

ENVIRONMENTAL CONCEPT PLAN DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD PARCEL 'A', DIAMOND AVENUE, AND PARCEL 'E'

SITE ANALYSIS

1. SITE AREA: PARCEL A: 4.04 AC. L.O.D. AREA: PARCEL A: 455 AC. PARCEL E: 2.23 AC. PARCEL E: 214 AC. ROAD B: 0.50 AC. ROAD B: 1.02 AC.
2. THERE ARE STREAMS AND WETLANDS ON THE ECP PLAN AREA BUT ONLY A SMALL AREA (40 SQ. FT.) OF THE STREAM BUFFER IS BEING DISTURBED BY THE CONSTRUCTION OF ROAD 'B' STORM DRAIN OUTFALL.
3. THERE IS A FLOOD PLAIN PRESENT ON THE ECP PLAN AREA OF WHICH A SMALL AMOUNT IS BEING DISTURBED BY THE INSTALLATION OF ROAD 'B' STORM DRAIN OUTFALL. APPLICATION FOR PERMISSION FOR ESSENTIAL DISTURBANCE HAS BEEN MADE AS PART OF THE ROAD 'B' FINAL PLANS.
4. AREA OF 15%+ SLOPES: 0.41 AC. THERE ARE NO STEEP SLOPES (25% OR GREATER) IN EXCESS OF 20,000 CONTIGUOUS SQUARE FEET ON THE SITE.
5. THERE ARE HIGHLY ERODIBLE SOILS ON SITE. MORE STRINGENT SEEDING AND STABILIZATION METHODS MAY BE EXPECTED. SOIL TABLE PROVIDED ON PAGE 5.
6. LIMIT OF DISTURBED AREA: 1.02 AC.
7. PROPOSED USES: PARCEL A: 4.04 AC. DMIA ROAD B: STREET TYPE 3 PARCEL E: 2.23 AC. DMIA
8. PROPOSED PERVIOUS AREA: 136 AC.
9. PROPOSED IMPERVIOUS AREA: 456 AC.
10. COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN AND SITE DEVELOPMENT PLAN STAGES. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS).
11. THE ENVIRONMENTAL CONCEPT PLAN IS FOR STORMWATER MANAGEMENT PURPOSES ONLY. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION AND/OR SITE DEVELOPMENT PLAN.
12. THIS SITE IS NOT SUBJECT TO HOWARD COUNTY FOREST CONSERVATION REQUIREMENTS SINCE IT IS IN THE ZONING DISTRICT AND QUALIFIES FOR EXEMPTION 16.12020(W)(M). A PLANNED UNIT DEVELOPMENT WHICH HAS PRELIMINARY DEVELOPMENT PLAN APPROVAL AND 50% OR MORE OF THE LAND IS RECORDED AND SUBSTANTIALLY DEVELOPED BEFORE DECEMBER 31, 1992.
13. PREVIOUS FILE NUMBERS - F 14-40C, F 91-10, FDP-DC-CRESCENT-A, AND FDP-DC-MSH-1.
14. ALL AREAS WITHIN DOWNTOWN COLUMBIA, INCLUDING THE SITE, HAVE BEEN DETERMINED BY HOWARD COUNTY TO BE REDEVELOPING. THIS SITE WILL UTILIZE THE REDEVELOPMENT CRITERIA ESTABLISHED BY MDE AS SET FORTH IN THE REDEVELOPMENT EXAMPLES DATED OCTOBER, 2010.
15. THE SITE AREA FALLS WITHIN THE HOWARD COUNTY SCD SOIL MAP #18

DESIGN NARRATIVE

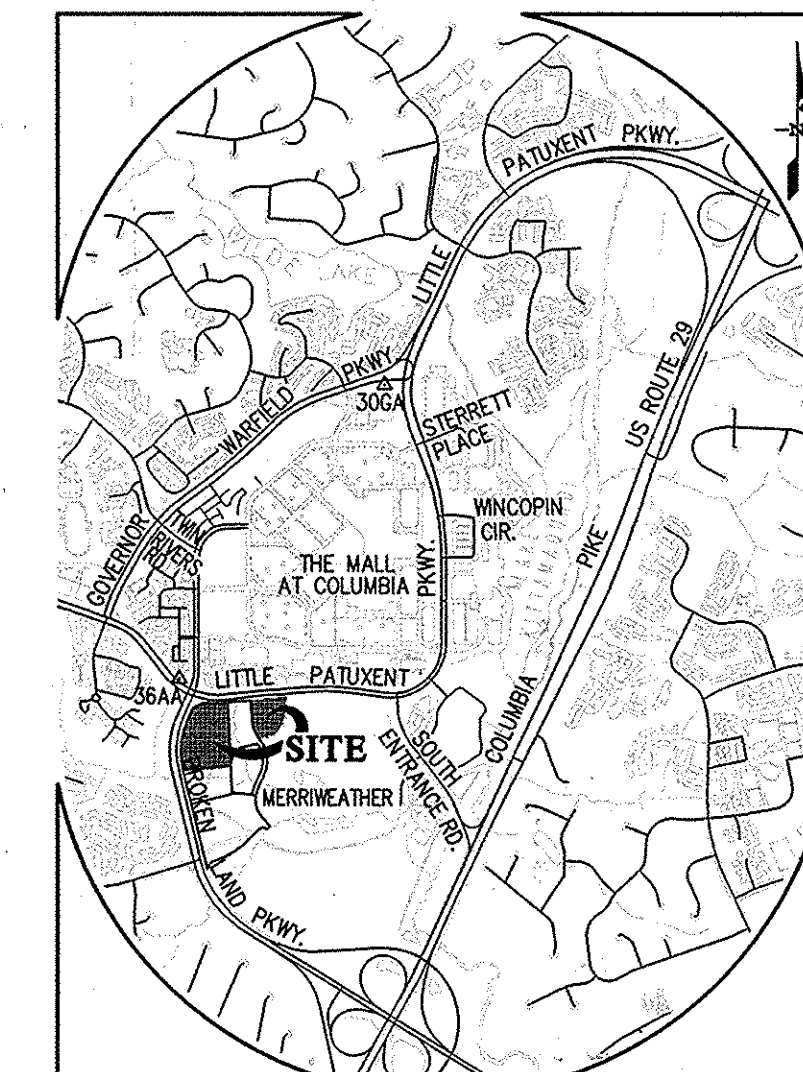
The proposed development on the subject parcels is intended to meet all of the goals of environmental site design. Parcel A is intended to serve as a temporary parking area until the proposed parking structure is constructed. The site is partially forested at this time, but the zoning is New Town and therefore is exempt from the forest conservation requirements. All surface flow on proposed impervious and pervious areas is being conveyed to and treated by stormwater management facilities.

The proposed sediment controls for construction include: silt fences, earth dikes, stone construction entrances, gabion outlet structures, and stone outlet structures. These devices will be used to ensure that the surrounding environment and landscape is not disturbed by the construction efforts on-site. Water will pass through either the silt fence, gabion outlet structures, or stone outlet structures before leaving the site, all of which will remove sedimentation and dissipate flow velocity.

