BLANDAIR PARK – PHASE 3 HOWARD COUNTY, MARYLAND CAPITAL PROJECT #N-3102 ENVIRONMENTAL CONCEPT PLAN ECP-14-091

ENVIRONMENTAL SITE DESIGN/SWM NARRATIVE

THE SITE WAS EVALUATED FOR STORMWATER MANAGEMENT, AS REQUIRED BY THE STORMWATER MANAGEMENT ACT OF 2007 AND THE HOWARD COUNTY DESIGN MANUAL VOLUME I. THESE REGULATIONS REQUIRE THAT ENVIRONMENTAL SITE DESIGN (ESD) BE IMPLEMENTED TO THE MAXIMUM EXTENT POSSIBLE FOR EVERY NEW PROJECT. ENVIRONMENTAL SITE DESIGN IS A SITE DESIGN STRATEGY TO:

- OPTIMIZE CONSERVATION OF NATURAL FEATURES.
- MINIMIZE IMPERVIOUS SURFACES.
 SLOWING DOWN RUNOFF TO MAINTAIN DISCHARGE TIMING AND INCREASE INFILTRATION AND
- EVAPOTRANSPIRATION. • USING OTHER NONSTRUCTURAL PRACTICES AND INNOVATIVE TECHNOLOGIES AS APPROVED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE).

BY IMPLEMENTING ESD, THE ULTIMATE GOAL IS TO MAINTAIN THE RUNOFF CHARACTERISTICS OF THE SITE TO MIMIC PREDEVELOPMENT WOODS IN GOOD CONDITIONS.

IN THIS PROJECT, THE OVERALL EXISTING DRAINAGE AREAS ARE MOSTLY MAINTAINED TO NATURAL DRAINAGE CONDITIONS. THE LIMIT OF DISTURBANCE IS MINIMIZED BY USING BIO-SWALES TO TREAT THE LINEAR PATHWAYS AS WELL AS PLACING MICRO-BIORETENTIONS TOWARDS THE INTERIOR OF THE SITE. PAVEMENT WIDTHS ARE REDUCED WHERE POSSIBLE. ALTERNATIVE SURFACES ARE BEING USED FOR THE PARKING SPACES IN THE PARKING LOT. ARTIFICIAL TURF IS ALSO BEING USED FOR THE DESTINATION PLAYGROUND, CROQUET LAWN, AND BOCCE COURTS. THE ARTIFICIAL TURF AREAS WILL BE DESIGNED AS ALTERNATIVE SURFACES AND WILL PROVIDE ESD TREATMENT. NO STRUCTURAL STORMWATER MANAGEMENT FACILITIES ARE REQUIRED. HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS WILL MAINTAIN ALL OF THE PROPOSED ESD PRACTICES.

THE ENTRANCES TO THE SITE MEET ALL HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARDS. THE SITE IS DESIGNED TO MINIMIZE DISTURBANCE TO EXISTING NATURAL FEATURES SUCH AS FOREST AREAS, STREAM BUFFERS AND WETLAND AREAS.

EROSION AND SEDIMENT CONTROLS ARE PROVIDED THROUGH A USE OF A STABILIZED CONSTRUCTION ENTRANCE, SUPER SILT FENCE, INLET PROTECTION, TREE PROTECTION FENCE, AND A SEDIMENT TRAP. THE AREA DISTURBED FOR EROSION AND SEDIMENT CONTROL IS INCORPORATED INTO THE STORMWATER MANAGEMENT DESIGN.

THE SITE WILL MAXIMIZE THE USE OF ESD PRACTICES BY INCORPORATING MICRO-BIORETENTION AREAS,

PERVIOUS CONCRETE, AND BIOSWALES WHERE ALLOWABLE.

TO SIZE THE ESD PRACTICES, RCN VALUES ARE DETERMINED BASED ON A SITE AREA'S LAND USE OF WOODS IN GOOD CONDITION. PE TARGETS ARE THEN ESTABLISHED FROM THE VALUES SET IN TABLE 5.3 OF THE ENVIRONMENTAL SITE DESIGN CRITERIA. A TARGET ESD VOLUME IS THEN CALCULATED FOR THE DRAINAGE AREA BASED ON THE PE AND THE PROPOSED SITE IMPERVIOUS. THE TARGET ESD VOLUME IS 37,036 CF AND THE TARGET PE VAULE IS 1.6 INCHES.

INDIVIDUAL ESD PRACTICES ARE THEN LOCATED WITHIN THE SITE AND SIZED BASED ON THE DRAINAGE AREA AND IMPERVIOUS AREA FLOWING TO THE PRACTICE. THE TOTAL OF THE ESD VOLUMES CAPTURED BY EACH ESD PRACTICE SHOULD MEET THE TARGET ESD VOLUME INITIALLY CALCULATED FOR THE ENTIRE SITE.

