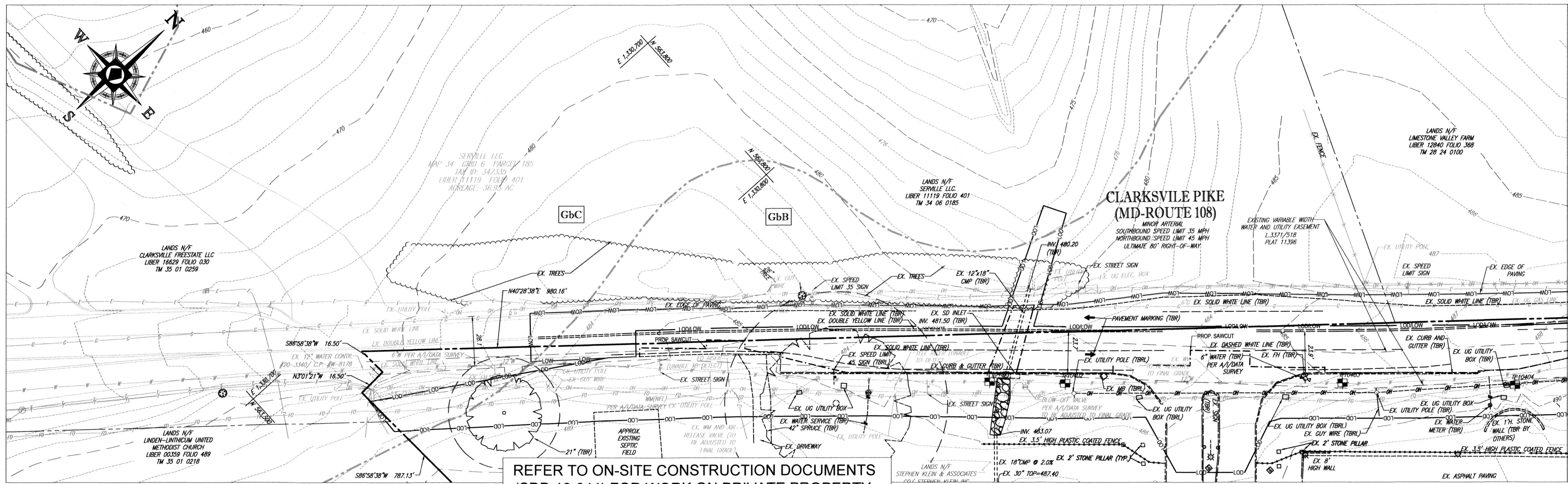
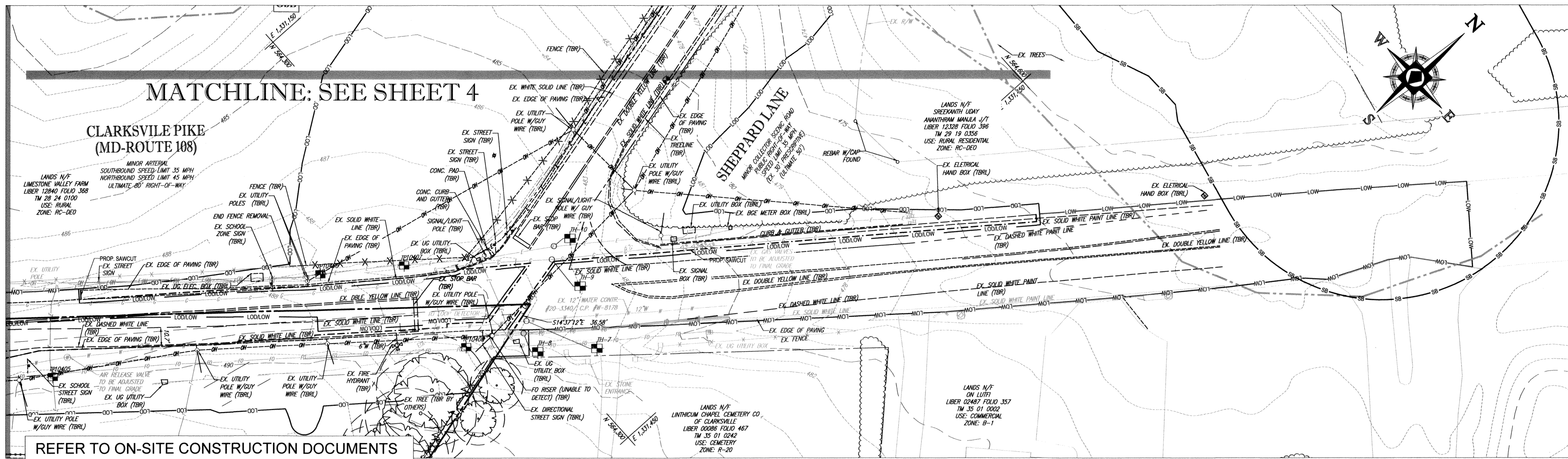


MATCHLINE: THIS SHEET



REFER TO ON-SITE CONSTRUCTION DOCUMENTS (SDP-18-044) FOR WORK ON PRIVATE PROPERTY.



REFER TO ON-SITE CONSTRUCTION DOCUMENTS (SDP-18-044) FOR WORK ON PRIVATE PROPERTY.

SOIL TYPES ONSITE						
SYMBOL	SOIL SERIES	HYDROLOGIC SOIL GROUP	HYDRIC SOIL	SLOPES	K FACTOR	ERODIBLE
GbB	GLADSTONE LOAM	A	NO	3-8%	32	NO
GbC	GLADSTONE LOAM	A	NO	8-15%	32	NO
GnB	GLENVILLE-BAILE SILT LOAMS	C	NO	0-8%	49	YES
MaD	MANOR LOAM	B	NO	15-25%	32	YES

LIMIT OF DISTURBANCE: 2.68 AC. OR 116,741 S.F.*
LIMIT OF WORK: 0.85 AC. OR 34,026 S.F.
*LIMIT OF DISTURBANCE INCLUDES ALL WORK WITH SOIL DISTURBANCE
 **LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE

EX. TEST PIT DATA		
PER A/I DATA SURVEY DATED 5/11/2018		
TEST PIT NO.	ELEV.	TOP PIPE ELEV.
10401	484.764	479.76
10402	484.39	479.39
10403	489.00	480.01
10404	491.401	486.40
10405	491.294	486.29
10406	488.195	482.20
10407	488.277	482.28
10408	488.242	
TH-7	483.98	479.84
TH-8	483.76	479.85
TH-9	483.37	479.49
TH-10	483.34	479.85

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

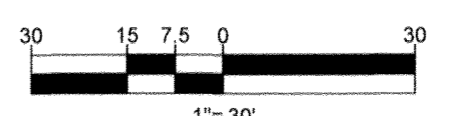
Professional Certification I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-21-22



APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: *James* 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT: *Kevin A. Klein* 3-6-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Robert* 2-2-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES
 DEVELOPER: RIVER HILL SQUARE, LLC
 12165 CLARKSVILLE PIKE
 CLARKSVILLE, MD 21029
 (410) 465-4244

TAX MAP: 35 GRID: 1 PARCEL: 1 RC-DEO
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



PREVIOUS FILE No.: ECP-17-023
 SDP-18-044
 WP-18-095

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

REVISIONS			
REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRR
 DATE: 12/18/18
 SCALE: 1" = 30'
 CAD I.D.: EP2

FINAL ROAD CONSTRUCTION PLANS
 FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
 LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21029
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 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. 16066

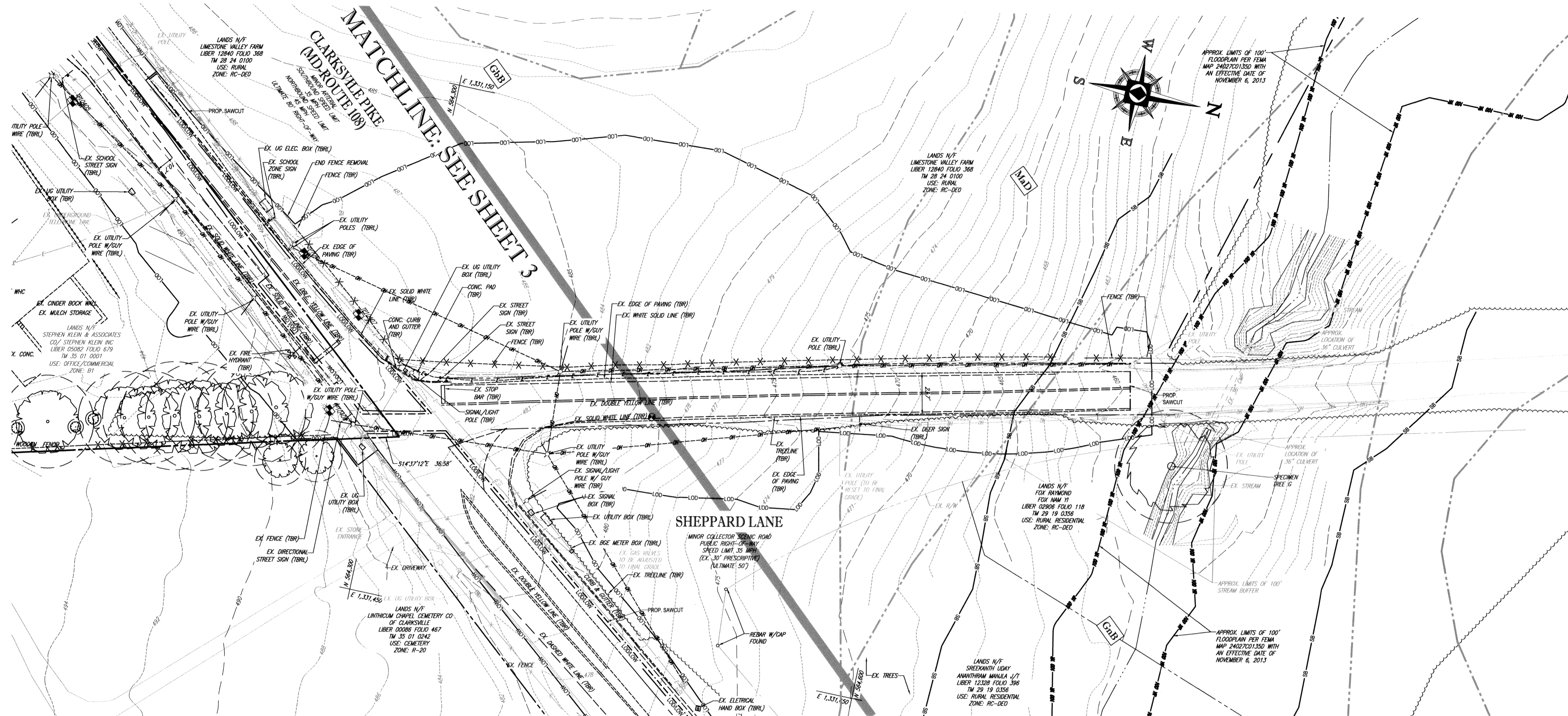
SHEET TITLE:
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
3

F-18-099

MATCHLINE: THIS SHEET

AS-BUILT



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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRB
 DATE: 12/18/18
 SCALE: 1" = 30'
 CAD I.D.: EP2

FINAL ROAD CONSTRUCTION PLANS
 FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT

LOCATION OF SITE
 INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21209
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 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
 No. 21443
 11-1-19

SHEET TITLE:
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
4

F-18-099

RIGHT OF WAY ELEVATION

R/W PT. NO.	DESCRIPTION	ELEVATION
5	REBAR & CAP	477.98
6	CONC MONU	481.64
7	REBAR & CAP	478.05
8	REBAR & CAP	466.01
9	REBAR & CAP	477.07
10	REBAR & CAP	458.20
11	REBAR & CAP	482.96
12	REBAR & CAP	475.12
13	REBAR & CAP	474.50
14	REBAR & CAP	465.88
15	REBAR & CAP	461.81
16	REBAR & CAP	466.05
17	REBAR & CAP	474.92
18	REBAR & CAP	473.30
19	REBAR & CAP	476.43
20	REBAR & CAP	480.99

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 3-25-21

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-21-22

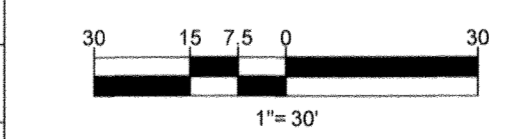
STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 21443
 AS-BUILT 3/25/21

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF: BUREAU OF HIGHWAYS DATE: 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF: DIVISION OF LAND DEVELOPMENT DATE: 3-6-19
 CHIEF: DEVELOPMENT ENGINEERING DIVISION DATE: 2-21-19

SOIL TYPES ONSITE

SYMBOL	SOIL SERIES	HYDROLOGIC SOIL GROUP	HYDRIC SOIL	SLOPES	K FACTOR	ERODIBLE
GbB	GLADSTONE LOAM	A	NO	3-8%	.32	NO
GbC	GLADSTONE LOAM	A	NO	8-15%	.32	NO
GnB	GLENVILLE BAILE SILT LOAMS	C	NO	0-8%	.49	YES
MaD	MANOR LOAM	B	NO	15-25%	.32	YES

LIMIT OF DISTURBANCE: 2.68 AC. OR 116,741 S.F.*
 LIMIT OF WORK: 0.85 AC. OR 34,026 S.F.
 *LIMIT OF DISTURBANCE INCLUDES ALL WORK WITH SOIL DISTURBANCE
 *LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE



PREVIOUS FILE No.: ECP-17-023
 SDP-18-044
 WP-18-095

AS-BUILT

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRR
 DATE: 12/18/18
 SCALE: AS SHOWN
 CAD I.D.: SP2

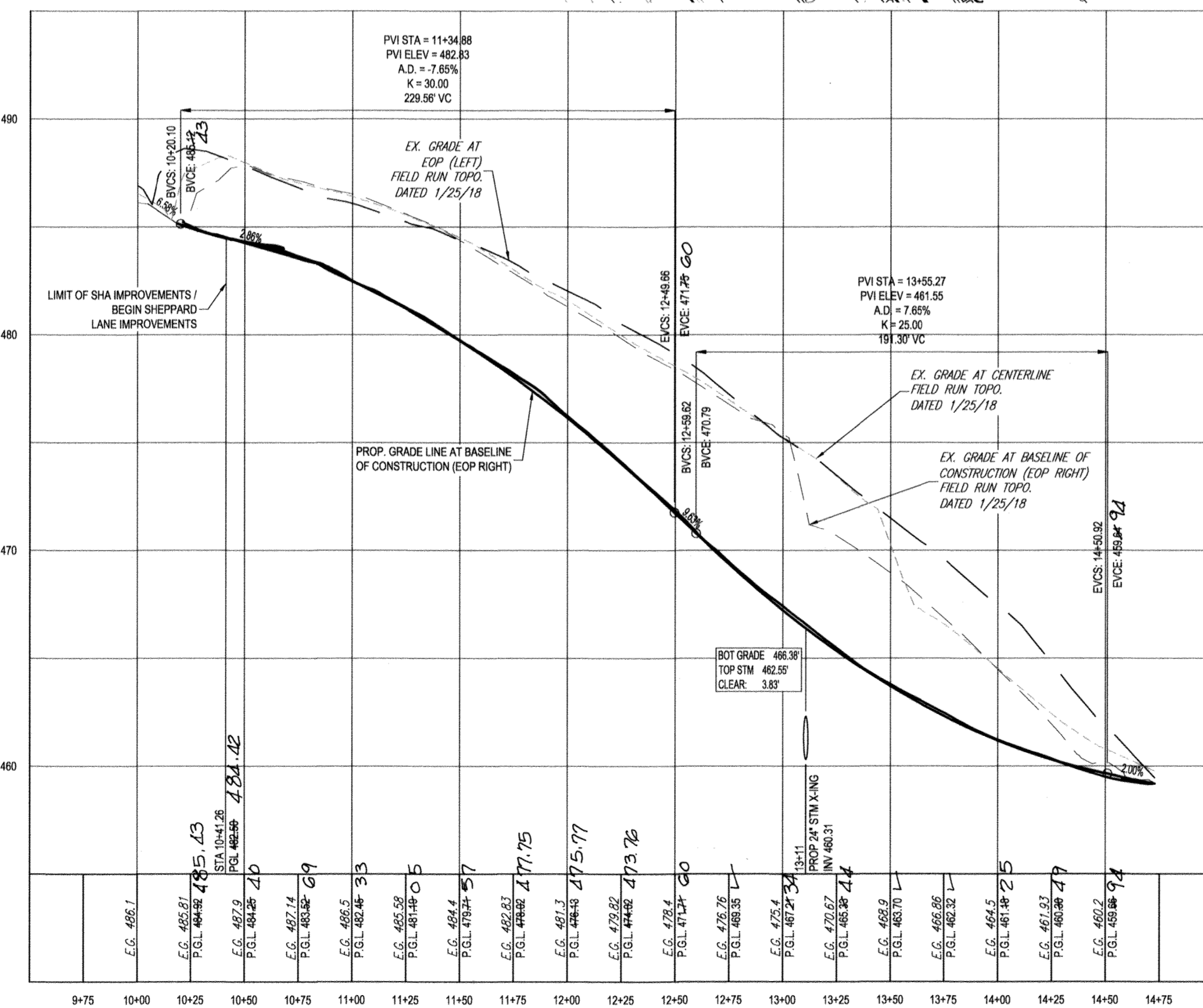
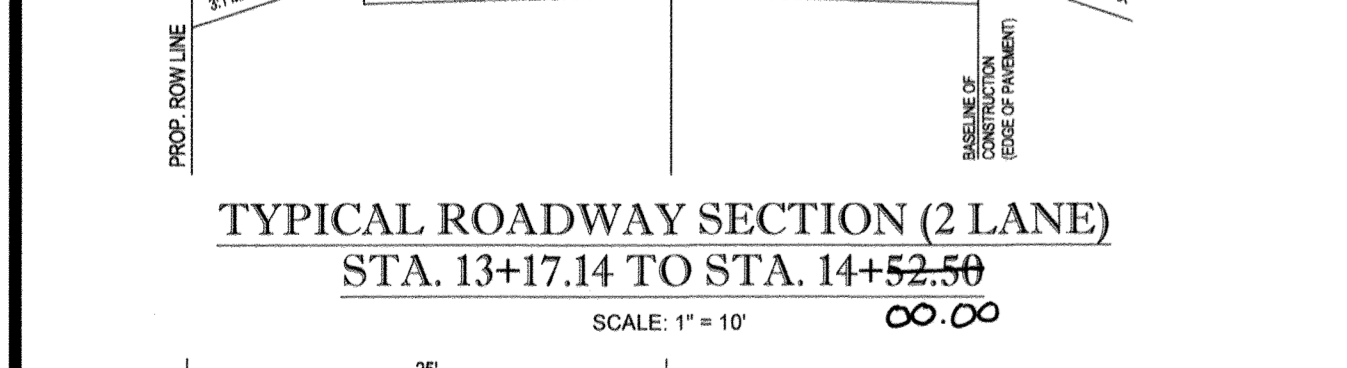
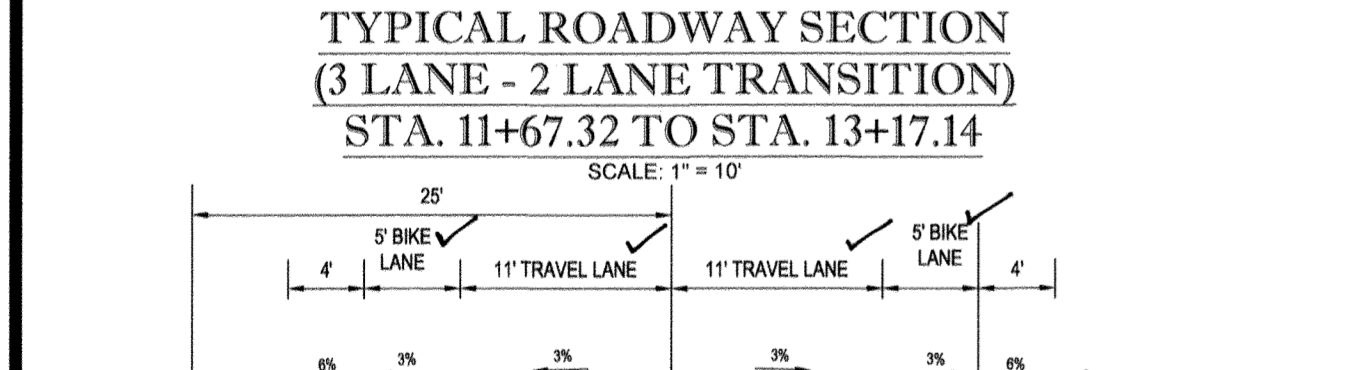
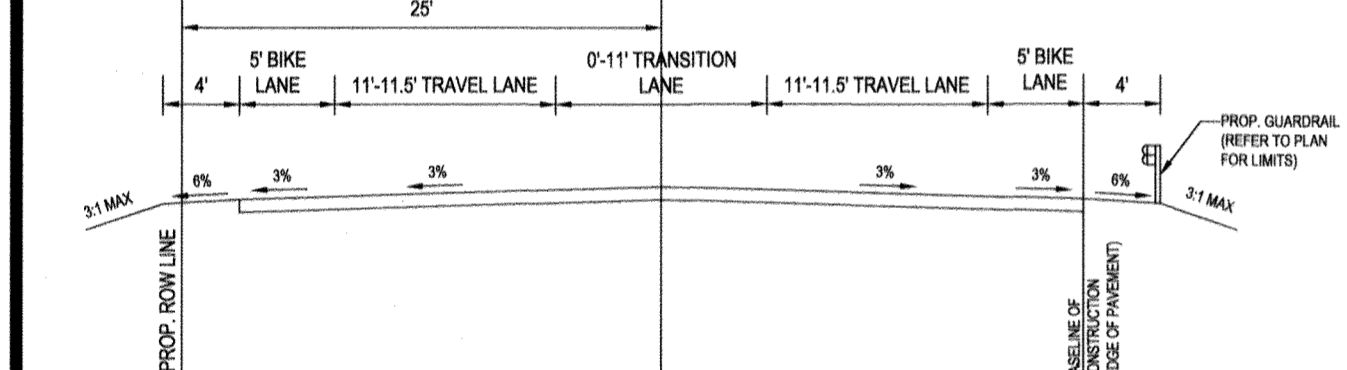
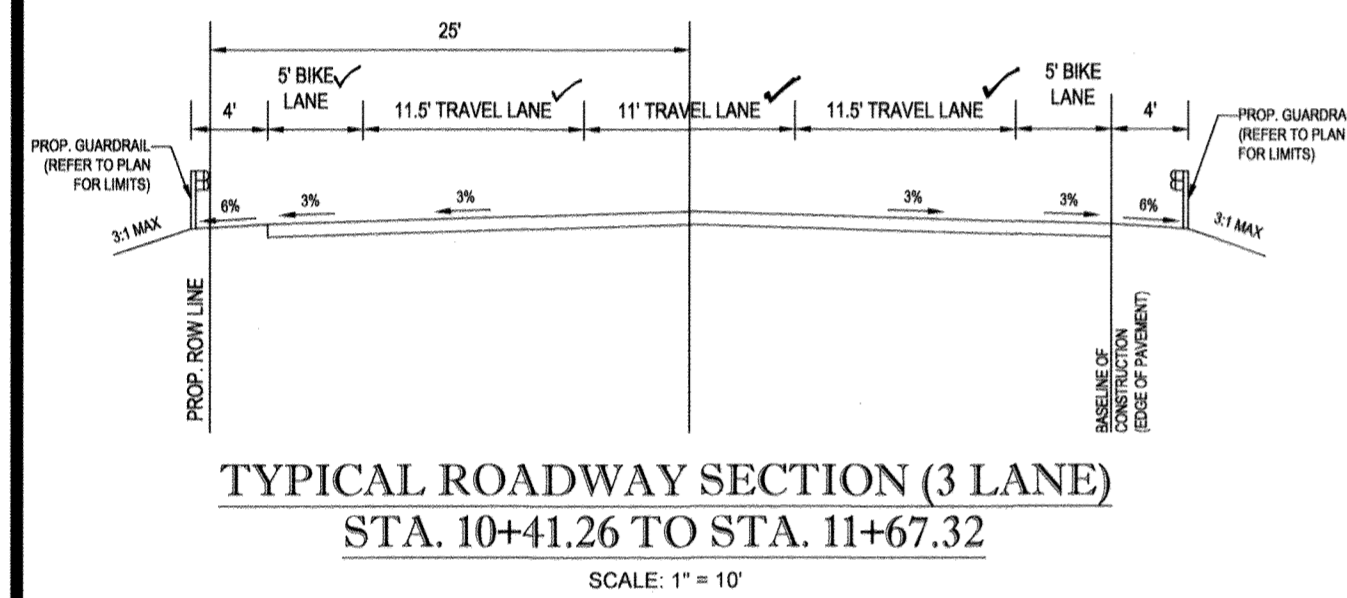
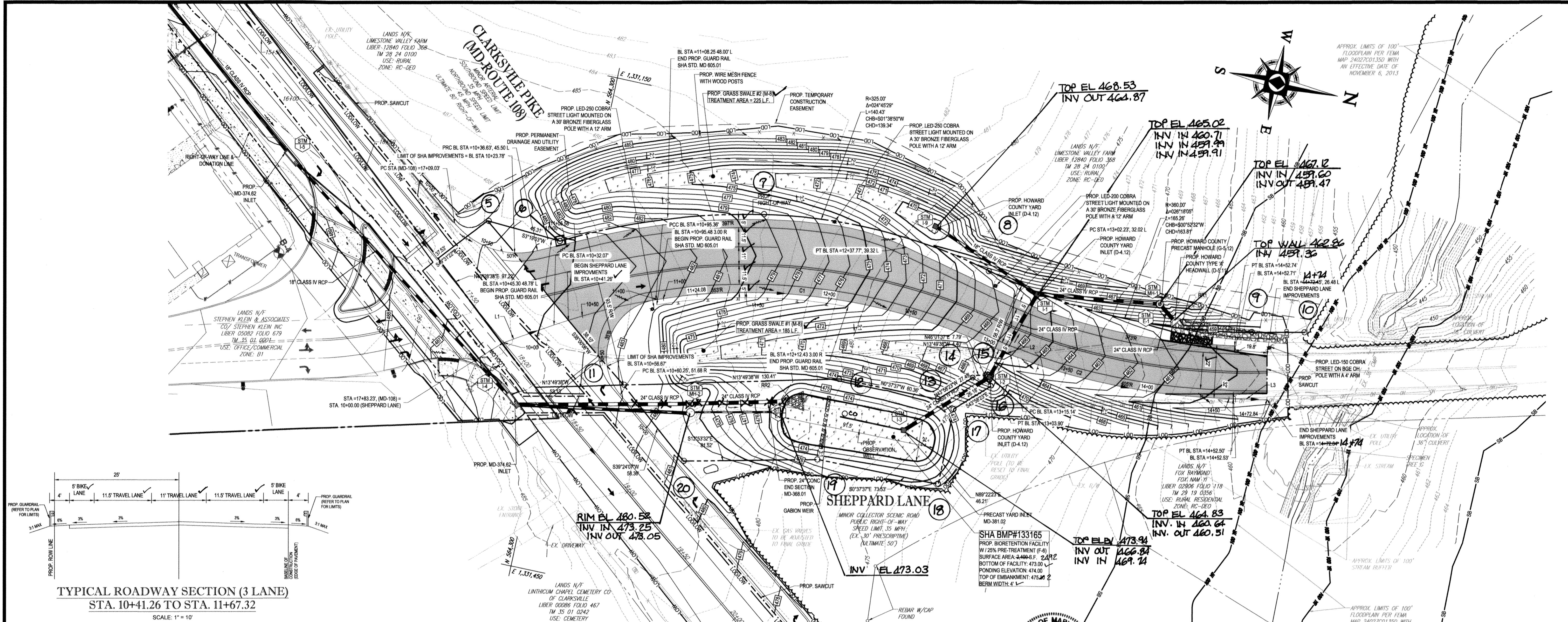
FINAL ROAD CONSTRUCTION PLANS
 FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
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 ZONE: B-1, RC-DEO
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 HOWARD COUNTY

BOHLER ENGINEERING
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 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7907
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 6094

SHEPPARD LANE PLAN AND PROFILE

SHEET NUMBER: **5**
 F-18-099

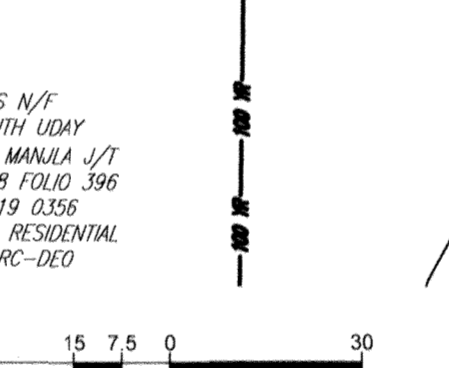


LIMIT OF DISTURBANCE: 2.68 AC. OR 116,741 S.F.*
LIMIT OF WORK: 0.85 AC. OR 34,026 S.F.
 *LIMIT OF DISTURBANCE INCLUDES ALL WORK WITH SOIL DISTURBANCE
 **LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE

SHEPPARD LANE PROFILE
 SCALE: 1" = 5' VERTICAL
 1" = 50' HORIZONTAL
 DESIGN SPEED: 35 MPH
 CLASSIFICATION: MINOR COLLECTOR SCENIC ROAD

AS-BUILT
 Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-21-22

Don: d Mason, P.E.
 Date: 3/25/21



LEGEND
 CONCRETE MULTIMODAL PEDESTRIAN PATHWAY
 HOWARD COUNTY P-4 PAVEMENT SECTION
 PROP. SWM FACILITIES

FOR R/W CHART AND RECOVERY SKETCH SEE SHEET NO. 4

SHEPPARD LANE BASELINE - LINE TABLE

LINE	BEARING	LENGTH
L1	N81°23'13.50"W	32.07
L2	N10°38'37.54"E	11.24
L3	N11°17'24.51"W	20.33

SHEPPARD LANE BASELINE - CURVE TABLE

CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD LENGTH	DELTA	TANGENT
C1	353.00	271.83	N09°19'34.81"W	265.17	044°07'17"	143.08
C2	405.23	137.36	N01°09'28.15"W	136.71	019°29'19"	69.35

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	PAVEMENT TYPE	R/W WIDTH	STATION
SHEPPARD LANE	MINOR COLLECTOR SCENIC ROAD	35 MPH	HOWARD COUNTY PAVEMENT SECTION P-4	VARIABLE WIDTH	10+41.26 - 14+72.84
MD 108 CLARKSVILLE PIKE	MINOR ARTERIAL	35 MPH (SOUTHBOUND) 45 MPH (NORTHBOUND)	2" SUPERPAVE 12.5mm FOR SURFACE - PG 64S-22, LEVEL 2 6" SUPERPAVE 19.0mm FOR SURFACE - PG 64S-22, LEVEL 2 (2 - 3" LIFTS) 12" GRADE AGGREGATE (2 - 6" LIFTS)	80'	9+54.78 - 23+21.78

RIPRAP SCHEDULE

SYMBOL	DESCRIPTION	TYPE	LENGTH	BOTTOM WIDTH	THICKNESS	D ₅₀	D ₁₀₀
(RR1)	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION I	70'	13.50'	19"	9.5"	15"
(RR2)	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION I	11.4'	12'	19"	9.5"	15"
(RR3)	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	7'	11'	19"	9.5"	15"

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: [Signature] DATE: 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 3-6-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 2-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES, INC. DEVELOPER: RIVER HILL SQUARE, LLC.
 P.O. BOX 417, CLARKSVILLE, MD 21209
 12165 CLARKSVILLE PIKE, CLARKSVILLE, MD 21209
 (410) 465-4244 (410) 465-4244

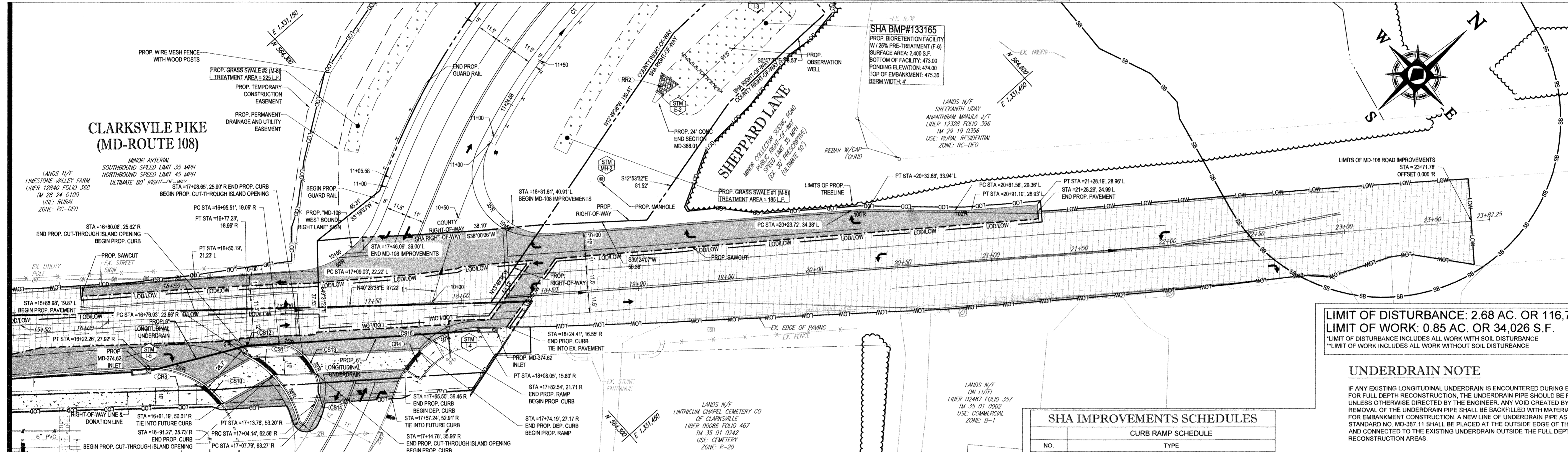
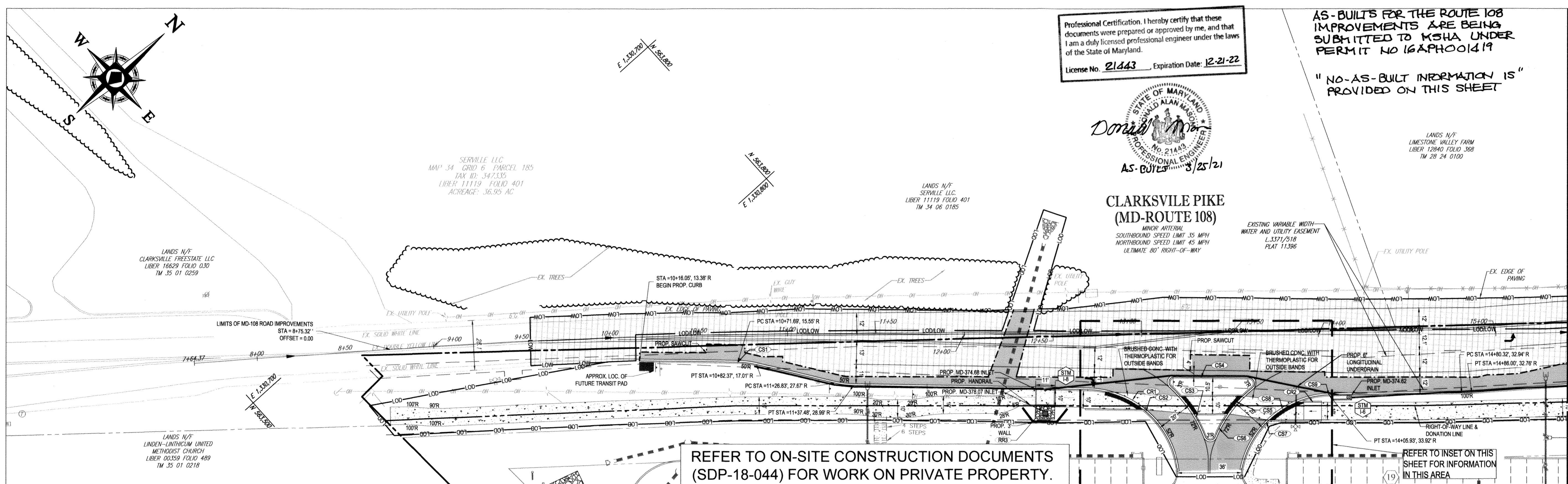
TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION: I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40866, EXPIRATION DATE: 10/31/2019

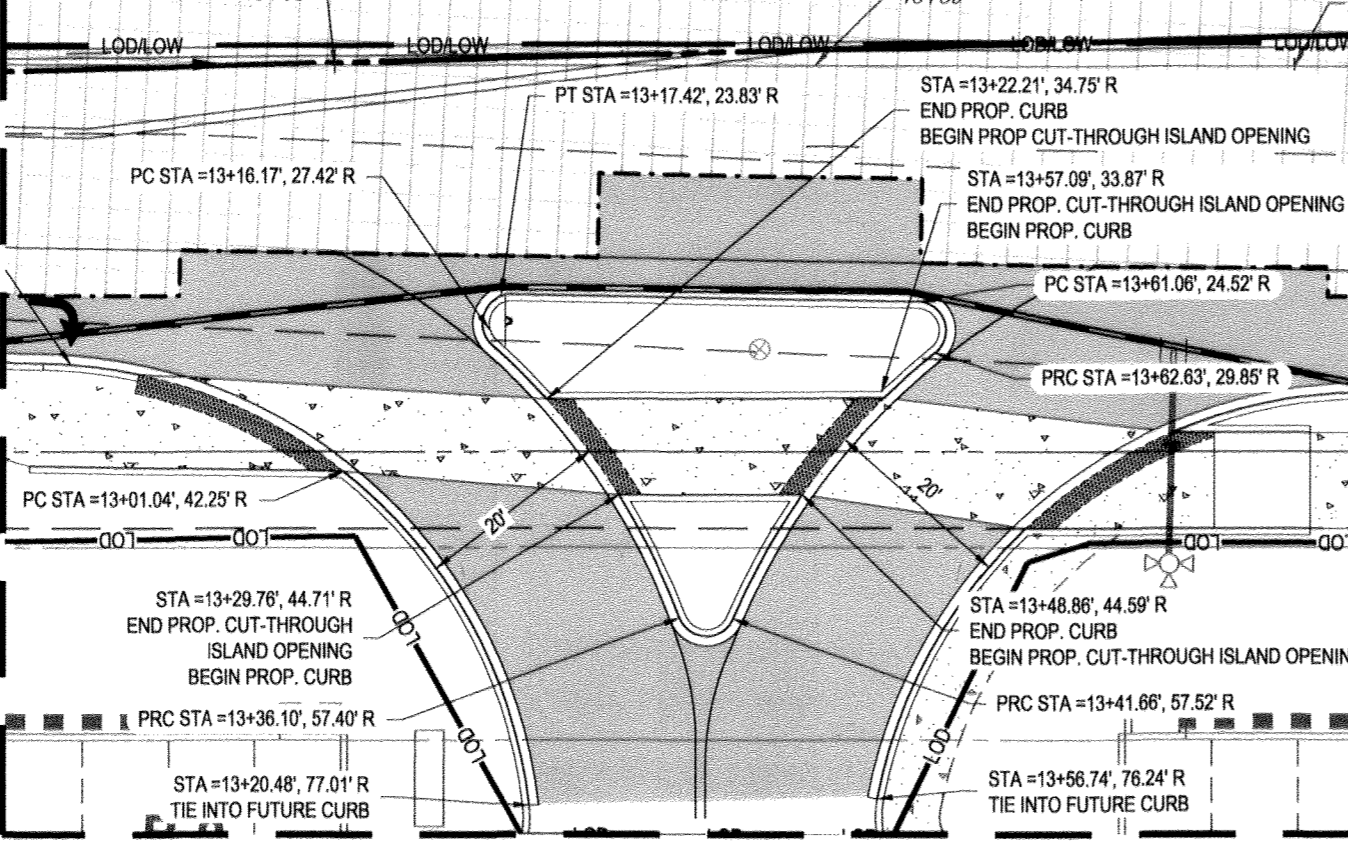
PREVIOUS FILE No.: ECP - 17 - 023
 SDP - 18 - 044
 WP - 18 - 095

AS-BUILT

MATCHLINE: THIS SHEET



REFER TO ON-SITE CONSTRUCTION DOCUMENTS (SDP-18-044) FOR WORK ON PRIVATE PROPERTY.



SHA IMPROVEMENTS SCHEDULES

CURB RAMP SCHEDULE	
NO.	TYPE
CR-1	SHA STD. MD-655.12
CR-2	SHA STD. MD-655.12
CR-3	SHA STD. MD-655.12 WITH DETECTABLE WARNING SURFACE (SHA STD MD-655.40)
CR-4	SHA STD. MD-655.12 WITH DETECTABLE WARNING SURFACE (SHA STD MD-655.40)

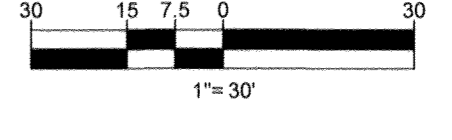
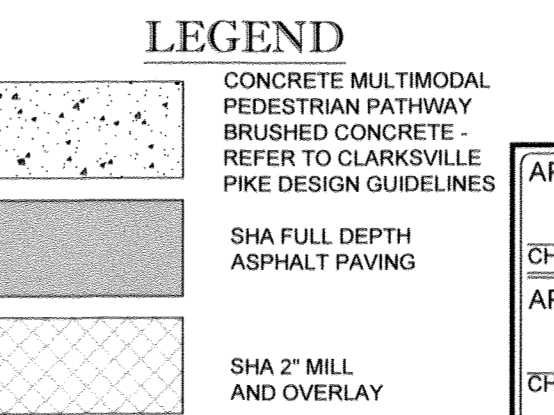
CURB SCHEDULE	
NO.	TYPE
CS-1	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-2	SHA STD. MD-620.03
CS-3	SHA STD. MD-655.21
CS-4	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-5	SHA STD. MD-655.21
CS-6	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-7	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-8	SHA STD. MD-620.03
CS-9	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-10	SHA STD. MD-620.03
CS-11	SHA STD. MD-655.21
CS-12	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-13	SHA STD. MD-655.21
CS-14	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-15	SHA STD. MD-620.02 (TYPE 'A' CURB)

SITE SPECIFIC NOTES:
 1. REFER TO "SIGNING AND PAVEMENT MARKING PLAN" PREPARED BY TRAFFIC CONCEPTS, INC. ENTITLED, "MD 108 (CLARKSVILLE PIKE) AT SHEPHERD LANE, CLARKSVILLE, MARYLAND," DATED 10/11/18 FOR SIGNAGE AND PAVEMENT MARKINGS.
 2. LIMITS OF MILL AND OVERLAY CAN BE ADJUSTED PER DIRECTION FROM THE SHA INSPECTOR IN THE FIELD.

SHA IMPROVEMENTS SCHEDULES

CURB RAMP SCHEDULE	
NO.	TYPE
CR-1	SHA STD. MD-655.12
CR-2	SHA STD. MD-655.12
CR-3	SHA STD. MD-655.12 WITH DETECTABLE WARNING SURFACE (SHA STD MD-655.40)
CR-4	SHA STD. MD-655.12 WITH DETECTABLE WARNING SURFACE (SHA STD MD-655.40)

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NO.	TYPE
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CS-3	SHA STD. MD-655.21
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CS-6	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-7	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-8	SHA STD. MD-620.03
CS-9	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-10	SHA STD. MD-620.03
CS-11	SHA STD. MD-655.21
CS-12	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-13	SHA STD. MD-655.21
CS-14	SHA STD. MD-620.02 (TYPE 'A' COMBINATION CURB AND GUTTER)
CS-15	SHA STD. MD-620.02 (TYPE 'A' CURB)



APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2/21/19

OWNER: STEPHEN A. KLEIN & ASSOCIATES DEVELOPER: RIVER HILL SQUARE, LLC
 C/O STEPHEN A. KLEIN, INC. P.O. BOX 417
 12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21041
 CLARKSVILLE, MD 21029 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
 I, BRADY R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 4986, EXPIRATION DATE: 10/31/19

BOHLER ENGINEERING

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

REVISIONS

REV.	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BBR
 DATE: 12/18/18
 SCALE: AS NOTED
 CAD I.D.: SP2

FINAL ROAD CONSTRUCTION PLANS FOR MD ROUTE 108 IMPROVEMENTS AND SHEPHERD LANE RE-ALIGNMENT

LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPHERD LANE
 CLARKSVILLE, MD 21029
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 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. 4986

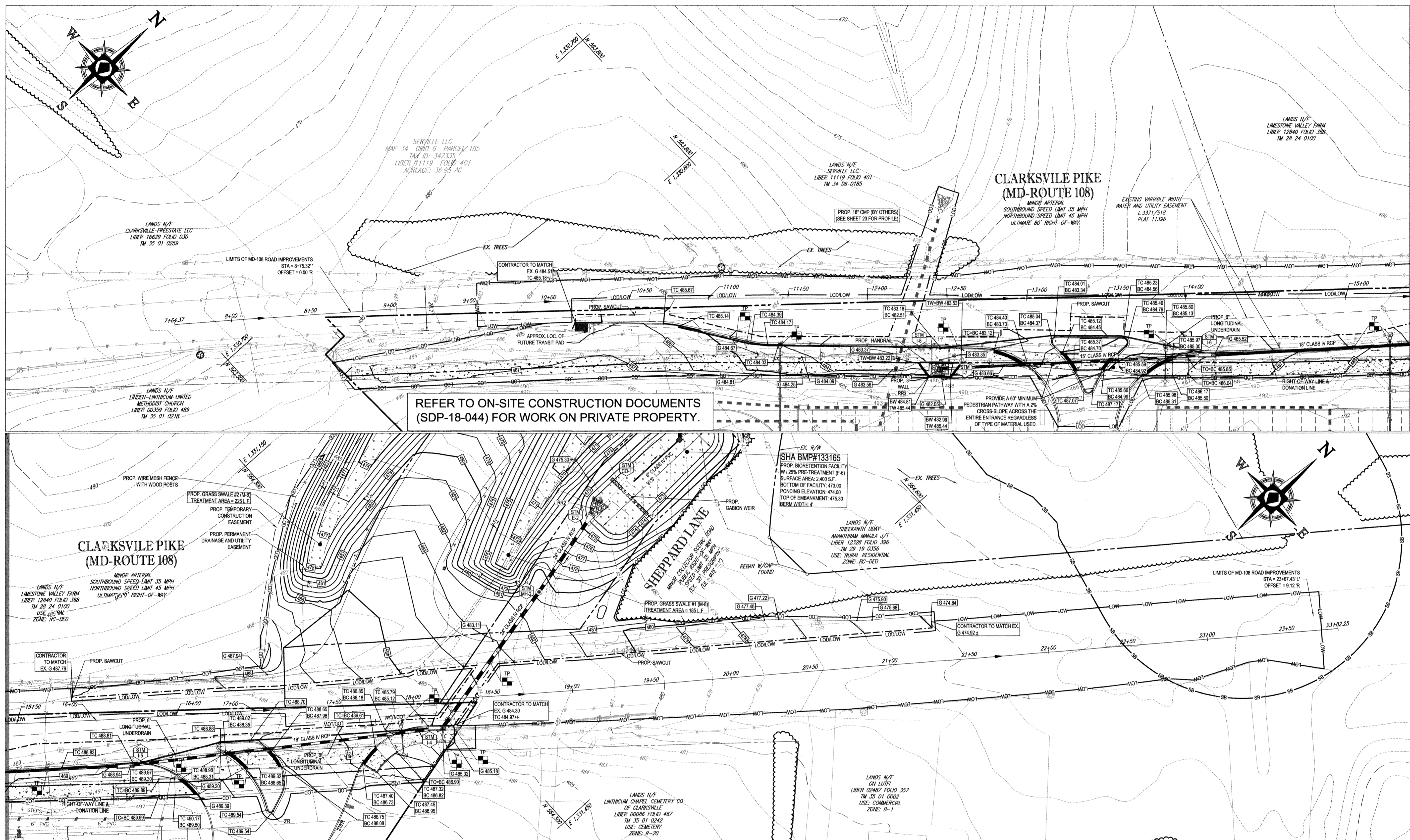
SHEET TITLE:
MD ROUTE 108 ROAD PLAN

SHEET NUMBER:
6

F-18-099

AS-BUILT

MATCHLINE: THIS SHEET



MATCHLINE: THIS SHEET

REFER TO ON-SITE CONSTRUCTION DOCUMENTS (SDP-18-044) FOR WORK ON PRIVATE PROPERTY.

REFER TO ON-SITE CONSTRUCTION DOCUMENTS (SDP-18-044) FOR WORK ON PRIVATE PROPERTY.

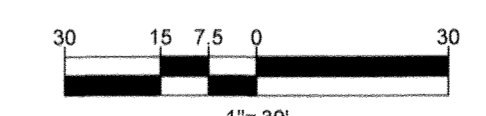
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12/21/22

AS BUILT FOR THE ROUTE 108 IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERMIT NO. 16APH00419
 "NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

TEST PIT NOTE
 CONTRACTOR TO TEST PIT 2 FEET BELOW PROPOSED UTILITY OR UNTIL EXACT LOCATION OF EXISTING UTILITY IS IDENTIFIED AND SUBMIT ANY DISCREPANCIES TO BOHLER ENGINEERING IN WRITING.

- ADA CONSTRUCTION NOTES TO CONTRACTOR**
- NO SIDEWALK AND/OR CROSSWALK IS TO EXCEED 2.00% CROSS SLOPE.
 - NO ADA PARKING SPACE IS TO EXCEED 2.00% SLOPE IN ANY DIRECTION.
 - NO ADA CURB RAMP IS TO EXCEED 8.33%.
 - THE CONTRACTOR IS RESPONSIBLE DURING THE FORMING OF SIDEWALKS, RAMPS, CROSSWALKS, AND ADA PARKING TO VERIFY THAT ADA COMPLIANCE IS ACHIEVED.
 - IF DURING THAT CHECK ANY NON-COMFORMANCE IS DETERMINED, THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED PRIOR TO POURING CONCRETE AND/OR LAYING ASPHALT.

RIPRAP SCHEDULE							
SYMBOL	DESCRIPTION	TYPE	LENGTH	BOTTOM WIDTH	THICKNESS	D ₅₀	D ₁₀₀
(RR1)	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION I	70'	13.50'	19"	9.5"	15"
(RR2)	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION I	10'	12'	19"	9.5"	15"
(RR3)	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	CLASS I RIP-RAP ON NON-WOVEN GEOTEXTILE FABRIC	7'	11'	19"	9.5"	15"



PREVIOUS FILE No.: ECP - 17 - 023
 SDP - 18 - 044
 WP - 18 - 095

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF: *James* DATE: 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF: *Kent Calwood* DATE: 3-2-19
 CHIEF: DEVELOPMENT ENGINEERING DIVISION DATE: 3/2/19

OWNER: STEPHEN A. KLEIN & ASSOCIATES
 DEVELOPER: RIVER HILL SQUARE, LLC
 P.O. BOX 417
 12165 CLARKSVILLE PIKE
 CLARKSVILLE, MD 21029
 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 48888 EXPIRATION DATE: 10/31/2019

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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJR
 CHECKED BY: BRB
 DATE: 12/18/18
 SCALE: 1" = 30'
 CAD I.D.: GP2

FINAL ROAD CONSTRUCTION PLANS
 FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
 LOCATION OF SITE
 INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21029
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 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. 48888
 EXPIRATION DATE: 10/31/2019

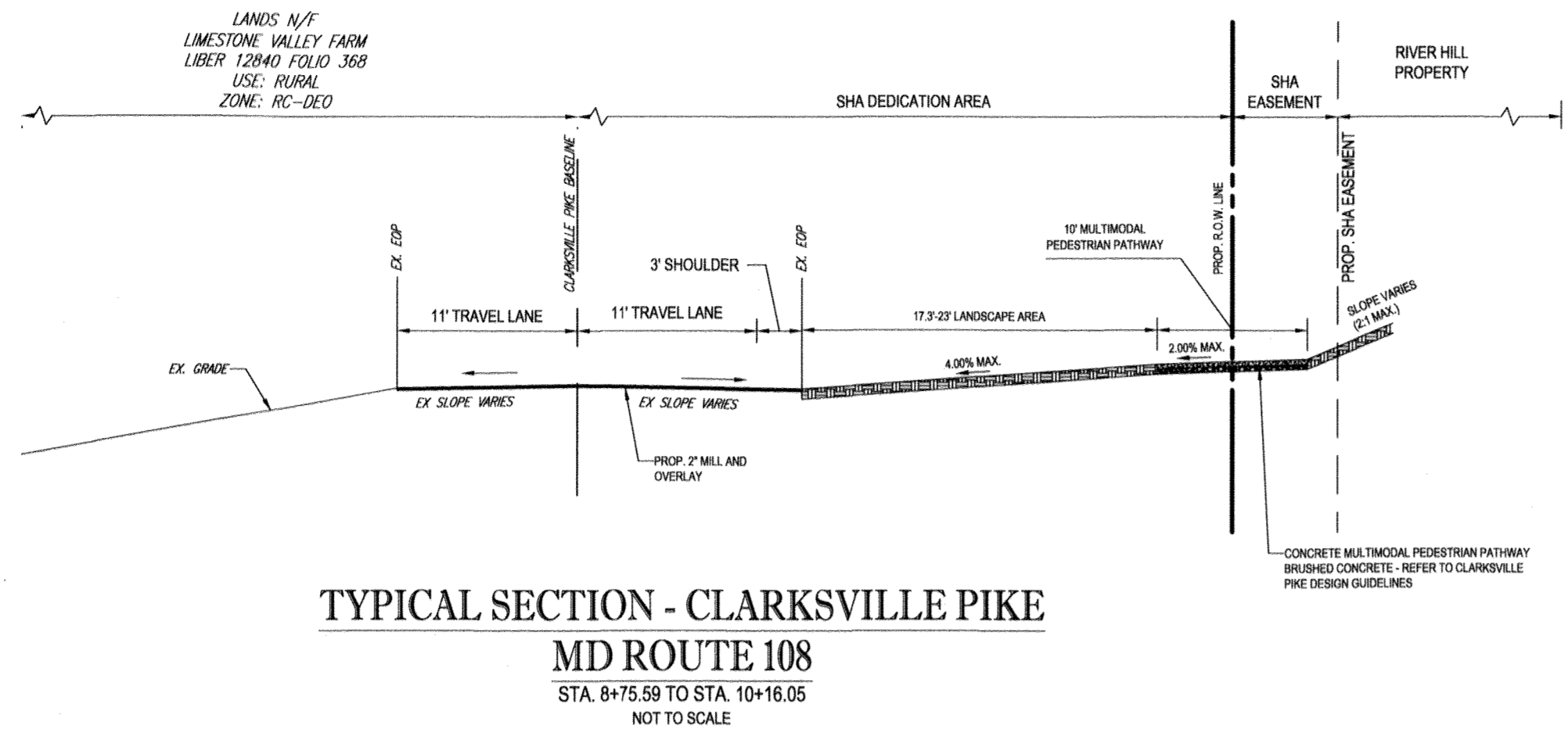
MD ROUTE 108 GRADING PLAN

SHEET TITLE:
MD ROUTE 108 GRADING PLAN

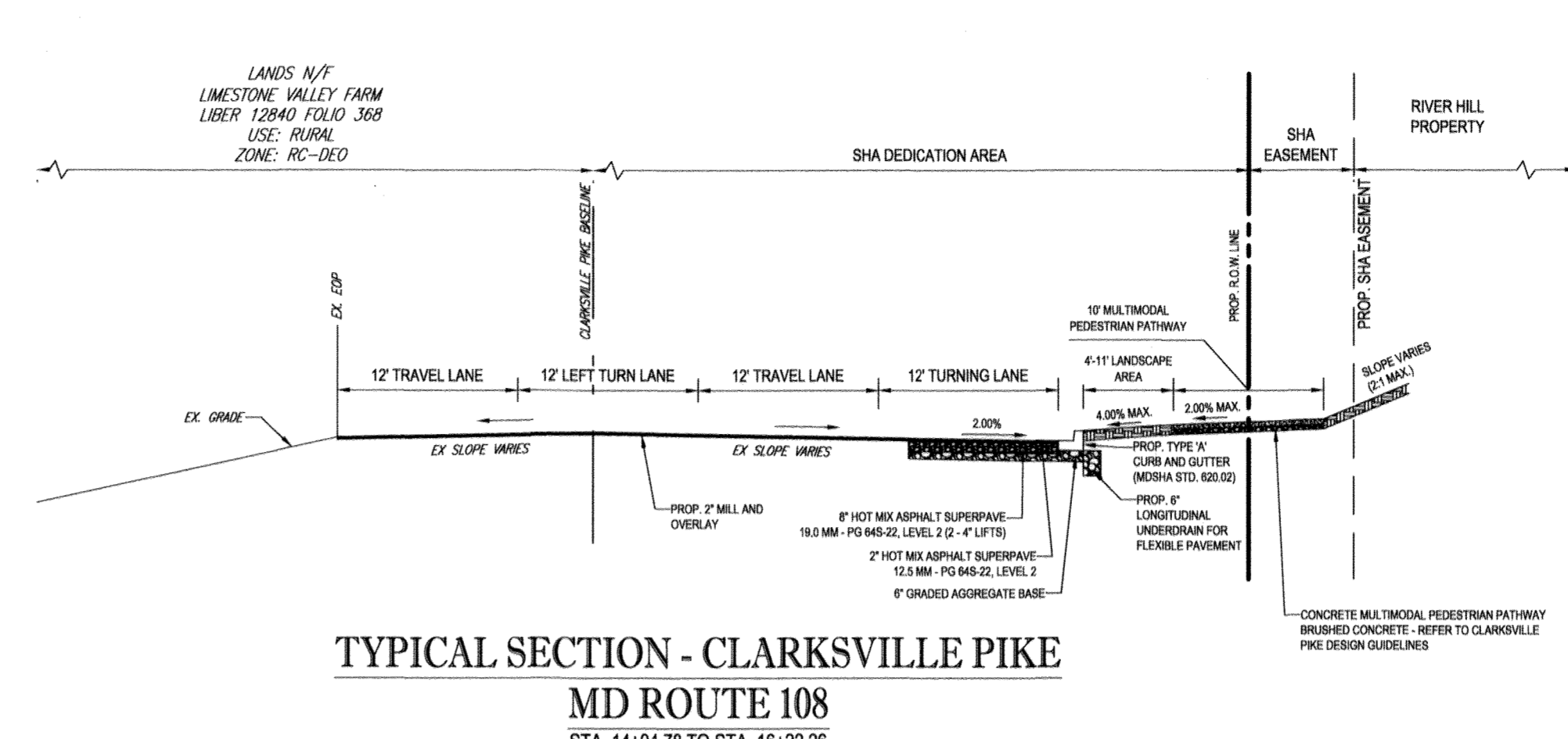
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F-18-099

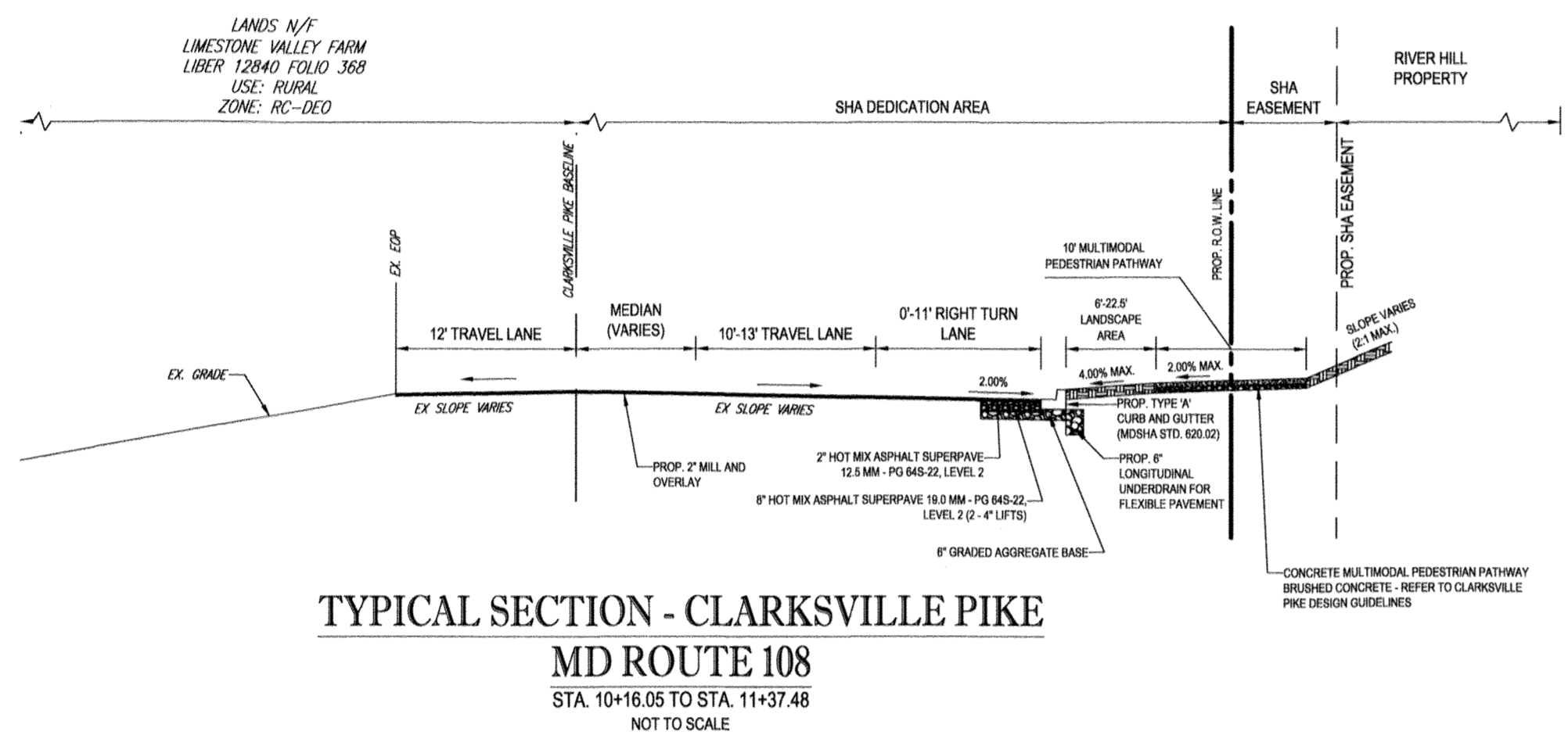
AS-BUILT



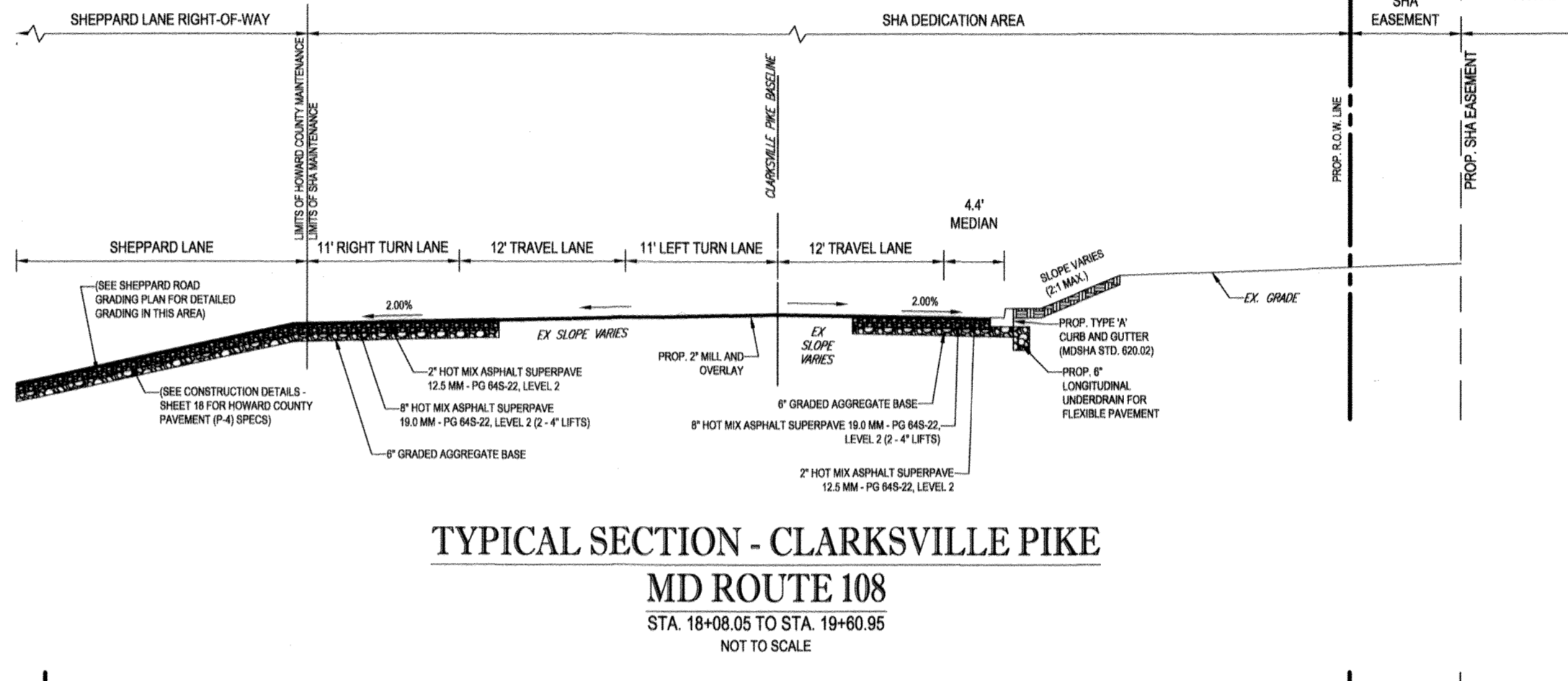
TYPICAL SECTION - CLARKSVILLE PIKE
MD ROUTE 108
STA. 8+75.59 TO STA. 10+16.05
NOT TO SCALE



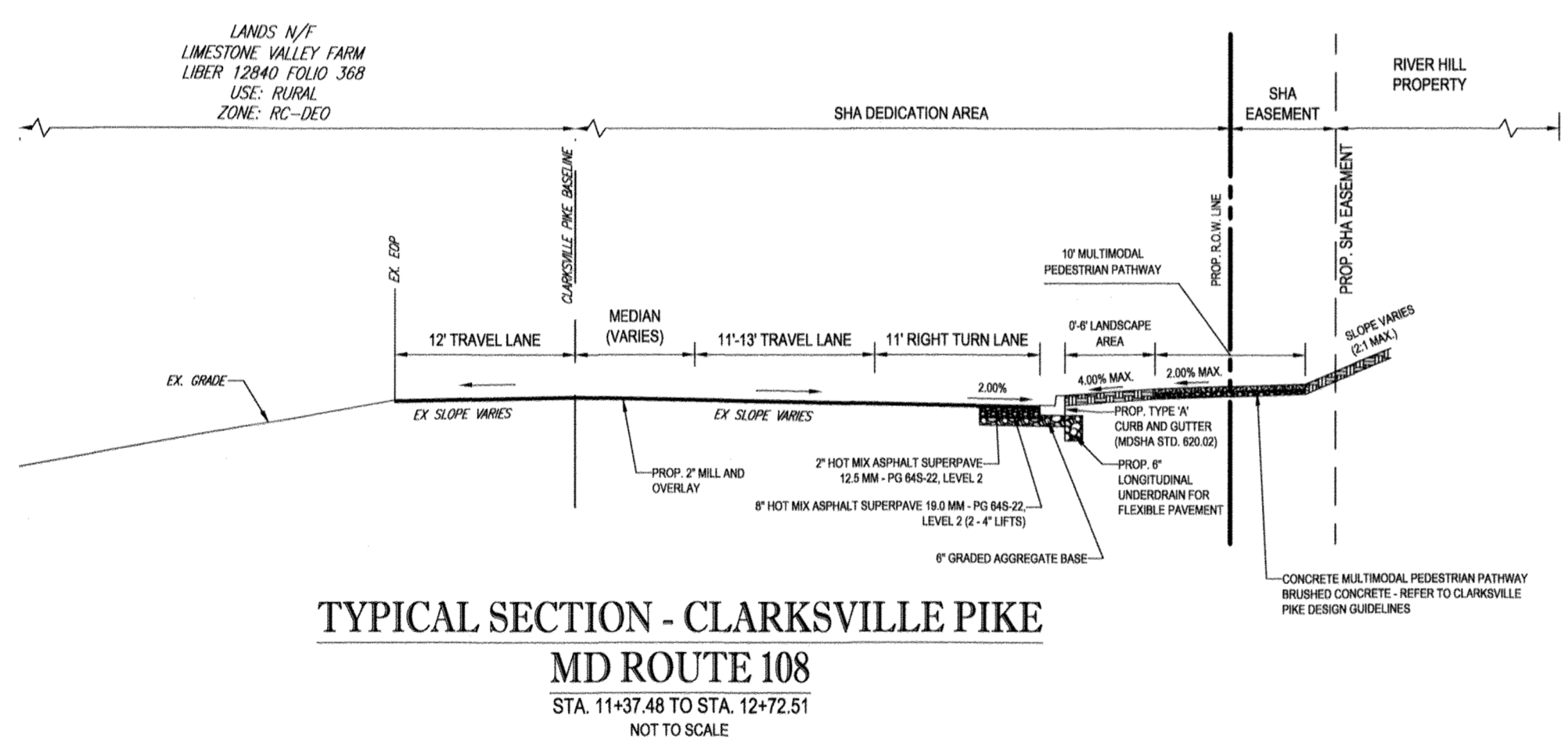
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MD ROUTE 108
STA. 14+04.78 TO STA. 16+22.28
NOT TO SCALE



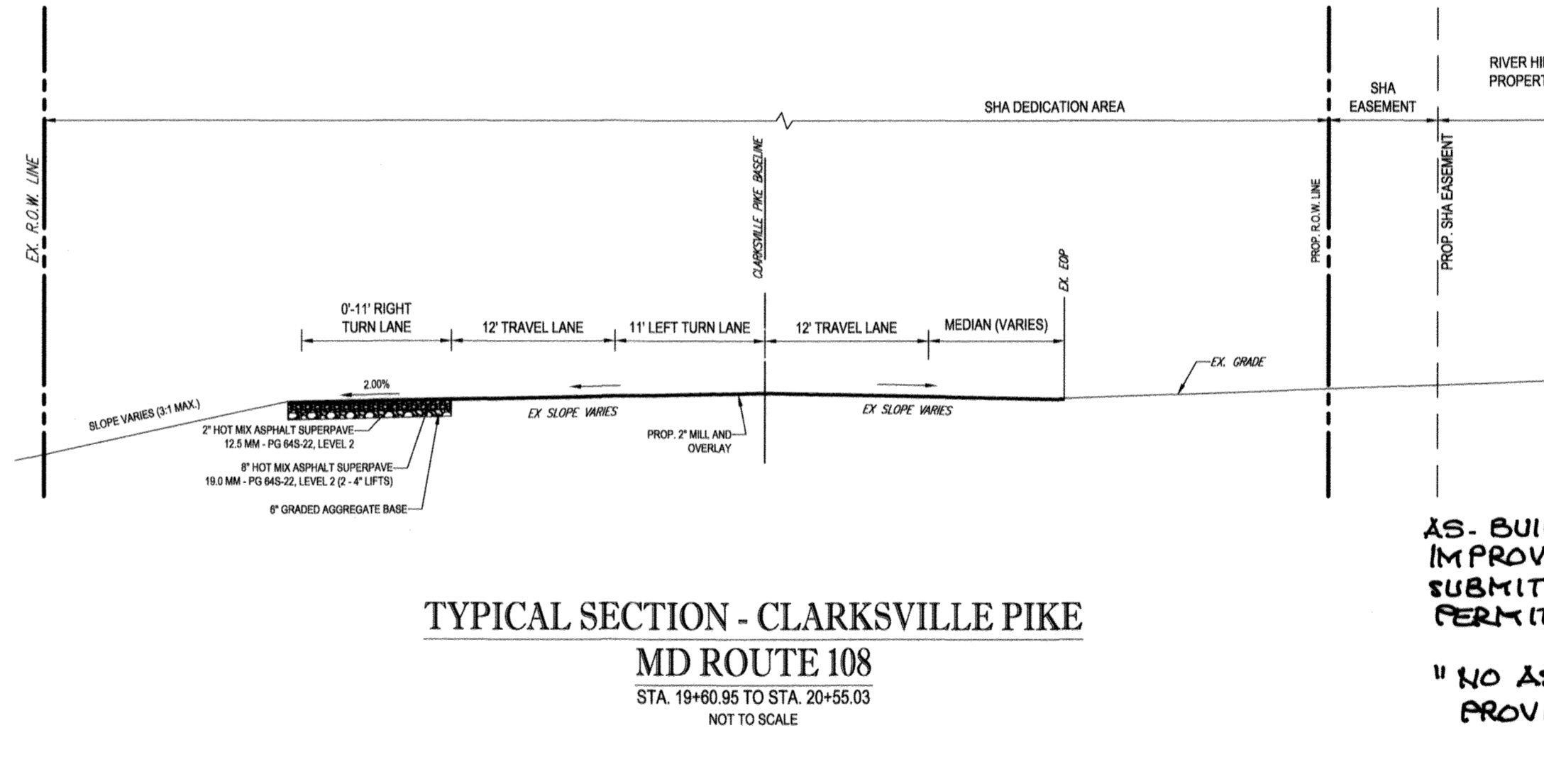
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MD ROUTE 108
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NOT TO SCALE



