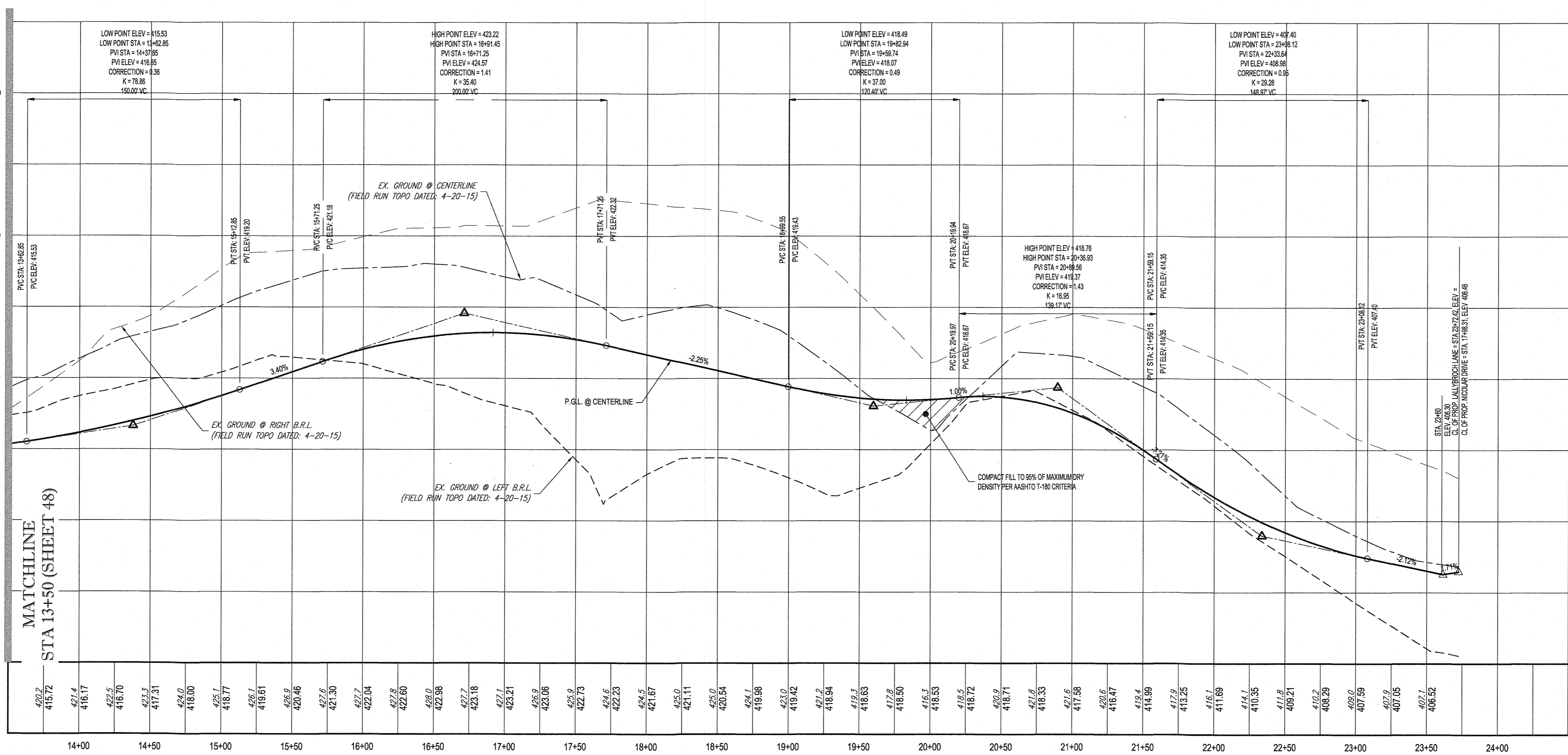
Curve #	Radius	Length	Chord Bearing	Chord	Delta	Tangent
C - 7	350.000	350.523	N01° 39' 10.51"W	336.057	016.3702	191.546
C - 8	410.000	215.909	N45° 25' 47.35"W	213.423	013.9746	110.520
C - 9	350.000	212.456	N44° 52' 22.28"E	209.210	016.3702	109.615

ROADWAY INFORMATION CHART				
ROAD NAME	CLASSIFICATION	DESIGN SPEED	CL STATION LIMITS	PAVING SECTION
LALLYBROCH LANE (PUBLIC)	PUBLIC ACCESS PLACE	25 M.P.H.	STA13+50.00 TO STA 23+72.42	P-2

STREET LIGHT CHART				
STREET NAME	LOCATION	POLE HEIGHT	POLE TYPE	TYPE
LALLYBROCH LANE (PUBLIC)	STATION 23+42.00 OFFSITE 27.52' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100 COLONIAL)

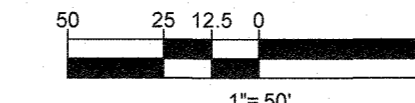


PROP. LALLYBROCH LANE - PLAN
SCALE: 1" = 50'



PROP. LALLYBROCH LANE - PROFILE

PUBLIC ACCESS PLACE
DESIGN SPEED - 25 MPH
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 12/14/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10.19.21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

SUBDIVISION NAME: LYHUS PROPERTY
 SECTION/AREA: N/A
 DEED # 14532/00469
 PREVIOUS FILE No.:
 SP-17-0106
 ECP-17-056
 WP-18-079

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21076
 DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-557-1045
 TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 PROJECT MANAGEMENT
 LAND SURVEY DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS SPECIFICALLY NOTED OTHERWISE.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION
 PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BR
 DATE: 09/24/2021
 CAD I.D.: PPP-8

FINAL ROAD PLAN
 FOR LYHUS PROPERTY
 LOTS 1-26, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 521-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

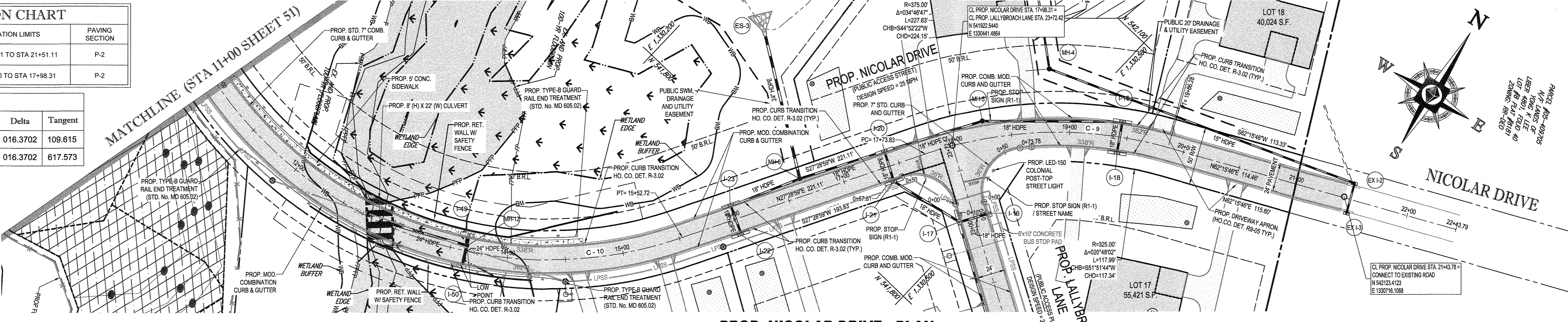
B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20886-EXPIRES 08/31/2023

SHEET TITLE:
ROAD PLAN & PROFILE
 SHEET NUMBER:
46 OF 80
 REVISION 5 - 09/24/2021

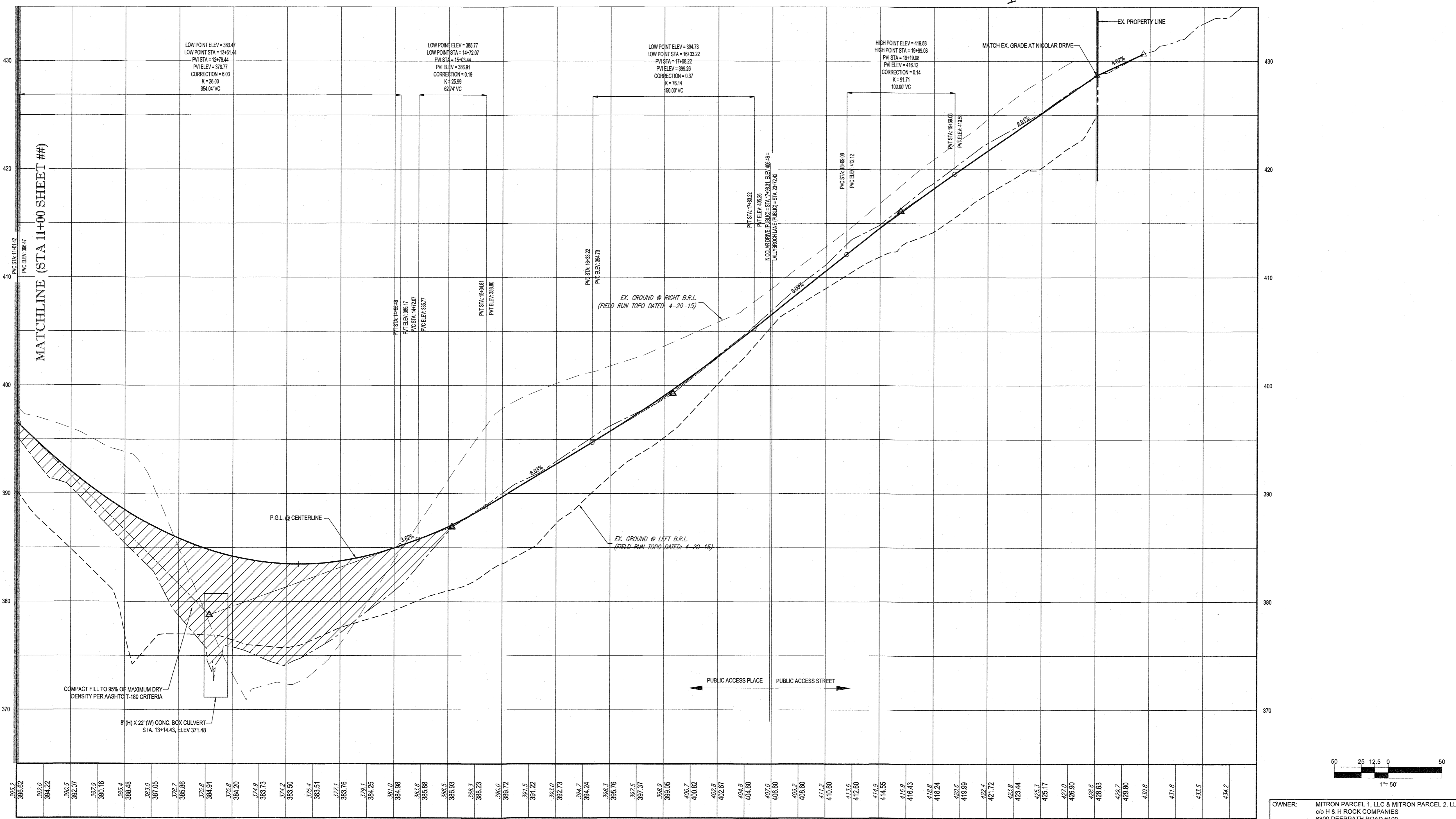
ROADWAY INFORMATION CHART				
ROAD NAME	CLASSIFICATION	DESIGN SPEED	CL STATION LIMITS	PAVING SECTION
NICOLAR DRIVE (PUBLIC)	PUBLIC ACCESS STREET	30 M.P.H.	STA 17+98.31 TO STA 21+51.11	P-2
NICOLAR DRIVE (PUBLIC)	PUBLIC ACCESS PLACE	25 M.P.H.	STA 5+50.00 TO STA 17+98.31	P-2

Curve Table					
Curve #	Radius	Length	Chord Bearing	Chord	Tangent
C - 9	350.000	212.456	N44° 52' 22.28"E	209.210	016.3702
C - 10	350.000	738.637	N87° 56' 28.83"E	608.998	016.3702

STREET LIGHT CHART					
STREET NAME	LOCATION	POLE HEIGHT	POLE TYPE	TYPE	
NICOLAR DRIVE (PUBLIC)	STATION 23+42.0 OFFSITE 0	27.52' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100 COLONIAL)



PROP. NICOLAR DRIVE - PLAN
SCALE: 1" = 50'



PROP. NICOLAR DRIVE - PROFILE

PUBLIC ACCESS PLACE & STREET
DESIGN SPEED - 25 & 30 MPH
PAVING SECTION P-2

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 10/12/2021
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 10/12/21
CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-13-21

PREVIOUS FILE No.: SP-17-010B, ECP-17-056, WP-18-070

SUBDIVISION NAME: LYHUS PROPERTY SECTION AREA: N/A DEED # 14532/00469

TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21076

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-857-1045

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LAND ACQUISITION
LAND SURVEYING
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

811

Know what's below.
Call before you dig.

ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRP
DATE: 09/24/2021
CAD I.D.: PPP-8

FINAL ROAD PLAN

FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

BOHLER ENGINEERING

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

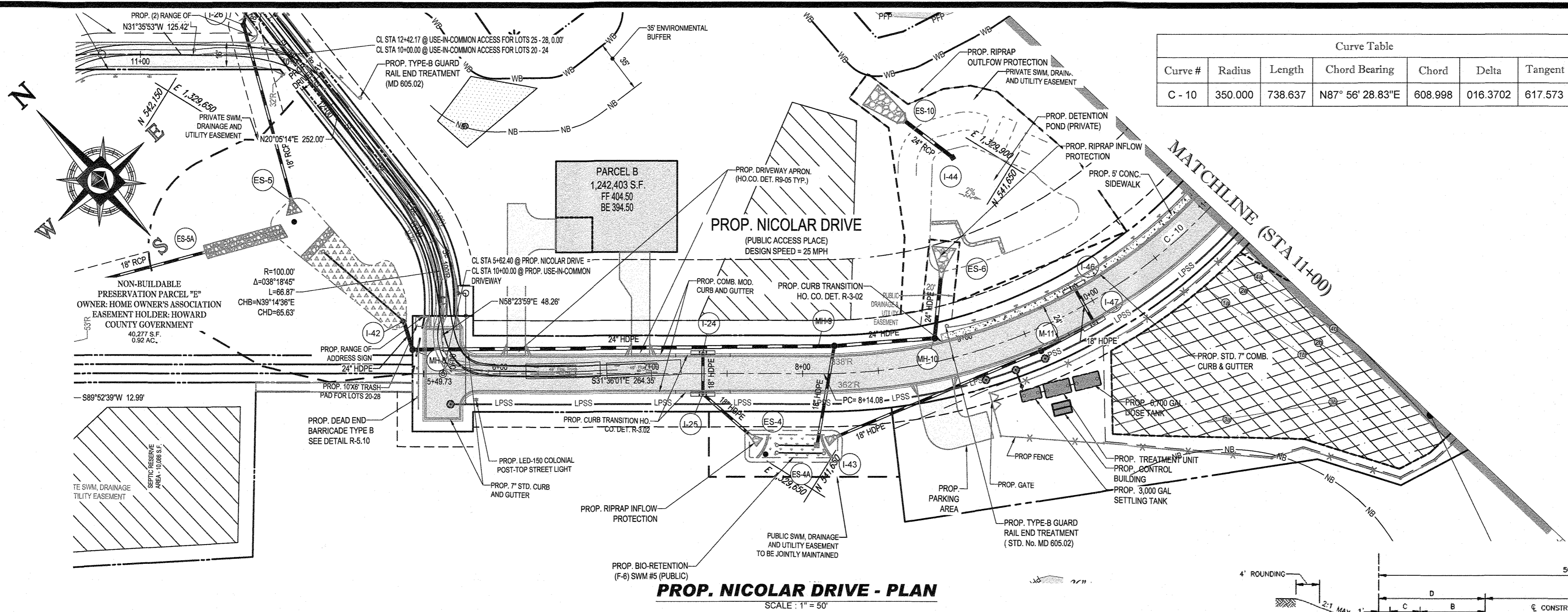
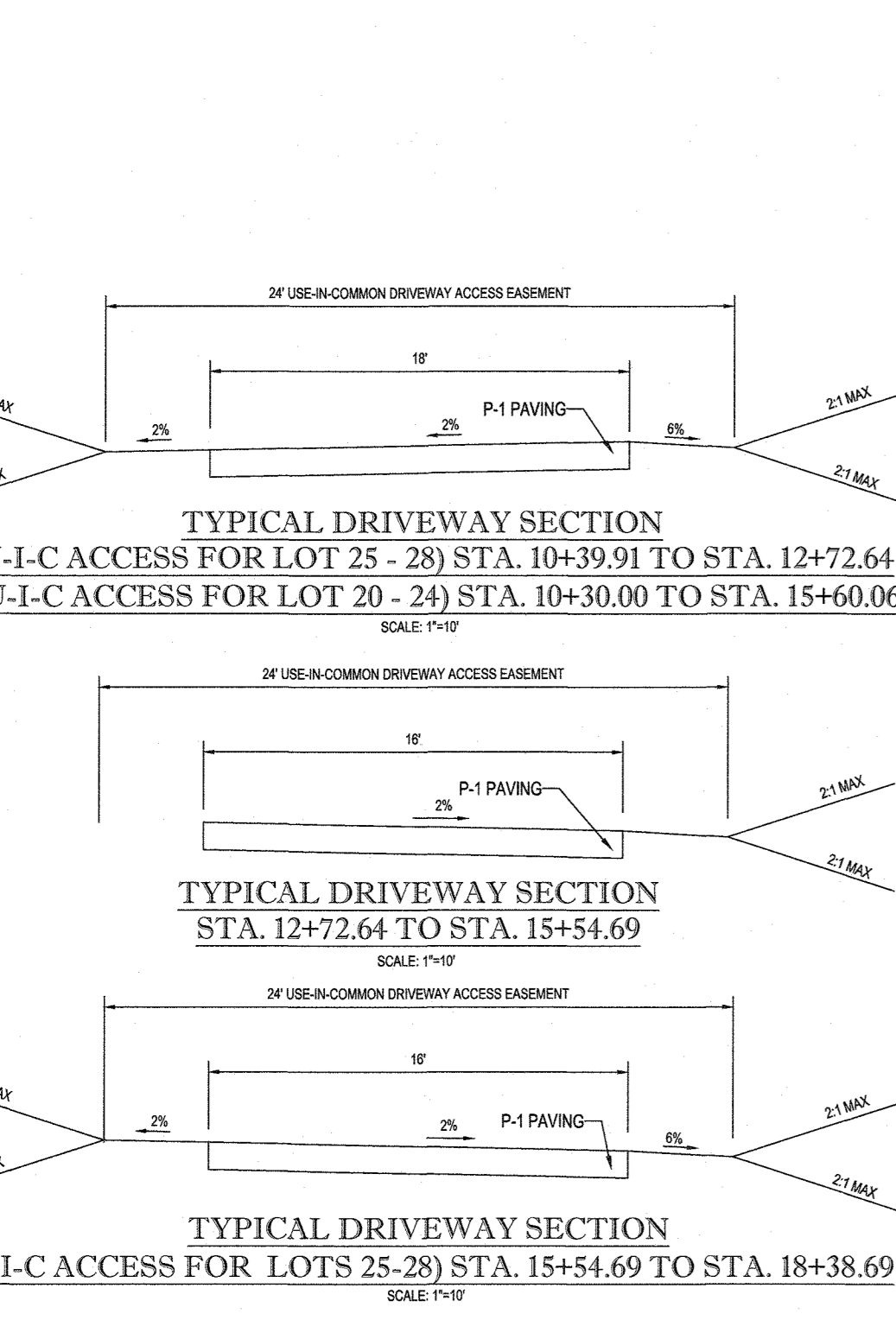
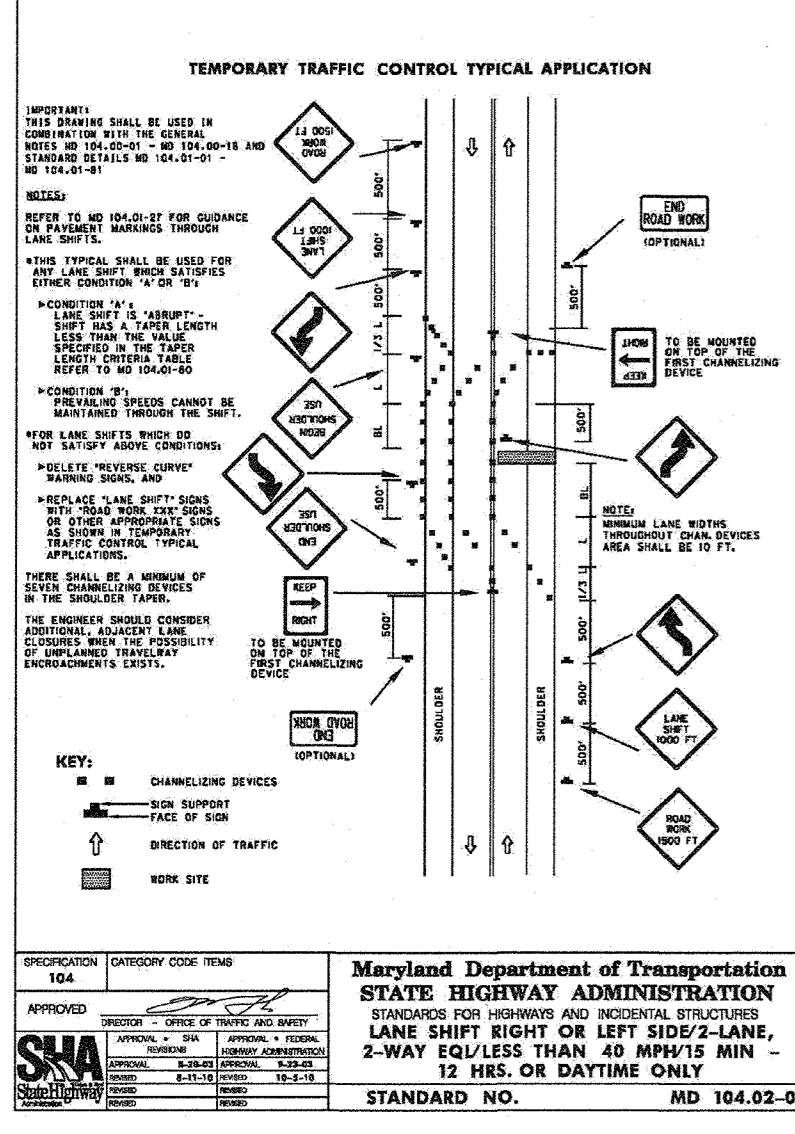
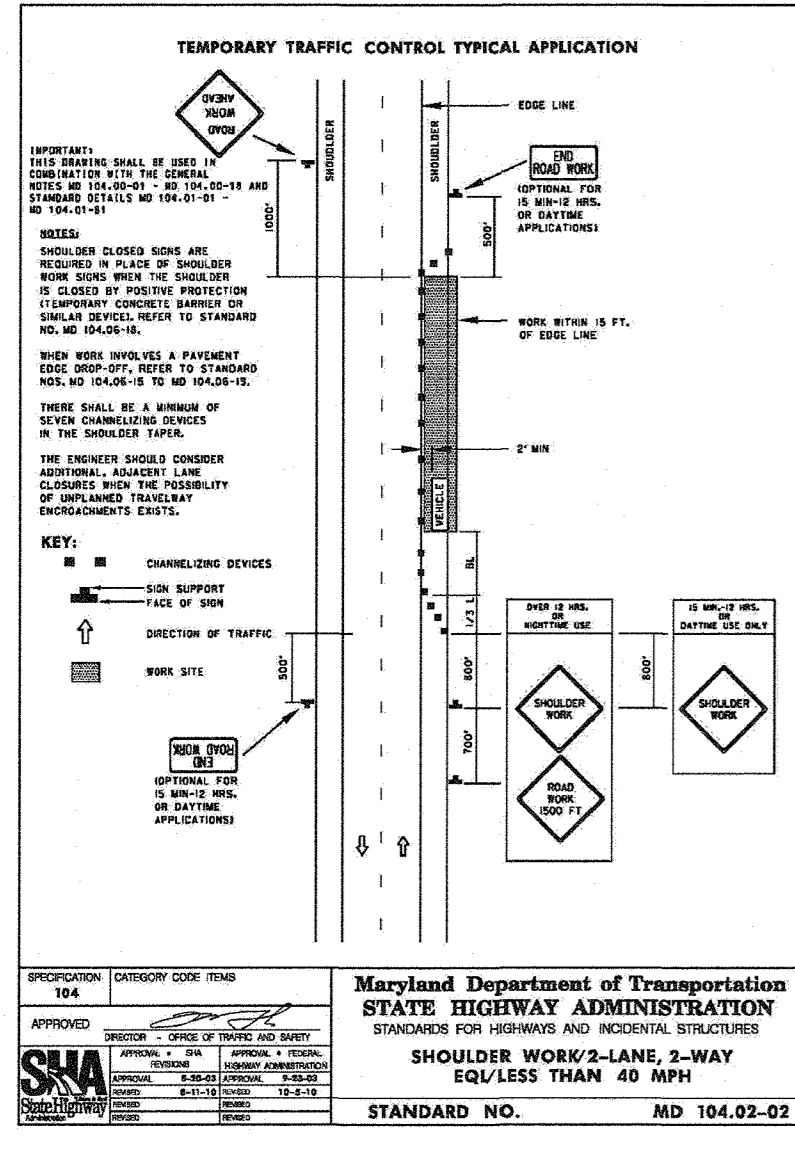
B.R. ROWE

PROFESSIONAL ENGINEER
LICENSE NO. 20896-EXPIRES 03/31/2023

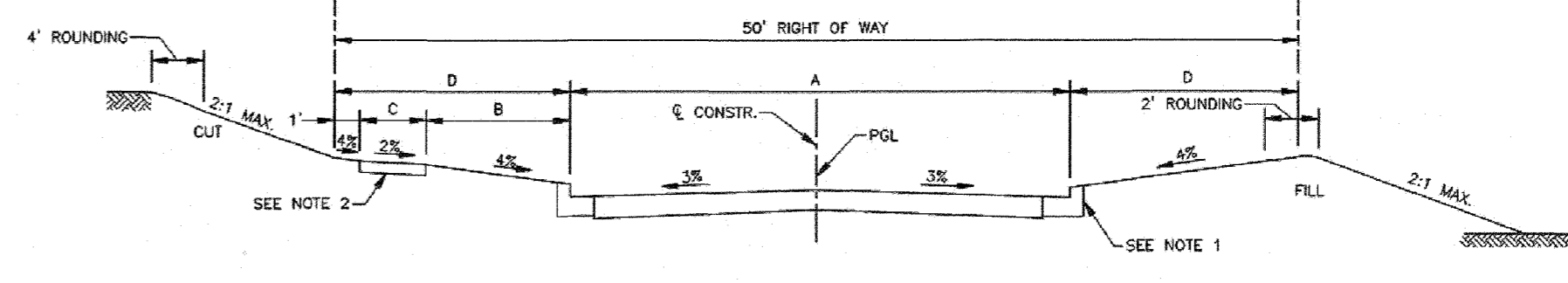
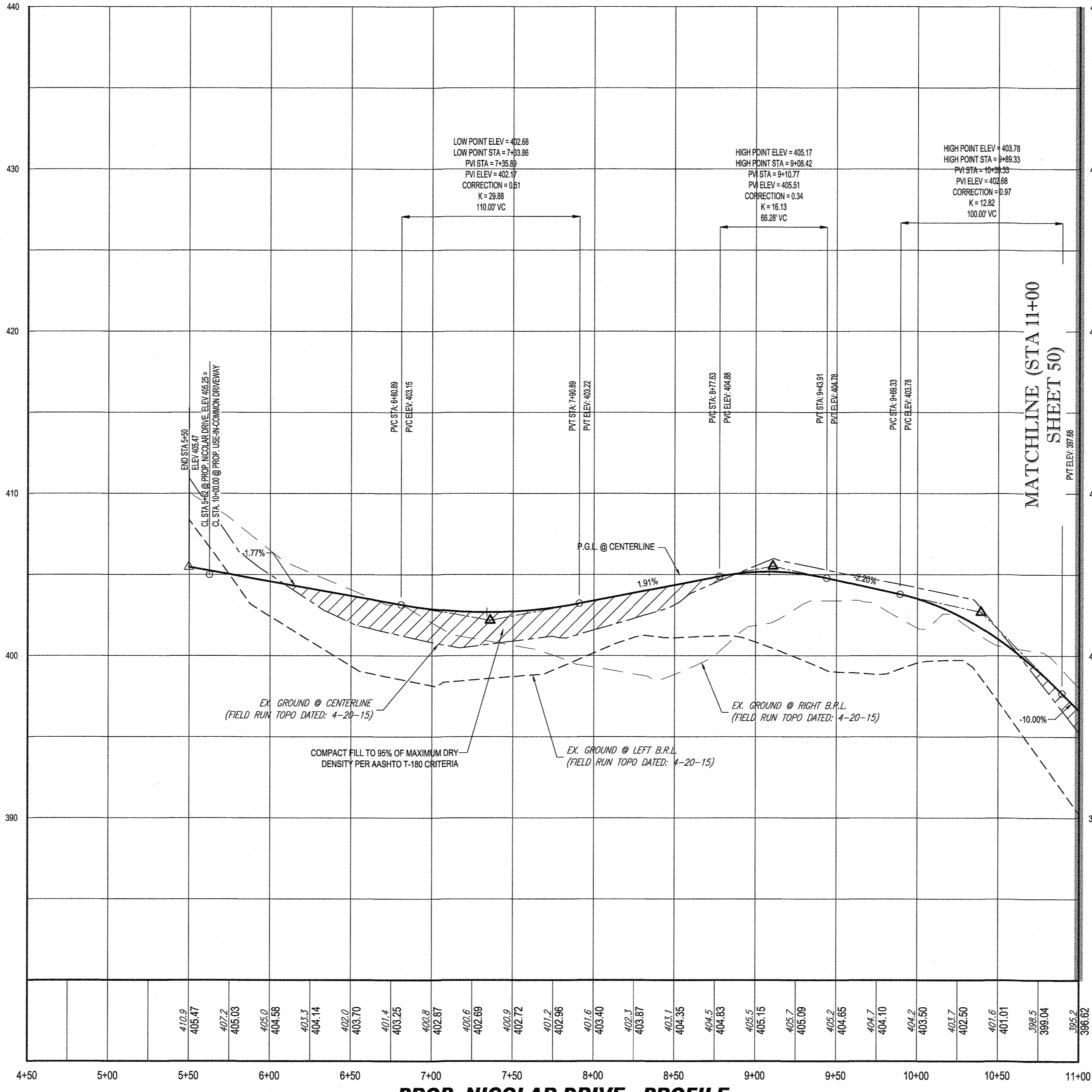
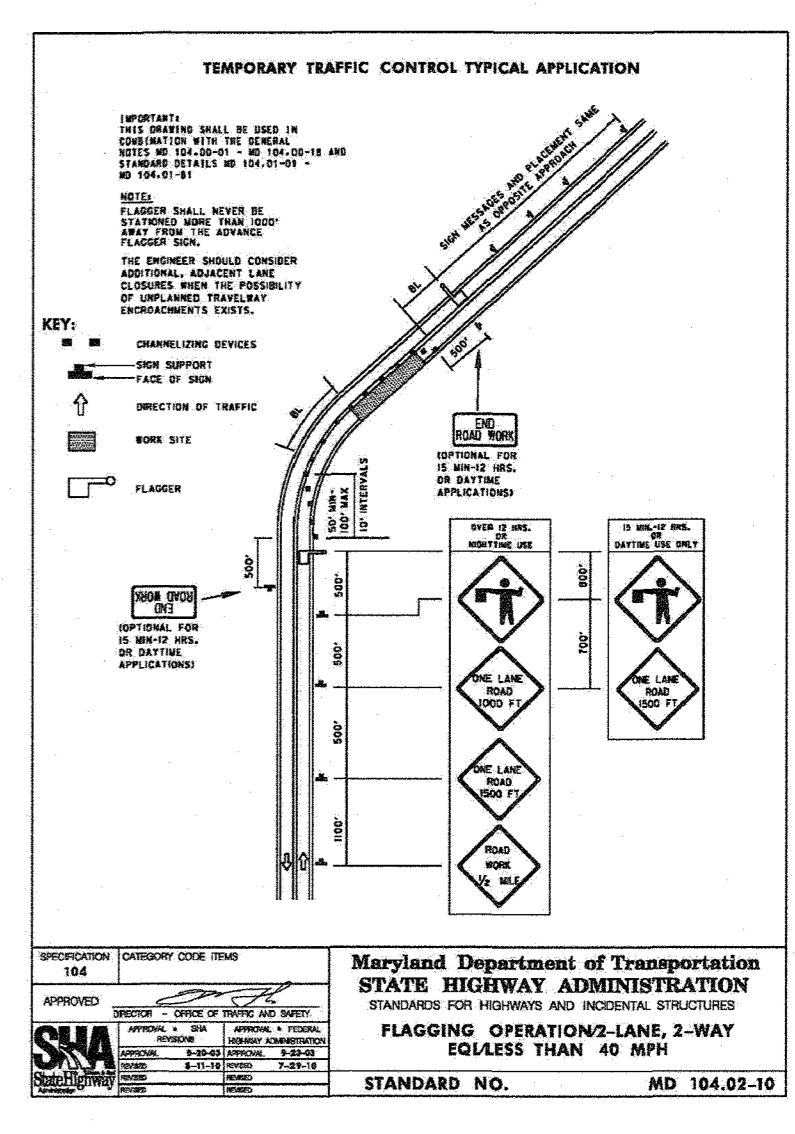
SHEET TITLE:
ROAD PLAN & PROFILE

SHEET NUMBER:
47 OF 80

REVISION 5 - 09/24/2021



Curve #	Radius	Length	Chord Bearing	Chord	Delta	Tangent
C-10	350.000	738.637	N87°56'28.83"E	608.998	016.3702	617.573

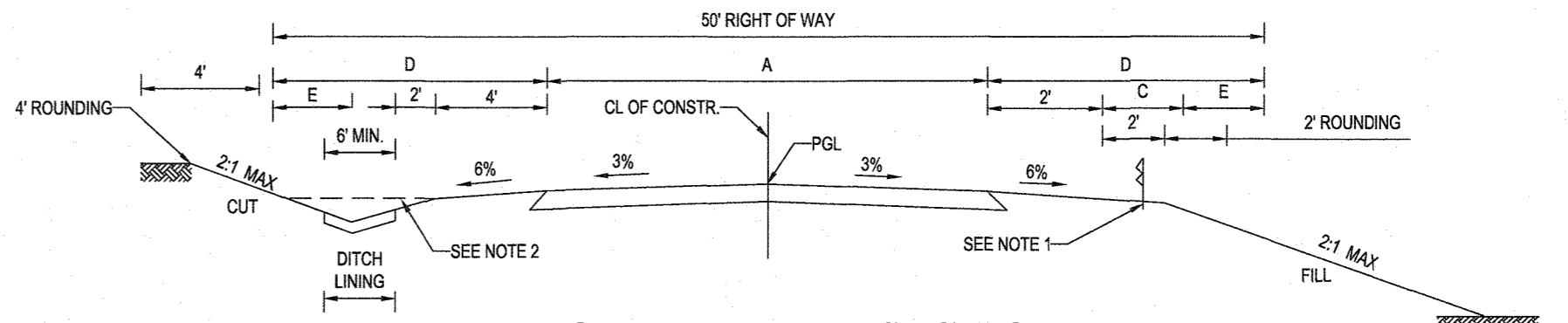


PROP. LALLYBROCH LANE STA 4+75.00 TO STA 23+72.42
PROP. NICOLAR DRIVE STA 4+49.73 TO STA 21+43.78

CLASSIFICATION	A	B	C	D	PAVING SECTION
MINOR COLLECTOR 2000 ADT	28'	6'	4'	11'	P-3
ACCESS STREET 1000 ADT	24'	8'	4'	13'	P-2
ACCESS PLACE 200 ADT	24'	8'	4'	13'	P-2

- NOTES:**
- TYPE OF CURB VARIES (MODIFIED COMBINATION CURB & GUTTER OR COMBINATION CURB & GUTTER - SEE DESIGN MANUAL VOLUME III FOR CRITERIA).
 - 4" CONCRETE SIDEWALK AS REQUIRED BY SUB-DIVISION REGULATIONS.
 - 4"-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).
 - SEE R-3.05 FOR WHERE SIDEWALK IS AGAINST CURB.

*TOWNHOUSES, CONDOMINIUM / APARTMENT DEVELOPMENTS REQUIRE 26' MINIMUM PAVING WIDTH (P-2 PAVING SECTION)



PROP. LALLYBROCH LANE STA 0+12.00 TO STA 4+75.00

CLASSIFICATION	A	B	C	D	E	PAVING SECTION
MINOR COLLECTOR 1000 ADT	28'	4'	4'	11'	3'	P-3
ACCESS STREET 500 ADT	24'	4'	4'	13'	5'	P-2
ACCESS PLACE 200 ADT	22'	4'	4'	14'	6'	P-2

- NOTES:**
- TRAFFIC BARRIER W-BEAM AS REQUIRED (SEE DESIGN MANUAL III).
 - DITCH CROSS SECTION SLOPE MAY BE FLATTENED TO PROVIDE A SWALE AT OR NEAR THE CREST OF VERTICAL CURVES WHERE QUANTITY OF SWALE FLOW IS SMALL, AS APPROVED BY DPW.
 - PROVIDE CURB AT INTERSECTIONS (SEE DESIGN MANUAL III).
 - NORMAL CROWN SECTIONS ARE SHOWN. SEE DESIGN MANUAL III FOR SUPERELEVATION REQUIREMENTS.
 - 4"-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

STREET NAME	LOCATION	POLE HEIGHT	POLE TYPE	TYPE
NICOLAR DRIVE (PUBLIC)	STATION 5+84.41 OFFSITE 17.00' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100 COLONIAL)

ROAD NAME	CLASSIFICATION	DESIGN SPEED	CL STATION LIMITS	PAVING SECTION
LALLYBROCH LANE (PUBLIC)	PUBLIC ACCESS PLACE	25 M.P.H.	STA 0+00.00 TO STA 13+50.00	P-2
NICOLAR DRIVE (PUBLIC)	PUBLIC ACCESS PLACE	25 M.P.H.	STA 5+50.00 TO STA 17+98.31	P-2

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-587-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO SP-17-010b PARCEL: 135 ECP-17-056 WP-18-070	5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
----------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------	------------------------------------------------

APPROVED, DEPARTMENT OF PUBLIC WORKS
DATE: 10/12/2021
CHIEF, BUREAU OF HIGHWAYS

APPROVED, DEPARTMENT OF PLANNING AND ZONING
DATE: 12/16/21
CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-19-21

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
PERMITTING SERVICES
TRANSPORTATION SERVICES

REV	DATE	COMMENT	DRAWN BY

811

Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRP
DATE: 09/24/2021
CAD I.D.: PPP5

FINAL ROAD PLAN

FOR LYHUS PROPERTY
LOTS 1-28, BULDBLE PRESERVATION
PARCEL B, NON-BULDBLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

BOHLER ENGINEERING

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

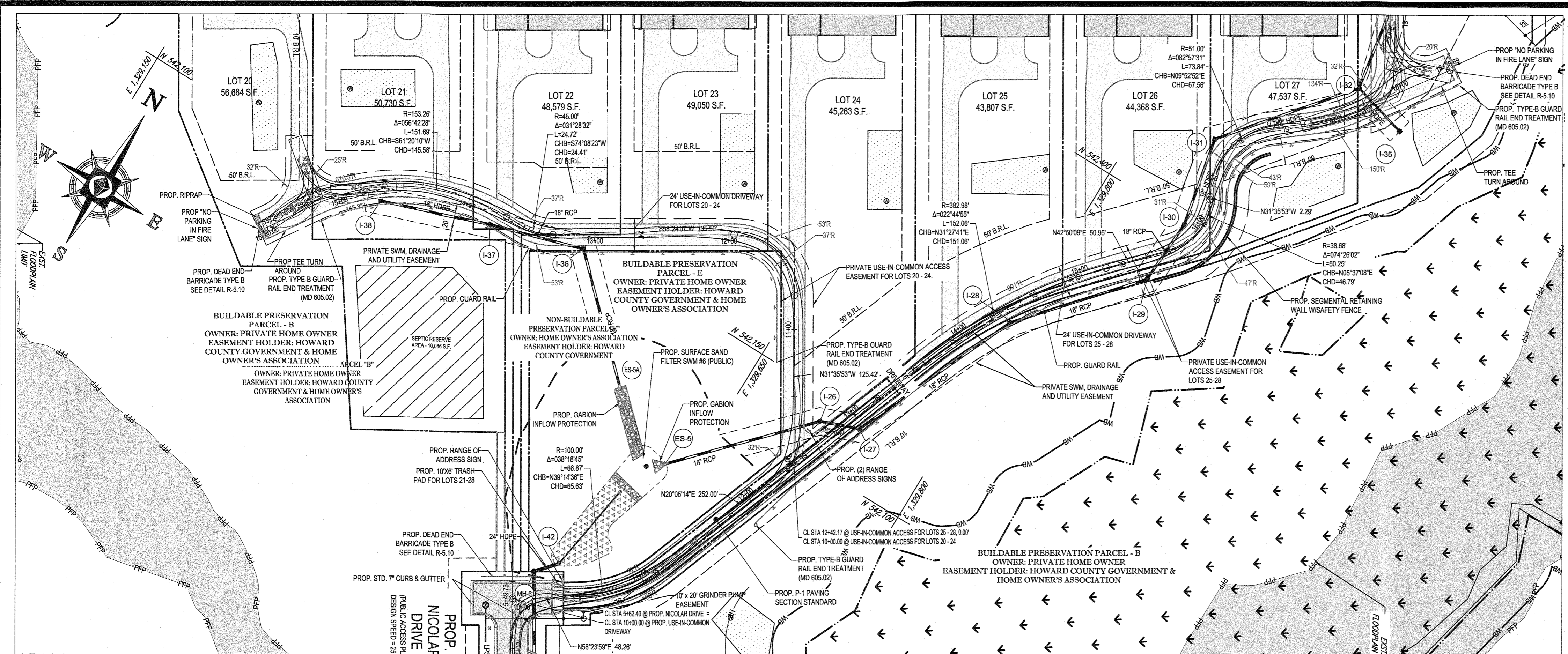
B.R. ROWE

PROFESSIONAL ENGINEER
LICENSE NO. 20896 EXPIRATION DATE: 7/3/2023

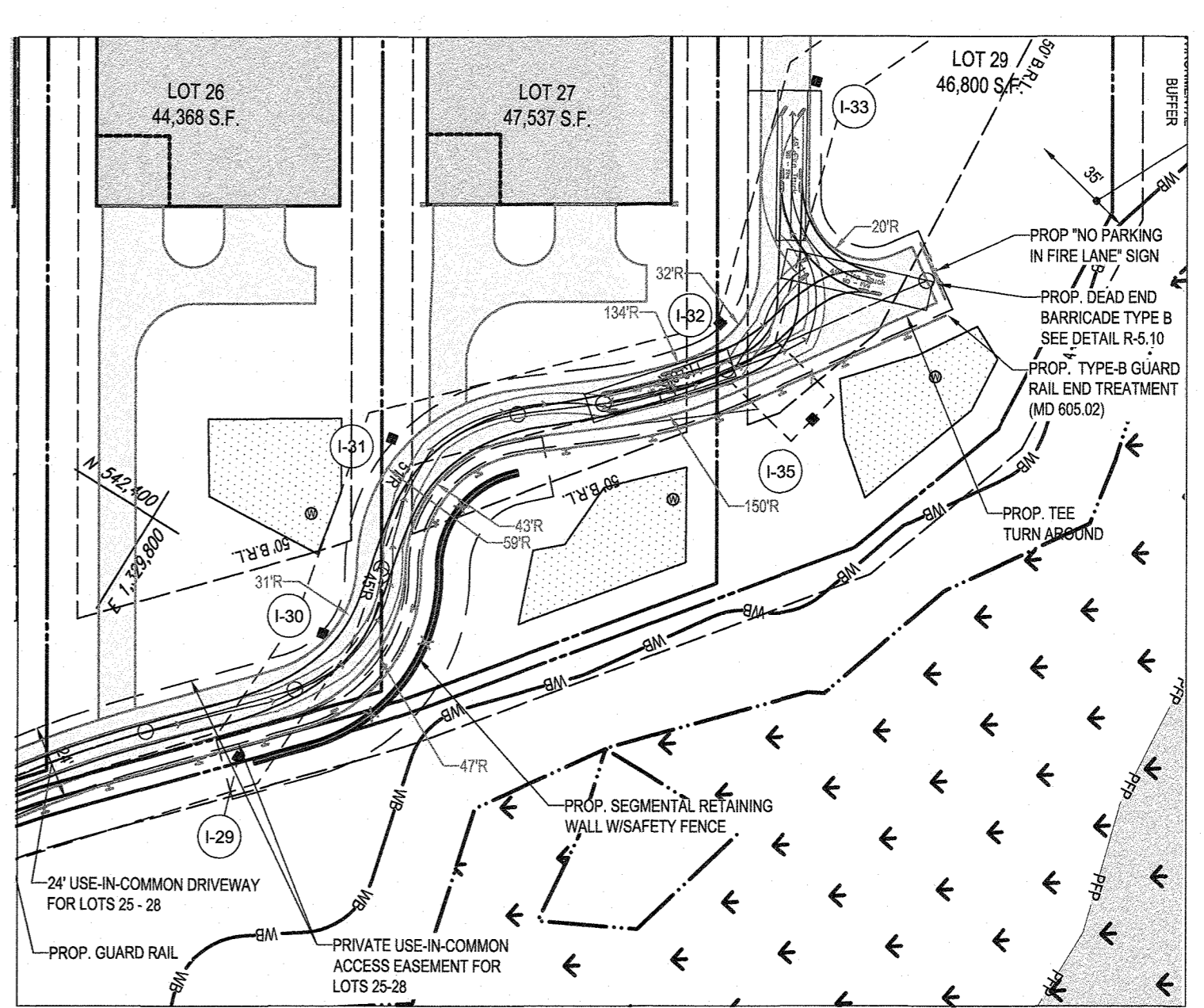
ROAD PLAN & PROFILE

SHEET NUMBER: 48 OF 80

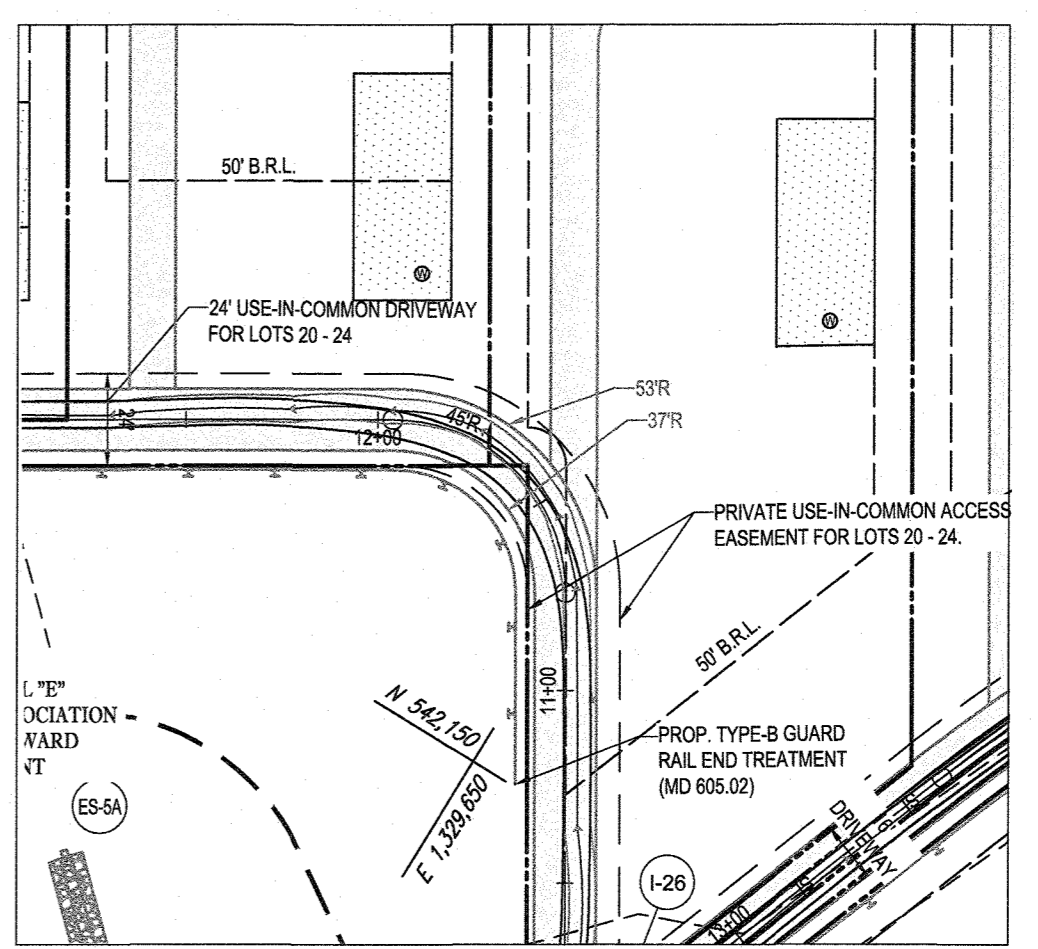
REVISION 5 - 09/24/2021



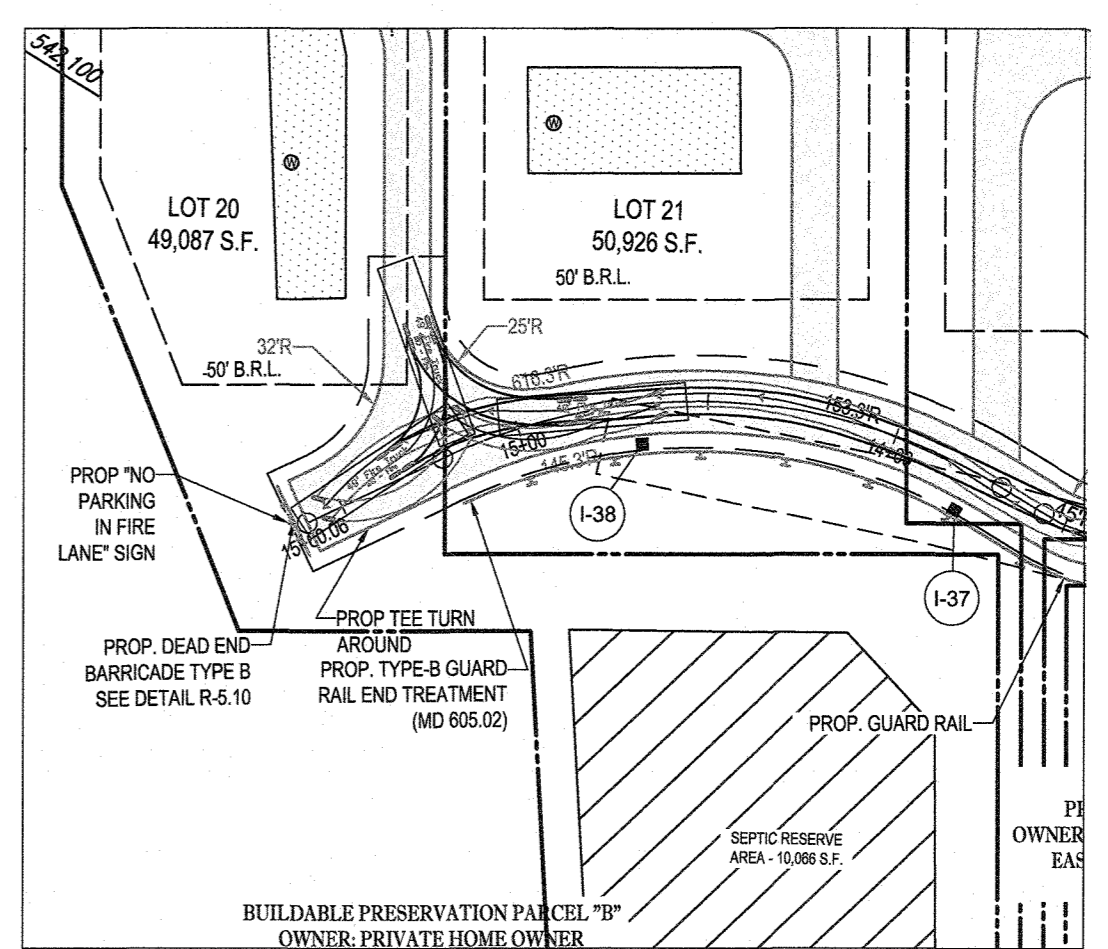
PROP. USE-IN-COMMON ACCESS LOTS 25-28 - PLAN
SCALE: 1" = 50'



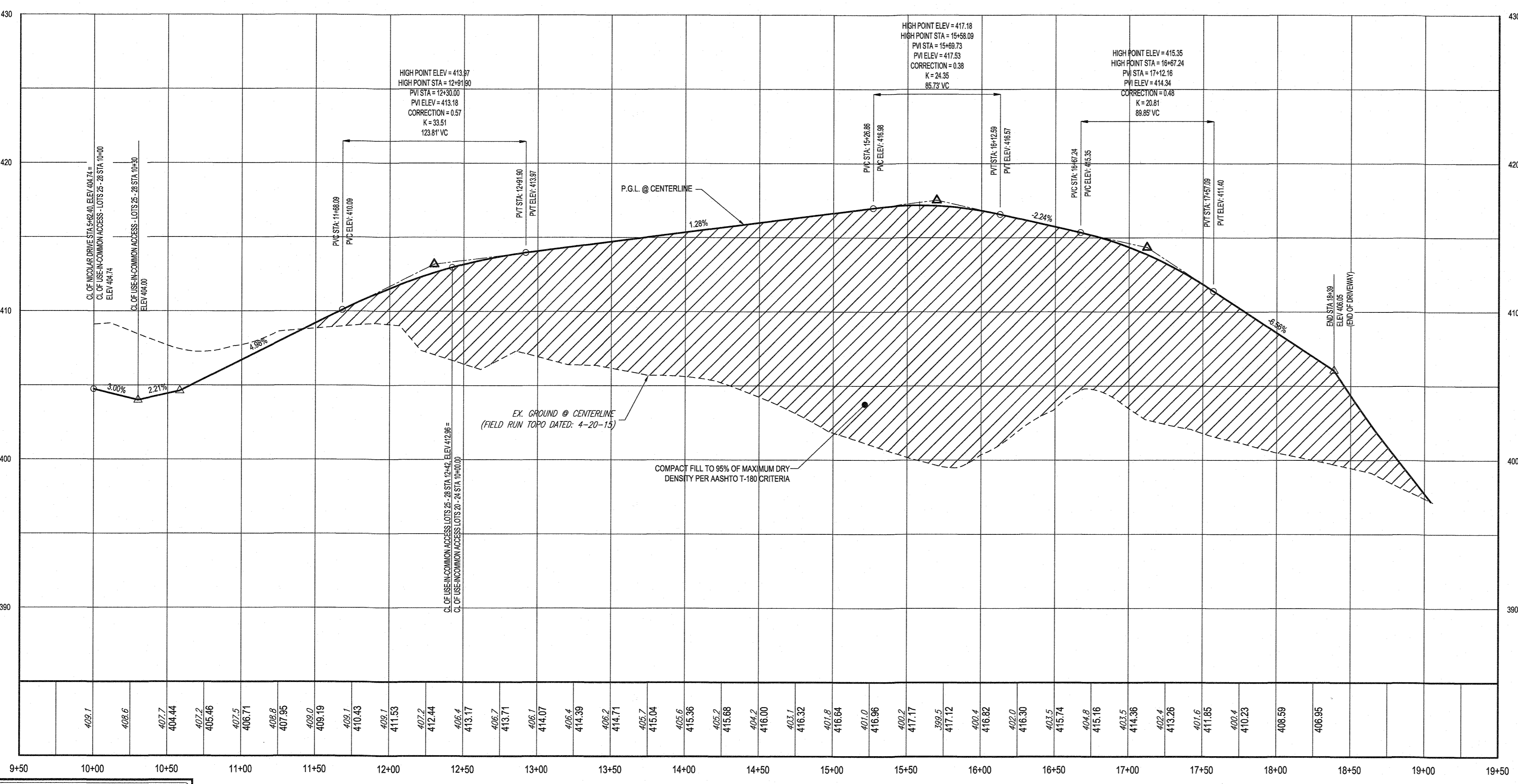
TEE TURN AROUND TEMPLATE - PLAN
SCALE: 1" = 50'



90° TURN TEMPLATE - PLAN
SCALE: 1" = 50'

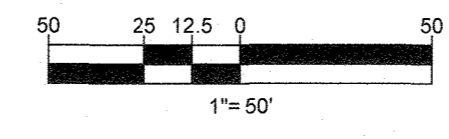


TEE TURN AROUND TEMPLATE - PLAN
SCALE: 1" = 50'



PROP. USE-IN-COMMON ACCESS - LOTS 25 - 28 - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 12/15/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: BOHLER ENGINEERING DIVISION
 [Signature] 10-19-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21076
 DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21076
 CONTACT: JAMES FRASER
 PHONE: 410-597-1045
 TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 CONSTRUCTION MANAGEMENT
 LANDSCAPE ARCHITECTURE
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

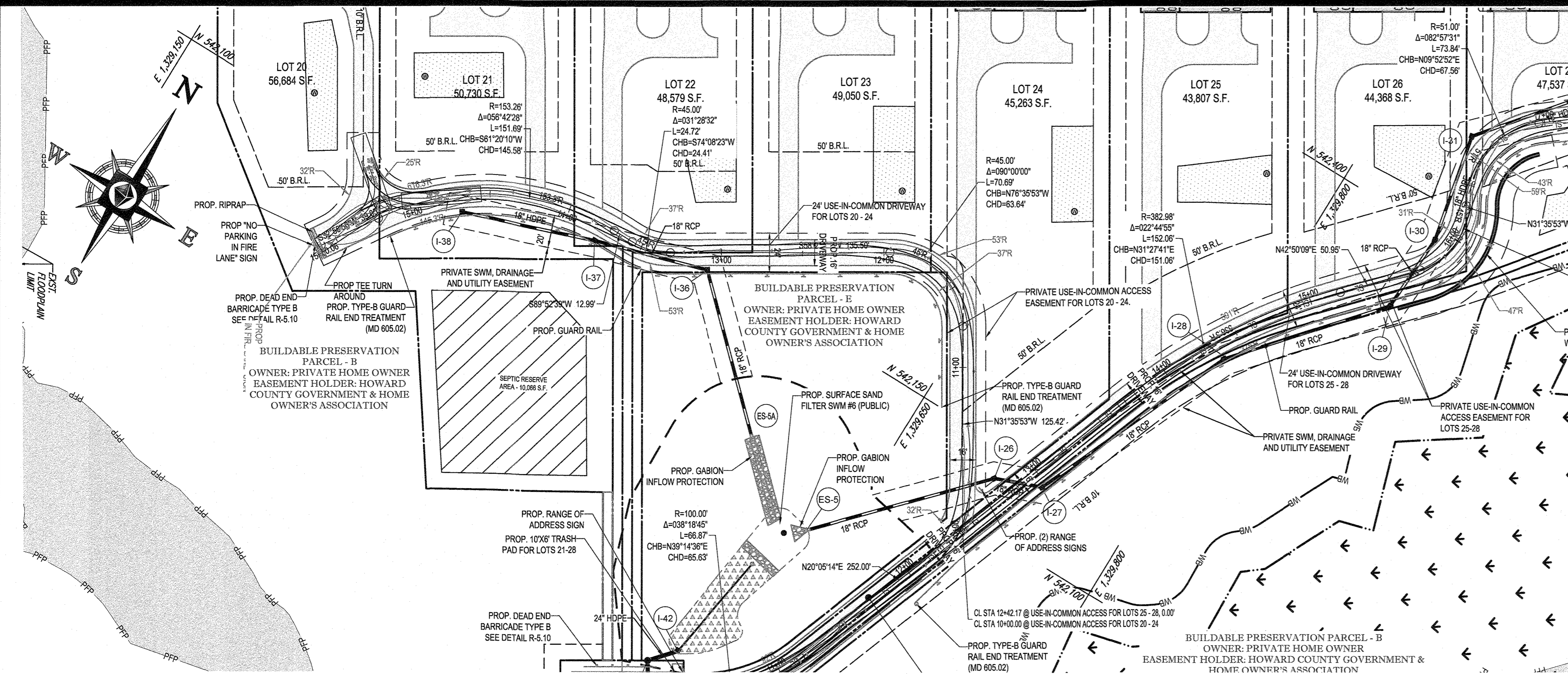
APPROVED FOR CONSTRUCTION
 PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: SPR
 DATE: 09/24/2021
 CAD I.D.: PPP-8

FINAL ROAD PLAN
 FOR LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

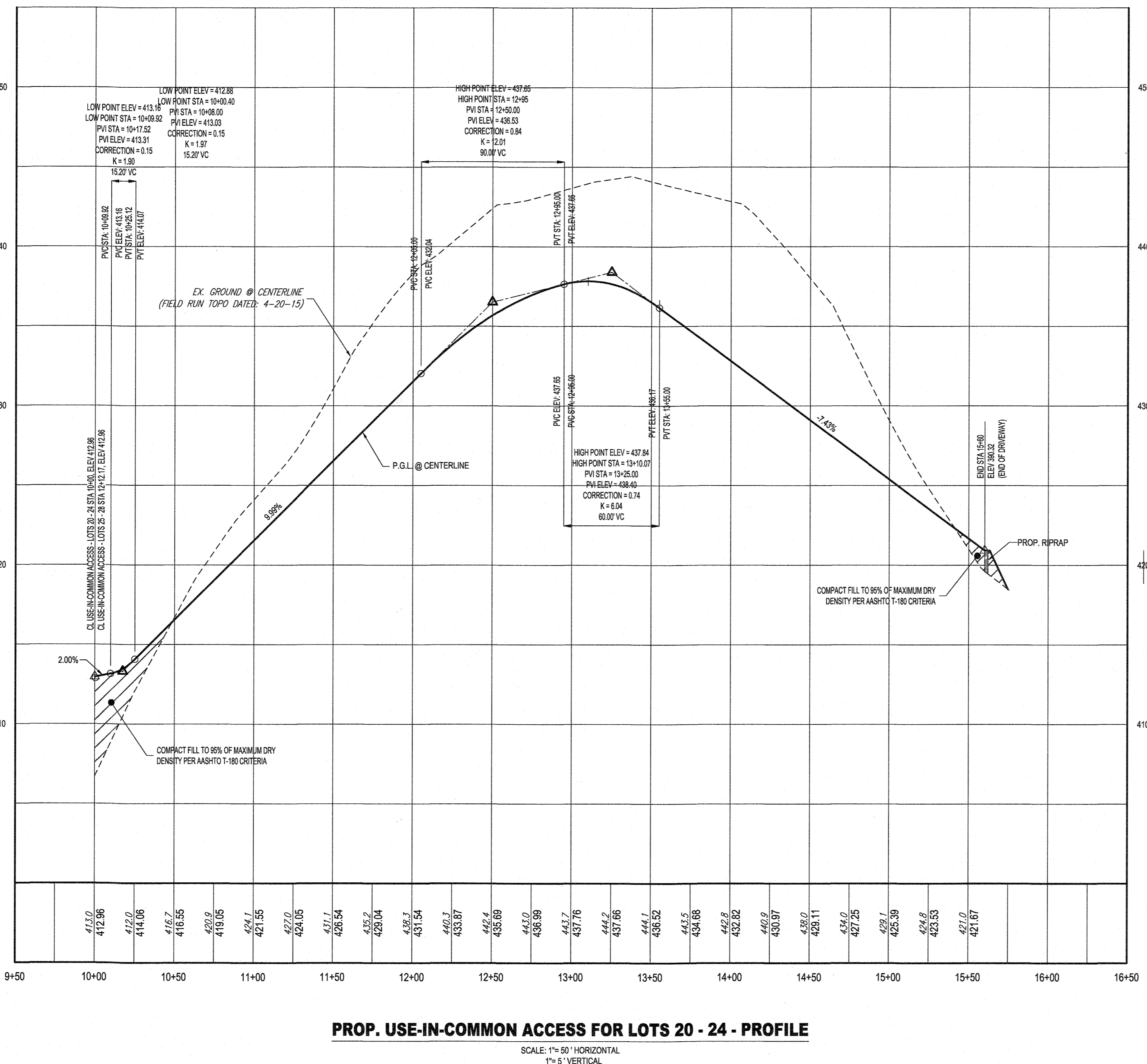
BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20866-EXPIRES 09/30/2023

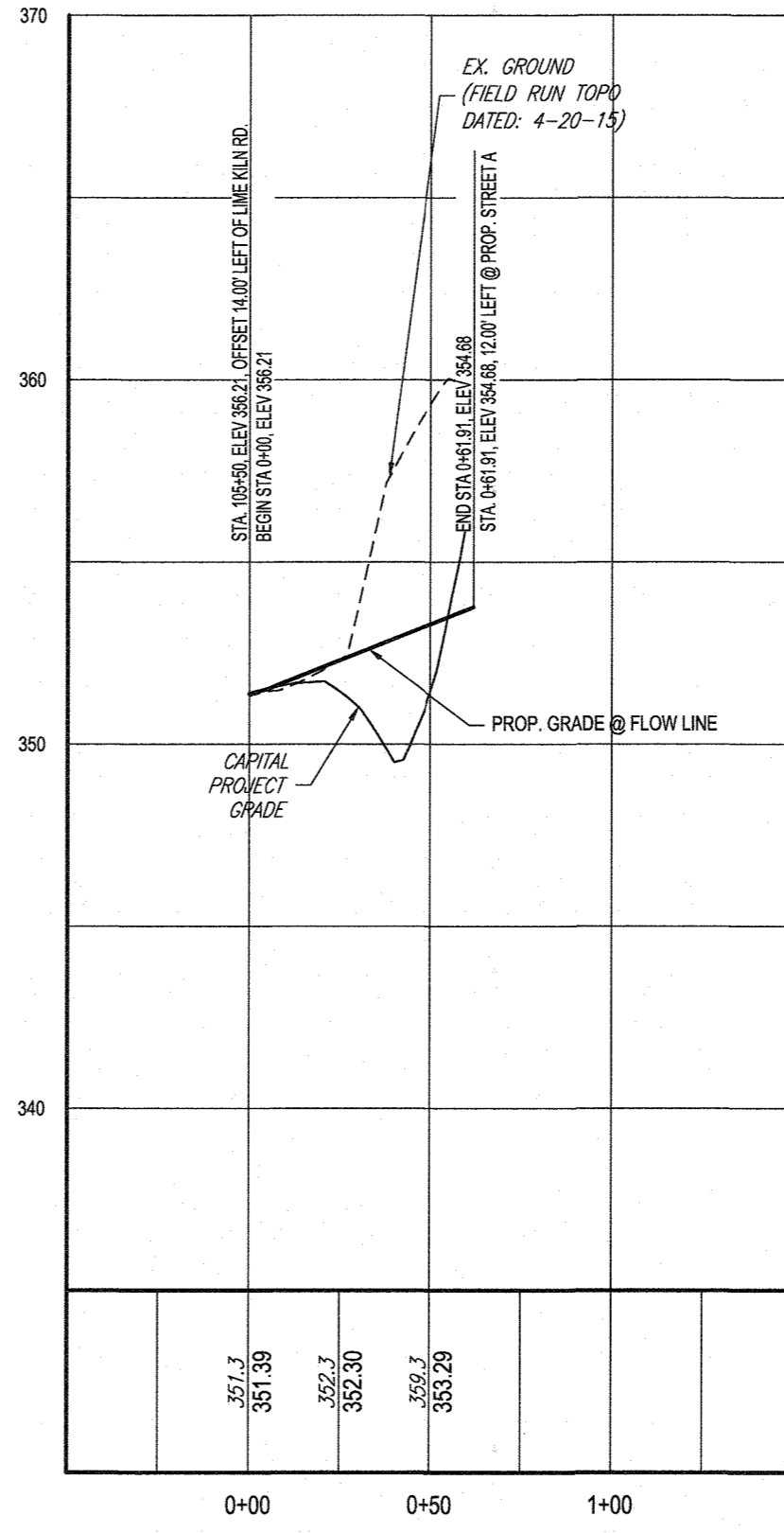
SHEET TITLE:
USE-IN-COMMON ACCESS PROFILES
 SHEET NUMBER:
49 OF 80
 REVISION 5 - 09/24/2021



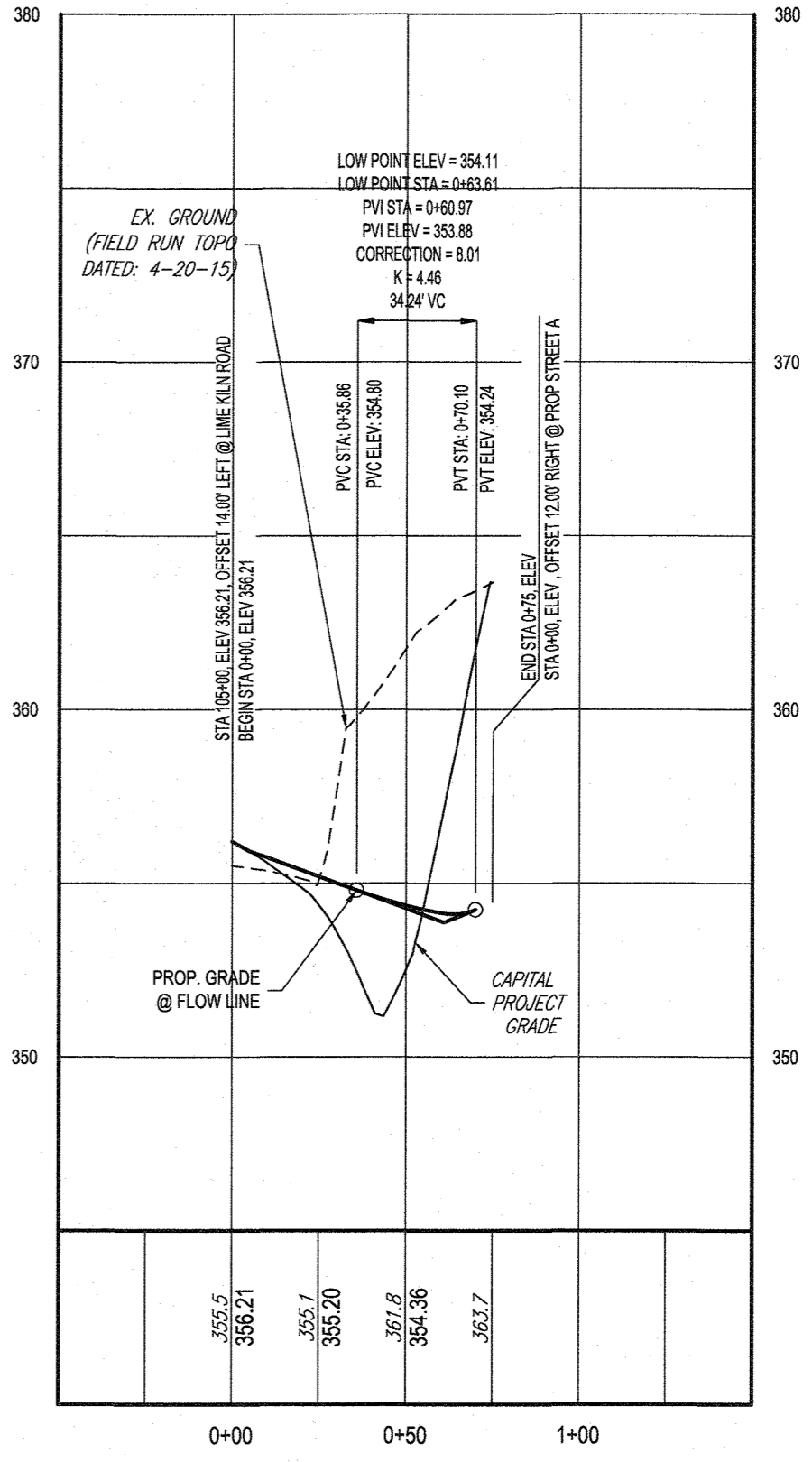
PROP. USE-IN-COMMON ACCESS FOR LOTS 20-24 - PLAN
SCALE: 1" = 50'



PROP. USE-IN-COMMON ACCESS FOR LOTS 20 - 24 - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



LIME KILN ROAD - INTERSECTION NW FILLET RADII - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



LIME KILN ROAD - INTERSECTION NE FILLET RADII - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/11/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10.10.21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA STANDARD SPECIFICATIONS (CSS) Pavement Material (INCHES)	MIN. MAX. WITH SUB	MIN. MAX. WITH SUB	MIN. MAX. WITH SUB
P-1	PAVED SIDEWALK AND HIGH-RESISTANCE PAVEMENT FOR NON-RESIDENTIAL AREAS WITH NO SIDEWALK CURBS FOR SIDEWALK	1.5 IN. SUPPLEMENTAL FINE SURFACE	1.5	1.5	1.5
		1.5 IN. SUPPLEMENTAL FINE SURFACE	0.0	0.0	0.0
P-2	PAVED SIDEWALK AND HIGH-RESISTANCE PAVEMENT FOR SIDEWALKS WITH NO SIDEWALK CURBS FOR SIDEWALK	1.5 IN. SUPPLEMENTAL FINE SURFACE	1.5	1.5	1.5
		1.5 IN. SUPPLEMENTAL FINE SURFACE	0.0	0.0	0.0
P-3	PAVED SIDEWALK AND HIGH-RESISTANCE PAVEMENT FOR SIDEWALKS WITH NO SIDEWALK CURBS FOR SIDEWALK	1.5 IN. SUPPLEMENTAL FINE SURFACE	1.5	1.5	1.5
		1.5 IN. SUPPLEMENTAL FINE SURFACE	0.0	0.0	0.0
P-4	PAVED SIDEWALK AND HIGH-RESISTANCE PAVEMENT FOR SIDEWALKS WITH NO SIDEWALK CURBS FOR SIDEWALK	1.5 IN. SUPPLEMENTAL FINE SURFACE	1.5	1.5	1.5
		1.5 IN. SUPPLEMENTAL FINE SURFACE	0.0	0.0	0.0

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION
 PROJECT NO.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: PPP-B

FINAL ROAD PLAN
 FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

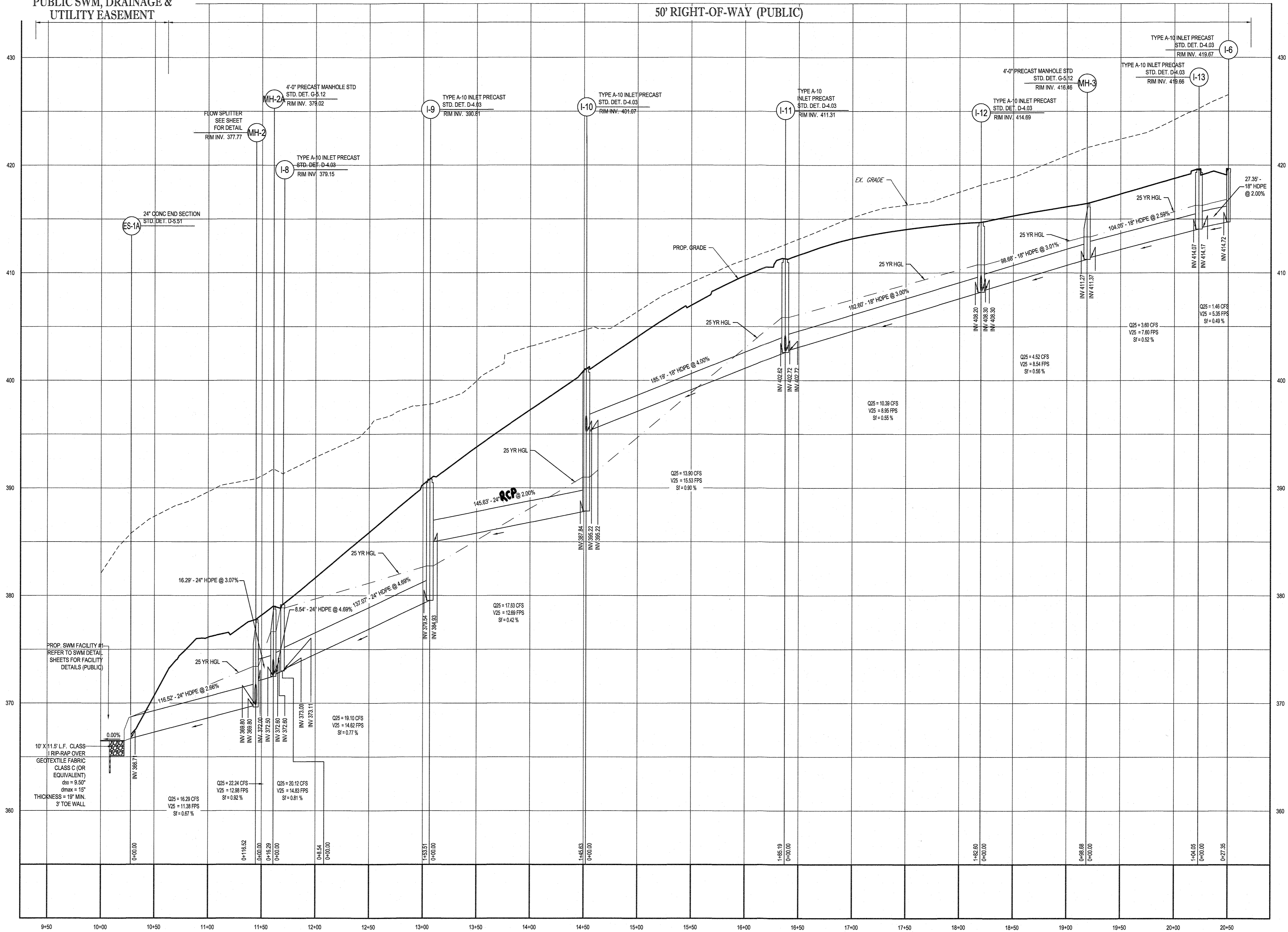
B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 11118
 DATE: 10/12/2021

SHEET TITLE:
USE-IN-COMMON ACCESS PROFILES
 SHEET NUMBER:
50 OF 90
 REVISION 5 - 07/07/2021

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 200 H & H ROCK COMPANIES
 8800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075
 DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 8800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046
 TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 SP-17-010b PARCEL: 135
 ECP-17-056 WP-18-070 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PUBLIC SWM, DRAINAGE & UTILITY EASEMENT

50' RIGHT-OF-WAY (PUBLIC)



PROP. STORM DRAIN ES-1B TO I-6

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

APPROVED: DEPARTMENT OF PUBLIC WORKS
James
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10-13-21

CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
PREVIOUS FILE NO.: SP-17-010b ECP-17-059 WP-16-070	TAX MAP: 40 GRID: 34 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT TO BE USED FOR CONSTRUCTION DOCUMENTS UNLESS INDICATED OTHERWISE.