BY MEETING THE ESD VOLUME, WATER QUALITY VOLUME (WQV) AND RECHARGE VOLUME (REV) AND CHANNEL PROTECTION VOLUME (CPV) ARE SATISFIED.

FOR THIS PROJECT, A TOTAL OF 31 INDIVIDUAL ESD PRACTICES ARE PROPOSED: 7 MICRO-BIORETENTION FACILITIES, 22 PERVIOUS CONCRETE AREAS, AND 2 BIOSWALES.

GENERAL NOTES

1. APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN DOES NOT CONSTITUTE ANY APPROVAL OF SUBSEQUENT SUBDIVISION OR SITE DEVELOPMENT PLANS. ADDITIONAL PLAN COMMENTS MAY BE PROVIDED UPON THE REVIEW OF THE APPLICABLE DEVELOPMENT PLANS IN ACCORDANCE WITH THE LAND DEVELOPMENT AND ZONING REGULATIONS.

APPROVED: DEPARTMENT OF PLANNIN	IG AND ZONING
Chul Educh	9.22.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
VertShelingh	9-17-14
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

SITE

PARCEL



SITE ANALYSIS DATA CHART TOTAL PROPERTY AREA: 298.08 ACRES AREA OF PLAN SUBMISSION: 19.93 ACRES LIMIT OF DISTURBED AREA: 19.93 ACRES PROPOSED IMPERVIOUS COVER: 5.94 ACRES* PRESENT ZONING DESIGNATION: RC-DEO, PER THE COMPREHENSIVE ZONING PLAN, EFFECTIVE OCTOBER 8, 2013 PROPOSED USES: DESTINATION PLAYGROUND, PICNIC SHELTER, COMFORT STATION, MAINTENANCE	COLUMBIA 100 COLUMBIA 100 CO
PROPOSED USES: DESTINATION PLAYGROUND, PICNIC SHELTER, COMFORT STATION, MAINTENANCE BUILDING, QUIET GAMES	
FLOOR SPACE:	

ADC MAP: HOWARD COUNTY

MAP 16

GRID: A6

PICNIC SHELTER – 1ST FLOOR: 1,687 SF; COMFORT STATION – 1ST FLOOR: 1,331 SF; MAINTENANCE BUILDING – 1ST FLOOR: 8,421 SF PARKING SPACES PROVIDED: 244 SPACES

APPLICABLE DPZ FILE NUMBERS: ECP-11-023, SDP-10-007; WP-10-013; SDP-12-063; WP-13-176; WP-14-105

*NOTE: NUMBER CALCULATED CONSIDERING ALL ALTERNATIVE SURFACES ARE IMPERVIOUS

LIST OF DRAWINGS

- 1. ESD0.1 COVER SHEET 2. ESD1.1 ENVIRONMENTAL CONCEPT PLAN
- 3. ESD1.2 OVERALL DRAINAGE AREA MAP EXISTING CONDITIONS
- 4. ESD1.3 OVERALL DRAINAGE AREA MAP PROPOSED CONDITIONS
- 5. ESD1.4 ESD DRAINAGE AREA MAP
- 6. ESD1.5 CONCEPT EROSION AND SEDIMENT CONTROL PLAN 7. ESD1.6 ESD DETAILS AND NOTES



VICINITY MAP

 $1^{"} = 2000'$

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PARK - PHASE 3							
COVER SHEET							
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Date: 09/12/2014