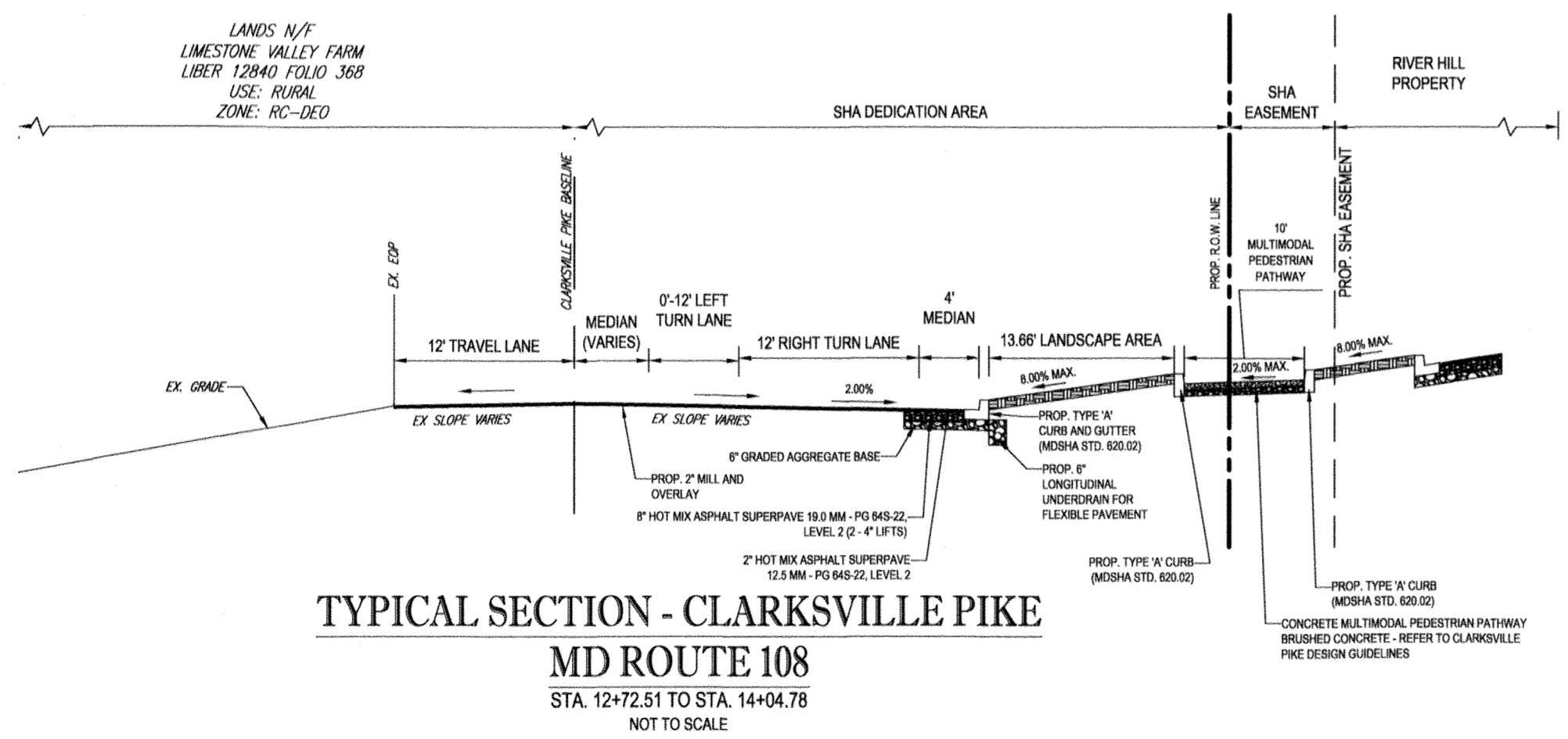
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MD ROUTE 108
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NOT TO SCALE



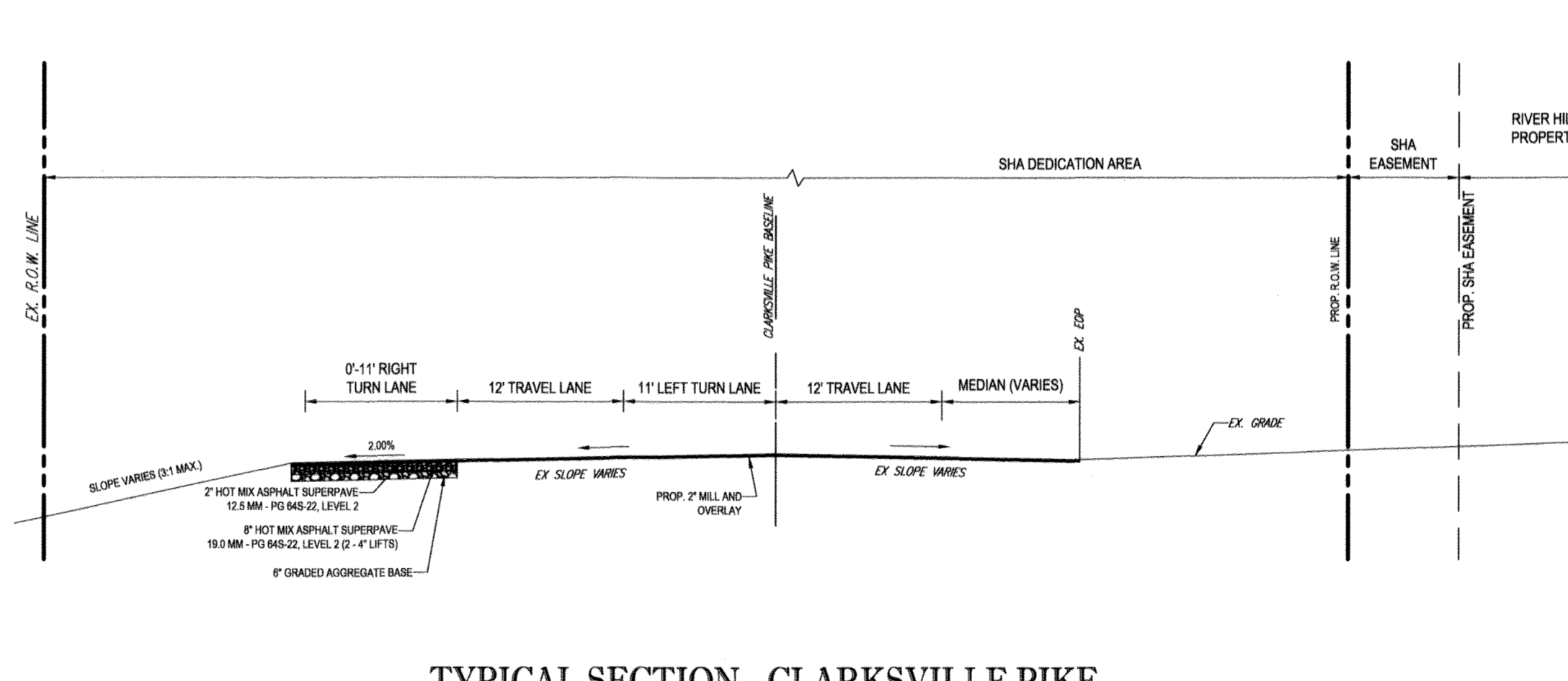
TYPICAL SECTION - CLARKSVILLE PIKE
MD ROUTE 108
STA. 11+37.48 TO STA. 12+72.51
NOT TO SCALE



TYPICAL SECTION - CLARKSVILLE PIKE
MD ROUTE 108
STA. 19+60.95 TO STA. 20+55.03
NOT TO SCALE



TYPICAL SECTION - CLARKSVILLE PIKE
MD ROUTE 108
STA. 12+72.51 TO STA. 14+04.78
NOT TO SCALE

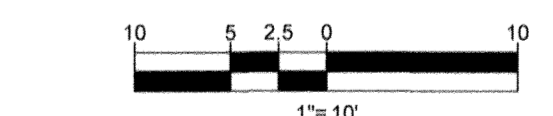


TYPICAL SECTION - CLARKSVILLE PIKE
MD ROUTE 108
STA. 20+55.03 TO STA. 23+67.43
NOT TO SCALE



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12/31/22

AS-BUILTS FOR THE ROUTE 108 IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERMIT NO. 16APH0014 19
"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF: *James* DATE: 2/6/2019
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF: *Walt* DATE: 3-6-19
CHIEF: DEVELOPMENT ENGINEERING DIVISION & DATE: 3-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES DEVELOPER: RIVER HILL SQUARE, LLC
12165 CLARKSVILLE PIKE P.O. BOX 417
CLARKSVILLE, MD 21029 ELLICOTT CITY, MARYLAND 21044
(410) 465-4244 (410) 465-4244

PREVIOUS FILE No.: ECP - 17 - 023
SDP - 18 - 044
WP - 18 - 095

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 40808, EXPIRATION DATE: 03/2019

BOHLER ENGINEERING
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LAND SURVEYING
PROSCAPE ARCHITECTURE
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW
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It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION
PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRB
DATE: 12/18/18
SCALE: 1" = 10'
CAD I.D.: SP2

FINAL ROAD CONSTRUCTION PLANS
FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

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

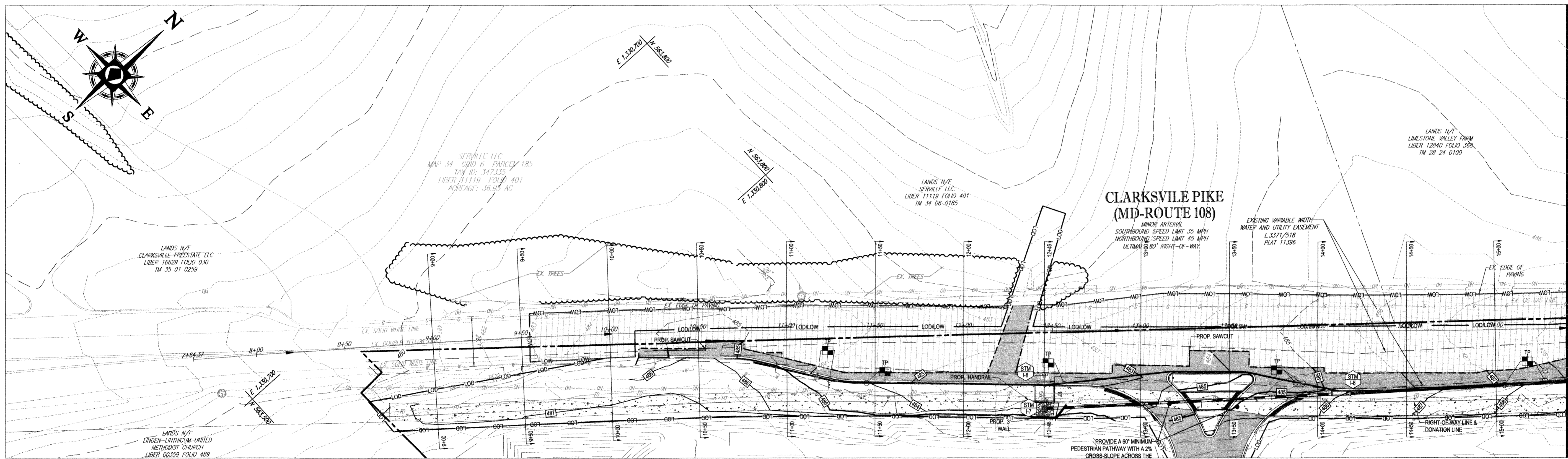
B.R. ROWE
PROFESSIONAL ENGINEER
4/1/19

SHEET TITLE:
MD ROUTE 108 TYPICAL SECTIONS

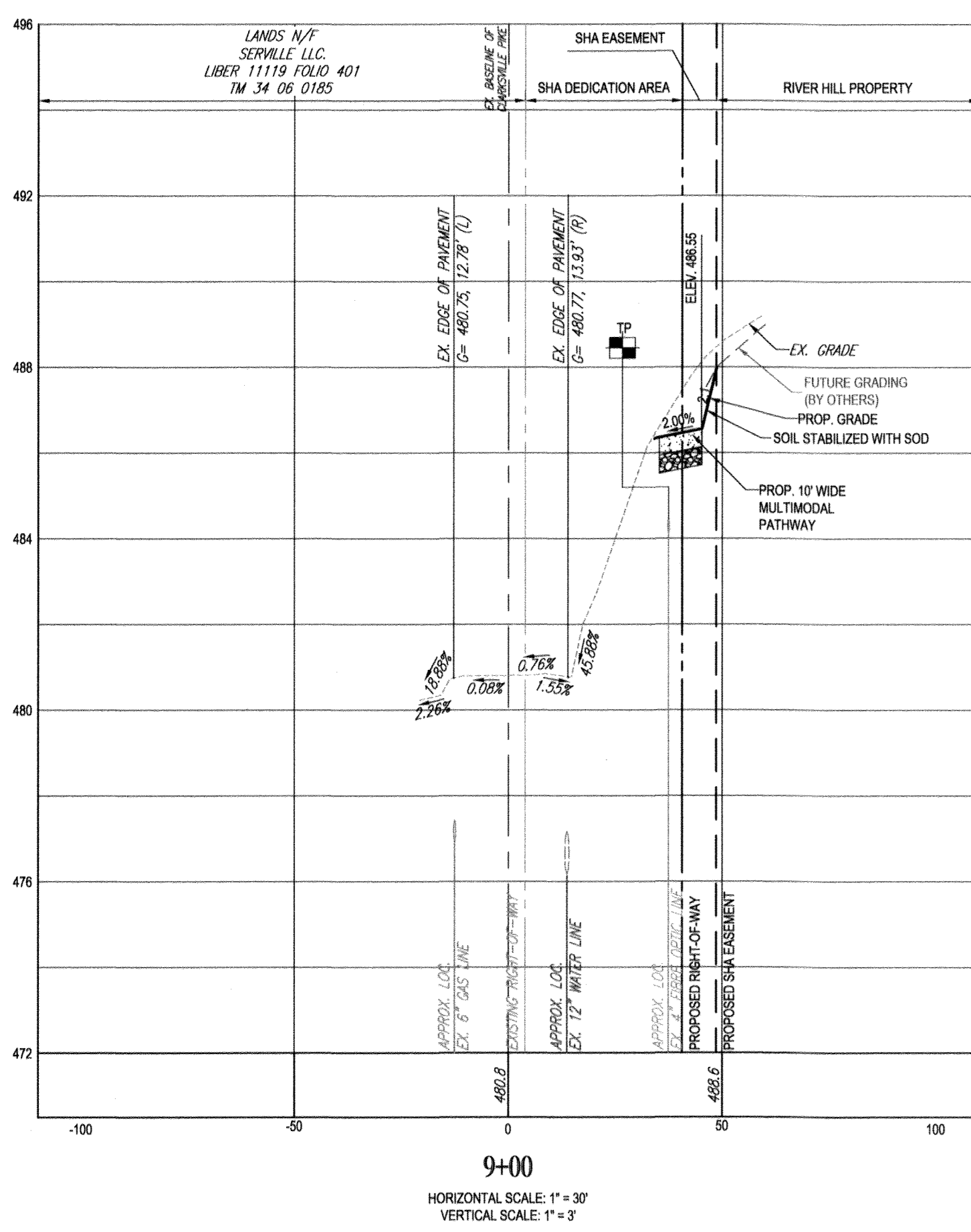
SHEET NUMBER:
8

F-18-099

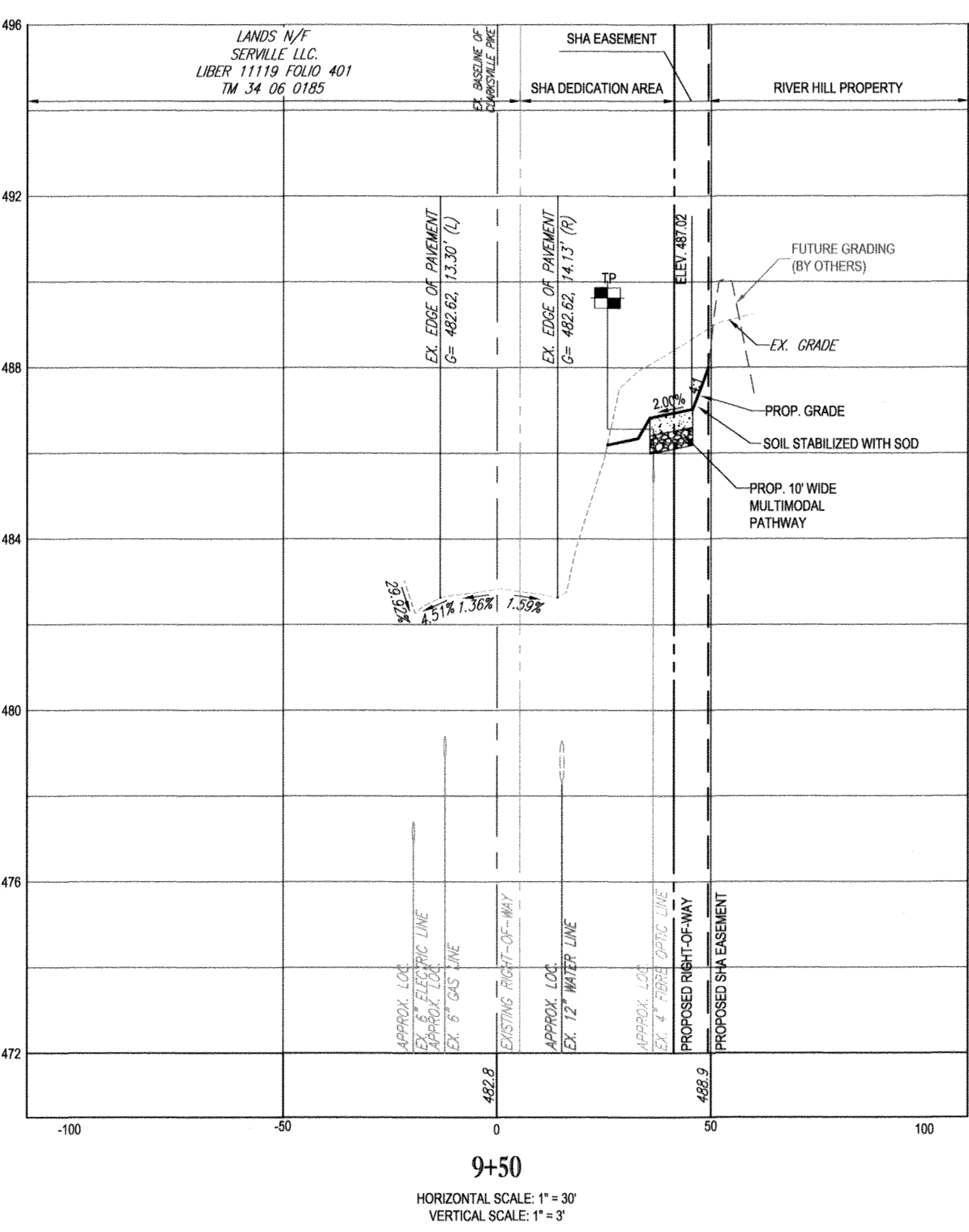
AS-BUILT



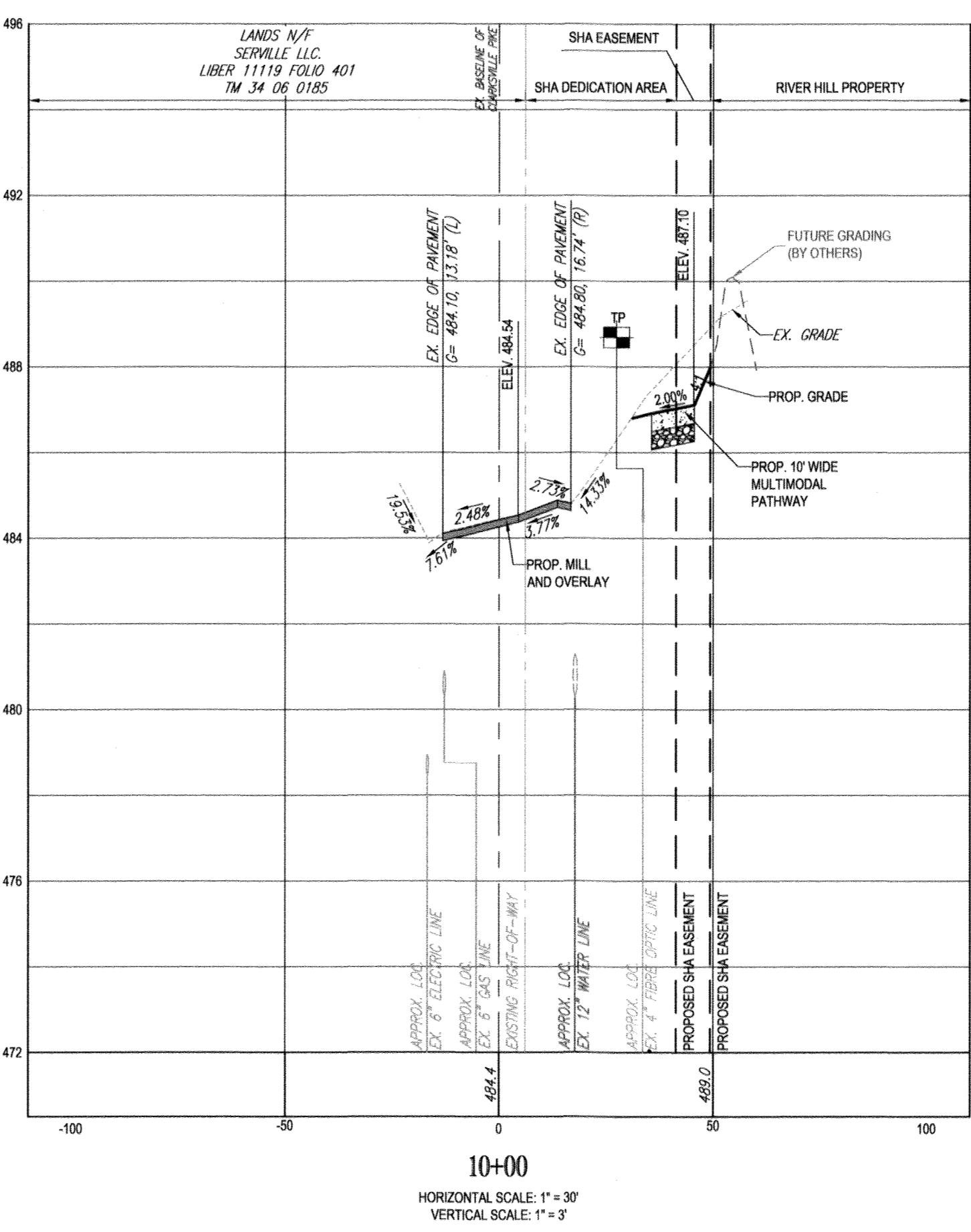
PLAN VIEW
SCALE: 1" = 30'



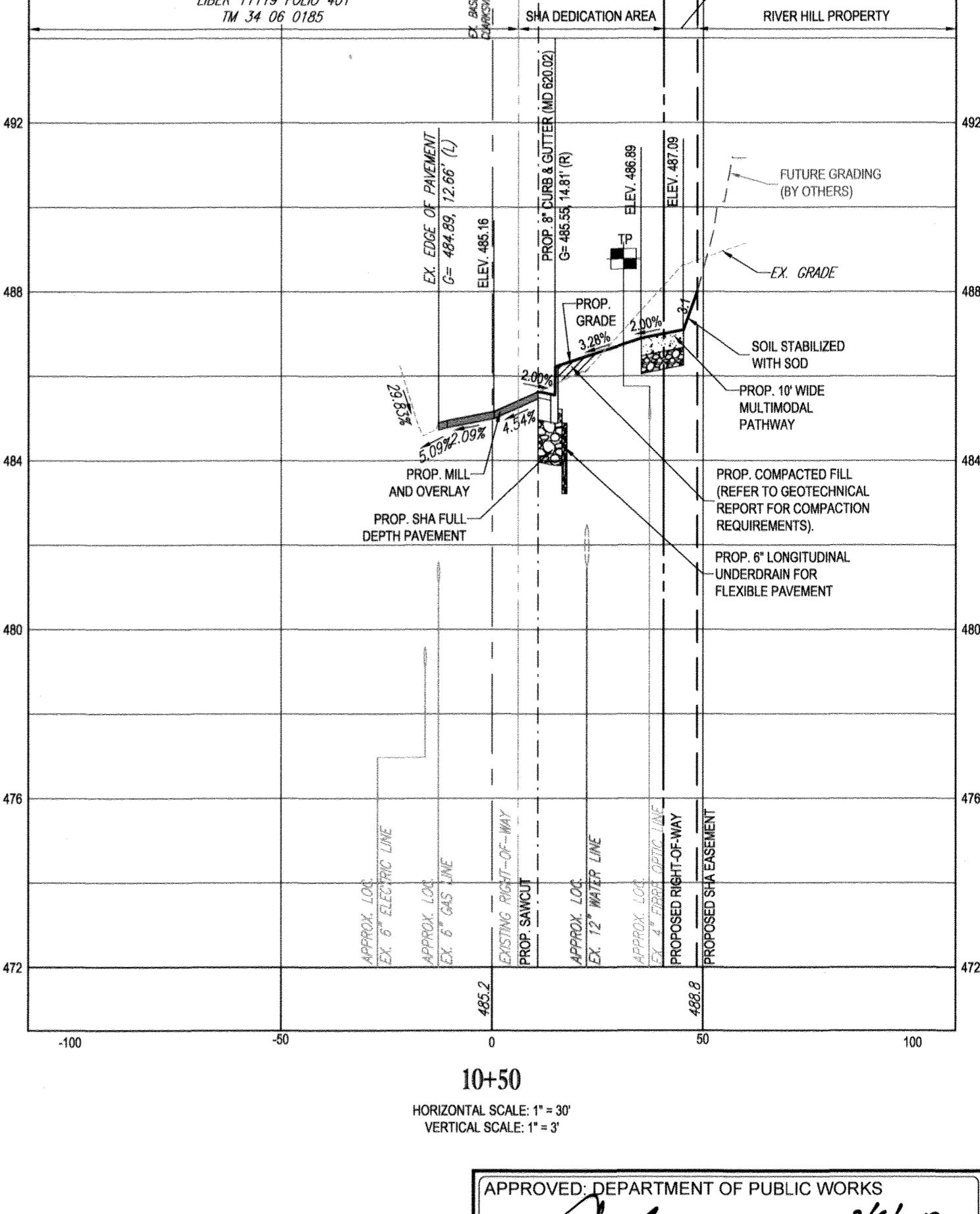
9+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



9+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



10+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



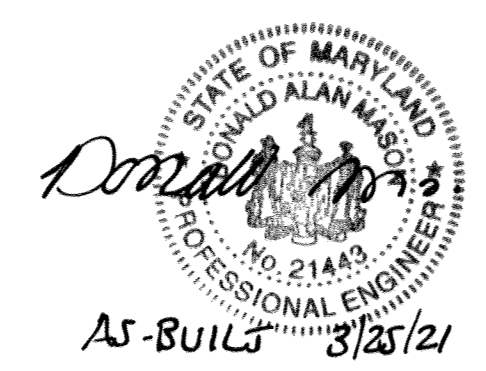
10+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

CLARKSVILLE PIKE (MD ROUTE 108) CROSS SECTIONS

AS-BUILTS FOR ROUTE 108 IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERMIT NO. 16AP10 014 19

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12/21/22



LEGEND

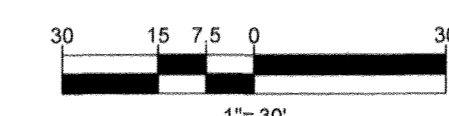
	CONCRETE MULTIMODAL PEDESTRIAN PATHWAY BRUSHED CONCRETE - REFER TO CLARKSVILLE PIKE DESIGN GUIDELINES
	SHA FULL DEPTH ASPHALT PAVING
	SHA 2" MILL AND OVERLAY

REFER TO CONSTRUCTION DRAWINGS PREPARED BY BENCHMARK ENGINEERING FOR WORK ON PRIVATE PROPERTY.

- ADA CONSTRUCTION NOTES TO CONTRACTOR
- NO SIDEWALK AND/OR CROSSWALK IS TO EXCEED 2.00% CROSS SLOPE.
 - NO ADA PARKING SPACE IS TO EXCEED 2.00% SLOPE IN ANY DIRECTION.
 - NO ADA CURB RAMP IS TO EXCEED 8.33%.
 - THE CONTRACTOR IS RESPONSIBLE DURING THE FORMING OF SIDEWALKS, RAMPS, CROSSWALKS, AND ADA PARKING TO VERIFY THAT ADA COMPLIANCE IS ACHIEVED.
 - IF DURING THAT CHECK ANY NON-COMPLIANCE IS DETERMINED, THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED PRIOR TO POURING CONCRETE AND/OR LAYING ASPHALT.

TEST PIT NOTE

CONTRACTOR TO TEST PIT FOR EXACT LOCATION OF EXISTING UTILITY AND SUBMIT ANY DISCREPANCIES TO BOHLER ENGINEERING IN WRITING PRIOR TO CONSTRUCTION.



PREVIOUS FILE No.: ECP - 17 - 023
SDP - 18 - 044
WP - 18 - 095

APPROVED: DEPARTMENT OF PUBLIC WORKS	DATE: 2/6/2019
CHIEF, BUREAU OF HIGHWAYS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE: 3-6-19
CHIEF, DIVISION OF LAND DEVELOPMENT	
APPROVED: DEVELOPMENT ENGINEERING DIVISION	DATE: 2.21.19
CHIEF, DEVELOPMENT ENGINEERING DIVISION	

OWNER: STEPHEN A. KLEIN & ASSOCIATES
DEVELOPER: RIVER HILL SQUARE, LLC
12165 CLARKSVILLE PIKE
CLARKSVILLE, MD 21029
(410) 465-4244

PROFESSIONAL CERTIFICATION: I, BRANDON N. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42889, EXPIRATION DATE: 10/31/19

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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW
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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRB
DATE: 12/18/18
SCALE: AS SHOWN
CAD I.D.: SP2

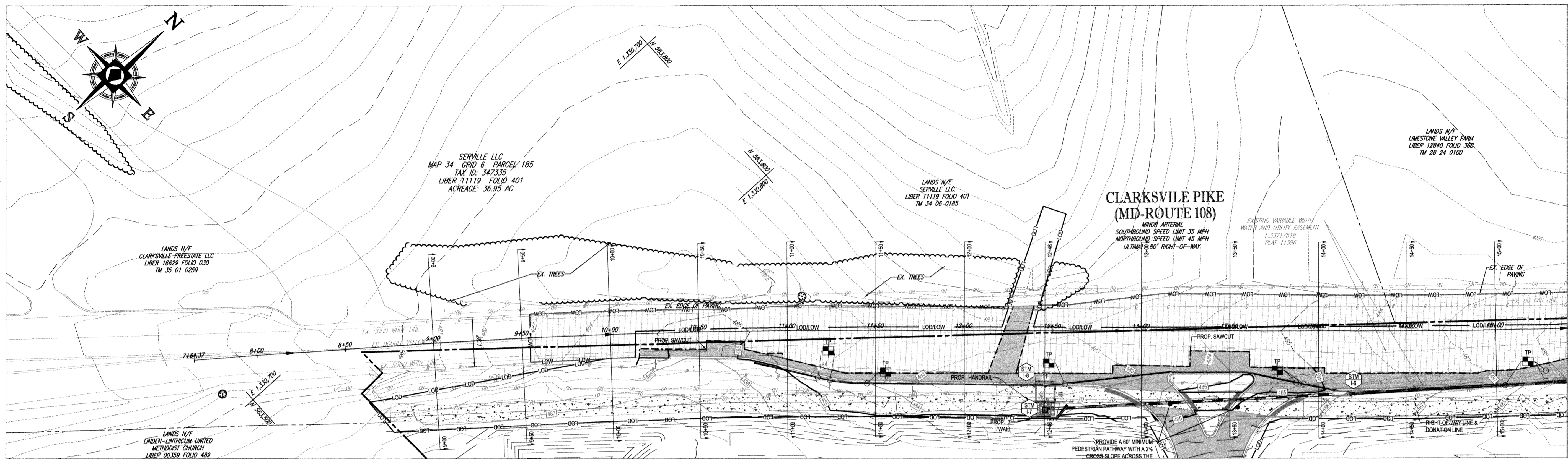
FINAL ROAD CONSTRUCTION PLANS FOR MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7600
Fax: (410) 821-7887
MD@BohlerEng.com

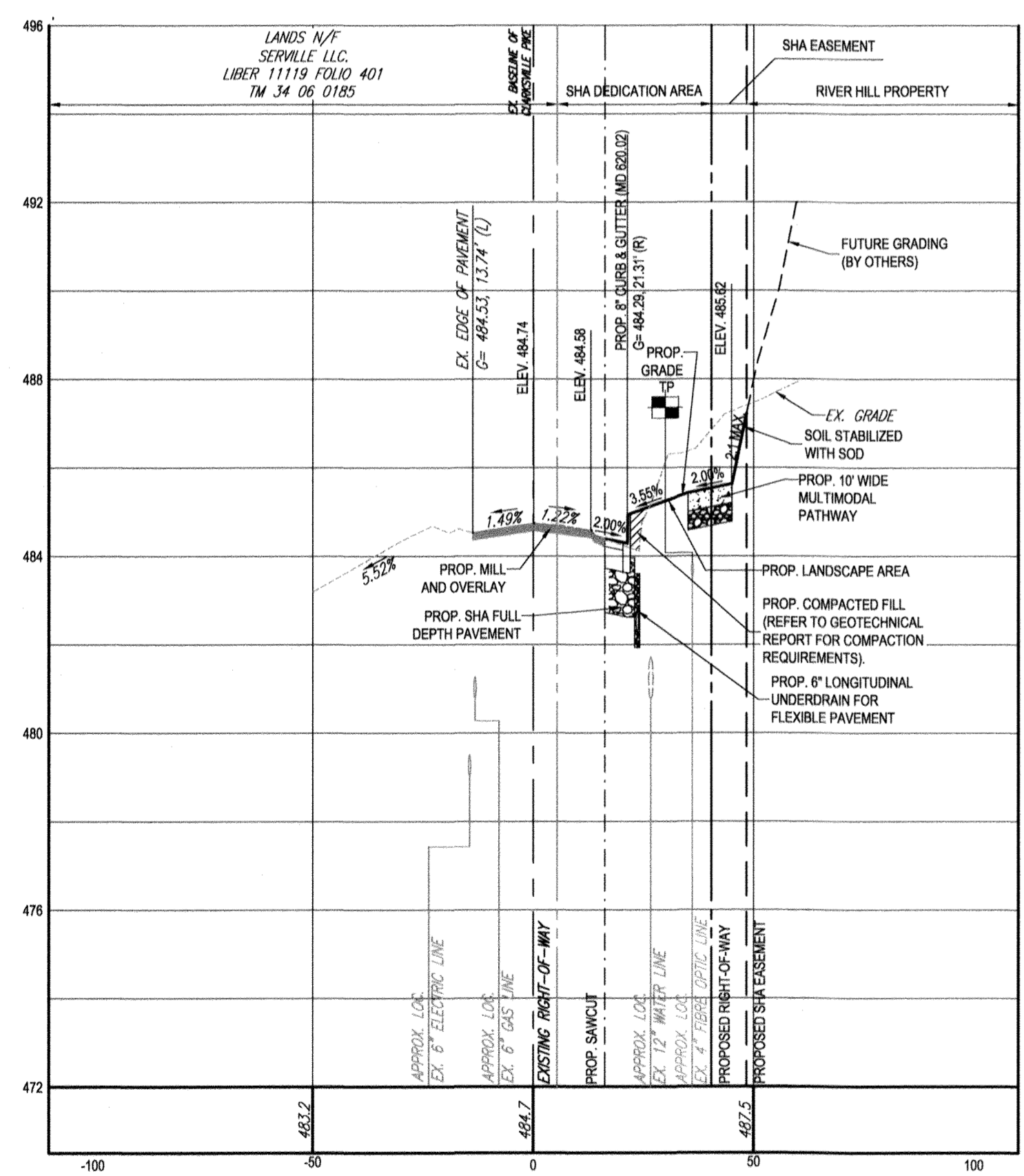
B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 42889

SHEET TITLE: MD ROUTE 108 ROAD SECTIONS
SHEET NUMBER: 9
F-18-099

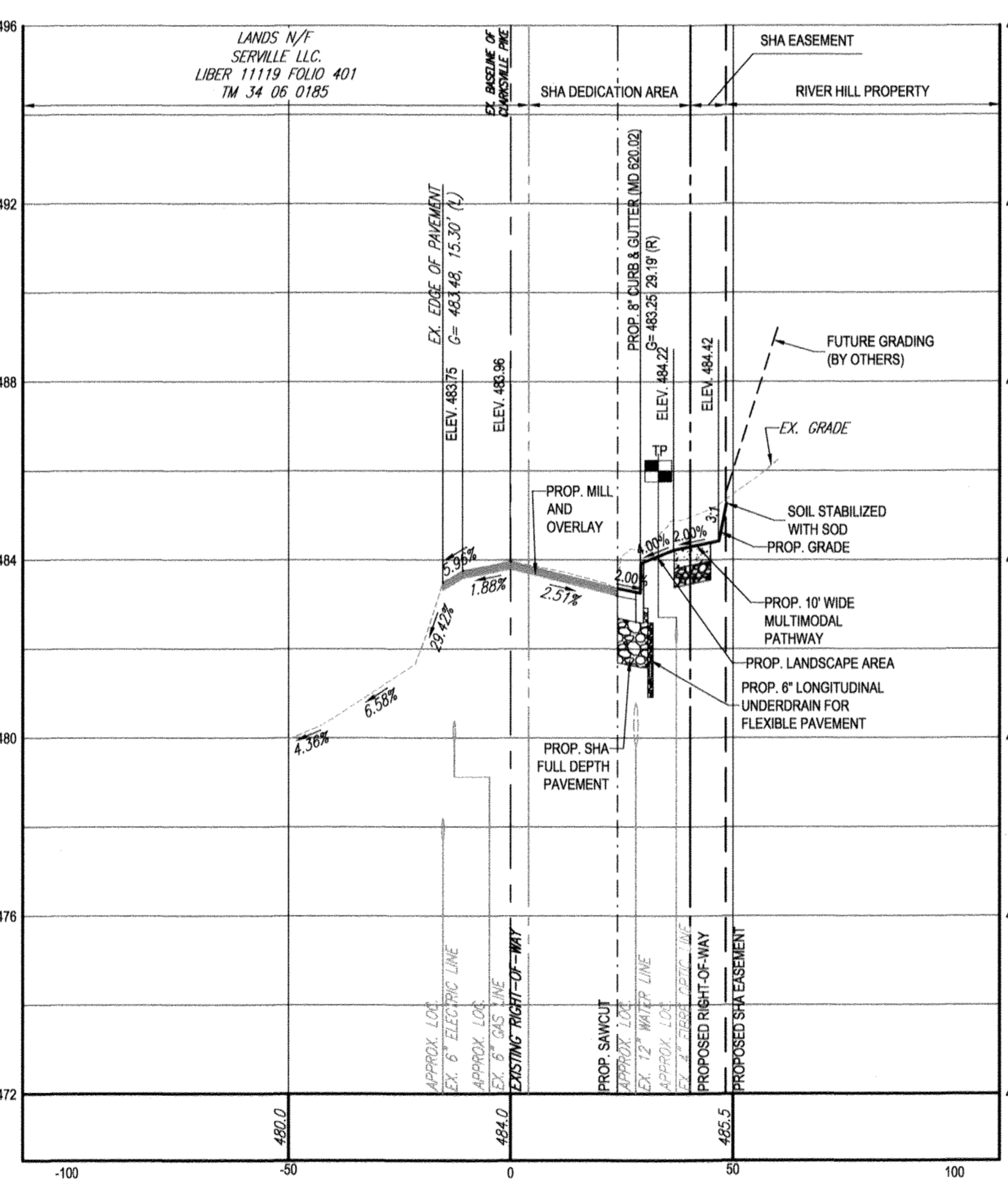
AS-BUILT



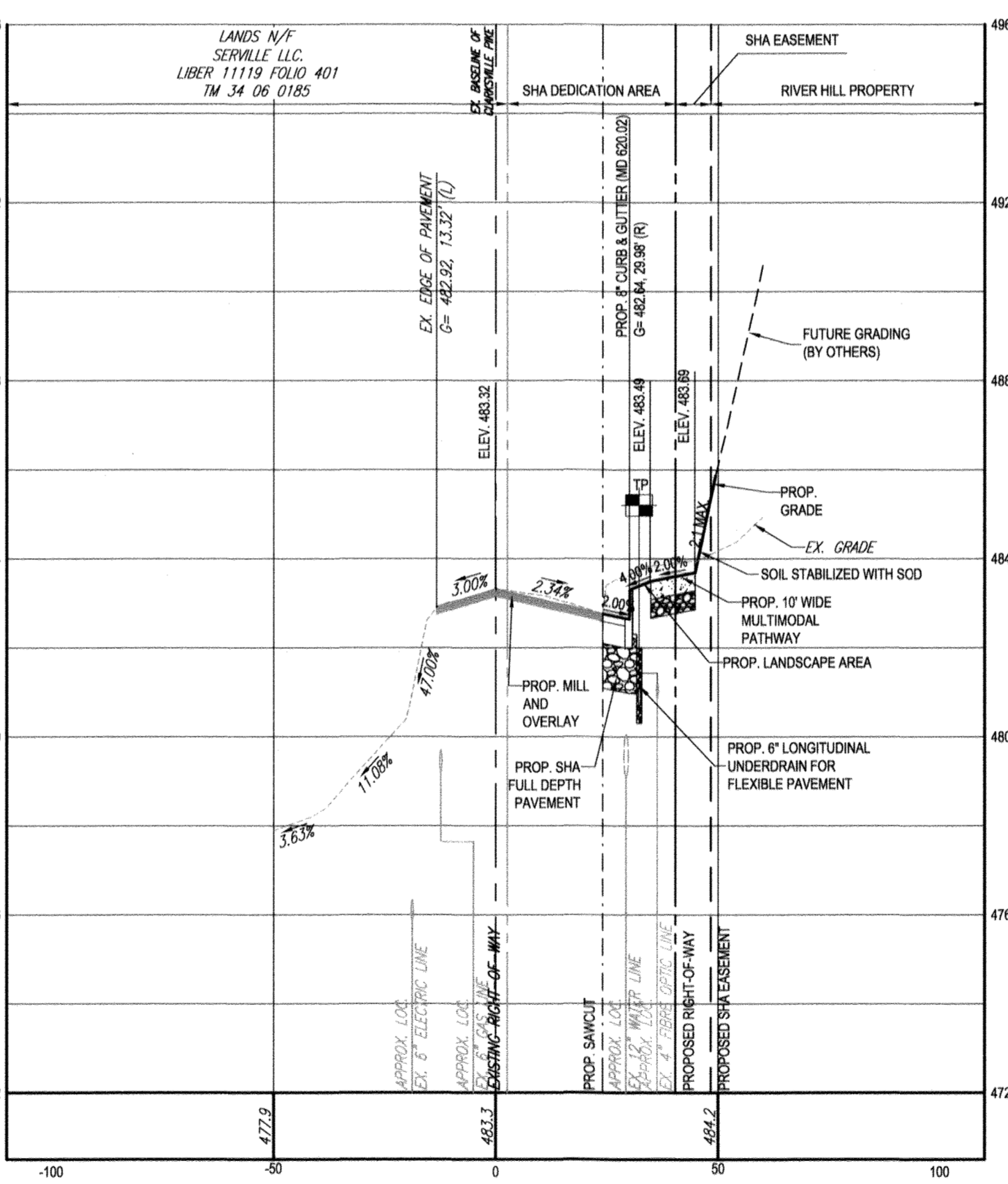
PLAN VIEW
SCALE: 1" = 30'



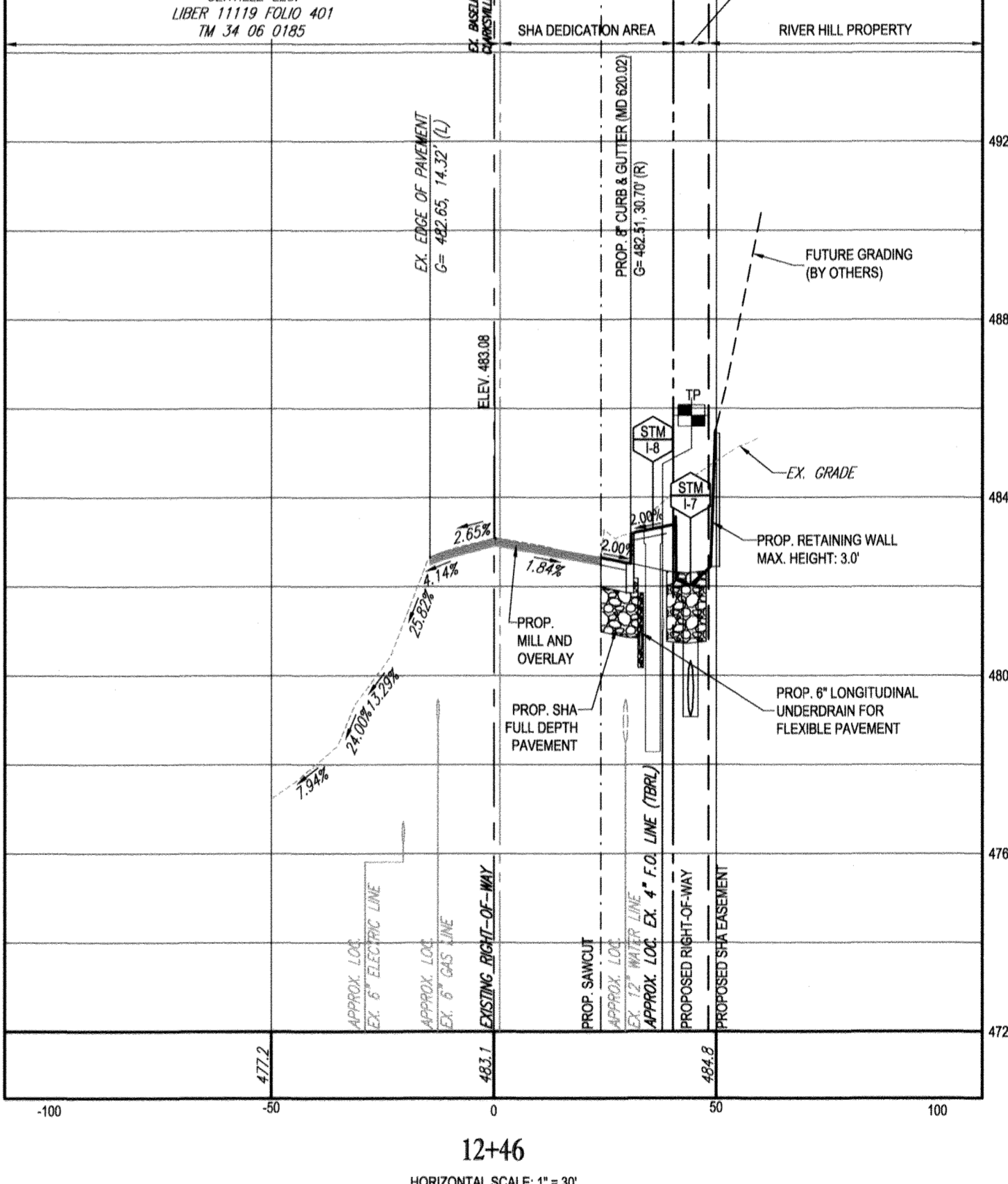
11+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



11+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



12+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



12+46
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

CLARKSVILLE PIKE (MD ROUTE 108) CROSS SECTIONS

AS BUILT FOR THE ROUTE 108 IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERMIT NO 16AP001419
"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No 21443, Expiration Date: 12/21/22

LEGEND

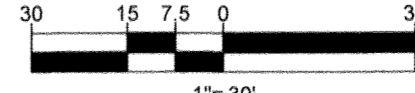
	CONCRETE MULTIMODAL PEDESTRIAN PATHWAY BRUSHED CONCRETE - REFER TO CLARKSVILLE PIKE DESIGN GUIDELINES
	SHA FULL DEPTH ASPHALT PAVING

REFER TO CONSTRUCTION DRAWINGS PREPARED BY BENCHMARK ENGINEERING FOR WORK ON PRIVATE PROPERTY.

- ADA CONSTRUCTION NOTES TO CONTRACTOR
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 - NO ADA PARKING SPACE IS TO EXCEED 2.00% SLOPE IN ANY DIRECTION.
 - NO ADA CURB RAMP IS TO EXCEED 8.33%.
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 - IF DURING THAT CHECK ANY NON-COMPLIANCE IS DETERMINED, THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED PRIOR TO POURING CONCRETE AND/OR LAYING ASPHALT.

TEST PIT NOTE

CONTRACTOR TO TEST PIT FOR EXACT LOCATION OF EXISTING UTILITY AND SUBMIT ANY DISCREPANCIES TO BOHLER ENGINEERING IN WRITING PRIOR TO CONSTRUCTION.



PREVIOUS FILE No.: ECP - 17 - 023
SDP - 16 - 044
WP - 18 - 095

APPROVED: DEPARTMENT OF PUBLIC WORKS	DATE: 2/4/2019
CHIEF, BUREAU OF HIGHWAYS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE: 3-6-19
CHIEF, DIVISION OF LAND DEVELOPMENT	
APPROVED: DEVELOPMENT ENGINEERING DIVISION	DATE: 2-21-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION	

OWNER: STEPHEN A. KLEIN & ASSOCIATES
12165 CLARKSVILLE PIKE
CLARKSVILLE, MD 21029
(410) 465-4244

DEVELOPER: RIVER HILL SQUARE, LLC
P.O. BOX 417
ELICOTT CITY, MARYLAND 21041
(410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
PARCEL: 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 43868, EXPIRATION DATE: 10/2019

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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRB
DATE: 12/18/18
SCALE: AS SHOWN
CAD I.D.: SPB

FINAL ROAD CONSTRUCTION PLANS FOR MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

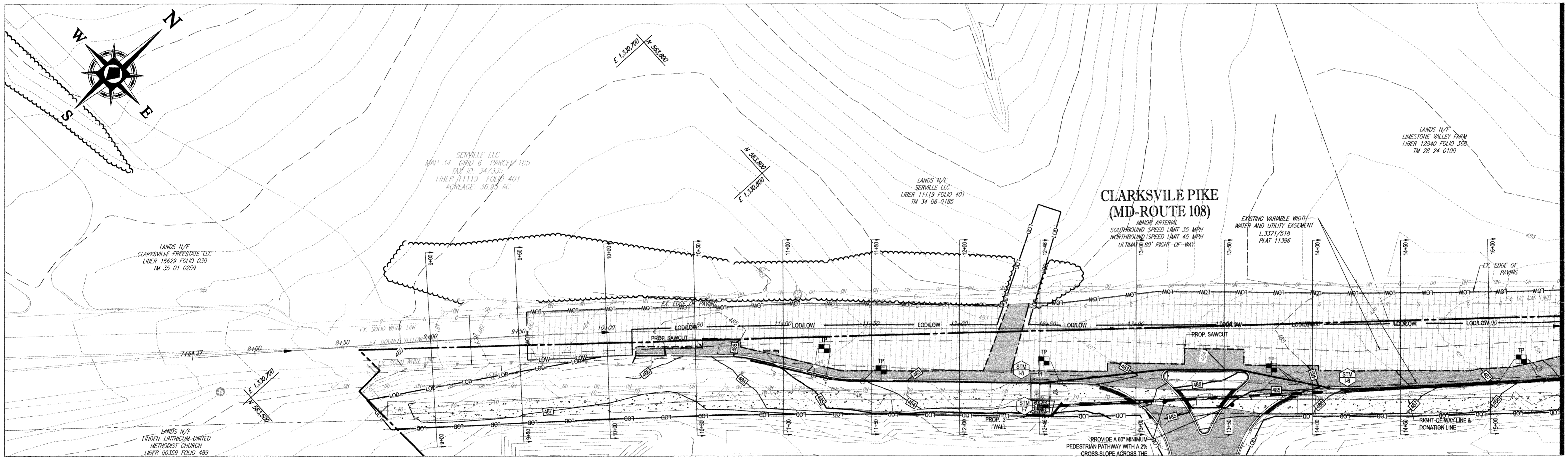
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
4/1/19

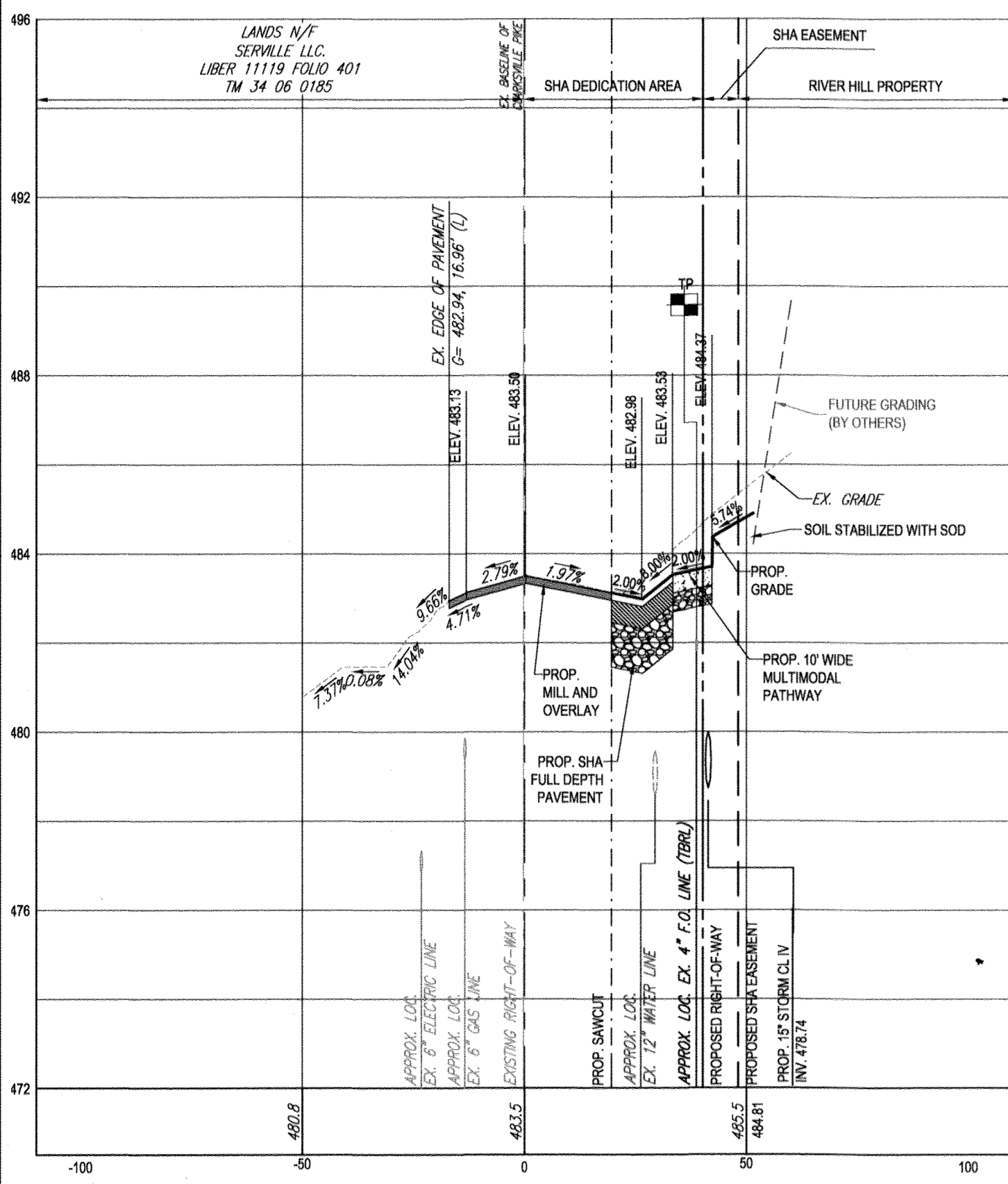
SHEET TITLE: MD ROUTE 108 ROAD SECTIONS
SHEET NUMBER: 10
F-18-099

STATE OF MARYLAND
DORIAN M. MORGAN
PROFESSIONAL ENGINEER
No. 21443
AS-BUILT 3/25/21

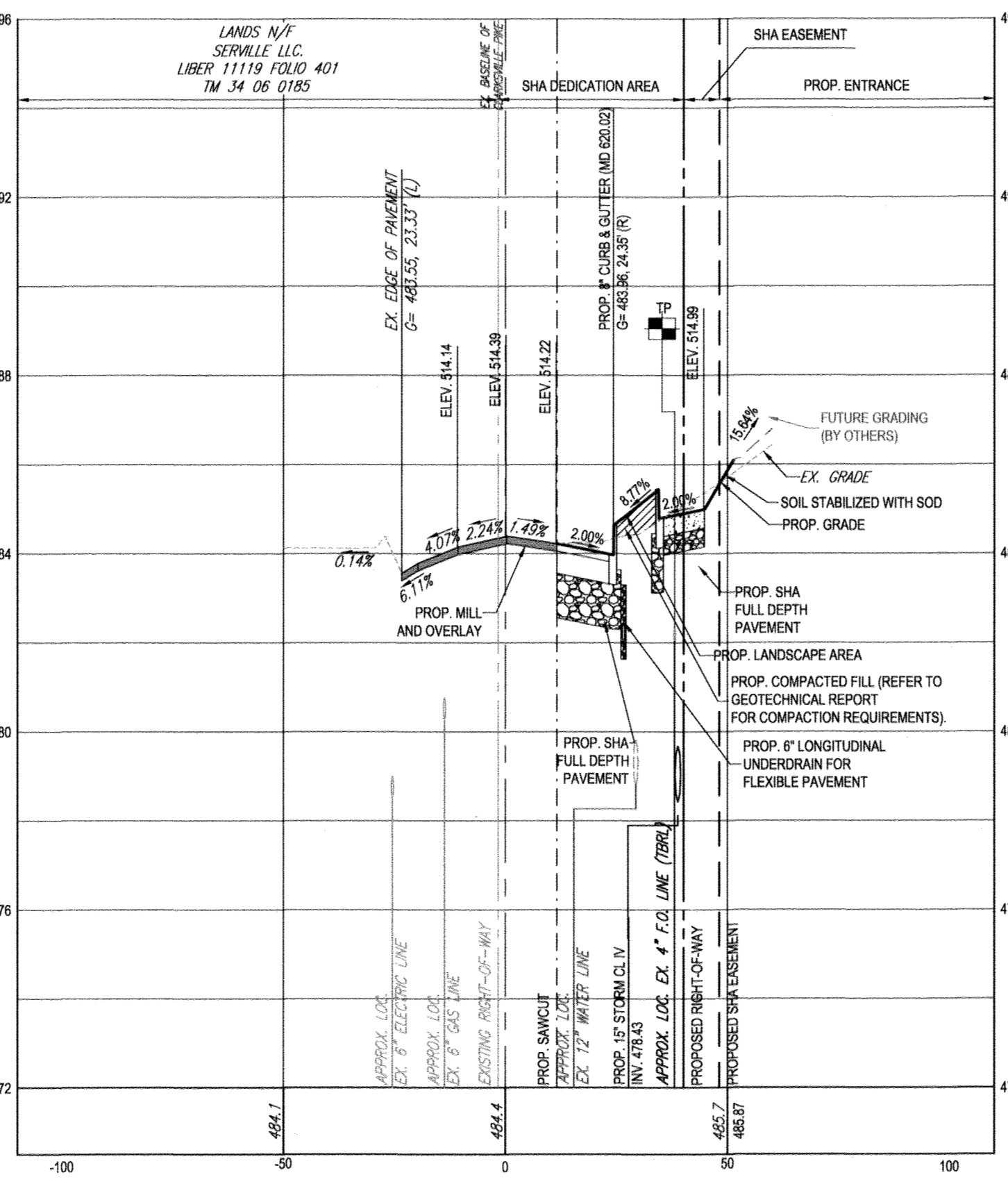
AS-BUILT



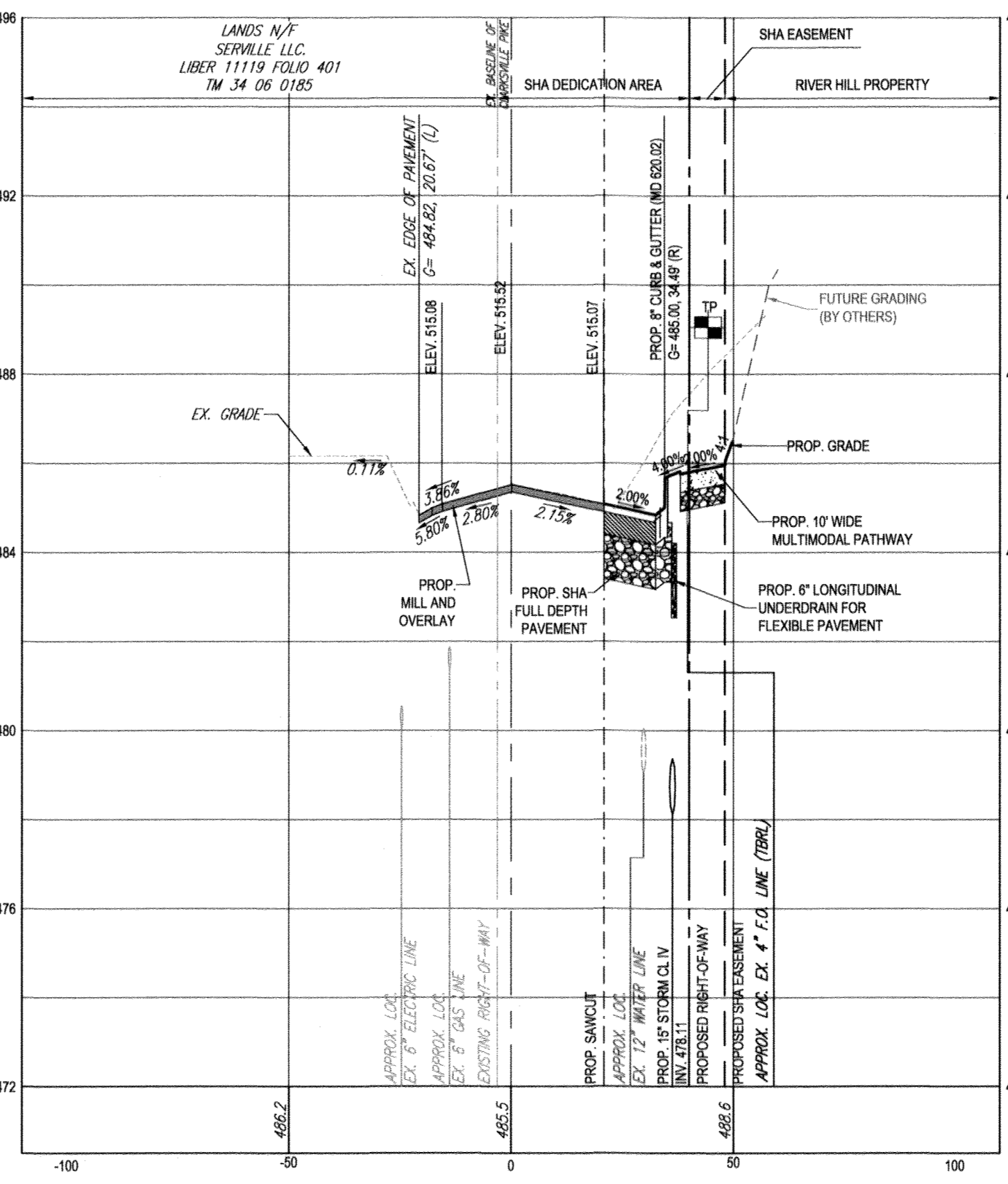
PLAN VIEW
SCALE: 1" = 30'



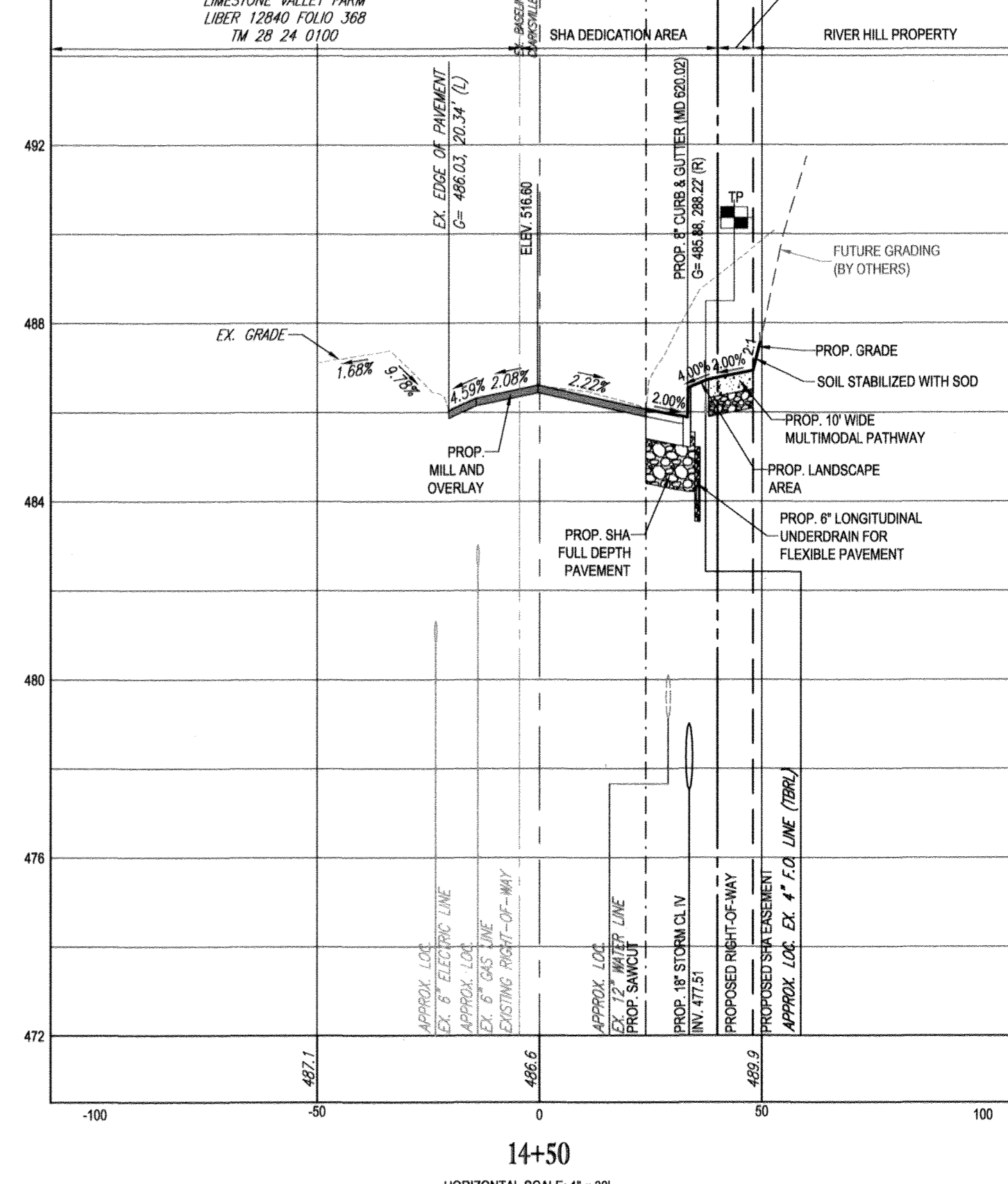
13+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



13+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



14+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



14+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

AS-BUILTS FOR THE ROUTE 108 CLARKSVILLE PIKE (MD ROUTE 108) CROSS SECTIONS

IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERMIT NO 16APH00014 19

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12/31/22

LEGEND

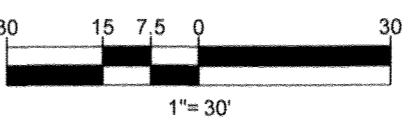
	CONCRETE MULTIMODAL PEDESTRIAN PATHWAY BRUSHED CONCRETE - REFER TO CLARKSVILLE PIKE DESIGN GUIDELINES
	SHA FULL DEPTH ASPHALT PAVING
	SHA 2" MILL AND OVERLAY

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TEST PIT NOTE

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PREVIOUS FILE No.: ECP - 17 - 023
SDP - 18 - 044
WP - 18 - 095

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS: *[Signature]* DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 3-6-19

APPROVED: DEVELOPMENT ENGINEERING DIVISION
CHIEF: *[Signature]* DATE: 8.29.19

OWNER: STEPHEN A. KLEIN & ASSOCIATES
C/O STEPHEN A. KLEIN, INC.
12165 CLARKSVILLE PIKE
CLARKSVILLE, MD 21029
(410) 465-4244

DEVELOPER: RIVER HILL SQUARE, LLC
P.O. BOX 417
ELICOTT CITY, MARYLAND 21041
(410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
PARCEL: 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
I, BRANDON N. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42989, EXPIRATION DATE: 7/31/2019.

