

BLANDAIR REGIONAL PARK - PHASE 3

HOWARD COUNTY, MARYLAND

CAPITAL PROJECT #N-3102

SITE DEVELOPMENT PLAN #SDP-15-050

GENERAL NOTES

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND UTILITIES AND THE MSHA SPECIFICATIONS FOR CONSTRUCTION PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- 2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- 3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 4. 10/06/2013 COMPREHENSIVE ZONING PLAN.
- 5. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN WETLANDS, STREAMS, WETLAND OR STREAM BUFFERS, 100-YEAR FLOODPLAIN, OR FOREST CONSERVATION EASEMENTS UNLESS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
- 6. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.24 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- 7. THIS PROJECT WILL PHASE THE REQUIREMENTS OF SUBSECTION 16.1202(a)(1) OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION AS ALLOWED BY WAIVER PETITION WP-10-013, APPROVED OCTOBER 15, 2009. THE TOTAL PROJECT FOREST CONSERVATION OBLIGATION WILL BE UPDATED UPON SUBMITTAL OF EACH NEW PHASE. IN ADDITION, RECONSIDERATION OF WP-10-013, APPROVED JANUARY 27, 2010, WILL WAIVE SUBSECTION 16.1204(G) TO ALLOW TEMPORARY DEFERRAL OF RECONSIDERATION OF FOREST CONSERVATION EASEMENTS. PRIOR TO FINAL PLAN APPLICATION SHALL BE SUBMITTED CONCURRENTLY TO DEFER FOREST CONSERVATION EASEMENTS OF THE FINAL PHASE AND ALL FOREST CONSERVATION EASEMENTS PREVIOUSLY APPROVED ON PRIOR SDP'S FOR THE PARK.
- 8. TOTAL EXISTING FOREST (EXCLUDING FLOODPLAIN): 108.46 AC
ESTIMATED TOTAL FOREST RETAINED: 43.53 AC
PHASE 1 PROPOSED CLEARING: 2.87 AC
PHASE 2 PROPOSED CLEARING: 1.94 AC
PHASE 3 PROPOSED CLEARING: 3.00 AC
PHASE 4 PROPOSED CLEARING: 0.72 AC
PHASE 5 PROPOSED CLEARING: 3.60 AC
PHASE 6 PROPOSED CLEARING: 11.06 AC
PHASE 7 PROPOSED CLEARING: 4.26 AC
PHASE 8 SOUTH CLEARING: 0.94 AC
PHASE 9 SOUTH CLEARING: 1.37 AC
TOTAL PROPOSED CLEARING: 14.66 AC
- 9. THIS PROJECT WILL WAIVE THE REQUIREMENTS OF SUBSECTION 16.116(a)(2)(i) OF THE HOWARD COUNTY CODE - PROHIBITING GRADING, REMOVAL OF VEGETATIVE COVER, PAVING, AND NEW STRUCTURES WITHIN 100 FT STREAM BUFFER - AS ALLOWED BY WAIVER PETITION WP-15-117, APPROVED MAY 11, 2015.
WAIVER PETITION WP-15-117 WAS RECONSIDERED TO INCREASE THE AMOUNT STREAM BUFFER TO 200 FT STREAM BUFFER FOR MANAGEMENT PURPOSES, APPROVED JUNE 17, 2015.
- 10. THIS PROJECT RECEIVED A WAIVER FOR THE REQUIREMENTS OF SUBSECTION 16.155(a)(1) AND 16.155(a)(2) OF THE HOWARD COUNTY CODE TO ALSO OBTAIN THE NECESSARY PERMIT TO OBTAIN AN APPROVED SDP PRIOR TO THE MASS GRADING OF THE SITE. AS ALLOWED BY WP-16-002, APPROVED AUGUST 6, 2015.
- 11. WATER IS PUBLIC; CONTRACT NUMBER 24-4905-D.
- 12. SEWER IS PUBLIC; CONTRACT NUMBER 24-4905-D.
- 13. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM: HORIZONTAL NAD 83/91 VERTICAL NAVD88.
- 14. HOWARD COUNTY MONUMENTS USED FOR THIS PROJECT:
30HA: N 566030.6258, E 1357989.5444
36BC: N 562284.1261, E 1359585.7197
- 15. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST FIRM PANEL 2402700155D, DATED 11/6/2013
- 16. THE WETLANDS DELINEATION STUDY FOR THE PROJECT WAS PREPARED BY WHITMAN, REQUARDT & ASSOCIATES AND REVIEWED AND CONCURRED IN THE FIELD WITH MDE AND USACE ON AUGUST 17, 2009.
- 17. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY WHITMAN, REQUARDT & ASSOCIATES AND WAS APPROVED ON JULY 27, 2010 BY THE DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION AND DEPARTMENT OF TRAFFIC ENGINEERING DIVISION.
- 18. TOPOGRAPHICAL FIELD SURVEYS OF THE SITE WERE PERFORMED BY WHITMAN, REQUARDT AND ASSOCIATES LLP (WRA) IN MARCH 2008. ADDITIONAL UTILITY INFORMATION WAS PROVIDED BY HOWARD COUNTY RECORDS AND MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION.
- 19. APPROXIMATE LOCATION AND INVERTS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN AN UNINTERRUPTED SERVICE. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES BY TEST PIT OR OTHER MEANS OF INVESTIGATION APPROVED BY THE OWNER WELL IN ADVANCE OF CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- 20. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF MSHA'S MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL TRAFFIC SIGNS SHALL CONFORM TO THE LATEST VERSION OF MSHA'S STANDARD SIGN BOOK.
- 21. LETTERS SHALL BE OBTAINED PRIOR TO GRADING PERMIT APPROVAL FROM ADJACENT PROPERTY OWNERS AUTHORIZING OFF-SITE ACTIVITIES.
- 22. ALL TRASH AND REFUSE WILL BE THE RESPONSIBILITY OF THE DEPARTMENT OF RECREATION AND PARKS AND WILL BE REMOVED FROM THE PARK ON A WEEKLY BASIS. DURING CONSTRUCTION, ALL TRASH AND REFUSE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 23. ENVIRONMENTAL SITE DESIGN (ESD) IS INCORPORATED INTO THE PHASE 3 POSSIBLE. ESD FACILITIES INCLUDE BIO-SWALES, PERVIOUS PAVEMENT, AND MICRO-BIOTRETIONS.
AN EXTENDED DETENTION SHALLOW WETLAND POND WAS CONSTRUCTED UNDER PHASE 1 AND WILL PROVIDE MITIGATION OF THE 100-YEAR EVENT. ANOTHER EXTENDED DETENTION POND WAS INSTALLED UNDER PHASE 2 AND WILL PROVIDE ADDITIONAL MITIGATION OF THE 100-YEAR EVENT.
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES.
- 24. THE PROJECT HAS AUTHORIZATION TO PROCEED BY THE STATE OF MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION UNDER AUTHORIZATION NUMBER 201561083/15-N-3196, EFFECTIVE DATE FEBRUARY 2, 2016. EXPIRATION DATE FEBRUARY 2, 2019 FOR IMPACTS ASSOCIATED WITH TWO STREAM CROSSINGS IMPACTING 63 LF OF STREAM CHANNEL.
- 25. THE MINIMUM USE SETBACKS BY SUBSECTION 104-0.6.5 WAS NOT APPLIED TO EXISTING OAKLAND MILLS ROAD SPACE PORTIONS OF THE ROAD WILL BE ABANDONED OR REALIGNED.

NO.	DATE	DESCRIPTION

TOTAL PROPERTY AREA:	288.08 ACRES
AREA OF PLAN SUBMISSION:	14.03 ACRES
LIMIT OF DISTURBED AREA:	14.03 ACRES
PROPOSED IMPERVIOUS COVER:	5.31 ACRES*

PRESENT ZONING DESIGNATION: RC-DEO, PER THE COMPREHENSIVE ZONING PLAN, EFFECTIVE OCTOBER 8, 2013

PROPOSED USES: DESTINATION PLAYGROUND, PICNIC SHELTER, COMFORT STATION, MAINTENANCE BUILDING, QUIET GAMES

FLOOR SPACE:
PICNIC SHELTER - 1ST FLOOR: 1,687 SF;
COMFORT STATION - 1ST FLOOR: 1,331 SF;
MAINTENANCE BUILDING - 1ST FLOOR: 8,421 SF

COMFORT STATION PARKING SPACES PROVIDED: 112 SPACES, 9 HANDICAP SPACES, 121 TOTAL SPACES

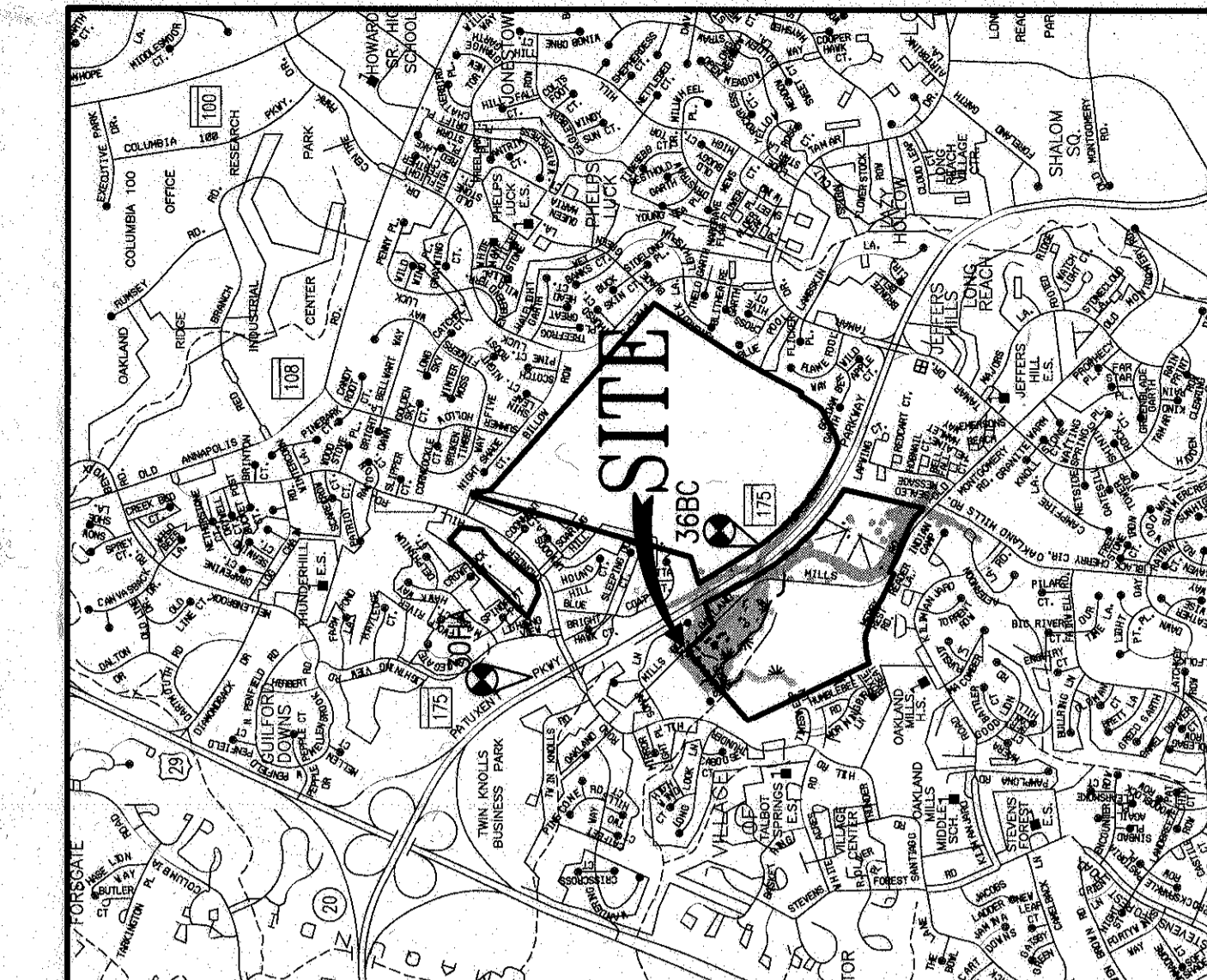
MAINTENANCE FACILITY PARKING SPACES PROVIDED: 19 SPACES, 2 HANDICAP SPACES, 21 TOTAL SPACES

APPLICABLE DPZ FILE NUMBERS: ECP-11-023, SDP-10-007, WP-10-013, WP-15-117, WP-16-002, SDP-12-063, ECP-14-091

*NOTE: NUMBER CALCULATED CONSIDERING ALL ALTERNATIVE SURFACES ARE IMPERVIOUS

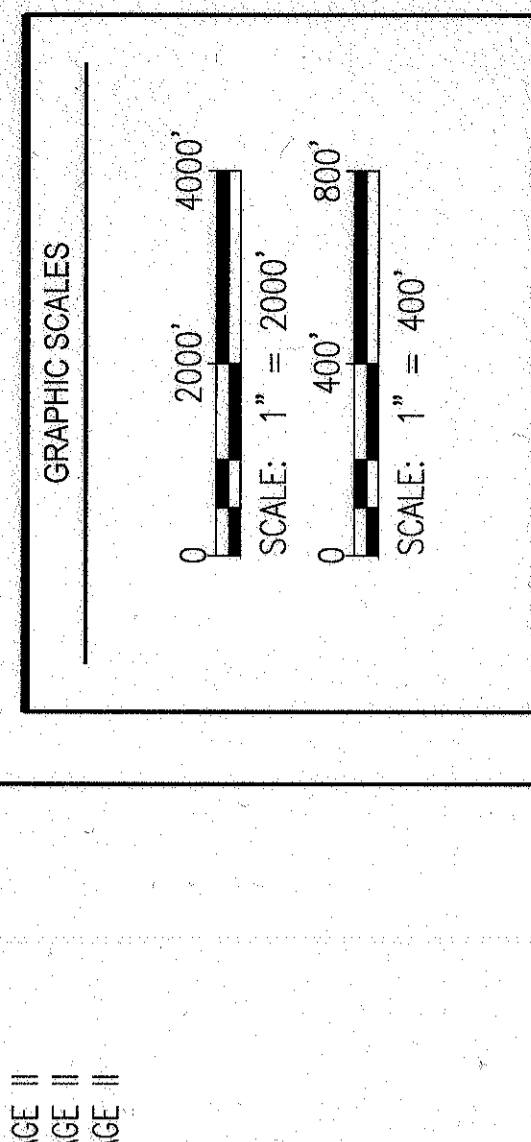
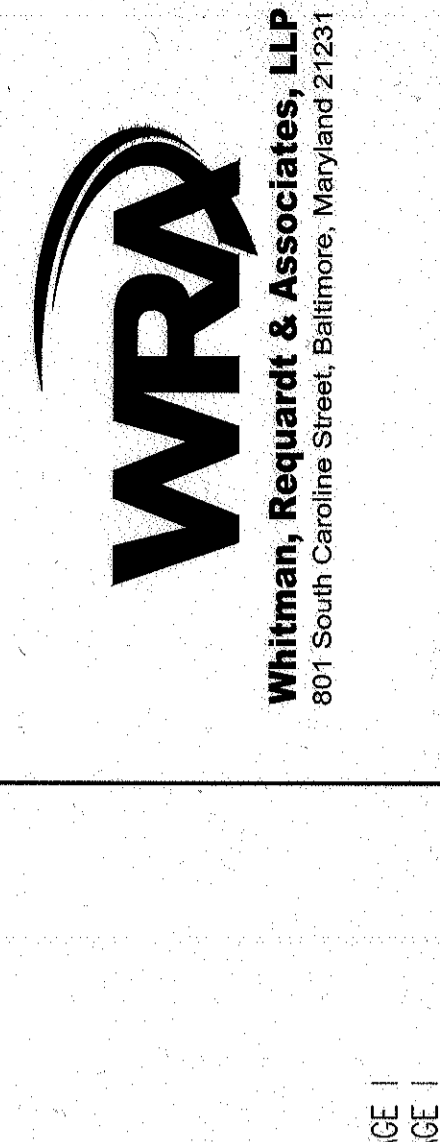
LIST OF DRAWINGS

CIVIL	COVER SHEET
1.	CO.1
2.	CO.2
3.	C1.0
4.	C1.1
5.	C1.1A
6.	C1.2A
7.	C1.2C
8.	C1.2D
9.	C1.2E
10.	C1.3A
11.	C1.3B
12.	C1.3C
13.	C1.3D
14.	C1.3E
15.	C1.4A
16.	C1.4B
17.	C1.5A
18.	C1.5B
19.	C1.5C
20.	C1.6
21.	C2.1
22.	C2.2
23.	C2.3
24.	C2.4
25.	C3.1
26.	C3.2
27.	C3.3
28.	C3.4
29.	C4.1
30.	C4.2
31.	C4.3
32.	C4.3A
33.	C4.4
34.	C5.1
35.	C5.2
36.	C5.3
37.	C6.1
38.	C6.2
39.	C6.3