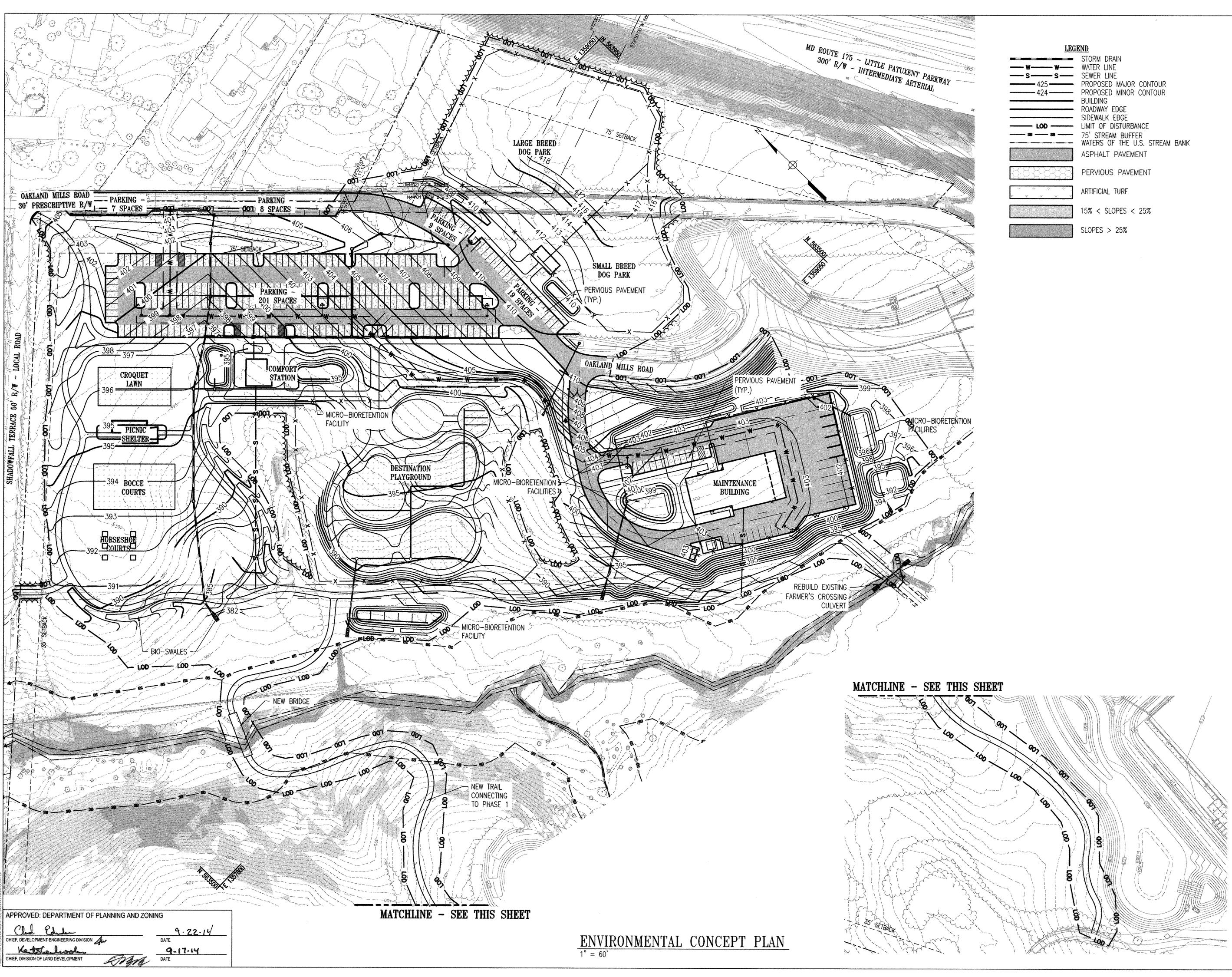
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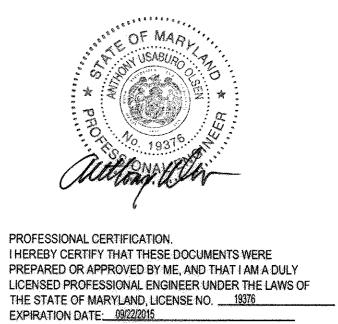
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PROPERTY	
TAX MAP 36, GRID 5, PARCEL	3,72