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: PPD-5

PROJECT:
FINAL ROAD PLAN
FOR
LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

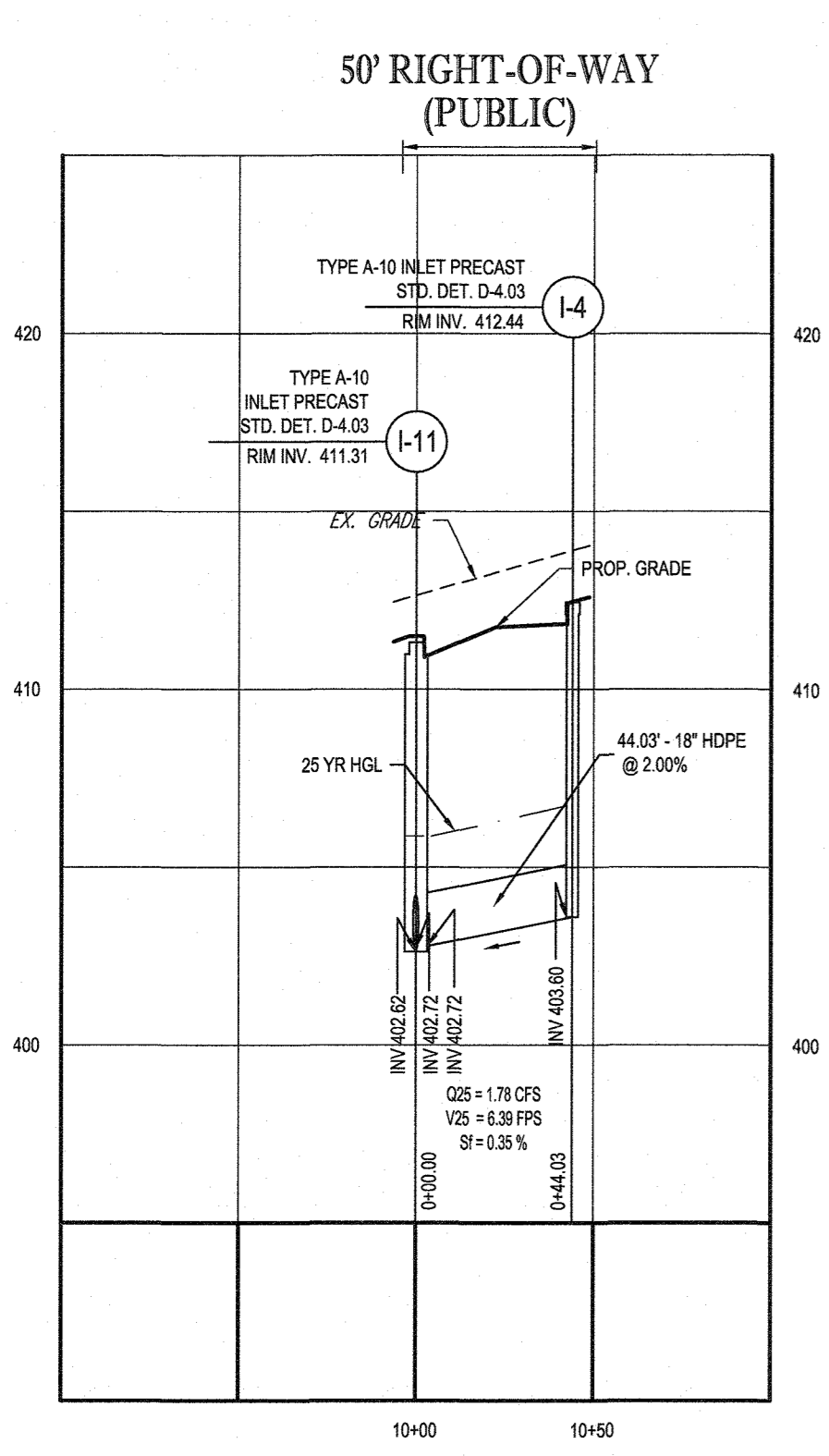
BOHLER ENGINEERING
801 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 20866-636848480N-GATE: 732223

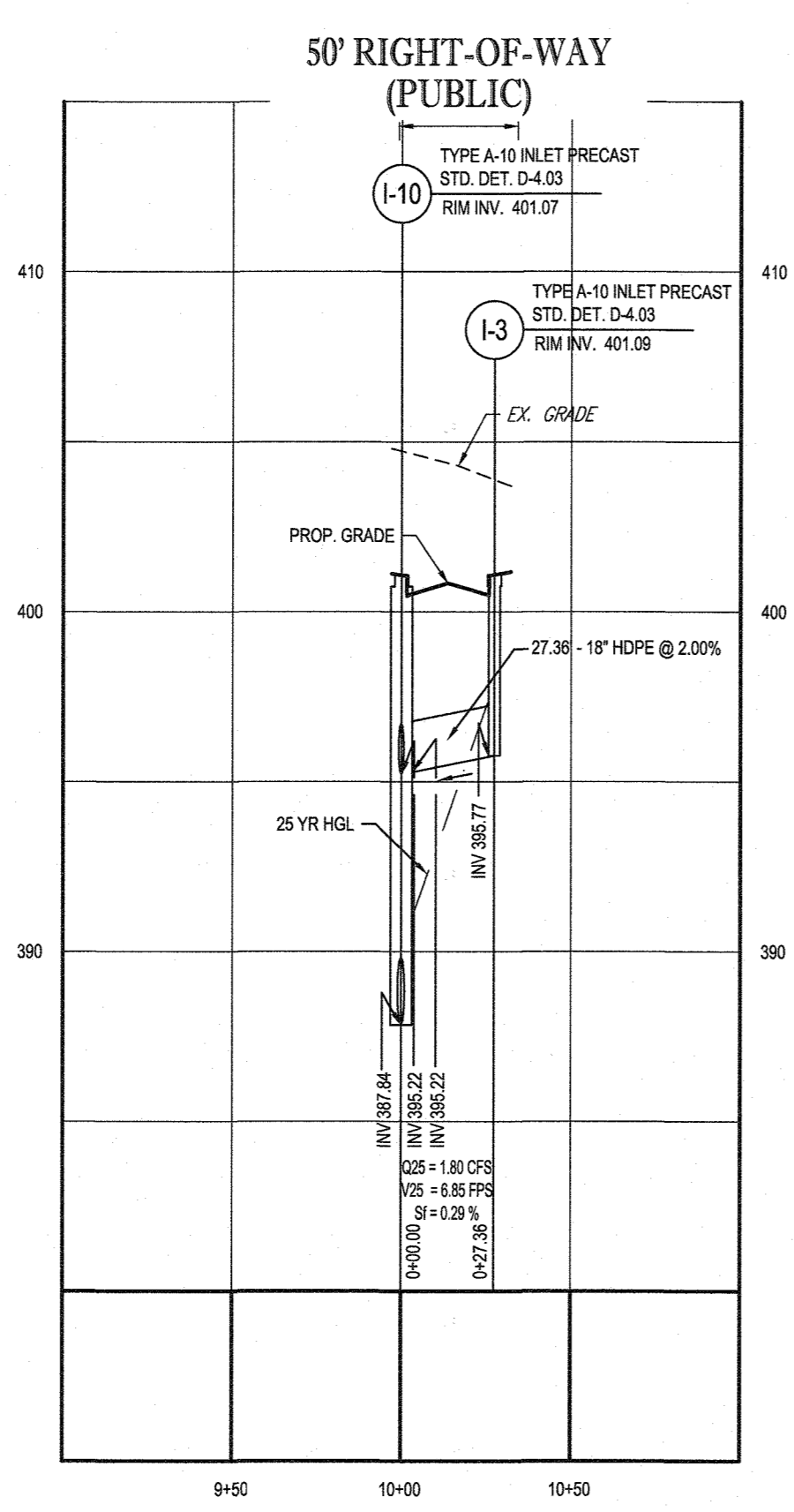
SHEET TITLE:
STORM DRAIN PROFILE

SHEET NUMBER:
51 OF 80

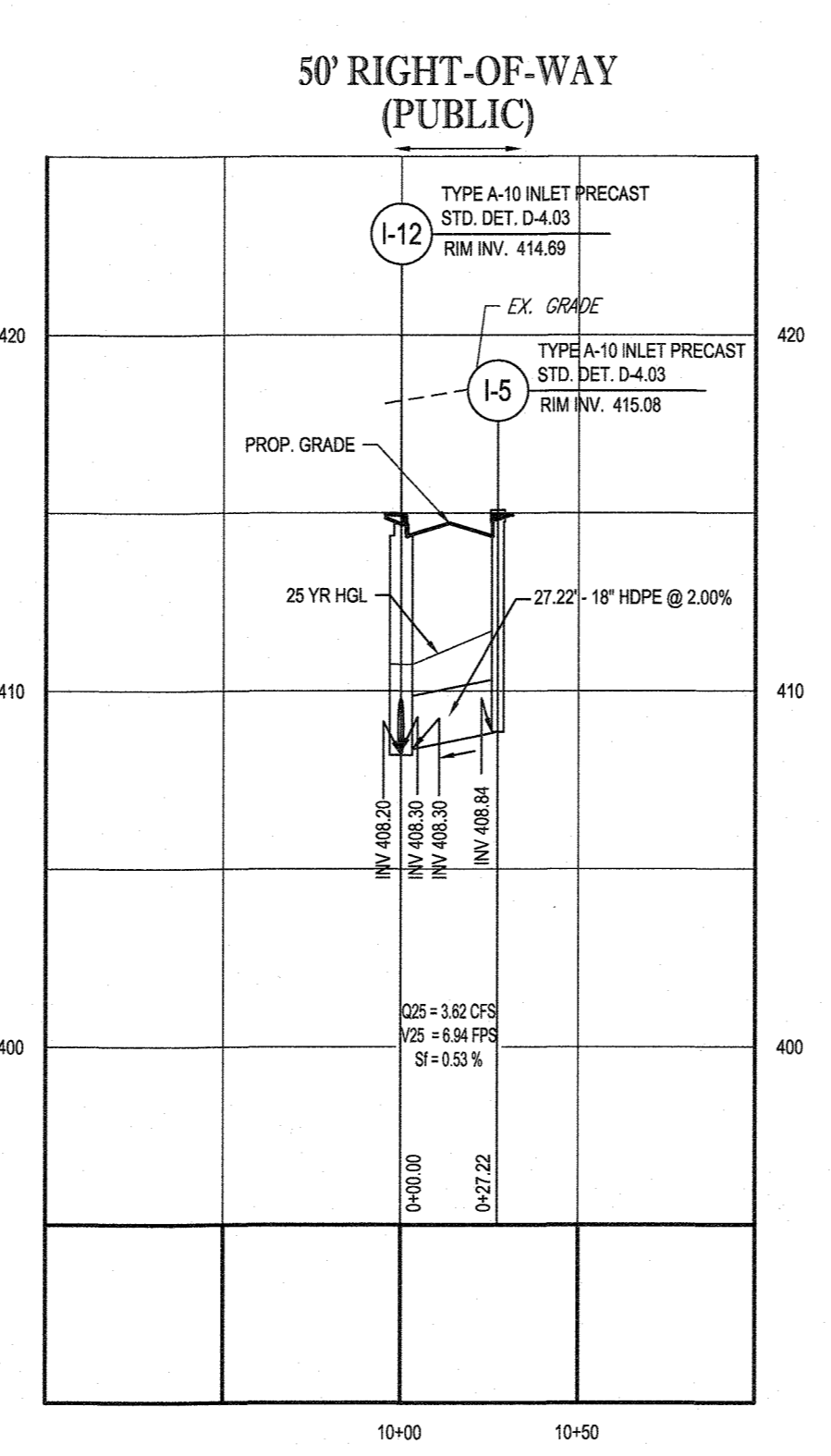
REVISION 5 - 07/07/2021



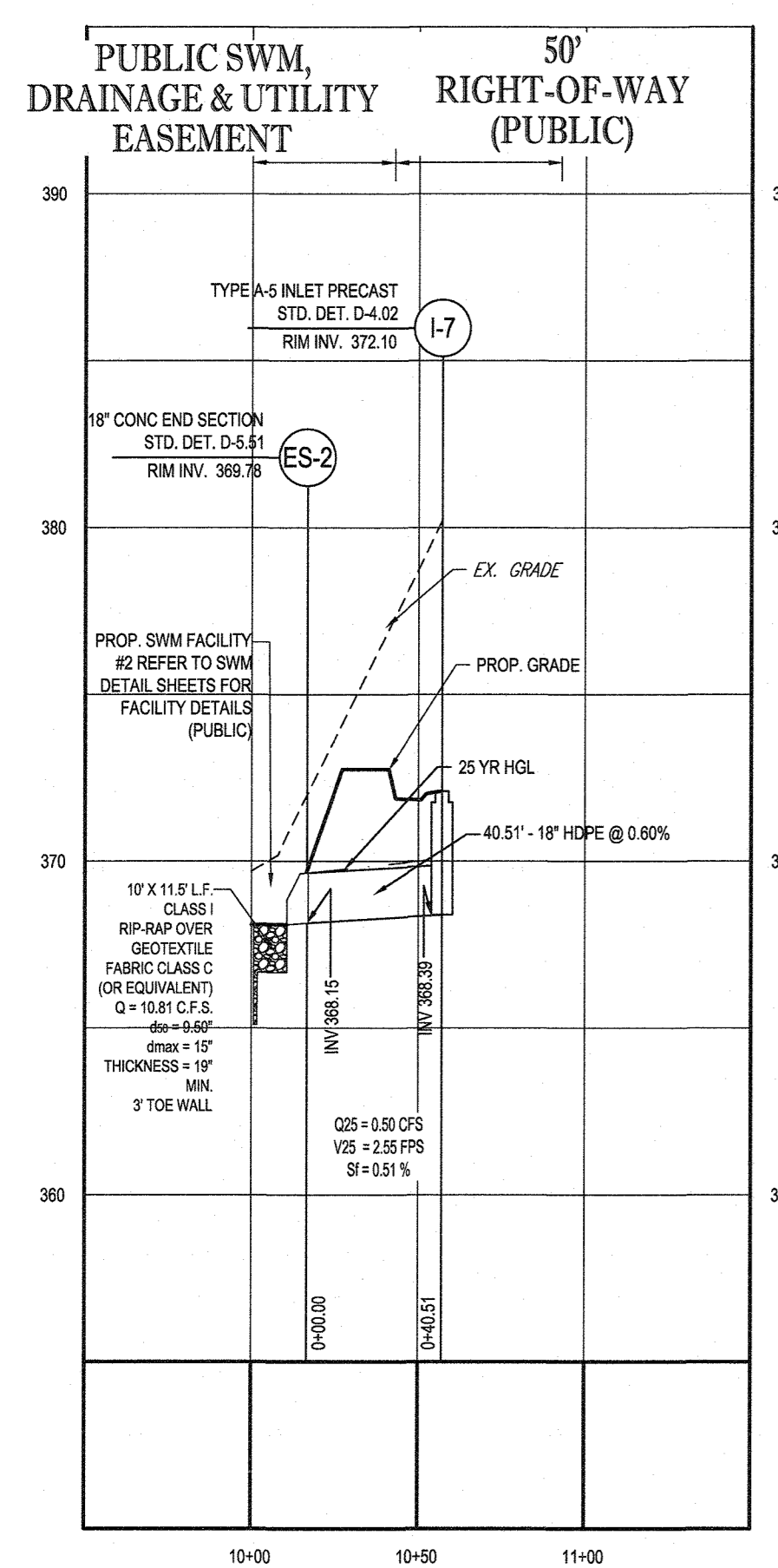
PROP. STORM DRAIN I-4 TO I-11
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



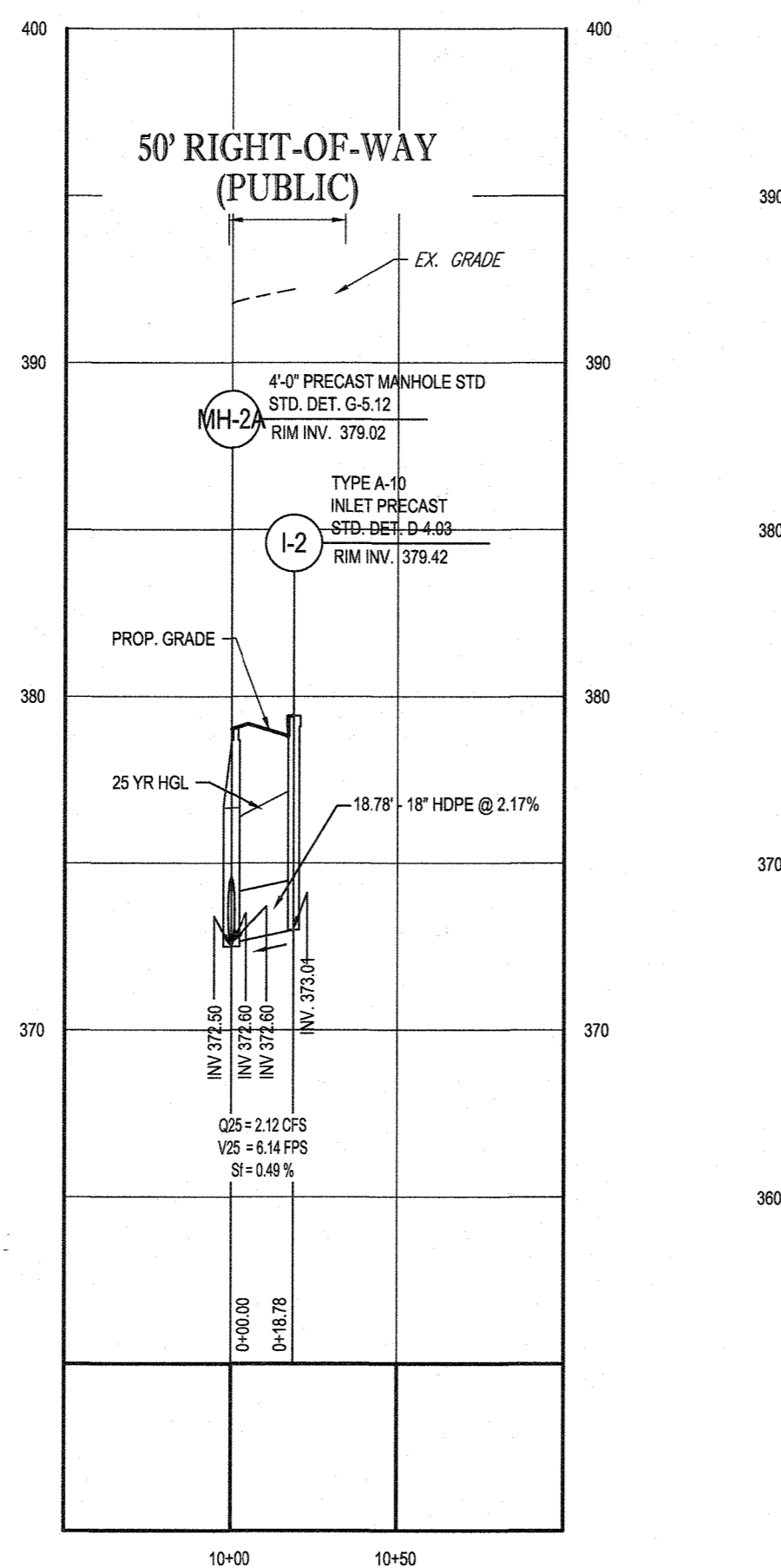
PROP. STORM DRAIN I-3 TO I-10
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



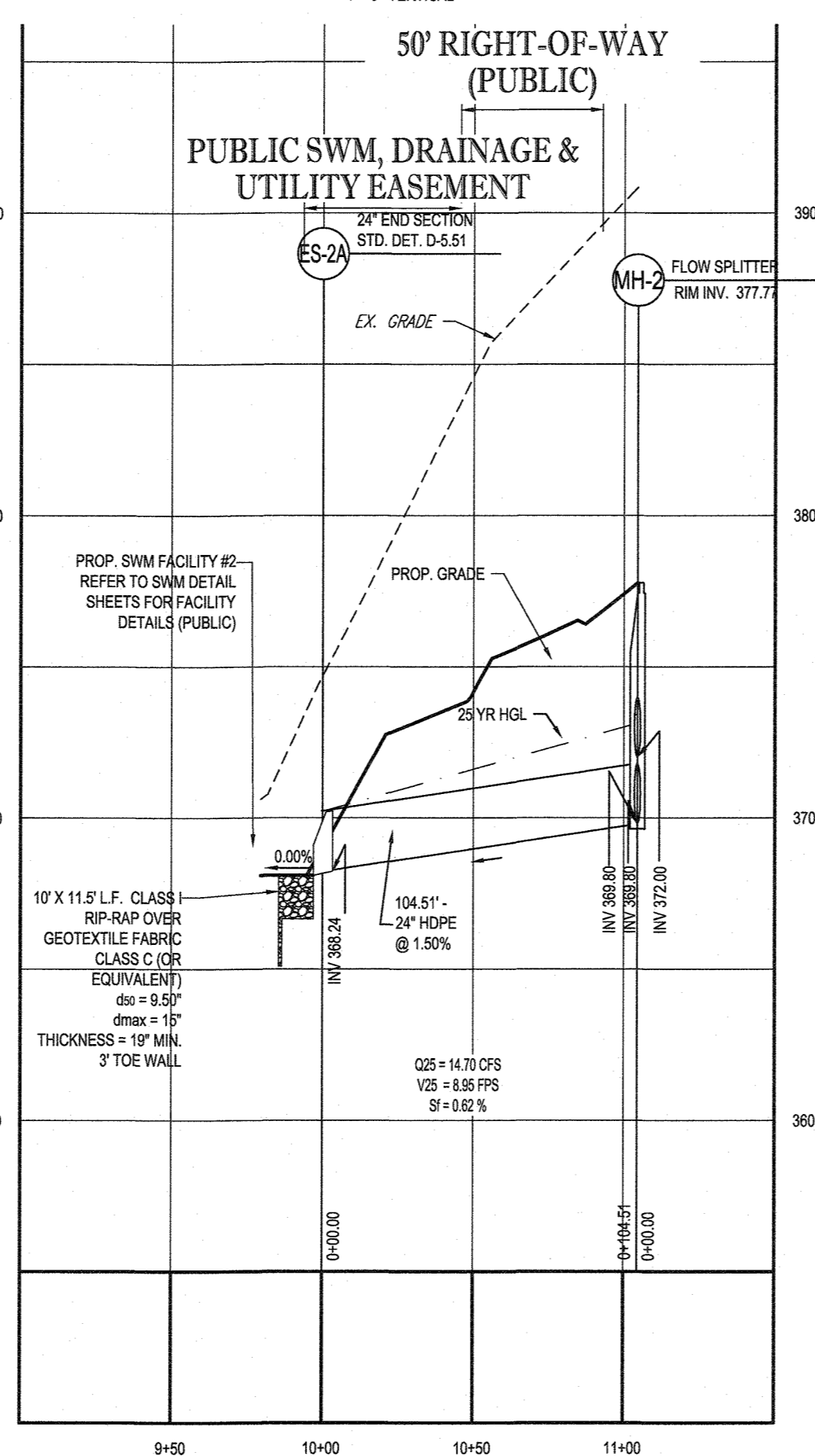
PROP. STORM DRAIN I-5 TO I-12
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



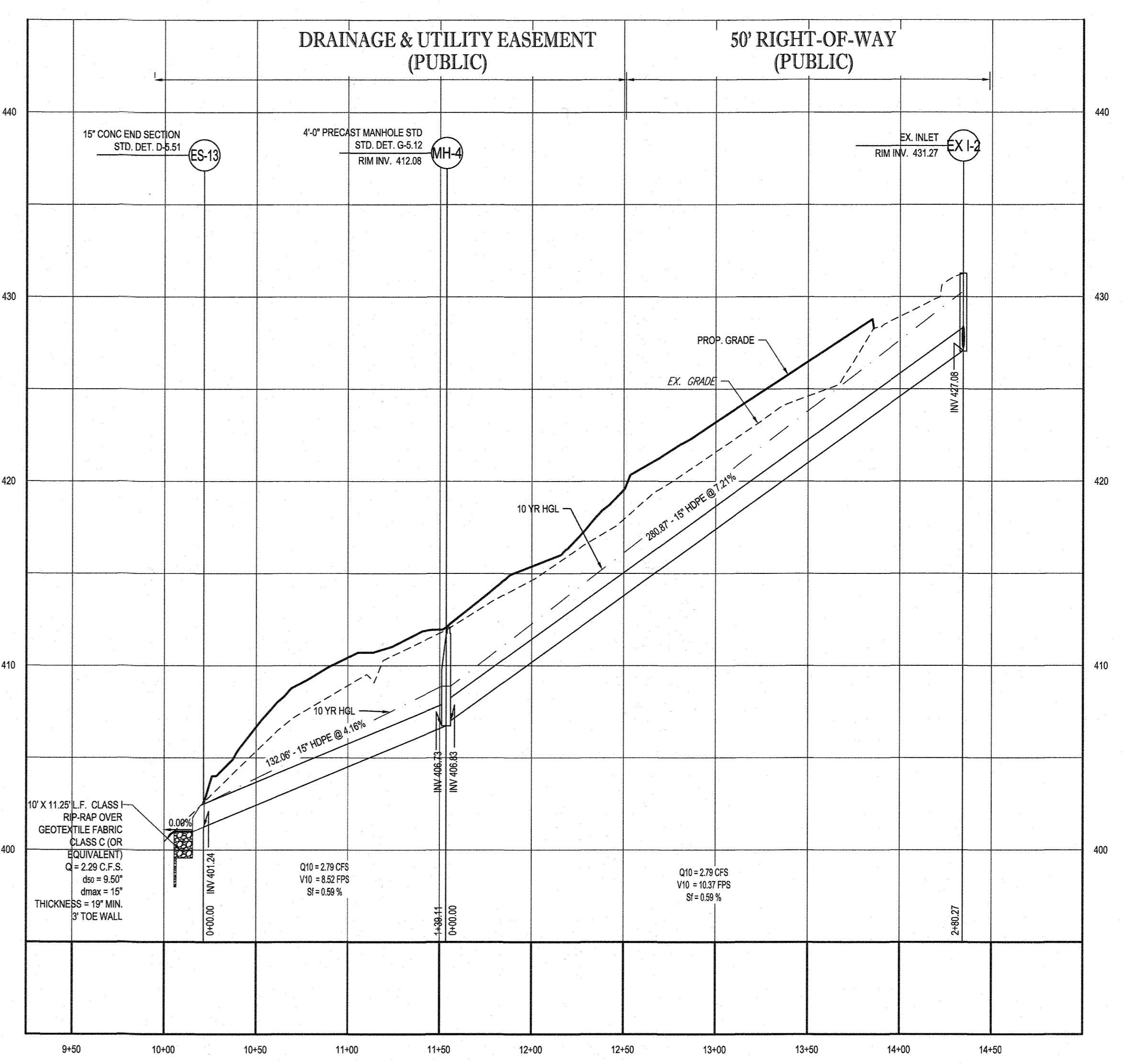
PROP. STORM DRAIN I-7 TO ES-2
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



PROP. STORM DRAIN I-2 TO I-8
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



PROP. STORM DRAIN MH-2 TO ES-2A
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



PROPOSE ES-13 TO EX-INLET
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
James 10/12/2021
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 12/14/21
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

OWNER:	MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075
DEVELOPER:	ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
PREVIOUS FILE NO.:	SP-17-010b ECP-17-056 WP-18-070
TAX MAP:	40
GRID:	24
ZONED:	RR-DEO
PARCEL:	135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
DRAWN BY: AVG
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: PFD-5

FINAL ROAD PLAN
FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

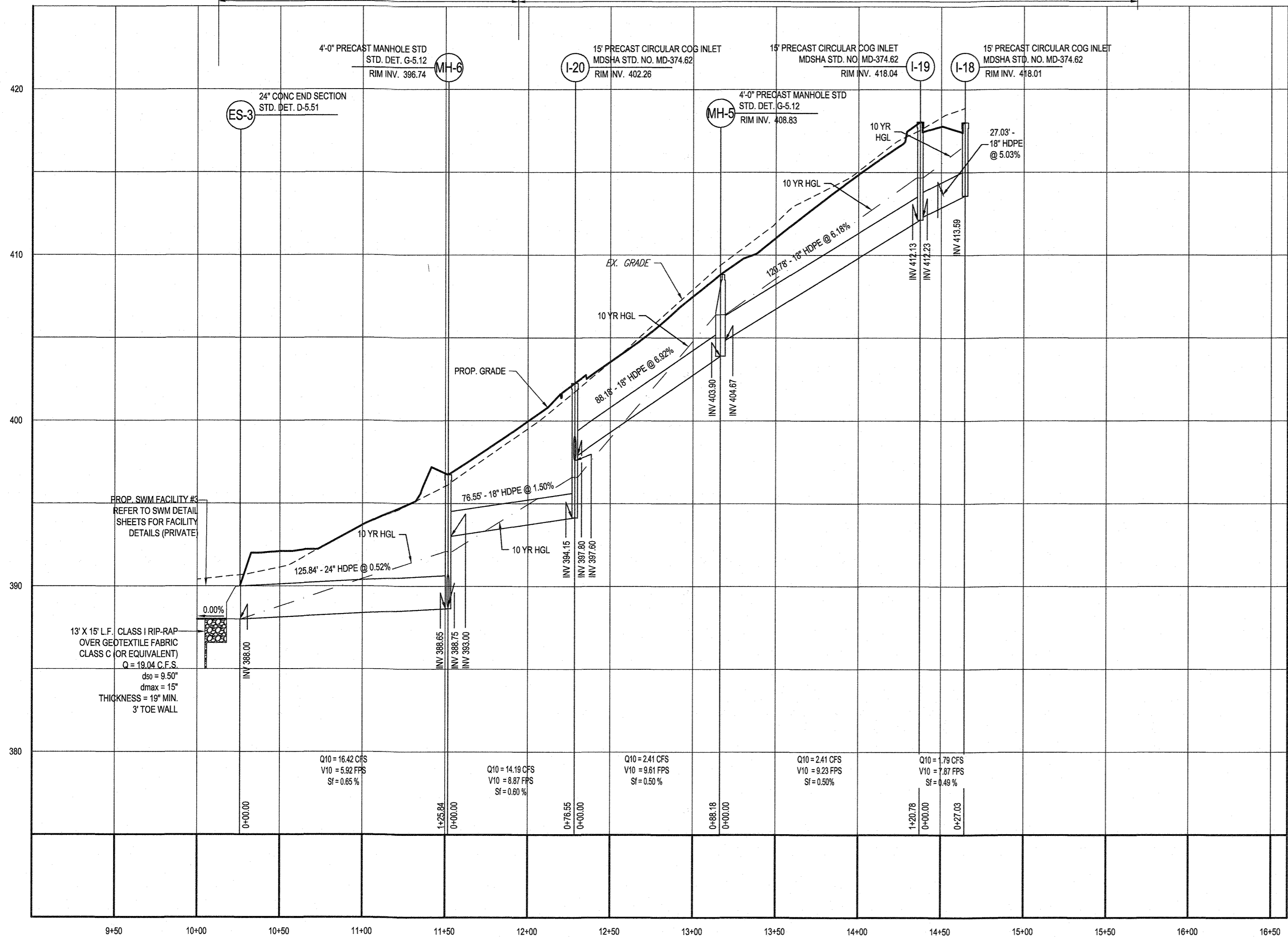
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
LICENSE NO. 40886-630484 (P) DATE: 7/2/2022

SHEET TITLE:
STORMDRAIN PROFILE

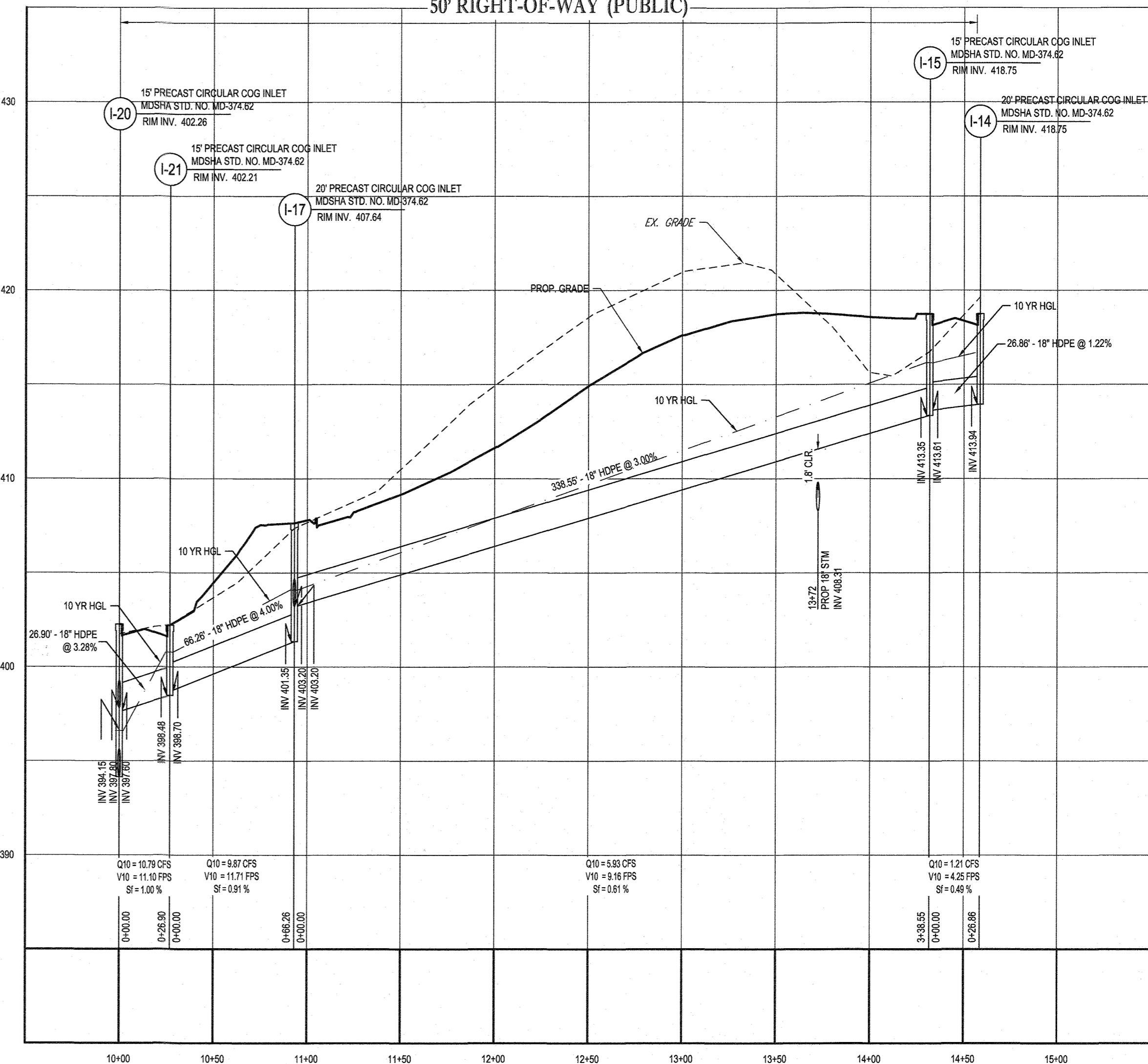
SHEET NUMBER:
52 OF 80

REVISION 5 - 07/07/2021



PROP. STORM DRAIN ES-3 TO I-18

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



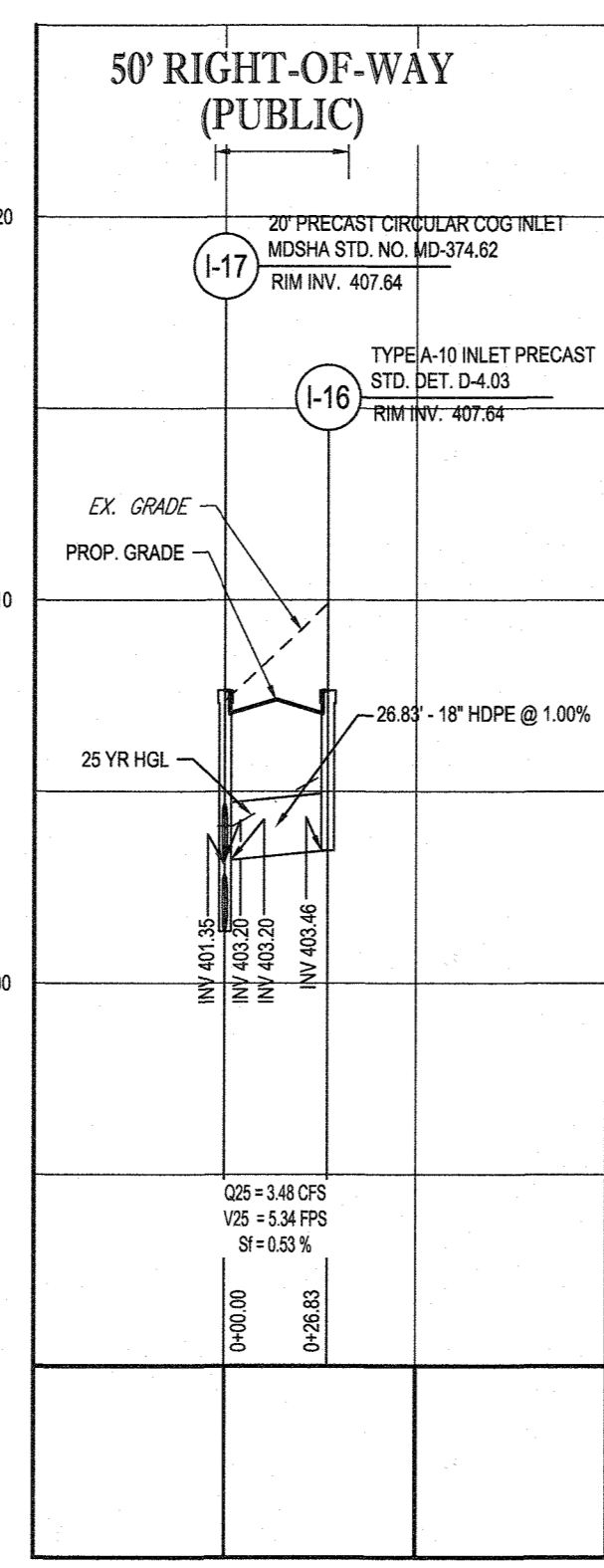
PROP. STORM DRAIN I-20 TO I-14

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

APPROVED, DEPARTMENT OF PUBLIC WORKS
Steve
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/12/2021

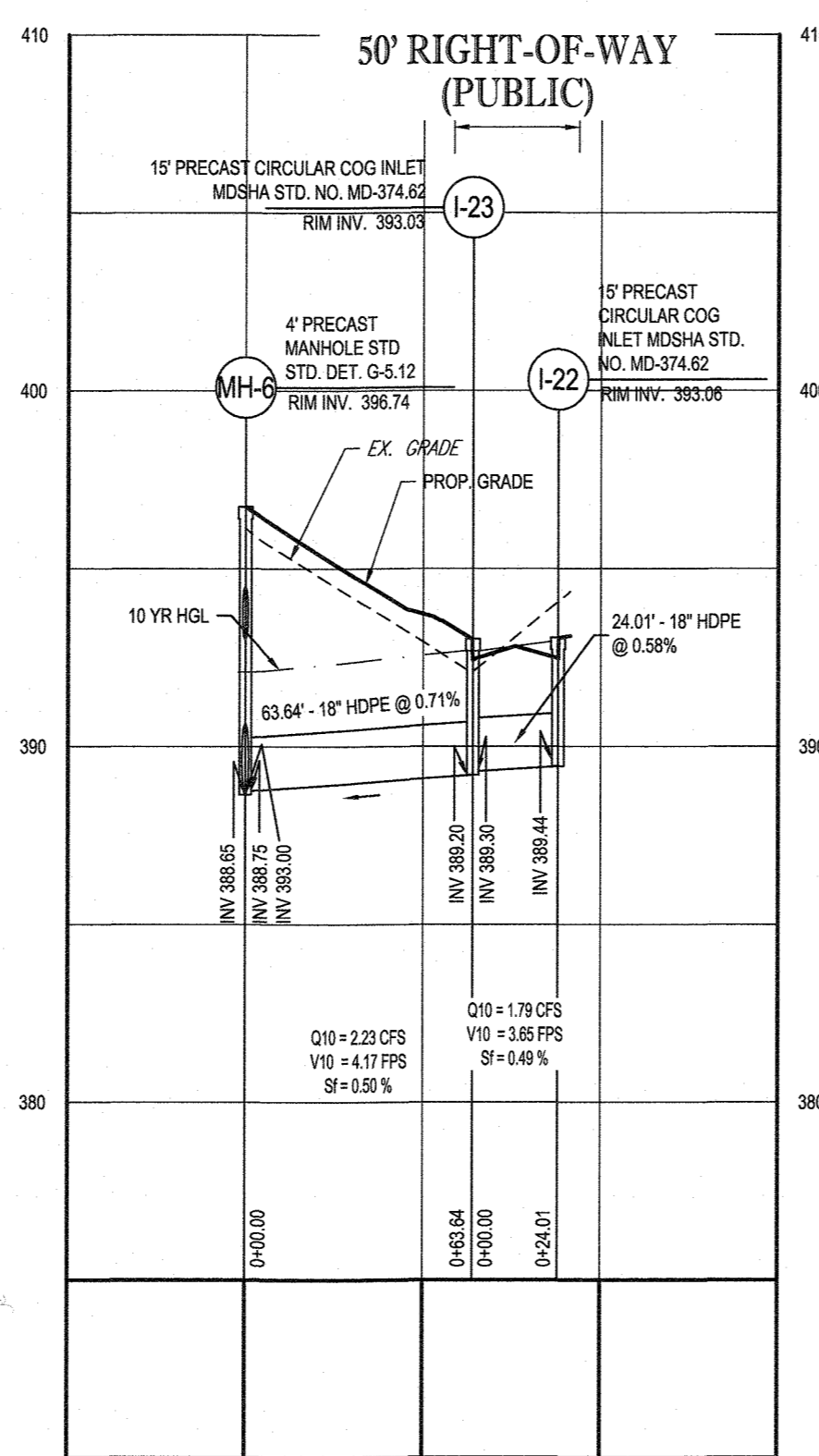
APPROVED, DEPARTMENT OF PLANNING AND ZONING
James Fraser
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10.15.21

CHIEF, DEVELOPMENT ENGINEERING DIVISION



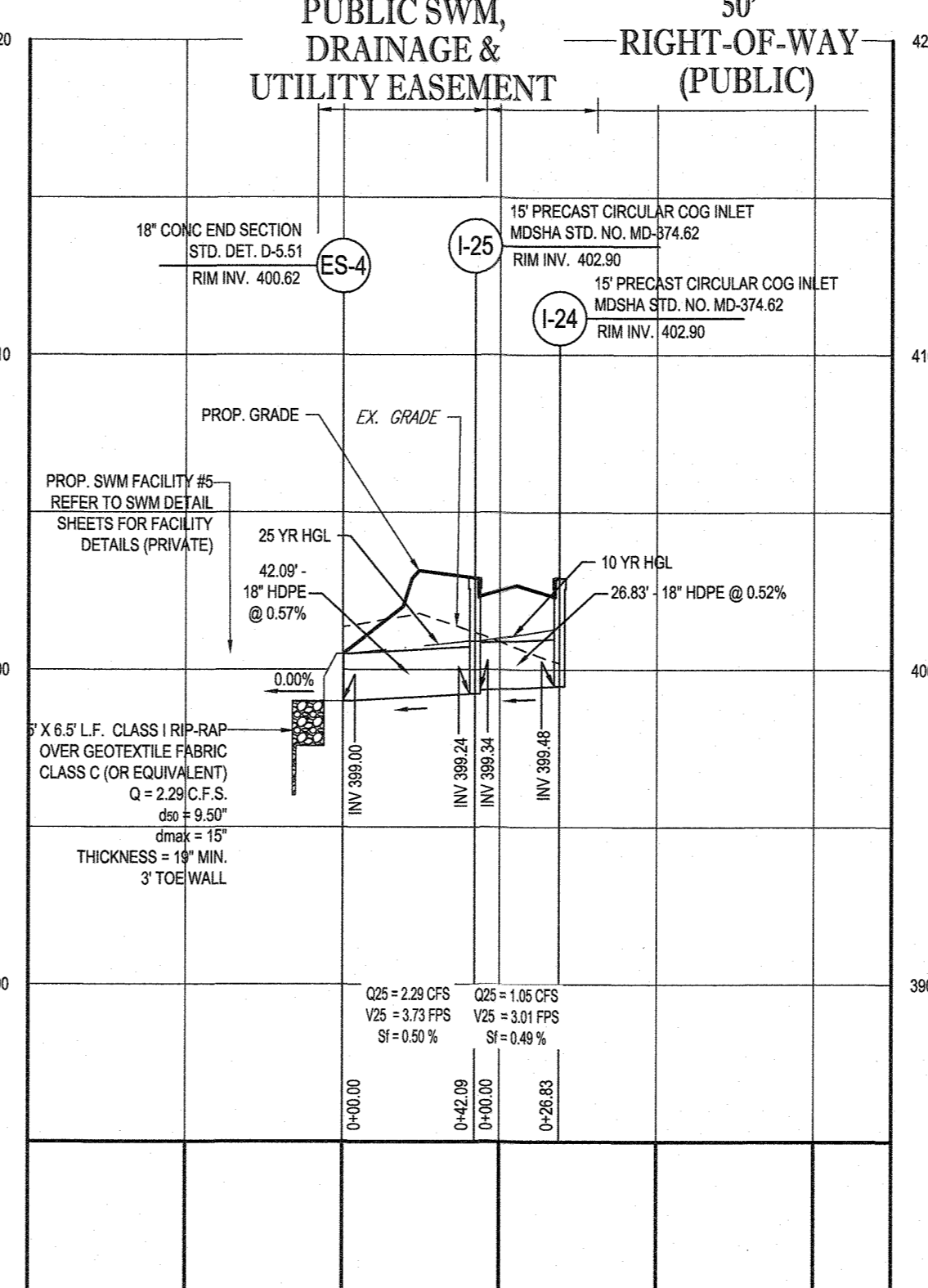
PROP. STORM DRAIN I-17 TO I-16

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



PROP. STORM DRAIN I-23 TO I-22

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



PROP. STORM DRAIN ES-4 TO I-24

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

PREVIOUS FILE NO.:
SP-17-010b
ECP-17-056
WP-18-070

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

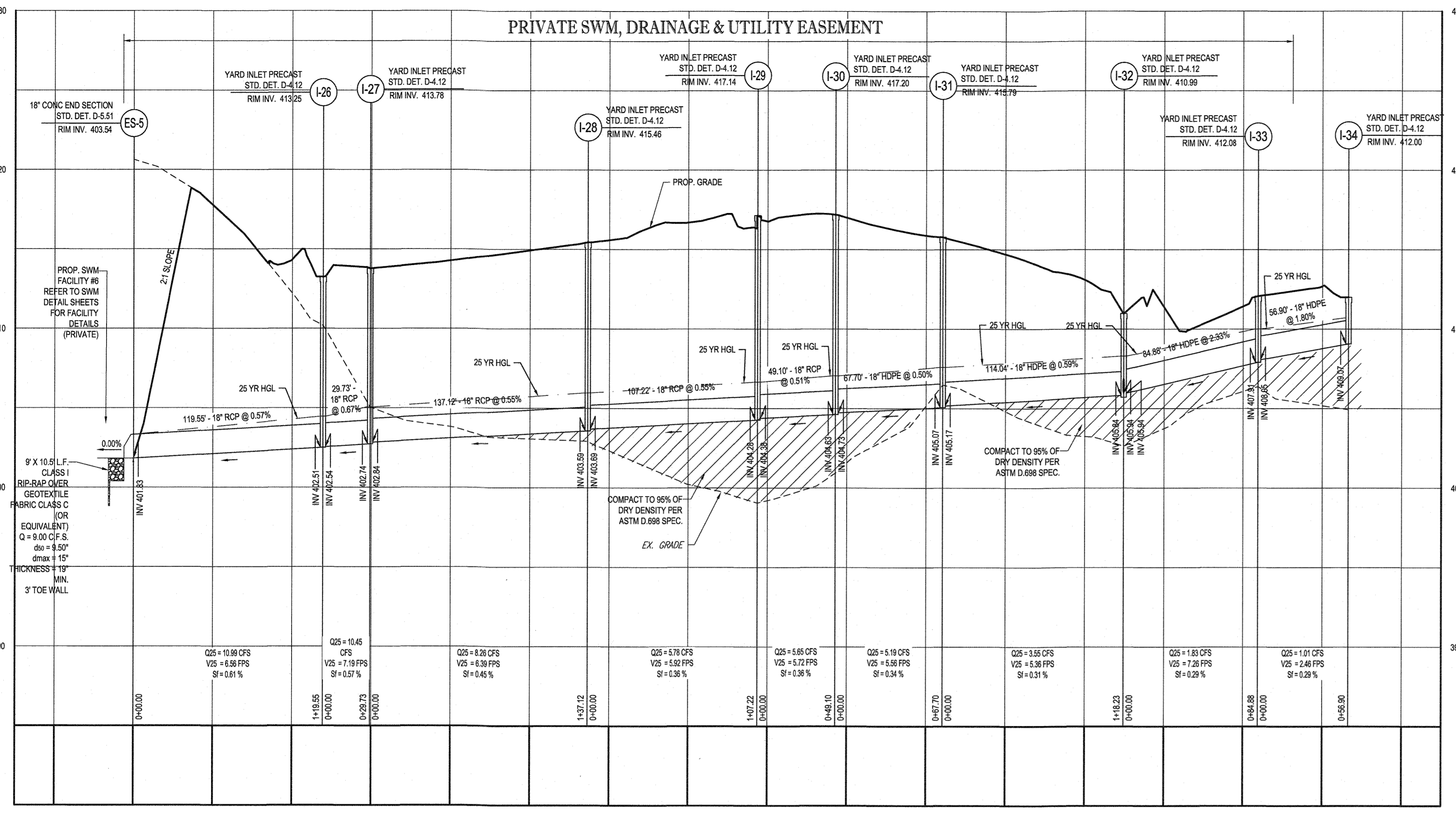
PROJECT NO.: MD1420671
DRAWN BY: BRR
CHECKED BY: BRR
DATE: 07/07/2021
CAD I.D.: PPD-5

PROJECT: FINAL ROAD PLAN
FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

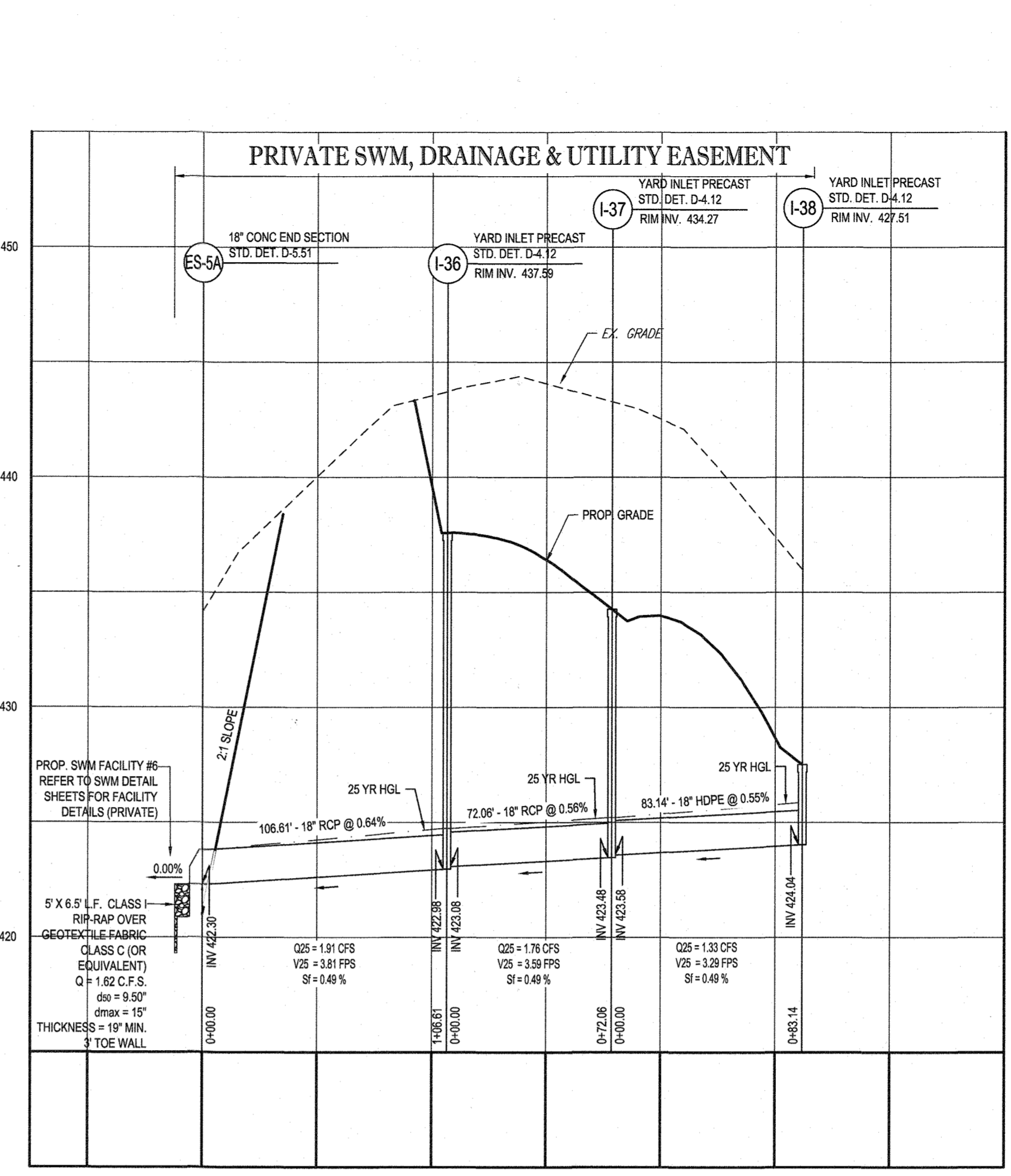
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
1 BRANDENBURG LANE, LEESDEN CENTER THESE
DOCUMENTS WERE PREPARED AND ISSUED BY ME, AND
THAT I AM A QUALIFIED PROFESSIONAL ENGINEER
UNDER THE LAWS AND BY-LAWS OF MARYLAND,
LICENSE NO. 40886, EXPIRATION DATE: 7/31/2023

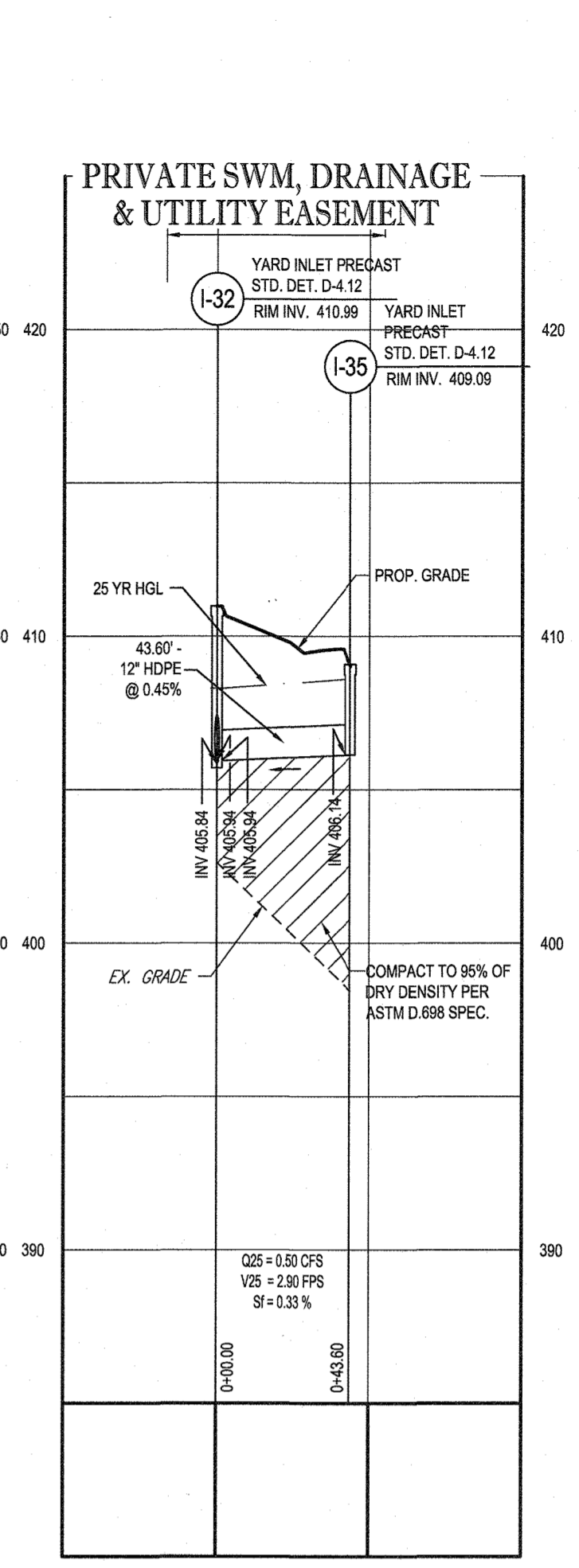
SHEET TITLE:
STORMDRAIN PROFILE
SHEET NUMBER:
53 OF 80
REVISION 5 - 07/07/2021



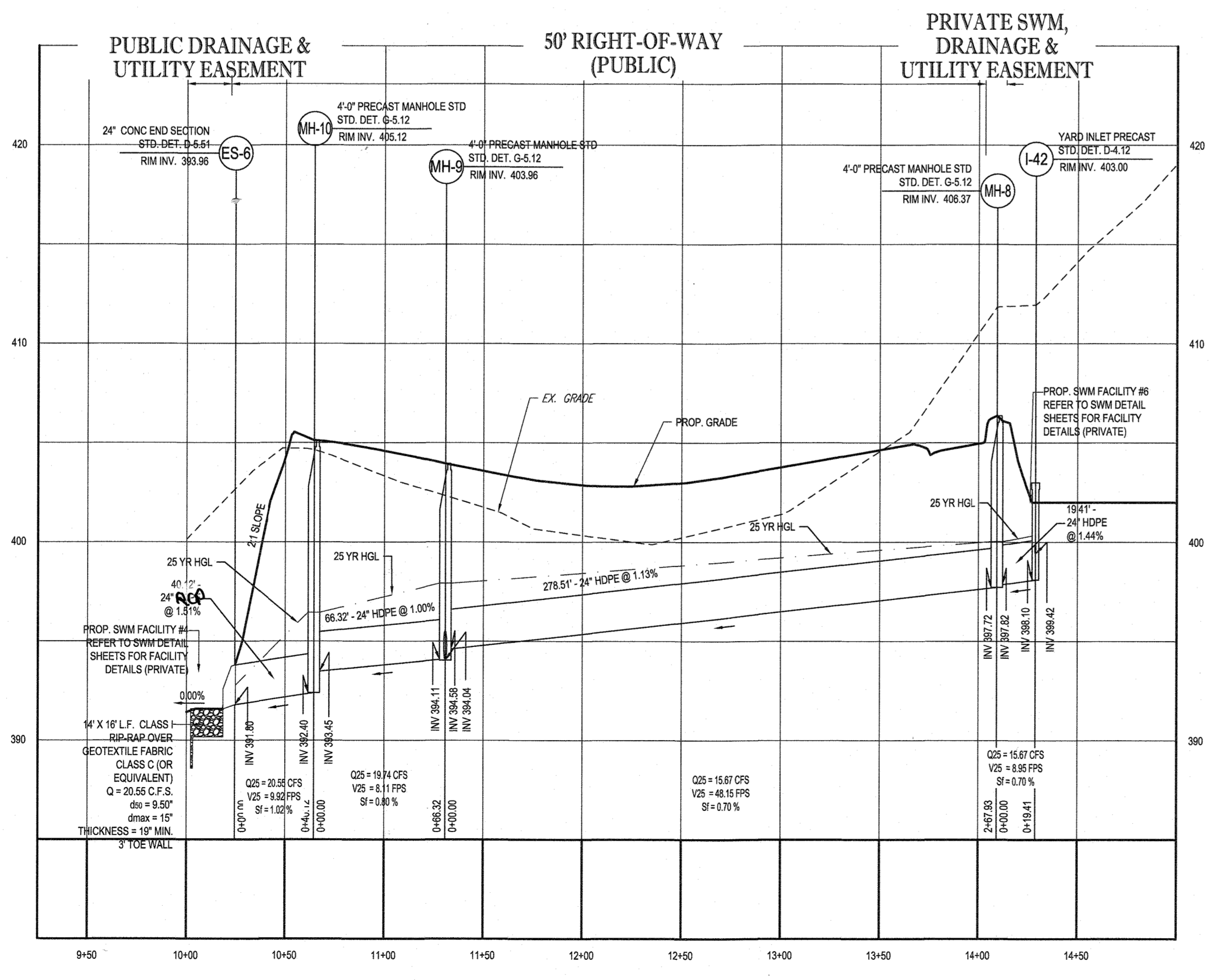
PROP. STORM DRAIN ES-5 TO I-34
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



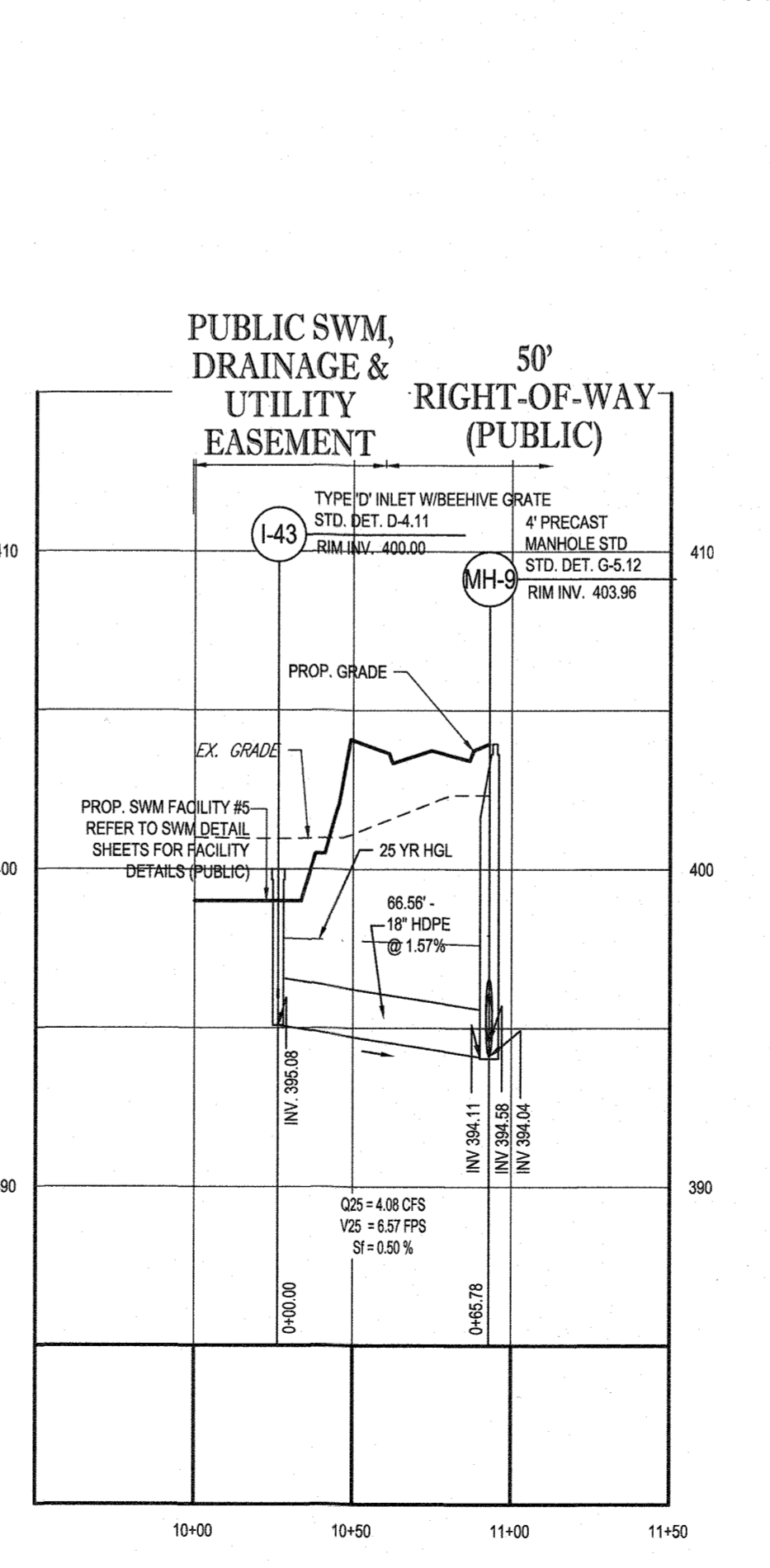
PROP. STORM DRAIN ES-5A TO I-38
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



PROP. STORM DRAIN I-32 TO I-35
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



PROP. STORM DRAIN ES-6 TO I-42
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL



PROP. STORM DRAIN I-43 TO MH-9
SCALE: 1"=50' HORIZONTAL
1"=5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 10/12/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 10/12/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10-12-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
SUBDIVISION NAME: LYHUS PROPERTY SECTION AREA: N/A DEED # 14532/00469		PREVIOUS FILE NO.: SP-17-010b ECP-17-056 WP-18-070

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

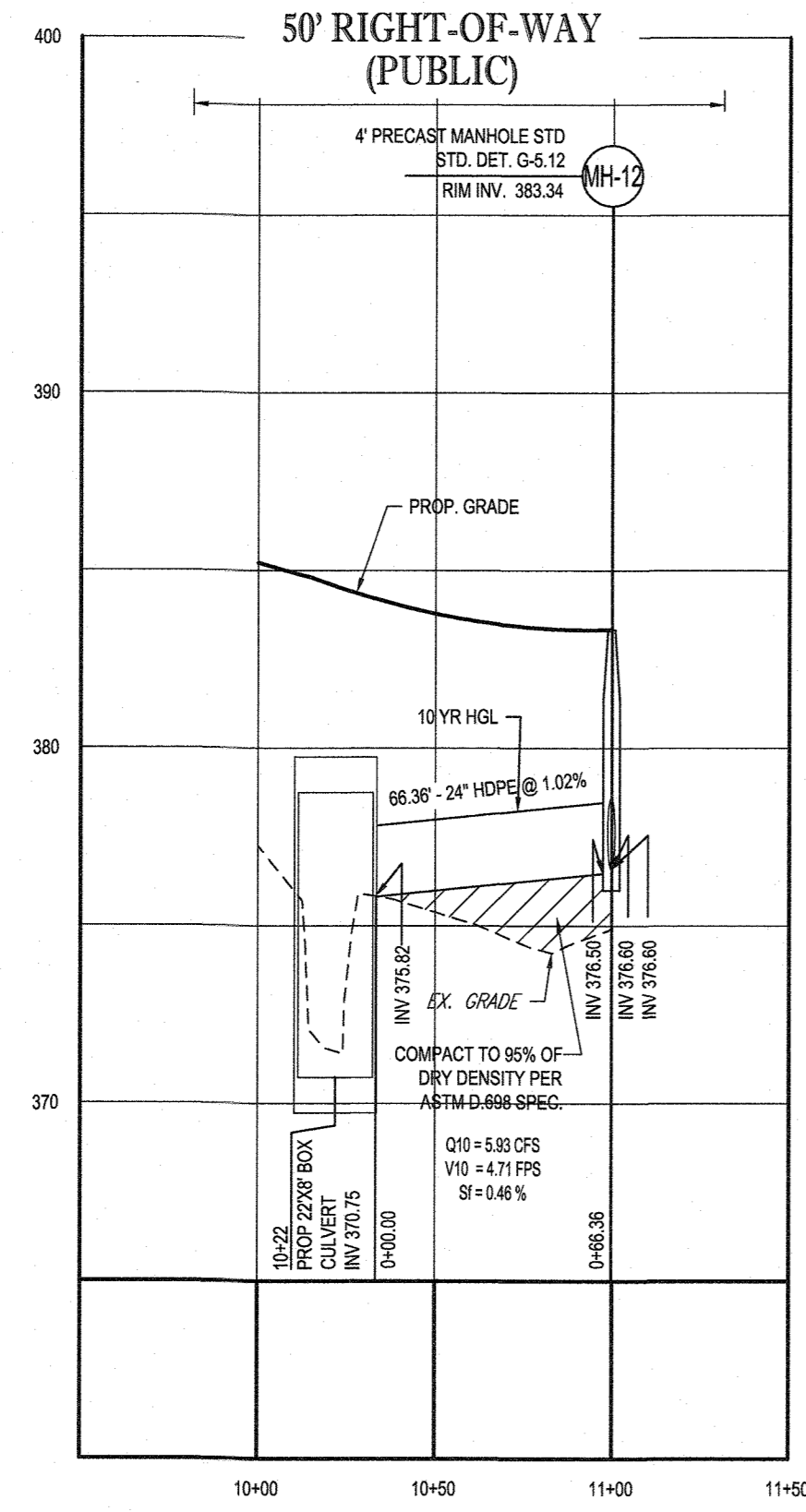
PROJECT NO.: MD1420671	AVG
DRAWN BY: BRR	BRR
CHECKED BY: 07/07/2021	PPD-5
DATE: 07/07/2021	PPD-5
CAD I.D.: PPD-5	PPD-5

PROJECT: FINAL ROAD PLAN
 FOR LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

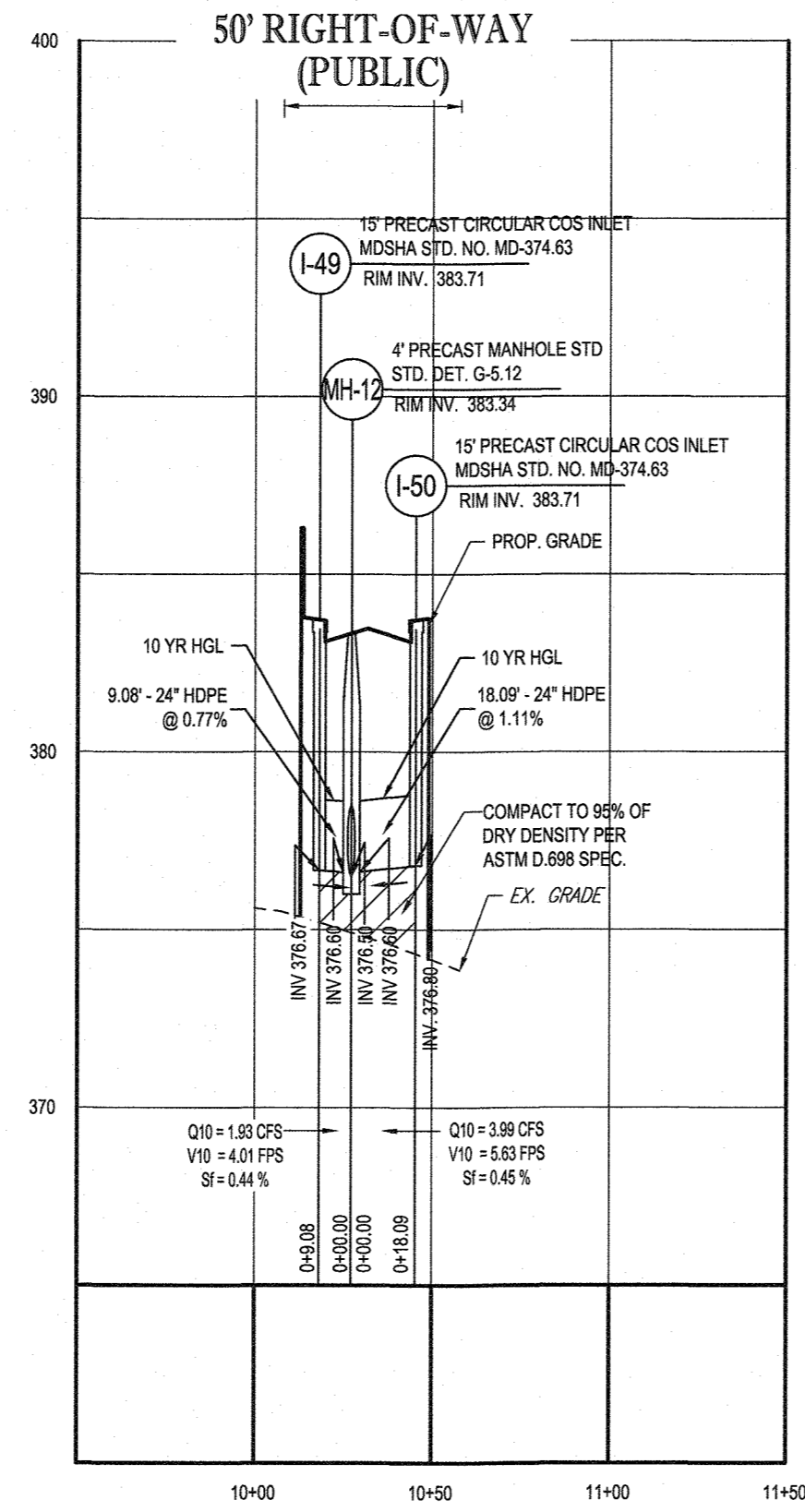
BOHLER ENGINEERING
 801 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 40886-CA88A84084 DATE: 10/02/22

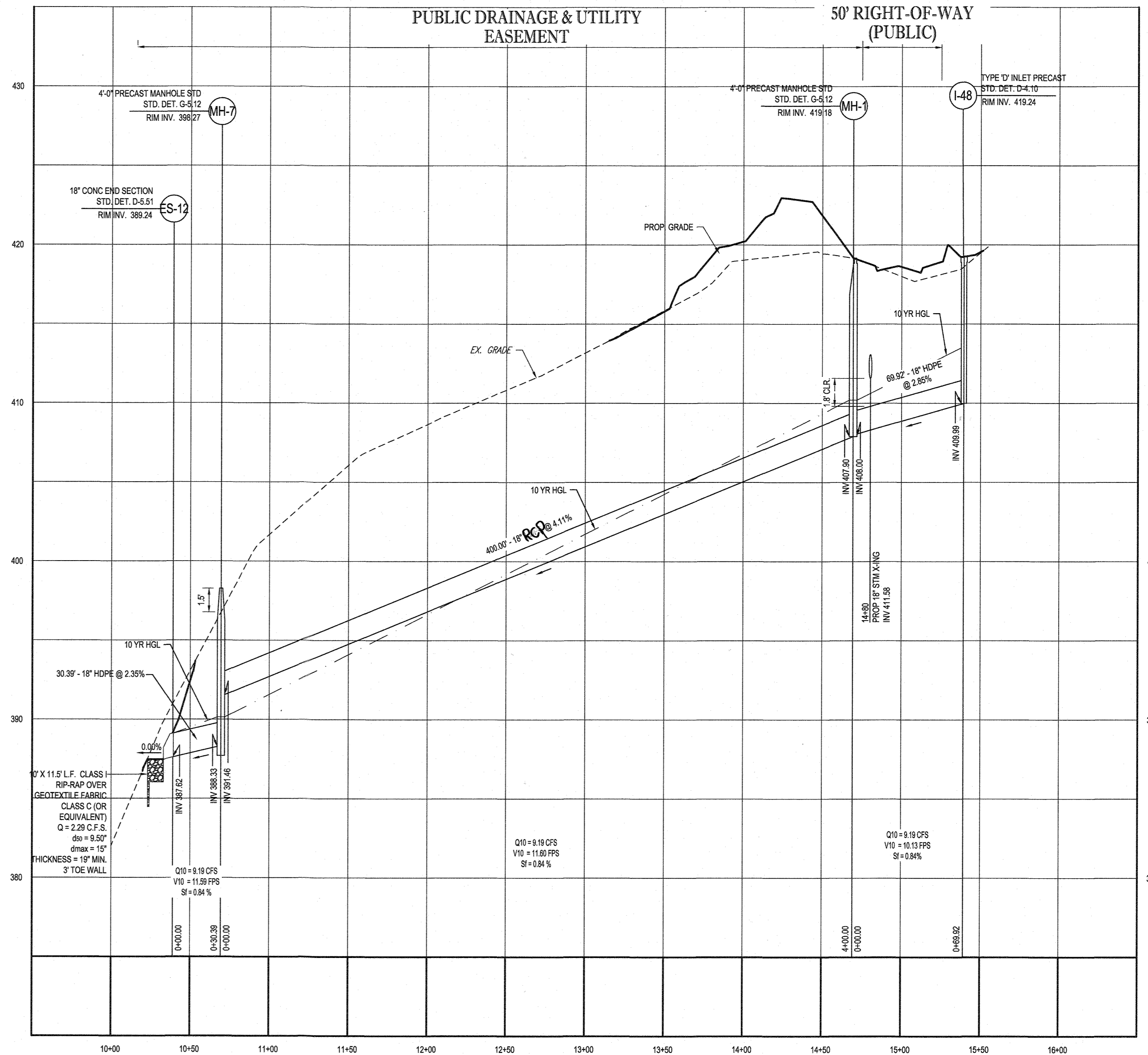
SHEET TITLE: STORM DRAIN PROFILE
 SHEET NUMBER: 54 OF 80
 REVISION 5 - 07/07/2021



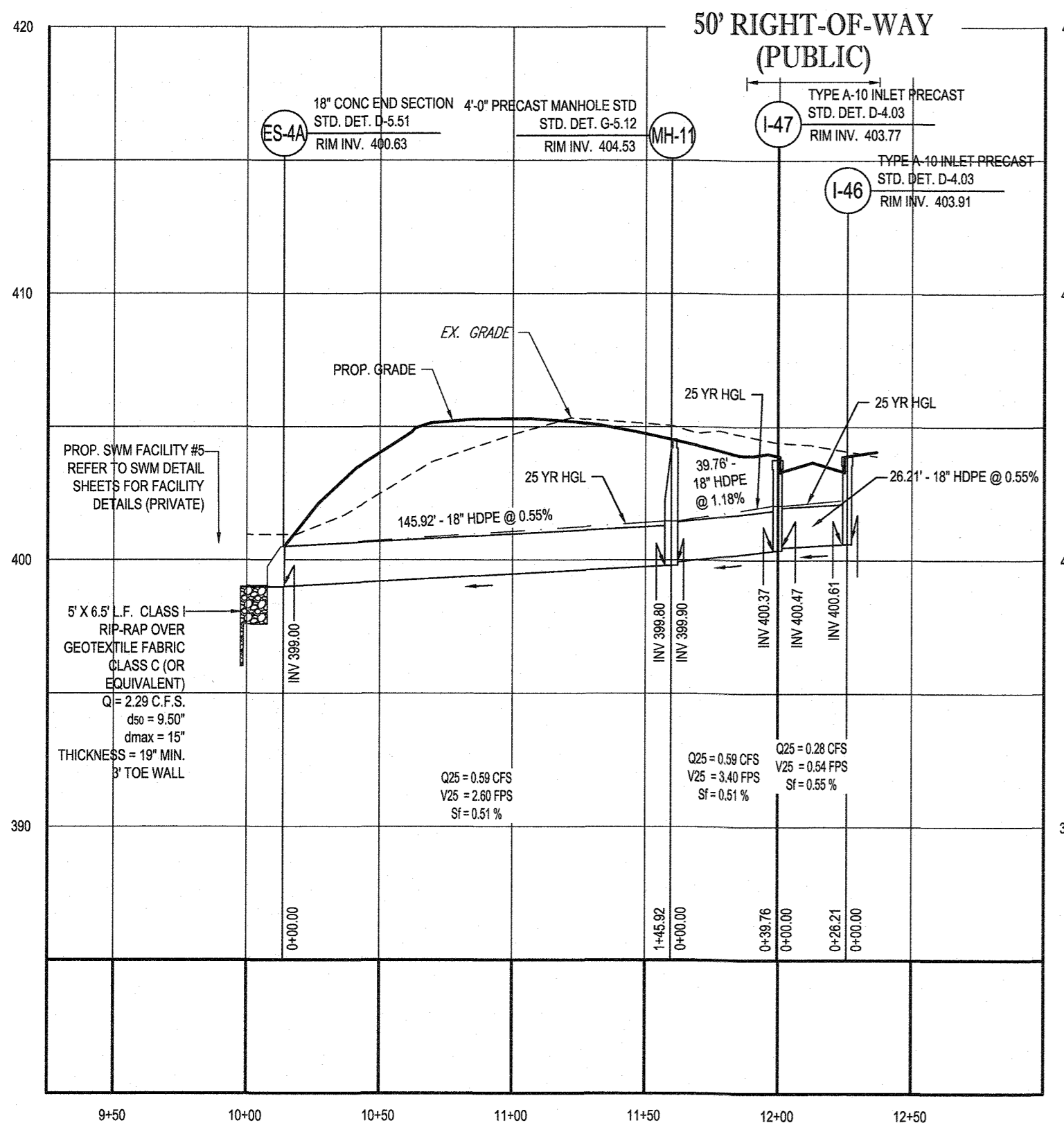
PROP. STORM DRAIN - MH-12 TO CULVERT
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



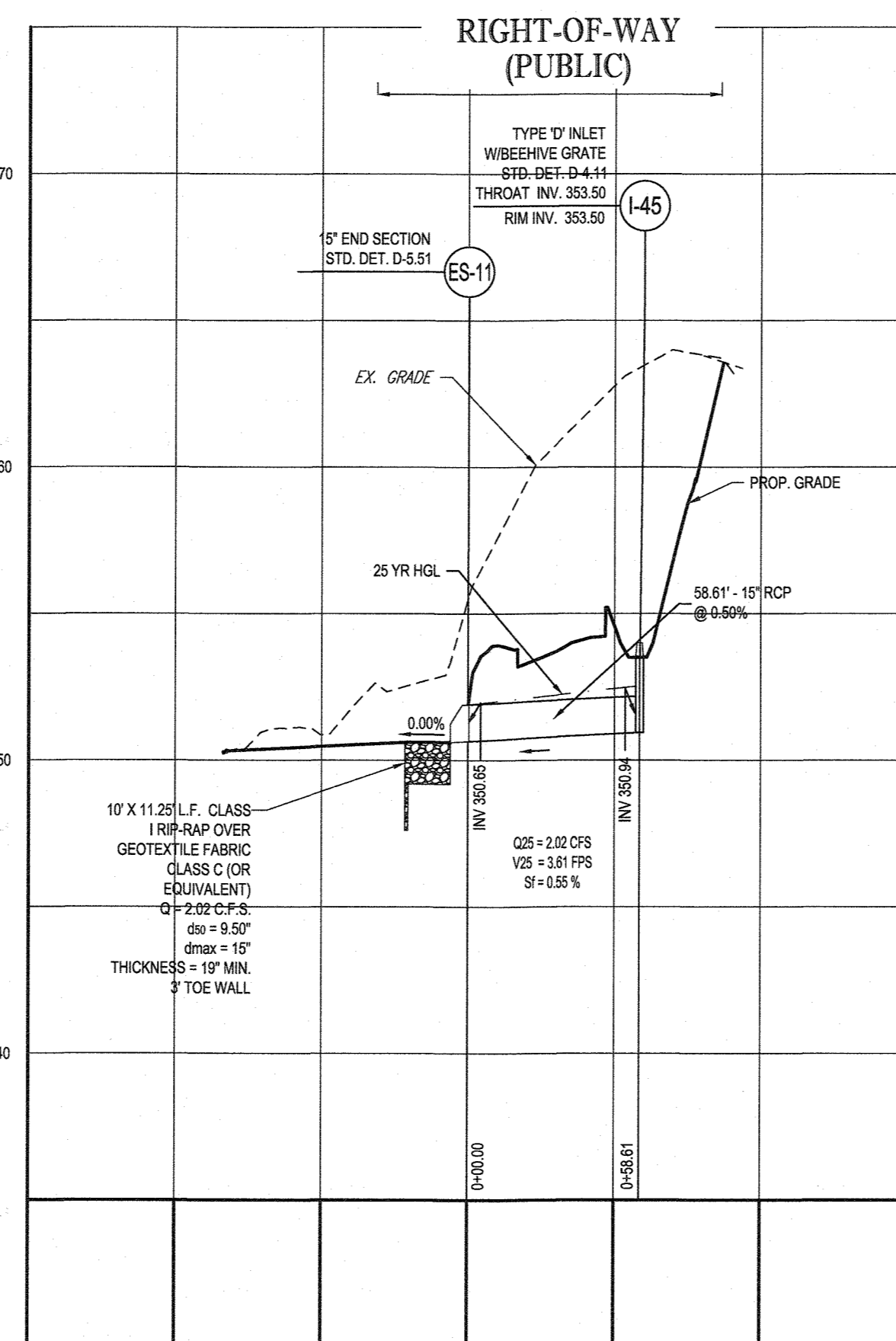
PROP. STORM DRAIN - I-49 TO I-50
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



PROP. STORM DRAIN ES-12 TO I-48
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



PROP. STORM DRAIN - I-46 TO ES-4A
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



PROP. STORM DRAIN ES-11 TO I-45
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature]
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/12/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature]
 DATE: 10/12/21

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

811

Know what's Below.
Call before you dig.