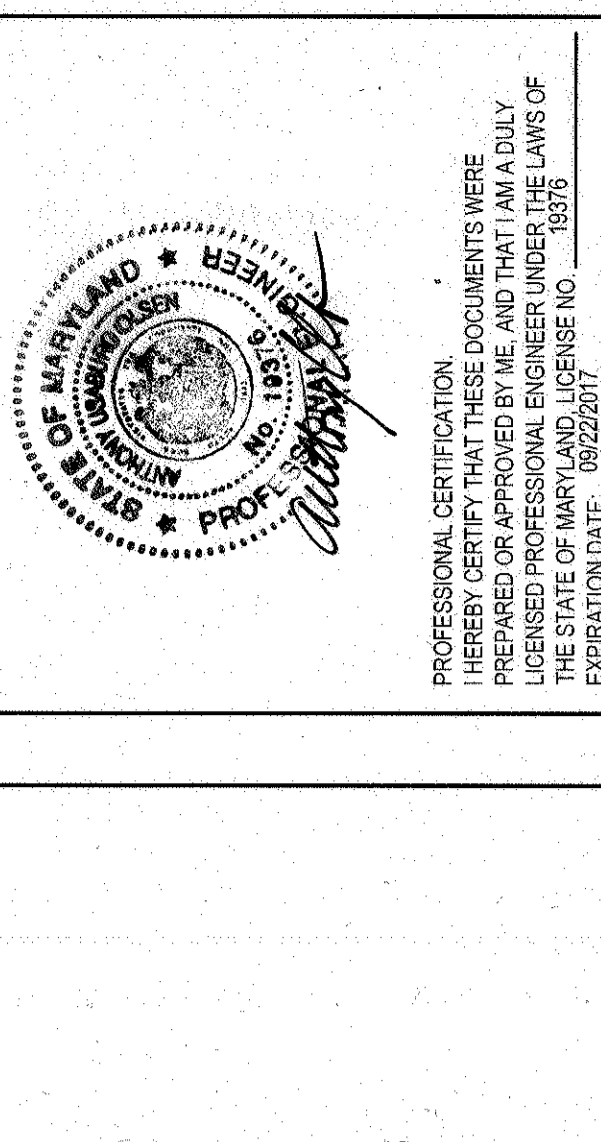


A3C MAP: 27
GRD: D8

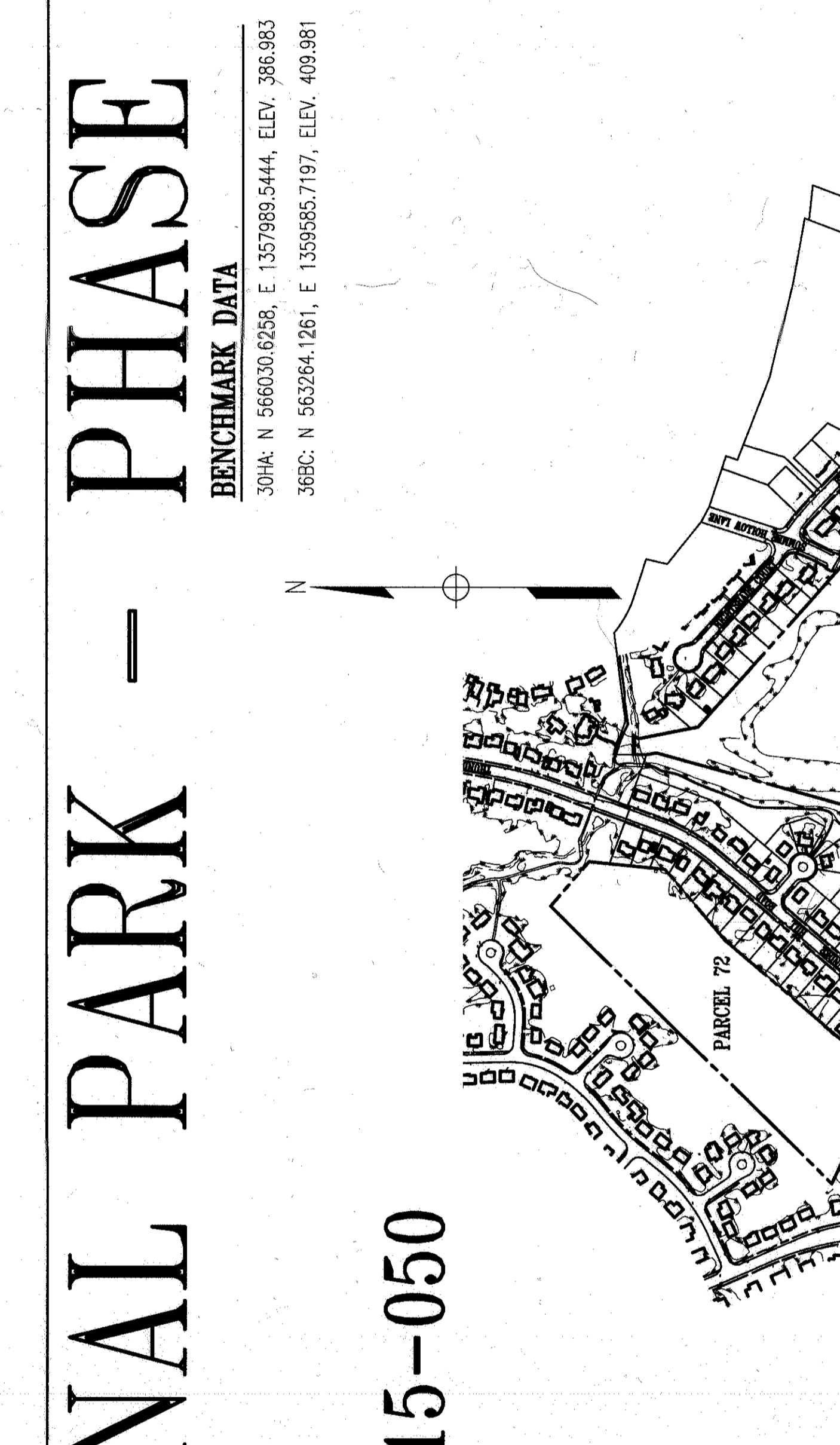
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SIGNATURE



DATE:	11/7/2017
SHEET:	1 OF 76
DRAWN:	BMW
CHECK:	AJO
SDP-15-050	



LANDSCAPE	PHASE 3
40.	L1.1
41.	L1.2
42.	L1.3
43.	L1.4
44.	L1.5
45.	L1.6
46.	L1.7
47.	L2.1
48.	L2.2
49.	L2.3
50.	L2.4
51.	L2.5
52.	L3.1
53.	L3.2

DEVELOPER:	HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS
ADDRESS:	2500 OAKLAND MILLS ROAD, COLUMBIA, MD 21046
ATTN:	MR. MARK KOMACH
PHONE:	410-313-4533
FAX:	410-313-6144

OWNER:	HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS
ADDRESS:	2500 OAKLAND MILLS ROAD, COLUMBIA, MD 21046
ATTN:	MR. MARK KOMACH
PHONE:	410-313-4533
FAX:	410-313-6144

PARCEL #	SEWER CODE	BUILDING CODE	STREET ADDRESS
3/72	PUBLIC	N/A	N/A

PARCEL #	STREET ADDRESS
3/72	PHASE 3, 5700 OAKLAND MILLS ROAD COMFORT STATION, 5706 OAKLAND MILLS ROAD MAINTENANCE FACILITY, 5710 OAKLAND MILLS ROAD

WATER CODE	SEWER CODE	BUILDING CODE	STREET ADDRESS
PUBLIC	PUBLIC	N/A	N/A

PROJECT NAME:	BLANDAIR REGIONAL PARK - PHASE 3
SECTION/AREA:	N/A
PARCEL:	3/72

GRID #S:	450/450, 5200/450
TAX MAP BLOCK:	5
ELEC. DIST. CENSUS TRACT:	3/71
GRID #S:	36
RC-DEO:	6800

DATE:	2-6-17
DATE:	3-21-17
DATE:	3-11-17

DATE:	1-20-17
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APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]

APPROVED: DEPARTMENT OF RECREATION AND PARKS
[Signature]

DATE: 1-20-17

LOCATION MAP

1" = 400'



REVISIONS

HOWARD COUNTY
 DEPARTMENT OF
 RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF
 PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-258-3450 Fax: 410-243-8718


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

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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. 10718
 EXPIRATION DATE: 03/31/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

ABBREVIATIONS, NOTES,
 AND LEGEND

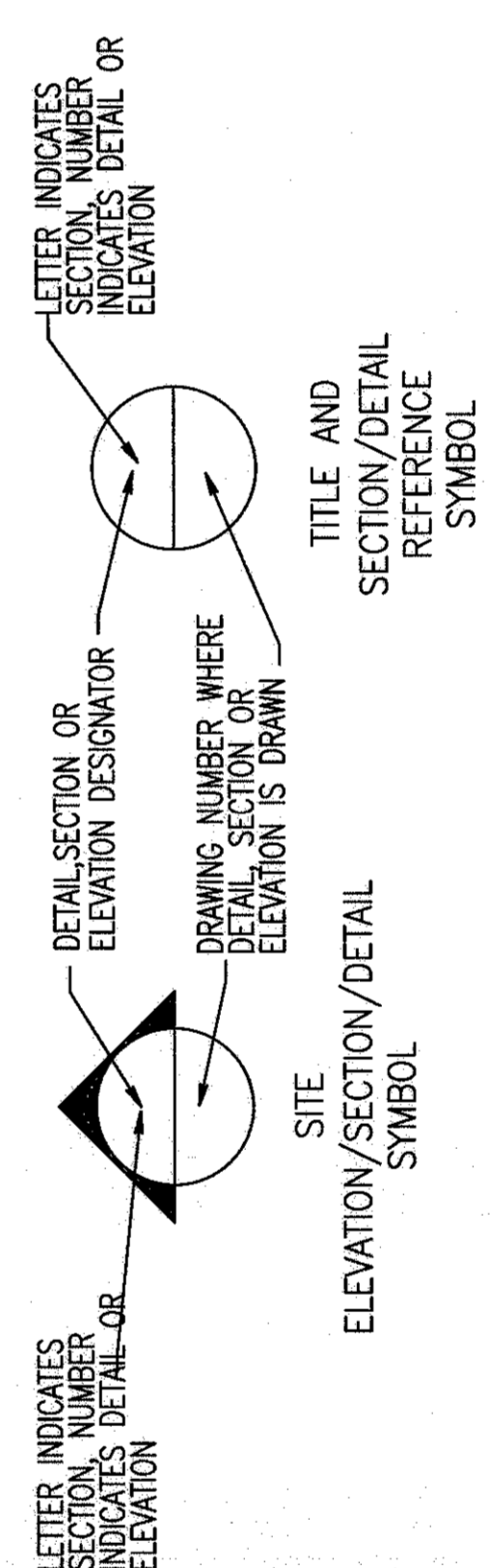
Drawing No.
C0.2

Scale: NONE
 Date: 11/7/2017
 Des: BWJ
 Drawn: AKC
 Check: AUO

Sheet 2 of 76
 SDP-15-050

EXISTING	PROPOSED	DESCRIPTION
145	145	CONTOUR
145.50	145.50	SPOT ELEVATION
12"SD	12"SD	STORM DRAIN
8"W	8"W	WATER
6"SAN	6"SAN	SANITARY SEWER
E	E	UNDERGROUND ELECTRIC
T	T	UNDERGROUND TELEPHONE
G	G	GAS
		CONCRETE CURB AND GUTTER
		FLUSH CURB
		FENCE
		BUILDING
		CONCRETE
		HEAVY DUTY CONCRETE PAVEMENT
		ASPHALT PAVEMENT
		SYNTHETIC TURF
		WATER VALVE
		FIRE HYDRANT
		STORM DRAIN INLET
		STORM DRAIN MANHOLE
		SANITARY SEWER MANHOLE
		ELECTRIC MANHOLE/HANDHOLE
		TELEPHONE MANHOLE
		LIGHT POLE
		UTILITY POLE
		TRANSFORMER
		GENERATOR
		UTILITY MARKER
		ELECTRIC JUNCTION BOX
		GUY WIRE
		SIGN
		EVERGREEN TREE
		DECIDUOUS TREE
		WOODS LINE
		RIPRAP
		15-24.9% SLOPES
		>25% SLOPES
		STREAM
		75' STREAM BUFFER
		FLY MONUMENT
		GPS MONUMENT
		SURVEY TRAVERSE MONUMENT
		LIMIT OF DISTURBANCE
		PROPERTY LINE
		SETBACK
		BORING LOCATION
		100 YEAR FLOODPLAIN

ABBREVIATIONS	DESCRIPTION
AAASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABAND	ABANDON
APPROX	APPROXIMATELY
ASTM	ASSOCIATION FOR STANDARD TESTING METHODS
BLDG	BUILDING
BIT	BITUMINOUS
B.M.	BENCH MARK
CFS	CUBIC FEET PER SECOND
C.I.	CAST IRON
C.I.P.	CAST IRON PIPE
C/L	CENTERLINE
CO	CLEAN OUT
COMM	COMMUNICATION
CONTR. JT.	CONTRACTION JOINT
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
DEMO	DEMOLITION
DIP	DUCTILE IRON PIPE
DIA.	DIAMETER
DWG.	DRAWING
E	EAST
EL. ELEV	ELEVATION
ELECT. ELEC	ELECTRICAL
EMBED	EMBEDDED
EX	EXISTING
EXP. JT.	EXPANSION JOINT
FAC.	EACH WAY FRAME AND COVER
FR.	FRAME AND COVER
FIN. FL.	FINISHED FLOOR
FT.	FEET
FPS	FEET PER SECOND
HB	HORIZONTAL BEND
HO. CO.	HOWARD COUNTY
HC	HANDICAPPED
HP	HIGH POINT
IN	INCH
INVERT	INVERT
IP	INLET PROTECTION
JT.	JOINT
LT	LEFT
LOD	LIMIT OF DISTURBANCE
LP	LOW POINT
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MW	MONITORING WELL
N	NORTH
NE	NORTHEAST
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NW	NORTHWEST
OC, O/C	ON CENTER
OD	OUTSIDE DIAMETER
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PERF	PERFORATED
PL	POINT OF INTERSECTION, POST INDICATOR
POB	POINT OF BEGINNING
POC	POINT ON CURVE
POE	POINT OF END
POT	POINT ON TRANSVERSE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE, POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PWMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
PP	POWER POLE
PV	POST INDICATOR VALVE
PROP	PROPOSED
R	RADIUS, RIGHT
RD	ROAD
RCCP	REINFORCED CONCRETE CULVERT PIPE
RCP	REINFORCED CONCRETE PIPE
REIN. REINF	REINFORCED
RR	RAILROAD
S	SOUTH, SLOPE, SANITARY
SAN	SANITARY
SCE	STABILIZED CONSTRUCTION ENTRANCE
SCH	SCHEDULE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SE	SOUTHEAST
SF	SILT FENCE
SHT	SHEET
SP	STUDY POINT
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STRUCT. STR.	STRUCTURAL
SW	SOUTHWEST
TEL	TELEPHONE
TS&V	TAPPING SLEEVE & VALVE
T/C	TOP OF CURB
TG	TOP OF COVER
TW	TOP OF WALL
TYP	TYPICAL
UC	UNDERGROUND
UE	UNDERGROUND ELECTRIC DUCT
UMH	UNKNOWN MANHOLE
UT	UNDERGROUND TELEPHONE DUCT
UFA	UNDERGROUND FIRE ALARM
VB	VERTICAL BEND
VC	VERTICAL CURVE
W	WEST, WAIT, WATER, WIDE
W/	WITH
WWF	WELDED WIRE FABRIC



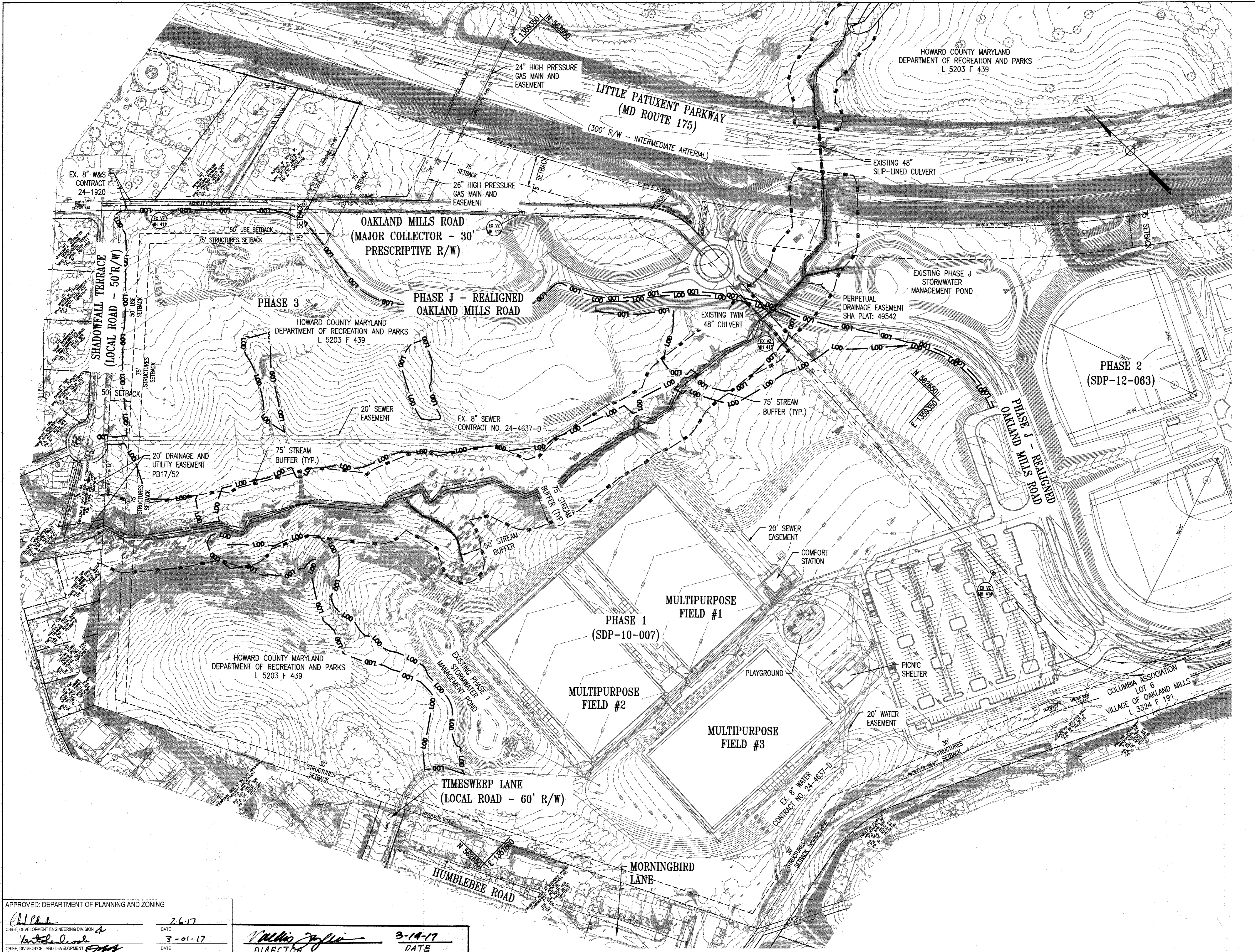
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DATE: 2.6.17

DATE: 3.01.17

DATE: 3.15.17

DATE: 3.15.17



REVISIONS	

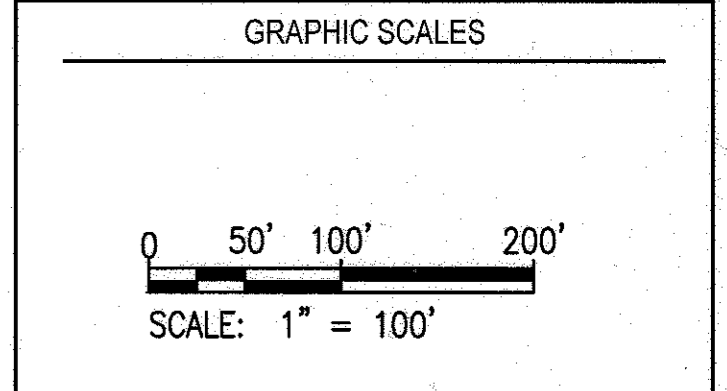
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 COLUMBIA, MD 21046

