

GENERAL NOTES

1. THE SUBJECT PROPERTY IS ZONED R-20 PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE "CAMP LIFE" ZONING AMENDMENTS EFFECTIVE JULY 28, 2006.
2. THIS PLAN IS SUBJECT TO THE FIFTH EDITION OF THE SUBDIVISION REGULATIONS AND ZONING REGULATIONS, AS AMENDED BY COUNCIL BILL 50-2001.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
4. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST 5 (FIVE) WORKING DAYS PRIOR TO THE START OF WORK.
5. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
6. PROJECT BACKGROUND:
LOCATION: TAX MAP 41 - BLOCK 18 - PARCEL 385, 395, P/O PARCEL 401
ZONING: R-20
TOTAL TRACT AREA: 11.54 AC.
NUMBER OF EXISTING STRUCTURES: 1
7. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
8. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH 2 FOOT CONTOUR INTERVALS PREPARED BY BENCHMARK ENGINEERING INC DATED DECEMBER 2000.
9. HORIZONTAL DATUMS FOR THIS PLAN ARE BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD-83 AS PROJECTED FROM SHA TRAVERSE NOS. SHA CADD-175 AND SHA CADD-176.
10. WETLAND DELINEATION PROVIDED BY ECO-SCIENCES PROFESSIONALS, INC., DATED JULY 11, 2000 AND APPROVED AS PART OF SP-03-01.
11. AN AFPO TRAFFIC STUDY HAS BEEN PERFORMED BY THE TRAFFIC GROUP DATED JULY 12, 2000 AND REVISED NOVEMBER 2000. NEW TRAFFIC COUNTS WERE TAKEN IN JUNE, 2002. THE AFPO STUDY WAS APPROVED AS PART OF SP-03-01.
12. FOREST STAND DELINEATION PROVIDED BY ECO-SCIENCES, INC., DATED JULY, 2000.
13. ALL LANDSCAPING REQUIREMENTS AS SET FORTH IN THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH. PRESERVATION OF THE SPECIMEN TREES AND FOREST LAND SHALL BE AS SHOWN ON THE ESD PLANS.
14. NO DISTURBANCE SHALL OCCUR IN THE WETLANDS, 25' WETLAND BUFFER, 75' STREAM BUFFER, FLOODPLAIN, OR FOREST CONSERVATION AREAS EXCEPT AS PERMITTED BY THE DEPARTMENT OF PLANNING AND ZONING AND/OR THE MDE PERMIT AND AS SHOWN ON THESE PLANS. THE DPZ HAS DETERMINED THE STREAM CROSSING ON PARCEL 401 TO BE ESSENTIAL FOR THE PURPOSE OF ACCESS INTO THE SITE.
15. MINIMUM BUILDABLE LOT SIZE SHALL BE 14,000 SQUARE FEET.
16. THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
17. STORMWATER MANAGEMENT SHALL BE PROVIDED USING ENVIRONMENTAL SITE DESIGN METHODS. ON-LOT INFILTRATION SHALL BE OWNED AND MAINTAINED BY INDIVIDUAL PROPERTY OWNERS. ROADSIDE SWALES SHALL BE JOINTLY MAINTAINED BY THE HOA AND HOWARD COUNTY. ON-LOT INFILTRATION (LOTS 1-2) SHALL BE JOINTLY MAINTAINED BY THE HOA AND INDIVIDUAL HOMEOWNER. INFILTRATION BEAMS (LOTS 8-16) SHALL BE INSTALLED UNDER THE RESIDENTIAL SITE DEVELOPMENT PLAN. MORE DETAILED DESCRIPTIONS OF MAINTENANCE RESPONSIBILITY IS INCLUDED ON SHEET 8.
18. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
19. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)".
20. PREVIOUS DEPARTMENT OF PLANNING AND ZONING REFERENCE NUMBERS:
SP-03-01, WP-02-112
21. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT OF WAY LINE AND NOT THE FLAG OR PIPESTEM LOT DRIVEWAY.
22. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES FOR THE FOLLOWING MINIMUM REQUIREMENTS:
a) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE)
b) SURFACE - 6" OF COMPACT CRUIER RUN BASE WITH 1/2" AND CHIP COATING (1-1/2" MIN.)
c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADII.
d) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRAINWAY.
f) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
g) MAINTENANCE - SURFACES TO INSURE ALL WEATHER USE.
23. PROPOSED KINDLER OVERLOOK DRIVE IS BEING PLACED WITHIN AN AREA RESERVED FOR ROADWAY CONSTRUCTION PER LIBER 647, FOLIO 551 AND DEDICATED IN PLATS 20097 AND 20098.
24. THERE IS AN EXISTING DWELLING TO REMAIN ON LOT 19. THE EXISTING DRIVEWAY TO THIS DWELLING SHALL BE RELOCATED AS SHOWN ON THESE PLANS. NO ADDITIONS OR EXTENSIONS MAY BE DONE EXCEPT THOSE IN ACCORDANCE WITH THE APPLICABLE ZONING REQUIREMENTS.
25. EXISTING UTILITIES WERE LOCATED BY RECORD DRAWINGS AND FIELD LOCATIONS. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
26. UNLESS NOTED AS "PRIVATE" ALL EASEMENTS ARE PUBLIC.
27. ALL ROAD FILLS SHALL BE COMPACTED TO 95% AS DETERMINED BY AASHTO T-180.
28. THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY BENCHMARK ENGINEERING INC. DATED DECEMBER 18, 2002, AND WAS APPROVED AS PART OF THE PRELIMINARY PLAN, SP-03-01.
29. WATER IS PUBLIC.
30. SEWER IS PUBLIC.
31. A WAIVER PETITION (WP-02-112) TO SECTION 16.147, REQUIRING A SUBDIVISION PLAT AND CONSTRUCTION PLANS FOR THE PURPOSE OF COMBINING TWO SEPARATE PARCELS INTO ONE PARCEL (i.e. PARCEL 385 AND P/O PARCEL 401) WAS SUBMITTED ON 5-8-02 AND WAS APPROVED BY THE PLANNING DIRECTOR ON 6-13-02. CONDITIONS OF THE APPROVAL ARE AS FOLLOWS:
A. THE PETITIONER MUST MEET ALL DEADLINES AND MILESTONES AND RECORD A FINAL PLAT OR THE SAID PORTION OF PARCEL 401 MAY BE DEEDED BACK TO THE OWNER OF PARCEL 401 BY ANOTHER DEED ADJONER.
B. THE OWNER OF PARCEL 401 WILL NOT BE REQUIRED TO SIGN ANY APPLICATIONS OR PLANS BASED ON THE COURT ORDER.
C. ACCESS THROUGH THE EXISTING RIGHT-OF-WAY RESERVATION SHALL BE MAINTAINED FOR ALL RELEVANT PARCELS (425, 313, 401, AND 386) AT ALL TIMES AND MAY NOT BE ABSTRACTED DURING THE SUBDIVISION PROCESS OR CONSTRUCTION PERIOD.
D. THE OWNER OF PARCEL 401, OR A COURT APPOINTED PERSON AS SPECIFIED IN THE COURT ORDER SHALL SIGN THE DEED ADJONER AND ANY OTHER DOCUMENTATION RELATED TO COMPLETION OF THIS PROJECT.
D. LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THE ROAD CONSTRUCTION PLAN SET, AND IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL SURETY IN THE AMOUNT OF \$10,650 FOR 30 SHADE TREES AND 11 PINE TREES WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT.
33. DEVELOPER SHALL PROPERLY ABANDON EXISTING WELL AND SEPTIC ON LOT 19 PER THE HEALTH DEPARTMENT REQUIREMENT AFTER INSTALLATION AND CONNECTION OF THE PUBLIC WATER AND SEWER TO THE EXISTING STRUCTURE. WELL ABANDONMENT MUST BE DONE BY A LICENSED WELL DRILLER.
34. THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION AND CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. ON-SITE RETENTION OF 1.97 ACRE WILLY REQUIRE \$17,163 SURETY. ON-SITE AND OFF-SITE REFORESTATION OF 2.80 ACRES REQUIRE A SURETY OF \$56,628. 0.48 ACRES OF REFORESTATION WILL BE PROVIDED ON-SITE AND 2.12 ACRES WILL BE RETAINED AT THE HARLESS PROPERTY. THIS PROJECT IS DECREASING THE ON-SITE RETENTION AND PROVIDING SOME ON-SITE REFORESTATION. THE PREVIOUSLY PLATTED OFF-SITE FOREST CONSERVATION HAS AN EXCESS AREA OF 2.95 ACRES, WHICH WILL BE DESIGNATED TO OTHER PROJECTS IN THE FUTURE.
35. WORK WITHIN THE STREAMS IS COVERED UNDER MDE PERMIT TRACKING NO. 200667614. NO INSTREAM CONSTRUCTION SHALL BE PERFORMED BETWEEN MARCH 1 AND JUNE 15.
36. STREET TREES WILL BE BONDED WITH ROADWAY CONSTRUCTION SURETY.
37. LANDSCAPE SURETY POSTED WITH THE DEVELOPER'S AGREEMENT FOR THE ORIGINAL F-07-003 IS SUFFICIENT TO COVER THE NEWLY PROPOSED LANDSCAPING CHANGES ASSOCIATED WITH THE REDLINE REVISIONS.
38. DRIVEWAY CULVERTS SHALL BE 12" HDPE.

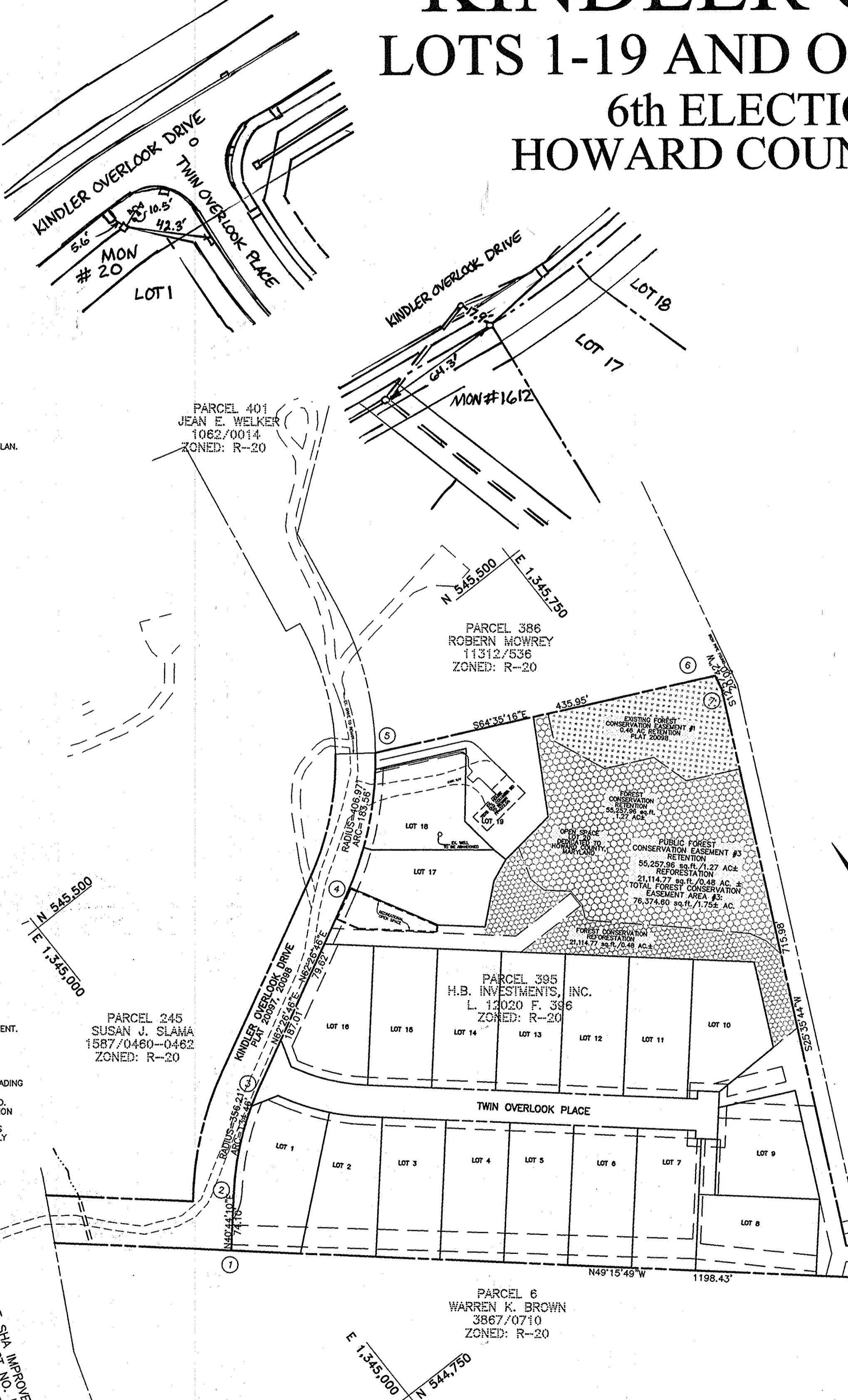
REVISED FINAL ROAD CONSTRUCTION PLANS

KINDLER OVERLOOK

LOTS 1-19 AND OPEN SPACE LOT 20

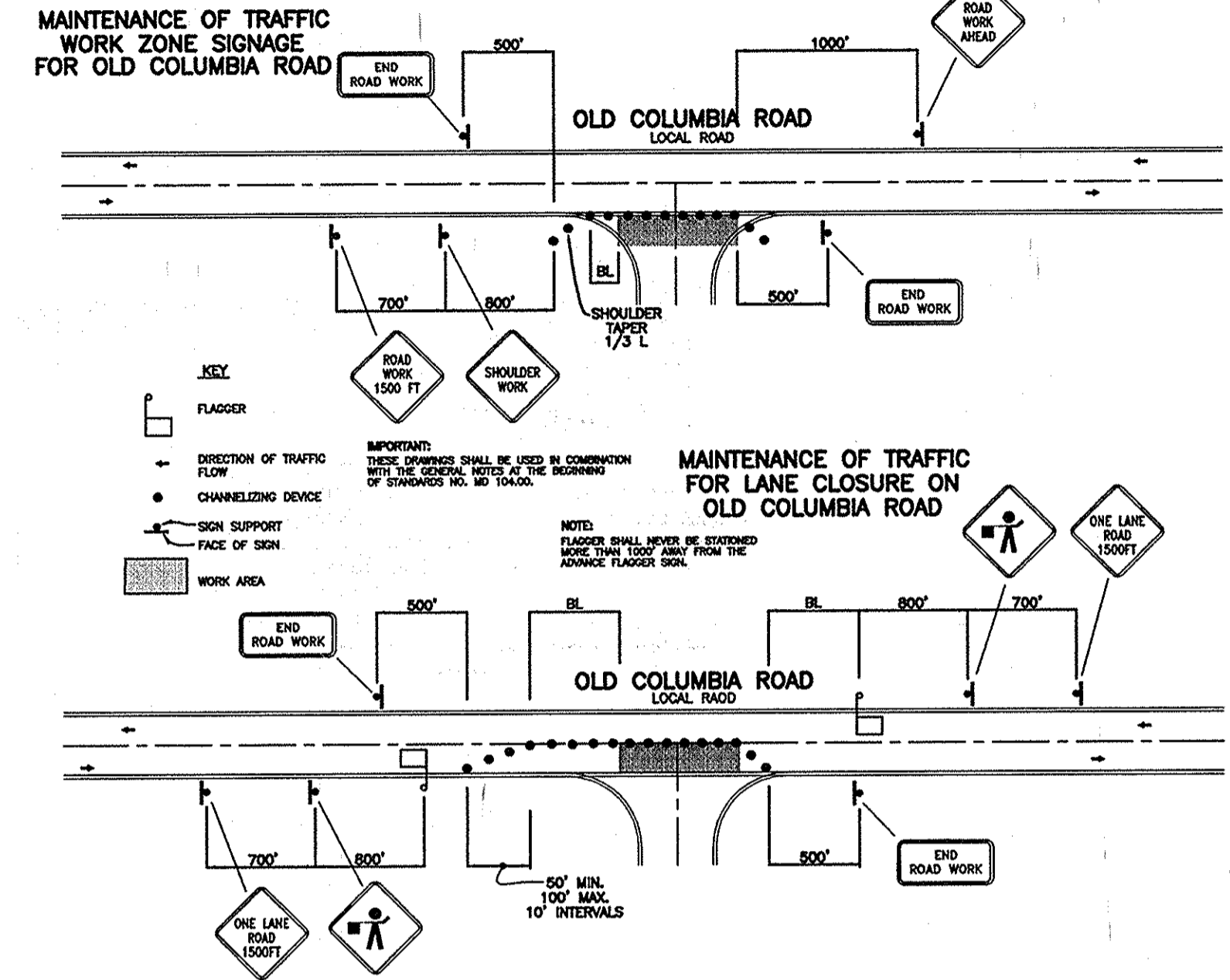
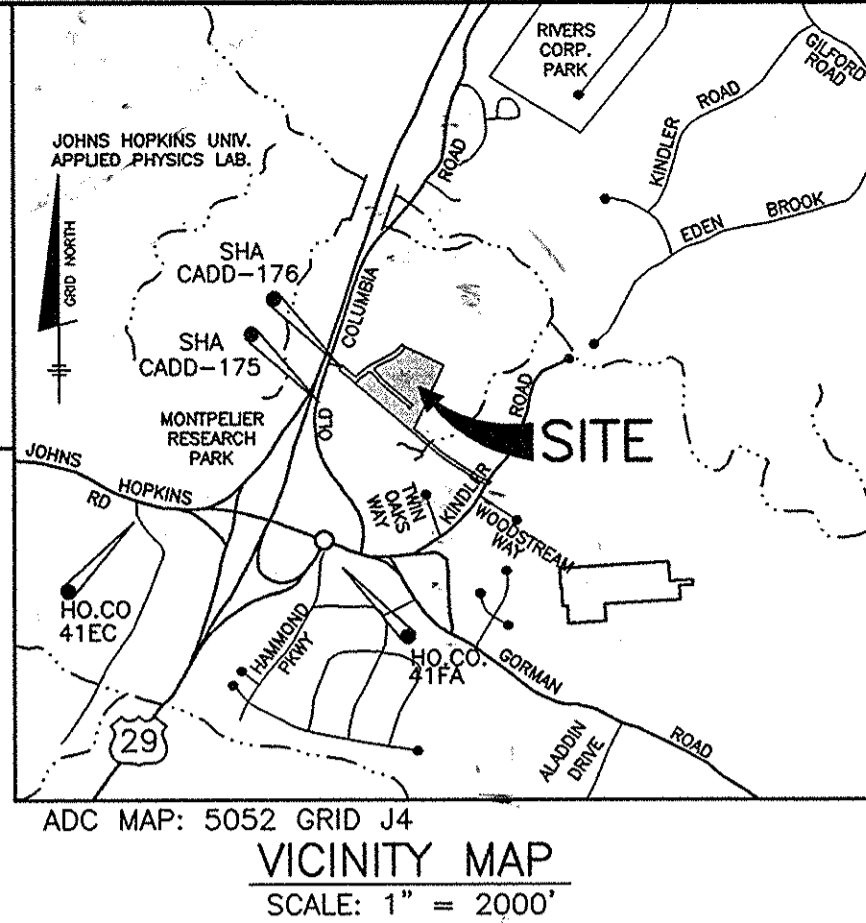
6th ELECTION DISTRICT

HOWARD COUNTY, MARYLAND



BENCH MARKS—(NAD'83)

HO.CO. 41EC	ELEV. 430.34
STAMPED DISC SET ON TOP OF 3" DEEP COLUMN OF CONCRETE	N 543,588.8040 E 1,342,628.7800
HO.CO. 41FA	ELEV. 407.60
STAMPED DISC SET ON TOP OF 3" DEEP COLUMN OF CONCRETE	N 543,109.8350 E 1,344,797.5200
SHA CADD-175	ELEV. 360.05
N 544,840.8060	E 1,344,552.5480
SHA CADD-176	ELEV. 343.58
N 545,210.7590	E 1,344,786.8530



LEGEND

SOILS CLASSIFICATION	GcB2(B)
SOILS DELINEATION	---
EXISTING CONTOURS	~
PROPOSED CONTOURS	~
EXISTING WOODS LINE	~
PROPOSED WOODS LINE	~
EXISTING STRUCTURE	---
PROPOSED HOUSE	---
WALK OUT BASEMENT	---
PROPOSED STREET LIGHT	---
PROPOSED STORM DRAINS	---
EXISTING ROAD CENTERLINE	---
PROPOSED ROAD CENTERLINE	---
PROPOSED FOREST CONSERVATION AREA	---
EXISTING STREAM	---
75' STREAM BUFFER	---
EXISTING WETLANDS	---
25' WETLAND BUFFER	---
LANDSCAPE RESTRICTION LINES	---
>25% SLOPES	---
15% - 25% SLOPES	---
ON-SITE DRAINAGE AREAS	---
EXISTING FOREST CONSERVATION AREA	---
PROPOSED MAINTENANCE LOCATION AND LOT IDENTIFICATION	---

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: 12-21-14



AS-BUILT CERTIFICATION
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.
Donald Mason, P.E. No. 21443 Date 9-18-14

SITE DATA TABULATION

1) GENERAL SITE DATA		3) LOT TABULATION	
a. PRESENT ZONING:	R-20	a. TOTAL NUMBER OF RESIDENTIAL LOTS PROPOSED ON THIS SUBMISSION:	19
b. APPLICABLE DPZ FILE REFERENCES:	SP-01-03 WP-02-112	b. TOTAL NUMBER OF OPEN SPACE LOTS PROPOSED:	1
c. DEED REFERENCES:	5977/0251 6116/0479 1062/0014	4) OPEN SPACE DATA	
d. PROPOSED USE OF SITE:	19 SFD HOMES	a. MINIMUM RESIDENTIAL LOT SIZE SELECTED:	14,000 S.F.
e. PROPOSED WATER AND SEWER SYSTEMS:	PUBLIC	b. OPEN SPACE REQUIRED (30% OF 11.54 AC.):	3.46± AC
2) AREA TABULATION		c. OPEN SPACE PROVIDED:	3.60± AC
a. TOTAL AREA OF SITE:	11.54± AC.	NON-CREDITED (LESS THAN 35' IN WIDTH):	0.12± AC
b. AREA OF 100 YEAR FLOODPLAIN:	0.06± AC.	CREDITED:	3.48± AC
c. AREA OF STEEP SLOPES ON SITE (25% OR GREATER):	0.34± AC.	d. AREA OF RECREATION OPEN SPACE REQUIRED:	3,800 S.F. (0.08± AC)
d. AREA OF RECREATION OPEN SPACE PROVIDED:	3,829 S.F. (0.08± AC)	(19 LOTS x 200± S.F. PER LOT = 3,800 S.F.)	
e. AREA OF THIS PLAN SUBMISSION:	11.54± AC.	e. AREA OF RECREATION OPEN SPACE PROVIDED:	3,829 S.F. (0.08± AC)
f. AREA OF PROPOSED BUILDABLE LOTS:	6.35± AC.		
g. AREA OF PROPOSED OPEN SPACE LOTS:	3.60± AC.		
h. AREA OF PROPOSED PUBLIC ROAD R/W:	1.59± AC.		

NO.	DATE	REVISION
1	AUG 2010	REDESIGN TO INCORPORATE SWM ESD METHODS, REVISED BY SHEET SUBSTITUTION.

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 418 & ELLICOTT CITY, MARYLAND 21043
(P) 410-485-8105 (F) 410-485-8644
60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BE-CIVILENGINEERING.COM

OWNER/DEVELOPER:	PROJECT:
HB DEVELOPMENT, INC. 9695 NORFOLK AVENUE LAUREL, MARYLAND 20723 410-792-2565	KINDLER OVERLOOK LOTS 1-19 AND OPEN SPACE LOT 20 REVISED FINAL ROAD CONSTRUCTION PLAN
TITLE:	TITLE SHEET
DATE:	PROJECT NO. 1328
DESIGN: AAM	DRAFT: MAN
CHECK: CAM	SCALE: AS SHOWN
	SHEET 1 OF 13

RIGHT OF WAY ELEVATION CHART NAD.83

R/W PT. NO.	DESCRIPTION	ELEVATION	R/W PT. NO.	DESCRIPTION	ELEVATION
1	REBAR & CAP	357.92'	21	REBAR & CAP	377.40'
2	REBAR & CAP	342.84'	25	REBAR & CAP	377.82'
3	REBAR & CAP	336.99'	26	REBAR & CAP	377.82'
4	REBAR & CAP	350.13'	27	REBAR & CAP	377.35'
5	REBAR & CAP	359.38'	28	REBAR & CAP	377.09'
6	REBAR & CAP	368.52'	30	REBAR & CAP	370.02'
7	REBAR & CAP	362.55'	31	REBAR & CAP	363.02'
8	REBAR & CAP	361.31'	32	REBAR & CAP	363.08'
19	REBAR & CAP	352.23'	33	REBAR & CAP	363.18'
20	CONC. MONUMENT	359.51'	35	REBAR & CAP	352.83'
21	REBAR & CAP	363.46'	38	REBAR & CAP	369.99'
22	REBAR & CAP	363.55'	1612	CONC. MONUMENT	366.66'

PLAN VIEW
SCALE: 1" = 100'

APPROVED: DEPARTMENT OF PUBLIC WORKS
William R. McCall 12-1-10
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
West 12/06/10
CHIEF, DIVISION OF LAND DEVELOPMENT

William R. McCall 12/2/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION

SYMBOL	QUANTITY	NAME	REMARKS
(A)	20	PLATANUS ACERIFOLIA "Bloodgood London Plane"	2 1/2" MIN. CAL. B&B FULL HEAD
(B)	10	QUERCUS COCAINE SCARLET OAK	2 1/2" MIN. CAL. B&B FULL HEAD
(C)	11	PINUS STROBUS (Eastern White Pine)	5'-6" Ht. UNSHEARED

SYMBOL	QUANTITY	NAME	REMARKS
(D)	40	ACER RUBRA (Red Maple)	2 1/2" MIN. CAL. B&B FULL HEAD
(E)	26	ACER SACCHARUM (Sugar Maple)	2 1/2" MIN. CAL. B&B FULL HEAD

CATEGORY	ADJACENT TO ROADS		ADJACENT TO PERIMETER PROP.		TOTAL
	LOT 1 (B)	LOT 16 (B)	(A)	(B)	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	220'	169'	581'	1140'	2123'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	YES, 581'	YES, 851'	YES, 1,156'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	220 LF.	169 LF.	0 LF.	289 LF.	966 LF.
SHADE TREES	5	4	0	5	16
EVERGREEN TREES	6	5	0	5	11
OTHER TREES (2:1 SUBSTITUTE) SHRUBS	6	5	0	5	11
NUMBER OF PLANTS PROVIDED	5	4	0	5	16
SHADE TREES	5	4	0	5	16
EVERGREEN TREES	6	5	0	5	11
OTHER TREES (2:1 SUBSTITUTE) SHRUBS (10:1 SUBSTITUTE)	6	5	0	5	11

* PROPOSED BIO-SWALE PLANTINGS (3 TREES PER LOT)
 ** EXISTING WOODS OR PROPOSED FOREST CONSERVATION AREA WITH WIDTH 20' OR GREATER.

SYMBOL	DESCRIPTION
(A)	STREET TREES TO BE PROVIDED BY THE DEVELOPER
(B)	SHADE TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
(C)	EVERGREEN TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER

NOTE: LANDSCAPING SHOWN ON THIS PLAN IS IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A SURETY IN THE AMOUNT OF \$10,000 FOR 30 SHADE TREES AND 11 PINE TREES WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT. STREET TREES WILL BE BONDED WITH THE ROADWAY CONSTRUCTION SURETY. LANDSCAPE SURETY SHOWN WITH THE DEVELOPER'S AGREEMENT FOR THE ORIGINAL F-07-003 IS SUFFICIENT TO COVER THE NEWLY PROPOSED LANDSCAPING CHANGES ASSOCIATED WITH THE REDLINE REVISIONS.

GRD NORTH
 N 545,500
 E 1,345,000

PARCEL 245
 SUSAN J. SLAWA
 1587/0460-0462
 ZONED: R-20

CI-1-TOP=346.22
 CI-2-TOP=357.32
 CI-3-TOP=363.89
 CI-4-TOP=367.07
 CI-5-TOP=366.60
 CI-6-TOP=364.15

PARCEL 313
 END CURB & GUTTER
 CL STA 9+24.44
 LIMIT OF SUBMISSION
 CL STA 9+55.14
 TEMPORARY PAVING
 END CURB & GUTTER
 CL STA 9+27.71

PARCEL 386
 ROBERT MCWREY
 11312/536
 ZONED: R-20

PARCEL 363
 HOWARD COUNTY, MD
 DEPT. OF RECREATION AND PARKS
 617/846
 ZONED: R-20

PARCEL 365
 H.B. DEVELOPMENT, INC.
 12020/386
 ZONED: R-20

PARCEL 6
 WARREN K. BROWN
 3867/0710
 ZONED: R-20

LOT 1 18,372 S.F.
 LOT 2 14,195 S.F.
 LOT 3 14,056 S.F.
 LOT 4 14,064 S.F.
 LOT 5 14,072 S.F.
 LOT 6 14,079 S.F.
 LOT 7 14,015 S.F.
 LOT 8 15,954 S.F.
 LOT 9 14,078 S.F.
 LOT 10 14,003 S.F.
 LOT 11 14,000 S.F.
 LOT 12 14,000 S.F.
 LOT 13 14,000 S.F.
 LOT 14 14,000 S.F.
 LOT 15 14,000 S.F.
 LOT 16 15,276 S.F.
 LOT 17 14,036 S.F.
 LOT 18 14,046 S.F.