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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW
ALWAYS CALL 811
BEFORE YOU DIG
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

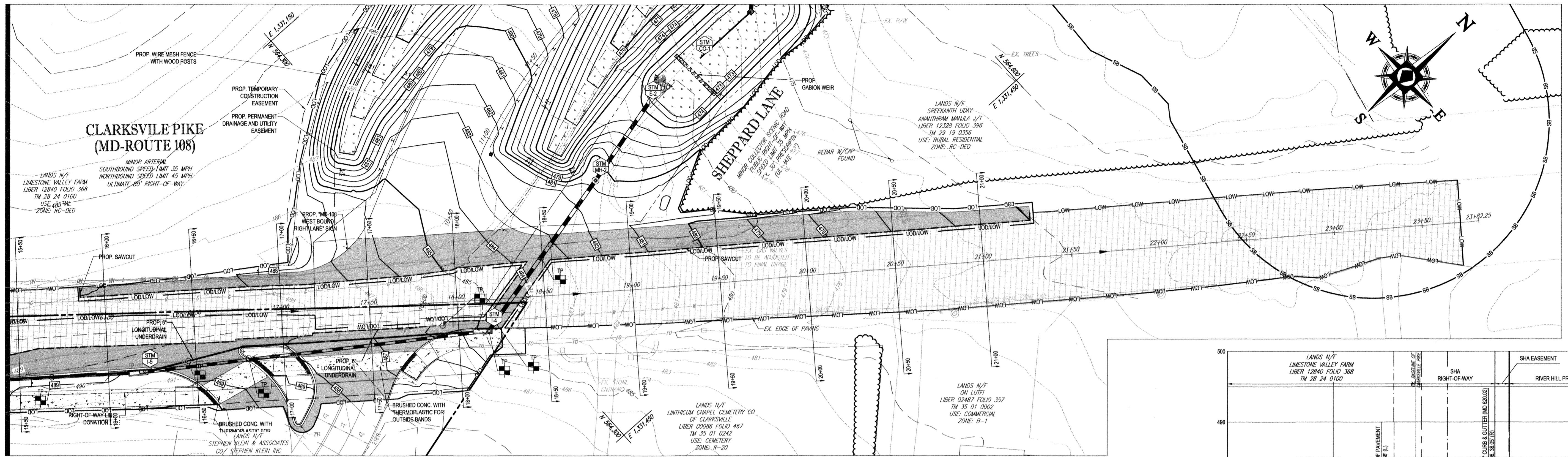
PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRB
DATE: 12/18/18
SCALE: AS SHOWN
CAD I.D.: SP

FINAL ROAD CONSTRUCTION PLANS FOR MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT HOWARD COUNTY

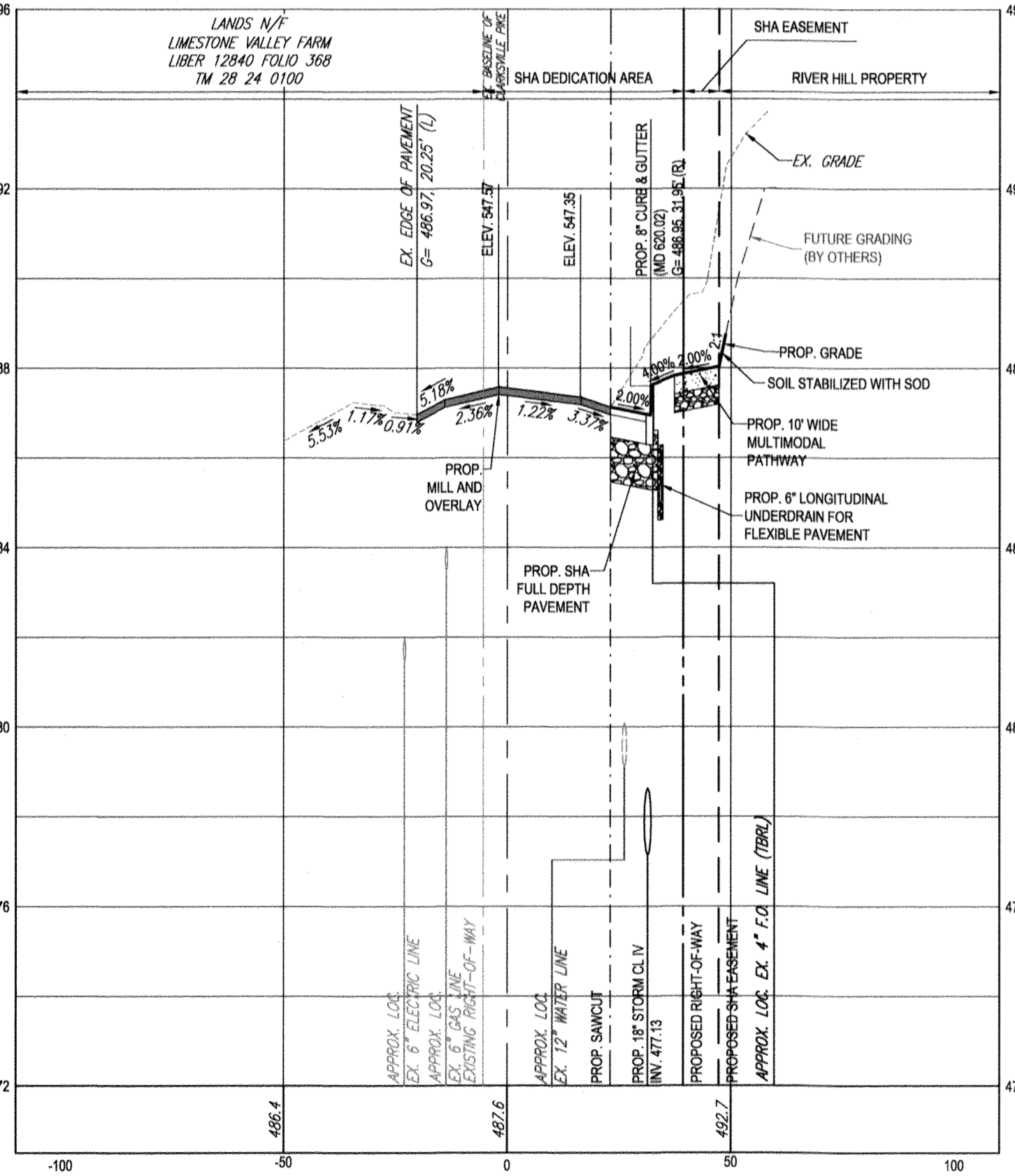
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 42989
EXPIRATION DATE: 7/31/2019

SHEET TITLE: MD ROUTE 108 ROAD SECTIONS
SHEET NUMBER: 11
F-18-099

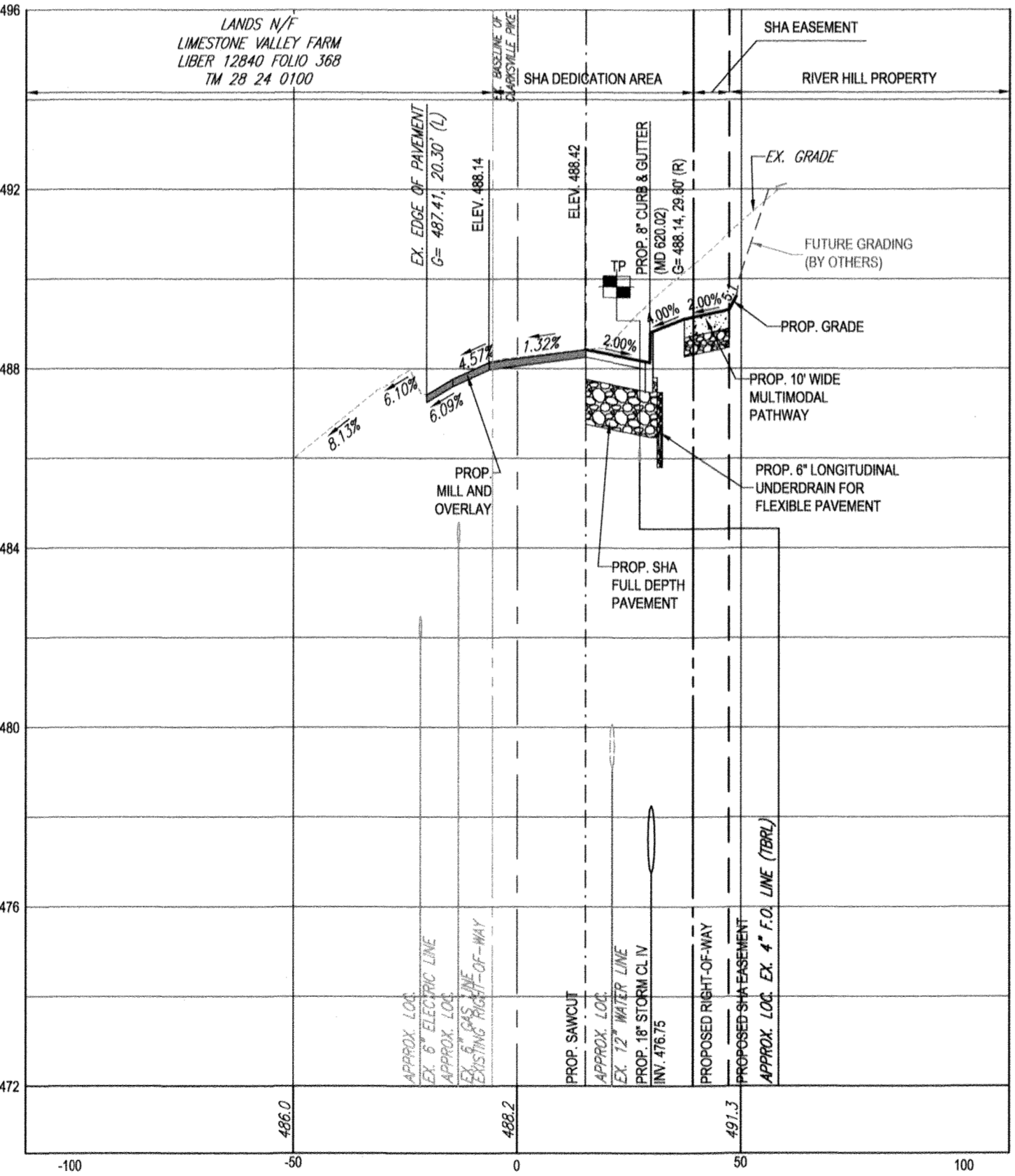


PLAN VIEW
SCALE: 1" = 30'



15+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

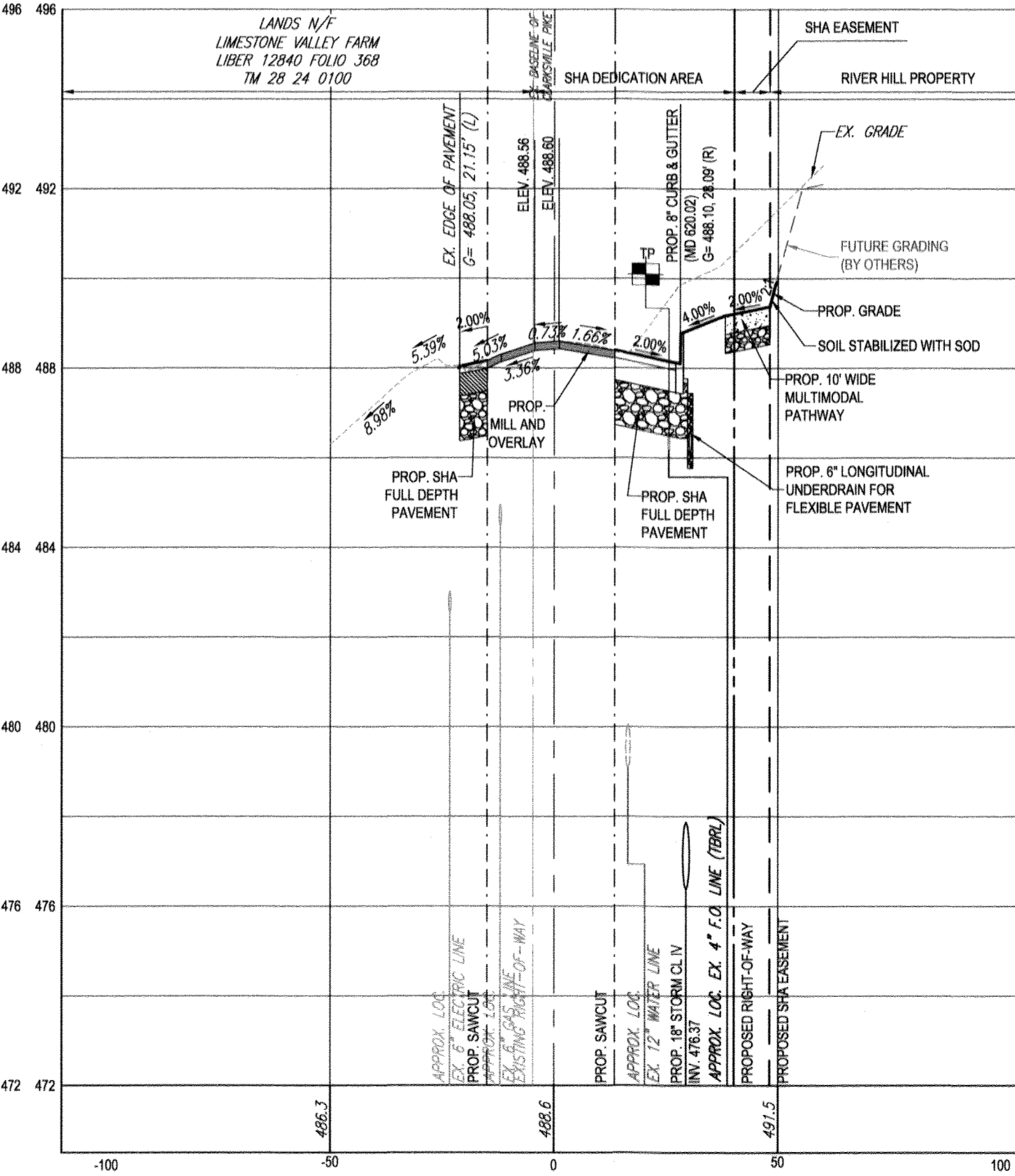
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12-21-22



15+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

AS BUILT FOR THE ROUTE 108 IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERM IT NO 16APH004 19
"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

REFER TO CONSTRUCTION DRAWINGS PREPARED BY BENCHMARK ENGINEERING FOR WORK ON PRIVATE PROPERTY.

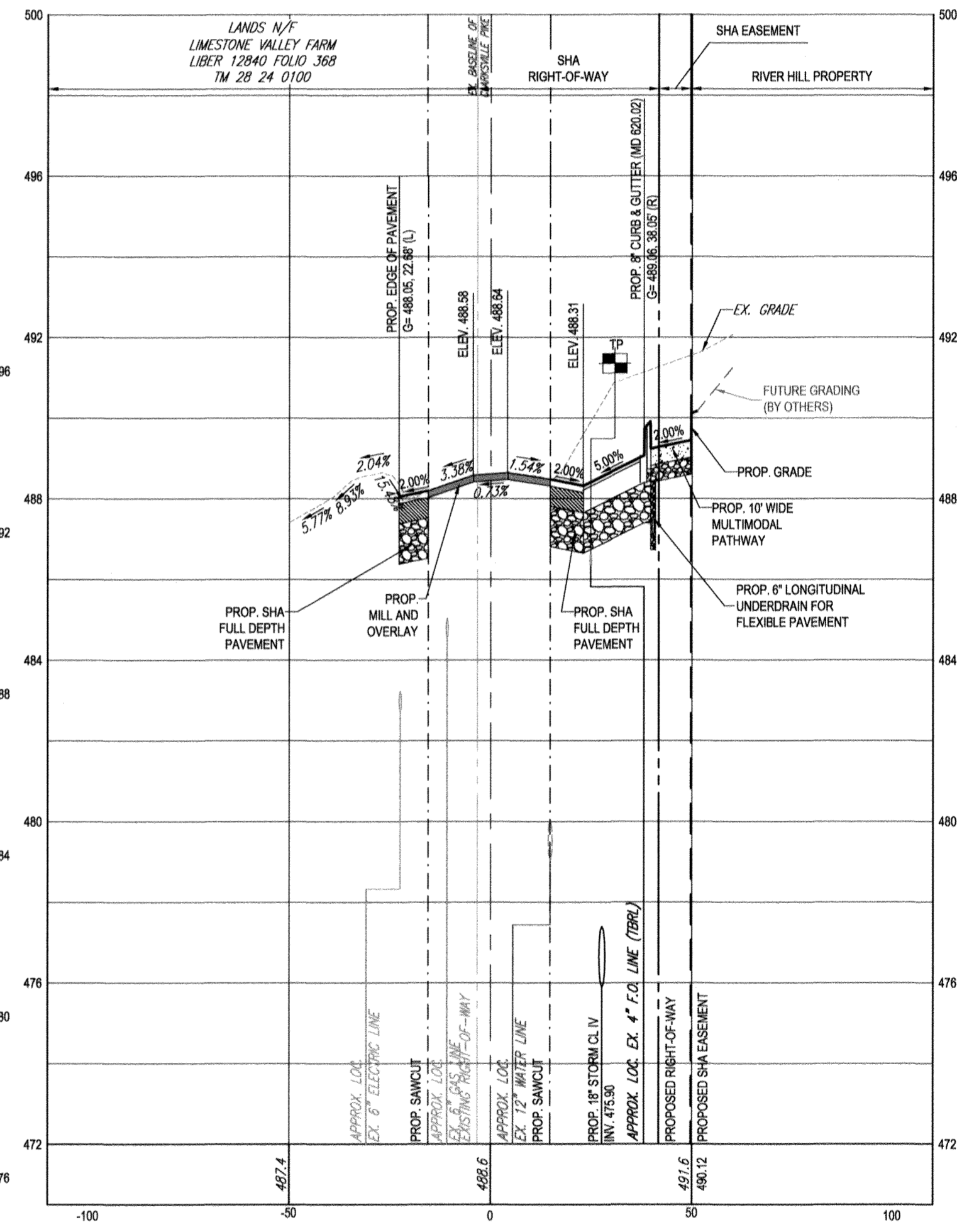


16+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

CLARKSVILLE PIKE (MD ROUTE 108) CROSS SECTIONS

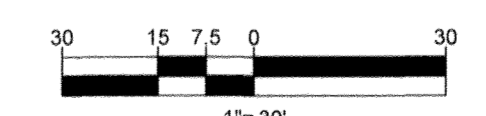
- LEGEND**
- CONCRETE MULTIMODAL PEDESTRIAN PATHWAY BRUSHED CONCRETE - REFER TO CLARKSVILLE PIKE DESIGN GUIDELINES
 - SHA FULL DEPTH ASPHALT PAVING
 - SHA 2" MILL AND OVERLAY

- ADA CONSTRUCTION NOTES TO CONTRACTOR**
- NO SIDEWALK AND/OR CROSSWALK IS TO EXCEED 2.00% CROSS SLOPE.
 - NO ADA PARKING SPACE IS TO EXCEED 2.00% SLOPE IN ANY DIRECTION.
 - NO ADA CURB RAMP IS TO EXCEED 8.33%.
 - THE CONTRACTOR IS RESPONSIBLE DURING THE FORMING OF SIDEWALKS, RAMPS, CROSSWALKS, AND ADA PARKING TO VERIFY THAT ADA COMPLIANCE IS ACHIEVED.
 - IF DURING THAT CHECK ANY NON-COMPLIANCE IS DETERMINED, THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED PRIOR TO POURING CONCRETE AND/OR LAYING ASPHALT.



16+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

TEST PIT NOTE
CONTRACTOR TO TEST PIT FOR EXACT LOCATION OF EXISTING UTILITY AND SUBMIT ANY DISCREPANCIES TO BOHLER ENGINEERING IN WRITING PRIOR TO CONSTRUCTION.



PREVIOUS FILE No.: ECP - 17 - 023
SDP - 16 - 044
WP - 18 - 095

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 3-6-19

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES
12165 CLARKSVILLE PIKE
CLARKSVILLE, MD 21029
(410) 465-4244

DEVELOPER: RIVER HILL SQUARE, LLC
P.O. BOX 417
ELICOTT CITY, MARYLAND 21041
(410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
PARCEL: 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
I, BENCHMARK ENGINEERING, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 46986, EXPIRATION DATE: 10/30/19



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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRB
DATE: 12/18/18
SCALE: AS SHOWN
CAD I.D.: SPG

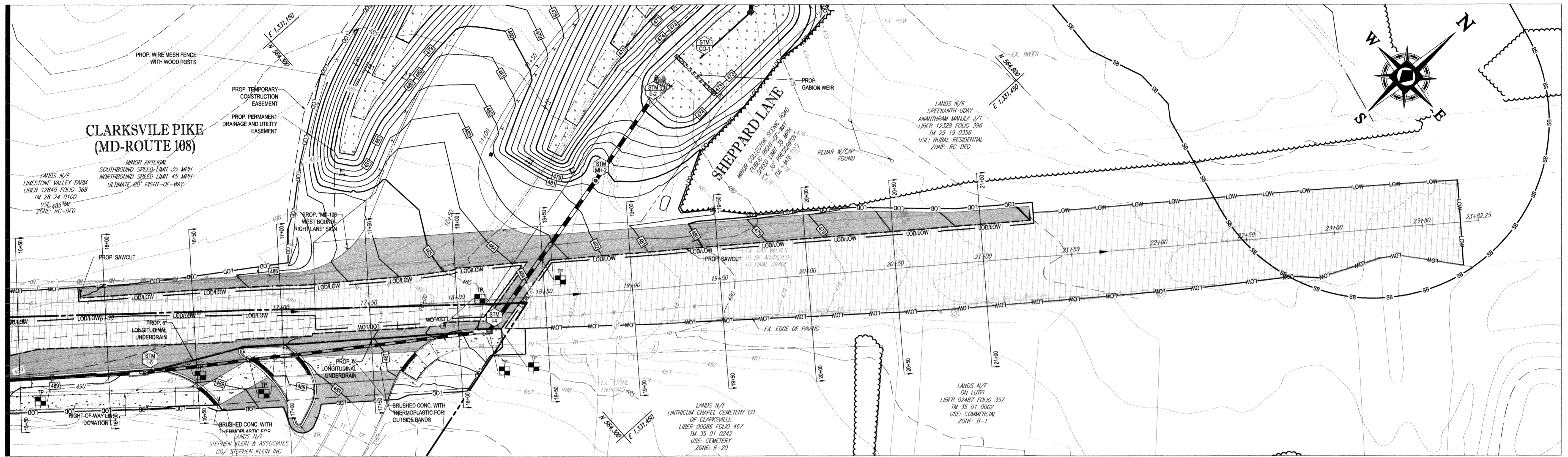
FINAL ROAD CONSTRUCTION PLANS
FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE
INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 621-7900
Fax: (410) 621-7987
MD@BohlerEng.com

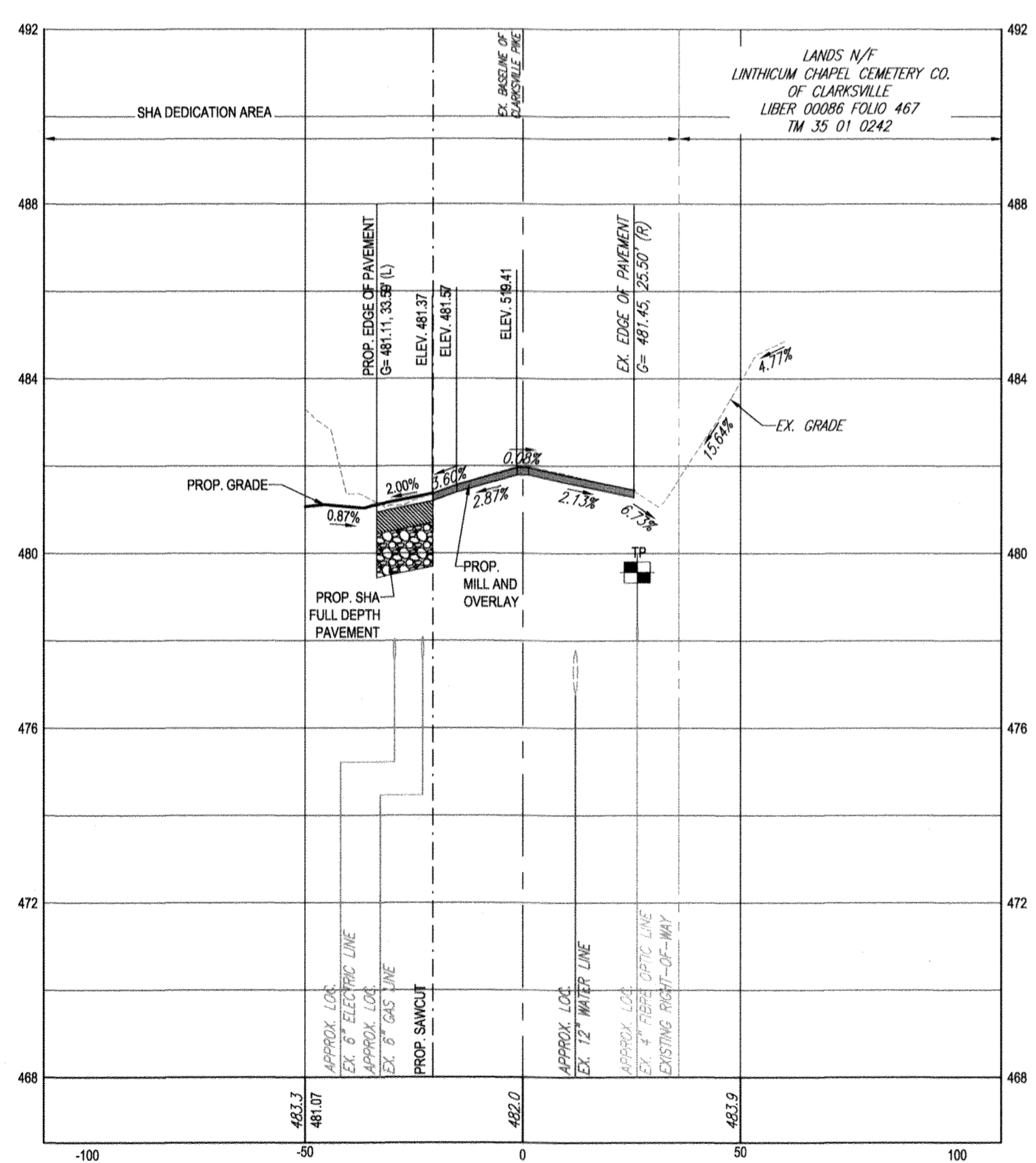
B.R. ROWE
PROFESSIONAL ENGINEER
M.D. LICENSE NO. 9096

SHEET TITLE:
MD ROUTE 108 ROAD SECTIONS
SHEET NUMBER:
12
F-18-099

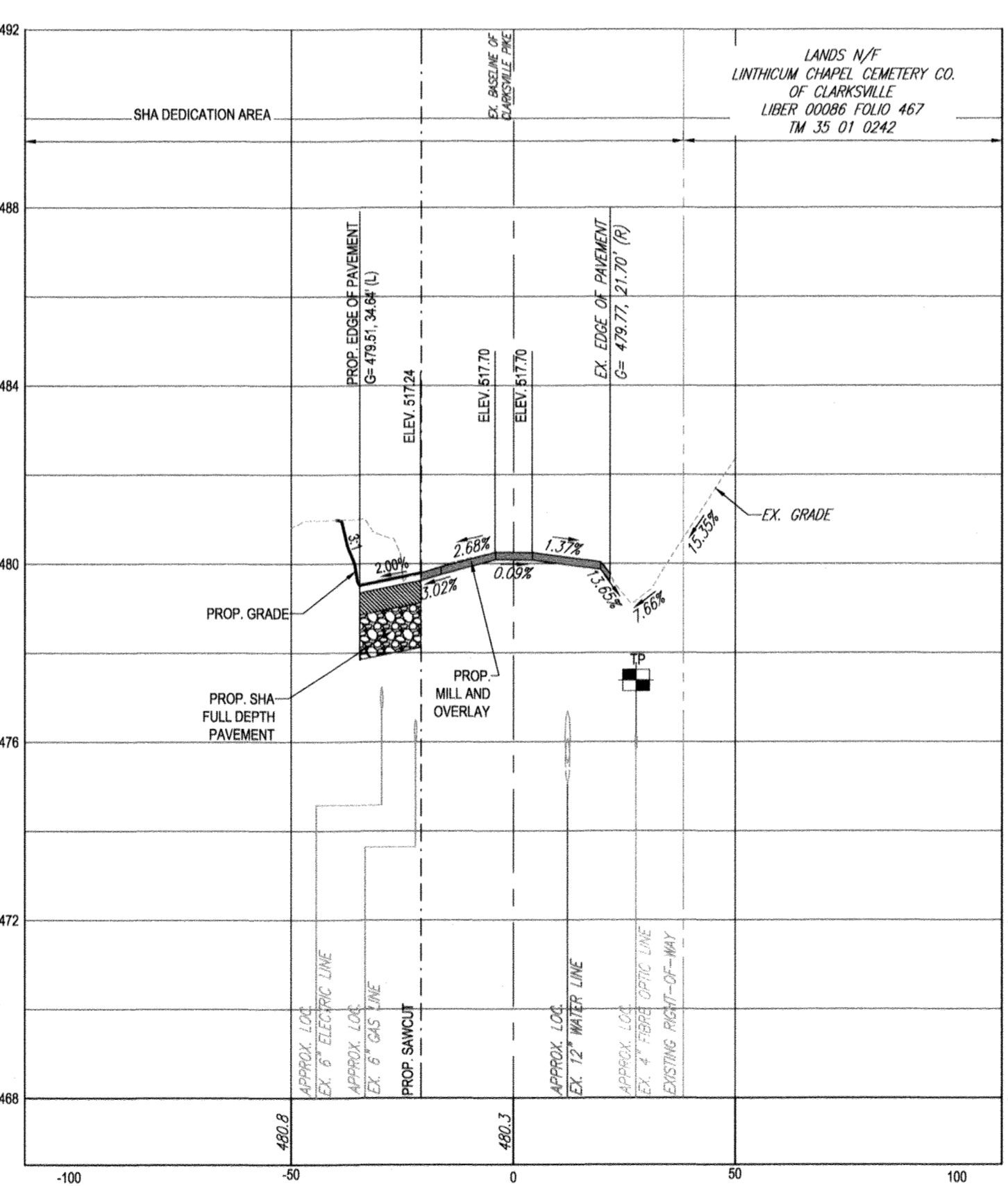
AS-BUILT



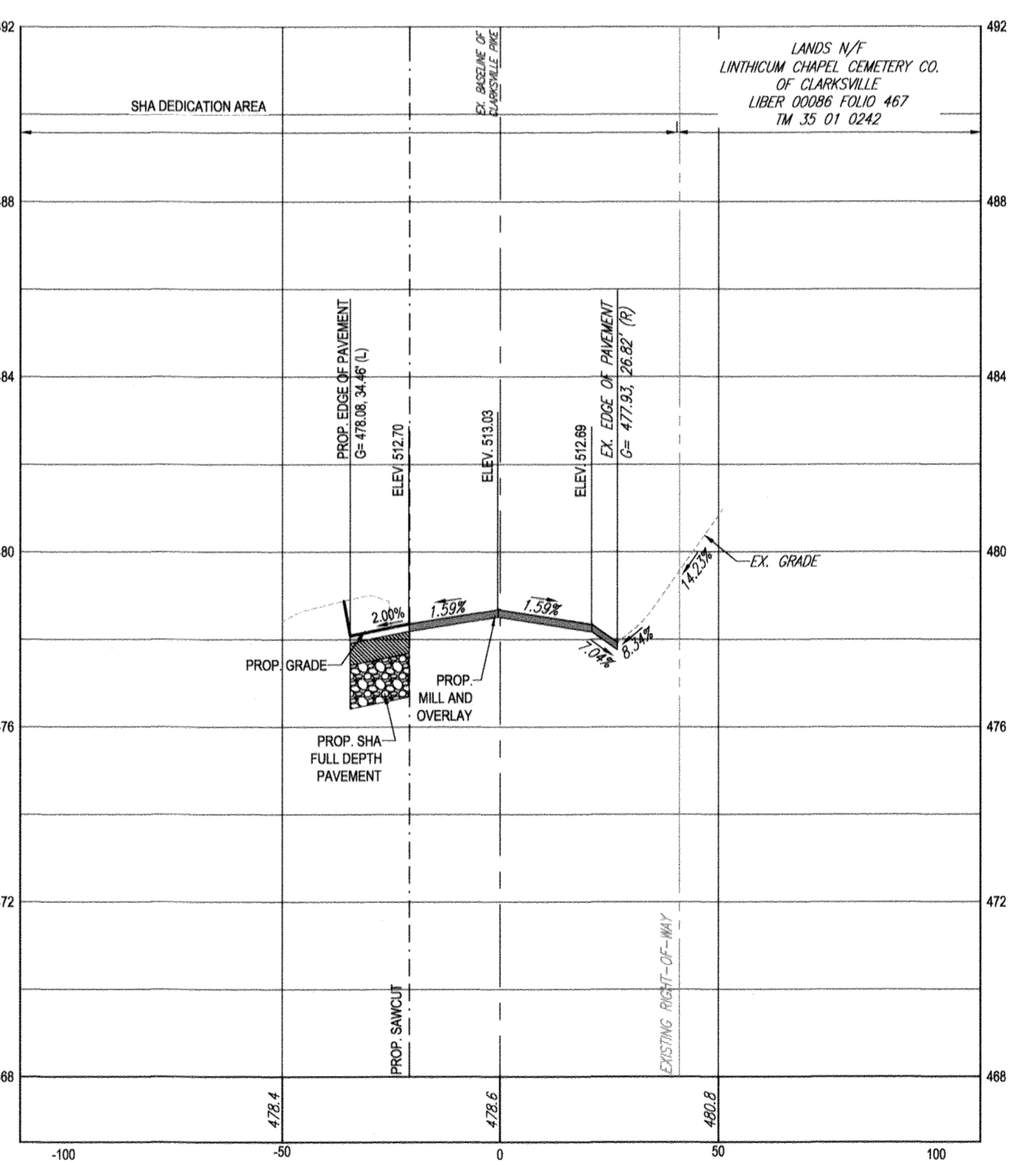
PLAN VIEW
SCALE: 1" = 30'



19+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



19+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

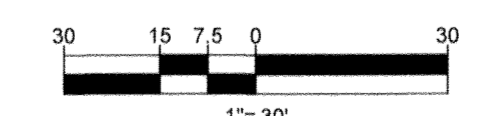


20+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

CLARKSVILLE PIKE (MD ROUTE 108) CROSS SECTIONS

- LEGEND**
- CONCRETE MULTIMODAL PEDESTRIAN PATHWAY BRUSHED CONCRETE - REFER TO CLARKSVILLE PIKE DESIGN GUIDELINES
 - SHA FULL DEPTH ASPHALT PAVING
 - SHA 2" MILL AND OVERLAY

- ADA CONSTRUCTION NOTES TO CONTRACTOR**
1. NO SIDEWALK AND/OR CROSSWALK IS TO EXCEED 2.00% CROSS SLOPE.
 2. NO ADA PARKING SPACE IS TO EXCEED 2.00% SLOPE IN ANY DIRECTION.
 3. NO ADA CURB RAMP IS TO EXCEED 8.33%.
 4. THE CONTRACTOR IS RESPONSIBLE DURING THE FORMING OF SIDEWALKS, RAMPS, CROSSWALKS, AND ADA PARKING TO VERIFY THAT ADA COMPLIANCE IS ACHIEVED.
 5. IF DURING THAT CHECK ANY NON-COMPLIANCE IS DETERMINED, THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED PRIOR TO POURING CONCRETE AND/OR LAYING ASPHALT.



PREVIOUS FILE No.: ECP - 17 - 023
SDP - 16 - 044
WP - 18 - 095

TEST PIT NOTE

CONTRACTOR TO TEST PIT FOR EXACT LOCATION OF EXISTING UTILITY AND SUBMIT ANY DISCREPANCIES TO BOHLER ENGINEERING IN WRITING PRIOR TO CONSTRUCTION.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: *James* DATE: 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT: *Veronica* DATE: 3-6-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Ally* DATE: 3-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES
 DEVELOPER: RIVER HILL SQUARE, LLC
 12165 CLARKSVILLE PIKE
 CLARKSVILLE, MD 21029
 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42808, EXPIRATION DATE: 10/31/18

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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRR
 DATE: 12/18/18
 SCALE: AS SHOWN
 CAD I.D.: SP

FINAL ROAD CONSTRUCTION PLANS
 FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
 LOCATION OF SITE
 INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21209
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 HOWARD COUNTY

BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7800
 Fax: (410) 821-7887
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 42808
 1/1/19

SHEET TITLE:
MD ROUTE 108 ROAD SECTIONS
 SHEET NUMBER:
14
 F-18-099

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. **21443**, Expiration Date: **12-21-22**
AS-BUILT 3/25/21

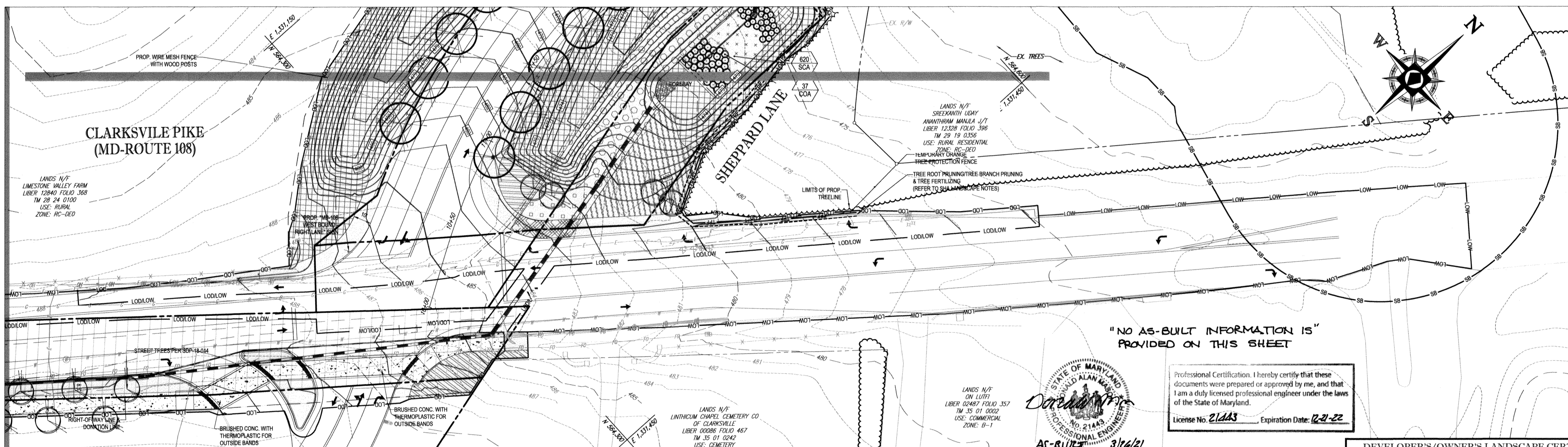
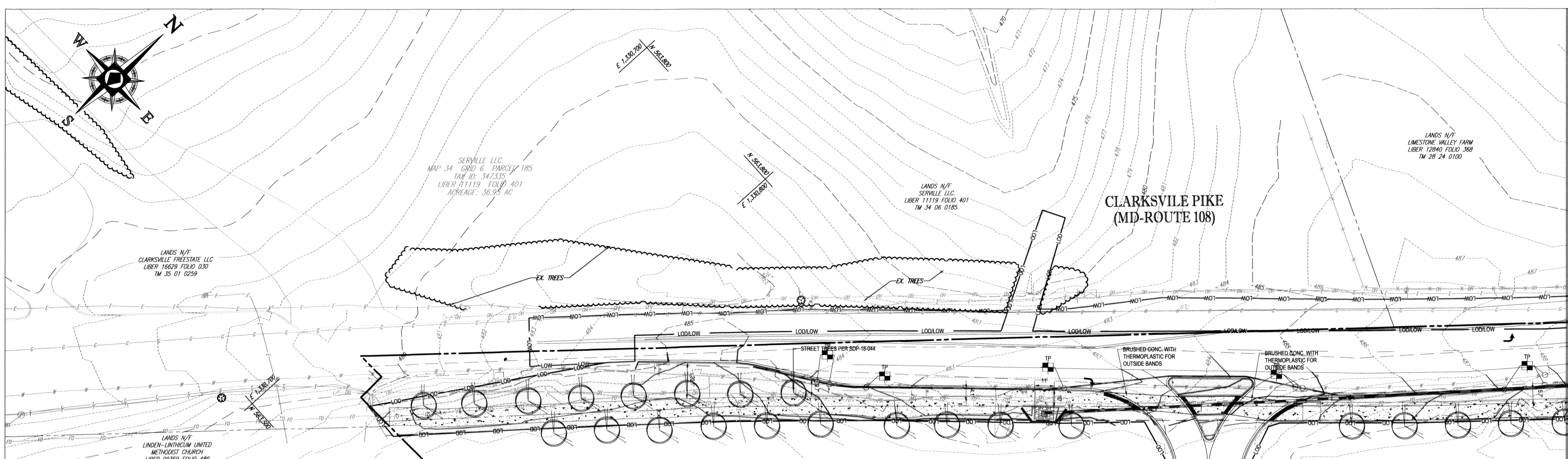
AS-BUILTS FOR THE ROUTE 108 IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERMIT NO 16APH00K19

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

REFER TO CONSTRUCTION DRAWINGS PREPARED BY BENCHMARK ENGINEERING FOR WORK ON PRIVATE PROPERTY.

AS-BUILT

MATCHLINE: THIS SHEET



OVERALL LANDSCAPE SCHEDULE					
KEY	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	CONT.
SHADE TREES					
PXAB	19	PLATANUS X ACERIFOLIA "BLOODGOOD"	BLOODGOOD LONDON PLANETREE	2 1/2"-3" 12-14"	B-H
SUBTOTAL:	19				
ORNAMENTAL TREES					
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	2-2 1/2" CAL. 8-10"	B-H
SUBTOTAL:	10				
DECIDUOUS SHRUBS					
COA	37	CORNUS AMOMUM	SILKY DOGWOOD	18-24"	#3 CAN
IV	30	ITEA VIRGINICA 'HENRY'S GARNET'	GARNET SWEETSPICE	24-30"	#5 CAN
SUBTOTAL:	67				
PERENNIALS					
JE	280	JUNCUS EFFUSUS	COMMON RUSH	PLUG	PERENNIAL(S)
SCA	620	SCIRPUS ACUTUS	HARDSTEMMED BULLRUSH	PLUG	PERENNIAL(S)
SUBTOTAL:	900				

LEGEND	
	TURFGRASS SOD
	TURFGRASS ESTABLISHMENT NO STABILIZATION MATTING
	TURFGRASS ESTABLISHMENT WITH TYPE A SOIL STABILIZATION MATTING
	TURFGRASS ESTABLISHMENT WITH TYPE E SOIL STABILIZATION MATTING
	TURFGRASS SOD WITH 12" SUBSOIL FILL FOR REMOVAL OF EXCAVATED PAVEMENT
	TURFGRASS ESTABLISHMENT WITH TYPE A SOIL STABILIZATION MATTING & 12" SUBSOIL FILL FOR REMOVAL OF EXCAVATED PAVEMENT
	TEMPORARY ORANGE TREE PROTECTION FENCE
	TREE ROOT PRUNING, TREE BRANCH PRUNING AND TREE FERTILIZING

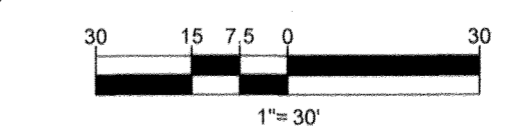
GENERAL LANDSCAPE NOTES

- "SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL."
- "THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED."
- "AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN WILL 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."

LIMIT OF DISTURBANCE: 2.68 AC. OR 116,741 S.F.*
LIMIT OF WORK: 0.85 AC. OR 34,026 S.F.
 *LIMIT OF DISTURBANCE INCLUDES ALL WORK WITH SOIL DISTURBANCE
 **LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE

STREET TREE REQUIREMENTS				
STREET	LINEAR FEET	SPACING	TREES REQUIRED	TREES PROVIDED
SHEPPARD LANE	449 LF	40 LF / 30 LF.	19 TREES	19 SHADE TREES 6 ORNAMENTAL TREES
CLARKSVILLE PIKE	113 LF	30 LF.	4 TREES	4 ORNAMENTAL TREES
TOTAL TREES			29 TREES	29 TREES

- FINANCIAL SURETY FOR THE REQUIRED 29 PUBLIC STREET TREES WILL BE POSTED FOR \$7,700 AND WILL BE WITH THE DEVELOPMENT ENGINEERING DIVISION (DED) COST ESTIMATE.
- SHADE TREES MUST BE PLANTED A MINIMUM OF 40 FEET AND ORNAMENTAL TREES MUST BE PLANTED A MINIMUM OF 25 FEET FROM POWER LINES 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 ON CENTER FROM A DRAIN INLET STRUCTURE, 6 FEET FROM AN OPEN ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.



PREVIOUS FILE No.: ECP - 17 - 023
 SDP - 18 - 044
 WP - 18 - 095

MATCHLINE: THIS SHEET

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

REVISIONS			
REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRB
 DATE: 12/18/18
 SCALE: 1" = 30'
 CAD I.D.: LP2

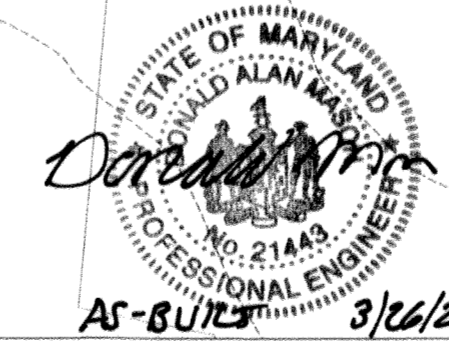
FINAL ROAD CONSTRUCTION PLANS
 FOR
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 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 HOWARD COUNTY

BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 621-7900
 Fax: (410) 621-7987
 MD@BohlerEng.com

E.R. McWILLIAMS
 REGISTERED PROFESSIONAL ARCHITECT

SHEET TITLE:
MD ROUTE 108 STREETSCAPE PLAN
 SHEET NUMBER:
15
 F-18-099

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. **21443** Expiration Date: **12-21-22**



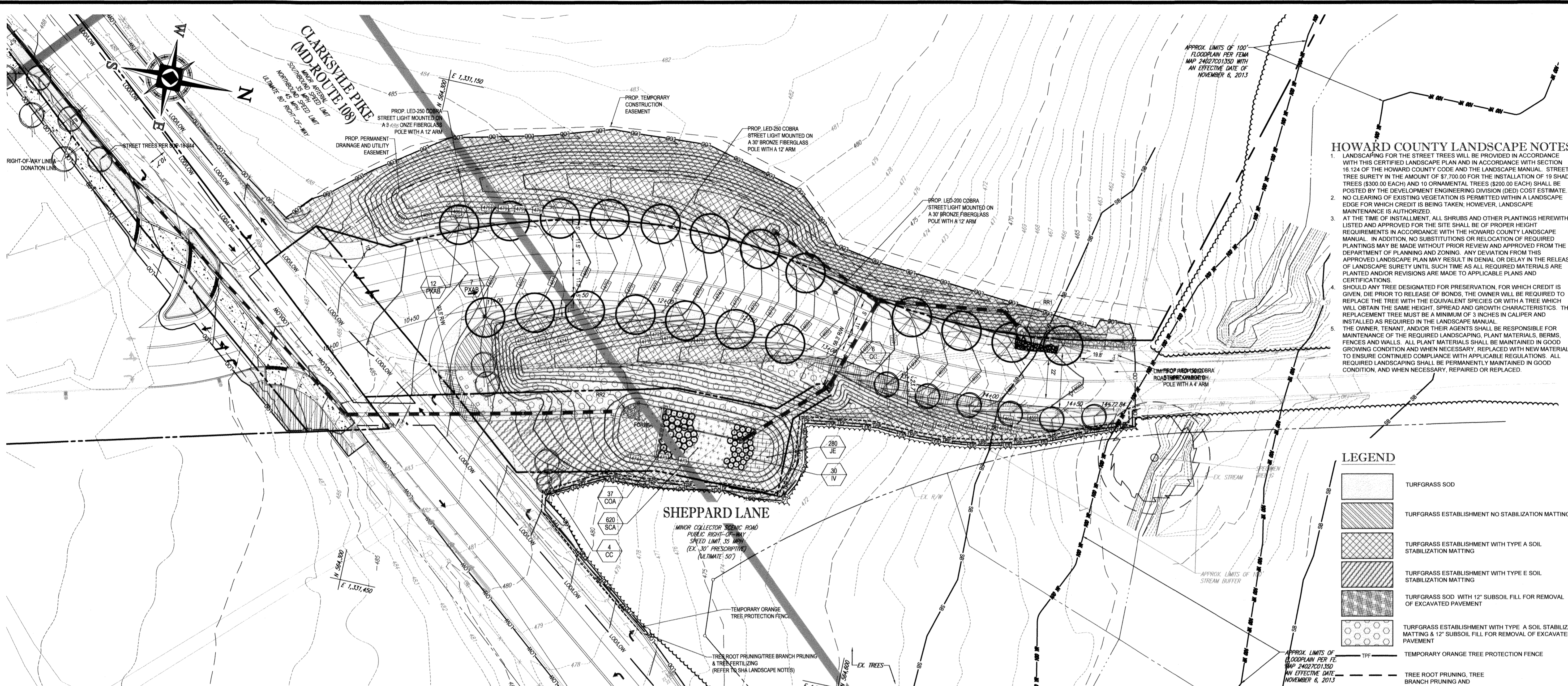
DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE
 I HEREBY CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 18.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I WILL FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 DEVELOPER'S/OWNER'S NAME: **STEPHEN A. KLEIN & ASSOCIATES**
 DATE: **1/11/19**

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: **James** DATE: **2/6/2019**
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT: **Kurt** DATE: **3-6-19**
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: **W. P. H.** DATE: **2-21-19**

OWNER: **STEPHEN A. KLEIN & ASSOCIATES** DEVELOPER: **RIVER HILL SQUARE, LLC.**
 C/O STEPHEN A. KLEIN, INC. P. O. BOX 417
 12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21041
 CLARKSVILLE, MD 21029 (410) 485-4244
 TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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

AS-BUILT



HOWARD COUNTY LANDSCAPE NOTES

- LANDSCAPING FOR THE STREET TREES WILL BE PROVIDED IN ACCORDANCE WITH THIS CERTIFIED LANDSCAPE PLAN AND IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. STREET TREE SURETY IN THE AMOUNT OF \$7,700 FOR THE INSTALLATION OF 10 SHADE TREES (\$300.00 EACH) AND 10 ORNAMENTAL TREES (\$200.00 EACH) SHALL BE POSTED BY THE DEVELOPMENT ENGINEERING DIVISION (DED) COST ESTIMATE.
- NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN A LANDSCAPE EDGE FOR WHICH CREDIT IS BEING TAKEN. HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THE SITE SHALL BE OF PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVED 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 CERTIFICATIONS.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION, FOR WHICH CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE LANDSCAPE MANUAL.
- 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. ALL REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

LEGEND

- TURFGRASS SOD
- TURFGRASS ESTABLISHMENT NO STABILIZATION MATTING
- TURFGRASS ESTABLISHMENT WITH TYPE A SOIL STABILIZATION MATTING
- TURFGRASS ESTABLISHMENT WITH TYPE E SOIL STABILIZATION MATTING
- TURFGRASS SOD WITH 12" SUBSOIL FILL FOR REMOVAL OF EXCAVATED PAVEMENT
- TURFGRASS ESTABLISHMENT WITH TYPE A SOIL STABILIZATION MATTING & 12" SUBSOIL FILL FOR REMOVAL OF EXCAVATED PAVEMENT
- TEMPORARY ORANGE TREE PROTECTION FENCE
- TREE ROOT PRUNING, TREE BRANCH PRUNING AND TREE FERTILIZING

BIORETENTION LANDSCAPE SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	CAL.	CONT.
DECIDUOUS SHRUBS					
COA	37	CORNUS AMOMIUM	SILKY DOGWOOD	18-24"	#5 CAN
IV	30	ITEA VIRGINICA 'HENRY'S GARNET'	GARNET SWEETSPIRE	24-30"	#5 CAN
PERENNIALS					
JE	280	JUNCUS EFFUSUS	COMMON RUSH	PLUG	PERENNIAL(S)
SCA	620	SCIRPUS ACUTUS	HARDSTEMMED BULLRUSH	PLUG	PERENNIAL(S)
SUBTOTAL: 67					

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. 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.

DEVELOPER'S/OWNER'S NAME: RIVER HILL SQUARE, LLC DATE: 1/11/19

DESIGNED BY: John Mendenhall CHECKED BY: Stewart Bresson

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: James DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT: Wesley DATE: 3-6-19

APPROVED: DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: John DATE: 3-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES RIVER HILL SQUARE, LLC
 2125 CLARKSVILLE PIKE P.O. BOX 417
 CLARKSVILLE, MD 21029 (410) 465-4244

DEVELOPER: STEPHEN A. KLEIN, INC. P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SHA LANDSCAPE NOTES

7.1	TITLE	LANDSCAPE CONSTRUCTION WITHIN RIGHTS OF WAY OF THE MARYLAND STATE HIGHWAY ADMINISTRATION (SHA) AND WITHIN SHA PROPERTY, EASEMENT AREAS AND LANDS TO BE CONVEYED TO SHA SHALL CONFORM TO THESE NOTES. FOR GUIDANCE REGARDING DESIGN MODIFICATIONS DURING CONSTRUCTION, REFER TO SHA LANDSCAPE DESIGN GUIDE, SHA LANDSCAPE ESTIMATING MANUAL, AND SHA ENVIRONMENTAL GUIDE. FOR ACCESS AND DISTRICT PERMIT APPLICANTS AT HTTP://WWW.ROADS.MARYLAND.GOV/INDEX.ASPX?PAGEID=25
7.2	SPECIFICATIONS	LANDSCAPE CONSTRUCTION SHALL CONFORM TO SECTIONS 701 THROUGH 716, AND LANDSCAPE MATERIALS SHALL CONFORM TO SECTION 920 OF THE MOST RECENT REVISION OF SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, INCLUDING ALL REVISIONS AND SUPPLEMENTS, AND AS SPECIFIED IN THESE NOTES. THESE REQUIREMENTS SHALL SUPERSEDE ALL OTHER SPECIFICATIONS FOR WORK ON SHA PROPERTY. ALL SHA SPECIFICATIONS FOR LANDSCAPING AND LANDSCAPE MATERIALS PUBLISHED IN 2008 HAVE BEEN REPLACED. CURRENT SPECIFICATIONS ARE AT HTTP://WWW.ROADS.MARYLAND.GOV/INDEX.ASPX?PAGEID=44.
7.3	E&S MANAGER (ESCM)	SOIL DISTURBANCE SUCH AS GRADING, EXCAVATION, SOIL PLACEMENT OR OTHER ACTIVITIES THAT INVOLVE SOIL DISTURBANCE SHALL BE SUPERVISED BY AN ESCM MANAGER WITH A VALID "SHA YELLOW CARD" IN CONFORMANCE WITH SHA STANDARD SPECIFICATIONS AND ANY APPLICABLE EROSION AND SEDIMENT CONTROL PERMIT.
7.4	STANDARD DETAILS	THE INSTALLATION OF TREES, SHRUBS, PLANTING BEDS AND OTHER LANDSCAPE CONSTRUCTION RELATED TO SECTION 710 OF THE SHA STANDARD SPECIFICATIONS SHALL CONFORM TO THE "SHA BOOK OF STANDARDS FOR HIGHWAY & INCIDENTAL STRUCTURES - CATEGORY 7" AT HTTP://APPS.ROADS.MARYLAND.GOV/BUSINESSWITHSHA/BUSINESSWITHSHA/INDEX.ASPX?PAGEID=44.
7.5	TEMPORARY STABILIZATION	TEMPORARY STABILIZATION SHALL BE INSTALLED IN CONFORMANCE WITH SECTION 704 TO ENSURE THAT AREAS OF SOIL DISTURBANCE ARE PROTECTED FROM WIND, RAINFALL AND FLOWING WATER UNTIL PERMANENT STABILIZATION IS INSTALLED. 1. TEMPORARY MULCH, EITHER AS TEMPORARY STRAW MULCH OR TEMPORARY MATTING MULCH, SHALL BE INSTALLED AT THE END OF EACH WORKING DAY TO PROVIDE "SAME DAY STABILIZATION" UNLESS OTHER APPROVED STABILIZATION IS INSTALLED. 2. TEMPORARY STRAW MULCH SHALL BE INSTALLED ON AREAS AND SLOPES FLATTER THAN 4:1; TEMPORARY MATTING MULCH SHALL BE APPLIED ON SLOPES 4:1 AND STEEPER, AND TO AREAS WITHIN CHANNELS. 3. TEMPORARY SEED SHALL BE INSTALLED IN LIEU OF TEMPORARY MULCH WHEN SOIL REDISTURBANCE IS EXPECTED MORE THAN 30 DAYS AFTER SOIL DISTURBANCE. THE REQUIRED APPLICATION RATE SHALL BE 100 LBS PER ACRE OF 37-0-0 (SCU) FERTILIZER.
7.6	ROADWAY PAVEMENT REMOVAL	AREAS OF ROADWAY PAVEMENT REMOVAL SHALL BE EXCAVATED TO REMOVE PAVEMENTS, AGGREGATE BASE, AND COMPACTED SOIL TO A MINIMUM DEPTH OF 10 INCHES BELOW THE EXCAVATED SURFACE, OR AS NECESSARY TO REMOVE ALL MATERIALS UNSUITABLE FOR LANDSCAPING. THE EXCAVATED AREAS SHALL BE RESTORED WITH SUBSOIL AND TOPSOIL AS PART OF SOIL RESTORATION.
7.7	EXCAVATION AND DEBRIS REMOVAL	DEBRIS RELATED TO THE DEMOLITION OF SIDEWALKS, DRIVEWAYS, CURBS, TREES, STUMPS, ROOTS, FENCING, PIPES, AND OTHER MATERIALS THAT MAY INTERFERE WITH LANDSCAPE INSTALLATION OR FUTURE MAINTENANCE SHALL BE EXCAVATED AS NECESSARY FOR THEIR COMPLETE REMOVAL AND DISPOSAL.

7.8	SOIL RESTORATION	AREAS OF PAVEMENT REMOVAL, EXCAVATION OR DRILLING IN LANDSCAPED AREAS SHALL REMOVE EXCAVATED DEBRIS AND RESTORE THE SUBGRADE WITH APPROVED SUBSOIL AND TOPSOIL PLACED IN CONFORMANCE WITH SECTION 701 OF THE SHA STANDARD SPECIFICATIONS. 1. A LAYER OF APPROVED TOPSOIL OF AT LEAST A 4-INCH DEPTH SHALL BE PLACED ON ALL DISTURBED AREAS FLATTER THAN 2:1 AND IN ALL CHANNELS PRIOR TO SEEDING, SODDING OR OTHER LANDSCAPING, UNLESS OTHERWISE SPECIFIED. 2. A LAYER OF APPROVED TOPSOIL OF AT LEAST A 2-INCH DEPTH SHALL BE PLACED ON ALL DISTURBED AREAS 2:1 AND STEEPER PRIOR TO SEEDING, SODDING OR OTHER LANDSCAPING, UNLESS OTHERWISE SPECIFIED.
7.9	TURFGRASS SOD ESTABLISHMENT	TURFGRASS SOD ESTABLISHMENT SHALL BE PERFORMED IN ALL DISTURBED AREAS, OR WITHIN THE AREAS INDICATED IN THE PLANS, IN CONFORMANCE WITH SECTION 708 OF THE SHA STANDARD SPECIFICATIONS. THE REQUIRED APPLICATION RATE OF 20-16-12 FERTILIZER SHALL BE 200 LBS PER ACRE, AND NO FERTILIZER SHALL BE APPLIED FROM NOVEMBER 15 TO MARCH 1.
7.10	TURFGRASS ESTABLISHMENT	TURFGRASS ESTABLISHMENT SHALL BE PERFORMED IN ALL DISTURBED AREAS, OR WITHIN THE AREAS INDICATED IN THE PLANS, IN CONFORMANCE WITH SECTION 705 OF THE SHA STANDARD SPECIFICATIONS. THE REQUIRED APPLICATION RATE OF 20-16-12 FERTILIZER SHALL BE 200 LBS PER ACRE, AND NO FERTILIZER SHALL BE APPLIED FROM NOVEMBER 15 TO MARCH 1.
7.11	SOIL STABILIZATION MATTING	SOIL STABILIZATION MATTING SHALL BE INSTALLED IN CONFORMANCE WITH SECTION 709 OF THE SHA STANDARD SPECIFICATIONS, IN CONJUNCTION WITH TURFGRASS ESTABLISHMENT PER SECTION 705 OR MEADOW ESTABLISHMENT PER SECTION 707 AS FOLLOWS: 1. AREAS FLATTER THAN 6:1. TYPE A OR TYPE E MATTING MAY BE INSTALLED IN LIEU OF STRAW MULCH AND HYDROMULCH BINDER IN CONJUNCTION WITH TURFGRASS ESTABLISHMENT. 2. AREAS STEEPER THAN 6:1 AND FLATTER THAN 4:1. TYPE A OR TYPE E MATTING SHALL BE INSTALLED IN LIEU OF STRAW MULCH AND HYDROMULCH BINDER IN CONJUNCTION WITH TURFGRASS ESTABLISHMENT, UNLESS DELINEATED AND NOTED OTHERWISE. 3. CHANNELS, STORMWATER MANAGEMENT FACILITIES, AND SLOPES 4:1 AND STEEPER TYPE A SOIL STABILIZATION MATTING SHALL BE INSTALLED IN LIEU OF STRAW MULCH AND HYDROMULCH BINDER IN CONJUNCTION WITH TURFGRASS ESTABLISHMENT, UNLESS DELINEATED AND NOTED OTHERWISE.
7.13	TREE PRESERVATION AREAS	4. IN AREAS OF MEADOW ESTABLISHMENT WITH TYPE D SOIL STABILIZATION MATTING, THE MATTING SHALL BE INSTALLED IN LIEU OF STRAW MULCH AND HYDROMULCH BINDER WITHIN THE DELINEATED AREAS. 5. IN HIGH VELOCITY CHANNELS WITH TURFGRASS ESTABLISHMENT, TYPE B SOIL STABILIZATION MATTING SHALL BE INSTALLED IN LIEU OF STRAW MULCH AND HYDROMULCH BINDER WITHIN THE DELINEATED AREAS. TREE PRESERVATION AREAS. TEMPORARY ORANGE CONSTRUCTION FENCE (TOCF) SHALL BE INSTALLED IN LOCATIONS DELINEATED ON THE PLANS AS TREE PRESERVATION AREAS (TPA) IN CONFORMANCE WITH SECTION 120 OF THE SHA STANDARD SPECIFICATION TO PROTECT EXISTING TREES AND OTHER VEGETATION DURING CONSTRUCTION. AREAS WITHIN TOCF SHALL BE PROTECTED FROM ALL PROHIBITED AND RESTRICTED ACTIVITIES, PER SECTION 120.

7.14	ROADSIDE TREE PERMIT	ROADSIDE TREE PERMIT: TREE REMOVAL, TREE INSTALLATION, TREE ROOT AND BRANCH PRUNING, AND OTHER REGULATED IMPACTS TO TREES IN THE SHA RIGHT OF WAY SHALL CONFORM TO THE REQUIREMENTS OF THE ROADSIDE TREE PERMIT (RTP) ISSUED BY THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, OR THE APPROVED FOREST CONSERVATION PLAN (FCP) OF THE LOCAL AUTHORITY. 1. A COPY OF THE RTP OR FCP SHALL BE SUBMITTED TO THE SHA OFFICE OF ENVIRONMENTAL DESIGN BEFORE WORK IS PERFORMED, AND A COPY OF THE RTP OR FCP SHALL BE REPRODUCED IN THE PLANS OR BE IN POSSESSION OF THE APPLICANT AT THE PROJECT SITE WHEN THE PERMITTED WORK IS PERFORMED. 2. A MARYLAND LICENSED TREE EXPERT SHALL PERFORM THE SPECIFIED TREE OPERATIONS IN CONFORMANCE WITH THE SHA STANDARD SPECIFICATIONS AND ANSI A300 STANDARDS FOR TREE CARE OPERATIONS.
7.15	TREES, PLANT MATERIALS INSTALLATION	TREES AND OTHER PLANT MATERIAL INSTALLATION: TREES, SHRUBS, PERENNIALS, ANNUALS, BULBS, LANDSCAPE BEDS, BARK MULCH AND SIMILAR MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH SECTION 710 AND 711 OF THE SHA STANDARD SPECIFICATIONS. TREE AND SHRUBS SHALL BE PRUNED AT THE TIME OF INSTALLATION TO ENSURE SIDEWALK CLEARANCE FOR PEDESTRIANS IS MAINTAINED TO A HEIGHT OF 8 FEET. NO TREE OR SHRUB SHALL BE INSTALLED WITHIN 3 FEET OF CURBS, SIDEWALKS, OR PAVEMENT EDGES.
7.16	BRUSH REMOVAL	BRUSH REMOVAL SHALL BE PERFORMED IN CONFORMANCE WITH OPERATION 2 - BRUSH REMOVAL WITH STUMP TREATMENT OF SECTION 713. DEBRIS SHALL BE REMOVED, OR CHIPPED AND DISTRIBUTED ON SHA PROPERTY TO A MAXIMUM DEPTH OF 1 INCH WITHIN BRUSH REMOVAL AREAS, OR IN MEADOW OR FOREST AREAS.
7.20	STUMP REMOVAL	STUMP REMOVAL IN TURFGRASS OR MEADOW AREAS SHALL BE PERFORMED IN CONFORMANCE WITH OPERATION 5 - STUMP REMOVAL OF SECTION 714.
7.21	TREE BRANCH PRUNING	(MINOR BRANCHES) TREE BRANCH PRUNING SHALL BE PERFORMED OR DIRECTLY SUPERVISED BY A MARYLAND LICENSED TREE EXPERT IN CONFORMANCE WITH ANSI A300 STANDARDS PER SECTION 712 AS NECESSARY FOR ANY OF THE FOLLOWING: TO INSTALL TEMPORARY ORANGE CONSTRUCTION FENCE (TOCF) ALONG DELINEATIONS ON PLANS, TO PERFORM TREE ROOT PRUNING ALONG DELINEATIONS ON PLANS, TO PROVIDE 8-FOOT CLEARANCE ABOVE SIDEWALK PAVEMENTS AND 16-FOOT CLEARANCE ABOVE ROADWAY PAVEMENTS; TO REPAIR TREE WOUNDS; AND TO PERFORM OTHER RECOMMENDED CLEANING, THINNING, REDUCING, AND PRUNING NECESSARY TO ACCOMMODATE UTILITIES. ALL DEBRIS SHALL BE REMOVED FROM SHA PROPERTY. (MAJOR BRANCHES) TREE BRANCH PRUNING SHALL BE PERFORMED IN CONFORMANCE WITH SECTION 712 AS FOLLOWS: APPLICANT TO EXPLAIN GOALS AND LOCATIONS OF PRUNING. ALL DEBRIS SHALL BE REMOVED FROM SHA PROPERTY.
7.22	TREE ROOT PRUNING	TREE ROOT PRUNING SHALL BE PERFORMED ALONG THE LINE SHOWN ON THE PLANS IN CONFORMANCE WITH SECTION 715. TREE ROOT PRUNING SHALL BE COMPLETED BEFORE BEGINNING EXCAVATION OR CONSTRUCTION ADJACENT TO TREES TO BE PRESERVED.
7.23	TREE FERTILIZING	TREE FERTILIZING SHALL BE PERFORMED IN CONFORMANCE WITH OPERATION 3 - BROADCAST FERTILIZING PER SECTION 716. 20-16-12 FERTILIZER SHALL BE APPLIED TO THE SOIL SURFACE UNDER THE DRIPLINE OF TREES AT THE RATE OF 200 LBS. PER ACRE.
7.25	FUTURE MAINTENANCE	FUTURE MAINTENANCE. ADDITIONAL MAINTENANCE THAT MAY BE REQUIRED AFTER HARDSCAPE, STREET FURNITURE OR PLANT MATERIALS ARE INSTALLED AND ACCEPTED BY SHA SUCH AS REPLACEMENT, WATERING, WEEDING, MULCHING OR PEST CONTROL, MAY BE PROVIDED BY THE APPLICANT WHEN A PERMIT FOR THE PROPOSED WORK IS ISSUED BY THE SHA DISTRICT OFFICE.