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 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-236-3450 Fax: 410-243-5718

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

ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

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. 19376
 EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EXISTING CONDITIONS PLAN

Drawing No.
C1.0

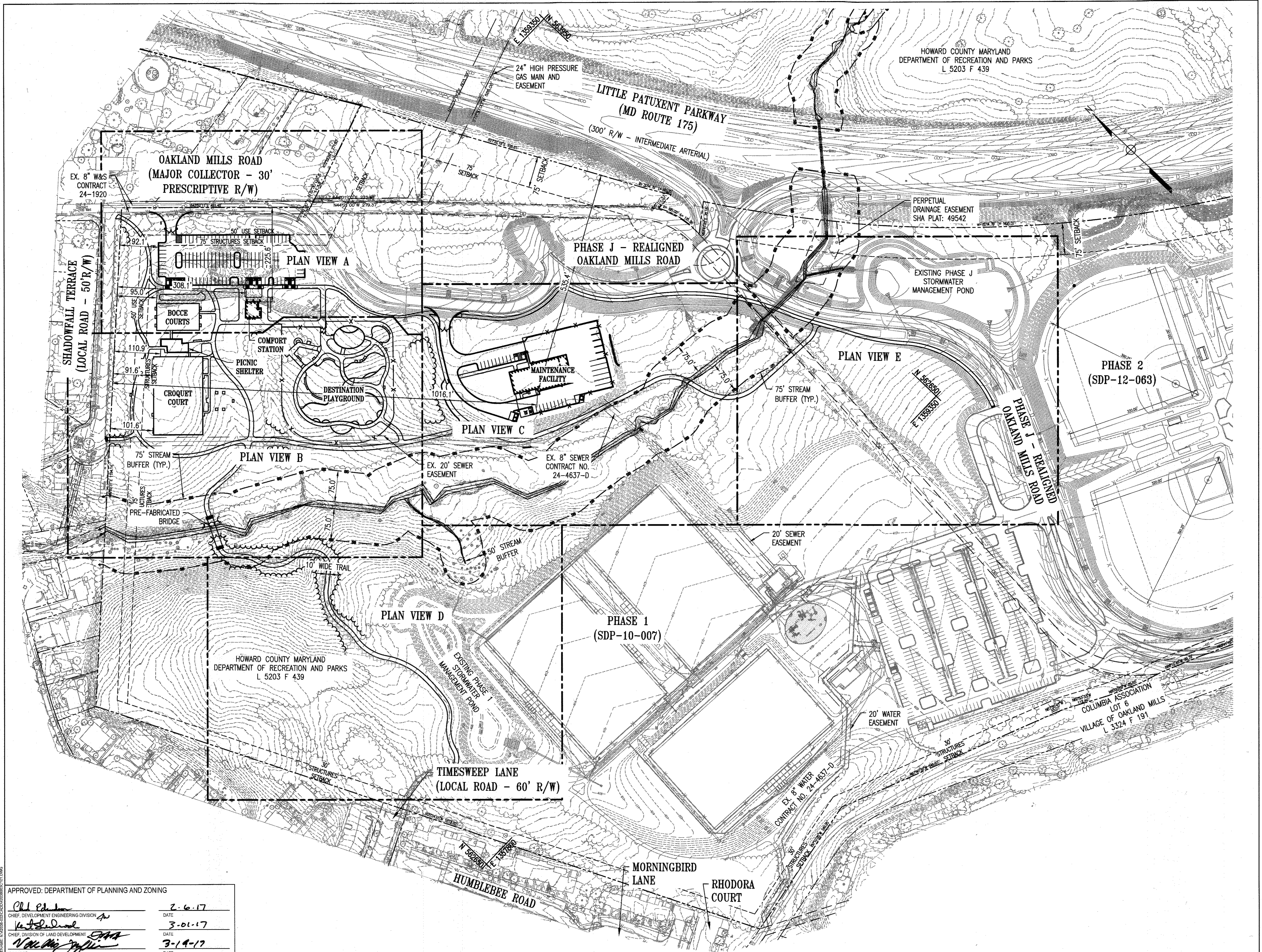
Scale: 1" = 100'
 Date: 1/17/2017 Sheet 3 of 76
 Des: BWJ Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 2-6-17

[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 3-01-17

[Signature]
 DIRECTOR
 DATE: 3-14-17



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

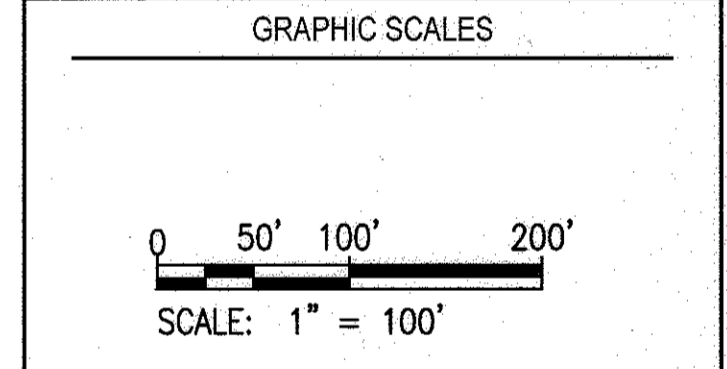
DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



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

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE



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. 18376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

OVERALL SITE DEVELOPMENT PLAN

Drawing No.
C1.1

Scale: 1" = 100'

Date: 1/17/2017 Sheet 4 of 76

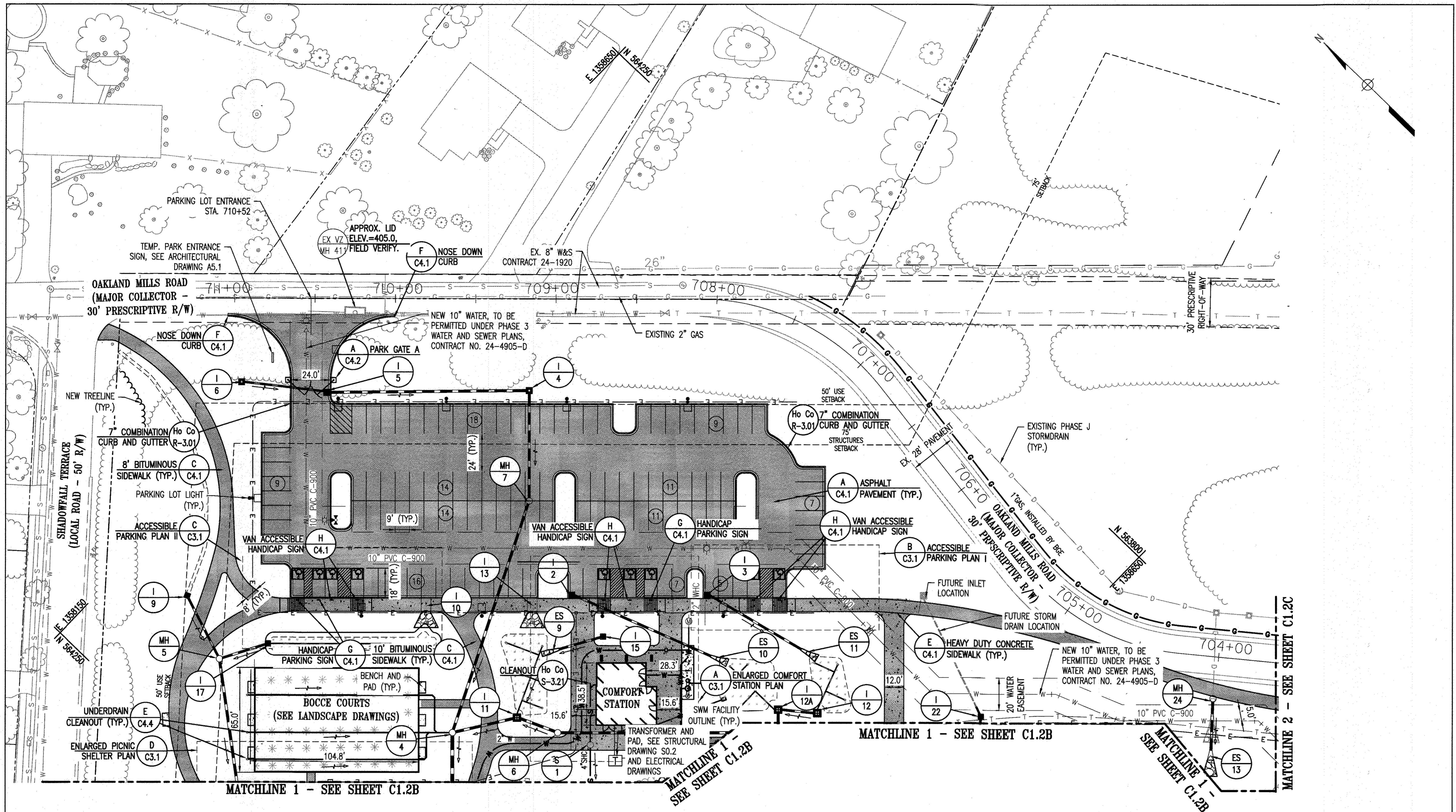
Des: BWJ Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-14-17
 DIRECTOR DATE



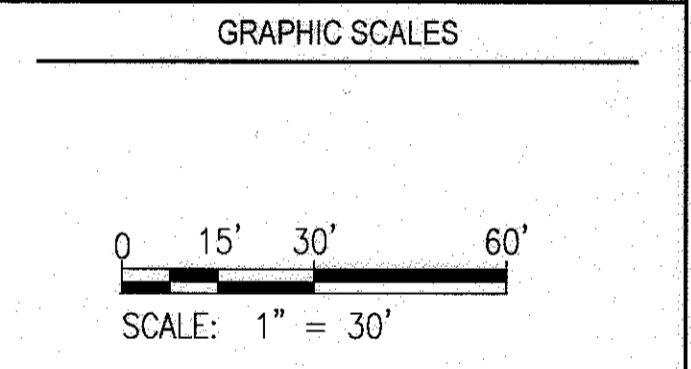
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HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

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BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN A

Drawing No.
C1.2A

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 5 of 76
 Des: BWJ Drawn: AKC Check: AUO

- DRAWING NOTES:**
- ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
 - ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
 - SEE LANDSCAPE DRAWING L1.3 FOR BOCCÉ COURTS ENLARGEMENT AND DETAILS
 - SEE STORM DRAIN PROFILES DRAWINGS FOR STORM DRAIN SIZES
 - ALL UNDERDRAINS ARE 6".
 - SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATED PADS.

LEGEND

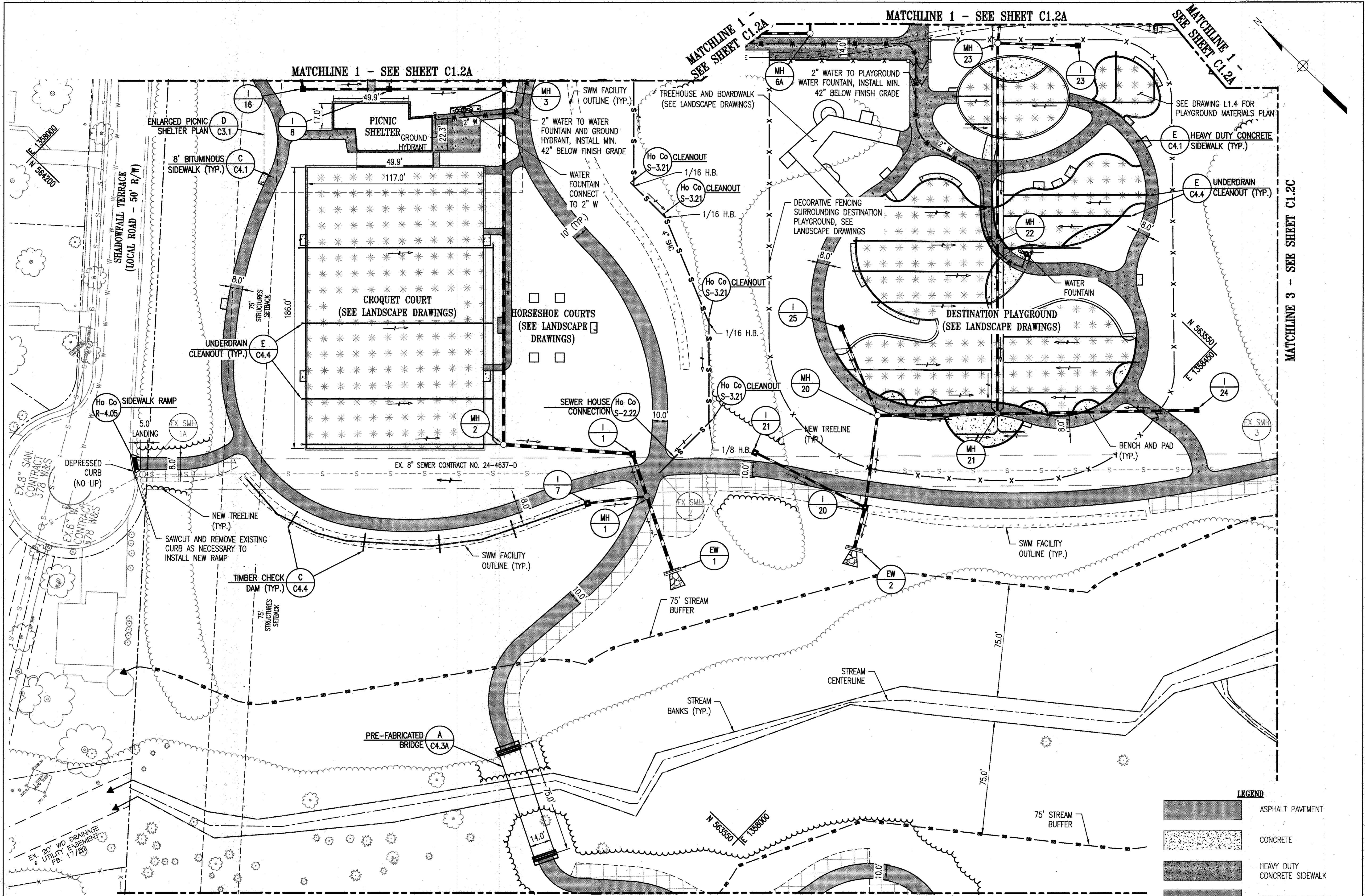
	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-19-17
 DIRECTOR



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

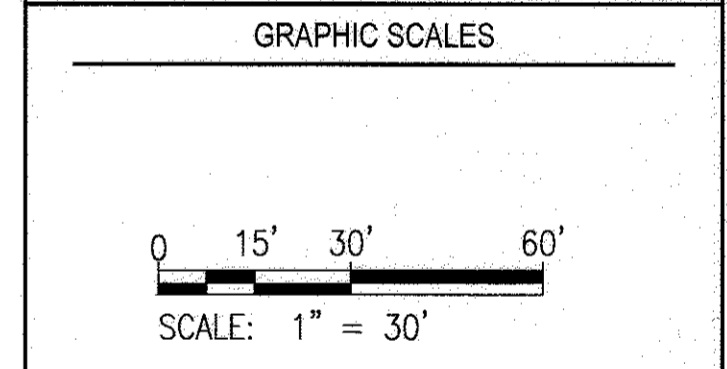
DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

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

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

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. 18376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN B

Drawing No.
C1.2B

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 6 of 76
 Des: BWJ Drawn: AKC Check: AUO

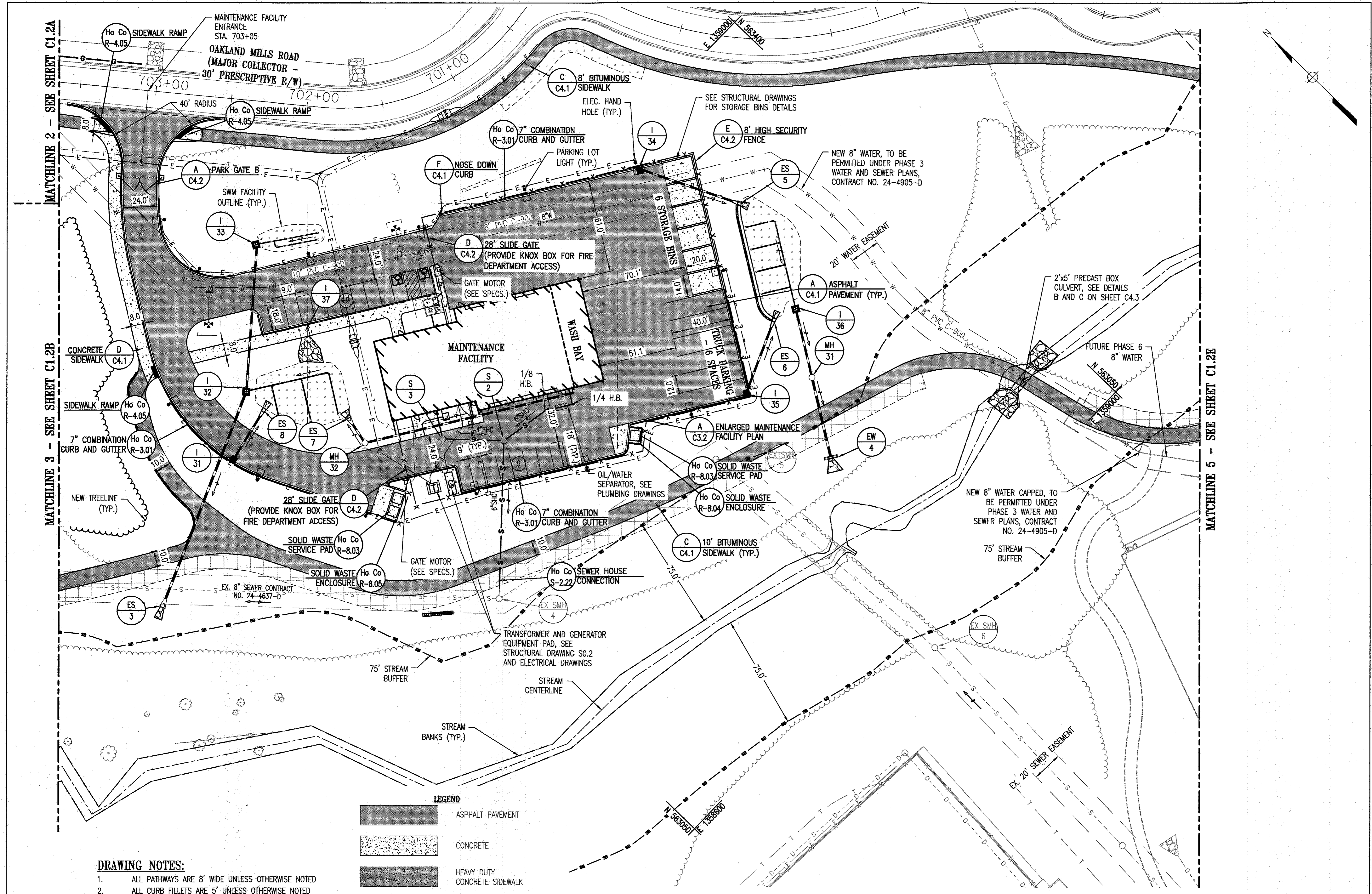
- DRAWING NOTES:**
1. ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
 2. ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
 3. SEE LANDSCAPE DRAWING L1.3 FOR CROQUET COURT ENLARGEMENT AND DETAILS
 5. ALL UNDERDRAINS ARE 6". COORDINATE UNDERDRAIN INSTALLATION WITH PLAYGROUND LAYOUT PRIOR TO CONSTRUCTION. COORDINATE ANY MODIFICATIONS WITH OWNER AND ENGINEER.
 6. SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATED PADS.
 7. SEE LANDSCAPE DRAWINGS FOR ALL FENCES AND GATES IN PLAYGROUND AREA.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Old Clark DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