FOREST CONSERVATION EASEMENT #1
 0.46 AC RETENTION PLAT 20097 TO REMAIN

FOREST CONSERVATION EASEMENT #3
 55,257.96 sq. ft. 1.27 AC ±

FOREST CONSERVATION EASEMENT #4
 21,114.77 sq. ft. 0.48 AC ±

FOREST CONSERVATION EASEMENT AREA #5
 55,257.96 sq. ft. 1.27 AC ±

FOREST CONSERVATION EASEMENT AREA #6
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #7
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #8
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #9
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #10
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FOREST CONSERVATION EASEMENT AREA #11
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FOREST CONSERVATION EASEMENT AREA #40
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FOREST CONSERVATION EASEMENT AREA #54
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FOREST CONSERVATION EASEMENT AREA #55
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #56
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #57
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #58
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #59
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #60
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #61
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #62
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #63
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #64
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #65
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #66
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #67
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #68
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #69
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #70
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #71
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #72
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #73
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #74
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #75
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #76
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #77
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #78
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #79
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #80
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #81
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #82
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #83
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #84
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #85
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #86
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #87
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #88
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #89
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #90
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #91
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #92
 11,174.77 sq. ft. 0.25 AC ±

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 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #100
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #101
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #102
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FOREST CONSERVATION EASEMENT AREA #107
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FOREST CONSERVATION EASEMENT AREA #108
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #109
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #110
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #111
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #112
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #113
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #114
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #115
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #116
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #117
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #118
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #119
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #120
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #121
 11,174.77 sq. ft. 0.25 AC ±

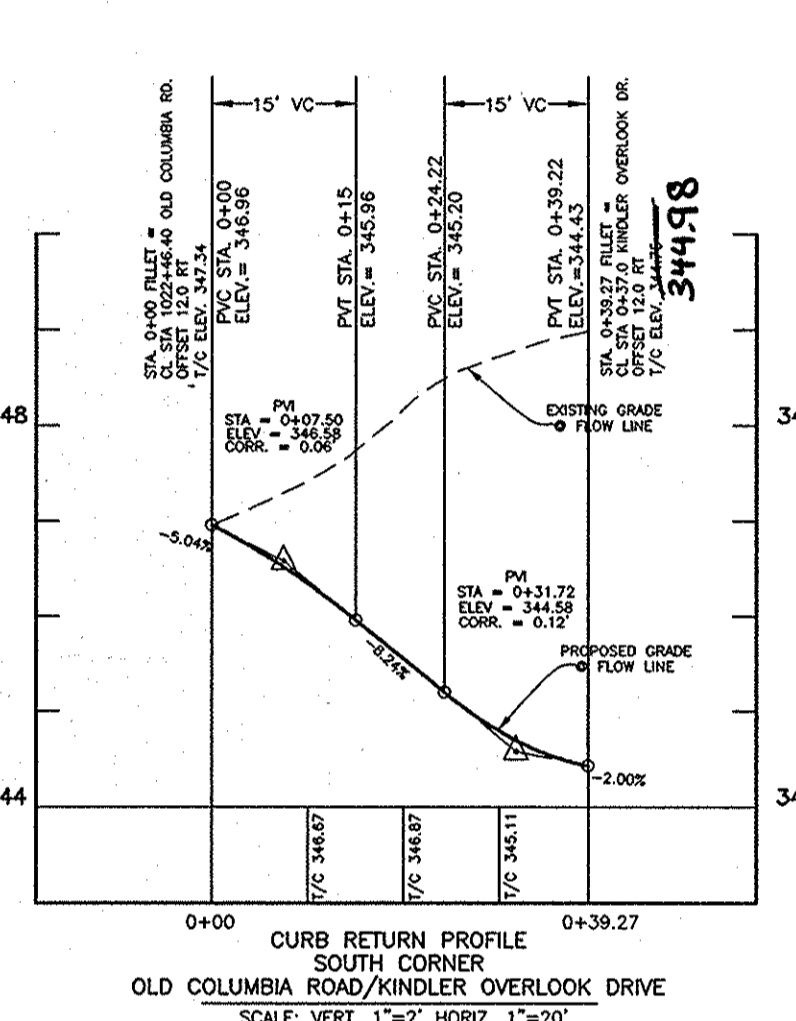
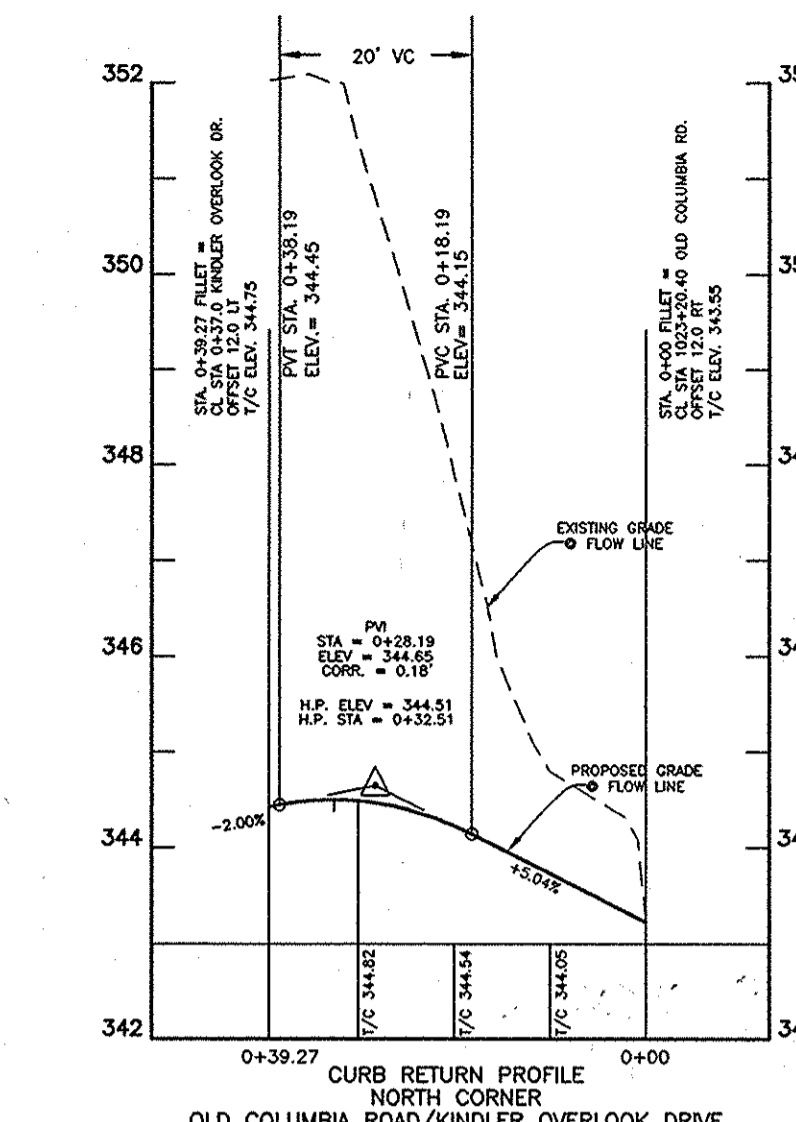
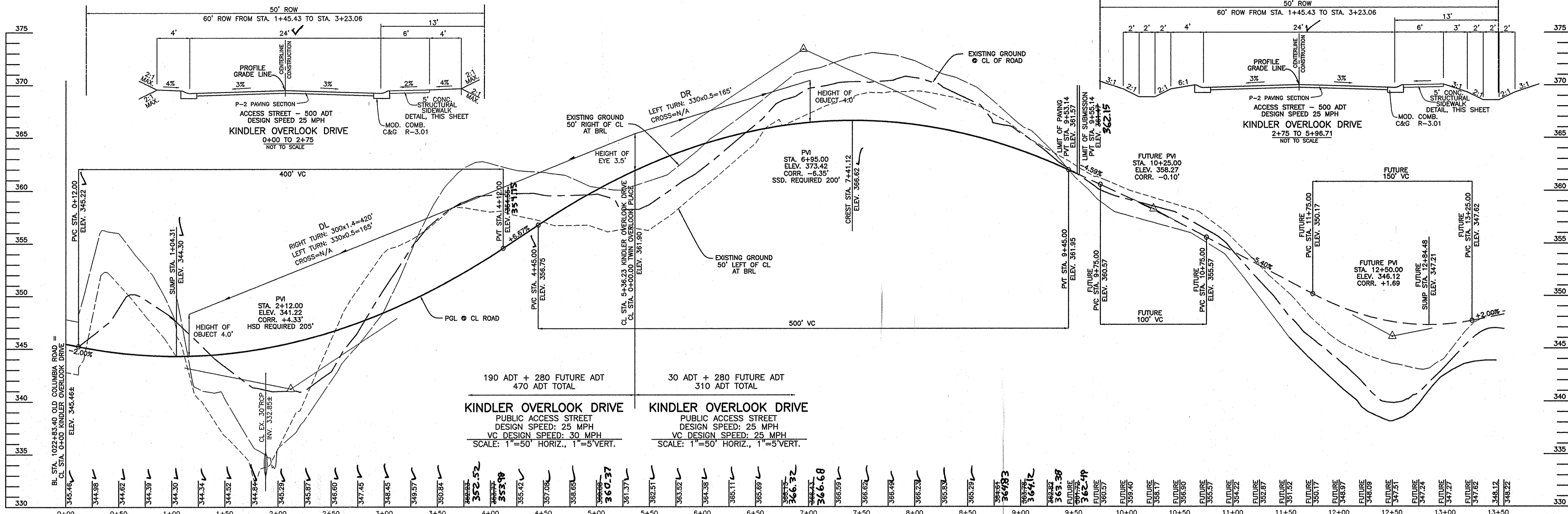
FOREST CONSERVATION EASEMENT AREA #122
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #123
 11,174.77 sq. ft. 0.25 AC ±

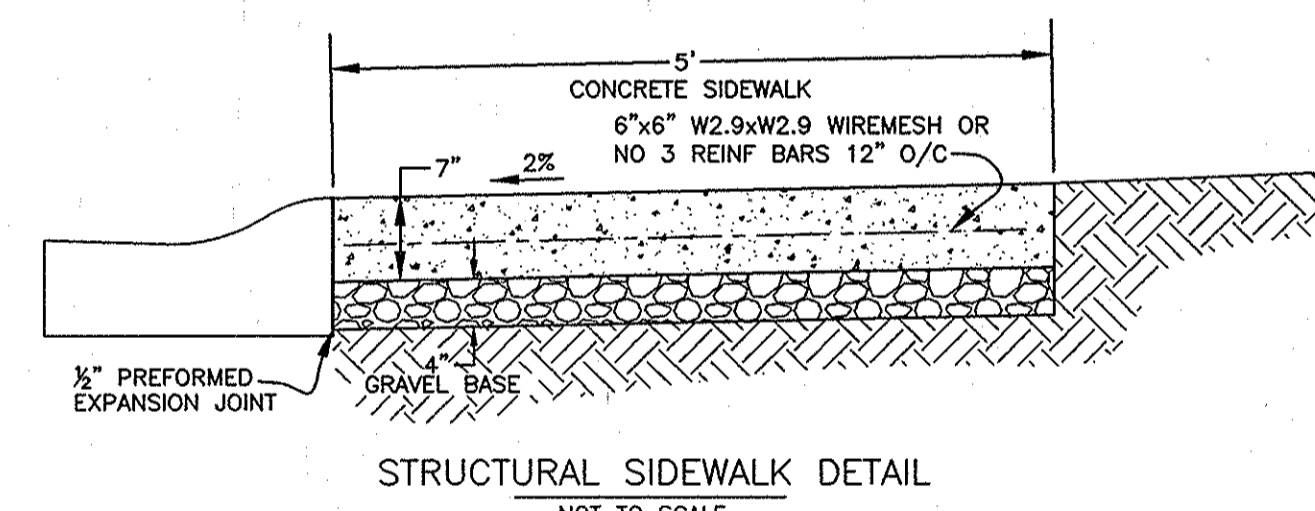
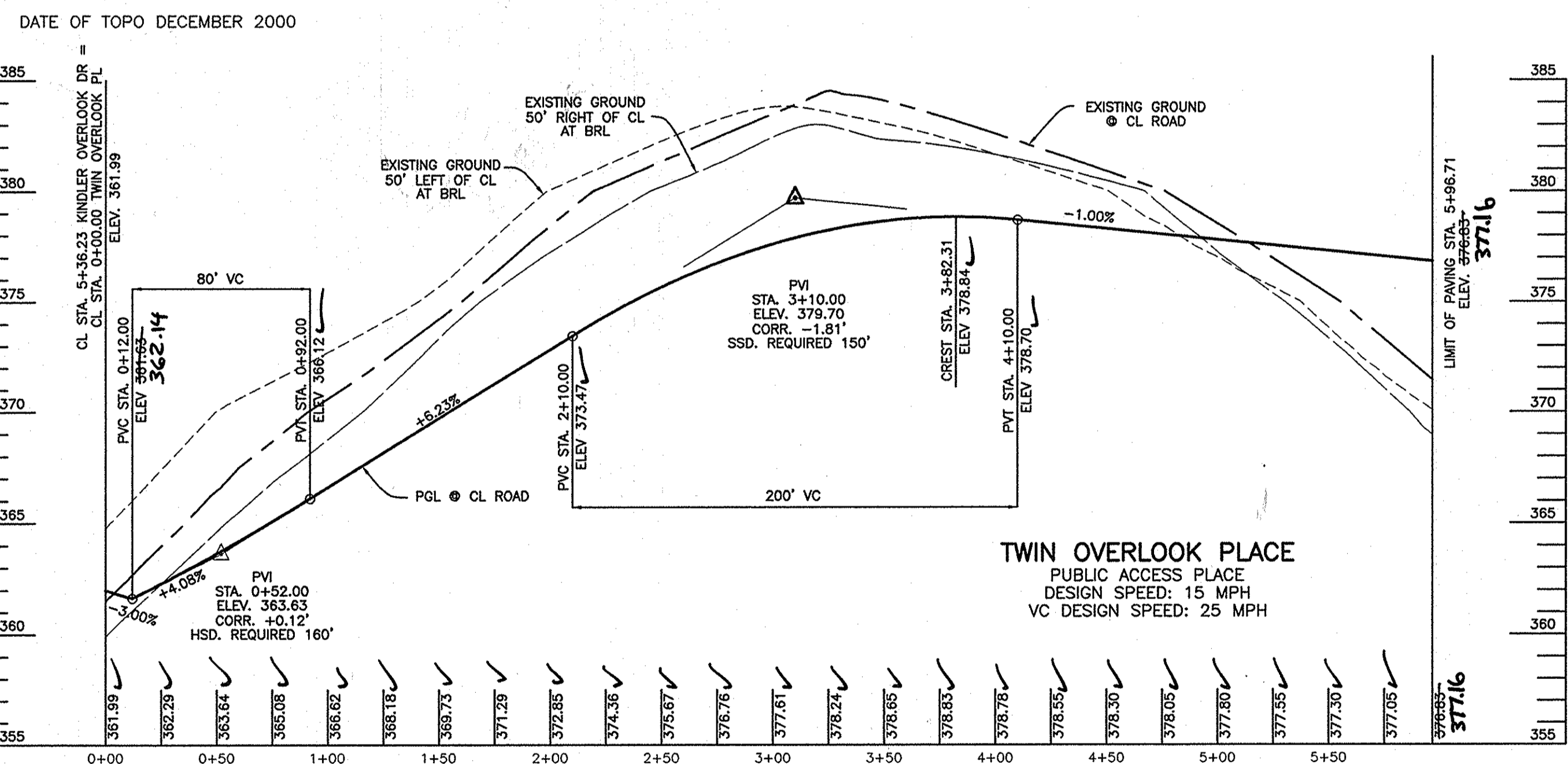
FOREST CONSERVATION EASEMENT AREA #124
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #125
 11,174.77 sq. ft. 0.25 AC ±

FOREST CONSERVATION EASEMENT AREA #126
 11,174.77 sq. ft. 0.25



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

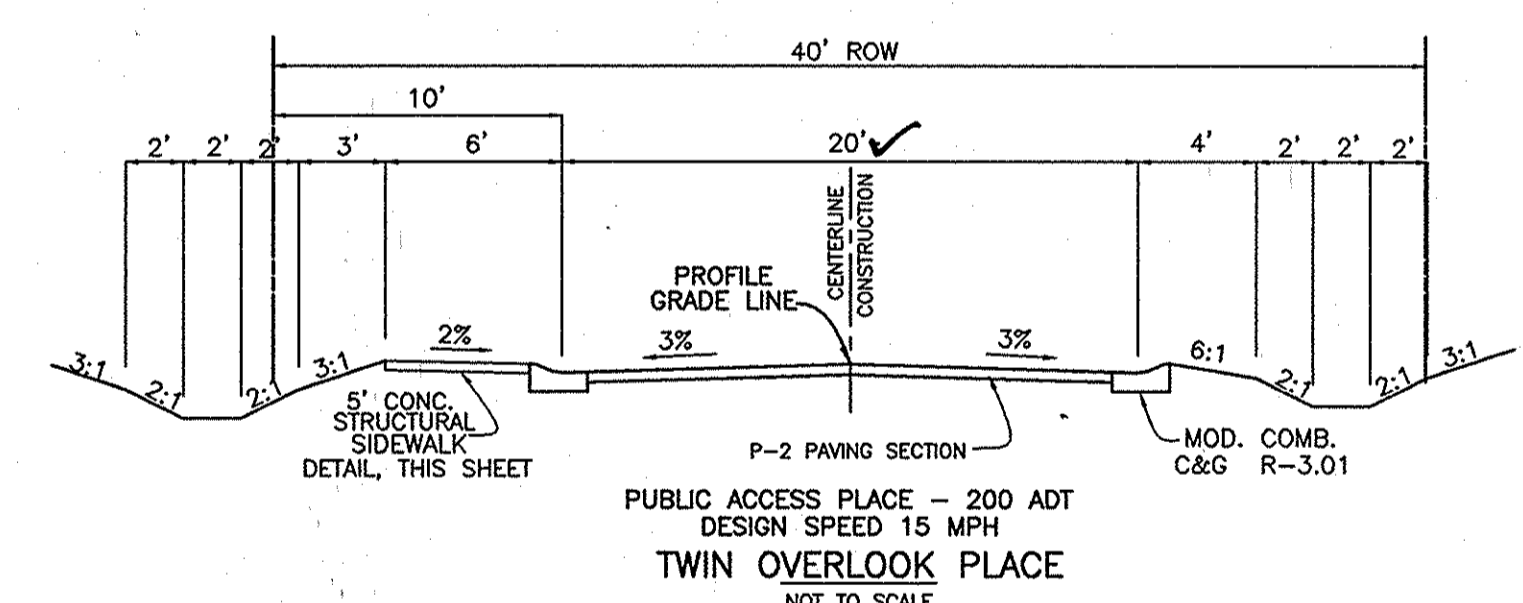


- NOTES:
- SIDEWALK TO BE SCRIBED IN 5'-0" MAXIMUM SQUARES.
 - EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 15' APART.
 - 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
 - CONCRETE TO BE MIX NO. 3.
 - WHERE SIDEWALK ADJUTS CURB, SIDEWALK SHALL BE 1/2" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
 - ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 6" THICK AND 6" DEEP BELOW THE NORMAL 7" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT THE EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.
Date 9-18-14
Professional Engineer, License No. 21443

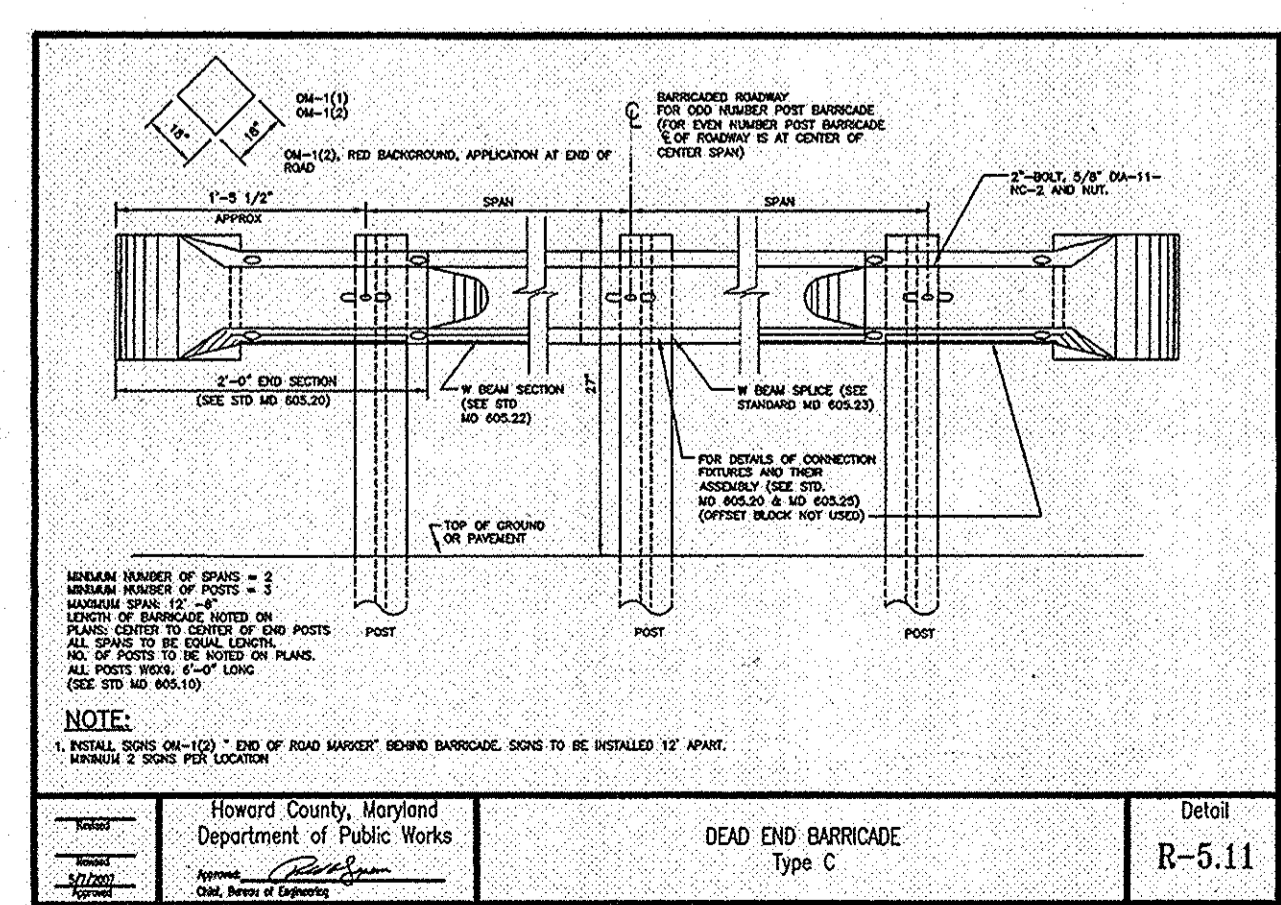


Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 - Expiration Date: 12-21-14



NO.	DATE	REVISION
1	AUG 2010	REDESIGN TO INCORPORATE SWM ESD METHODS, REVISED BY SHEET SUBSTITUTION.

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5>	5 TO <7>	3 TO <5>	5 TO <7>	3 TO <5>	5 TO <7>	3 TO <5>	5 TO <7>
P-2	PARKING DRIVE ASILES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROAD: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	PAVEMENT MATERIAL (INCHES)								
		1.5" MIN. PD. 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 2.5" MIN. PD. 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 2.0" MIN. PD. 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0	4.0	



APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter R. Wall 11-9-10
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Robert S. ... 12/06/10
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mr. ... 12/3/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 418 • ELICOTT CITY, MARYLAND 21043
(P) 410-468-6105 (F) 410-468-6044
60 THOMAS JOHNSON DRIVE & PRESBYTERIAN MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BE-CIVIL-ENGINEERING.COM

OWNER/DEVELOPER:
HB DEVELOPMENT, INC.
9695 NORFOLK AVENUE
LAUREL, MARYLAND 20723
410-792-2565

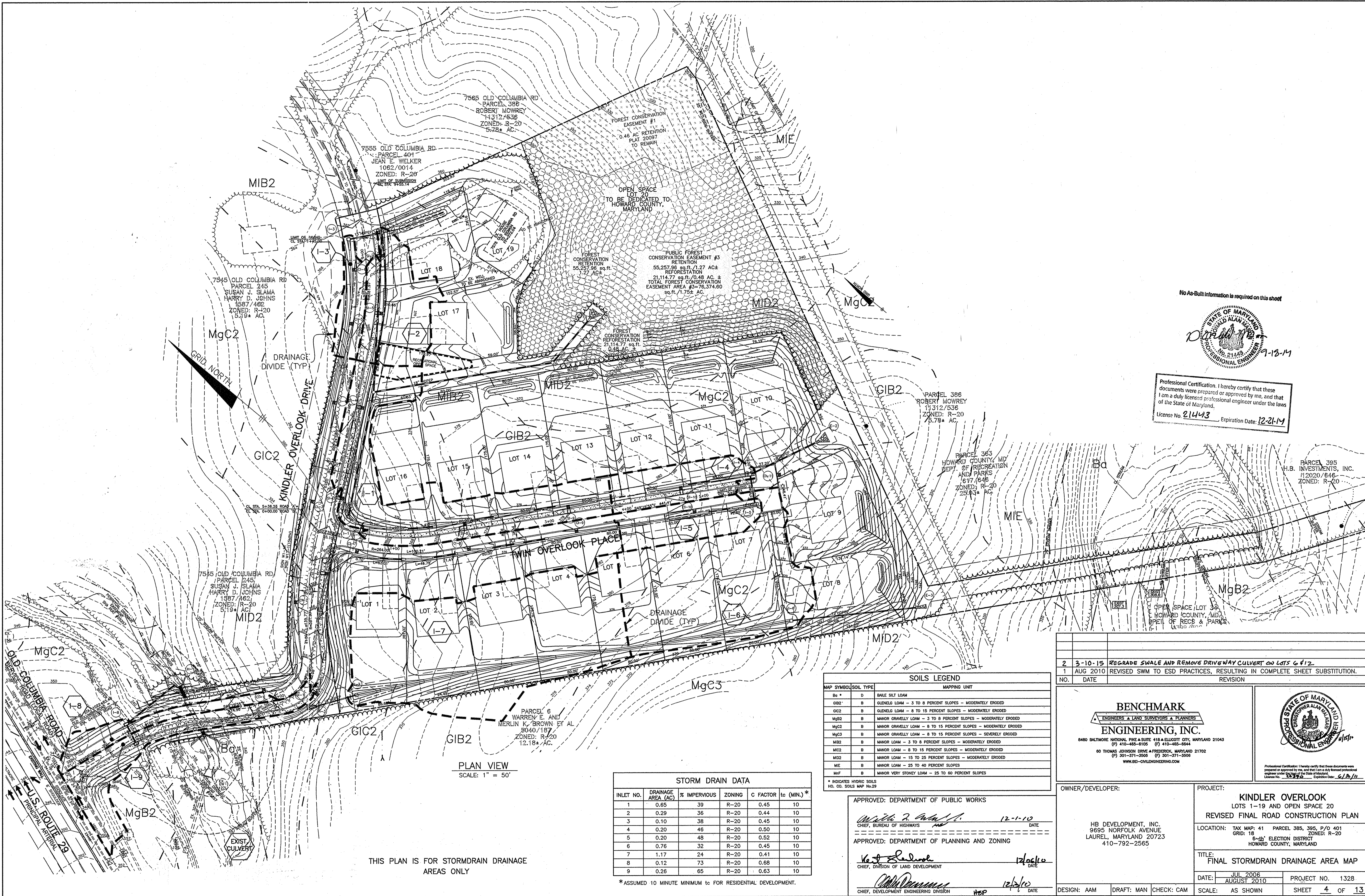
PROJECT:
KINDLER OVERLOOK
LOTS 1-19 AND OPEN SPACE LOT 20
REVISED FINAL ROAD CONSTRUCTION PLAN

LOCATION: TAX MAP: 41 PARCEL 385, 395, P/O 401
GRID: 18 ZONED: R-20
8th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
FINAL ROAD PROFILES

DATE: JUL 2006
AUGUST 2010
PROJECT NO. 1328

DESIGN: DBT/AAM DRAFT: MAN CHECK: CAM SCALE: AS SHOWN SHEET 3 OF 13



THIS PLAN IS FOR STORMDRAIN DRAINAGE AREAS ONLY

PLAN VIEW
SCALE: 1" = 50'

STORM DRAIN DATA					
INLET NO.	DRAINAGE AREA (AC)	% IMPERVIOUS	ZONING	C FACTOR	tc (MIN.)*
1	0.65	39	R-20	0.45	10
2	0.29	36	R-20	0.44	10
3	0.10	38	R-20	0.45	10
4	0.20	46	R-20	0.50	10
5	0.20	48	R-20	0.52	10
6	0.76	32	R-20	0.45	10
7	1.17	24	R-20	0.41	10
8	0.12	73	R-20	0.68	10
9	0.26	65	R-20	0.63	10

* ASSUMED 10 MINUTE MINIMUM tc FOR RESIDENTIAL DEVELOPMENT.

SOILS LEGEND	
MAP SYMBOL	SOIL TYPE
Ba	D BAILE SILT LOAM
GIB2	B GLENGLO LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GIC2	B GLENGLO LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MgB2	B MANOR GRAVELLY LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MgC2	B MANOR GRAVELLY LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MgC3	B MANOR GRAVELLY LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MIB2	B MANOR LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MIC2	B MANOR LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MIS2	B MANOR LOAM - 15 TO 25 PERCENT SLOPES - MODERATELY ERODED
MIE	B MANOR LOAM - 25 TO 40 PERCENT SLOPES
MIF	B MANOR VERY STONEY LOAM - 25 TO 60 PERCENT SLOPES

APPROVED: DEPARTMENT OF PUBLIC WORKS
William R. ... 12-1-10
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 12/1/10
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
2	3-10-15	REGRADE SWALE AND REMOVE DRIVEWAY CULVERT ON LOTS 6 & 12
1	AUG 2010	REVISED SWM TO ESD PRACTICES, RESULTING IN COMPLETE SHEET SUBSTITUTION.