ALWAYS CALL 811

It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420971
 DRAWN BY: AUC
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: PPD-5

FINAL ROAD PLAN

FOR LYHUS PROPERTY
 BULDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

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

B.R. ROWE

PROFESSIONAL ENGINEER
 LICENSE NO. 42086 - EXPIRATION DATE: 7/31/2023

SHEET TITLE:
STORMDRAIN PROFILE

SHEET NUMBER:
55 OF 80

REVISION 5 - 07/07/2021

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-667-1046
PREVIOUS FILE NO.: SP-17-010b ECP-17-058 WP-18-070	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



SITE AREA COMPUTATIONS

GROSS TRACT AREA = 71.09 AC
 100 YEAR FLOODPLAIN = 6.87 AC
 NET TRACT AREA = 64.22 AC
 ZONING = RR-DEO

FORESTED FLOODPLAIN

FOREST = 6.8 AC

FOREST CLEARING

FOREST TO BE CLEARED = 33.3 AC, (INCLUDES 0.5 AC WITHIN FLOODPLAIN)

FCP NOTES

1. ANY FOREST CONSERVATION EASEMENT (FCE) SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY AND WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION AS OUTLINED IN THE FOREST CONSERVATION DEED OF EASEMENT EXCEPT AS PERMITTED BY HOWARD COUNTY.
3. NO STOCKPILE, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED IN THE FOREST CONSERVATION EASEMENT.
4. PERMANENT SIGNAGE SHALL BE PLACED EVERY 50-100 FEET APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.

FOREST CONSERVATION NARRATIVE:

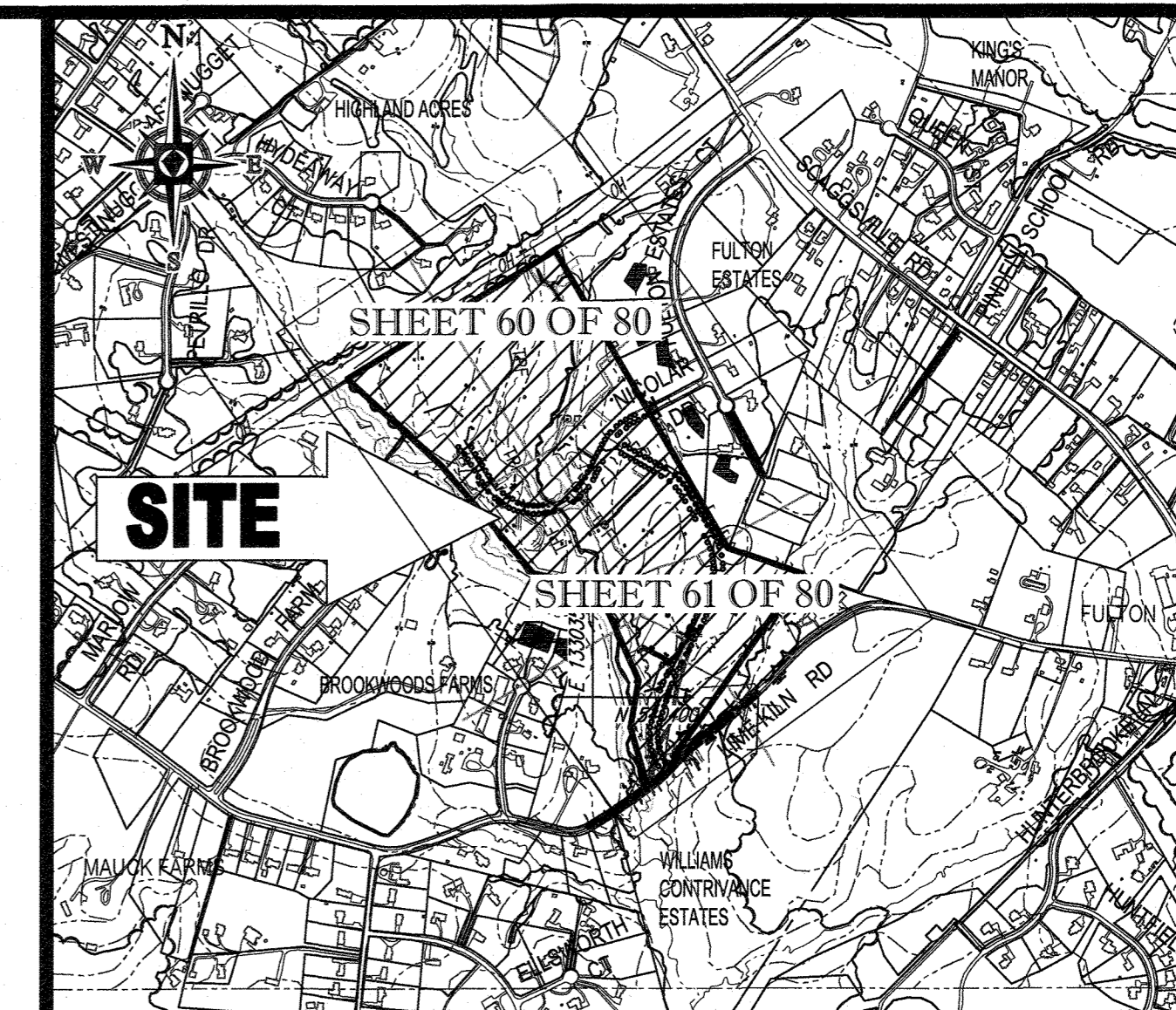
THIS FOREST CONSERVATION PLAN PROPOSES THE REMOVAL OF 30.1 ACRES OF FOREST FROM THE PROPOSED LIMIT OF DISTURBANCE. THIS FOREST CLEARING IS UNAVOIDABLE WITH THE SUBDIVISION OF THE PROPERTY. THIS PROJECT IS ZONED RR-DEO WHICH ENCOURAGES A DEVELOPMENT OF THIS DENSITY. THE PROPOSED CLEARING WILL NOT IMPACT HIGH PRIORITY FOREST OR FOREST AREAS. THE PROPOSED RETENTION IS LOCATED WITHIN ENVIRONMENTALLY SENSITIVE AREAS. THIS STAND INCLUDES STEEP SLOPES, STREAM BUFFERS AND MULTIPLE SPECIMEN TREES. FOR THESE REASONS THE FOREST RETENTION AREA IS CONSIDERED THE HIGHEST PRIORITY FOR RETENTION WITHIN THE FOREST STAND DELINEATION.

FOREST CONSERVATION SEQUENCE OF CONSTRUCTION

1. PRE-CONSTRUCTION MEETING SHALL BE HELD BETWEEN DEVELOPER, CONTRACTOR, AND COUNTY INSPECTOR.
2. SEDIMENT SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. TEMPORARY PROTECTIVE FENCING AND CONSERVATION SIGNAGE SHALL BE INSTALLED AS PER FOREST CONSERVATION PLAN.
3. SITE SHALL BE GRADED, INFRASTRUCTURE INSTALLED, AND HOUSES CONSTRUCTED. DISTURBED AREAS SHALL BE STABILIZED. PERMANENT SIGNAGE IN POOR CONDITION SHALL BE REPLACED.
4. POST-CONSTRUCTION MEETING SHALL BE HELD WITH COUNTY INSPECTOR TO ENSURE COMPLIANCE WITH DEVELOPMENT PLAN. SEDIMENT CONTROL AND TEMPORARY PROTECTIVE FENCING UPON STABILIZATION OF SITE AND COMPLETION OF CONSTRUCTION ACTIVITIES.
5. CERTIFICATION OF FOREST RETENTION PAPERWORK SHALL BE SUBMITTED TO THE COUNTY.

NOTE:

FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 13.2 ACRES ON-SITE AND 10.06 ACRES PROVIDED AT THE SAVAGE PROPERTY FOREST CONSERVATION BANK (F-21-42) AT 2.1 AND 0.08 ACRE PROVIDED BY PAYMENT OF FEE-IN-LIEU IN THE AMOUNT OF \$4,356. TOTAL FOREST CONSERVATION FOR THIS SUBDIVISION IS 36.5 ACRES. SURETY IN THE AMOUNT OF \$ 67,518 WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT.



LOCATION MAP

COPYRIGHT ADC THE MAP PEOPLE
 PERMIT USE NO. 20602153-5
 SCALE: 1"=1000'
 ADC MAP COORDINATES: 30/C5

FOREST CONSERVATION WORKSHEET VERSION 1.0 (Enter in Yellow Cells)

NET TRACT AREA:	
A. Total tract area	71.1
B. Area within 100 year floodplain	6.9
C. Area to remain in agricultural production	0.0
D. Net tract area	64.2

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)					
Input the number "1" under the appropriate land use zoning, and limit to only one entry.					
ARA	MDR	IDA	HDR	MPD	CIA
0	1	0	0	0	0

E. Afforestation Threshold	20% x D =	12.8
F. Conservation Threshold	25% x D =	16.1

EXISTING FOREST COVER:	
G. Existing forest cover (excluding floodplain)	45.9
H. Area of forest above afforestation threshold	33.1
I. Area of forest above conservation threshold	29.6

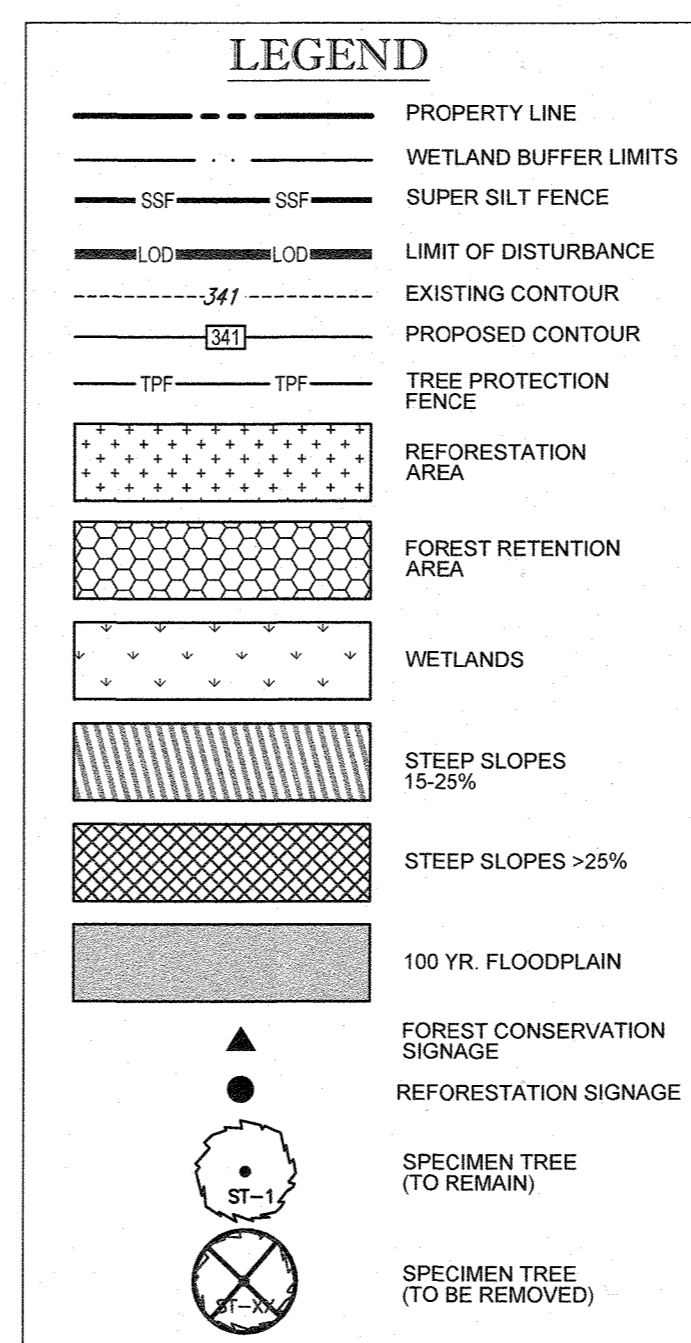
BREAK EVEN POINT:	
J. Forest retention above threshold with no mitigation	22.0
K. Clearing permitted without mitigation	23.9

PROPOSED FOREST CLEARING:	
L. Total area of forest to be cleared	32.7
M. Total area of forest to be retained	13.2

PLANTING REQUIREMENTS:	
N. Reforestation for clearing above conservation threshold	7.5
P. Reforestation for clearing below conservation threshold	5.7
Q. Credit for retention above conservation threshold	0.0
R. Total reforestation required	13.2
S. Total afforestation required	0.0
T. Total reforestation and afforestation required	13.2

FOREST CONSERVATION EASEMENT AREA TABULATION

EASEMENT	GROSS FOREST AREA (AC)	FOREST AREA NONCREDITED (FOR FOREST LESS THAN 10,000 S.F. (AC))	FOREST AREA NONCREDITED (100 YEAR FLOODPLAIN) (AC)	NET FOREST (RETAINED) (CREDITED) (AC)	PLANTED AREA (REFORESTATION) (CREDITED) (AC)	CREDITED EASEMENT AREA (AC)	TOTAL EASEMENT AREA (AC)
FCE #1	12.3	0.0	4.0	8.3	0.6	8.9	12.9
FCE #2	0.8	0.0	0.0	0.8	0.0	0.8	0.8
FCE #3	4.2	0.0	1.8	2.4	1.4	3.8	5.6
FCE #4	1.4	0.0	0.0	1.4	0.0	1.4	1.4
FCE #5	0.8	0.0	0.5	0.3	0.3	0.6	1.1
FCE #6	0.0	0.0	0.0	0.0	0.8	0.8	0.8
TOTAL	19.5	0.0	6.3	13.2	3.1	16.3	22.6



NOTES :

1. BASED ON MARYLAND DEPARTMENT OF ASSESSMENT & TAXATION, THE PRIMARY STRUCTURE ON THE SUBJECT PROPERTIES WAS BUILT CIRCA 1948.
2. THERE ARE NO KNOWN HISTORICAL STRUCTURES ONSITE.
3. THERE ARE NO CHAMPION TREES AND/OR TREES 75% FOR THE SIZE OF ANY CHAMPION TREE.
4. THERE ARE NO KNOWN RARE THREATENED AND ENDANGER SPECIES OR THEIR HABITAT ON THIS SITE.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1048
PREVIOUS FILE NO.: SP-17-010b ECP-17-056 WP-18-070	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 12/20/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 12/21/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-16-21

EXISTING FOREST AREA = 0.8 AC	NONCREDIT FOREST/FLOODPLAIN = 1.4 AC
CREDITED FOREST = 0.0 AC	REFORESTATION = 0.0 AC
EASEMENT AREA = 0.8 AC	EASEMENT AREA = 1.4 AC
CREDITED EASEMENT AREA = 0.8 AC	CREDITED EASEMENT AREA = 1.4 AC

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 09/24/2021
 CAD I.D.: FCE-5

FINAL ROAD PLAN

FOR
LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

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

JAMES FRASER
 REGISTERED PROFESSIONAL ENGINEER
 LICENSE NO. 3897, EXPIRATION DATE: 9/20/22

SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
57 OF 80

REVISION 5 - 09/24/2021

LEGEND

(Solid line)	PROPERTY LINE
(Dashed line)	WETLAND BUFFER LIMITS
(Line with 'SSF')	SUPER SILT FENCE
(Line with 'LOD')	LIMIT OF DISTURBANCE
(Line with '3/4')	EXISTING CONTOUR
(Line with '1/4')	PROPOSED CONTOUR
(Line with 'TFF')	TREE PROTECTION FENCE
(Stippled pattern)	REFORESTATION AREA
(Cross-hatched pattern)	FOREST RETENTION AREA
(Wavy line pattern)	WETLANDS
(Diagonal line pattern)	STEEP SLOPES 15-25%
(Cross-hatched pattern)	STEEP SLOPES >25%
(Shaded area)	100 YR. FLOODPLAIN
(Star symbol)	FOREST CONSERVATION SIGNAGE
(Star symbol)	REFORESTATION SIGNAGE
(Circle with 'ST-1')	SPECIMEN TREE (TO REMAIN)
(Circle with 'X')	SPECIMEN TREE (TO BE REMOVED)

SPECIMEN TREES

KEY	SPECIES NAME	SIZE	CONDITION	TO REMAIN
A	WHITE PINE	34"	GOOD	N
B	WHITE PINE	40"	F. GOOD	N
C	WHITE PINE	30"	GOOD	N
D	WHITE PINE	30"	GOOD	N
E	LOBLOLLY PINE	32"	FAIR	N
F	WHITE PINE	39"	F. GOOD	N
G	SILVER MAPLE	38"	GOOD	N
H	WHITE OAK	35"	GOODFAIR	Y
I	SCARLET OAK	30"	FAIR	Y
J	RED OAK	43"	POOR	N
K	RED OAK	42"	FAIR	N
L	SCARLET OAK	36"	F. GOOD	Y
M	BLACK OAK	42"	V. POOR	N
N	SCARLET OAK	36"	V. POOR	Y
O	TULIP POPLAR	30"	V. POOR	N
P	TULIP POPLAR	31"	FAIR	Y
Q	SCARLET OAK	33"	FAIR	Y
R	SCARLET OAK	48"	F. GOOD	Y
S	SCARLET OAK	35"	FAIR	N
T	TULIP POPLAR	38"	F. GOOD	N
U	RED MAPLE	39"	F. GOOD	N
V	TULIP POPLAR	31"	F. GOOD	N
W	TULIP POPLAR	31"	F. GOOD	N
X	TULIP POPLAR	35"	F. GOOD	N
Y	TULIP POPLAR	31"	F. GOOD	N
Z	TULIP POPLAR	38"	F. GOOD	N
2A	TULIP POPLAR	40"	F. GOOD	N

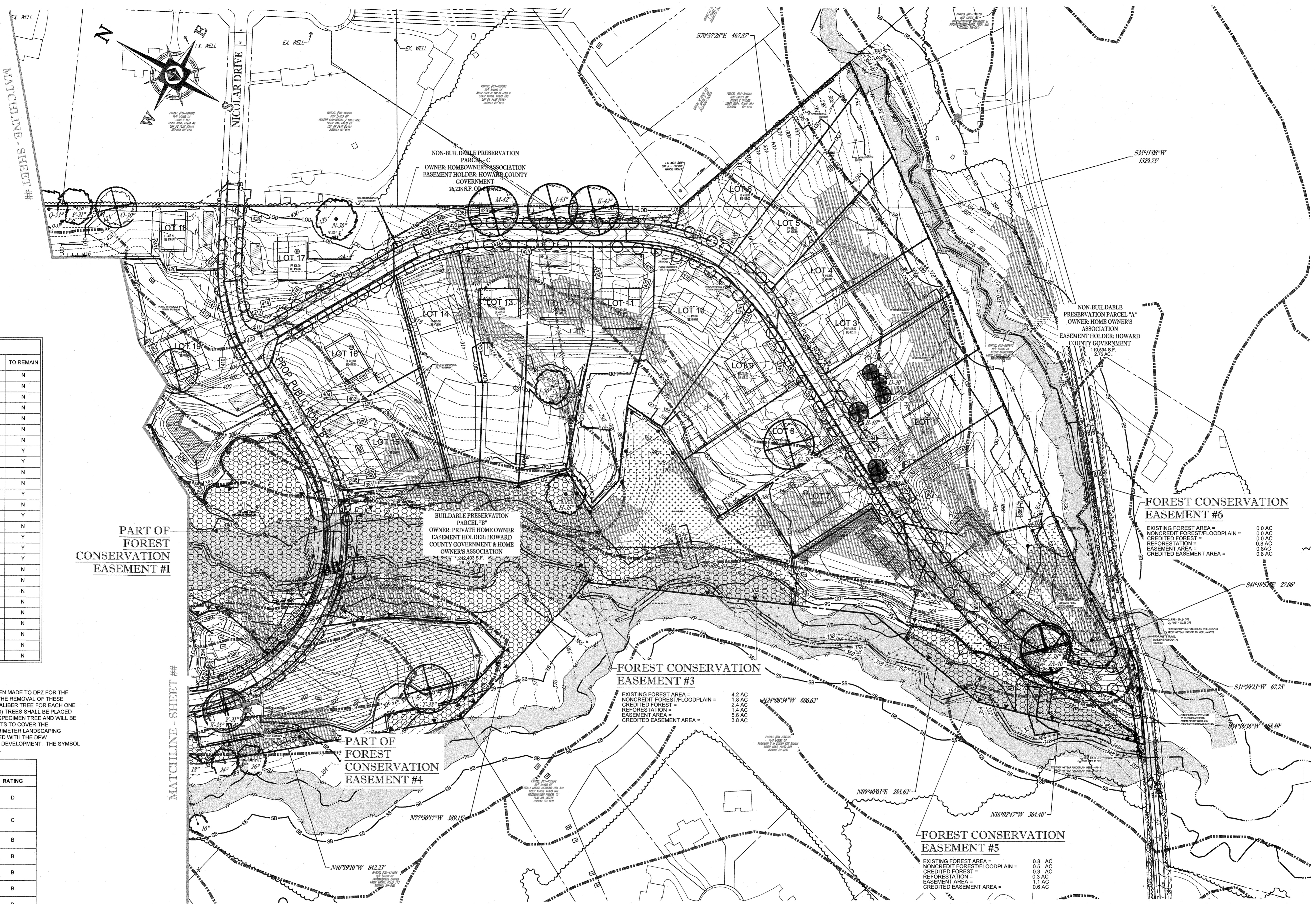
50 3/4" CALIPER TREES HAVE BEEN PLANTED FOR MITIGATION REQUIREMENT.

UNDER WP-18-070, SECTION 16.1205(A)(7) - A REQUEST HAS BEEN MADE TO DP2 FOR THE REMOVAL OF TWENTY (20) SPECIMEN TREES. MITIGATION FOR THE REMOVAL OF THESE TWENTY (20) SPECIMEN TREES IS TO CONSIST OF TWO (2) 3-4" CALIPER TREE FOR EACH ONE (1) REMOVED SIMILAR OR IDENTICAL SPECIES. THESE FORTY (40) TREES SHALL BE PLACED WITHIN CLOSE PROXIMITY TO THE LOCATION OF THE ORIGINAL SPECIMEN TREE AND WILL BE IN ADDITION TO THE REQUIRED PERIMETER LANDSCAPING COSTS TO COVER THE INSTALLATION OF THESE TREES SHALL BE INCLUDED IN THE PERIMETER LANDSCAPING ESTIMATE. AND SURETY AND INSPECTION FEES SHALL BE POSTED WITH THE DPW DEVELOPER'S AGREEMENT AT THE FINAL PLAN STAGE FOR THIS DEVELOPMENT. THE SYMBOL REPRESENTS PLANT MATERIAL TO MEET THIS REQUIREMENT.

SOILS TABLE

MAP SYMBOL	MAP UNIT NAME	RATING
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	B
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 10/12/2021
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 10/12/21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 10-18-21



PART OF FOREST CONSERVATION EASEMENT #1

PART OF FOREST CONSERVATION EASEMENT #4

FOREST CONSERVATION EASEMENT #3

FOREST CONSERVATION EASEMENT #6

FOREST CONSERVATION EASEMENT #5

NON-BUILDABLE PRESERVATION PARCEL C
 OWNER: HOMEOWNER'S ASSOCIATION
 EASEMENT HOLDER: HOWARD COUNTY GOVERNMENT
 26,138 S.F.

BUILDABLE PRESERVATION PARCEL 9B
 OWNER: PRIVATE HOME OWNER
 EASEMENT HOLDER: HOWARD COUNTY GOVERNMENT & HOME OWNER'S ASSOCIATION
 1,242,403 S.F.

NON-BUILDABLE PRESERVATION PARCEL A
 OWNER: HOME OWNER'S ASSOCIATION
 EASEMENT HOLDER: HOWARD COUNTY GOVERNMENT
 119,204 S.F.
 2.72 AC.

EXISTING FOREST AREA = 4.2 AC
 NONCREDIT FOREST/FLOODPLAIN = 1.8 AC
 CREDITED FOREST = 2.4 AC
 REFORESTATION = 1.4 AC
 EASEMENT AREA = 5.6 AC
 CREDITED EASEMENT AREA = 3.8 AC

EXISTING FOREST AREA = 0.0 AC
 NONCREDIT FOREST/FLOODPLAIN = 0.0 AC
 CREDITED FOREST = 0.0 AC
 REFORESTATION = 0.8 AC
 EASEMENT AREA = 0.8 AC
 CREDITED EASEMENT AREA = 0.8 AC

EXISTING FOREST AREA = 0.8 AC
 NONCREDIT FOREST/FLOODPLAIN = 0.5 AC
 CREDITED FOREST = 0.3 AC
 REFORESTATION = 0.3 AC
 EASEMENT AREA = 1.1 AC
 CREDITED EASEMENT AREA = 0.6 AC

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A PROFESSIONAL ENGINEERING DOCUMENT UNLESS PROPERLY REVIEWED.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD1420671
DRAWN BY:	AVG
CHECKED BY:	BRB
DATE:	09/24/2021
CAD I.D.:	FCE-5

PROJECT: FINAL ROAD PLAN

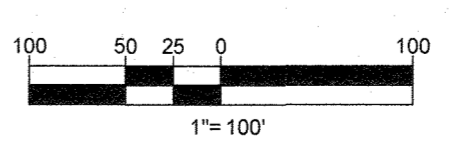
FOR LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

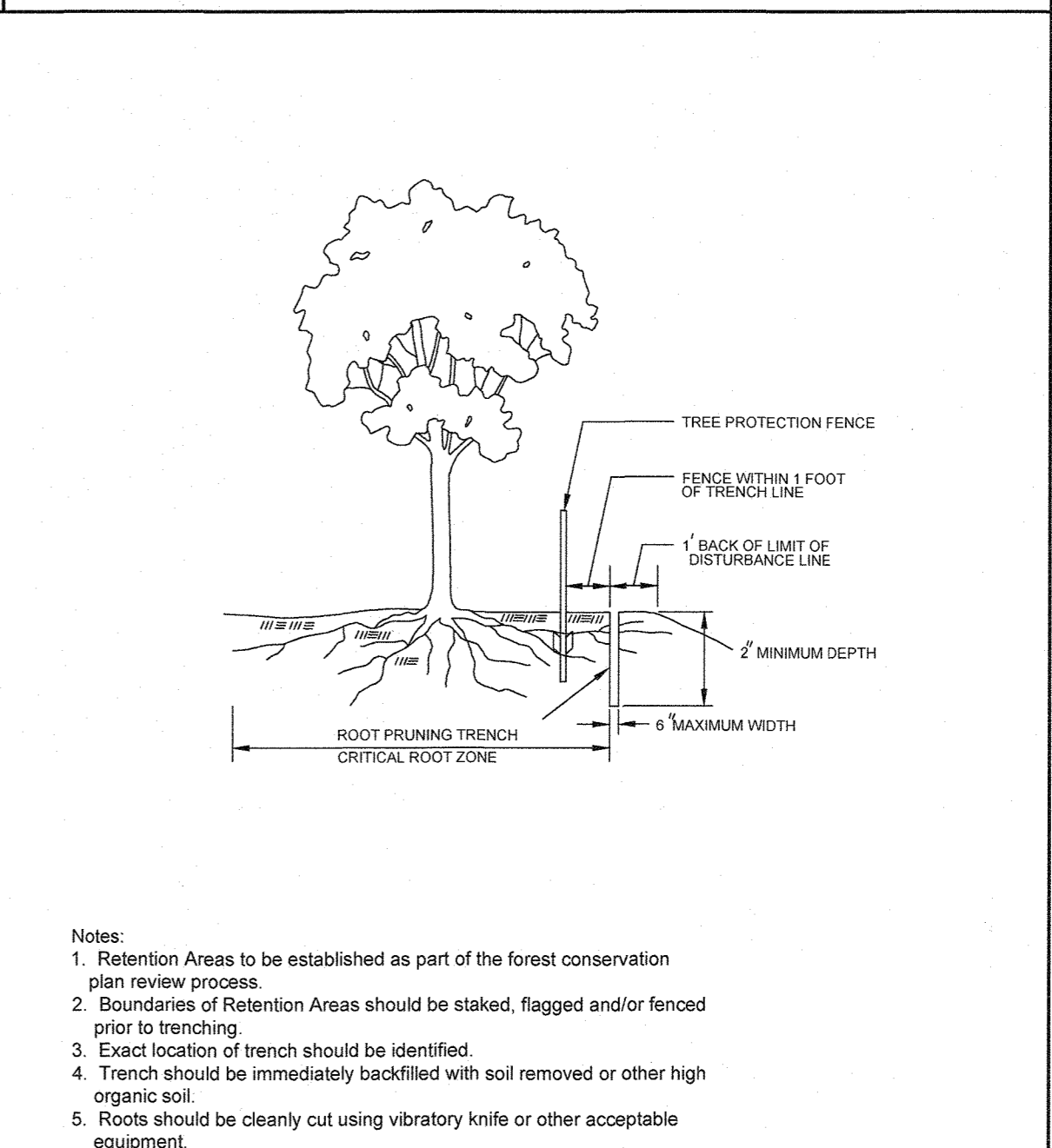
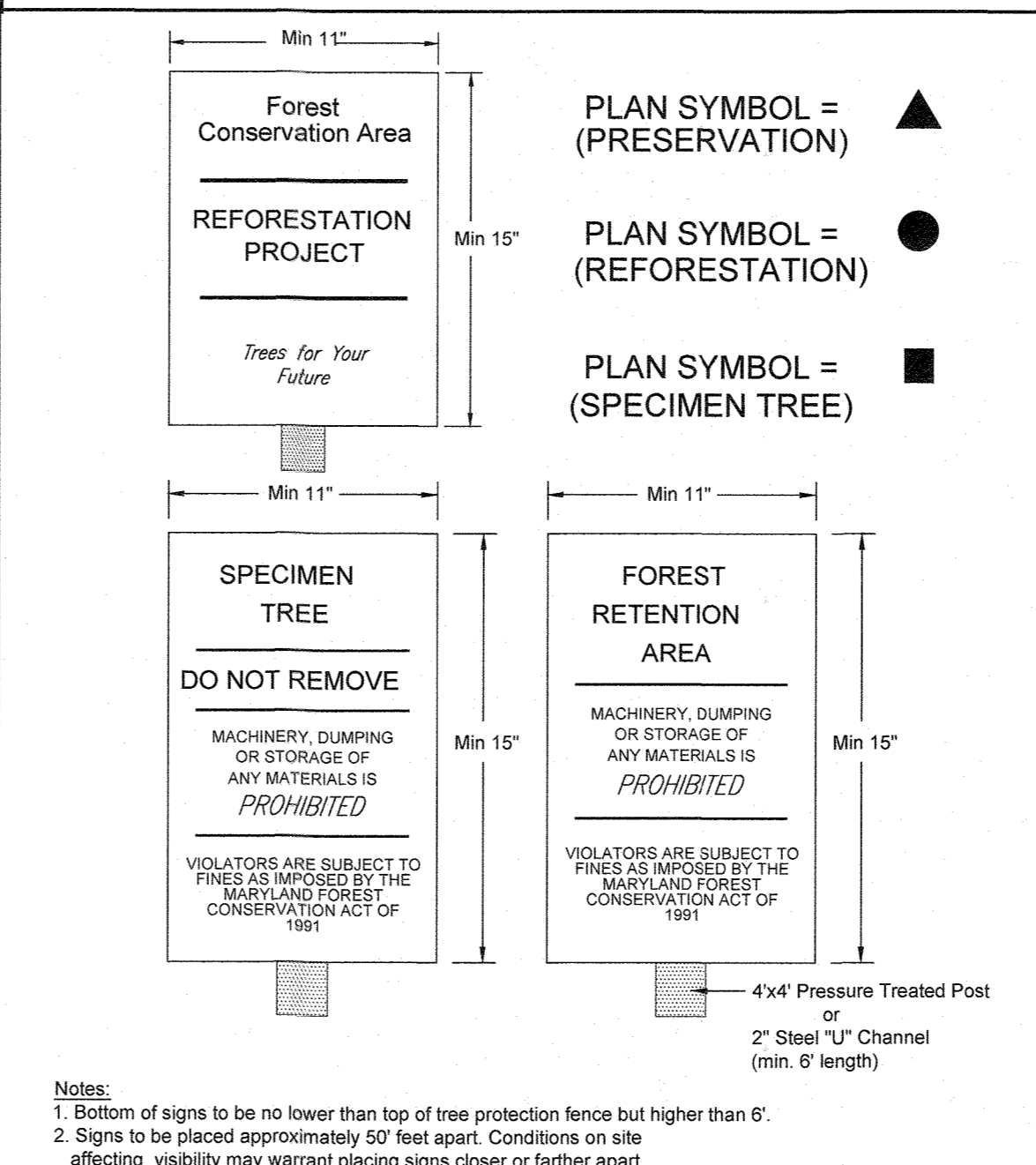
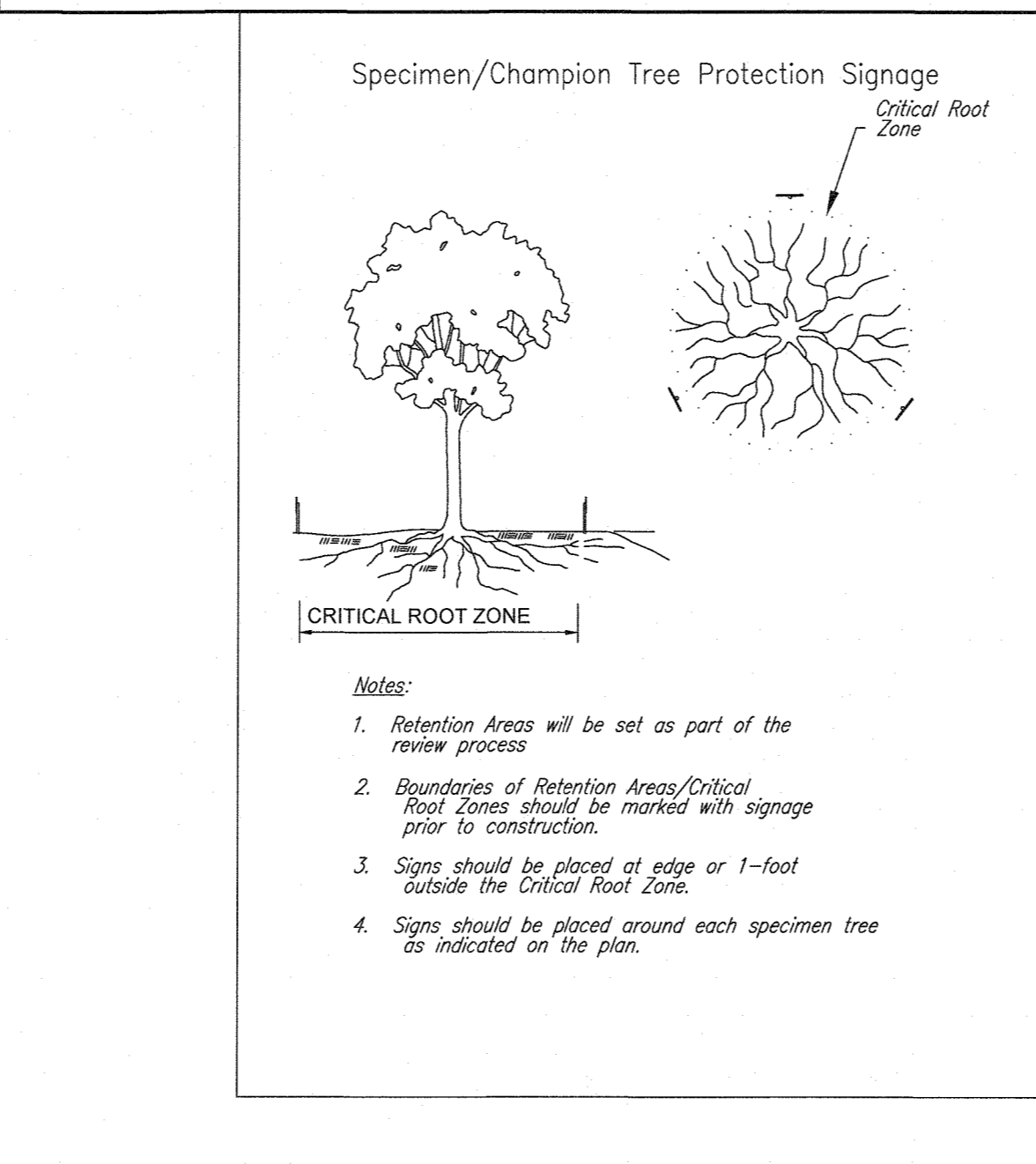
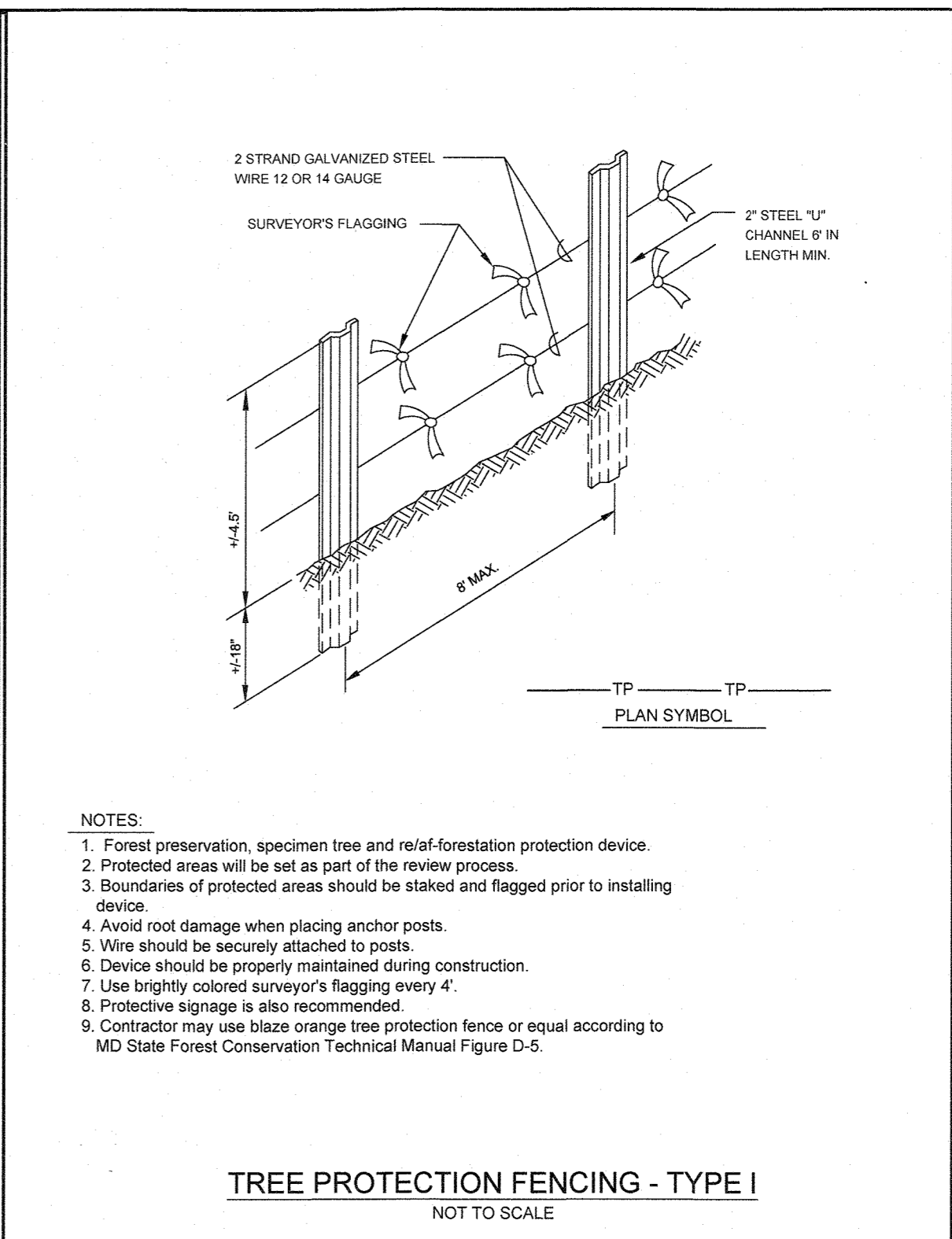
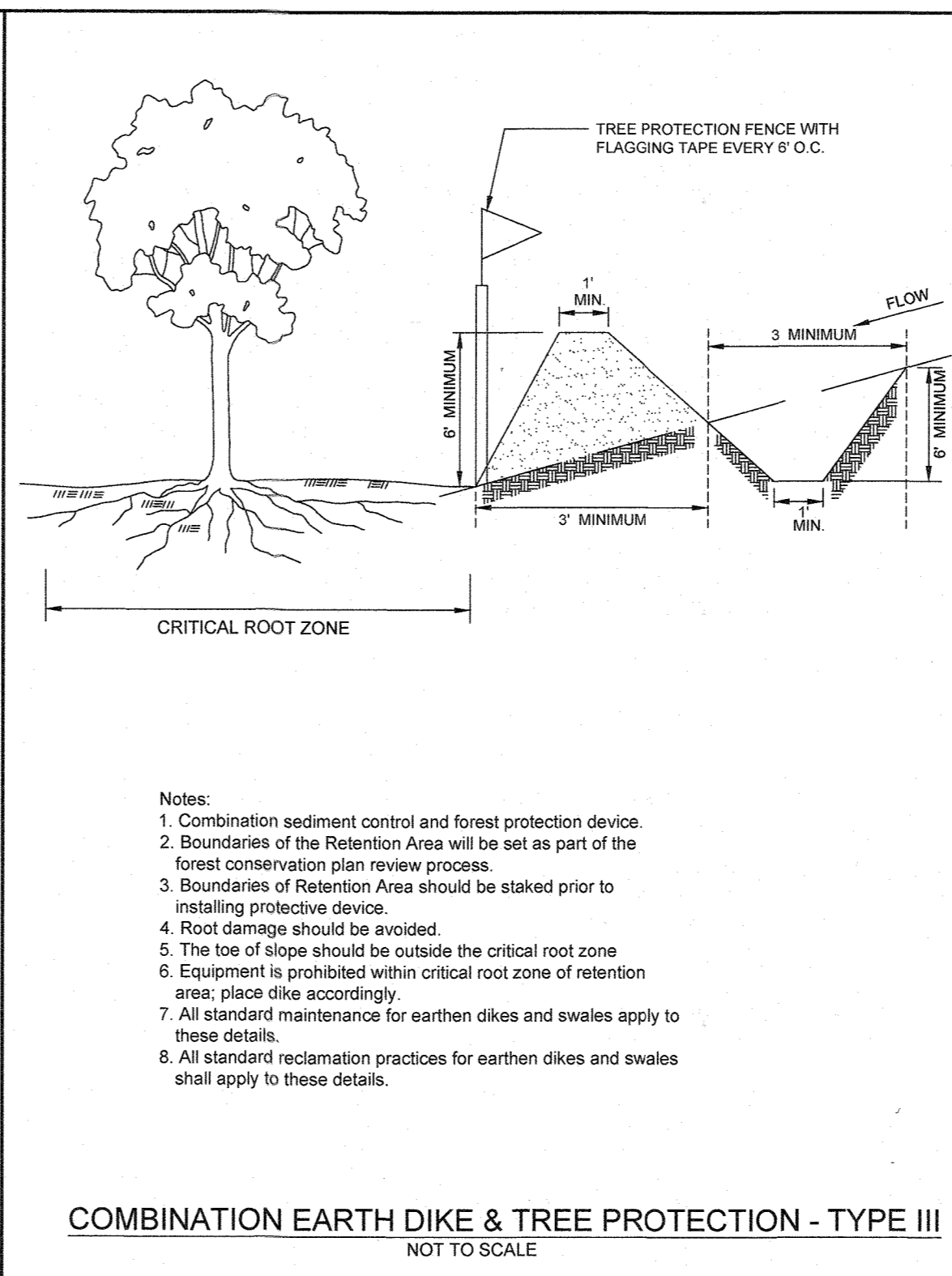
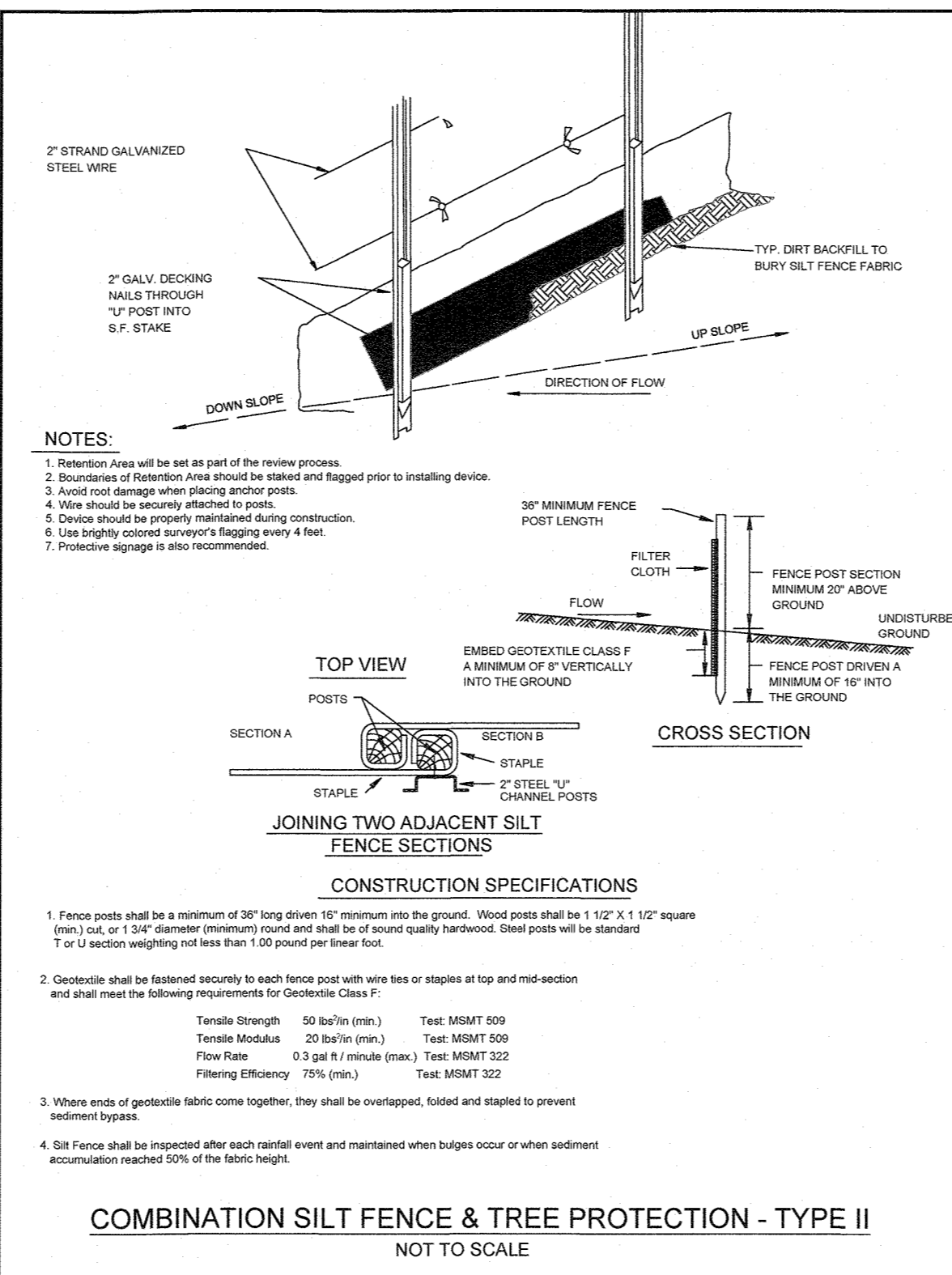
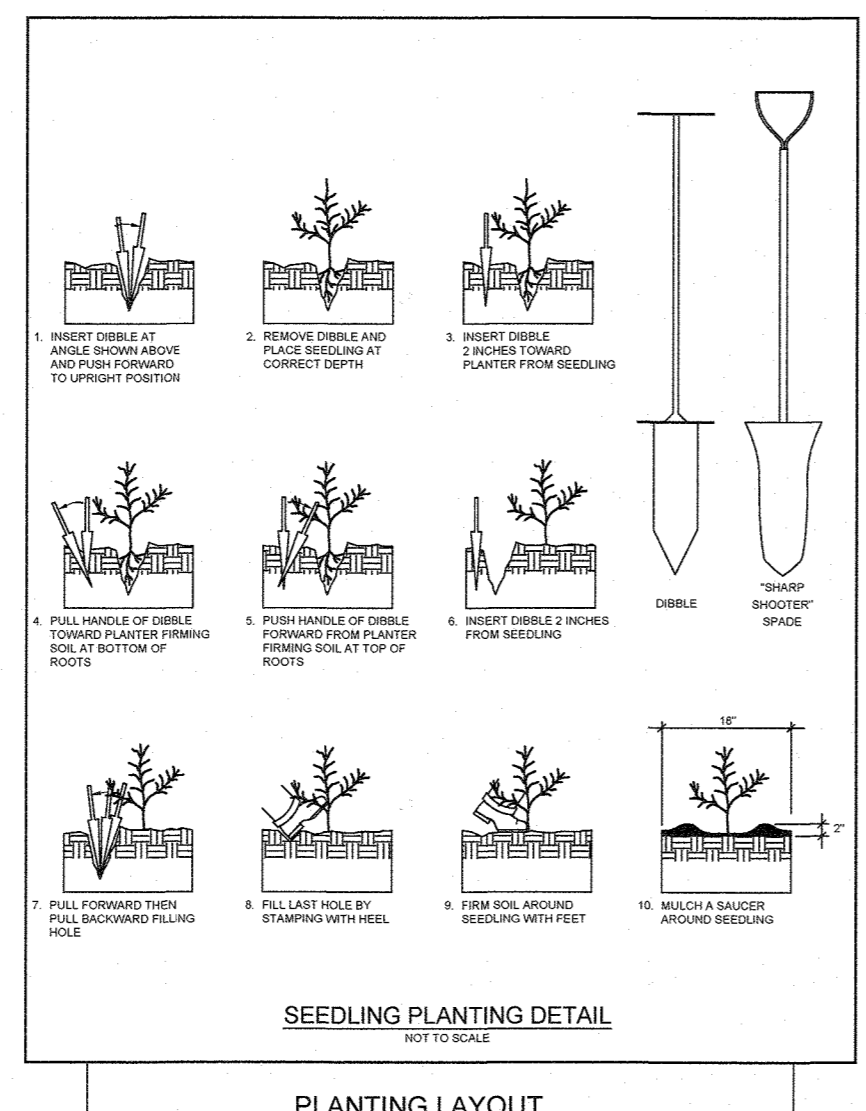
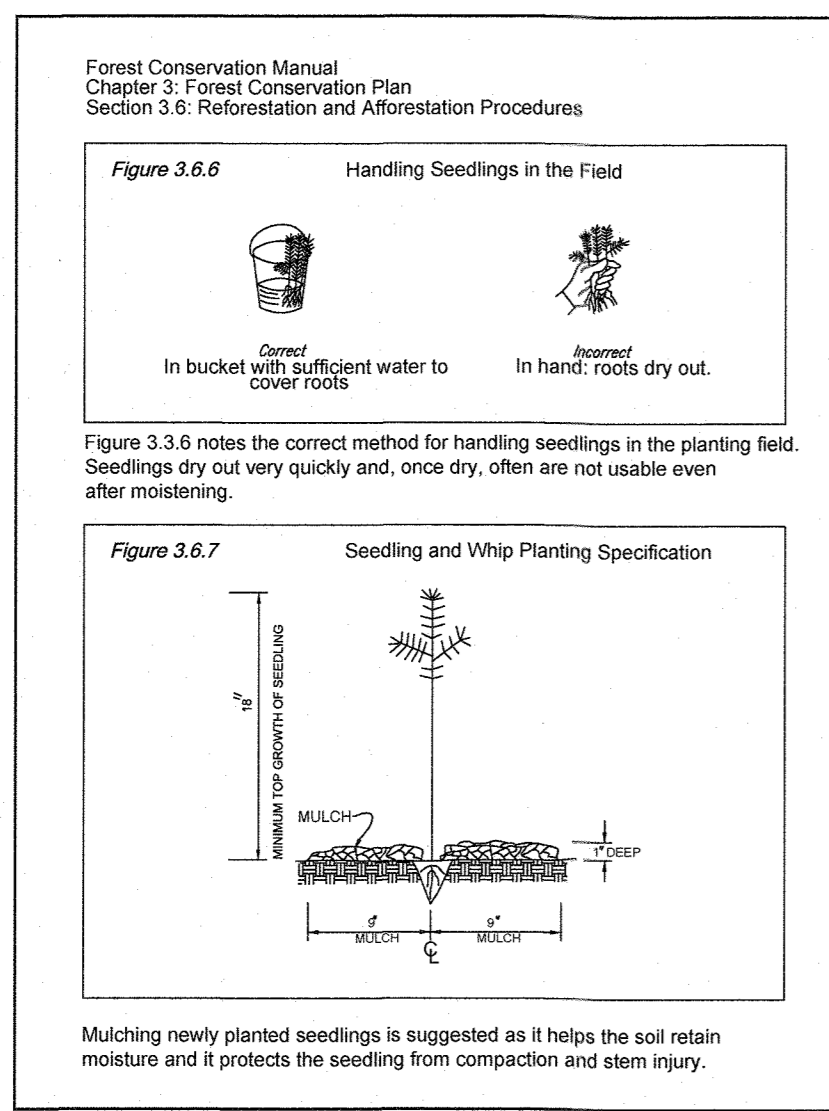
BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7500
 Fax: (410) 821-7987
 MD@BohlerEng.com

E.R. McWILLIAMS
 04/24/2021
 REGISTERED LANDSCAPE ARCHITECT
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE DRAWN OR APPROVED BY ME, AND THAT I AM A LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3697, EXPIRATION DATE: 9/29/22

SHEET TITLE:
FOREST CONSERVATION PLAN
 SHEET NUMBER:
58 OF 80
 REVISION 5 - 09/24/2021

SUBDIVISION NAME: LYHUS PROPERTY SECTION/AREA: N/A DEED #: 14532/00469	OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1065	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070	PREVIOUS FILE No.: SP-17-010b ECP-17-056 WP-18-070





FOREST STAND ANALYSIS TABLE

Project Name: **Lyhus**

Key	Type of Community	Area *	Soil Information **				Existing Vegetation (Dominant Species and %)	Stand Characteristics			Forest Area in Sensitive Environments (acres)
			Soil Type	Typical Forest Cover by Soil Type	Woodland Suitability Index	Stability Value for Soil Type		Size	Age	General Condition	
F-1	Mixed oak poplar	29.4ac NTA	G b B	Mixed oak/poplar	75-95	Good	Liriodendron 25 Tupifera	16-22"	60-75	Fair/ Fairly good	0.9 ac ±
			G b C	Mixed oak/poplar	75-95	Good	Overcupulation 20 Overcupulation 20	16-22"			
			G p B	Mixed oak/poplar	70-87	Good	Accumburum 15	2-8"			
			G m B	Mixed oak/poplar	70-95	Good	Nyssa sylvatica 10 Fagus grandifolia 14	2-8" 1-10"			
			M a B	Mixed oak/poplar	65-90	Good	Berberis thunbergii 2-3" Celtis occidentalis 1-2"	1-2" 1-2"			
F-2	Tulip poplar	3.7ac NTA	M a B	Mixed oak/poplar	65-90	Good	Liriodendron 90 Tupifera	16-24"	60-75	Fair	0.4 ac ±
			M a C	Mixed oak/poplar	65-90	Good	Pinus virginiana 10 Fagus grandifolia 2	10-14" 2-8"			
F-3	Poplar maple	17.6ac (12.8ac) NTA	G a A	Mixed oak/poplar	60-85	Good	Liriodendron 50 Tupifera	16-24"	60-70	Fairly good	12.6 ac ±
			G m B	Mixed oak/poplar	70-95	Good	Accumburum 15	10-18"			
			G n B	Mixed oak/poplar	60-90	Good	Nyssa sylvatica 10 Fagus grandifolia 14	6-14" 4-8"			
			M a C	Mixed oak/poplar	65-90	Good	Berberis thunbergii 1-2" Celtis occidentalis 1-2"	1-2" 1-2"			

* Area rounded to nearest 1/10 acre
** Source: Howard County Soil Survey, USDA

+ Tree sizes denote DBH, shrubs denote height
C - Canopy
US - Understory
S - Shrub

APPROVED: DEPARTMENT OF PUBLIC WORKS
James
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/14/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10-18-21

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC
 206 H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. 206 H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

SUBDIVISION NAME: LYHUS PROPERTY
 SECTION/AREA: N/A
 DEED #: 14532/00469

PREVIOUS FILE NO.: SP-17-010b
 ECP-17-056
 WP-18-070

TAX MAP: 40
 GRID: 24
 ZONED: RR-DEO

PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

THE INFORMATION CONTAINED ON THIS DRAWING IS THE PROPERTY OF BOHLER ENGINEERING. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED ON THIS DRAWING. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF BOHLER ENGINEERING IS PROHIBITED.

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
 DRAWN BY: AVS
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: FCE-5

PROJECT:
FINAL ROAD PLAN

FOR
LYHUS
 PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION
 PARCEL B, NON-BUILDABLE
 PRESERVATION PARCELS A, C, D, E
 & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7904
 Fax: (410) 821-7987
 MD@BohlerEng.com

E.R. McWILLIAMS

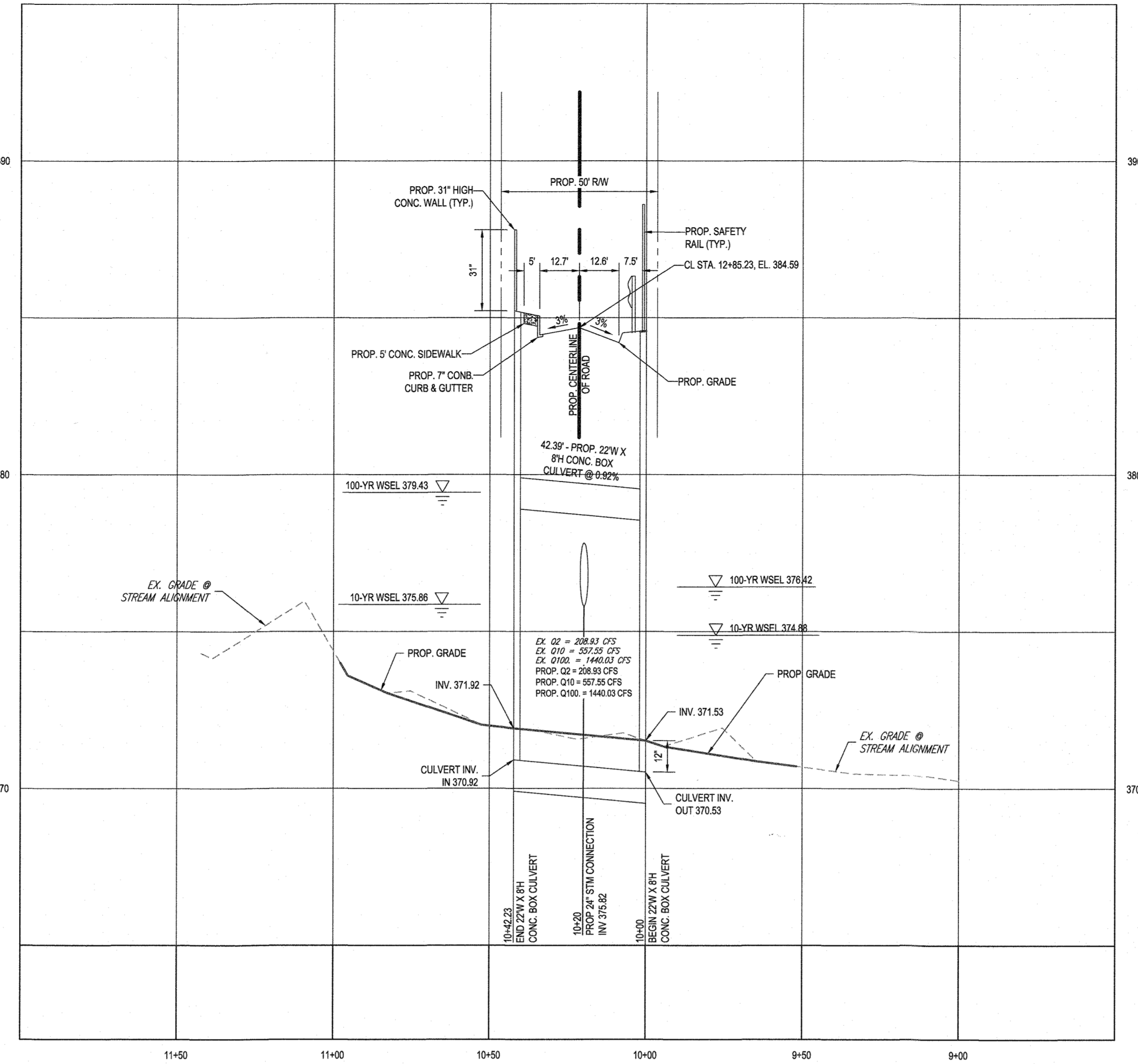
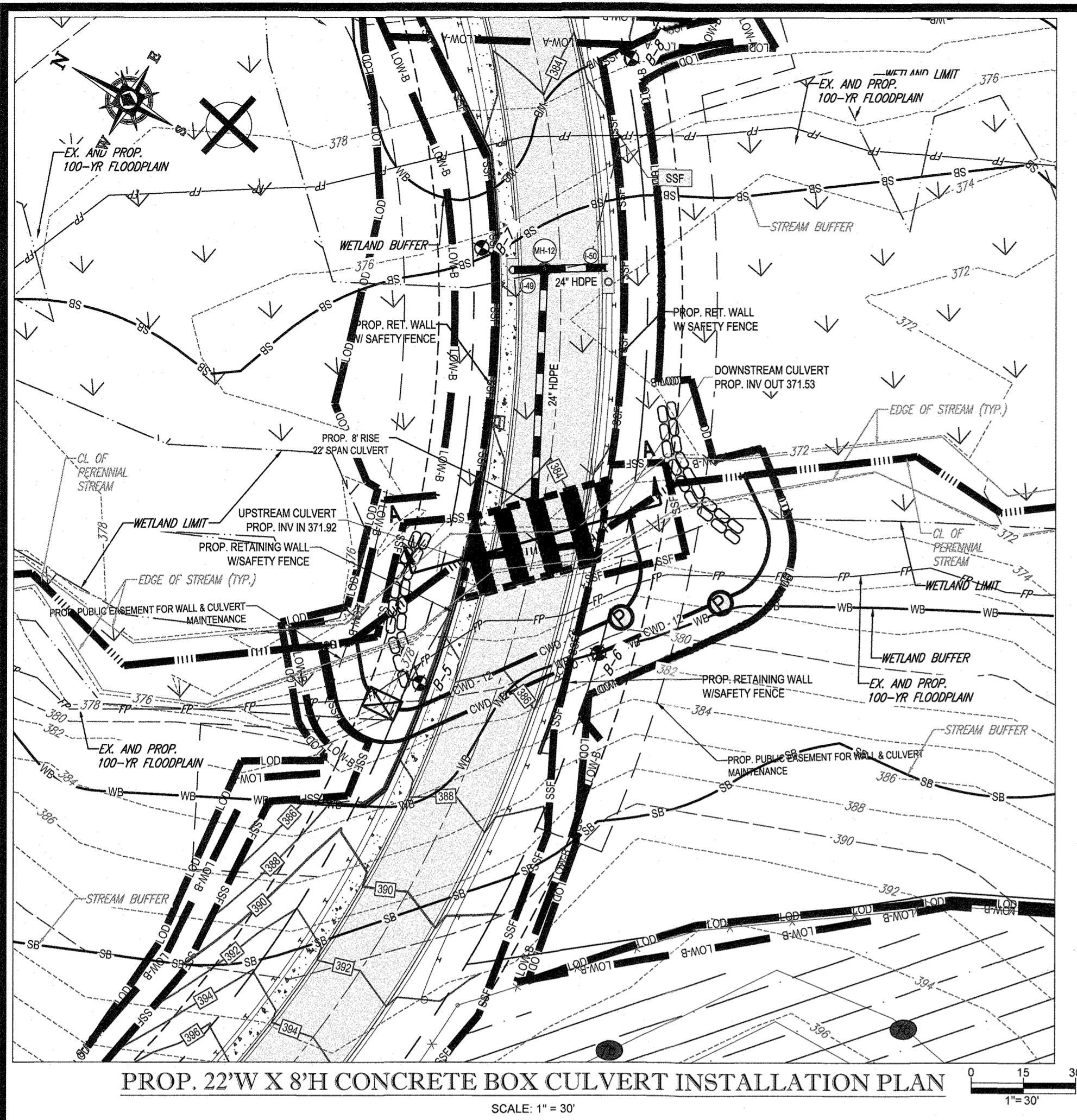
07/07/2021

REGISTERED LANDSCAPE ARCHITECT
 PROFESSIONAL CERTIFICATION
 I, E.R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3807, EXPIRATION DATE: 02/22

SHEET TITLE:
FOREST CONSERVATION NOTES & DETAILS

SHEET NUMBER:
60 OF 80

REVISION 5 - 07/07/2021



LEGEND FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL	TITLE	KEY	SYMBOL
LIMITS OF DISTURBANCE	(OX)	---	SUPER SILT FENCE	(SF)	---
CURB INLET PROTECTION	(CP)	□	SAND BAG/STONE BARRIERS	(SB)	▒▒▒▒▒▒

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL PERGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNOLA SP.) AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION, KENTUCKY 31 FERCULE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.
- USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.
- CULVERTS SHALL BE INSPECTED BY MDE AND ACOE, AS REQUIRED.

BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

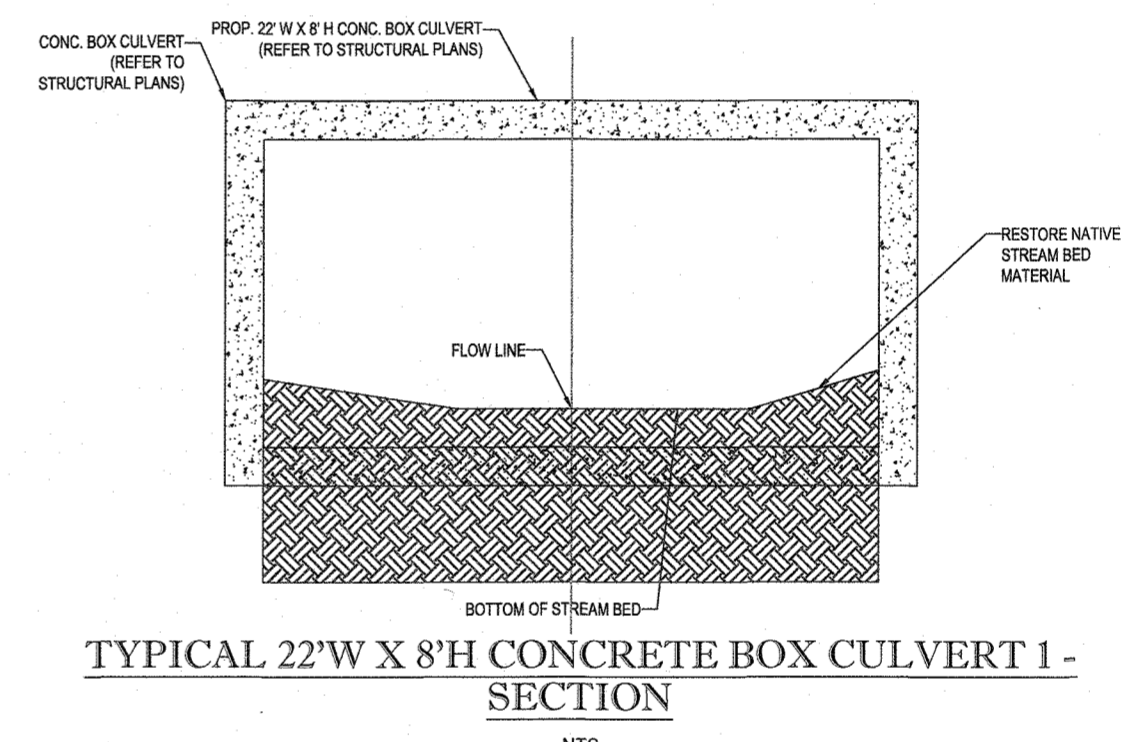
REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

SEQUENCE OF CONSTRUCTION CULVERT:

NO.	DESCRIPTION	TIME
1.	NOTIFY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.	1 DAY
2.	THE GENERAL CONTRACTOR SHALL NOT COMMENCE ANY LAND DISTURBING ACTIVITIES PRIOR TO OBTAINING A GRADING PERMIT.	1 DAY
3.	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. (1 DAY)	1 DAY
4.	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 WITHIN: a. THREE (3) CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS. b. SEVEN (7) CALENDAR DAYS ON ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT.	2 DAYS
5.	INSTALL PERIMETER SUPER SILT FENCE AS SHOWN ON THE SEDIMENT CONTROL PLANS.	3 DAYS
6.	INSTALL TYPE 3 OBJECT MARKERS ON ALL (4) FOUR CORNERS OF THE CULVERT CROSSING.	1 DAY
7.	INSTALL PUMP AROUND PRACTICE AS SHOWN ON THE SEDIMENT CONTROL PLANS (REFER TO SHEETS 14-28).	2 DAYS
8.	BEGIN STREAM RESTORATION. CONTRACTOR TO ROUGH GRADE STREAM CHANNEL.	1 WEEK
9.	BEGIN INSTALLATION RETAINING WALLS AND CONCRETE BOX CULVERT (REFER TO STRUCTURAL DESIGN PLANS).	1 WEEK
10.	FINALIZE STREAM RESTORATION. UTILIZE JUTE MATTING FOR SOIL STABILIZATION. SEE STREAM RESTORATION AREA PLANTING SCHEDULE AND PLANT DETAIL FOR PROPOSED CHANNEL.	1 WEEK
11.	INSTALL PROPOSED ROAD BASE COURSE AS SHOWN ON THE ROAD PLANS.	4 WEEKS
12.	AS THE SITE IS BROUGHT TO FINAL GRADE, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN SEVEN (7) CALENDAR DAYS.	6 WEEKS
13.	INSTALL PERMANENT LANDSCAPING AROUND THE STREAM AND CULVERT AREAS.	1 WEEK
14.	AFTER ALL CONSTRUCTIONS HAS BEEN COMPLETED AND UPON APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT CONTROL MEASURES.	1 WEEK
15.	NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.	3 DAYS

PROP. 22' W X 8' H CONCRETE BOX CULVERT PROFILE - SECTION A-A
 SCALE: 1" = 30' HORIZONTAL
 1" = 3' VERTICAL



SUMMARY TABLE FOR PROPOSED CONDITION CULVERT 1 (NICOLAR DRIVE)

	2YEARS			10-YEARS			100-YEAR		
	Q2	Q10	Q100	Q2	Q10	Q100	Q2	Q10	Q100
U/STREAM W.S.E	373.68	375.08	378.12	373.68	375.08	378.12	373.68	375.08	378.12
D/OWN STREAM W.S.E	373.91	374.88	376.42	373.91	374.88	376.42	373.91	374.88	376.42
U/STREAM VELOCITY	9.29 FPS	10.75 FPS	7.05 FPS	9.29 FPS	10.75 FPS	7.05 FPS	9.29 FPS	10.75 FPS	7.05 FPS
D/OWNSTREAM VELOCITY	3.97 FPS	6.99 FPS	10.62 FPS	3.97 FPS	6.99 FPS	10.62 FPS	3.97 FPS	6.99 FPS	10.62 FPS
F/ROUD #	0.54	1.43	1.03	0.54	1.43	1.03	0.54	1.43	1.03
S/HEAR STRESS	0.26	1.85 lb/ft ²	1.25 lb/ft ²	0.26	1.85 lb/ft ²	1.25 lb/ft ²	0.26	1.85 lb/ft ²	1.25 lb/ft ²

EXISTING HYDROLOGICAL AND HYDRAULIC ANALYSIS

DRAINAGE AREA	TC	RC	Q2	Q10	Q100
AC.	17.02 MIN	68	208.93 CFS	557.55 CFS	1440.03 CFS

PROPOSED HYDROLOGICAL AND HYDRAULIC ANALYSIS

DRAINAGE AREA	TC	RCN	Q2	Q10	Q100
AC.	17.02 MIN	68	208.93 CFS	557.55 CFS	1440.03 CFS

APPROVED DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 10/12/2021

APPROVED DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/01/21

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 COUNTY CONSERVATION DISTRICT.

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 COUNTY CONSERVATION DISTRICT.

PROPOSED FLOODPLAIN NOTE

- THE PROPOSED FLOODPLAIN SHOWN DOES NOT IMPACT ANY ADJACENT PROPERTY OR STRUCTURES BOTH UPSTREAM AND DOWN STREAM.
- THE PROPOSED 22' W X 8' H CONCRETE BOX CULVERT IS DESIGNED TO SAFELY CONVEY THE 100-YR. STORM WITHOUT IMPACTING ANY ADJACENT PROPERTY STRUCTURES BOTH UPSTREAM AND DOWN STREAM.

NOTES:

- WORK PERFORMED INSIDE STREAM BUFFER, WETLAND, AND STREAM TO BE STABILIZED AT THE END OF EACH DAY.
- PLANS REFLECT DESIGN PER STRUCTURAL DESIGN PLANS PREPARED BY HILLS-CARNES ENGINEERING ASSOCIATES, ENTITLED "CONCRETE STRUCTURE LOCATION PLANS, LYHUS PROPERTY, HOWARD COUNTY, MARYLAND" DATED 7/6/2020. PROJECT NO. G20054.
- MDE HAS ISSUED AUTHORIZATION LETTER DATED 11/7/2020 FOR IMPACTS RELATED TO ROAD CONSTRUCTION. TEMPORARY CONSTRUCTION ACCESS FOR RETAINING WALL AND REMOVAL OF A STORMWATER MANAGEMENT OUTFALL. ALL ASSOCIATED WITH A RESIDENTIAL SUBDIVISION. AUTHORIZATION NUMBER: 19-NT-3270/201961758.
- SAFETY FENCE TO BE ON GUARD STARLING ALUMINUM FENCE PANELS (BLACK, 36" HIGH X 72.5" WIDE PANELS) OR APPROVED EQUIVALENT.