All of the proposed site is intended to drain to a stormwater management facility. Four types of stormwater devices are being employed which include: micro-bioretention, Filterra systems, pervious paving, and rainwater harvesting. Each micro-bio will have an overflow inlet which will allow rainfall from larger storm events to safely pass via the stormdrain system. Each micro-bioretention facility will be provided with an underdrain and an overflow inlet outfalling to the storm drain system. All Filterra structures with the exception of the one in the west loading area are to be constructed in tandem with a standard inlet to which they will outfall. The proposed pervious paving will have an underdrain system and a required stone subbase layer to treat runoff. The rainwater harvesting system will be utilized for on-site irrigation as well as off-site sand seepage system that will aid in re-hydrating the existing wetlands. These proposed facilities will provide the required ESD volume for the project area.

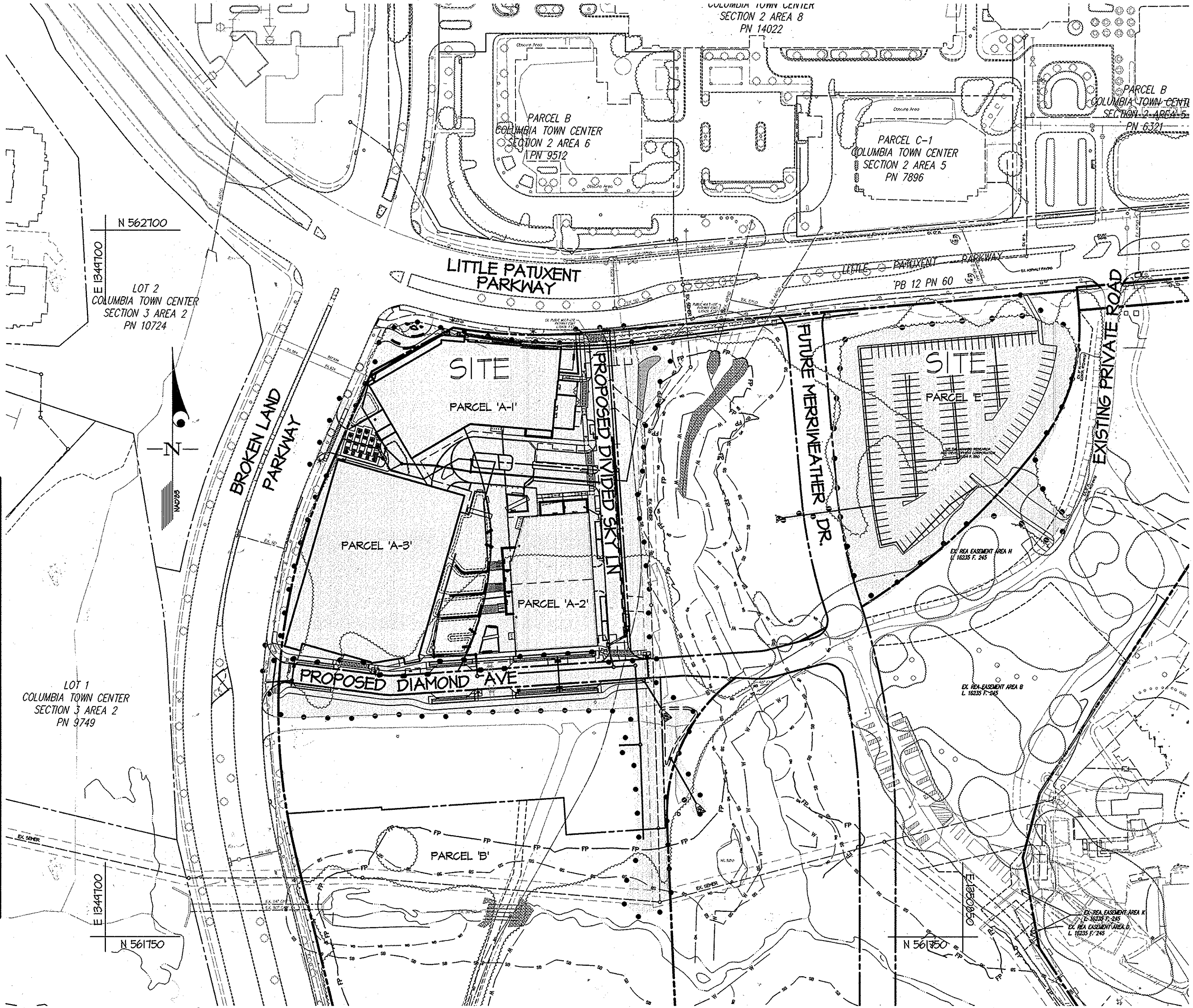
HOWARD COUNTY CONTROL STATIONS
306A
NORTHING: 566,053.5119
EASTING: 1352,111.5307
ELEVATION: 334.870
(LATEST ADJ. NOV. 2008)

36AA
NORTHING: 562,804.8537
EASTING: 1349,906.1701
ELEVATION: 354.151
(LATEST ADJ. NOV. 2008)