K. Schuler DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

N. J. [Signature] DATE: 3-19-17
 DIRECTOR

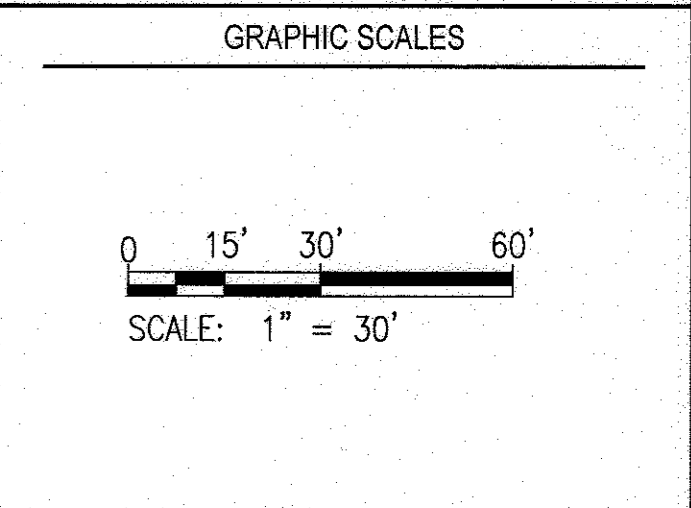


REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
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 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



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 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. 18376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN C
 Drawing No.
C1.2C
 Scale: 1" = 30'
 Date: 1/17/2017 Sheet 7 of 76
 Des: BWJ Drawn: AKC Check: AUO

- DRAWING NOTES:**
- ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
 - ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
 - SEE DRAWING P3.1 FOR MAINTENANCE FACILITY WATER AND SEWER CONNECTION
 - ALL UNDERDRAINS ARE 6".
 - SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATED PADS.

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

- MAINTENANCE NOTES:**
- INLET I-34 SEDIMENT TRAP SUMP IS TO BE CLEANED ANNUALLY.

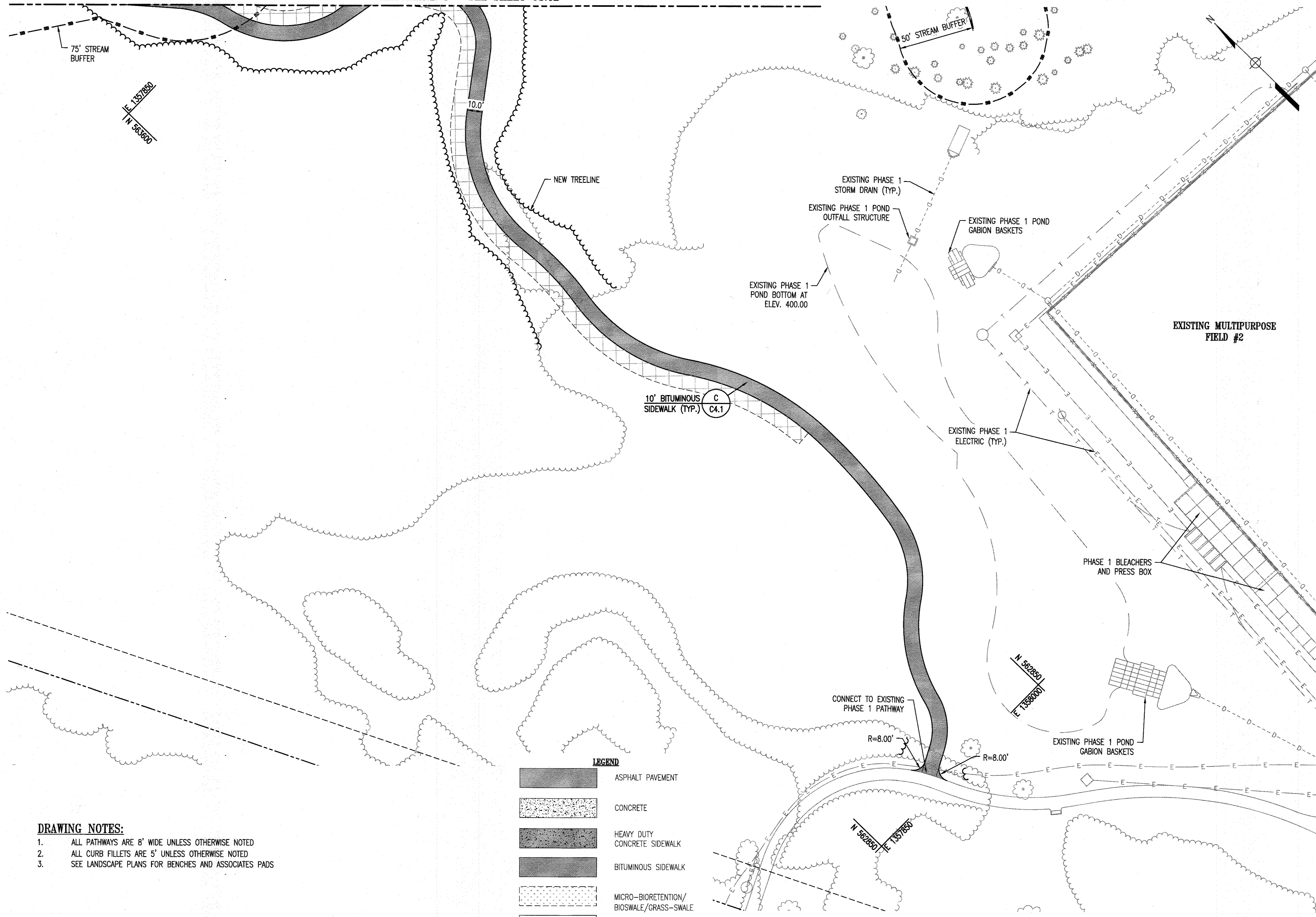
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

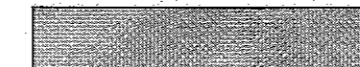
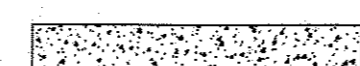
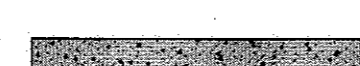

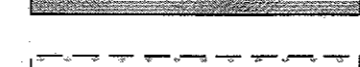
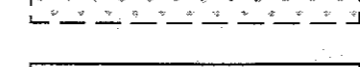

W. ... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N. ... 3-19-17
 DIRECTOR DATE

MATCHLINE 4 - SEE SHEET C1.3B






LEGEND

-  ASPHALT PAVEMENT
-  CONCRETE
-  HEAVY DUTY CONCRETE SIDEWALK
-  BITUMINOUS SIDEWALK
-  MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
-  SYNTHETIC TURF
-  NON-ROOFTOP DISCONNECT AREA

DRAWING NOTES:

1. ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
2. ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
3. SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATES PADS

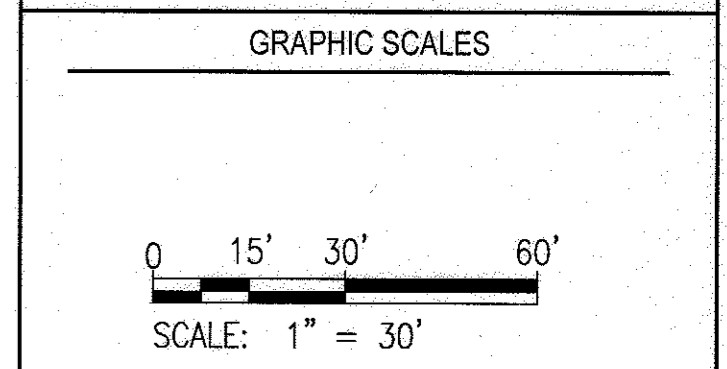
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
	2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
	3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
	3-19-17
DIRECTOR	DATE

REVISIONS	

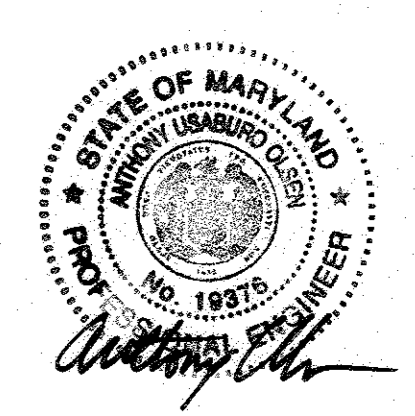
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE



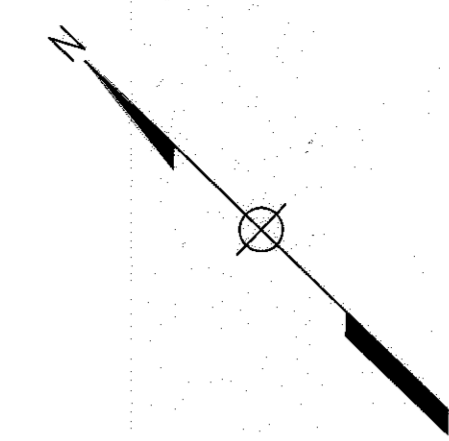
PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376.
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN D

Drawing No.
C1.2D

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 8 of 76
 Des: BWJ Drawn: AKC Check: AUO



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

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 9250 BENDIX ROAD
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WRA
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 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

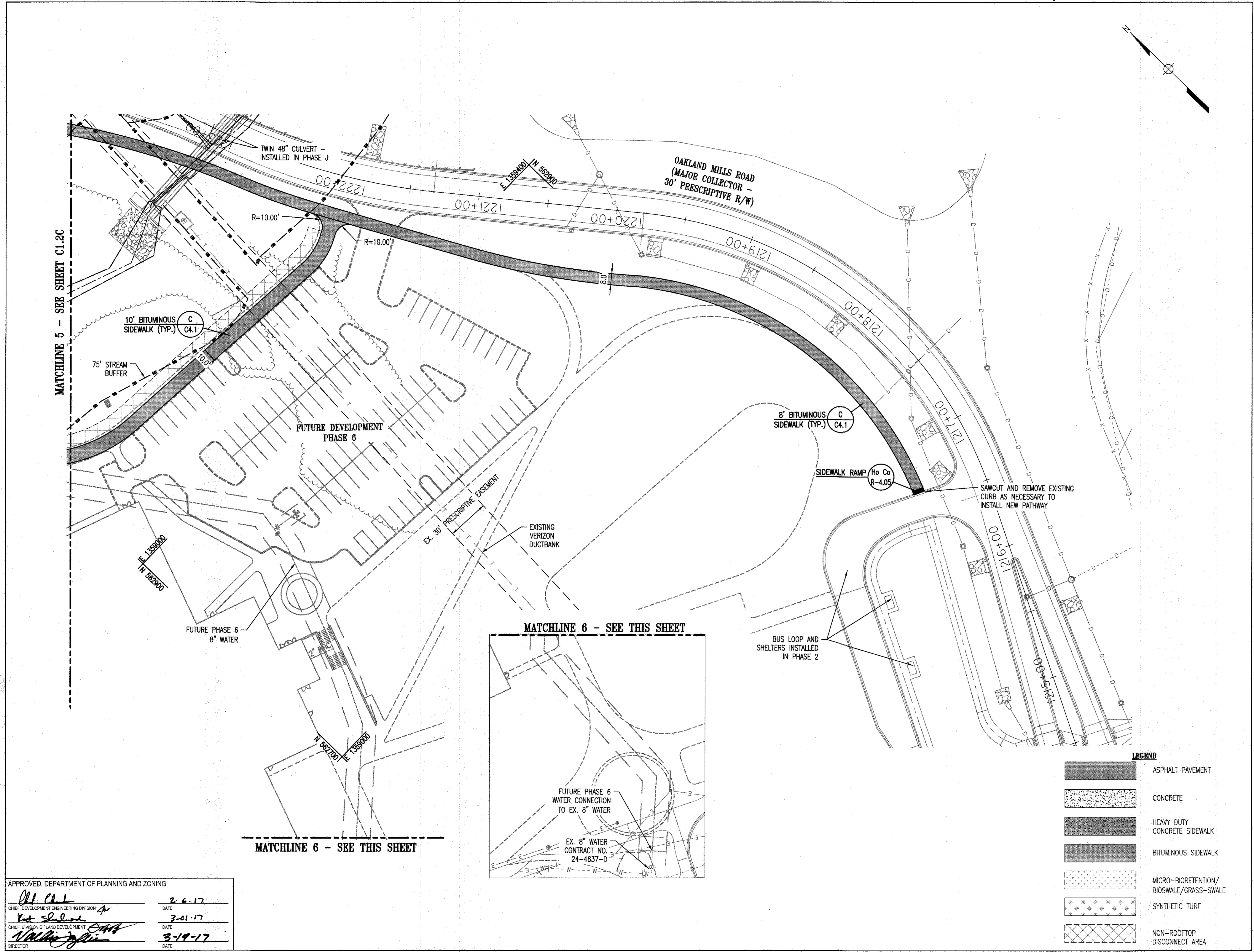
 SCALE: 1" = 30'

SIGNATURE

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. 19376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN E
 Drawing No.
C1.2E
 Scale: 1" = 30'
 Date: 1/17/2017 Sheet 9 of 76
 Des: BWJ Drawn: AKC Check: AUO