BENCHMARK
 ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
 6480 BALTIMORE NATIONAL PIKE & SUITE 418 • ELLICOTT CITY, MARYLAND 21043
 (P) 410-485-8105 (F) 410-485-8844
 80 THOMAS JIMSON DRIVE • FREDERICK, MARYLAND 21702
 (P) 301-371-2565 (F) 301-371-3509
 WWW.BE1-CIVLENGINEERING.COM

OWNER/DEVELOPER: HB DEVELOPMENT, INC.
 9695 NORFOLK AVENUE
 LAUREL, MARYLAND 20723
 410-792-2565

PROJECT: **KINDLER OVERLOOK**
 LOTS 1-19 AND OPEN SPACE 20
 REVISED FINAL ROAD CONSTRUCTION PLAN

LOCATION: TAX MAP: 41 PARCEL 385, 395, P/O 401
 GRID: 18 ZONED: R-20
 8-4th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

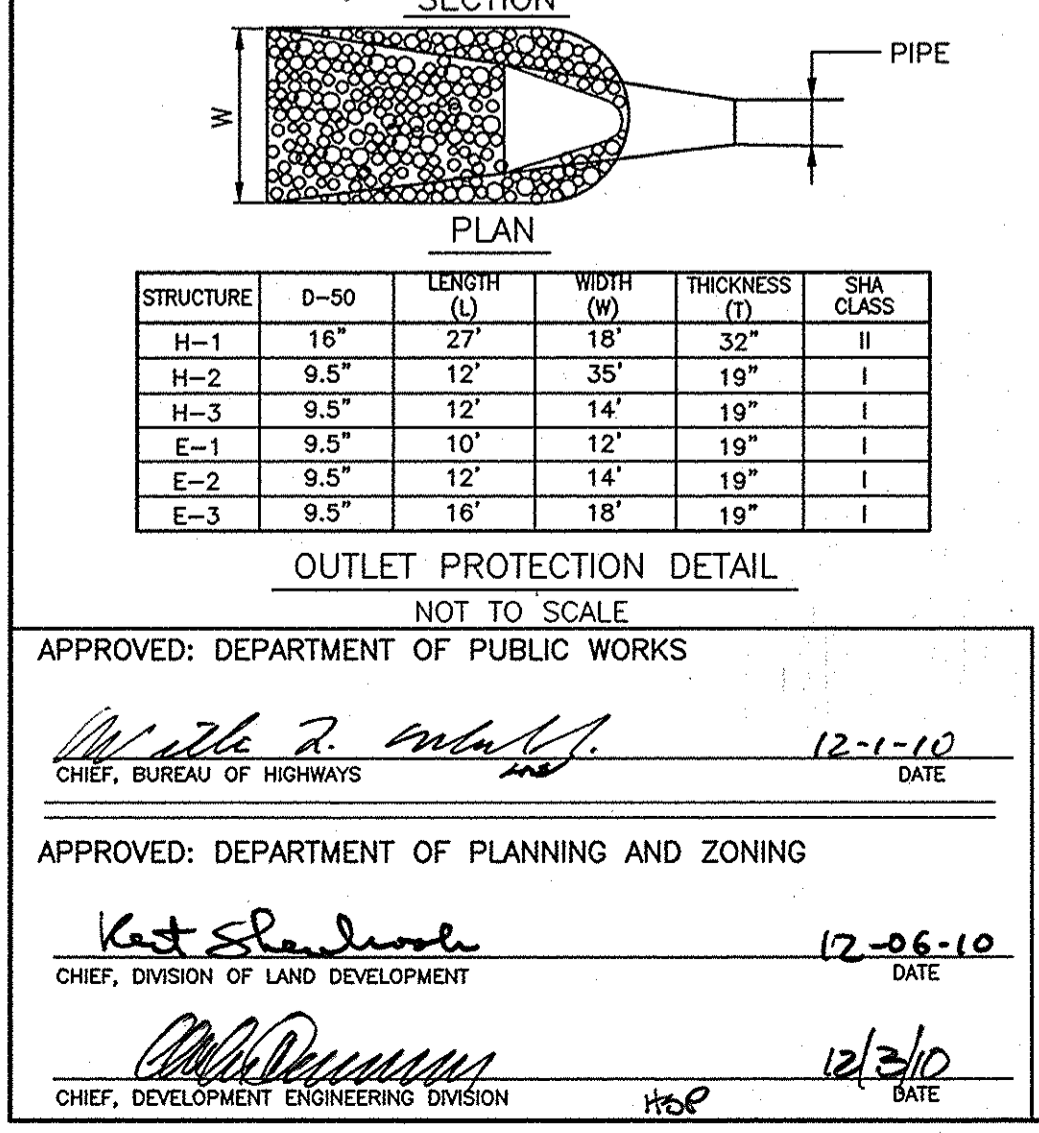
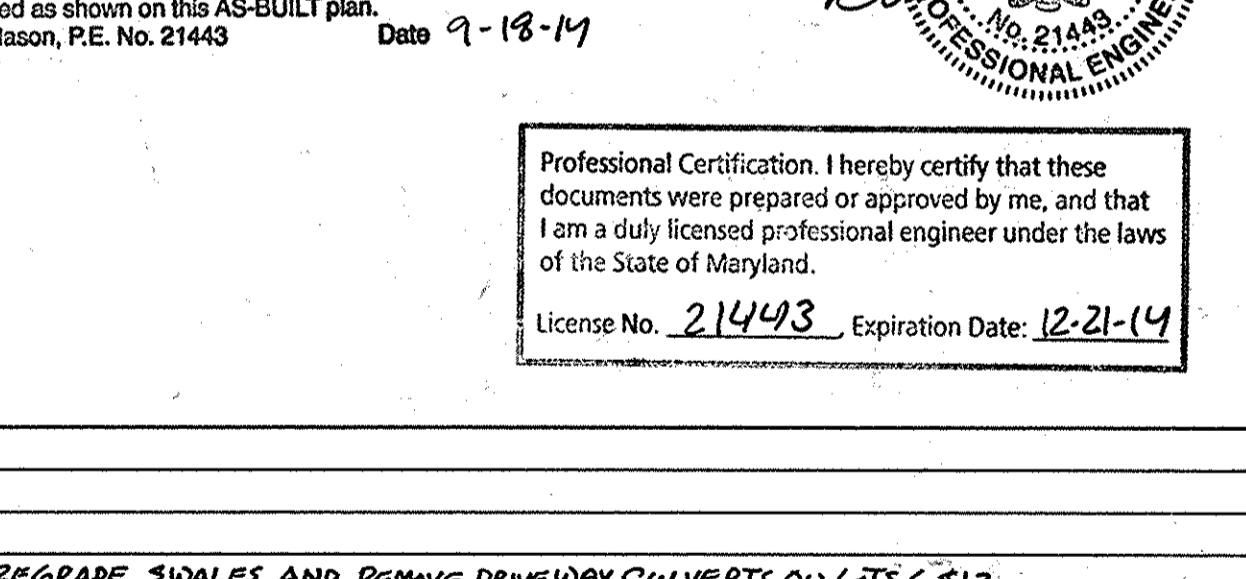
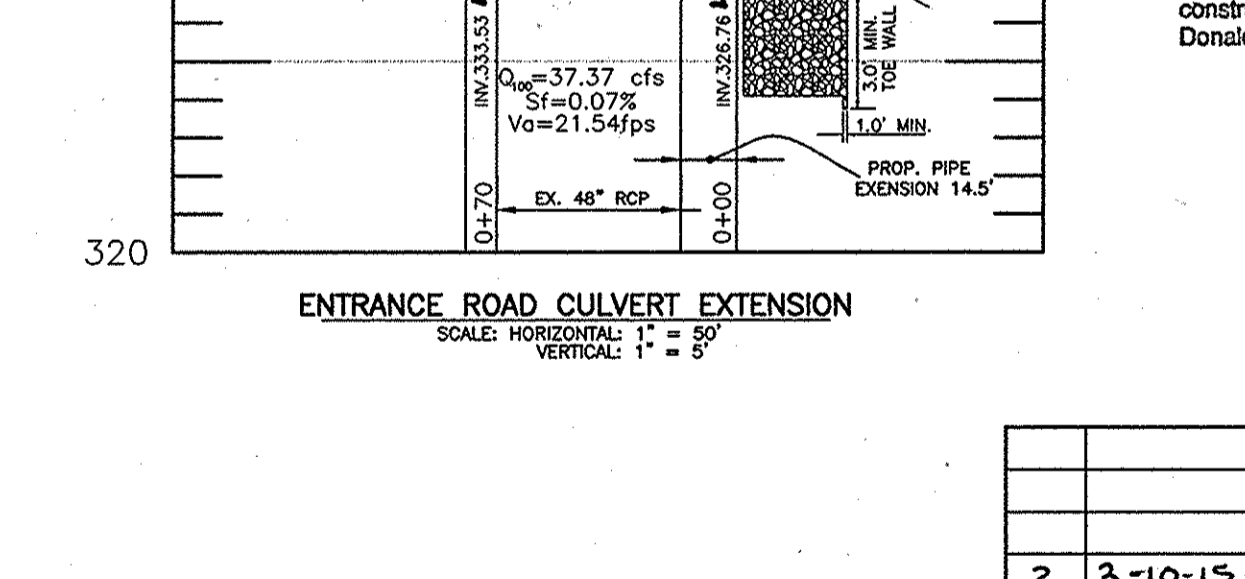
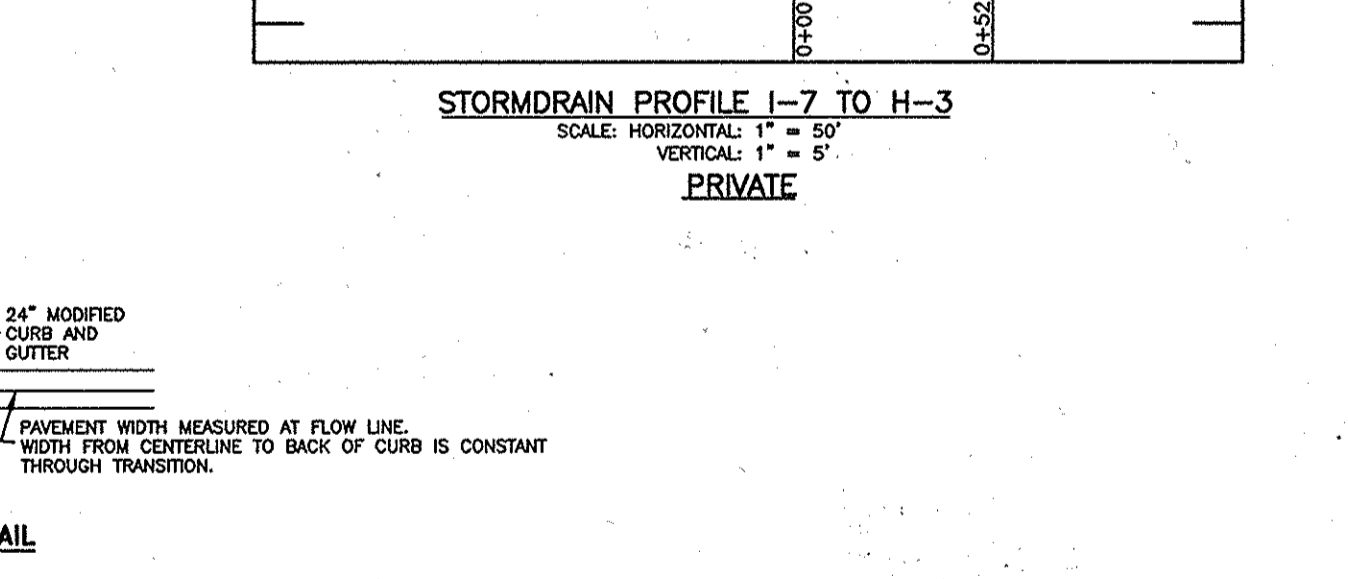
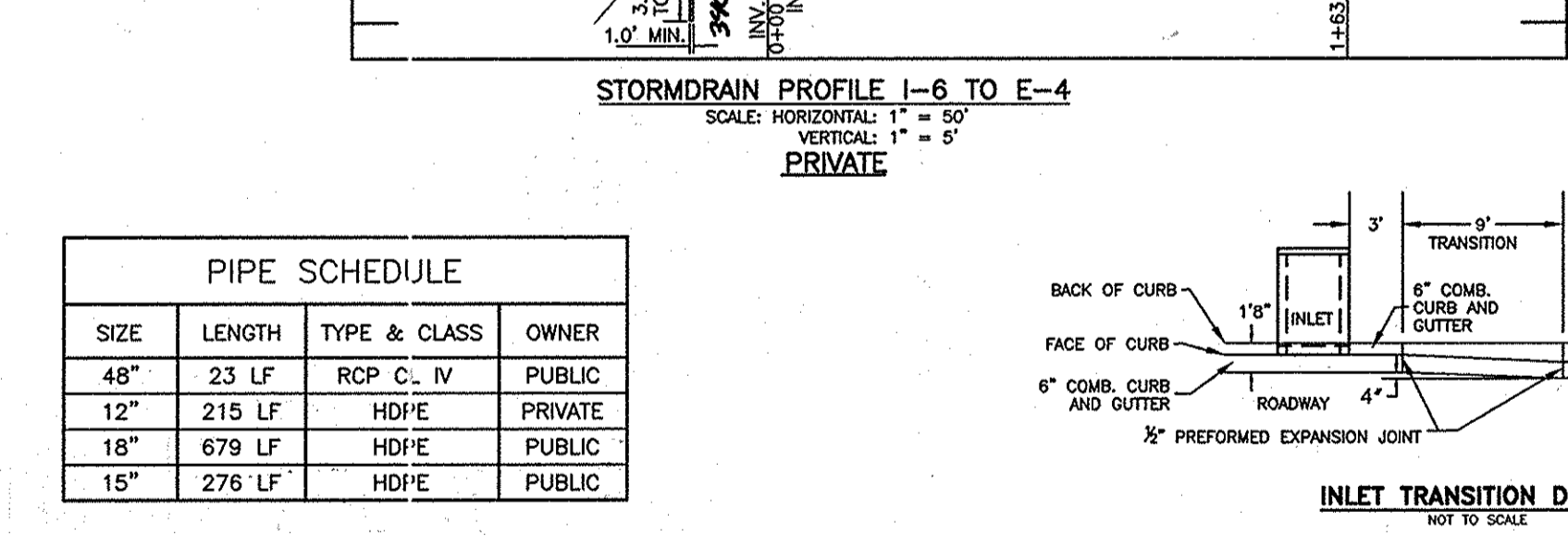
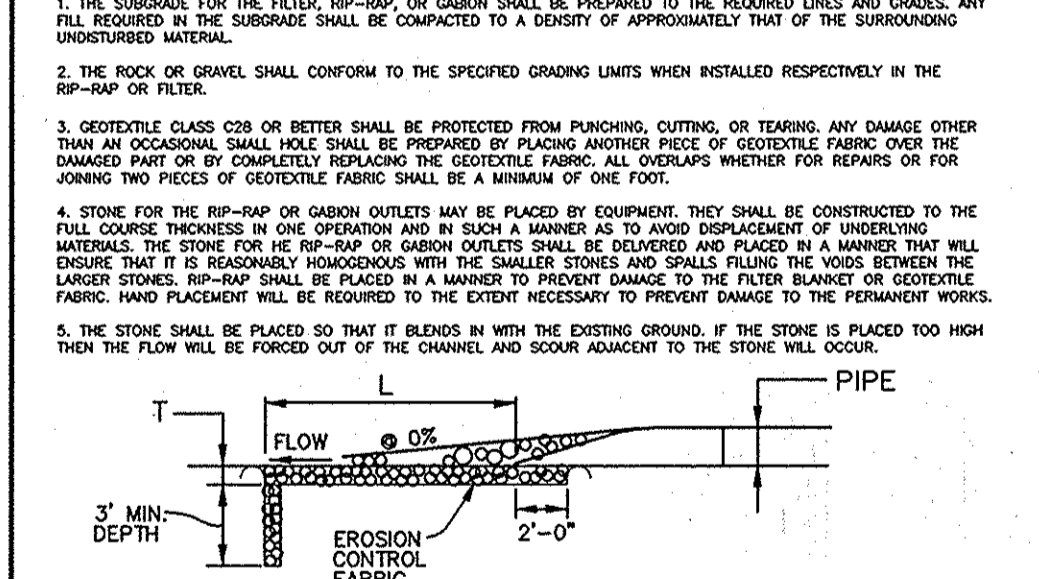
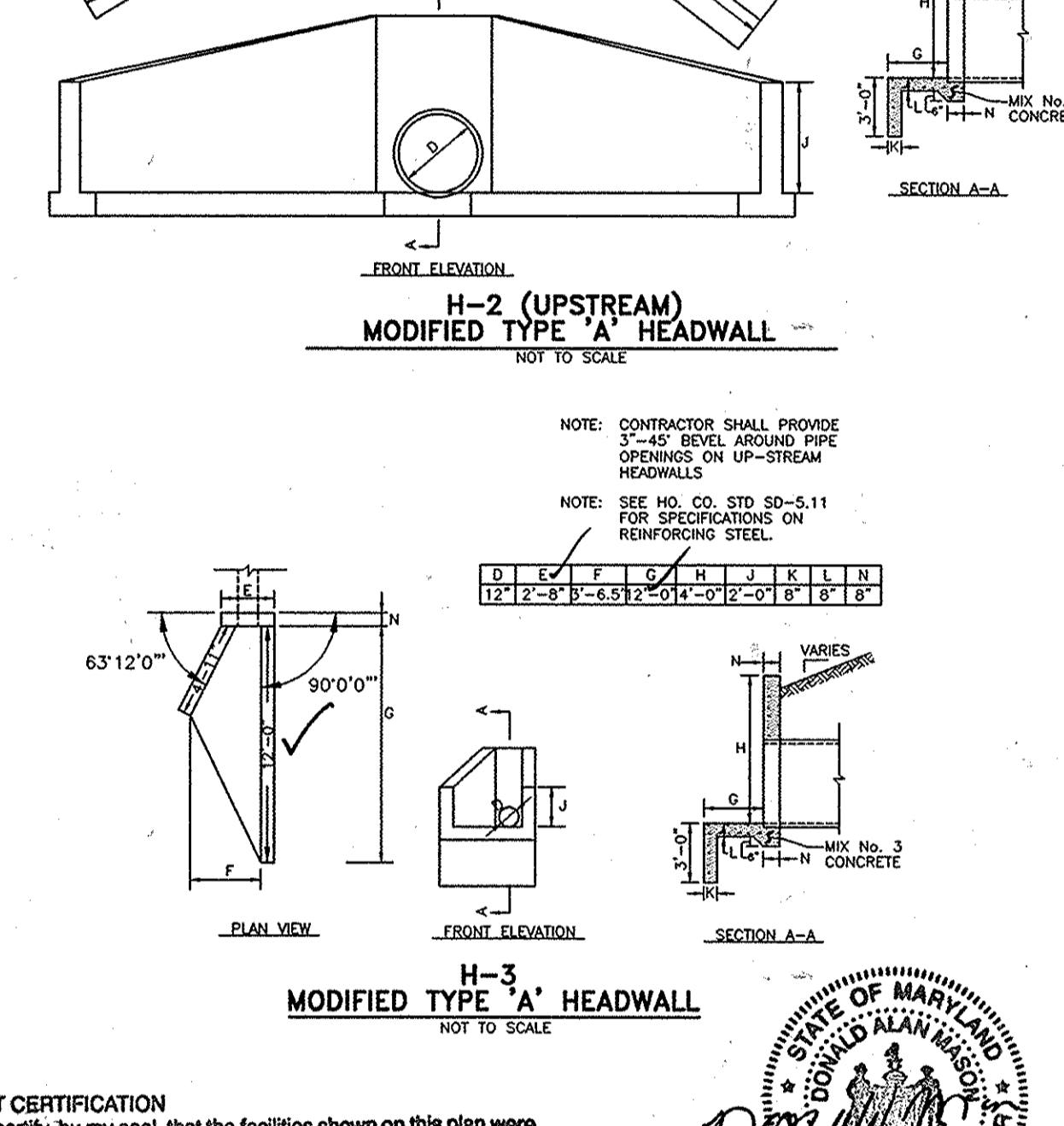
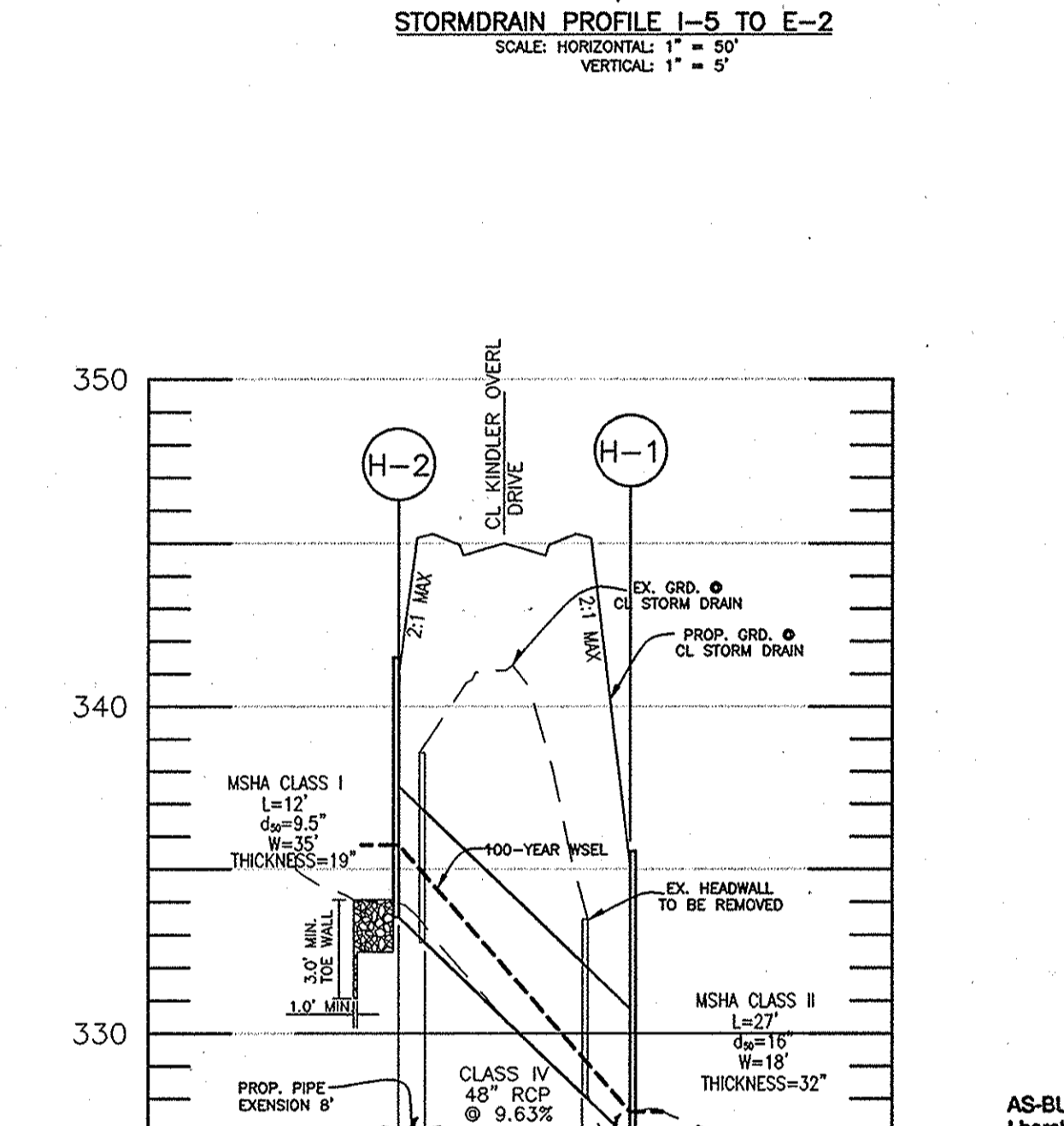
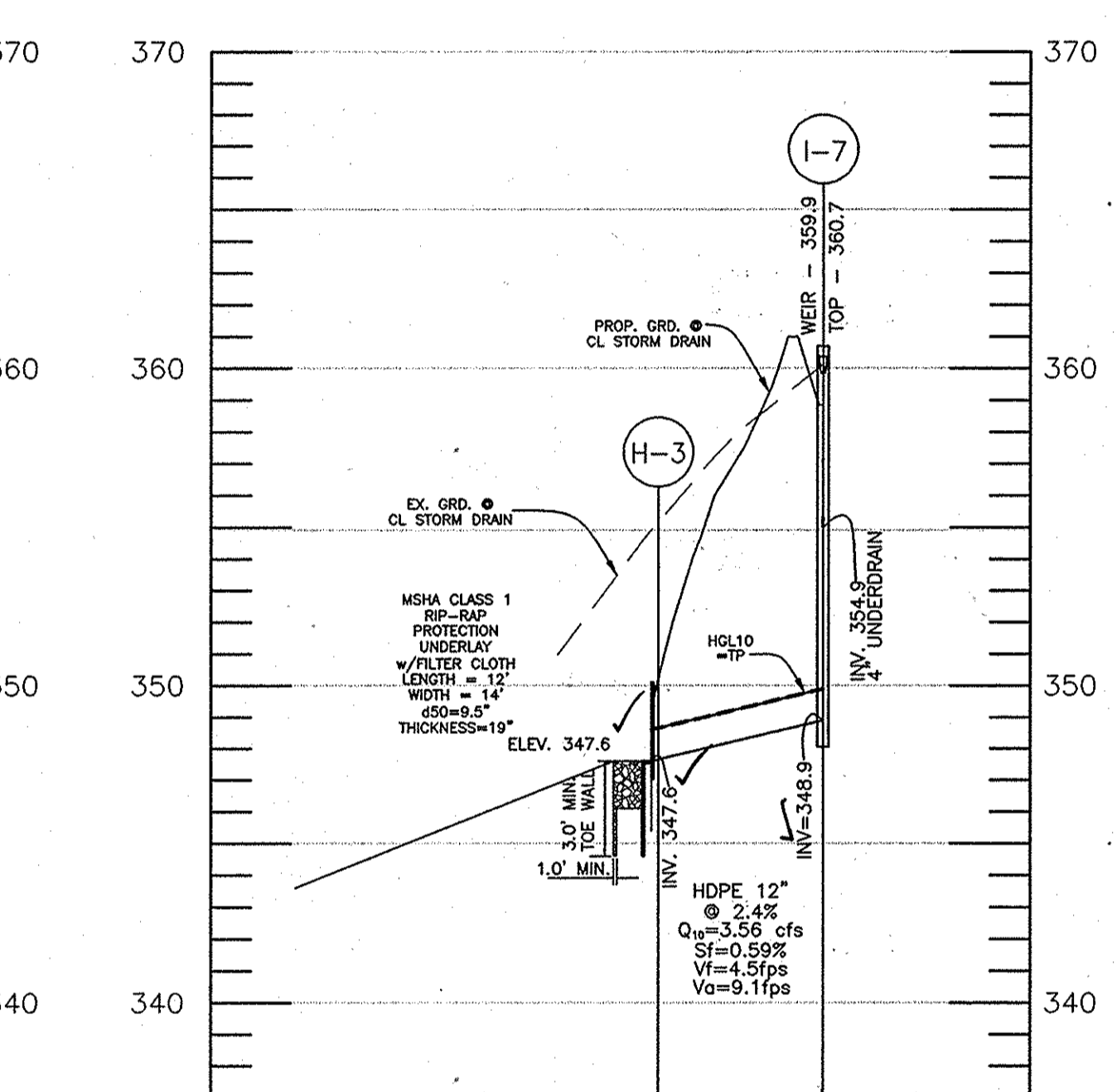
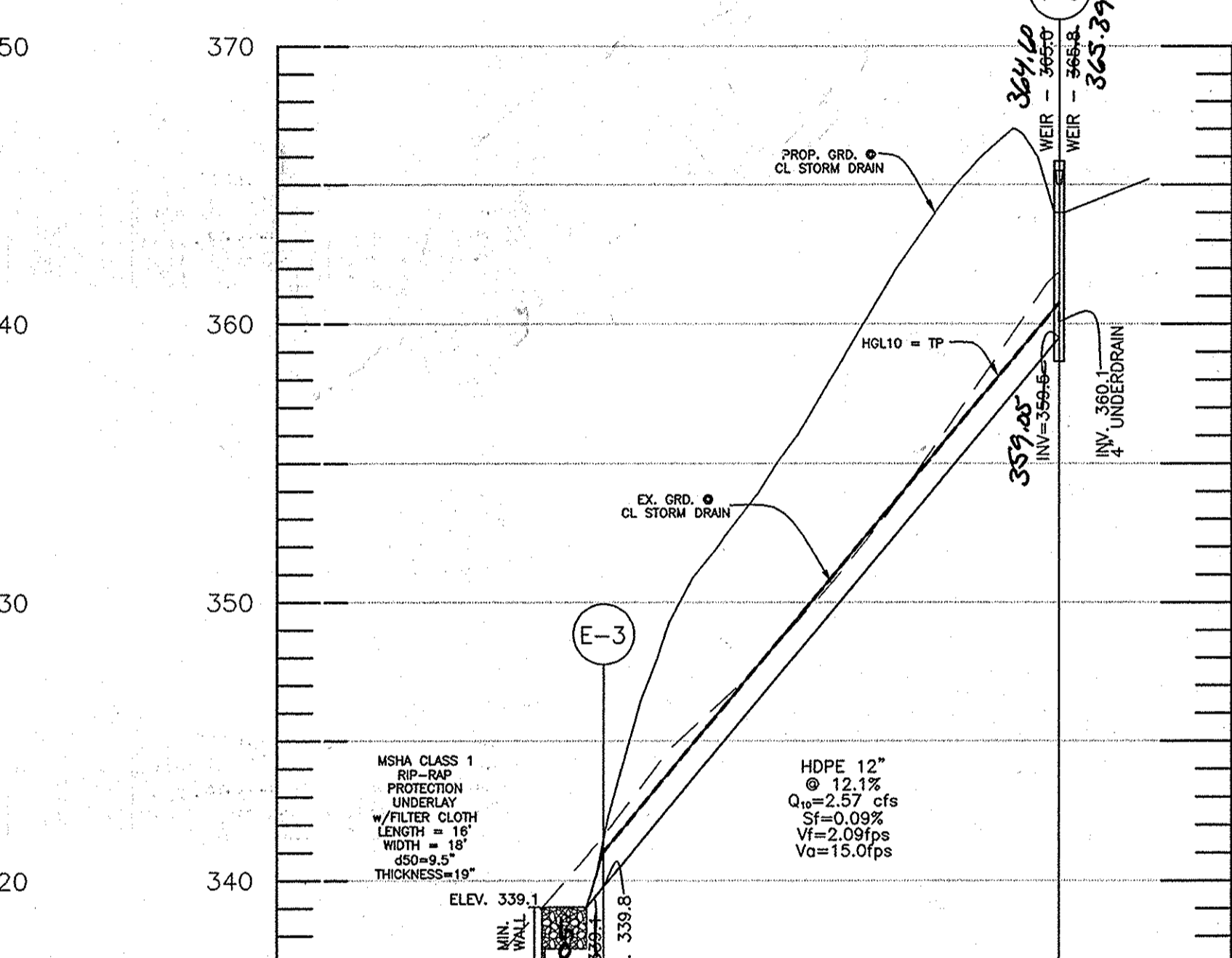
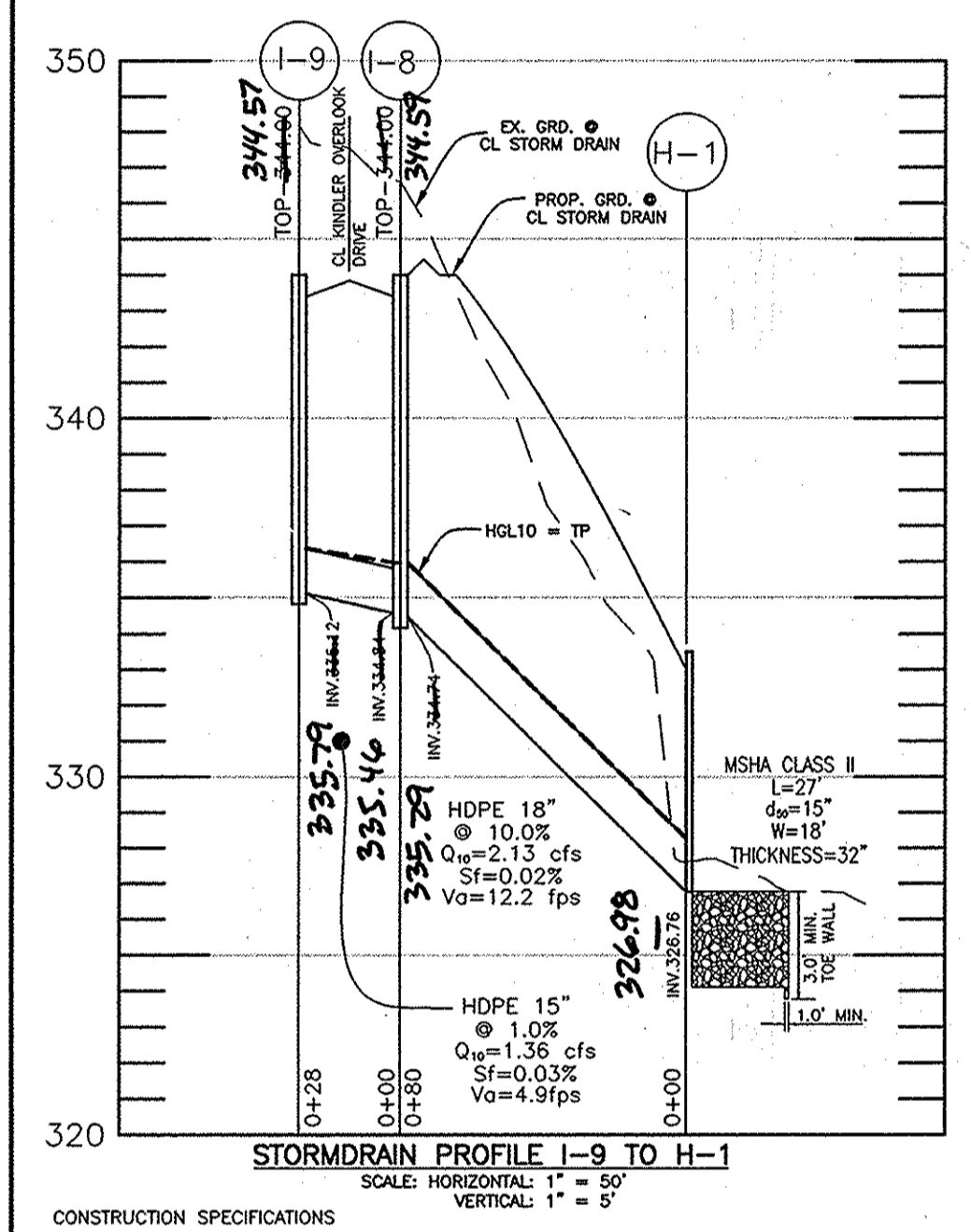
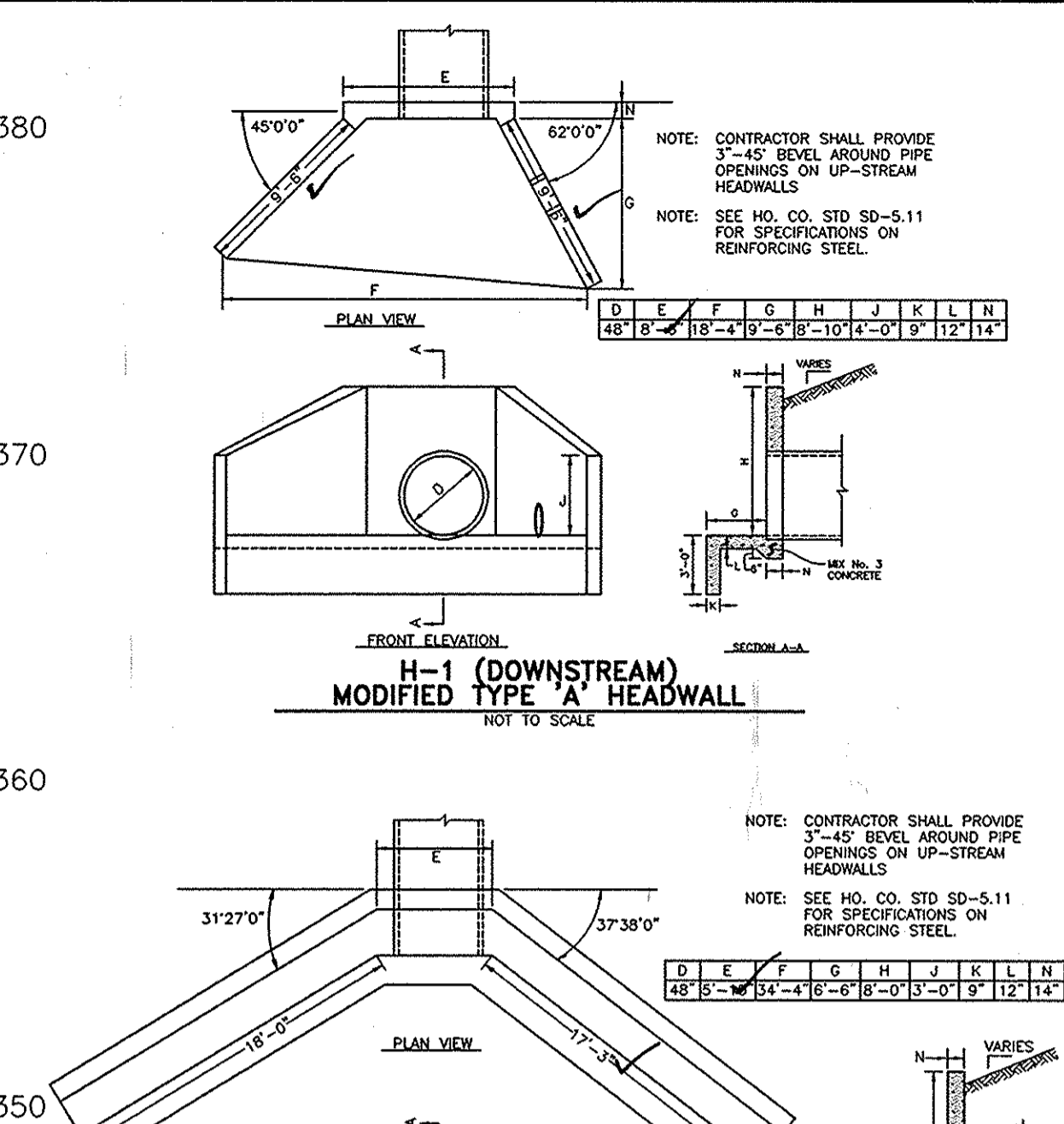
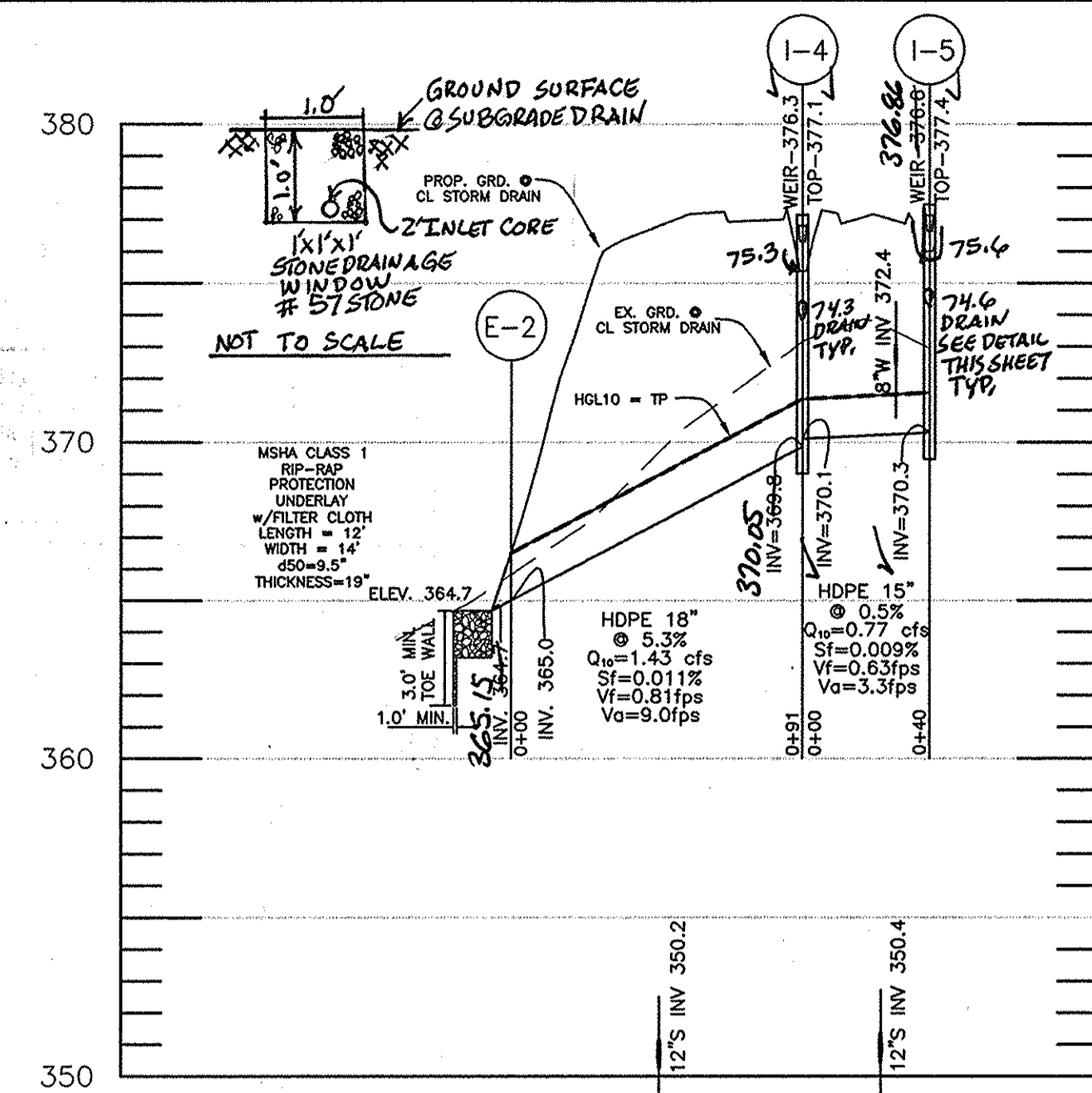
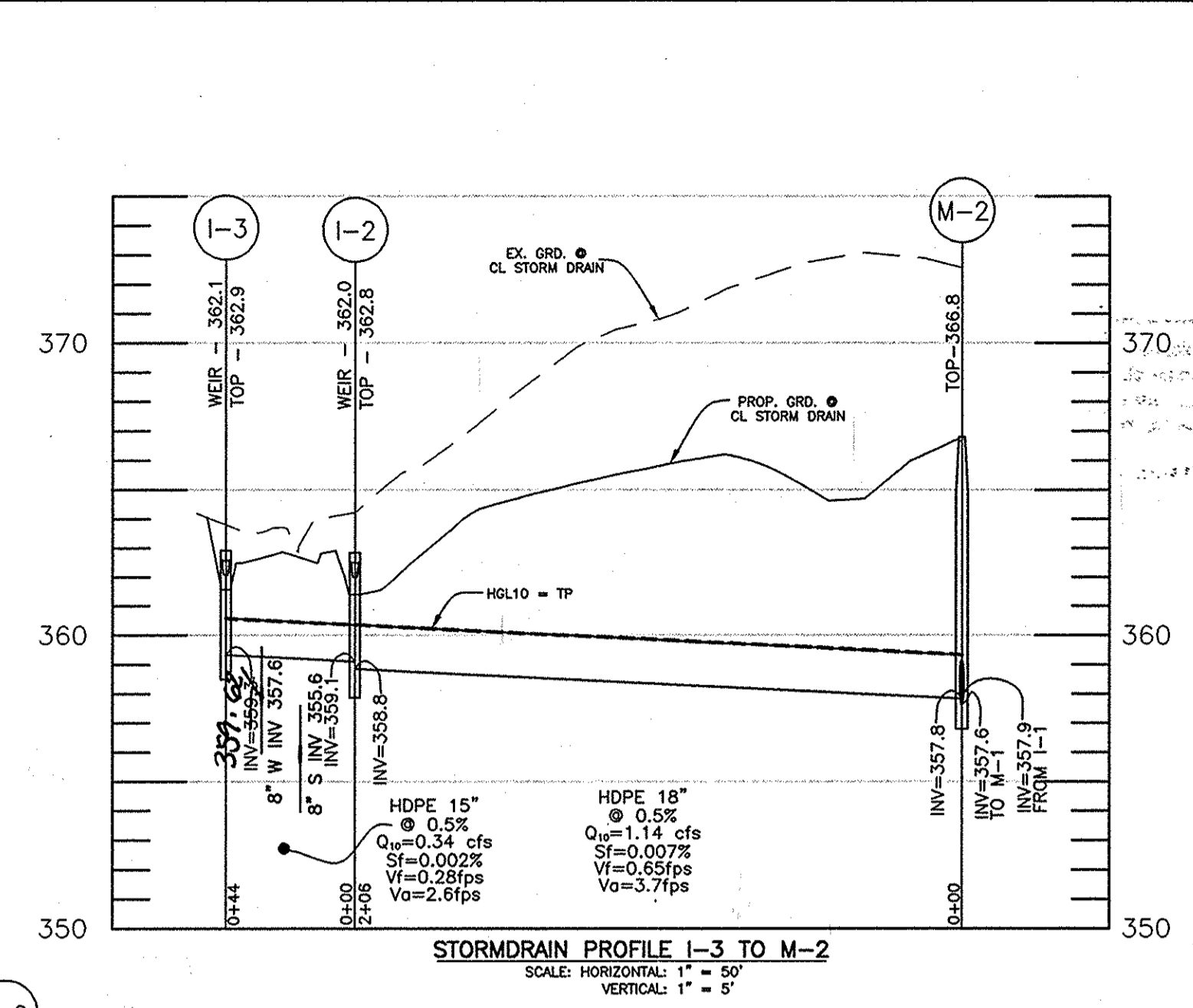
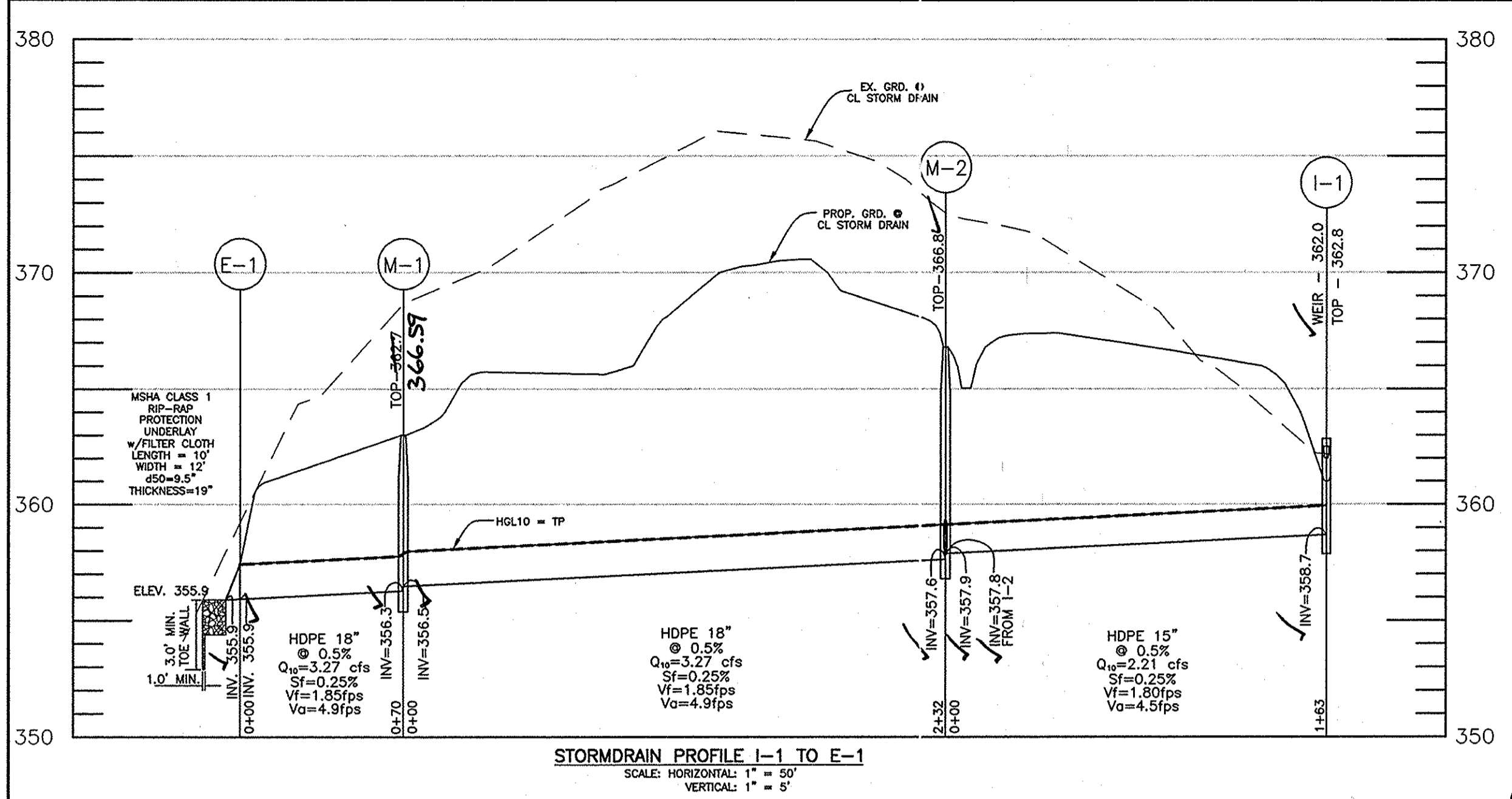
TITLE: FINAL STORMDRAIN DRAINAGE AREA MAP