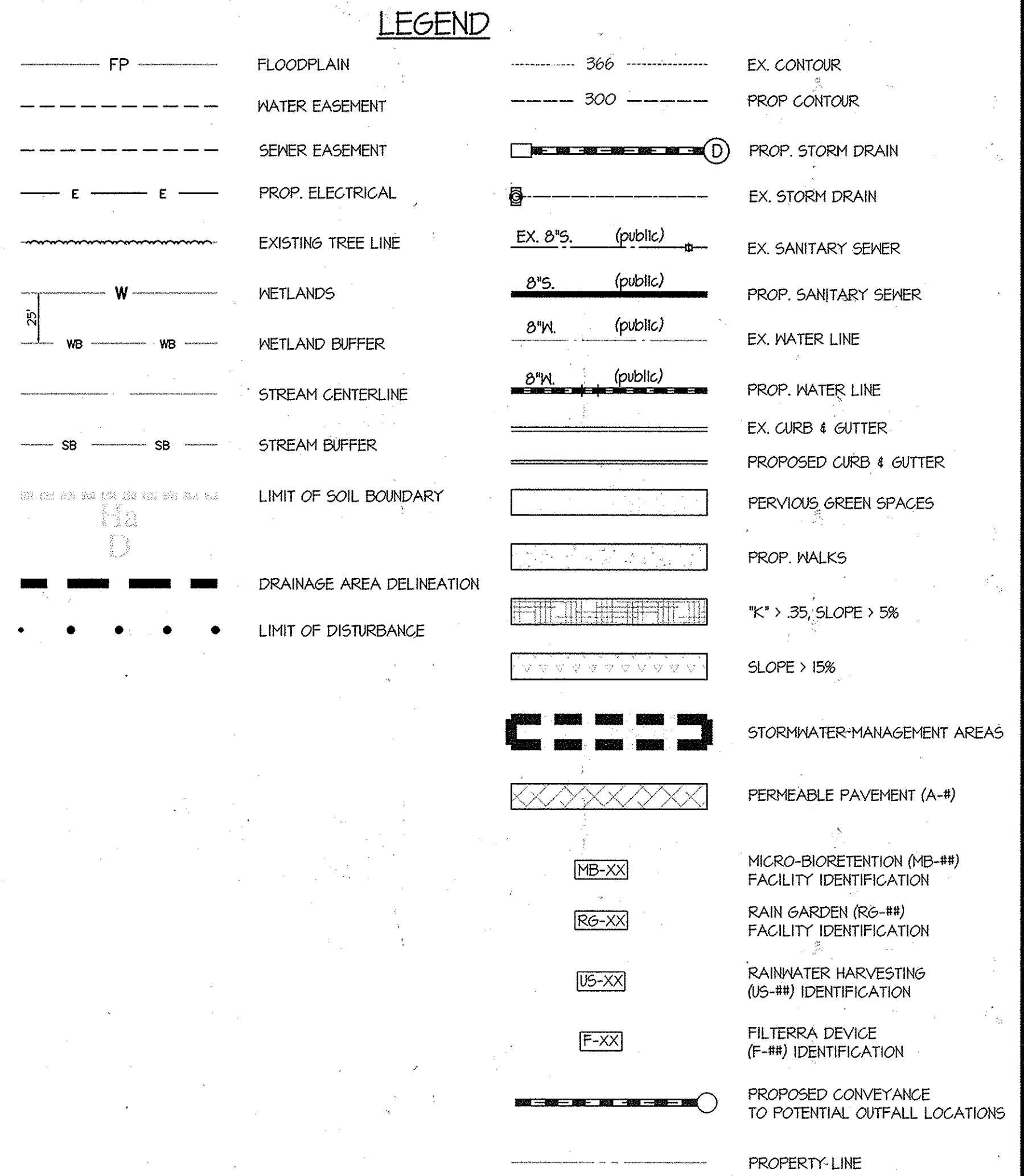


VICINITY MAP
SCALE: 1" = 2,000'

ADC MAP PAGE 33, GRID AI



AREA OVERVIEW
SCALE: 1" = 100'



Biohabitats
The Solis Building
2500 River Road
Baltimore, MD 21214
410-528-1000
www.biohabitats.com

MEMORANDUM
Date: May 4, 2015
To: Heather Parcells, Department of Planning and Zoning, Development Engineering Division
From: Chris Shea, Biohabitats, Inc.
Re: CTC Crescent - Parcel A
Subject: Rainwater Harvesting and Seepage Design

Stormwater management on Downtown Crescent Parcel A will likely require a combination of biohabitats and pervious paving. One of the biohabitats identified is rainwater harvesting, as a viable solution that enables minimum footprint and can be placed below grade. The objective of this report is to determine if rainwater harvesting is a viable option for Parcel A and to provide design recommendations for the rainwater harvesting system. For Parcel A, two potential uses, or detentions, for harvested rainwater have been identified. The potential options to be explored are to: 1) collect rainwater from the roof of the building and store it in a storage tank on-site; 2) collect rainwater from the adjacent natural area by discharging into a sand seepage basin. This memorandum summarizes the calculations and design recommendations for both options.

Impaction
Rainwater harvested from Parcel A is currently proposed to be stored in a 4,000 gallon tank system. This system will need to be designed in a 72-hour period. The impaction volume for Parcel A will determine how often the tank will need to be emptied. The impaction volume is determined by the impaction volume of the site and assuming the impaction volume will require a stormwater impaction, the estimated impaction volume for Parcel A is 4,000 gallons. The impaction volume is 4,000 gallons. The impaction volume is 4,000 gallons. The impaction volume is 4,000 gallons.

Table 1. Impaction Demand for Parcel A

Month	Net monthly (gal)	Impaction Demand (gal)	Impaction Demand (ft ³)	24 Hr. 72 Hr. Demand (ft ³)
Jan	0	0	0	0
Feb	0	0	0	0
Mar	0	0	0	0
Apr	0	0	0	0
May	4373	5794	1109	117
Jun	5029	6792	1640	214
Jul	3235	2029	1126	218
Aug	4491	6204	1450	134
Sep	5196	4370	1065	142
Oct	1563	3194	667	187
Nov	0	0	0	0
Dec	0	0	0	0
TOTAL	24,157	33,824	7,243	779

*Assumes all impaction (into stormwater) area will be impaction parking with a medium impaction rate.
*Assumes a landscaped area of 20,000 sq. ft.

Table 2. Sand Seepage Basin

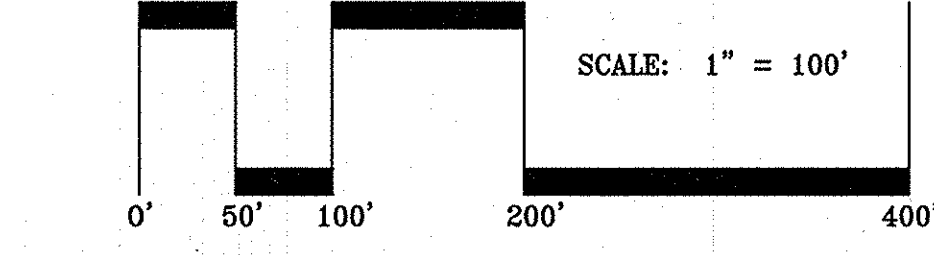
Basin	Length (ft)	Width (ft)	Seepage Rate (ft ³ /hr)	Capacity (cubic feet)
Basin A	30	10	0.025	72,000
Basin B	150	18	0.025	7,200
Basin C	150	15	0.025	4,800

Conclusions
From these preliminary calculations, it appears that there will not be a significant 72-hour impaction volume on Parcel A. Sand seepage basins located on adjacent property provide sufficient capacity to filter the 4,000 gallon tank water quality volume in less than 72 hours. Basin A, located just west of Parcel A, and Basin B, located just east of Parcel A, have the capacity to filter 72,000 and 7,200 gallons, respectively, in 72 hours. Basin C, located south of Parcel A and north of Stream Reach B, has the capacity to filter 4,800 gallons in 72 hours, and may provide supplementary water quality volume from Parcel A as well as future development on adjacent parcels. Basin D, located on the south side of Stream Reach B, has the capacity to filter 6,000 gallons in 72 hours.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Heather Parcells
Chief, Division of Land Development
Date: 9/15/15

Chris Shea
Chief, Development Engineering Division
Date: 9/15/15



GLWGUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-890-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DES. XXX DRN. XXX CHK. CKG

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10221 WINCOPIN CIRCLE
SUITE 300
COLUMBIA, MD 21044
ATTN: BOB JENKINS
(410) 964 - 4800

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 12325
EXPIRATION DATE: MAY 26, 2016

9/11/15 *Chris Shea*

COVER SHEET
**DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
PARCELS A-1, A-2, A-3, DIAMOND AVENUE, AND PARCEL E**
GREEN MIXED USE BUILDINGS - OFFICE, RESTAURANT AND RETAIL; TEMPORARY PARKING LOT
PART OF PARCEL 527
ELECTION DISTRICT No. 5
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	15019
DATE	TAX MAP - GRID	SHEET
MAY, 2015	36 - 01	1 OF 5