ELECTION DISTRICT 3/7

GRAPHIC SCALES

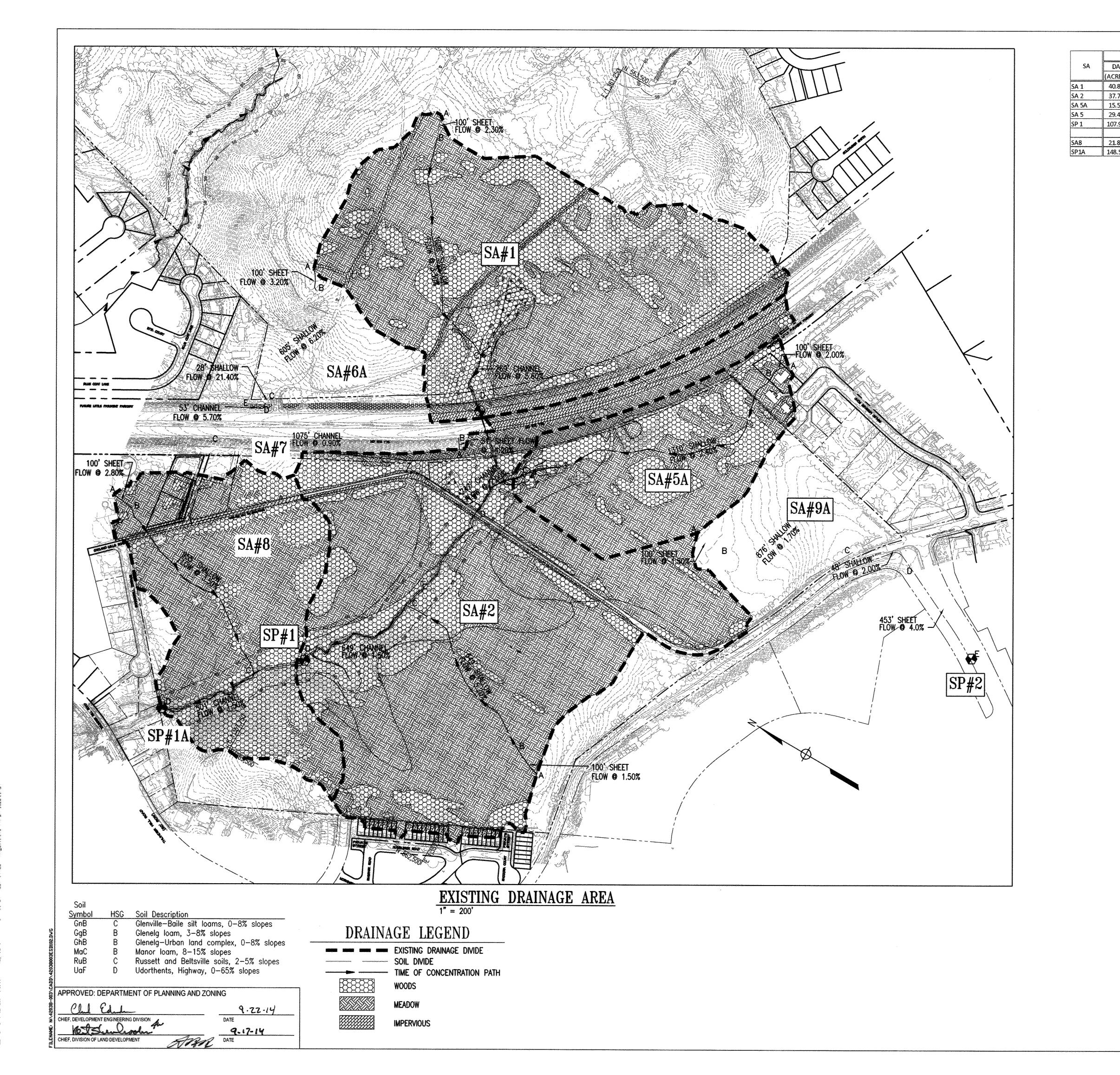
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ENVIRONMENTAL CONCEPT PLAN								
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LEGI	END
W W - S - S	STORM DRAIN WATER LINE SEWER LINE PROPOSED MAJOR CONTOUR PROPOSED MINOR CONTOUR BUILDING ROADWAY EDGE SIDEWALK EDGE LIMIT OF DISTURBANCE 75' STREAM BUFFER WATERS OF THE U.S. STREAM BANK
	ASPHALT PAVEMENT
	PERVIOUS PAVEMENT
	ARTIFICIAL TURF
	15% < SLOPES < 25%
	SLOPES > 25%



REVISIONS	

		E	XISTING (CONDITIO	NS		
A	tc	IMPERVIOUS	RCN	1-YR	2-YR	10-YR	100-YR
RES)	(MIN)	(%)		(CFS)	(CFS)	(CFS)	(CFS)
).85	0,33	6.29	62	5.52	14.96	60.48	124.58
7.72	0.28	1.91	62	5.76	15.37	60.17	122.76
.56	0.31	1.17	70	7.01	12.65	34.66	62.66
.42	0.32	3.84	71	14.35	25.24	67.16	119.98
7.99	-	4.09	-	25.38	55.34	187.44	366.64
		-	· • · · · · · · · · · · · · · · · · · ·				
.89	0.25	3.81	61	2.98	8.67	36.65	76.46
3.57	-	2.41	-	29.67	66.56	233.42	463.60

HOWARD	COUNTY	/
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TAX MAP 36, GRID 5, PARCEL 3,72