DATE: JUL 2006 PROJECT NO. 1328
 AUGUST 2010

DESIGN: AAM DRAFT: MAN CHECK: CAM SCALE: AS SHOWN SHEET 4 OF 13

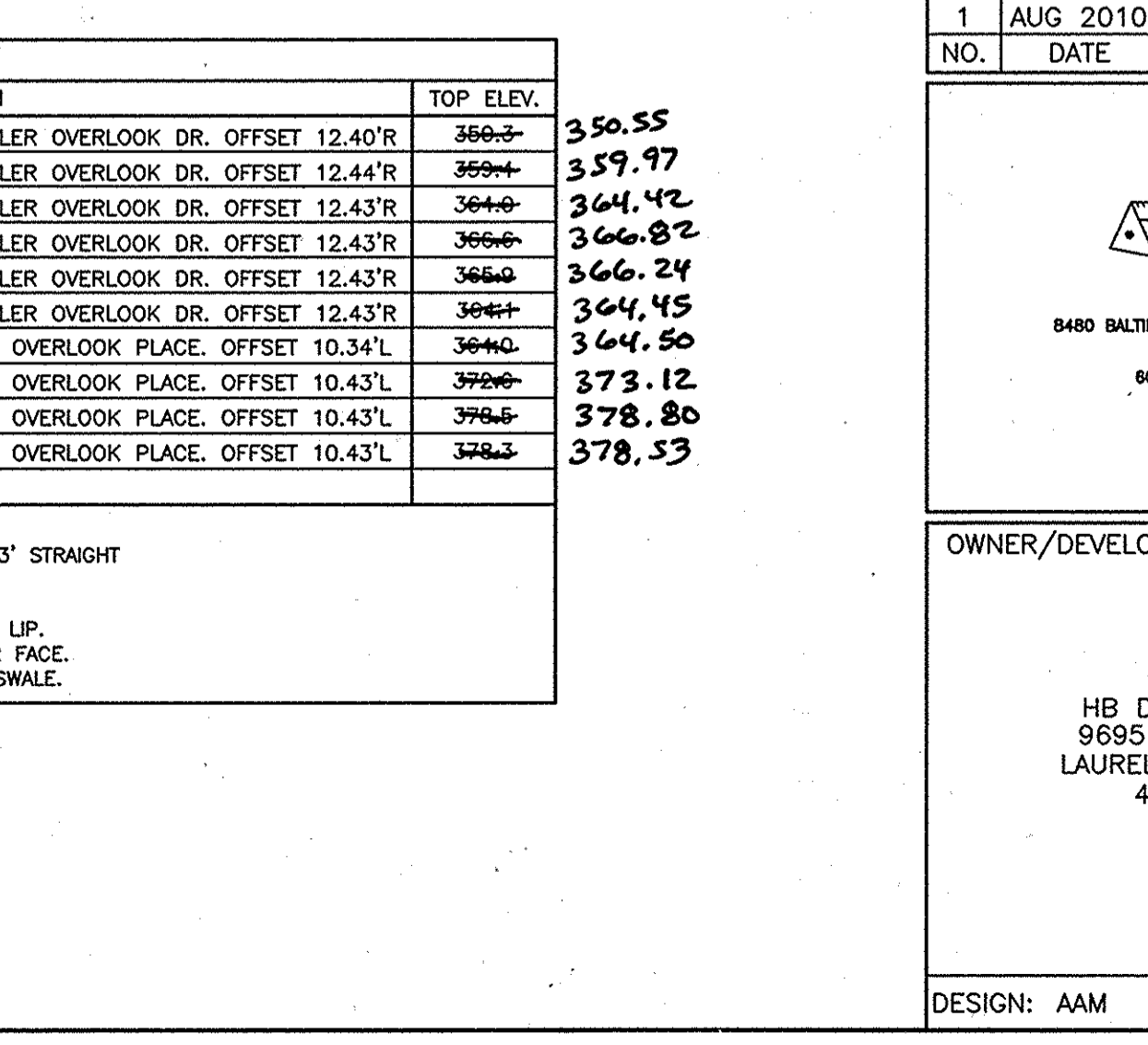
No As-Built information is required on this sheet

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: 12-21-14



NO	LOCATION	INV. IN	INV. OUT	TOP ELEV.	HO. CO. STD.	COMMENTS
I-1	CL STA. 5+63.86 KINDLER OVERLOOK DR. OFFSET 33.15'R	359.1	358.7	362.8	D 4.10 OR 4.11	4-OPENINGS
I-2	CL STA. 9+23.50 KINDLER OVERLOOK DR. OFFSET 24.12'R	359.1	358.8	362.8	D 4.10 OR 4.11	1-OPENING
I-3	CL STA. 9+21.62 KINDLER OVERLOOK DR. OFFSET 19.18'L	370.3	369.8	377.1	D 4.10 OR 4.11	1-OPENING
I-4	CL STA. 5+62.79 TWIN OVERLOOK PLACE. OFFSET 22.14'L	370.3	370.3	377.1	D 4.10 OR 4.11	1-OPENING
I-5	CL STA. 5+62.79 TWIN OVERLOOK PLACE. OFFSET 16.79'R	370.3	370.3	377.1	D 4.10 OR 4.11	1-OPENING
I-6	N 544664.7440 E 1345400.4481	360.1	359.9	365.8	D 4.10 OR 4.11	4-OPENINGS
I-7	N 545030.0777 E 1344970.7610	354.9	354.7	359.9	D 4.10 OR 4.11	4-OPENINGS
I-8	CL STA. 1+04.31 KINDLER OVERLOOK DR. OFFSET 12'L	335.5	335.2	344.0	D 4.10 OR 4.02	
I-9	CL STA. 1+04.31 KINDLER OVERLOOK DR. OFFSET 12'R	335.5	335.2	344.0	D 4.10 OR 4.02	
M-1	N 545111.7819 E 1345458.7257	356.5	356.3	362.7	G - 5.12	
M-2	CL STA. 7+26.89 KINDLER OVERLOOK DR. OFFSET 30.48'R	357.8	357.9	357.8	G - 5.12	
E-1	N 545111.6014 E 1345534.7264	355.9	355.9	365.5	D - 5.51	
E-2	N 544785.9531 E 1345599.7466	364.7	364.7	365.5	D - 5.51	
E-3	N 544549.8347 E 1345519.2524	379.1	379.1	376.0	D - 5.51	
H-1	N 545216.5795 E 1344831.9552	372.5	372.5	376.8	MOD. TYPE 'A'-SEE DETAIL THIS SHEET	
H-2	N 545210.9252 E 1344834.7004	371.7	371.7	376.8	MOD. TYPE 'A'-SEE DETAIL THIS SHEET	
H-3	N 545146.2622 E 1344806.6623	333.5	333.5	333.5	MOD. TYPE 'A'-SEE DETAIL THIS SHEET	
H-4	N 545060.0731 E 1344926.3657	347.6	347.6	347.6	MOD. TYPE 'A'-SEE DETAIL THIS SHEET	

NO	LOCATION	TOP ELEV.	NO	LOCATION	TOP ELEV.
CI-1	CL STA. 2+81.81 KINDLER OVERLOOK DR. OFFSET 12.43'L	347.8	SI-1	CL STA. 3+37.02 KINDLER OVERLOOK DR. OFFSET 12.40'R	360.7
CI-2	CL STA. 4+45.20 KINDLER OVERLOOK DR. OFFSET 12.42'L	356.0	SI-2	CL STA. 4+85.12 KINDLER OVERLOOK DR. OFFSET 12.44'R	359.4
CI-3	CL STA. 5+73.23 KINDLER OVERLOOK DR. OFFSET 12.43'L	363.5	SI-3	CL STA. 5+85.23 KINDLER OVERLOOK DR. OFFSET 12.43'R	364.0
CI-4	CL STA. 7+03.26 KINDLER OVERLOOK DR. OFFSET 12.43'L	366.6	SI-4	CL STA. 7+04.38 KINDLER OVERLOOK DR. OFFSET 12.43'R	366.6
CI-5	CL STA. 8+08.01 KINDLER OVERLOOK DR. OFFSET 12.44'L	366.6	SI-5	CL STA. 8+25.66 KINDLER OVERLOOK DR. OFFSET 12.43'R	366.6
CI-6	CL STA. 8+80.24 KINDLER OVERLOOK DR. OFFSET 12.44'L	364.8	SI-6	CL STA. 8+95.89 KINDLER OVERLOOK DR. OFFSET 12.43'R	364.4
CI-7	CL STA. 0+53.60 TWIN OVERLOOK PLACE. OFFSET 10.43'R	364.8	SI-7	CL STA. 0+53.60 TWIN OVERLOOK PLACE. OFFSET 10.34'L	364.0
CI-8	CL STA. 1+92.71 TWIN OVERLOOK PLACE. OFFSET 10.43'R	372.6	SI-8	CL STA. 1+92.71 TWIN OVERLOOK PLACE. OFFSET 10.43'L	372.6
CI-9	CL STA. 3+32.17 TWIN OVERLOOK PLACE. OFFSET 10.43'R	378.6	SI-9	CL STA. 3+26.78 TWIN OVERLOOK PLACE. OFFSET 10.43'L	378.6
CI-10	CL STA. 4+85.24 TWIN OVERLOOK PLACE. OFFSET 10.43'R	378.9	SI-10	CL STA. 4+72.71 TWIN OVERLOOK PLACE. OFFSET 10.43'L	378.3
CI-11	CL STA. 5+96.04 TWIN OVERLOOK PLACE. OFFSET 15.50'L	377.4			



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: 12-21-14

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.
Donald Mason, P.E. No. 21443
Date 9-18-14