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
 DRAWN BY: AVG
 CHECKED BY: BRR
 DATE: 07/07/2021
 CAD I.D.: CIP-5

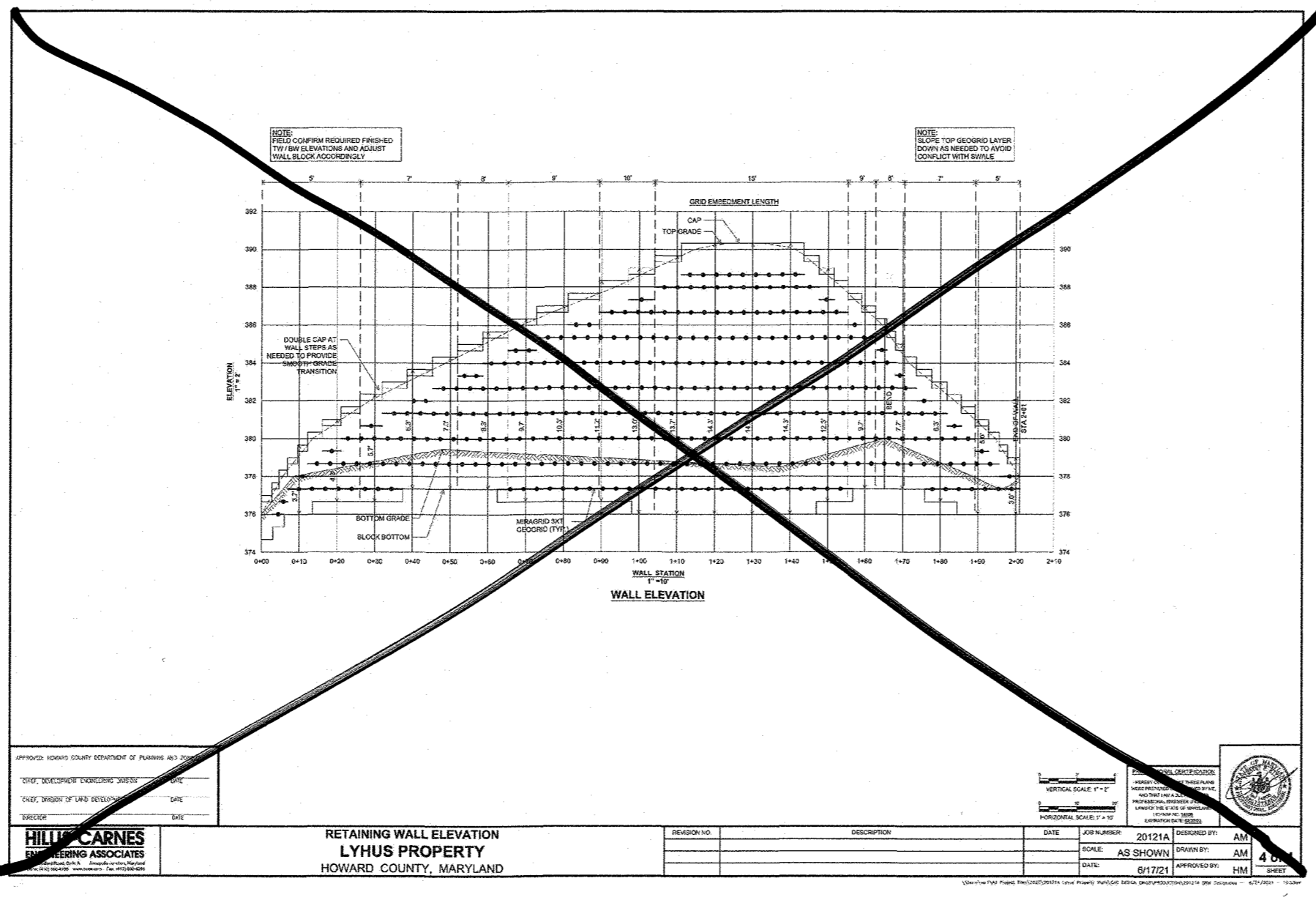
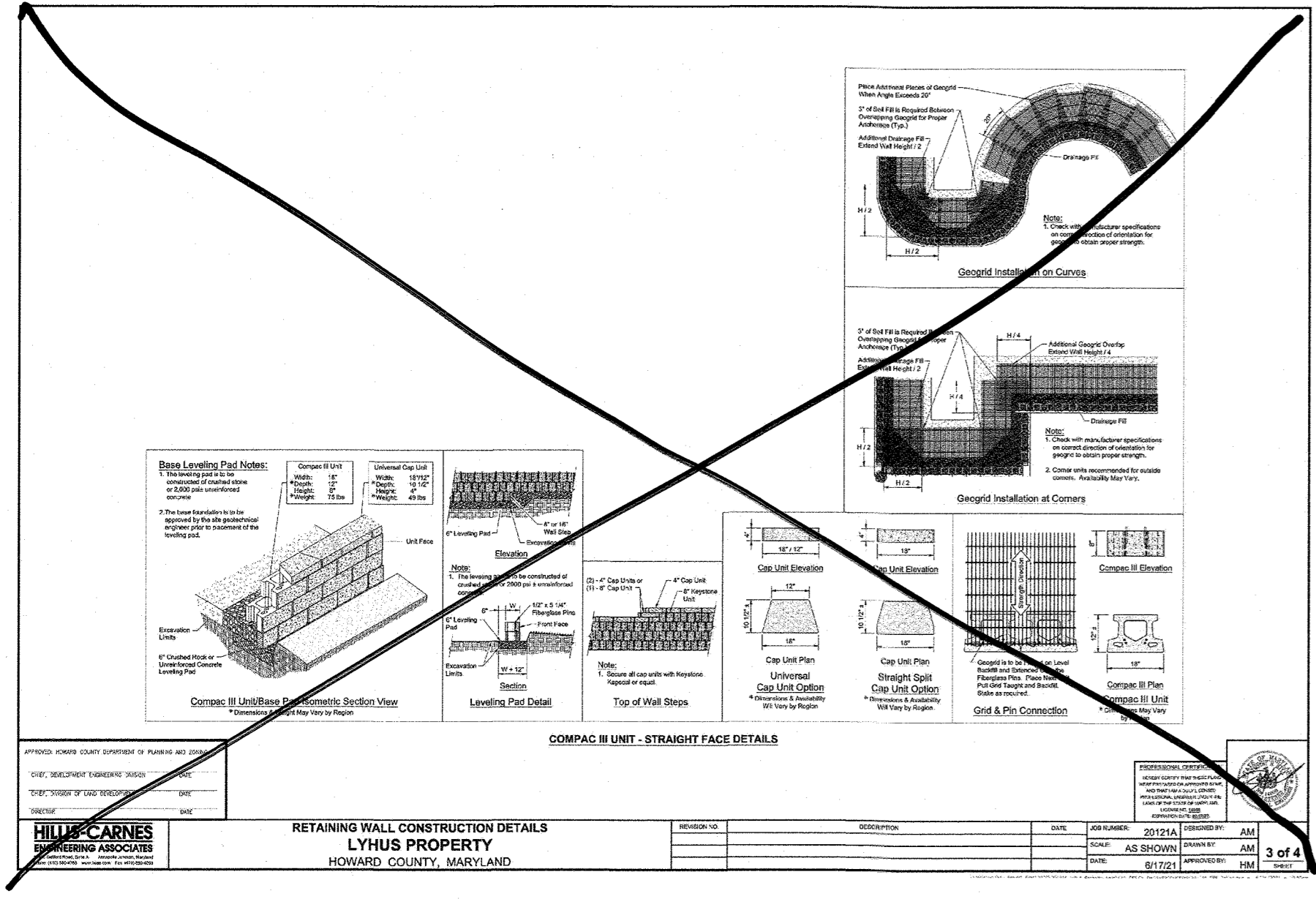
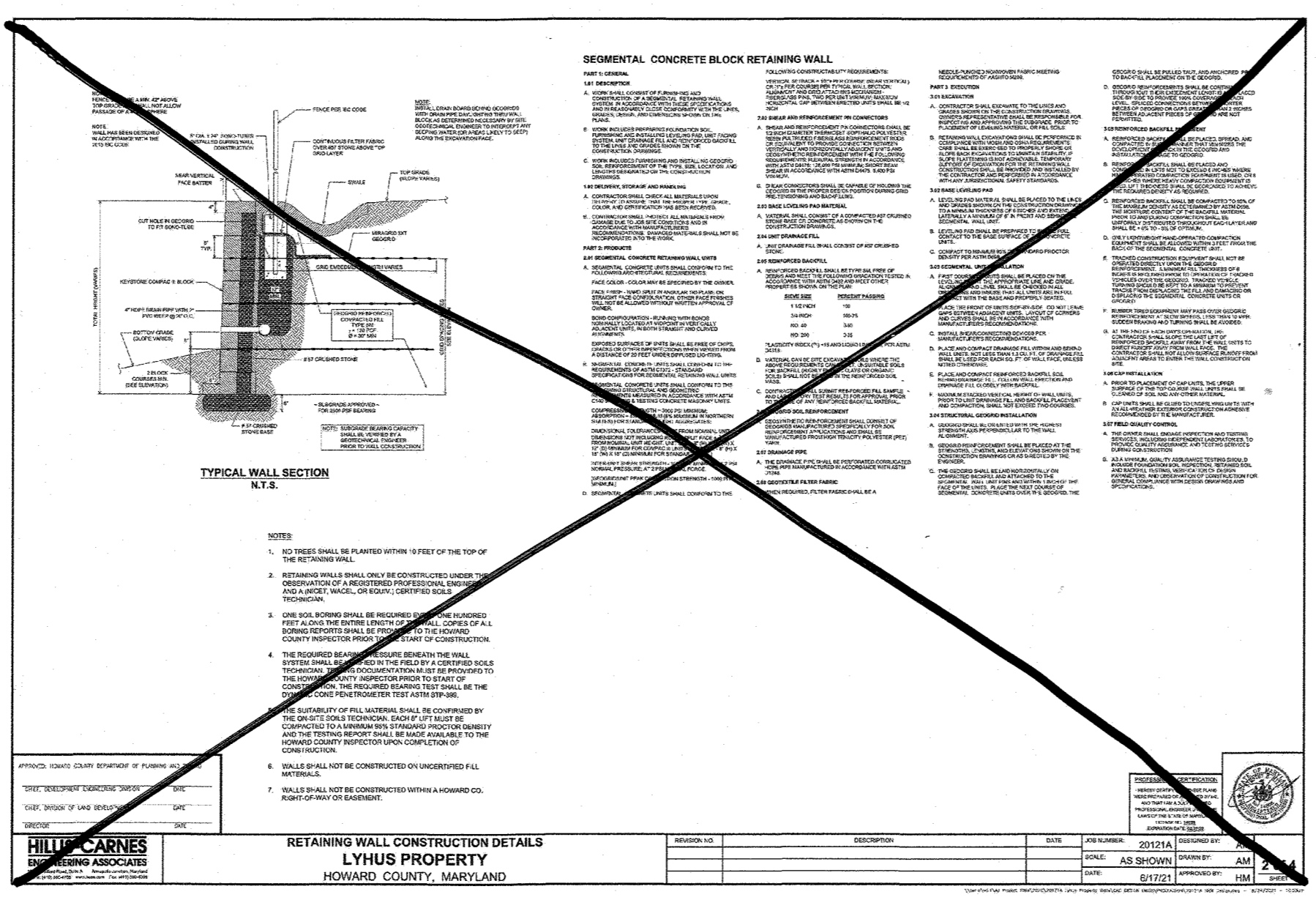
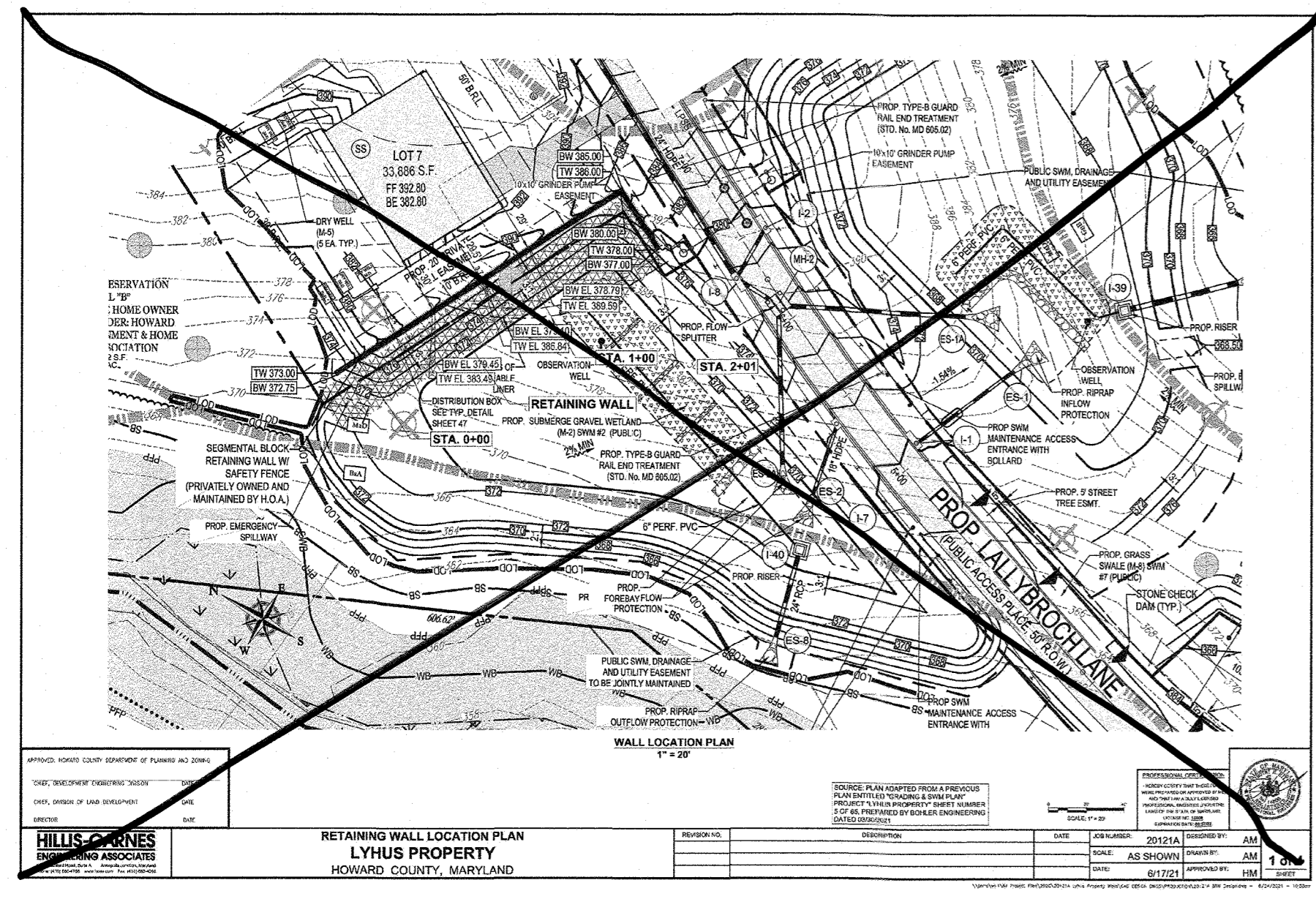
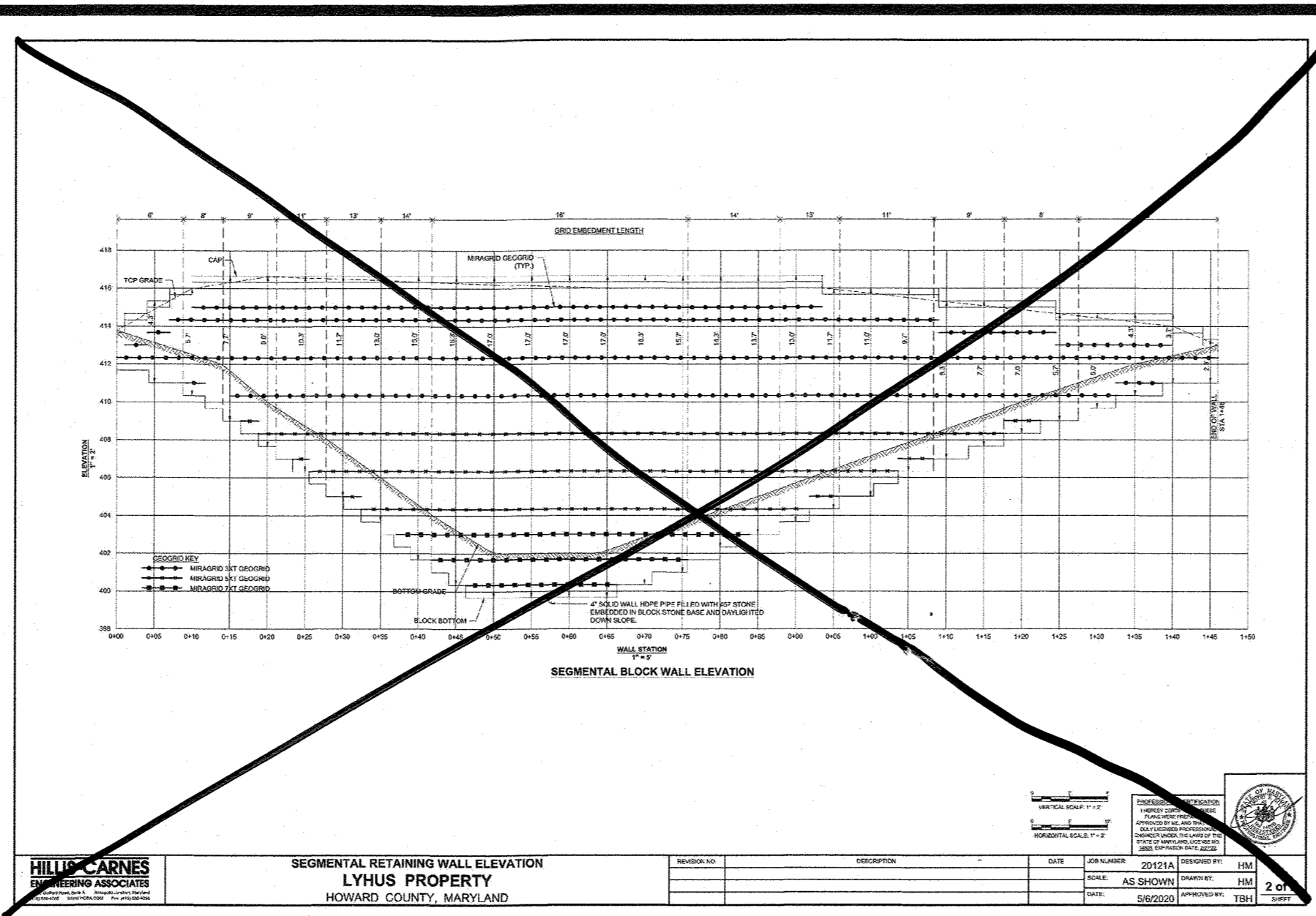
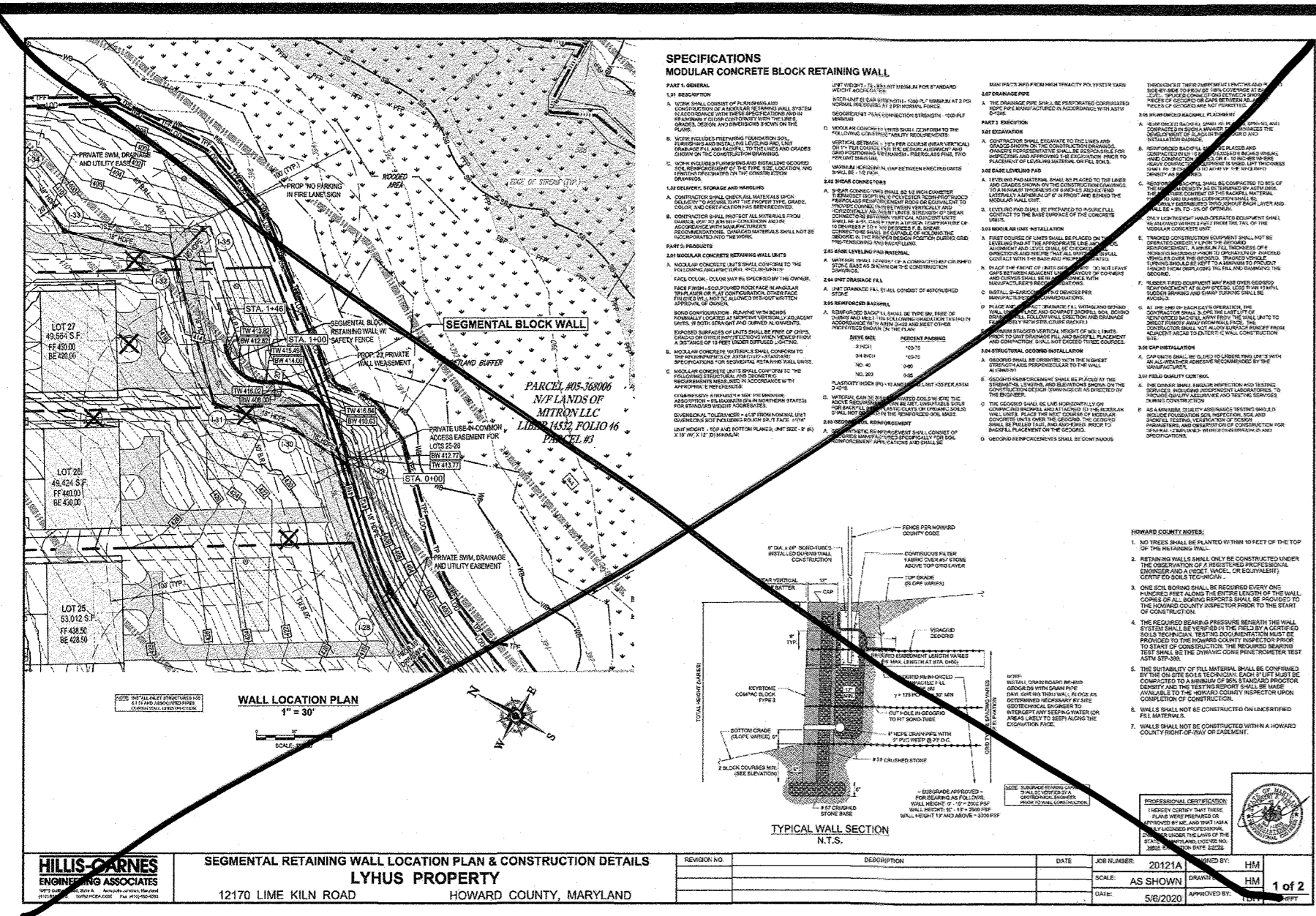
FINAL ROAD PLAN

FOR LYHUS PROPERTY
 LOTS 1-28, BUILDABLE PRESERVATION PARCEL B, NON-BUILDABLE PRESERVATION PARCELS A, C, D, E & BULK PARCEL F
 LOCATION OF SITE
 12170 LIME KILN ROAD
 FULTON, MARYLAND
 HOWARD COUNTY

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

BR ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 20868-ES00000408 DATE: 7/22/23

SHEET TITLE:
CULVERT INSTALLATION PLAN, NOTES AND PROFILE
 SHEET NUMBER:
61 OF 80
 REVISION 5 - 07/07/2021



HILLIS-CARNES ENGINEERING ASSOCIATES		SEGMENTAL CONCRETE BLOCK RETAINING WALL	
1985 Dulles Road, Suite A Arlington, Virginia, VA 22201 Phone: (703) 584-7700 Fax: (703) 584-8606 www.hilliscarnes.com		PROJECT: 2021A - Lyhus Property, Howard County, MD Sheet No: V4.210201 Date: MAY 6, 2021	
LYHUS PROPERTY HOWARD COUNTY, MARYLAND HCSA JOB NO. 2021A			
Drawing No: 2021A - V4.210201 Scale: AS SHOWN Author: J.B. FRASER Checked: J.B. FRASER Date: 05/06/21 Title: SEGMENTAL CONCRETE BLOCK RETAINING WALL			
Author: J.B. Fraser, EIT Structural Engineer			
Checked: J.B. Fraser, P.E., C.O. Chief Consulting Engineer			
Project Manager: Anthony Jordan, AIA 14490 Washington DC Center - Potomac - Virginia - 20854			
HILLIS-CARNES ENGINEERING ASSOCIATES		SEGMENTAL RETAINING WALL	
1985 Dulles Road, Suite A Arlington, Virginia, VA 22201 Phone: (703) 584-7700 Fax: (703) 584-8606 www.hilliscarnes.com		PROJECT: 2021A - Lyhus Property, Howard County, MD Sheet No: V4.210201 Date: JUNE 24, 2021	
LYHUS PROPERTY HOWARD COUNTY, MD HCSA JOB NO. 2021A			
Drawing No: 2021A - V4.210201 Scale: AS SHOWN Author: J.B. FRASER Checked: J.B. FRASER Date: 06/24/21 Title: SEGMENTAL RETAINING WALL			
Author: J.B. Fraser, E.I.T. Structural Engineer			
Checked: Timothy B. Hill, P.E., C.O. Chief Consulting Engineer			
Project Manager: Anthony Jordan, AIA 14490 Washington DC Center - Potomac - Virginia - 20854			
HILLIS-CARNES ENGINEERING ASSOCIATES		SEGMENTAL CONCRETE BLOCK RETAINING WALL	
1985 Dulles Road, Suite A Arlington, Virginia, VA 22201 Phone: (703) 584-7700 Fax: (703) 584-8606 www.hilliscarnes.com		PROJECT: 2021A - Lyhus Property, Howard County, MD Sheet No: V4.210201 Date: MAY 6, 2021	
LYHUS PROPERTY HOWARD COUNTY, MARYLAND HCSA JOB NO. 2021A			
Drawing No: 2021A - V4.210201 Scale: AS SHOWN Author: J.B. FRASER Checked: J.B. FRASER Date: 05/06/21 Title: SEGMENTAL CONCRETE BLOCK RETAINING WALL			
Author: J.B. Fraser, EIT Structural Engineer			
Checked: Timothy B. Hill, P.E., C.O. Chief Consulting Engineer			
Project Manager: Anthony Jordan, AIA 14490 Washington DC Center - Potomac - Virginia - 20854			
HILLIS-CARNES ENGINEERING ASSOCIATES		SEGMENTAL RETAINING WALL	
1985 Dulles Road, Suite A Arlington, Virginia, VA 22201 Phone: (703) 584-7700 Fax: (703) 584-8606 www.hilliscarnes.com		PROJECT: 2021A - Lyhus Property, Howard County, MD Sheet No: V4.210201 Date: JUNE 24, 2021	
LYHUS PROPERTY HOWARD COUNTY, MD HCSA JOB NO. 2021A			
Drawing No: 2021A - V4.210201 Scale: AS SHOWN Author: J.B. FRASER Checked: J.B. FRASER Date: 06/24/21 Title: SEGMENTAL RETAINING WALL			
Author: J.B. Fraser, E.I.T. Structural Engineer			
Checked: Timothy B. Hill, P.E., C.O. Chief Consulting Engineer			
Project Manager: Anthony Jordan, AIA 14490 Washington DC Center - Potomac - Virginia - 20854			

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

John P. Robertson 7/27/21
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 10/12/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10/12/2021

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10/12/21

ENGINEER'S CERTIFICATE

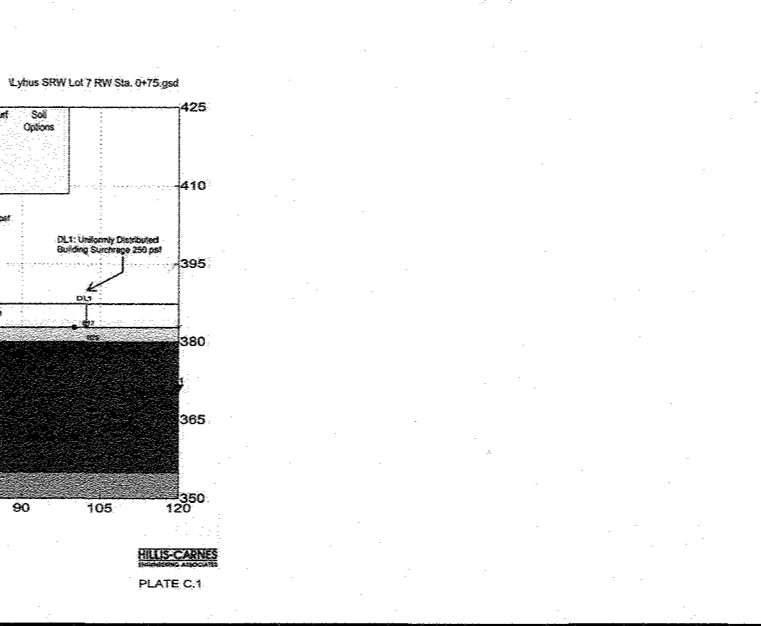
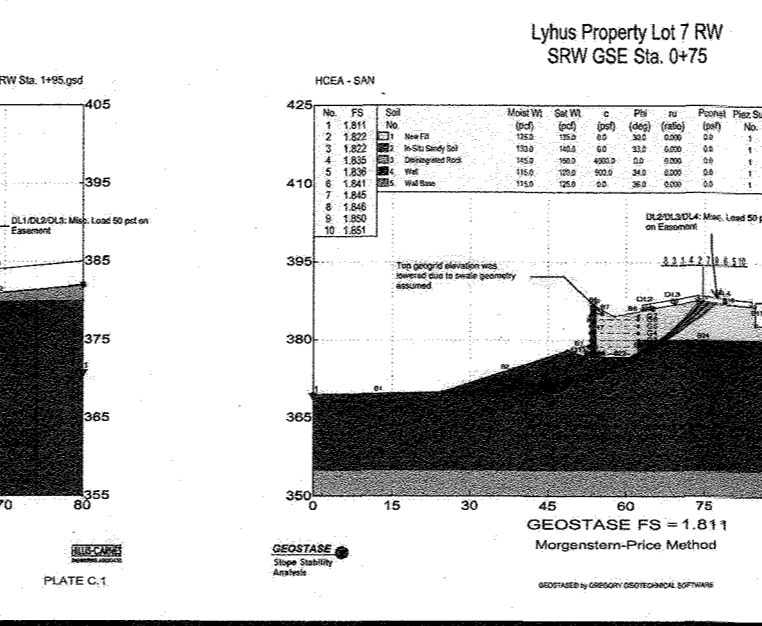
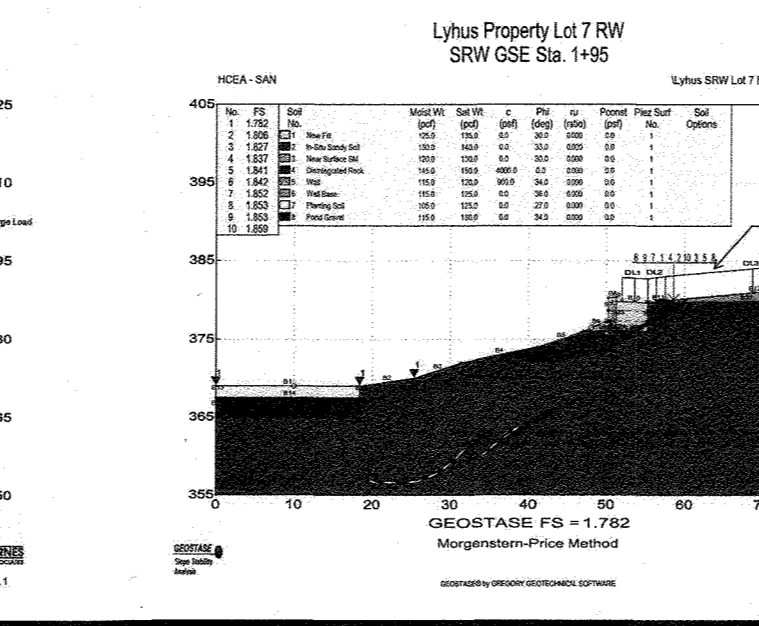
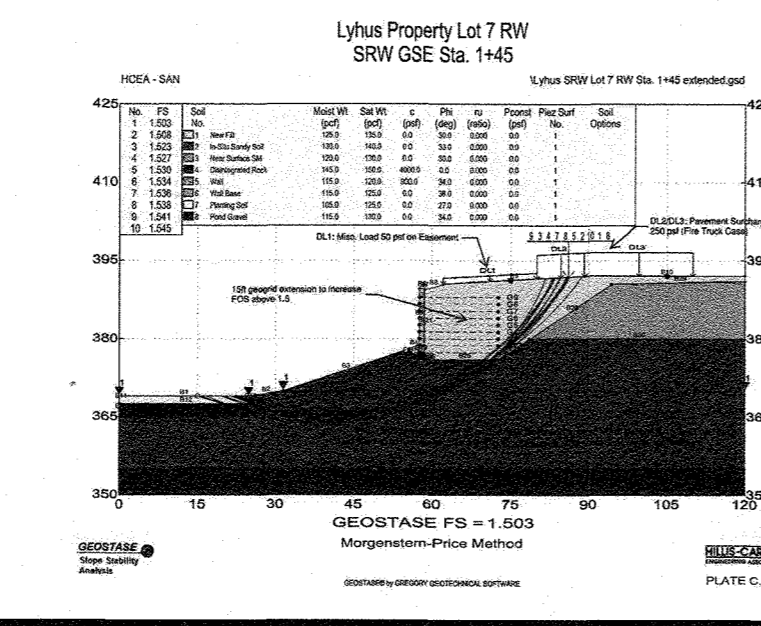
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Mark L. Levy 7/19/2021
SIGNATURE OF ENGINEER
BRANDON R. ROWE, P.E.
DATE

DEVELOPER'S CERTIFICATE

I HAVE 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.

Mark L. Levy 7/19/2021
SIGNATURE OF DEVELOPER
Mark L. Levy
DATE



SUBDIVISION NAME: LYHUS PROPERTY SECTION AREA, N/A DEED # 14532/00469

PREVIOUS FILE NO.: SP-17-01b ECP-17-058 WP-18-070

GRID: 24 PARCEL 135 ZONED: RR-DEO

TAX MAP: 40 PARCEL 135 ZONED: RR-DEO 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

NOTE:
INFORMATION SHOWN ON THIS PLAN IS PROVIDED BY STRUCTURAL ENGINEER. BOHLER TO BE HELD HARMLESS IN EVENT OF STRUCTURAL FAILURE.

OWNER: MITRON PARCEL 1, LLC & MITRON PARCEL 2, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 8800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046

SHEET TITLE: RETAINING WALLS - DETAILS

SHEET NUMBER: 62 OF 80

REVISION 5 - 07/07/2021

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
TRANSPORTATION SERVICES

REV	DATE	COMMENT	DRAWN BY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY USE ONLY. ANY REVISIONS TO THIS DRAWING SHALL BE MADE TO THE ORIGINAL DRAWING AND NOT TO THIS REVISION SHEET.

811

Know what's below.
Call before you dig.

ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD1420671
DRAWN BY: AVS
CHECKED BY: BRB
DATE: 07/07/2021
CAD I.D.: CIP-5

PROJECT: FINAL ROAD PLAN

FOR LYHUS PROPERTY
LOTS 1-28, BUILDABLE PRESERVATION
PARCEL B, NON-BUILDABLE
PRESERVATION PARCELS A, C, D, E
& BULK PARCEL F
LOCATION OF SITE
12170 LIME KILN ROAD
FULTON, MARYLAND
HOWARD COUNTY

BOHLER ENGINEERING

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

B.R. ROWE

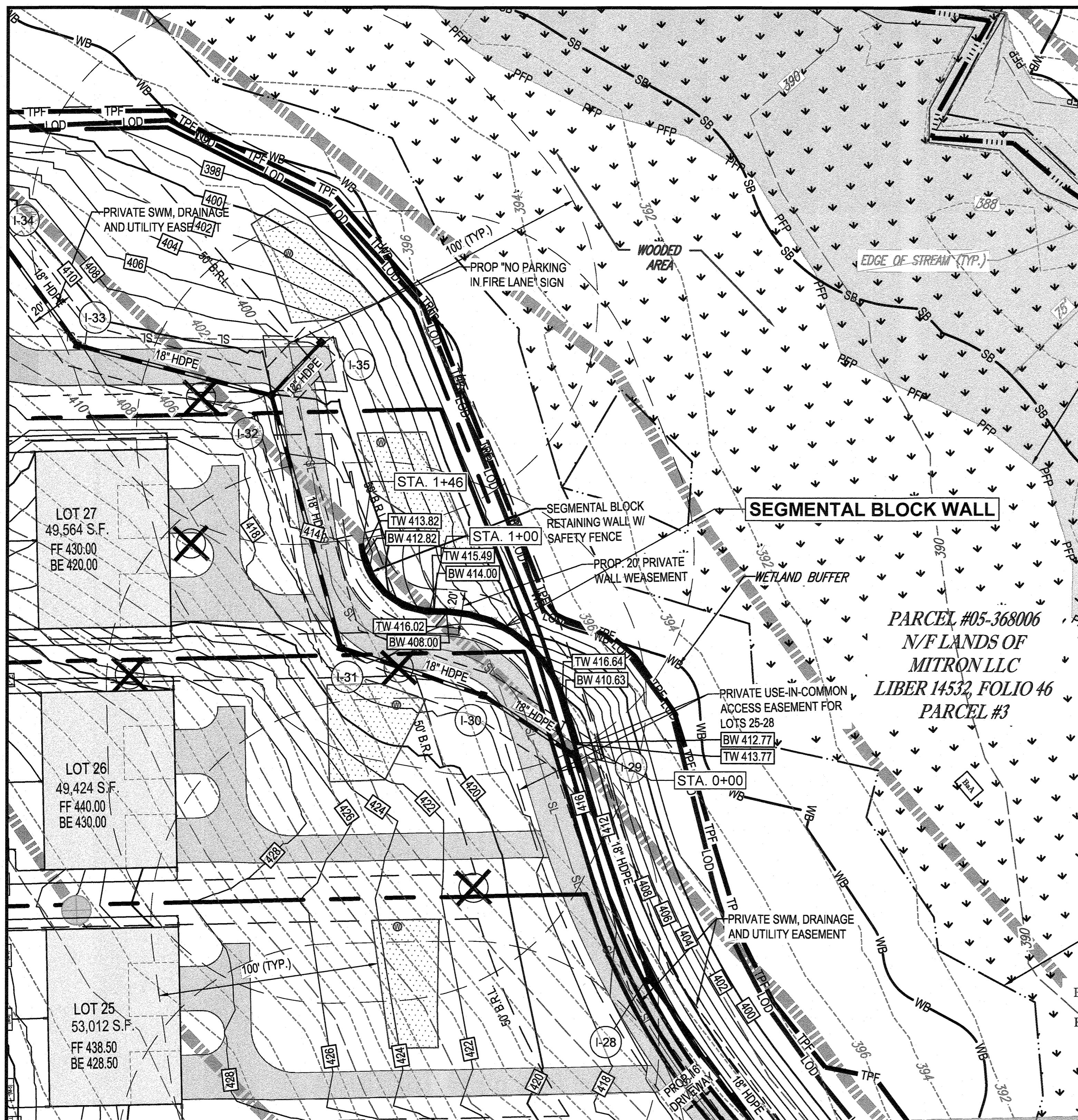
PROFESSIONAL ENGINEER

I, BRANDON R. ROWE, HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42888, EXPIRATION DATE: 7/23/23

SHEET TITLE: RETAINING WALLS - DETAILS

SHEET NUMBER: 62 OF 80

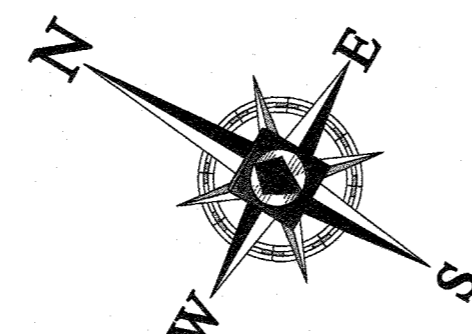
REVISION 5 - 07/07/2021



WALL LOCATION PLAN

1" = 30'

SCALE: 1" = 30'



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/21/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-10-21

HILLIS-CARNES ENGINEERING ASSOCIATES

10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

SEGMENTAL RETAINING WALL LOCATION PLAN & CONSTRUCTION DETAILS
 LYHUS PROPERTY
 12170 LIME KILN ROAD HOWARD COUNTY, MARYLAND

SPECIFICATIONS
 MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 DESCRIPTION

A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.

B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.

C. WORK INCLUDES FURNISHING AND INSTALLING GEGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 DELIVERY, STORAGE AND HANDLING

A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.

B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 MODULAR CONCRETE RETAINING WALL UNITS

A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:
 FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.
 FACE FINISH - SCULPTURED ROCK FACE IN ANGULAR TRI-PLANNER OR FLAT CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.

EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH APPROPRIATE REFERENCES:

COMpressive strength = 3000 PSI MINIMUM; ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;
 DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16"
 UNIT HEIGHT - TOP AND BOTTOM PLANES; UNIT SIZE - 8" (H) X 18" (W) X 12" (D) MINIMUM;

UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES.
 INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.
 GEGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM

VERTICAL SETBACK = 1/8" PER COURSE (NEAR VERTICAL) OR 1" PER COURSE PER THE DESIGN; ALIGNMENT AND GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM;
 MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH.

2.02 SHEAR CONNECTORS

A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN-PROTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO +100 DEGREES F. B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

2.03 BASE LEVELING PAD MATERIAL

A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.04 UNIT DRAINAGE FILL

A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE.

2.05 REINFORCED BACKFILL

A. REINFORCED BACKFILL SHALL BE TYPE SM, FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIZE	PERCENT PASSING
2 INCH	100-75
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) < 10 AND LIQUID LIMIT < 35 PER ASTM D-4318.

B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

2.06 GEGRID SOIL REINFORCEMENT

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE

MANUFACTURED FROM HIGH TENACITY POLYESTER YARN.

2.07 DRAINAGE PIPE
 A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-1248.

PART 3 EXECUTION

3.01 EXCAVATION

A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE EXCAVATION PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

3.02 BASE LEVELING PAD

A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.

B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 MODULAR UNIT INSTALLATION

A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL, FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.

E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED THREE COURSES.

3.04 STRUCTURAL GEGRID INSTALLATION

A. GEGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. THE GEGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEGRID. THE GEGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEGRID.

D. GEGRID REINFORCEMENTS SHALL BE CONTINUOUS

THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEGRID OR GAPS BETWEEN ADJACENT PIECES OF GEGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEGRID AND INSTALLATION DAMAGE.

B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.

D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.

E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEGRID.

F. RUBBER Tired EQUIPMENT MAY PASS OVER GEGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

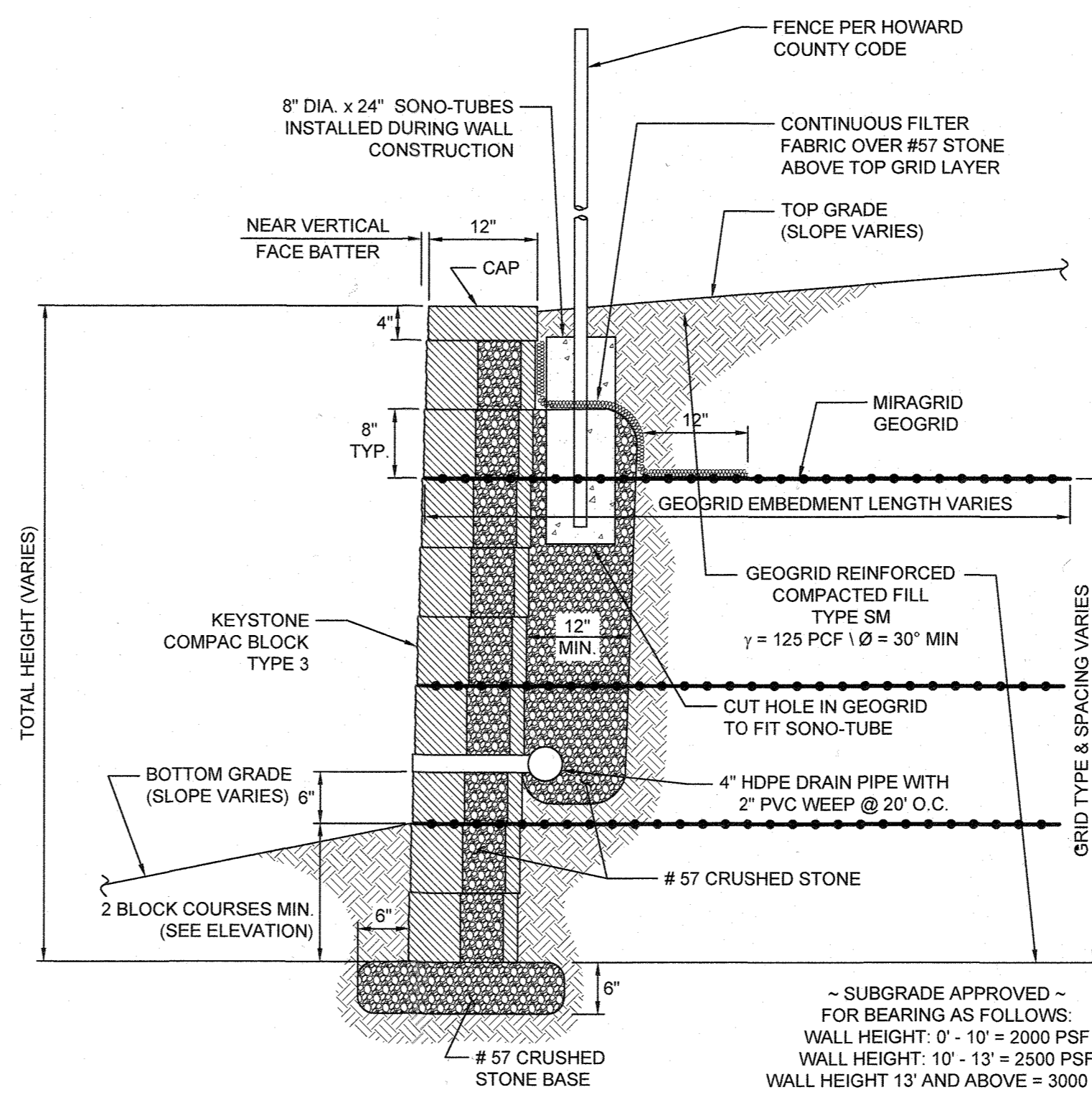
3.06 CAP INSTALLATION

A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL

A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.

B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN BEARING CAPACITY, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.



TYPICAL WALL SECTION
 N.T.S.

HOWARD COUNTY NOTES:

- NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
- RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.
- ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
- 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 6' LIFT MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
- WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
- WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD COUNTY RIGHT-OF-WAY OR EASEMENT.

NOTE: INSTALL DRAIN BOARD BEHIND GEGRIDS WITH DRAIN PIPE DAYLIGHTING THRU WALL BLOCK AS DETERMINED NECESSARY BY SITE GEOTECHNICAL ENGINEER TO INTERCEPT ANY SEEPING WATER (OR AREAS LIKELY TO SEEP) ALONG THE EXCAVATION FACE.

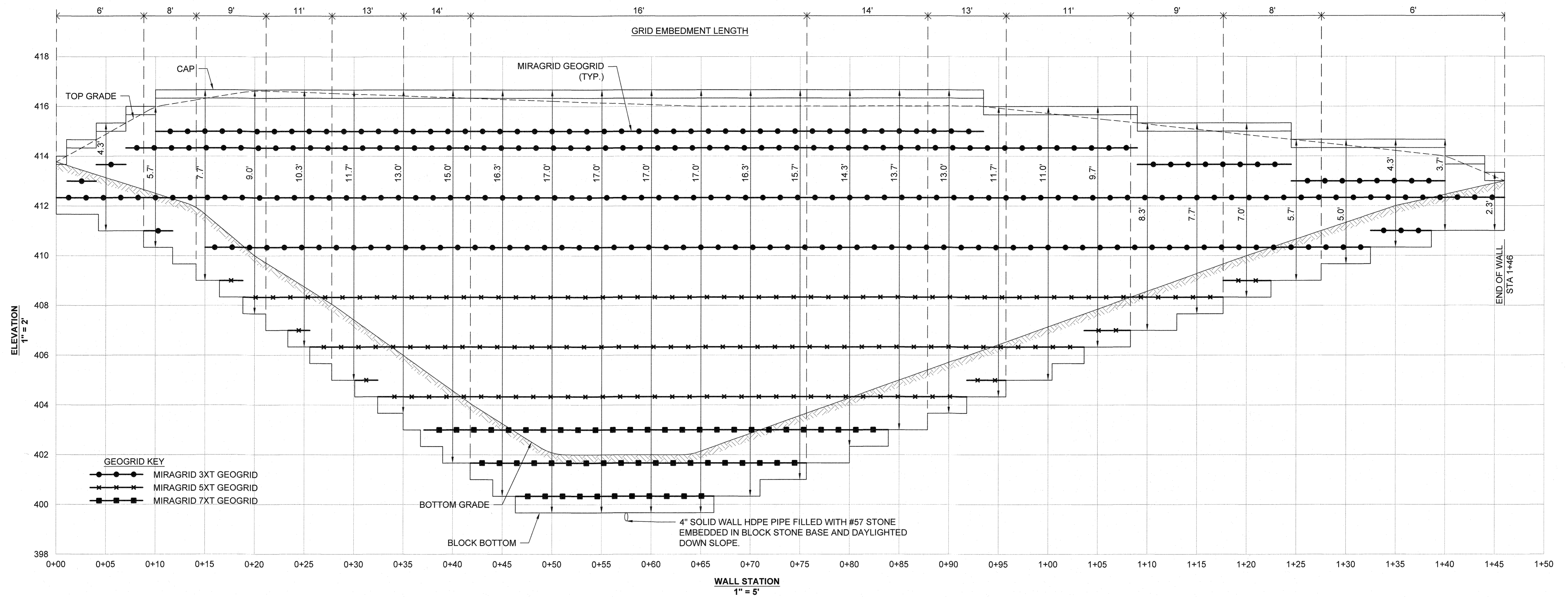
NOTE: SUBGRADE BEARING CAPACITY SHALL BE VERIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO WALL CONSTRUCTION.

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. 0028925, EXPIRATION DATE: 1/15/22.



REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	HM
			SCALE:	DRAWN BY:
			AS SHOWN	HM
			DATE:	APPROVED BY:
			5/6/2020	TBH

63 of 80 SHEET

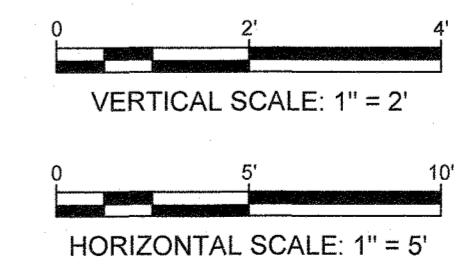


SEGMENTAL BLOCK WALL ELEVATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/21/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-10-21



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. 0028925, EXPIRATION DATE: 1/15/22.

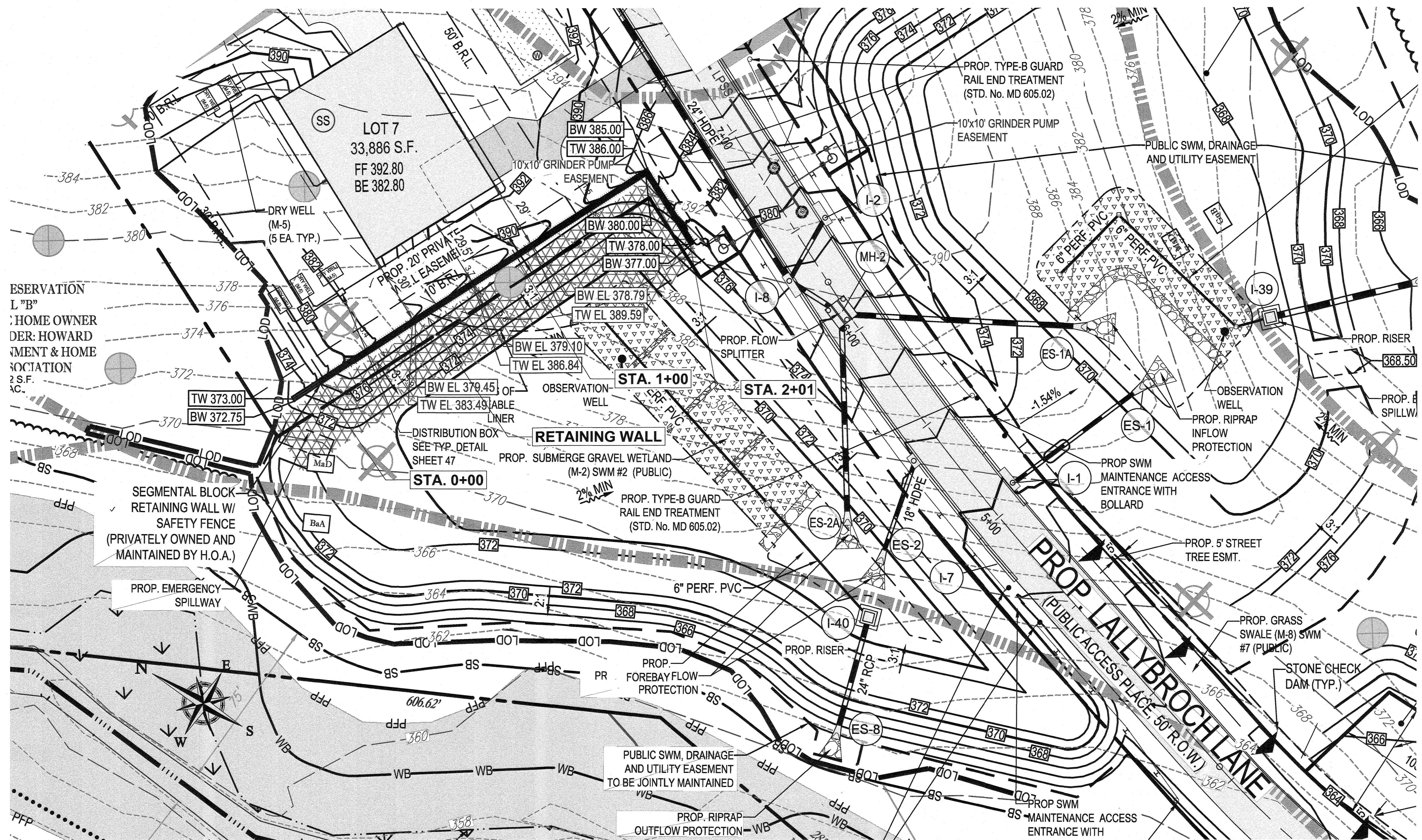


HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

SEGMENTAL RETAINING WALL ELEVATION
LYHUS PROPERTY
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	HM
			SCALE: AS SHOWN	DRAWN BY: HM
			DATE: 5/6/2020	APPROVED BY: TBH

64 of 80
SHEET



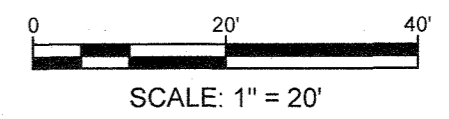
WALL LOCATION PLAN
1" = 20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2021

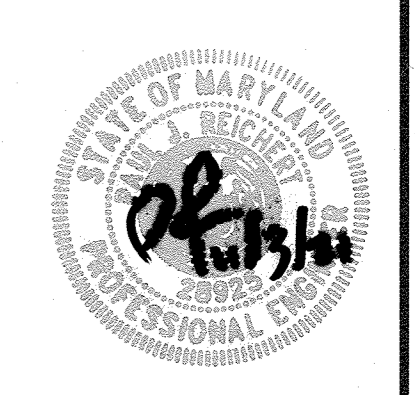
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/14/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12/10/21

SOURCE: PLAN ADAPTED FROM A PREVIOUS PLAN ENTITLED "GRADING & SWM PLAN" PROJECT "LYHUS PROPERTY" SHEET NUMBER 5 OF 65, PREPARED BY BOHLER ENGINEERING DATED 03/30/2021



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. 002895
 EXPIRATION DATE: 01/15/22



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

RETAINING WALL @ LOT 7 LOCATION PLAN
LYHUS PROPERTY
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	AM
			SCALE:	DRAWN BY:
			AS SHOWN	AM
			DATE:	APPROVED BY:
			6/17/21	HM

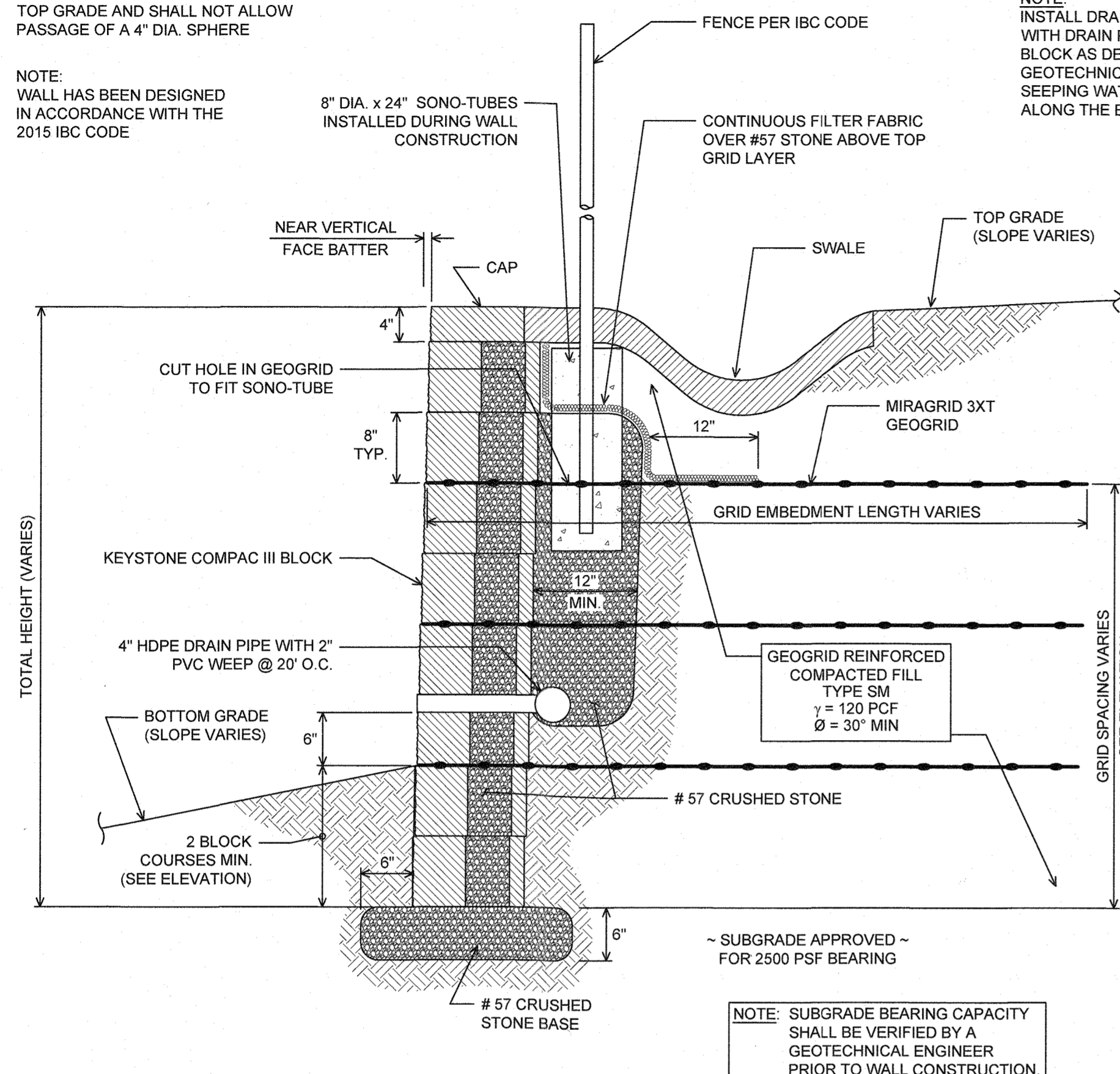
65 of 80
SHEET

SEGMENTAL CONCRETE BLOCK RETAINING WALL

NOTE: FENCE SHALL BE A MIN. 42" ABOVE TOP GRADE AND SHALL NOT ALLOW PASSAGE OF A 4" DIA. SPHERE

NOTE: WALL HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2015 IBC CODE

NOTE: INSTALL DRAIN BOARD BEHIND GEOGRIDS WITH DRAIN PIPE DAYLIGHTING THRU WALL BLOCK AS DETERMINED NECESSARY BY SITE GEOTECHNICAL ENGINEER TO INTERCEPT ANY SEEPING WATER (OR AREAS LIKELY TO SEEP) ALONG THE EXCAVATION FACE.



**TYPICAL WALL SECTION
N.T.S.**

NOTES:

- NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
- RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIV.) CERTIFIED SOILS TECHNICIAN.
- ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
- 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.
- WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
- WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD CO. RIGHT-OF-WAY OR EASEMENT.

PART 1: GENERAL

1.01 DESCRIPTION

- WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A SEGMENTAL RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.
- WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT FACING SYSTEM, UNIT DRAINAGE FILL AND REINFORCED BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 DELIVERY, STORAGE AND HANDLING

- CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 SEGMENTAL CONCRETE RETAINING WALL UNITS

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:
FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.
FACE FINISH - HARD SPLIT IN ANGULAR TRI-PLANE OR STRAIGHT FACE CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.
BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT IN VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.
EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 20 FEET UNDER DIFFUSED LIGHTING.
- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH ASTM C140 SAMPLING & TESTING CONCRETE MASONRY UNITS.
COMPRESSIVE STRENGTH = 3000 PSI MINIMUM.
ABSORPTION = 8% MAXIMUM (6% MAXIMUM IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES.
DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE ±3/8" FROM NOMINAL UNIT HEIGHT. UNIT SIZE - 8" (H) X 16" (W) X 12" (D) MINIMUM FOR COMPAC III UNITS; [UNIT SIZE - 8" (H) X 18" (W) X 18" (D) MINIMUM FOR STANDARD UNITS].
INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.
[GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM.]

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTION REQUIREMENTS:
SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
COMPRESSIVE STRENGTH = 3000 PSI MINIMUM.
ABSORPTION = 8% MAXIMUM (6% MAXIMUM IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES.
DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE ±3/8" FROM NOMINAL UNIT HEIGHT. UNIT SIZE - 8" (H) X 16" (W) X 12" (D) MINIMUM FOR COMPAC III UNITS; [UNIT SIZE - 8" (H) X 18" (W) X 18" (D) MINIMUM FOR STANDARD UNITS].
INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.
[GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM.]

FOLLOWING CONSTRUCTION REQUIREMENTS:

VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) OR [1"± PER COURSE] PER TYPICAL WALL SECTION; ALIGNMENT AND GRID ATTACHING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE 1/2 INCH.

2.02 SHEAR AND REINFORCEMENT PIN CONNECTORS

- SHEAR AND REINFORCEMENT PIN CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS AND GEOSYNTHETIC REINFORCEMENT WITH THE FOLLOWING REQUIREMENTS: FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476: 128,000 PSI MINIMUM. SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475: 6,400 PSI MINIMUM.

- SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

2.03 BASE LEVELING PAD MATERIAL

- MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE OR CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.04 UNIT DRAINAGE FILL

- UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE.

2.05 REINFORCED BACKFILL

- REINFORCED BACKFILL SHALL BE TYPE SM, FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIEVE SIZE	PERCENT PASSING
1 1/2 INCH	100
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) <15 AND LIQUID LIMIT <40, PER ASTM D4318.

- MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGHLY PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

- CONTRACTOR SHALL SUBMIT REINFORCED FILL SAMPLE AND LABORATORY TEST RESULTS FOR APPROVAL PRIOR TO THE USE OF ANY REINFORCED BACKFILL MATERIAL.

2.06 GEOGRID SOIL REINFORCEMENT

- GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER (PET) YARN.

2.07 DRAINAGE PIPE

- THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D1248.

2.08 GEOTEXTILE FILTER FABRIC

- WHEN REQUIRED, FILTER FABRIC SHALL BE A

NEEDLE-PUNCHED NONWOVEN FABRIC MEETING REQUIREMENTS OF AASHTO M288.

PART 3 EXECUTION

3.01 EXCAVATION

- CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE SUBGRADE PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.
- RETAINING WALL EXCAVATIONS SHALL BE PERFORMED IN COMPLIANCE WITH MOSH AND OSHA REQUIREMENTS. CARE SHALL BE EXERCISED TO PROPERLY SHORE OR SLOPE BACK EXCAVATIONS TO MAINTAIN STABILITY. IF SLOPE FLATTENING IS NOT ACHIEVABLE, TEMPORARY SUPPORT OF EXCAVATION FOR THE RETAINING WALL CONSTRUCTION SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AND PERFORMED IN ACCORDANCE WITH ANY JURISDICTIONAL SAFETY STANDARDS.

3.02 BASE LEVELING PAD

- LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND MATERIALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE SEGMENTAL WALL UNIT.
- LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.
- COMPACT TO MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D698.

3.03 SEGMENTAL UNIT INSTALLATION

- FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.
- PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. NOT LESS THAN 1.3 CU. FT. OF DRAINAGE FILL SHALL BE USED FOR EACH SQ. FT. OF WALL FACE, UNLESS NOTED OTHERWISE.
- PLACE AND COMPACT REINFORCED BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH BACKFILL.
- MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED TWO COURSES.

3.04 STRUCTURAL GEOGRID INSTALLATION

- GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.
- GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE SEGMENTAL WALL UNIT PINS AND WITHIN 1 INCH OF THE FACE OF THE UNITS. PLACE THE NEXT COURSE OF SEGMENTAL CONCRETE UNITS OVER THE GEOGRID. THE

GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

- GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS GREATER THAN 2 INCHES BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

- REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE TO GEOGRID.
- REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND OPERATED COMPACTION EQUIPMENT IS USED, OR 8-10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.
- REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE +0% TO -3% OF OPTIMUM.
- ONLY LIGHTWEIGHT HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE BACK OF THE SEGMENTAL CONCRETE UNIT.
- TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING OR DISPLACING THE SEGMENTAL CONCRETE UNITS OR GEOGRID.
- RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND TURNING SHALL BE AVOIDED.
- AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

3.06 CAP INSTALLATION

- PRIOR TO PLACEMENT OF CAP UNITS, THE UPPER SURFACE OF THE TOP COURSE WALL UNITS SHALL BE CLEARED OF SOIL AND ANY OTHER MATERIAL.
- CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER EXTERIOR CONSTRUCTION ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL

- THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.
- AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, RETAINED SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/14/21