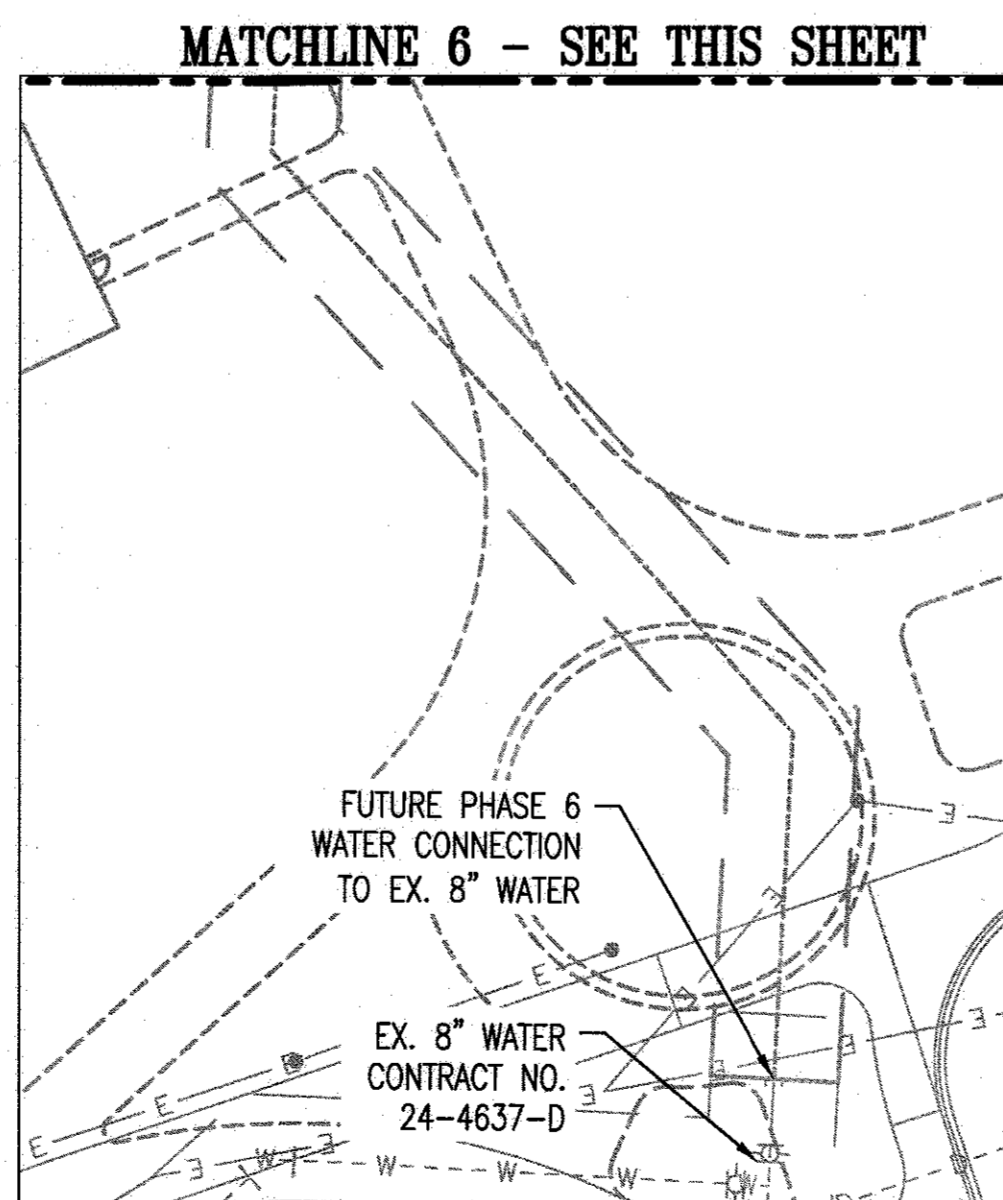


APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

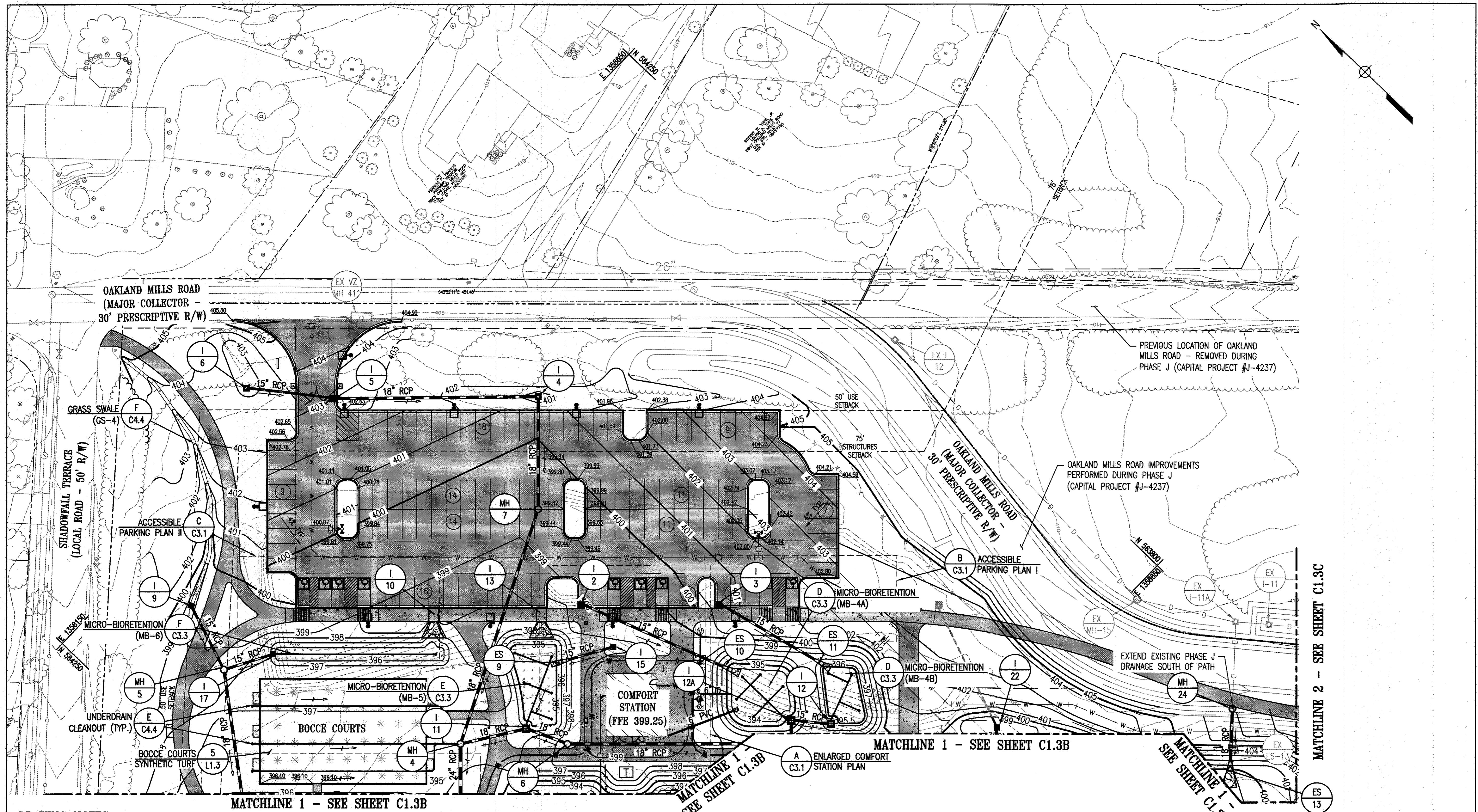
[Signature] DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-19-17
 DIRECTOR



MATCHLINE 5 - SEE SHEET C1.2C

MATCHLINE 6 - SEE THIS SHEET



REVISIONS	

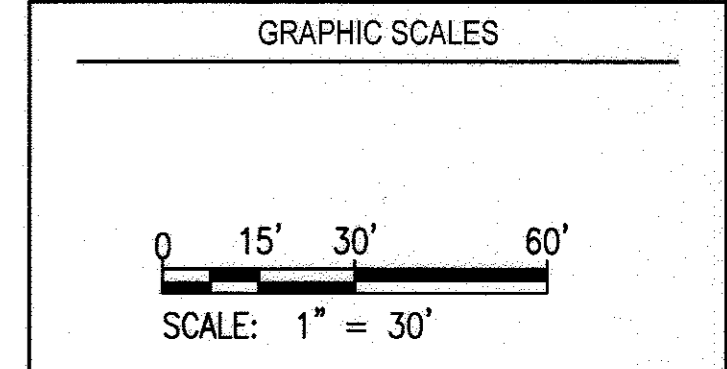
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

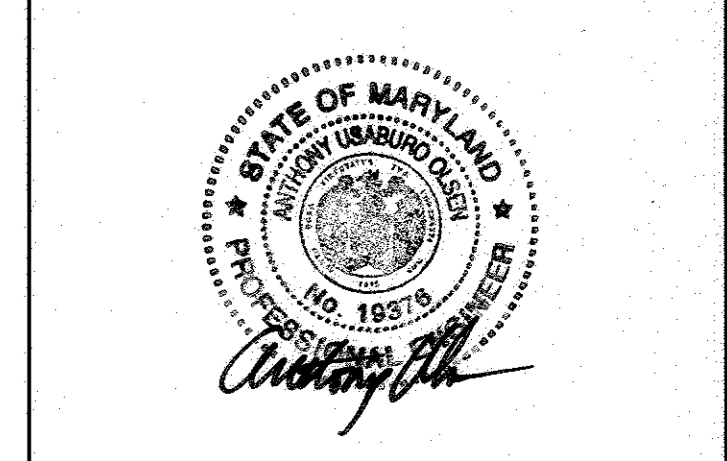


PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE



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. 19376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN A

Drawing No.
C1.3A

Scale: 1" = 30'	Date: 1/17/2017	Sheet 10 of 76
Des: BWJ	Drawn: AKC	Check: AUO

- DRAWING NOTES:**
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
 2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
 3. SEE LANDSCAPE DRAWING L1.3 FOR BOCCIE COURTS ENLARGEMENT AND DETAILS
 4. ALL ROADWAY SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
 5. ALL UNDERDRAINS ARE 6".

LEGEND

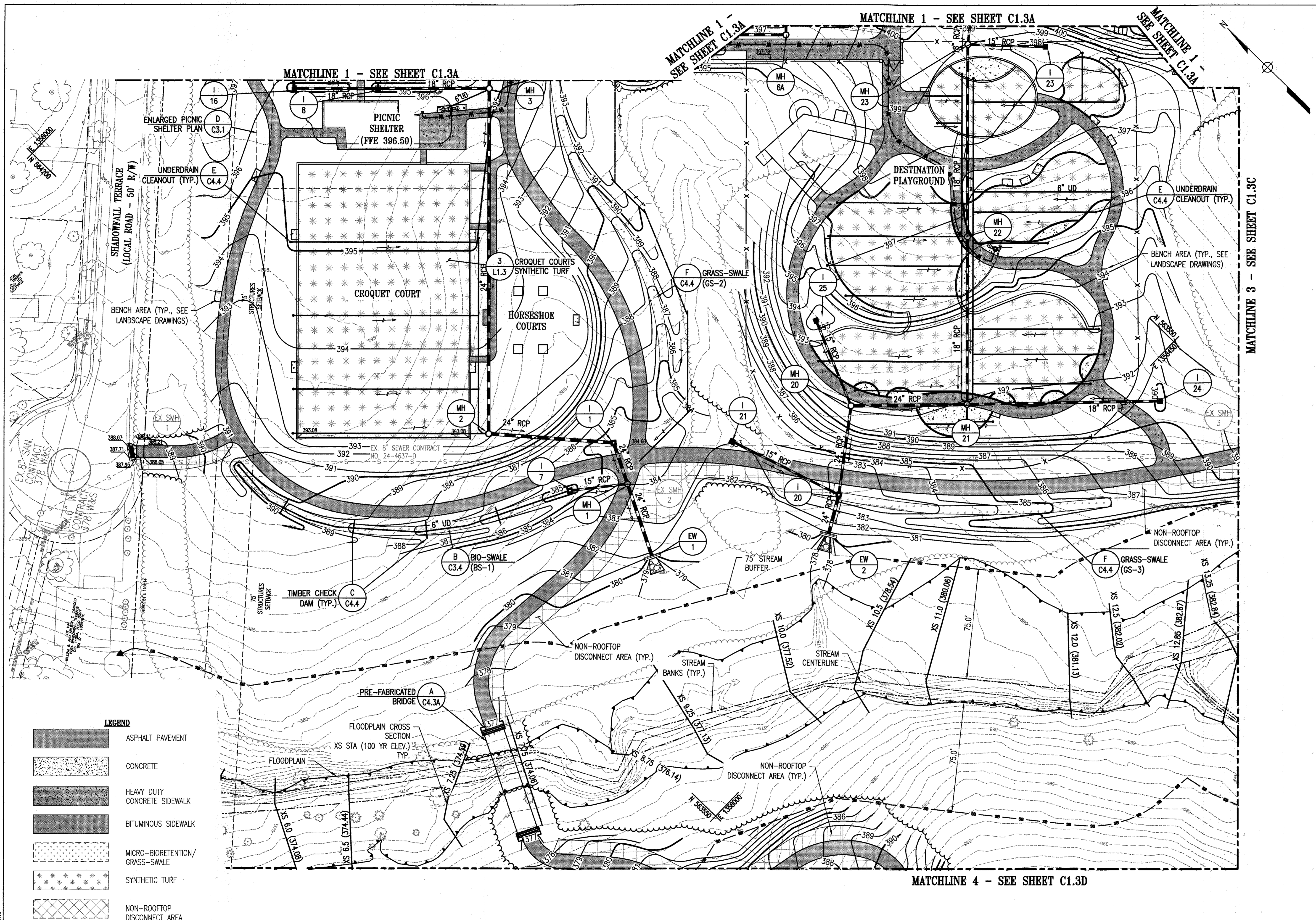
	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/ GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Paul Clark 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Victor S. ... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 3-19-17
 DIRECTOR DATE



REVISIONS	

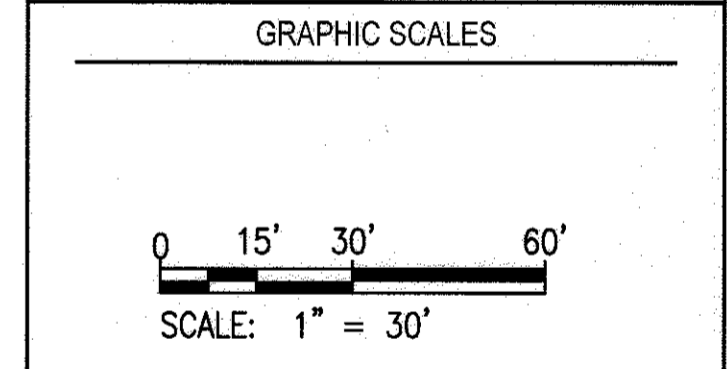
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

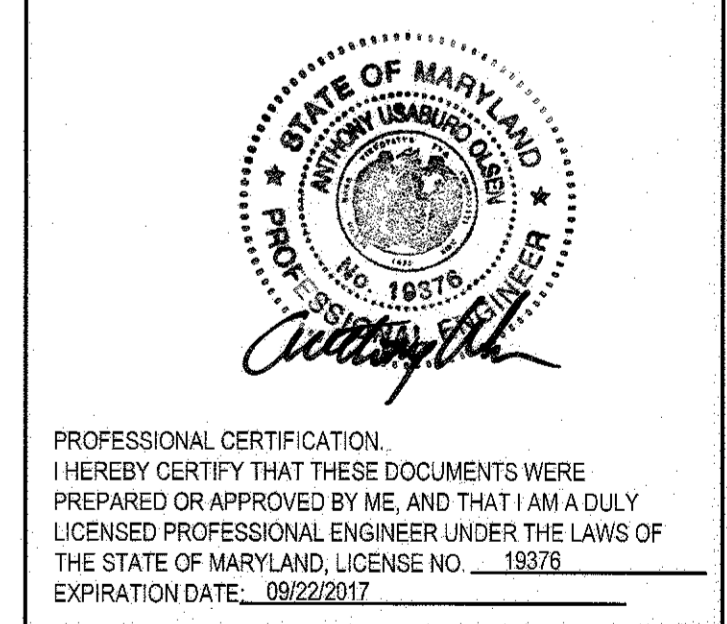


PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE



BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN B

Drawing No.
C1.3B

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 11 of 76
 Des: BWJ Drawn: AKC Check: AUO

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTIVE GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

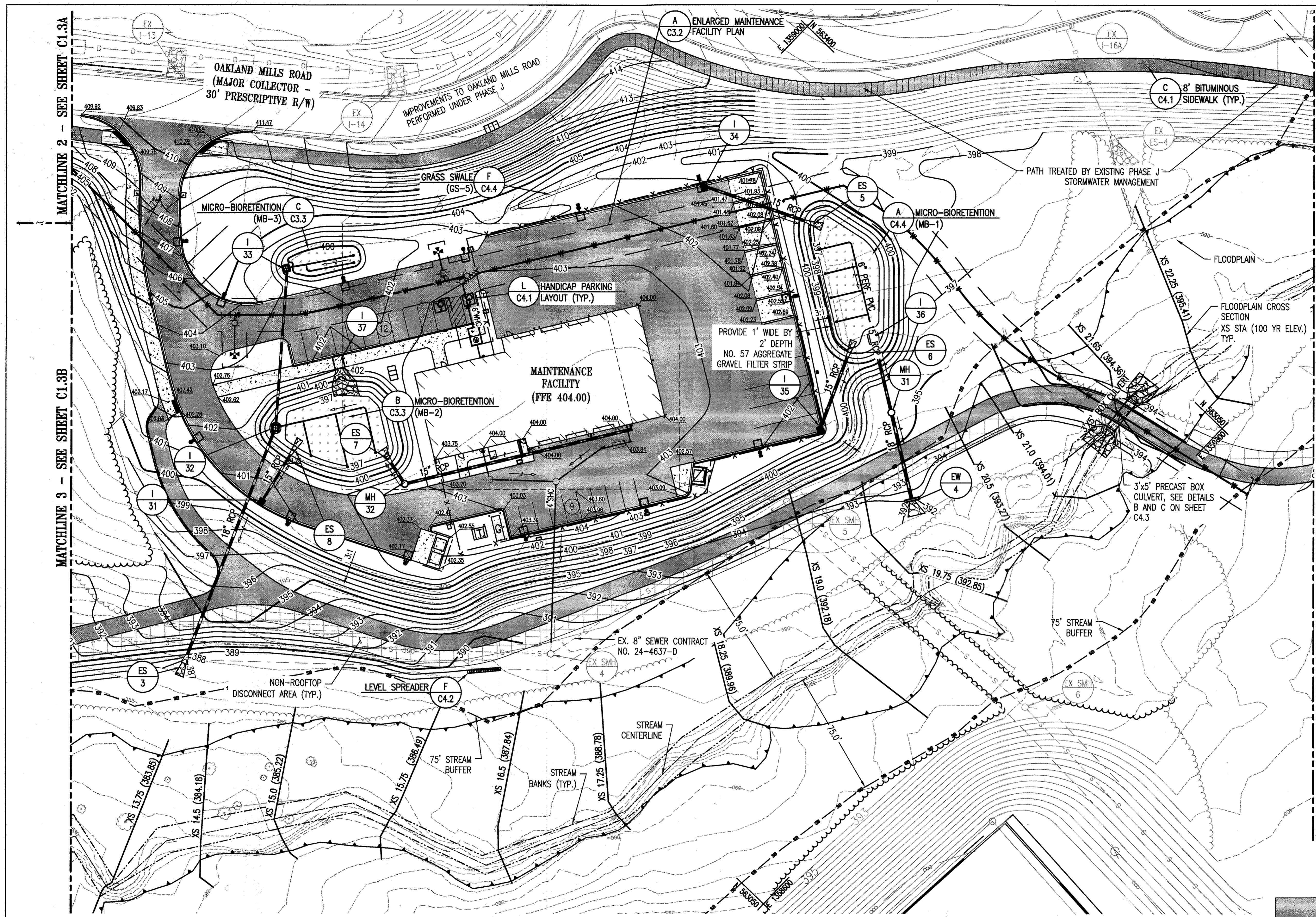
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-21-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-19-17
 DIRECTOR

- DRAWING NOTES:**
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
 2. SEE LANDSCAPE DRAWING L1.3 FOR CROQUET COURTS ENLARGEMENT AND DETAILS
 3. ALL ROADWAY SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
 4. SEE STRUCTURAL DRAWING S5.1 FOR BRIDGE DETAILS.
 5. ALL UNDERDRAINS ARE 6".



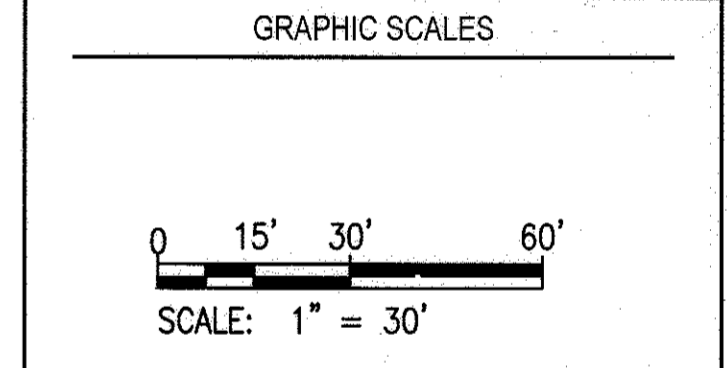
MATCHLINE 2 - SEE SHEET C1.3A
MATCHLINE 3 - SEE SHEET C1.3B
MATCHLINE 5 - SEE SHEET C1.3E

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



SIGNATURE

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. 193276
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN C
Drawing No.
C1.3C
Scale: 1" = 30'
Date: 1/17/2017 Sheet 12 of 76
Des: BWJ Drawn: AKC Check: AUO

- DRAWING NOTES:**
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
 2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
 3. ALL ROADWAY SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
 4. ALL UNDERDRAINS ARE 6".