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: 6/18/14

OWNER/DEVELOPER: HB DEVELOPMENT, INC. 9695 NORFOLK AVENUE LAUREL, MARYLAND 20723 410-792-2565

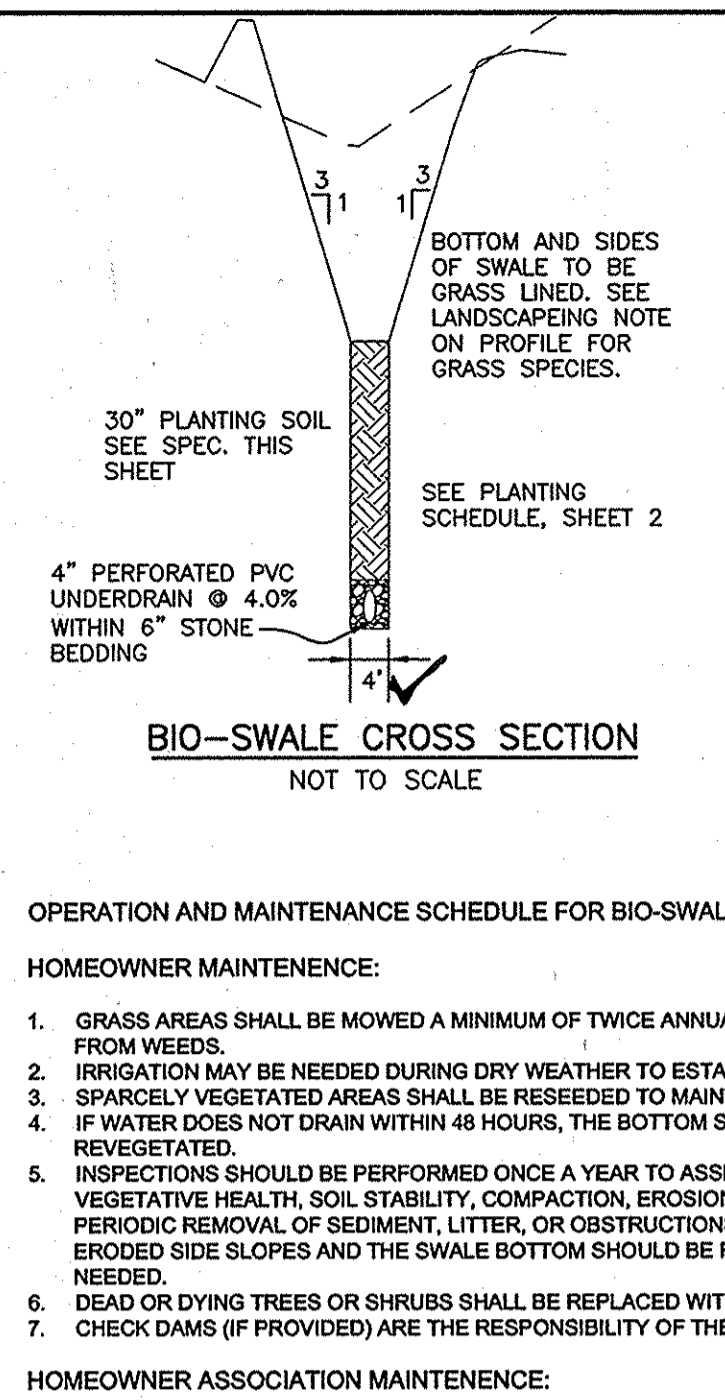
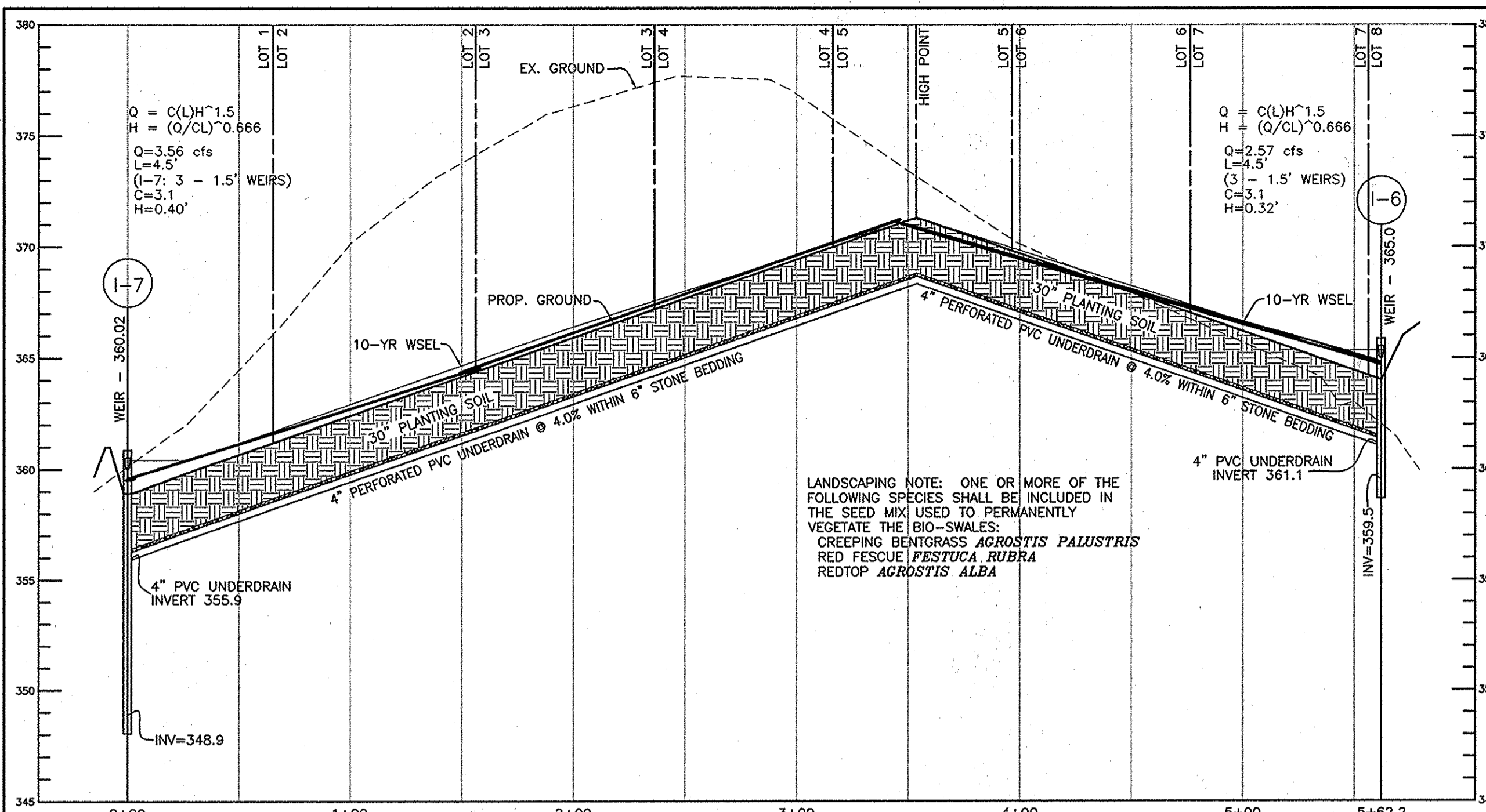
PROJECT: KINDLER OVERLOOK LOTS 1-19 AND OPEN SPACE 20 REVISED FINAL ROAD CONSTRUCTION PLAN

LOCATION: TAX MAP: 41 PARCEL: 385, 395, P/O PARCEL 401 GRID: 18 ZONED: R-20 8th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: FINAL STORMDRAIN PROFILES

DATE: JULY 2006 AUGUST 2010 PROJECT NO. 1328

DESIGN: AAM DRAFT: MAN CHECK: CAM SCALE: AS SHOWN SHEET 5 OF 13



LOT BY LOT ONSITE STORMWATER MANAGEMENT METHODS			
METHOD	MAINTENANCE	METHOD	MAINTENANCE
LOT 1 ROOFTOP DISCONNECT BIO-SWALE	OWNER JOINT-OWNER/HOA	LOT 10 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 2 ROOFTOP DISCONNECT BIO-SWALE	OWNER JOINT-OWNER/HOA	LOT 11 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 3 ROOFTOP DISCONNECT BIO-SWALE	OWNER JOINT-OWNER/HOA	LOT 12 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 4 ROOFTOP DISCONNECT BIO-SWALE	OWNER JOINT-OWNER/HOA	LOT 13 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 5 ROOFTOP DISCONNECT BIO-SWALE	OWNER JOINT-OWNER/HOA	LOT 14 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 6 ROOFTOP DISCONNECT BIO-SWALE	OWNER JOINT-OWNER/HOA	LOT 15 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 7 ROOFTOP DISCONNECT BIO-SWALE	OWNER JOINT-OWNER/HOA	LOT 16 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 8 ROOFTOP DISCONNECT MICRO-BIORETENTION	OWNER OWNER	LOT 17 ROOFTOP DISCONNECT INFILTRATION BERM	OWNER OWNER
LOT 9 ROOFTOP DISCONNECT MICRO-BIORETENTION	OWNER OWNER	LOT 18 MICRO-BIORETENTION	OWNER

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-SWALES

HOMEOWNER MAINTENANCE:

- GRASS AREAS SHALL BE MOWED A MINIMUM OF TWICE ANNUALLY, TO REDUCE COMPETITION FROM WEEDS.
- IRRIGATION MAY BE NEEDED DURING DRY WEATHER TO ESTABLISH VEGETATION.
- SPARCELY VEGETATED AREAS SHALL BE RESEED TO MAINTAIN DENSE COVERAGE.
- IF WATER DOES NOT DRAIN WITHIN 48 HOURS, THE BOTTOM SOIL SHOULD BE TILLED AND REVEGETATED.
- INSPECTIONS SHOULD BE PERFORMED ONCE A YEAR TO ASSESS SLOPE INTEGRITY, VEGETATIVE HEALTH, SOIL STABILITY, COMPACTION, EROSION, PONDING AND SEDIMENTATION. PERIODIC REMOVAL OF SEDIMENT, LITTER, OR OBSTRUCTIONS SHOULD BE DONE AS NEEDED.
- DEAD OR DYING TREES OR SHRUBS SHALL BE REPLACED WITH SIMILAR MATERIALS.
- CHECK DAMS (IF PROVIDED) ARE THE RESPONSIBILITY OF THE INDIVIDUAL HOMEOWNER.

HOMEOWNER ASSOCIATION MAINTENANCE:

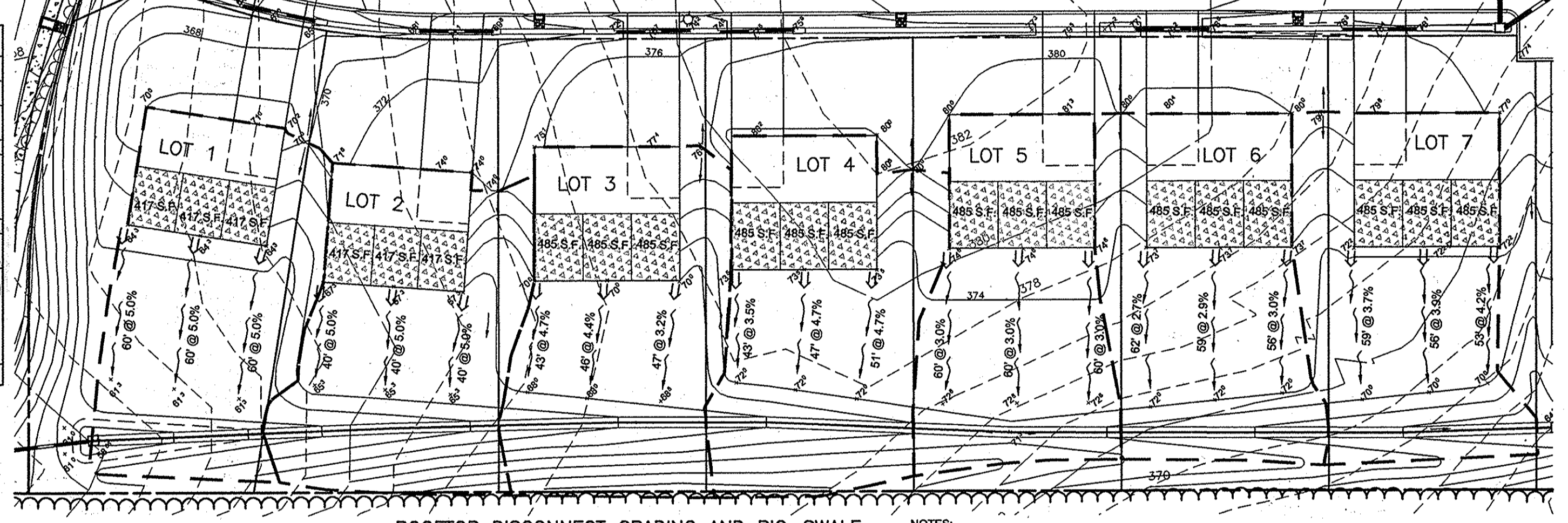
- IN THE EVENT THAT UNDERDRAINS MUST BE EXCAVATED AND REPLACED, THIS SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS ASSOCIATION.

BIO-SWALE CONSTRUCTION SPECIFICATIONS

- SWALES SHALL NOT BE CONVERTED TO BIO-SWALES UNTIL THE SURROUNDING SITE IS STABILIZED.
- IT IS IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE PLANTING SOILS.
- ROTOTILL TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE PLACEMENT OF UNDERDRAIN.
- WHEN BACKFILLING THE PLANTING SOILS, PLACE SOIL IN LIFTS OF 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION AREA.
- SIDESLOPES WITHIN THE BIO-SWALE SHALL BE A MAXIMUM OF 3:1 SLOPES.
- ALL CHANGES IN GRADING SHALL BE SMOOTHED AND ROUNDED, TO ENSURE EASE OF FUTURE MOWING.

SCALE: 1" = 50'

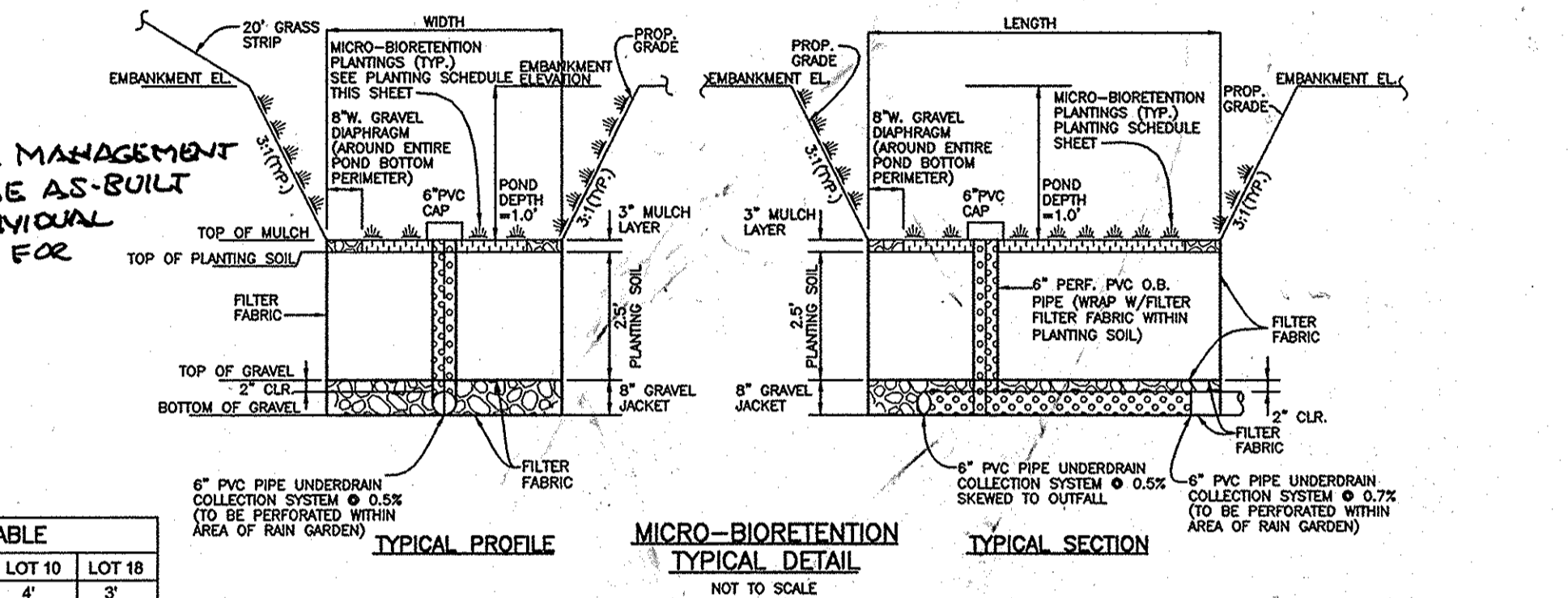
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SANDY SILT-LOAM TO SANDY LOAM OR LOAM (SILT: 35-60% SCLT: 30-35% CLAY: 10-25%)	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	2" TO 3" DEPTH, AGED 6 MONTHS, MINIMUM FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4833) PUNCTURE RESISTANCE: (ASTM D-4833)	N/A	
UNDERDRAIN GRAVEL	ASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR ASHTO M-278	4" TO 6" RIGID 304-40 PVC OR SD303	3/8" PERFOR. @ 6" O.C. 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO. 3, (F=3000Psi @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINMENT, REINFORCING TO MEET ASTM 615-80)	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED: 28 DAY STRENGTH TEST AND SLUMP TEST; ALL CONC. DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS. DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. DESIGN TO INCLUDE MEETING MD CODE 550A/55B VERTICAL LOADING (0-10 TO H-20) ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES), AND ANALYSIS OF POTENTIAL CRACKING AND ANALYSIS OF POTENTIAL CRACKING
CONCRETE (IF REQUIRED)	AWPA STANDARD C6	6" X 6" OR 8" X 6"	DO NOT COME WITH CROSSBARS, EMBED TO LEGS 2" INTO SIDE SURFACES



*** ON LOT STORMWATER MANAGEMENT FACILITIES ARE TO BE AS-BUILT AS PART OF THE INDIVIDUAL GRADE CERTIFICATION FOR EACH LOT.**

MICRO-BIORETENTION GEOMETRY TABLE

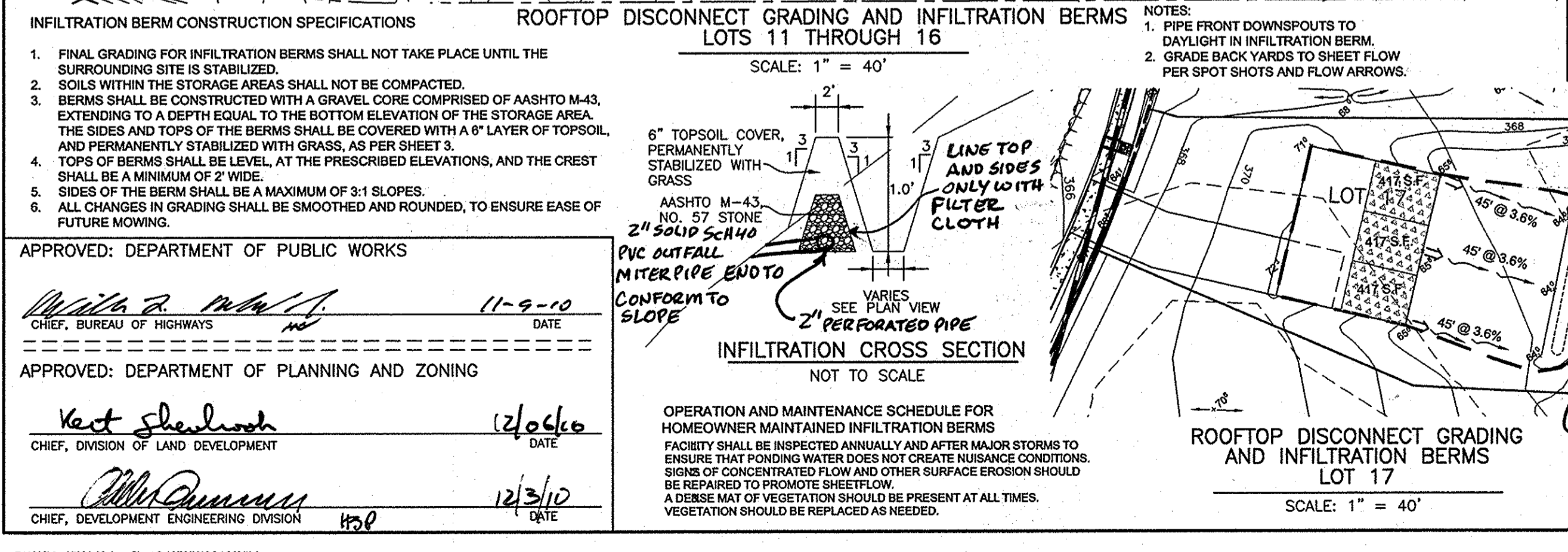
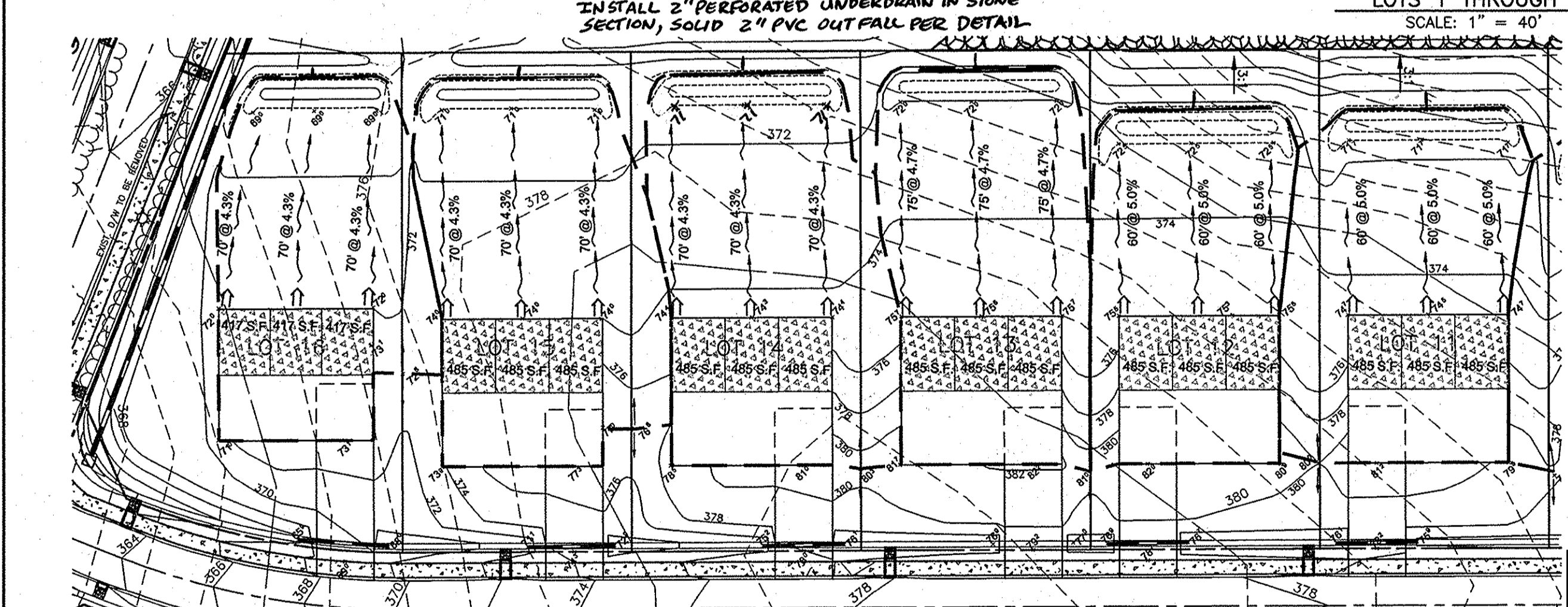
	LOT 8	LOT 9	LOT 10	LOT 18
FILTER WIDTH	3'	3'	4'	3'
FILTER LENGTH	36'	47'	59'	17'
FILTER SURFACE (SF)	109	139	229	173
EMBANKMENT EL. (FT)	361.2	369.2	369.9	364.0
TOP OF MULCH EL. (FT)	360.2	368.2	368.9	363.0
TOP OF PLANTING SOIL EL. (FT)	360.0	368.0	368.7	362.8
TOP OF GRAVEL EL. (FT)	357.5	365.5	366.2	360.3
BOTTOM OF GRAVEL EL. (FT)	356.8	364.8	365.5	359.6



OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION

- ANNUAL MAINTENANCE OF PLANT MATERIAL AND MULCH LAYER IS REQUIRED. MAINTENANCE OF MULCH IS LIMITED TO CORRECTING AREAS OF GRASS OR WASH-OUT AND REPLACEMENT MULCH SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE REPLACED FOR DISEASE & INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL & PRUNING.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN THE SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD & DISEASED VEGETATION CONSIDERED BEYOND TREATMENT; TREATMENT OF ALL DISEASED TREES & SHRUBS; AND REPLACEMENT OF ALL DEFICIENT STAKES & WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE THE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS-NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

MICRO-BIORETENTION LOT 8 PLANTING SCHEDULE	MICRO-BIORETENTION LOT 9 PLANTING SCHEDULE	MICRO-BIORETENTION LOT 10 PLANTING SCHEDULE	MICRO-BIORETENTION LOT 18 PLANTING SCHEDULE	MICRO-BIORETENTION - PLANTING DATA
1. Lobelia cardinalis 5	1. Lobelia cardinalis 7	1. Lobelia cardinalis 14	1. Lobelia cardinalis 8	1. PLANTINGS WITHIN THE PONDING AREA OF THE MICRO-BIORETENTION ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE SUGGESTED SPECIES:
2. Iris versicolor 6	2. Iris versicolor 7	2. Iris versicolor 9	2. Iris versicolor 9	CREeping BUGLEWEED (AJUDA REPTANS) COMMON PERiwinkle (VINCA MINOR) LILY-TURF (LIRIOPE, SP.)
3. Andropogon virginicus 5	3. Andropogon virginicus 6	3. Andropogon virginicus 9	3. Andropogon virginicus 9	2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE SUGGESTED SPECIES:(PERENNIALS/ANNUALS)
4. Rudbeckia laciniata 5	4. Rudbeckia laciniata 7	4. Rudbeckia laciniata 8	4. Rudbeckia laciniata 7	WHITE GLORY (ASTILE SP.) IRIS (IRIS VERSICOLOR) DAYLILY (HEMEROCALLIS SP.)
5. Acer Rubrum 1	5. Acer Rubrum 1	5. Acer Rubrum 1	5. Acer Rubrum 1	3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE FACILITY NEAR PIPE AND UNDERDRAIN.
				4. SEE SHEET 2 FOR TREE PLANTING DETAIL.