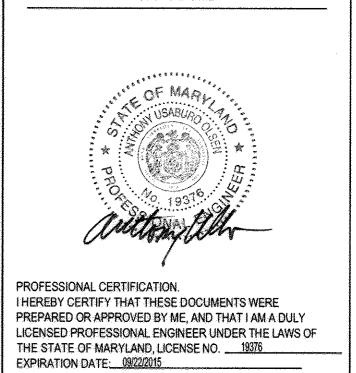
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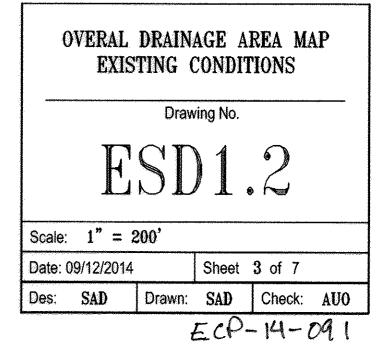
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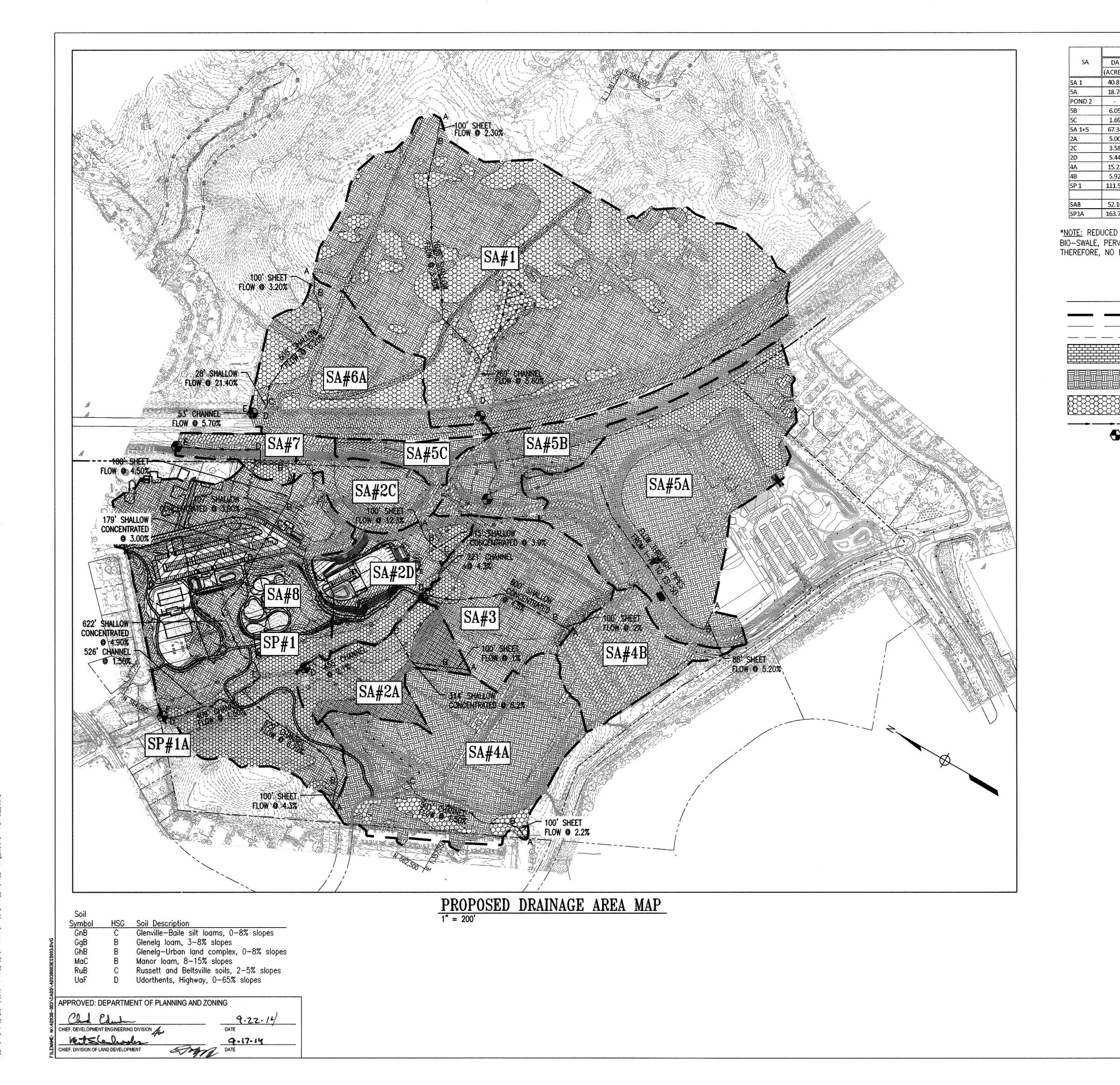
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		PI	ROPOSED	CONDITIC	NS		
A	tc	IMPERVIOUS	DON	1-YR	2-YR	10-YR	100-YR
RES)	(MIN)	(%)	RCN	(CFS)	(CFS)	(CFS)	(CFS)
85	-	-	-	5.74	15.48	63.12	130.54
76	0.22	16.72	77	18.80	29.08	65.80	109.46
	Ŧ	-	-	11.96	19.95	53.90	56.78
05	0.10	18.82	81	9.32	13.66	28.54	45.69
69	0.10	29.74	84	3.11	4,40	8.68	13.51
34	L	-	-	19.10	34.22	98.02	198.94
00	0.26	0.00	66	1.60	3.35	10,66	20.44
58	0.10	14.63	68	2.01	3.59	10.57	19.70
14	0.10	8.46	70	3.67	6.38	17.56	31.74
23	0.20	10:70	65	4.88	10.45	34.07	65.91
92	0.10	50.34	81	9.12	13.37	27.93	44.72
.59	-	11.97	-	32.69	57.88	160.74	303.65
16	0.22	3.59	52	0.15	1.28	21.44	58.00
.76	-	9.30	-	32.53	58.19	180.64	361.26

*NOTE: REDUCED RCN VALUES ARE CALCULATED FOR EACH ESD (MICRO-BIO, BIO-SWALE, PERVIOUS PAVEMENT) DRAINAGE AREA IN SUBAREAS 2D AND 8. THEREFORE, NO LAND USE HATCHING IS SHOWN FOR THOSE DRAINAGE AREAS.