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/GRASS-SWALE
	SYNTHETIC TURF
	IMPERVIOUS AREA TREATED BY PHASE J/PHASE 1 STORMWATER MANAGEMENT

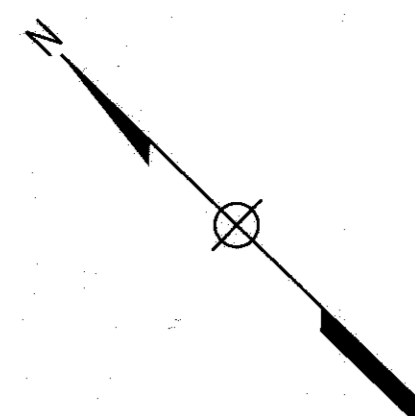
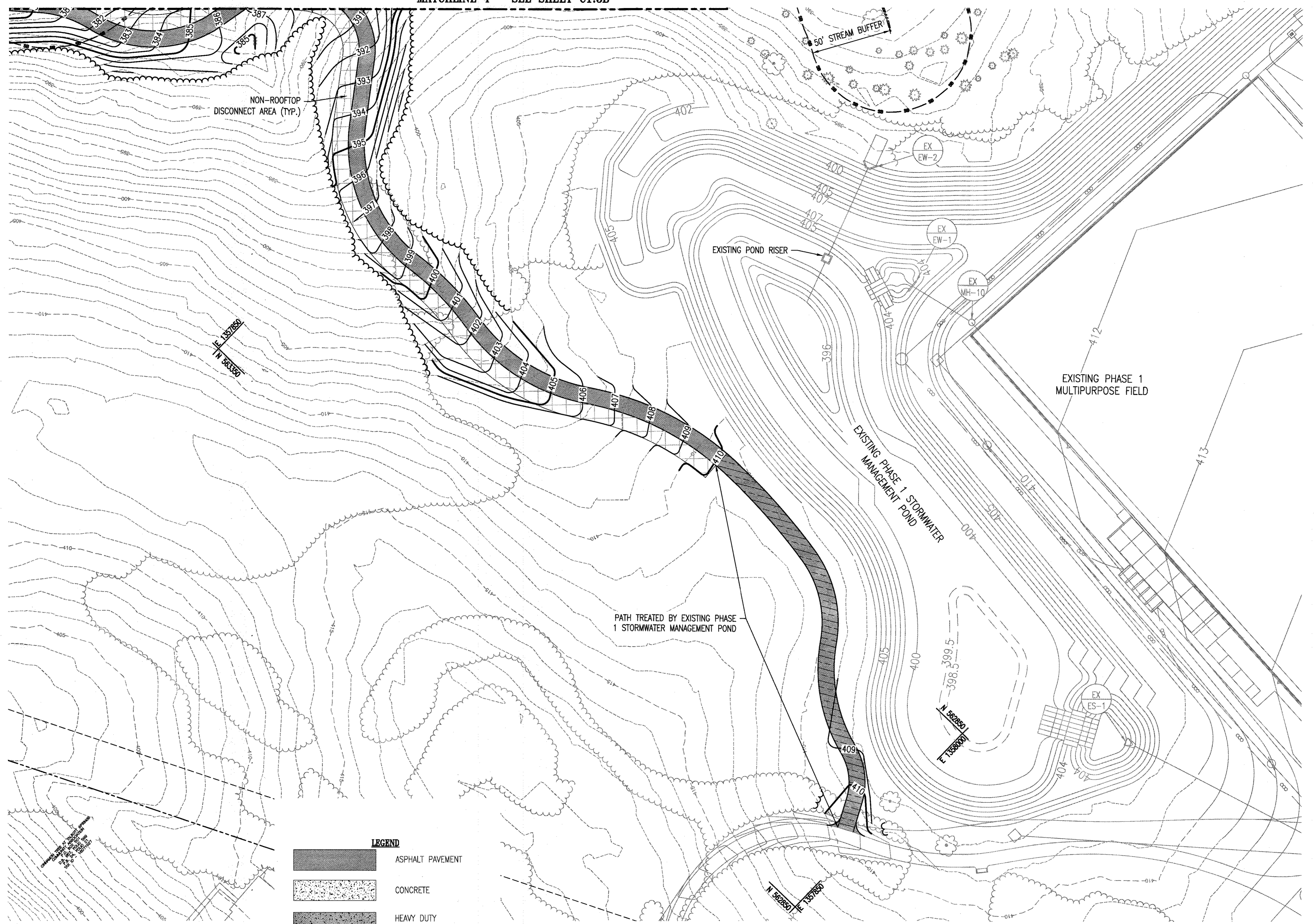
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 7-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-19-17
DIRECTOR

MATCHLINE 4 - SEE SHEET C1.3B



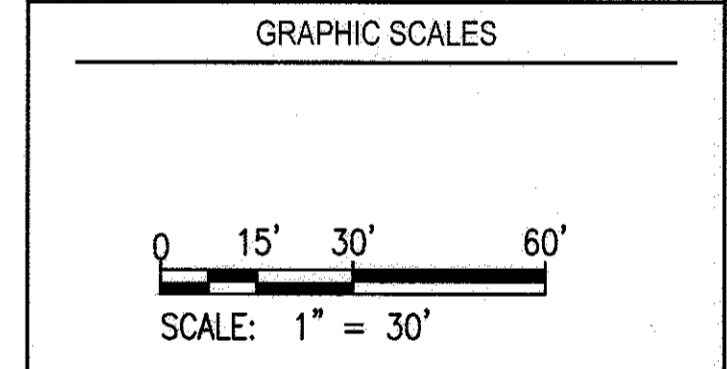
REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-335-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

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. 19376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN D

Drawing No.
C1.3D

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 13 of 76
 Des: BWJ Drawn: AKC Check: AUO

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/GRASS-SWALE
	SYNTHETIC TURF
	IMPERVIOUS AREA TREATED BY PHASE J/PHASE 1 STORMWATER MANAGEMENT

DRAWING NOTES:
 1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2.6.17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3.01.17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE

FILE NAME: N:\2025\002\002\CAD\20250305\002.DWG

REVISIONS	

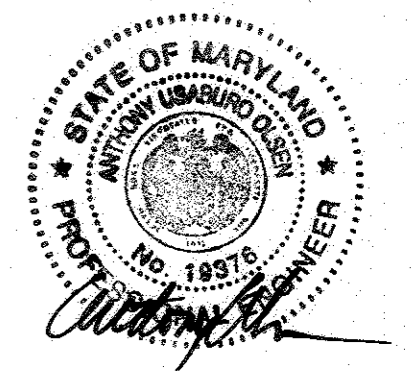
HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

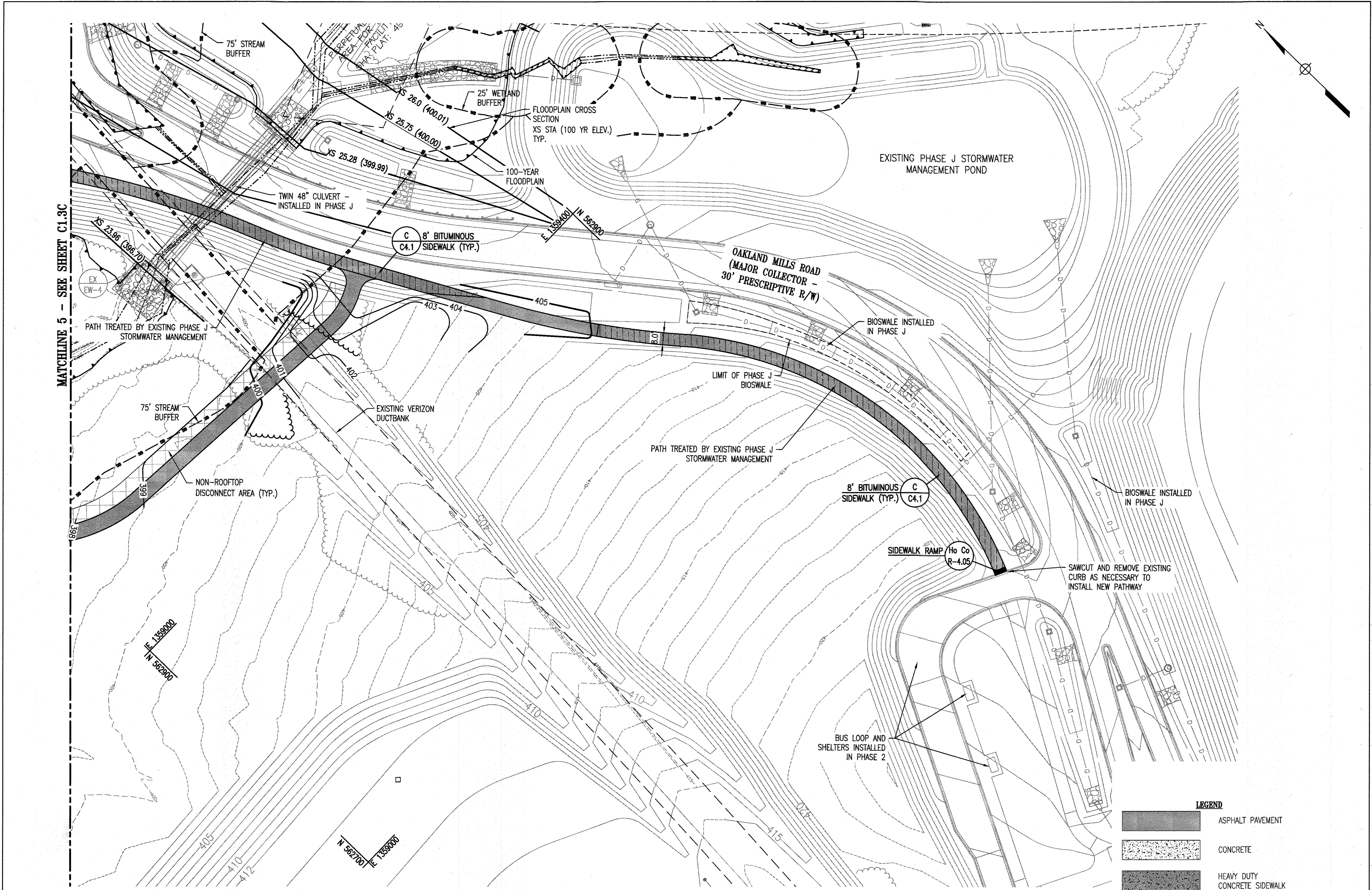
GRAPHIC SCALES
0 15' 30' 60'
SCALE: 1" = 30'

SIGNATURE


PROFESSIONAL CERTIFICATION
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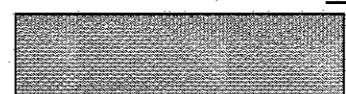
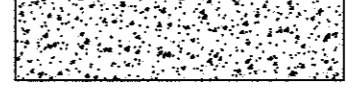
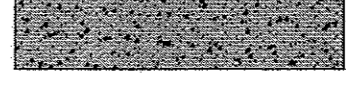

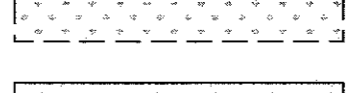

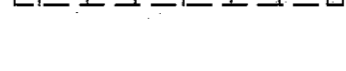
BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN E
Drawing No.
C1.3E
Scale: 1" = 30'
Date: 1/17/2017 Sheet 14 of 76
Des: BWJ Drawn: AKC Check: AUO


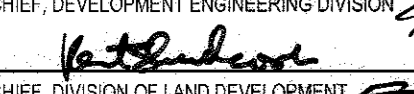



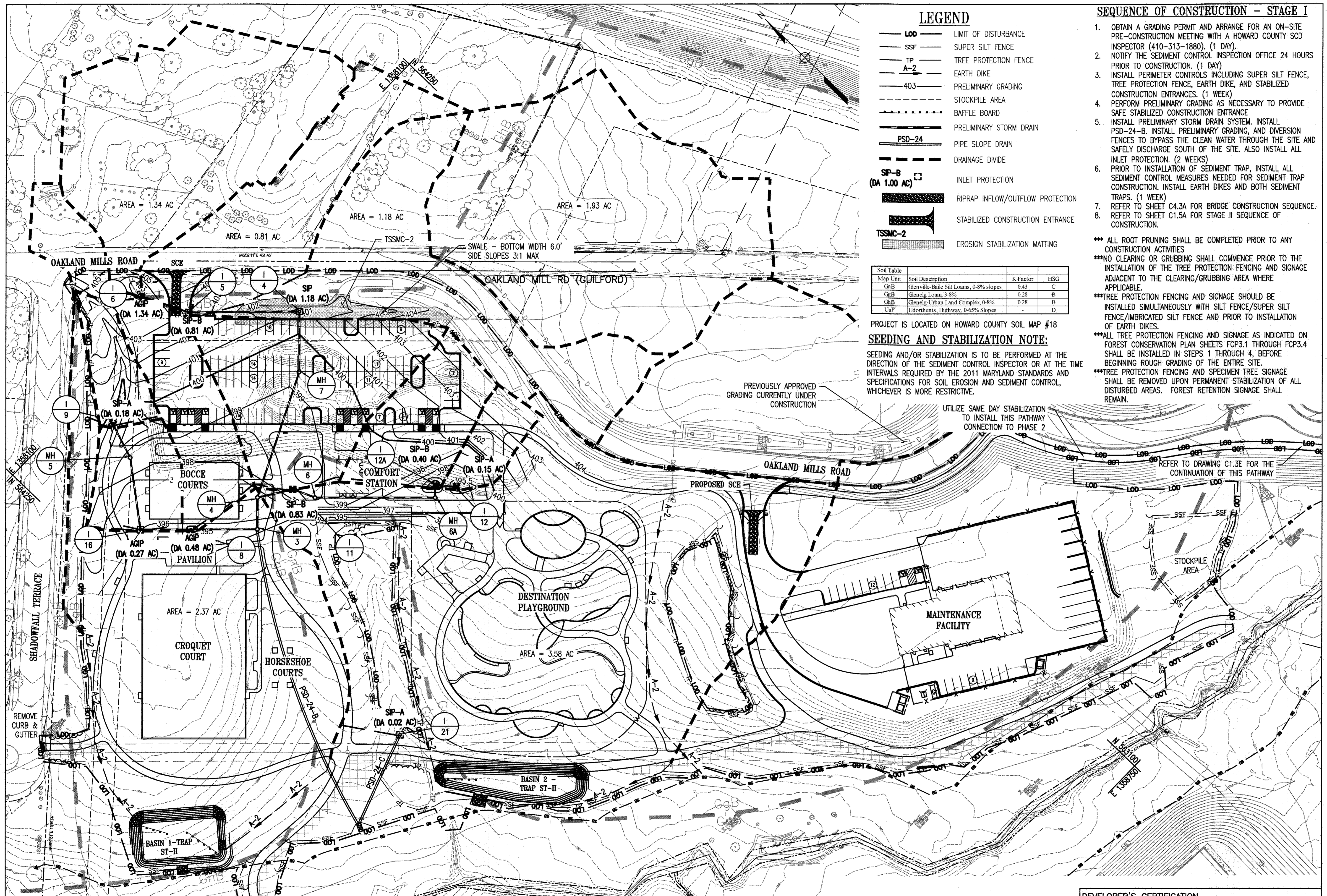
DRAWING NOTES:
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/GRASS-SWALE
	SYNTHETIC TURF
	IMPERVIOUS AREA TREATED BY PHASE J/PHASE 1 STORMWATER MANAGEMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

	DATE
2-6-17	
	DATE
3-01-17	
	DATE
3-19-17	



LEGEND

- LOD — LIMIT OF DISTURBANCE
- SSF — SUPER SILT FENCE
- TP — TREE PROTECTION FENCE
- A-2 — EARTH DIKE
- 403 — PRELIMINARY GRADING
- — STOCKPILE AREA
- — BAFFLE BOARD
- — PRELIMINARY STORM DRAIN
- PSD-24 — PIPE SLOPE DRAIN
- — DRAINAGE DIVIDE
- SIP-B (DA 1.00 AC) — INLET PROTECTION
- — RIPRAP INFLOW/OUTFLOW PROTECTION
- — STABILIZED CONSTRUCTION ENTRANCE
- TSSMC-2 — EROSION STABILIZATION MATTING

Soil Table	Map Unit	Soil Description	K Factor	HSG
CaB	CaB	Glenville-Bulle Silt Loams, 0-8% slopes	0.45	C
CaB	CaB	Glenelg Loam, 3-8%	0.28	B
ChB	ChB	Glenelg-Urban Land Complex, 0-8%	0.28	B
UaF	UaF	Udorthents, Highway, 0-6% Slopes	-	D

PROJECT IS LOCATED ON HOWARD COUNTY SOIL MAP #18

SEEDING AND STABILIZATION NOTE:

SEEDING AND/OR STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME INTERVALS REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.

SEQUENCE OF CONSTRUCTION - STAGE I

1. OBTAIN A GRADING PERMIT AND ARRANGE FOR AN ON-SITE PRE-CONSTRUCTION MEETING WITH A HOWARD COUNTY SCD INSPECTOR (410-313-1880). (1 DAY)
2. NOTIFY THE SEDIMENT CONTROL INSPECTION OFFICE 24 HOURS PRIOR TO CONSTRUCTION. (1 DAY)
3. INSTALL PERIMETER CONTROLS INCLUDING SUPER SILT FENCE, TREE PROTECTION FENCE, EARTH DIKE, AND STABILIZED CONSTRUCTION ENTRANCES. (1 WEEK)
4. PERFORM PRELIMINARY GRADING AS NECESSARY TO PROVIDE SAFE STABILIZED CONSTRUCTION ENTRANCE
5. INSTALL PRELIMINARY STORM DRAIN SYSTEM. INSTALL PSD-24-B. INSTALL PRELIMINARY GRADING, AND DIVERSION FENCES TO BYPASS THE CLEAN WATER THROUGH THE SITE AND SAFELY DISCHARGE SOUTH OF THE SITE. ALSO INSTALL ALL INLET PROTECTION. (2 WEEKS)
6. PRIOR TO INSTALLATION OF SEDIMENT TRAP, INSTALL ALL SEDIMENT CONTROL MEASURES NEEDED FOR SEDIMENT TRAP CONSTRUCTION. INSTALL EARTH DIKES AND BOTH SEDIMENT TRAPS. (1 WEEK)
7. REFER TO SHEET C4.3A FOR BRIDGE CONSTRUCTION SEQUENCE.
8. REFER TO SHEET C1.5A FOR STAGE II SEQUENCE OF CONSTRUCTION.

*** ALL ROOT PRUNING SHALL BE COMPLETED PRIOR TO ANY CONSTRUCTION ACTIVITIES

***NO CLEARING OR GRUBBING SHALL COMMENCE PRIOR TO THE INSTALLATION OF THE TREE PROTECTION FENCING AND SIGNAGE ADJACENT TO THE CLEARING/GRUBBING AREA WHERE APPLICABLE.

***TREE PROTECTION FENCING AND SIGNAGE SHOULD BE INSTALLED SIMULTANEOUSLY WITH SILT FENCE/SUPER SILT FENCE/IMBRICATED SILT FENCE AND PRIOR TO INSTALLATION OF EARTH DIKES.

***ALL TREE PROTECTION FENCING AND SIGNAGE AS INDICATED ON FOREST CONSERVATION PLAN SHEETS FCP3.1 THROUGH FCP3.4 SHALL BE INSTALLED IN STEPS 1 THROUGH 4, BEFORE BEGINNING ROUGH GRADING OF THE ENTIRE SITE.