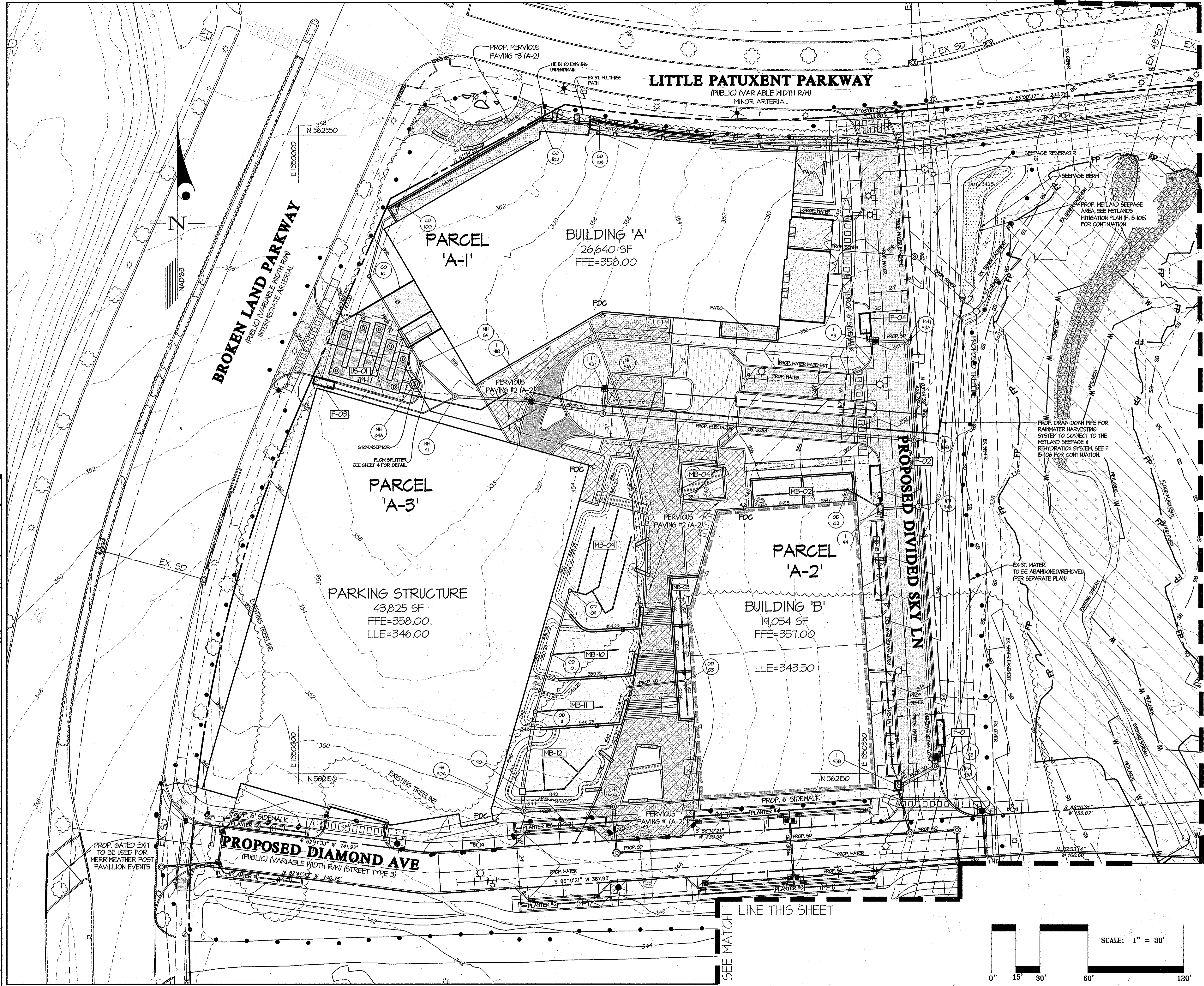
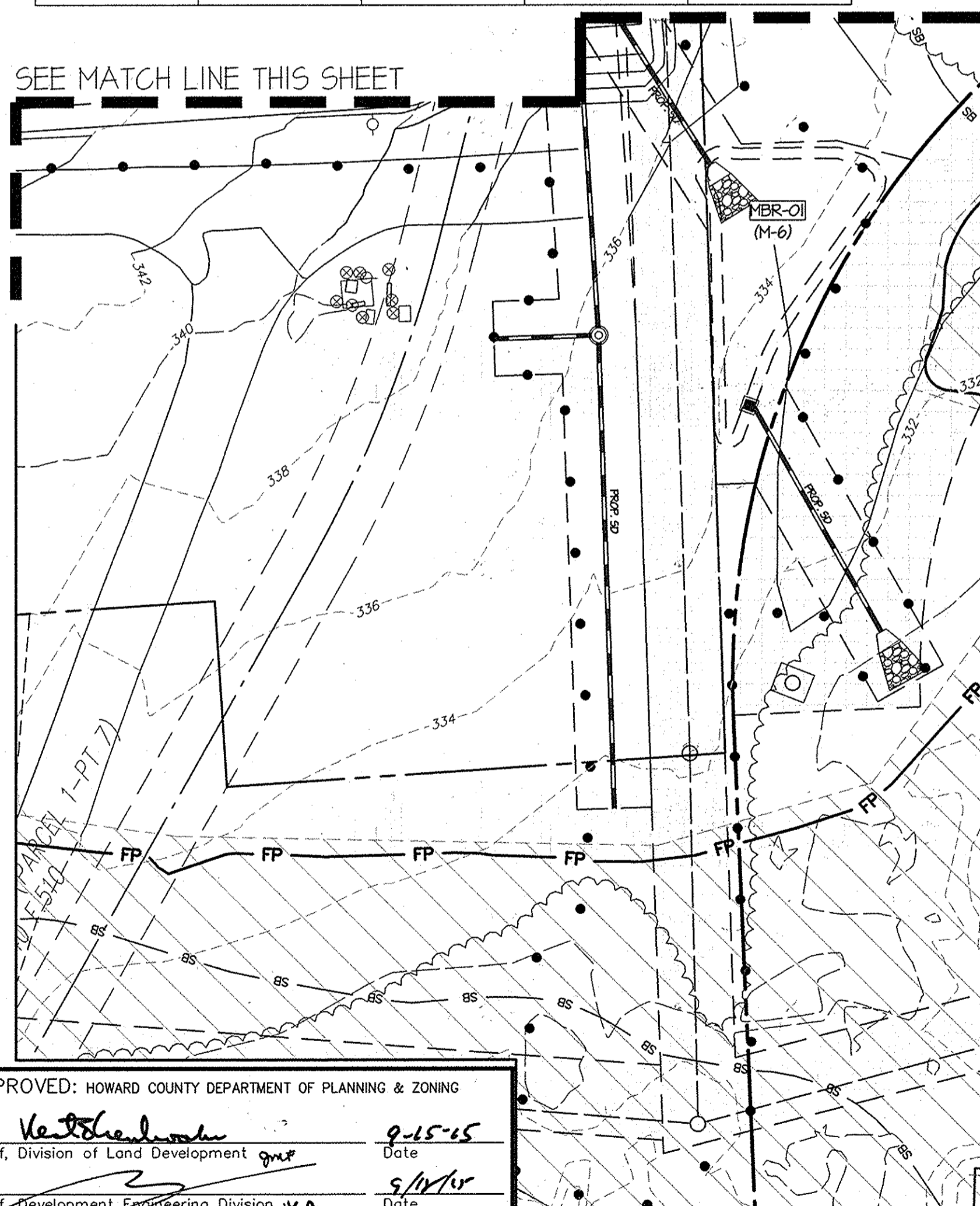
STORMWATER MANAGEMENT FOR DIAMOND AVE