APPROVED: DEVELOPMENT ENGINEERING DIVISION
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12-10-21

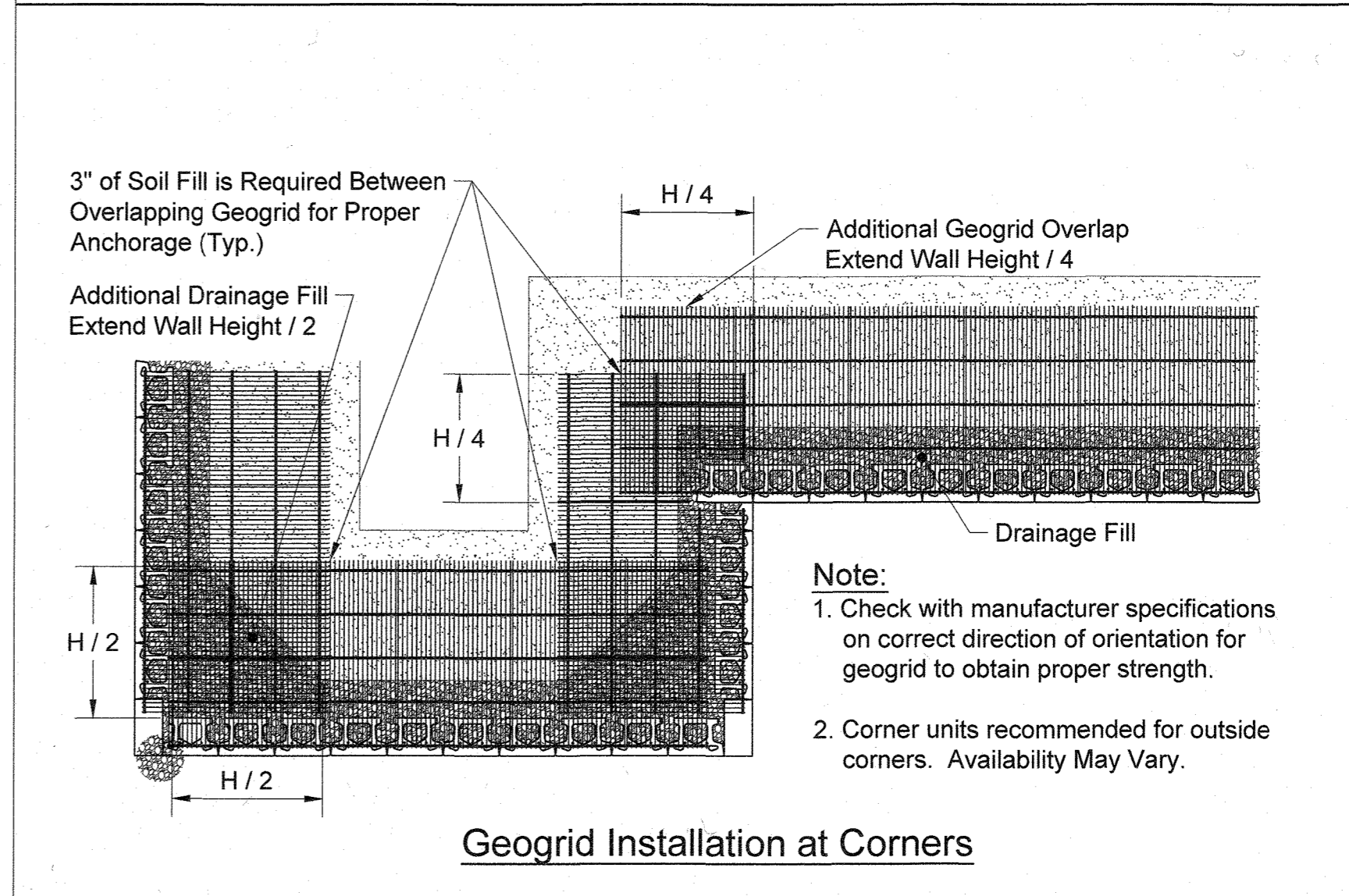
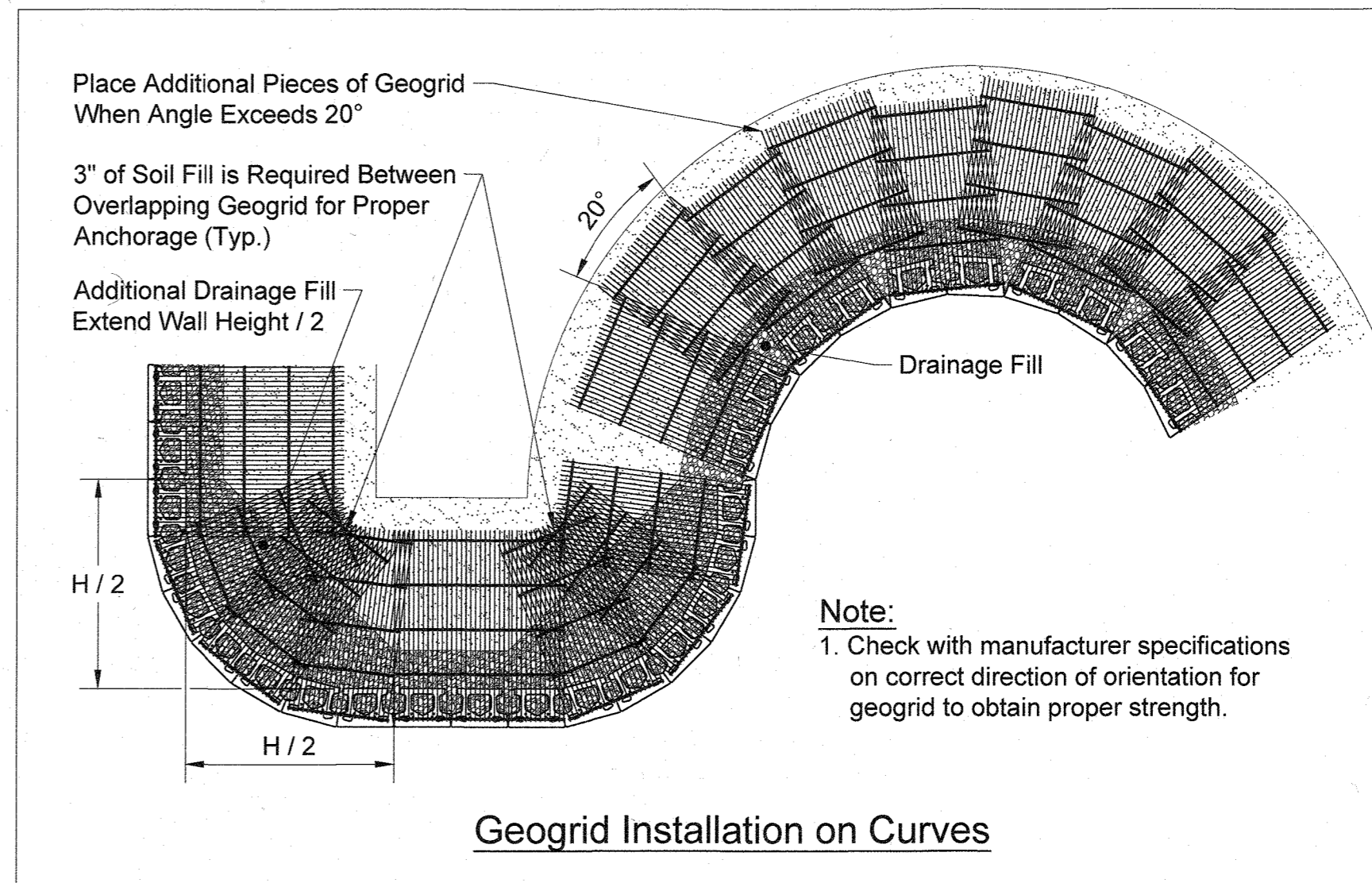
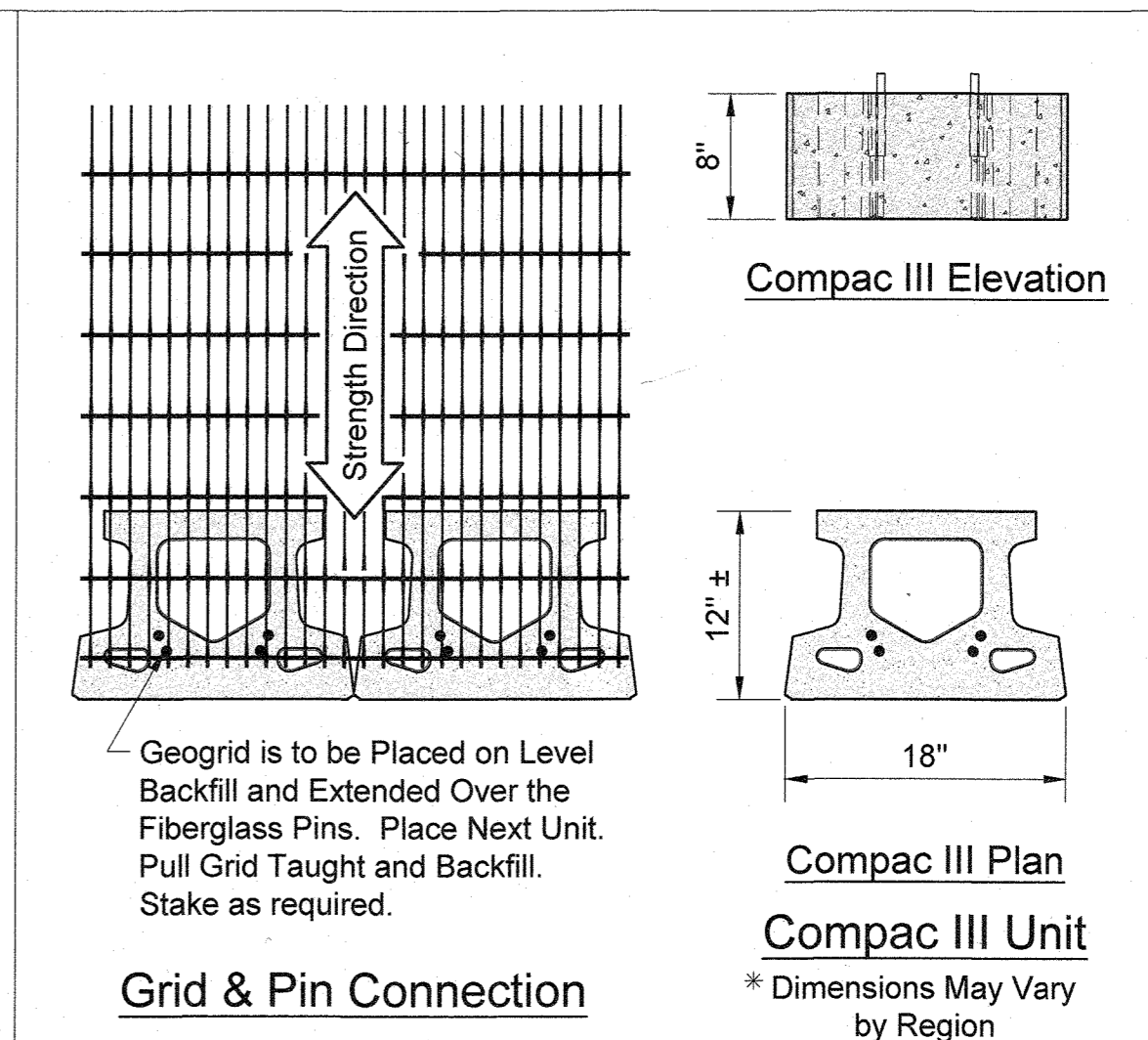
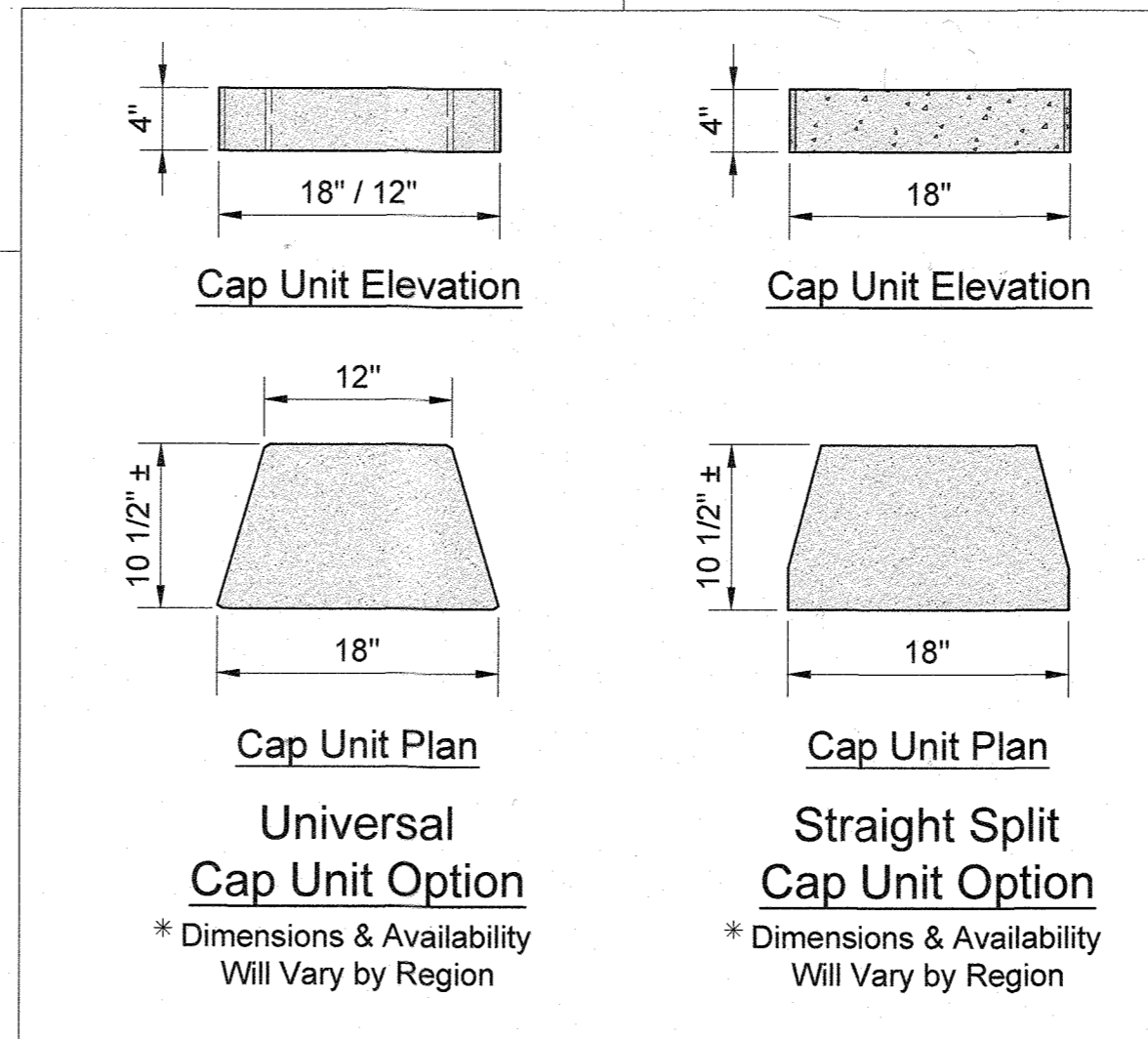
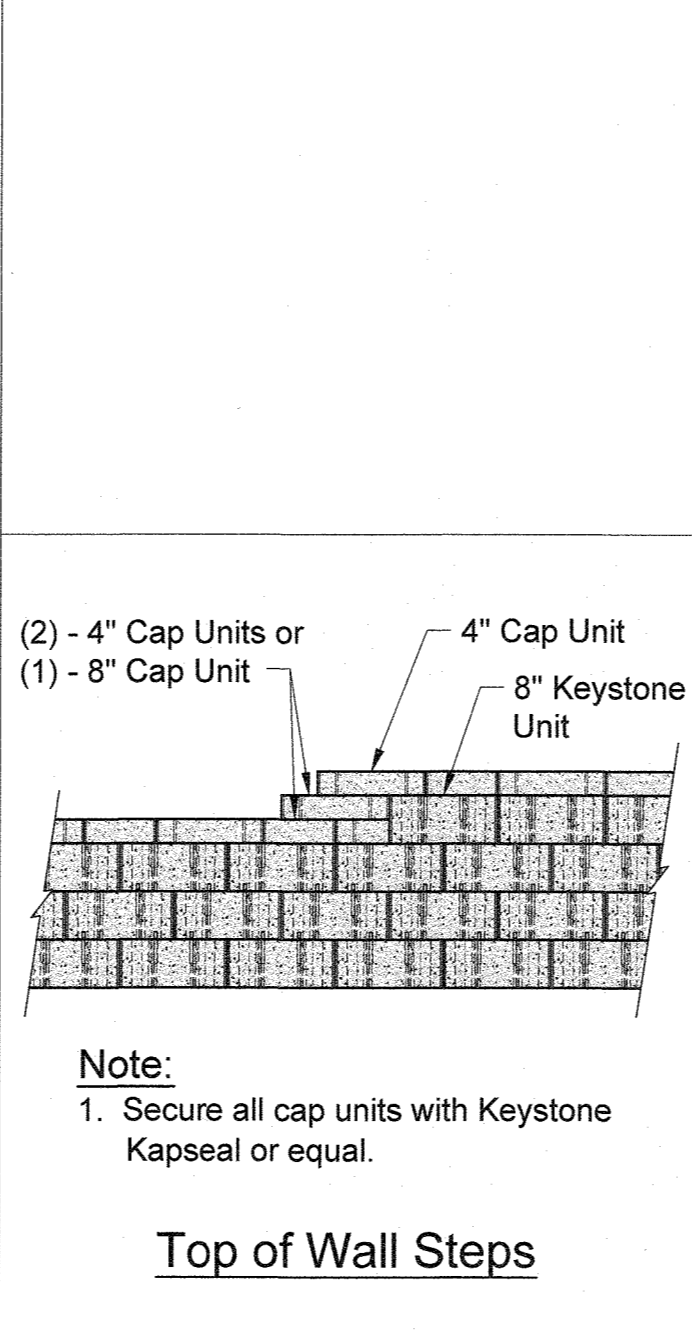
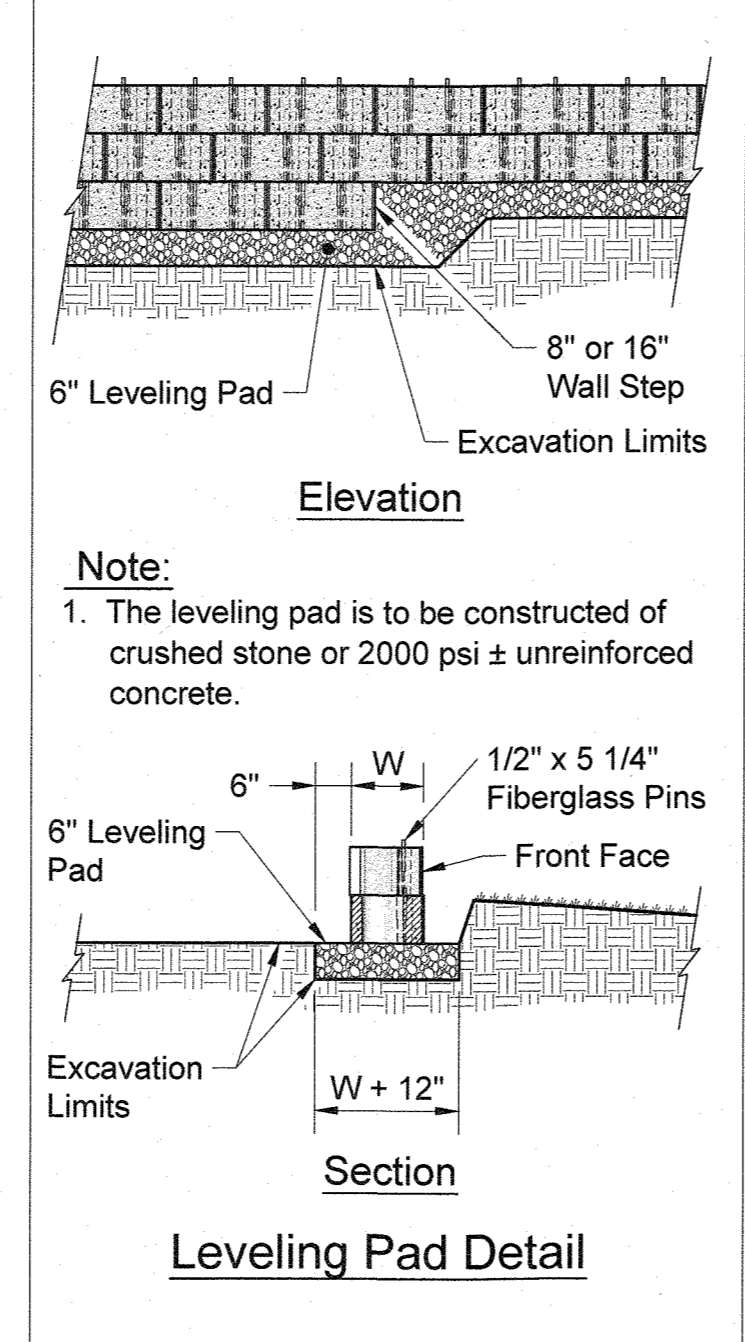
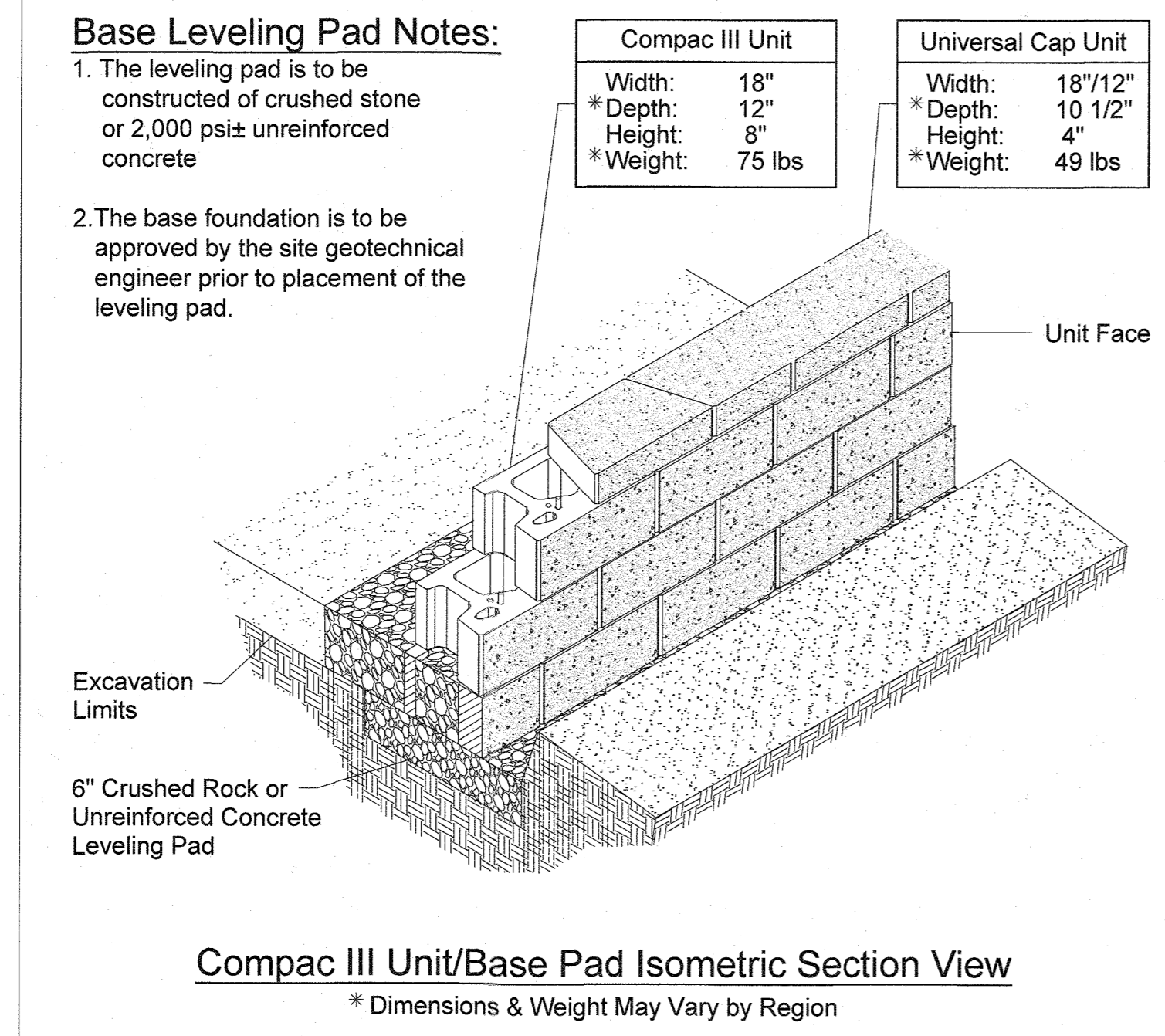
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 002895, EXPIRATION DATE: 01/15/22



HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

**RETAINING WALL @ LOT 7 CONSTRUCTION DETAILS
LYHUS PROPERTY
HOWARD COUNTY, MARYLAND**

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	AM
			20121A	AM	
			SCALE:	DRAWN BY:	AM
			AS SHOWN	AM	
			DATE:	APPROVED BY:	HM
			6/17/21	HM	



COMPAC III UNIT - STRAIGHT FACE DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: _____

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: _____

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: _____

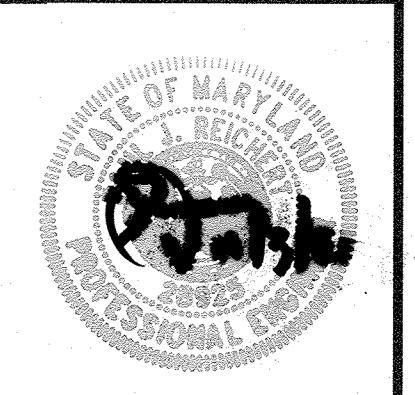
DIRECTOR, DEVELOPMENT ENGINEERING DIVISION
DATE: _____

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 12/19/2021

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/21/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12-10-21

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. 002895
EXPIRATION DATE: 01/15/22



HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

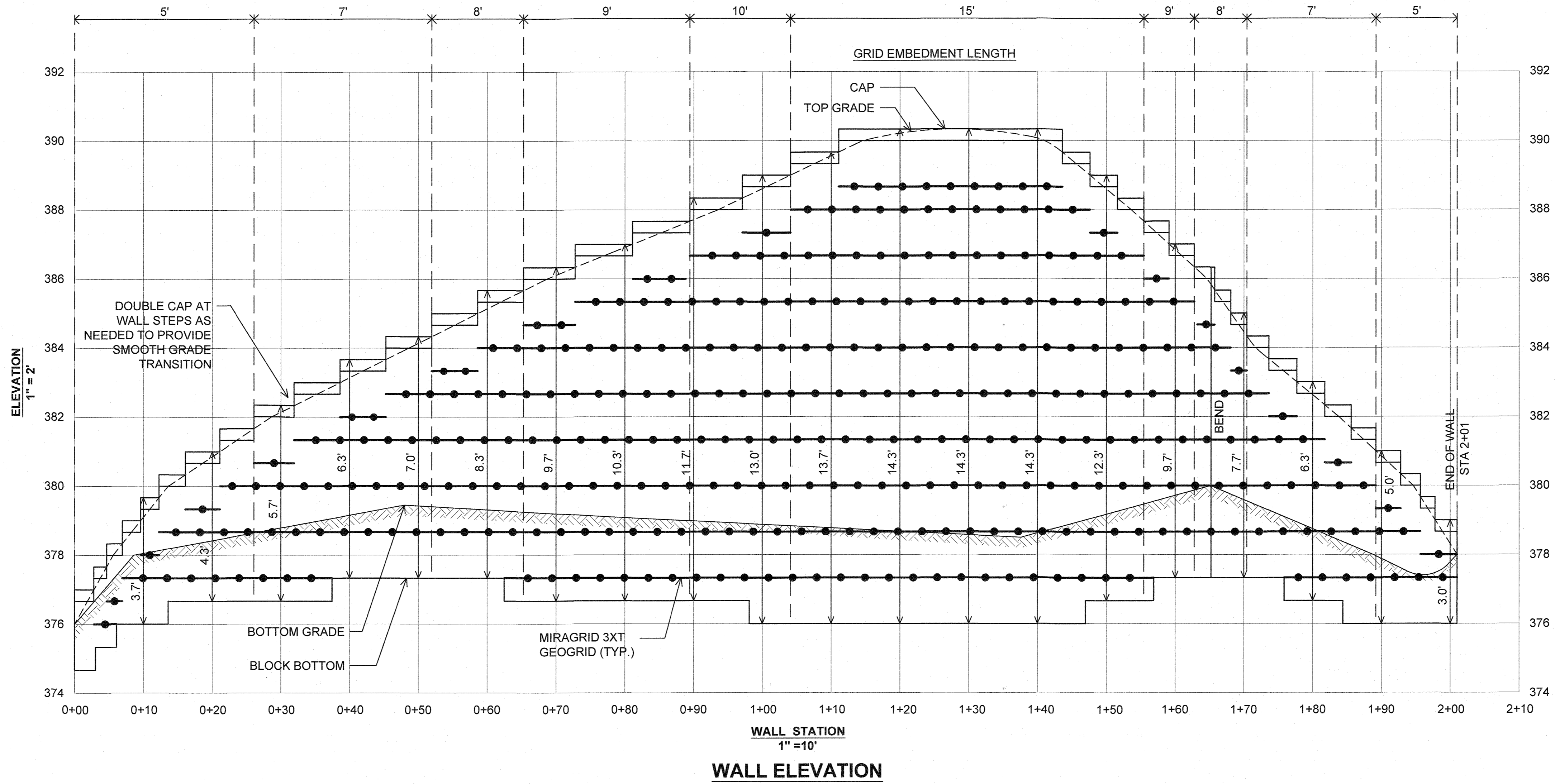
RETAINING WALL @ LOT 7 CONSTRUCTION DETAILS
LYHUS PROPERTY
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	AM
			SCALE: AS SHOWN	DRAWN BY: AM
			DATE: 6/17/21	APPROVED BY: HM

67 of 80
SHEET

NOTE:
FIELD CONFIRM REQUIRED FINISHED
TW / BW ELEVATIONS AND ADJUST
WALL BLOCK ACCORDINGLY

NOTE:
SLOPE TOP GEOGRID LAYER
DOWN AS NEEDED TO AVOID
CONFLICT WITH SWALE



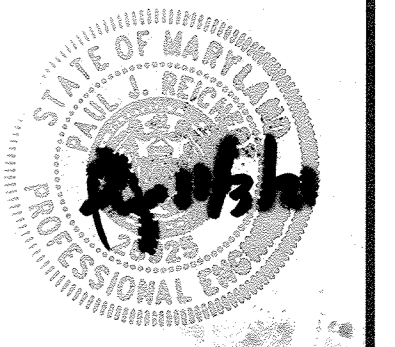
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/21/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-10-21

VERTICAL SCALE: 1" = 2'
 HORIZONTAL SCALE: 1" = 10'

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. 092895
 EXPIRATION DATE: 9/15/22



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

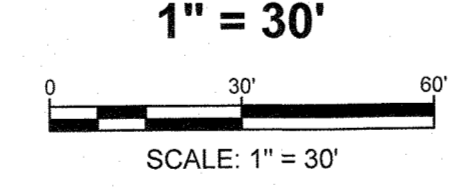
RETAINING WALL @ LOT 7 ELEVATION
 LYHUS PROPERTY
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	AM
			SCALE: AS SHOWN	DRAWN BY: AM
			DATE: 6/17/21	APPROVED BY: HM

68 of 80
SHEET



CONCRETE RETAINING WALL #2 & #3 AND 8'X 22' BOX CULVERT LOCATION PLAN



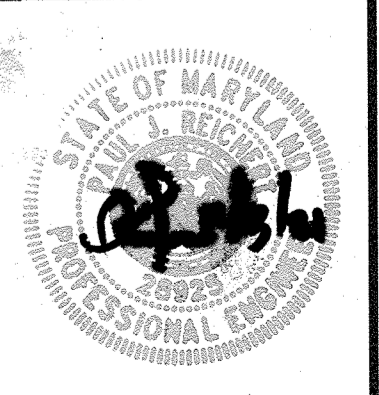
- SHEETS:**
- 1: (69 OF 80) STRUCTURE LOCATION PLAN
 - 2: (70 OF 80) RW-2, RW-3, AND CULVERT PLAN
 - 3: (71 OF 80) ELEVATION RW-2, RW-3 AND CULVERT
 - 4: (72 OF 80) ROADWAY SECTIONS
 - 5: (73 OF 80) RW-2 WALL SECTIONS AND DETAILS
 - 6: (74 OF 80) RW 3 WALL SECTIONS AND DETAILS
 - 7: (75 OF 80) CULVERT PLAN, ELEVATION, AND SECTION
 - 8: (76 OF 80) CULVERT AND WALL CONSTRUCTION DETAILS
 - 9: (77 OF 80) INLET 1-39 STRUCTURE
 - 10: (78 OF 80) INLET 1-40 STRUCTURE
 - 11: (79 OF 80) FLOW SEPARATOR PLAN AND ELEVATION
 - 12: (80 OF 80) FLOW SEPARATOR PLAN AND DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 _____ (Signature) 12/18/2021
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 _____ (Signature) 12/21/21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

_____ (Signature) 12-22-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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. 28925
 EXPIRATION DATE: 01/15/22



HILLIS-CARNES ENGINEERING ASSOCIATES
 10975 Gullford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

CONCRETE STRUCTURES - SHEET REF AND RW2-3 LOCATION PLAN
LYHUS PROPERTY
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	RW 1 SUBMITTED AS MSE, RW 2.3 PARAPET ADDED, I39 DIM REVS, I40 AND FLOW SEPARATOR ADDED	7/6/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: HM
			DATE: 7/6/2020	APPROVED BY: PR

RW-2, RW-3, AND CULVERT NOTES:

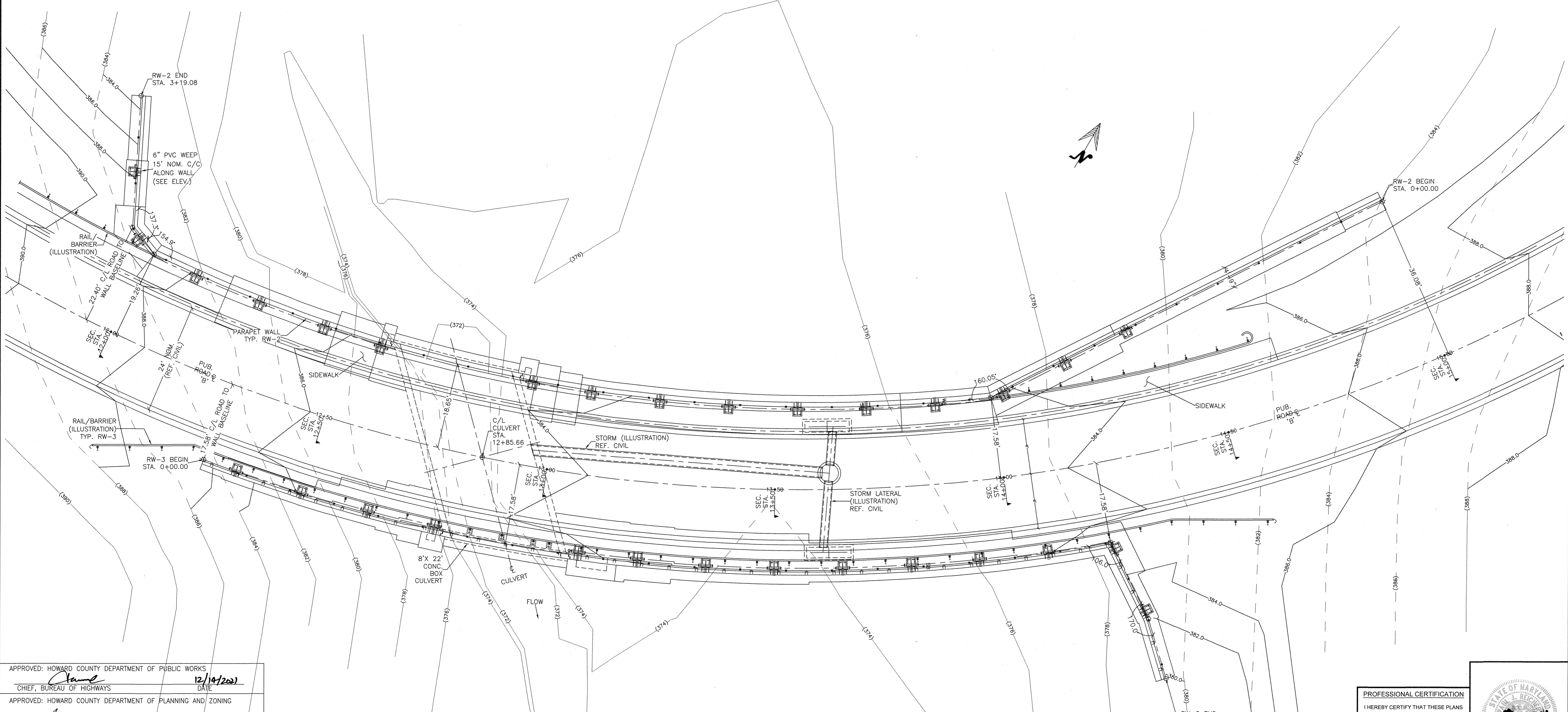
- CONSTRUCTION TO COMPLY WITH CURRENT IBC AND LOCAL CODES, ASHITO, AND MANUAL OF CONCRETE PRACTICE, ACI 318 CODE FOR CONCRETE CONSTRUCTION.
- GEOMETRY SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS. VERIFY CRITICAL DIMENSIONS AND SUITABILITY OF RECOMMENDATIONS. RESOLVE ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
- MINIMUM DESIGN LOADS PER IRC/IBC:
DEAD, (COMPONENT WEIGHT)
LIVE, 100 PSF. SURCHARGE (PEDESTRIAN)
LIVE, 250 PSF. SURCHARGE (VEHICLE)
GROUND SNOW LOAD 25 PSF.
- WIND DESIGN CRITERIA ARE AS FOLLOWS:
BASIC WIND SPEED = 115 MPH
IMPORTANCE FACTOR = 1.0, WIND EXPOSURE = B
(OTHER STRUCTURES' SOLID FREESTANDING WALL)
- SEISMIC DESIGN CRITERIA ARE AS FOLLOWS:
SEISMIC IMPORTANCE FACTOR, IE=1.0
SEISMIC USE GROUP = CATEGORY II
MAPPED SPECTRAL RESPONSE ACC.
SS = 0.122, SI = 0.051
SITE CLASS = D
SPECTRAL RESPONSE COEFFICIENTS
SDS = 0.130, SD1 = 0.082
SEISMIC DESIGN CATEGORY = CATEGORY A
BASIC SEISMIC FORCE RESISTING SYSTEM =
ORDINARY REINF. CONCRETE SHEAR WALL.
SEISMIC RESPONSE COEFFICIENT, CS = 0.065
RESPONSE MODIFICATION FACTOR, R = 2.5
DESIGN BASE SHEAR = 0.065 X W LBS.
ANALYSIS = EQUIVALENT LATERAL FORCE.

RW-2, RW-3, AND CULVERT NOTES (CONT.):

- MATERIALS:
SOILS: FOUNDATIONS TO BE IN SUITABLE NATURAL SOILS OR ENGINEERED CONTROLLED FILL, ALLOWABLE BEARING MIN. 2500 PSF. PER GEO RPT. TO BE FIELD-VERIFIED DURING CONSTRUCTION. BACKFILL WITH TYPE SM OR BETTER AND COMPACT TO MIN. 95% OF STD. PROCTOR (OR BETTER WHERE REQ'D BY PROJ. SPEC)
CONCRETE:
WALL, FOOTING, AND CULVERT 1'c 4500 PSI. MIN. AIR ENTRAINED MAX W/C 0.40, NO CHLORIDES IN CONCRETE. SAMPLE ONE SET OF (6) 4X8 CYLINDERS PER STRUCTURE PER 50 YDS. MAX AND 1X PER DAY.
REINF. STEEL: ASTM #615 GR 60
LAP SPLICES: SEE TABLE, SHEET 09 OF 10
CONCRETE COVER: UNLESS NOTED OTHERWISE
3" CAST AGAINST EARTH
2" EXPOSED TO EARTH OR WEATHER
* COORDINATE COSMETIC REQUIREMENTS (EXPOSED CONCRETE SURFACES WITH CIVIL PLANS, AND OWNER. PROVIDE SAMPLES IF REQUESTED).
- WORKMANSHIP:
MEET OWNER'S REQUIREMENTS FOR APPEARANCE.
PROVIDE CONTROL JOINTS SPACED AT 20' C/C AS NOTED
PROVIDE EXPANSION JOINTS AT 80' C/C AS NOTED (EVERY 4TH CONTROL JT. LOCATION)
AT COLD JOINTS AND MATING SURFACES, EXISTING SURFACE TO BE DAMP-SATURATED, OR APPLY LATEX-TYPE BONDING AGENT PER MFG. INSTRUCTIONS.
- QUALIFICATIONS AND QA/QC:
PROVIDE MATERIAL RECORDS (MILL CERTS, BATCH TICKETS, FOR SOURCE AND TRACEABILITY), TEST RECORDS (CYLINDER BREAKS, FOR STRENGTH), AND INSPECTION REPORTS.

SHEETS:

- (69 OF 80) STRUCTURE LOCATION PLAN
- (70 OF 80) RW-2, RW-3, AND CULVERT PLAN
- (71 OF 80) ELEVATION RW-2, RW-3 AND CULVERT
- (72 OF 80) ROADWAY SECTIONS
- (73 OF 80) RW-2 WALL SECTIONS AND DETAILS
- (74 OF 80) RW-3 WALL SECTIONS AND DETAILS
- (75 OF 80) CULVERT PLAN, ELEVATION, AND SECTION
- (76 OF 80) CULVERT AND WALL CONSTRUCTION DETAILS
- (77 OF 80) INLET 1-39 STRUCTURE
- (78 OF 80) INLET 1-40 STRUCTURE
- (79 OF 80) FLOW SEPARATOR PLAN AND ELEVATION
- (80 OF 80) FLOW SEPARATOR PLAN AND DETAILS



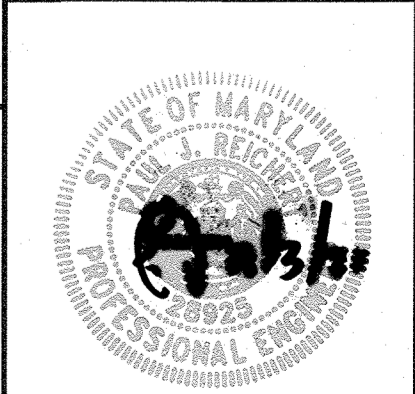
PLAN VIEW RW-2, RW-3, AND CULVERT
20.00' (SCALE)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James 12/14/2021
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John 12/14/21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John 12-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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. 28925. EXPIRATION DATE: 9/1/2022

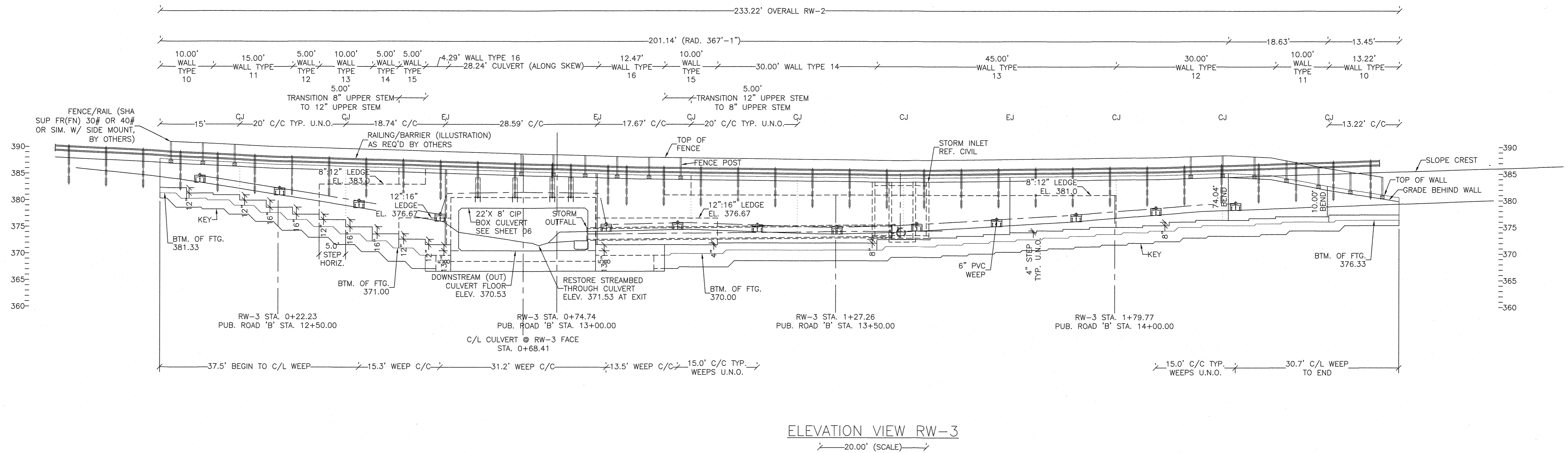
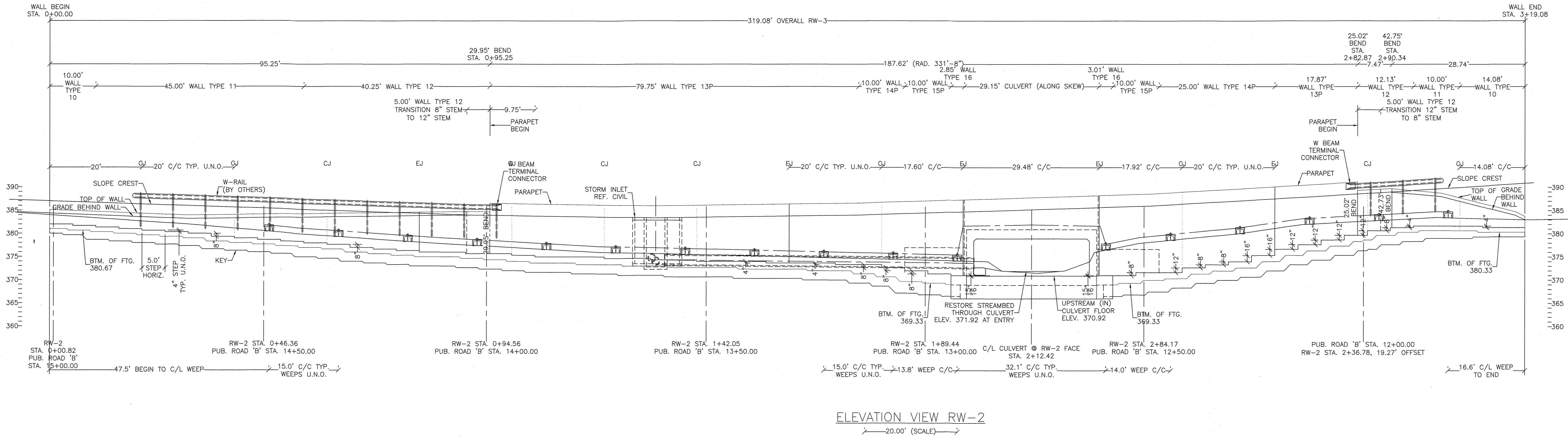


HILLIS-CARNES
ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-2, RW-3, AND CULVERT NOTES, PLAN
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	7/6/21 PARAPET AND FENCE ADDED	7/6/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR

70 of 80
SHEET

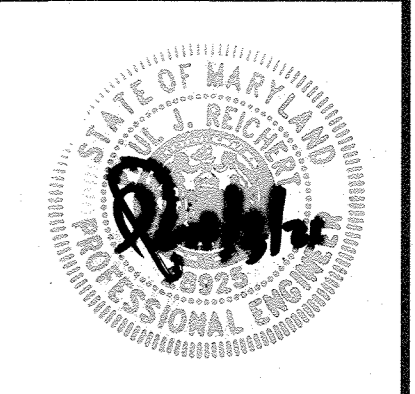


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chad
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/16/21

Chad
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-16-21

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. 28925
 EXPIRATION DATE: 01/15/22

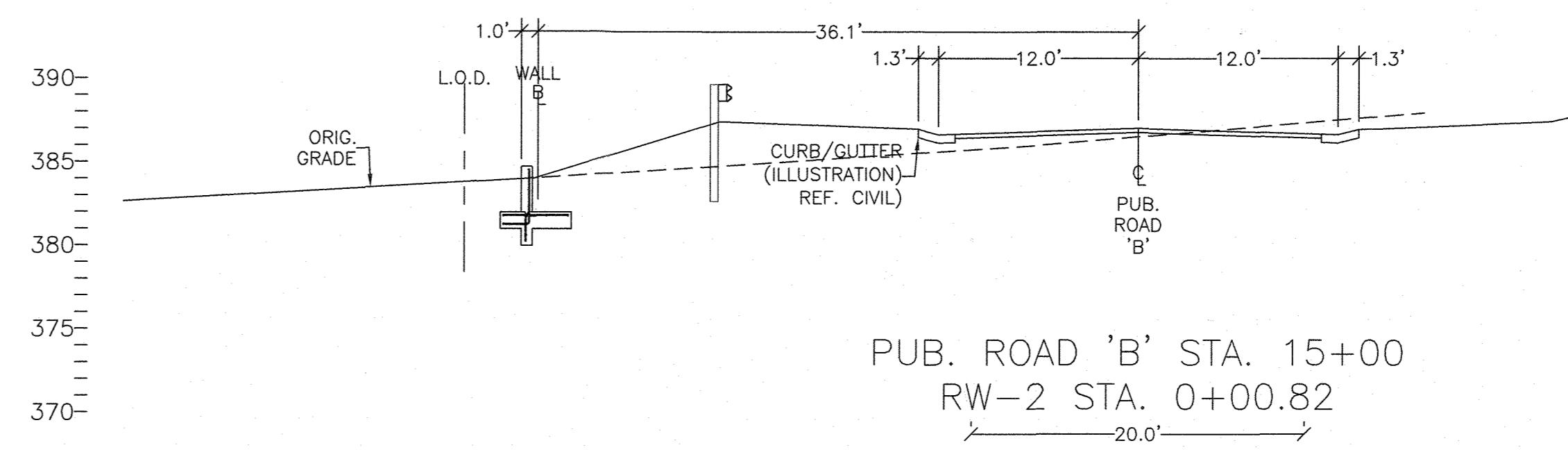
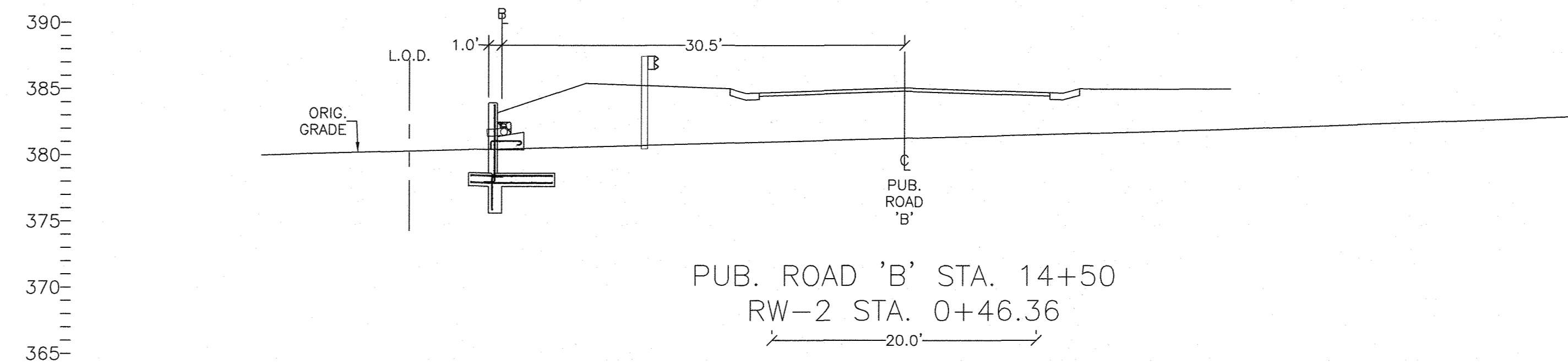
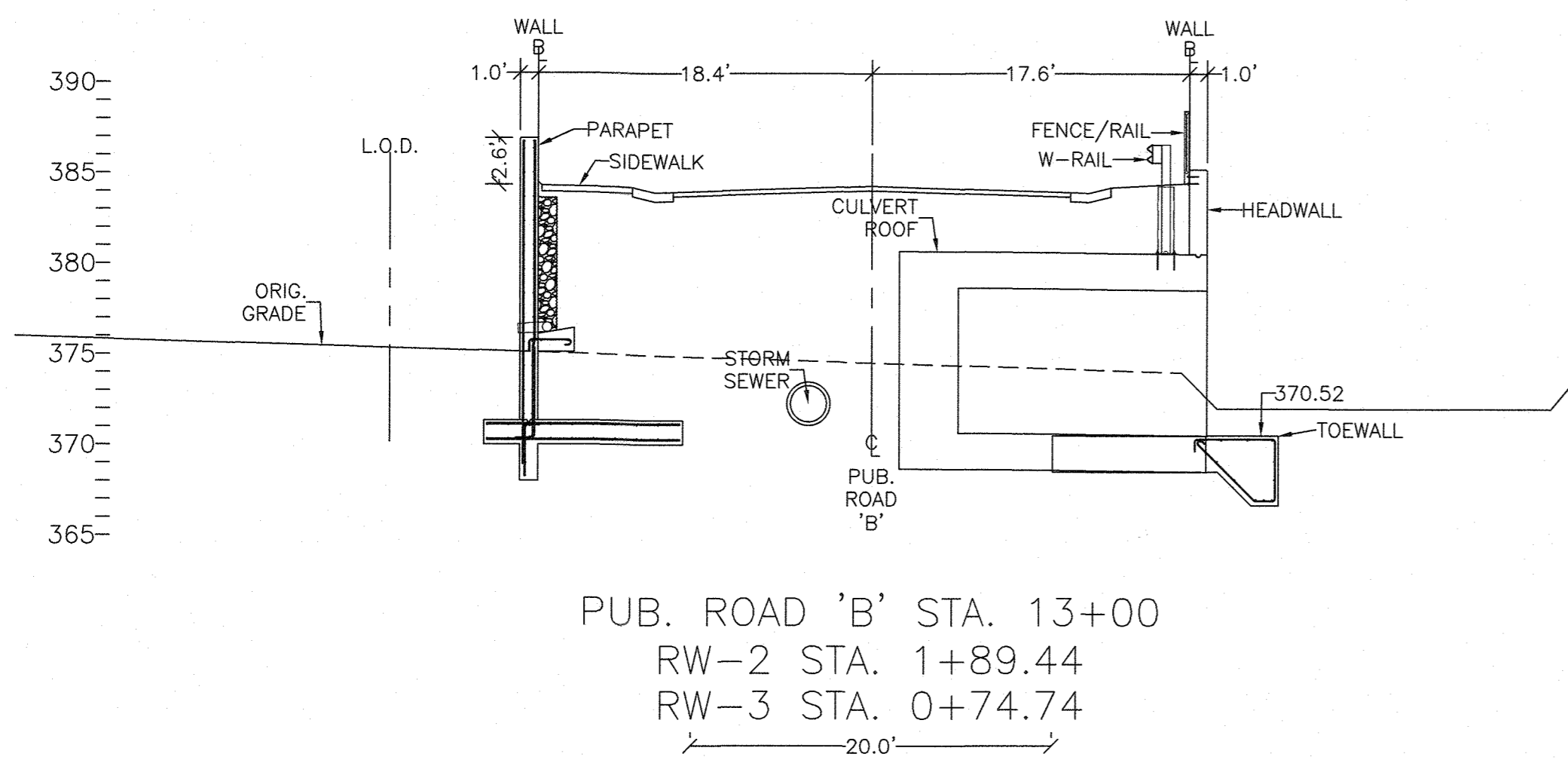
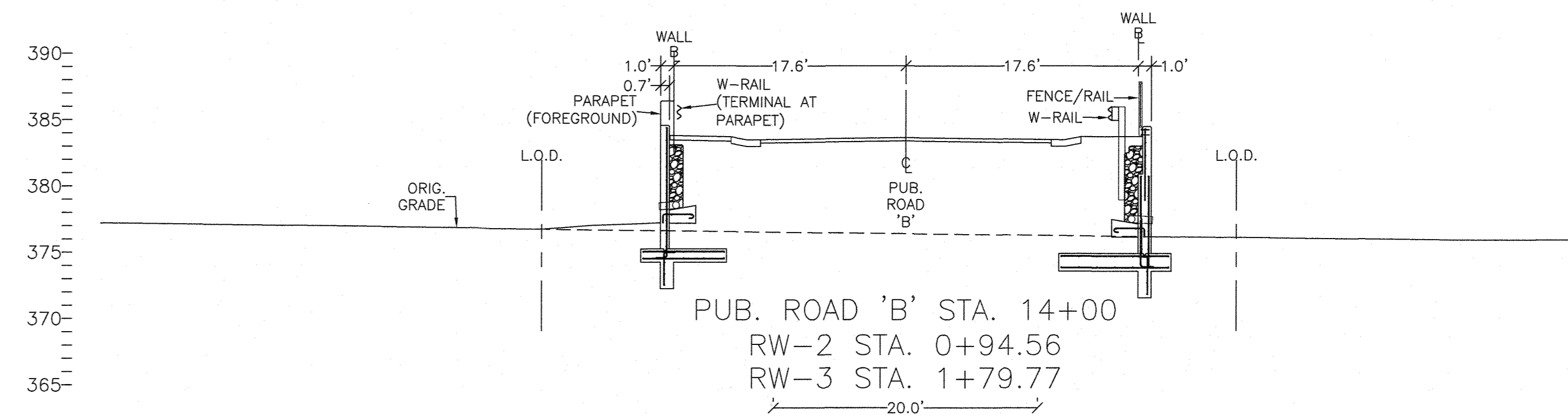
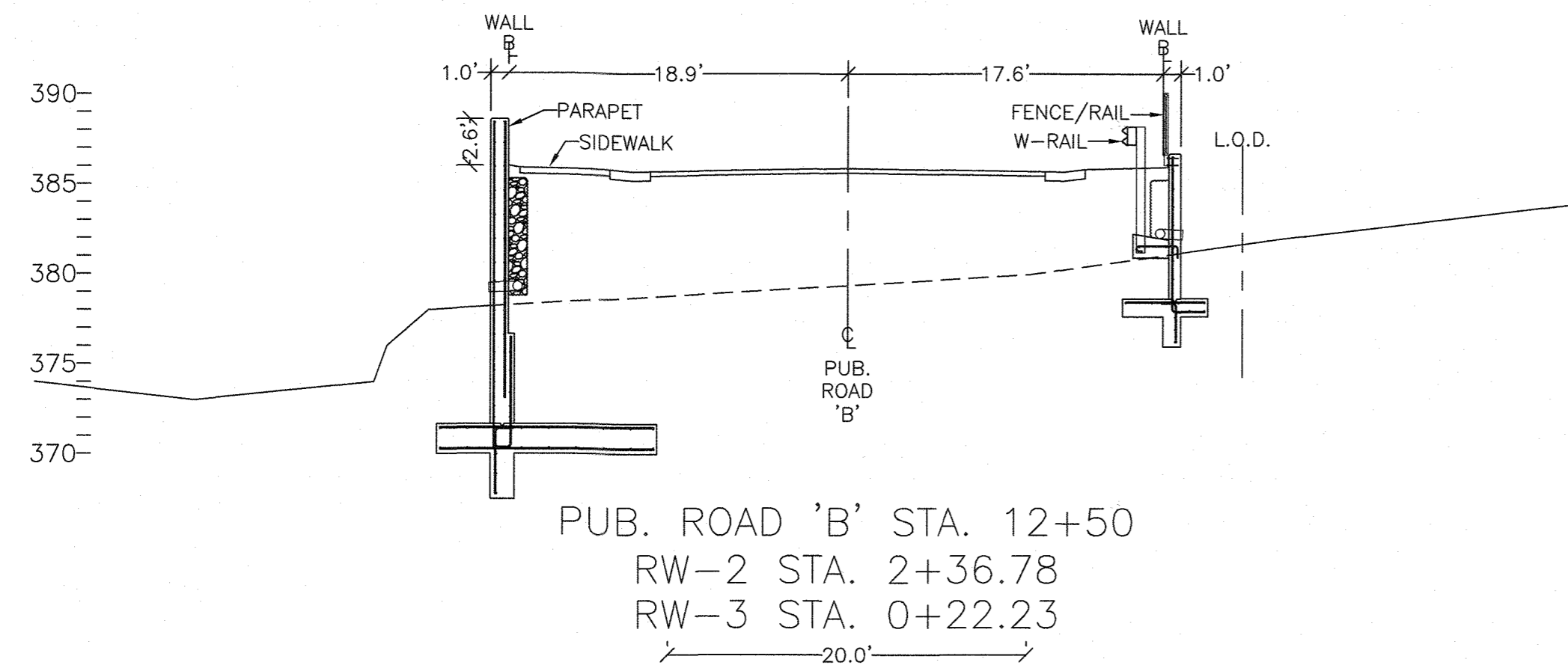
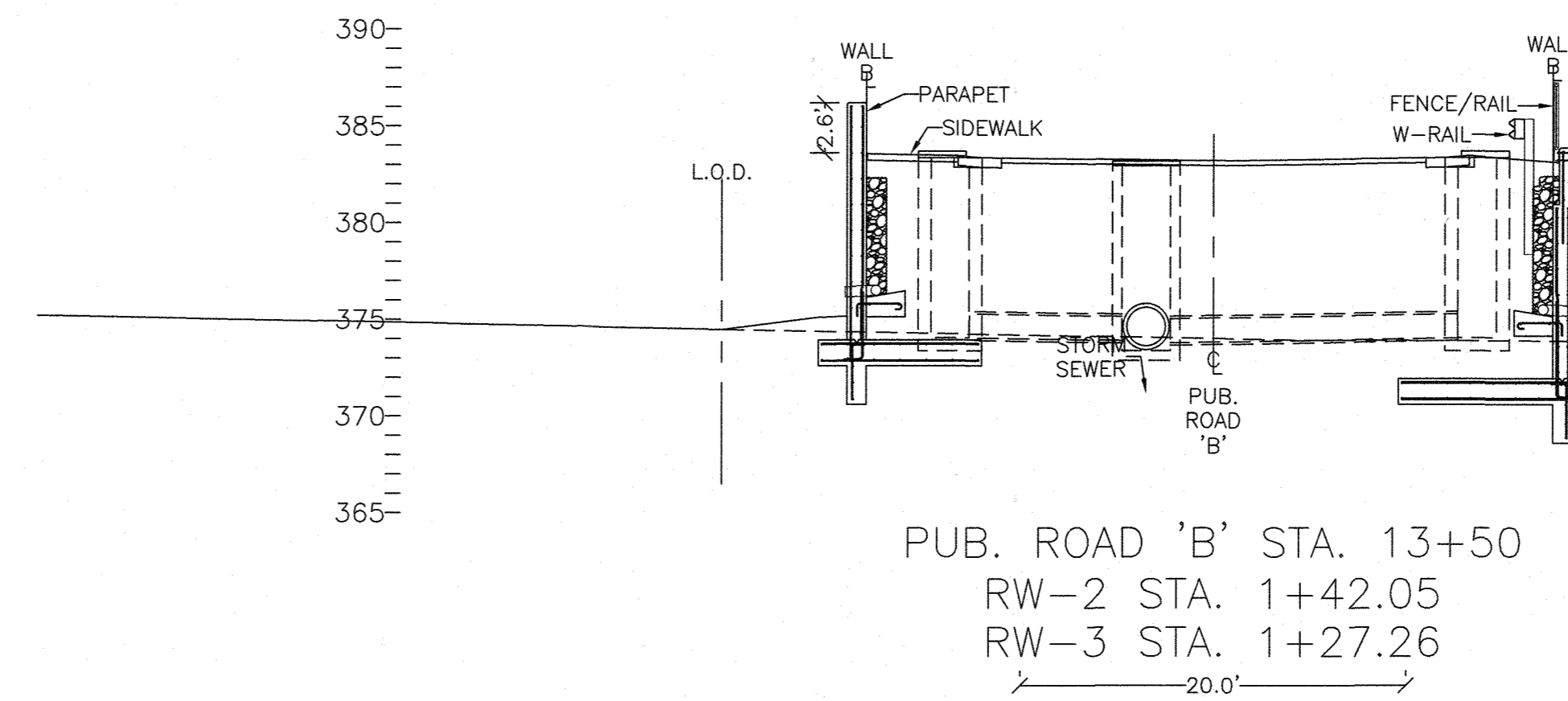
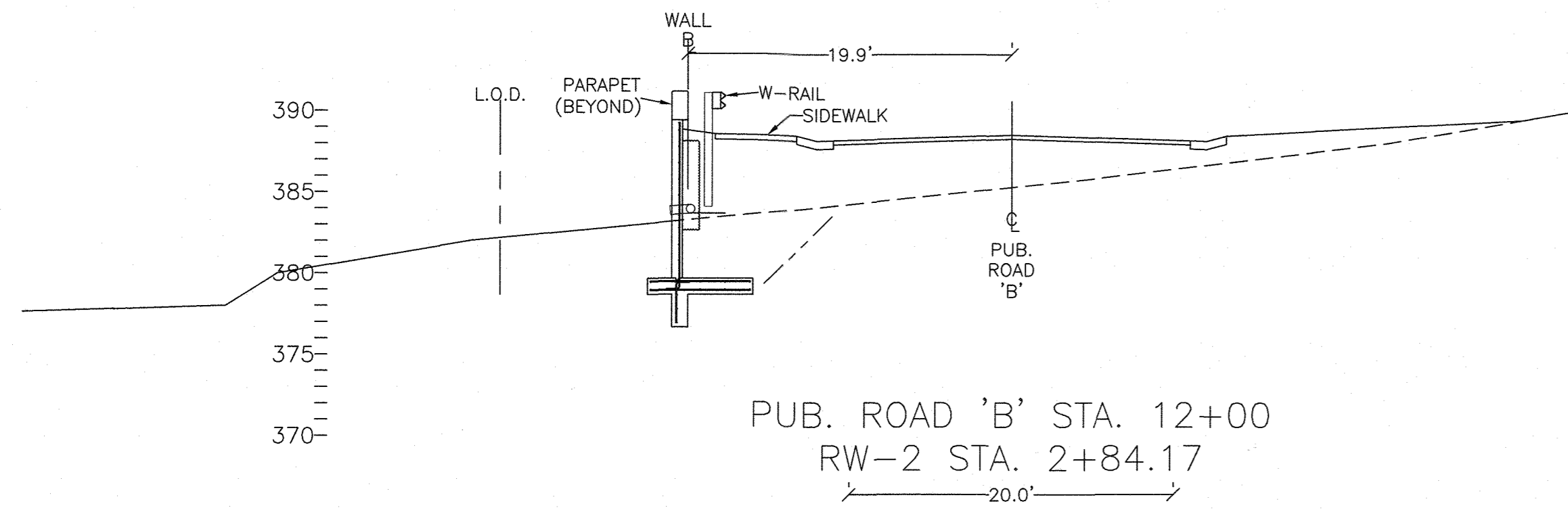


HILLIS-CARNES
ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-2, RW-3, AND CULVERT ELEVATION
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE
1	PARAPET AND FENCE ADDED	7/6/21

JOB NUMBER: G20054	DESIGNED BY: PR
SCALE: AS SHOWN	DRAWN BY: PR
DATE: 7/6/2020	APPROVED BY: PR

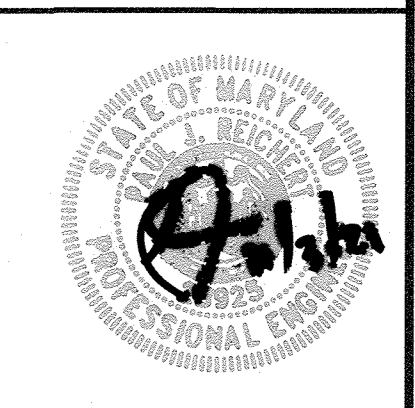


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/21/20

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-10-21

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. 28925
 EXPIRATION DATE: 01/15/22



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

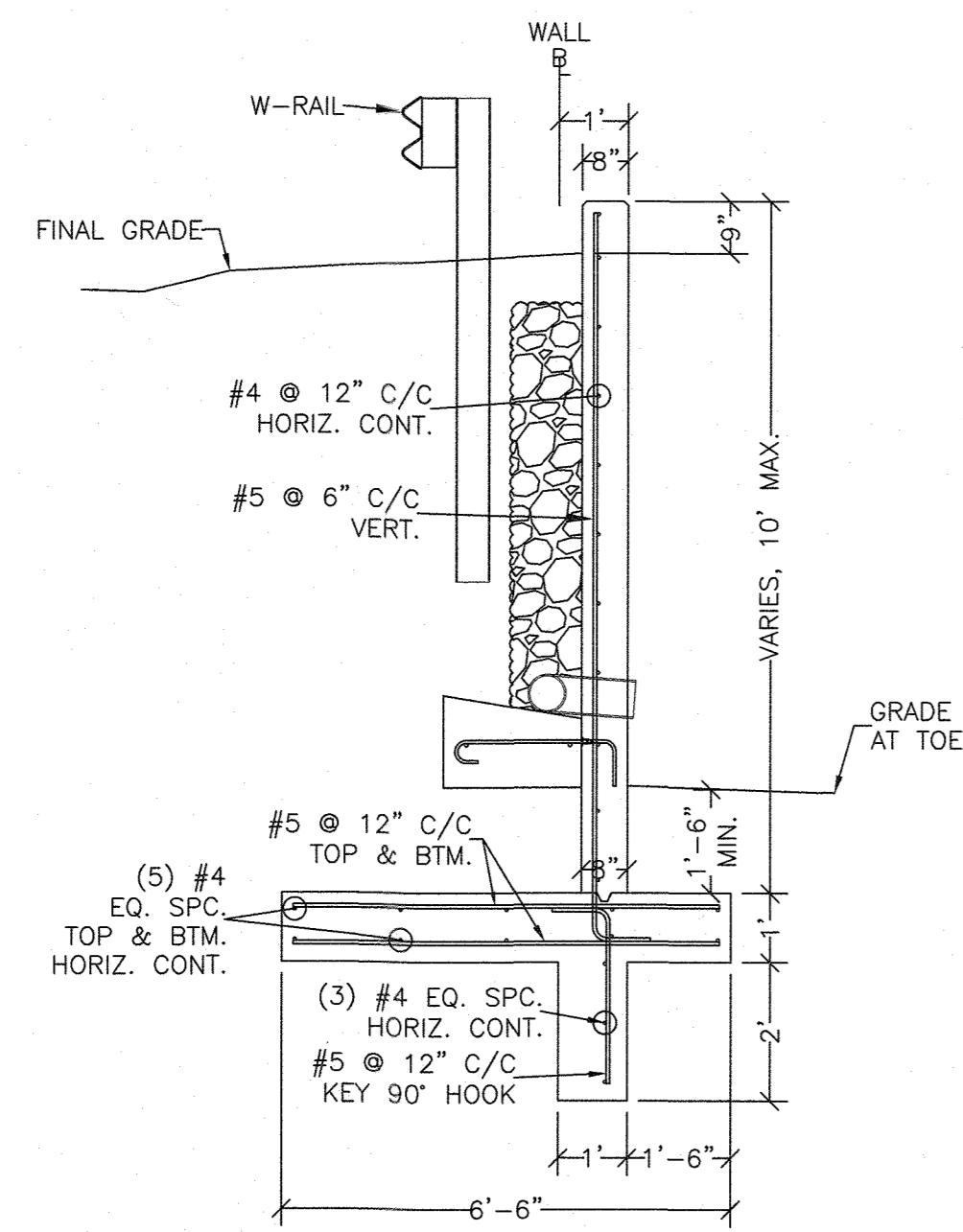
RW-2, RW-3, AND CULVERT ROADWAY SECTIONS
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE
1	PARAPET AND FENCE ADDED	7/6/21

JOB NUMBER: G20054
 SCALE: AS SHOWN
 DATE: 7/6/2020

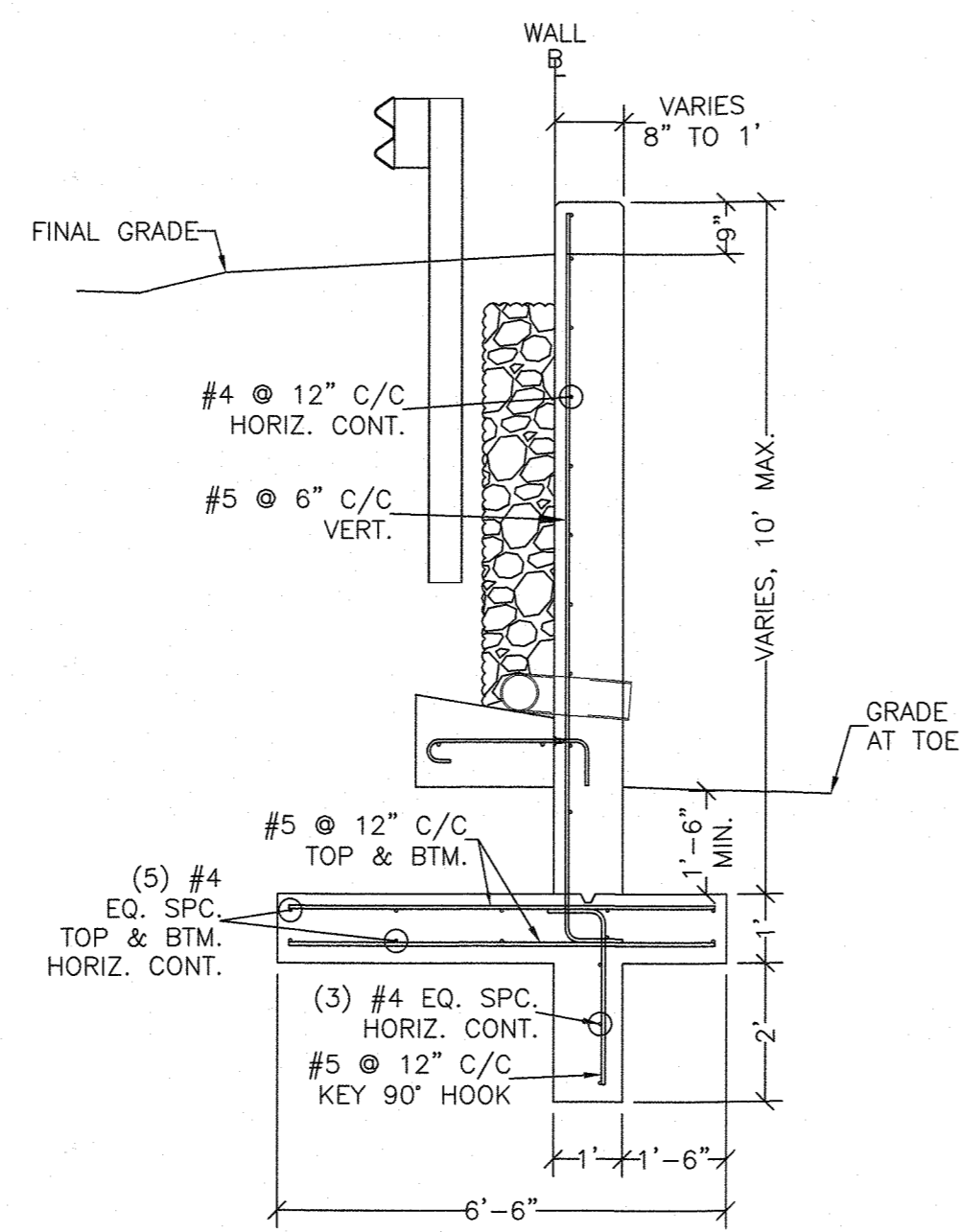
DESIGNED BY: PR
 DRAWN BY: PR
 APPROVED BY: PR

72 of 80
 SHEET



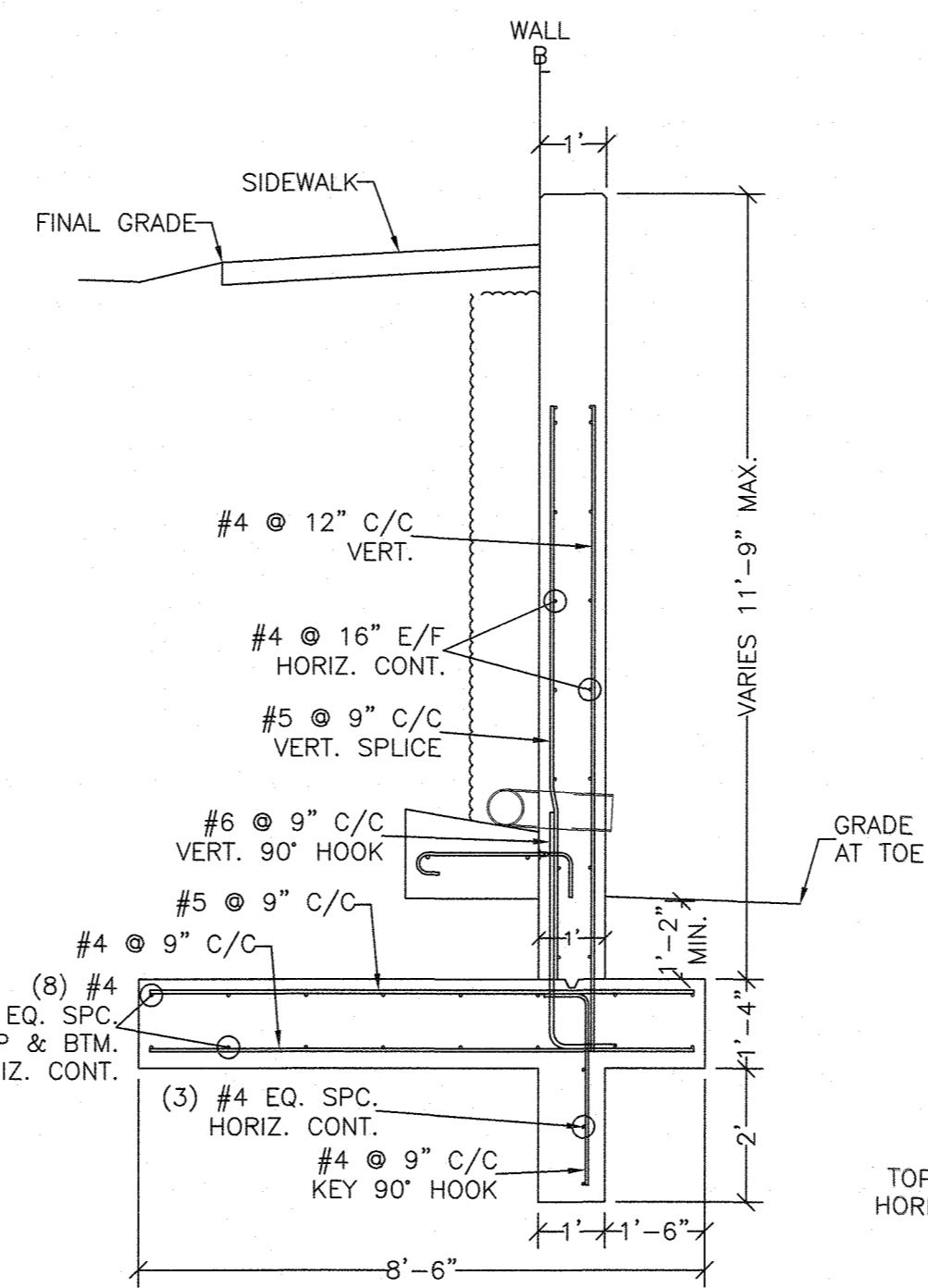
SECTION - RW-2
WALL TYPE 12P

5' (SCALE)



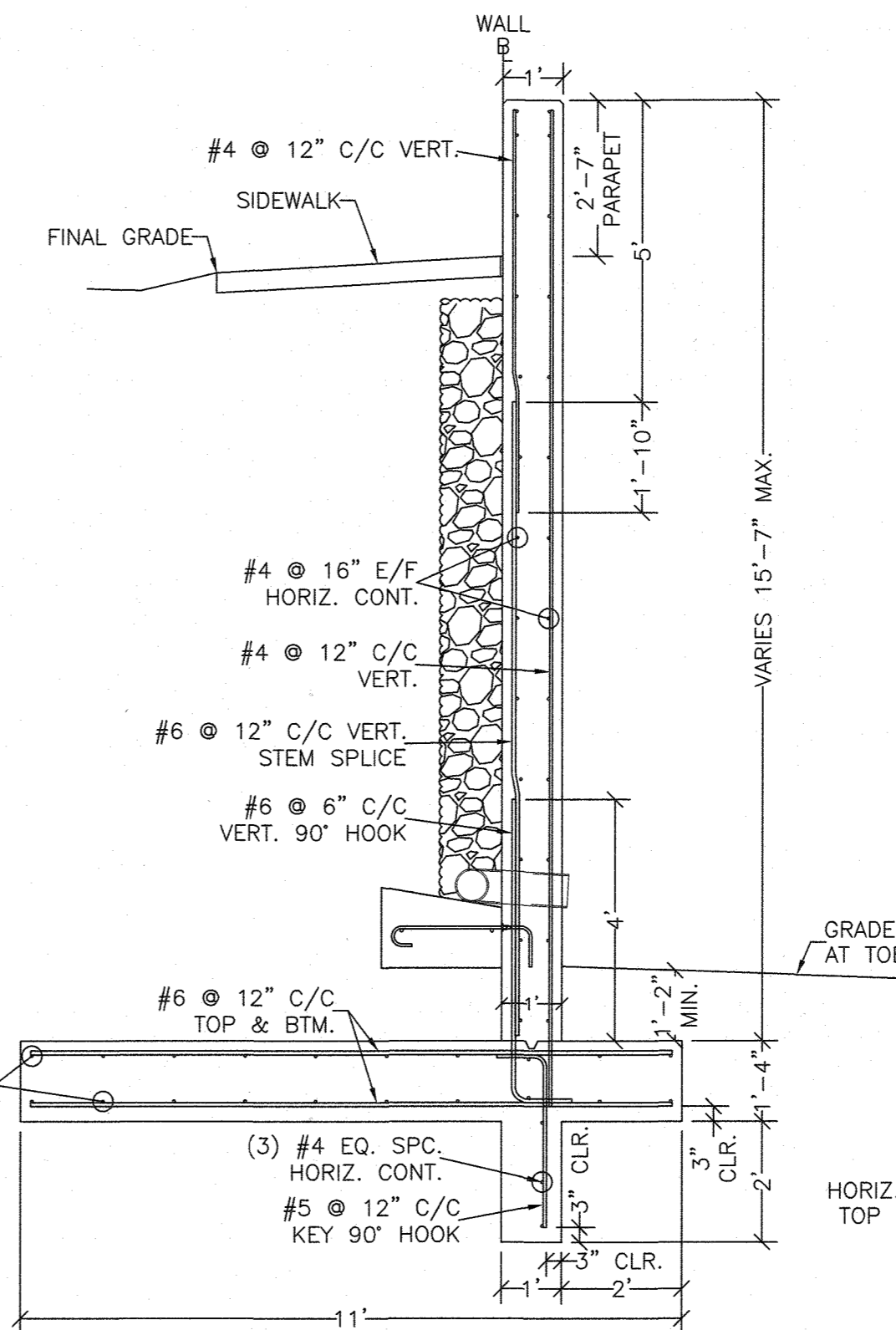
SECTION - RW-2
WALL TYPE 12P (TRANSITION)

5' (SCALE)



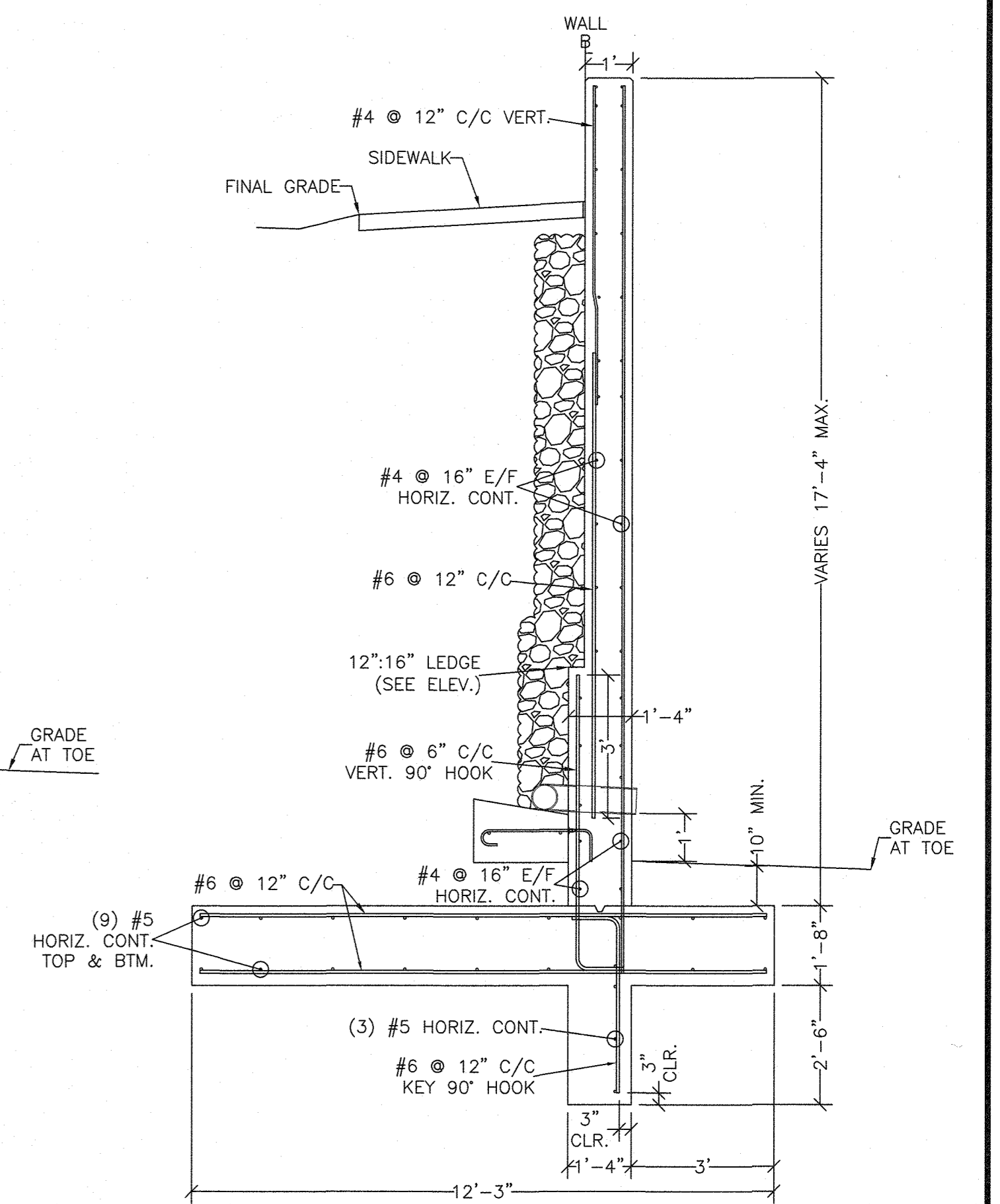
SECTION - RW-2
WALL TYPE 13P

5' (SCALE)



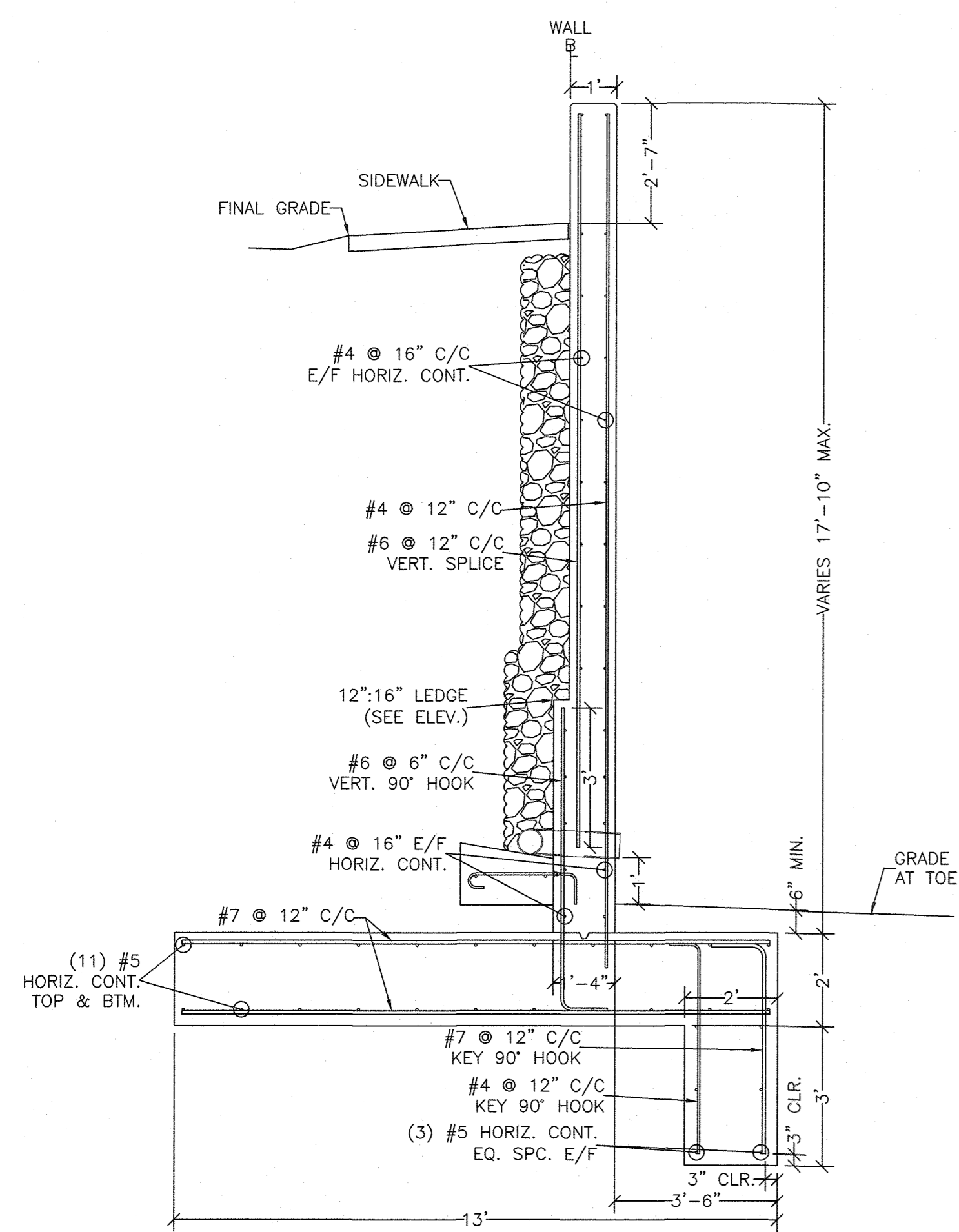
SECTION - RW-2
WALL TYPE 14P

5' (SCALE)