***TREE PROTECTION FENCING AND SPECIMEN TREE SIGNAGE SHALL BE REMOVED UPON PERMANENT STABILIZATION OF ALL DISTURBED AREAS. FOREST RETENTION SIGNAGE SHALL REMAIN.

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5718

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES
0 25' 50' 100'
SCALE: 1" = 50'

SIGNATURE

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. 19376, EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE I
Drawing No. **C1.4A**
Scale: 1" = 50'
Date: 1/17/2017 Sheet 15 of 76
Des: SAD Drawn: AKC Check: AUO

MATCHLINE - SEE SHEET C1.4B

EROSION AND SEDIMENT CONTROL PLAN - STAGE I
1" = 50'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

 DATE: 2-6-17

 DATE: 2-01-17

 DATE: 2-19-17

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

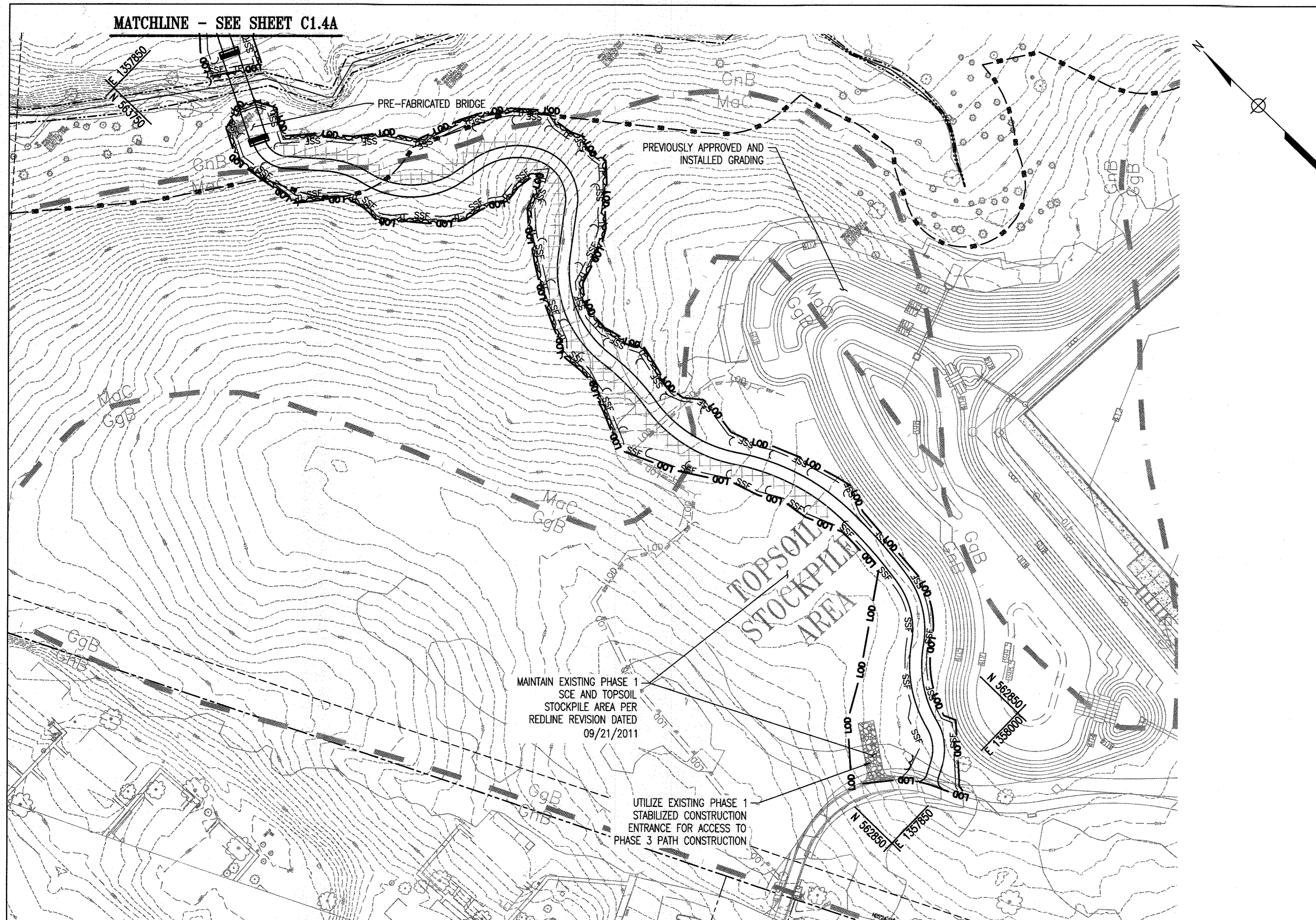
 DATE: 1/31/17

ENGINEER'S CERTIFICATION
 "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."

 DATE: 1/23/17

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

 DATE: 1-23-17



- LEGEND**
- LOD — LIMIT OF DISTURBANCE
 - SSF — SUPER SILT FENCE
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 - SIP-B (DA 1.00 AC) — INLET PROTECTION
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SEEDING AND STABILIZATION NOTE:
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EROSION AND SEDIMENT CONTROL PLAN - STAGE I
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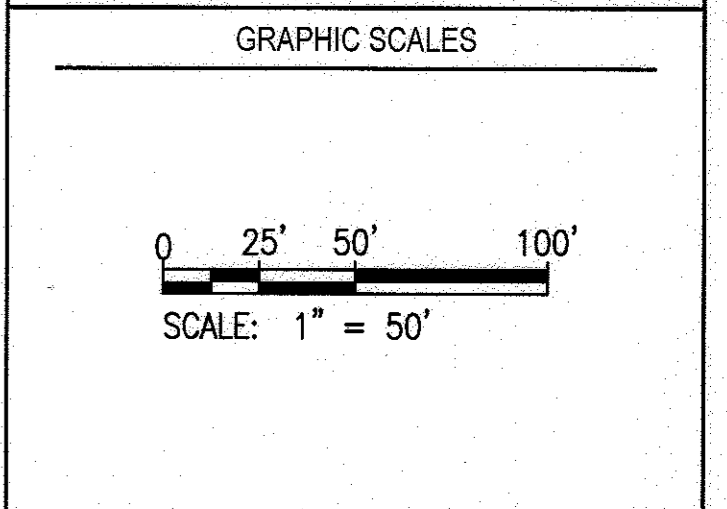
REVISIONS	

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 ELECTION DISTRICT 3/7



SIGNATURE

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BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE I

Drawing No.
C1.4B

Scale: 1" = 50'
 Date: 1/17/2017 Sheet 16 of 76
 Des: AKC Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE

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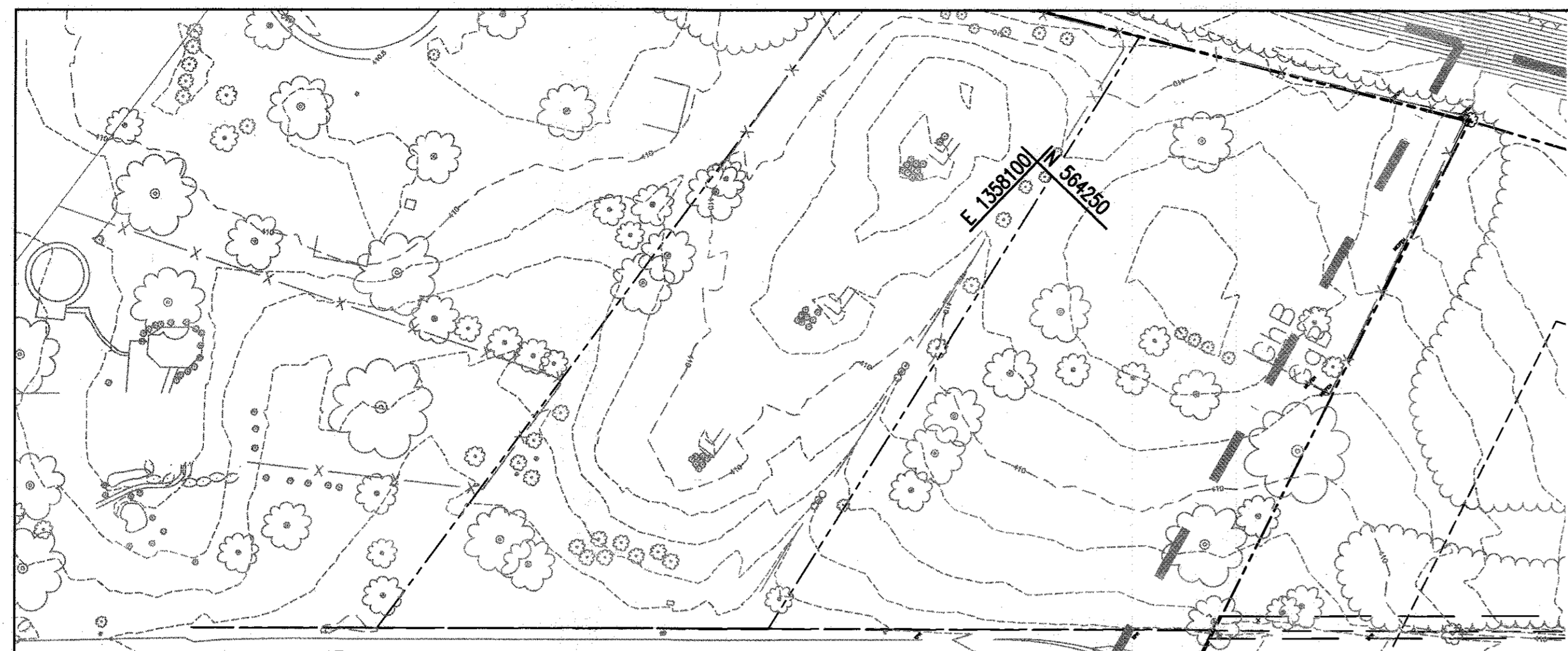
[Signature] 1/31/17
 HOWARD SOIL CONSERVATION DISTRICT DATE

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[Signature] 1/23/17
 SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE

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[Signature] 1-23-17
 SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE



LEGEND

- LOD — LIMIT OF DISTURBANCE
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- TSSMC-2 — EROSION STABILIZATION MATTING

Soil Table	Soil Description	K Factor	HSG
CnB	Glennville-Bale Silt Loams, 0-8% slopes	0.43	C
CeB	Glennville Loam, 3-8%	0.28	B
ChB	Glennville-Urban Land Complex, 0-8%	0.28	B
UaF	Udorthens, Highway, 0-65% Slopes	-	D

PROJECT IS LOCATED ON HOWARD COUNTY SOIL MAP #18

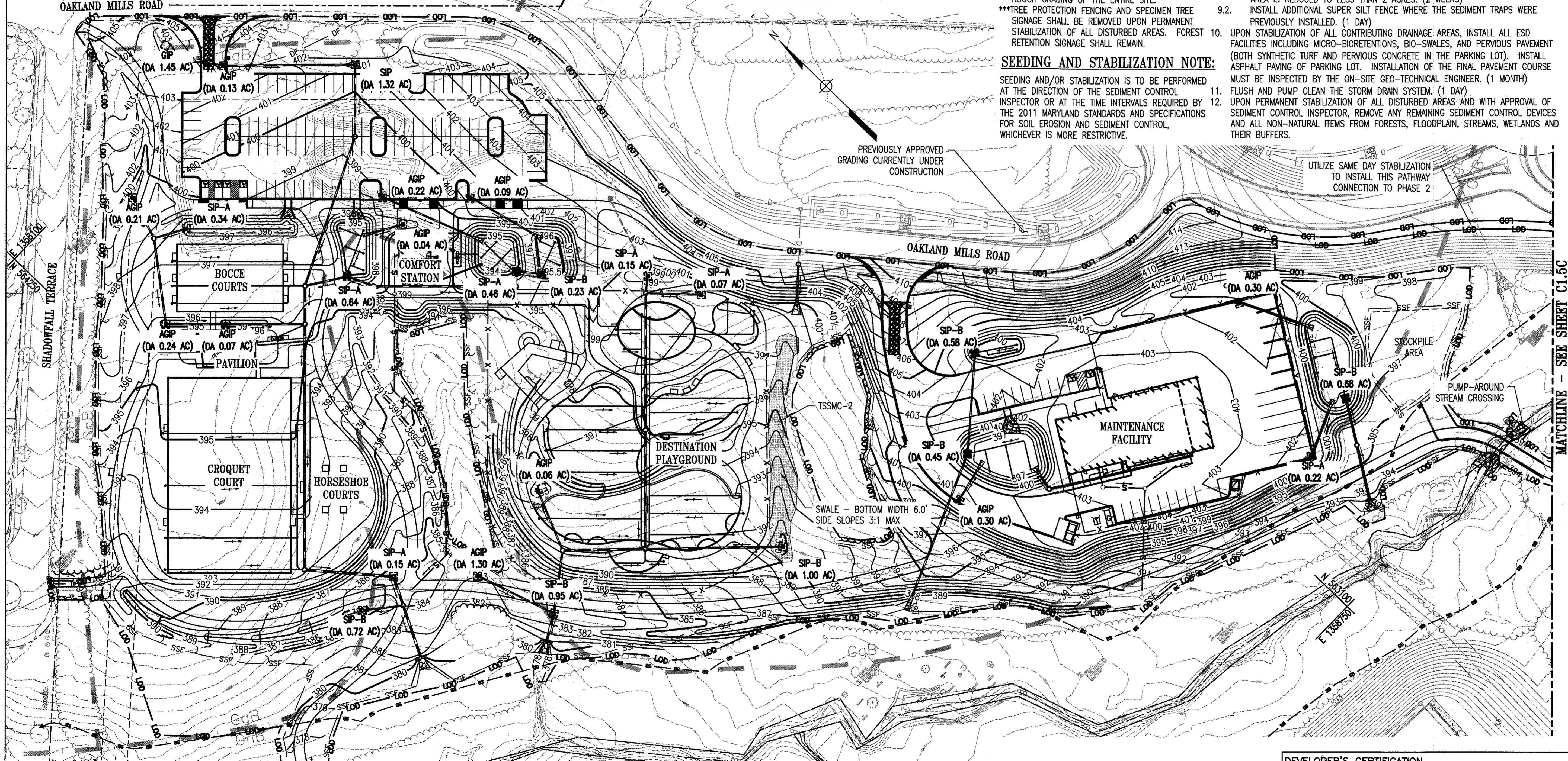
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 ***ALL TREE PROTECTION FENCING AND SIGNAGE AS INDICATED ON FOREST CONSERVATION PLAN SHEETS F3.1 THROUGH F3.4 SHALL BE INSTALLED IN STEPS 1 THROUGH 4, BEFORE BEGINNING ROUGH GRADING OF THE ENTIRE SITE.
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SEQUENCE OF CONSTRUCTION - STAGE II

1. REFER TO SHEET C1.4A FOR STAGE I SEQUENCE OF CONSTRUCTION.
2. PERFORM ROUGH GRADING. (3 MONTHS)
3. INSTALL ALL UTILITIES AND COORDINATE ROUGH GRADING OPERATION. DURING INSTALLATION OF SANITARY AND WATER, ONLY EXCAVATE AMOUNT OF TRENCH TO ALLOW INSTALLATION OF PIPE AND BACKFILL WITHIN 1 WORK DAY. PLACE EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH AND IMMEDIATELY STABILIZE ALL DISTURBED AREAS AROUND TRENCH AT THE END OF EACH WORK DAY. (1 MONTH)
4. INSTALL SUBBASE FOR PARKING LOT AND ALL PAVING AREAS. REMOVE PORTIONS OF DIVERSION FENCE AS GRADING PROGRESSES AND PROPER STABILIZED FLOW TO INLETS IS ESTABLISHED. (1 MONTH)
5. INSTALL PUMP-AROUND STREAM CROSSING MEASURES PRIOR TO ANY WORK WITHIN THE STREAM. PERFORM UTILITY AND GRADING IMPROVEMENTS AT STREAM CROSSINGS AND ENSURE PERMANENT STABILIZATION OF ALL DISTURBED AREA AROUND THE STREAM CROSSINGS. NOTE: THE WORK IN STREAM CROSSINGS MAY BE CONCURRENT WITH GRADING AND SITE WORK WITHIN THE SITE. (1 MONTH). REFER TO SHEET C4.3 FOR BOX CULVERT CONSTRUCTION SEQUENCE. NO INSTREAM WORK MAY BE PERFORMED BETWEEN MARCH 1 AND MAY 31 DUE TO STREAM CLOSURE.
6. INSTALL STORM DRAIN SYSTEM THROUGHOUT DESTINATION PLAYGROUND (UNDERDRAINS, MH-22 & I-21 TO ES-2) REMOVE PSD-24-A AND PSD-24-A.
7. INSTALL STORM DRAIN SYSTEM FROM MH-2 TO ES-1 AND REMOVE PSD-24-B.
8. INSTALL ALL ARTIFICIAL TURF ELEMENTS. (2 MONTHS)
9. INSTALL PARKING CURB AND GUTTER, SIDEWALKS AND PAVE ALL AREAS TO BE PAVED. (1 MONTH)
 - 9.1. REMOVE BOTH SEDIMENT TRAPS ONCE THEIR CONTRIBUTING DISTURBED DRAINAGE AREA IS REDUCED TO LESS THAN 2 ACRES. (2 WEEKS)
 - 9.2. INSTALL ADDITIONAL SUPER SILT FENCE WHERE THE SEDIMENT TRAPS WERE PREVIOUSLY INSTALLED. (1 DAY)
10. UPON STABILIZATION OF ALL CONTRIBUTING DRAINAGE AREAS, INSTALL ALL ESD FACILITIES INCLUDING MICRO-BIOTENTIONS, BIO-SWALES, AND PERVIOUS PAVEMENT (BOTH SYNTHETIC TURF AND PERVIOUS CONCRETE IN THE PARKING LOT). INSTALL ASPHALT PAVING OF PARKING LOT. INSTALLATION OF THE FINAL PAVEMENT COURSE MUST BE INSPECTED BY THE ON-SITE GEO-TECHNICAL ENGINEER. (1 MONTH)
11. FLUSH AND PUMP CLEAN THE STORM DRAIN SYSTEM. (1 DAY)
12. UPON PERMANENT STABILIZATION OF ALL DISTURBED AREAS AND WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING SEDIMENT CONTROL DEVICES AND ALL NON-NATURAL ITEMS FROM FORESTS, FLOODPLAIN, STREAMS, WETLANDS AND THEIR BUFFERS.