FACILITY	DRAINAGE AREA (SQ. FT.)	ESDv (CU. FT.) (Pe = 1.45")	ESDv (CU. FT.) (Pe = 1.00")	ESDv PROVIDED (CU. FT.)
PLANTER 1	2550	340	200	351
PLANTER 2	4524	643	355	380
PLANTER 3	10313	1511	804	133
PLANTER 4	4884	1511	715	133
PLANTER 5	4474	685	351	380
PLANTER 6	3203	440	251	351
MBR-01	4300	35	18	2501
TOTAL ESDv PROVIDED				5424
TOTAL ESDv REQUIRED				5381

STORMWATER MANAGEMENT FOR PARCEL A

FACILITY	DRAINAGE AREA	ESDv (Pe=2.2")	ESDv (Pe=1")	ESDv PROVIDED
US-01	28346	4937	2244	5774
MB-1A	3053	460	209	419
MB-1B	1716	240	109	283
MB-02	7159	1080	491	1276
MB-03	10105	1631	741	1153
MB-04	4437	685	311	720
MB-09	24400	3534	1606	4176
MB-10	9141	1245	566	1471
MB-11	8434	1138	517	1832
MB-12	13570	1829	831	2448
F-01	7130	---	442	442
F-02	12485	---	740	740
F-03	4800	---	286	286
F-04	6642	---	487	487
A1	6114	---	---	1090
A2	12698	---	---	2492
TOTAL	160230	REQ: 25074	N/A	25090

SEE MATCH LINE THIS SHEET



MATCH LINE SEE SHEET 3

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 [Signature] 9-15-15
 Chief, Division of Land Development Date
 [Signature] 5/14/15
 Chief, Development Engineering Division Date

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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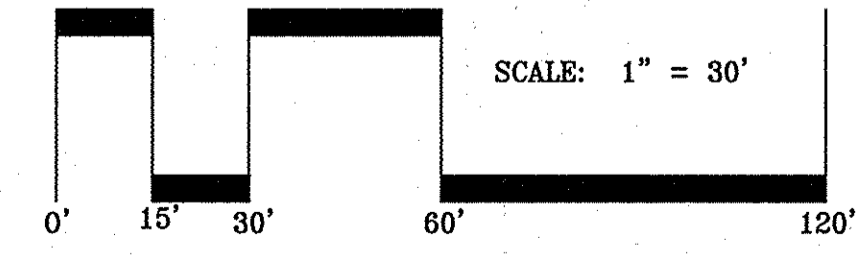
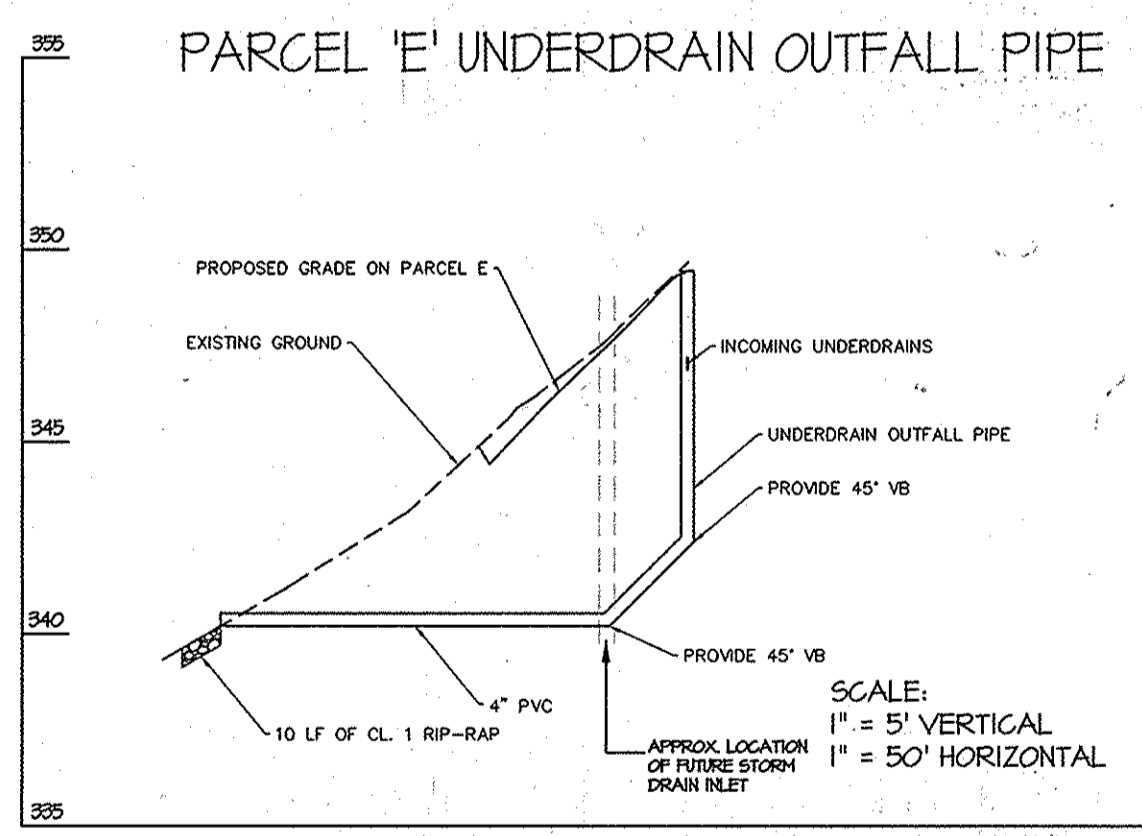
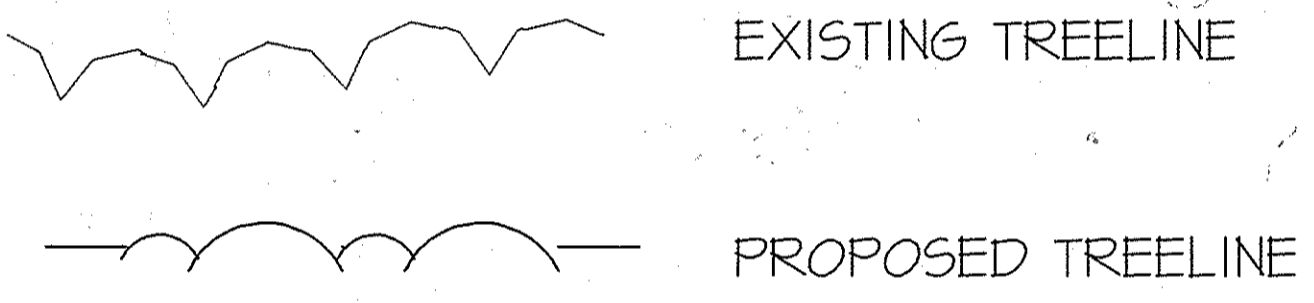
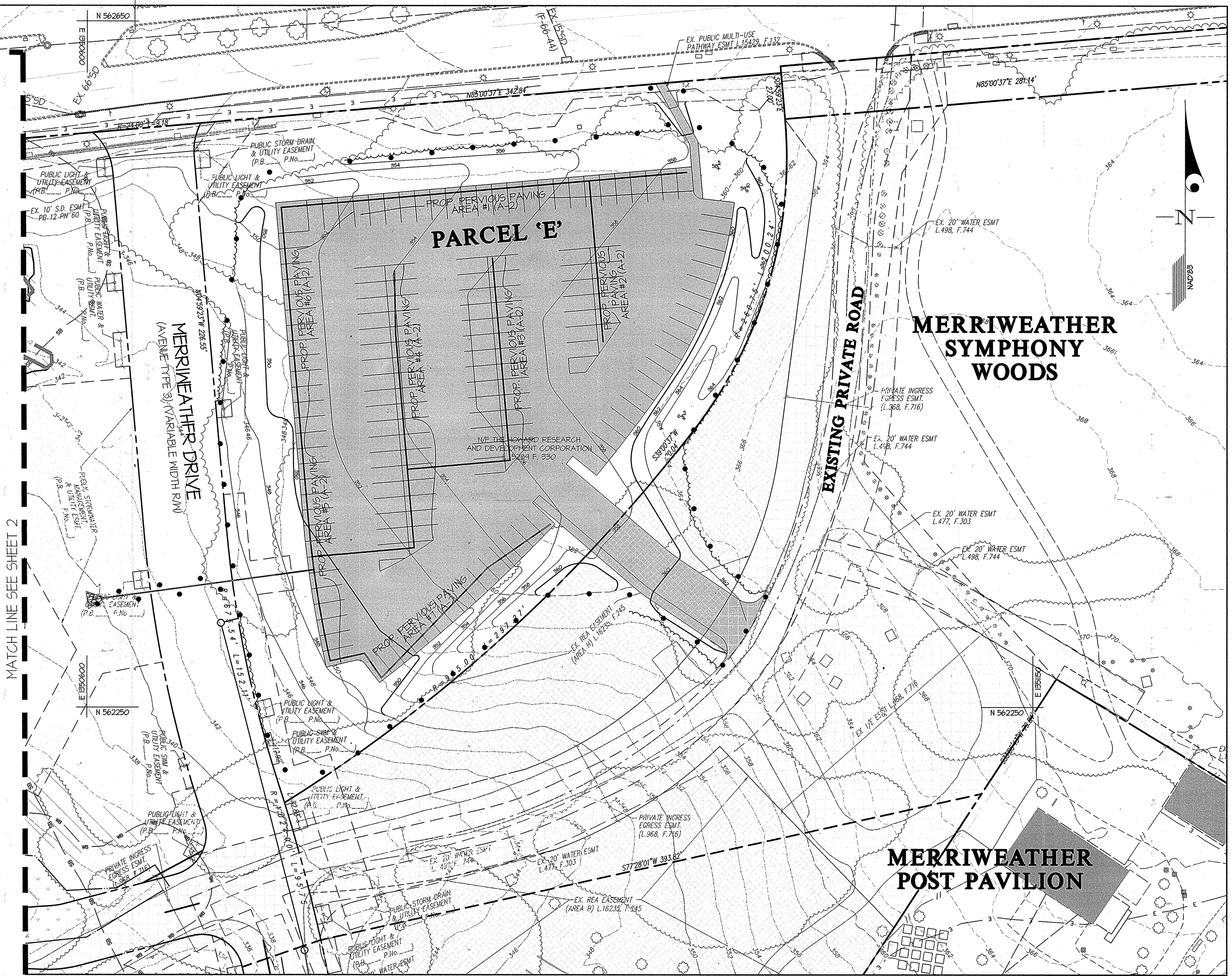
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12375. EXPIRATION DATE: MAY 26, 2016.
 [Signature] 9/15/15