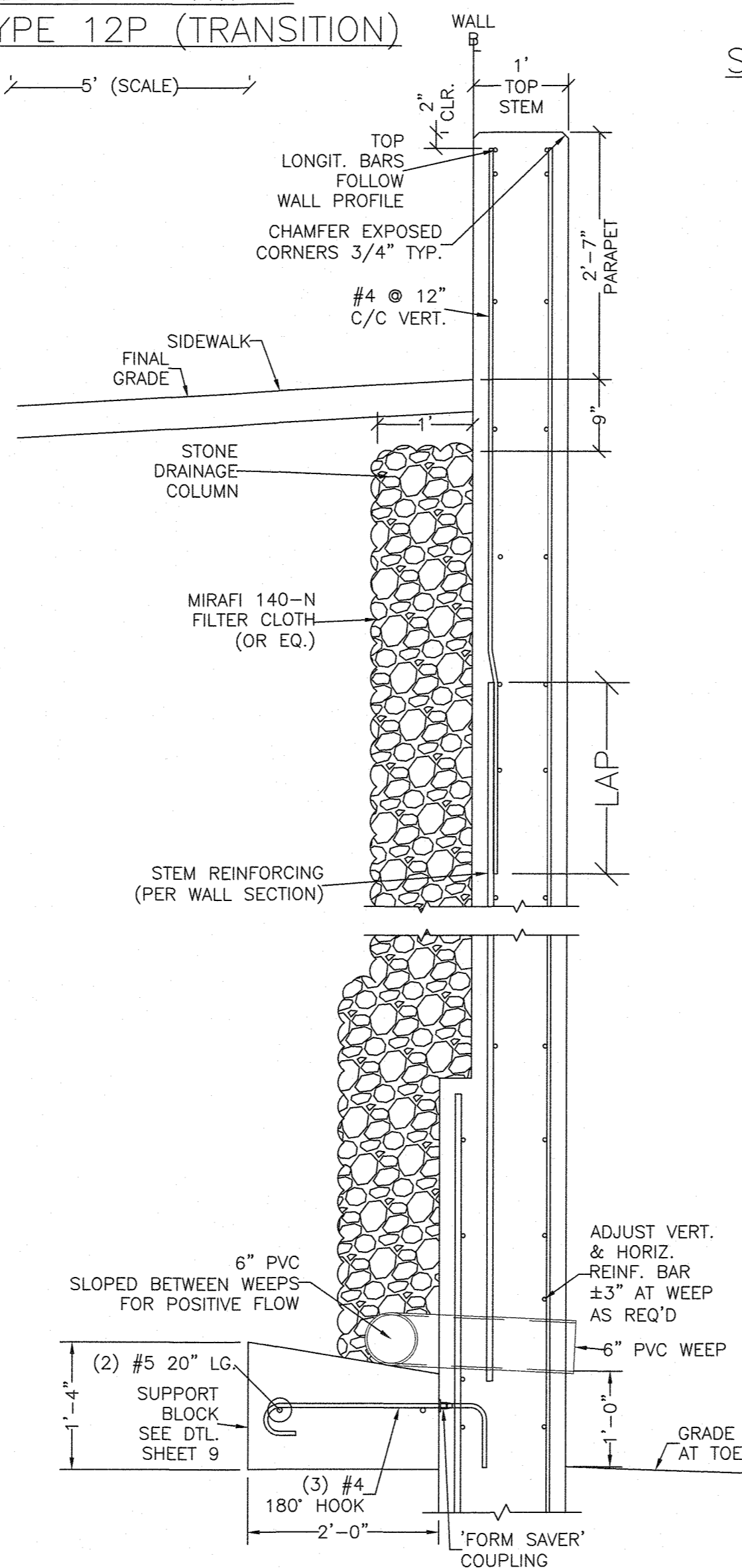
SECTION - RW-2
WALL TYPE 15P

5' (SCALE)



SECTION - RW-2
WALL TYPE 16P

5' (SCALE)



RW-2 / PARAPET - TOP OF WALL,
STONE DRAINAGE COLUMN,
AND WEEPHOLE DETAILS

4'-0" (SCALE)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Clare
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/18/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DL
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/21/21

DL
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-10-21

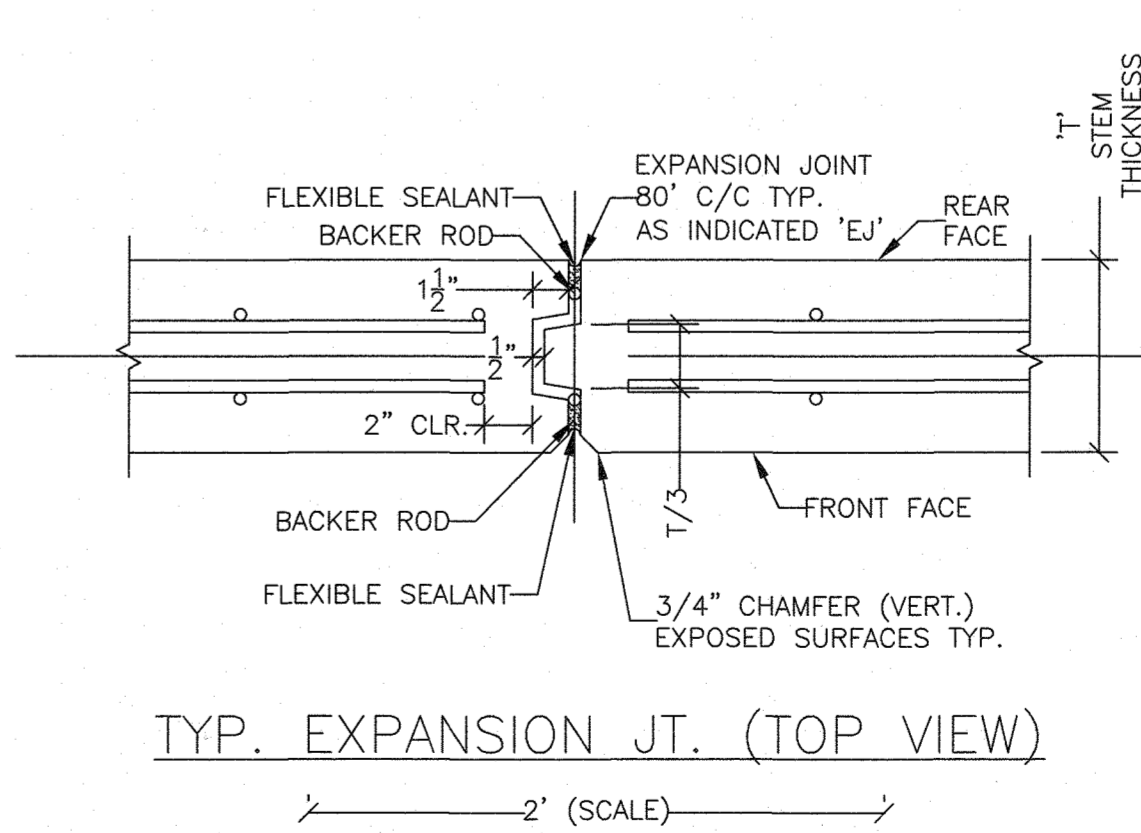
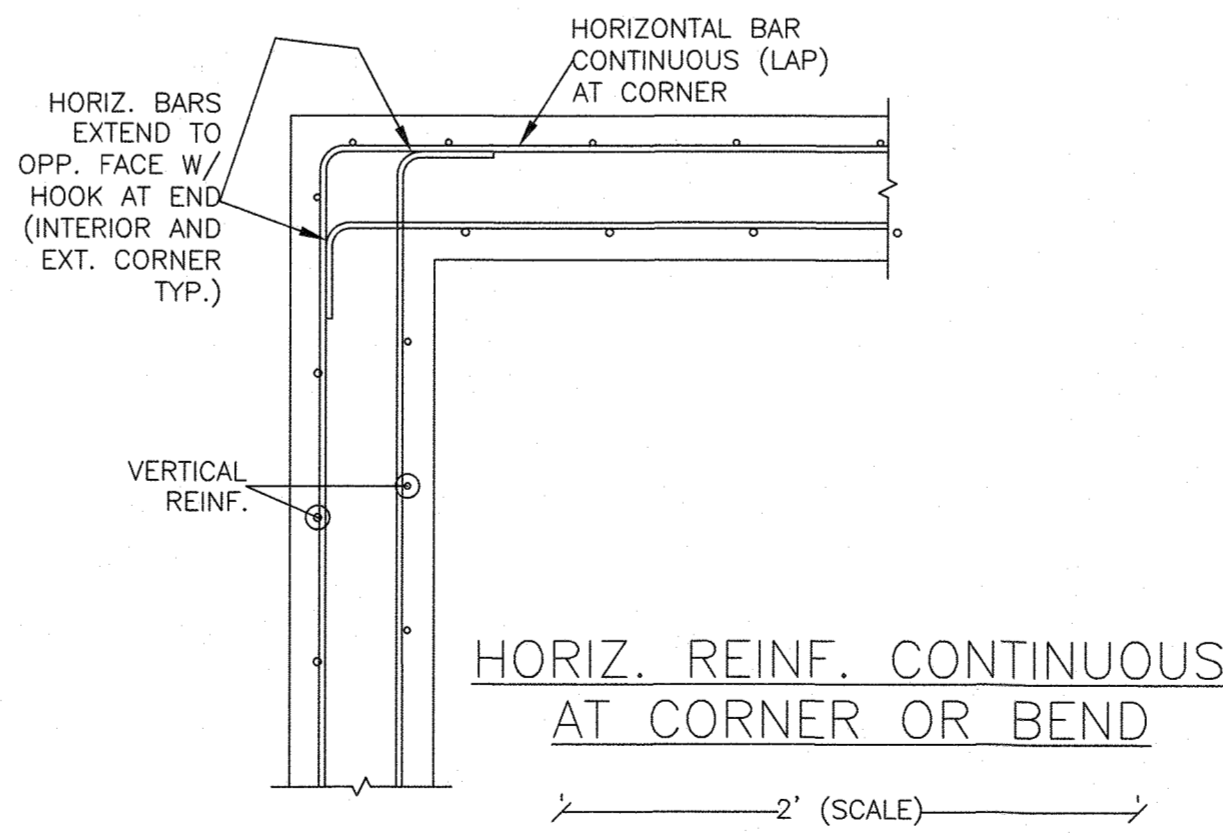
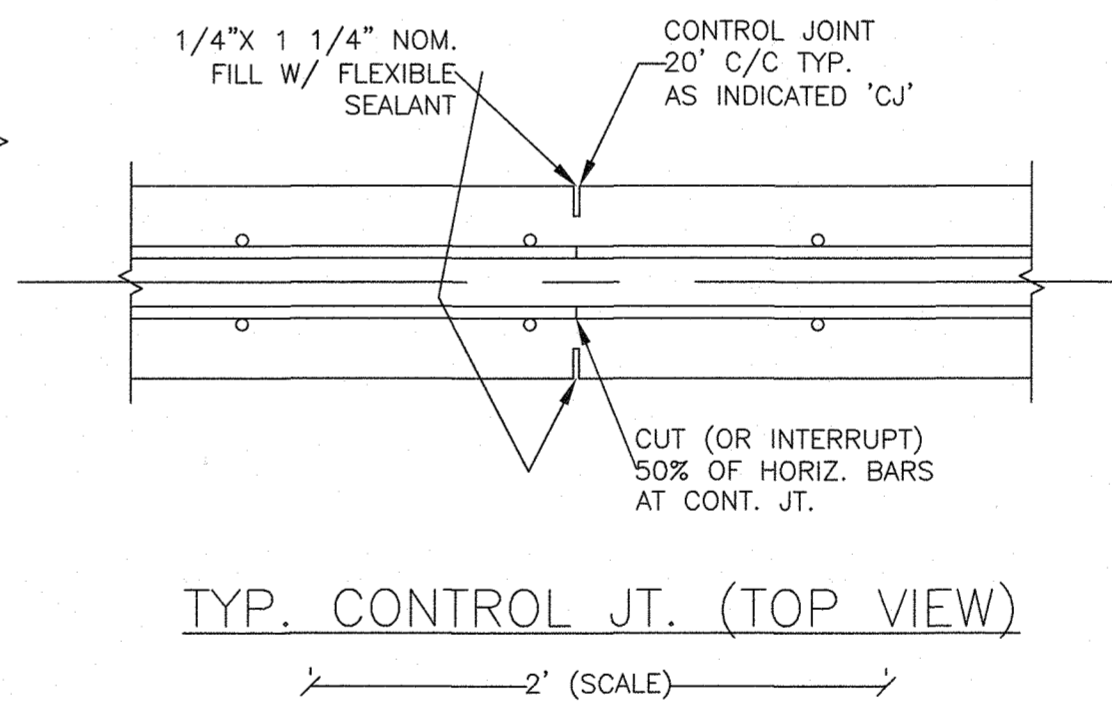
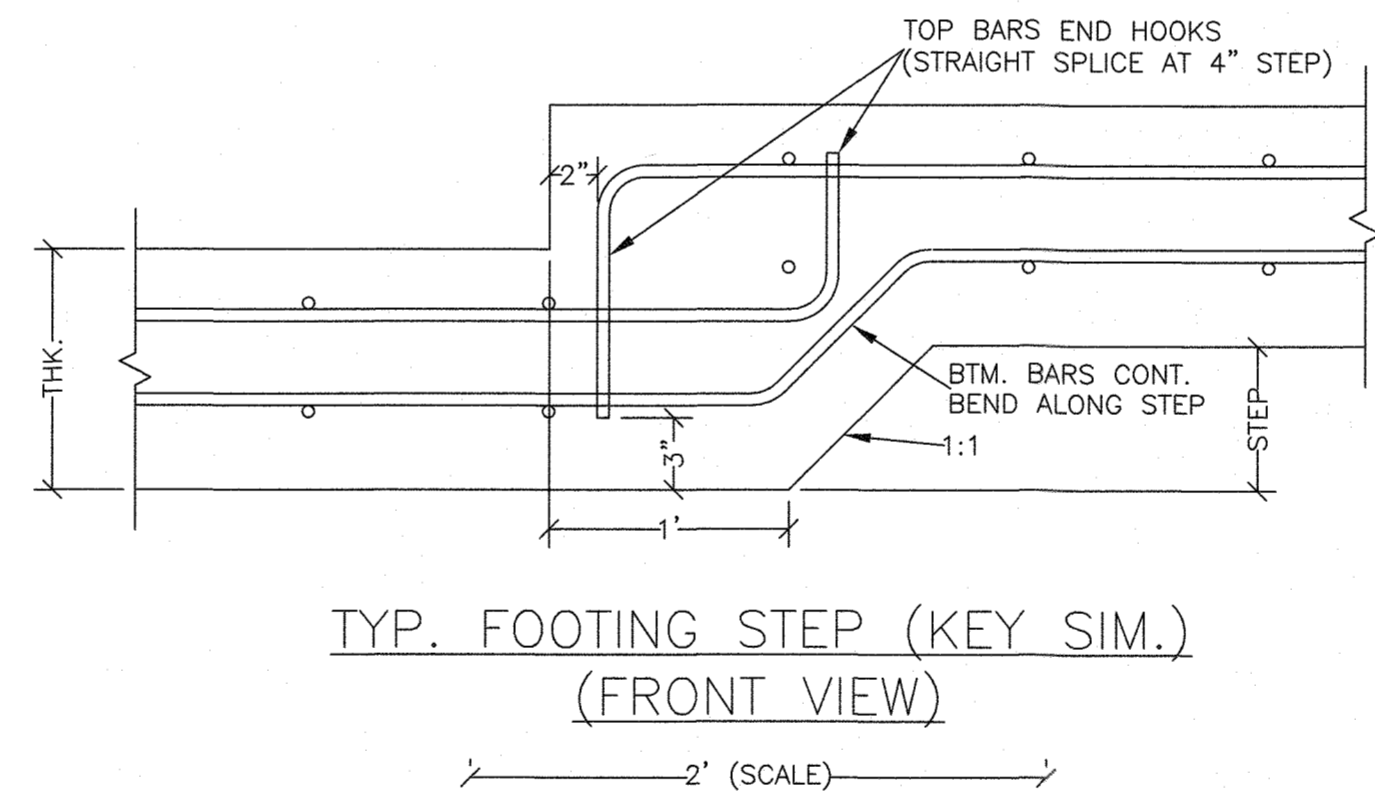
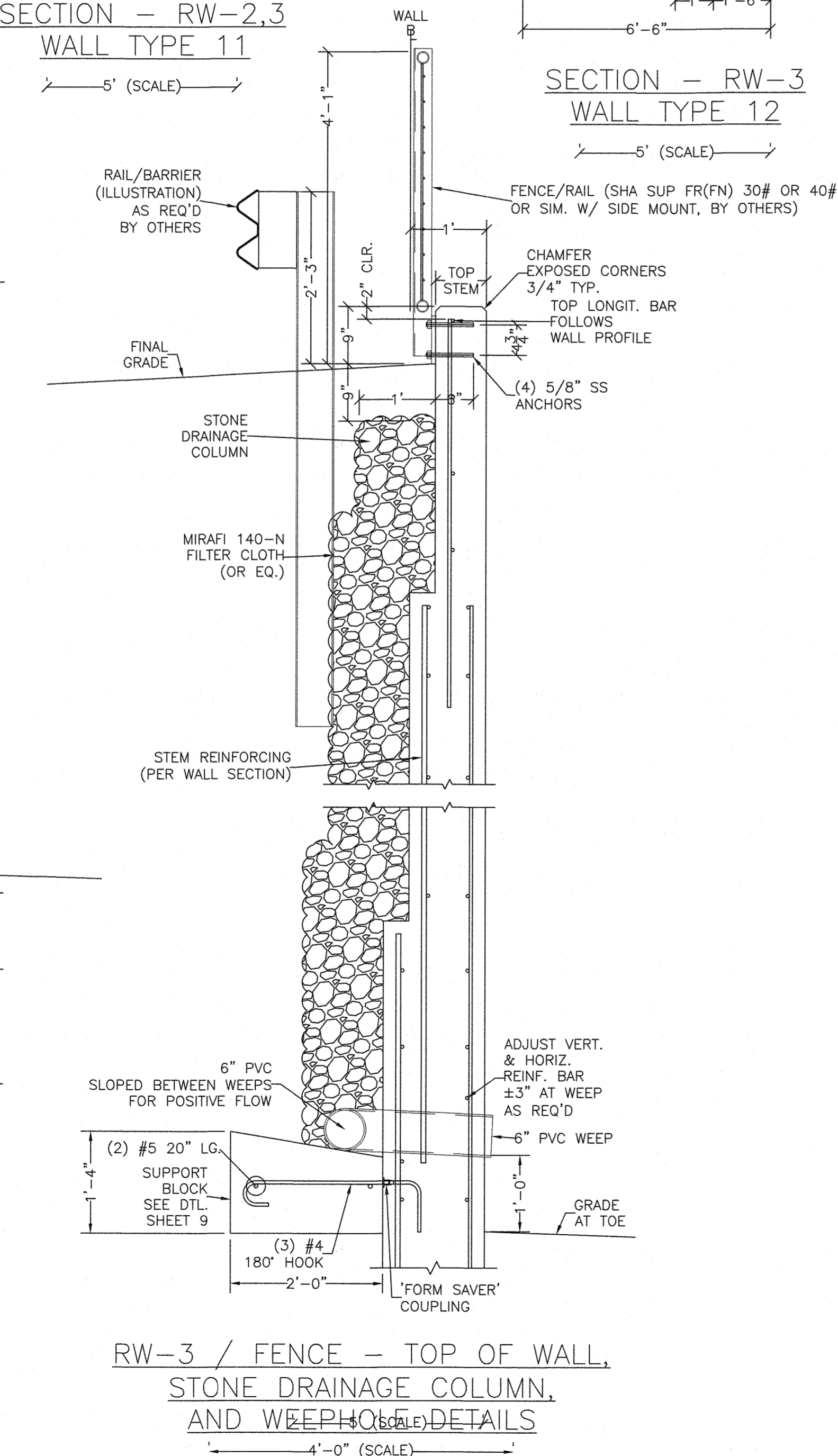
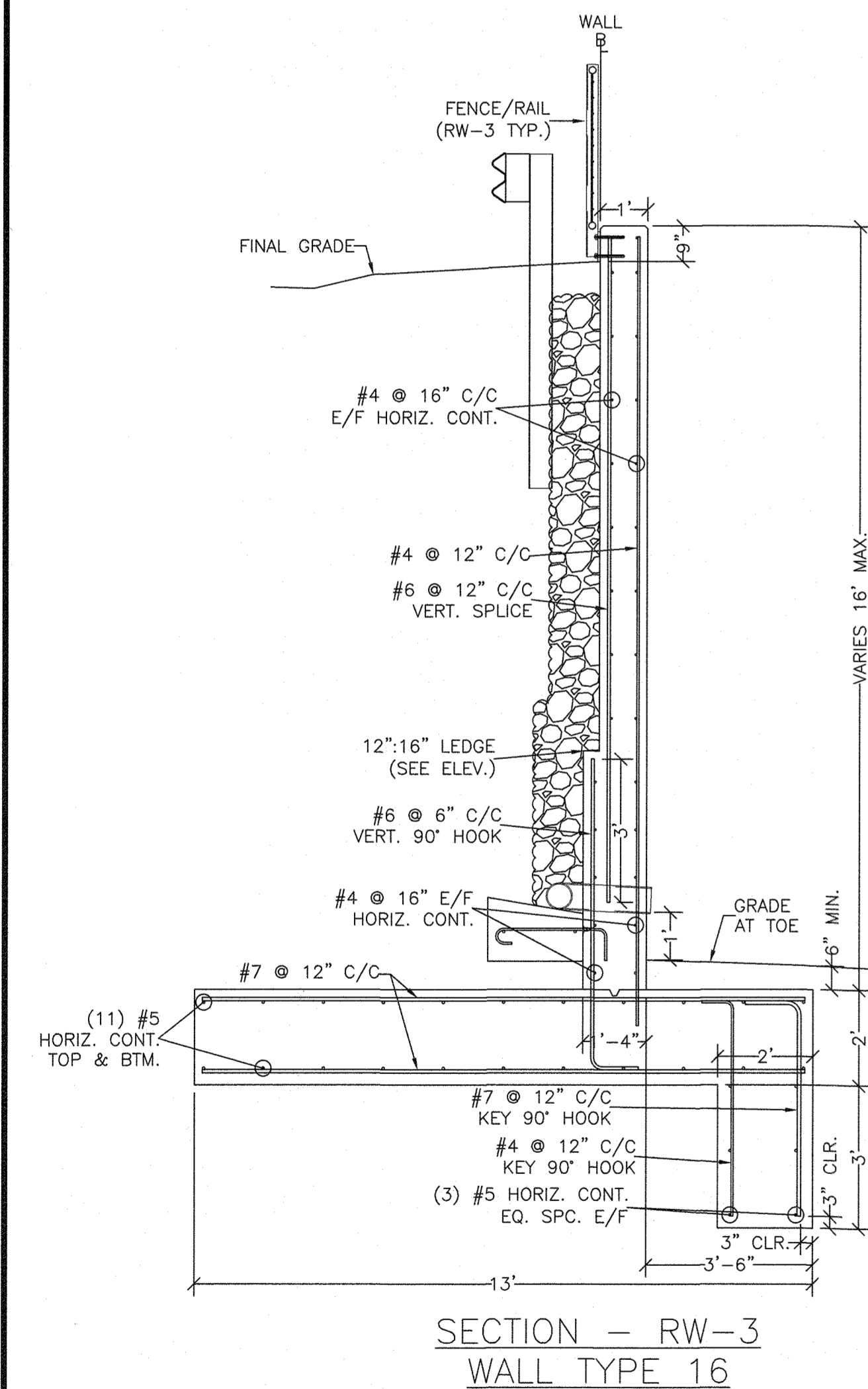
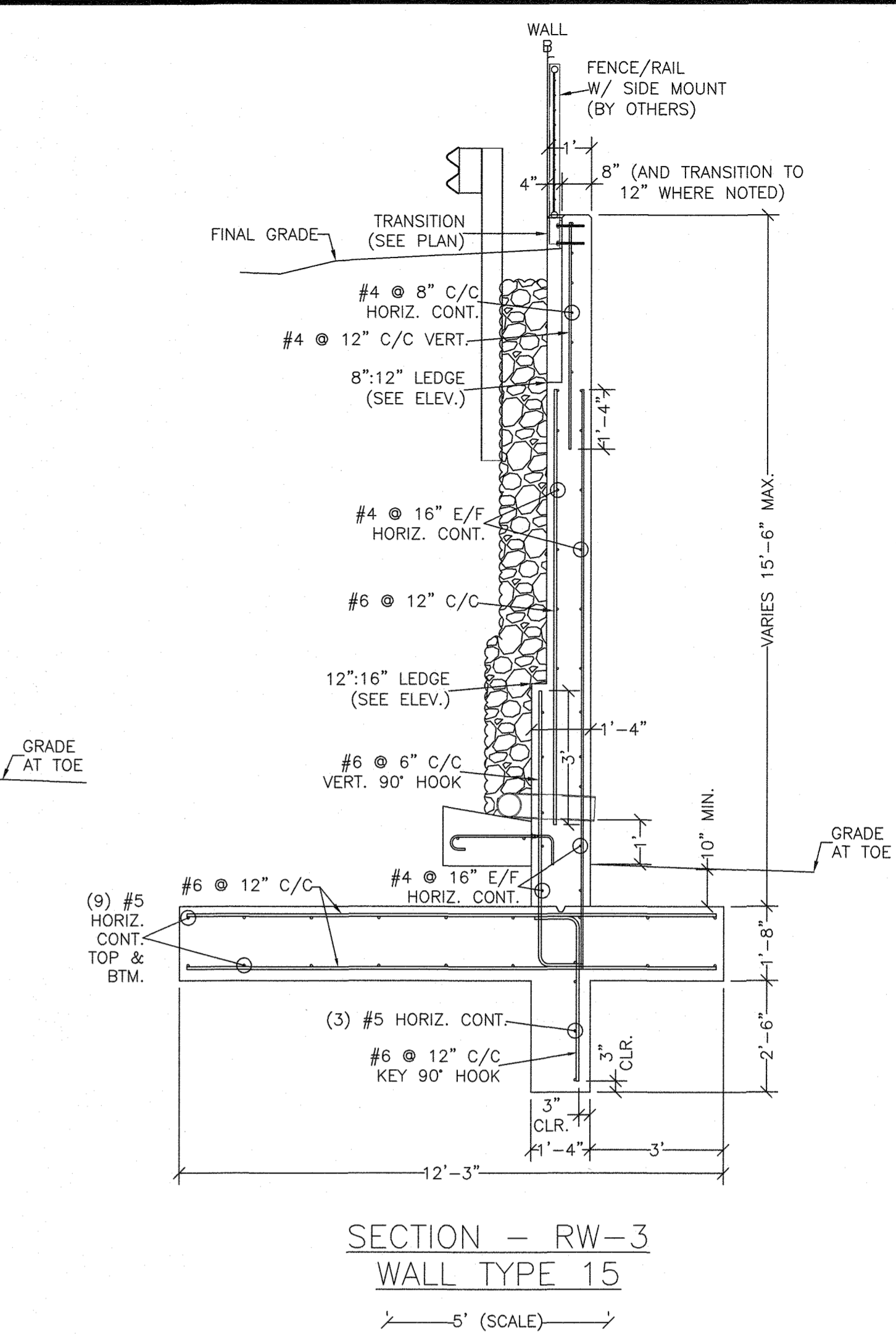
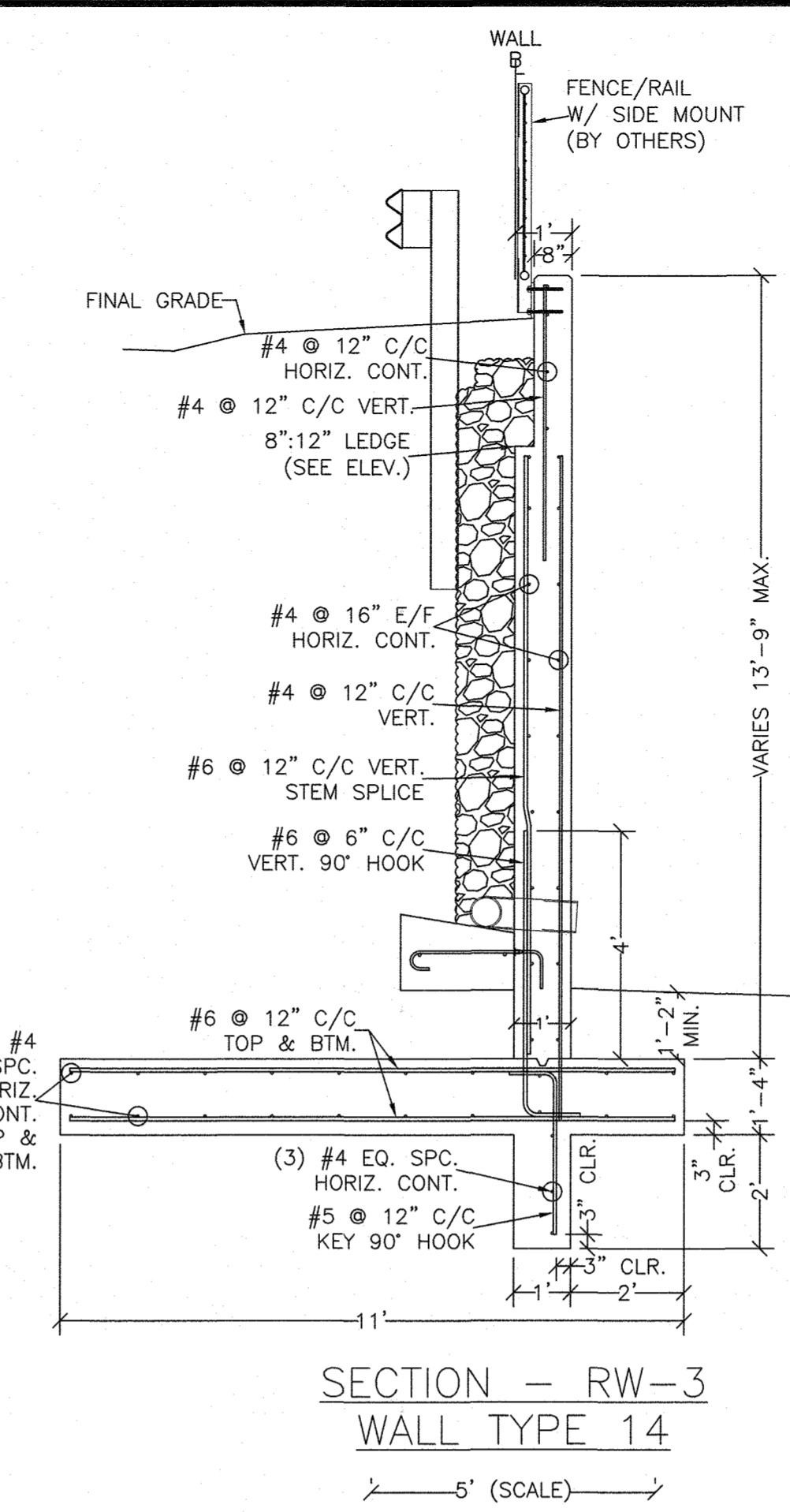
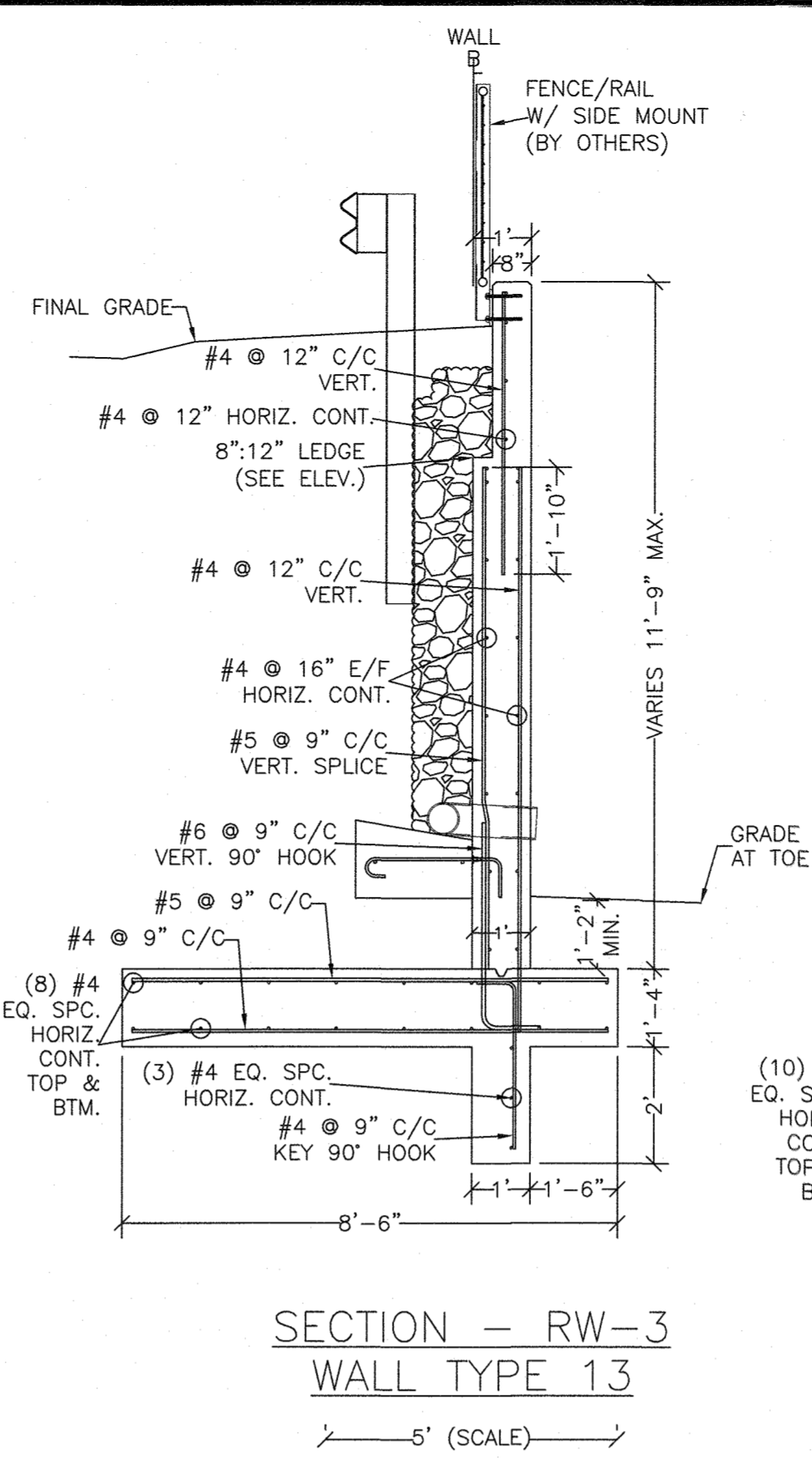
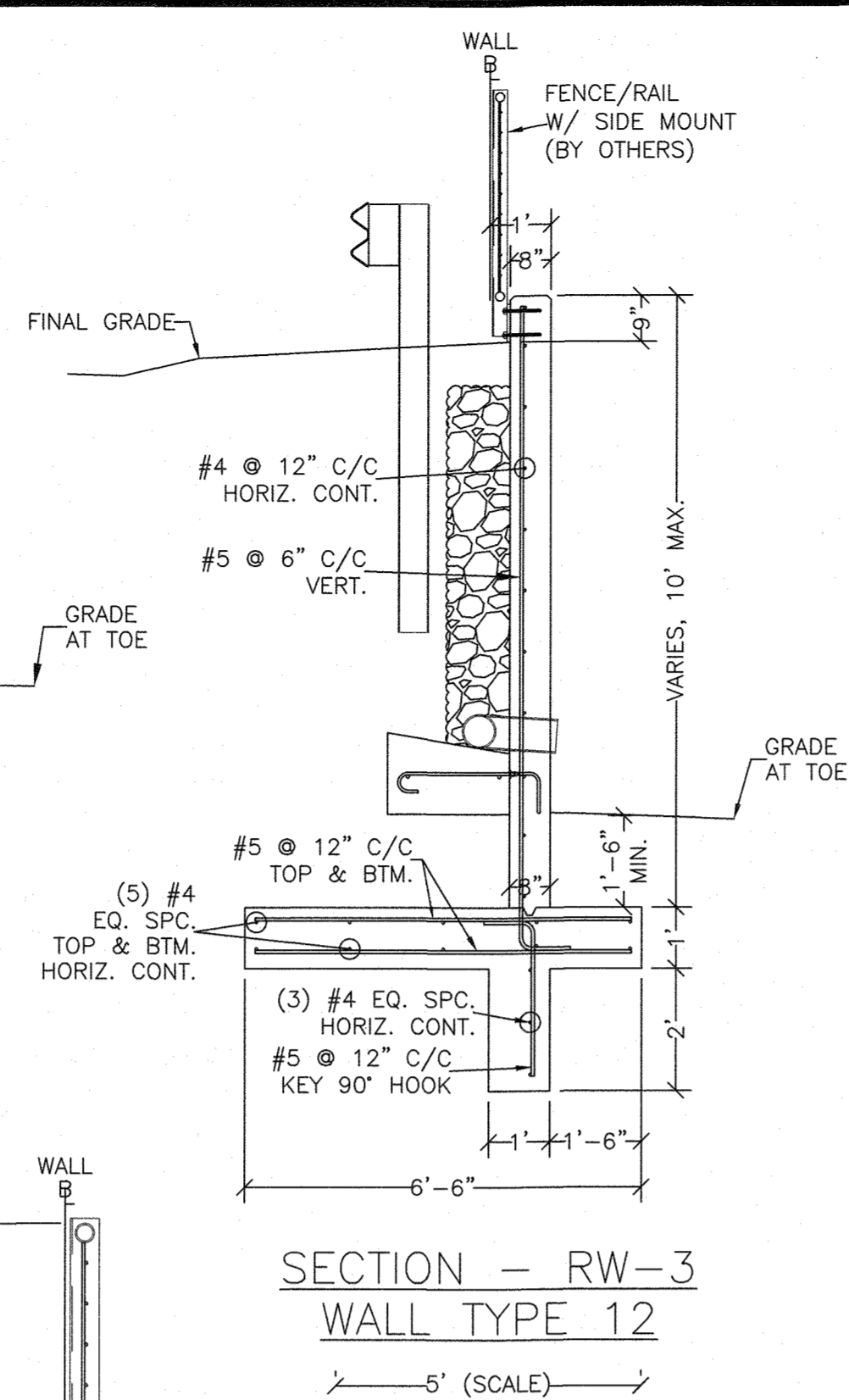
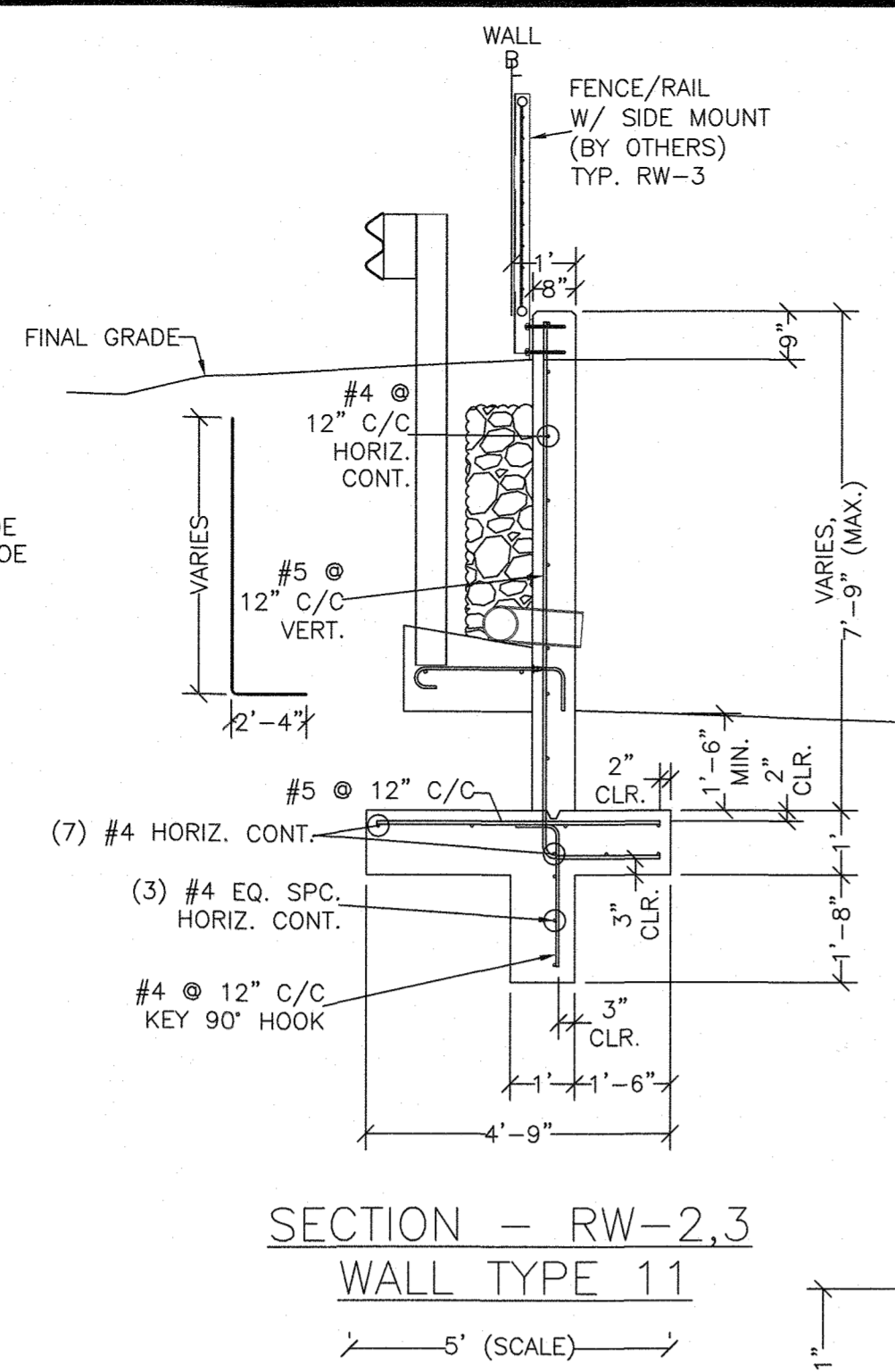
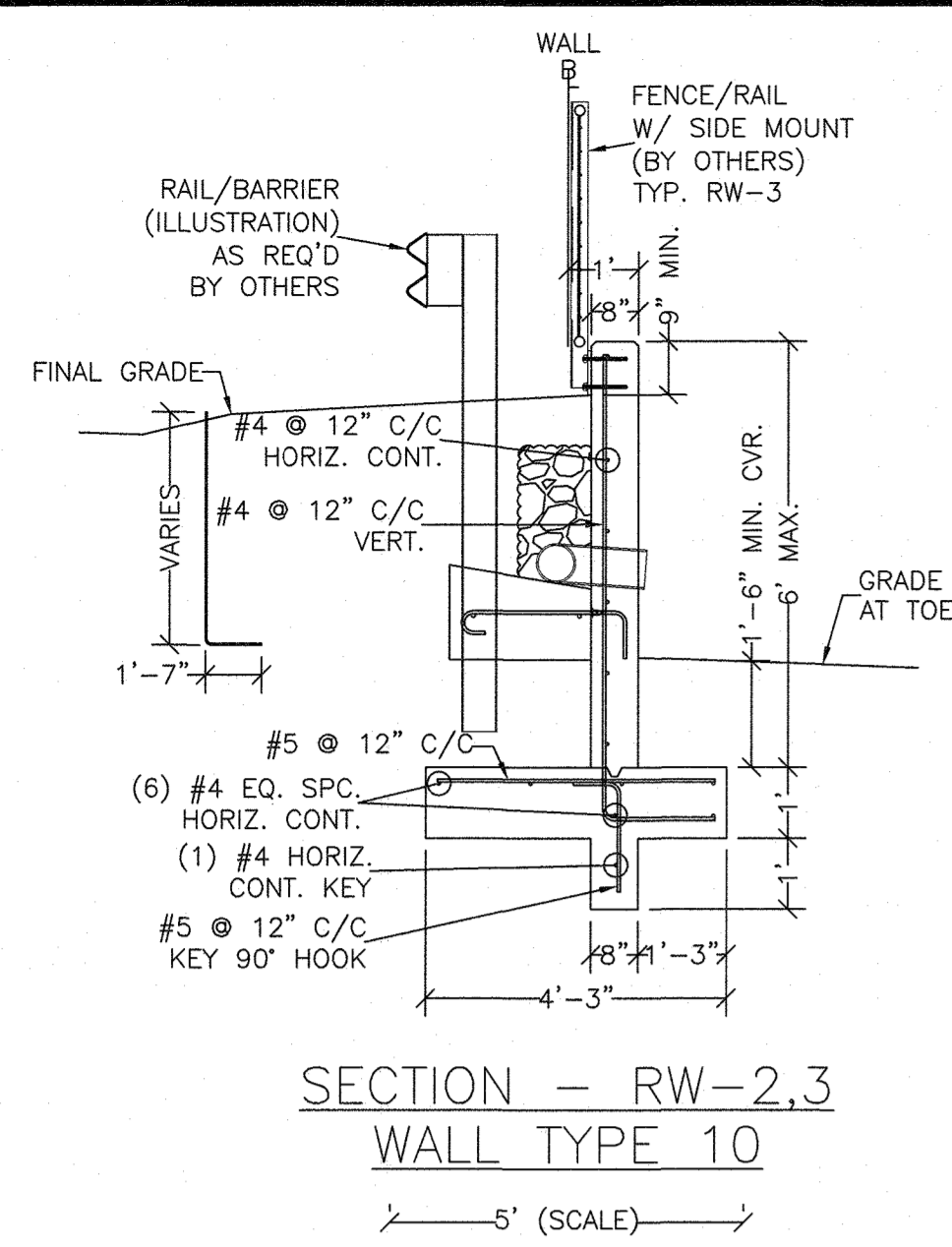
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS
 WERE PREPARED OR APPROVED BY ME,
 AND THAT I AM A DULY LICENSED
 PROFESSIONAL ENGINEER UNDER THE
 LAWS OF THE STATE OF MARYLAND,
 LICENSE NO. 28925
 EXPIRATION DATE: 01/15/22



HILLIS-CARNES
ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-2 WALL TYP. SECTIONS AND DETAILS
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	PARAPET AND FENCE ADDED	7/6/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/17/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/21/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-16-21

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. 28925
 EXPIRATION DATE: 01/15/22

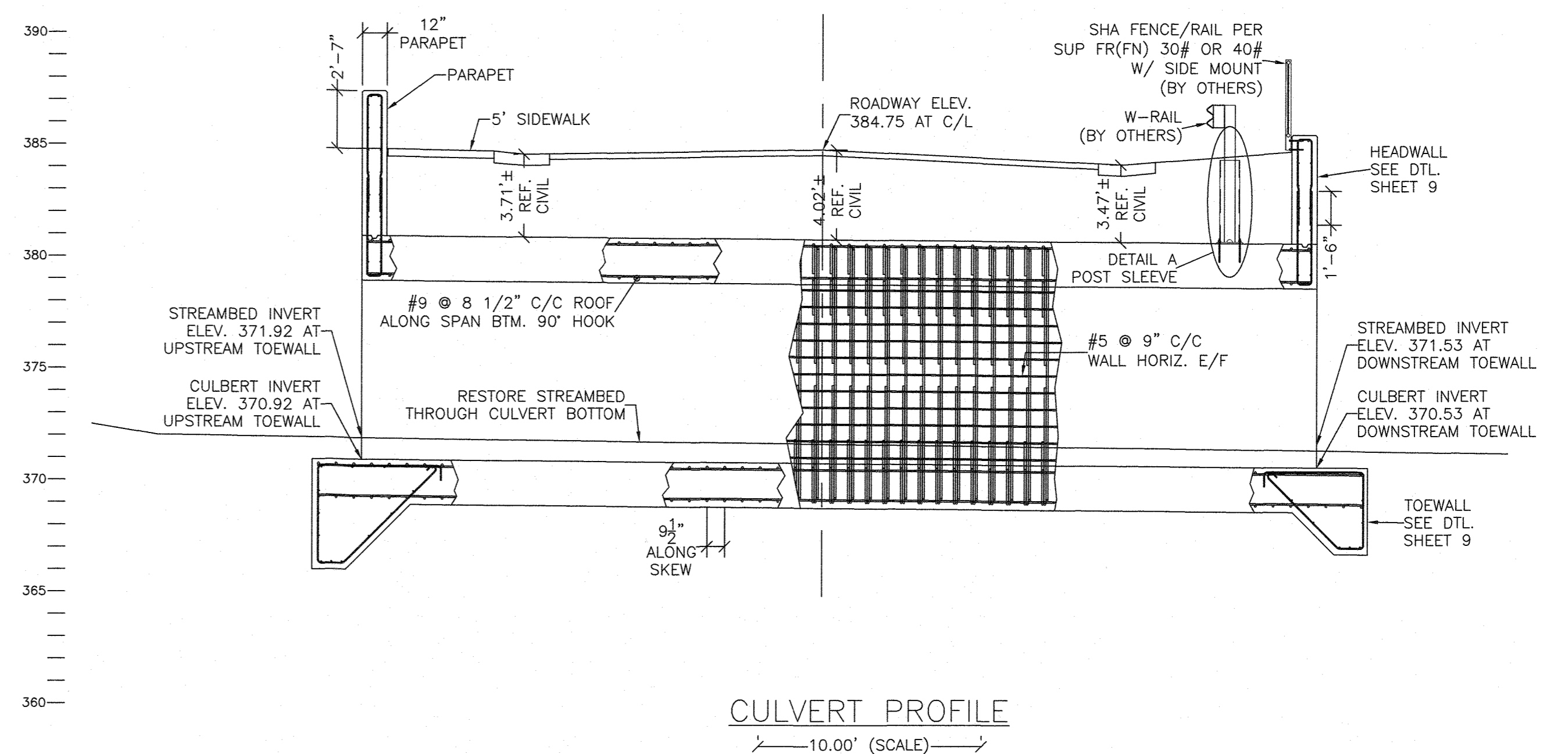
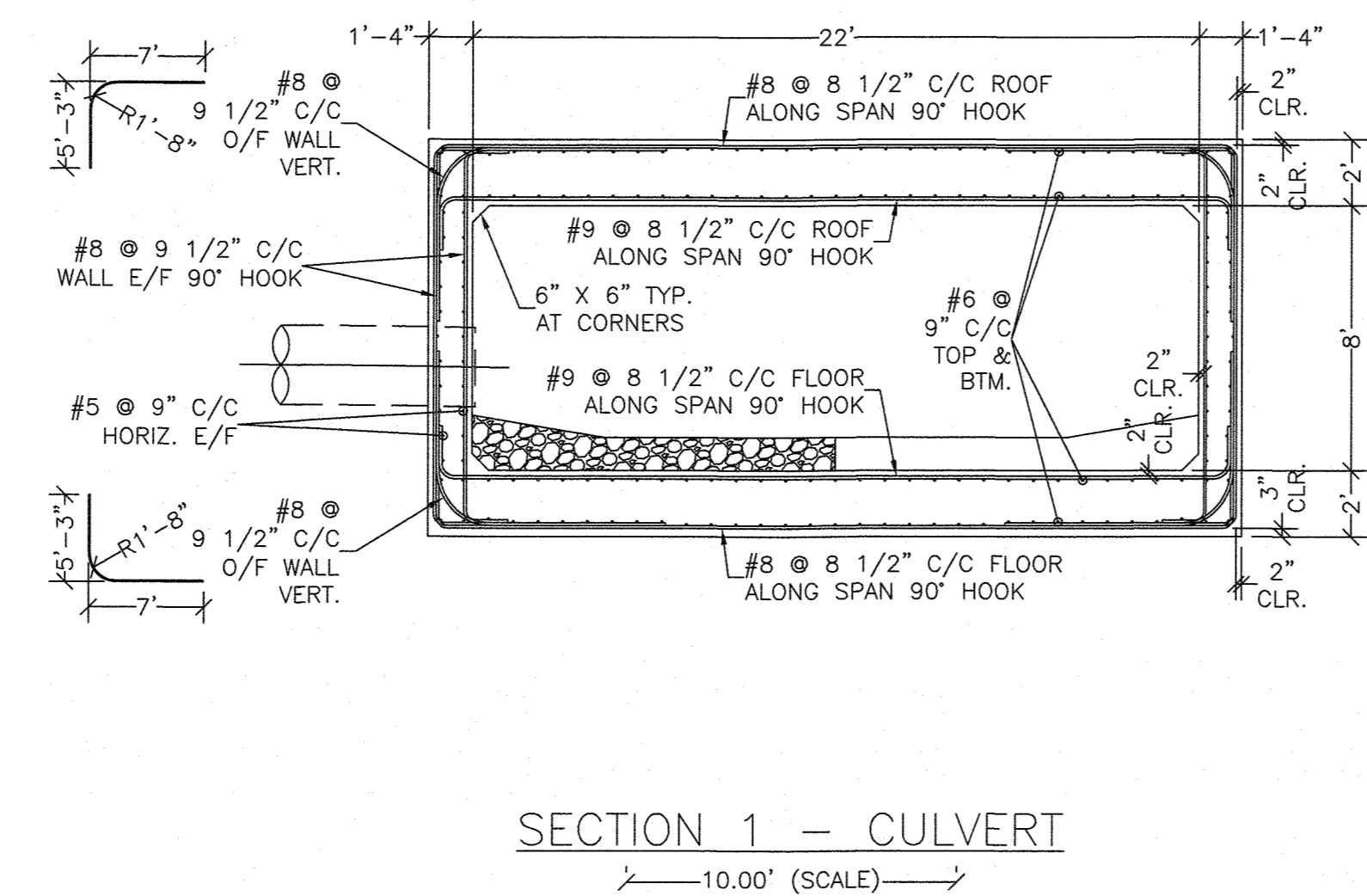
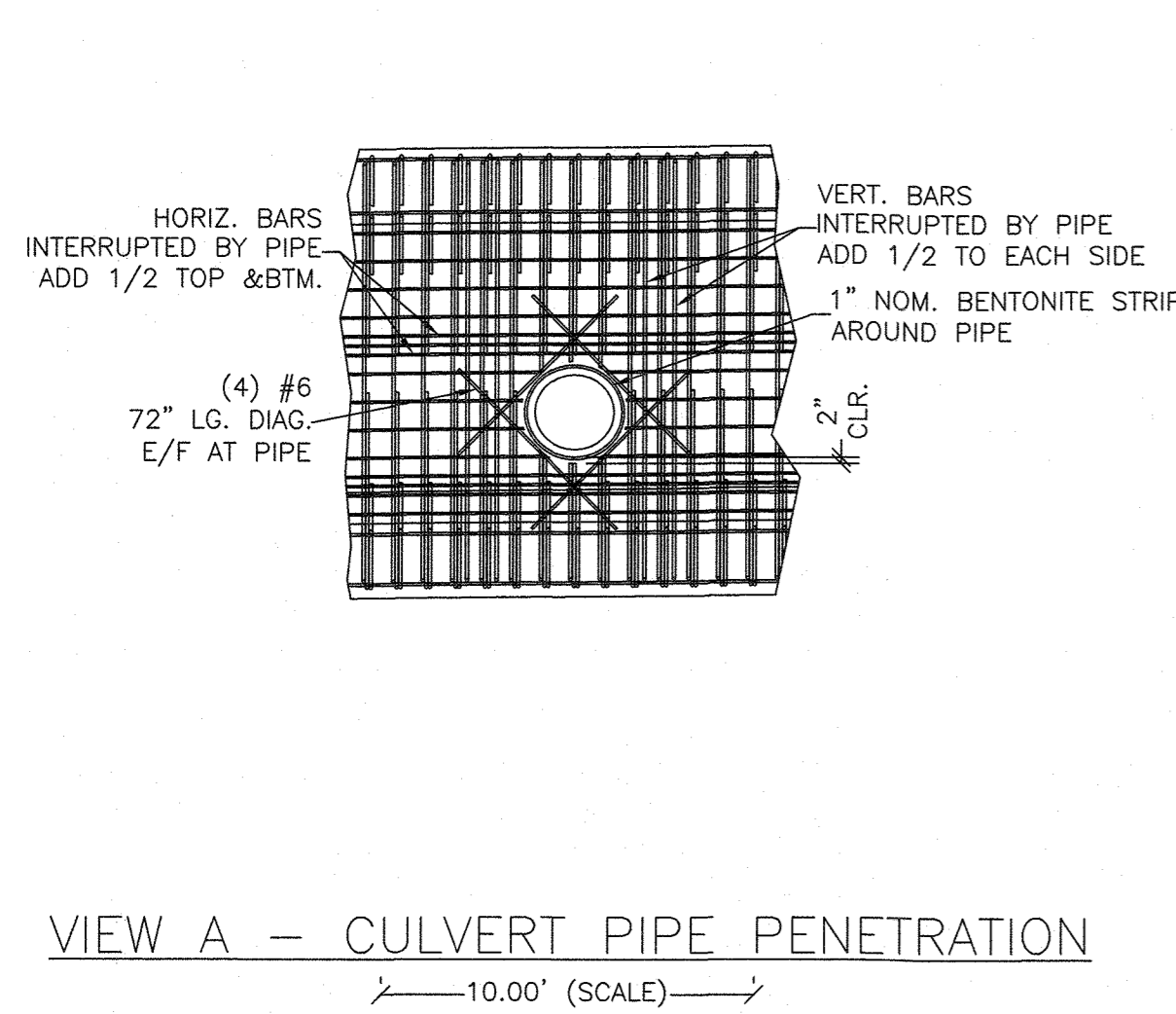
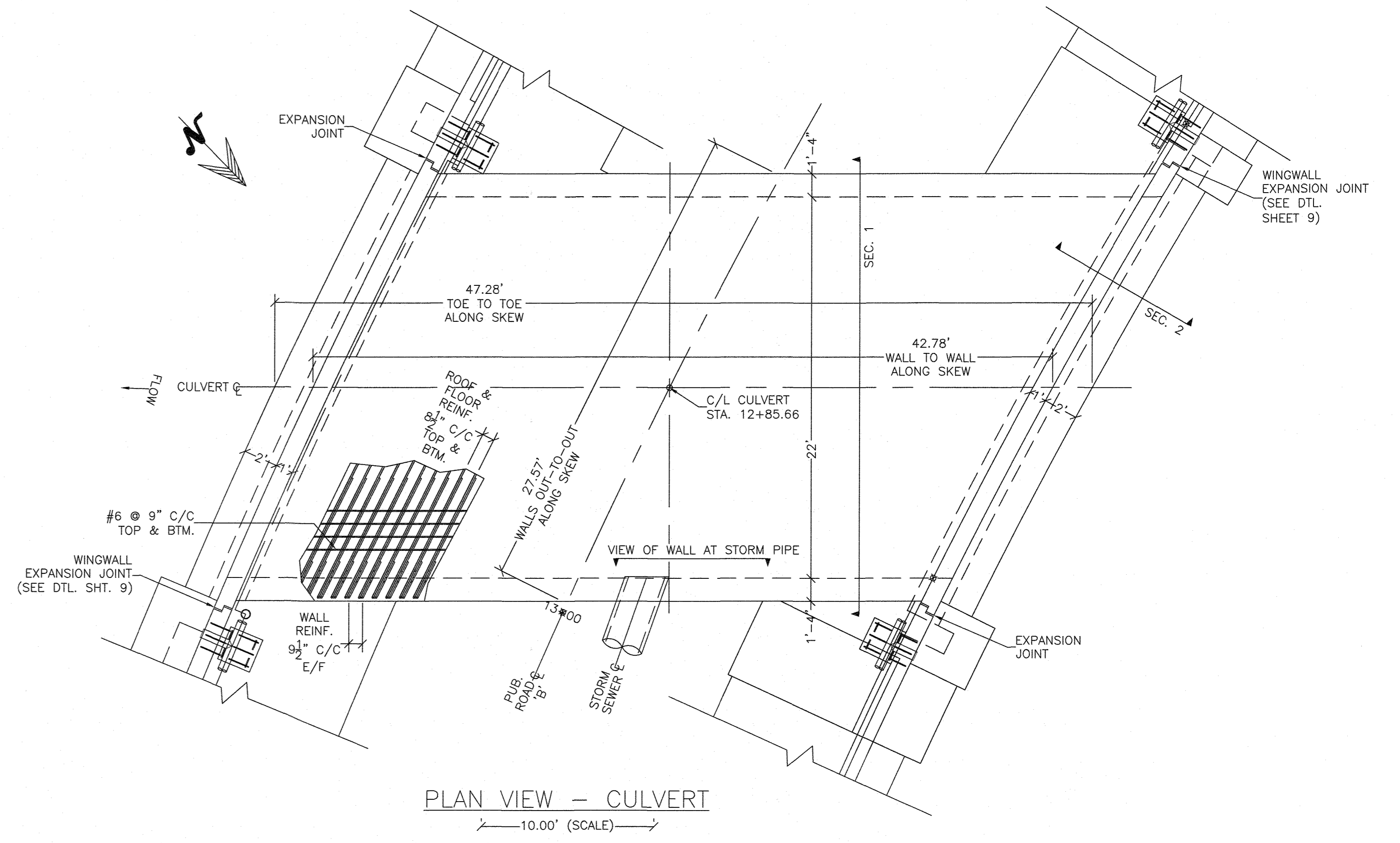
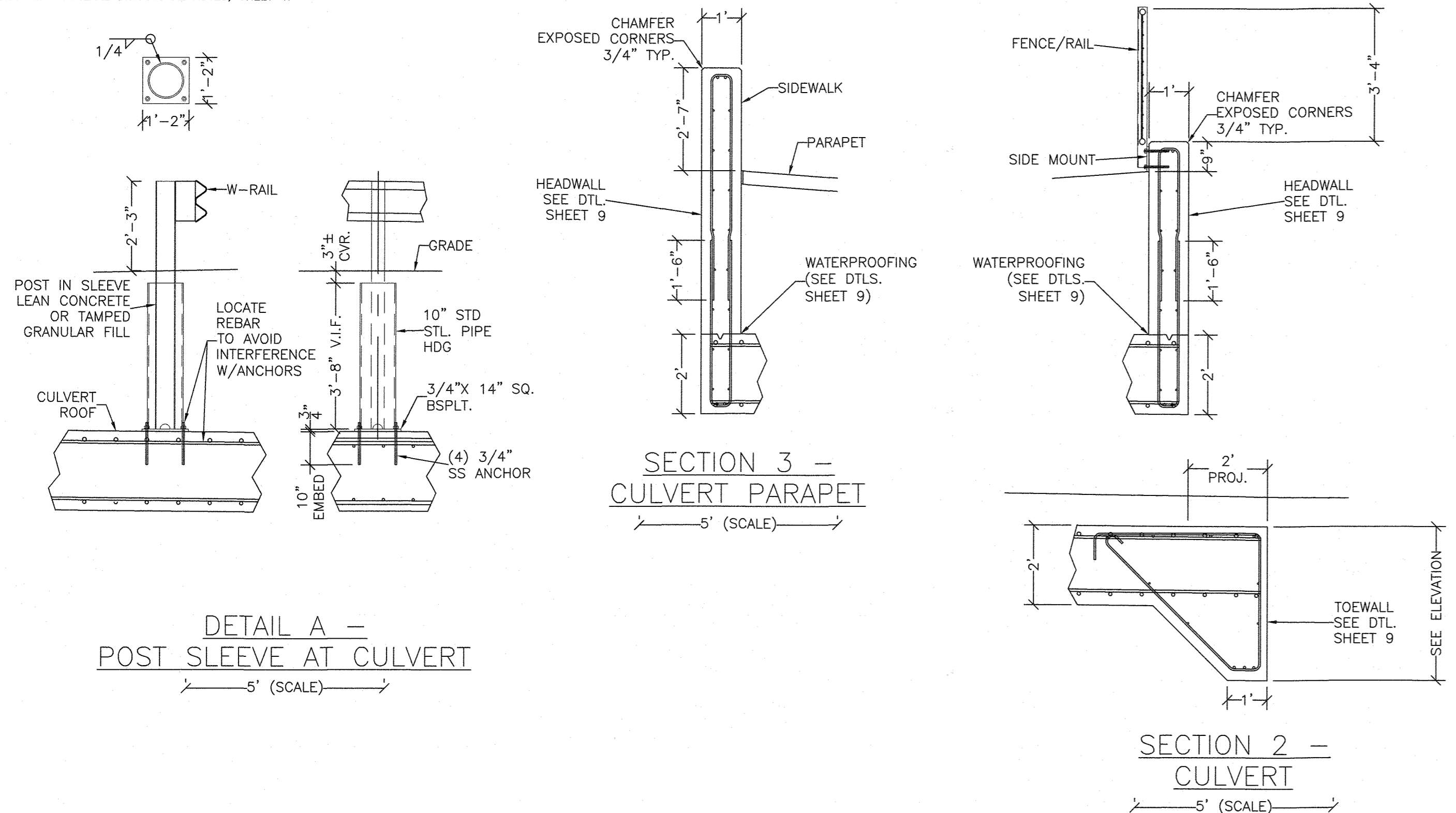


HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-3 WALL TYP. SECTIONS AND DETAILS
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	PR
1	PARAPET AND FENCE ADDED	7/6/21	G20054	DRAWN BY:	PR
			SCALE: AS SHOWN	APPROVED BY:	PR
			DATE: 7/6/2020		

- CULVERT NOTES:**
- CONSTRUCTION TO COMPLY WITH MD SHA, AASHTO, ACI MANUAL OF CONCRETE PRACTICE, ACI 318 CODE FOR CONCRETE CONSTRUCTION.
 - VEHICLE LOADS CONSIDERED: AASHTO HL-93, MD SHA TANDEM.
 - SEE ALSO GENERAL STRUCTURAL NOTES, SHEET 4.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/16/21

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. 28925, EXPIRATION DATE: 01/18/22



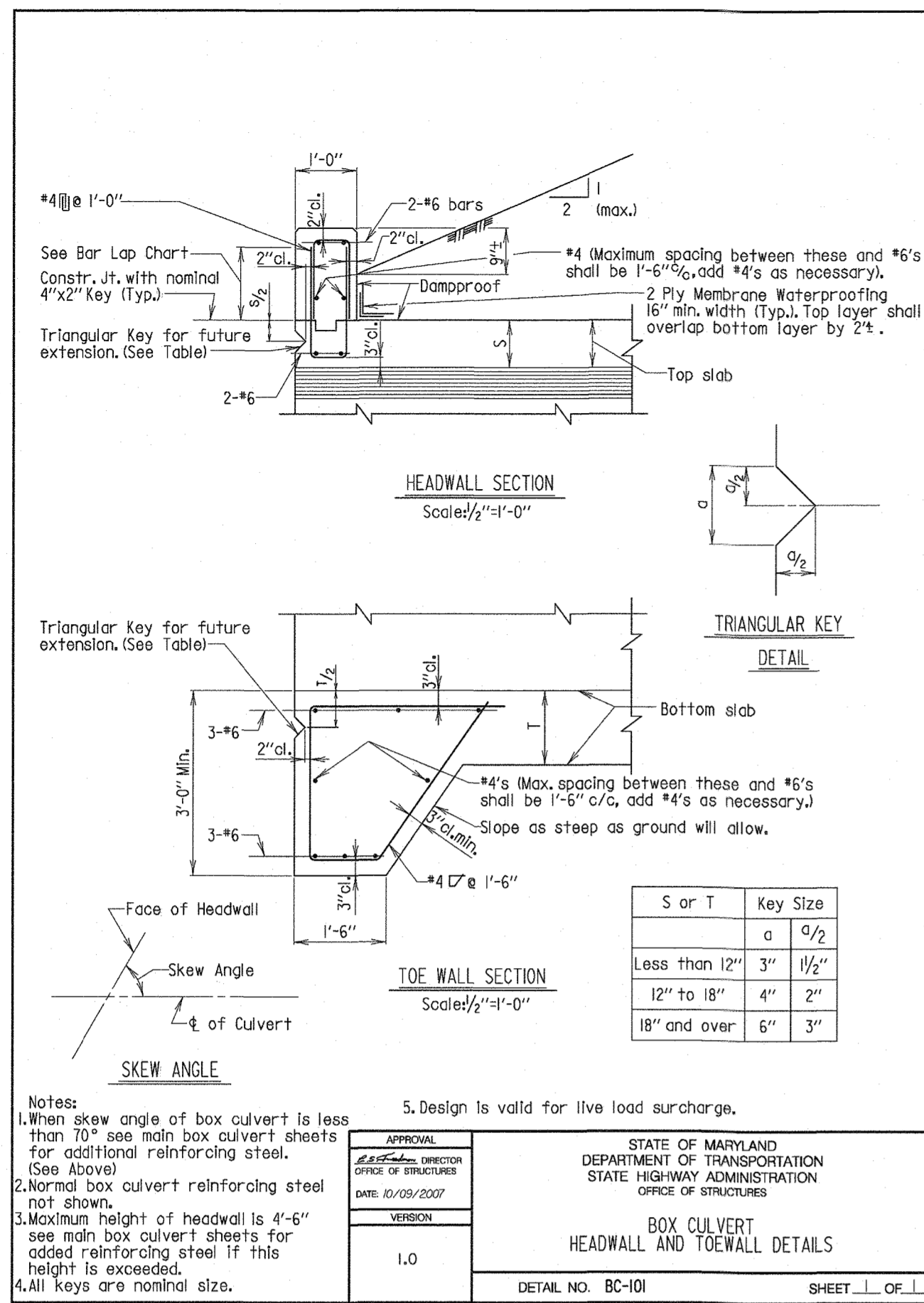
HILLIS-CARNES ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

CULVERT PLAN, ELEVATION, AND SECTION
LYHUS PROPERTY
 HOWARD COUNTY, MD.