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-21-22

LIMIT OF DISTURBANCE: 2.68 AC. OR 116,741 S.F.*
LIMIT OF WORK: 0.85 AC. OR 34,026 S.F.
*LIMIT OF DISTURBANCE INCLUDES ALL WORK WITH SOIL DISTURBANCE
 **LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE

PREVIOUS FILE NO.: ECP-17-023
 SDP-18-044
 WP-18-095

PROFESSIONAL CERTIFICATION
 I, ERIC R. MOWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 3887 EXPIRATION DATE: 9/20/20

AS-BUILT

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

REVISIONS			
REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW
 ALWAYS CALL 811
 BEFORE YOU DIG
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD182002
DRAWN BY:	CJB
CHECKED BY:	BRB
DATE:	12/18/18
SCALE:	1" = 30'
CAD ID:	LP2

FINAL ROAD CONSTRUCTION PLANS
 FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
 LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21209
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 HOWARD COUNTY

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

E.R. MOWILLIAMS
 REGISTERED PROFESSIONAL ARCHITECT
 STATE OF MARYLAND

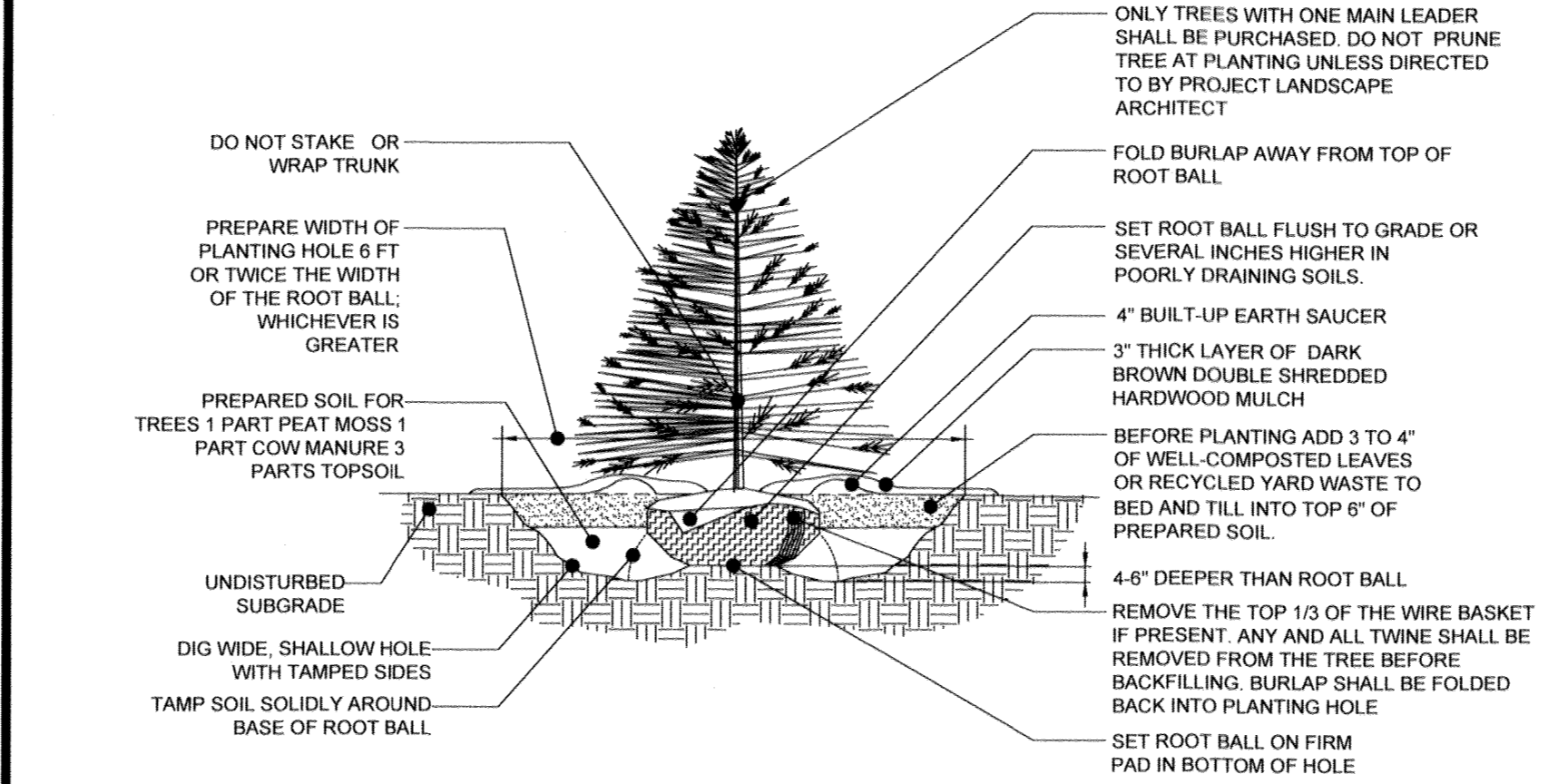
SHEET TITLE:	SHEPPARD LANE STREETScape PLAN
SHEET NUMBER:	16
F-18-099	

LANDSCAPE SPECIFICATIONS

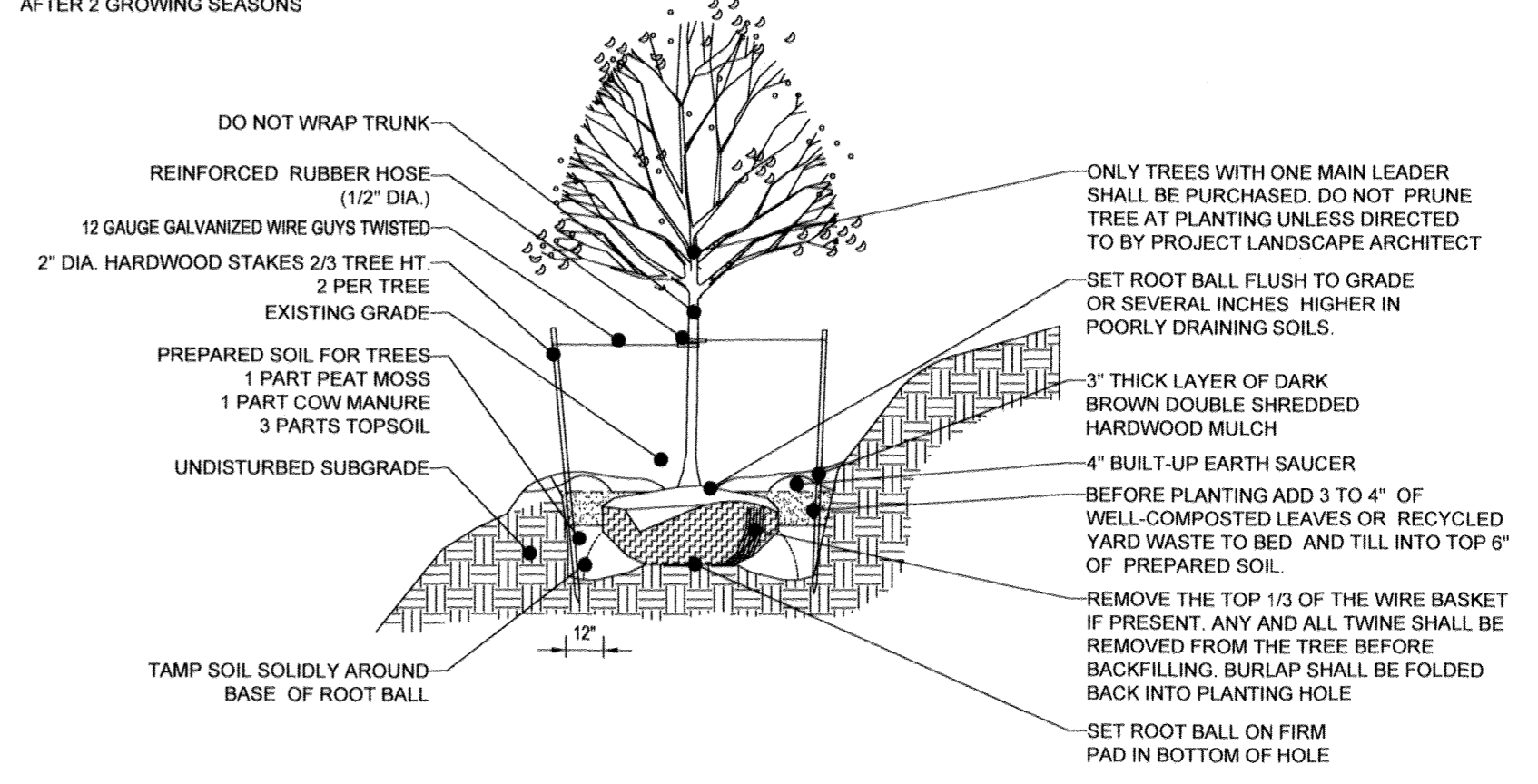
- SCOPE OF WORK:** THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.
- MATERIALS**
 - GENERAL** - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.
 - TOPSOIL** - NATURAL, FRABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLOS.
 - LAWN** - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
 - LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
 - SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/FEST FREE WITH A UNIFORM THICKNESS.
 - SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PREPARED TO HOLD SOD IN PLACE.
 - MULCH** - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.
 - FERTILIZER**
 - FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
 - FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.
 - PLANT MATERIAL**
 - ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
 - IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
 - PLANTS SHALL BE LOGICALLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
 - TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1/2" WHICH HAVE NOT BEEN COMPLETELY CALLED, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
 - ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
 - CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
 - SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
 - TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.
- GENERAL WORK PROCEDURES**
 - CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.
 - WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.
- SITE PREPARATIONS**
 - BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.
 - ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.
 - CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.
- TREE PROTECTION**
 - CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.
 - A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY VISI-FENCE, OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.
 - WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.
 - AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.
- SOIL MODIFICATIONS**
 - CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.
 - LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.
 - THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISITING DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
 - TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
 - TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (WITH MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
 - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
- FINISHED GRADING**
 - UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.
 - LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1").
 - ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.
 - ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.
- TOPSOILING**
 - CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.
 - ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.
 - CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.
 - ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA):
 - 20 POUNDS "GROW POWER" OR APPROVED EQUAL.
 - 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP.
 - THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

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

ACER RUBRUM	PLATANUS X ACERIFOLIA
BETULA VARIETIES	POPULUS VARIETIES
CARPINUS VARIETIES	PRUNUS VARIETIES
CRATAEGUS VARIETIES	PYRUS VARIETIES
KOELERUTERA	QUERCUS VARIETIES
LIQUIDAMBER STYRACIFLUA	TILIA TOMENTOSA
LIRIODENDRON TULIPIFERA	ZELKOVA VARIETIES

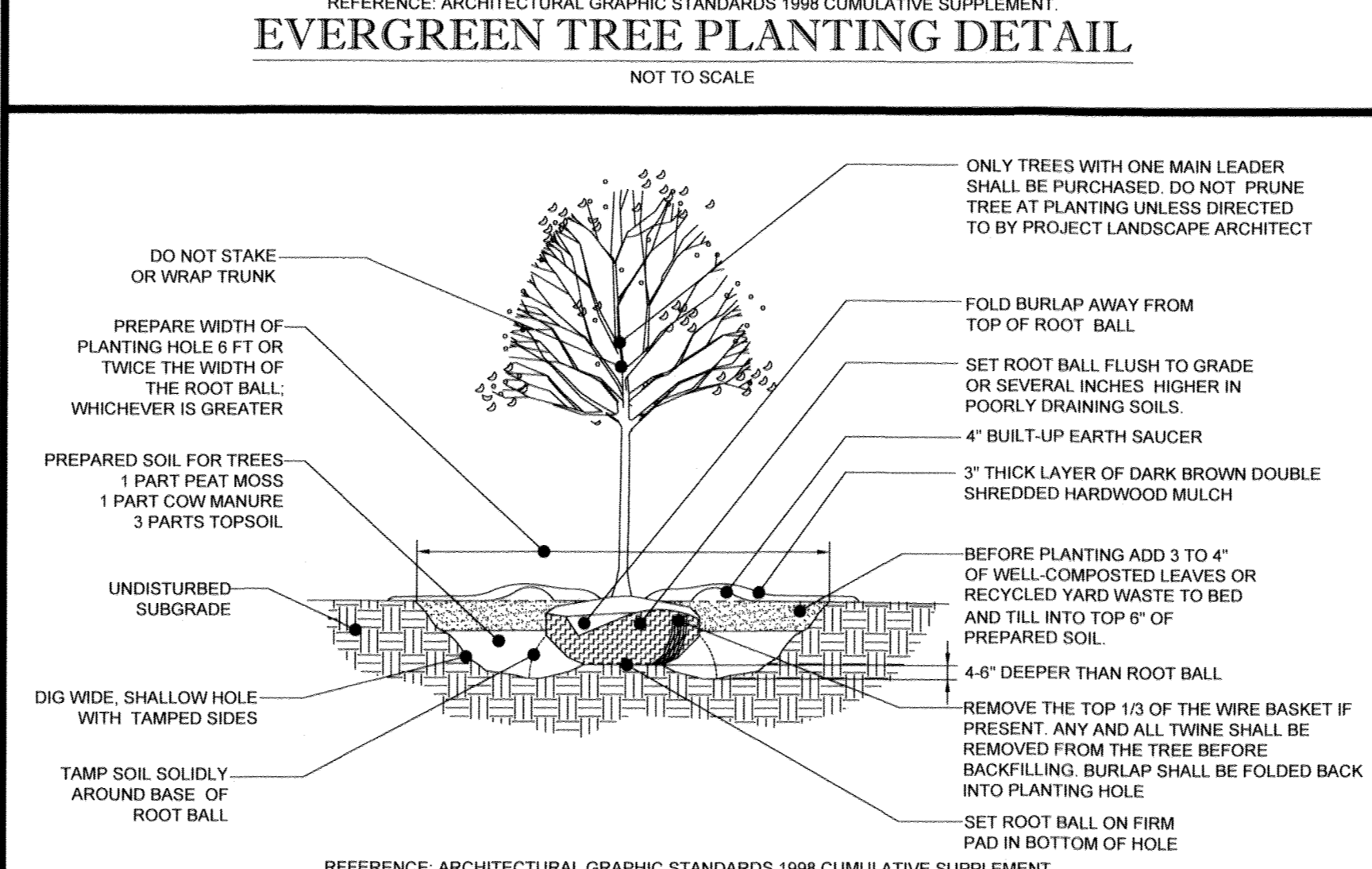


REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.
EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



NOTE: TREE STAKING TO BE REMOVED AFTER 2 GROWING SEASONS
TREE PLANTING ON SLOPE DETAIL
NOT TO SCALE

- PLANTING**
 - PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
 - 1 PART PEAT MOSS
 - 1 PART COMPOSTED COW MANURE BY VOLUME
 - 3 PARTS TOPSOIL BY VOLUME
 - 21 GRAMS "AGRIFORM" PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
 - 2 TABLETS PER 1 GALLON PLANT
 - 3 TABLETS PER 5 GALLON PLANT
 - 4 TABLETS PER 15 GALLON PLANT
 - LARGER PLANTS: 2 TABLETS PER 1/2" CALIPER OF TRUNK
 - FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.
 - ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.
 - ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7 FROM GRADE.
 - GROUND COVER AREAS SHALL RECEIVE A 1/2" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.
 - NO PLANT, EXCEPT GROUNDS COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.
 - ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.
 - ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.
- TRANSPLANTING (WHEN REQUIRED)**
 - ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.
 - IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL. ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.
 - PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.
 - UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.
 - TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.
 - IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.
- WATERING**
 - NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.
 - SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.
 - IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.
- GUARANTEE**
 - THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.
 - ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.
 - TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.
 - LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOVING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.
- CLEANUP**
 - UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.
 - THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.
DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

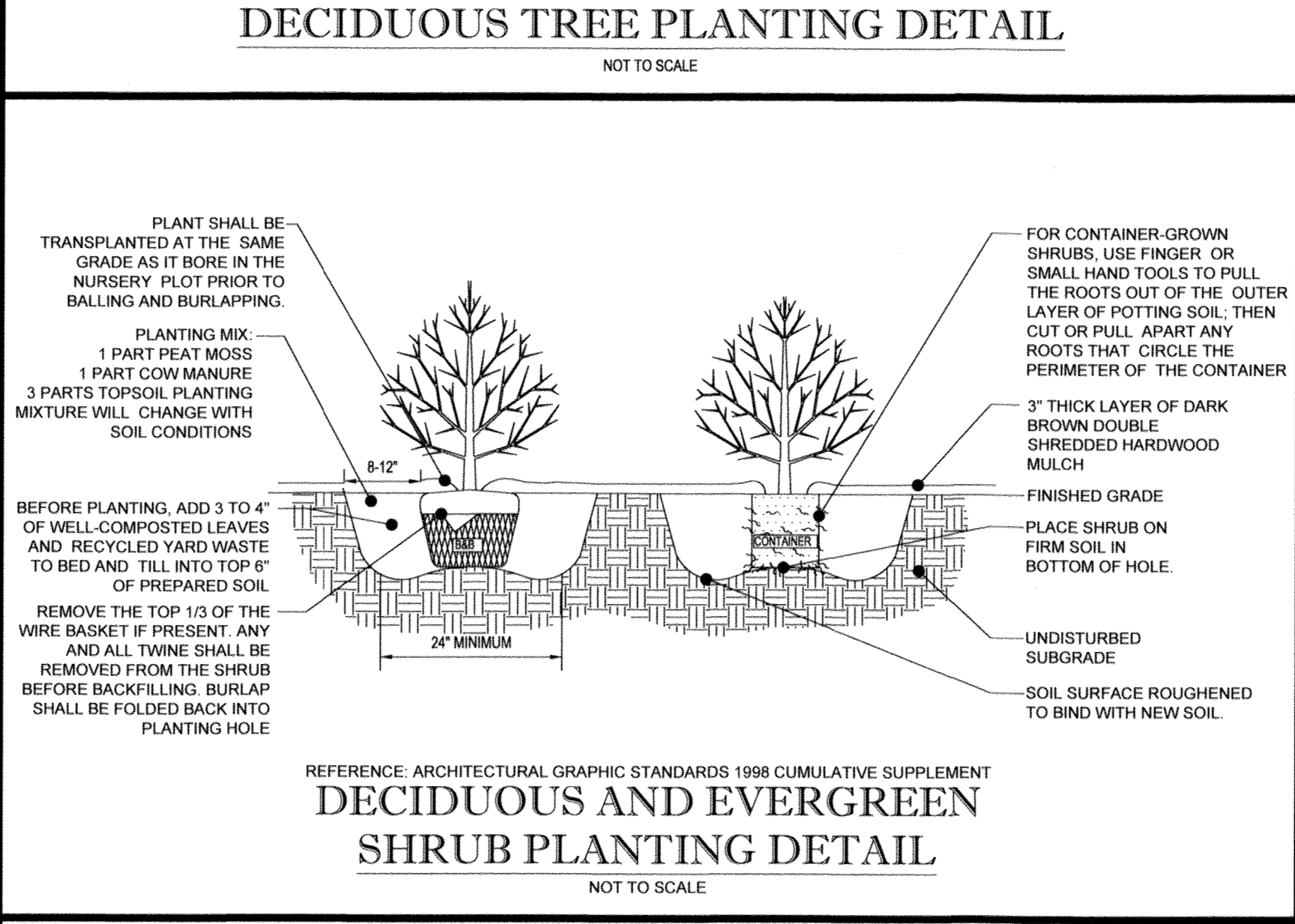
OWNER MAINTENANCE RESPONSIBILITIES

UPON OWNER'S (OR OWNER CONTRACTOR'S) COMPLETION OF LANDSCAPING WORK, THE OWNER IS FULLY RESPONSIBLE FOR ALL FUTURE MAINTENANCE, CARE, UPKEEP, WATERING, AND TRIMMING OF ALL INSTALLED VEGETATION, PLANTS, TREE, BUSHES, SHRUBS, GRASSES, GRASS, ORNAMENTAL PLANTS AND FLOWERS, FLOWERS, GROUND COVER, AND LANDSCAPING, INCLUDING ALL LANDSCAPE ISLANDS AND AREAS ADJACENT OR PART OF THE LANDSCAPED AREAS. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

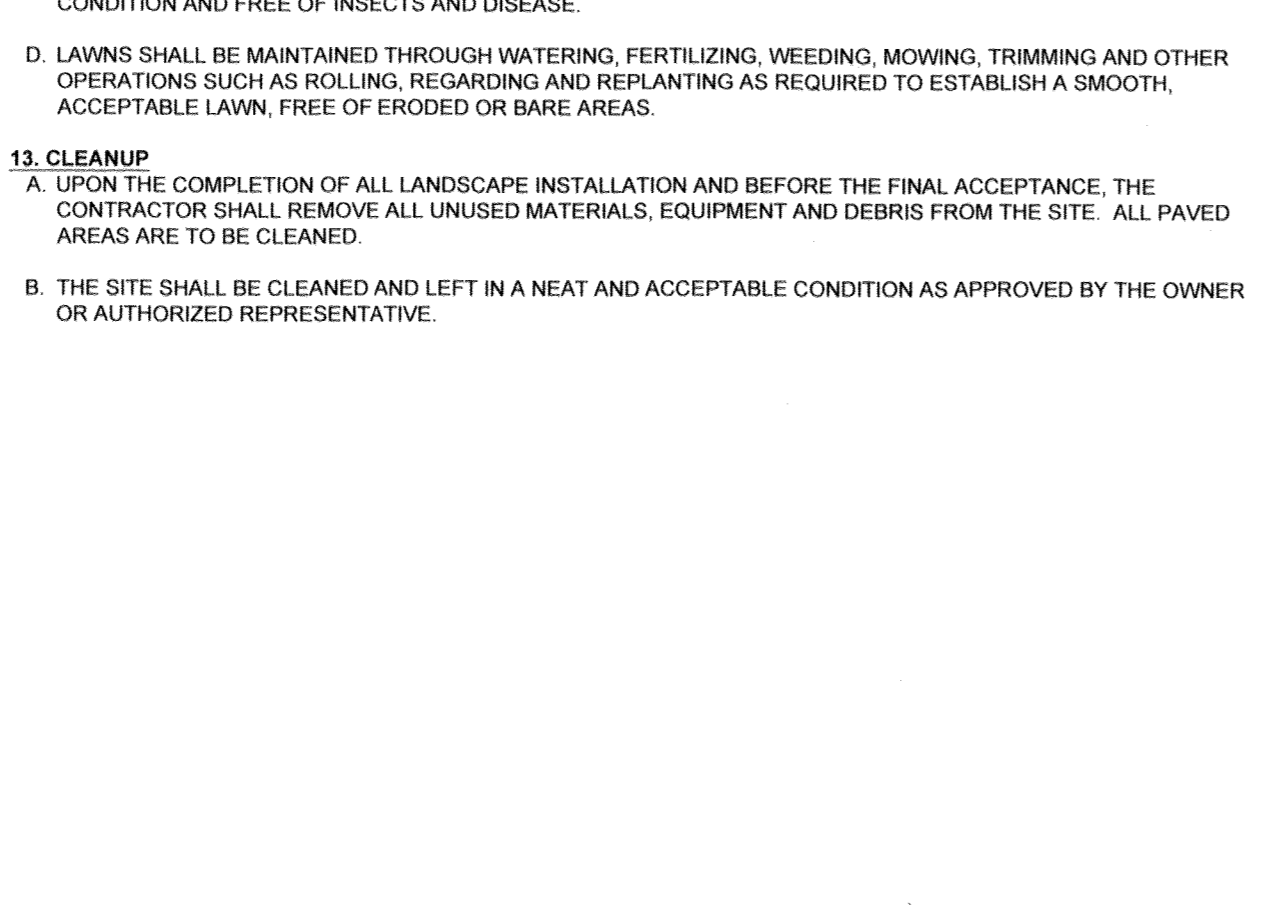
- TREES ADJACENT TO WALKWAYS AND AREAS OF PEDESTRIAN TRAFFIC MUST BE MAINTAINED TO ASSURE THAT ANY BRANCHES MUST BE LIMBED UP TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PEDESTRIAN SURFACES) OR PRUNED BACK TO AVOID ANY INTERFERENCE WITH THE TYPICAL PATH OF TRAVEL.
- TREES WITHIN VEHICULAR SIGHT LINES, AS ILLUSTRATED ON THE LANDSCAPE PLAN, ARE TO BE TRIMMED TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PAVED, TRAVELED SURFACES), OR AS OTHERWISE INDICATED ON THE PLANS.
- VEGETATIVE GROUND COVER, SHRUBS AND ORNAMENTAL PLANTS AND GRASSES MUST BE TRIMMED SO THAT NO PORTION OF THE PLANT EXCEEDS 30 INCHES ABOVE GRADE (OF ALL PAVED, TRAVELED SURFACES) ALONG AND WITHIN THE SIGHT LINES OF PARKING LOTS AND INGRESS-EGRESS WAYS.
- FALLEN PLANT FLOWERS, FRUIT, SEEDS AND DEBRIS DROPPINGS ARE TO BE REMOVED IMMEDIATELY FROM VEHICULAR AND PEDESTRIAN TRAFFIC AREAS TO PREVENT TRIPPING, SLIPPING OR ANY OTHER HAZARDS.

THESE REQUIREMENTS DO NOT AFFECT THE PLANT LIFE GUARANTEES THE LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE.

- TRANSPLANTING (WHEN REQUIRED)**
 - ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.
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 - SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.
 - IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.
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 - TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.
 - LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOVING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.
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 - UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.
 - THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL
NOT TO SCALE



PERENNIAL/GROUND COVER PLANTING DETAIL
NOT TO SCALE

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 18.124 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.

DEVELOPER'S/OWNER'S NAME: *Reverend Housewife Inc* DATE: *11/11/19*
James R. McPherson, Jr. Esq.
James R. McPherson, Jr.
James R. McPherson, Jr.

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. *21243* Expiration Date: *12/21/22*

APPROVED, DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: *2/6/2019*

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: *3-6-19*

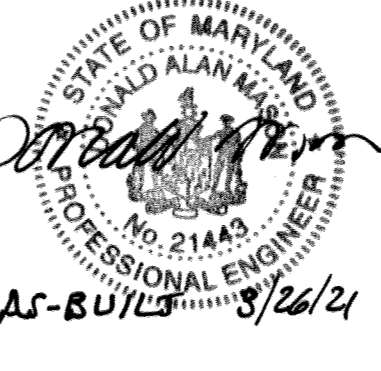
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: *3.20.19*

OWNER: STEPHEN A. KLEIN & ASSOCIATES
 C/O STEPHEN A. KLEIN, INC.
 12105 CLARKSVILLE PIKE
 CLARKSVILLE, MD 21029
 (410) 465-4244

DEVELOPER: RIVER HILL SQUARE, LLC.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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



PREVIOUS FILE No.: ECP - 17 - 023
 SDP - 18 - 044
 WP - 18 - 095

BOHLER ENGINEERING

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

1000 W. BELT ROAD, SUITE 100, CLARKSVILLE, MD 21029
 (410) 465-4244

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG

It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRR
 DATE: 12/18/18
 SCALE: AS SHOWN
 CAD I.D.: LP2

FINAL ROAD CONSTRUCTION PLANS

FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT

LOCATION OF SITE: INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21209
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 HOWARD COUNTY

BOHLER ENGINEERING

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

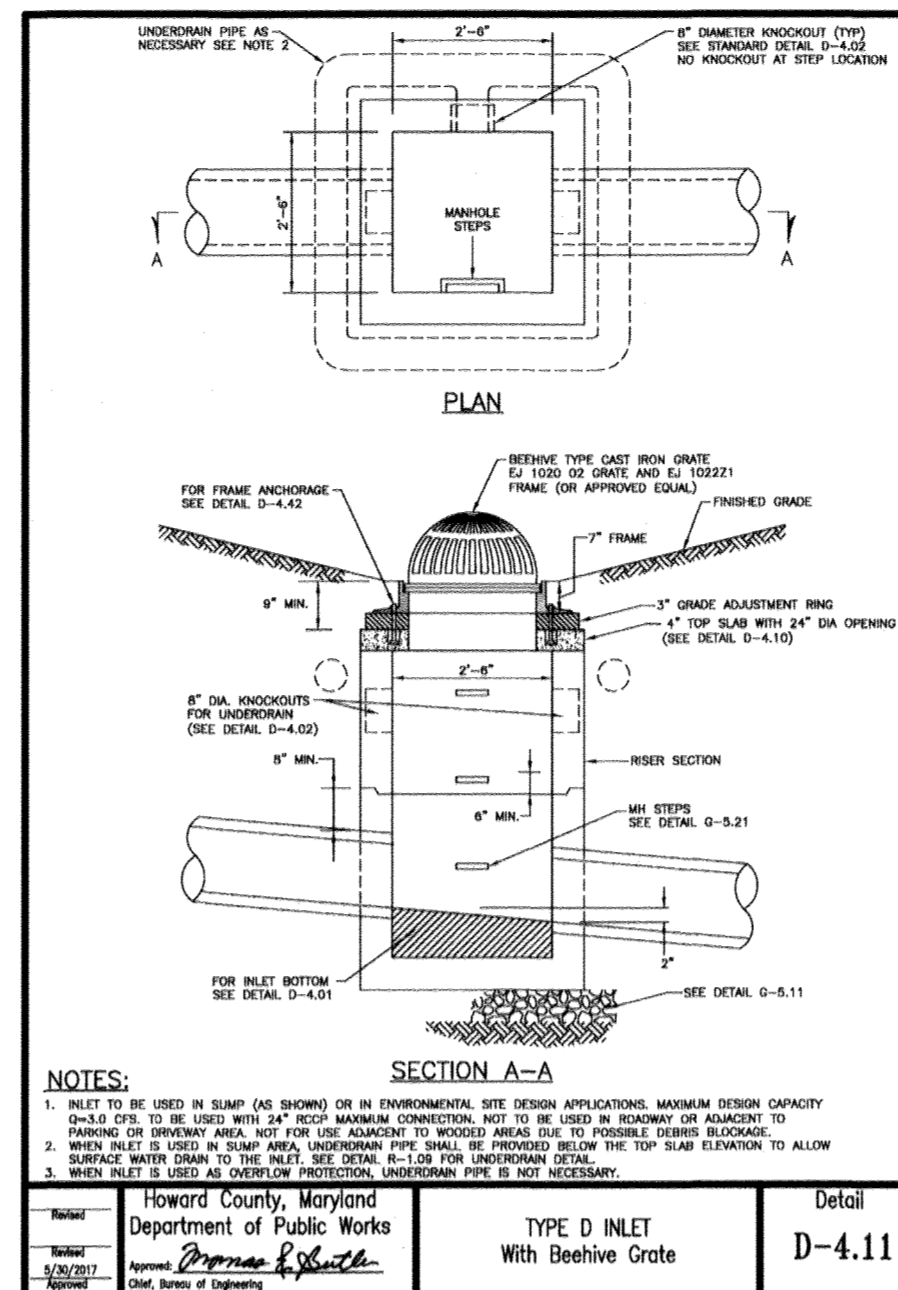
E.R. McWILLIAMS

REGISTERED PROFESSIONAL ENGINEER
 LICENSE NO. 21243
 EXPIRES 12/21/22

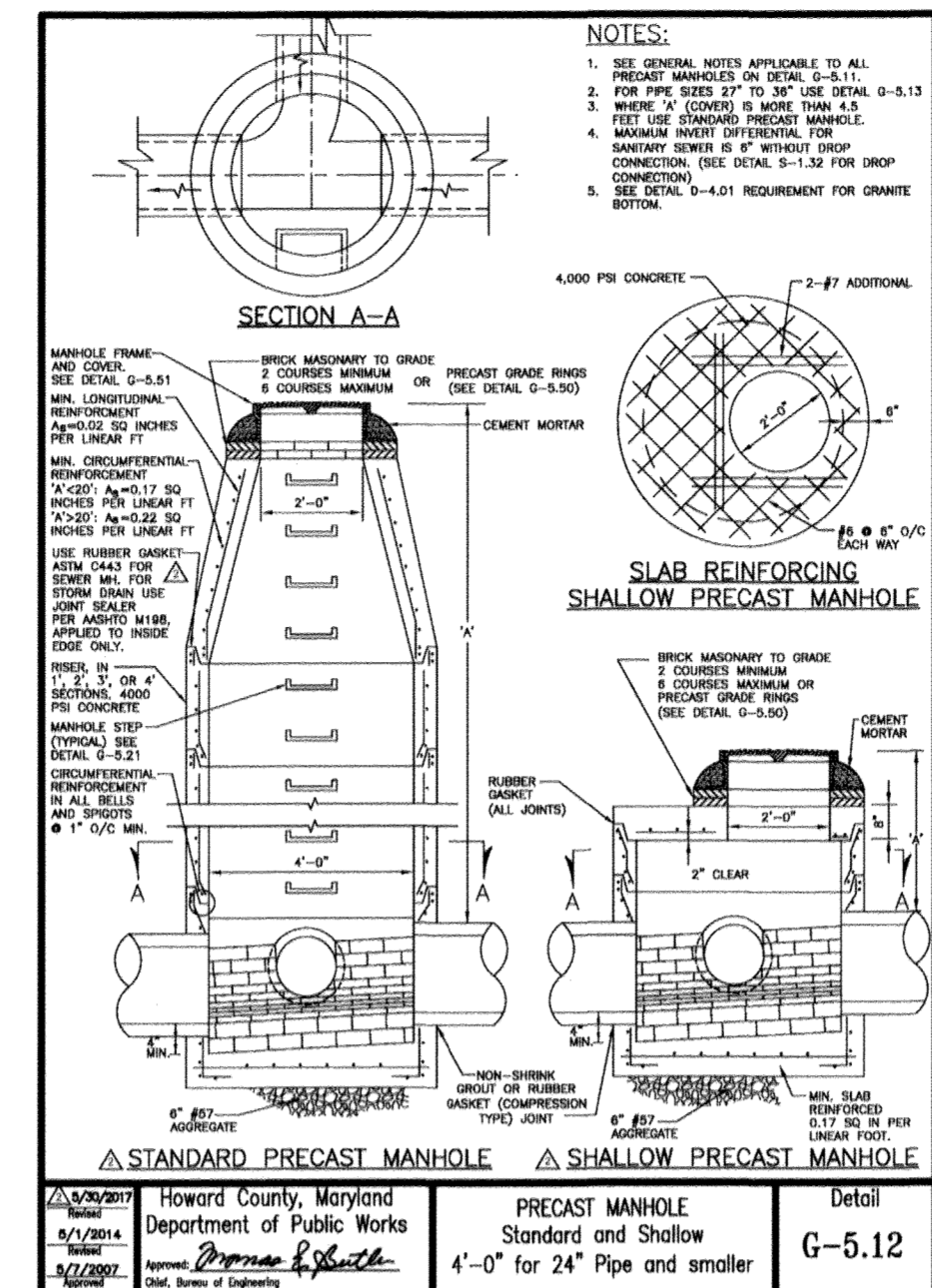
STREETSCAPE NOTES AND DETAILS

SHEET TITLE:
17
 SHEET NUMBER:
17
 F-18-099

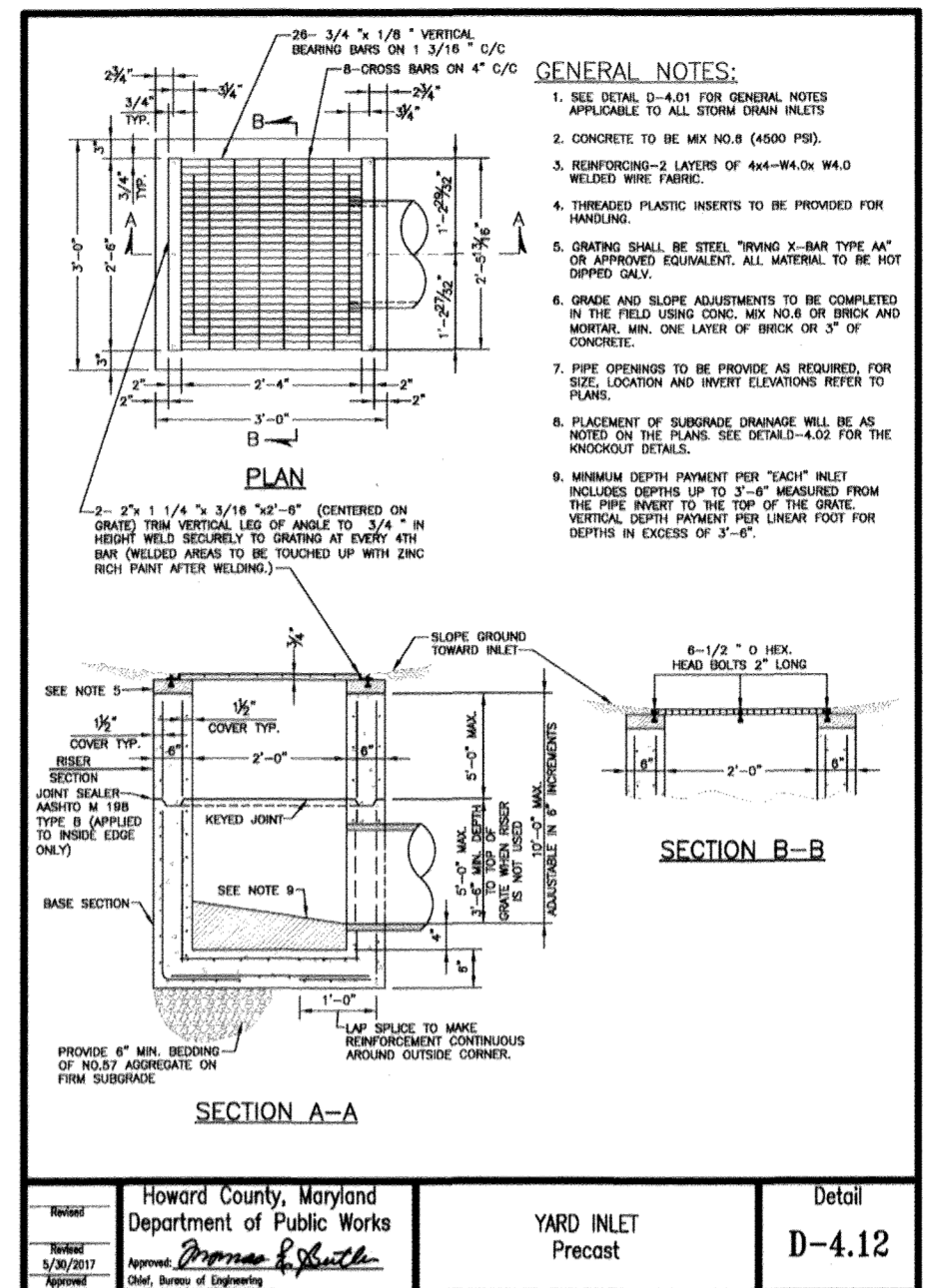
AS-BUILT



Howard County, Maryland
 Department of Public Works
 TYPE D INLET
 With Beehive Grate
 Detail
 D-4.11



Howard County, Maryland
 Department of Public Works
 PRECAST MANHOLE
 Standard and Shallow
 4'-0" for 24" Pipe and smaller
 Detail
 G-5.12



Howard County, Maryland
 Department of Public Works
 YARD INLET
 Precast
 Detail
 D-4.12

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW
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 BEFORE YOU DIG
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NOT APPROVED FOR CONSTRUCTION

PROJECT NO.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRR
 DATE: 12/18/18
 SCALE: NTS
 CAD I.D.: SD2

FINAL ROAD CONSTRUCTION PLANS
 FOR
 MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
 LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE CLARKSVILLE, MD 21209
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT HOWARD COUNTY

BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE B01
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 8088
 11/1/19

SHEET TITLE:
CONSTRUCTION DETAILS
 SHEET NUMBER:
18
 F-18-099

NOTES:
 1. CONTRACTOR SHALL PROVIDE 3'-0" LEVEL AROUND PIPE SPANNING SYSTEM MANHOLES.
 2. FINISHED GRADE SHALL BE 1'-0" ABOVE TOP OF BOTTOM SLAB REINFORCEMENT.
 3. FINISHED GRADE SHALL BE 1'-0" ABOVE TOP OF BOTTOM SLAB REINFORCEMENT.
 4. FINISHED GRADE SHALL BE 1'-0" ABOVE TOP OF BOTTOM SLAB REINFORCEMENT.

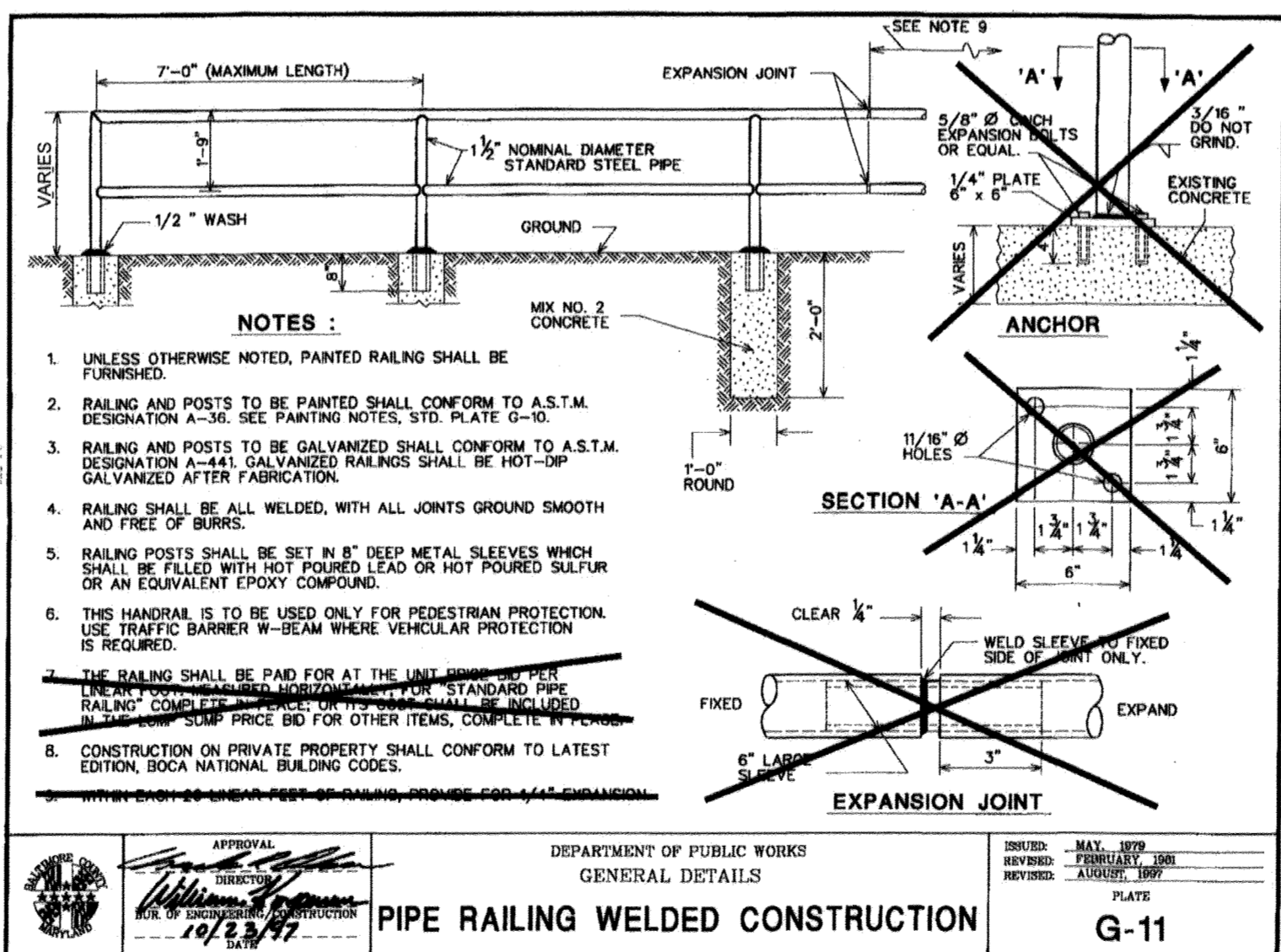
PIPE SIZE (IN)	PIPE LENGTH (FT)	PIPE WEIGHT (LBS)	PIPE VOLUME (CU YD)	PIPE SURFACE AREA (SQ YD)	PIPE SURFACE AREA (SQ YD)	PIPE SURFACE AREA (SQ YD)	PIPE SURFACE AREA (SQ YD)	PIPE SURFACE AREA (SQ YD)	PIPE SURFACE AREA (SQ YD)
12"	2'-0"	1.50	0.00	1.50	1.50	1.50	1.50	1.50	1.50
12"	3'-0"	2.25	0.00	2.25	2.25	2.25	2.25	2.25	2.25
12"	4'-0"	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00
12"	5'-0"	3.75	0.00	3.75	3.75	3.75	3.75	3.75	3.75
12"	6'-0"	4.50	0.00	4.50	4.50	4.50	4.50	4.50	4.50
12"	7'-0"	5.25	0.00	5.25	5.25	5.25	5.25	5.25	5.25
12"	8'-0"	6.00	0.00	6.00	6.00	6.00	6.00	6.00	6.00
12"	9'-0"	6.75	0.00	6.75	6.75	6.75	6.75	6.75	6.75
12"	10'-0"	7.50	0.00	7.50	7.50	7.50	7.50	7.50	7.50
12"	11'-0"	8.25	0.00	8.25	8.25	8.25	8.25	8.25	8.25
12"	12'-0"	9.00	0.00	9.00	9.00	9.00	9.00	9.00	9.00
12"	13'-0"	9.75	0.00	9.75	9.75	9.75	9.75	9.75	9.75
12"	14'-0"	10.50	0.00	10.50	10.50	10.50	10.50	10.50	10.50
12"	15'-0"	11.25	0.00	11.25	11.25	11.25	11.25	11.25	11.25
12"	16'-0"	12.00	0.00	12.00	12.00	12.00	12.00	12.00	12.00
12"	17'-0"	12.75	0.00	12.75	12.75	12.75	12.75	12.75	12.75
12"	18'-0"	13.50	0.00	13.50	13.50	13.50	13.50	13.50	13.50
12"	19'-0"	14.25	0.00	14.25	14.25	14.25	14.25	14.25	14.25
12"	20'-0"	15.00	0.00	15.00	15.00	15.00	15.00	15.00	15.00
12"	21'-0"	15.75	0.00	15.75	15.75	15.75	15.75	15.75	15.75
12"	22'-0"	16.50	0.00	16.50	16.50	16.50	16.50	16.50	16.50
12"	23'-0"	17.25	0.00	17.25	17.25	17.25	17.25	17.25	17.25
12"	24'-0"	18.00	0.00	18.00	18.00	18.00	18.00	18.00	18.00
12"	25'-0"	18.75	0.00	18.75	18.75	18.75	18.75	18.75	18.75
12"	26'-0"	19.50	0.00	19.50	19.50	19.50	19.50	19.50	19.50
12"	27'-0"	20.25	0.00	20.25	20.25	20.25	20.25	20.25	20.25
12"	28'-0"	21.00	0.00	21.00	21.00	21.00	21.00	21.00	21.00
12"	29'-0"	21.75	0.00	21.75	21.75	21.75	21.75	21.75	21.75
12"	30'-0"	22.50	0.00	22.50	22.50	22.50	22.50	22.50	22.50
12"	31'-0"	23.25	0.00	23.25	23.25	23.25	23.25	23.25	23.25
12"	32'-0"	24.00	0.00	24.00	24.00	24.00	24.00	24.00	24.00
12"	33'-0"	24.75	0.00	24.75	24.75	24.75	24.75	24.75	24.75
12"	34'-0"	25.50	0.00	25.50	25.50	25.50	25.50	25.50	25.50
12"	35'-0"	26.25	0.00	26.25	26.25	26.25	26.25	26.25	26.25
12"	36'-0"	27.00	0.00	27.00	27.00	27.00	27.00	27.00	27.00
12"	37'-0"	27.75	0.00	27.75	27.75	27.75	27.75	27.75	27.75
12"	38'-0"	28.50	0.00	28.50	28.50	28.50	28.50	28.50	28.50
12"	39'-0"	29.25	0.00	29.25	29.25	29.25	29.25	29.25	29.25
12"	40'-0"	30.00	0.00	30.00	30.00	30.00	30.00	30.00	30.00
12"	41'-0"	30.75	0.00	30.75	30.75	30.75	30.75	30.75	30.75
12"	42'-0"	31.50	0.00	31.50	31.50	31.50	31.50	31.50	31.50
12"	43'-0"	32.25	0.00	32.25	32.25	32.25	32.25	32.25	32.25
12"	44'-0"	33.00	0.00	33.00	33.00	33.00	33.00	33.00	33.00
12"	45'-0"	33.75	0.00	33.75	33.75	33.75	33.75	33.75	33.75
12"	46'-0"	34.50	0.00	34.50	34.50	34.50	34.50	34.50	34.50
12"	47'-0"	35.25	0.00	35.25	35.25	35.25	35.25	35.25	35.25
12"	48'-0"	36.00	0.00	36.00	36.00	36.00	36.00	36.00	36.00
12"	49'-0"	36.75	0.00	36.75	36.75	36.75	36.75	36.75	36.75
12"	50'-0"	37.50	0.00	37.50	37.50	37.50	37.50	37.50	37.50
12"	51'-0"	38.25	0.00	38.25	38.25	38.25	38.25	38.25	38.25
12"	52'-0"	39.00	0.00	39.00	39.00	39.00	39.00	39.00	39.00
12"	53'-0"	39.75	0.00	39.75	39.75	39.75	39.75	39.75	39.75
12"	54'-0"	40.50	0.00	40.50	40.50	40.50	40.50	40.50	40.50
12"	55'-0"	41.25	0.00	41.25	41.25	41.25	41.25	41.25	41.25
12"	56'-0"	42.00	0.00	42.00	42.00	42.00	42.00	42.00	42.00
12"	57'-0"	42.75	0.00	42.75	42.75	42.75	42.75	42.75	42.75
12"	58'-0"	43.50	0.00	43.50	43.50	43.50	43.50	43.50	43.50
12"	59'-0"	44.25	0.00	44.25	44.25	44.25	44.25	44.25	44.25
12"	60'-0"	45.00	0.00	45.00	45.00	45.00	45.00	45.00	45.00
12"	61'-0"	45.75	0.00	45.75	45.75	45.75	45.75	45.75	45.75
12"	62'-0"	46.50	0.00	46.50	46.50	46.50	46.50	46.50	46.50
12"	63'-0"	47.25	0.00	47.25	47.25	47.25	47.25	47.25	47.25
12"	64'-0"	48.00	0.00	48.00	48.00	48.00	48.00	48.00	48.00
12"	65'-0"	48.75	0.00	48.75	48.75	48.75	48.75	48.75	48.75
12"	66'-0"	49.50	0.00	49.50	49.50	49.50	49.50	49.50	49.50
12"	67'-0"	50.25	0.00	50.25	50.25	50.25	50.25	50.25	50.25
12"	68'-0"	51.00	0.00	51.00	51.00	51.00	51.00	51.00	51.00
12"	69'-0"	51.75	0.00	51.75	51.75	51.75	51.75	51.75	51.75
12"	70'-0"	52.50	0.00	52.50	52.50	52.50	52.50	52.50	52.50
12"	71'-0"	53.25	0.00	53.25	53.25	53.25	53.25	53.25	53.25
12"	72'-0"	54.00	0.00	54.00	54.00	54.00	54.00	54.00	54.00

Howard County, Maryland
 Department of Public Works
 TYPE 'A' Headwall
 Circular Pipe
 Detail
 D-5.11

NOTES:
 1. RIGHT SIDEWAYS ARE DEFINED AS THOSE WITH ONE (1) WHEEL OR MORE INCLUDING JAWBREAKER TRACKS.
 2. SUPERPAVE ASPHALT MIX LAYERS SHALL BE PLACED IN APPROXIMATE COMPACTED LIFT THICKNESS: 3.0 IN MAX. BASE COURSE TO 1.5" MAX. 1.5 IN SURFACE (1.5" MAX. TO 1.5" MAX) AND 1.5 IN SURFACE (1.5" MAX. TO 1.5" MAX).
 3. ALL SUPERPAVE LAYERS SHALL BE PLACED IN APPROXIMATE COMPACTED LIFT THICKNESS: 3.0 IN MAX. BASE COURSE TO 1.5" MAX. 1.5 IN SURFACE (1.5" MAX. TO 1.5" MAX) AND 1.5 IN SURFACE (1.5" MAX. TO 1.5" MAX).
 4. UNDESIGNED SURFACE COURSE LAYERS SHALL BE PLACED IN APPROXIMATE COMPACTED LIFT THICKNESS: 3.0 IN MAX. BASE COURSE TO 1.5" MAX. 1.5 IN SURFACE (1.5" MAX. TO 1.5" MAX) AND 1.5 IN SURFACE (1.5" MAX. TO 1.5" MAX).
 5. IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL INDUSTRIAL ENTRANCE AREAS WITHIN THE COUNTY RIGHT-OF-WAY, CONTRACTORS SHALL PLACE THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL INDUSTRIAL ENTRANCE AREAS WITHIN THE COUNTY RIGHT-OF-WAY.
 6. THE CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS AND APPROVALS FROM THE APPLICABLE AGENCIES.
 7. THE CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS AND APPROVALS FROM THE APPLICABLE AGENCIES.
 8. THE CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS AND APPROVALS FROM THE APPLICABLE AGENCIES.

SECTION	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	1 TO 1	1 TO 1 1/2	2 TO 1	3 TO 1	4 TO 1	5 TO 1	6 TO 1	7 TO 1
P-1	PARKING DRIVE, RESIDENTIAL AND NON-RESIDENTIAL, SUPERPAVE ASPHALT MIX WITH NO MORE THAN 4" HEAVY TRUCKS PER DAY	SUPERPAVE ASPHALT MIX SURFACE 9.5 MM PG 64-228, LEVEL 1 (3.0%)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-2	PARKING DRIVE ALLEYS, RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY	SUPERPAVE ASPHALT MIX SURFACE 9.5 MM PG 64-228, LEVEL 1 (3.0%)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-3	LOCAL ROAD, COLLECTOR, ACCESS STREET	SUPERPAVE ASPHALT MIX SURFACE 9.5 MM PG 64-228, LEVEL 1 (3.0%)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-4	MAJOR COLLECTOR, SUPERPAVE ASPHALT MIX SURFACE 9.5 MM PG 64-228, LEVEL 1 (3.0%)	SUPERPAVE ASPHALT MIX SURFACE 9.5 MM PG 64-228, LEVEL 1 (3.0%)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

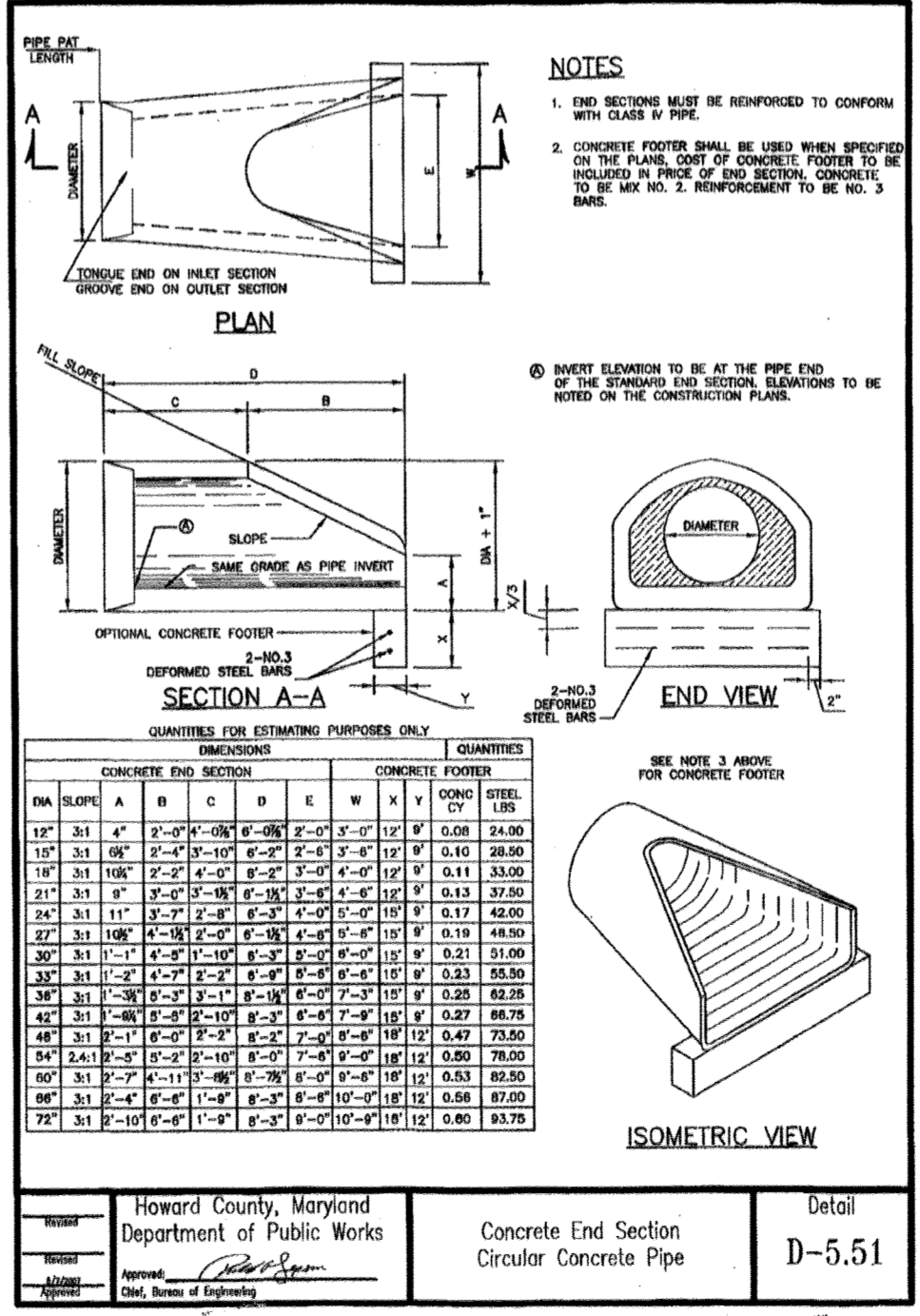
Howard County, Maryland
 Department of Public Works
 PAWING SECTIONS
 P-1 to P-4
 Detail
 R-2.01



DEPARTMENT OF PUBLIC WORKS
 GENERAL DETAILS
 PIPE RAILING WELDED CONSTRUCTION
 G-11

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21663, Expiration Date: 12-21-22



Howard County, Maryland
 Department of Public Works
 Concrete End Section
 Circular Concrete Pipe
 Detail
 D-5.51

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF BUREAU OF HIGHWAYS: [Signature] DATE: 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 3-6-19
 CHIEF DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 2-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES
 C/O STEPHEN A. KLEIN, INC.
 12165 CLARKSVILLE PIKE
 CLARKSVILLE, MD 21209
 (410) 465-4244

DEVELOPER: RIVER HILL SQUARE, LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: [Number]
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION: I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINE

STORMWATER MANAGEMENT AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE STORMWATER MANAGEMENT FACILITIES SHOWN ON THE PLANS AND INDIVIDUALLY IDENTIFIED BELOW HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS INCLUDING UNDER THE STATE HIGHWAY ADMINISTRATION PLAN REVIEW DIVISION APPROVAL NUMBER _____ EXCEPT AS NOTED IN GREEN ON THE AS-BUILT DRAWINGS FURTHERMORE, THE GREEN NOTED EXCEPTIONS DO NOT ADVERSELY AFFECT THE DESIGN AND/OR THE INTENDED PERFORMANCE OF THE FACILITY (FACILITIES).

NAME (PRINTED) _____ SIGNATURE _____

MARYLAND REGISTRATION NUMBER _____ DATE _____

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

"CERTIFY" MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED ON SUFFICIENT AND APPROPRIATE ON-SITE INSPECTIONS AND MATERIAL TESTS CONDUCTED DURING CONSTRUCTION.

NOTE: AS-BUILT CHECKLISTS CONTAINED IN THE CONTRACT DRAWINGS SHALL BE COMPLETED BY THE AS-BUILT INSPECTOR AND SUBMITTED TO THE SHA ALONG WITH THIS CERTIFICATION.

SPECIAL PROVINCE INSPECTOR CONTRACT NO. 01B_C000000017
FACILITY AS-BUILT CERTIFICATION

SECTION 317 - STORMWATER MANAGEMENT (SWM) FACILITY AS-BUILT CERTIFICATION

317A1 Construction Submit a certification package that verifies the stormwater management (SWM) facilities and practices are constructed as specified or as functionally equivalent to the design in the approved SWM Report, including the certification package as needed and approved.

317A1.1 SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(a) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(b) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(c) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(d) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(e) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(f) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(g) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(h) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(i) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(j) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(k) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(l) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(m) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(n) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(o) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(p) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(q) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(r) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(s) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(t) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(u) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(v) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(w) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(x) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(y) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

(z) SWM Facility As-Built Certification Package. The SWM Facility As-Built Certification Package shall include the following for each SWM facility as specified or as functionally equivalent to the design in the approved SWM Report:

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION FACILITIES

1. THE BIORETENTION FACILITY WILL BE OWNED BY THE MARYLAND STATE HIGHWAY ADMINISTRATION AND IT SHALL BE THE RESPONSIBILITY OF THE MARYLAND STATE HIGHWAY ADMINISTRATION TO PERIODICALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.
2. THE BIO-RETENTION FACILITIES SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.
3. WHEN SEDIMENT ACCUMULATION OF MORE THAN 1" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFLOW IS OBSERVED, THE FACILITIES SHALL BE CLEANED. THE MARYLAND STATE HIGHWAY ADMINISTRATION SHALL FOLLOW PROPER CLEANING PROCEDURES AND PROPERLY DISPOSE OF THE REMOVED MATERIAL AND LIQUID.
4. THE TOP FEW INCHES OF MEDIA SHOULD BE REMOVED AND REPLACED WHEN WATER PONES FOR MORE THAN 48 HOURS.
5. THE MULCH LAYER SHALL BE REPLACED ANNUALLY.
6. OCCASIONAL PRUNING AND REPLACEMENT OF DEAD VEGETATION IS NECESSARY. IF SPECIFIC PLANTS ARE NOT SURVIVING, MORE APPROPRIATE SPECIES SHOULD BE USED. WATERING MAY BE REQUIRED DURING PROLONGED DRY PERIODS.
7. THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST EVERY SIX MONTHS. IF OBSTRUCTIONS ARE FOUND, THE MARYLAND STATE HIGHWAY ADMINISTRATION SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.
8. STORM DRAINAGE SYSTEMS - THE STORMWATER MANAGEMENT FACILITIES INCLUDING THE INLETS AND STORMWATER PIPING ON THIS SITE SHALL BE MAINTAINED IN PROPER WORKING ORDER IN ACCORDANCE WITH THESE PLANS AND PER THE RECOMMENDATION OF THE STRUCTURE(S) MANUFACTURER(S). MAINTENANCE OF THESE STORMWATER MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE MARYLAND STATE HIGHWAY ADMINISTRATION UPON WHOSE PROPERTY THE FACILITIES ARE LOCATED.
9. ALL ON-SITE INLETS, MANHOLES, AND STORMWATER PIPING SHALL BE CLEARED OF DEBRIS EVERY THREE (3) MONTHS OR WHEN ACCUMULATION HINDERS OPERATION OF THE FACILITY.
10. ALL SEDIMENT/DEBRIS/OIL REMOVED FROM THE STORMWATER MANAGEMENT SYSTEM SHALL BE DISPOSED PER LOCAL, STATE, AND FEDERAL STANDARDS.
11. SHOULD ONSITE EROSION OCCUR FROM THE LANDSCAPED AREAS, SOURCE OF EROSION SHALL BE IMMEDIATELY STABILIZED AND THE INLETS, MANHOLES, AND STORMWATER PIPING SHALL BE CHECKED FOR SEDIMENT ACCUMULATION AND CLEARED IF ACCUMULATION OF SEDIMENT EXISTS.
12. INSPECTION REPORTS FOR THE BIO-RETENTION FACILITIES TO BE MAINTAINED BY THE MARYLAND STATE HIGHWAY ADMINISTRATION SHALL INCLUDE:
 - A. DATE OF INSPECTION
 - B. NAME OF INSPECTOR
 - C. AN ASSESSMENT OF THE QUALITY OF THE STORMWATER MANAGEMENT SYSTEM RELATED TO ESD TREATMENT PRACTICE EFFICIENCY AND THE CONTROL OF RUNOFF TO THE MAXIMUM EXTENT PRACTICABLE.
 - D. CONDITION OF VEGETATION AND FILTER MEDIA, INLET AND OUTLET CHANNELS OR STRUCTURES, UNDERGROUND DRAINAGE, SEDIMENT AND DEBRIS ACCUMULATION IN STORAGE AREA, ANY NONSTRUCTURAL PRACTICES TO THE EXTENT PRACTICABLE, AND ANY OTHER ITEM THAT COULD AFFECT THE PROPER FUNCTION OF THE STORMWATER MANAGEMENT SYSTEM.
 - E. DESCRIPTION OF NEEDED MAINTENANCE

13. UPON NOTIFYING HOWARD COUNTY OF INSPECTION RESULTS, THE MARYLAND STATE HIGHWAY ADMINISTRATION SHALL HAVE 30 DAYS TO CORRECT THE DEFICIENCIES DISCOVERED. HOWARD COUNTY DPW SHALL CONDUCT A SUBSEQUENT INSPECTION TO ENSURE:
 - A. DATE OF INSPECTION
 - B. NAME OF INSPECTOR
 - C. AN ASSESSMENT OF THE QUALITY OF THE STORMWATER MANAGEMENT SYSTEM RELATED TO ESD TREATMENT PRACTICE EFFICIENCY AND THE CONTROL OF RUNOFF TO THE MAXIMUM EXTENT PRACTICABLE.
 - D. CONDITION OF VEGETATION AND FILTER MEDIA, INLET AND OUTLET CHANNELS OR STRUCTURES, UNDERGROUND DRAINAGE, SEDIMENT AND DEBRIS ACCUMULATION IN STORAGE AREA, ANY NONSTRUCTURAL PRACTICES TO THE EXTENT PRACTICABLE, AND ANY OTHER ITEM THAT COULD AFFECT THE PROPER FUNCTION OF THE STORMWATER MANAGEMENT SYSTEM.
 - E. DESCRIPTION OF NEEDED MAINTENANCE

DURING CONSTRUCTION INSPECTION OF BIO-RETENTION FACILITIES

1. THE DEVELOPER SHALL NOTIFY HOWARD COUNTY AT LEAST 72 HOURS BEFORE COMMENCING ANY WORK IN CONJUNCTION WITH SITE DEVELOPMENT, THE STORMWATER MANAGEMENT PLAN, AND UPON COMPLETION OF THE PROJECT.
2. REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED FOR EACH ESD PLANNING TECHNIQUE AND PRACTICE AT THE STAGES OF CONSTRUCTION SPECIFIED IN THE DESIGN MANUAL BY THE CERTIFYING ENGINEER. AT A MINIMUM, ALL ESD AND OTHER NONSTRUCTURAL PRACTICES SHALL BE INSPECTED UPON COMPLETION OF FINAL GRADING, THE ESTABLISHMENT OF PERMANENT STABILIZATION, AND BEFORE ISSUANCE OF USE AND OCCUPANCY APPROVAL.
3. WRITTEN INSPECTION REPORTS SHALL INCLUDE:
 - A. THE DATE AND LOCATION OF THE INSPECTION;
 - B. WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
 - C. ANY VIOLATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS; AND
 - D. ANY VIOLATIONS THAT EXIST.
4. THE OWNER/DEVELOPER AND ON-SITE PERSONNEL SHALL BE NOTIFIED IN WRITING WHEN VIOLATIONS ARE OBSERVED. WRITTEN NOTIFICATION SHALL DESCRIBE THE NATURE OF THE VIOLATION AND THE REQUIRED CORRECTIVE ACTION.
5. NO WORK SHALL PROCEED ON THE NEXT PHASE OF DEVELOPMENT UNTIL THE CERTIFYING ENGINEER INSPECTS AND APPROVES THE WORK PREVIOUSLY COMPLETED, AND FURNISHES THE COUNTY ENGINEER AND THE OWNER/DEVELOPER WITH THE REQUIRED INSPECTION REPORTS AS SOON AS POSSIBLE AFTER COMPLETION OF EACH REQUIRED INSPECTION.
6. AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED BY THE CERTIFYING ENGINEER AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION:
 - A. DURING EXCAVATION TO SUBGRADE;
 - B. DURING PLACEMENT AND BACKFILL OF UNDER DRAIN SYSTEMS;
 - C. DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA;
 - D. DURING CONSTRUCTION OF APPURTENANT CONVEYANCE SYSTEMS SUCH AS FLOW DIVERSION STRUCTURES, PRE-FILTERS AND FILTERS, INLETS, OUTLETS, ORIFICES, AND FLOW DISTRIBUTION STRUCTURES; AND
 - E. UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

TABLE B.4.1 MATERIALS SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDENS & LANDSCAPE INFILTRATION - MDSHA FACILITIES ONLY

MATERIAL	SPECIFICATIONS	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE-SPECIFIC
PEA GRAVEL DIAPHRAGM	PEA GRAVEL: ASTM-D-448	N/A	
CURTAIN DRAIN	ORNAMENTAL STONE: WASHED COBBLES	STONE: 2" TO 5"	
GEOTEXTILE		N/A	PE TYPE 1 NONWOVEN
GRAVEL (UNDERDRAINS AND INFILTRATION BERMS)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MIX NO. 3, f _c = 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 308.8RB, VERTICAL LOADING (H+10 OR H+20), ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES), AND ANALYSIS OF POTENTIAL CRACKING SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
SAND	AASHTO-M-6 OR ASTM-C-33	0.02" TO 0.04"	
COMPOSITE-BIORETENTION SOIL MIX (BSM)			REFER TO SHA SPECIFICATION 920.01.05
SHREDED HARDWOOD BARK MULCH (SHB)			REFER TO SHA SPECIFICATION 920.01.05

B.3.B SPECIFICATIONS FOR BIORETENTION

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN TABLE B.4.1.
2. PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MOVED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVIDE A HURDLE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERBERIDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET SHA SPECIFICATION 920.01.05

ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS, AND POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOIL BULK DENSITY. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILE TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.

SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY.

SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.
3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE, COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REPAIR THE SOIL PROFILE THROUGHOUT THE 12" INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING ROTOTILLING BENCH.

WHEN BACKFILLING THE TOPSOIL, OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR BIORETENTION AREAS CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
5. PLANT INSTALLATION

MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. FINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.

THREE SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

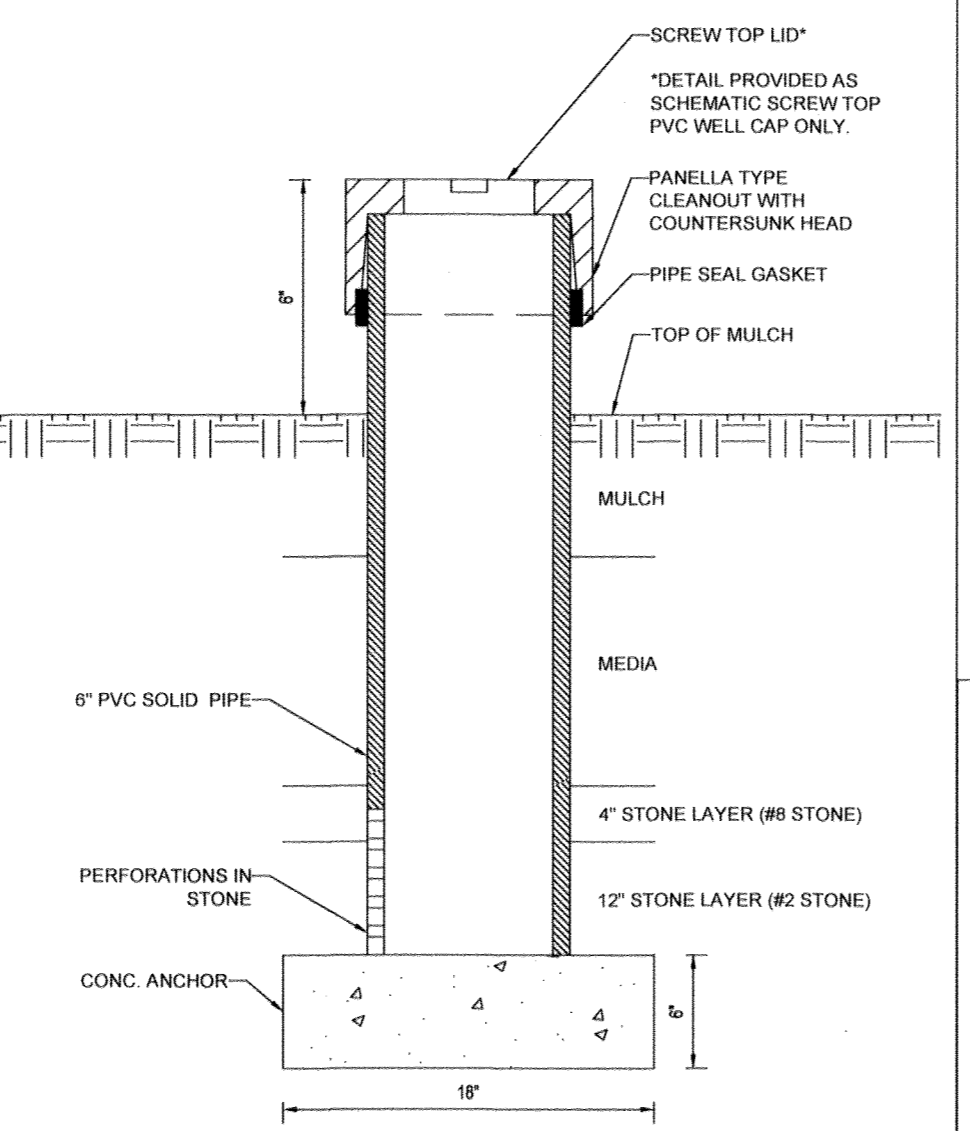
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY, ADDING FERTILIZER DEFICITS, OR AT A MINIMUM, IMPEDES THE SOIL. ONLY A MINIMUM FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
6. UNDERDRAINS

UNDERDRAINS ARE TO BE PLACED ON A 3'-0" WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.00% OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
7. MISCELLANEOUS

THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

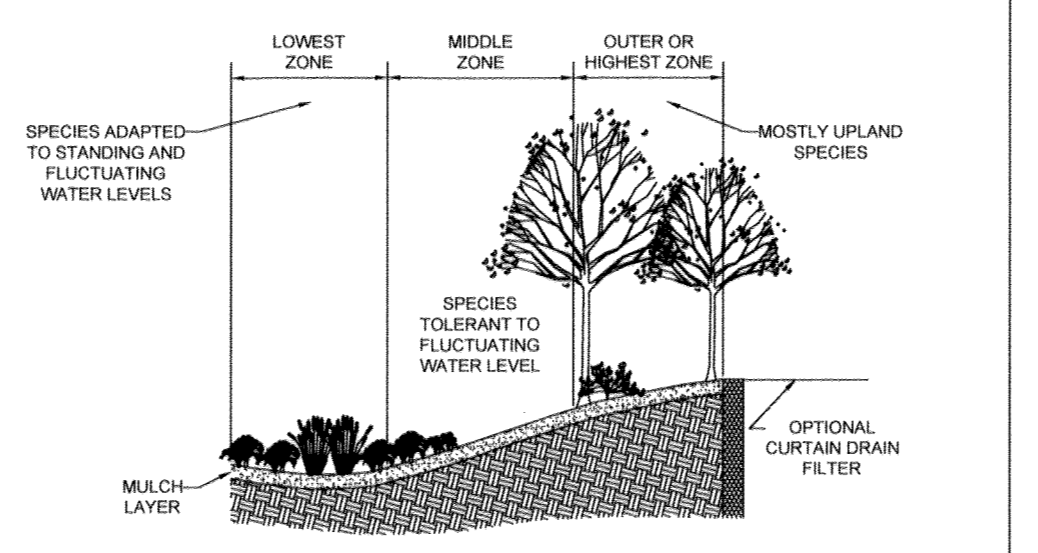
APPENDIX B MISCELLANEOUS DETAILS FOR COMPLIANCE WITH PERFORMANCE CRITERIA



OBSERVATION WELL DETAIL

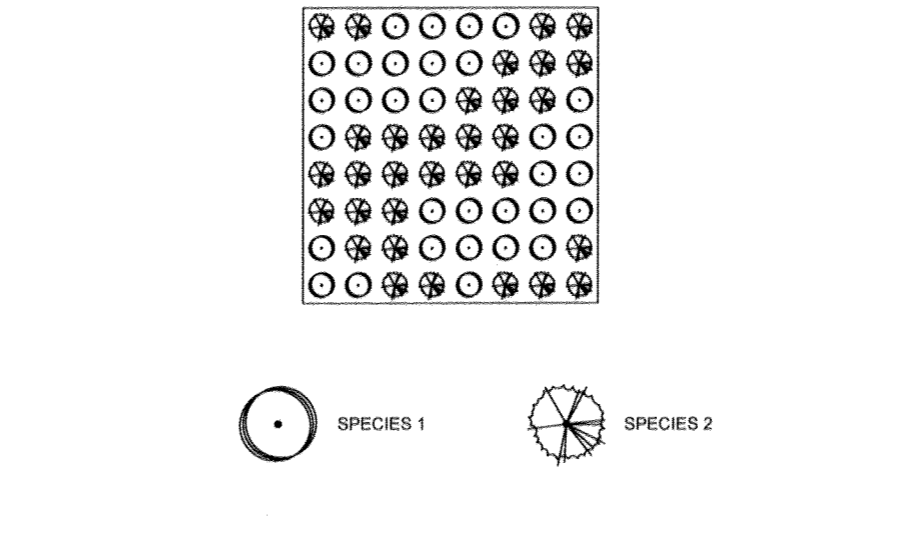
- NOT TO SCALE
- EACH OBSERVATION WELL/CLEANOUT MUST INCLUDE THE FOLLOWING:
1. FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL/CLEANOUT, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.
 2. THE TUBE SHALL HAVE 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 STEEL THAT WILL WITHSTAND ULTRA-VIOLET RAYS.
 3. 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.

PLANTING ZONES FOR BIORETENTION FACILITIES



- NOTES:
1. HERBACEOUS PERENNIALS TO BE PLANTED 18" O.C. IN GROUPS BETWEEN 15 TO 20 PLANTS
 2. LANDSCAPE CONTRACTOR TO GROUP LIKE PLANTS TOGETHER IN EACH BED AS SHOWN IN PLANTING DISTRIBUTION PATTERN DETAIL.
 3. ALL BIORETENTION AREAS ARE TO BE MULCHED WITH A 2" LAYER OF DOUBLE SHREDED HARDWOOD BARK MULCH.
 4. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12" TO 18" LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BAGGAGE BUCKET OR TRAWLER) BY DOZER TRACKS.

TYPICAL CLUMP DISTRIBUTION PLANTING DISTRIBUTION PATTERN



- NOTE: NATURALLY OCCURRING POPULATIONS ARE TO BE FOUND IN INFORMAL GROUPINGS. A CLUSTER OF PLANTS IS REALLY A MOSAIC OF DIFFERENT SPECIES GROUPS. THE OBJECTIVE IS TO SELECT THE APPROPRIATE SPECIES AND DISTRIBUTION PATTERN FOR A CHOSEN SITE THAT MIMIC NATURAL PATTERNS.