INFILTRATION BERM GEOMETRY TABLE

	LOT 11	LOT 12	LOT 13	LOT 14	LOT 15	LOT 16	LOT 17
BOTTOM WIDTH	4.0'	5.0'	4.0'	4.0'	3.9'	3.9'	4.0'
TOP WIDTH	10.0'	11.0'	10.0'	10.0'	9.9'	9.9'	10.0'
LENGTH	59'	59'	59'	59'	42'	42'	48'
TOP ELEVATION (FT)	371.7	372.5	372.0	372.4	371.0	369.0	364.0
BOTTOM ELEVATION (FT)	370.7	371.5	371.0	371.4	370.0	368.0	363.0

OPERATION AND MAINTENANCE SCHEDULE FOR JOINTLY MAINTAINED ROADSIDE SWALES

ROUTINE MAINTENANCE TO BE PERFORMED BY H.O.A.:

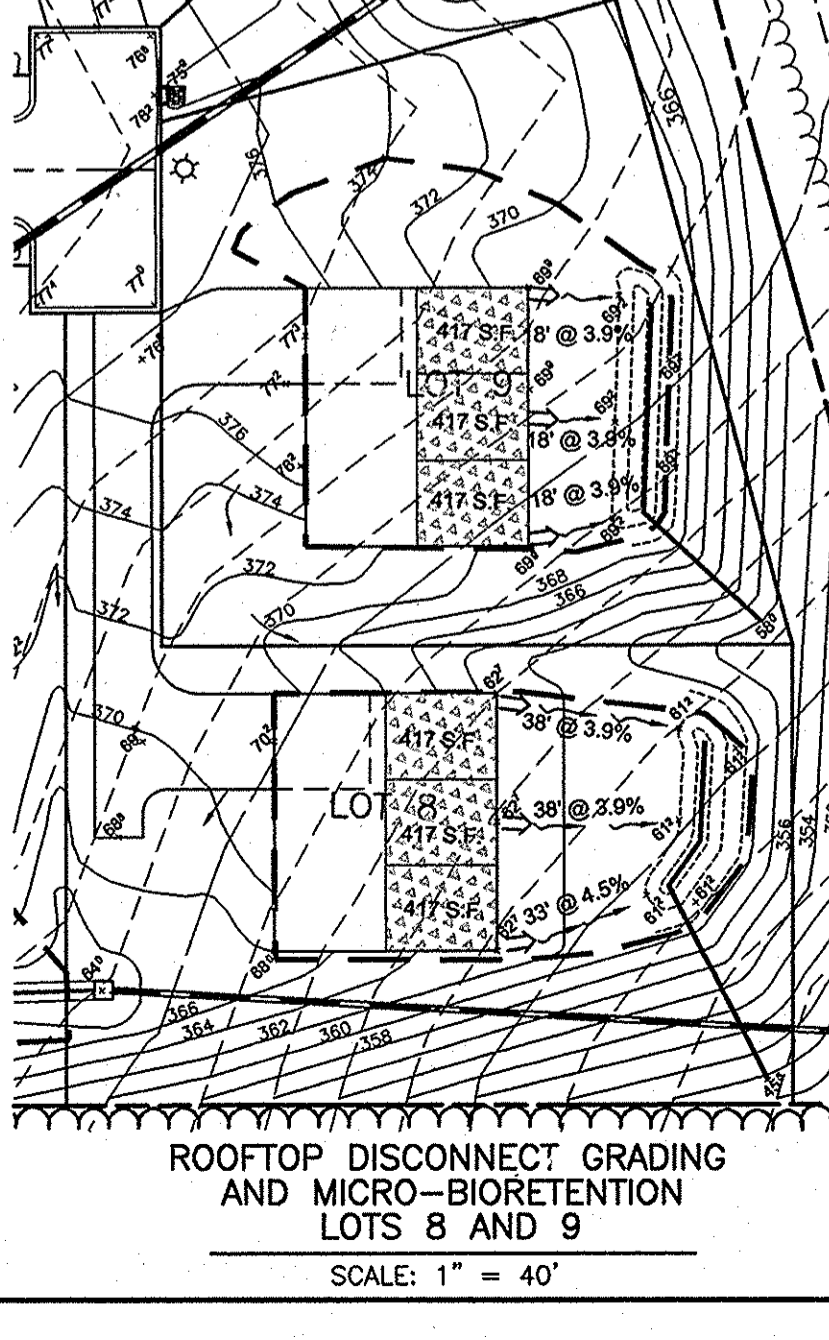
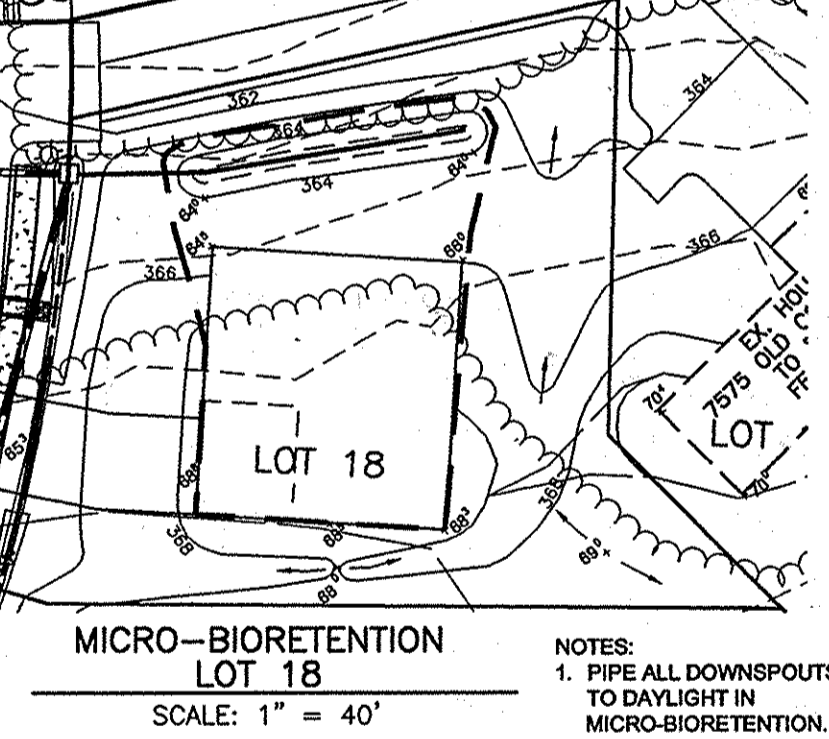
- FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE SWALE IS ADEQUATELY CONVEYING STORM FLOWS.
- SIDE SLOPES AND SWALE BOTTOMS SHALL BE MOWED AS NECESSARY TO MAINTAIN LESS THAN 6" IN HEIGHT.
- DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE SLOPES AS WELL AS THE RIP-RAP AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE TO BE PERFORMED BY HOWARD COUNTY:

- SEDIMENTS SHALL BE REMOVED FROM THE ROADSIDE SWALES AS NECESSARY.

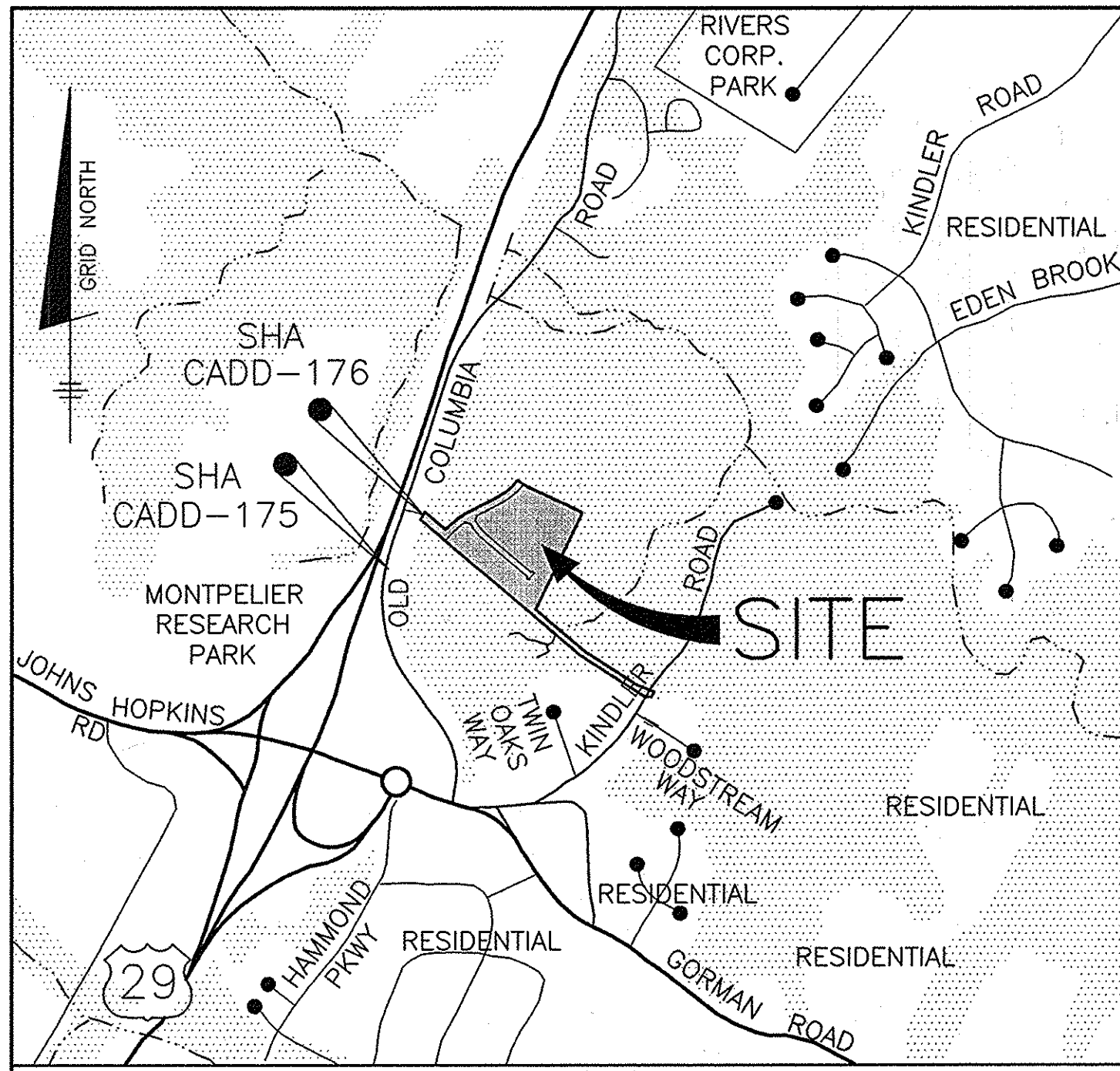
AS-BUILT CERTIFICATION
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.
Donald Mason, P.E. No. 21443 Date 7-13-14

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: 12-21-14



BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE SUITE 418 & ELLICOTT CITY, MARYLAND 21043
(P) 410-455-8105 (F) 410-455-8144
80 THOMAS JOHNSON DRIVE A FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BE-ENRINEERING.COM

OWNER/DEVELOPER:	PROJECT:
HB DEVELOPMENT, INC. 9695 NORFOLK AVENUE LAUREL, MARYLAND 20723 410-792-2565	KINDLER OVERLOOK LOTS 1-19 AND OPEN SPACE 20 REVISED FINAL ROAD CONSTRUCTION PLAN
DATE: JUL 2006 AUGUST 2010	LOCATION: TAX MAP: 41 PARCEL: 385, 395, P/O PARCEL 401 GRID: 18 ZONED: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DESIGN: AAM	TITLE: STORMWATER MANAGEMENT DETAILS
DRAFT: MAN	DATE: JUL 2006
CHECK: CAM	AUGUST 2010
SCALE: AS SHOWN	PROJECT NO. 1328
	SHEET 8 OF 13

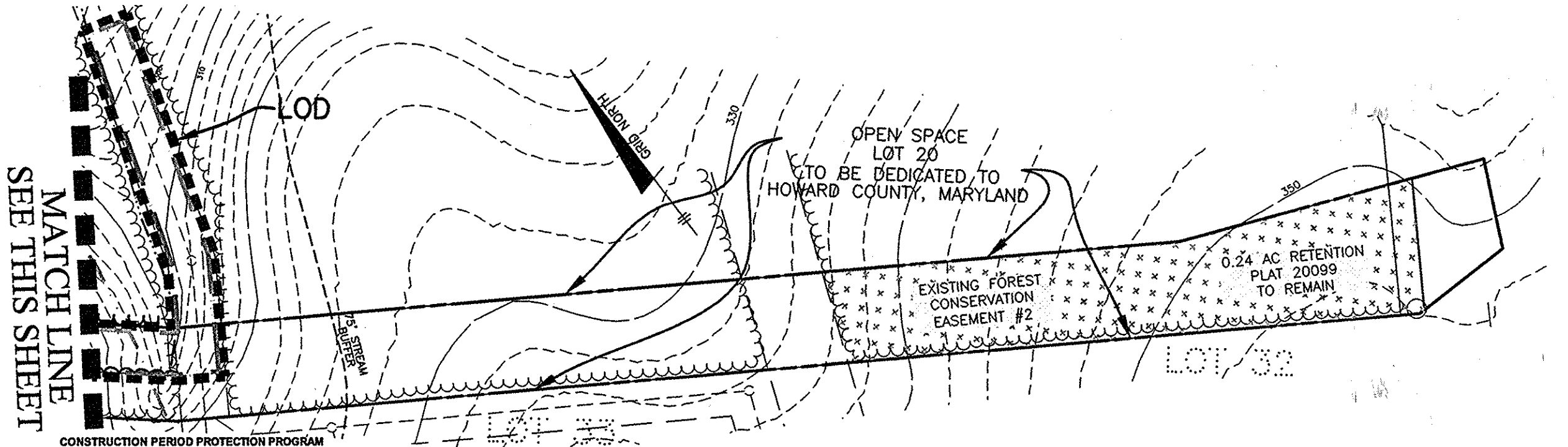
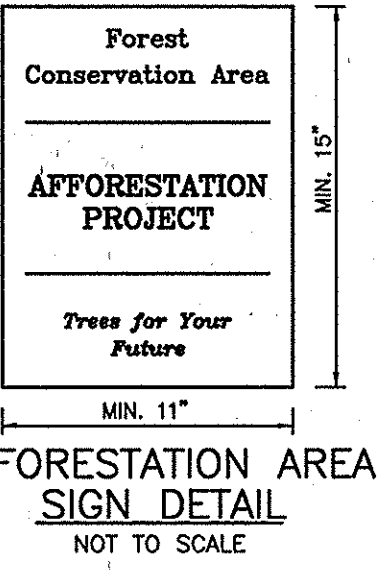


MAP SYMBOL	SOIL TYPE	MAPPING UNIT
Ba	D	BALE SILT LOAM
GIB2	B	GLENGLE LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GIC2	B	GLENGLE LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MgB2	B	MANOR GRAVELLY LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MgD2	B	MANOR GRAVELLY LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MIB2	B	MANOR LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MIC2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MID2	B	MANOR LOAM - 15 TO 25 PERCENT SLOPES - MODERATELY ERODED
MIE	B	MANOR LOAM - 25 TO 40 PERCENT SLOPES
MIF	B	MANOR VERY STONY LOAM - 25 TO 40 PERCENT SLOPES

MD DNR Qualified Professional
USACOE Wetland Delimitator
Certification # WDCF93MD0100442

John P. Cantles

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 2804 Glen Arm, Maryland 21287
Telephone (410) 473-4753 Fax (410) 473-3486



VICINITY MAP
SCALE: 1" = 1000'
ADC MAP 5052 GRID J4

- Planting/Soil Specifications**
- Installation of bare-root/plant stock shall take place between March 15 - April 20; b/b container stock March 15 - May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
 - Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
 - Bare-root plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
 - Fertilizer shall consist of nitrogen, phosphorus, and potassium as per manufacturer's specifications, for woody plants. Herbaceous plants shall be fertilized with Osmocote 8-6-12.
 - Plant material shall be transported to the site in a tapered or covered truck. Plants shall be kept moist prior to planting.
 - The contractor shall remove all non-organic debris associated with the planting operation from the site.

- Sequence of Construction**
- Settlement control shall be installed in accordance with general construction plan for site.
 - Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
 - Upon completion of the plantings, signage shall be installed as shown.
 - Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

- Maintenance of Plantings**
- Maintenance of plantings shall last for a period of two years.
 - Plantings must receive 2 gallons of water, either through precipitation or watering, weekly during the 1st growing season, as needed. During second growing season, once a month during May-September, if needed.
 - Treatable sapling rootstock needs will be removed, as required, from planting areas mechanically and/or with limited herbicide. Old field successional species will be retained.
 - Plants shall be inspected a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
 - Dead branches will be pruned from plantings.

- Guarantee Requirements**
- A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be replaced at the beginning of the second growing season. At the end of the second growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

- Education of New Occupants**
- The developer shall provide educational information to all property owners within the new development/home about the proper use of forest conservation area.

- Final Inspection and Release of Obligations**
- At the end of the post-construction management and protection period the developer shall submit a certification to the County that all forest conservation areas have remained intact or have been restored to appropriate condition, that the stipulated survival rates have been achieved, and that any permanent protection measures will be maintained by the planer any place. Upon review and acceptance, the County will inform the developer of their release of future obligations related to the Forest Conservation Act.

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 in the soil survey on typical vegetation for 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 white and branched transplants. Container grown stock is recommended but bare-root 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 Easements all mounds rose in the planting area shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following by a periodic herbicide treatment of stump sprouts is recommended. Native tree thinning operations within the rose thicket shall be retained wherever possible. Herbicide treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicide use shall be limited specifically to address woody plant material and shall be applied as per manufacturer's specifications. Care should be taken not to spray planted trees or naturally occurring native tree seedlings. It is recommended that initiation of rose removal begin at least six months prior to planting.

B. Planting and Soil Specifications

Plant material shall be installed in accordance with the Planting Detail and Planting Specifications shown on the Forest Conservation Plan.

Amendments to existing soil will be in accordance with the Planting Specifications shown on the Forest Conservation Plan. Soil disturbance will be limited to individual planting locations.

C. Maintenance of Plantings

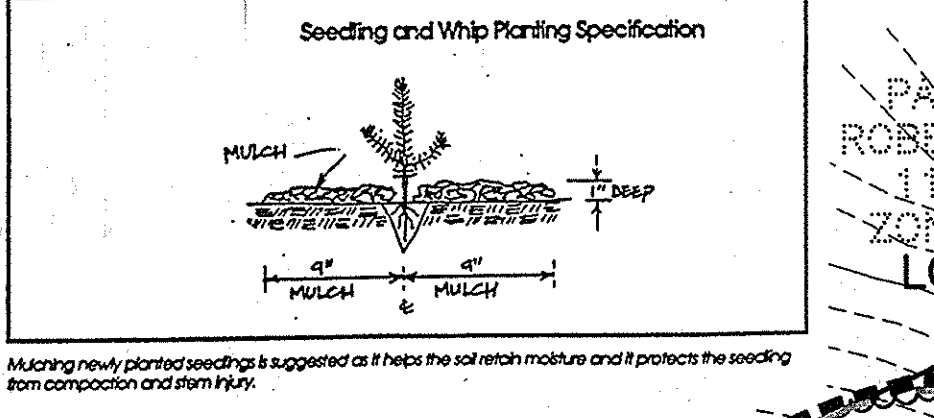
For information regarding maintenance of the reforestation plantings, see Section VIII B.

D. Guarantee Requirements

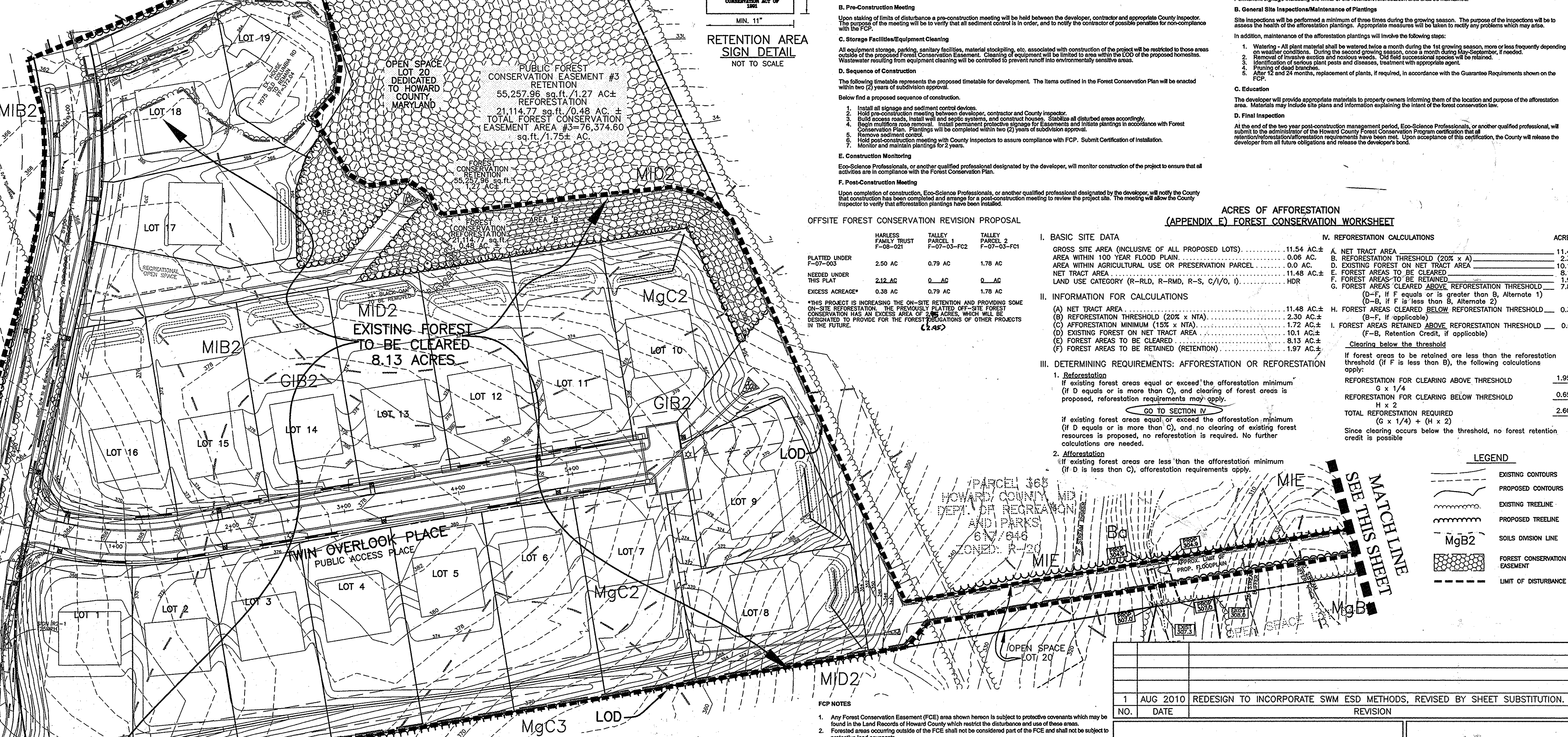
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E. Security for Reforestation

Section 19-1209 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.



Making new planter seedings as specified to help the soil which holds it and protect the seedling from compaction and stem injury.



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: 12-21-14

PLANTING SCHEDULE

FCE #3 - Planting Area A = 5,837 sq. ft.
PLANTING UNITS REQUIRED: 94
PLANTING UNITS PROPOSED: 100

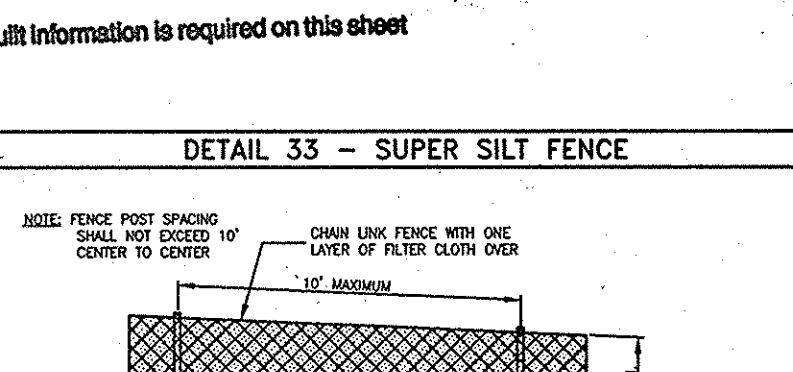
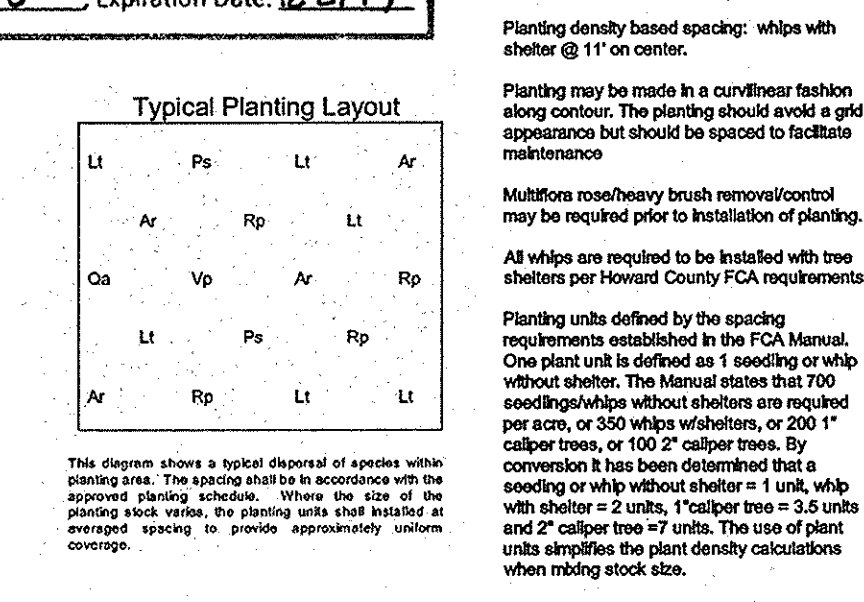
QTY.	SPECIES	SIZE	SPACING
14	Cornus florida - FLOWERING DOGWOOD	2-3" WHIP	11' O.C.
8	Liriodendron tulipifera - POPLAR	2-3" WHIP	11' O.C.
8	Quercus alba - WHITE OAK	2-3" WHIP	11' O.C.
2	Viburnum prunifolium - BLACKHAWK	2-3" WHIP	11' O.C.

TOTAL 50 WHIPS: WHIP PLANTINGS X 2 UNITS/TREE = FCA CREDIT:100 UNITS

FCE #2 - Planting Area B = 15,278 sq. ft.
PLANTING UNITS REQUIRED: 245
PLANTING UNITS PROPOSED: 260

QTY.	SPECIES	SIZE	SPACING
15	Acer rubrum - RED MAPLE	2-3" WHIP	11' O.C.
25	Cornus florida - FLOWERING DOGWOOD	2-3" WHIP	11' O.C.
12	Liriodendron tulipifera - POPLAR	2-3" WHIP	11' O.C.
20	Fraxinus serotina - BLACK CHERRY	2-3" WHIP	11' O.C.
30	Quercus alba - WHITE OAK	2-3" WHIP	11' O.C.
20	Viburnum prunifolium - BLACKHAWK	2-3" WHIP	11' O.C.

TOTAL 130 WHIPS: WHIP PLANTINGS X 2 UNITS/TREE = FCA CREDIT:260 UNITS



Planting Notes:

Planting density based spacing: whips with shelter @ 11' on center.

Planting may be made in a curvilinear fashion along contours. The planting should avoid a grid appearance but should be spaced to facilitate maintenance.

Multiflora rose/heavy brush removal/control may be required prior to installation of planting.

All whips are required to be installed with tree shelters per Howard County FCA requirements.

Planting units defined by the spacing requirements established in the FCA Manual. One plant unit is defined as 1 seedling or whip without shelter. The Manual requires that 100 seedlings/whips without shelter are required per acre, or 50 whips with shelter, or 200 1" caliper trees, or 100 2" caliper trees. By consent it has been determined that a seedling or whip without shelter is 1 unit, whip with shelter is 2 units, 1" caliper tree is 3.5 units and 2" caliper tree is 7 units. The use of plant units simplifies the plant density calculations when using stock size.

- CONSTRUCTION PERIOD PROTECTION PROGRAM**
- Forest Protection Techniques**
 - Soil Protection Area (Critical Root Zone)**
The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of its roots are found. The majority of roots activities for water and nutrients are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.
 - Fencing and Signage**
Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the afforestation area prior to plant installation, as shown on the plan.
 - Pre-Construction Meeting**
Upon signing of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.
 - Storage Facilities/Equipment Cleaning**
All equipment storage, parking, sanitary facilities, material stockpiling, 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 areas within the LOD of the proposed home area. Washwater resulting from equipment cleaning will be contained to prevent runoff into environmentally sensitive areas.
 - Sequence of Construction**
The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

- OFFSITE FOREST CONSERVATION REVISION PROPOSAL**
- | PLATTED UNDER | HARLESS FAMILY TRUST F-08-021 | TALLEY PARCEL 1 F-07-03-FC2 | TALLEY PARCEL 2 F-07-03-FC1 |
|------------------------|-------------------------------|-----------------------------|-----------------------------|
| NEEDED UNDER THIS PLAN | 2.50 AC | 0.79 AC | 1.78 AC |
| EXCESS ACREAGE* | 2.12 AC | 0.42 AC | 0.42 AC |
| | 0.38 AC | 0.79 AC | 1.78 AC |
- *THIS PROJECT IS INCREASING THE ON-SITE RETENTION AND PROVIDING SOME ON-SITE REFORESTATION. THE PREVIOUSLY PLATTED OFF-SITE FOREST CONSERVATION AREA IS BEING REDESIGNED TO PROVIDE FOR THE FOREST REFORESTATION OF OTHER PROJECTS IN THE FUTURE.

ACRES OF AFFORESTATION (APPENDIX E) FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA		N. REFORESTATION CALCULATIONS	
GROSS SITE AREA (INCLUDING OF ALL PROPOSED LOTS)	11.54 AC±	A. NET TRACT AREA	11.48 AC±
AREA WITHIN 100 YEAR FLOOD PLAIN	0.06 AC	B. REFORESTATION THRESHOLD (20% x A)	2.30
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	0.00 AC	D. EXISTING FOREST ON NET TRACT AREA	10.10
NET TRACT AREA	11.48 AC±	E. FOREST AREAS TO BE CLEARED	8.13
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/V/O, I)	HR	F. FOREST AREAS TO BE RETAINED	1.97
		G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D-F, if F equals or is greater than B, Alternate 1) (D-B, if F is less than B, Alternate 2)	7.80
		H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B-F, if applicable)	0.33
		I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F-B, Retention Credit, if applicable)	0.00
		Clearing below the threshold	
		If forest areas to be retained are less than the reforestation threshold (if F is less than B), the following calculations apply:	
		REFORESTATION FOR CLEARING ABOVE THRESHOLD	1.95
		REFORESTATION FOR CLEARING BELOW THRESHOLD	0.65
		TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	2.60

Since clearing occurs below the threshold, no forest retention credit is possible.

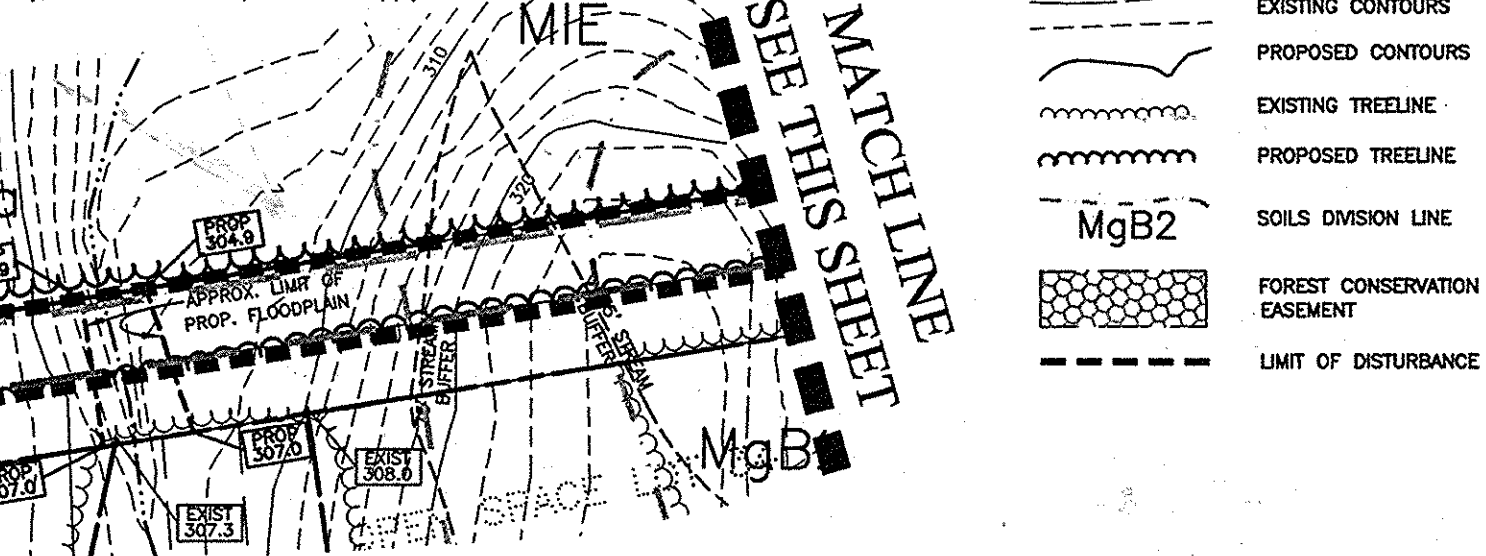
- III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION**
- 1. Reforestation**
If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and clearing of forest areas is proposed, reforestation requirements may apply.
GO TO SECTION IV
If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and no clearing of existing forest resources is proposed, no reforestation is required. No further calculations are needed.
 - 2. Afforestation**
If existing forest areas are less than the afforestation minimum (if D is less than C), afforestation requirements apply.