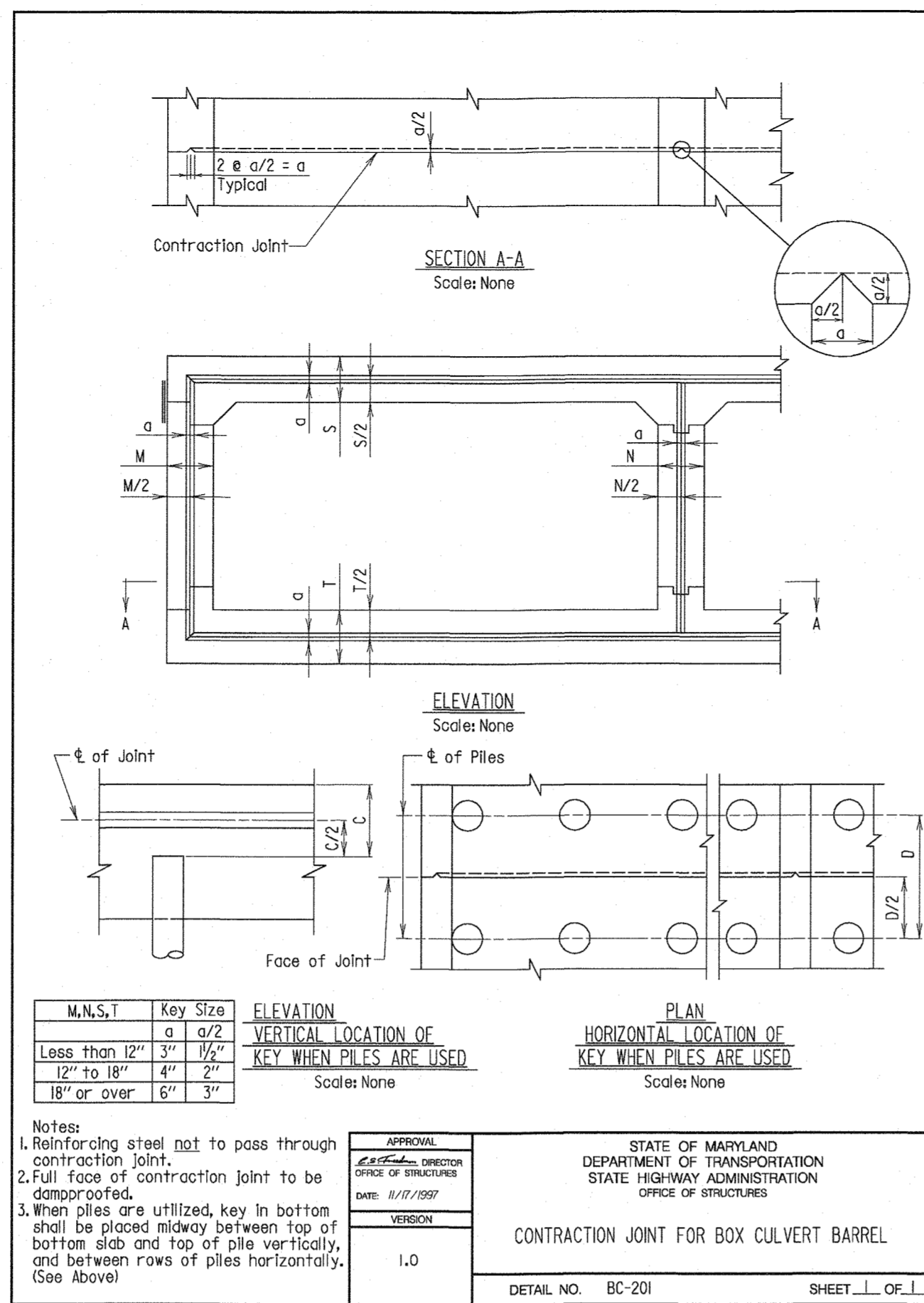
REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	PARAPET AND FENCE ADDED	7/6/21	G20054	PR

SCALE: AS SHOWN
 DATE: 7/6/2020
 DRAWN BY: PR
 APPROVED BY: PR

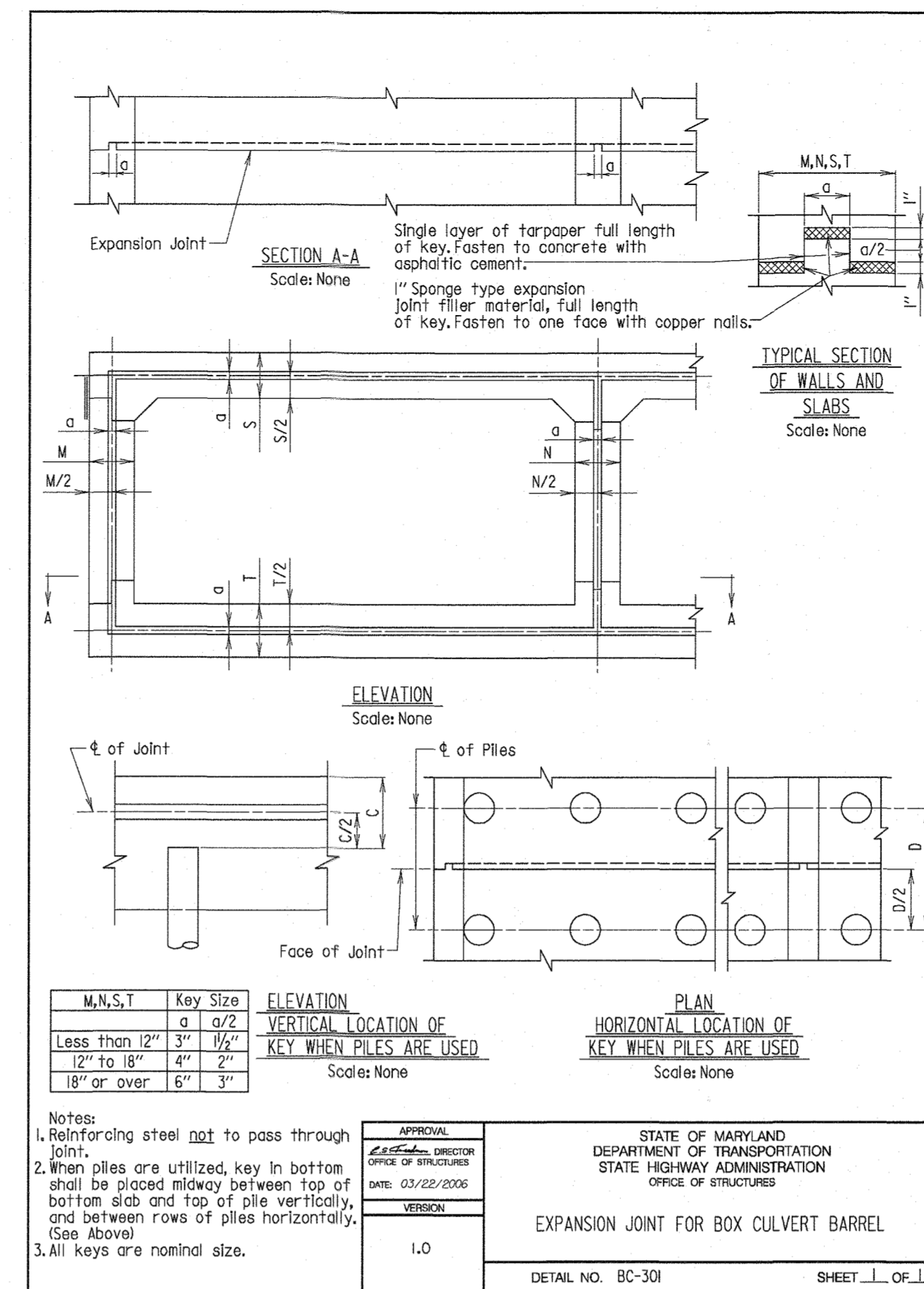
75 of 80
SHEET



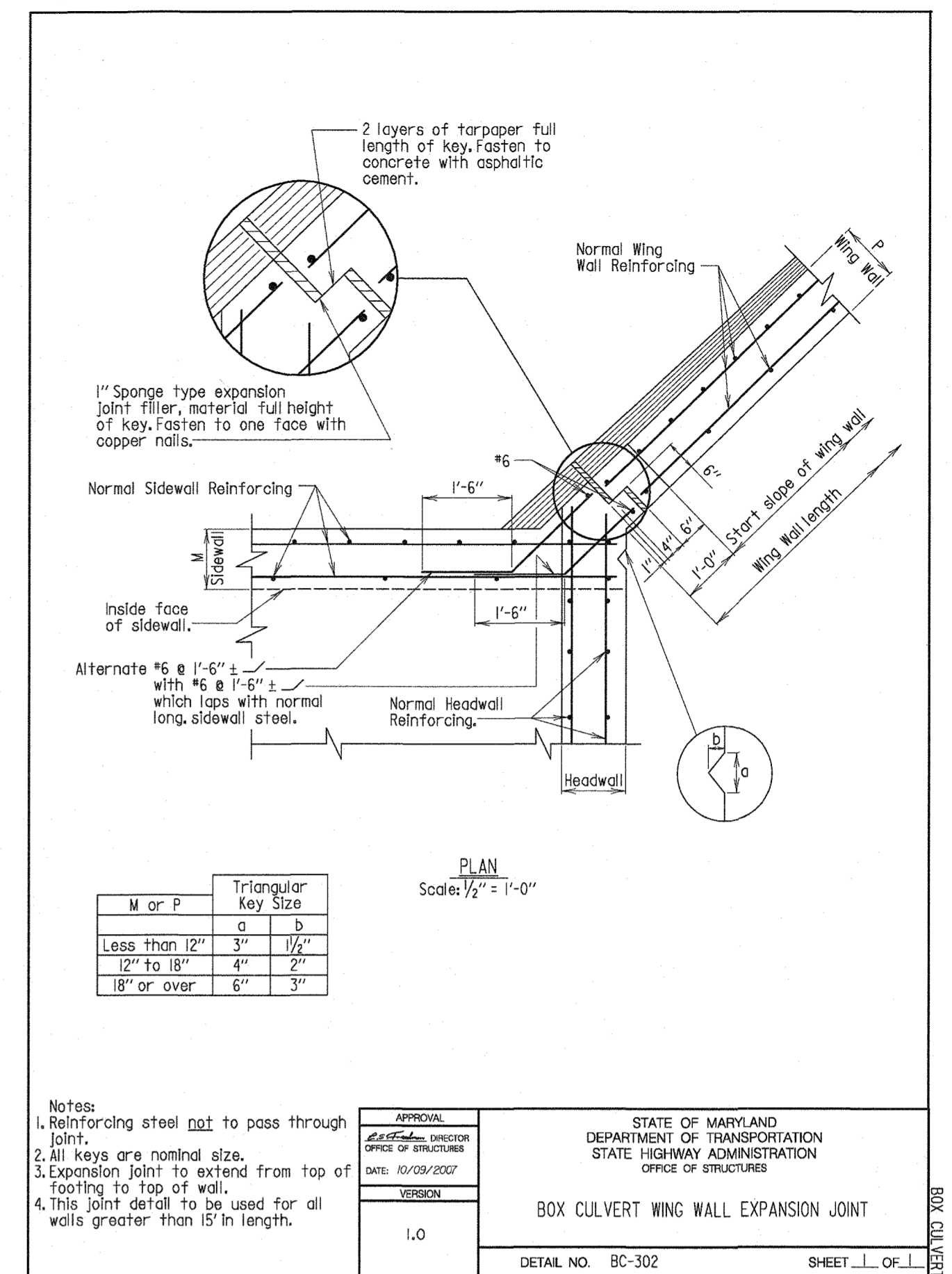
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 03/29/2007	
VERSION	1.0
DETAIL NO.	BC-101
SHEET	1 OF 1



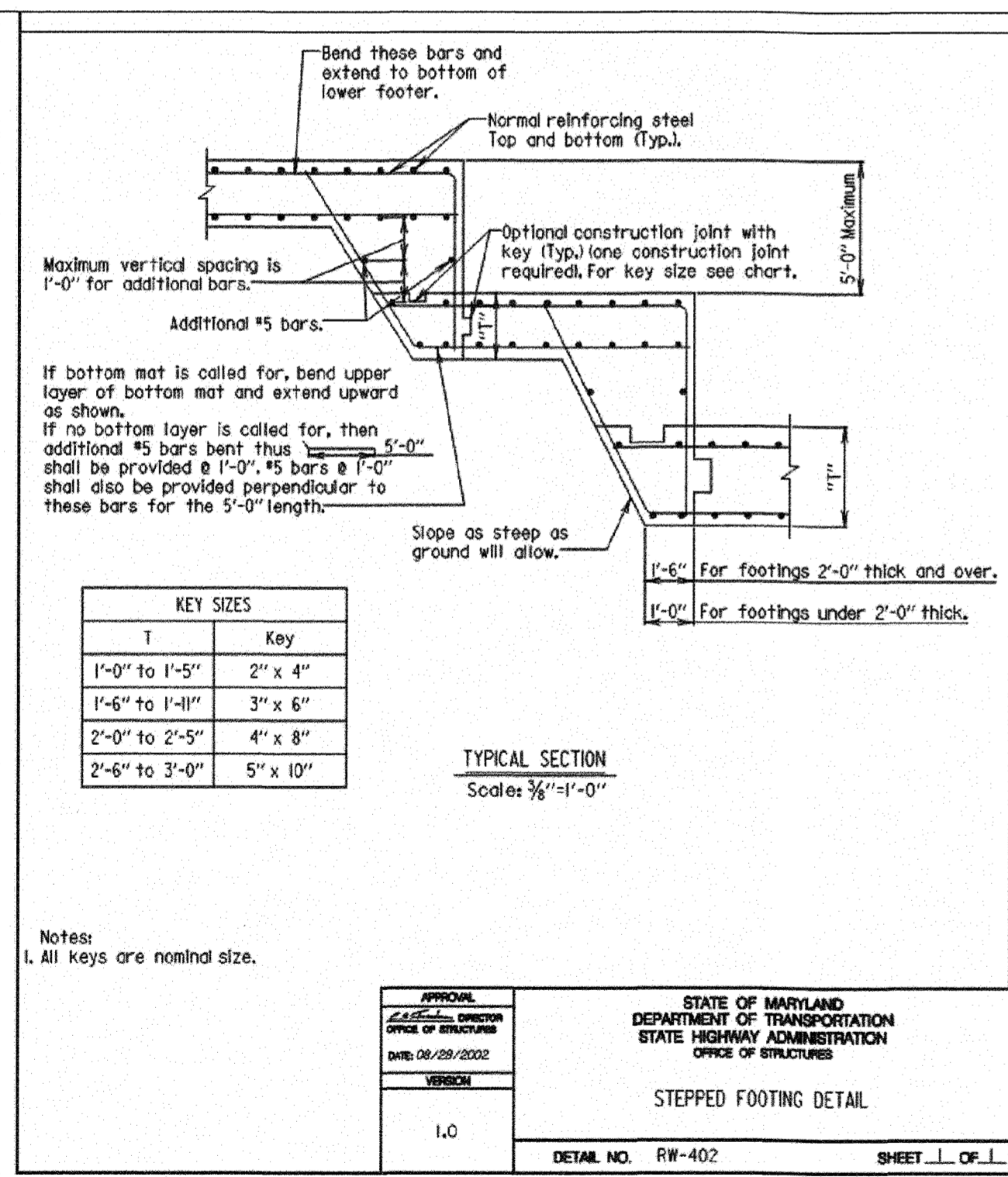
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 03/29/2007	
VERSION	1.0
DETAIL NO.	BC-201
SHEET	1 OF 1



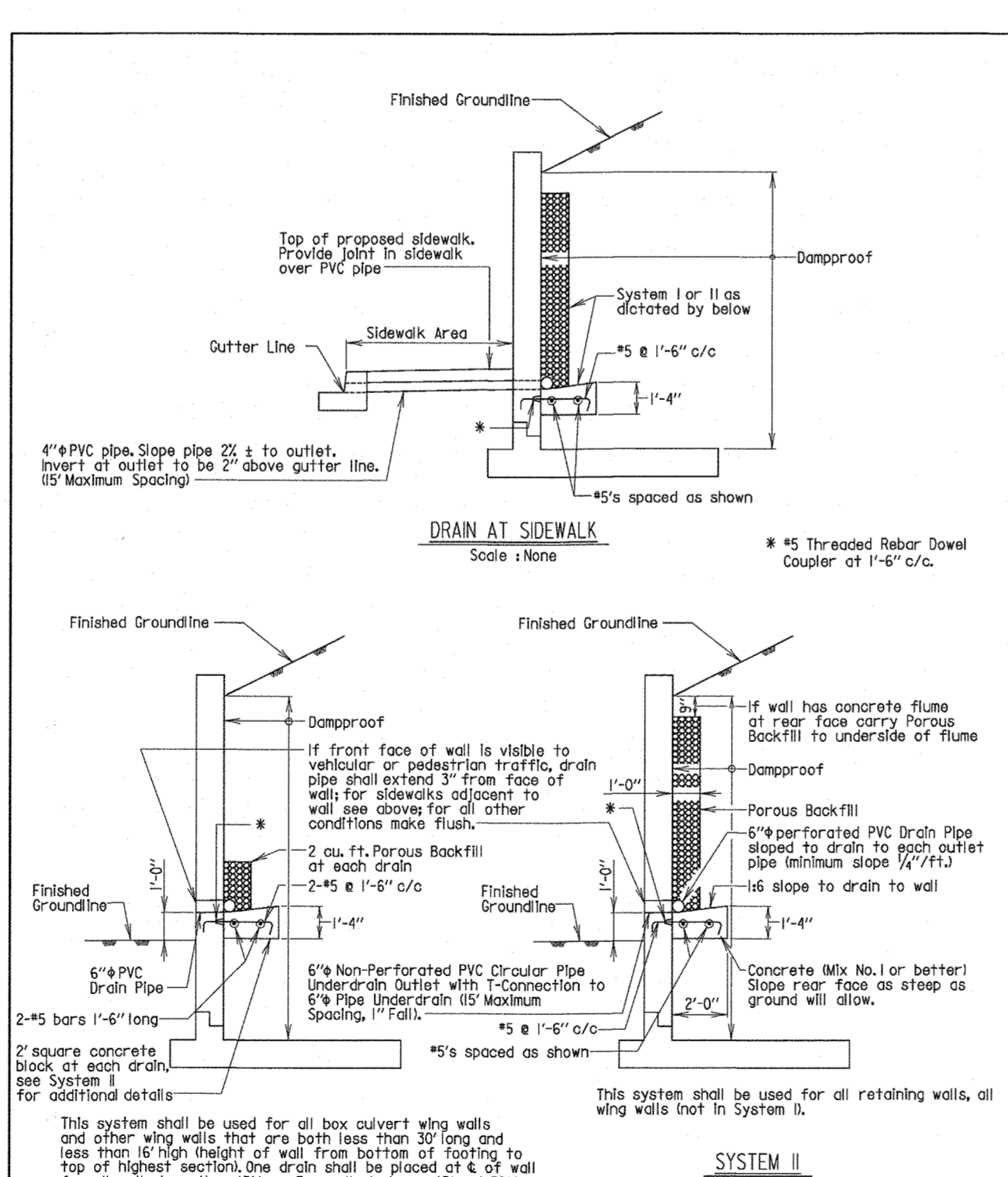
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 03/29/2007	
VERSION	1.0
DETAIL NO.	BC-301
SHEET	1 OF 1



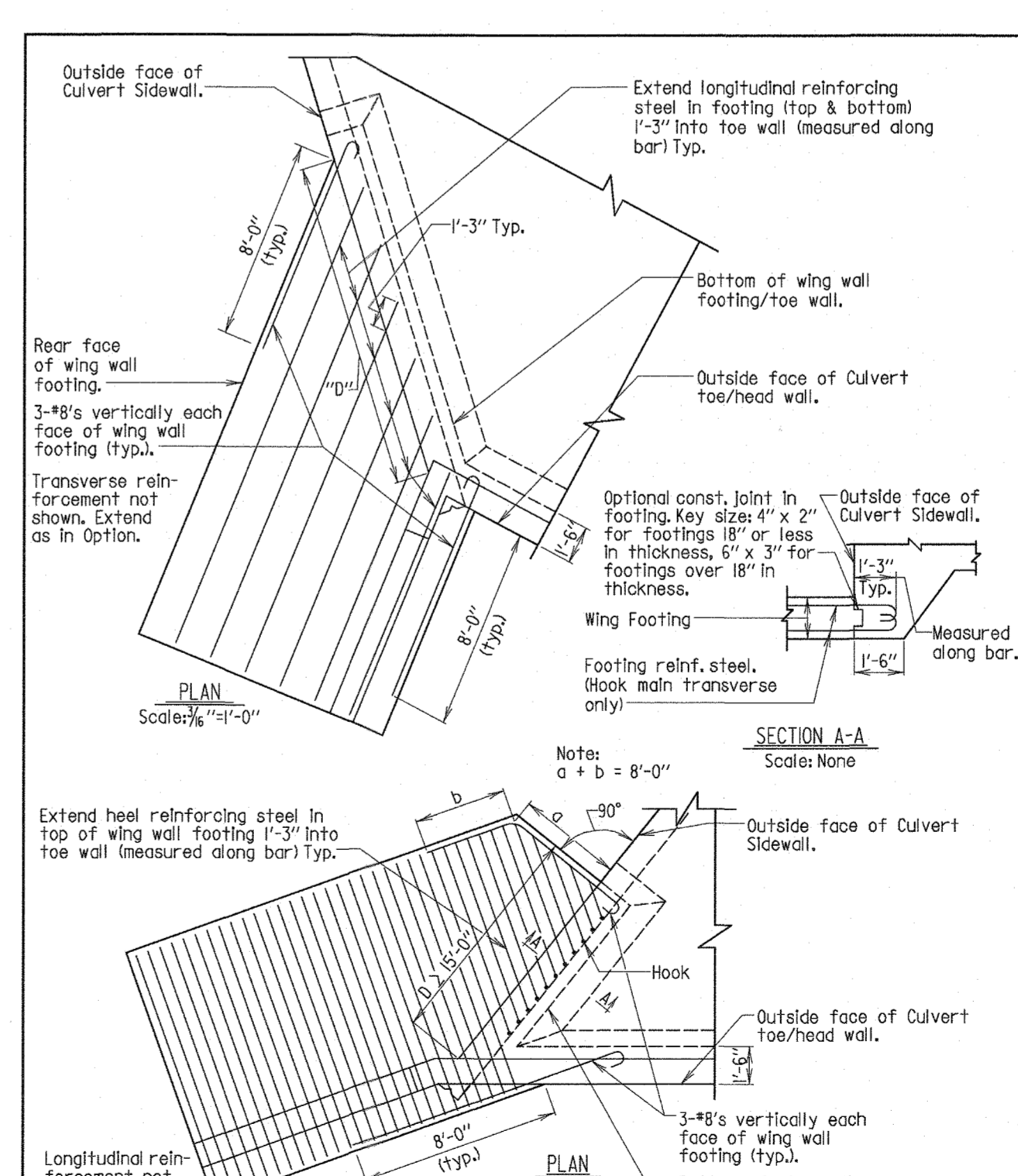
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 03/29/2007	
VERSION	1.0
DETAIL NO.	BC-302
SHEET	1 OF 1



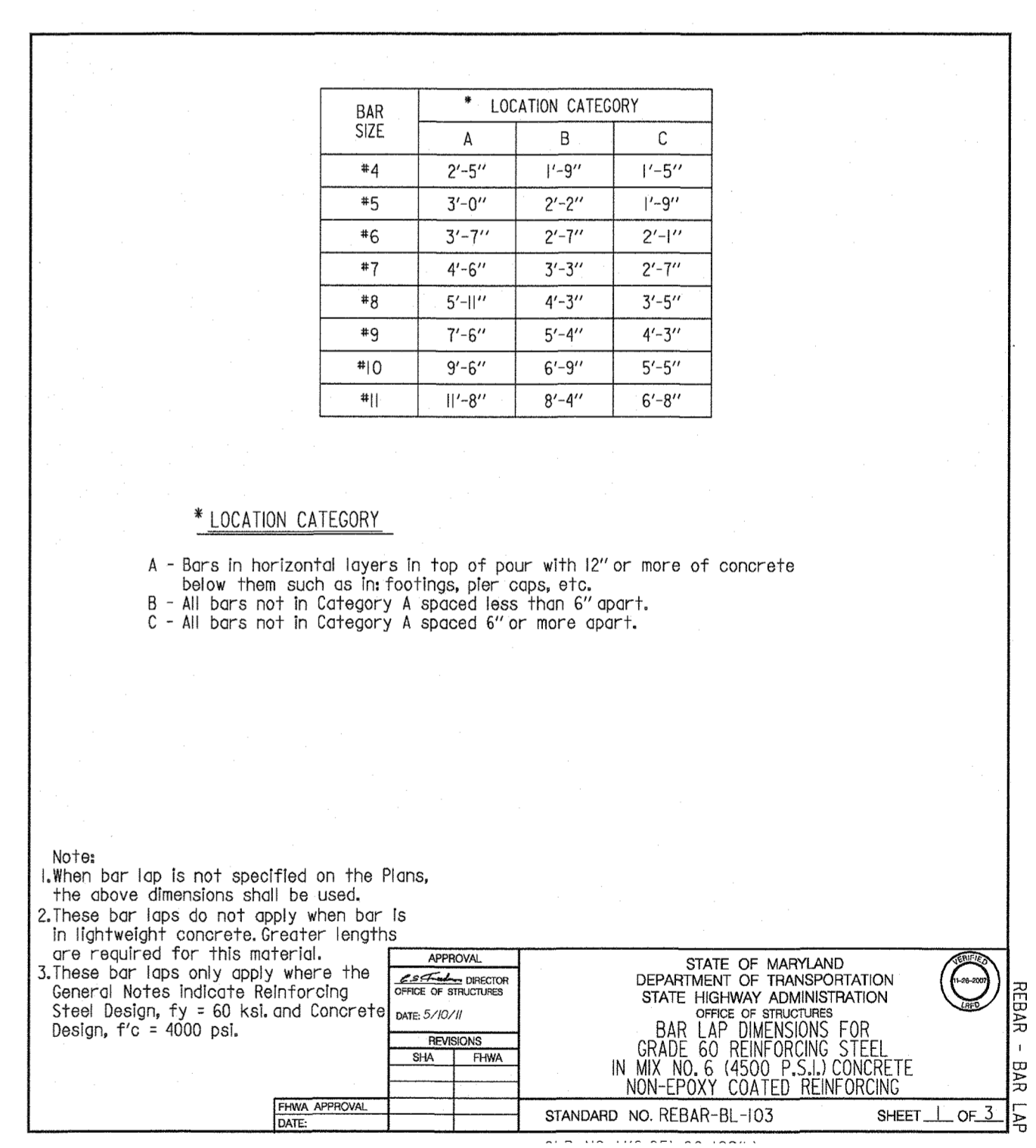
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 08/29/2002	
VERSION	1.0
DETAIL NO.	RW-402
SHEET	1 OF 1



APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 03/29/07	
VERSION	1.0
DETAIL NO.	RW-301
SHEET	1 OF 1



APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 03/29/2007	
VERSION	1.0
DETAIL NO.	BC-501
SHEET	1 OF 1



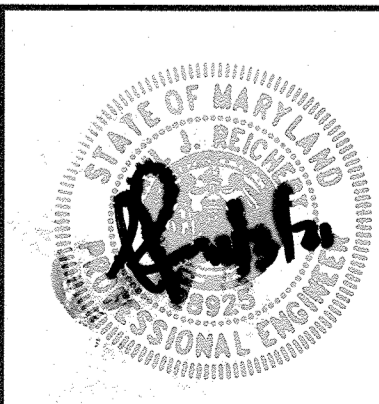
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 5/15/12	
VERSION	1.0
DETAIL NO.	RWBAR-BL-103
SHEET	1 OF 3

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/16/2011

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12/16/2011

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. 28925
 EXPIRATION DATE: 9/15/22



HILLIS-CARNES ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

CONCRETE CULVERT AND WING WALL CONSTRUCTION DETAILS
LYHUS PROPERTY
 12170 LIME KILN ROAD HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			G20054	HM
			SCALE: AS SHOWN	DRAWN BY: HM
			DATE: 7/6/20	APPROVED BY: PR

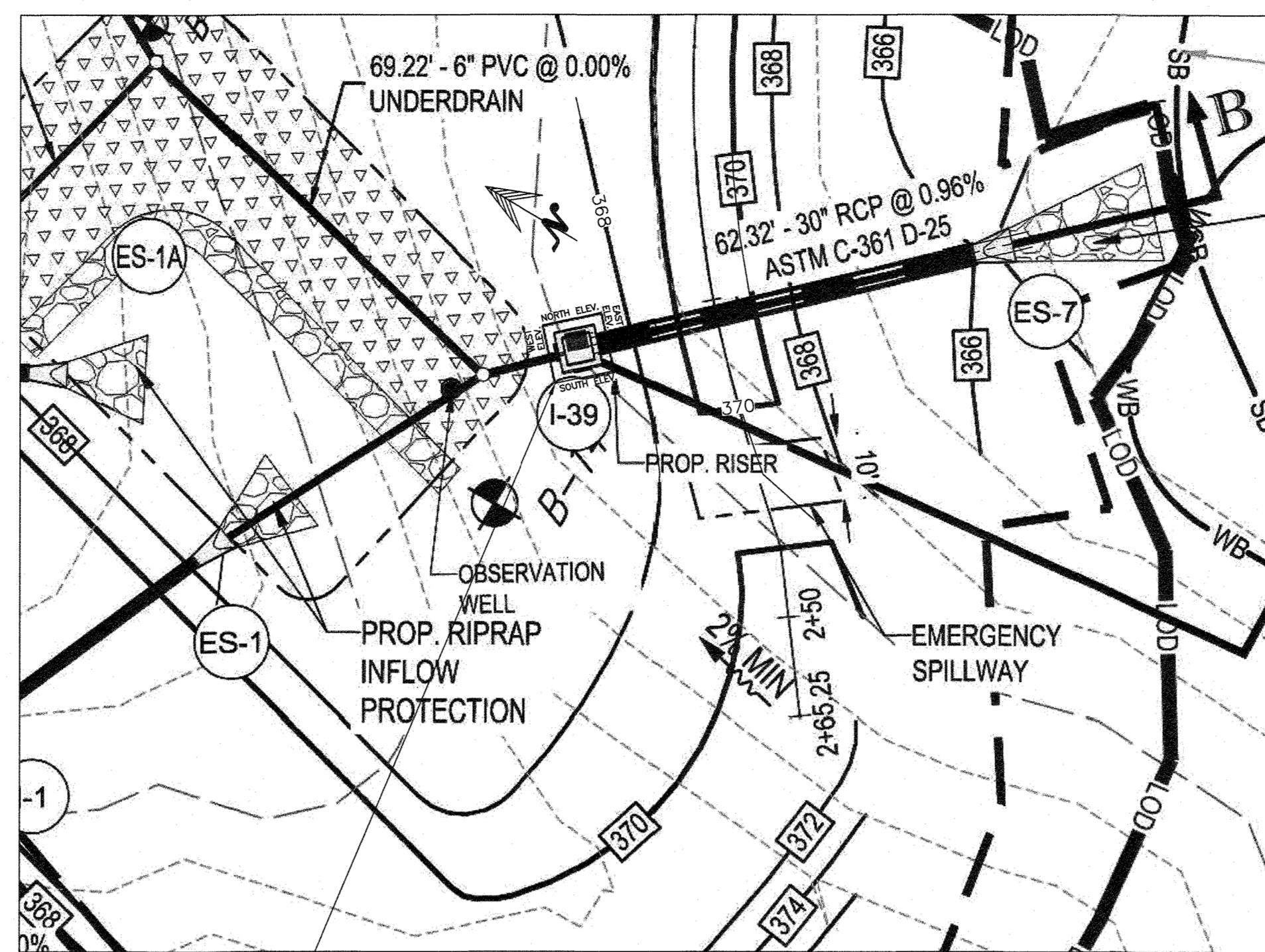
76 of 80 SHEET

RISER 1-39 NOTES:

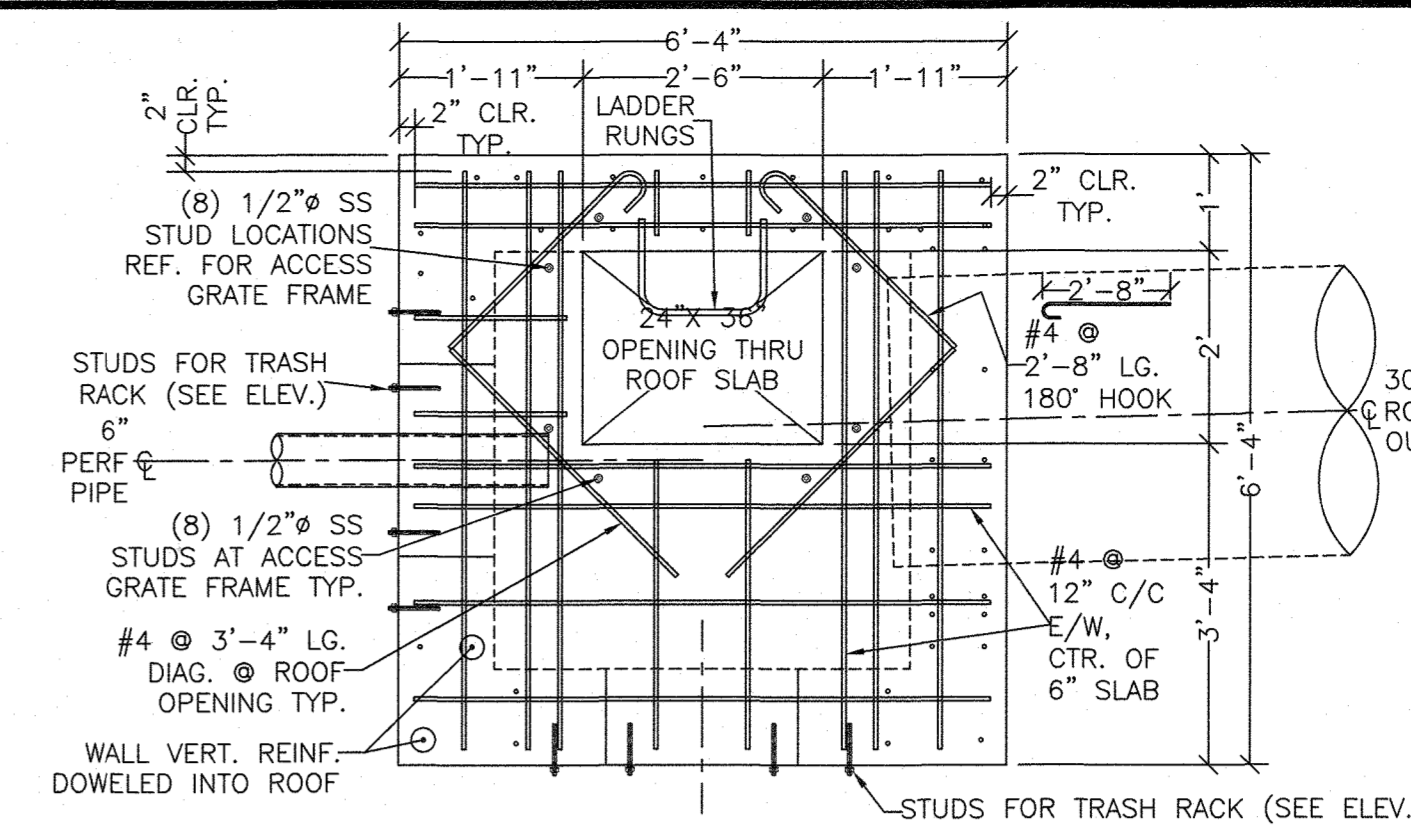
- CONSTRUCTION TO COMPLY WITH MOST CURRENT IN-FORCE IBC AND LOCAL CODES, ACI MANUAL OF CONCRETE PRACTICE, ACI 318 CODE FOR CONCRETE CONSTRUCTION, AISC 360 STEEL DESIGN MANUAL, AND ALL PROJECT REQUIREMENTS.
- GEOMETRY SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS. VERIFY CRITICAL DIMENSIONS AND SUITABILITY OF RECOMMENDATIONS. RESOLVE ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
- MINIMUM DESIGN LOADS PER IRC/IBC:
DEAD, (COMPONENT WEIGHT)
LIVE, 100 PSF. SURCHARGE (PEDESTRIAN)
GROUND SNOW LOAD 25 PSF.
SOIL DESIGN PARAMETERS: SLIDING FRICTION 0.3
EFP 40 PSF/FT. (ACTIVE), EFP 60 PSF/FT. (AT REST).
WATER 62.4 PSF/FT.
- WIND DESIGN CRITERIA ARE AS FOLLOWS:
BASIC WIND SPEED = 115 MPH
IMPORTANCE FACTOR = 1.0, WIND EXPOSURE = B
CATEGORY 'OTHER STRUCTURES' SOLID FREESTANDING WALL
- SEISMIC DESIGN CRITERIA ARE AS FOLLOWS:
SEISMIC IMPORTANCE FACTOR, IE=1.0
SEISMIC USE GROUP = CATEGORY II. SITE CLASS = D
MAPPED SPECTRAL RESPONSE ACC. $SS = 0.122$, $SI = 0.051$
SPECTRAL RESPONSE COEFFICIENTS $SDS = 0.130$, $SD1 = 0.082$
SEISMIC DESIGN CATEGORY = CATEGORY A
BASIC SEISMIC FORCE RESISTING SYSTEM = ORDINARY REIN. CONCRETE SHEAR WALL
SEISMIC RESPONSE COEFFICIENT, $CS = 0.065$
RESPONSE MODIFICATION FACTOR, $R = 2.5$
DESIGN BASE SHEAR = $0.065 \times W$ LBS.
ANALYSIS = EQUIVALENT LATERAL FORCE.

RISER 1-39 NOTES (CONT.):

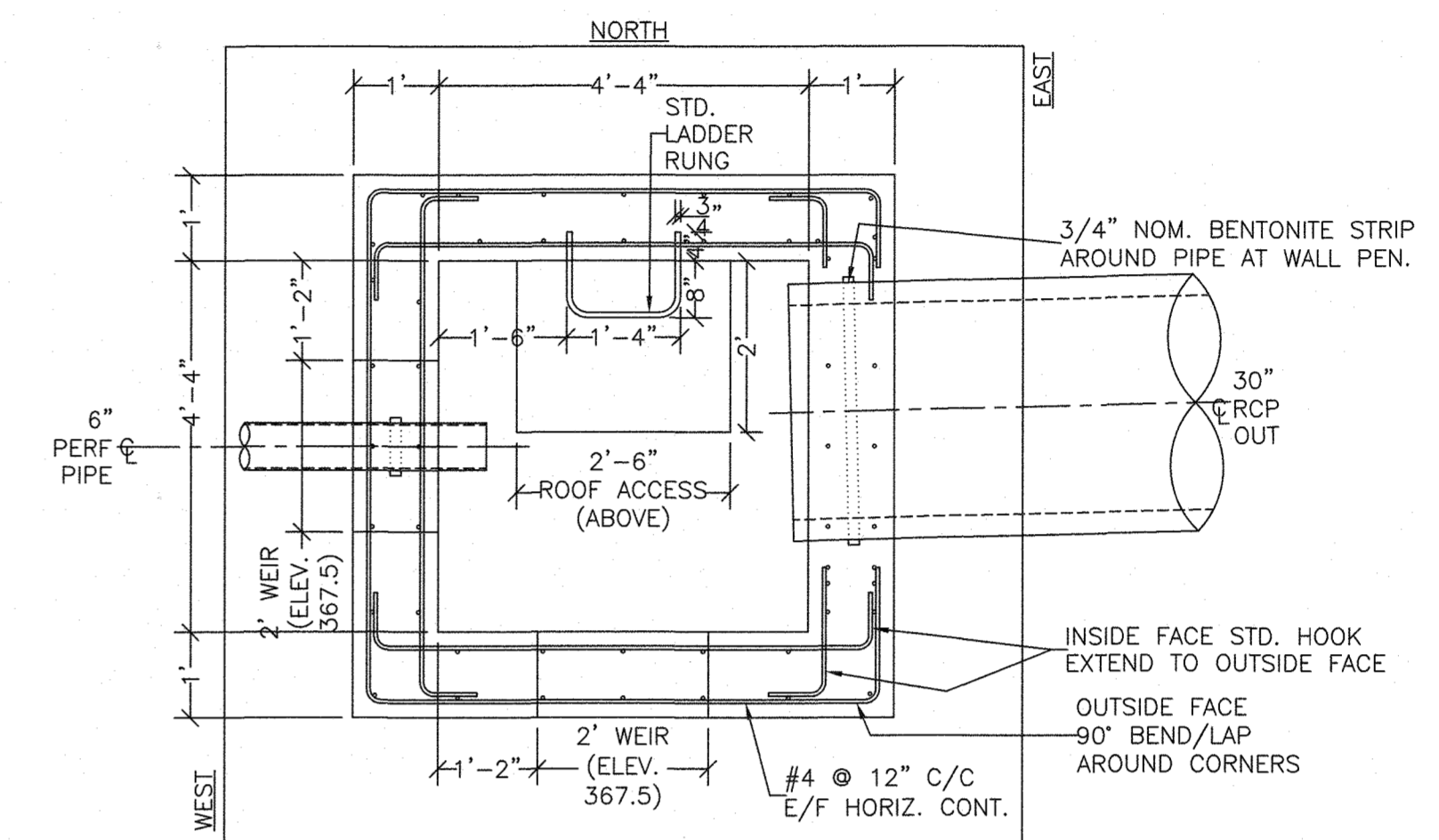
- MATERIALS:
SOILS: FOUNDATIONS TO BE IN SUITABLE NATURAL SOILS OR ENGINEERED CONTROLLED FILL, ALLOWABLE BEARING MIN. 2500 PSF. PER GEO RPT. TO BE FIELD-VERIFIED DURING CONSTRUCTION. GRANULAR BACKFILL PER GEOTECH. ENGR RECOMMENDATIONS (PHI 30 DEG. MIN. WT. 120 PCF NOM. COMPACT TO MIN. 95% OF STD. PROCTOR (OR BETTER WHERE REQ'D BY PROJ. SPEC)
CONCRETE:
WALL AND FOOTING f'_c 4500 PSI. MIN.
AIR ENTRAINED MAX W/C 0.40
NO CHLORIDES IN CONCRETE.
SAMPLE ONE SET OF (6) 4X8 CYLINDERS PER STRUCTURE PER 50 YDS. MAX AND 1X PER DAY.
REIN. STEEL: ASTM A615 GR 60
LAP SPLICES: #4=16",
CONCRETE COVER: UNLESS NOTED OTHERWISE
3" CAST AGAINST EARTH
2" EXPOSED TO EARTH OR WEATHER
* COORDINATE COSMETIC REQUIREMENTS (SURFACE FINISH, TEXTURE, COLOR, SAMPLES) FOR OWNER APPROVAL.
STEEL:
ASTM A992 GR 36 MIN.
FABRICATIONS TOLERANCE 1/16", WELDING PER AWS.
HOT-DIP GALVANIZE AFTER FABRICATION.
BOLTS:
ASTM F593A 304 OR 316 STAINLESS, POST-INSTALLED OR CAST-IN. (USE TEMPLATES FOR CAST-IN).
- WORKMANSHIP:
MEET OWNER'S REQUIREMENTS FOR APPEARANCE.
AT COLD JOINTS AND MATING SURFACES, EXISTING SURFACE TO BE DAMP-SATURATED, OR APPLY LATEX-TYPE BONDING AGENT PER MFG. INSTRUCTIONS.
- QUALIFICATIONS AND QA/QC:
PROVIDE MATERIAL RECORDS (MILL CERTS, BATCH TICKETS, FOR SOURCE AND TRACEABILITY), TEST RECORDS (CYLINDER BREAKS, FOR STRENGTH), AND INSPECTION REPORTS.



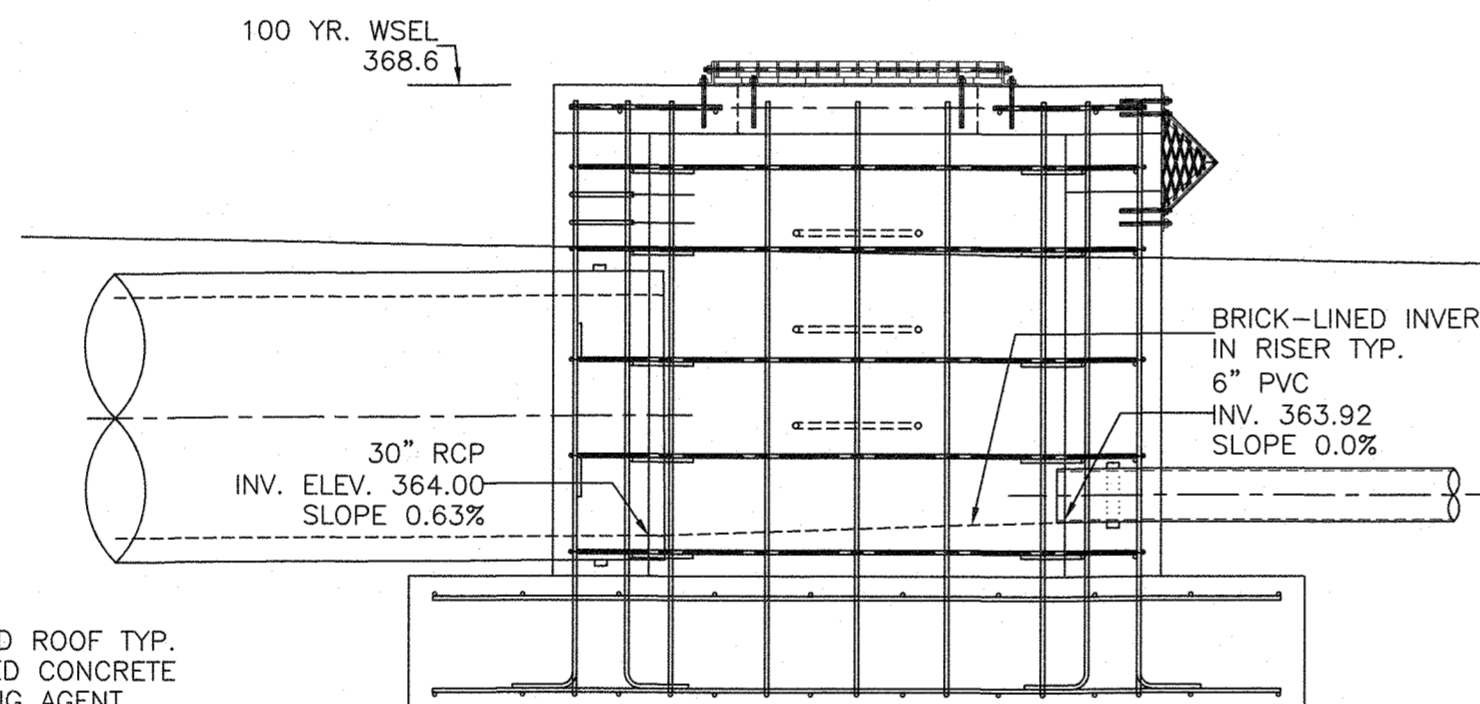
STRUCTURE LOCATION PLAN
40' (SCALE)



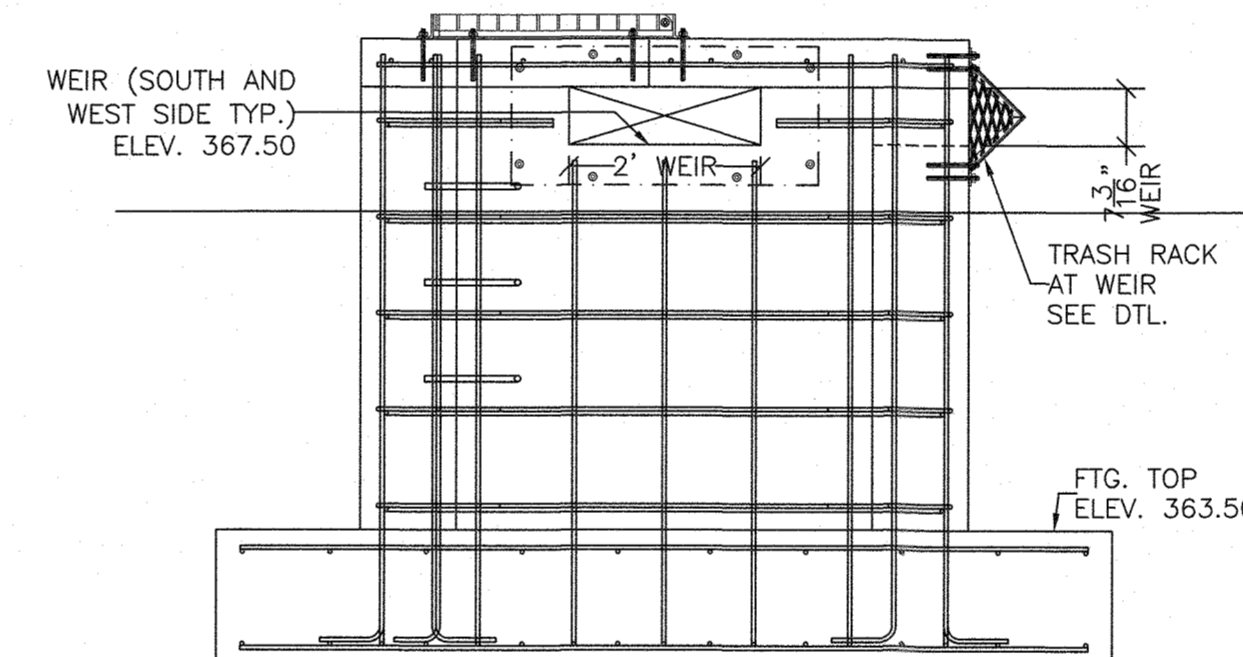
ROOF SLAB REINFORCING PLAN
4' (SCALE)



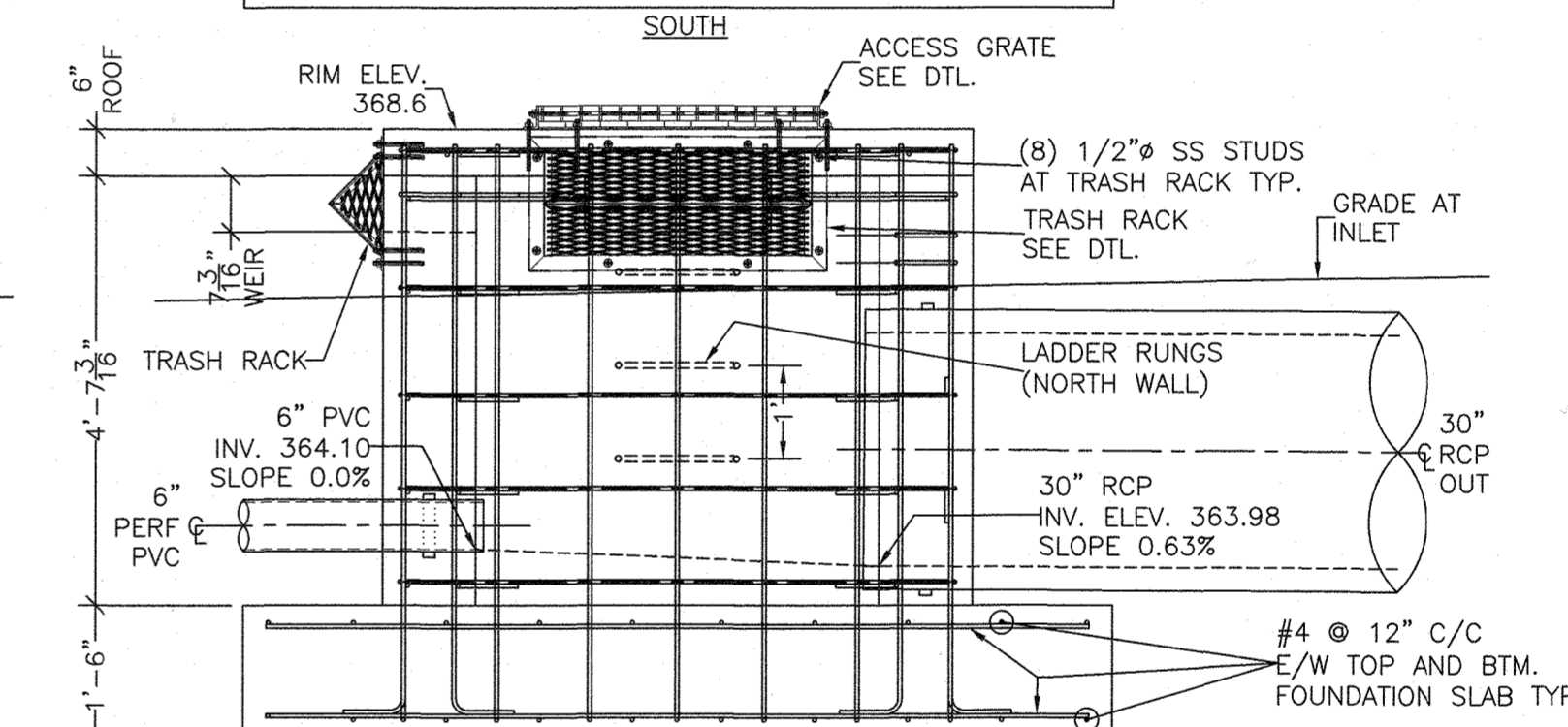
EAST ELEVATION
4' (SCALE)



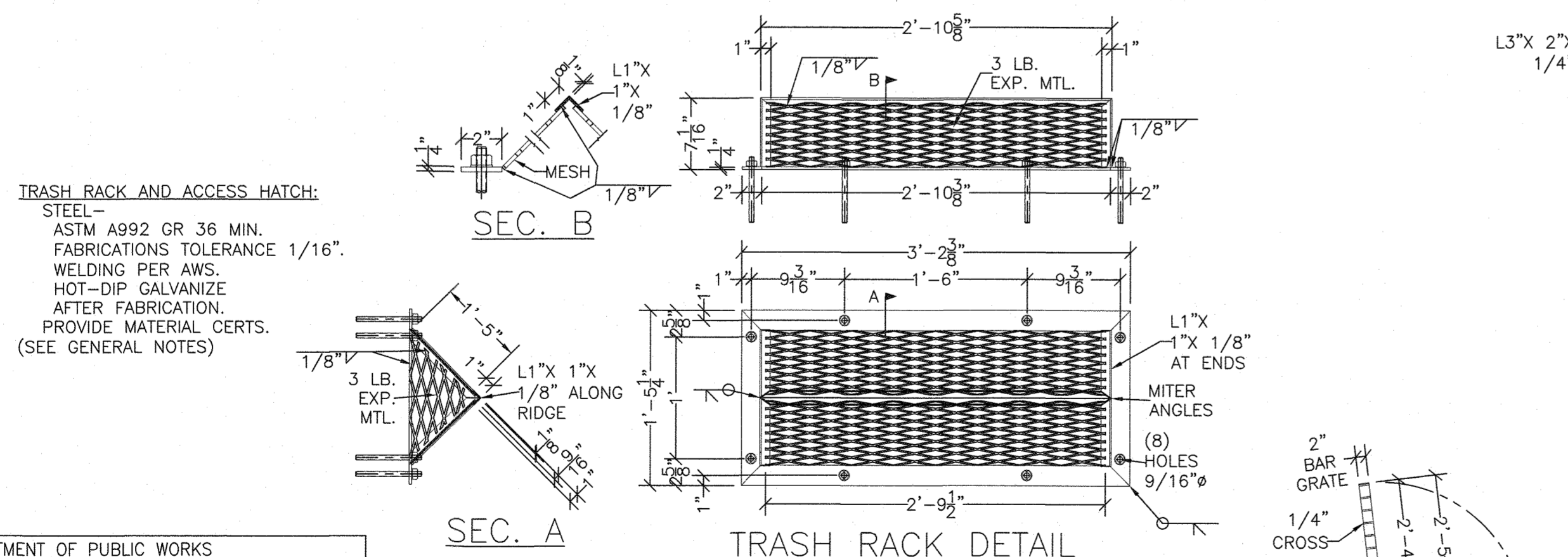
NORTH ELEVATION
4' (SCALE)



WEST ELEVATION
4' (SCALE)



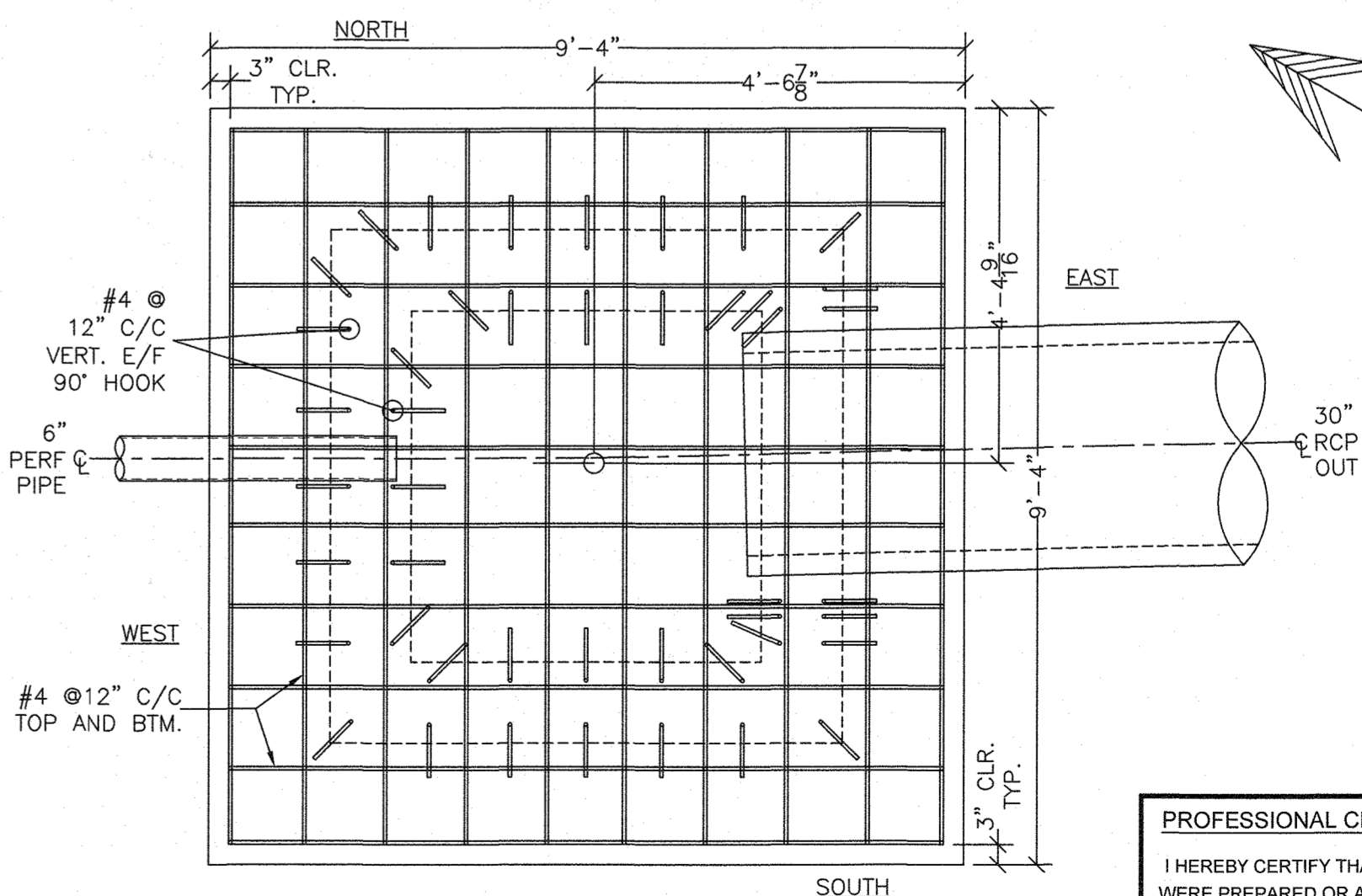
SOUTH ELEVATION
4' (SCALE)



TRASH RACK DETAIL
2' (SCALE)

HATCH OPEN (REF.)
4' (SCALE)

ACCESS GRATE
2' (SCALE)



FOUNDATION SLAB REINFORCING PLAN
4' (SCALE)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 12/14/2021
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 12/14/2021
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 12-14-2021
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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. 28925
 EXPIRATION DATE: 05/20/22



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

INLET STRUCTURE I-39 NOTES, PLAN, ELEVATION
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	PR
			G20054		PR
			SCALE: AS SHOWN		PR
			DATE: 07/02/2021		PR

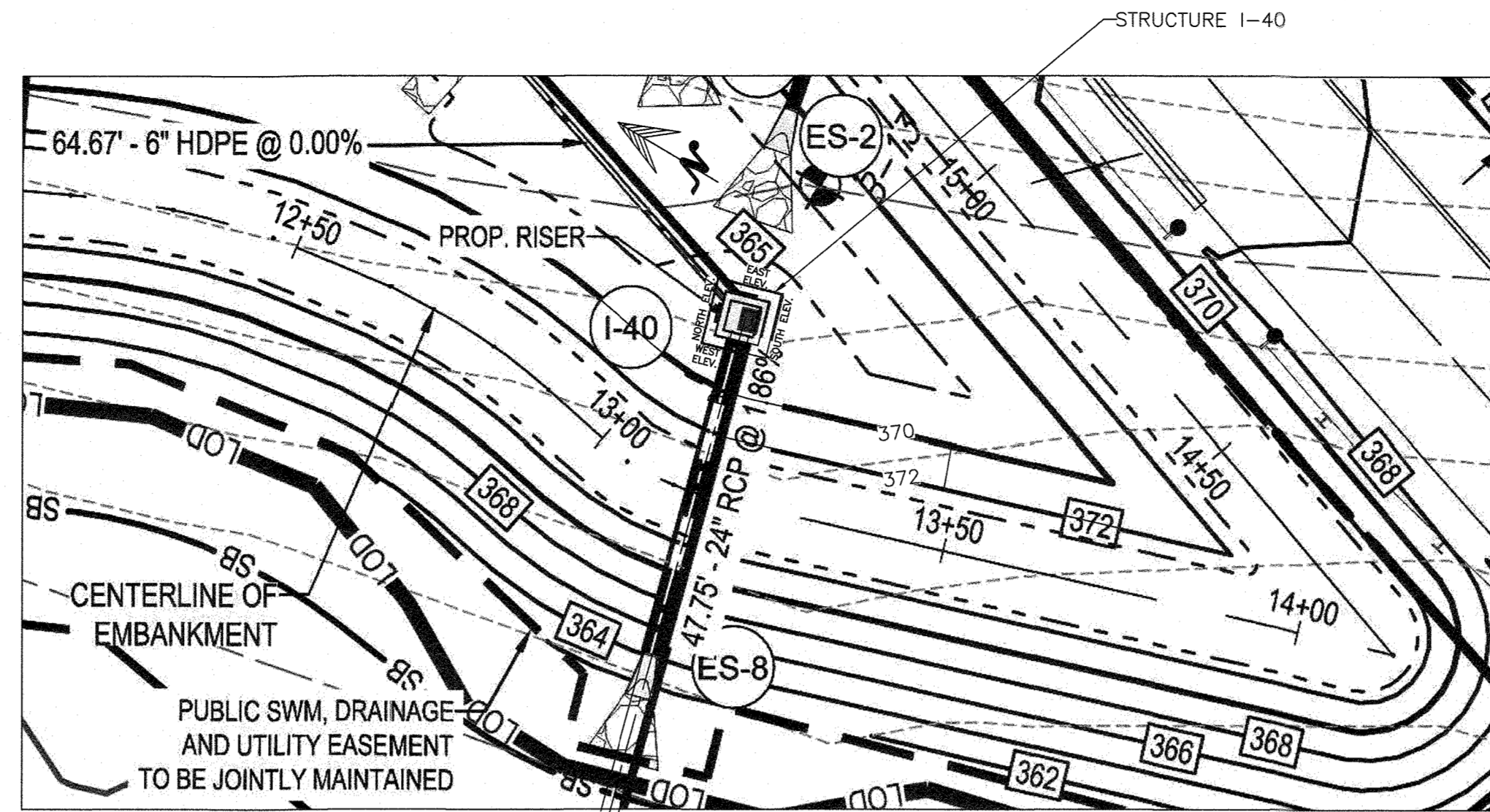
77 of 80 SHEET

RISER I-40 NOTES:

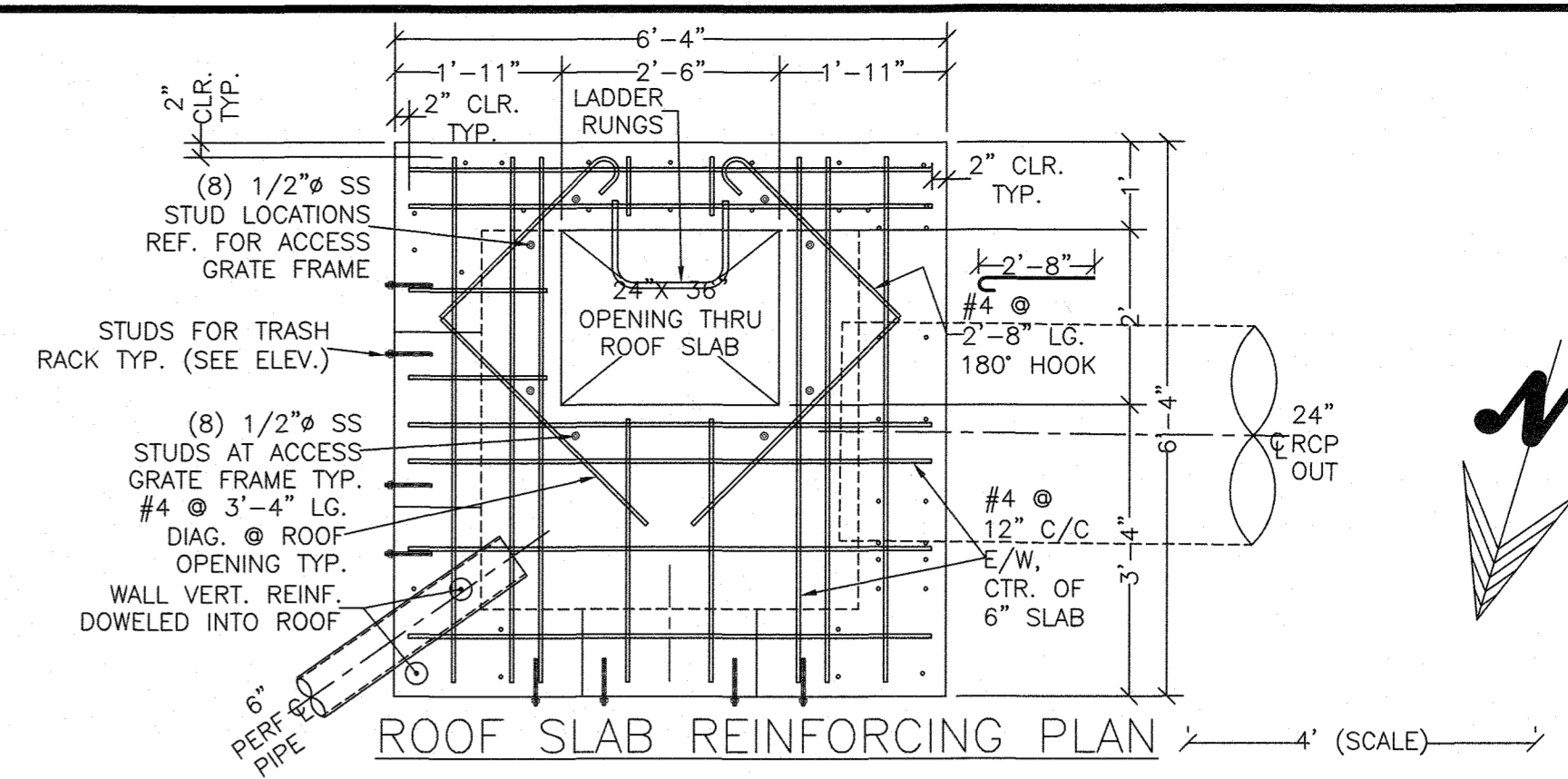
- CONSTRUCTION TO COMPLY WITH MOST CURRENT IN-FORCE IBC AND LOCAL CODES, ACI MANUAL OF CONCRETE PRACTICE, ACI 318 CODE FOR CONCRETE CONSTRUCTION, AISC 360 STEEL DESIGN MANUAL, AND ALL PROJECT REQUIREMENTS.
- GEOMETRY SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS. VERIFY CRITICAL DIMENSIONS AND SUITABILITY OF RECOMMENDATIONS. RESOLVE ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
- MINIMUM DESIGN LOADS PER IRC/IBC:
DEAD, (COMPONENT WEIGHT)
LIVE, 100 PSF. SURCHARGE (PEDESTRIAN)
GROUND SNOW LOAD 25 PSF.
SOIL DESIGN PARAMETERS: SLIDING FRICTION 0.3
EFP 40 PSF/FT. (ACTIVE), EFP 60 PSF/FT. (AT REST).
WATER 62.4 PSF/FT.
- WIND DESIGN CRITERIA ARE AS FOLLOWS:
BASIC WIND SPEED = 115 MPH
IMPORTANCE FACTOR = 1.0, WIND EXPOSURE = B
CATEGORY 'OTHER STRUCTURES' SOLID FREESTANDING WALL
- SEISMIC DESIGN CRITERIA ARE AS FOLLOWS:
SEISMIC IMPORTANCE FACTOR, I_e=1.0
SEISMIC USE GROUP = CATEGORY II, SITE CLASS = D
MAPPED SPECTRAL RESPONSE ACC. S_s= 0.122, S_i= 0.051
SPECTRAL RESPONSE COEFFICIENTS SDS = 0.130, SD1 = 0.082
SEISMIC DESIGN CATEGORY = CATEGORY A
BASIC SEISMIC FORCE RESISTING SYSTEM =
ORDINARY REINF. CONCRETE SHEAR WALL.
SEISMIC RESPONSE COEFFICIENT, R = 2.5
RESPONSE MODIFICATION FACTOR, R = 2.5
DESIGN BASE SHEAR = 0.065 X W LBS.
ANALYSIS = EQUIVALENT LATERAL FORCE.

RISER I-40 NOTES (CONT.):

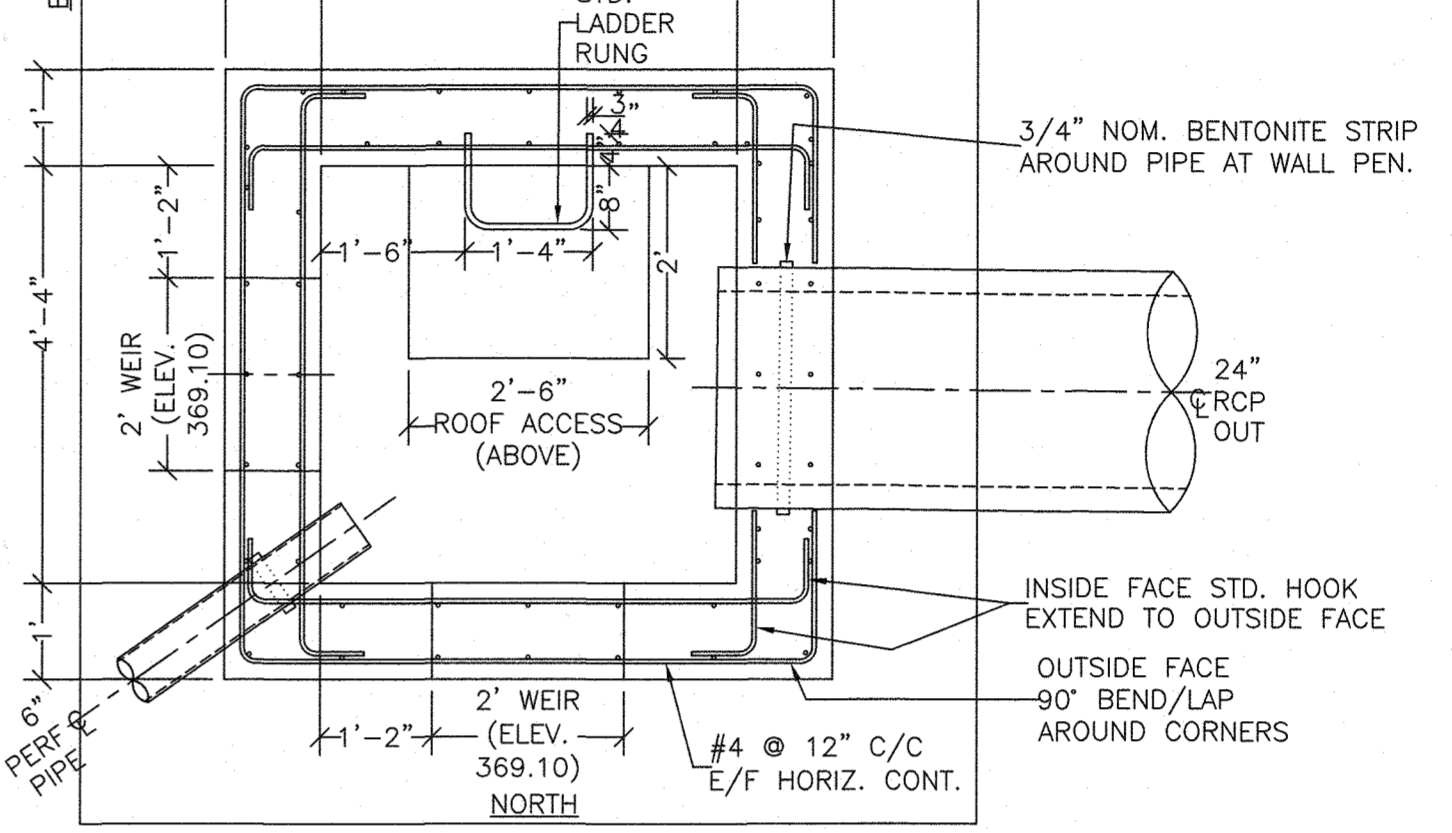
- MATERIALS:
SOILS: FOUNDATIONS TO BE IN SUITABLE NATURAL SOILS OR ENGINEERED CONTROLLED FILL. ALLOWABLE BEARING MIN. 2500 PSF. PER GEO RPT. TO BE FIELD-VERIFIED DURING CONSTRUCTION. GRANULAR BACKFILL PER GEOTECH. ENG'R RECOMMENDATIONS (PHI 30 DEG. MIN. WT. 120 PCF NOM. COMPACT TO MIN. 95% OF STD. PROCTOR (OR BETTER WHERE REQ'D BY PROJ. SPEC)
CONCRETE:
WALL AND FOOTING f'_c 4500 PSI. MIN.
AIR ENTRAINED MAX W/C 0.40
NO CHLORIDES IN CONCRETE.
SAMPLE ONE SET OF (6) 4X8 CYLINDERS PER STRUCTURE PER 50 YDS. MAX AND 1X PER DAY.
REINF. STEEL: ASTM A615 GR 60
LAP SPLICES: #4=16".
CONCRETE COVER: UNLESS NOTED OTHERWISE
3" CAST AGAINST EARTH
2" EXPOSED TO EARTH OR WEATHER
* COORDINATE COSMETIC REQUIREMENTS (SURFACE FINISH, TEXTURE, COLOR, SAMPLES) FOR OWNER APPROVAL.
STEEL:
ASTM A992 GR 36 MIN.
FABRICATIONS TOLERANCE 1/16". WELDING PER AWS.
HOT-DIP GALVANIZE AFTER FABRICATION.
BOLTS:
ASTM F593A 304 OR 316 STAINLESS, POST-INSTALLED OR CAST-IN. (USE TEMPLATES FOR CAST-IN).
- WORKMANSHIP:
MEET OWNER'S REQUIREMENTS FOR APPEARANCE.
AT COLD JOINTS AND MATING SURFACES, EXISTING SURFACE TO BE DAMP-SATURATED, OR APPLY LATEX-TYPE BONDING AGENT PER MFG. INSTRUCTIONS.
- QUALIFICATIONS AND QA/QC:
PROVIDE MATERIAL RECORDS (MILL CERTS, BATCH TICKETS, FOR SOURCE AND TRACEABILITY), TEST RECORDS (CYLINDER BREAKS, FOR STRENGTH), AND INSPECTION REPORTS.



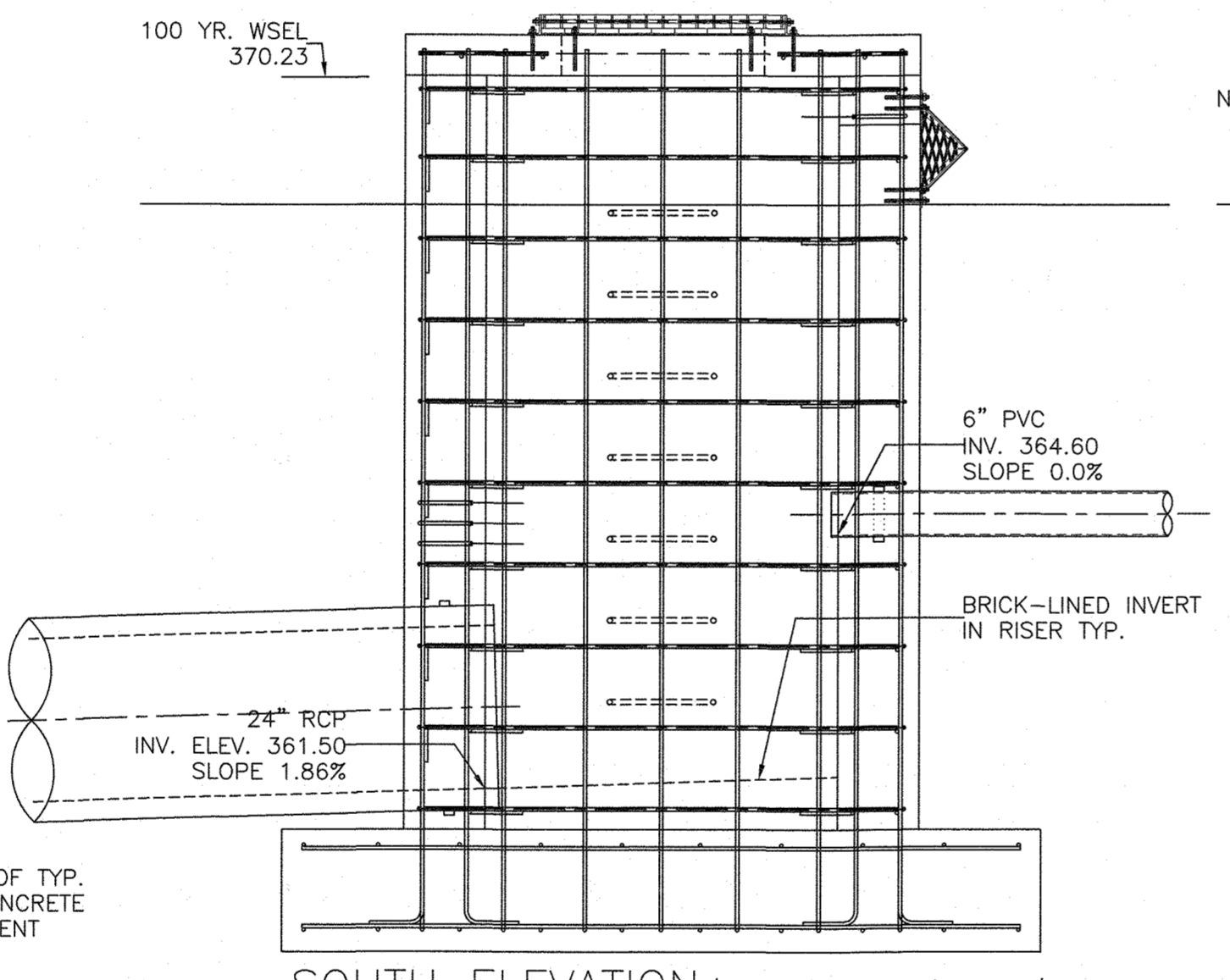
STRUCTURE LOCATION PLAN
40' (SCALE)



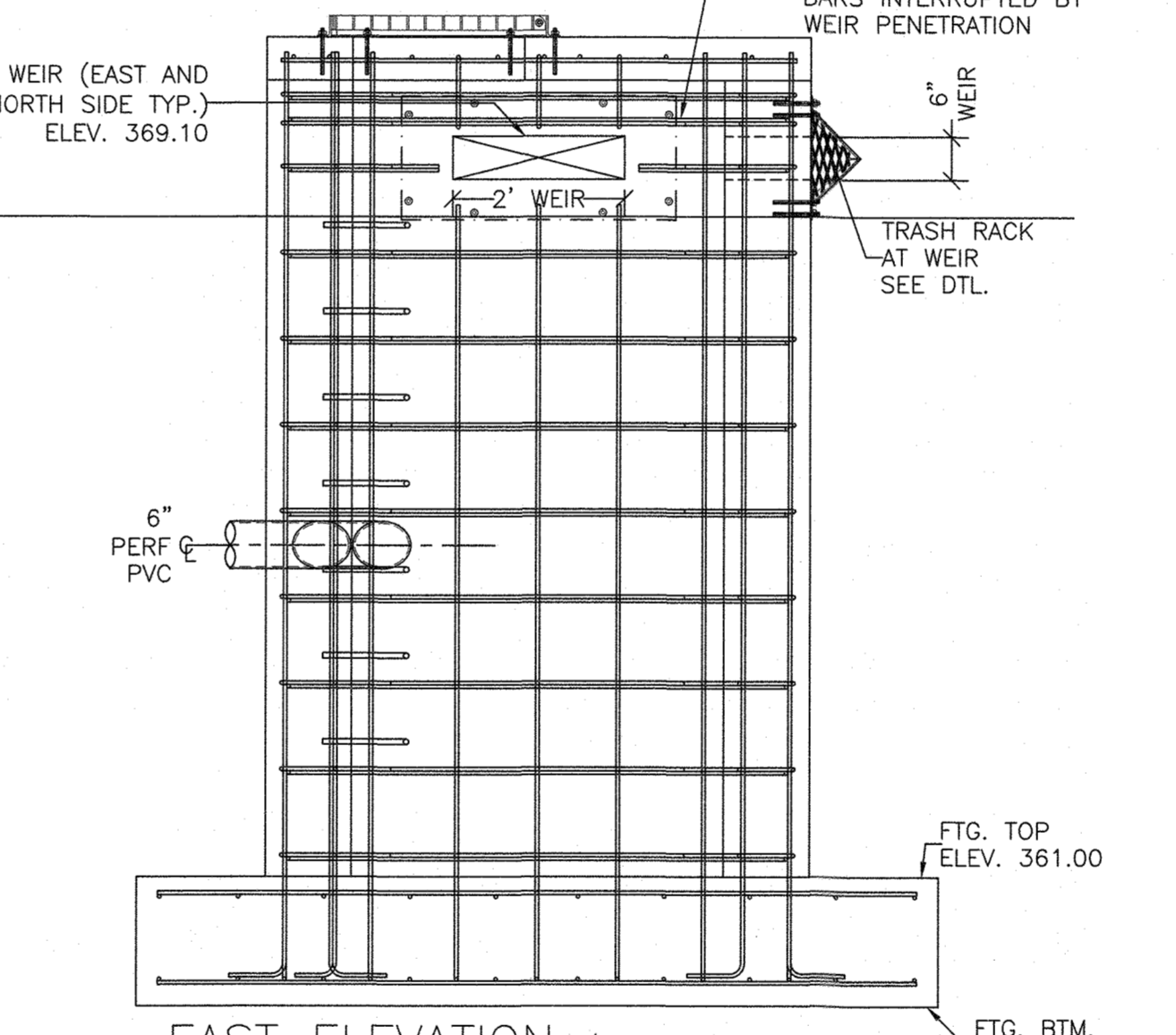
ROOF SLAB REINFORCING PLAN
4' (SCALE)



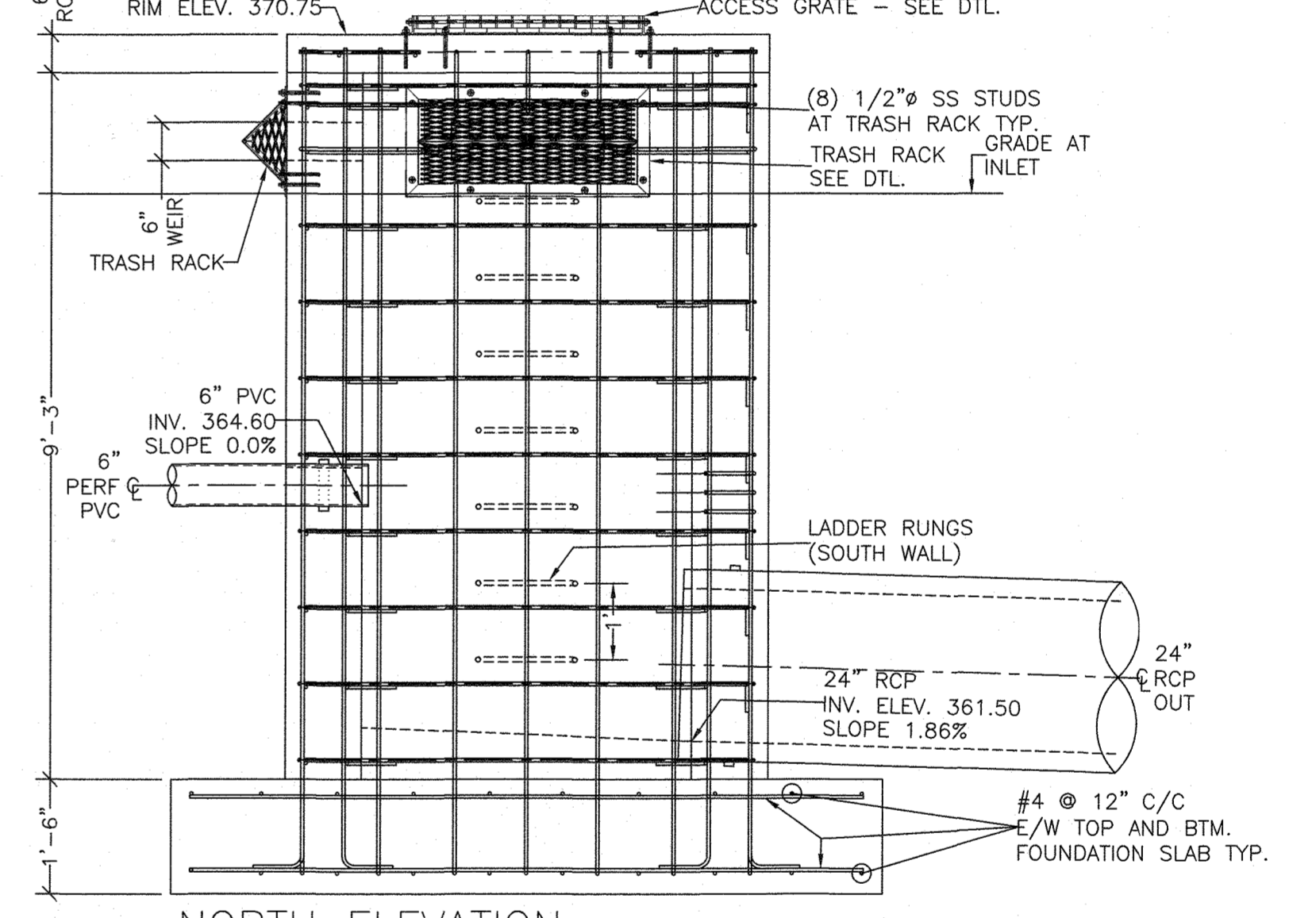
WEST ELEVATION
4' (SCALE)



SOUTH ELEVATION
4' (SCALE)