PLANTING DISTRIBUTION PATTERN DETAIL

NOT TO SCALE

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443, Expiration Date: 12/21/22

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2/21/19

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2/21/19

OWNER: STEPHEN A. KLEIN & ASSOCIATES, INC. DEVELOPER: RIVER HILL SQUARE, LLC
 12165 CLARKSVILLE PIKE P.O. BOX 417 ELLICOTT CITY, MARYLAND 21044
 CLARKSVILLE, MD 21029 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 RC-DEO
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: ECP - 17 - 023
 SDP - 18 - 044
 WP - 18 - 095



AS-BUILT 3/22/19

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2/21/19

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
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REV	DATE	COMMENT	BY

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PROJECT: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRB
 DATE: 12/18/18
 SCALE: AS SHOWN
 CAD LID: SW2

FINAL ROAD CONSTRUCTION PLANS

FOR MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT

LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RT. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21209
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 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. 6688

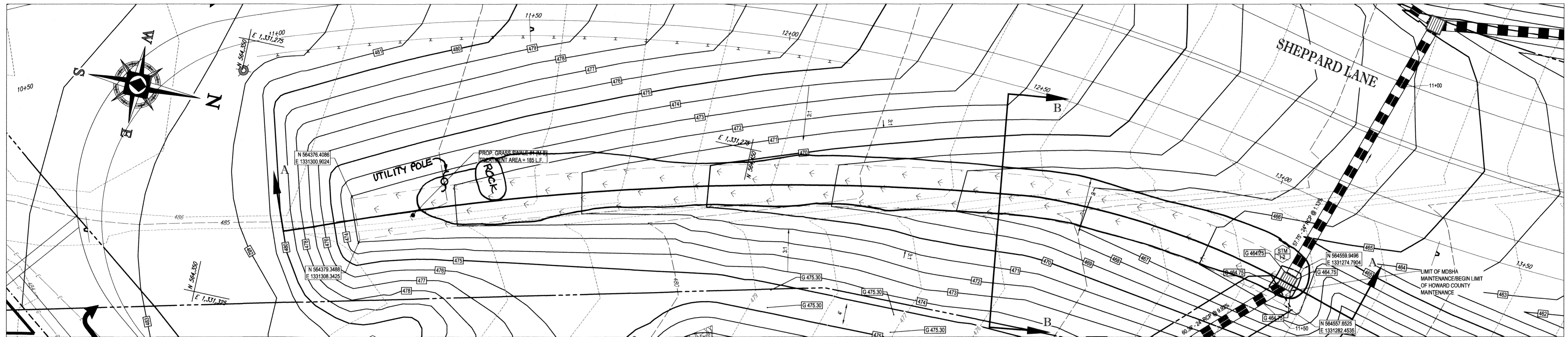
1/10/19

MD ROUTE 108 SWM NOTES AND DETAILS

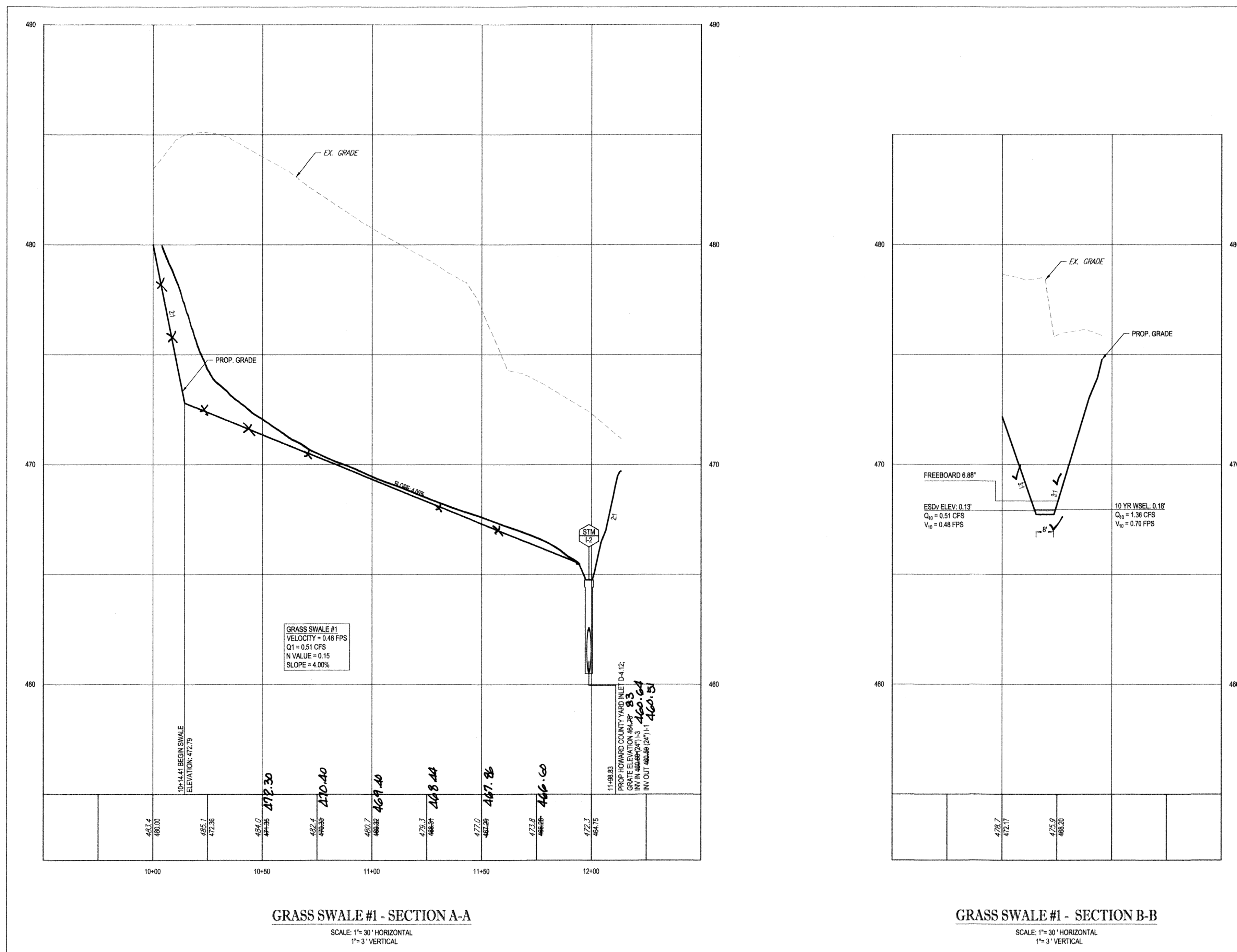
SHEET NUMBER: 20

F-18-099

AS-BUILT



M-8 GRASS-SWALE #1 PLAN VIEW
SCALE: 1" = 10'



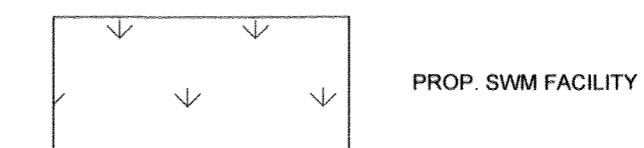
GRASS SWALE #1 - SECTION A-A
SCALE: 1" = 30' HORIZONTAL
1" = 3' VERTICAL

GRASS SWALE #1 - SECTION B-B
SCALE: 1" = 30' HORIZONTAL
1" = 3' VERTICAL

OPERATION AND MAINTENANCE SCHEDULE FOR GRASS-SWALES (M-8)

- HOWARD COUNTY WILL OWN AND MAINTAIN THE GRASS SWALES. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
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- HOWARD COUNTY SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- HOWARD COUNTY SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

LEGEND



NOTE: REFER TO STORMDRAIN PROFILE SHEET FOR STORMDRAIN INFORMATION.

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P. E.

Date: 3/26/21



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443, Expiration Date: 12/21/22

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE: 2/6/2019
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE: 3-6-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE: 2-2-18

OWNER: STEPHEN A. KLEIN & ASSOCIATES
DEVELOPER: RIVER HILL SQUARE, LLC
12165 CLARKSVILLE PIKE
CLARKSVILLE, MD 21029
(410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
PARCEL: 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: ECP - 17 - 023
SDP - 18 - 044
WP - 18 - 095

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 40885, EXPIRATION DATE: 7/3/2019

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

REVISIONS

REV	DATE	COMMENT	BY

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PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRB
DATE: 12/18/18
SCALE: AS SHOWN
CAD I.D.: SW2

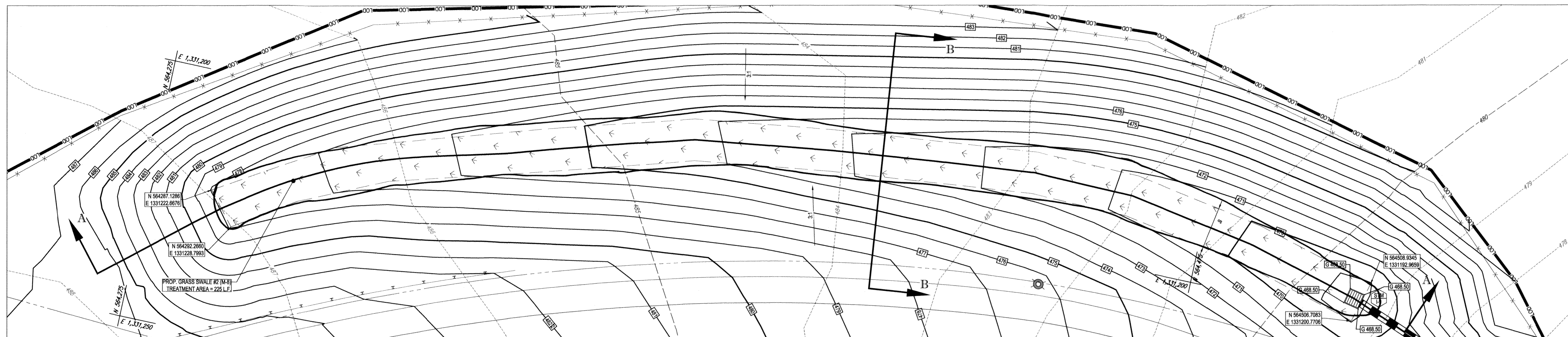
PROJECT: FINAL ROAD CONSTRUCTION PLANS FOR MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

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

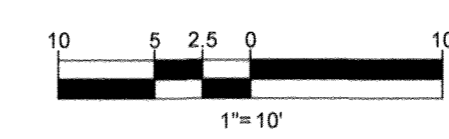
B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40885
4/10/19

SHEET TITLE: SHEPPARD LANE SWM NOTES AND DETAILS
SHEET NUMBER: 21
F-18-099

AS-BUILT

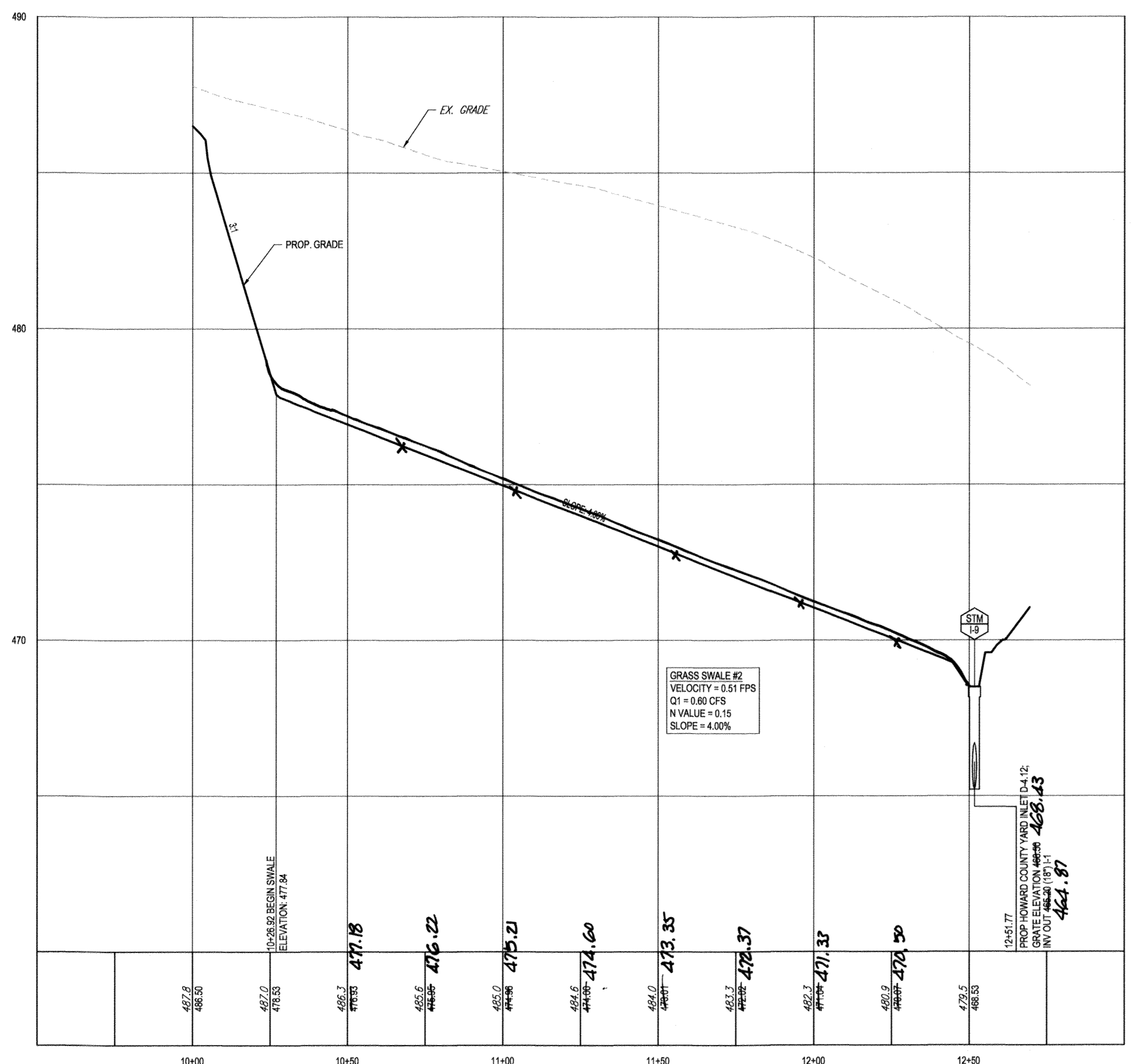


M-8 GRASS-SWALE #2 PLAN VIEW
SCALE: 1" = 10'

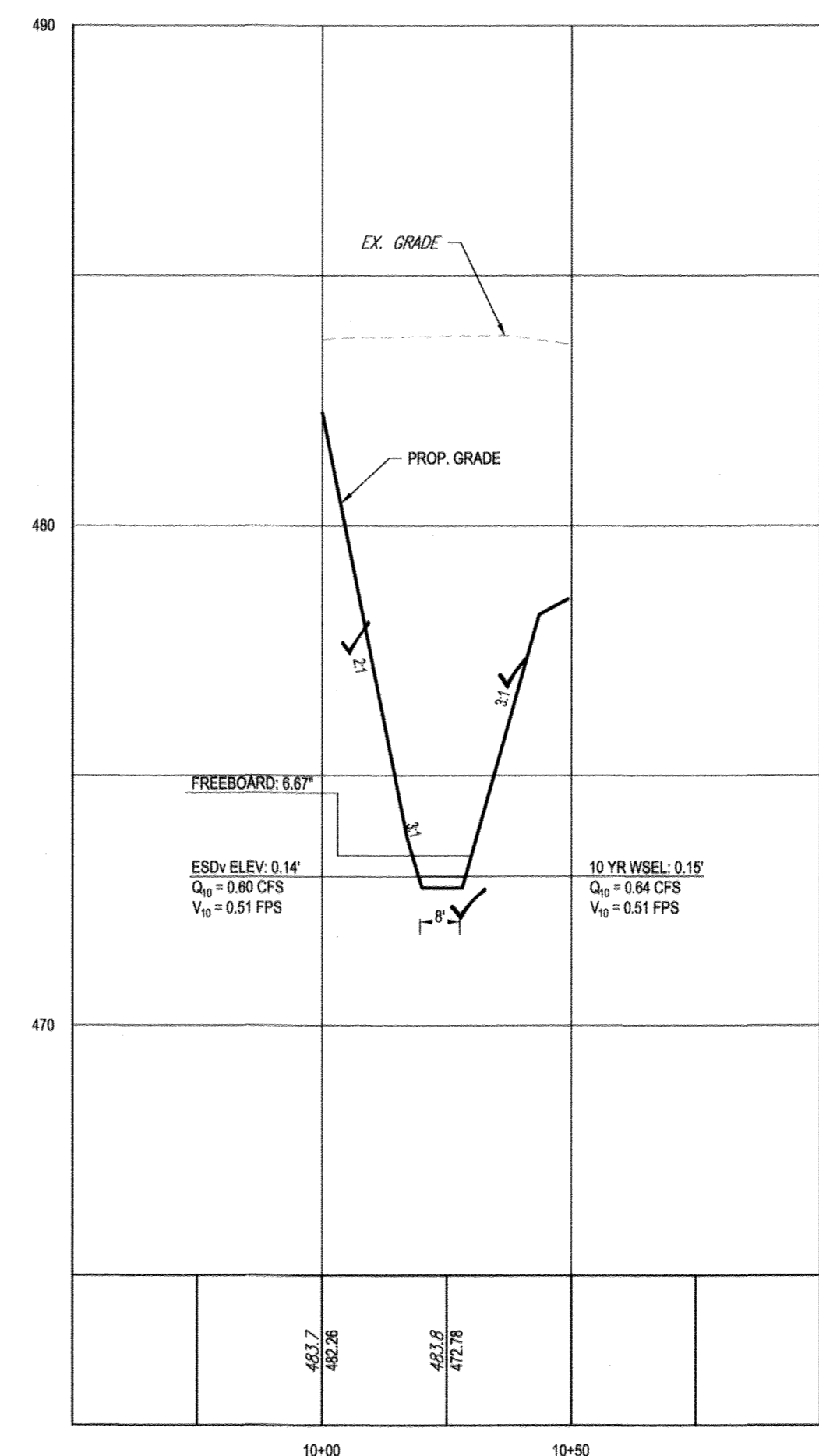


**OPERATION AND MAINTENANCE
SCHEDULE FOR GRASS-SWALES (M-8)**

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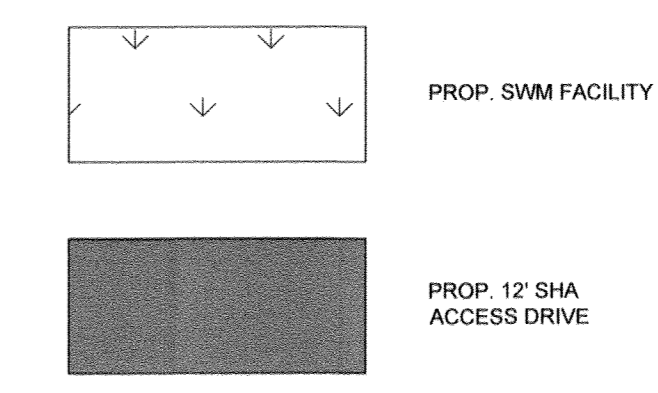


GS2 - SECTION A-A
SCALE: 1" = 30' HORIZONTAL
1" = 3' VERTICAL



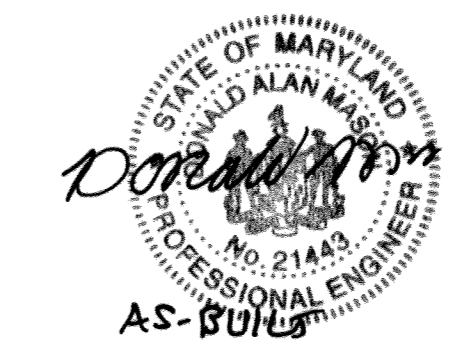
GS2 - SECTION B-B
SCALE: 1" = 30' HORIZONTAL
1" = 3' VERTICAL

LEGEND



NOTE: REFER TO STORMDRAIN PROFILE SHEET FOR STORMDRAIN INFORMATION.

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Date: 3/20/21
Donald Mason, P.E.



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12/21/22

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS: [Signature] DATE: 2/6/2019
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 3-1-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 2-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES RIVER HILL SQUARE, LLC
C/O STEPHEN A. KLEIN, INC. P.O. BOX 417
12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21044
CLARKSVILLE, MD 21029 (410) 465-4244
CLARKSVILLE, MD 21029 (410) 465-4244

PREVIOUS FILE No.: ECP - 17 - 023
SDP - 18 - 044
WP - 18 - 095

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 40805, EXPIRATION DATE: 7/31/2019

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

REVISIONS

REV	DATE	COMMENT	BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRR
DATE: 12/18/18
SCALE: AS SHOWN
CAD I.D.: SW2

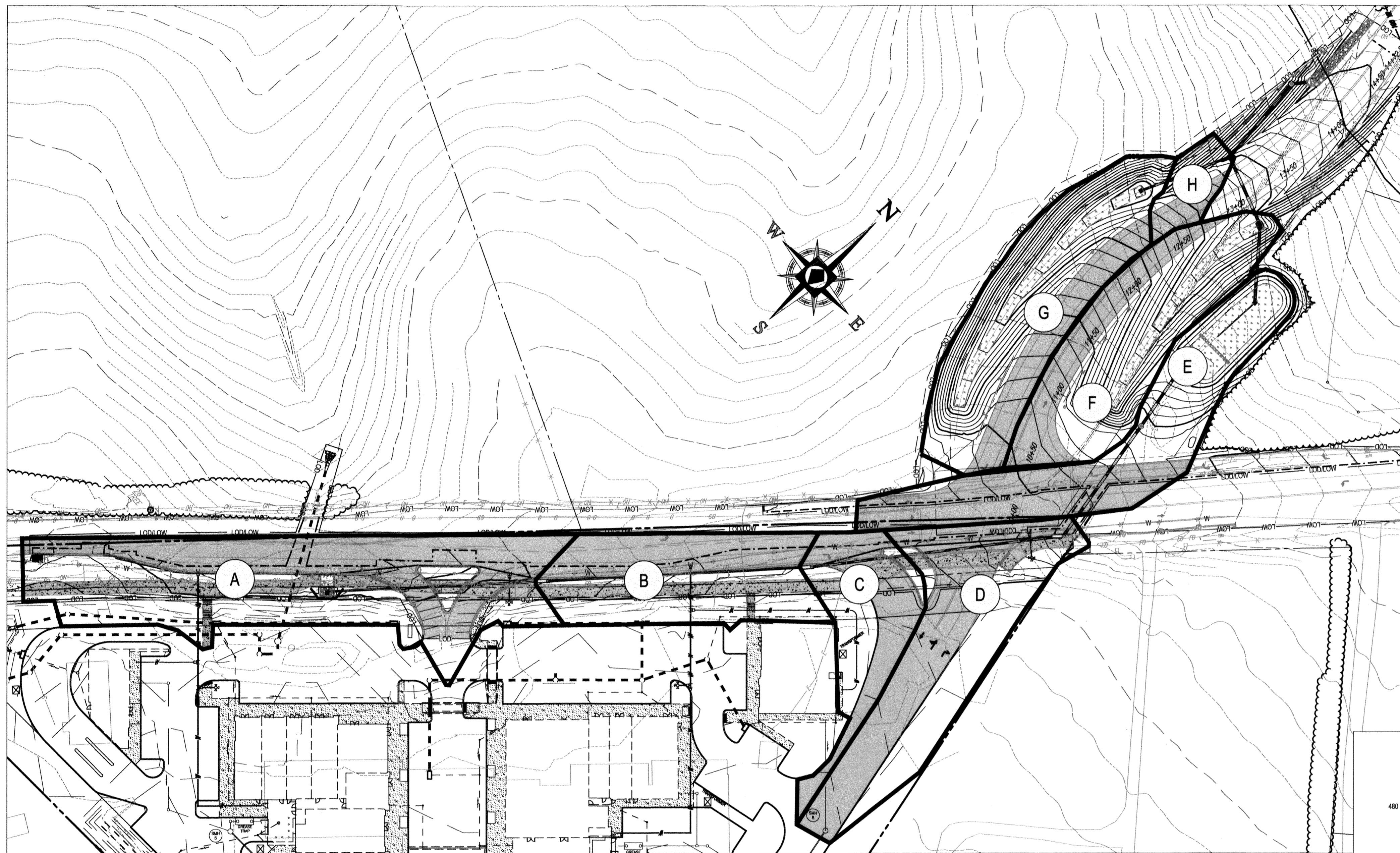
FINAL ROAD CONSTRUCTION PLANS
FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE: INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

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
1/10/19

SHEET TITLE:
SHEPPARD LANE SWM NOTES AND DETAILS
SHEET NUMBER:
22
F-18-099

AS-BUILT



STORM DRAIN DRAINAGE AREA MAP
SCALE: 1" = 50'

STORM DRAIN DRAINAGE AREAS

- A DRAINAGE AREA 'A'**
IMPERVIOUS AREA: 0.43 ACRES
PERVIOUS AREA: 0.27 ACRES
TOTAL AREA: 0.70 ACRES
C = 0.57
- B DRAINAGE AREA 'B'**
IMPERVIOUS AREA: 0.18 ACRES
PERVIOUS AREA: 0.14 ACRES
TOTAL AREA: 0.32 ACRES
C = 0.54
- C DRAINAGE AREA 'C'**
IMPERVIOUS AREA: 0.14 ACRES
PERVIOUS AREA: 0.08 ACRES
TOTAL AREA: 0.22 ACRES
C = 0.59
- D DRAINAGE AREA 'D'**
IMPERVIOUS AREA: 0.28 ACRES
PERVIOUS AREA: 0.16 ACRES
TOTAL AREA: 0.44 ACRES
C = 0.59
- E DRAINAGE AREA 'E'**
IMPERVIOUS AREA: 0.21 ACRES
PERVIOUS AREA: 0.24 ACRES
TOTAL AREA: 0.45 ACRES
C = 0.51
- F DRAINAGE AREA 'F'**
IMPERVIOUS AREA: 0.16 ACRES
PERVIOUS AREA: 0.19 ACRES
TOTAL AREA: 0.35 ACRES
C = 0.52
- G DRAINAGE AREA 'G'**
IMPERVIOUS AREA: 0.16 ACRES
PERVIOUS AREA: 0.25 ACRES
TOTAL AREA: 0.41 ACRES
C = 0.40
- H DRAINAGE AREA 'H'**
IMPERVIOUS AREA: 0.05 ACRES
PERVIOUS AREA: 0.08 ACRES
TOTAL AREA: 0.13 ACRES
C = 0.40

REFER TO ON-SITE CONSTRUCTION DOCUMENTS (SDP-18-044) FOR WORK ON PRIVATE PROPERTY.

STORM STRUCTURE SCHEDULE

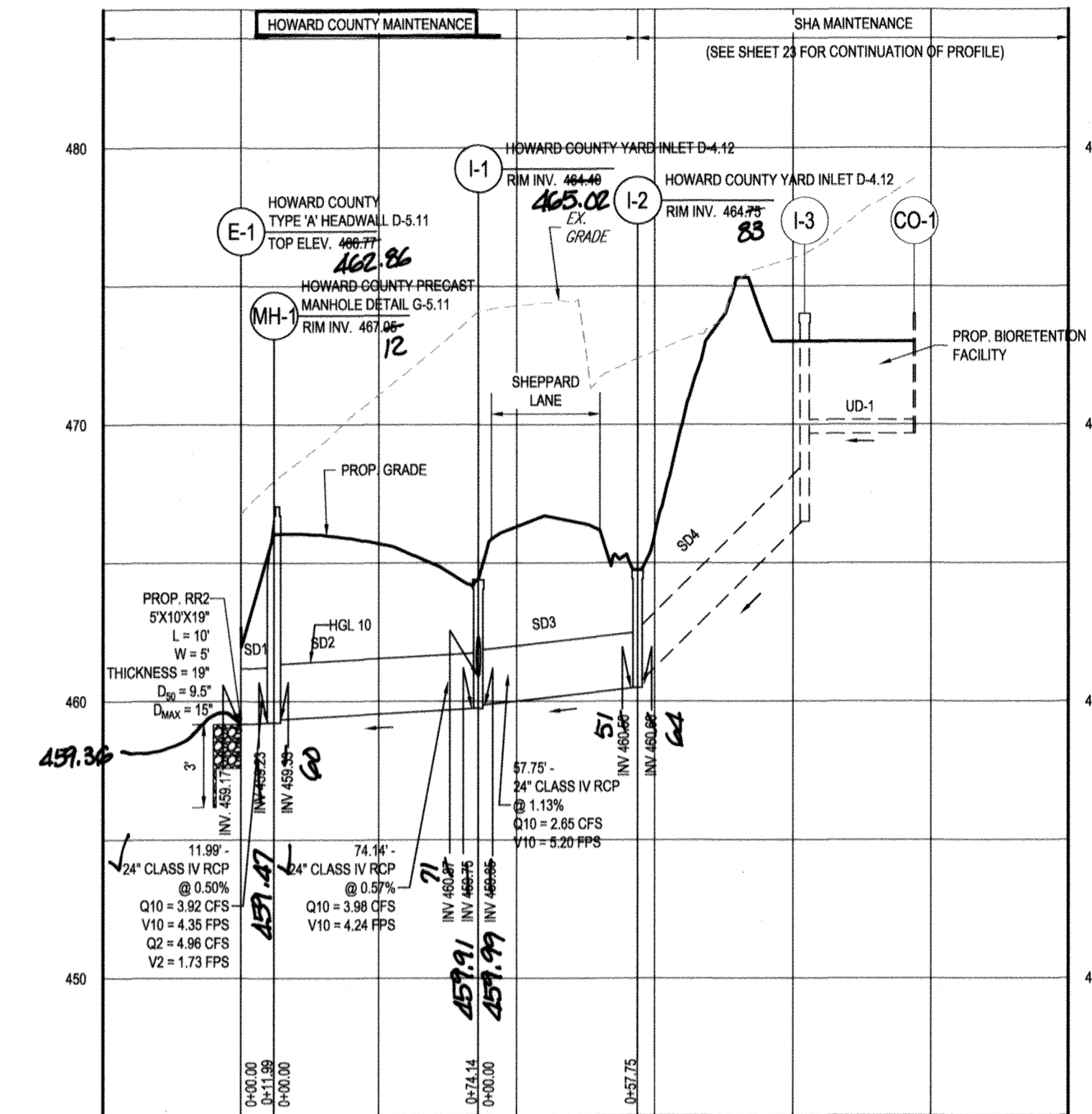
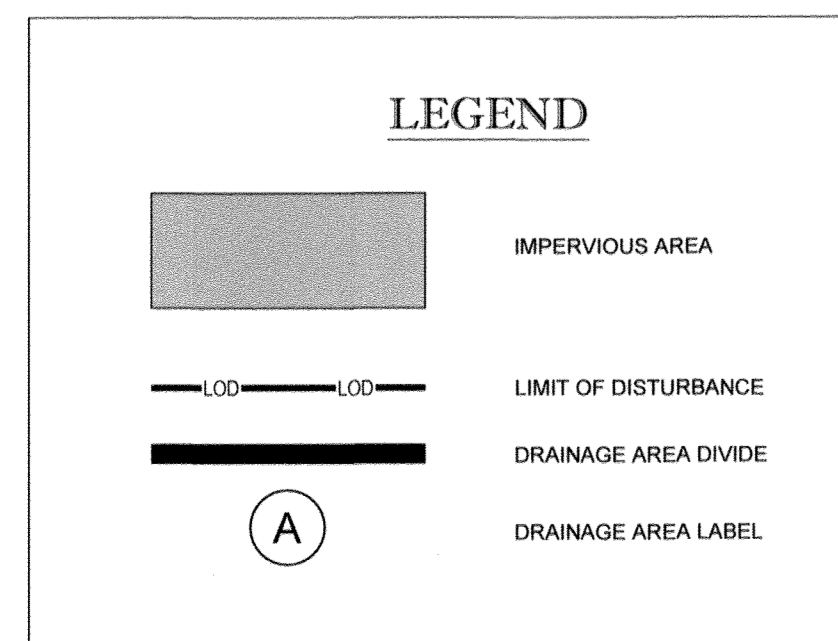
NAME	TYPE	RIM ELEV. (FT.)	INVERTS	COMMENTS
E-1	HOWARD COUNTY TYPE 'A' HEADWALL D-5.11	466.77	INV IN = 459.17 (24")	
I-1	HOWARD COUNTY YARD INLET D-4.12	465.02	INV IN = 459.85 (24") INV IN = 460.57 (18") INV OUT = 459.75 (24")	
I-2	HOWARD COUNTY YARD INLET D-4.12	464.24	INV IN = 460.67 (24") INV OUT = 460.50 (24")	
I-9	HOWARD COUNTY YARD INLET D-4.12	468.85	INV IN = 465.20 (18") INV OUT = 459.33 (24")	
MH-1	HOWARD COUNTY PRECAST MANHOLE DETAIL G-5.11	467.85	INV IN = 459.33 (24") INV OUT = 459.23 (24")	

STORM SEWER PIPE SCHEDULE

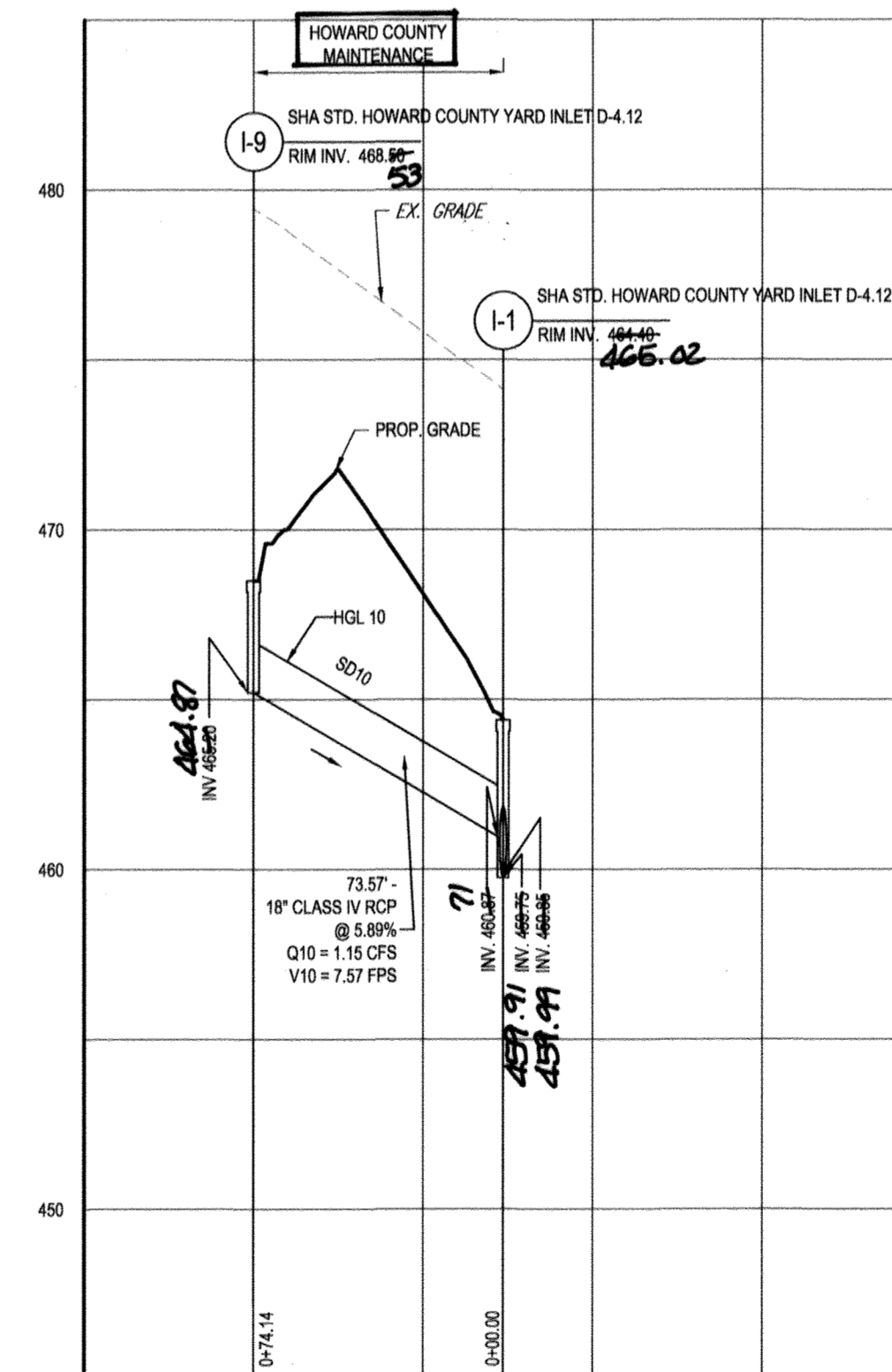
FROM	TO	LOWER INVERT	UPPER INVERT	SLOPE (%)	SIZE (IN.)	MATERIAL
E-1	MH-1	459.33	459.33	0.50%	24"	RCP CLASS IV
MH-1	I-1	459.33	459.33	0.57%	24"	RCP CLASS IV
I-1	I-2	459.33	460.67	1.13%	24"	RCP CLASS IV
I-1	I-9	460.67	468.20	5.88%	18"	RCP CLASS IV

STORM DRAIN PIPE LENGTH

PIPE SIZE	TYPE	LENGTH	PUBLIC OR PRIVATE
18"	RCP CLASS IV	73.57'	PUBLIC
24"	RCP CLASS IV	143.88'	PUBLIC



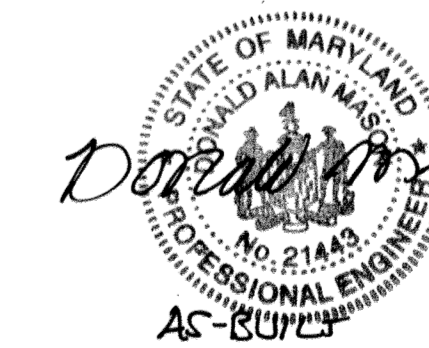
STORM DRAIN PROFILE E-1 TO I-2
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL
MINIMUM DESIGN SLOPE: 0.50%



STORM DRAIN PROFILE I-1 TO I-9
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL
MINIMUM DESIGN SLOPE: 0.50%

AS-BUILT CERTIFICATION
I hereby certify, to the best of my knowledge and belief, that the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications.
Donald Mason, P.E. Date: 3/26/21

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 2/21/22



APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19
APPROVED: DEVELOPMENT ENGINEERING DIVISION DATE: 3-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES RIVER HILL SQUARE, LLC
C/O STEPHEN A. KLEIN, INC. P.O. BOX 417
12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21044
CLARKSVILLE, MD 21029 (410) 465-4244
TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: ECP - 17 - 023
SDP - 18 - 044
WP - 18 - 095

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 42688 EXPIRATION DATE: 7/30/2019

AS-BUILT

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

REVISIONS

REV	DATE	COMMENT	BY

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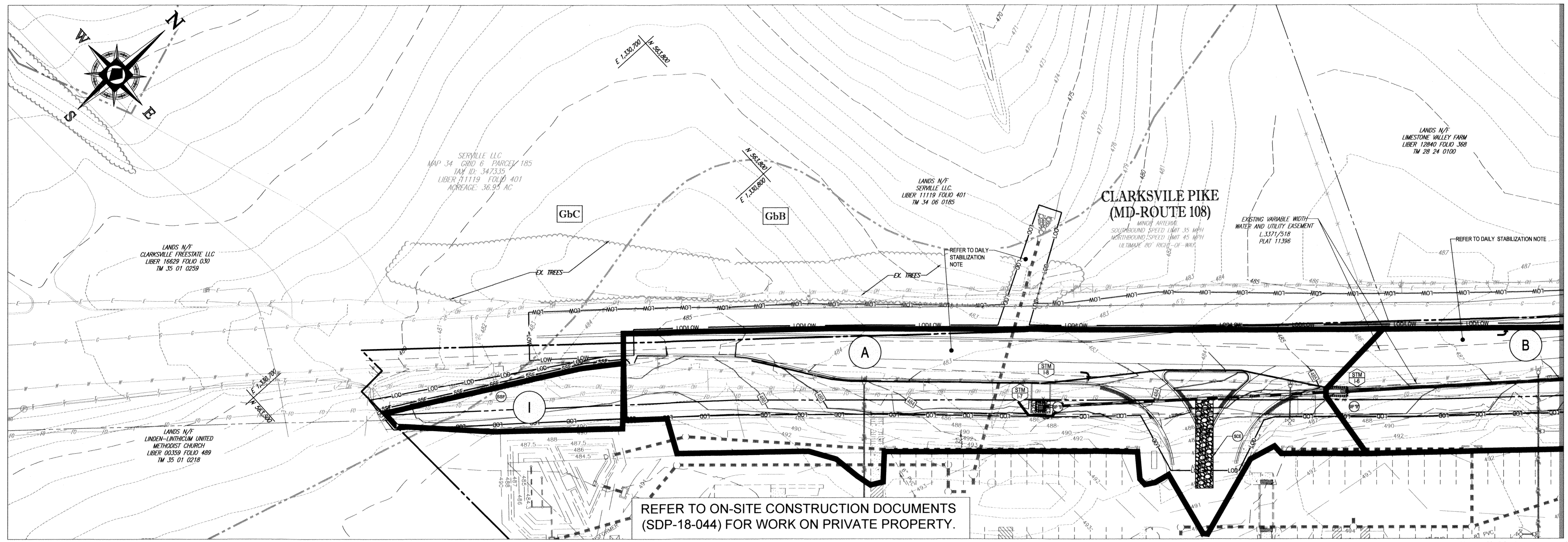
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SCALE: AS SHOWN
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B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 42688

SHEET TITLE:
SHEPPARD LANE STORM DRAIN PROFILES
SHEET NUMBER:
24
F-18-099



MATCHLINE: SHEET 26

STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
SUPER SILT FENCE	SSF	SSF
STANDARD INLET PROTECTION "A"	SP/A	SP/A
STANDARD INLET PROTECTION "B"	SP/B	SP/B
CURB INLET PROTECTION	CP	CP
GABION INLET PROTECTION	GP	GP
PROP. CONTOUR		120
EX. CONTOUR		120
LIMIT OF DISTURBANCE (LOD)		LOD
DRAINAGE DIVIDE		---
SOIL DIVIDE		---
SOIL LABEL		XXX
LIMIT OF WORK (LOW)		LOW
DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION		[Pattern]
TEMPORARY GABION OUTLET STRUCTURE		[Pattern]
STABILIZED CONSTRUCTION ENTRANCE	SCS	SCS
SILT FENCE	SF	SF
DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION		[Pattern]

SOIL TYPES ONSITE

SYMBOL	SOIL SERIES	HYDROLOGIC SOIL GROUP	HYDRIC SOIL	SLOPES	K FACTOR	ERODIBLE
GbB	GLADSTONE LOAM	A	NO	3 - 8%	.32	NO
GbC	GLADSTONE LOAM	A	NO	8 - 15%	.32	NO
GnB	GLENVILLE-BAILE SILT LOAMS	C	NO	0 - 8%	.49	YES
MaD	MANOR LOAM	B	NO	15 - 25%	.32	YES

DAILY STABILIZATION NOTE:
 CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.
 STABILIZATION SHALL BE AS FOLLOWS:
 1. FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.
 2. FOR AREAS TO BE VEGETATIVELY STABILIZED:
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 b. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.
 ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON DOWNSLOPE SIDE.

DRAINAGE AREAS

A	DA TO SIP "B": 0.69 AC.	I	DA TO SSF: 0.08 AC.
B	DA TO SIP "B": 0.32 AC.	J	DA TO SSF: 0.11 AC.
C	DA TO OIP: 0.22 AC.	K	DA TO SSF: 0.02 AC.
D	DA TO SIP "B": 0.44 AC.	L	DA TO SSF: 0.01 AC.
E	DA TO SIP "B": 0.26 AC.	M	DA TO SSF: 0.17 AC.
F	DA TO TGOS: 0.36 AC.	N	DA TO SSF: 0.15 AC.
G	DA TO TGOS: 0.38 AC.	O	DA TO SIP "B": 0.06 AC. INCLUDING 0.38 AC. FROM D.A. G TOTAL AREA: 0.44 AC.
H	DA TO SIP "B": 0.08 AC.	P	DA TO SIP "B": 0.06 AC. INCLUDING 0.36 AC. FROM D.A. I TOTAL AREA: 0.42 AC.

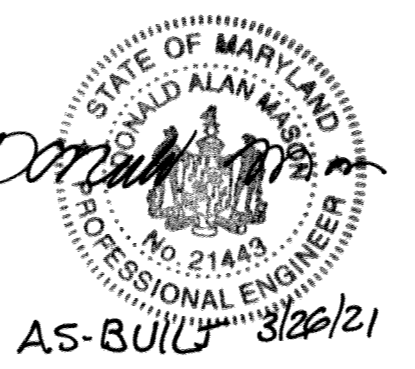
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 3/4/19
 HOWARD SCD DATE

ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 1/10/19
 SIGNATURE OF ENGINEER DATE
 BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 4/11/19
 SIGNATURE OF DEVELOPER DATE
 STEPHEN A. KLEIN, INC.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 2/6/2019
 CHIEF, BUREAU OF HIGHWAYS DATE
 BRANDON R. ROWE, P.E.
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 3-6-19
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 [Signature] 2-21-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

OWNER: STEPHEN A. KLEIN & ASSOCIATES RIVER HILL SQUARE, LLC.
 12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21041
 CLARKSVILLE, MD 21029 (410) 465-4244
 DEVELOPER: [Signature] 4/11/19
 12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21041
 CLARKSVILLE, MD 21029 (410) 465-4244
 TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



A.S-BUILT 3/20/21

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21243, Expiration Date: 12-21-22

LIMIT OF DISTURBANCE: 2.68 AC. OR 116,741 S.F.*
 LIMIT OF WORK: 0.85 AC. OR 34,026 S.F.
 *LIMIT OF DISTURBANCE INCLUDES ALL WORK WITH SOIL DISTURBANCE
 **LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE

PREVIOUS FILE No.: ECP - 17 - 023
 SDP - 18 - 044
 WP - 18 - 095

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 48896, EXPIRATION DATE: 7/30/25

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

REVISIONS

REV#	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRR
 DATE: 12/18/18
 SCALE: 1" = 30'
 CAD I.D.: OP2

FINAL ROAD CONSTRUCTION PLANS
 FOR
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 LOCATION OF SITE
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 ZONE: B-1, RC-DEO
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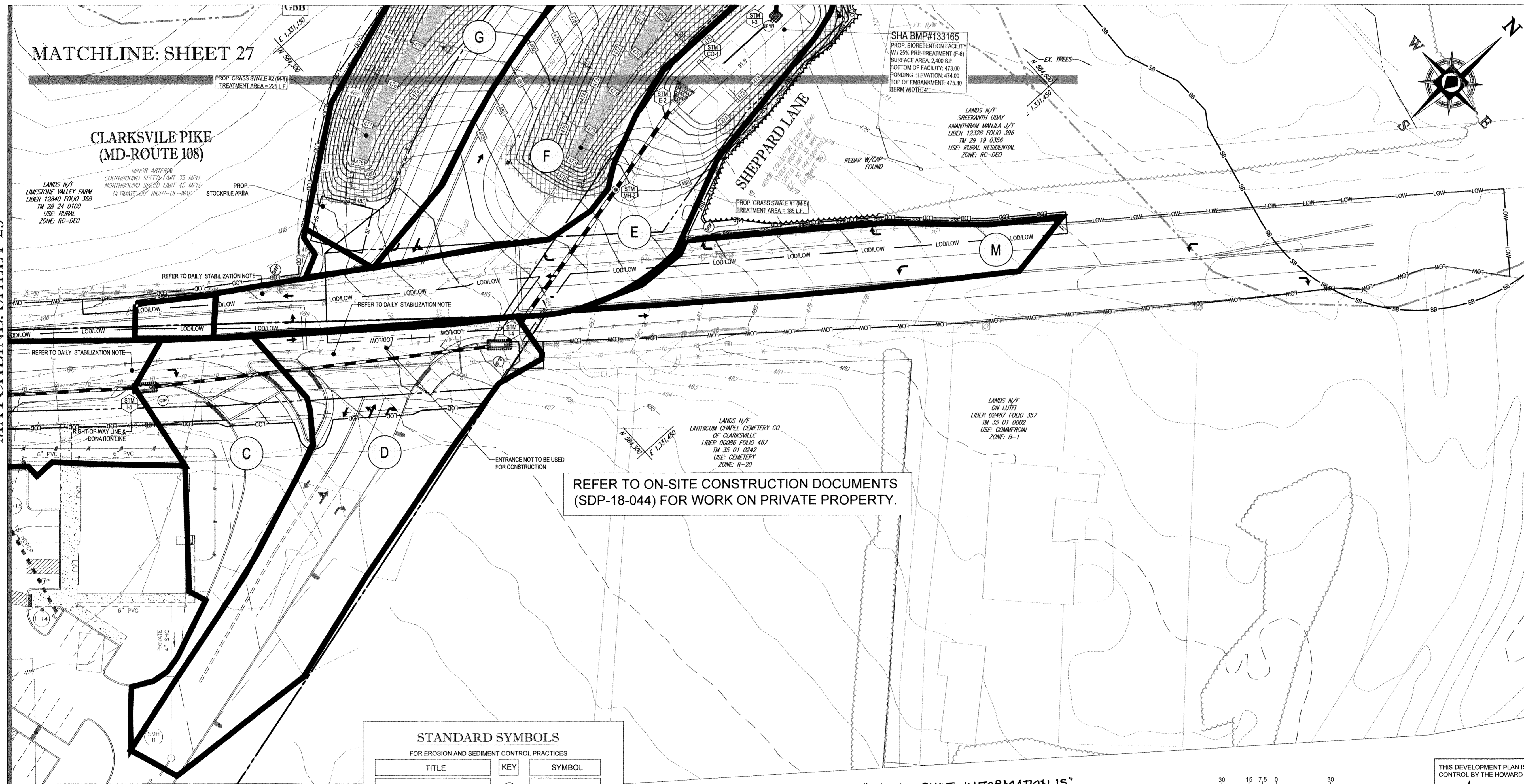
B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 48896
 [Signature] 4/11/19

EROSION AND SEDIMENT CONTROL PLAN
 SHEET NUMBER:
25
 F-18-099

A.S-BUILT

MATCHLINE: SHEET 25

MATCHLINE: SHEET 27



REFER TO ON-SITE CONSTRUCTION DOCUMENTS (SDP-18-044) FOR WORK ON PRIVATE PROPERTY.

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"

TITLE	KEY	SYMBOL
SUPER SILT FENCE	SPF	[Symbol]
STANDARD INLET PROTECTION "A"	SP/A	[Symbol]
STANDARD INLET PROTECTION "B"	SP/B	[Symbol]
CURB INLET PROTECTION	CP	[Symbol]
GABION INLET PROTECTION	GP	[Symbol]
PROP. CONTOUR	[Symbol]	[Symbol]
EX. CONTOUR	[Symbol]	[Symbol]
LIMIT OF DISTURBANCE (LOD)	[Symbol]	[Symbol]
DRAINAGE DIVIDE	[Symbol]	[Symbol]
SOIL DIVIDE	[Symbol]	[Symbol]
SOIL LABEL	[Symbol]	[Symbol]
LIMIT OF WORK (LOW)	[Symbol]	[Symbol]
DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION	[Symbol]	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	[Symbol]	[Symbol]
STABILIZED CONSTRUCTION ENTRANCE	SCS	[Symbol]
SILT FENCE	SF	[Symbol]
DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION	[Symbol]	[Symbol]

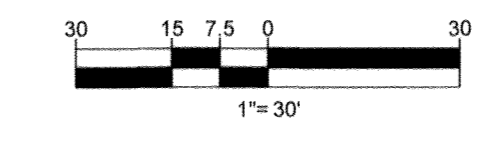


Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12/21/22

SYMBOL	SOIL SERIES	HYDROLOGIC SOIL GROUP	HYDRIC SOIL	SLOPES	K FACTOR	ERODIBLE
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GbC	GLADSTONE LOAM	A	NO	8 - 15%	32	NO
GnB	GLENVILLE-BAILE SILT LOAMS	C	NO	0 - 8%	49	YES
MaD	MANOR LOAM	B	NO	15 - 25%	32	YES

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 *LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE



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THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature: [Signature] DATE: 3/4/19
 HOWARD SCD

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: [Signature] DATE: 11/19
 SIGNATURE OF ENGINEER BRANDON R. ROWE, P.E.

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 I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature: [Signature] DATE: 11/19
 SIGNATURE OF DEVELOPER [Signature]

APPROVED DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS [Signature] DATE: 2/6/2019
 APPROVED DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT [Signature] DATE: 3-6-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION [Signature] DATE: 2-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES
 DEVELOPER: RIVER HILL SQUARE, LLC.
 12185 CLARKSVILLE PIKE P.O. BOX 417
 CLARKSVILLE, MD 21029 ELLICOTT CITY, MARYLAND 21041
 (410) 465-4244 (410) 485-4244
 TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
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 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: ECP - 17 - 023
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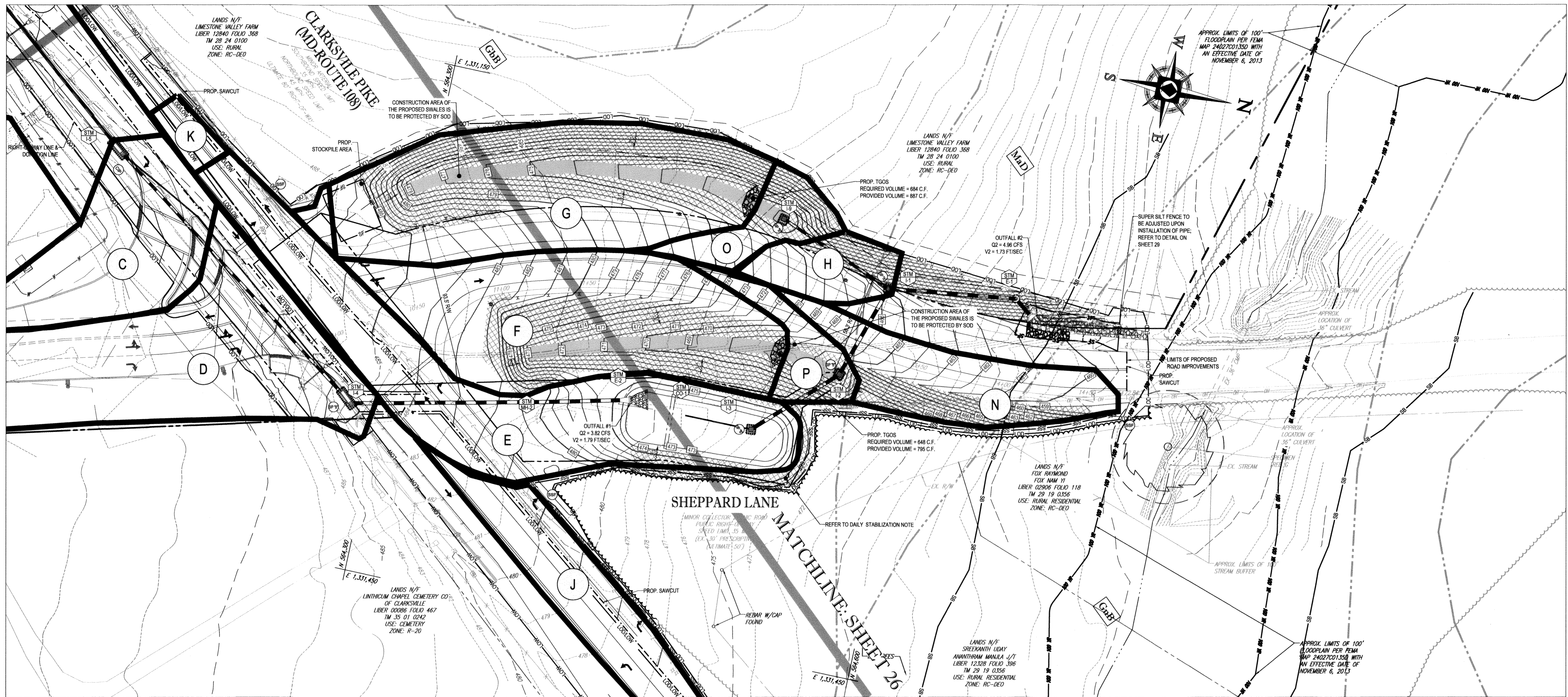
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B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 6900
 11/19

SHEET TITLE: **EROSION AND SEDIMENT CONTROL PLAN**
 SHEET NUMBER: **26**
 F-18-099

AS-BUILT



BOHLER ENGINEERING
 SITE CIVIL AND CONSULTING ENGINEERING
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 Fax: (410) 821-7887
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 4895

SHEET TITLE:
**EROSION AND
 SEDIMENT
 CONTROL PLAN**

SHEET NUMBER:
27

F-18-099

STANDARD SYMBOLS
 FOR EROSION AND SEDIMENT CONTROL PRACTICES

DRAINAGE AREAS			
A	DA TO SIP "B": 0.69 AC.	I	DA TO SSF: 0.08 AC.
B	DA TO SIP "B": 0.32 AC.	J	DA TO SSF: 0.11 AC.
C	DA TO CIP: 0.22 AC.	K	DA TO SSF: 0.02 AC.
D	DA TO SIP "B": 0.44 AC.	L	DA TO SSF: 0.01 AC.
E	DA TO SIP "B": 0.26 AC.	M	DA TO SSF: 0.17 AC.
F	DA TO TGS: 0.36 AC.	N	DA TO SSF: 0.15 AC.
G	DA TO TGS: 0.38 AC.	O	DA TO SIP "B": 0.06 AC. INCLUDING 0.38 AC. FROM D.A. G TOTAL AREA: 0.44 AC.
H	DA TO SIP "B": 0.08 AC.	P	DA TO SIP "B": 0.06 AC. INCLUDING 0.36 AC. FROM D.A. F TOTAL AREA: 0.42 AC.

TITLE	KEY	SYMBOL
SUPER SILT FENCE	SPF	—SPF—
STANDARD INLET PROTECTION "A"	SP/A	[Symbol]
STANDARD INLET PROTECTION "B"	SP/B	[Symbol]
CURB INLET PROTECTION	CP	[Symbol]
GABION INLET PROTECTION	GP	[Symbol]
PROP. CONTOUR		—(20)—
EX. CONTOUR		---(20)---
LIMIT OF DISTURBANCE (LOD)		—LOD—
DRAINAGE DIVIDE		— —
SOIL DIVIDE		--- ---
SOIL LABEL		XXX
LIMIT OF WORK (LOW)		—LOW—
DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION		[Symbol]
TEMPORARY GABION OUTLET STRUCTURE		[Symbol]
STABILIZED CONSTRUCTION ENTRANCE	SCE	[Symbol]
SILT FENCE	SF	—SF—
DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION		[Symbol]

DAILY STABILIZATION NOTE:
 CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.
 STABILIZATION SHALL BE AS FOLLOWS:
 1. FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.
 2. FOR AREAS TO BE VEGETATIVELY STABILIZED:
 a. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES, CHANNELS OR SWALES.
 b. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.
 ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON DOWNSLOPE SIDE.

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12/31/22

AS-BUILT 3/26/21

SOIL TYPES ONSITE						
SYMBOL	SOIL SERIES	HYDROLOGIC SOIL GROUP	HYDRIC SOIL	SLOPES	K FACTOR	ERODIBLE
GbB	GLADSTONE LOAM	A	NO	3 - 8%	32	NO
GbC	GLADSTONE LOAM	A	NO	8 - 15%	32	NO
GnB	GLENVILLE-BAILE SILT LOAMS	C	NO	0 - 8%	49	YES
MaD	MANOR LOAM	B	NO	15 - 25%	32	YES

LIMIT OF DISTURBANCE: 2.68 AC. OR 116,741 S.F.*
LIMIT OF WORK: 0.85 AC. OR 34,026 S.F.
 *LIMIT OF DISTURBANCE INCLUDES ALL WORK WITH SOIL DISTURBANCE
 **LIMIT OF WORK INCLUDES ALL WORK WITHOUT SOIL DISTURBANCE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 John E. Roberts 3/4/19
 HOWARD SCD DATE

ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature of Engineer: Brandon R. Rowe, P.E. 1/10/19 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 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: Stephen A. Klein, Inc. 1/11/19 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: [Signature] DATE: 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING: [Signature] DATE: 3-6-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 2-21-19