DRAINAGE LEGEND

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PROPOSED DRAINAGE DIVIDE SOIL DIVIDE ESD DRAINAGE DIVIDE

IMPERVIOUS

OPEN SPACE

WOODS

TIME OF CONCENTRATION PATH STUDY POINT

	REVISIONS	
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HOWARD COUNTY

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TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

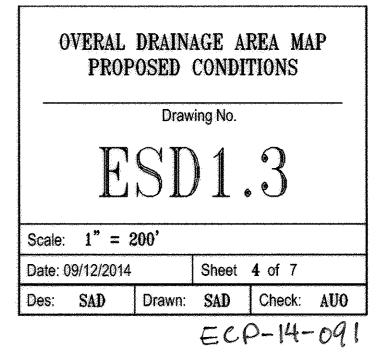
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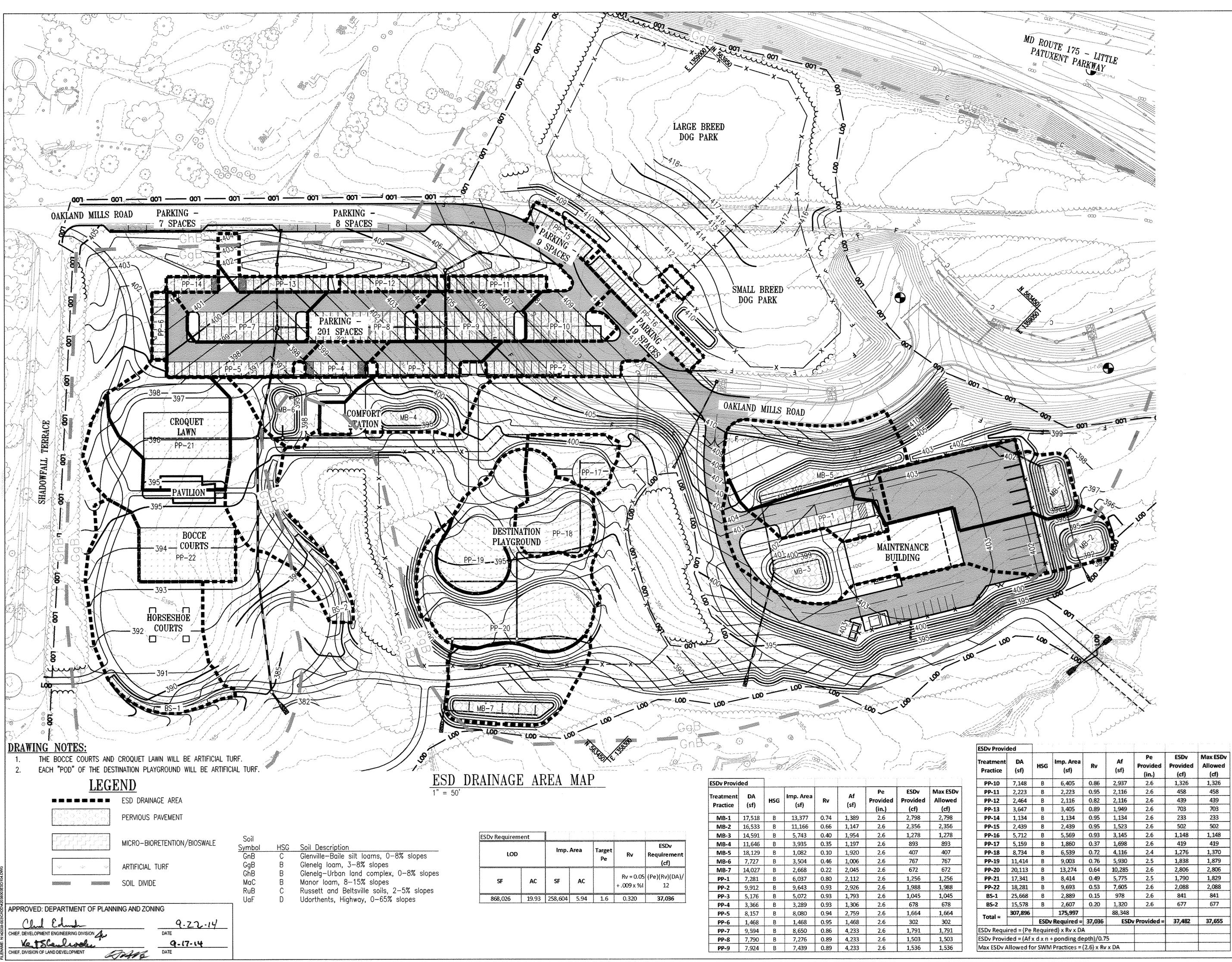
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ESDv Requirem						
LOD		Imp. Area		Target Pe	Rv	ESDv Requirement (cf)
SF	AC	SF	AC		Rv = 0.05 + .009 x %l	(Pe)(Rv)(DA)/ 12
868,026	19.93	258,604	5.94	1.6	0.320	37,036