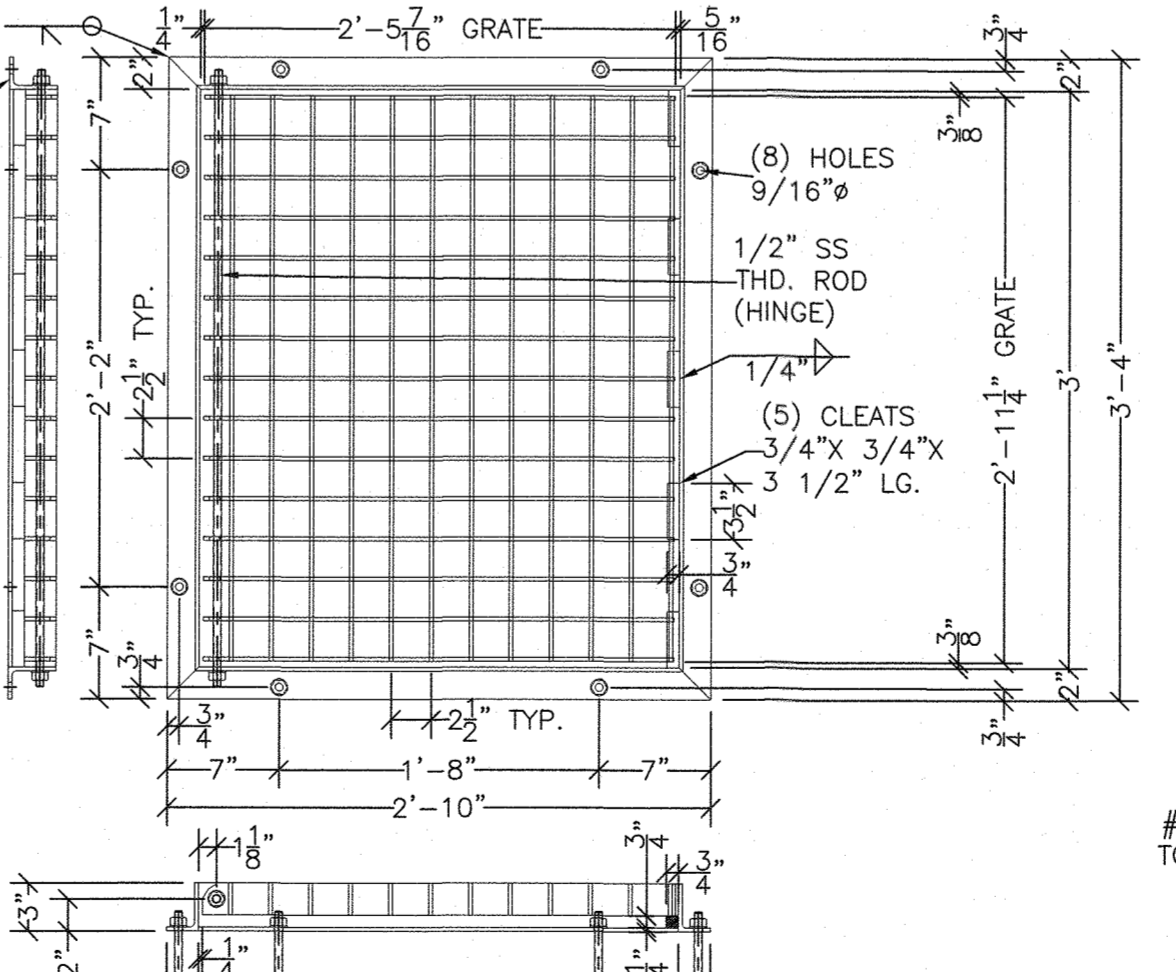
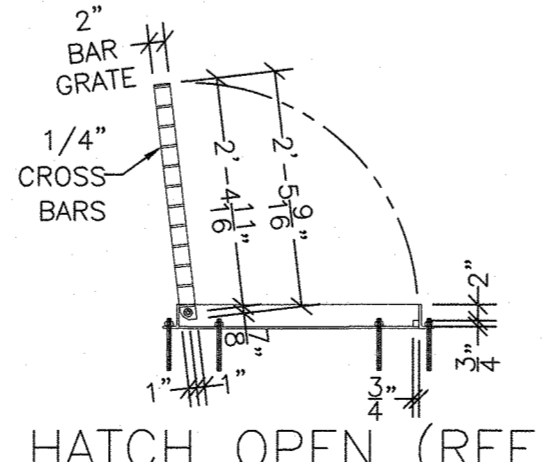
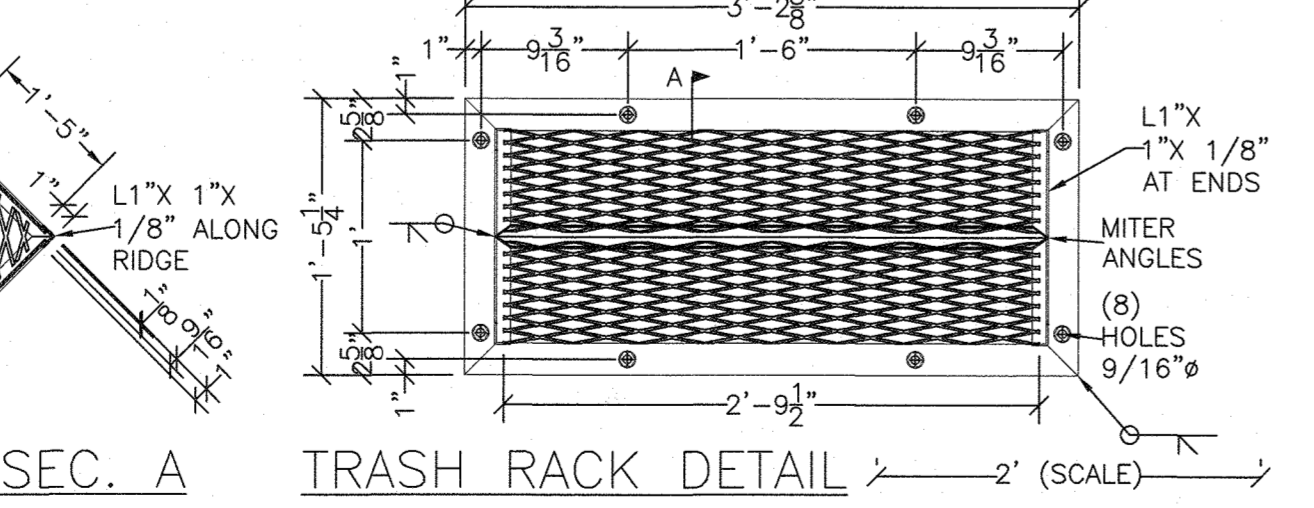
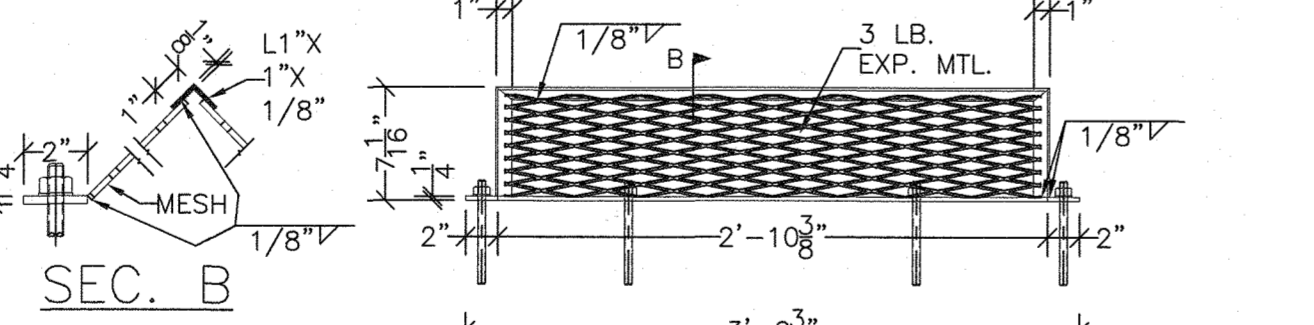


EAST ELEVATION
4' (SCALE)

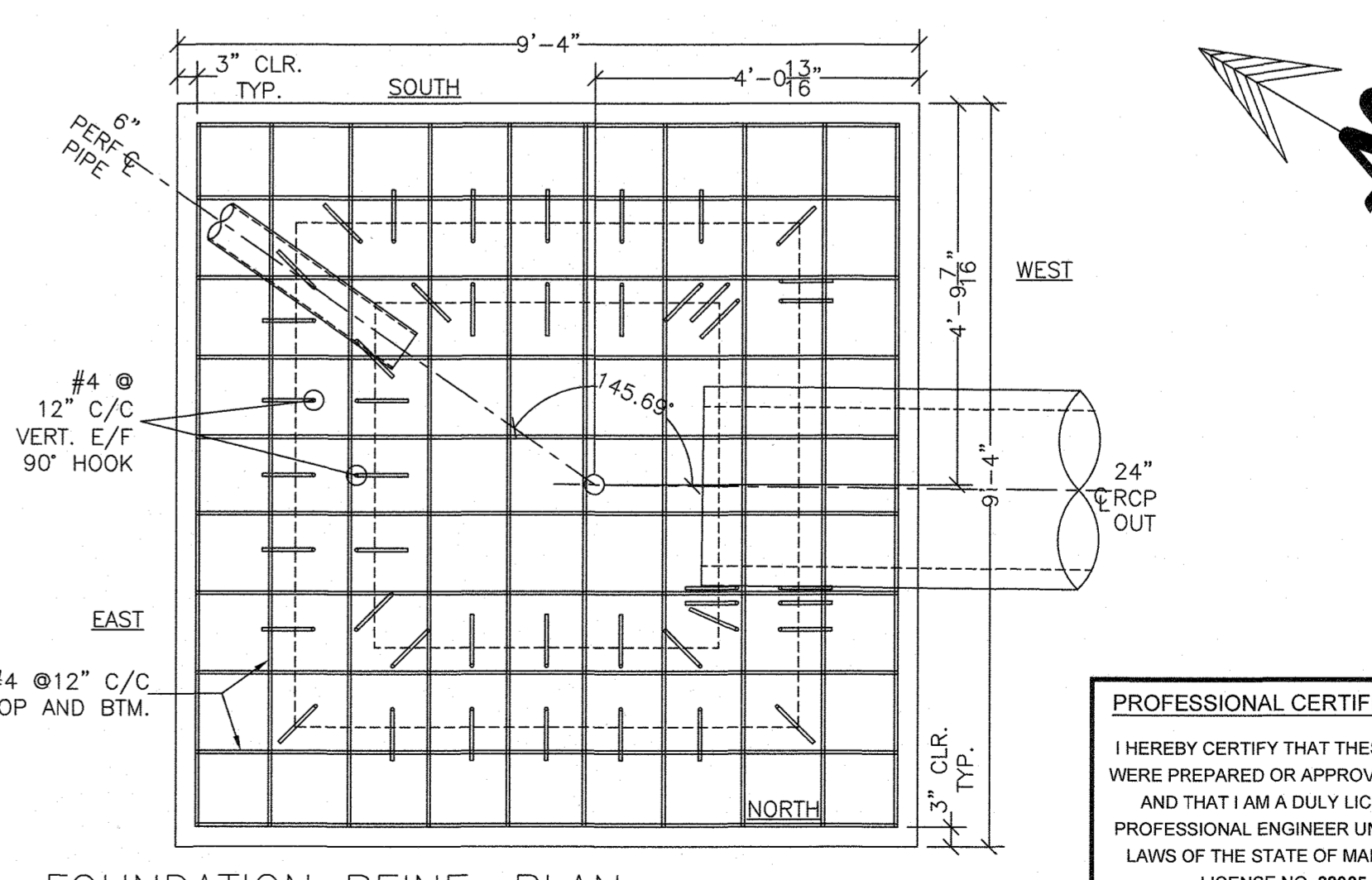


NORTH ELEVATION
4' (SCALE)

TRASH RACK AND ACCESS HATCH:
STEEL -
ASTM A992 GR 36 MIN.
FABRICATIONS TOLERANCE 1/16".
WELDING PER AWS.
HOT-DIP GALVANIZE AFTER FABRICATION.
PROVIDE MATERIAL CERTS.
(SEE GENERAL NOTES)



ACCESS GRATE
2' (SCALE)



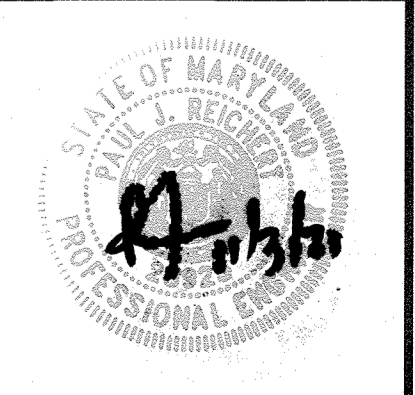
FOUNDATION REINF. PLAN
4' (SCALE)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/14/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/10/21

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. 28925
EXPIRATION DATE: 05/20/22



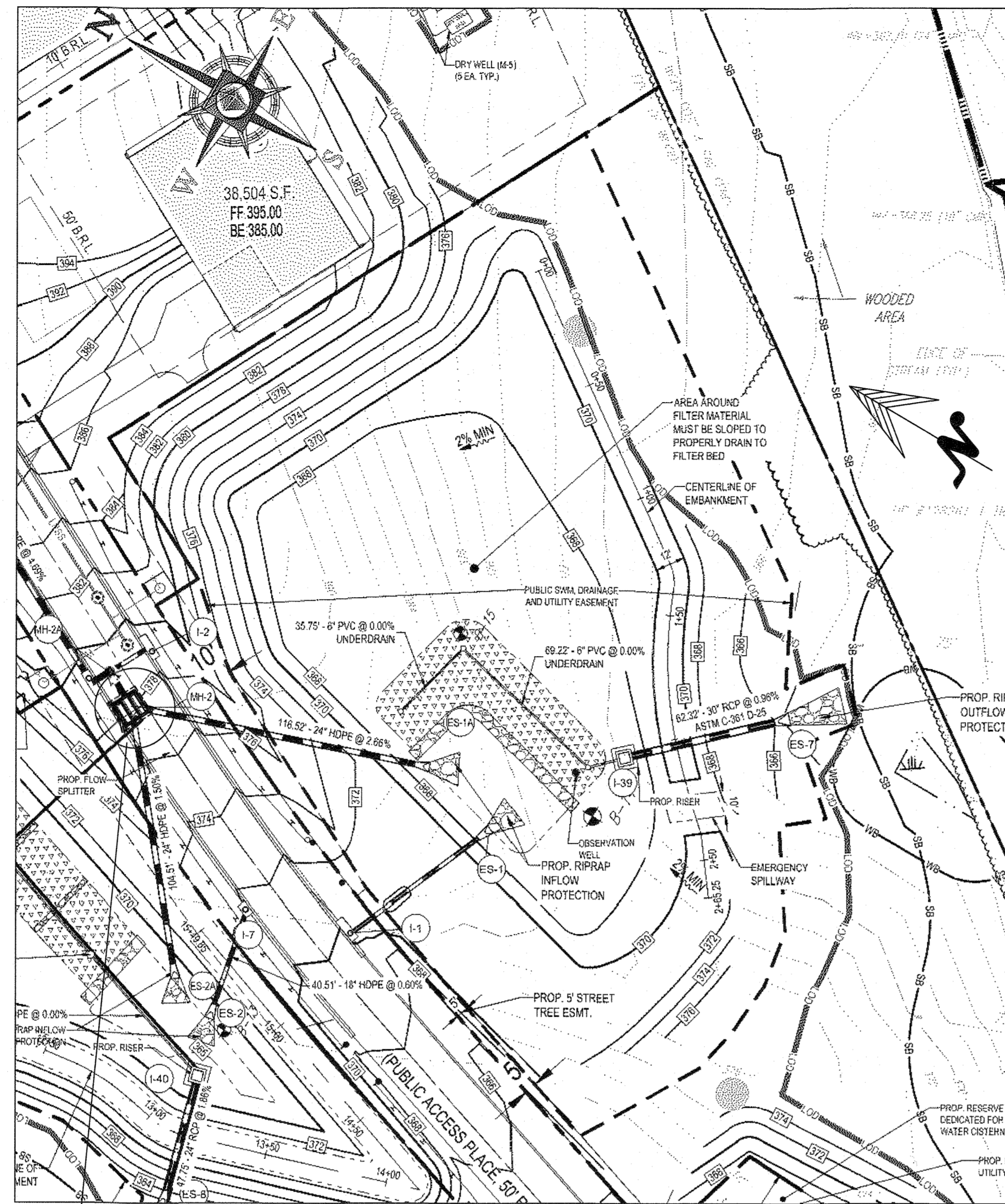
HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

INLET STRUCTURE I-40 NOTES, PLAN, ELEVATION
LYHUS PROPERTY
HOWARD COUNTY, MD.

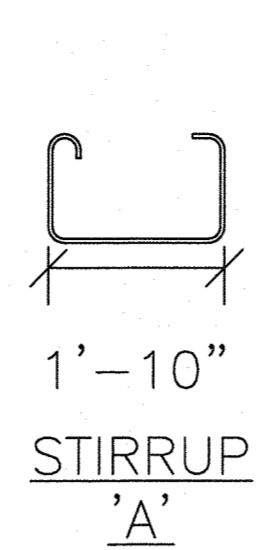
REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	CRS
			G20054	DRAWN BY:	CRS
			SCALE: AS SHOWN	APPROVED BY:	PR
			DATE: 07/02/2021		

FLOW SPLITTER NOTES:

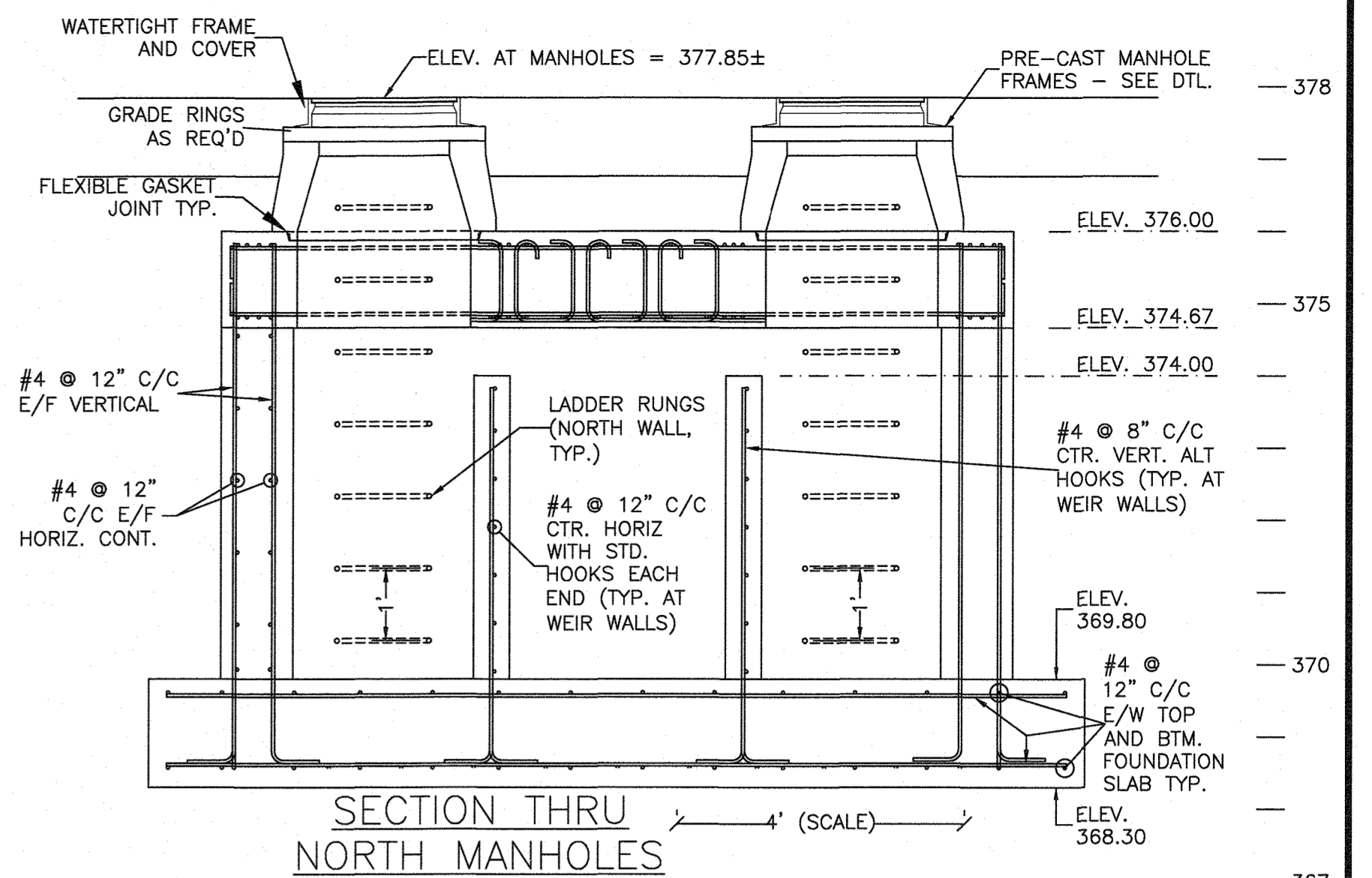
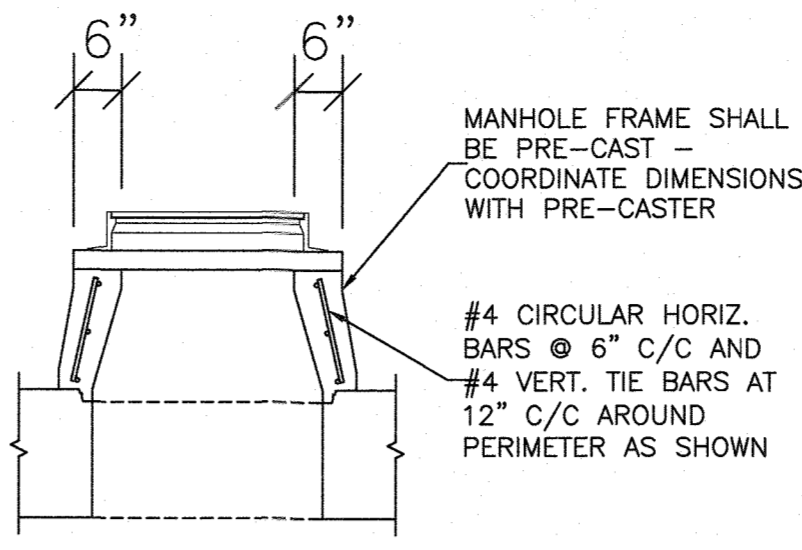
- CONSTRUCTION TO COMPLY WITH MOST CURRENT IN-FORCE IBC AND LOCAL CODES, AASHTO, ACI MANUAL OF CONCRETE PRACTICE, ACI 318 CODE FOR CONCRETE CONSTRUCTION, AISC 360 STEEL DESIGN MANUAL, AND ALL PROJECT REQUIREMENTS.
- GEOMETRY SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS. VERIFY CRITICAL DIMENSIONS AND SUITABILITY OF RECOMMENDATIONS. RESOLVE ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
- MINIMUM DESIGN LOADS PER IRC/IBC:
 DEAD, (COMPONENT WEIGHT)
 40 KIP REAR AXLE (HS-25 / HL-93 TRUCK LOADING)
 IMPACT COEFFICIENT = 1.3
 GROUND SNOW LOAD 25 PSF.
 SOIL DESIGN PARAMETERS: SLIDING FRICTION 0.3
 EFP 40 PSF/FT. (ACTIVE), EFP 60 PSF/FT. (AT REST), WATER 62.4 PSF/FT.
- WIND DESIGN CRITERIA ARE AS FOLLOWS:
 BASIC WIND SPEED = 115 MPH
 IMPORTANCE FACTOR = 1.0, WIND EXPOSURE = B
 CATEGORY 'OTHER STRUCTURES' SOLID FREESTANDING WALL
- SEISMIC DESIGN CRITERIA ARE AS FOLLOWS:
 SEISMIC IMPORTANCE FACTOR, I_e=1.0
 SEISMIC USE GROUP = CATEGORY II, SITE CLASS = D
 MAPPED SPECTRAL RESPONSE ACC. S_s = 0.122, S₁ = 0.051
 SPECTRAL RESPONSE COEFFICIENTS SDS = 0.130, SD1 = 0.082
 SEISMIC DESIGN CATEGORY = CATEGORY A
 BASIC SEISMIC FORCE RESISTING SYSTEM = ORDINARY REINF. CONCRETE SHEAR WALL
 SEISMIC RESPONSE COEFFICIENT, C_s = 0.065
 RESPONSE MODIFICATION FACTOR, R = 2.5
 DESIGN BASE SHEAR = 0.065 X W LBS.
 ANALYSIS = EQUIVALENT LATERAL FORCE.
- MATERIALS:
 SOILS: FOUNDATIONS TO BE IN SUITABLE NATURAL SOILS OR ENGINEERED CONTROLLED FILL ALLOWABLE BEARING MIN. 2500 PSF. PER GEO RPT. TO BE FIELD-VERIFIED DURING CONSTRUCTION. GRANULAR BACKFILL PER GEOTECH. ENG'R RECOMMENDATIONS (PHI 30 DEG. MIN. WT. 120 PCF NOM. COMPACT TO MIN. 95% OF STD. PROCTOR (OR BETTER WHERE REQ'D BY PROJ. SPEC)
 CONCRETE:
 WALL AND FOOTING F'c 4500 PSI. MIN.
 AIR ENTRAINED MAX W/C 0.40
 NO CHLORIDES IN CONCRETE.
 SAMPLE ONE SET OF (6) 4X8 CYLINDERS PER STRUCTURE PER 50 YDS. MAX AND 1X PER DAY.
 REINF. STEEL: ASTM A615 GR 60
 LAP SPLICES: #4=16",
 CONCRETE COVER: UNLESS NOTED OTHERWISE
 3" CAST AGAINST EARTH
 2" EXPOSED TO EARTH OR WEATHER
 * COORDINATE COSMETIC REQUIREMENTS (SURFACE FINISH, TEXTURE, COLOR, SAMPLES) FOR OWNER APPROVAL.
 STEEL:
 ASTM A992 GR 36 MIN.
 FABRICATIONS TOLERANCE 1/16". WELDING PER AWS.
 HOT-DIP GALVANIZE AFTER FABRICATION.
 BOLTS:
 ASTM F593A 304 OR 316 STAINLESS, POST-INSTALLED OR CAST-IN. (USE TEMPLATES FOR CAST-IN).
- WORKMANSHIP:
 MEET OWNER'S REQUIREMENTS FOR APPEARANCE.
 AT COLD JOINTS AND MATING SURFACES, EXISTING SURFACE TO BE DAMP-SATURATED, OR APPLY LATEX-TYPE BONDING AGENT PER MFG. INSTRUCTIONS.
- QUALIFICATIONS AND QA/QC:
 PROVIDE MATERIAL RECORDS (MILL CERTS, BATCH TICKETS, FOR SOURCE AND TRACEABILITY), TEST RECORDS (CYLINDER BREAKS, FOR STRENGTH), AND INSPECTION REPORTS.



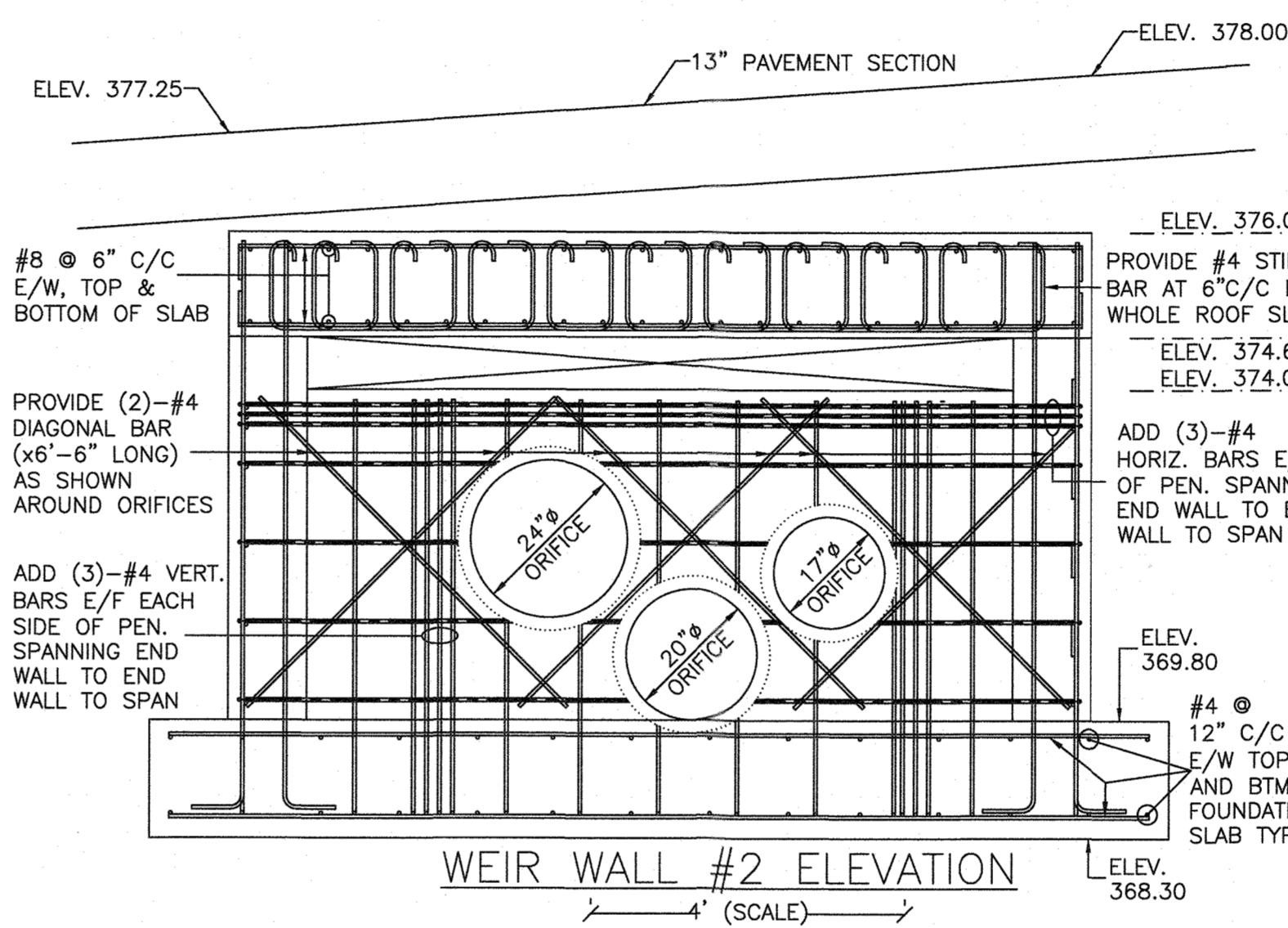
STRUCTURE LOCATION PLAN
80' (SCALE)



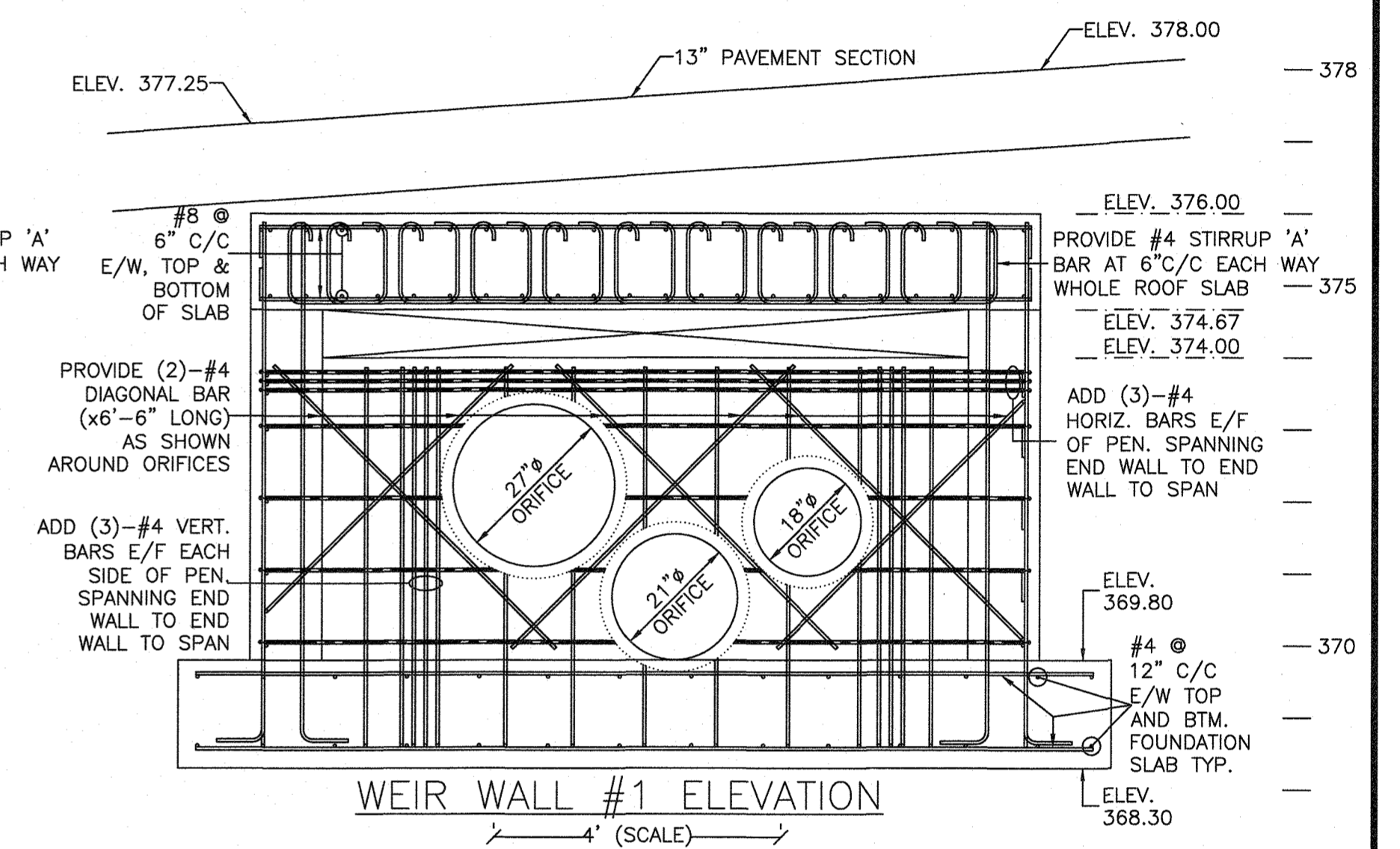
PRE-CAST MANHOLE FRAME
4' (SCALE)



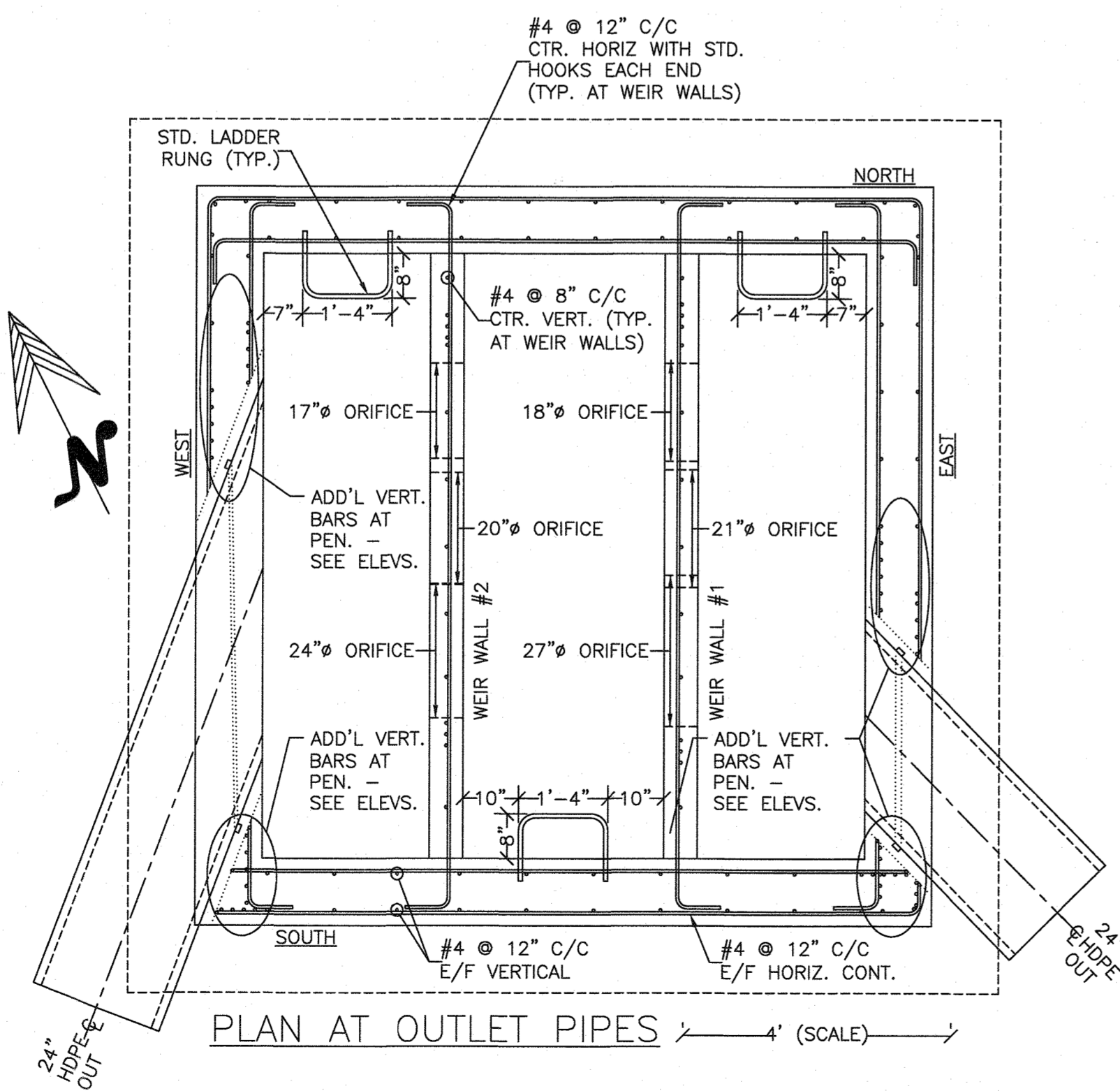
SECTION THRU NORTH MANHOLES
4' (SCALE)



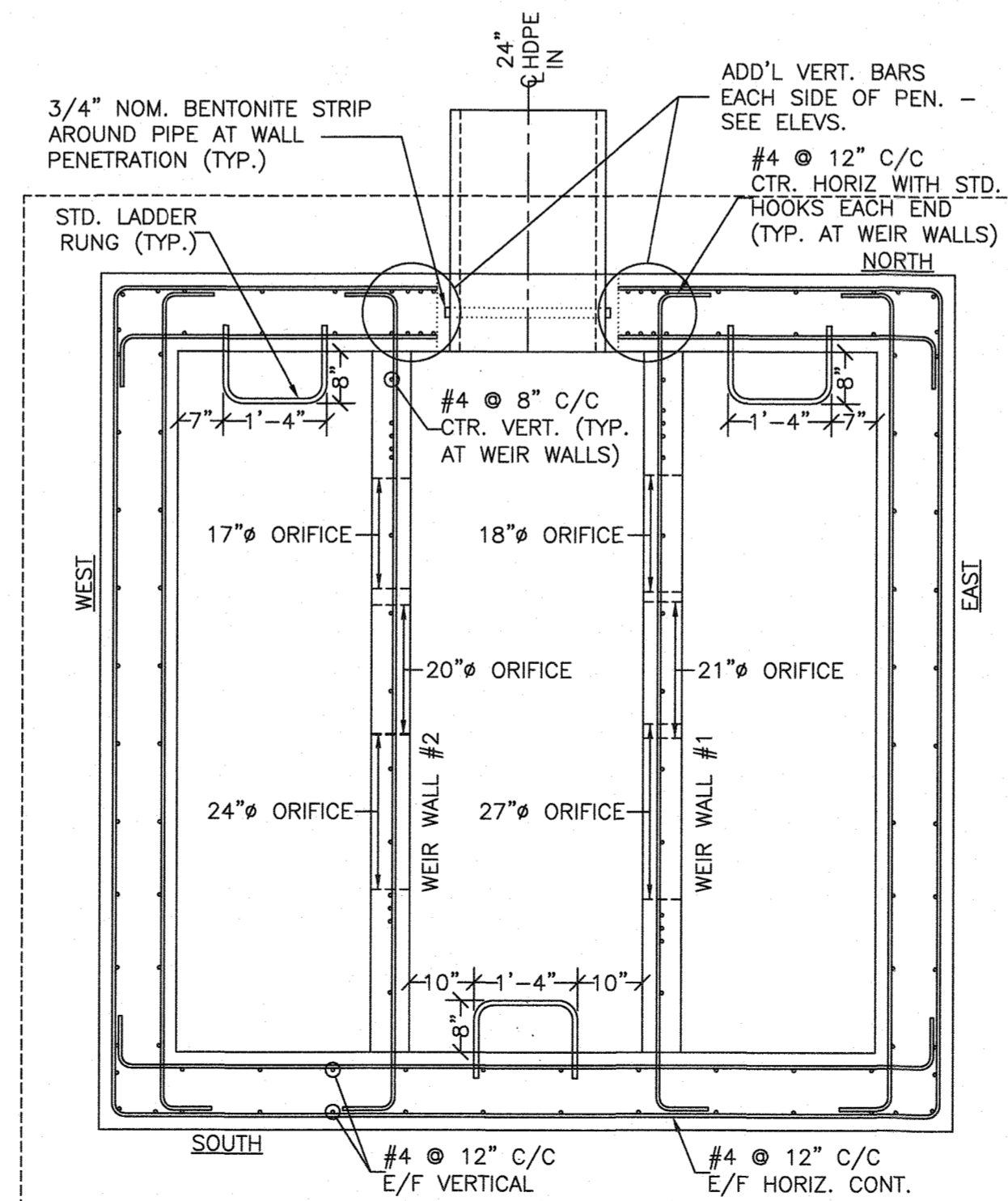
WEIR WALL #2 ELEVATION
4' (SCALE)



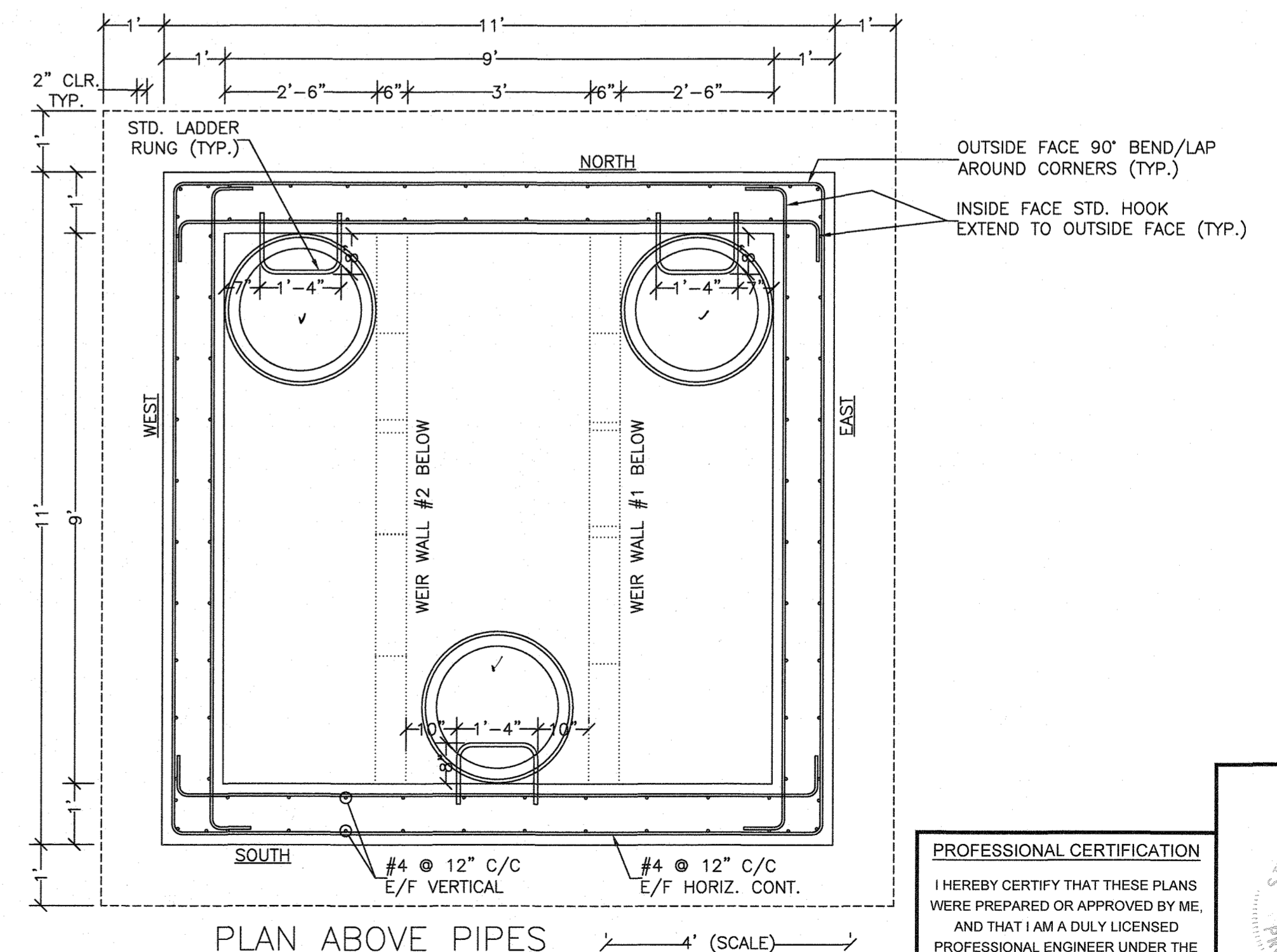
WEIR WALL #1 ELEVATION
4' (SCALE)



PLAN AT OUTLET PIPES
4' (SCALE)



PLAN AT INLET PIPE
4' (SCALE)



PLAN ABOVE PIPES
4' (SCALE)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 12/14/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 12/21/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 12-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

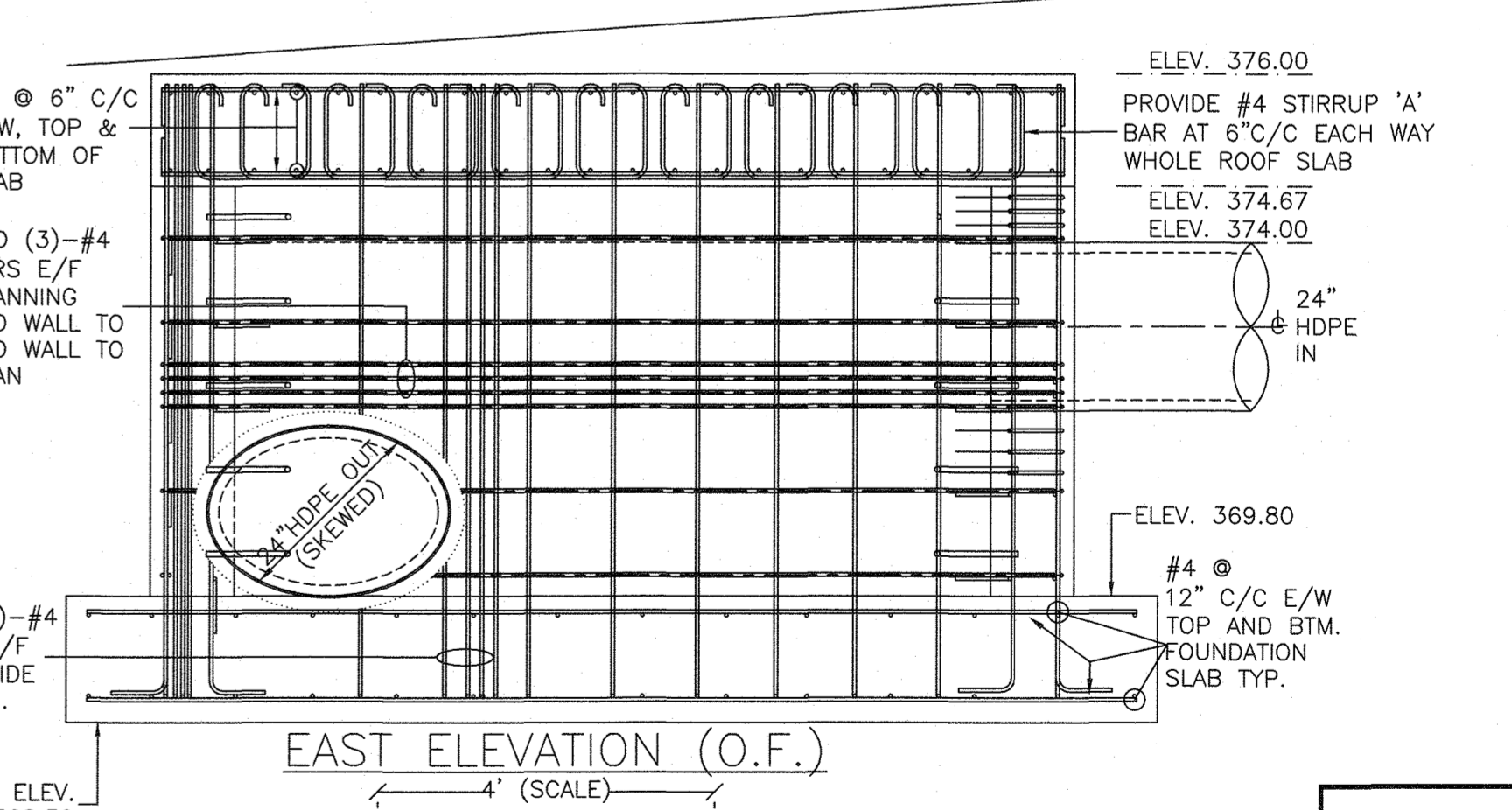
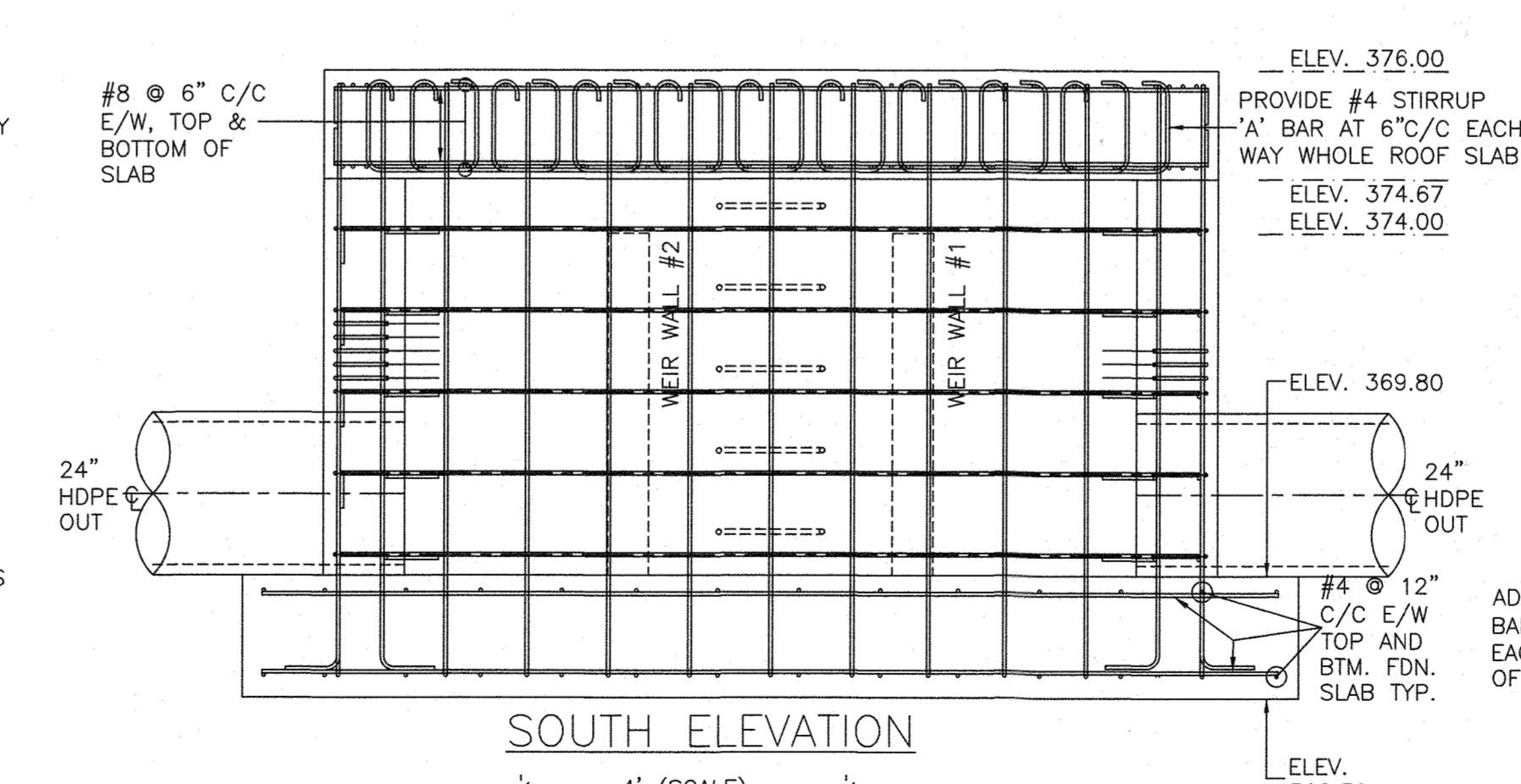
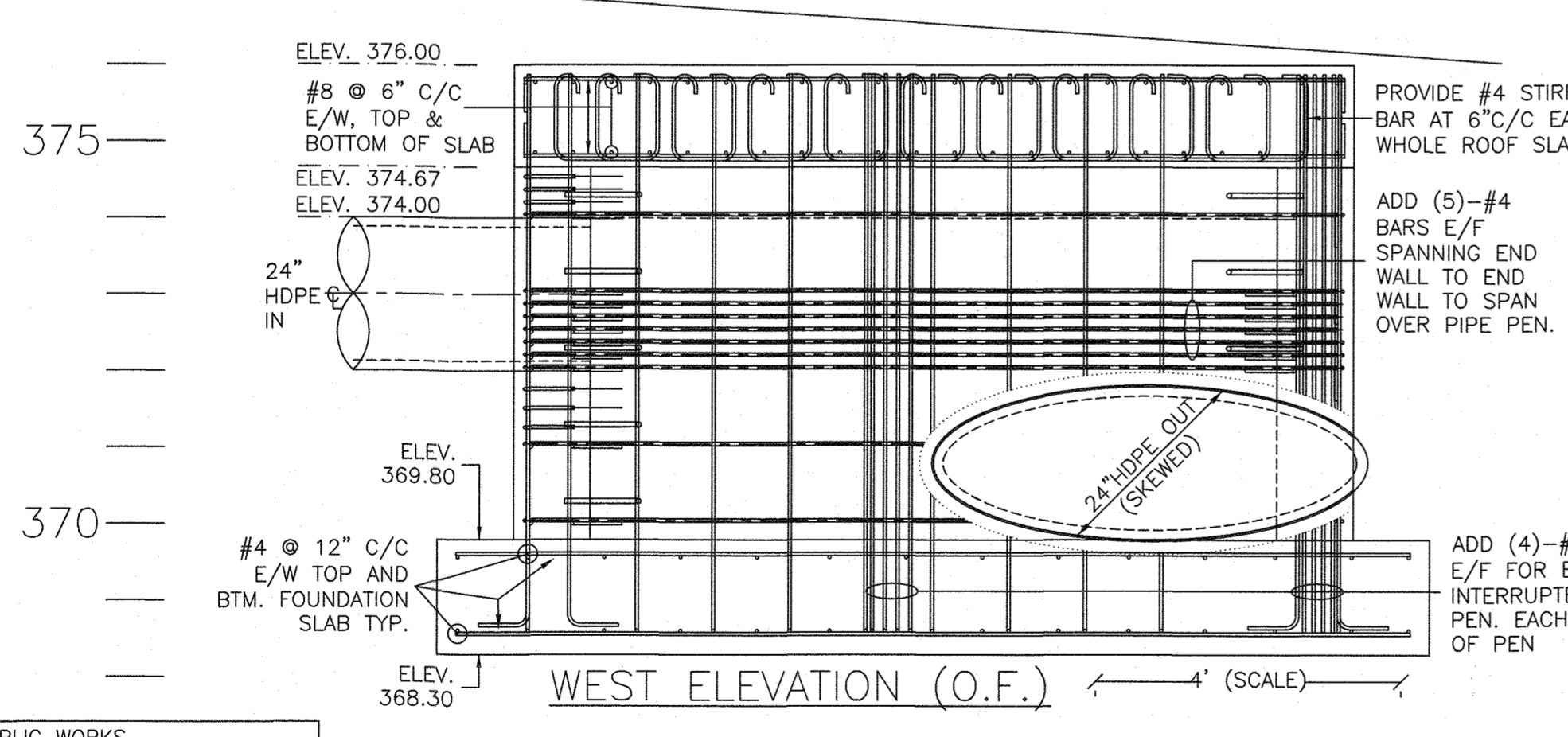
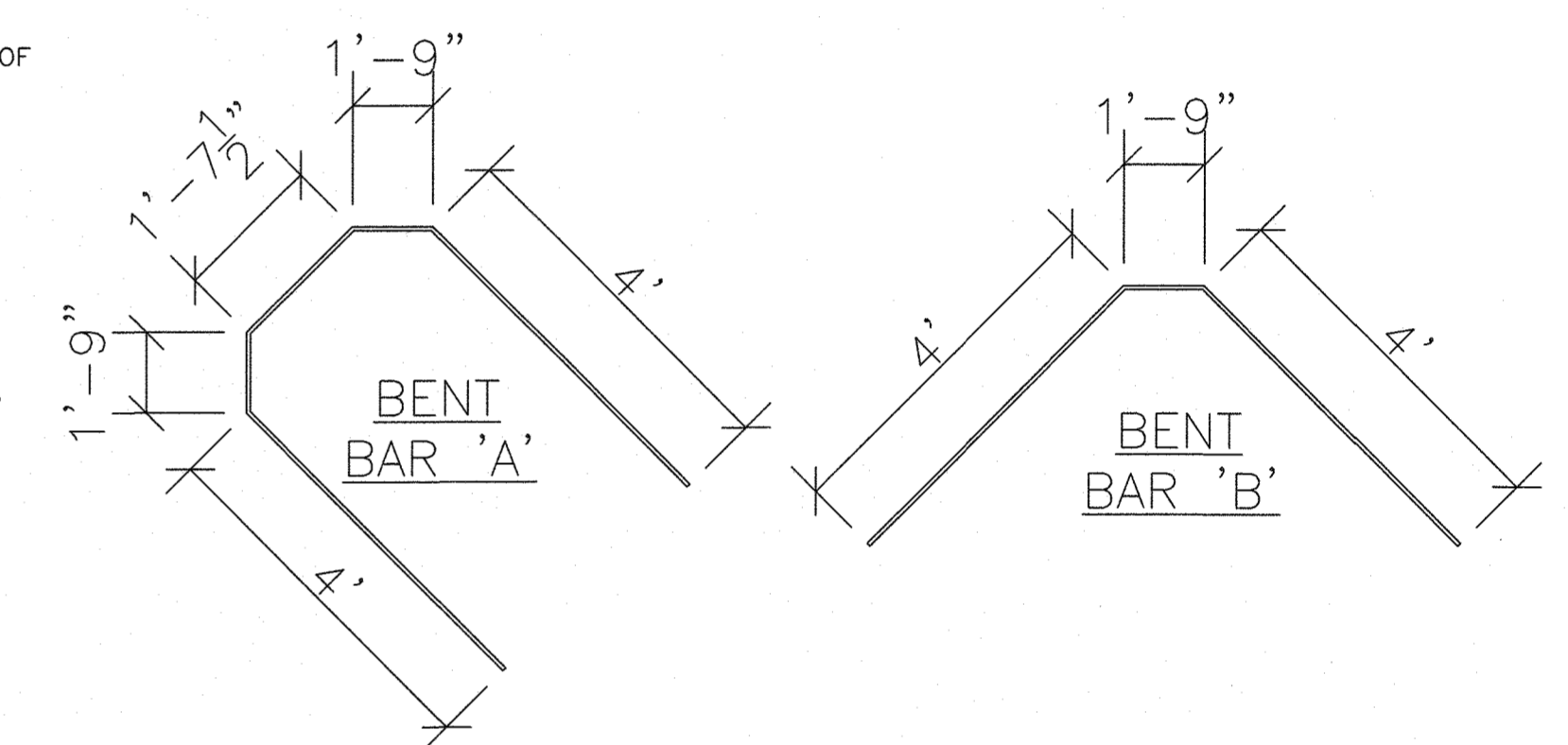
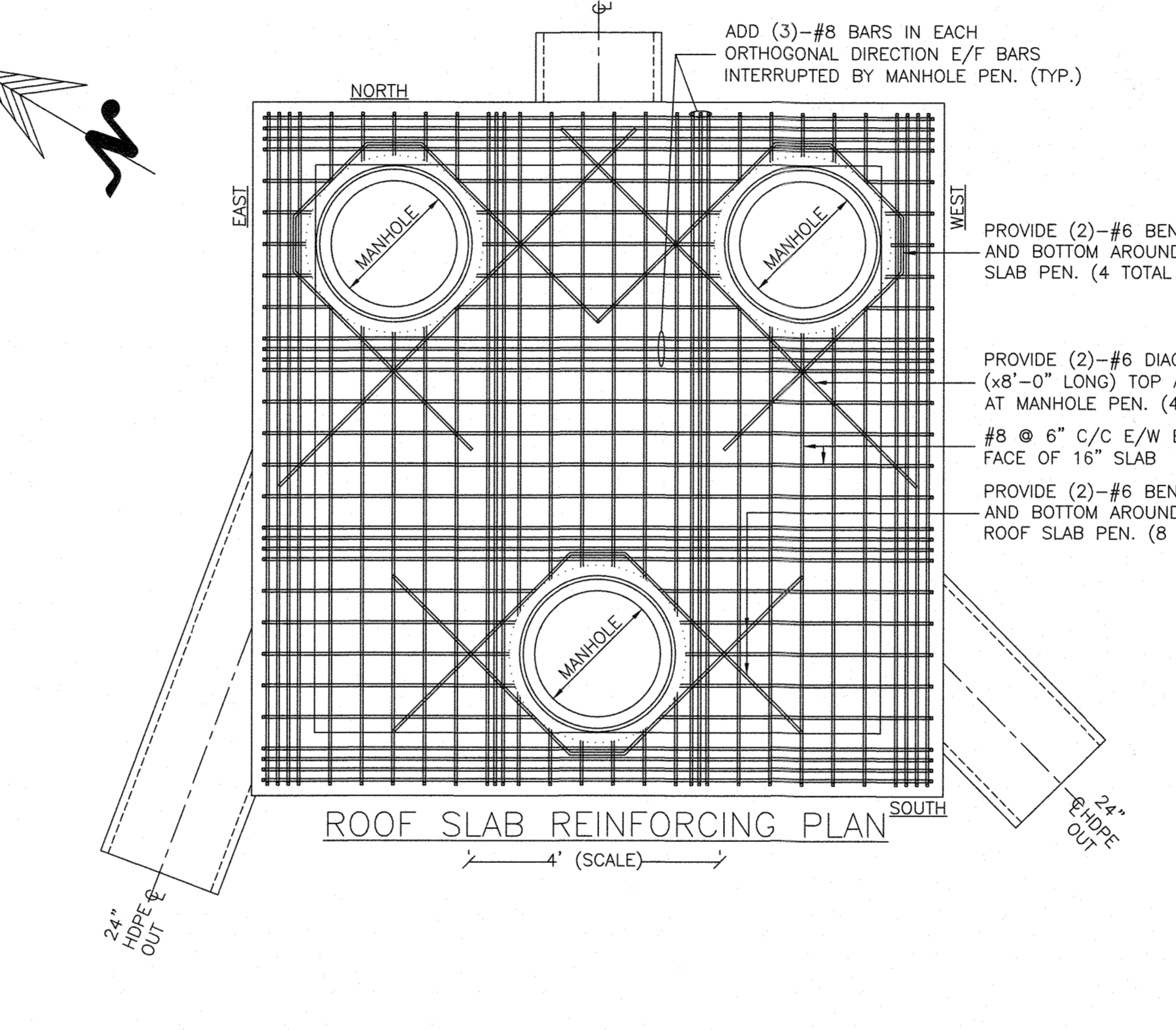
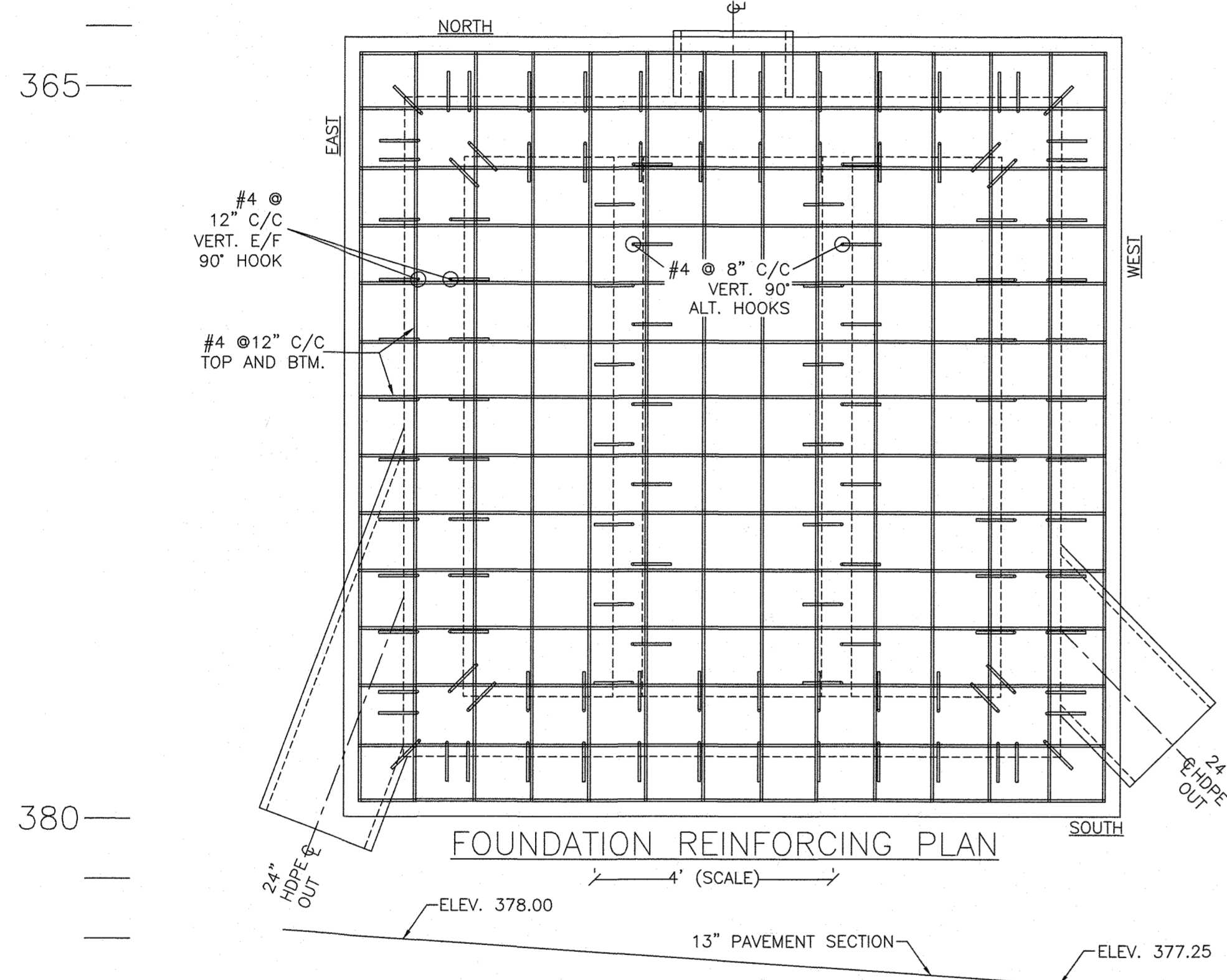
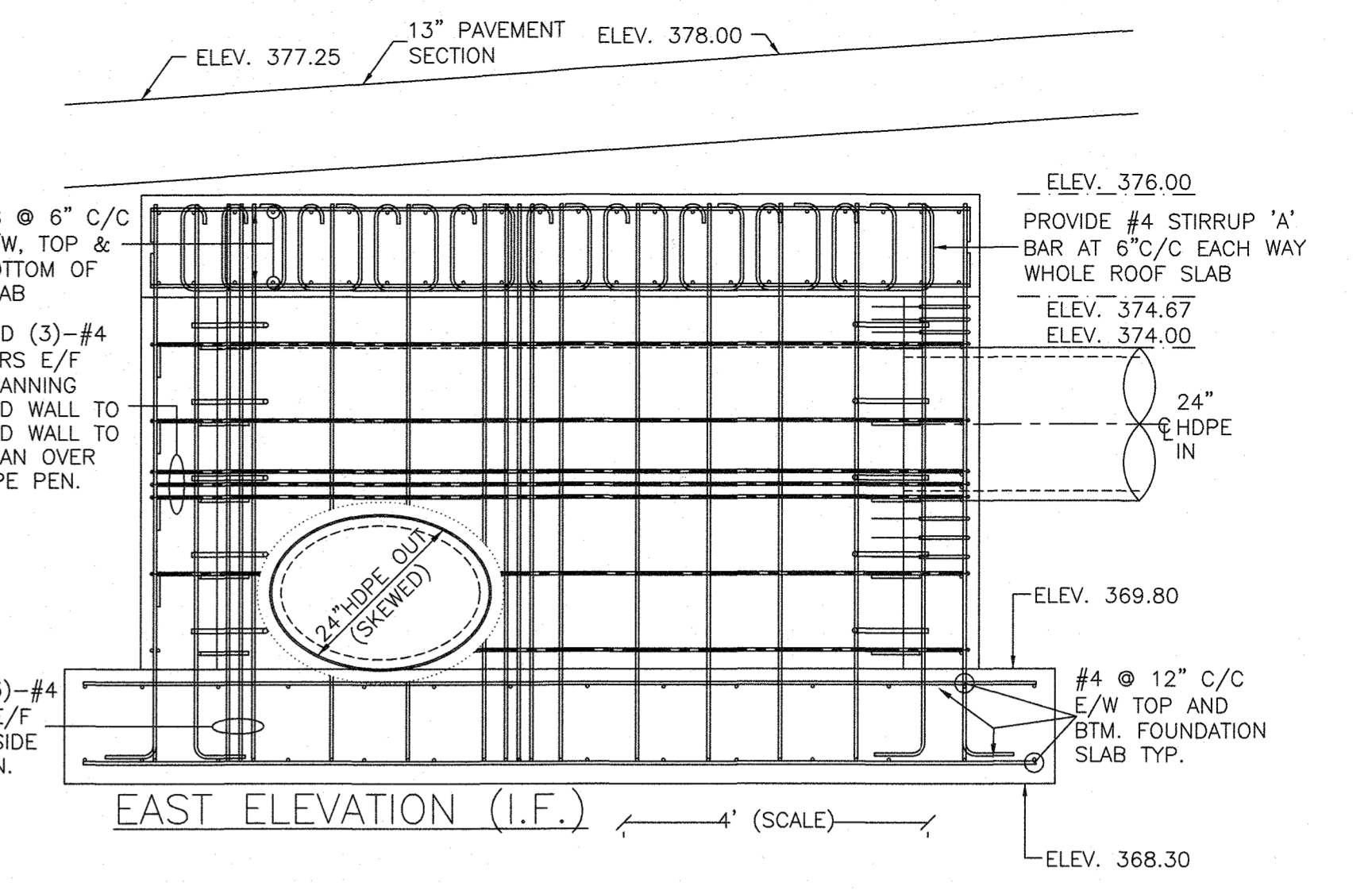
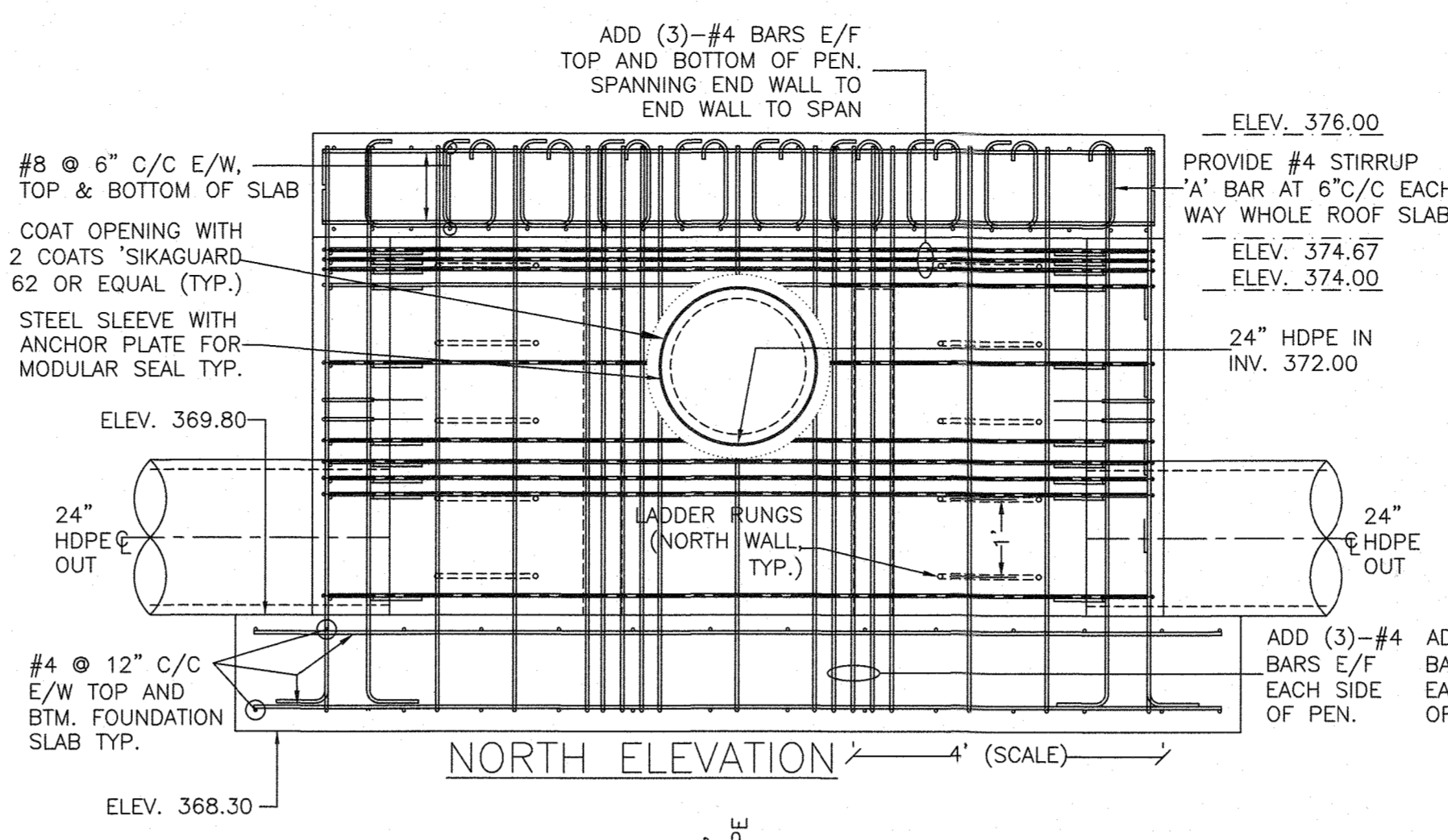
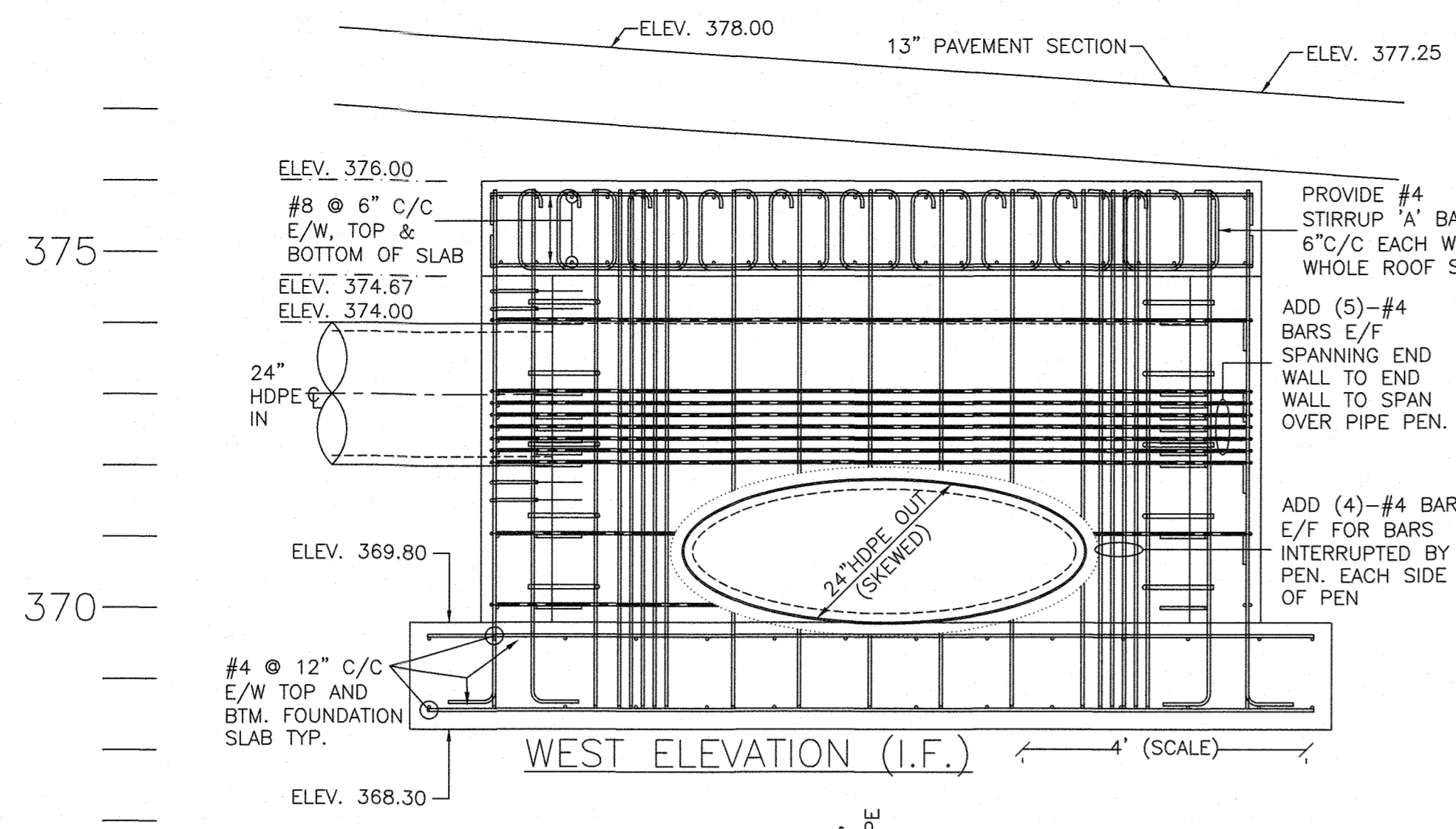
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 28925, EXPIRATION DATE: 05/20/22



HILLIS-CARNES
ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

PIPE FLOW SPLITTER NOTES, PLANS, AND ELEVATIONS
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	SCALE:	DRAWN BY:	DATE:	APPROVED BY:	SHEET
			G20054	CRS	AS SHOWN	CRS	07/02/2021	PR	79 of 80



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12/14/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/16/21

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12-10-21

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. 28925, EXPIRATION DATE: 05/20/22



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

PIPE FLOW SPLITTER PLANS AND DETAILS
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	CRS
			G20054	DRAWN BY:	CRS
			SCALE:	AS SHOWN	80 of 80
			DATE:	07/02/2021	APPROVED BY: PR
					SHEET