- FCP NOTES**
- Any Forest Conservation Easement (FCE) area shown herein 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.
 - Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
 - Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
 - There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
 - No stockpiling, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
 - Temporary fencing shall be used to protect forest resources during construction. Fencing shall be installed along limits of disturbance occurring within 50 feet of the proposed FCE limits.
 - Permanent signage will be posted at all 50-100 foot intervals along all FCE limits.
 - The Forest Conservation Act requirements for this project will be met through the onsite retention of 197 acres of red tract area forest and 0.48 acres of onsite reforestation within the limits of a Forest Conservation Easement, and offsite reforestation of 2.21 acres on the Harless Farm Trust, Parcel 215, Lot 2. The previously platted off-site forest conservation (Harless Farm and Talley Property) has an excess area of 2.88 acres, which will be designated to provide for the forest obligations of other projects in the future.
 - A surety for the reforestation obligations and the onsite retention proposed will be required. The surety amount has been calculated as follows:
Onsite Retention - 1.97 acres @ \$9,200/acre = \$18,124.00
Reforestation - 2.60 acres @ \$9,500/acre = \$24,700.00
\$42,824.00

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. J. ... 11-9-10
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
W. J. ... 12/10/10
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT
W. J. ... 12/3/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION



NO.	DATE	REVISION
1	AUG 2010	REDESIGN TO INCORPORATE SWM ESD METHODS, REVISED BY SHEET SUBSTITUTION.

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE A SUITE 418 A ELICOTT CITY, MARYLAND 21043
(P) 410-464-4105 (F) 410-464-4106
80 THOMAS JOHNSON DRIVE FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3508
WWW.BE-CIVILENGINEERING.COM

OWNER/DEVELOPER:	PROJECT:
HB DEVELOPMENT, INC. 3631 NORFOLK AVENUE LAUREL, MARYLAND 20723 410-792-2565	KINDLER OVERLOOK LOTS 1-19 AND OPEN SPACE 20 REVISED FINAL ROAD CONSTRUCTION PLAN LOCATION: TAX MAP: 41 P/O PARCEL: 385 AND 395 GRID: 18 ZONED: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	DATE:
FOREST CONSERVATION PLAN	JULY 2006 AUGUST 2010
DESIGN: CAM	DRAFT: MAN
CHECK: CAM	PROJECT NO. 1328
SCALE: AS SHOWN	SHEET 9 OF 13

Easement IA: PLANTING AREA: 1.3 Ac.

Qty	Botanical Name	Common Name	Size	Credit/Plant	Total Credit
43	Acer rubrum	Red Maple	1" cal.	217.8	9365.4
43	Betula nigra	River Birch	1" cal.	217.8	9365.4
43	Cercis canadensis	Redbud	1" cal.	217.8	9365.4
43	Liquidambar styraciflua	Sweetgum	1" cal.	217.8	9365.4
44	Platanus occidentalis	Sycamore	1" cal.	217.8	9589.2
44	Quercus palustris	Pin Oak	1" cal.	217.8	9589.2

260 Total Plantings 56,628 s.f. = 1.3 Ac.

Easement IB: PLANTING AREA: 1.2 Ac.

Qty	Botanical Name	Common Name	Size	Credit/Plant	Total Credit
40	Acer rubrum	Red Maple	1" cal.	217.8	8712
40	Betula nigra	River Birch	1" cal.	217.8	8712
40	Cercis canadensis	Redbud	1" cal.	217.8	8712
40	Liquidambar styraciflua	Sweetgum	1" cal.	217.8	8712
40	Platanus occidentalis	Sycamore	1" cal.	217.8	8712
40	Quercus palustris	Pin Oak	1" cal.	217.8	8712

240 Total Plantings 52,272 s.f. = 1.2 Ac.

FOREST CONSERVATION EASEMENT TABLE

EASEMENT	TYPE	AREA (ACRES)
IA	Reforestation	1.3
IB	Reforestation	1.2
TOTAL		2.5

Planting Areas Description

The proposed planting areas totalling 2.5 Ac. is proposed entirely within stream buffer, wetland, and wetland buffer areas. The current land use is pasture, making it an ideal area to plant and provide a forested stream buffer.

Planting will utilize a variety of species as shown in the proposed planting schedule. Stock will be randomly placed per the details on this sheet. All container grown stock will utilize tree shelters. The entire area will be stabilized with the described seed mix cover crop.

Plant Selection and Density Spacing Requirements.

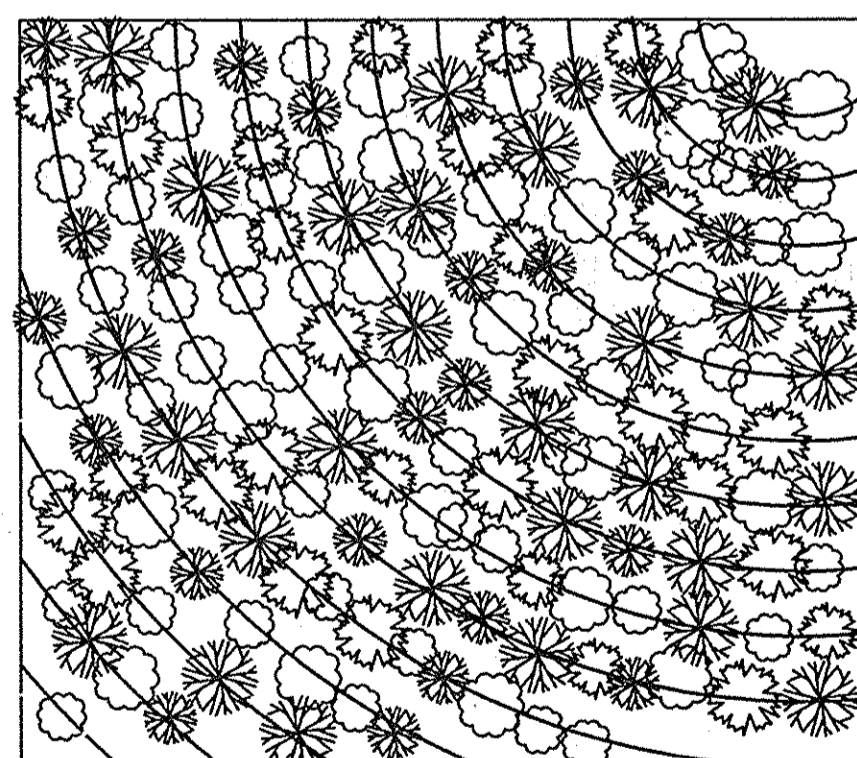
Planting Material Size and Density Planting: Planting size and density shall be varied with a combination of planting stock. Planting quantity and spacing are based on square footage credit, which varies by material size. A total of 43,560 sq. ft. of planting credit must be fulfilled for each acre planted. This credit can be fulfilled with any combination of material size in accordance with the following chart.

Material Size	Spacing	TPA	Sq. Ft. Credit per Plant	Comments
2" caliper trees	20' x 20'	100	435.6	B & B
1" caliper trees	15' x 15'	200	217.8	B & B
seedlings or whips	11' x 11'	350	125	Container 1-3 gal w/tree shelters
seedlings or shrubs	8' x 8'	700	62	Bare root

Native Seed Mix

Percentage	Botanical Name	Common Name
25%	Agrostis alba	Redtop
25%	Carex vulpinoides	Fox Sedge
25%	Alopecurus pratensis	Meadow Fox Tail
20%	Andropogon scoparius	Little Bluestem
5%	Chrysanthemum leucan themum	Ox Eye Daisy

CURVILINEAR RANDOMIZED PLANTING



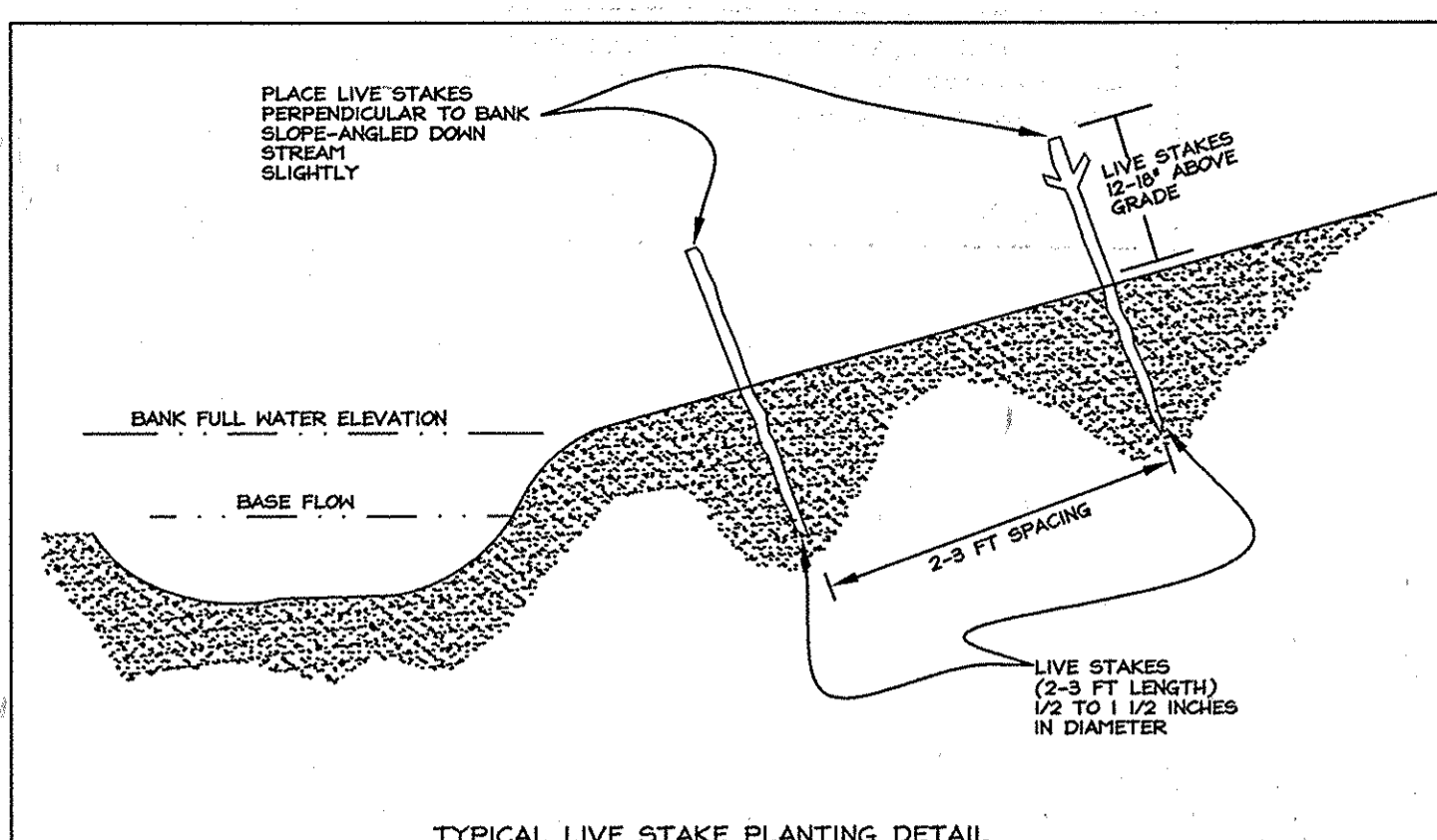
PLANT PLACEMENT DETAIL NOT TO SCALE

- MIX TREE AND SHRUB SPECIES IN THE STAGING AREA.
- SET THE GUIDE CURVILINEAR LINE AS CLOSE TO CONTOUR AS POSSIBLE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
 CHIEF DEVELOPMENT ENGINEERING DIVISION
[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT

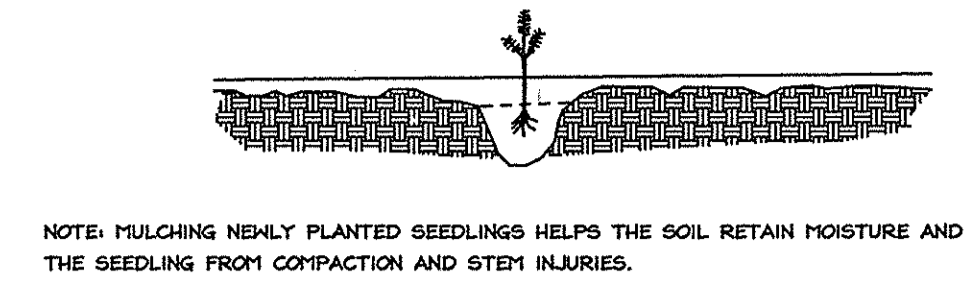
DATE: 1/16/02
 DATE: 1/14/05



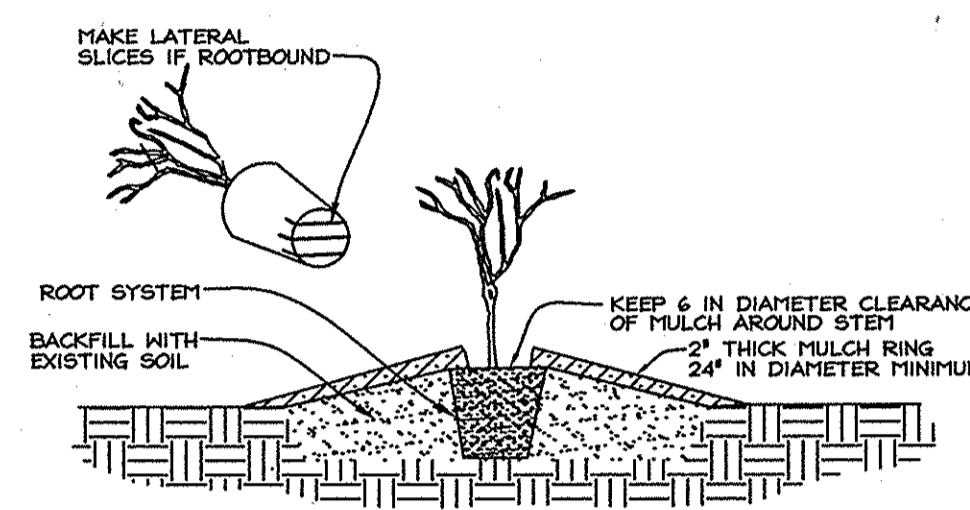
SPECIFICATIONS FOR LIVE STAKING

- All cuttings shall be freshly cut from live woody plants of the species indicated, such as willow, alder, and shrub dogwood, during the dormant season.
- Basal end of stake should be cut on an angle with the top cut square.
- Prepare cuttings from dormant .5 in. to 2 in. diameter stock cut in 10in. to 3 feet long stakes.
- Keep cuttings moist at all times.
- Install stakes with deadblow hammer, angled downstream, on 3.0 ft. centers.
- Replace live stakes that split or become mushroomed.
- Install stakes with buds pointing upwards.

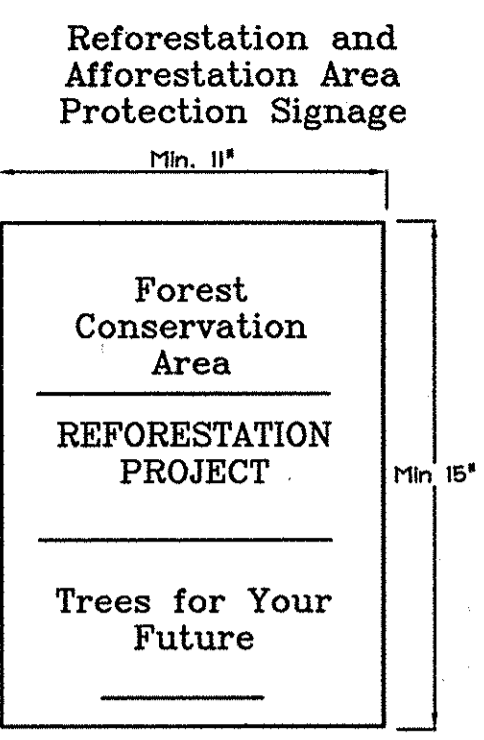
SEEDLING AND WHIP PLANTING



- NOTE: MULCHING NEWLY PLANTED SEEDLINGS HELPS THE SOIL RETAIN MOISTURE AND THE SEEDLING FROM COMPACTION AND STEM INJURIES.
- CORRECT PLANTING DEPTH
- CORRECT AT SAME DEPTH AS SEEDLING WAS GROWN IN NURSERY
- INCORRECT TOO DEEP AND ROOT IS BENT
- INCORRECT TOO SHALLOW AND ROOTS ARE EXPOSED



- CONTAINER PLANTING NOT TO SCALE
- PLANTING PROCEDURE FOR CONTAINER GROWN PLANTS
- REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER
 - USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL
 - PLANT SHRUBS ON FORMED UP MOUNDS 4" ABOVE THE EXISTING GRADE WHEN HIGH WATER TABLE CONDITIONS EXIST, OTHERWISE PLANT FLUSH WITH EXISTING GRADE.
 - PLANTING HOLE TO BE 2-3 TIMES THE DIAMETER OF THE CONTAINER.
 - INSERT FERTILIZER TABLET, BACKFILL 2/3 OF THE ROOT BALL AND WATER.
 - AFTER WATER PERCOLATES, BACKFILL HOLE TO TOP OF ROOT BALL AND GENTLY TAMP SOIL TO FIRM CONTACT WITH PLANT.
 - APPLY MULCH RING AROUND PLANT KEEPING A 6" IN CLEARANCE FROM STEM.

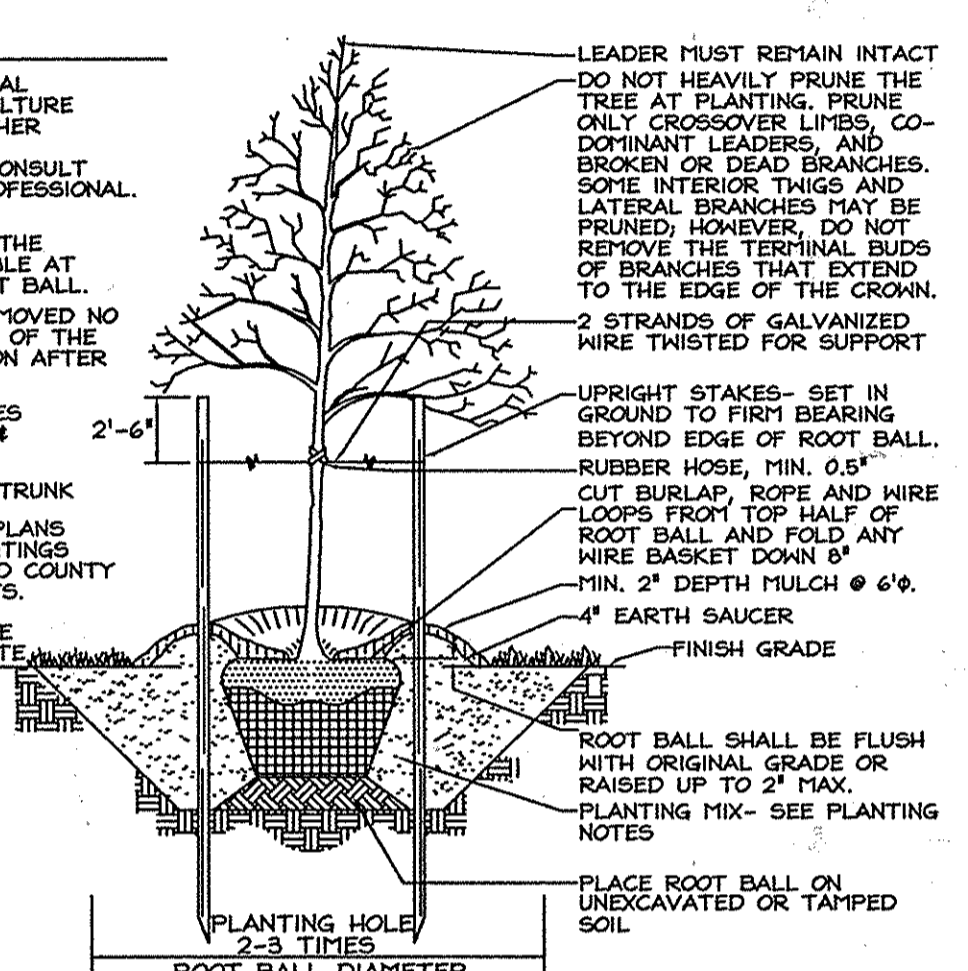


SIGN DETAIL: PERMANENT SIGN

SIGNAGE NOTE: All tree protection signs shall be placed on metal 'I' posts or pressure treated wood poles. No attachment of signs to trees is permitted. Signs shall be placed every 75' to 100' as shown on plan view. Signage shall remain in place in perpetuity.

NOTES

- CONSULT INTERNATIONAL SOCIETY OF ARBORICULTURE GUIDELINES FOR FURTHER DETAILS OF PLANTING SPECIFICATIONS, OR CONSULT WITH A QUALIFIED PROFESSIONAL.
- EACH TREE SHALL BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL.
- STAKES SHALL BE REMOVED NO LATER THAN THE END OF THE FIRST GROWING SEASON AFTER PLANTING.
- PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
- KEEP MULCH 1" FROM TRUNK
- SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
- TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.

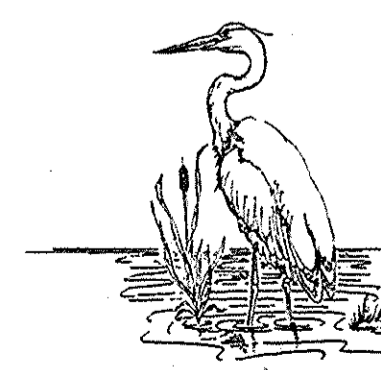


TYPICAL TREE PLANTING AND STAKING

DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE

POST-CONSTRUCTION MANAGEMENT PROGRAM

- Reforestation Area Monitoring Notes**
- Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control, invasive plant management, mowing or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
 - The minimum survival rate shall be 75% of the total number of trees planted per acre at the end of the two year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted up to 50% toward the total survival number if they are healthy native species at least 12 inches tall.
 - Survival will be determined by a stratified random sample of the plantings. The species composition of the sample population should be proportionate to the amount of each species in the entire planting to be sampled.
 - Effective monitoring will assess plant survivability during the first growing season and make recommendations for reinforcement planting if required at that time.
- Forest Tree Protection and Management Notes**
- Any significant changes made to the Forest Conservation Plan shall be made with the prior approval of the Howard County Dept. Of Planning and Zoning.
 - Forest protection and management to be in accordance with a forest management plan. The plan shall be prepared by a MD. licensed forester to facilitate the landowners management objectives, such as wildlife enhancement, water quality, aesthetics, forest products, etc.
 - Future forest harvests may be conducted under a Howard County approved forest harvest plan, prepared by a MD. licensed forester.



EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 6839 HOWARD LANE
 ELKTON, MARYLAND 21075
 TEL: (410) 667-5210 FAX: (410) 796-1566

OWNER
 Harless Farm Trust
 14965 Frederick Road
 Woodbine, MD 21797

Surety in the amount of \$54,450.00 shall be posted as part of the Developer's Agreement for Kindler Overlook, F-07-03, for 2.5 ac/108,900 sq. ft.

OFFSITE FOREST MITIGATION PLAN
for KINDLER OVERLOOK
(LOTS 1-19 and Open Space Lot 20)
on E. ALEXANDER ADAMS AND MARION HARLESS PROPERTY
 TAX MAP 7 GRID II # 17 PARCEL 215
 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: *[Signature]*
 DRAWN BY: RAB/STW
 CHECKED BY: SLW
 SCALE: As Shown
 DATE: Dec. 18, 2007
 .O. No.: 3336
 SHEET No. 11 OF 13

FSH Associates
 Engineers Planners Surveyors
 6339 Howard Lane, Elkton, MD 21075
 Tel: 410-667-5200 Fax: 410-751-1562
 E-mail: info@fsher.com

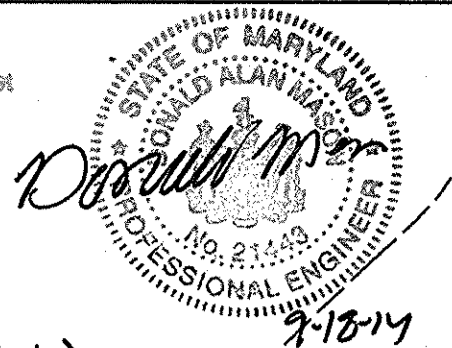
No As-Built information is required on this sheet

[Professional Seal]
 Donald M. M...
 No. 21443
 PROFESSIONAL ENGINEER
 7-18-14

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: 12-31-14

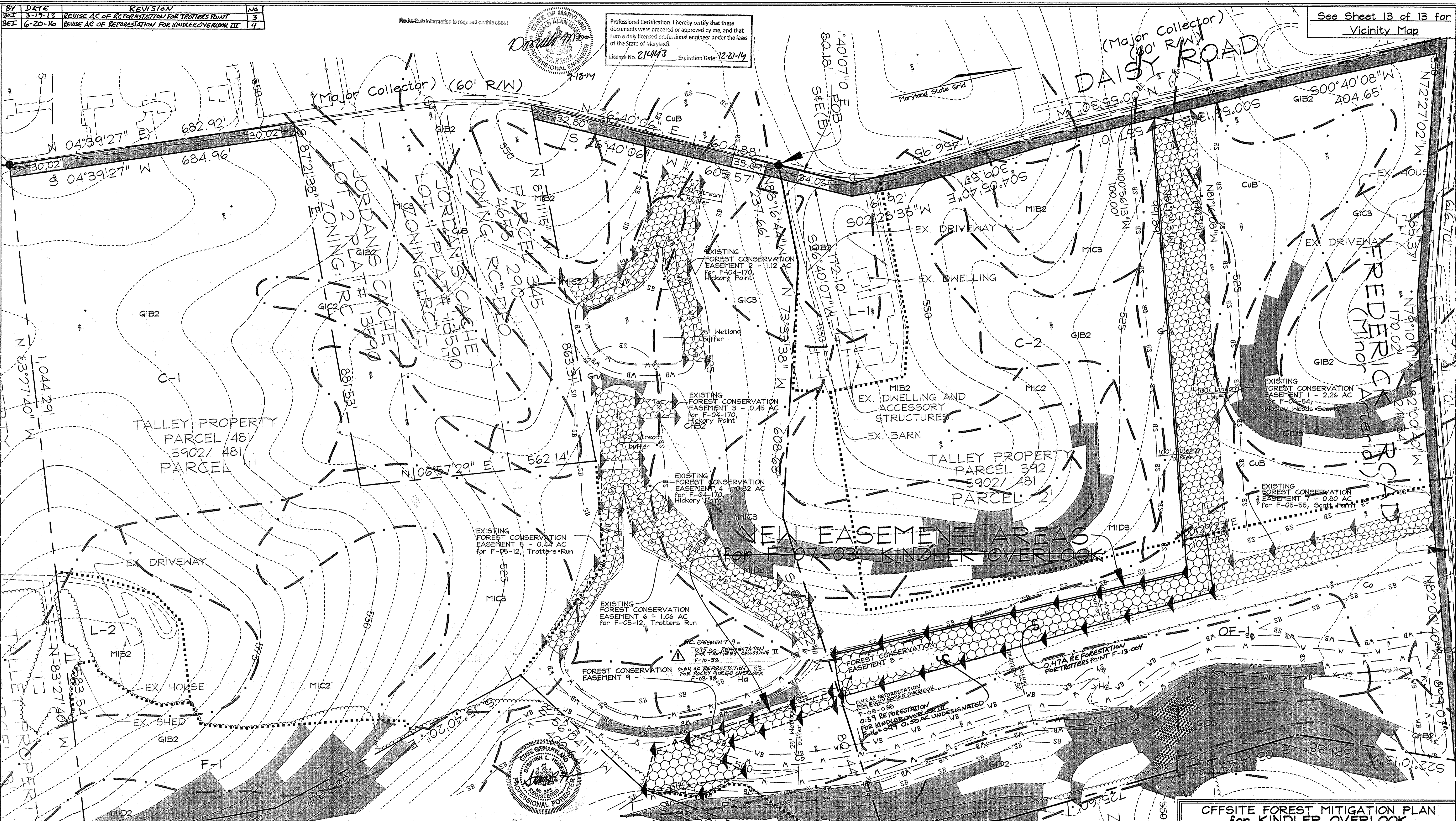
BY	DATE	REVISION	NO.
BEI	3-17-13	REVISE AC OF REFORESTATION FOR TROTTERS POINT	3
BEI	6-20-16	REVISE AC OF REFORESTATION FOR KINDLER OVERLOOK III	4

All Built Information is required 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: 12-21-14

See Sheet 13 of 13 for
 Vicinity Map



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/4/18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 1/4/18
 CHIEF, DIVISION OF LAND DEVELOPMENT