ESDv Provid	led							
Treatment Practice	DA (sf)	HSG	Imp. Area (sf)	Rv	Af (sf)	Pe Provided (in.)	ESDv Provided (cf)	Max ESDv Allowed (cf)
MB-1	17,518	В	13,377	0.74	1,389	2.6	2,798	2,798
MB-2	16,533	В	11,166	0.66	1,147	2.6	2,356	2,356
MB-3	14,591	В	5,743	0.40	1,954	2.6	1,278	1,278
MB-4	11,646	B	3,935	0.35	1,197	2.6	893	893
MB-5	18,129	В	1,082	0.10	1,920	2.6	407	407
MB-6	7,727	В	3,504	0.46	1,006	2.6	767	767
MB-7	14,027	В	2,668	0.22	2,045	2.6	672	672
PP-1	7,281	В	6,037	0.80	2,112	2.6	1,256	1,256
PP-2	9,912	В	9,643	0.93	2,926	2.6	1,988	1,988
PP-3	5,176	В	5,072	0.93	1,793	2.6	1,045	1,045
PP-4	3,366	B	3,289	0.93	1,306	2.6	678	678
PP-5	8,157	B	8,080	0.94	2,759	2.6	1,664	1,664
PP-6	1,468	В	1,468	0.95	1,468	2.6	302	302
PP-7	9,594	В	8,650	0.86	4,233	2.6	1,791	1,791
PP-8	7,790	В	7,276	0.89	4,233	2.6	1,503	1,503
PP-9	7,924	В	7,439	0.89	4,233	2.6	1,536	1,536

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TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7
GRAPHIC SCALES
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PARK - PHASE 3
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502 1,148