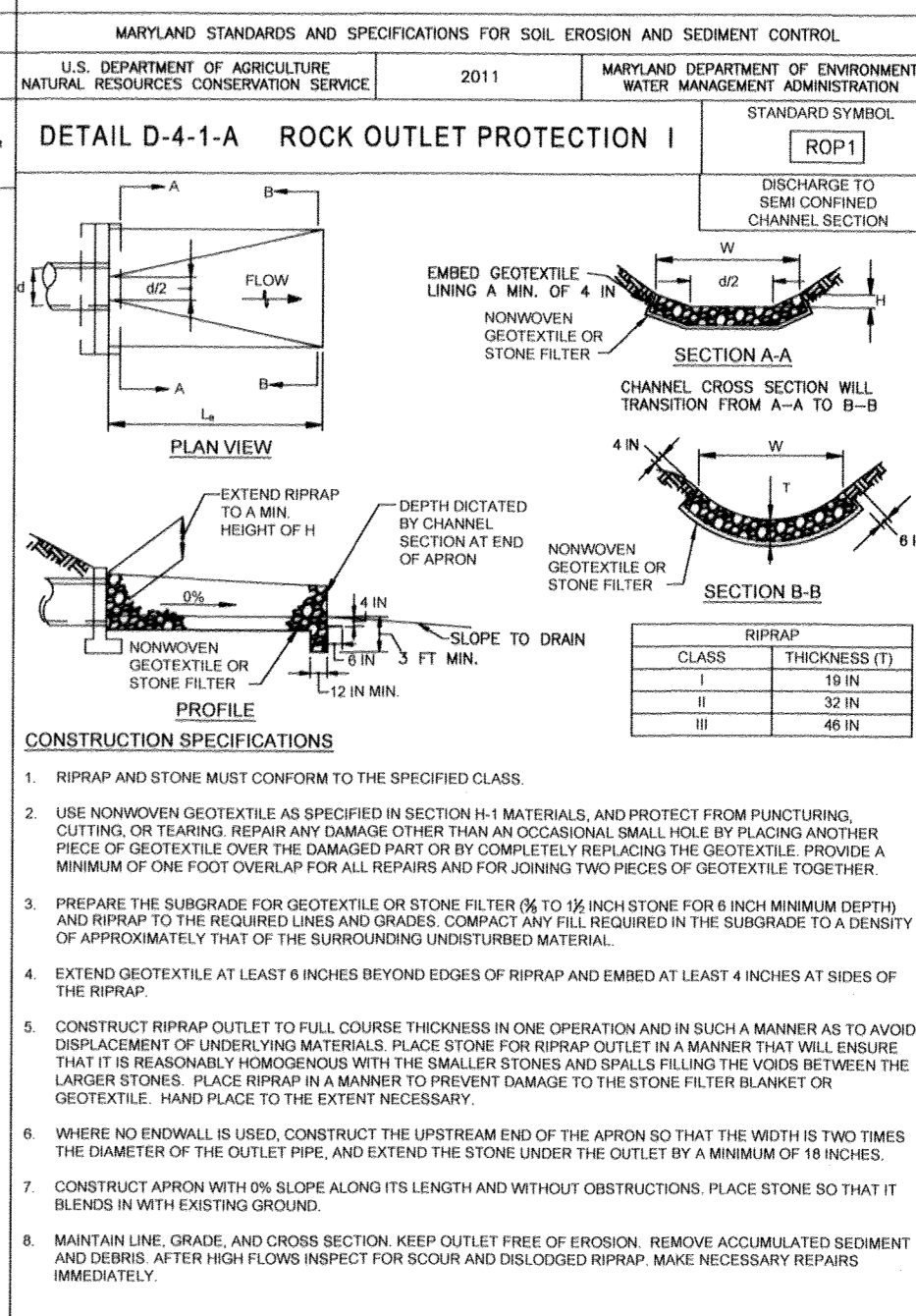
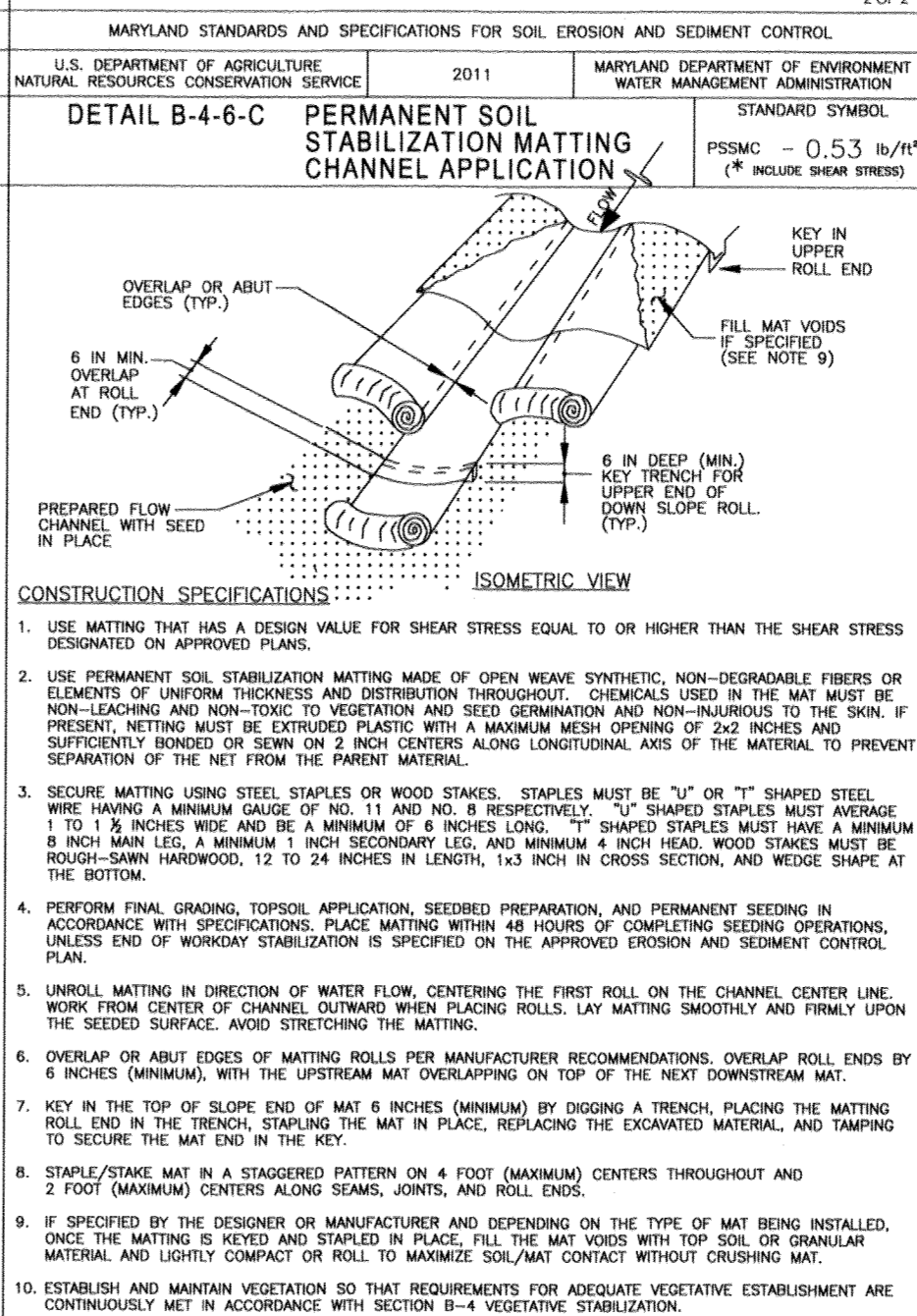
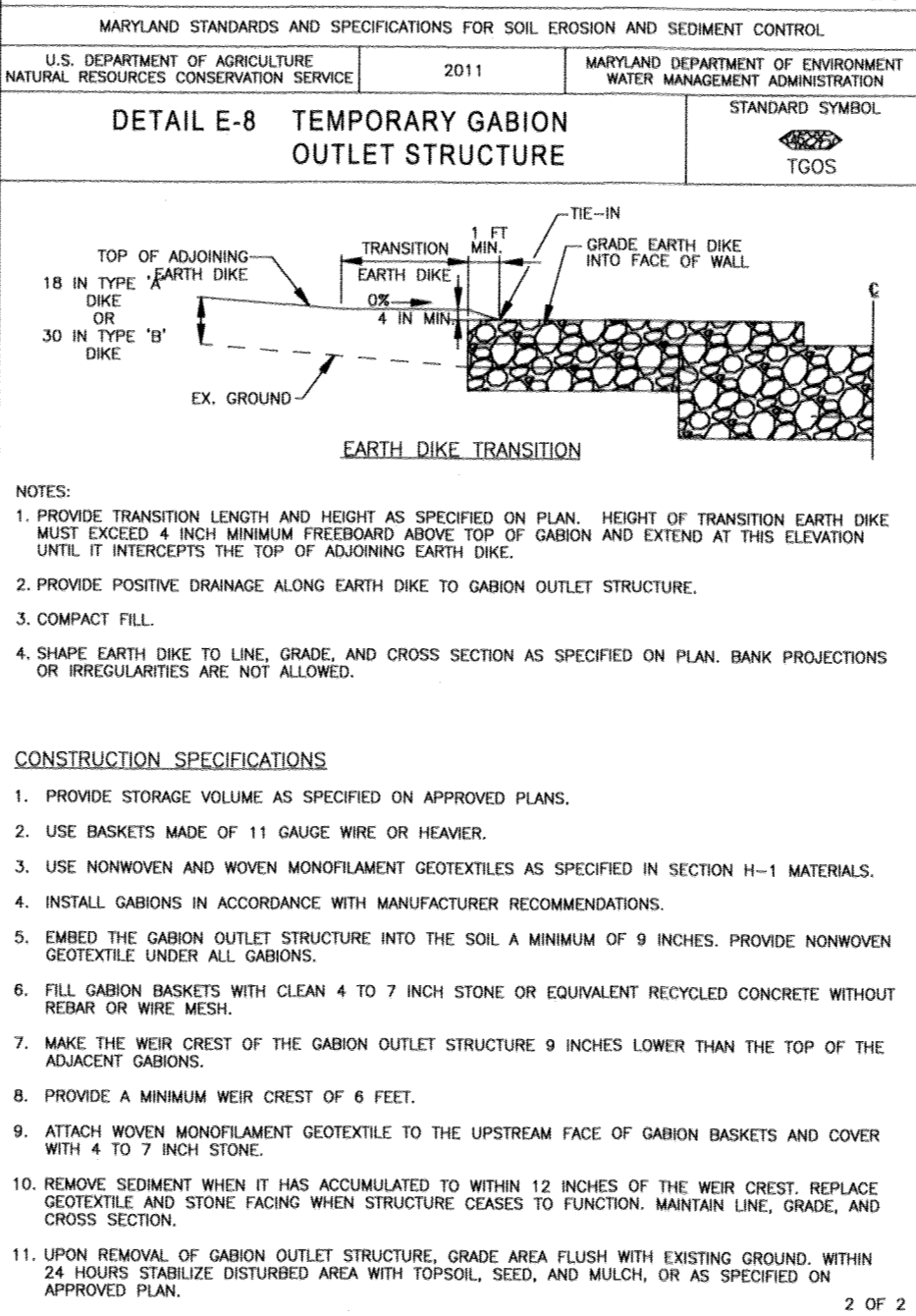
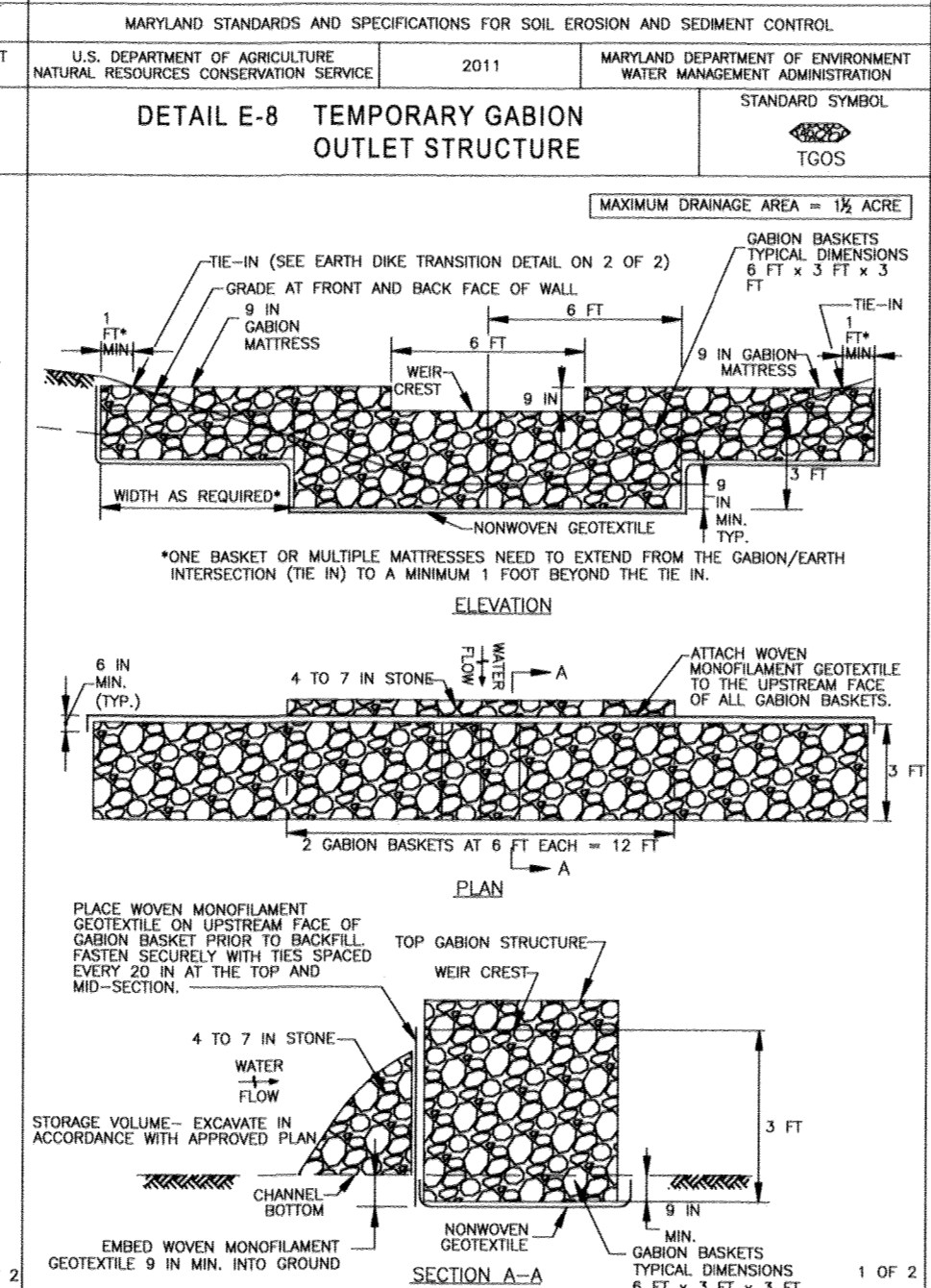
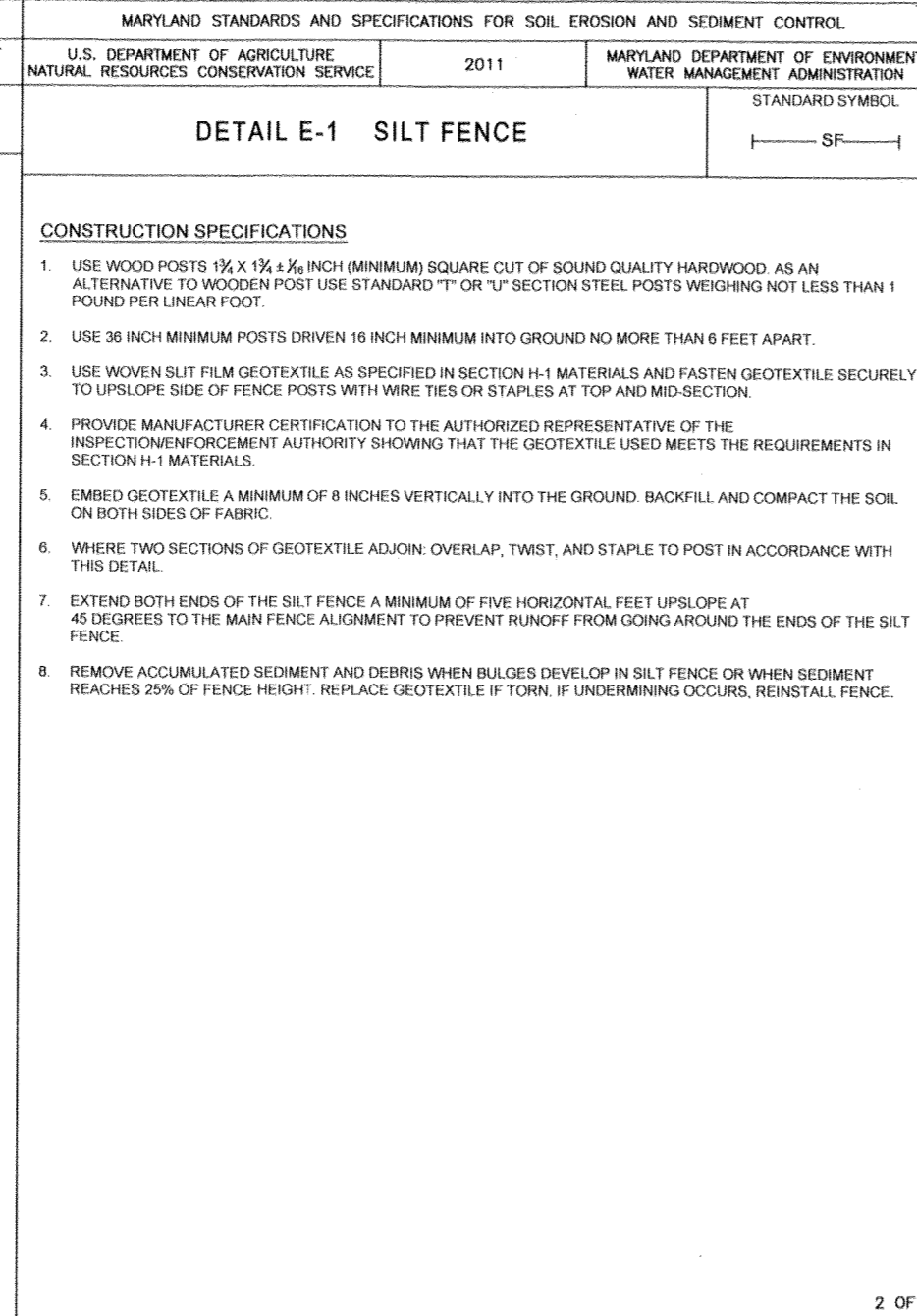
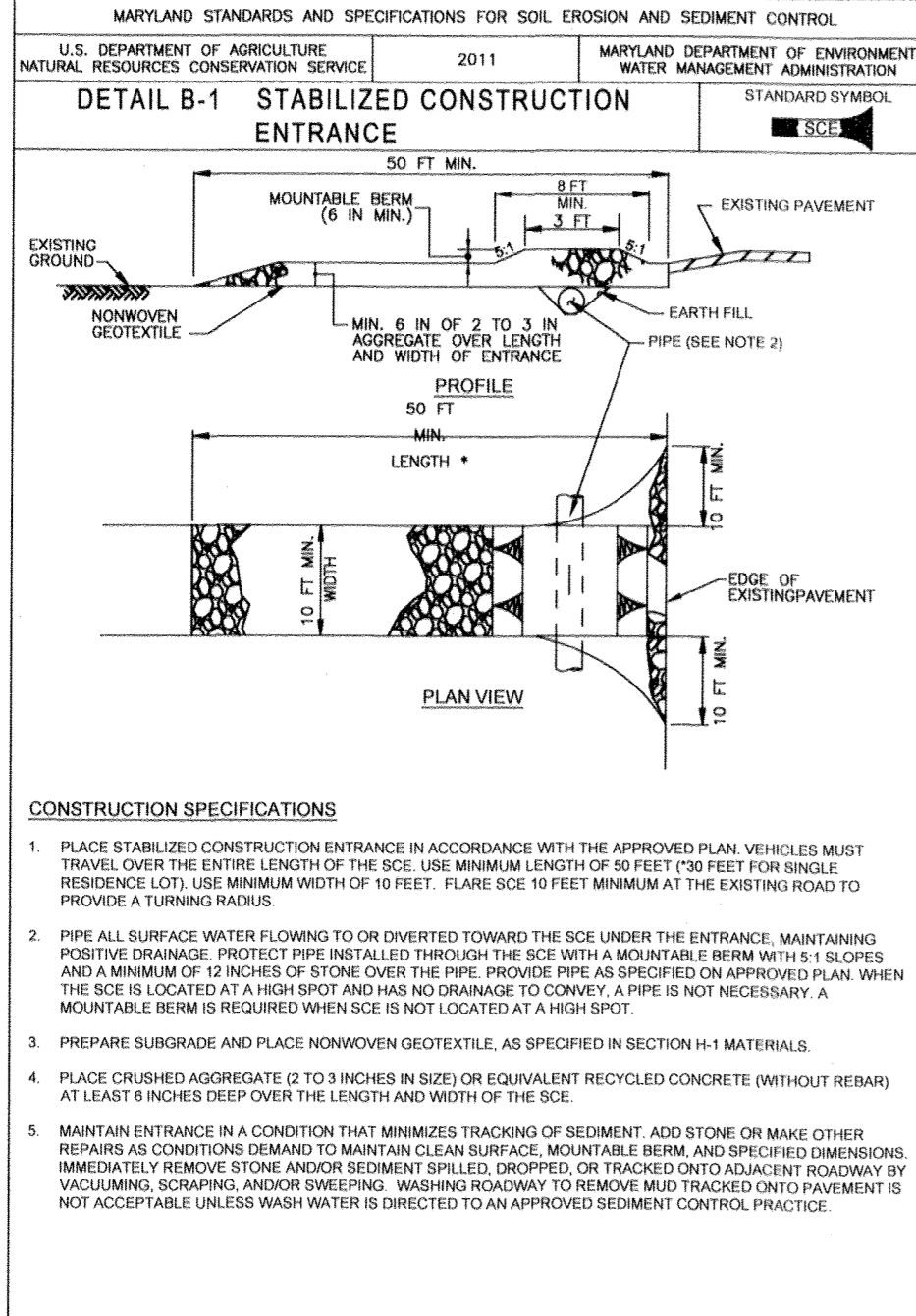
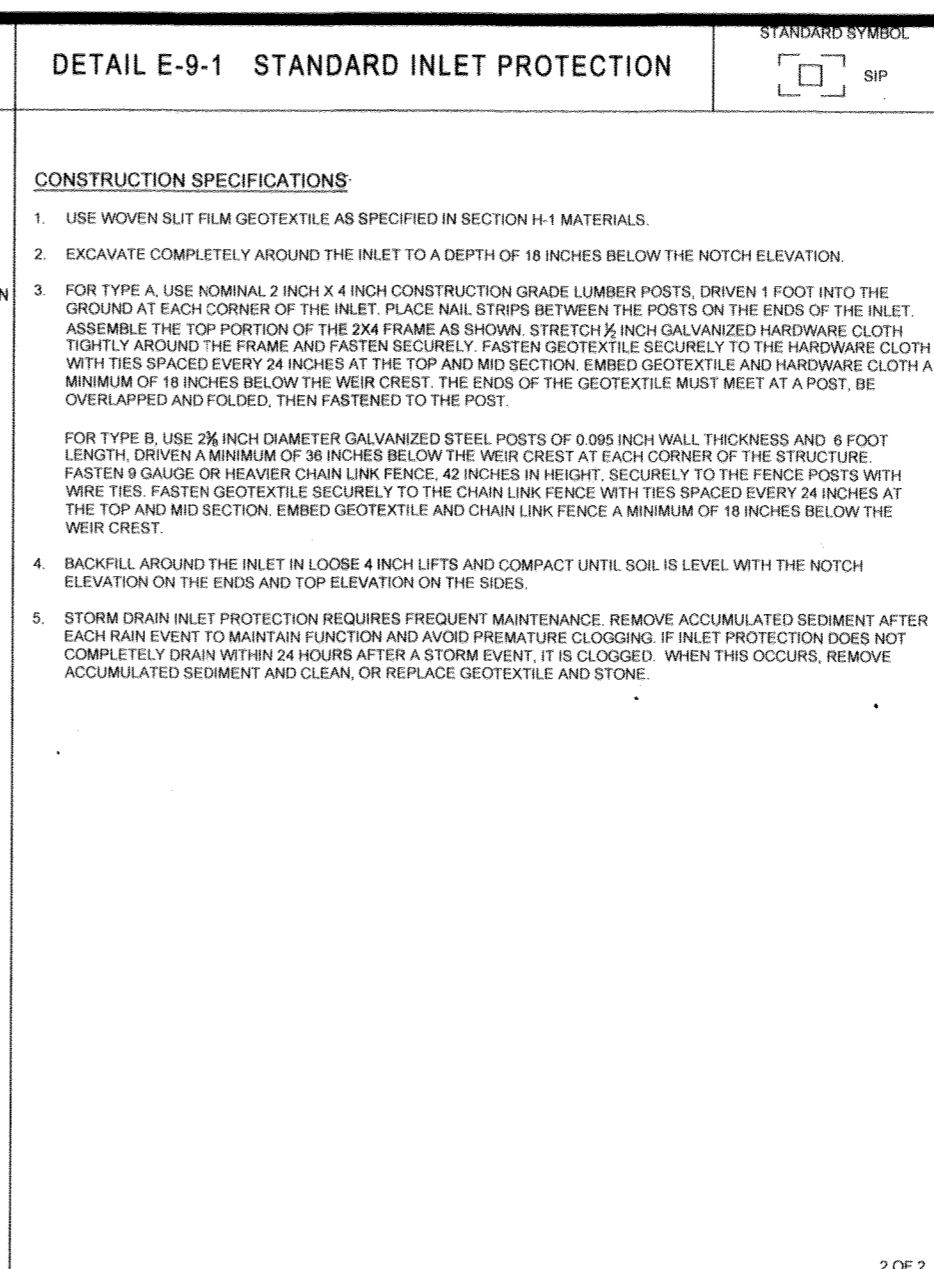
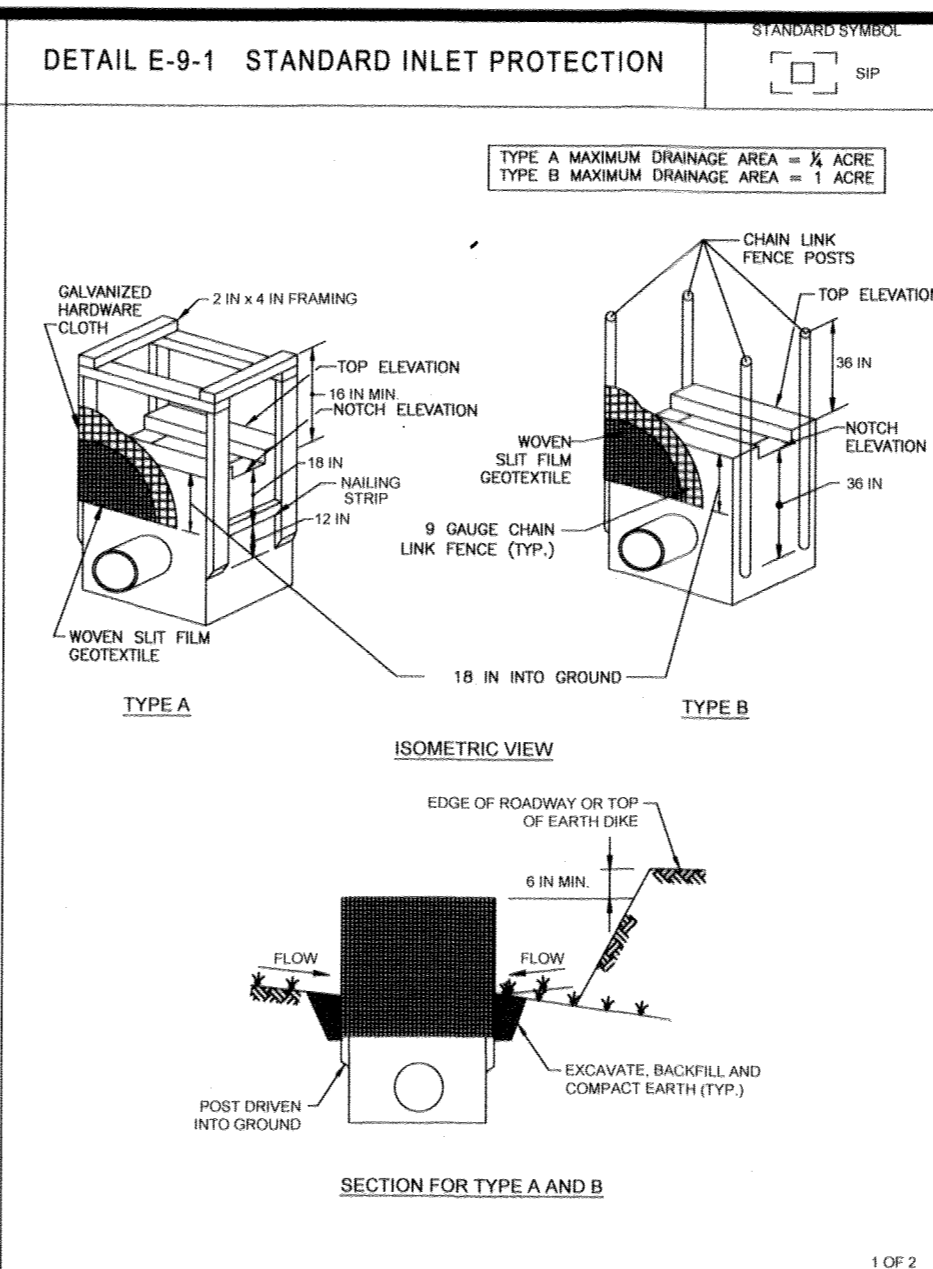
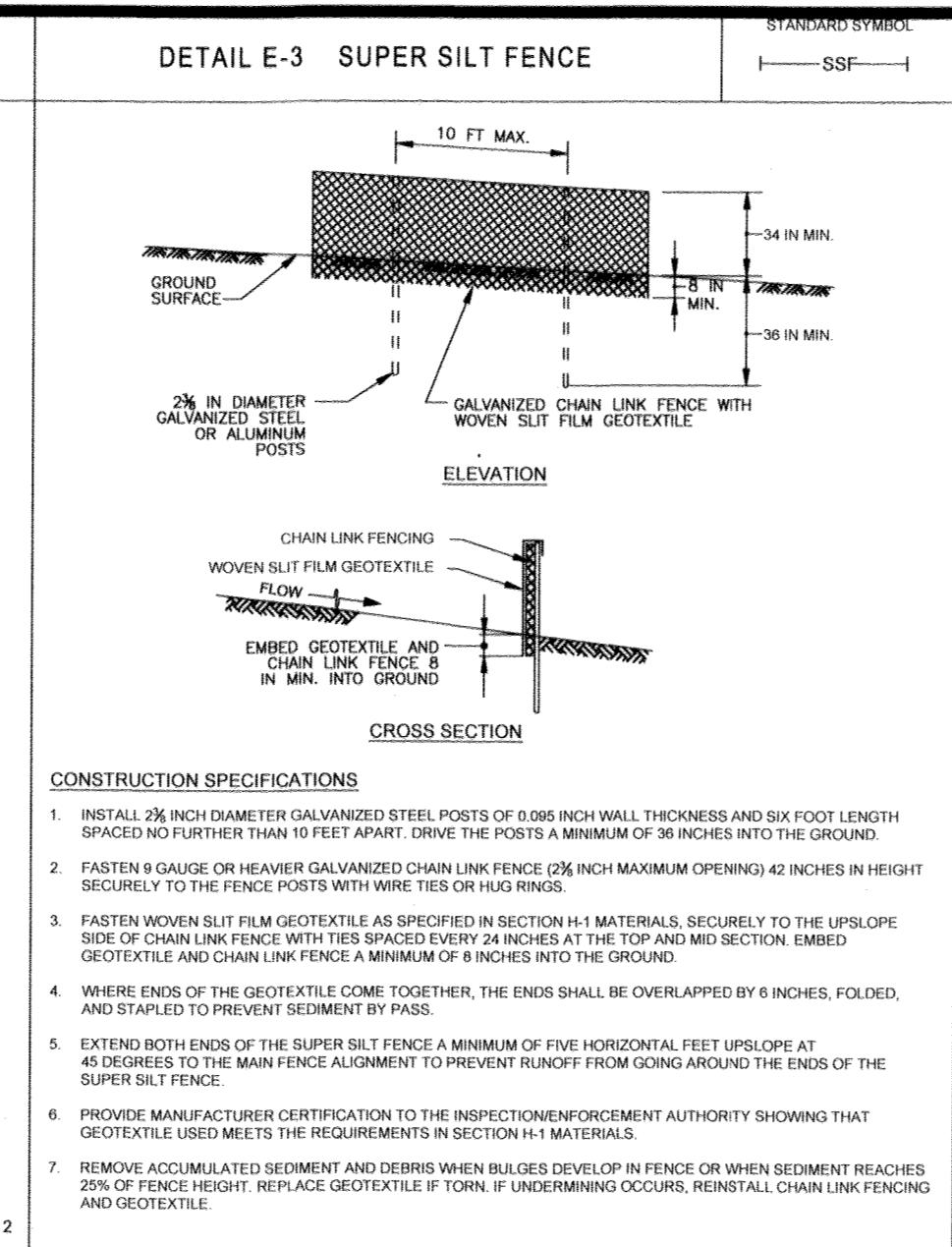
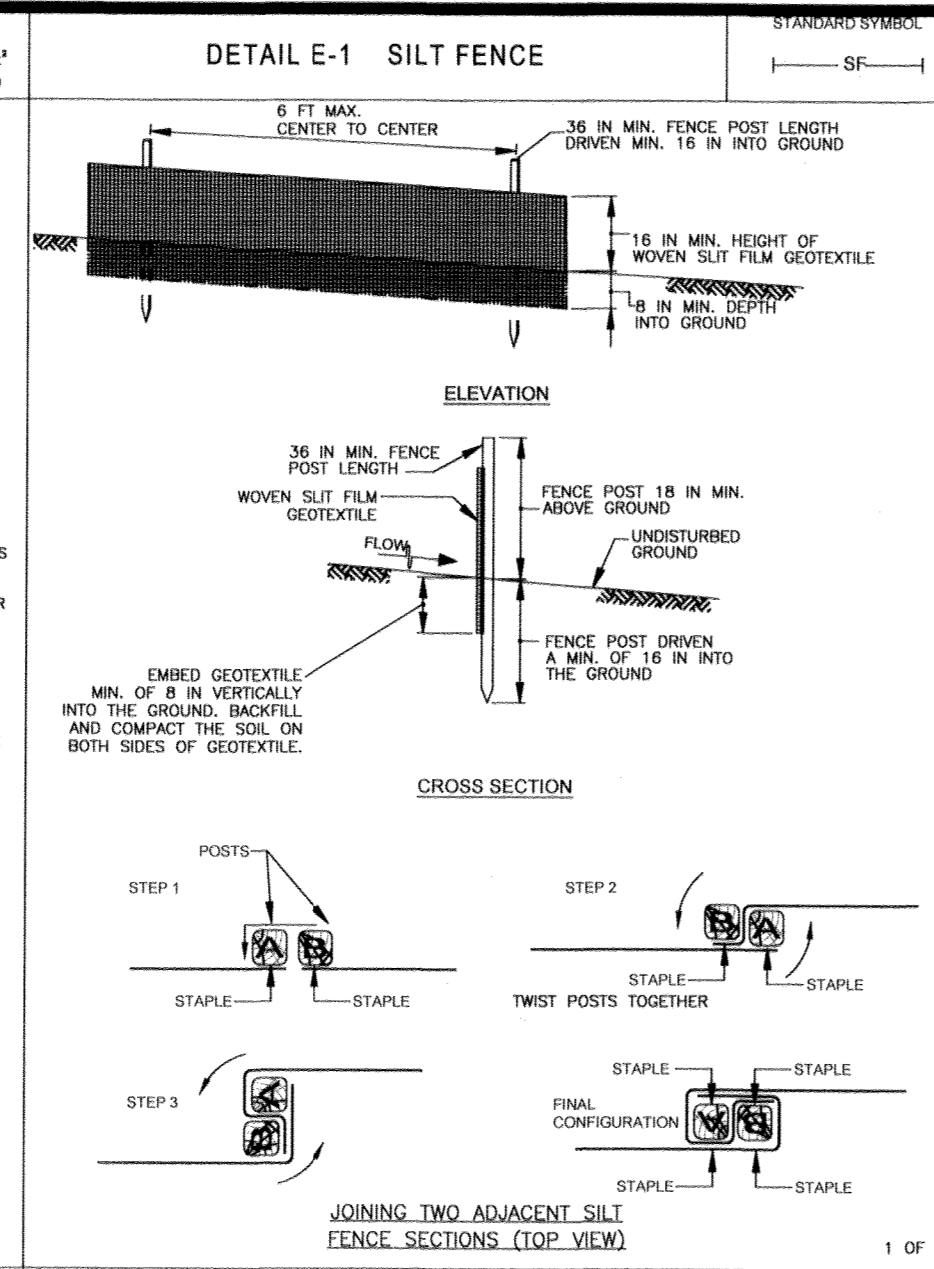
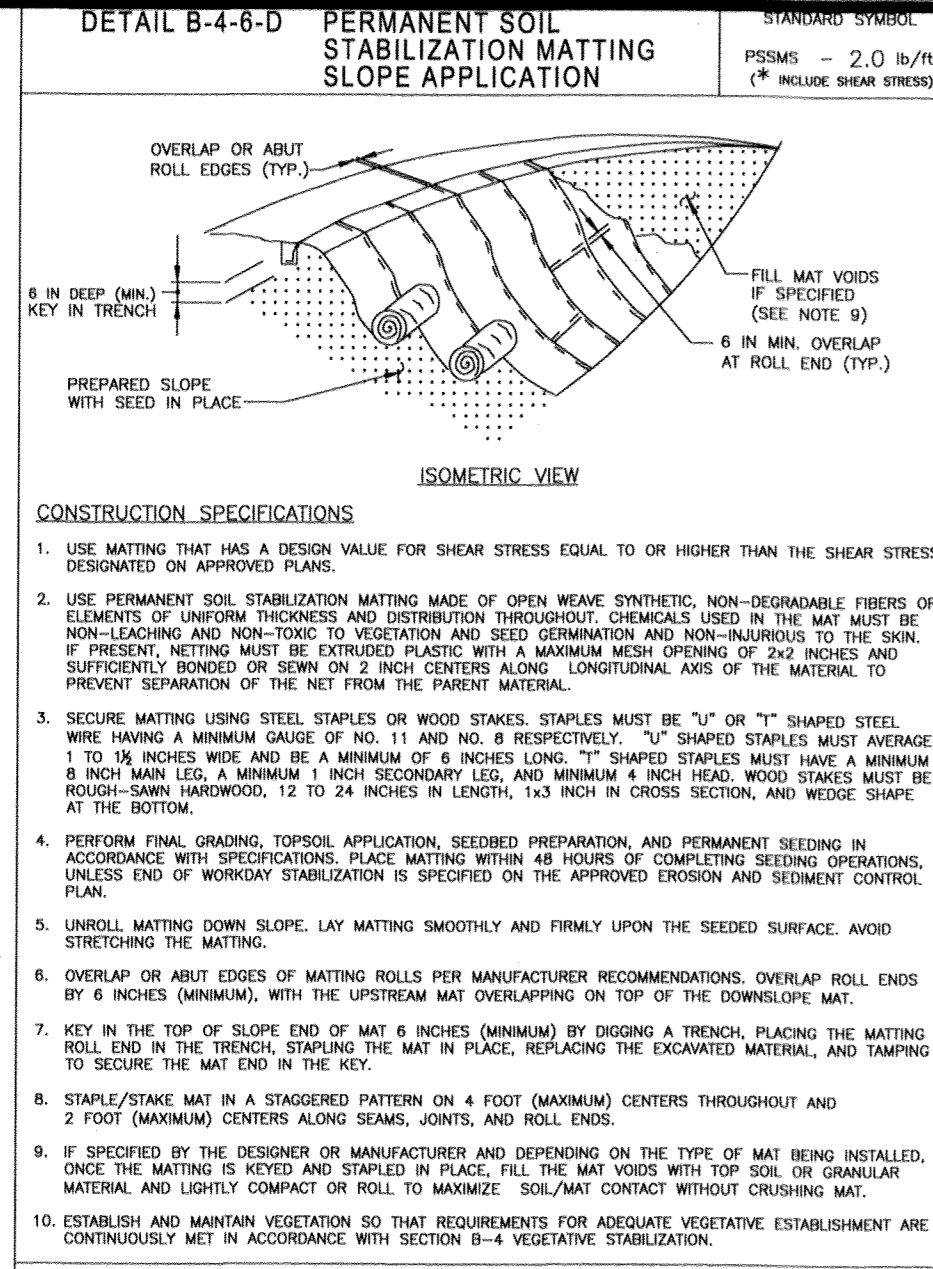
OWNER: STEPHEN A. KLEIN & ASSOCIATES, RIVER HILL SQUARE, LLC.
 DEVELOPER: RIVER HILL SQUARE, LLC.
 12165 CLARKSVILLE PIKE, P.O. BOX 417, ELLICOTT CITY, MARYLAND 21041
 CLARKSVILLE, MD 21029 (410) 465-4244 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
 PARCEL 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: ECP - 17 - 023
 SDP - 18 - 044
 WP - 18 - 095

PROFESSIONAL CERTIFICATION: I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 4895, EXPIRATION DATE: 7/31/2019.

AS-BUILT



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011. MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES ADMINISTRATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011. MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES ADMINISTRATION.

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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

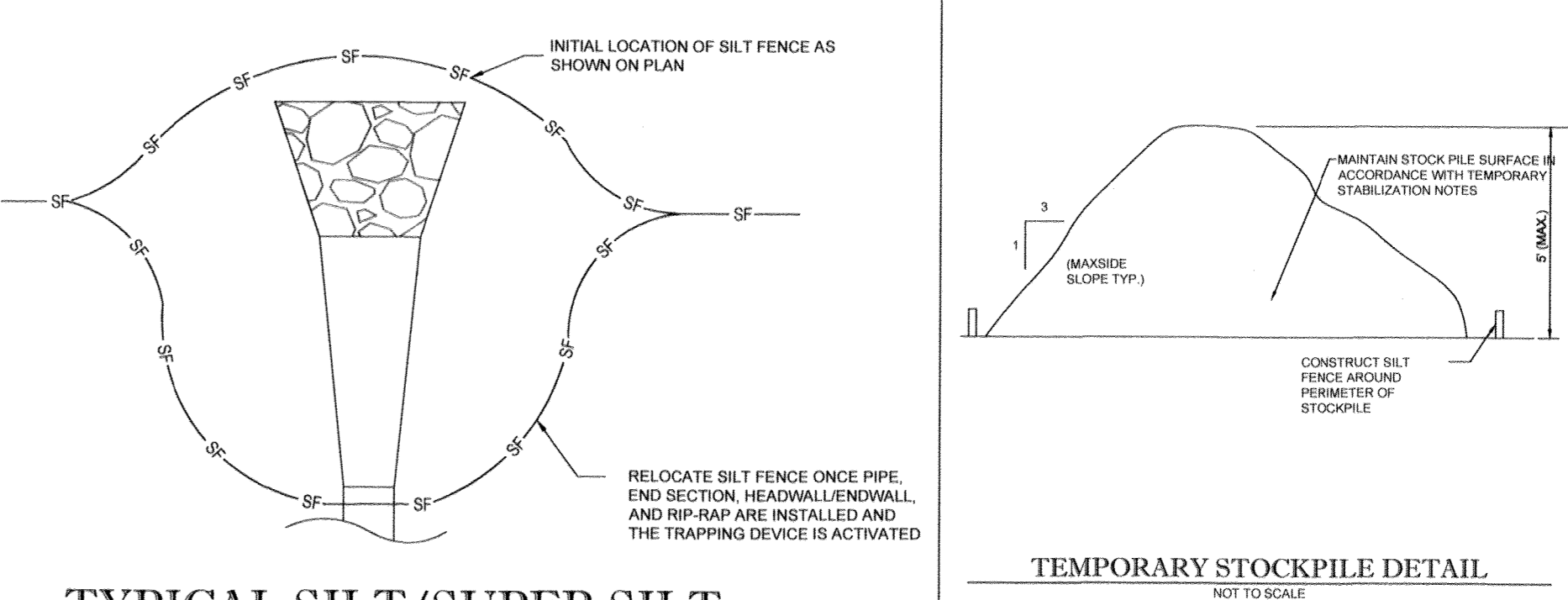
PROJECT: **FINAL ROAD CONSTRUCTION PLANS FOR MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT**
LOCATION OF SITE: INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

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
1994 AND LICENSE NO. 4858
11/19/19
SHEET TITLE: **EROSION AND SEDIMENT CONTROL DETAILS**
SHEET NUMBER: **29**
F-18-099

SEQUENCE OF CONSTRUCTION

- OBTAIN ALL NECESSARY PERMITS. CONDUCT A PRE-CONSTRUCTION MEETING. CONTRACTOR TO NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. CONTACT THE MARYLAND STATE HIGHWAY ADMINISTRATION AT 410-277-6015 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PERSONNEL HAVE MET ON-SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR AND THE MARYLAND STATE HIGHWAY ADMINISTRATION TO REVIEW THE APPROVED PLANS. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROVED SHA ACCESS PERMIT PLANS AND THE HOWARD COUNTY APPROVED EROSION AND SEDIMENT CONTROL PLANS. (1 DAY)
- CLEAR MINIMUM AREA NECESSARY TO INSTALL SEDIMENT CONTROLS. (3 DAYS)
- INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 DAY)
- INSTALL PERIMETER SUPER SILT FENCE AND SILT FENCE AS SHOWN ON THE PLANS. (1 WEEK)
- UPON APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB THE AREAS IDENTIFIED ON THE PLANS. (2 WEEKS)
- PERFORM ALL UTILITY TEST PITS (2-3 DAYS).
 - DISTURBED AREAS WITHIN THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED SHALL BE PERMANENTLY OR TEMPORARILY STABILIZED WITHIN:
 - THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
 - SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT. ALL HARD SURFACE PUBLIC ROADS SHALL BE CLEANED AT THE END OF EACH WORK DAY.
- PERIODIC MAINTENANCE OF ALL SEDIMENT CONTROL MEASURES IS REQUIRED TO ENSURE EFFECTIVE SEDIMENT CONTROL. INSPECTION OF ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MADE AT LEAST WEEKLY AND AFTER EACH RAINFALL EVENT. REPAIRS SHALL BE MADE WITHIN 24 HOURS OF THE RAIN EVENT OR WHEN OTHERWISE IDENTIFIED. (ONGOING)
- BEGIN DEMOLITION OF EXISTING CURB, UTILITIES, AND OTHER ITEMS TO BE DEMOLISHED AS OUTLINED ON THE DEMOLITION PLAN. DEMOLITION OF ITEMS LISTED AND SHOWN ON PLAN MAY OCCUR CONCURRENTLY. (1 WEEK)
- ROUGH GRADE THE AREA OF THE PROPOSED ROAD IMPROVEMENTS AND STORMWATER MANAGEMENT FACILITIES WITH EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLANS. BEGIN INSTALLATION OF STORM DRAIN AND ASSOCIATED STORM DRAIN STRUCTURES. ADJUST SUPER SILT FENCE ACCORDINGLY. IMMEDIATELY INSTALL INLET PROTECTION ON ALL INLETS AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS. CONTRACTOR SHALL PERFORM SUFFICIENT GRADING ON ALL INLETS TO ENSURE THAT IT IS CAPABLE OF FUNCTIONING AND CAPTURING ALL UPSLOPE FLOWS. CONTRACTOR TO INSTALL STORM DRAIN OUTLET, AND INSTALL STORM DRAIN BEGINNING FROM DOWNSTREAM END OF PIPE AND CONTINUING UPSTREAM. REMOVE SECTIONS OF SUPER SILT FENCE AS REQUIRED TO INSTALL UTILITIES OR PERFORM OTHER ROAD IMPROVEMENT RELATED CONSTRUCTION ACTIVITIES. IMMEDIATELY SHIFT AND REPLACE SUPER SILT FENCE IN THESE AREAS ONCE ACTIVITY IS COMPLETED. SUPER SILT FENCE SHALL ALSO BE REPLACED AT THE END OF EACH WORK DAY IF WORK ACTIVITY IS NOT COMPLETED AND PRIOR TO EACH RAIN EVENT AS NECESSARY. (3 WEEKS)
- INSTALL CURB AND GUTTER. APPLY STONE SUBBASE AND ASPHALT PAVEMENT FOR ALL ROAD IMPROVEMENT AREAS. (1 WEEK)
- FINE GRADE ALL REMAINING AREAS WITHIN THE SHA RIGHT-OF-WAY. AS SITE IS BROUGHT TO FINAL GRADE, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN SEVEN (7) CALENDAR DAYS. (1 WEEK)
- AFTER THE SITE IS 95% STABILIZED, INSTALL STORMWATER MANAGEMENT QUALITY FACILITIES, AND PERMANENT LANDSCAPING WITHIN THE STORMWATER FACILITIES. (2 WEEKS)
- AFTER ALL CONSTRUCTION HAS BEEN COMPLETED AND UPON APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES. (1 WEEK)
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.



TYPICAL SILT/SUPER SILT FENCE INSTALLATION DETAIL AT PIPE OUTFALL

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS: *[Signature]* DATE: 2/6/2019
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 3-6-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 3-21-19
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21643, Expiration Date: 12/2/22
AS-BUILT
PREVIOUS FILE NO.: ECP-17-023
SDP-18-044
WP-18-095
PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 4858, EXPIRATION DATE: 7/3/2019

Table B.7: Soil Stabilization on Slopes

Slope	30:1 or Flatter (≤3%)	<30:1 to 4:1 (>3.25%)	<4:1 to 3:1 (>3.33%)	<3:1 to 2.5:1 (>3.33-40%)	<2.5:1 to 2:1+** (>40-50%)	
Slope Length (feet)	0-30	30-60	60-120	0-30	30-60	60-120
Staw Mulch/Wood Cellulose Fiber	for Ks & Sj30**					
Temporary Matting with Design Shear Stress ≥ 1.5 lbf/ft²	0-30	30-60	60-120	0-30	30-60	60-120
Temporary Matting with Design Shear Stress = 1.75 lbf/ft²	0-30	30-60	60-120	0-30	30-60	60-120
Temporary Matting with Design Shear Stress = 2.0 lbf/ft²	0-30	30-60	60-120	0-30	30-60	60-120
Temporary Matting with Design Shear Stress = 2.25 lbf/ft²	0-30	30-60	60-120	0-30	30-60	60-120

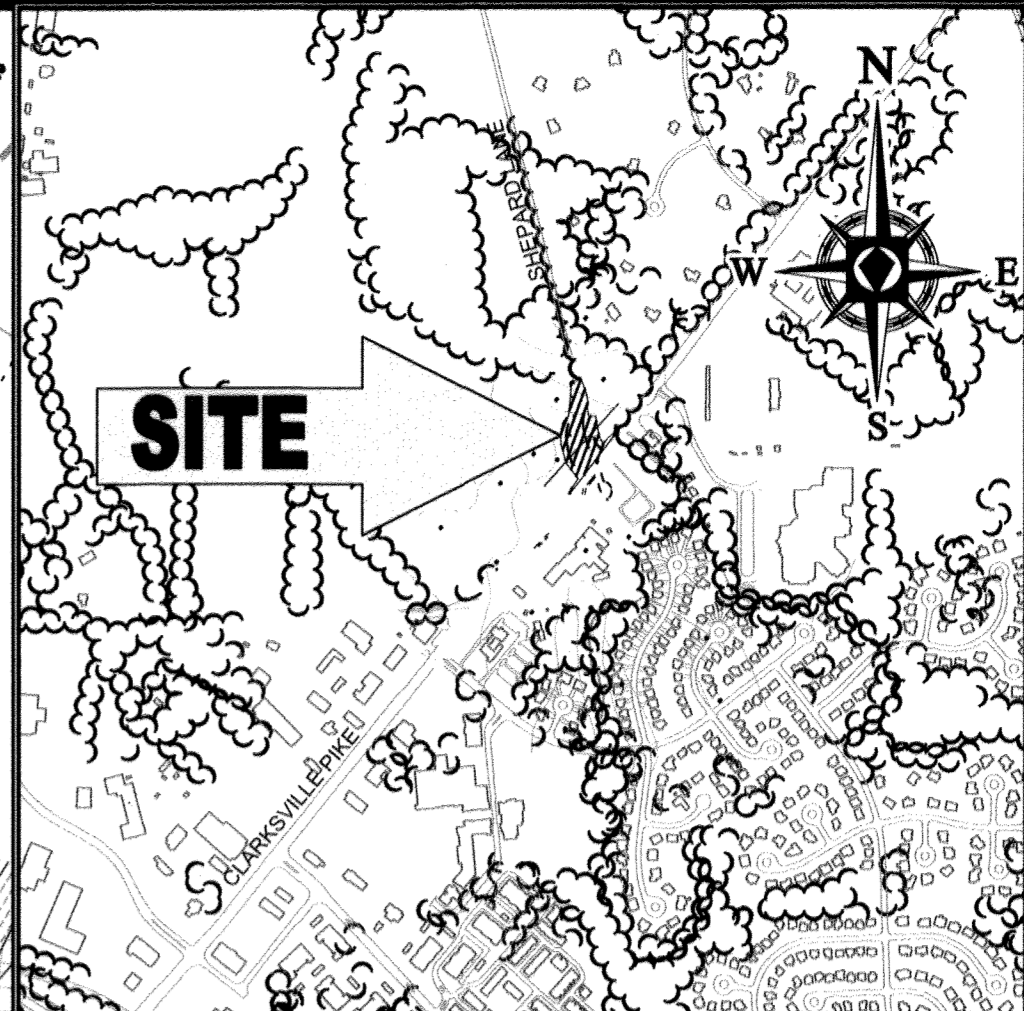
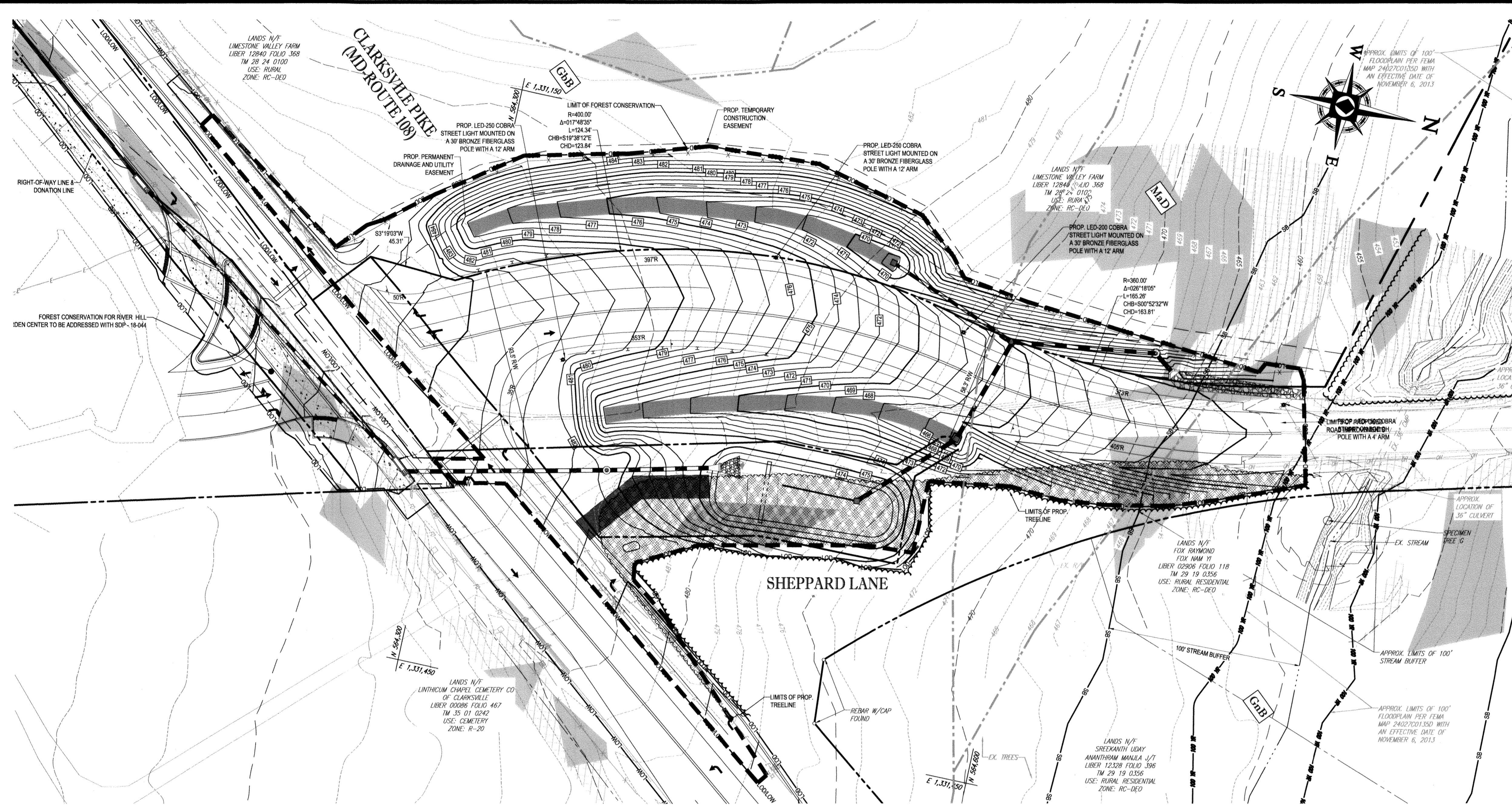
Effective range for all K values unless otherwise specified

TABLE B.7: SOIL STABILIZATION ON SLOPES
SHEAR STRESS FOR SLOPES CALCULATED FROM THIS TABLE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] DATE: 3/4/19
HOWARD SOIL CONSERVATION DISTRICT

ENGINEER'S CERTIFICATE
"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
[Signature] DATE: 11/01/19
SIGNATURE OF ENGINEER: BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE
"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. ALSO, AUTHORITY PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
[Signature] DATE: 11/1/19
SIGNATURE OF DEVELOPER: BRANDON R. ROWE, P.E.

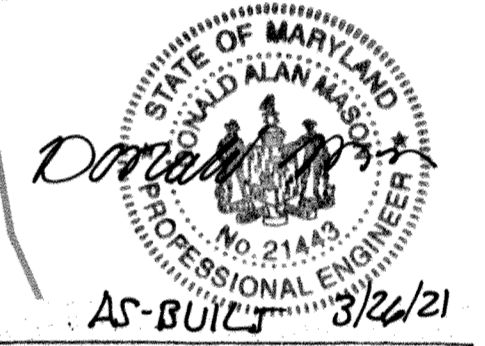


VICINITY FOREST COVER MAP
(ONE SQUARE MILE)
SCALE: 1"=1,000'

"No AS-BUILT INFORMATION IS PROVIDED THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 Expiration Date: 2/21/22



BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING

LAND SURVEYING
PLANNING ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW
ALWAYS CALL 811
BEFORE YOU DIG
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRR
DATE: 12/18/18
SCALE: AS SHOWN
CAD ID: FC2

FINAL ROAD CONSTRUCTION PLANS FOR MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT

LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
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

SHEET TITLE: **FOREST CONSERVATION PLAN**

SHEET NUMBER: **30**

F-18-099

LEGEND

- RIGHT OF WAY LINE
- WETLAND BUFFER LIMITS
- LIMIT OF DISTURBANCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- TREE PROTECTION FENCE
- ROOT PRUNING & FERTILIZATION
- SPECIMEN TREES WITH CRITICAL ROOT ZONE
- SOILS BOUNDARY
- 100-FOOT STREAM BUFFER
- EXISTING TREE LINE
- STEEP SLOPES 15-24.99%
- STEEP SLOPES 25% +
- TREE CLEARING AREA

SOIL TYPES ONSITE

SYMBOL	SOIL SERIES	HYDROLOGIC SOIL GROUP	HYDRIC SOIL	SLOPES	K FACTOR
GbB	GLADSTONE LOAM	A	NO	3 - 8%	.32
GbC	GLADSTONE LOAM	A	NO	8 - 15%	.32
GnB	GLENVILLE-BAIL E SILT LOAMS	C	NO	0 - 8%	.49
MaD	MANOR LOAM	B	NO	15 - 25%	.32

SPECIMEN TREE TABLE

KEY	SPECIES TYPE	SIZE	CONDITION	NOTES
G	TULIP POPLAR	52"	FAIR	TO REMAIN

SITE DATA SHEPPARD LANE IMPROVEMENTS

	TOTAL
LIMIT OF DISTURBANCE	1.85 AC.
AREA OF WETLANDS AND BUFFER	0.00 AC.
AREA OF 100-YR FLOODPLAIN	0.00 AC.
AREA OF STEEP SLOPES (15% OR GREATER)	0.00 AC.
AREA OF EXISTING IMPERVIOUS	0.31 AC.
NET TRACT AREA	1.34 AC.
PRESENT ZONING DESIGNATION	RC-DEO
PROPOSED USE:	INTERSECTION IMPROVEMENTS

NOTES:

- THERE ARE NO CHAMPION TREES AND/OR TREES 75% FOR THE SIZE OF ANY CHAMPION TREE.
- THERE ARE NO RARE, THREATENED AND ENDANGERED SPECIES OF THEIR HABITATS ON THIS SITE.

FOREST CONSERVATION FULFILLMENT NOTE:

- FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS ROAD IMPROVEMENT PLAN WILL BE FULFILLED BY A FEE IN LIEU TO HOWARD COUNTY OF 0.40 ACRES FOR \$16,652.

FOREST CONSERVATION SEQUENCE OF CONSTRUCTION

- PRE CONSTRUCTION MEETING SHALL BE HELD BETWEEN DEVELOPER, CONTRACTOR, AND COUNTY INSPECTOR.
- SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLAN FOR SITE. TEMPORARY TREE PROTECTIVE FENCING SPECIFICALLY AROUND SPECIMEN TREE G PRIOR TO ANY GRADING.
- SITE SHALL BE GRADED, INFRASTRUCTURE INSTALLED AND CONSTRUCTED. DISTURBED AREAS SHALL BE STABILIZED. PERMANENT SIGNAGE IN POOR CONDITION SHALL BE REPLACED.
- POSTCONSTRUCTION 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.

FOREST CLEARING
FOREST TO BE CLEARED = 0.20 AC

FCP NOTES

- 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.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION AS OUTLINED IN THE FOREST CONSERVATION NEED OF EASEMENT EXCEPT AS PERMITTED BY HOWARD COUNTY.
- NO STOCKPILE, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED IN THE FOREST CONSERVATION EASEMENT.
- 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 0.20 ACRES OF FOREST FROM THE PROPOSED LIMIT OF DISTURBANCE. THIS FOREST CLEARING IS UNAVOIDABLE WITH THE ROAD IMPROVEMENTS. THIS PROJECT IS FOR PUBLIC SAFETY IMPROVEMENTS WHICH IS CONSIDERED INSTITUTIONAL. THE PROPOSED CLEARING WILL NOT IMPACT HIGH PRIORITY FOREST OR FOREST AREAS.

NET TRACT AREA:

A. Total tract area	1.34
B. Area within 100 year floodplain	0.00
C. Area to remain in agricultural production	0.00
D. Net tract area	1.34

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	CA
	0	0	1	0	0	0

EXISTING FOREST COVER

G. Existing forest cover (excluding floodplain)	0.20
H. Area of forest above afforestation threshold	0.00
I. Area of forest above conservation threshold	0.00

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation	0.00
K. Clearing permitted without mitigation	0.00

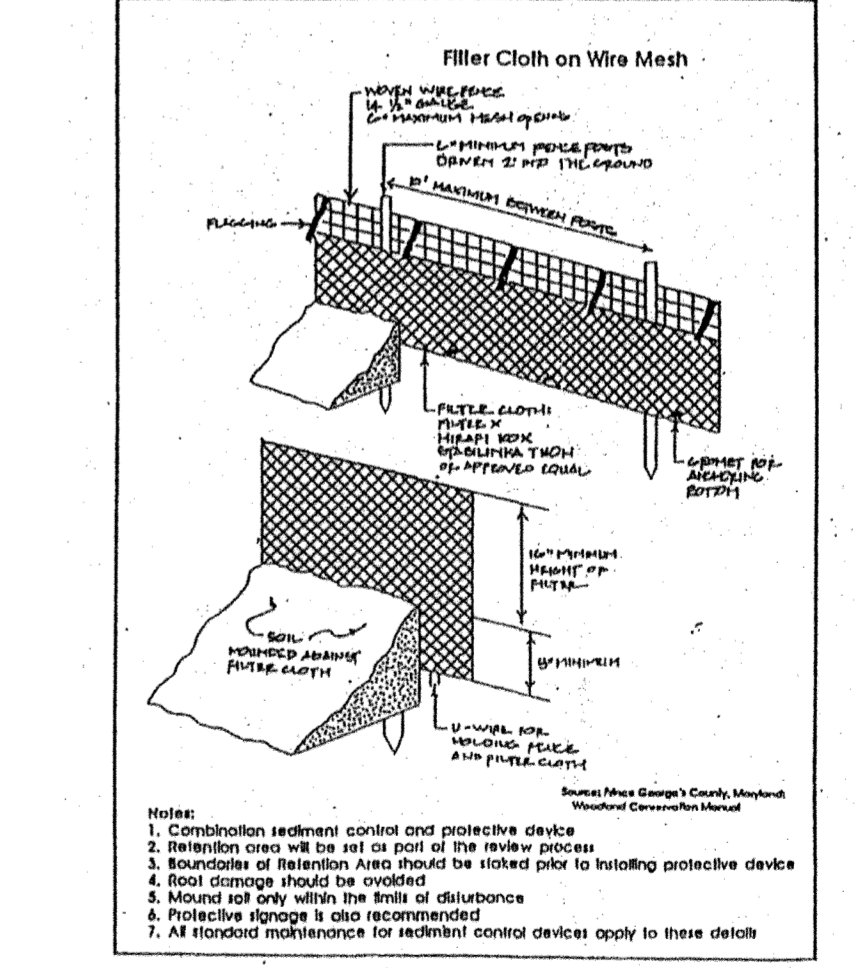
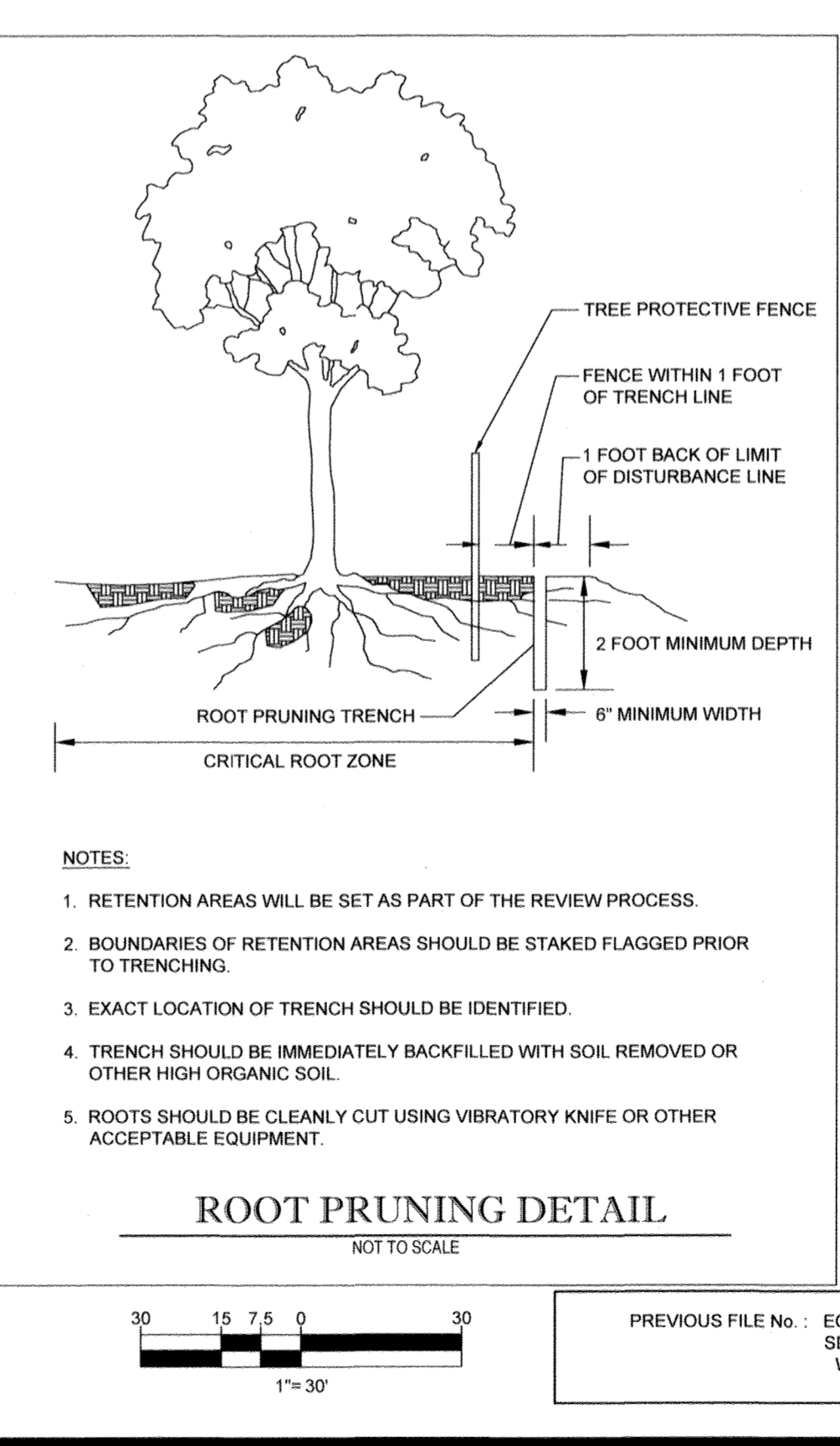
PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared	0.20
M. Total area of forest to be retained	0.00

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold	0.00
P. Reforestation for clearing below conservation threshold	0.40
Q. Credit for retention above conservation threshold	0.00
R. Total reforestation required	0.40
S. Total afforestation required	0.00
T. Total reforestation and afforestation required	0.40

NOTE: NET TRACT AREA BASED ON L.O.D. EXCEPTING THE PORTION OVERLAPPING THE RIVER HILL GARDEN CENTER SDP-18-044 WHICH CONSISTS OF 1.34 AC. (GROSS TOTAL FOR THE PROJECT IS 2.68 AC.)



PROTECTIVE TREE FENCE DETAIL
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19

APPROVED: DEVELOPMENT ENGINEERING DIVISION DATE: 2-21-19

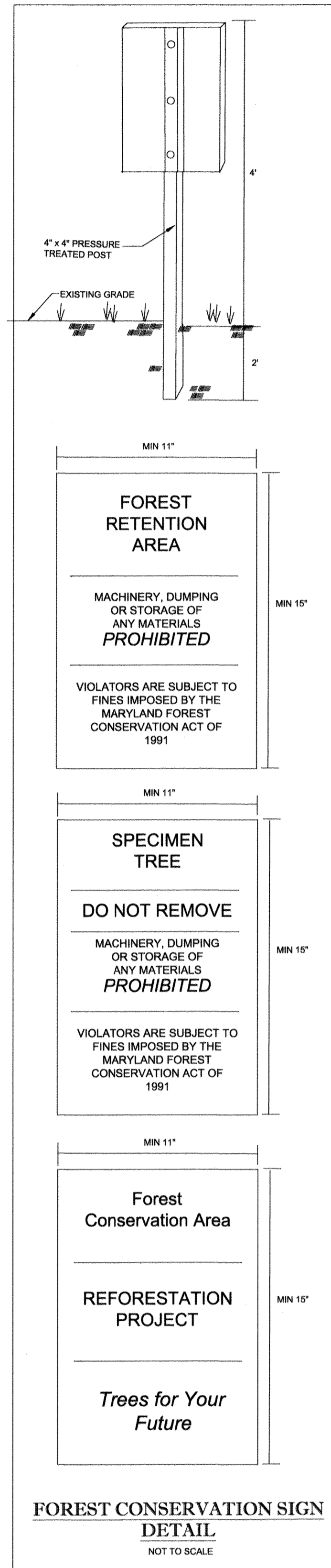
OWNER: STEPHEN A. KLEIN & ASSOCIATES RIVER HILL SQUARE, LLC
C/O STEPHEN A. KLEIN, INC. P.O. BOX 417
12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21044
CLARKSVILLE, MD 21029 (410) 465-4244

DEVELOPER: STEPHEN A. KLEIN & ASSOCIATES RIVER HILL SQUARE, LLC
P.O. BOX 417
12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21044
CLARKSVILLE, MD 21029 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
PARCEL: 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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

AS-BUILT



9. PLANTING

A. INsofar that it is feasible, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNPLANTED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:

1.1. PLANTS: MARCH 15 TO DECEMBER 15
 1.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

G. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

H. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:

ACER RUBRUM PLATANUS X ACERIFOLIA
 BETULA VARIETIES POPULUS VARIETIES
 CARPINUS VARIETIES PRUNUS VARIETIES
 CRATAEGUS VARIETIES PYRUS VARIETIES
 KOELNUTERIA QUERCUS VARIETIES
 LIQUIDAMBER STRYACIFLUA TILIA TOMENTOSA
 LIRODENDRON TULIPIFERA ZELKOVA VARIETIES

I. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:

+1 PART PEAT MOSS
 +1 PART COMPOSTED COW MANURE BY VOLUME
 +3 PARTS TOPSOIL BY VOLUME
 +21 GRAMS AGRIFORM PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
 A) 2 TABLETS PER 1 GALLON PLANT
 B) 3 TABLETS PER 5 GALLON PLANT
 C) 4 TABLETS PER 15 GALLON PLANT
 D) LARGER PLANTS: 2 TABLETS PER 1/2" CALIBER OF TRUNK

J. FILL PREPARED SOIL AROUND BALL BY PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

K. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

L. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

M. GROUND COVER AREAS SHALL RECEIVE A 1/2" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WATERED AND TREATED WITH A PRE-EMERGENT HERBICIDE AS PER MANUFACTURER'S RECOMMENDATION.

N. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

O. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

P. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)

A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING

A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATER BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE

A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOVING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP

A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

REFORESTATION PLAN

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

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED BY LOCAL RESIDENTS. THE REFORESTATION PLAN IS BASED ON THE SOIL TYPE ON THE PLANTING SITE. SPECIES SELECTION WAS ALSO BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

REFORESTATION WILL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF VINES AND BRANCHED TRANSPLANTS. CONTAINER GROWN STOCK IS RECOMMENDED FOR PLANTING. STOCK MAY BE USED TO HELP CONTROL AFFORESTATION COSTS. IF BARE ROOT STOCK IS USED THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PRIOR TO PLANTING THE PROPOSED FOREST CONSERVATION EASEMENT SHALL BE MAINTAINED FOR A PERIOD OF 24 MONTHS. DURING THIS PERIOD, THE CONTRACTOR SHALL MAINTAIN THE EASEMENT WITH WEEDING AND NUTRIENT APPLICATIONS. THE CONTRACTOR SHALL MAINTAIN THE EASEMENT WITH WEEDING AND NUTRIENT APPLICATIONS. THE CONTRACTOR SHALL MAINTAIN THE EASEMENT WITH WEEDING AND NUTRIENT APPLICATIONS. THE CONTRACTOR SHALL MAINTAIN THE EASEMENT WITH WEEDING AND NUTRIENT APPLICATIONS.

B. PLANTING AND SOIL SPECIFICATIONS

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

C. MAINTENANCE OF PLANTINGS

SEE POST CONSTRUCTION NOTES

D. GUARANTEE REQUIREMENTS

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

E. SECURITY FOR REFORESTATION

SECTION 16-1209 OF THE HOWARD COUNTY FOREST CONSERVATION ACT REQUIRES THAT A DEVELOPER SHALL POST A SECURITY (BOND, LETTER OF CREDIT, ETC.) WITH THE COUNTY TO INSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF A TREE'S ROOTS MAY BE FOUND. THE MAINTENANCE OF THIS AREA IS CRITICAL TO THE HEALTH AND SURVIVAL OF THE TREE. THE CRITICAL ROOT ZONE OF THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/REFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY INSPECTOR TO VERIFY THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

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

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE DEDUCTED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.

BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION:

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

E. CONSTRUCTION MONITORING

ECO SCIENCE PROFESSIONALS OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO INSURE THAT ALL ACTIVITIES ARE IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.

F. POST-CONSTRUCTION MEETING

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

POST-CONSTRUCTION MANAGEMENT PLAN

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

A. FENCING AND SIGNAGE

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

B. GENERAL SITE INSPECTIONS/MAINTENANCE OF PLANTINGS

SITE INSPECTIONS WILL BE PERFORMED A MINIMUM OF THREE TIMES DURING THE GROWING SEASON. THE PURPOSE OF THE INSPECTIONS WILL BE TO ASSESS THE HEALTH OF THE AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE. IN ADDITION, MAINTENANCE OF THE AFFORESTATION PLANTINGS WILL INVOLVE THE FOLLOWING STEPS:

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

C. EDUCATION

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

D. FINAL INSPECTION

AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, ECO SCIENCE PROFESSIONALS OR ANOTHER QUALIFIED PROFESSIONAL WILL SUBMIT TO THE ADMINISTRATION OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM A POST-CONSTRUCTION MANAGEMENT PLAN CERTIFICATION. IF THE PLAN HAS BEEN COMPLETED AND APPROVED BY THE COUNTY, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE BOND TO THE DEVELOPER.

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH - NOVEMBER 15TH.
2. A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL CONSTRUCTION AREAS IMPACTED BY SITE PLANTING TO ASSURE A SUITABLE PLANTING AREA.
3. ALL BARE ROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE PLANTED WITH THE TOP OF ROOT BALLS IS LEVEL WITH THE TOP OF EXISTING GRADE. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS TOPSOIL TO 1 PART PEAT MOSS OR EQUIVALENT.
5. A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
6. A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
7. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLANS.
2. PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER #10 OF PLANTING/SOIL SPECIFICATIONS FOR PROPOSED PLANTINGS.
3. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND THE PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
4. MAINTENANCE OF THE PLANTING SIGNAGE SHALL BE MAINTAINED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. MAINTENANCE OF PLANTINGS SHALL BE PERFORMED DURING THE 1ST GROWING SEASON. WATERING MAY BE MORE OR LESS FREQUENT DEPENDING ON WEATHER CONDITIONS. DURING SECOND GROWING SEASON, WATERING WILL BE MORE OR LESS FREQUENT DEPENDING ON WEATHER CONDITIONS.
3. IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES, TREATMENT WITH APPROPRIATE AGENT. SERIOUS PROBLEMS WILL BE REPORTED TO THE COUNTY INSPECTOR TO VERIFY THAT AFFORESTATION PLANTINGS HAVE BEEN INSTALLED.
4. PRUNING OF DEAD BRANCHES.
5. AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.

GUARANTEE REQUIREMENTS

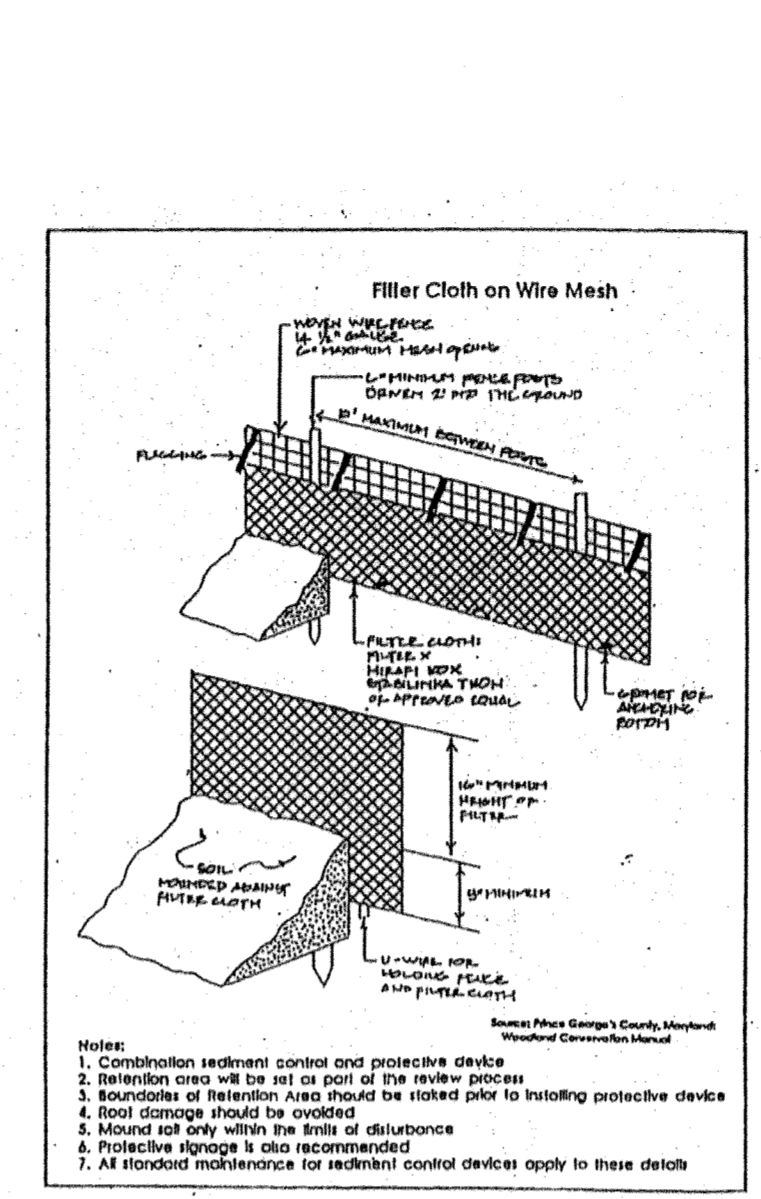
A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL RATE WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON.

SURETY FOR REFORESTATION

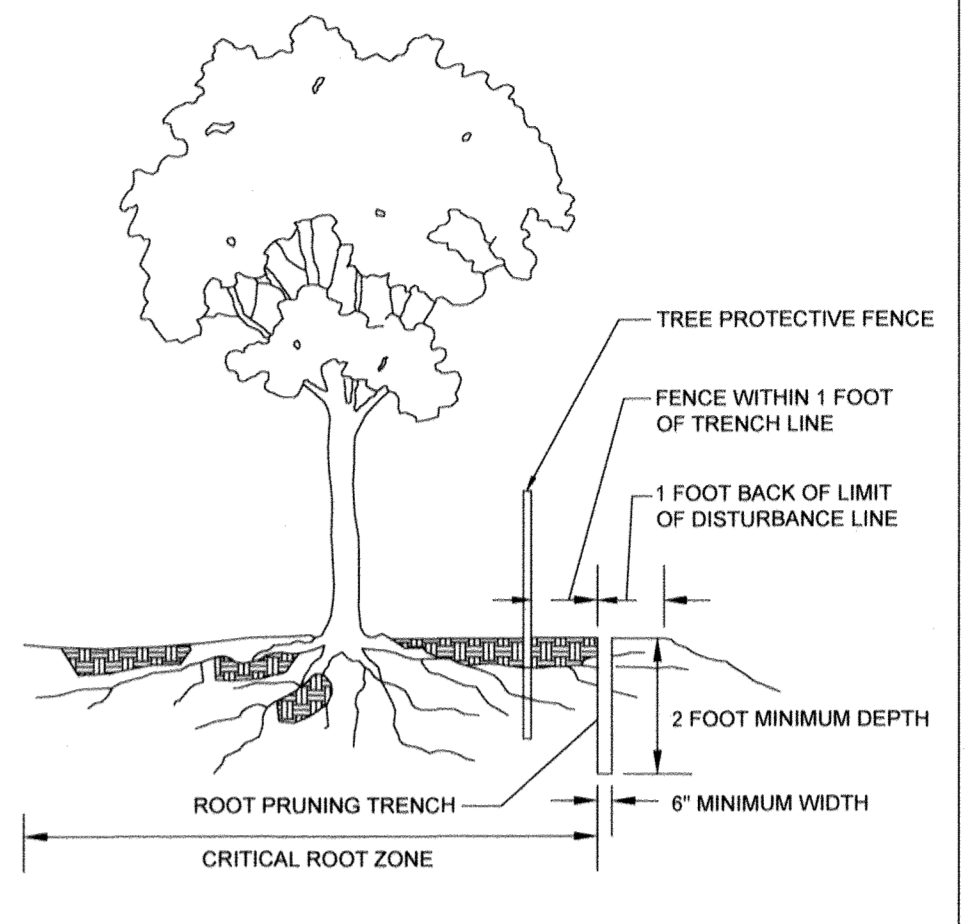
1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT FORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

FCP NOTES

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. FORESTED AREAS OCCURRING OUTSIDE OF THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
5. NO STOCKPILES, BARRIERS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
6. LIMITS OF DISTURBANCE SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. FENCING SHALL BE INSTALLED ALONG LIMITS OF DISTURBANCE OCCURRING WITHIN 50 FEET OF THE PROPOSED FCE LIMITS.
7. PERMANENT SIGNAGE WILL BE POSTED AT 50-100 FOOT INTERVALS ALONG ALL FCE LIMITS.
8. THE FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PROJECT WILL BE MET THROUGH THE INSTALLATION OF A PERMANENT FENCE ALONG THE BOUNDARY OF THE FOREST CONSERVATION EASEMENT AND TO AREAS OF THE REFORESTATION AREA WITHIN 50 FEET OF THE PROPOSED FCE LIMITS. **PARAMETER OF A PERMANENT FENCE TO HOWARD COUNTY OF 0.94 ACRES FOR 14,982'.**
9. EXISTING FOREST CALCULATIONS DIFFER BETWEEN THE APPROVED FOREST STAND DELINEATION AND THE FOREST CONSERVATION PLAN. THE DIFFERENCE IS LIMITED AND RESULTED IN A CALCULATION OF LESS THAN 1% OF THE FOREST CONSERVATION PLAN. THE EXISTING FOREST CALCULATION SHOWN IN THE FOREST CONSERVATION WORKSHEET IS THE CALCULATION OF LESS THAN 1% OF THE FOREST CONSERVATION PLAN.