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
CHB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
Co	Codorus silt loam	B
CuB	Cornus silt loam, local alluvium, 3 to 8 percent slopes	B
GIB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GIC2	Glenelg loam, 8 to 15 percent slopes, moderately eroded	B
GIC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
GID2	Glenelg loam, 15 to 25 percent slopes, moderately eroded	B
GID3	Glenelg loam, 15 to 25 percent slopes, severely eroded	B
GnA	Glenville silt loam, 0 to 3 percent slopes	C
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
Ha	Hatboro silt loam	D
MIB2	Minor loam, 3 to 8 percent slopes, moderately eroded	B
MIC2	Minor loam, 8 to 15 percent slopes, moderately eroded	B
MIC3	Minor loam, 8 to 15 percent slopes, severely eroded	B
MID2	Minor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Minor loam, 15 to 25 percent slopes, severely eroded	B
Mt	Mt. Airy channery loam, 25 to 45 percent slopes	A

SYMBOL	DESCRIPTION
[Symbol]	Forest Easement Signage
[Symbol]	Forest Conservation Easement
[Symbol]	Existing Contour 5
[Symbol]	Existing Contour 25
[Symbol]	Property Boundary Line
[Symbol]	Soils Division Line
[Symbol]	Forest Stand Type Boundary
[Symbol]	Existing Stream
[Symbol]	Stream Buffer
[Symbol]	Wetlands
[Symbol]	Wetlands Buffer

OWNER
 Talley Family LLP
 1525 Daisy Road
 Woodbine, MD 21747
 410-442-2300

OFFSITE FOREST MITIGATION PLAN
 for KINDLER OVERLOOK
 (LOTS 1-19 and Open Space Lot 20)
 on Talley Property Parcel 1 & 2
 RE-03-02 DS2, P.N. 15816, F-04-054 FC, P.N. 17192 &
 RE-03-02 DS1, P.N. 15815, F-03-28-S, P.N. 16071
 TAX MAP 8 GRID 13 PARCEL 392 & 431
 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: RAB
 DRAWN BY: SMM
 CHECKED BY: SLH
 SCALE: 1"=100'
 DATE: Dec. 18, 2007
 H.O. No. 2421
 SHEET No. 2 of 13

EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 6338 HOWARD LANE
 GREENBELT, MARYLAND 21075
 TEL: (410) 597-0320 FAX: (410) 796-1562

FOREST STAND ANALYSIS TABLE											
KEY	TYPE OF COMMUNITY	AREA Acres	SOIL INFORMATION			EXISTING VEGETATION (Type and approx. %)	STAND CHARACTERISTICS			FOREST AREA IN SENSITIVE ENVIRONMENTS	
			SOIL TYPE	TYPICAL FOREST COVER	WOODLAND SUITABILITY INDEX		HABITAT VALUE	SIZE AVG. DIAM.	AGE		GENERAL CONDITIONS
F-1	Upland Hardwoods	4.47	MID2 MIB2 GIB2	Mixed upland Hardwood	65-74 65-74 75-84	fair fair good	Black oak 60% White oak 20% Hickory 20%	12-18 10-16 6-12	46-72 50-80 36-72	Poor Heavy understory grazing	1.2 Ac. Steep slopes 15-25%
OF-1	Open Field	41.01	Co Ha GIB2	Mixed water Tolerant Hardwoods	75-84 65-74	good good					
			GID3 GID2 MIC3 MIB3 CHB2	Mixed upland Hardwood	75-84 75-84 65-74 65-74	good good fair fair					N/A
C-1	Crop Field	27.16	GnA GIB2 GIC2 MIC2 MIB2	Mixed water Tolerant Hardwoods	65-74 75-84 75-84 65-74 65-74	good good good fair fair					N/A
C-2	Crop Field	32.21	Co GIB2 GIC3 GID3 MIB2 MIC2	Mixed water Tolerant Hardwoods	75-84 75-84 65-74 65-74	good good good fair					N/A
L-1	Lawn (Farm Stead)	2.86	GIB2	Mixed upland Hardwood	65-74	fair					N/A
L-2	Lawn	1.62	MIB2	Mixed upland Hardwood	65-74	fair					N/A

Forest Stand Narrative
 F-1: This forest stand is 4.47 Ac. in size and contains steep slopes. The canopy is dominated by black oak, Quercus velutina, white oak, Quercus alba and mockernut hickory, Carya tomentosa. The area is currently grazed and the understory is sparse.
 OF-1: This 41.01 Ac. area surrounds an existing house and various farm out buildings. The area contains lawn, and ornamental tree plantings. No environmentally sensitive areas are covered by L-1.
 L-1: This 2.86 Ac. area surrounds an existing house located on the south west corner of the property. The area contains lawn and various ornamental plantings. The area contains no environmentally sensitive areas.
 C-1: This 27.16 Ac. crop area is currently in active crop land production. There are 12 environmentally sensitive areas.
 C-2: This 32.21 Ac. crop area is currently in active crop production. The area contains environmentally sensitive areas including streams and associated buffers.
 OF-1: This 41.01 Ac. open field area contains grazing pastures and open field. The area contains wetlands, streams and associated buffers.

Easement 8: PLANTING AREA: 1.78 Ac.

1.78 Ac = 77,537 Sq. ft.
 If 20 trees @ 2' cal = 20 trees x 435.6 s.f. (see size table chart) = 8712 SF then 77,537 SF - 8,712 SF = 68,825 SF remain
 68,825 SF = 1.58 Ac
 1.58 Ac x 200 TPA (for 1' cal.) = 316 additional trees required @ 1' cal.

Qty	Botanical Name	Common Name	Size	Credit/Plant	Total Credit
70	Acer rubrum	Red Maple	1' cal.	217.8	15,246
2	Acer rubrum	Red Maple	2' cal.	435.6	871
47	Betula nigra	River Birch	1' cal.	217.8	10,237
3	Betula nigra	River Birch	2' cal.	435.6	1307
4	Cercis canadensis	Redbud	2' cal.	435.6	1742
47	Liquidambar styraciflua	Sweetgum	1' cal.	217.8	10,237
10	Liriodendron tulipifera	Tulip Poplar	1' cal.	217.8	2178
8	Nyssa sylvatica	Black Gum	1' cal.	217.8	1742
47	Platanus occidentalis	Sycamore	1' cal.	217.8	10,237
10	Platanus occidentalis	Sycamore	2' cal.	435.6	4356
9	Quercus alba	White Oak	1' cal.	217.8	1960
15	Quercus bi-color	Swamp White Oak	1' cal.	217.8	3267
57	Quercus palustris	Pin Oak	1' cal.	217.8	12,415
1	Quercus prinus	Chestnut Oak	2' cal.	435.6	436
6	Quercus rubra	Red Oak	1' cal.	217.8	1307

336 Total Plantings
 (20 trees @ 2' Cal and 316 trees @ 1' Cal.)
 77,538 s.f. = 1.78 Ac.

Easement 9: PLANTING AREA: 0.79 Ac.

34,412 Sq. ft. (200 TPA) 1' cal. planting
 0.79 acre x 200 TPA = 158 trees required

Qty	Botanical Name	Common Name	Size	Credit/Plant	Total Credit
32	Acer rubrum	Red Maple	1' cal.	217.8	6970
32	Betula nigra	River Birch	1' cal.	217.8	6970
32	Liquidambar styraciflua	Sweetgum	1' cal.	217.8	6970
32	Platanus occidentalis	Sycamore	1' cal.	217.8	6970
30	Quercus palustris	Pin Oak	1' cal.	217.8	6534

158 Total Plantings
 34,414 s.f. = 0.79 Ac.

Native Seed Mix

Percentage	Botanical Name	Common Name
25%	Agrostis alba	Redtop
25%	Carex vulpinoidea	Fox Sedge
25%	Alopecurus pratensis	Meadow Fox Tail
20%	Andropogon scoparius	Little Bluestem
5%	Chrysanthemum leucanthemum	Ox Eye Daisy

Surety in the amount of \$55,974.50 shall be posted as part of the Developer's Agreement for 2.57 ac/11,949 sq. ft.

Reforestation Area Monitoring Notes

- Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control, invasive plant management, mowing or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
- The minimum survival rate shall be 75% of the total number of trees planted per acre at the end of the two year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted up to 50% toward the total survival number if they are healthy native species at least 12 inches tall.
- Survival will be determined by a stratified random sample of the plantings. The species composition of the sample population should be proportionate to the amount of each species in the entire planting to be sampled.
- Effective monitoring will assess plant survival during the first growing season and make recommendations for reinforcement planting if required at that time.

Forest Tree Protection and Management Notes

- Any significant changes made to the Forest Conservation Plan shall be made with the prior approval of the Howard County Dept. Of Planning and Zoning.
- Forest protection and management to be in accordance with a forest management plan. The plan shall be prepared by a MID. licensed forester to facilitate the landowners management objectives, such as wildlife enhancement, water quality, aesthetics, forest products, etc.
- Future forest harvests may be conducted under a Howard County approved forest harvest plan, prepared by a MID. licensed forester.

Planting Area Description

The proposed planting areas, totalling 2.57 Ac. is proposed entirely within stream and wetland buffer areas. The current land use is pasture land, making it an ideal area to plant and provide a forested stream buffer.

Planting will utilize a variety of sizes and species as shown in the proposed planting schedule. The larger stock will be placed further upland. All container grown stock will utilize tree shelters. The entire area will be stabilized with the described seed mix cover crop. The planting as specified will more than satisfy the required acreage.

Plant Selection and Density Spacing Requirements.

Planting Material Size and Density Planting:
 Planting size and density shall be varied with a combination of planting stock. Planting quantity and spacing are based on square footage credit, which varies by material size. A total of 43,560 sq. ft. of planting credit must be fulfilled for each acre planted. This credit can be fulfilled with any combination of material size in accordance with the following chart.

Material Size	Spacing	TPA	Sq. Ft. Credit per Plant	Comments
2" caliper trees	20' x 20'	100	435.6	B & B
1" caliper trees	15' x 15'	200	217.8	B & B
seedlings or whips	11' x 11'	350	125	Container 1-3 gal w/tree shelters
seedlings or shrubs	8' x 8'	700	62	Bare root

Planting Area Description

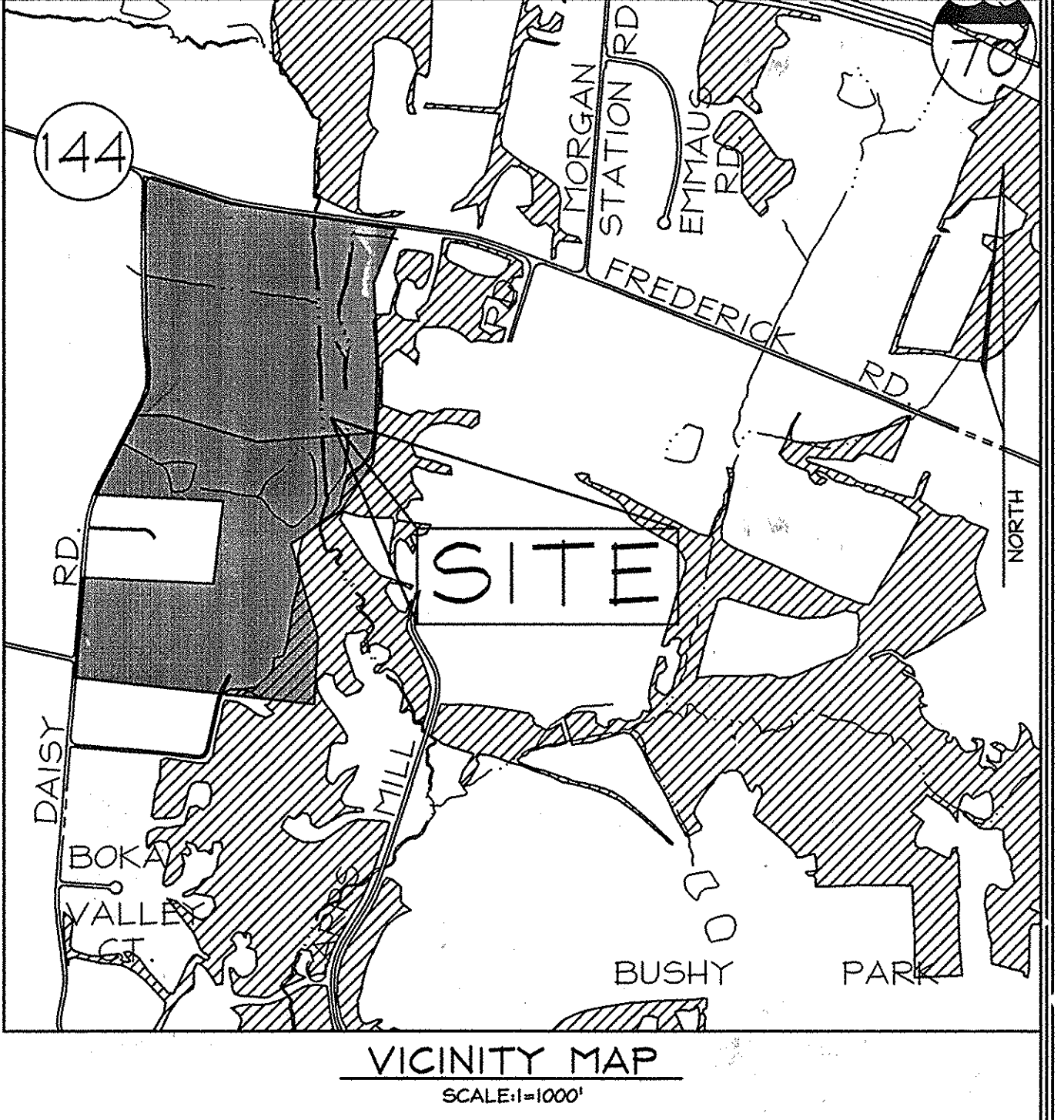
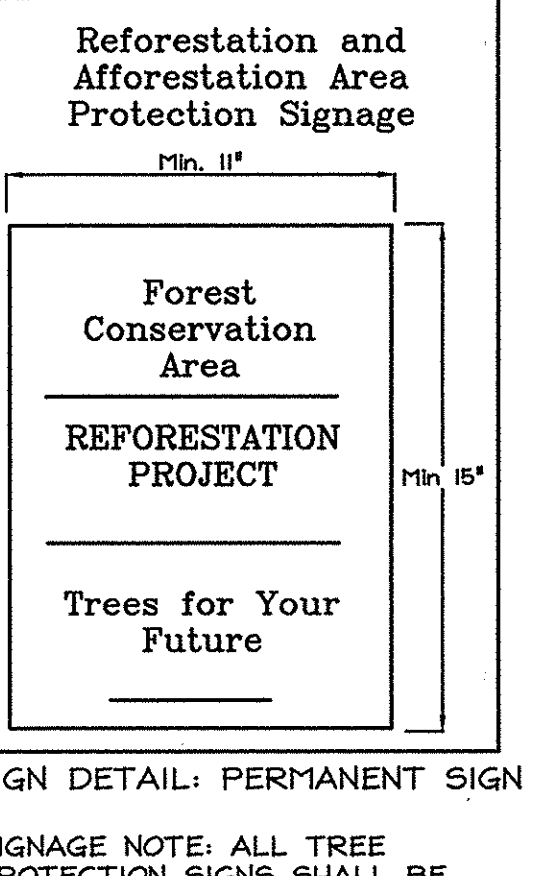
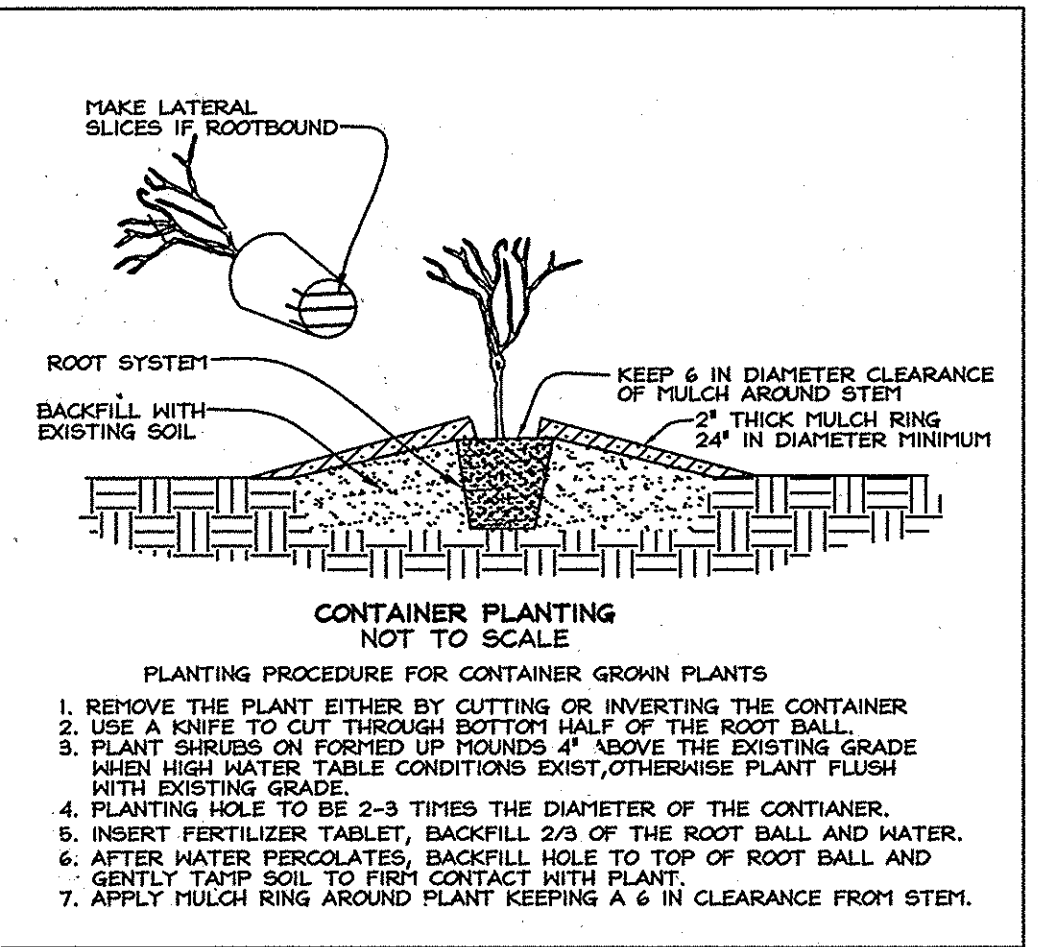
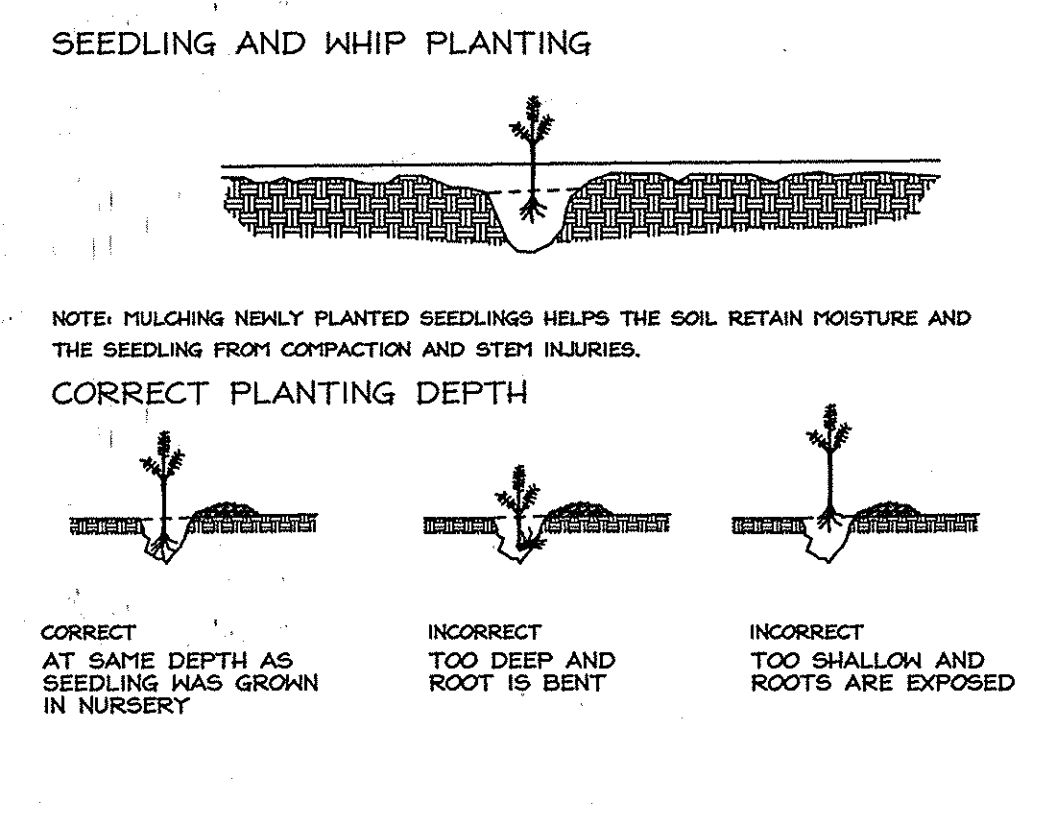
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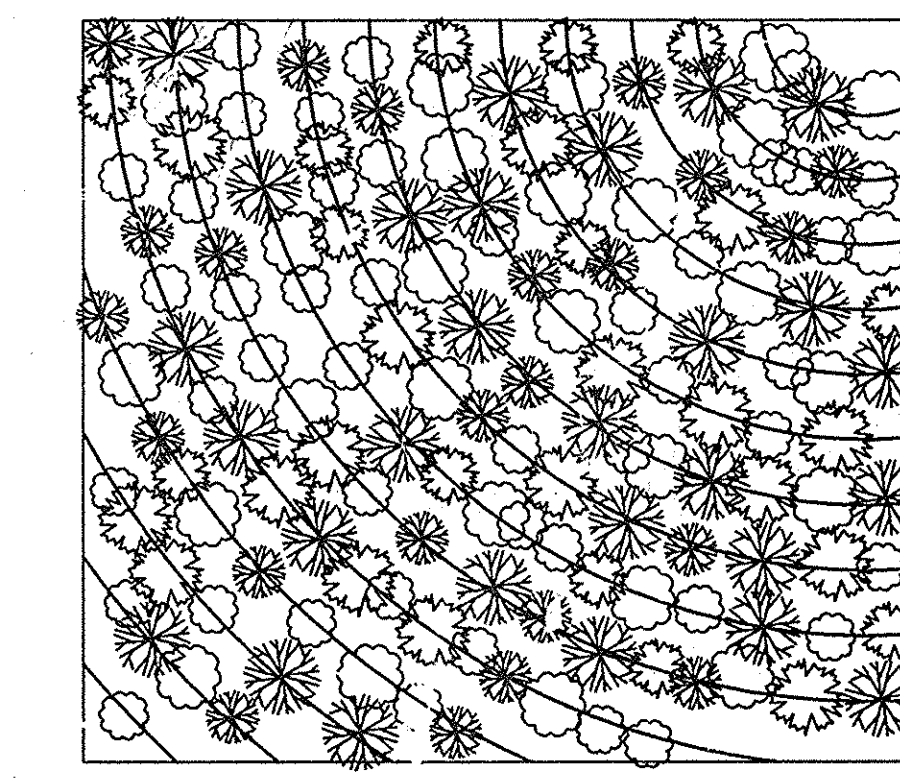
Reforestation Area Planting Notes

- Initial planting inspection and certification required. Planting contractor to notify Howard County after planting is complete.
- Reforestation areas may be planted as soon as reasonable to do so. Late winter- early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as conditions warrants.
- Soil amendments and fertilization recommendations will be made based upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-8-16 analysis designed to last 5-8 years contained in polyethylene perforated bags such as manufactured by ADCO Hanks, P.O. Box 310 Hollis, N.Y. 11423 or approved equivalent.
- Plant materials shall be planted in accordance with the planting diagram, planting details and planting schedule.
- Plant stock must be protected from desiccation at all times prior to planting. Materials held for planting shall be moistened and placed in cool shaded areas until ready for placement.
- Planting materials shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standards for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, breakage, desiccation, insect or disease must be replaced.
- Newly planted trees may require watering at least once per week during the first growing season depending on rainfall in order to get established. The initial planting operation should allow for watering during installation to completely soak backfill materials.
- Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of wood alcohol.
- Planting holes should be excavated to a minimum diameter of 2 1/2 to 3 times the diameter of the root ball or container. Mechanical auguring is preferred with scarification of the sides of each hole.
- All nursery stock may be sprayed with deer repellent containing Bitrex such as Repellex(TM). All nursery stock to be grown with deer repellent tablets in growing medium, such as Repellex Tablets.

FOREST CONSERVATION EASEMENT TABLE

EASEMENT	TYPE	AREA (ACRES)
8	Reforestation	1.78
9	Reforestation	0.79
TOTAL		2.57

CURVILINEAR RANDOMIZED PLANTING



- MIX TREE AND SHRUB SPECIES IN THE STAGING AREA.
- SET THE GUIDE CURVILINEAR LINE AS CLOSE TO CONTOUR AS POSSIBLE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/4/08
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE

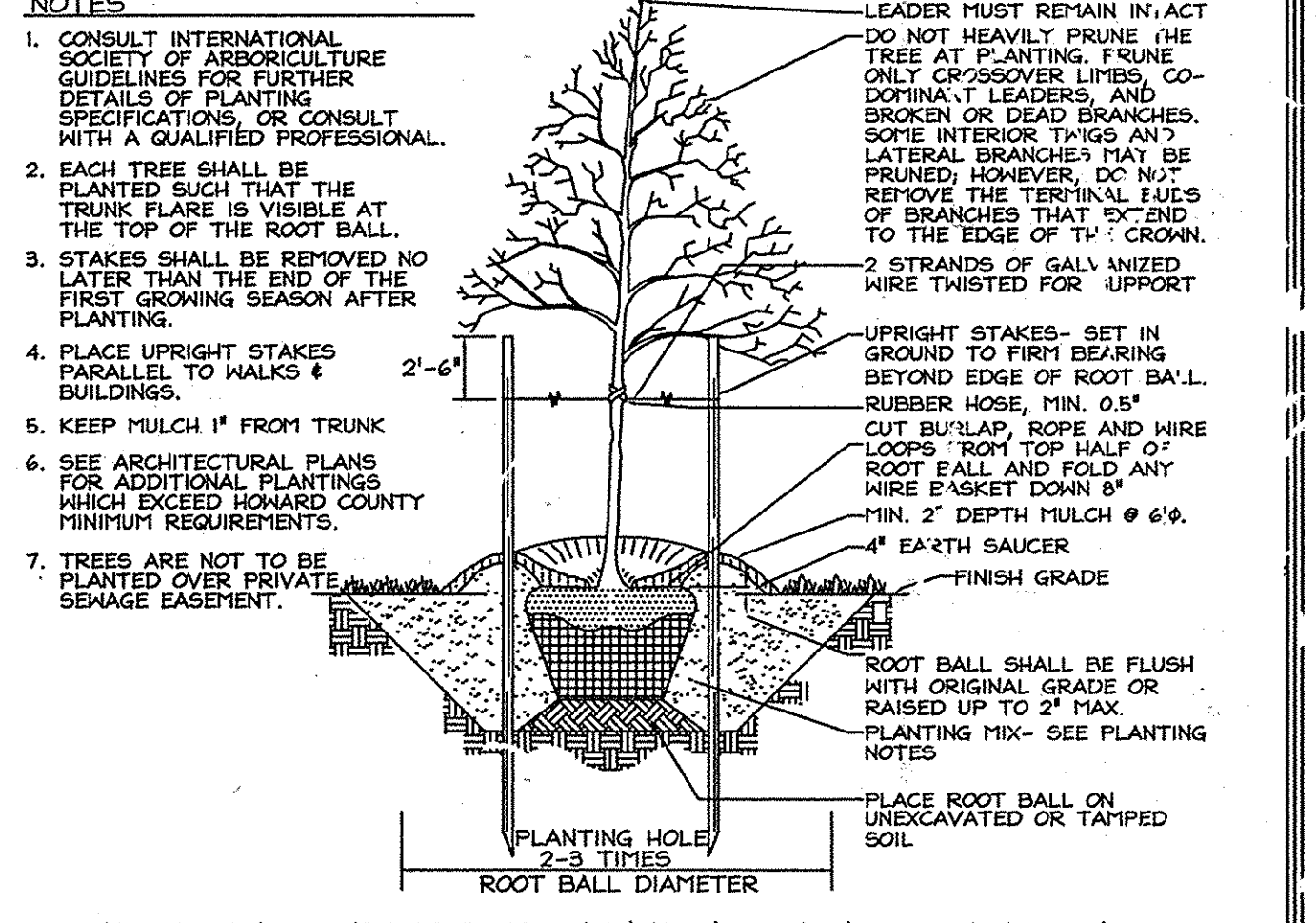
[Signature] 1/4/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

No As-Built information is required on this sheet

[Signature]
 Dorell M. ...
 PROFESSIONAL ENGINEER
 No. 21443
 1-18-14

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: 12-31-14



OFFSITE FOREST MITIGATION PLAN for KINDLER OVERLOOK
 (LOTS 1-19 and Open Space Lot 20)
 on Talley Property Parcel 1 & 2
 RE-03-02 DS2, P.N. 15816, F-04-054 FC,
 S.N. 17192, TM 8, TM PARCEL 32
 TAX MAP 8 GRID 15 PARCEL 309
 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: RAB
 DRAWN BY: SHM
 CHECKED BY: BLH
 SCALE: As Shown
 DATE: Dec. 18, 2007
 P.L.O. No.: 2421
 SHEET 3 OF 19

EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 6339 HOWARD LANE
 ELKDRIDGE, MARYLAND 21075
 TEL: (410) 767-5210 FAX: (410) 766-1568

FSH Associates
 Engineers Planners Surveyors
 6339 Howard Lane Elkridge, MD 21075
 Tel: 410-567-5200 Fax: 410-766-1562

OWNER
 Talley Family L.L.P.
 1525 Daisy Road
 Woodbine, MD 21797
 410-442-2300