ENVIRONMENTAL CONCEPT PLAN - PARCEL 'A' AND ROAD 'B'
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
 PARCELS A-1, A-2, A-3, DIAMOND AVENUE, AND PARCEL E
 GREEN MIXED USE BUILDINGS - OFFICE, RESTAURANT AND RETAIL; TEMPORARY PARKING LOT
 PART OF PARCEL 527
 ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1"=30'	NT	15019
DATE	TAX MAP - GRID	SHEET
MAY, 2015	36 - 01	2 OF 5

STORMWATER MANAGEMENT FOR PARCEL E				
FACILITY	DRAINAGE AREA	ESDv (Pe=2.53")	ESDv (Pe=1")	ESDv PROVIDED
E1	10573	---	---	1218
E2	670	---	---	364
E3	6320	---	---	743
E4	11020	---	---	2097
E5	11407	---	---	2252
E6	7618	---	---	1404
E7	9700	---	---	1040
TOTAL	57308	REQ: 8824	N/A	9118

STORMWATER MANAGEMENT FOR PUBLIC PATH IMPROVEMENT				
FACILITY	DRAINAGE AREA	ESDv (Pe=1.80")	ESDv (Pe=1")	ESDv PROVIDED
3 (A-2)	3839	458	351	458
TOTAL	3839	REQ: 153	N/A	458



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Watske
 Chief, Division of Land Development Date: 9-15-15
 Chief, Development Engineering Division Date: 9/15/15

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

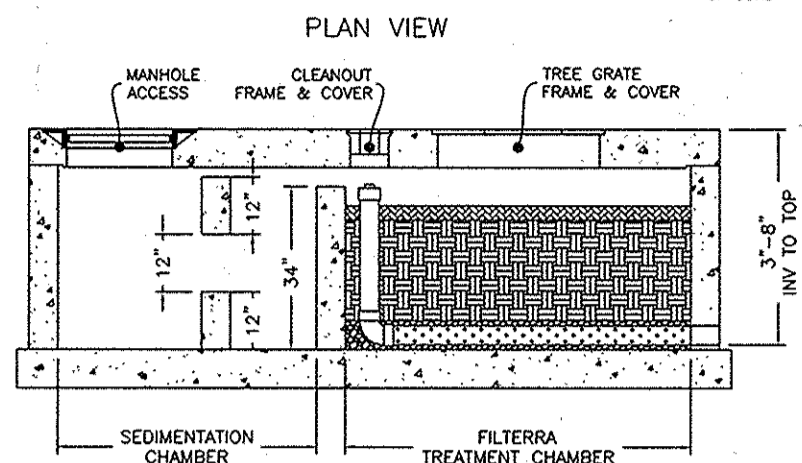
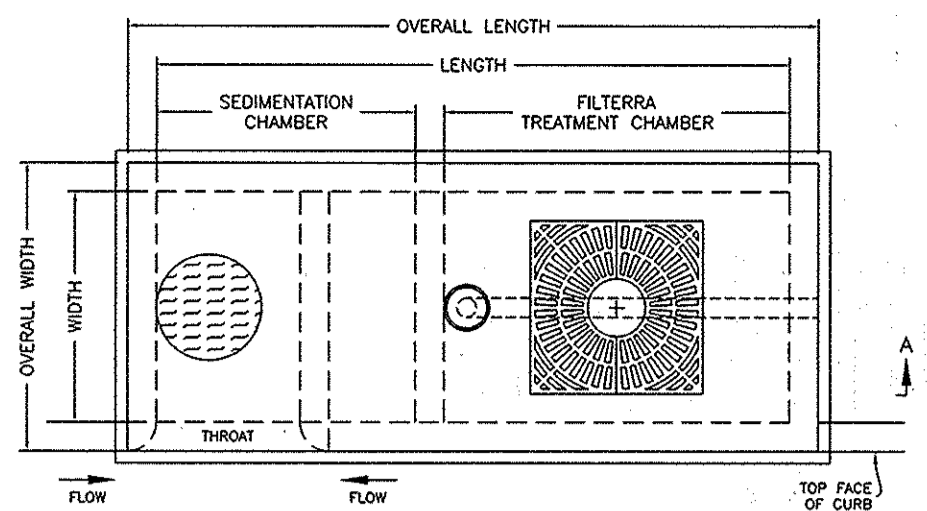
PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10221 WINCOPIN CIRCLE
 SUITE 300
 COLUMBIA, MD 21044
 ATTN: BOB JENKINS
 (410) 964 - 4800