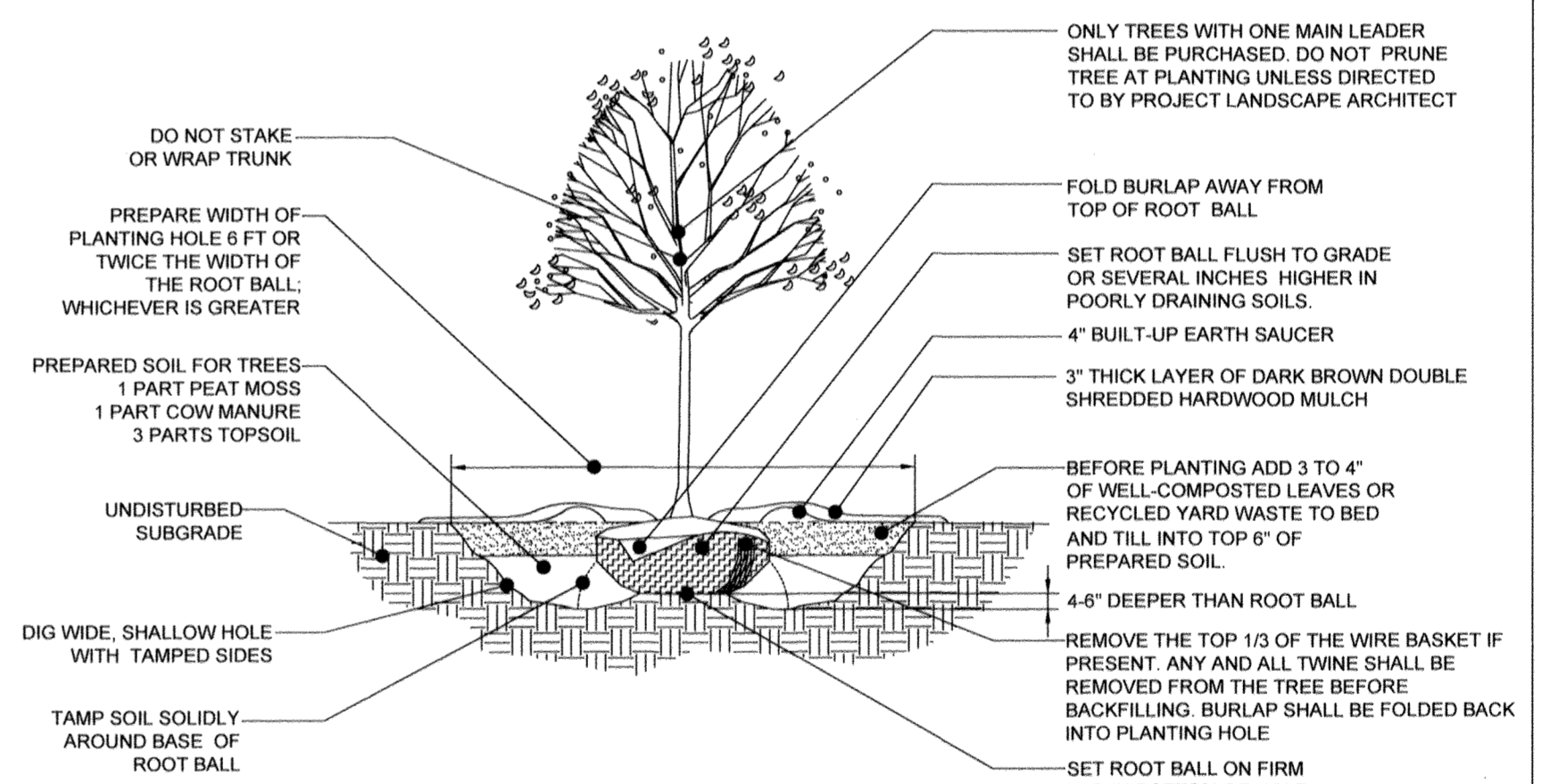
PROTECTIVE TREE FENCE DETAIL
NOT TO SCALE



ROOT PRUNING DETAIL
NOT TO SCALE

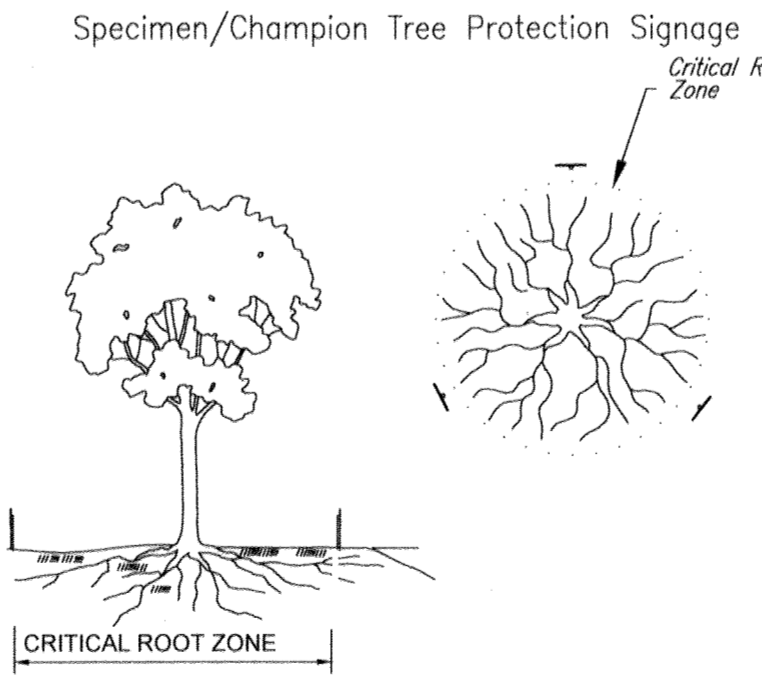
NOTES:

1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS.
2. BOUNDARIES OF RETENTION AREAS SHOULD BE STAKED FLAGGED PRIOR TO TRENCHING.
3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.
5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE METHOD.



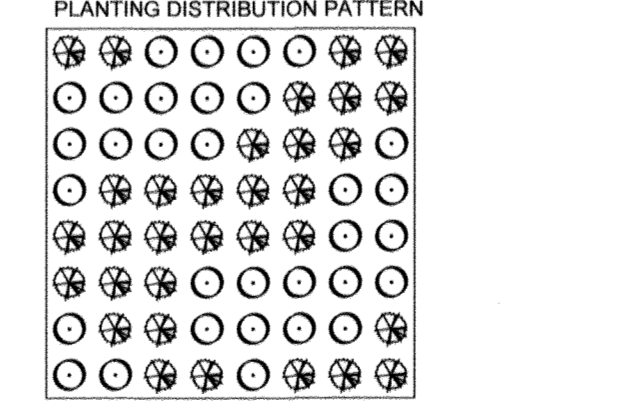
DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT



Notes:

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



PLANTING DISTRIBUTION PATTERN DETAIL
NOT TO SCALE

NOTE: NATURALLY OCCURRING POPULATIONS TEND TO BE FOUND IN INFORMAL GROUPINGS. A CLUSTER OF PLANTS IS REALLY A MOSAIC OF DIFFERENT SPECIES GROUPS. THE OBJECTIVE IS TO SELECT THE APPROPRIATE SPECIES AND DISTRIBUTION PATTERN FOR A CHOSEN SITE THAT MIMIC NATURAL PATTERNS.

PLANTING DISTRIBUTION PATTERN DETAIL
NOT TO SCALE

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443, Expiration Date: 12/21/22

AS-BUILT 3/21/21

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, BUREAU OF LAND DEVELOPMENT DATE: 3/6/19

APPROVED: DEPARTMENT OF ENGINEERING DIVISION DATE: 3-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES, RIVER HILL SQUARE, LLC.
 630 STEPHEN A. KLEIN, INC., P.O. BOX 417, 12165 CLARKSVILLE PIKE, CLARKSVILLE, MD 21029 (410) 465-4244

DEVELOPER: RIVER HILL SQUARE, LLC.
 ELLICOTT CITY, MARYLAND 21041 (410) 465-4244

TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO PARCEL: 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: ECP-17-023 SDP-18-044 WP-18-095

PROFESSIONAL CERTIFICATION
 I, E.R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3597, EXPIRATION DATE: 9/20/20

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 THE BOHLER ENGINEERING GROUP HAS BEEN FORMED BY THE MERGER OF BOHLER ENGINEERING AND BOHLER CONSULTING ENGINEERS. THE BOHLER ENGINEERING GROUP IS A 501(C)(3) NON-PROFIT CORPORATION.

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG

It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
 DRAWN BY: CJB
 CHECKED BY: BRB
 DATE: 12/18/18
 SCALE: AS SHOWN
 CAD I.D.: FC2

FINAL ROAD CONSTRUCTION PLANS

FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT

LOCATION OF SITE
 INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
 CLARKSVILLE, MD 21209
 ZONE: B-1, RC-DEO
 13TH ELECTION DISTRICT
 HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7600
 Fax: (410) 821-7887
 MD@BohlerEng.com

E.R. McWILLIAMS

REGISTERED PROFESSIONAL ARCHITECT
 STATE OF MARYLAND

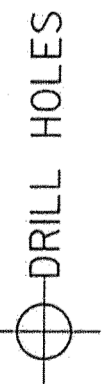
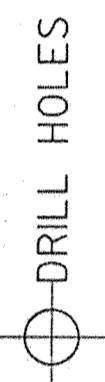
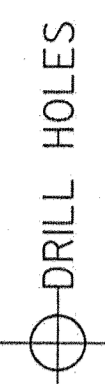
SHEET TITLE:
FOREST CONSERVATION PLAN NOTES AND DETAILS

SHEET NUMBER:
31

F-18-099

AS-BUILT

BORDER REV. DATE: SEPTEMBER 6, 2017



PROJECT DESCRIPTION
 THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF MD 108 (CLARKSVILLE PIKE) AND SHEPPARD LANE IN HOWARD COUNTY, MD 108 (CLARKSVILLE PIKE) IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION
 THE INTERSECTION WILL OPERATE IN A NEMA SIX-PHASE, FULLY-ACTUATED MODE WITH EXCLUSIVE-PERMISSIVE LEFT TURN PHASES FOR MD 108 (CLARKSVILLE PIKE) AND SIDE STREET SPLIT PHASING. VIDEO DETECTION WILL BE USED.

CONTROLLER REQUIREMENTS
 INSTALL EIGHT-PHASE, FULLY-ACTUATED CONTROLLER WITH VIDEO INTERFACE EQUIPMENT, 2-WIRE CENTRAL CONTROL UNIT, CELLULAR MODEM AND ALL OTHER NECESSARY EQUIPMENT IN A BASE MOUNTED 'S' TYPE CABINET.

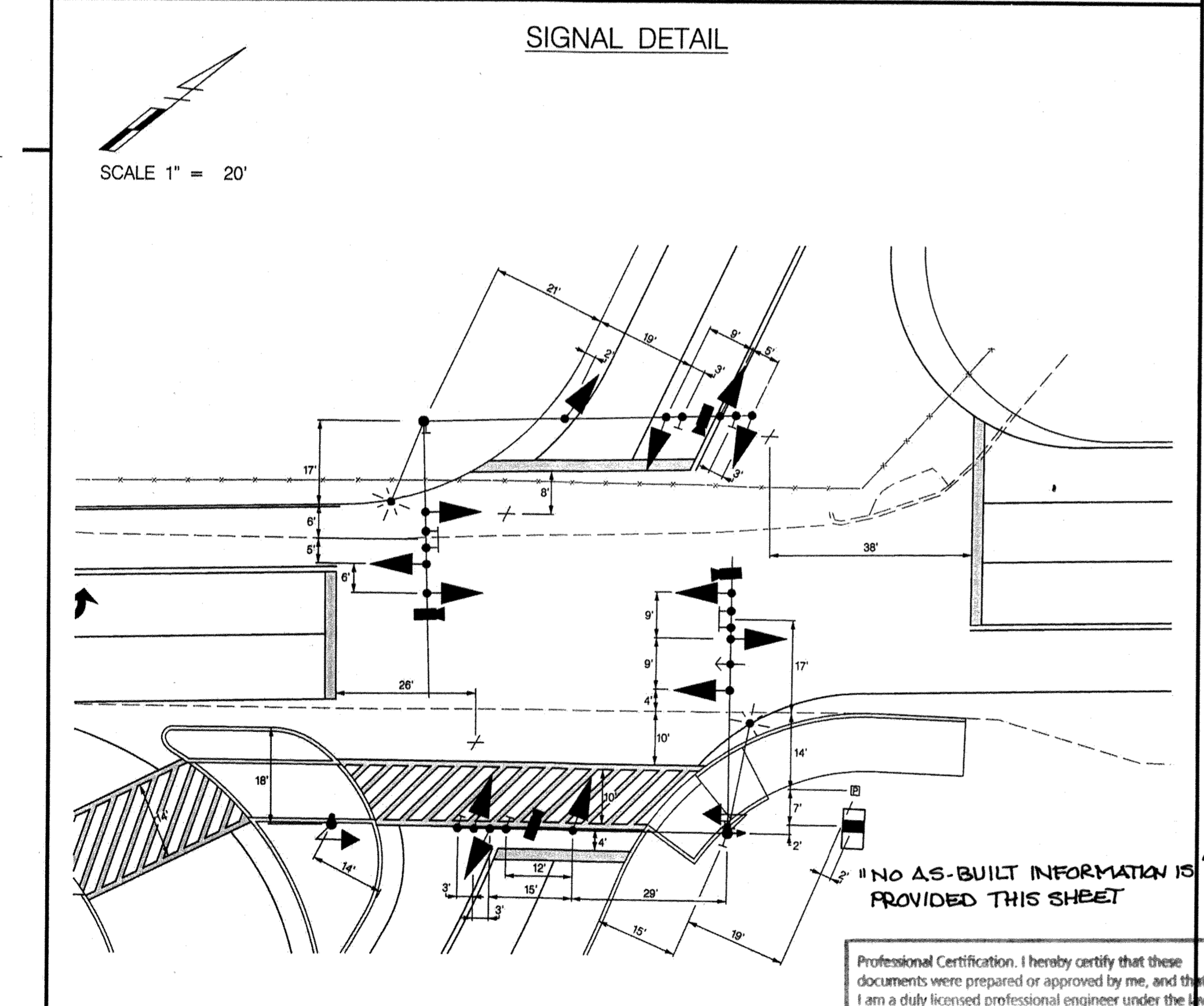
APS NOTES
 TO CROSS RIVER HILL ENTRANCE

A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT WILL ANNOUNCE "WAIT TO CROSS RIVER HILL ENTRANCE AT CLARKSVILLE, WAIT."

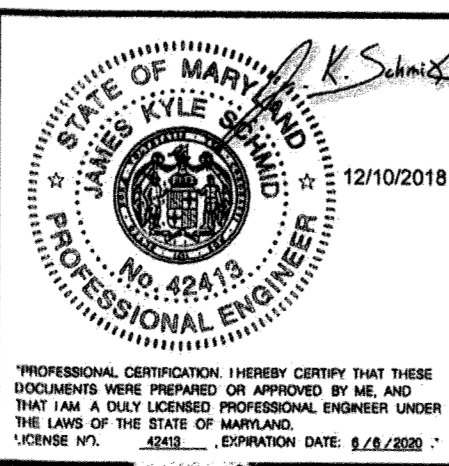
B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK, WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE

APS PEDESTRIAN SIGNAL NOTES

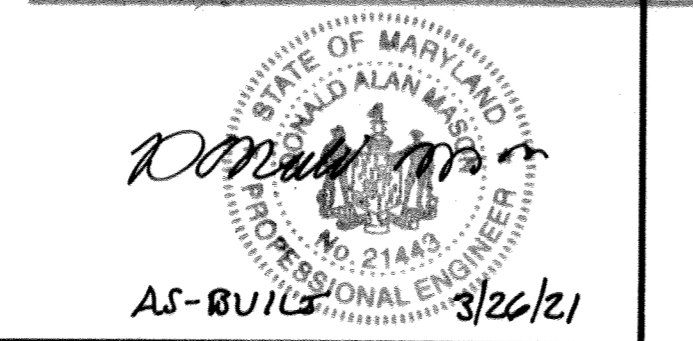
- PUSHBUTTONS ARE TO BE LOCATED SO THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18" FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
- THE 10' SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM THE FACE OF THE PUSHBUTTON TO THE FACE OF THE PUSHBUTTON, NOT CENTER TO CENTER OF POLE.
- PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
- LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.08 + 4E.10 AND FIG. 4E-3 + 4E-4 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATION UNTIL A DESIGN WAIVER IS OBTAINED AND APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.
- ALL APS CENTRAL CONTROL UNITS SHALL BE DELIVERED TO THE SHA SIGNAL SHOP FOR PROGRAMMING AND TESTING PRIOR TO INSTALLATION. CONTACT MR. EDWARD RODENHIZER AT 410-787-7650 TO COORDINATE.



TRAFFIC CONCEPTS, INC.
 7525 Connelley Drive
 Suite B
 Hanover, MD 21076
 (410) 760-2911
 FAX: (410) 760-2915
 EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21403, Expiration Date: 12/21/22



CONTACT PERSONS FOR DISTRICT 7 ARE AS FOLLOWS:

MR. PUSKAR KAR
 ASSISTANT DISTRICT ENGINEER - TRAFFIC
 (301) 624-8140 / 8141

MR. DAN HOUCK
 ASSISTANT DISTRICT ENGINEER - MAINTENANCE
 (301) 624-8108

MRS. ANDREA BARKO
 UTILITY ENGINEER
 (301) 624-8115 / 8116

MS. VIVIAN BERRA-FIGUEROA
 CHIEF, TRAFFIC OPERATIONS
 (410) 787-7630

MR. PAUL STOUT
 ASSISTANT DIVISION CHIEF
 SIGNS, INVENTORY AND SUPPORT
 (410) 787-7637

MS. REBECCA LICHTENSTEIN
 ASSISTANT DIVISION CHIEF,
 TRAFFIC OPERATIONS
 (410) 787-7631

MR. MICHAEL BOYLE
 SUPPLY OFFICER IV
 SIGNAL SHOP WAREHOUSE
 (410) 787-7673

MR. ED RODENHIZER
 CHIEF, SIGNAL OPERATIONS SECTION
 (410) 787-7650

EQUIPMENT LIST "A"
 A. EQUIPMENT TO BE FURNISHED BY THE SHA AND INSTALLED BY THE CONTRACTOR

ITEM NO.	QUANTITY	DESCRIPTION
9197	1 EA	CELLULAR MODEM, ANTENNA AND 50 FT. LEAD-IN CABLE

EQUIPMENT LIST "B"
 B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR. ALL EQUIPMENT SHALL HAVE CATALOG CUTS SUBMITTED TO THE OFFICE OF TRAFFIC AND SAFETY FOR APPROVAL PRIOR TO INSTALLATION.

ITEM NO.	QUANTITY	DESCRIPTION
120500	1 LS	MAINTENANCE OF TRAFFIC
203030	6 CY	TEST PIT EXCAVATION
549409	450 LF	12 IN. WHITE THERMOPLASTIC PAVEMENT MARKINGS
549419	145 LF	24 IN. WHITE THERMOPLASTIC PAVEMENT MARKINGS
801004	12 CY	CONCRETE FOR SIGNAL FOUNDATION
801010	3 EA	THIRD PARTY CONCRETE TESTING
801104	75 LF	WOOD SIGN SUPPORTS 4 INCH X 4 INCH
801106	20 LF	WOOD SIGN SLIPPORTS 4 INCH X 6 INCH
801605	165 SF	SHEET ALUMINUM SIGNS
802501	260 LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805115	130 LF	3 IN. SCHEDULE 80 RIGID PVC CONDUIT - BORED
805118	430 LF	4 IN. SCHEDULE 80 RIGID PVC CONDUIT - BORED
805125	35 LF	2 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
805135	55 LF	3 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
805140	260 LF	4 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
806025	2 EA	LED ROADWAY LUMINAIRE
807202	1 EA	METERED SERVICE PEDESTAL
810019	365 LF	ELECTRICAL CABLE 3 - CONDUCTOR NO. 12 AWG COPPER TYPE T / C
810601	2 EA	NONINVASIVE DETECTOR, 500 FOOT LEAD IN CABLE
811000	1 EA	OVERSIZED ELECTRICAL HANDHOLE
811001	8 EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
815425	1 EA	INSTALL CELLULAR ANTENNA AND LEAD-IN CABLE
816002	4 EA	IP-BASED VIDEO DETECTION CAMERA & ANY LENGTH LEAD-IN CABLE
816201	1 EA	DISCRIMINATOR MODULE, 4 CHANNEL, NO. 764
816215	1 EA	OPTICOM NO. 721 DETECTOR EYE
818004	1 EA	10 FT. BREAKAWAY PEDESTAL POLE
818021	1 EA	27 FT. STEEL POLE WITH TWIN 50 FT. MAST ARMS
818050	1 EA	27 FT. STEEL POLE WITH TWIN 50 FT. / 60 FT. MAST ARMS
832017	20 LF	CABLE - 1 CONDUCTOR, NO. 4 AWG
837001	6 EA	GROUND ROD - 3/4 IN. DIAMETER X 10 FT. LENGTH
860284	51 EA	12 IN. LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION
860285	2 EA	16 IN. LED COUNTDOWN PEDESTRIAN SIGNAL
860288	95 LF	FURNISH AND INSTALL 4 CONDUCTOR OPTICOM CABLE
861105	180 LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
861107	300 LF	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
861108	1595 LF	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
865210	2 EA	AUDIBLE / TACTILE PEDESTRIAN PUSHBUTTON AND SIGNS
865300	1 EA	2-WIRE CENTRAL CONTROL UNIT
866103	1 EA	15 FT. LIGHTING ARM ON SIGNAL STRUCTURE
866104	1 EA	20 FT. LIGHTING ARM ON SIGNAL STRUCTURE
873002	1 LS	REMOVE AND DISPOSE OF EXISTING SIGNAL EQUIPMENT
800000	1 EA	CONTROLLER CABINET, SIZE "S" WITH CONTROLLER AND VIDEO DETECTOR INTERFACE EQUIPMENT: 1-8 CAMERAS

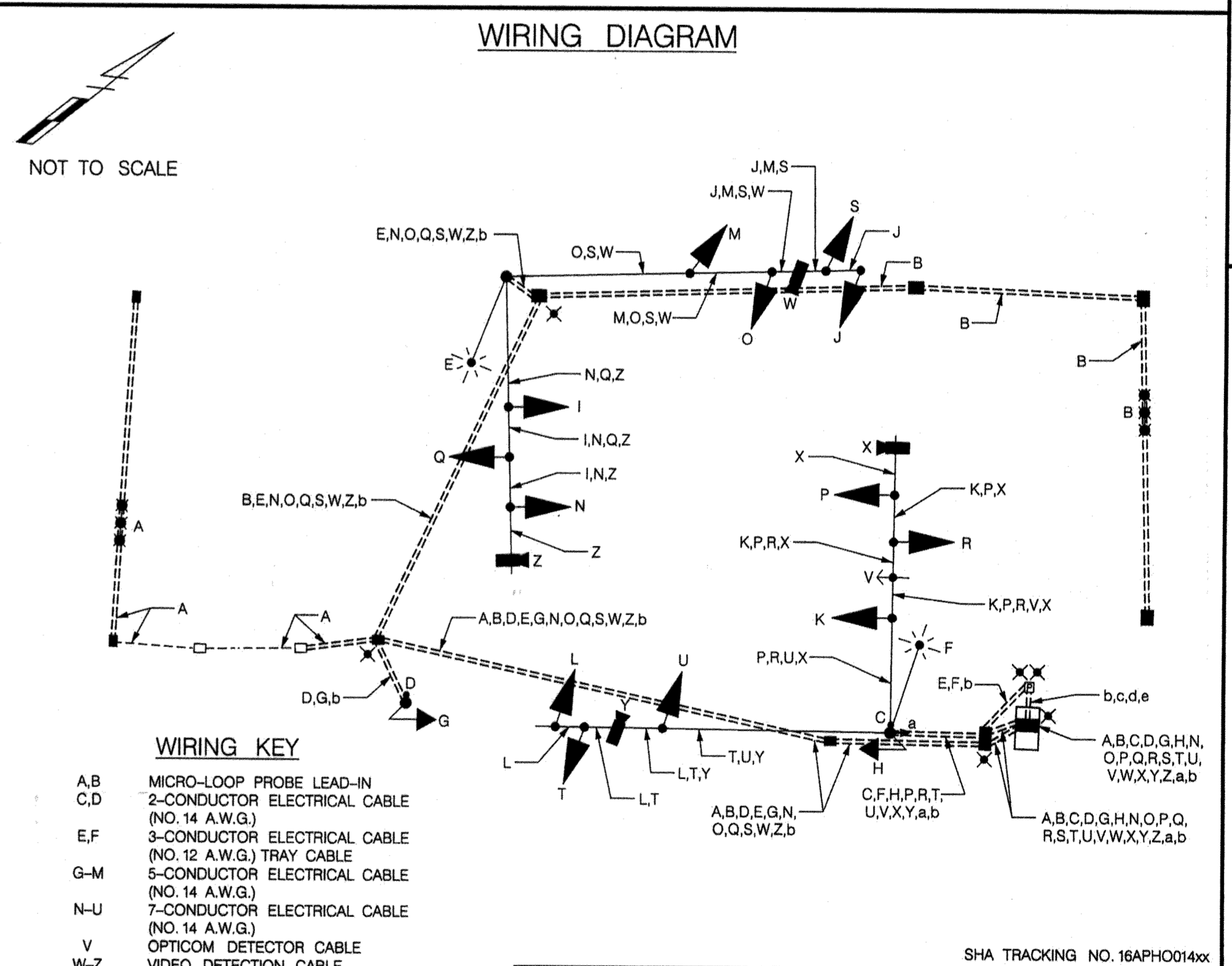
EQUIPMENT LIST "C"
 C. EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE STATE HIGHWAY ADMINISTRATION, 7491 CONNELLEY DRIVE, HANOVER, MARYLAND 21076. THE CONTRACTOR SHALL NOTIFY THE SHA AT (410) 787-7652 AT LEAST THREE DAYS IN ADVANCE OF DELIVERY.

QUANTITY DESCRIPTION
 NONE

ALL SIGNAL EQUIPMENT TO BE REMOVED AND NOT RETURNED TO THE SHA SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

PHASE CHART

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PHASE 1 & 5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1 & 5 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 1 & 6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 2 & 5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
5 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 2 & 6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
2 & 6 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 3	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
3 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PHASE 4	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
4 CHANGE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
FLASHING OPERATION	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY
PRE-EMPTION	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
PRE-EMPTION CHANGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y



APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS 2/6/2019
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT 3.6.19
 DATE

APPROVED: DEPARTMENT OF TRANSPORTATION
 CHIEF, ENGINEERING DIVISION 3/21/19
 DATE

SHA TRACKING NO. 16APH0014xx

OFFICE OF TRAFFIC & SAFETY
 TRAFFIC ENGINEERING DESIGN DIVISION

MDOT
 MARYLAND DEPARTMENT OF TRANSPORTATION
 STATE HIGHWAY ADMINISTRATION

MD 108 (CLARKSVILLE PIKE)
 AT SHEPPARD LANE
 CLARKSVILLE, MARYLAND

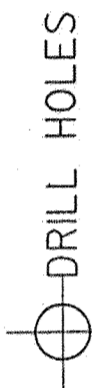
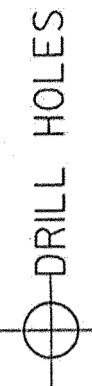
GENERAL INFORMATION PLAN

SCALE AS SHOWN DATE 12-10-2018 CONTRACT NO. BW996M82

DESIGNED BY A. M. ROSEN COUNTY HOWARD
 DRAWN BY A. M. ROSEN LOGMILE 1301004.49
 CHECKED BY J. HENKEL TMS NO. 0472
 MDE/PRD TOD NO.

TS NO. 4826A GI DRAWING SG-02 OF 02 SHEET NO. 32 OF 41

BORDER REV. DATE: SEPTEMBER 6, 2017



BY: Max

CRITERIA

THE CONTRACTOR SHALL BE GOVERNED BY THE STANDARDS AND REQUIREMENTS OF THE FOLLOWING PUBLICATIONS, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS OF THIS CONTRACT:

DESIGN

MDSHA - "MARYLAND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", 2011 EDITION AND SUBSEQUENT REVISIONS. (MdmUTCd)

A A S H T O - "HIGHWAY SAFETY DESIGN AND OPERATIONS GUIDE" -1997

A A S H T O - "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES AND TRAFFIC SIGNALS", 2001 EDITION (CATEGORY II FOR ALL OVERHEAD AND CANTILEVER SIGN STRUCTURES).

MATERIALS AND CONSTRUCTION

MDSHA - "STANDARD SPECIFICATIONS FOR CONSTRUCTION & MATERIALS", 2017 EDITION AND SUBSEQUENT SUPPLEMENTS.

DESIGN WIND

- 100 MPH - WOOD SUPPORTS 10 YEAR RECURRENCE INTERVAL
100 MPH - GROUND MOUNT SIGN STEEL SUPPORTS 10 YEAR RECURRENCE INTERVAL
100 MPH - OVERHEAD AND CANTILEVER STRUCTURES 50 YEAR RECURRENCE INTERVAL
ALL DISTRICTS

DESIGN STRESS

SOIL BEARING PRESSURE - S = 3,000 P.S.F. (ASSUMED)
SEE MATERIAL & CONSTRUCTION ABOVE AND SPECIAL PROVISIONS FOR DESIGN STRESSES FOR STRUCTURAL STEEL, ALUMINUM, REINFORCING STEEL AND CONCRETE.

CHAMFER

ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" X 3/4" CHAMFER.

CLASSIFICATION OF SIGNS

SIGNS ARE DIVIDED INTO TWO (2) GENERAL CATEGORIES.

- 1. GUIDE SIGNS
A) STRUCTURAL TYPES
OH - OVERHEAD
C - CANTILEVER
GM - GROUND MOUNT, BREAKAWAY OR NON-BREAKAWAY
BM - BRIDGE MOUNTED
B) PANELS
MATERIAL - EXTRUDED ALUMINUM
COPY - DIRECT APPLIED
1) HIGH INTENSITY (NEW SIGNS AND REVISIONS TO EXISTING SIGNS)
2. STANDARD SIGNS (REGULATORY, WARNING, ETC.)
A) STRUCTURAL TYPES
WOOD SUPPORTS
SQUARE TUBE
B) PANELS
MATERIAL - SHEET ALUMINUM
COPY - DIRECT APPLIED

IDENTIFICATION OF SIGNS AND PANELS

GUIDE SIGNS
EACH GUIDE SIGN IS IDENTIFIED BY A SIGN NUMBER ON THE PLANS AND IN THE TABULATIONS. (GM-1, GM-2, GM-3, etc)
SIGNS ON STRUCTURES ARE IDENTIFIED WITH A NUMBER AND WHERE VARIATIONS OCCUR, A LOWER CASE LETTER. (OH-1a, OH-1b, OH-1c)
STANDARD SIGNS
STANDARD SIGNS ARE IDENTIFIED BY PANEL NUMBERS AND ARE CLASSIFIED AS FOLLOWS
R - REGULATORY
W - WARNING
M - ROUTE MARKERS AND ACCESSORIES
D - DESTINATION AND MILEAGE PANELS
S - SCHOOL
PANELS SHALL BE DESIGNATED TO AGREE WITH MARYLAND STANDARD SIGN BOOK. EACH STANDARD SIGN IS IDENTIFIED FIRST BY THE SHEET NUMBER, THEN BY THE NUMERICAL ORDER OF THE SIGN AS IT APPEARS ON THE PLAN. FOR EXAMPLE SHEET SN 2.1-101,102,103, ETC. SHEET SN 2.2-201,202,203,ETC.

PANEL LAYOUT AND ALPHABETS

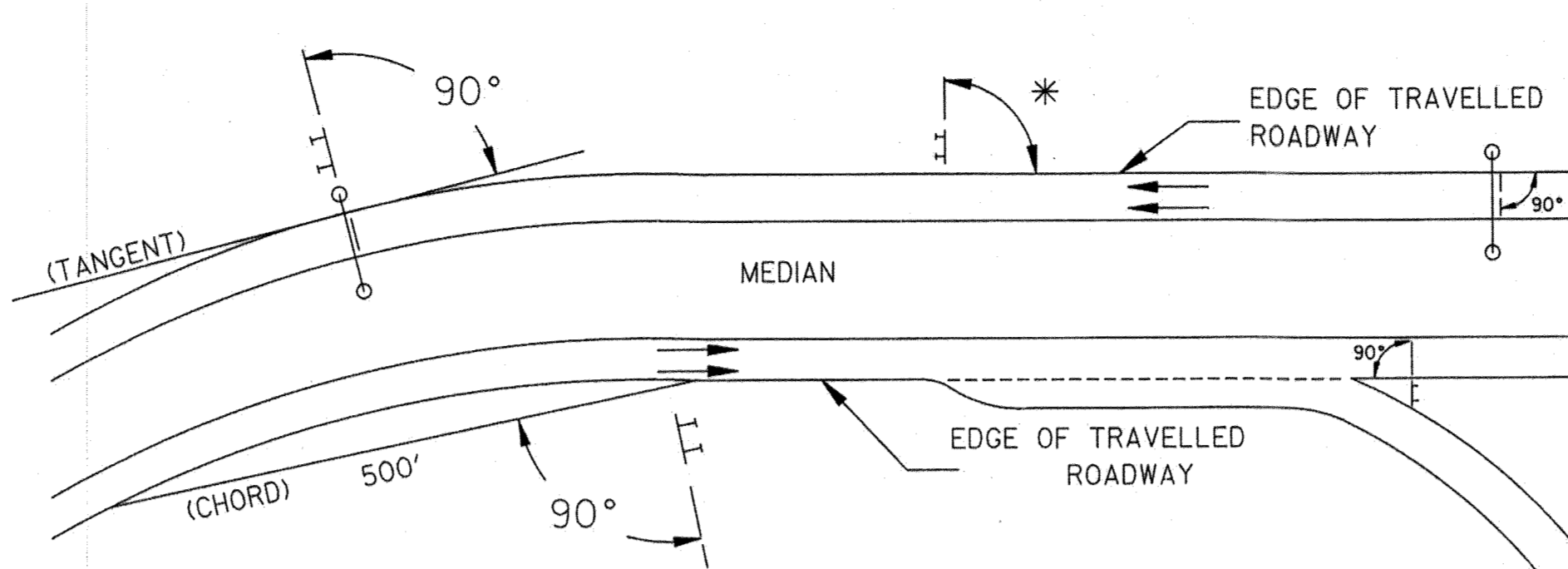
1. GUIDE SIGN PANEL LAYOUTS ARE BASED ON THE A.A.S.H.T.O. MANUALS NOTED ABOVE.
2. STANDARD SIGN PANEL LAYOUTS ARE BASED ON THE MDMUTC WITH SPECIFICATIONS DETAILED IN THE MARYLAND STATE HIGHWAY ADMINISTRATION PUBLICATION, "STANDARD SIGN BOOK", AVAILABLE ONLINE @ https://www.marylandroads.com/businesswithsha/bizstdspecs/desManualStdPub/publicationsonline/oofs/Internet_signbook.asp

REFLECTORIZATION

BACKGROUNDS, BORDERS, TEXTS AND ALL OTHER ELEMENTS OF SIGN PANELS SHALL BE REFLECTORIZED EXCEPT WHERE NOTED. REFER TO PROJECT REQUIREMENTS FOR MORE DETAIL.

TRAFFIC CONCEPTS, INC.
7525 Connelley Drive
Suite B
Hanover, MD 21076
(410) 760-2911
FAX: (410) 760-2915
EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM

ORIENTATION OF SIGN FACES



* UNDER 30 FEET FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - 93° AWAY FROM THE ROAD TO AVOID SPECULAR REFLECTION AS INDICATED IN 813.03 OF THE MARYLAND STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.

OVER 30 FEET FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - 90°

SIGN LOCATIONS

- 1. GUIDE SIGNS ARE LOCATED ON THE PLANS BY DIMENSION TO SURVEY STATIONS, OR WHEN NECESSARY, TO IDENTIFIABLE PHYSICAL FEATURES.
2. ALL CHANGES IN THE LOCATIONS OF SIGNS AS SHOWN ON THE PLAN SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

EXISTING UTILITIES

THE ENGINEER DOES NOT WARRANT OR GUARANTEE THE ACCURACY OR COMPLETENESS OF UTILITY INFORMATION SHOWN ON THE PLAN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT ALL EXISTING FACILITIES WHICH MIGHT BE AFFECTED BY THIS WORK OR HIS OPERATION.

ROADSIDE SIGNS

- 1. VERTICAL ALIGNMENT
POSITION PANEL SO FACE IS PLUMB.
2. HORIZONTAL ALIGNMENT (SEE DIAGRAM ABOVE)
A) ON STRAIGHT ROADWAY SECTIONS, ANGLE OF SIGN FACE TO ROADWAY VARIES WITH DISTANCE FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - SEE DIAGRAM.
B) ON THE INSIDE OF HORIZONTAL CURVES, POSITION SIGN SO FACE OF PANEL MAKES AN ANGLE OF 90° WITH A CHORD BETWEEN A POINT ON NEAR EDGE OF PAVEMENT AT SIGN LOCATION AND A POINT ON EDGE OF PAVEMENT 500' IN ADVANCE OF SIGN.
C) ON THE OUTSIDE OF HORIZONTAL CURVES, POSITION SIGN SO FACE OF PANEL IS AT RIGHT ANGLES TO THE TANGENT OF THE CURVE AT THE SIGN LOCATION.
D) POSITIONING OF SIGNS AT GORES AND RAMP SEPARATIONS IS REFERRED TO THE NORMAL EDGE OF THE MAINLINE ROADWAY.

OVERHEAD SIGNS

- 1. VERTICAL ALIGNMENT
POSITION PANELS FOR ALL OVERHEAD STRUCTURES SO THAT PANEL FACE IS PLUMB.
2. OVERHEAD SIGN STRUCTURES SHALL NOT BE ERECTED WITHOUT ATTACHING LUMINAIRES, SUPPORTS, AND/OR SIGNS.
3. HORIZONTAL ALIGNMENT
A) POSITION ALL OVERHEAD SIGNS SO THAT THE FACE OF THE PANEL IS AT RIGHT ANGLES TO THE NORMAL EDGE OF ROADWAY, IF ON A STRAIGHT ROADWAY SECTION.
B) POSITION ALL OVERHEAD SIGNS SO THAT THE FACE OF THE PANEL IS AT RIGHT ANGLES TO THE TANGENT OF THE CURVE AT SIGN LOCATION, IF ON A HORIZONTAL CURVE.
C) POSITIONING OF SIGNS AT GORES AND RAMP SEPARATIONS IS REFERRED TO THE NORMAL EDGE OF THE MAINLINE ROADWAY.
4. VERTICAL CLEARANCE
A) OVERHEAD SIGNS SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 17'-9" FROM ROADWAY TO THE BOTTOM OF LIGHT FIXTURES. ALL LIGHT FIXTURES ARE TO BE AT THE SAME ELEVATION.
B) IF THE CONTRACTOR CANNOT OBTAIN 17'-9" (SEE 3A) CLEARANCE, HE IS TO CEASE WORK AND CONTACT THE PROJECT ENGINEER FOR FURTHER INSTRUCTIONS. THE PROJECT ENGINEER MAY CONTACT THE TRAFFIC ENGINEERING DESIGN DIVISION FOR ASSISTANCE.
C) ON ALL OVERHEAD SIGNS, THE MINIMUM CLEARANCE TO BOTTOM OF SIGN: 20'-9".

PROJECT REQUIREMENTS

ALL NEW SIGNS ON THIS PROJECT SHALL BE FABRICATED FROM SHEETING WHICH MEETS ALL OF THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER:

- 1. SHEETING SHALL MEET THE REQUIREMENTS OF SECTIONS 813 AND 350.03 OF MDSHA'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (2017) AND SUBSEQUENT REVISIONS
2. LISTED ON MDSHA OFFICE OF TRAFFIC AND SAFETY'S QUALIFIED PRODUCTS LIST (QPL)

PROJECT REQUIREMENTS CONT'D

3. THE FOLLOWING TYPES OF SHEETING SHALL BE USED FOR THE SPECIFIED SIGN CLASSIFICATIONS

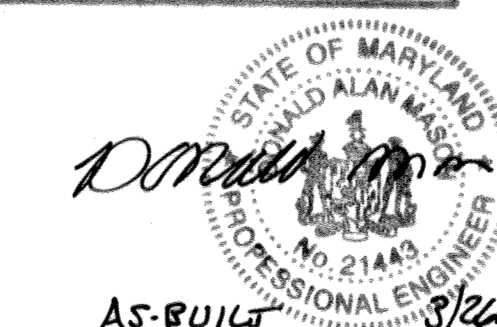
- A) GUIDE, EXIT GORE, AND GENERAL INFORMATION SIGNS- RETROREFLECTIVE SHEETING FOR GUIDE SIGNS, EXIT GORE, AND GENERAL INFORMATION (INCLUDES WHITE ON GREEN, WHITE ON BLUE, WHITE ON BROWN AND THE REVERSE OF THESE COLORS) SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX LEGEND ON ASTM TYPE IX BACKGROUND. REGULATORY AND WARNING MESSAGES WITHIN GUIDE SIGNS SHALL BE NON-REFLECTIVE BLACK LEGEND ON BACKGROUND SHEETING WHICH MEETS OR EXCEEDS THE REQUIREMENTS FOR ASTM TYPE IX SHEETING.
B) WARNING SIGNS - RETROREFLECTIVE SHEETING FOR BLACK ON FLUORESCENT YELLOW WARNING SIGNS SHALL BE NON-REFLECTIVE BLACK LEGEND ON BACKGROUND SHEETING WHICH MEETS OR EXCEEDS THE REQUIREMENTS FOR ASTM TYPE IX SHEETING. REGULATORY MESSAGES WITHIN WARNING SIGNS SHALL FOLLOW THE GUIDELINES FOR REGULATORY SIGNS.
C) SCHOOL SIGNS - RETROREFLECTIVE SHEETING FOR SCHOOL SIGNS (BLACK ON FLUORESCENT YELLOW AND BLACK ON FLUORESCENT YELLOW GREEN) SHALL BE NON-REFLECTIVE BLACK LEGEND ON BACKGROUND SHEETING WHICH MEETS OR EXCEEDS THE REQUIREMENTS FOR ASTM TYPE IX SHEETING. REGULATORY MESSAGES WITHIN SCHOOL SIGNS SHALL FOLLOW THE REQUIREMENTS FOR REGULATORY SIGNS.
D) REGULATORY SIGNS - FALL INTO THREE SUBCATEGORIES:
I. "RED" REGULATORY SIGNS (STOP, YIELD, DO NOT ENTER AND WRONG WAY) RETROREFLECTIVE SHEETING FOR THESE SIGNS AND THEIR SUPPLEMENTAL PANELS (INCLUDES WHITE ON RED AND RED ON WHITE) SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX SHEETING.
II. ALL R7 AND R8 SERIES PARKING RELATED SIGNS AND THEIR SUPPLEMENTAL PANELS, NO TRESPASSING SIGNS, AND SIGNS DIRECTED AT PEDESTRIANS AND BICYCLISTS ONLY (INCLUDES RED ON WHITE, GREEN ON WHITE, BLUE ON WHITE, BLACK ON WHITE AND THE REVERSE OF THESE COLORS) SHALL BE ASTM TYPE I LEGEND ON ASTM TYPE I BACKGROUND.
III. ALL OTHER REGULATORY SIGNS - RETROREFLECTIVE SHEETING FOR THESE SIGNS AND THEIR SUPPLEMENTAL PANELS (INCLUDES BLACK ON WHITE) SHALL BE NON-REFLECTIVE BLACK LEGEND ON ASTM TYPE IV BACKGROUND. WHERE RED IS SPECIFIED, OR WHERE THE COLOR OF THE SIGN IS WHITE ON BLACK, THE LEGEND SHALL BE ASTM TYPE IV RETROREFLECTIVE SHEETING ON NON-REFLECTIVE BLACK BACKGROUND. WARNING MESSAGES WITHIN REGULATORY SIGNS SHALL FOLLOW THE GUIDELINES FOR WARNING SIGNS.
E) ROUTE MARKERS - RETROREFLECTIVE SHEETING FOR ROUTE MARKERS (INCLUDES BLACK ON WHITE, GREEN ON WHITE, WHITE ON GREEN, WHITE ON RED/BLUE) SHALL MEET THE REQUIREMENTS OF GUIDE SIGNS ABOVE WHEN SPECIFIED AS THE LEGEND OF A GUIDE SIGN. RETROREFLECTIVE SHEETING FOR ALL INDEPENDENT ROUTE MARKERS AND THEIR AUXILIARY PANELS SHALL BE ASTM TYPE IV AND/OR NON-REFLECTIVE BLACK LEGEND ON ASTM TYPE IV BACKGROUND.
F) LOGOS AND/OR GRAPHICS - WITHIN SIGNS SHALL FOLLOW THE GUIDELINES FOR THE RESPECTIVE SIGN CLASSIFICATION UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER.
G) CIVIL DEFENSE SIGNS AND OTHER SIGNS - NOT SPECIFICALLY FALLING INTO ONE OF THE CATEGORIES ABOVE, SHALL FOLLOW THE GUIDELINES FOR THE SIGN CLASSIFICATION THAT MOST CLOSELY MATCHES THE COLOR(S) OF THE PROPOSED SIGN.

4. THE FOLLOWING MINIMUM THICKNESS SHALL BE USED FOR THE APPROPRIATE WIDTH OF SHEET ALUMINUM BLANKS.

Table with columns: LONGEST DIMENSION, MINIMUM THICKNESS. Rows: UP TO 12", GREATER THAN 12' TO 24", GREATER THAN 24' TO 36", GREATER THAN 36' TO 48", OVER 48".

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21443, Expiration Date: 12/1/22

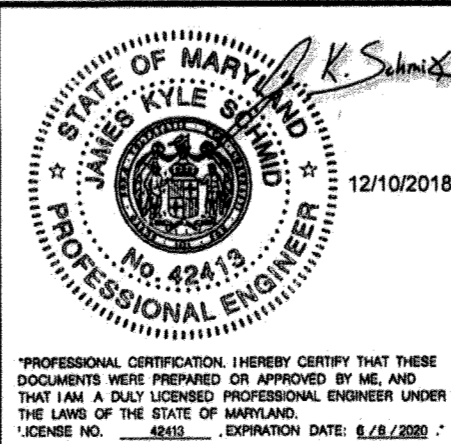


AS-BUILT 8/21/21

SHA TRACKING NO. 16APH0014xx
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION
MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
MD 108 (CLARKSVILLE PIKE) AT SHEPPARD LANE CLARKSVILLE, MARYLAND

Table with columns: SCALE, DATE, CONTRACT NO., DESIGNED BY, DRAWN BY, CHECKED BY, MDE/PRD, GENERAL NOTES AND PROPOSALS, SHEET NO. 33 OF 41

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 3-21-19



APPROVALS
TEAM LEADER: [Signature] 12/11/18
ASST. ENGR. CHIEF: [Signature] 12-12-18
DIVISION CHIEF: [Signature] 12-17-19
OFFICE DIRECTOR: [Signature] 12/18/18

PLOTTED: Monday, December 10, 2018 AT 03:47 PM
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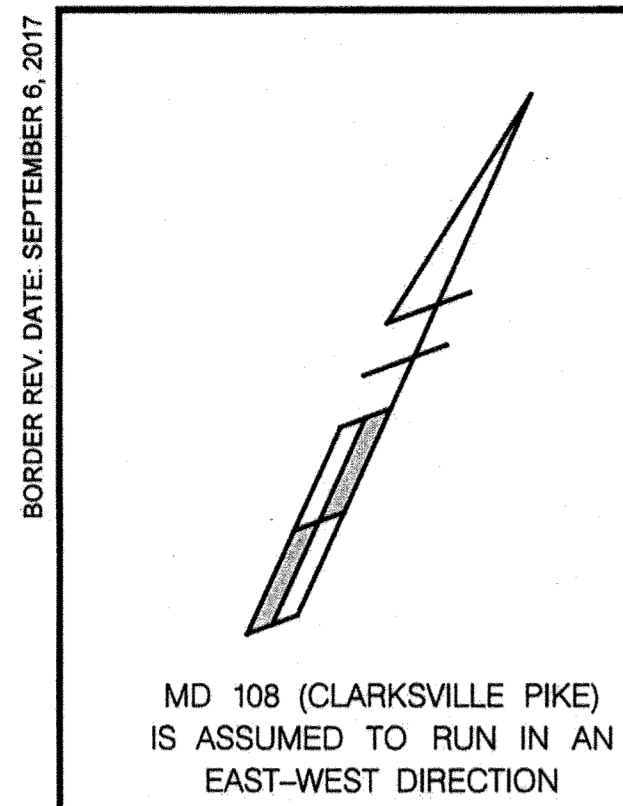
AS-BUILT F-18-099

BORDER REV. DATE: SEPTEMBER 6, 2017

DRILL HOLES

DRILL HOLES

DRILL HOLES



CONSTRUCTION DETAILS

A. INSTALL 5 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
 B. INSTALL 5 IN. SOLID YELLOW PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
 C. INSTALL 5 IN. DOTTED WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE - 9 FT. GAP)
 D. INSTALL 10 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
 E. 12 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE WITH DIAGONAL HATCHING (45 DEGREES AT 24 IN. SPACING) - SEE TRAFFIC SIGNAL PLAN
 F. 24 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE - SEE TRAFFIC SIGNAL PLAN
 G. INSTALL WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING ARROW

**WESTBOUND MD 108
RIGHT-TURN LANE PAVEMENT
MARKING LOCATION TABLE**

TRAFFIC CONTROL DEVICE	DISTANCE FROM STOPBAR
END SOLID - BEGIN 3'-9" SKIP LINE	100'
ARROW	100'
ARROW	196'
END 3'-9" SKIP LINE - BEGIN TAPER	200'
END TAPER	300'

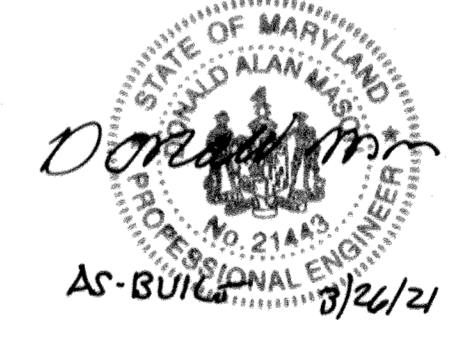
**WESTBOUND MD 108
LEFT-TURN LANE PAVEMENT
MARKING LOCATION TABLE**

TRAFFIC CONTROL DEVICE	DISTANCE FROM STOPBAR
ARROW	50'
END SOLID - BEGIN 3'-9" SKIP LINE	186'
ARROW	211'
END 3'-9" SKIP LINE - BEGIN TAPER	372'
END TAPER	472'

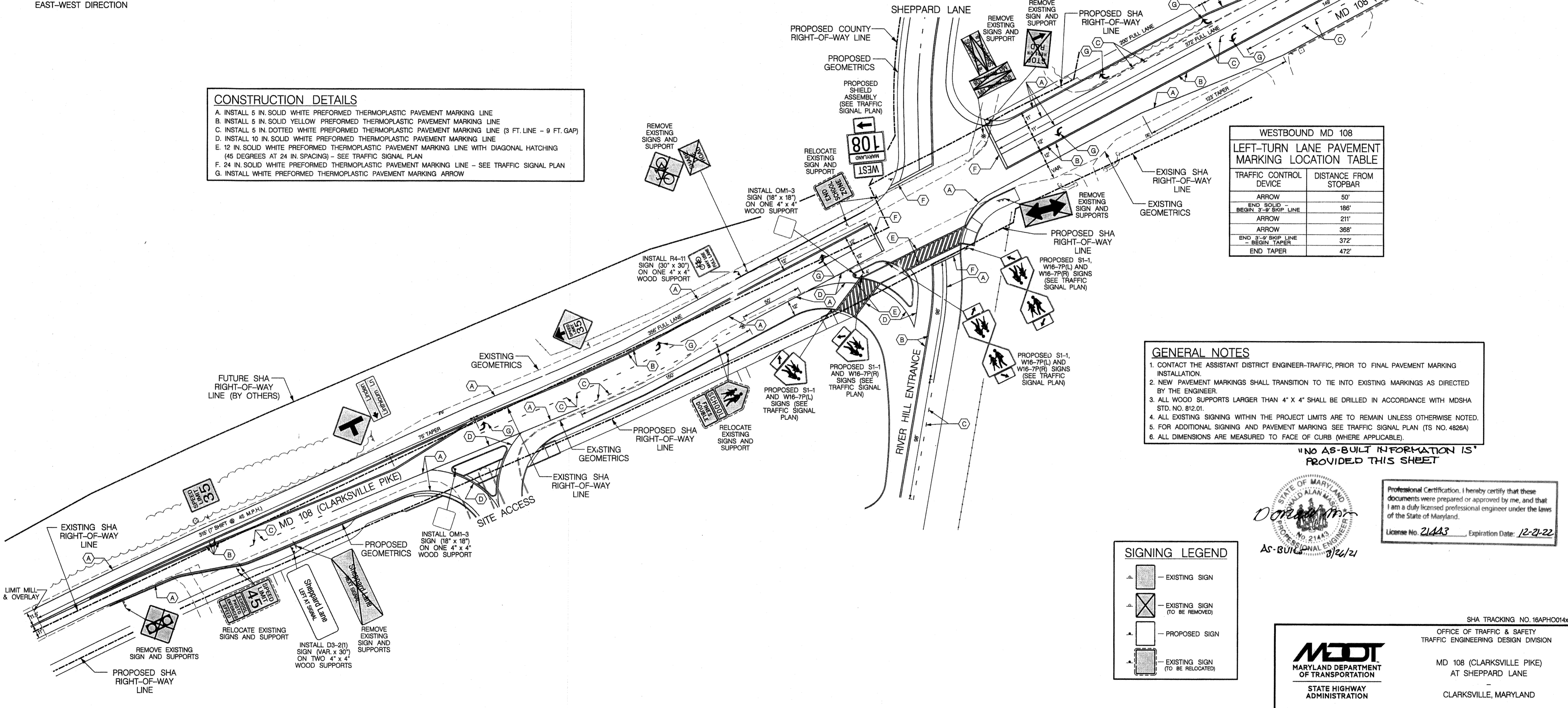
- GENERAL NOTES**
- CONTACT THE ASSISTANT DISTRICT ENGINEER-TRAFFIC, PRIOR TO FINAL PAVEMENT MARKING INSTALLATION.
 - NEW PAVEMENT MARKINGS SHALL TRANSITION TO TIE INTO EXISTING MARKINGS AS DIRECTED BY THE ENGINEER.
 - ALL WOOD SUPPORTS LARGER THAN 4" X 4" SHALL BE DRILLED IN ACCORDANCE WITH MDSA STD. NO. 812.01.
 - ALL EXISTING SIGNING WITHIN THE PROJECT LIMITS ARE TO REMAIN UNLESS OTHERWISE NOTED.
 - FOR ADDITIONAL SIGNING AND PAVEMENT MARKING SEE TRAFFIC SIGNAL PLAN (TS NO. 4826A)
 - ALL DIMENSIONS ARE MEASURED TO FACE OF CURB (WHERE APPLICABLE).

SIGNING LEGEND

	EXISTING SIGN
	EXISTING SIGN (TO BE REMOVED)
	PROPOSED SIGN
	EXISTING SIGN (TO BE RELOCATED)



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 License No. 21443, Expiration Date: 12-21-22

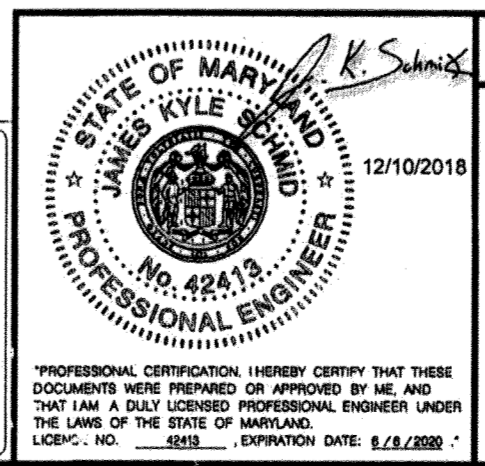


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 EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM

**EASTBOUND MD 108
DECEL LANE PAVEMENT
MARKING LOCATION TABLE**

TRAFFIC CONTROL DEVICE	DISTANCE FROM GORE
END SOLID - BEGIN 3'-9" SKIP LINE	82'
END 3'-9" SKIP LINE	164'

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS: *James* 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT: *John* 2-6-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: *John* 2-21-19



REVISIONS

NO.	DESCRIPTION	DATE

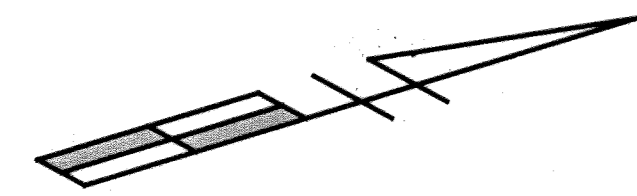
SHA TRACKING NO. 16APH0014xx
 OFFICE OF TRAFFIC & SAFETY
 TRAFFIC ENGINEERING DESIGN DIVISION
MDOT
 MARYLAND DEPARTMENT
 OF TRANSPORTATION
 STATE HIGHWAY
 ADMINISTRATION
 MD 108 (CLARKSVILLE PIKE)
 AT SHEPPARD LANE
 CLARKSVILLE, MARYLAND

SIGNING AND PAVEMENT MARKING PLAN

SCALE 1"=40' DATE 12-10-2018 CONTRACT NO. BW998M82

DESIGNED BY A. M. ROSEN COUNTY HOWARD
 DRAWN BY A. M. ROSEN LOGMILE 13010804.49
 CHECKED BY J. HENKEL TMS NO. 0472
 MDE/PRD N/A TOO NO.

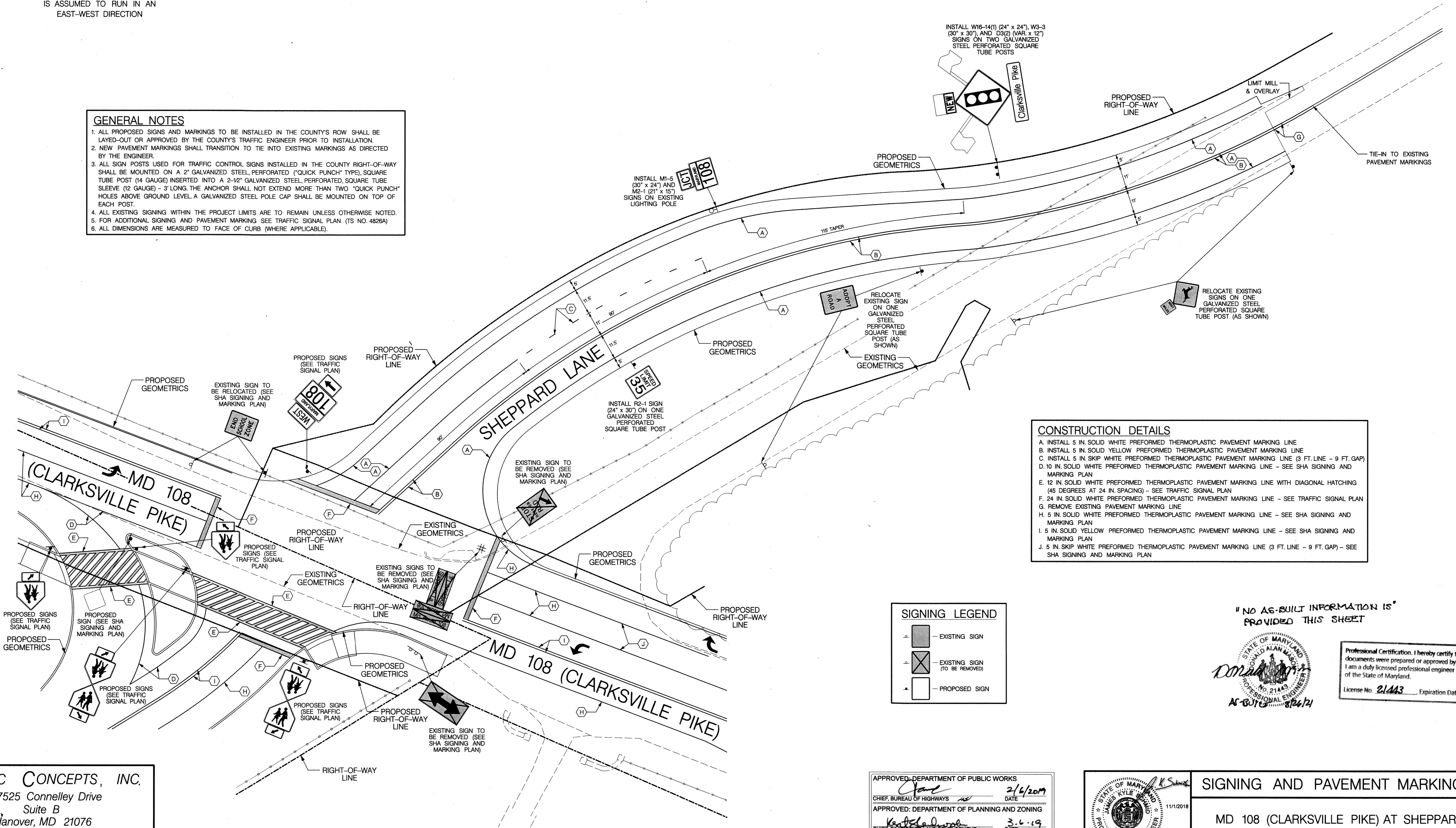
DRAWING NO. SN-21 SHEET NO. 34 OF 41



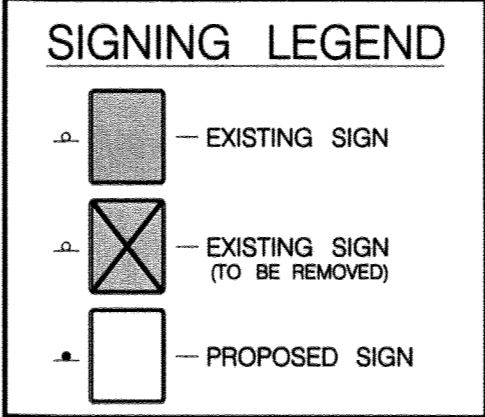
MD 108 (CLARKSVILLE PIKE)
IS ASSUMED TO RUN IN AN
EAST-WEST DIRECTION

GENERAL NOTES

1. ALL PROPOSED SIGNS AND MARKINGS TO BE INSTALLED IN THE COUNTY'S ROW SHALL BE LAYED-OUT OR APPROVED BY THE COUNTY'S TRAFFIC ENGINEER PRIOR TO INSTALLATION.
2. NEW PAVEMENT MARKINGS SHALL TRANSITION TO TIE INTO EXISTING MARKINGS AS DIRECTED BY THE ENGINEER.
3. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH" TYPE), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
4. ALL EXISTING SIGNING WITHIN THE PROJECT LIMITS ARE TO REMAIN UNLESS OTHERWISE NOTED.
5. FOR ADDITIONAL SIGNING AND PAVEMENT MARKING SEE TRAFFIC SIGNAL PLAN (TS NO. 4828A)
6. ALL DIMENSIONS ARE MEASURED TO FACE OF CURB (WHERE APPLICABLE).



- CONSTRUCTION DETAILS**
- A. INSTALL 5 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
 - B. INSTALL 5 IN. SOLID YELLOW PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
 - C. INSTALL 5 IN. SKIP WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE - 9 FT. GAP)
 - D. 10 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE - SEE SHA SIGNING AND MARKING PLAN
 - E. 12 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE WITH DIAGONAL HATCHING (45 DEGREES AT 24 IN. SPACING) - SEE TRAFFIC SIGNAL PLAN
 - F. 24 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE - SEE TRAFFIC SIGNAL PLAN
 - G. REMOVE EXISTING PAVEMENT MARKING LINE
 - H. 5 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE - SEE SHA SIGNING AND MARKING PLAN
 - I. 5 IN. SOLID YELLOW PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE - SEE SHA SIGNING AND MARKING PLAN
 - J. 5 IN. SKIP WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE - 9 FT. GAP) - SEE SHA SIGNING AND MARKING PLAN



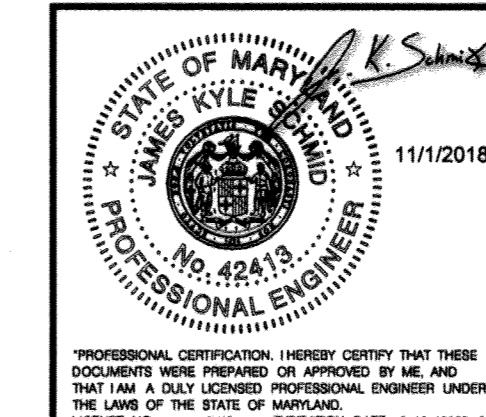
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Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12/21/22

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APPROVED: DEPARTMENT OF PUBLIC WORKS
2/6/2019
CHIEF, BUREAU OF HIGHWAYS
APPROVED: DEPARTMENT OF PLANNING AND ZONING
3.6.19
CHIEF, DIVISION OF LAND DEVELOPMENT
3.31.19
CHIEF, DEVELOPMENT ENGINEERING DIVISION

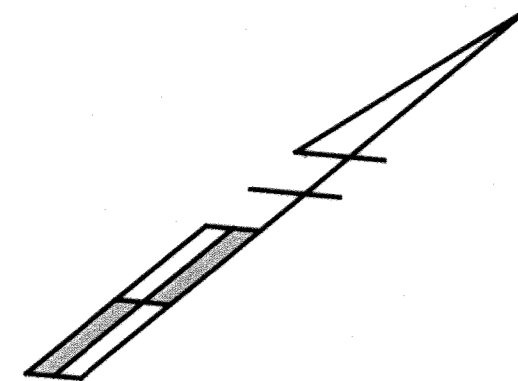


SIGNING AND PAVEMENT MARKING PLAN
MD 108 (CLARKSVILLE PIKE) AT SHEPPARD LANE
HOWARD COUNTY
DRAWN BY: A. M. ROSEN
DESIGNED BY: A. M. ROSEN
CHECKED BY: J. HENKEL
DATE: 11-01-2018 SHEET NO: 38 OF 41 SCALE: 1" = 20'

M:\28001\28481(Sign)2018-08-09.dgn
Thursday, November 01, 2018 AT 03:11 PM

AS-BUILT

F18-099



MAINTENANCE OF TRAFFIC NOTES

1. DURING WORK HOURS, WHEN CONSTRUCTION IS TAKING PLACE, MAINTAIN TRAFFIC IN ACCORDANCE WITH THE FOLLOWING MSHA TRAFFIC CONTROL TYPICALS:

2 LANE /2 WAY ROADWAY (GREATER THAN 40 MPH)			
GENERAL	MD 104.00-A TO MD 104.01-81	WORK IN CENTER OF ROAD	MD 104.02-05
SHOULDER WORK	MD 104.02-01	FLAGGING OPERATION	MD 104.02-09
LANE SHIFT RIGHT OR LEFT SIDE	MD 104.02-03	INTERSECTION FLAGGING OPERATION	MD 104.02-13

THE LATEST TYPICALS CAN BE FOUND AT THE MSHA WEBSITE

- WWW.MARYLANDROADS.COM
- BUSINESS CENTER
- BUSINESS STANDARDS AND SPECIFICATIONS
- BOOK OF STANDARDS & INCIDENTAL STRUCTURES
- CATEGORY 1 PRELIMINARY

- SEE SHA ACCESS PERMIT FOR WORKING HOURS, LANE CLOSURE RESTRICTIONS / NOTIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A LANE CLOSURE APPLICATION TO THE DISTRICT OFFICE.
- ALL SIGNING, CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH "THE MARYLAND MANUAL ON TRAFFIC CONTROL DEVICES" (MDMUTCD) 2011 EDITION.
- EXCAVATION ALONG THE ROAD EDGE NOT PROTECTED BY TEMPORARY TRAFFIC BARRIERS, SHALL BE IN ACCORDANCE WITH THE MSHA "STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES", STANDARD NO. 104.01-28 - STAGED ROADWAY CONSTRUCTION AND STANDARD NOS. 104.06-13 TO MD 104.06-19 - PAVEMENT EDGE DROP OFF. IF CORRECT DROP OFF SLOPES CAN'T BE MAINTAINED TEMPORARY TRAFFIC BARRIERS SHALL BE SET UP.
- TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH.
- ALL OPEN TRENCHES SHALL BE CLOSED AT THE END OF THE DAY, IF STEEL PLATES ARE TO BE USED, APPROPRIATE ANCHORING AND SIGNING WILL BE REQUIRED.
- ALL SIGNS THAT DO NOT APPLY SHALL BE COMPLETELY COVERED, REMOVED OR RELOCATED AS DIRECTED BY THE ENGINEER.
- ACCESS SHALL BE PROVIDED TO ALL EXISTING DRIVEWAYS AT ALL TIMES.
- ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE TYPICAL SIGN PLACEMENT SHOWN ON THE TYPICALS AND SHALL NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
- WHEN WORK NECESSITATES ONLY ONE LANE TO BE OPEN, FLAGGERS AND THE APPROPRIATE SIGNING SHALL BE INSTALLED. THE ROADWAY SHOULD BE REOPENED TO TWO LANES AT THE END OF EACH WORKDAY.
- ANY FLAGGING OR CONSTRUCTION OPERATION THAT WILL AFFECT A SIGNALIZED INTERSECTION SHALL BE COORDINATED WITH POLICE.
- THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATION TO THE SIGNAL OPERATION WITHOUT PRIOR APPROVAL OF THE SHA, DISTRICT TRAFFIC ENGINEER AND THE SHA SIGNAL SHOP. IF FLAGGING OF THE INTERSECTION IS NECESSARY THE TRAFFIC SIGNAL SHOULD BE PLACED ON FLASH AND AN OFFICER SHOULD BE PRESENT TO DIRECT TRAFFIC.
- TEMPORARY PAVEMENT MARKINGS ON FINAL PAVEMENT SURFACE SHALL BE REMOVABLE TAPE AND NOT PAINT.
- BEFORE THE INTERSECTION IS OPEN TO TRAFFIC A PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) MUST BE PLACED IN BOTH DIRECTIONS OF MD 108 FOR AT LEAST ONE WEEK PRIOR TO THE OPENING TO ALERT MOTORISTS AND IT SHOULD STAY IN PLACE FOR AT LEAST ONE WEEK AFTER OPENING. THE CONTRACTOR SHOULD CONTACT THE ADEPT FOR THE MESSAGES TO BE DISPLAYED.
- THE CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS WITHIN 30 FEET OF THE TRAVEL LANE DURING NON-WORKING HOURS.
- THE CONTRACTOR SHALL COORDINATE WITH THE MDOT SHA SIGNAL SHOP FOR NECESSARY ADJUSTMENTS TO THE SIGNAL VIDEO DETECTION PRIOR TO MODIFYING PAVEMENT MARKINGS IN EACH MOT PHASE.