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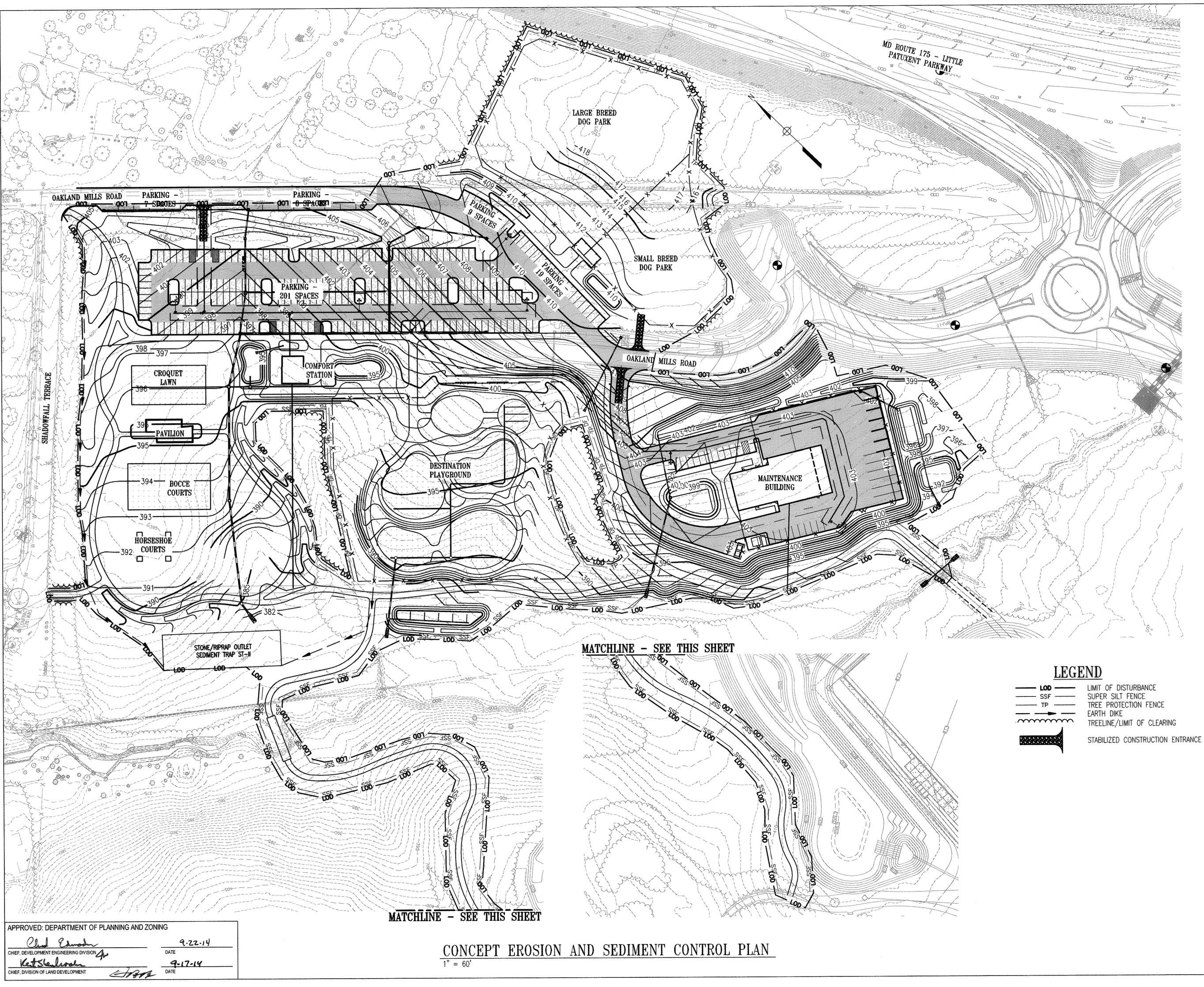
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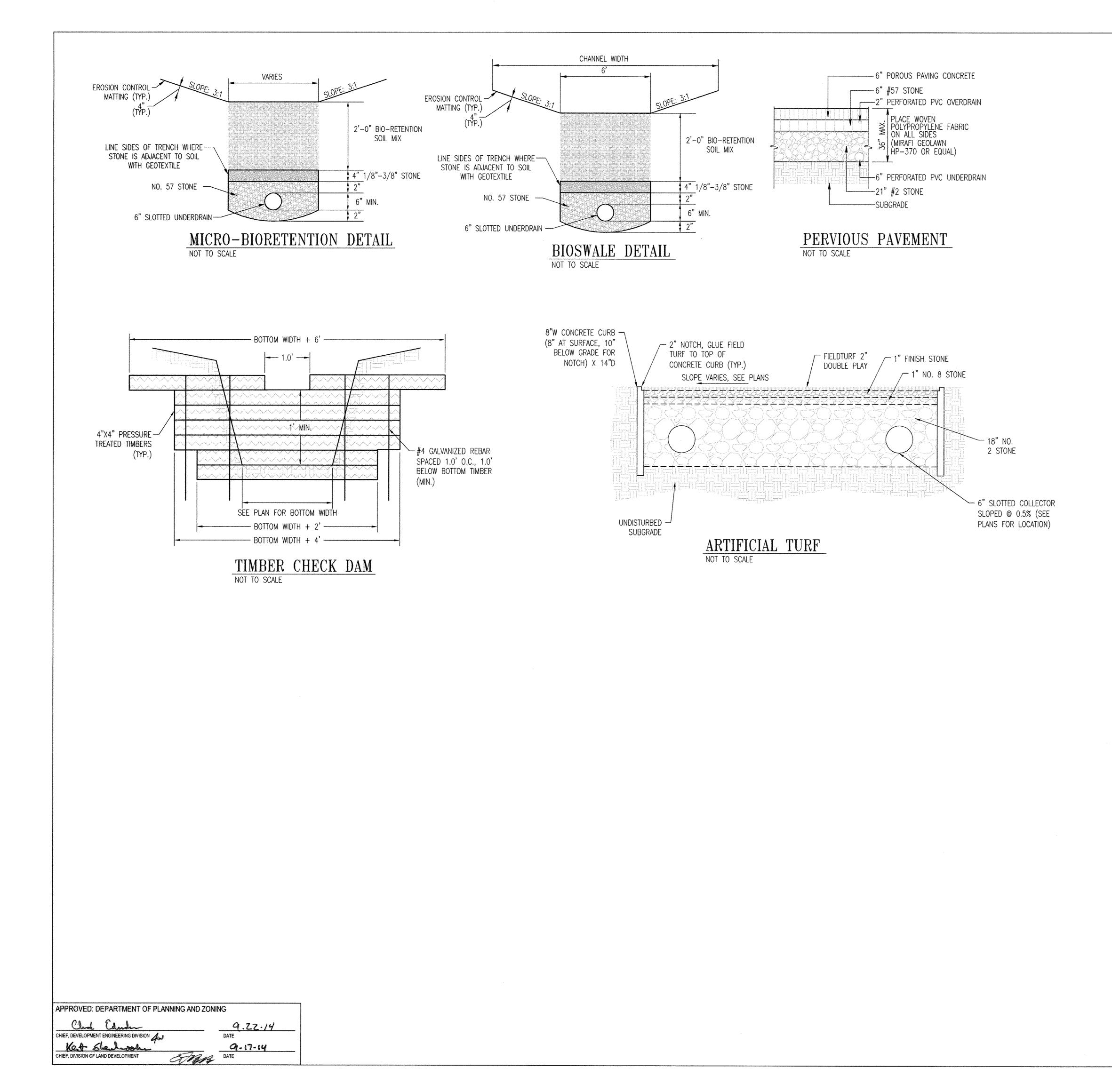
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CONCEPT EROSION AND SEDIMENT CONTROL PLAN	
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ECP-14-091



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