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 10212 EXPIRATION DATE: MAY 26, 2016
 9-1-15

ENVIRONMENTAL CONCEPT PLAN - PARCEL 'E'
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
PARCELS A-1, A-2, A-3, DIAMOND AVENUE, AND PARCEL E
 GREEN MIXED USE BUILDINGS - OFFICE, RESTAURANT AND RETAIL, TEMPORARY PARKING LOT
 PART OF PARCEL 527
 ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

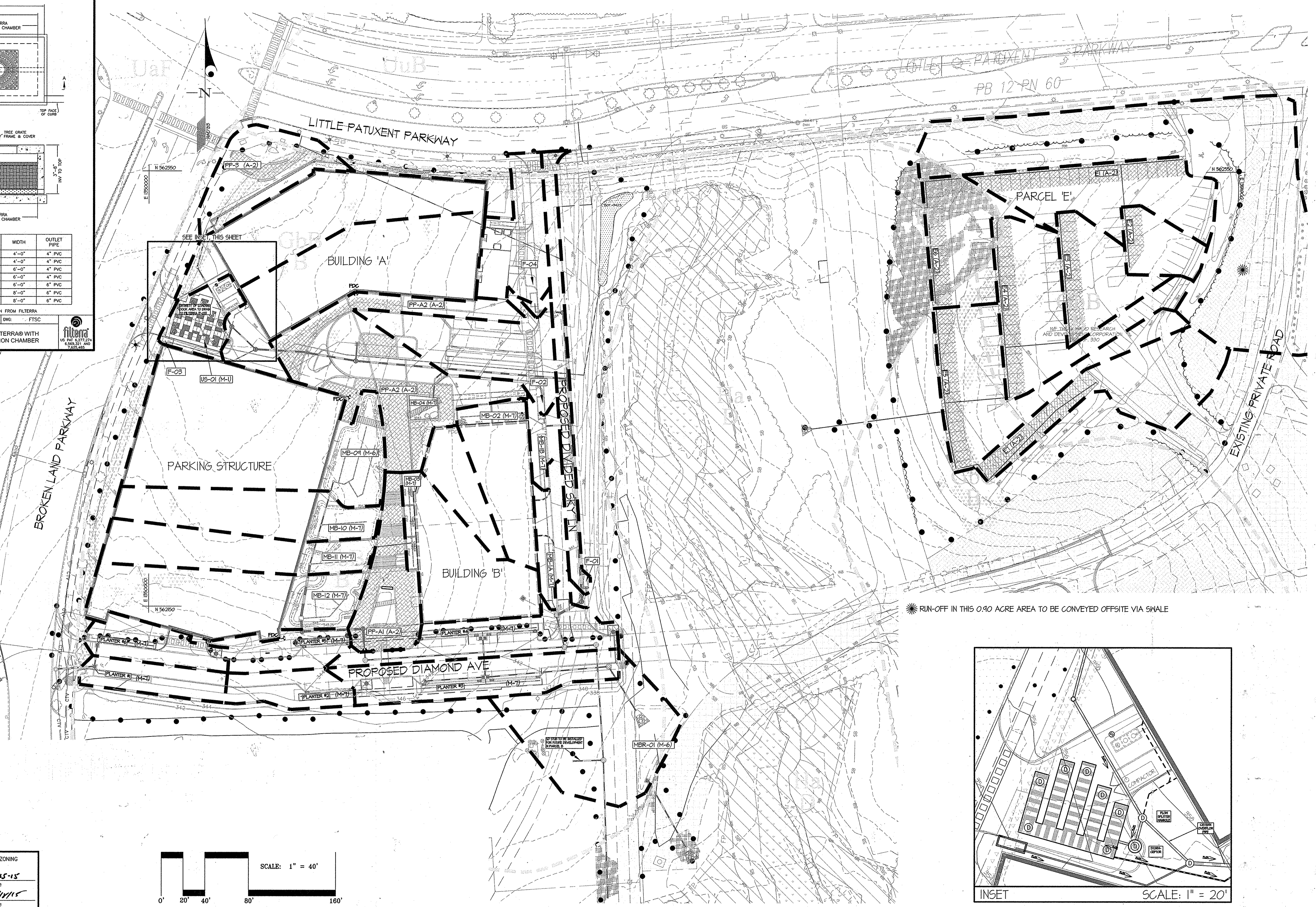
SCALE	ZONING	G. L. W. FILE No.
1"=30'	NT	15019
DATE	TAX MAP - GRID	SHEET
MAY, 2015	36 - 01	3 OF 5

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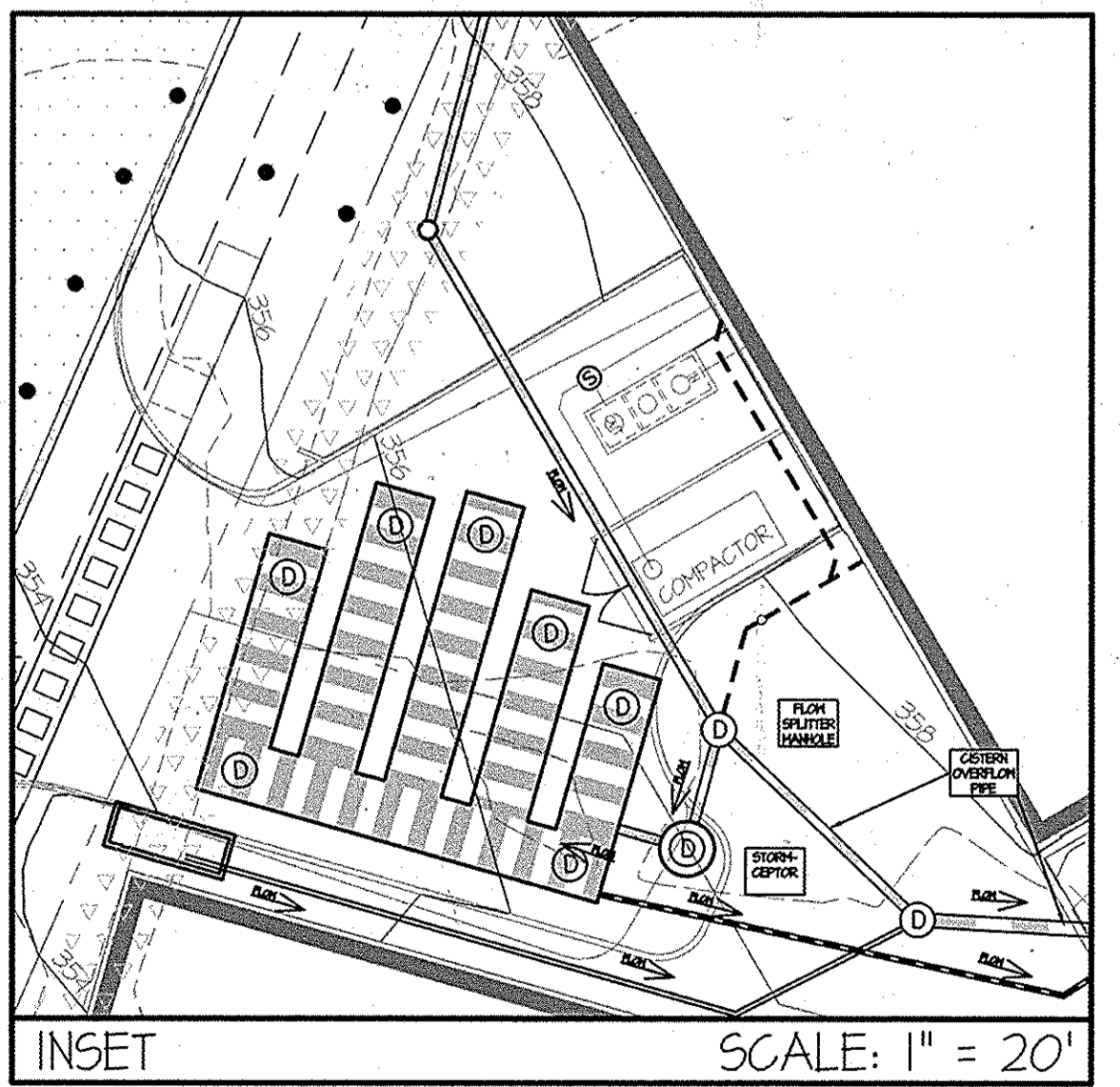