PHASE 1

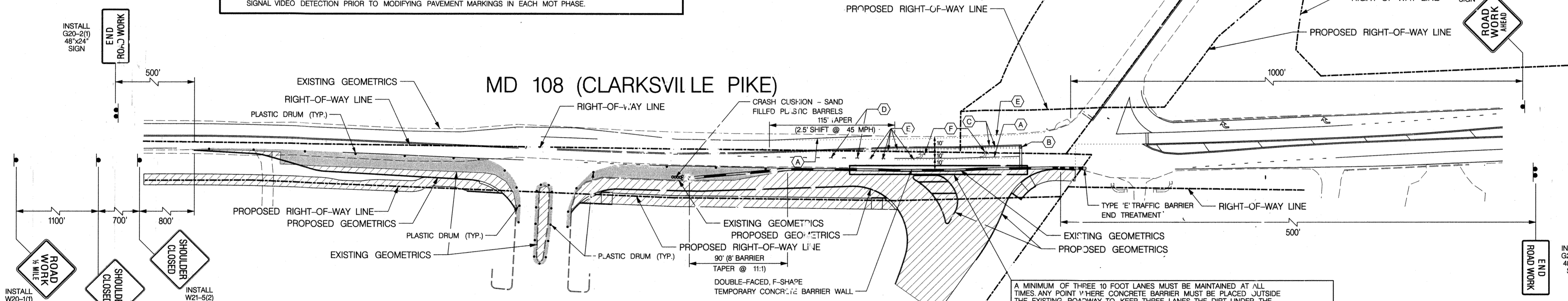
SEQUENCE OF CONSTRUCTION - PHASE 1

- REMOVE EXISTING MARKINGS AND INSTALL NEW TEMPORARY MARKINGS
- SET BARRIER AND SIGNS
- ROUGH GRADE OUTSIDE EDGE OF ROAD
- CONSTRUCT FULL DEPTH PAVING AND ANY OTHER REQUIRED ACTIVITIES

PAVEMENT MARKING CONSTRUCTION DETAILS

- INSTALL 5 IN. TEMPORARY SOLID WHITE PAVEMENT MARKING LINE
- INSTALL 24 IN. TEMPORARY SOLID WHITE PAVEMENT MARKING LINE
- INSTALL 5 IN. TEMPORARY SOLID YELLOW PAVEMENT MARKING LINE
- INSTALL 5 IN. TEMPORARY SKIP WHITE PAVEMENT MARKING LINE (3 FT. LINE - 9 FT. GAP)
- REMOVE EXISTING PAVEMENT MARKING LINE
- REMOVE EXISTING PAVEMENT MARKING ARROW

SHEPPARD LANE



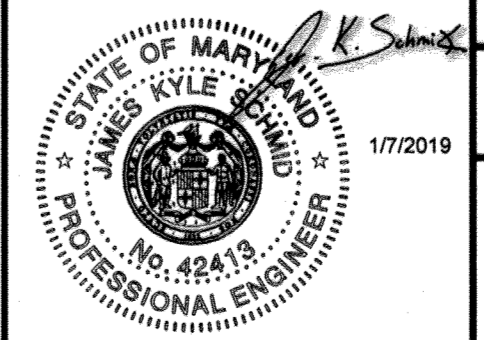
A MINIMUM OF THREE 10 FOOT LANES MUST BE MAINTAINED AT ALL TIMES. ANY POINT WHERE CONCRETE BARRIER MUST BE PLACED OUTSIDE THE EXISTING ROADWAY TO KEEP THREE LANES, THE DIRT UNDER THE BARRIER MUST BE EXCAVATED AND REPLACED WITH STONE BASE AFTER FULL DEPTH CONSTRUCTION BEHIND THE BARRIER IS FINISHED. FULL DEPTH CONSTRUCTION UNDER THE BARRIER WILL BE DONE UNDER A FLAGGING OPERATION.

LEGEND

- AREA CLOSED TO TRAFFIC
- WORK AREA
- PROPOSED SIGNS
SEE MSHA STANDARD NUMBERS:
MD 104.01-17A
MD 104.01-17B
MD 104.01-17C
MD 104.01-17D
- PLASTIC DRUM
- SPACED AT 40' IN TANGENT SECTIONS
- SPACED AT 40' IN TAPER SECTIONS
- SPACED AT 80' IN BUFFER ZONES
- SPACED AT 15' ON RADIUS SECTIONS
- DOUBLE-FACED, F-SHAPE TEMPORARY CONCRETE BARRIER WALL
SEE MSHA STANDARD NUMBERS:
MD 104.01-23A
MD 104.01-23B
MD 104.01-23
MD 104.01-25
MD 104.01-26
- CRASH CUSHION - SAND FILLED PLASTIC BARRELS
SEE MSHA STANDARD NUMBERS:
MD 104.01-70
MD 104.01-23A
MD 104.01-71
MD 104.01-23B
MD 104.01-72
MD 104.01-73
- TYPE 'E' TRAFFIC BARRIER END TREATMENT
SEE MSHA STANDARD NUMBERS:
MD 805.05-02
MD 805.06
MD 805.06-01

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APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE 2/6/2019
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 3-6-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 2-21-19



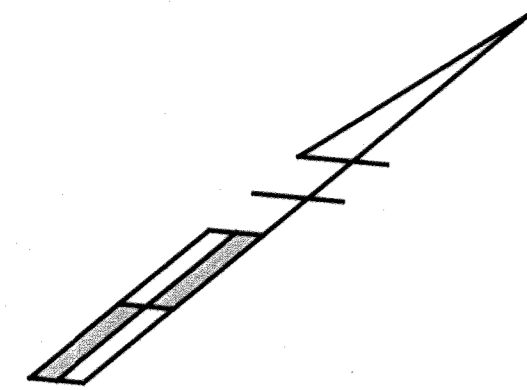
PHASE 1
MAINTENANCE OF TRAFFIC PLAN
MD 108 (CLARKSVILLE PIKE) AND SHEPPARD LANE
HOWARD COUNTY

DRAWN BY: B. SCHMID DESIGNED BY: B. SCHMID CHECKED BY: K. SCHMID
DATE: 01-07-2019 SHEET NO: 36 OF 41 SCALE: 1" = 50'

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12/21/22

AS-BUILT 3/21/21



MAINTENANCE OF TRAFFIC NOTES

1. DURING WORK HOURS, WHEN CONSTRUCTION IS TAKING PLACE, MAINTAIN TRAFFIC IN ACCORDANCE WITH THE FOLLOWING MSHA TRAFFIC CONTROL TYPICALS:

2 LANE / 2 WAY ROADWAY (GREATER THAN 40 MPH)			
GENERAL	MD 104.00-A TO MD 104.01-81	WORK IN CENTER OF ROAD	MD 104.02-05
SHOULDER WORK	MD 104.02-01	FLAGGING OPERATION	MD 104.02-09
LANE SHIFT RIGHT OR LEFT SIDE	MD 104.02-03	INTERSECTION FLAGGING OPERATION	MD 104.02-13

THE LATEST TYPICALS CAN BE FOUND AT THE MSHA WEBSITE
- WWW.MARYLANDROADS.COM
- BUSINESS CENTER
- BUSINESS STANDARDS AND SPECIFICATIONS
- BOOK OF STANDARDS & INCIDENTAL STRUCTURES
- CATEGORY 1 PRELIMINARY

- SEE SHA ACCESS PERMIT FOR WORKING HOURS, LANE CLOSURE RESTRICTIONS / NOTIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A LANE CLOSURE APPLICATION TO THE DISTRICT OFFICE.
- ALL SIGNING, CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH "THE MARYLAND MANUAL ON TRAFFIC CONTROL DEVICES" (MDMUTCD) 2011 EDITION.
- EXCAVATION ALONG THE ROAD EDGE NOT PROTECTED BY TEMPORARY TRAFFIC BARRIERS, SHALL BE IN ACCORDANCE WITH THE MSHA "STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES", STANDARD NO. 104.01-28 - STAGED ROADWAY CONSTRUCTION AND STANDARD NOS. 104.06-13 TO MD 104.06-19 - PAVEMENT EDGE DROP OFF. IF CORRECT DROP OFF SLOPES CAN'T BE MAINTAINED TEMPORARY TRAFFIC BARRIERS SHALL BE SET UP.
- TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH.
- ALL OPEN TRENCHES SHALL BE CLOSED AT THE END OF THE DAY. IF STEEL PLATES ARE TO BE USED, APPROPRIATE ANCHORING AND SIGNING WILL BE REQUIRED.
- ALL SIGNS THAT DO NOT APPLY SHALL BE COMPLETELY COVERED, REMOVED OR RELOCATED AS DIRECTED BY THE ENGINEER.
- ACCESS SHALL BE PROVIDED TO ALL EXISTING DRIVEWAYS AT ALL TIMES.
- ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE TYPICAL SIGN PLACEMENT SHOWN ON THE TYPICALS AND SHALL NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
- WHEN WORK NECESSITATES ONLY ONE LANE TO BE OPEN, FLAGGERS AND THE APPROPRIATE SIGNING SHALL BE INSTALLED. THE ROADWAY SHOULD BE REOPENED TO TWO LANES AT THE END OF EACH WORKDAY.
- ANY FLAGGING OR CONSTRUCTION OPERATION THAT WILL AFFECT A SIGNALIZED INTERSECTION SHALL BE COORDINATED WITH POLICE.
- THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATION TO THE SIGNAL OPERATION WITHOUT PRIOR APPROVAL OF THE SHA DISTRICT TRAFFIC ENGINEER AND THE SHA SIGNAL SHOP. IF FLAGGING OF THE INTERSECTION IS NECESSARY THE TRAFFIC SIGNAL SHOULD BE PLACED ON FLASH AND AN OFFICER SHOULD BE PRESENT TO DIRECT TRAFFIC.
- TEMPORARY PAVEMENT MARKINGS ON FINAL PAVEMENT SURFACE SHALL BE REMOVABLE TAPE AND NOT PAINT.
- BEFORE THE INTERSECTION IS OPEN TO TRAFFIC A PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) MUST BE PLACED IN BOTH DIRECTIONS ON MD 108 FOR AT LEAST ONE WEEK PRIOR TO THE OPENING TO ALERT MOTORISTS AND IT SHOULD STAY IN PLACE FOR AT LEAST ONE WEEK AFTER OPENING. THE CONTRACTOR SHOULD CONTACT THE ADEPT FOR THE MESSAGES TO BE DISPLAYED.
- THE CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS WITHIN 30 FEET OF THE TRAVEL LANE DURING NON-WORKING HOURS.
- THE CONTRACTOR SHALL COORDINATE WITH THE MDOT SHA SIGNAL SHOP FOR NECESSARY ADJUSTMENTS TO THE SIGNAL VIDEO DETECTION PRIOR TO MODIFYING PAVEMENT MARKINGS IN EACH MOT PHASE.

PHASE 2

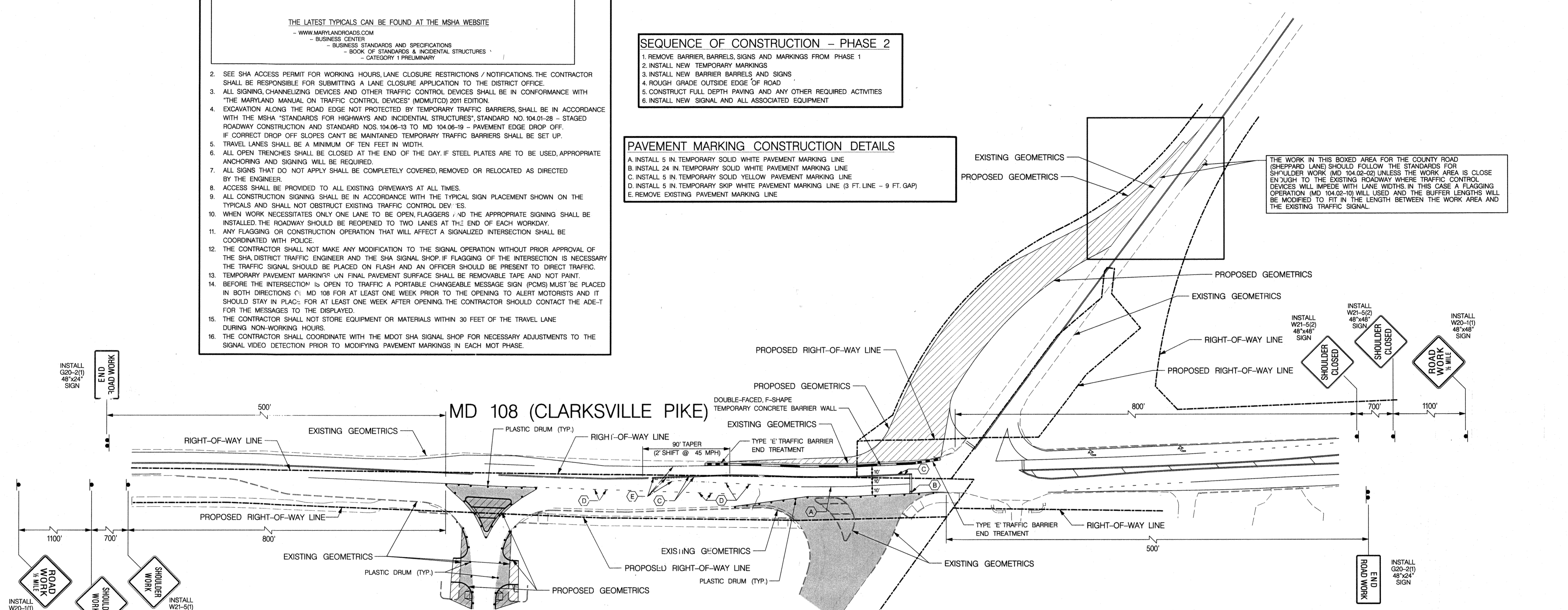
SEQUENCE OF CONSTRUCTION - PHASE 2

- REMOVE BARRIER, BARRELS, SIGNS AND MARKINGS FROM PHASE 1
- INSTALL NEW TEMPORARY MARKINGS
- INSTALL NEW BARRIER BARRELS AND SIGNS
- ROUGH GRADE OUTSIDE EDGE OF ROAD
- CONSTRUCT FULL DEPTH PAVING AND ANY OTHER REQUIRED ACTIVITIES
- INSTALL NEW SIGNAL AND ALL ASSOCIATED EQUIPMENT

PAVEMENT MARKING CONSTRUCTION DETAILS

- INSTALL 5 IN. TEMPORARY SOLID WHITE PAVEMENT MARKING LINE
- INSTALL 24 IN. TEMPORARY SOLID WHITE PAVEMENT MARKING LINE
- INSTALL 5 IN. TEMPORARY SOLID YELLOW PAVEMENT MARKING LINE
- INSTALL 5 IN. TEMPORARY SKIP WHITE PAVEMENT MARKING LINE (3 FT. LINE - 9 FT. GAP)
- REMOVE EXISTING PAVEMENT MARKING LINE

SHEPPARD LANE



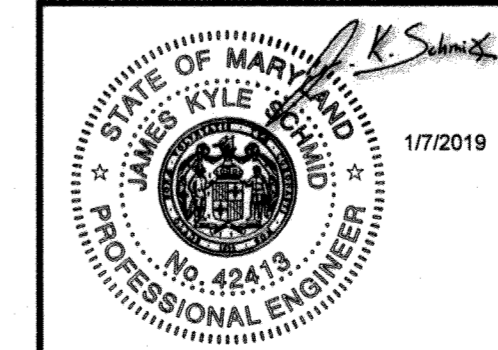
THE WORK IN THIS BOXED AREA FOR THE COUNTY ROAD (SHEPPARD LANE) SHOULD FOLLOW THE STANDARDS FOR SHOULDER WORK (MD 104.02-02) UNLESS THE WORK AREA IS CLOSE ENOUGH TO THE EXISTING ROADWAY WHERE TRAFFIC CONTROL DEVICES WILL IMPEDE WITH LANE WIDTHS. IN THIS CASE A FLAGGING OPERATION (MD 104.02-10) WILL BE USED AND THE BUFFER LENGTHS WILL BE MODIFIED TO FIT IN THE LENGTH BETWEEN THE WORK AREA AND THE EXISTING TRAFFIC SIGNAL.

LEGEND

- AREA CLOSED TO TRAFFIC
- WORK AREA
- 1 POST - PROPOSED SIGNS
SEE MSHA STANDARD NUMBERS:
MD 104.01-77A
MD 104.01-77B
MD 104.01-77C
MD 104.01-77D
- 2 POSTS
- PLASTIC DRUM
- SPACED AT 40' IN TANGENT SECTIONS
- SPACED AT 40' IN TAPER SECTIONS
- SPACED AT 80' IN BUFFER ZONES
- SPACED AT 15' ON RADIUS SECTIONS
- DOUBLE-FACED, F-SHAPE TEMPORARY CONCRETE BARRIER WALL
SEE MSHA STANDARD NUMBERS:
MD 104.01-23A
MD 104.01-23B
MD 104.01-23
MD 104.01-26
- TYPE 'E' TRAFFIC BARRIER END TREATMENT
SEE MSHA STANDARD NUMBERS:
MD 605.05-02
MD 605.06
MD 605.06-01

TRAFFIC CONCEPTS, INC.
7525 Connelley Drive
Suite B
Hanover, MD 21076
(410) 760-2911
FAX: (410) 760-2915
EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM

APPROVED: DEPARTMENT OF PUBLIC WORKS
James
 CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Kent Co. O'Neil
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19
W. H. Smith
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 3-20-19



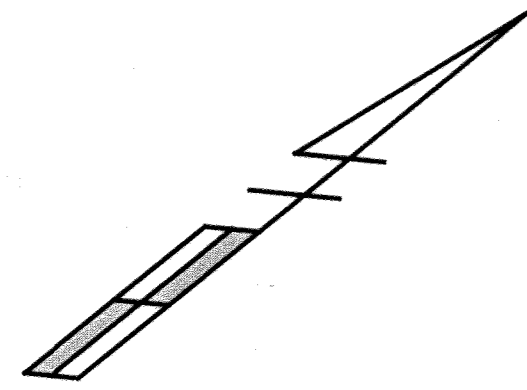
PHASE 2
MAINTENANCE OF TRAFFIC PLAN
 MD 108 (CLARKSVILLE PIKE) AND SHEPPARD LANE
 HOWARD COUNTY

DRAWN BY: B. SCHMID DESIGNED BY: B. SCHMID CHECKED BY: K. SCHMID
 DATE: 01-07-2019 SHEET NO: 31 OF 41 SCALE: 1" = 50'

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12/21/22



MAINTENANCE OF TRAFFIC NOTES

1. DURING WORK HOURS, WHEN CONSTRUCTION IS TAKING PLACE, MAINTAIN TRAFFIC IN ACCORDANCE WITH THE FOLLOWING MSHA TRAFFIC CONTROL TYPICALS:

2 LANE / 2 WAY ROADWAY (GREATER THAN 40 MPH)			
GENERAL	MD 104.00-A TO MD 104.01-81	WORK IN CENTER OF ROAD	MD 104.02-05
SHOULDER WORK	MD 104.02-01	FLAGGING OPERATION	MD 104.02-09
LANE SHIFT RIGHT OR LEFT SIDE	MD 104.02-03	INTERSECTION FLAGGING OPERATION	MD 104.02-13

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WWW.MARYLANDROADS.COM
BUSINESS CENTER
BOOK OF STANDARDS & INCIDENTAL STRUCTURES
CATEGORY 1 PRELIMINARY

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- TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH.
- ALL OPEN TRENCHES SHALL BE CLOSED AT THE END OF THE DAY. IF STEEL PLATES ARE TO BE USED, APPROPRIATE ANCHORING AND SIGNING WILL BE REQUIRED.
- ALL SIGNS THAT DO NOT APPLY SHALL BE COMPLETELY COVERED, REMOVED OR RELOCATED AS DIRECTED BY THE ENGINEER.
- ACCESS SHALL BE PROVIDED TO ALL EXISTING DRIVEWAYS AT ALL TIMES.
- ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE TYPICAL SIGN PLACEMENT SHOWN ON THE TYPICALS AND SHALL NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
- WHEN WORK NECESSITATES ONLY ONE LANE TO BE OPEN, FLAGGERS AND THE APPROPRIATE SIGNING SHALL BE INSTALLED. THE ROADWAY SHOULD BE REOPENED TO TWO LANES AT THE END OF EACH WORKDAY.
- ANY FLAGGING OR CONSTRUCTION OPERATION THAT WILL AFFECT A SIGNALIZED INTERSECTION SHALL BE COORDINATED WITH POLICE.
- THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATION TO THE SIGNAL OPERATION WITHOUT PRIOR APPROVAL OF THE SHA DISTRICT TRAFFIC ENGINEER AND THE SHA SIGNAL SHOP. IF FLAGGING OF THE INTERSECTION IS NECESSARY THE TRAFFIC SIGNAL SHOULD BE PLACED ON FLASH AND AN OFFICER SHOULD BE PRESENT TO DIRECT TRAFFIC.
- TEMPORARY PAVEMENT MARKINGS ON FINAL PAVEMENT SURFACE SHALL BE REMOVABLE TAPE AND NOT PAINT.
- BEFORE THE INTERSECTION IS OPEN TO TRAFFIC A PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) MUST BE PLACED IN BOTH DIRECTIONS OF MD 108 FOR AT LEAST ONE WEEK PRIOR TO THE OPENING TO ALERT MOTORISTS AND IT SHOULD STAY IN PLACE FOR AT LEAST ONE WEEK AFTER OPENING. THE CONTRACTOR SHOULD CONTACT THE ADE-T FOR THE MESSAGES TO BE DISPLAYED.
- THE CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS WITHIN 30 FEET OF THE TRAVEL LANE DURING NON-WORKING HOURS.
- THE CONTRACTOR SHALL COORDINATE WITH THE MDOT SHA SIGNAL SHOP FOR NECESSARY ADJUSTMENTS TO THE SIGNAL VIDEO DETECTION PRIOR TO MODIFYING PAVEMENT MARKINGS IN EACH MOT PHASE.

PHASE 3

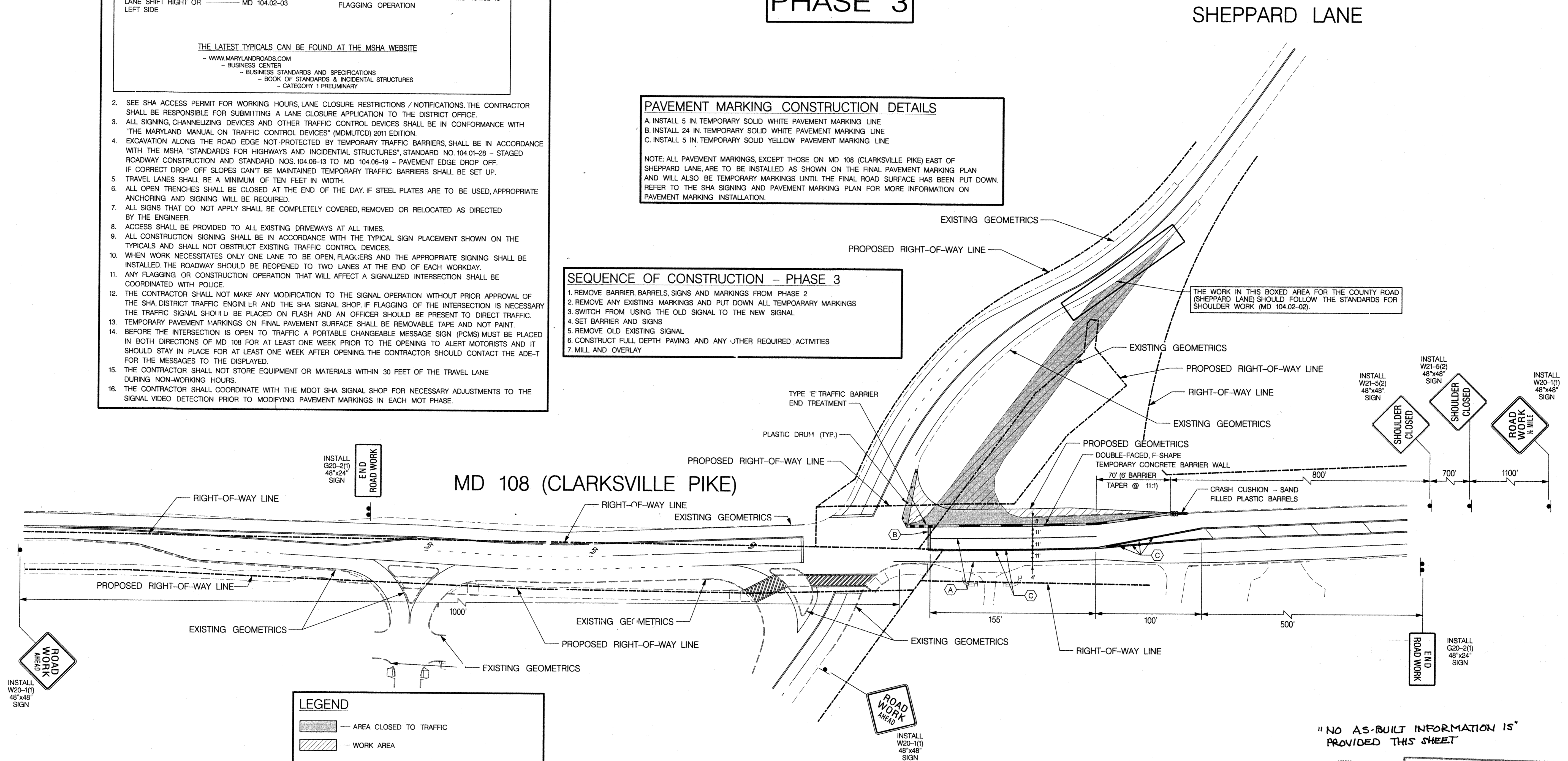
PAVEMENT MARKING CONSTRUCTION DETAILS

- INSTALL 5 IN. TEMPORARY SOLID WHITE PAVEMENT MARKING LINE
- INSTALL 24 IN. TEMPORARY SOLID WHITE PAVEMENT MARKING LINE
- INSTALL 5 IN. TEMPORARY SOLID YELLOW PAVEMENT MARKING LINE

NOTE: ALL PAVEMENT MARKINGS, EXCEPT THOSE ON MD 108 (CLARKSVILLE PIKE) EAST OF SHEPPARD LANE, ARE TO BE INSTALLED AS SHOWN ON THE FINAL PAVEMENT MARKING PLAN AND WILL ALSO BE TEMPORARY MARKINGS UNTIL THE FINAL ROAD SURFACE HAS BEEN PUT DOWN. REFER TO THE SHA SIGNING AND PAVEMENT MARKING PLAN FOR MORE INFORMATION ON PAVEMENT MARKING INSTALLATION.

SEQUENCE OF CONSTRUCTION - PHASE 3

- REMOVE BARRIER, BARRELS, SIGNS AND MARKINGS FROM PHASE 2
- REMOVE ANY EXISTING MARKINGS AND PUT DOWN ALL TEMPORARY MARKINGS
- SWITCH FROM USING THE OLD SIGNAL TO THE NEW SIGNAL
- SET BARRIER AND SIGNS
- REMOVE OLD EXISTING SIGNAL
- CONSTRUCT FULL DEPTH PAVING AND ANY OTHER REQUIRED ACTIVITIES
- MILL AND OVERLAY



LEGEND

	AREA CLOSED TO TRAFFIC
	WORK AREA
1 POST	PROPOSED SIGNS SEE MSHA STANDARD NUMBERS: MD 104.01-17A MD 104.01-17B MD 104.01-17C MD 104.01-17D
2 POSTS	DOUBLE-FACED, F-SHAPE TEMPORARY CONCRETE BARRIER WALL SEE MSHA STANDARD NUMBERS: MD 104.01-23A MD 104.01-23B MD 104.01-25 MD 104.01-26
	CRASH CUSHION - SAND FILLED PLASTIC BARRELS SEE MSHA STANDARD NUMBERS: MD 104.01-70 MD 104.01-23A MD 104.01-71 MD 104.01-23B MD 104.01-72 MD 104.01-23B MD 104.01-73
	TYPE 'E' TRAFFIC BARRIER END TREATMENT SEE MSHA STANDARD NUMBERS: MD 605.06-02 MD 605.06-01

"NO AS-BUILT INFORMATION IS PROVIDED THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12/2/22

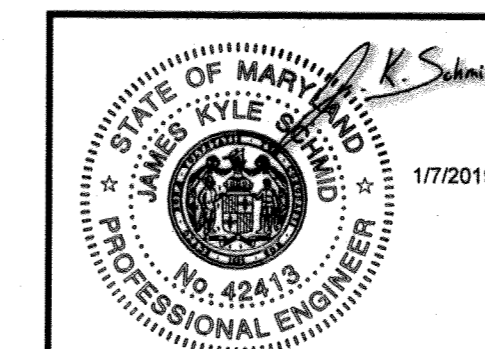
TRAFFIC CONCEPTS, INC.
7525 Connelley Drive
Suite B
Hanover, MD 21076
(410) 760-2911
FAX: (410) 760-2915
EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM

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Monday, January 07, 2019 AT 12:55 PM

APPROVED: DEPARTMENT OF PUBLIC WORKS
James Schmid 2/6/2019
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Vertha A. Davis 3-6-19
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

W. Blak 2-21-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

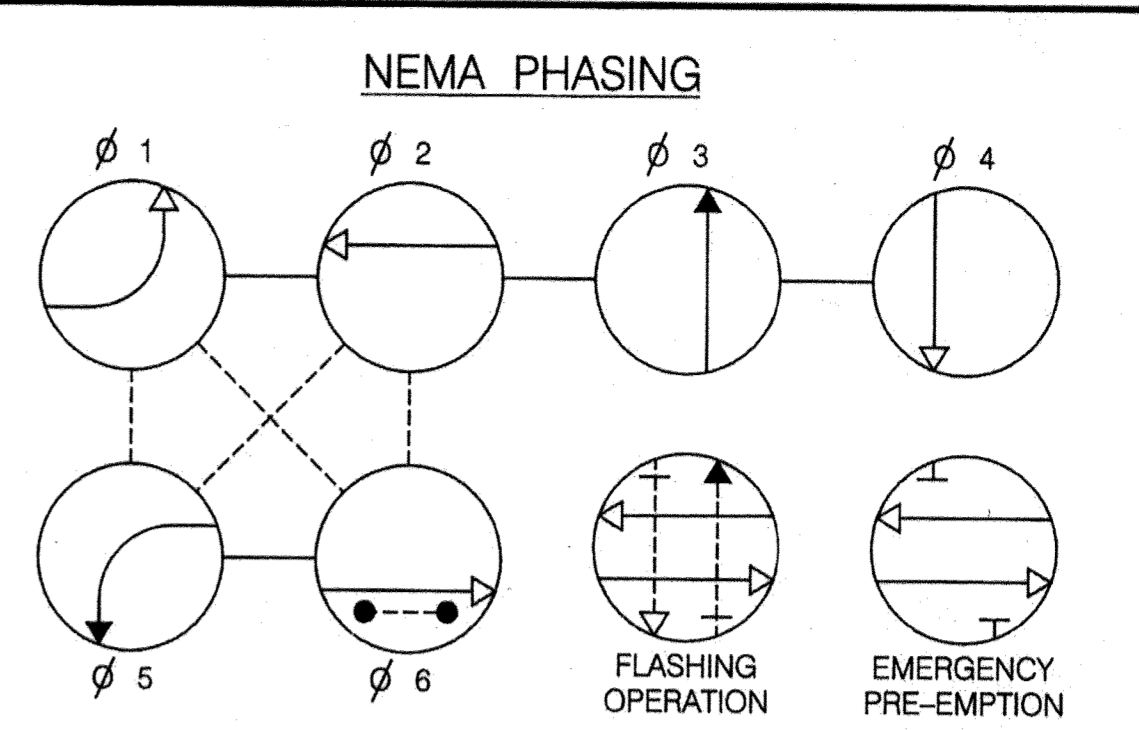
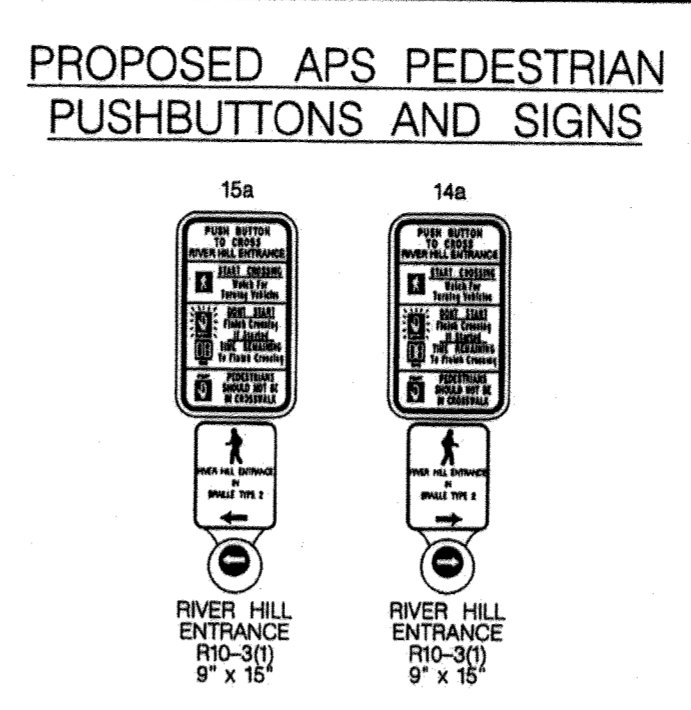
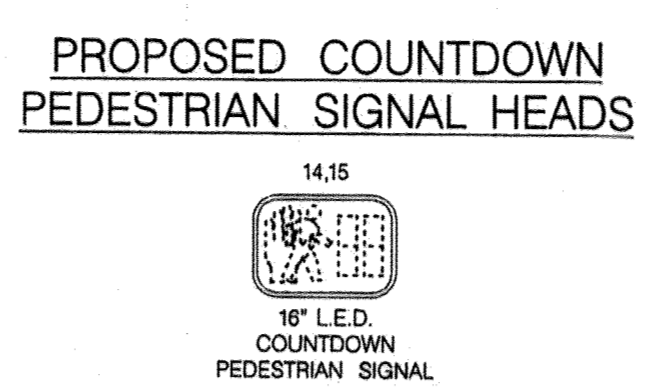
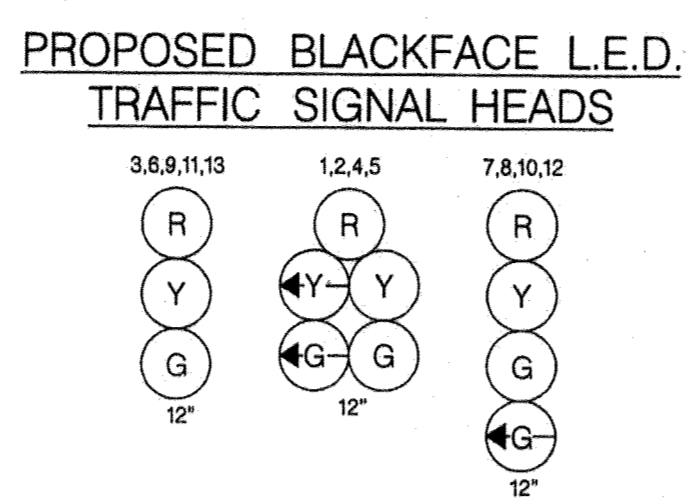
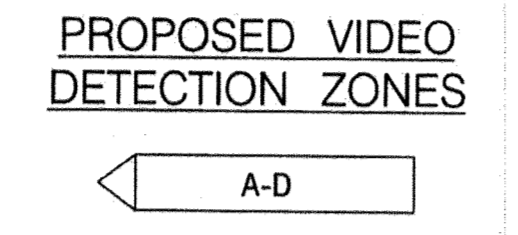
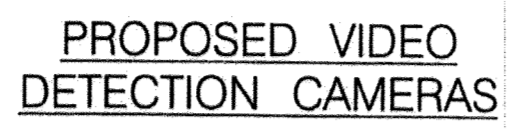
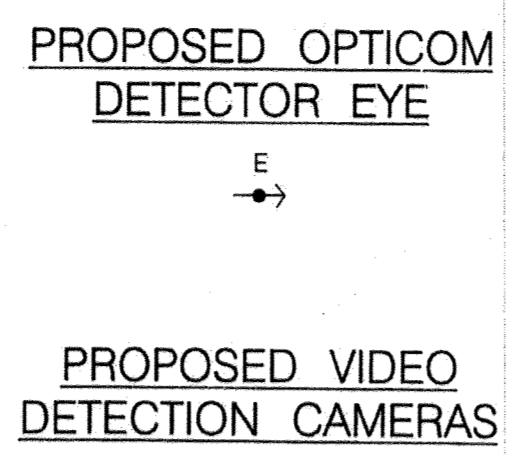
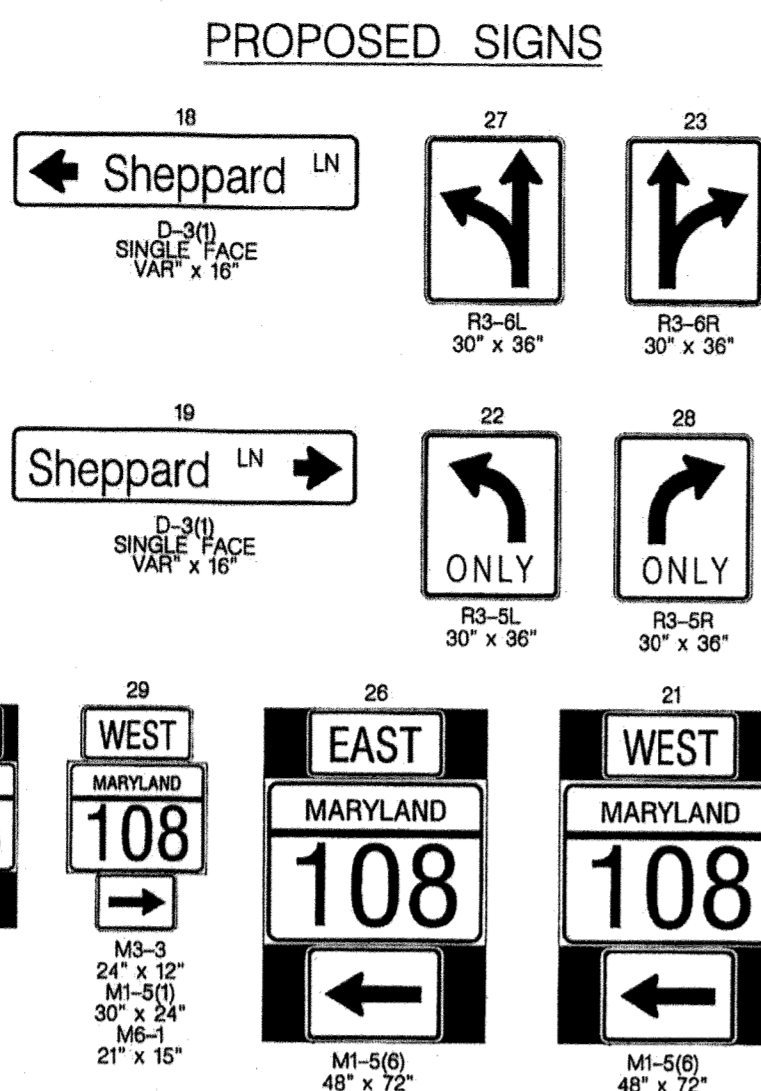
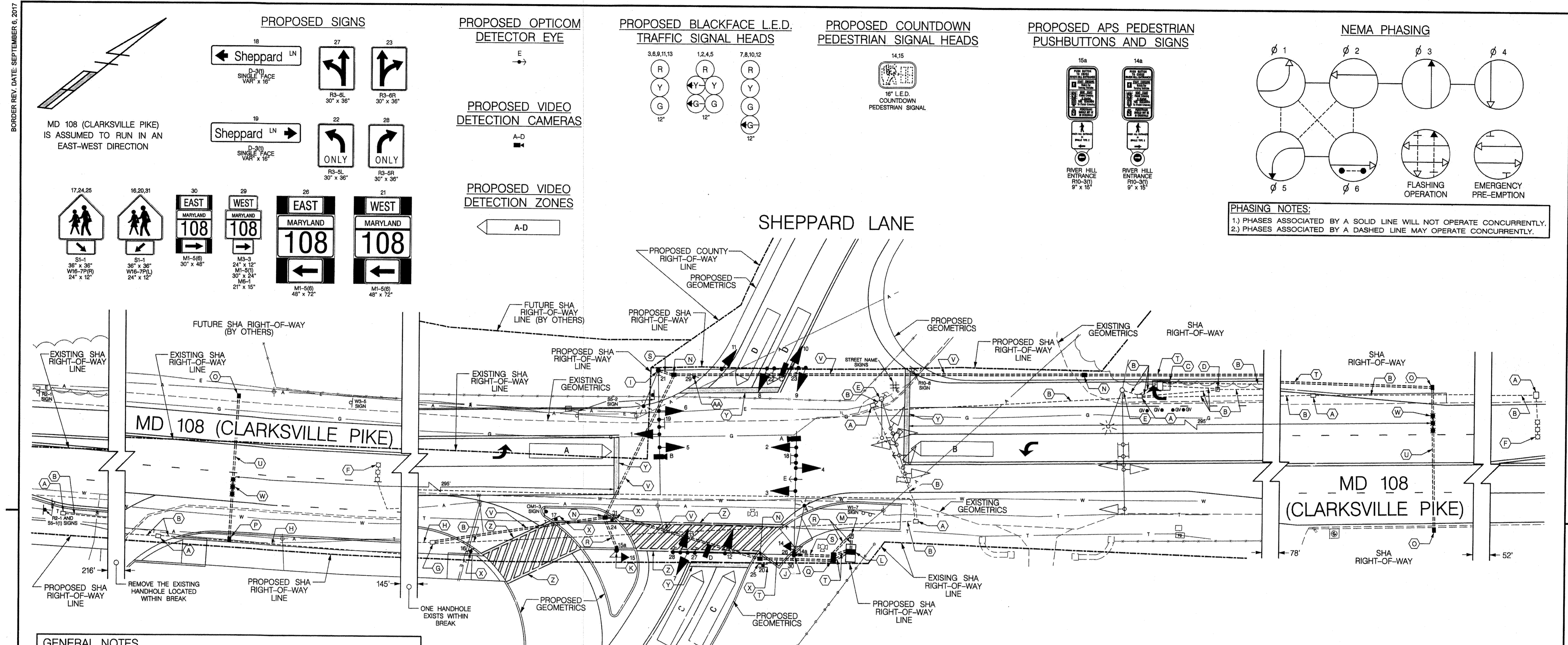
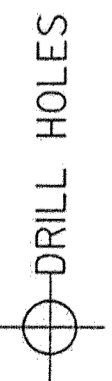
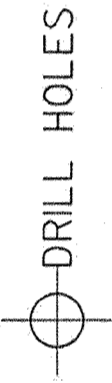
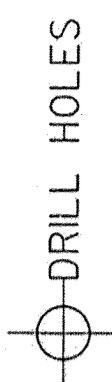


PHASE 3
MAINTENANCE OF TRAFFIC PLAN
 MD 108 (CLARKSVILLE PIKE) AND SHEPPARD LANE
 HOWARD COUNTY

DRAWN BY: B. SCHMID	DESIGNED BY: B. SCHMID	CHECKED BY: K. SCHMID
DATE: 01-07-2019	SHEET NO: 38 OF 41	SCALE: 1" = 50'

AS-BUILT F-18-099

BORDER REV. DATE: SEPTEMBER 6, 2017



PHASING NOTES:
 1.) PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
 2.) PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.

GENERAL NOTES

- THESE PLANS ARE APPROVED FOR CONSTRUCTION FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL. SHOULD CONSTRUCTION NOT BEGIN WITHIN THIS TIME FRAME, THESE PLANS SHALL BE NULL AND VOID WITHOUT A REVIEW FROM THE TRAFFIC ENGINEERING DESIGN DIVISION.
- ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN UTILITIES AND TRAFFIC SIGNAL EQUIPMENT WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THE CONFLICT MAY BE RESOLVED.
- ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCE AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
- ALL INTERNAL CABINET WIRING IS TO BE PERFORMED BY THE STATE HIGHWAY ADMINISTRATION SIGNAL SHOP.
- THE CONTRACTOR SHALL REMOVE ALL UNUSED CABLE.
- FOR ADDITIONAL SIGNING AND PAVEMENT MARKING SEE SIGNING AND PAVEMENT MARKING PLANS.
- ALL EXISTING TRAFFIC SIGNAL EQUIPMENT BEING REMOVED SHALL BECOME THE PROPERTY OF THE SIGNAL CONTRACTOR UPON COMPLETION OF THE WORK.
- THE LOCATION OF PROPOSED GEOMETRICS MUST BE CONFIRMED PRIOR TO THE INSTALLATION OF THE SIGNAL EQUIPMENT.
- THE CONTRACTOR SHALL MAINTAIN CONTINUOUS OPERATION OF ALL INTERCONNECT, VEHICULAR, PEDESTRIAN DETECTORS AND LIGHTING DEVICES. IF ANY DEVICE IS DAMAGED BY THE CONTRACTORS, IT SHALL BE REPAIRED WITHIN 72 HOURS BY THE CONTRACTOR AT NO COST TO SHA AFTER NOTIFICATION BY THE ENGINEER.
- VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH SHA ENGINEER.
- ALL PROPOSED LUMINAIRES SHALL BE SUPPLIED WITH PHOTOCELL. CONTRACTOR SHALL DETERMINE OPERATING VOLTAGE AND PHOTOCELL REQUIREMENTS.

CONSTRUCTION DETAILS

- REMOVE EXISTING HANDHOLE
- CAP AND ABANDON EXISTING CONDUIT
- REMOVE EXISTING CABINET AND CONTROLLER (REMOVE CONCRETE FOUNDATION 1 FT. BELOW GRADE AND BACKFILL)
- REMOVE EXISTING METERED SERVICE PEDESTAL (REMOVE CONCRETE FOUNDATION 1 FT. BELOW GRADE AND BACKFILL)
- REMOVE EXISTING MAST ARM POLE AND ALL ATTACHED EQUIPMENT (REMOVE CONCRETE FOUNDATION 1 FT. BELOW GRADE AND BACKFILL)
- ABANDON EXISTING MICRO-LOOP PROBE
- USE EXISTING HANDHOLE
- USE EXISTING CONDUIT
- INSTALL 27 FT. MAST ARM POLE WITH TWIN 50 FT. / 60 FT. MAST ARMS, VEHICLE SIGNAL HEADS, SIGNS, VIDEO DETECTION CAMERAS AND 15 FT. STREET LIGHTING ARM WITH LED LUMINAIRE (NOTE: INSTALL 2-3 IN. SCHEDULE 80, RIGID PVC, 90 DEGREE CONDUIT BENDS)
- INSTALL 27 FT. MAST ARM POLE WITH TWIN 50 FT. MAST ARMS, VEHICLE SIGNAL HEADS, SIGNS, VIDEO DETECTION CAMERAS, OPTICOM DETECTOR, PEDESTRIAN SIGNAL HEAD, PUSHBUTTON WITH SIGN, CELLULAR ANTENNA AND 20 FT. STREET LIGHTING ARM WITH LED LUMINAIRE (NOTE: INSTALL 2-3 IN. SCHEDULE 80, RIGID PVC, 90 DEGREE CONDUIT BENDS)
- INSTALL 10 FT. BREAKAWAY PEDESTAL POLE ON MODIFIED BASE WITH PEDESTRIAN SIGNAL HEAD, PUSHBUTTON AND SIGN (NOTES: INSTALL 1-2 IN. SCHEDULE 80, RIGID PVC, 90 DEGREE CONDUIT BEND. SEE STD MD-801.01-01 FOR FOUNDATION DETAIL.)
- INSTALL BASE MOUNTED, SIZE "S" CABINET AND CONTROLLER WITH ALL NECESSARY EQUIPMENT (NOTE: INSTALL 2-2 IN. AND 2-4 IN. SCHEDULE 80, RIGID PVC, 90 DEGREE CONDUIT BENDS)
- INSTALL METERED SERVICE PEDESTAL
- INSTALL ELECTRICAL HANDHOLE
- INSTALL ELECTRICAL HANDHOLE (ALIGNED PERPENDICULAR TO ROADWAY)
- INSTALL ELECTRICAL HANDHOLE OVER EXISTING CONDUIT (ALIGNED PERPENDICULAR TO ROADWAY)
- INSTALL OVERSIZED ELECTRICAL HANDHOLE
- INSTALL 2 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT - TRENCHED
- INSTALL 2-3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUITS - TRENCHED
- INSTALL 4 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT - TRENCHED
- INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT - BORED
- INSTALL 4 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT - BORED
- INSTALL NON-INVASIVE, MICRO-LOOP PROBE
- INSTALL S1-1 AND W16-7P SIGNS ON ONE 4 IN. x 4 IN. WOOD POST
- INSTALL 24 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
- INSTALL 12 IN. SOLID WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE WITH DIAGONAL HATCHING (45 DEGREES AT 24 IN. SPACING)
- INSTALL SHIELD ASSEMBLY SIGNS ON ONE 4 IN. x 6 IN. WOOD POST

GEOMETRIC LEGEND

EXISTING	---
PROPOSED	---

UTILITY LEGEND

AERIAL CABLE	A
ELECTRICAL	E
TELEPHONE	T
GAS	G
SEWER	S
WATER	W
CABLE TV	TV

TRAFFIC CONCEPTS, INC.
 7525 Connelley Drive
 Suite B
 Hanover, MD 21076
 (410) 760-2911
 FAX: (410) 760-2915
 EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM

"NO AS-BUILT INFORMATION IS" PROVIDE THIS SHEET

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date 12/21/22

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF BUREAU OF HIGHWAYS DATE 2/6/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF DIVISION OF LAND DEVELOPMENT DATE 3-6-19
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE 3-21-19

SHA TRACKING NO. 16APH0014xx
 OFFICE OF TRAFFIC & SAFETY
 TRAFFIC ENGINEERING DESIGN DIVISION
MDOT
 MARYLAND DEPARTMENT OF TRANSPORTATION
 STATE HIGHWAY ADMINISTRATION
 MD 108 (CLARKSVILLE PIKE)
 AT SHEPPARD LANE
 CLARKSVILLE, MARYLAND

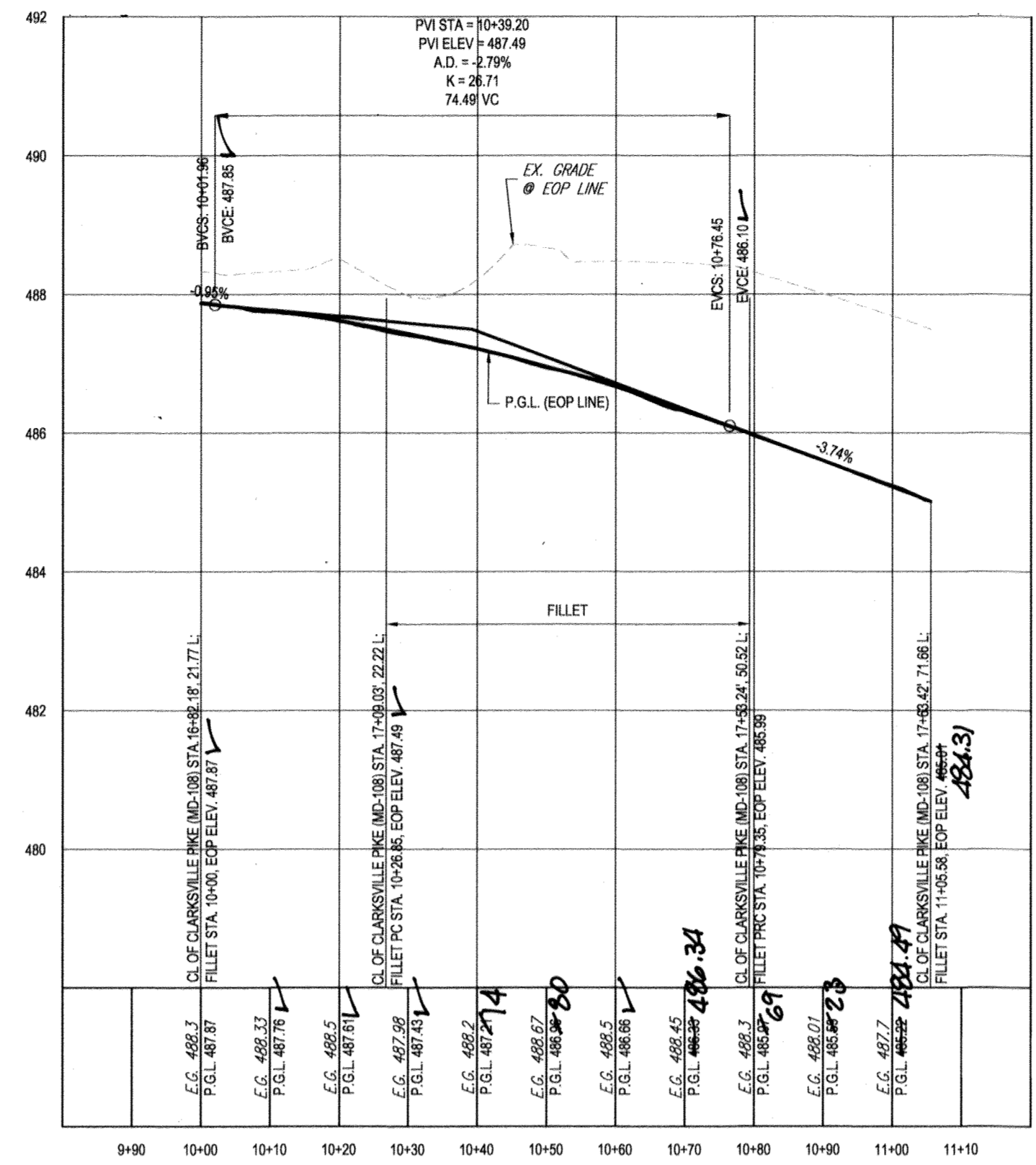
STATE OF MARYLAND
 JAMES W. BERRY
 PROFESSIONAL ENGINEER
 LICENSE NO. 42413
 EXPIRES 12/31/2018

APPROVALS	REVISIONS
ASST. DIR. CHIEF	
TEAM LEADER	
ORIGINAL ON FILE	
SIGNAL RECONSTRUCT	

TRAFFIC SIGNAL PLAN

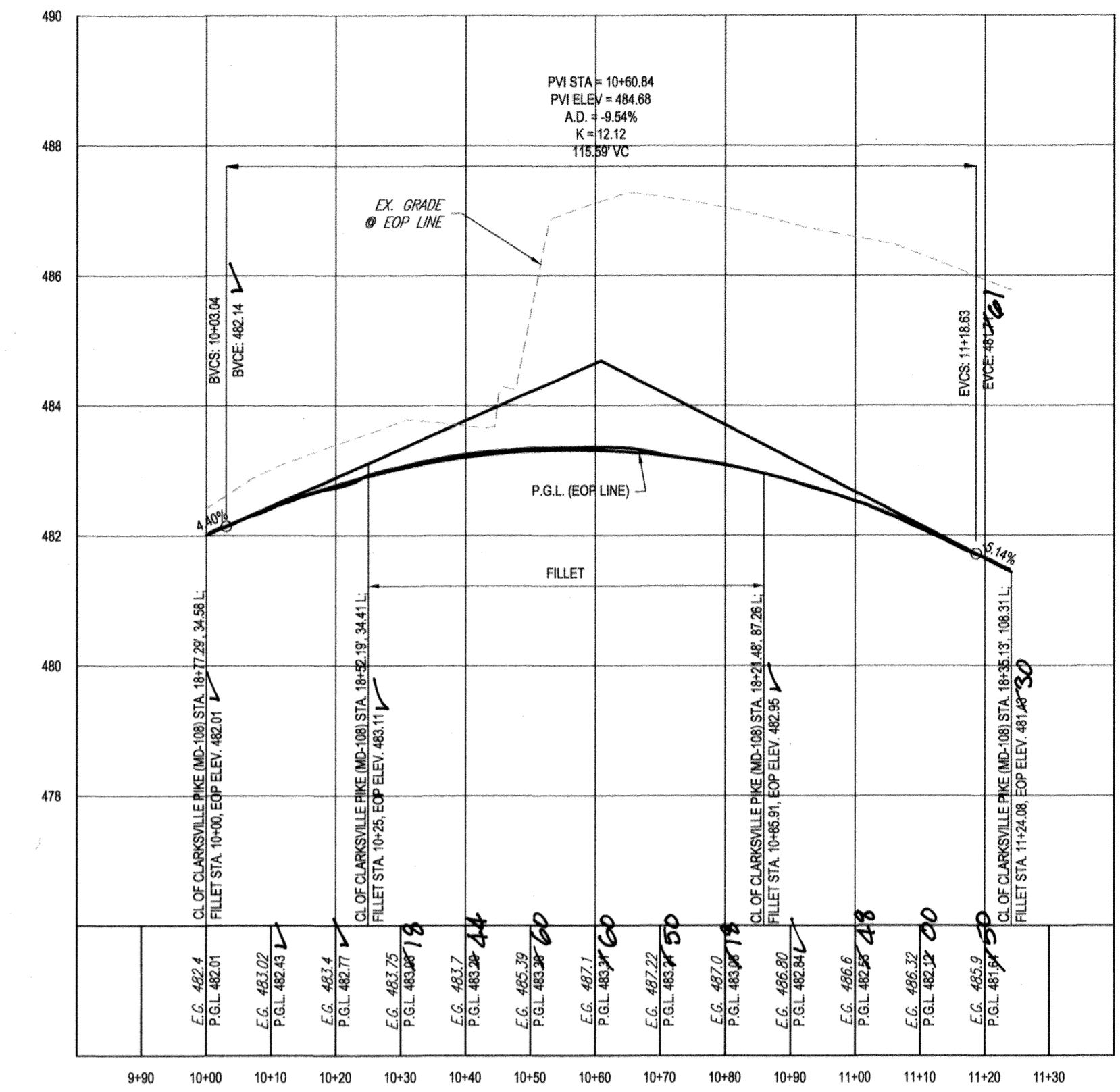
SCALE 1" = 20' DATE 01-06-2011 CONTRACT NO. XX6505165

DESIGNED BY B. DONOWAY COUNTY HOWARD
 DRAWN BY B. DONOWAY LOGMILE 13010804.49
 CHECKED BY N. LEARY TMS NO. L099
 MDE/PRD - TOD NO.



CLARKSVILLE PIKE (MD-108) & SHEPPARD LANE (NW QUADRANT) - FILLET PROFILE

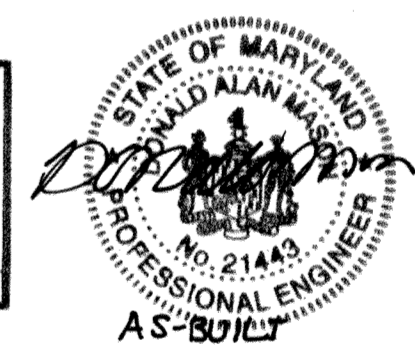
SCALE: 1"=10' HORIZONTAL
1"=1' VERTICAL



CLARKSVILLE PIKE (MD-108) & SHEPPARD LANE (NE QUADRANT) - FILLET PROFILE

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

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12/1/22



AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Date: 3/22/21
Donald Mason, P.E.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE: 2/6/2017
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-6-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2-21-19

OWNER: STEPHEN A. KLEIN & ASSOCIATES RIVER HILL SQUARE, LLC.
C/O STEPHEN A. KLEIN, INC. P.O. BOX 417
12165 CLARKSVILLE PIKE ELLICOTT CITY, MARYLAND 21041
CLARKSVILLE, MD 21029 (410) 465-4244
TAX MAP: 35 GRID: 1 ZONED: B-1 & RC-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: ECP - 17 - 023
SDP - 18 - 044
WP - 18 - 095

PROFESSIONAL CERTIFICATION
I, BRADON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40908, EXPIRATION DATE: 7/31/2019

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

REVISIONS

REV	DATE	COMMENT	BY

KNOW WHAT'S BELOW
ALWAYS CALL 811
BEFORE YOU DIG
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD182002
DRAWN BY: CJB
CHECKED BY: BRB
DATE: 12/18/18
SCALE: AS SHOWN
CAD I.D.: SP2

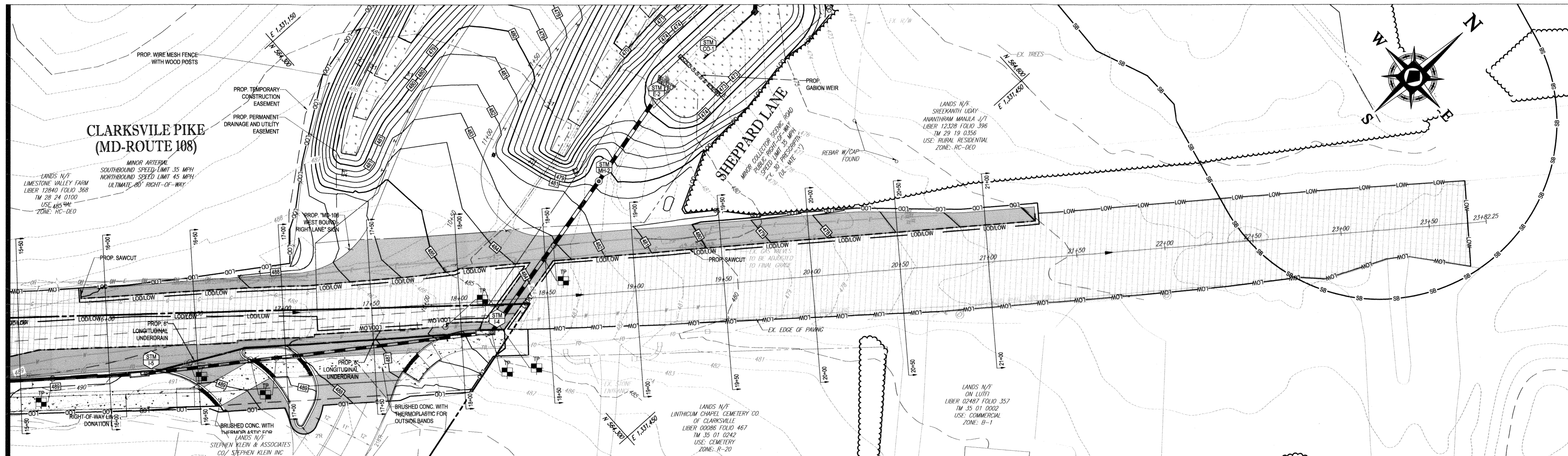
FINAL ROAD CONSTRUCTION PLANS
FOR
MD ROUTE 108 IMPROVEMENTS AND SHEPPARD LANE RE-ALIGNMENT
LOCATION OF SITE INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
13TH ELECTION DISTRICT
HOWARD COUNTY

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

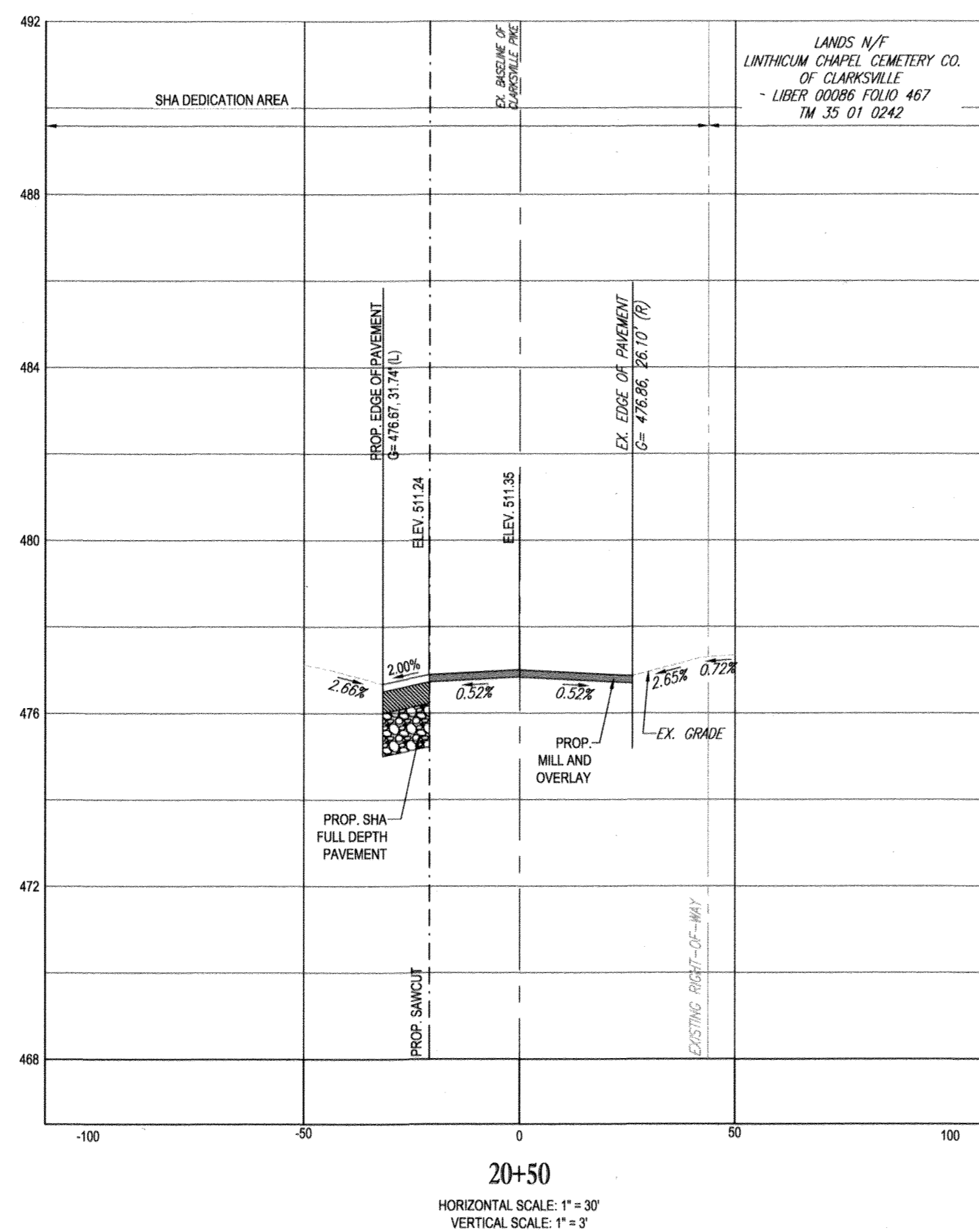
B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 40908
1/1/19

SHEET TITLE:
SHEPPARD LANE EDGE OF PAVING RETURN PROFILES
SHEET NUMBER:
40
F-18-099

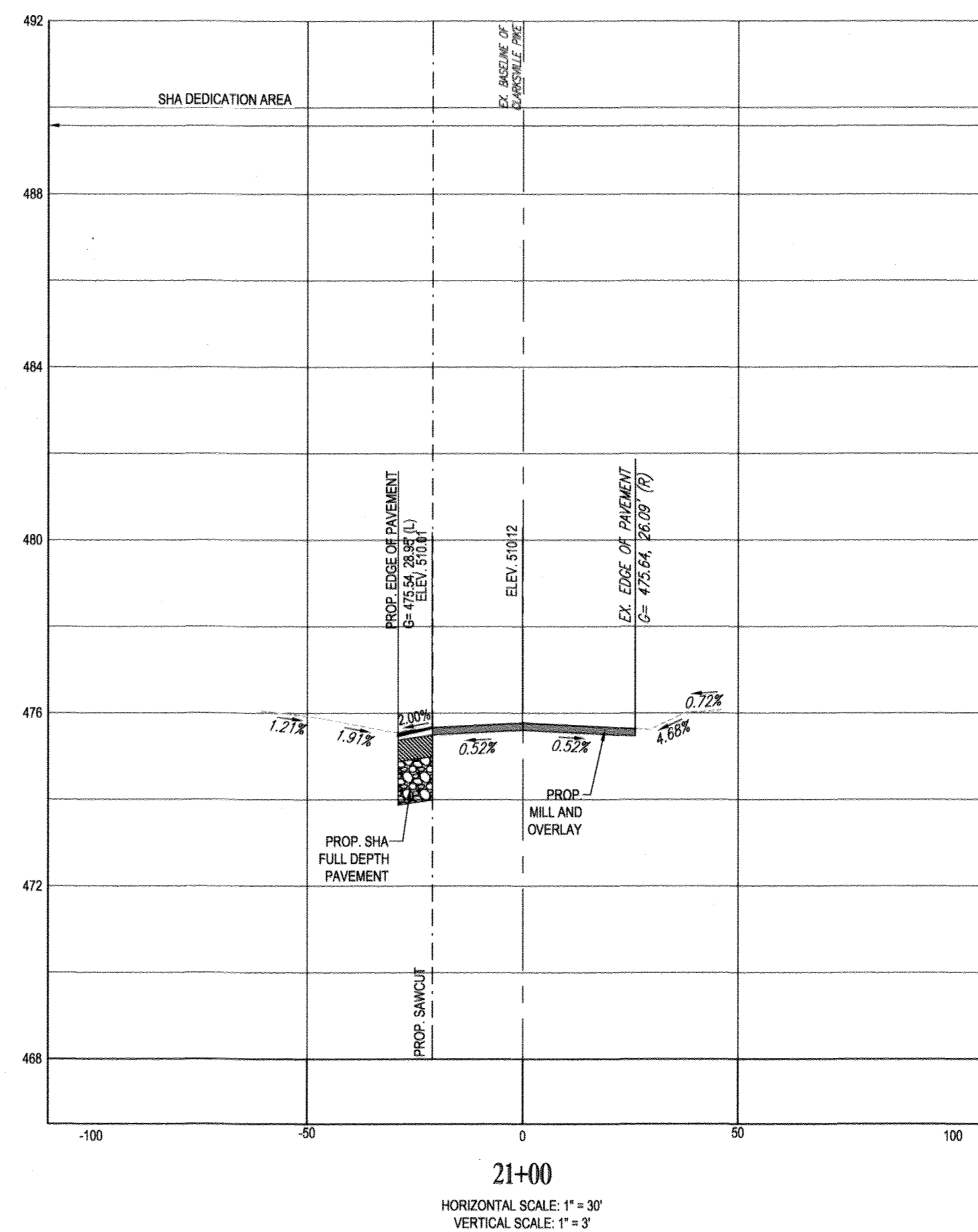
AS-BUILT



PLAN VIEW
SCALE: 1" = 30'



20+50
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



21+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

CLARKSVILLE PIKE (MD ROUTE 108) CROSS SECTIONS

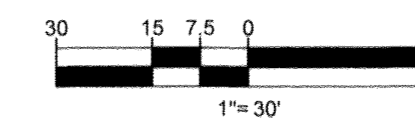
LEGEND

	CONCRETE MULTIMODAL PEDESTRIAN PATHWAY BRUSHED CONCRETE - REFER TO CLARKSVILLE PIKE DESIGN GUIDELINES
	SHA FULL DEPTH ASPHALT PAVING
	SHA 2" MILL AND OVERLAY

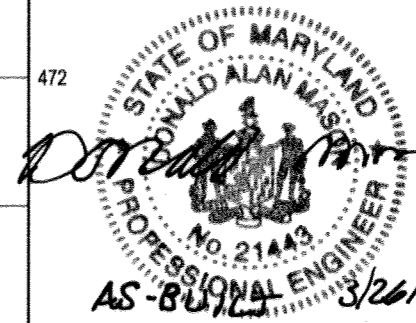
REFER TO CONSTRUCTION DRAWINGS PREPARED BY BENCHMARK ENGINEERING FOR WORK ON PRIVATE PROPERTY.

ADA CONSTRUCTION NOTES TO CONTRACTOR

1. NO SIDEWALK AND/OR CROSSWALK IS TO EXCEED 2.00% CROSS SLOPE.
2. NO ADA PARKING SPACE IS TO EXCEED 2.00% SLOPE IN ANY DIRECTION.
3. NO ADA CURB RAMP IS TO EXCEED 8.33%.
4. THE CONTRACTOR IS RESPONSIBLE DURING THE FORMING OF SIDEWALKS, RAMPS, CROSSWALKS, AND ADA PARKING TO VERIFY THAT ADA COMPLIANCE IS ACHIEVED.
5. IF DURING THAT CHECK ANY NON-COMPLIANCE IS DETERMINED, THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED PRIOR TO POURING CONCRETE AND/OR LAYING ASPHALT.



PREVIOUS FILE NO.: ECP - 17 - 023
SDP - 18 - 044
VFP - 18 - 095



TEST PIT NOTE
CONTRACTOR TO TEST PIT FOR EXACT LOCATION OF EXISTING UTILITY AND SUBMIT ANY DISCREPANCIES TO BOHLER ENGINEERING IN WRITING PRIOR TO CONSTRUCTION.

AS-BUILTS FOR THE ROUTE 108 IMPROVEMENTS ARE BEING SUBMITTED TO MSHA UNDER PERMIT NO. 16GAP0014 19
"NO AS-BUILT INFORMATION IS" PROVIDED ON THIS SHEET

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12/21/22

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE 2/6/2019
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PARCEL: 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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SITE CIVIL AND CONSULTING ENGINEERING
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LOCATION OF SITE: INTERSECTION OF CLARKSVILLE PIKE (MD RTE. 108) AND SHEPPARD LANE
CLARKSVILLE, MD 21209
ZONE: B-1, RC-DEO
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BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 521-7800
Fax: (410) 521-7897
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
M.D. AND LICENSE NO. 6059
11/1/19

SHEET TITLE:
MD ROUTE 108 ROAD SECTIONS

SHEET NUMBER:
41

F-18-099

AS-BUILT