UNIT DESIGNATION	OVERALL DIMENSIONS	FILTERRA TREATMENT AREA	LENGTH	WIDTH	OUTLET PIPE
FTSC 12' x 4'	13' x 5'	6' x 4'	12'-0"	4'-0"	4" PVC
FTSC 16' x 4'	17' x 5'	8' x 4'	16'-0"	4'-0"	4" PVC
FTSC 12' x 6'	13' x 7'	6' x 6'	12'-0"	6'-0"	4" PVC
FTSC 16' x 6'	17' x 7'	8' x 6'	16'-0"	6'-0"	4" PVC
FTSC 19' x 6'	20' x 7'	10' x 6'	19'-0"	6'-0"	6" PVC
FTSC 20' x 8'	21' x 9'	10' x 8'	20'-0"	8'-0"	6" PVC
FTSC 22' x 8'	23' x 9'	11' x 8'	22'-0"	8'-0"	6" PVC

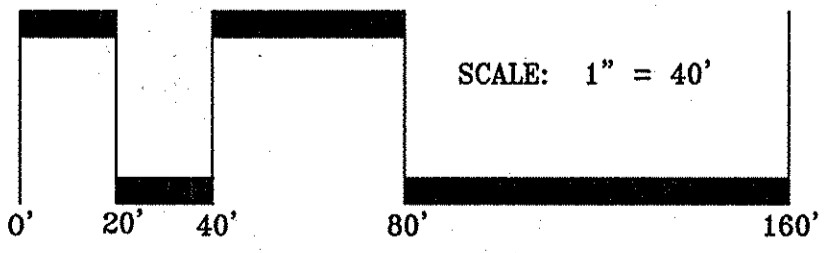
AMERICAST PRECAST FILTERRA WITH SEDIMENTATION CHAMBER
 DATE: 07-22-13 DWG: FTSC
 MODIFICATIONS OF DRAWINGS ARE ONLY PERMITTED BY WRITTEN AUTHORIZATION FROM FILTERRA



☼ RUN-OFF IN THIS 0.90 ACRE AREA TO BE CONVEYED OFFSITE VIA SHALE



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 9-15-15
 Chief, Development Engineering Division



GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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 LICENSE NO. 12312
 EXPIRATION DATE: MAY 26, 2016
 9-1-15



DRAINAGE AREA AND SOIL TYPES MAP
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
 PARCELS A-1, A-2, A-3, DIAMOND AVENUE, AND PARCEL E
 GREEN MIXED USE BUILDINGS - OFFICE, RESTAURANT AND RETAIL, TEMPORARY PARKING LOT
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1"=40'	NT	15019
DATE	TAX MAP - GRD	SHEET
MAY, 2015	36 - 01	4 OF 5

I:\CADD\DWG\15019\15019-01.DWG
 PLOTTED BY: JENKINS, BOB
 DATE: 9/15/15
 TIME: 10:00 AM
 PLOTTER: HP DesignJet 2500

LEGEND

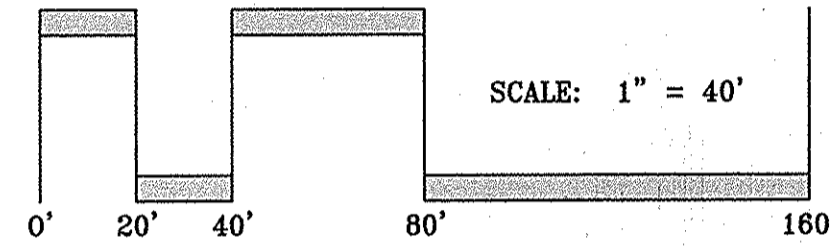
- SCEES STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE / CLEAN WATER DIVERSION
- SF SILT FENCE
- SSF SUPER SILT FENCE
- CIP PROPOSED INLET PROTECTION
- GOS GABION OUTLET STRUCTURE
- SOS STONE OUTLET STRUCTURE
- LIMIT OF DISTURBANCE
- SEDIMENT CONTROL DRAINAGE DIVIDE

SEDIMENT CONTROL NOTE:

PERIMETER SEDIMENT CONTROL DEVICES INSTALLED PER F-PLANS.

LIMIT OF DISTURBANCE NOTE:

LOD SHOWN OFFSET FROM SEDIMENT CONTROL DEVICES FOR CLARITY PURPOSES ONLY. LOD SHALL NOT EXTEND BEYOND THE SEDIMENT CONTROL LIMITS, PROPERTY LINE BOUNDARIES OR OTHER ENVIRONMENTAL CONSTRAINTS.



EARTH DIKE IN THE AREA OF THE SCE IS TO BE CHANGED TO A MACADAM BERM AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

ENGINEER'S CERTIFICATE

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

ENGINEER'S SIGNATURE _____ DATE _____

DEVELOPER'S/BUILDER'S CERTIFICATE

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT I AM RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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/BUILDER _____ DATE _____

SOIL TYPES

Symbol	Description	Soil Type	K Factor
Ho	Holboro Codrus, 0 to 3 percent slopes	D	0.37
G6B	Gladstone Loom, 3 to 8 percent slopes	B	0.20
G6C	Gladstone Loom, 8 to 15 percent slopes	B	0.20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Walter D. ...
 Chief, Division of Land Development Date **9-16-15**
 Chief, Development Engineering Division Date **9/16/15**

GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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 ATTN: BOB JENKINS
 (410) 964 - 4800

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12315 EXPIRATION DATE: MAY 26, 2016



SEDIMENT CONTROL PLAN - PARCEL A

DOWNTOWN COLUMBIA

CRESCENT NEIGHBORHOOD

PARCELS A-1, A-2, A-3, DIAMOND AVENUE, AND PARCEL E
 GREEN MIXED USE BUILDINGS - OFFICE, RESTAURANT AND RETAIL; TEMPORARY PARKING LOT
 PART OF PARCEL 527

ELECTION DISTRICT No. 5

HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 40'	NT	15019
DATE	TAX MAP - GRID	SHEET
MAY, 2015	36 - 01	5 OF 5