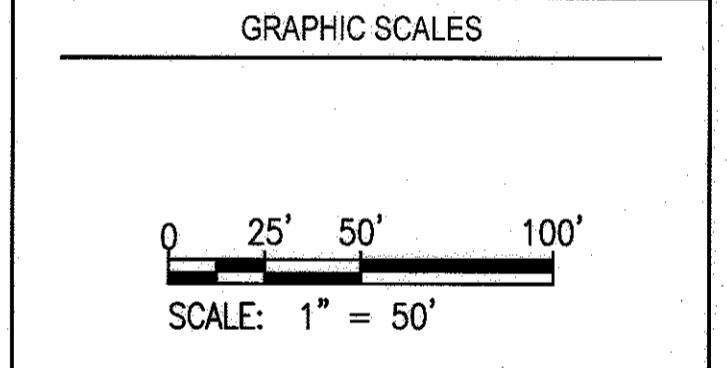


REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

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PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

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 EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE II

Drawing No.
C1.5A

Scale: 1" = 50'
 Date: 1/17/2017 Sheet 17 of 76
 Des: BWJ Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Chubb 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kurt Schmitt 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nick DeZappi 3-14-17
 DIRECTOR DATE

EROSION AND SEDIMENT CONTROL PLAN - STAGE II
 1" = 50'

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

John K. Roberts 1/31/17
 HOWARD SOIL CONSERVATION DISTRICT DATE

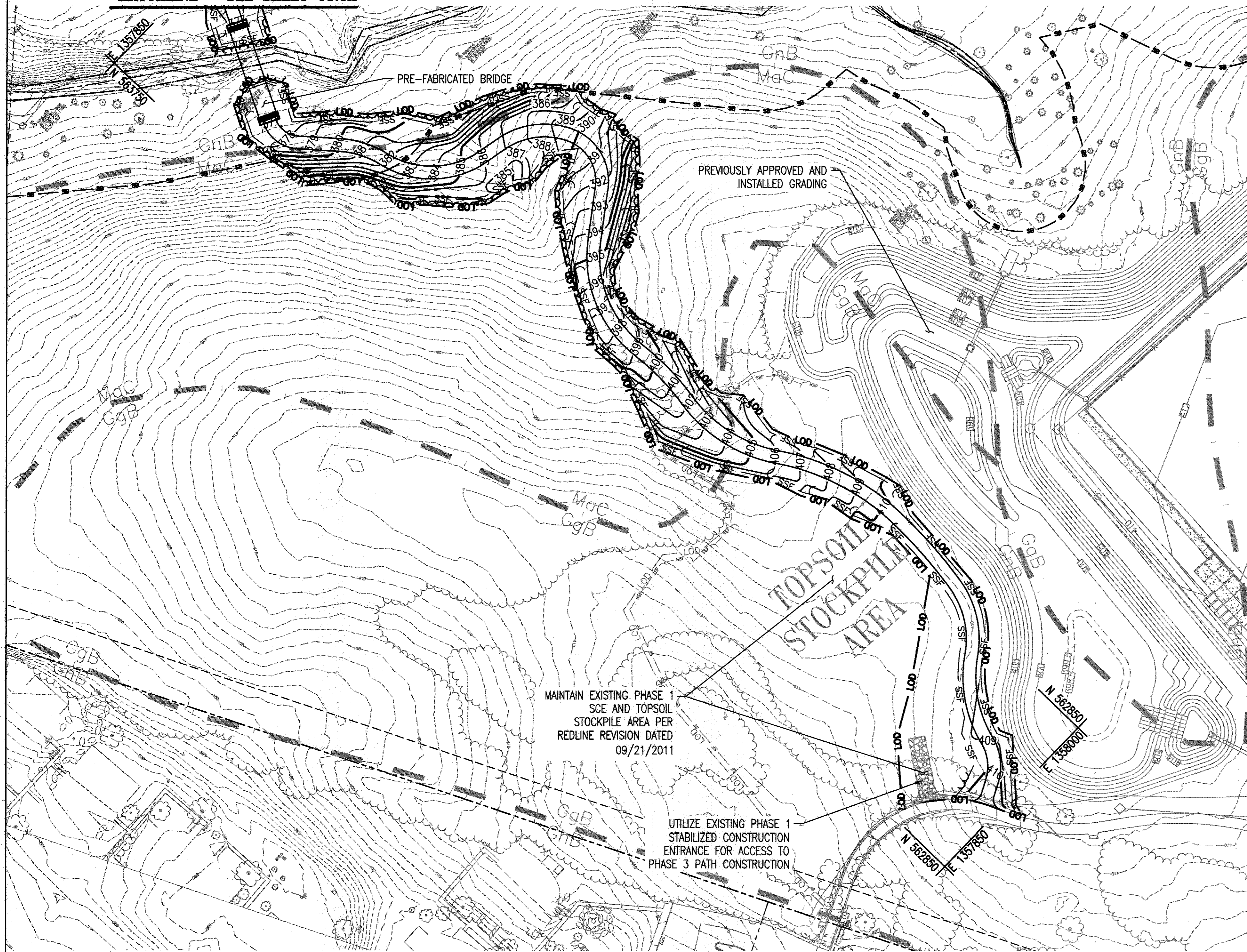
ENGINEER'S CERTIFICATION
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Anthony W. Olson 1/23/17
 SIGNATURE OF ENGINEER DATE
 (PRINT NAME BELOW SIGNATURE)

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

A. Olson 1-23-17
 SIGNATURE OF DEVELOPER DATE
 (PRINT NAME BELOW SIGNATURE)

MATCHLINE - SEE SHEET C1.5A



EROSION AND SEDIMENT CONTROL PLAN - STAGE II
1" = 50'

LEGEND

- L00 LIMIT OF DISTURBANCE
- SSF SUPER SILT FENCE (DOWNHILL FENCE, CURL SECTION EVERY 35 FT)
- TP A-2 TREE PROTECTION FENCE
- 403 EARTH DIKE
- 24" RCP PRELIMINARY GRADING
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- DRAINAGE DIVIDE
- SIP-B (DA 1.00 AC) INLET PROTECTION
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SEEDING AND STABILIZATION NOTE:

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REVISIONS

NO.	DATE	DESCRIPTION

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
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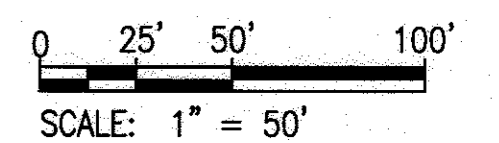
PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

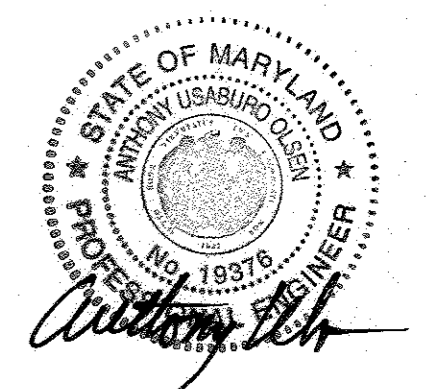
ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES



SIGNATURE



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EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE II

Drawing No.

C1.5B

Scale: 1" = 50'
Date: 1/17/2017 Sheet 18 of 76
Des: SAD Drawn: SAD Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE 2-6-17
 [Signature] DATE 3-01-17
 [Signature] DATE 3-19-17
 DIRECTOR

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

[Signature] DATE 1/31/17
HOWARD SOIL CONSERVATION DISTRICT

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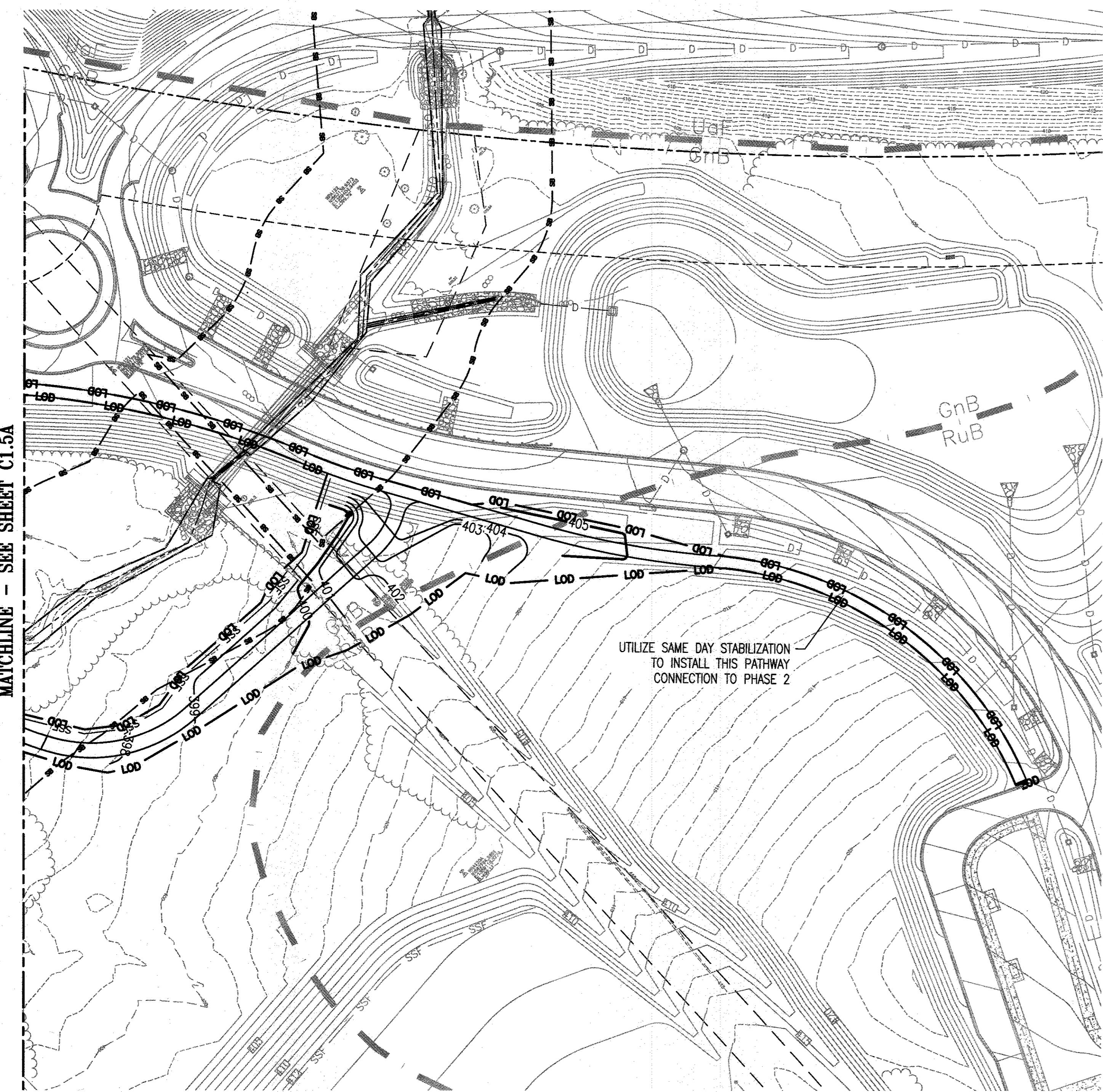
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[Signature] DATE 1/23/17
SIGNATURE OF ENGINEER Anthony U. Olsen
(PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATION

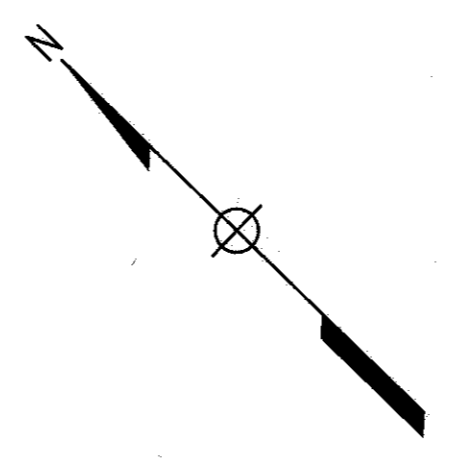
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[Signature] DATE 1-23-17
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)



MATCHLINE - SEE SHEET C1.5A

UTILIZE SAME DAY STABILIZATION TO INSTALL THIS PATHWAY CONNECTION TO PHASE 2



LEGEND

- LOD — LIMIT OF DISTURBANCE
- SSF — SUPER SILT FENCE (DOWNHILL FENCE, CURL SECTION EVERY 35 FT)
- TP — TREE PROTECTION FENCE
- A-2 — EARTH DIKE
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EROSION AND SEDIMENT CONTROL PLAN - STAGE II
1" = 50'

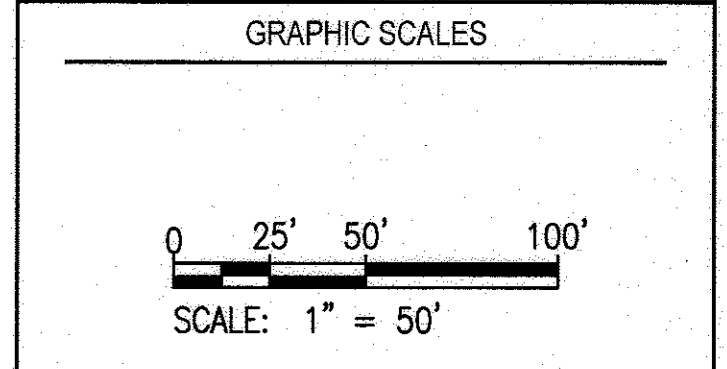
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9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



SIGNATURE

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. 19876
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE II

Drawing No.
C1.5C

Scale: 1" = 50'

Date: 1/17/2017 Sheet 19 of 76

Des: SAD Drawn: SAD Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17

DATE: 3-01-17

DATE: 3-19-17

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

DATE: 1/31/17

HOWARD SOIL CONSERVATION DISTRICT

ENGINEER'S CERTIFICATION

"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."

DATE: 1/23/17

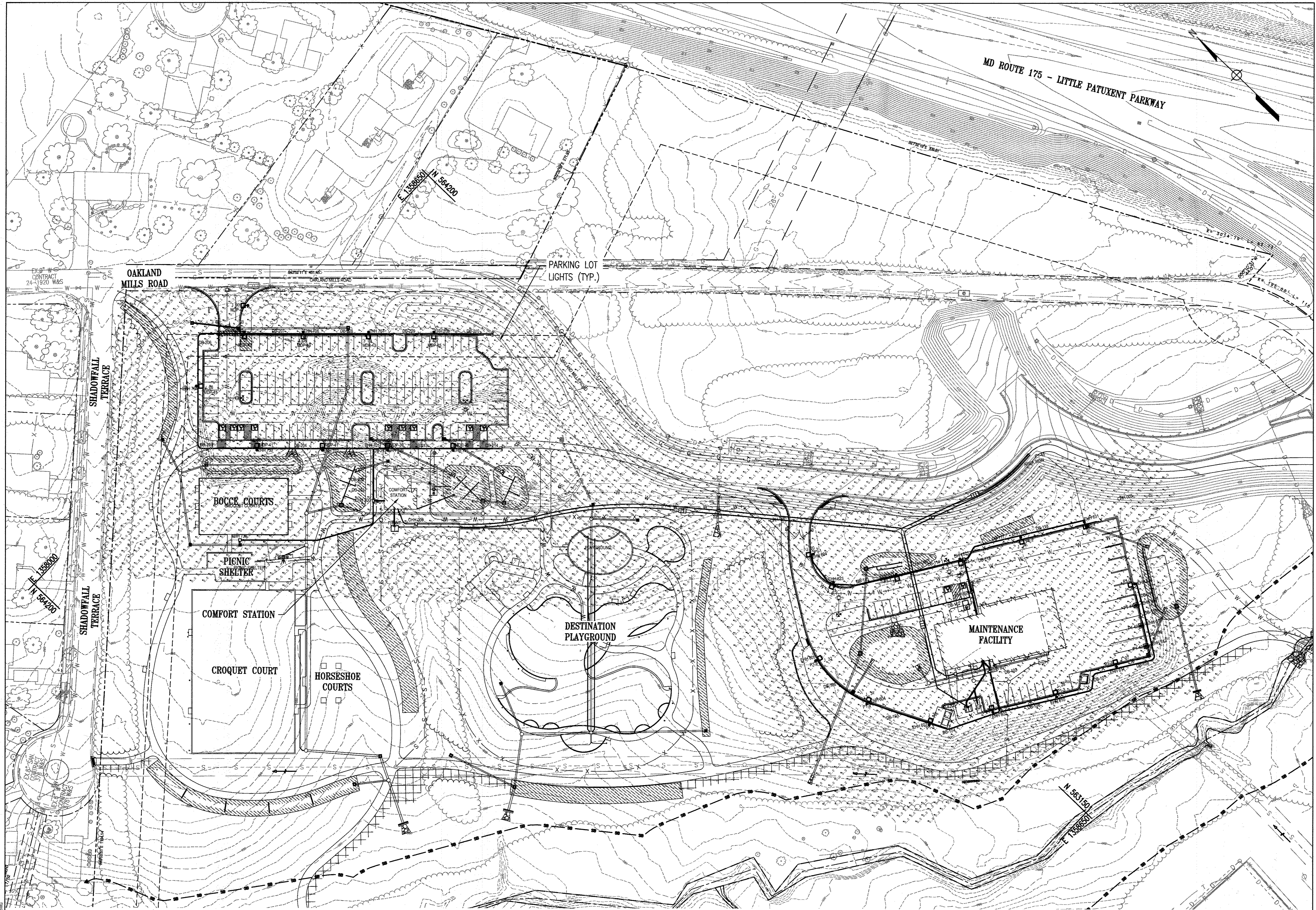
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE

DEVELOPER'S CERTIFICATION

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

DATE: 1-23-17

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE



APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 2-6-15

[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 3-06-17

[Signature]
 DIRECTOR
 DATE 3-15-17

NOTES:
 1. THIS PLAN COMPLIES WITH SUBSECTION 134.0.D.1. OF THE ZONING REGULATIONS FOR LIGHT TRESPASS.

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

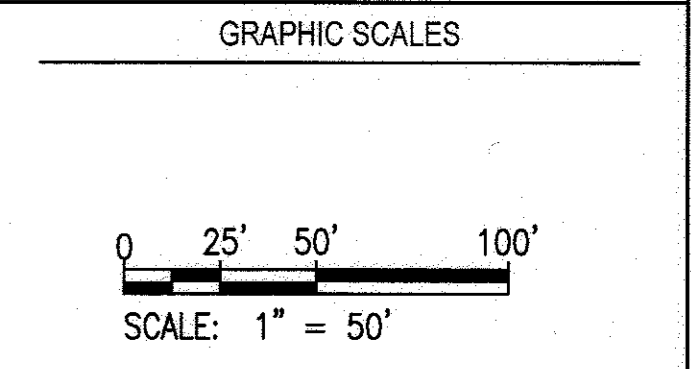


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

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. 19376, EXPIRATION DATE: 05/22/2017.

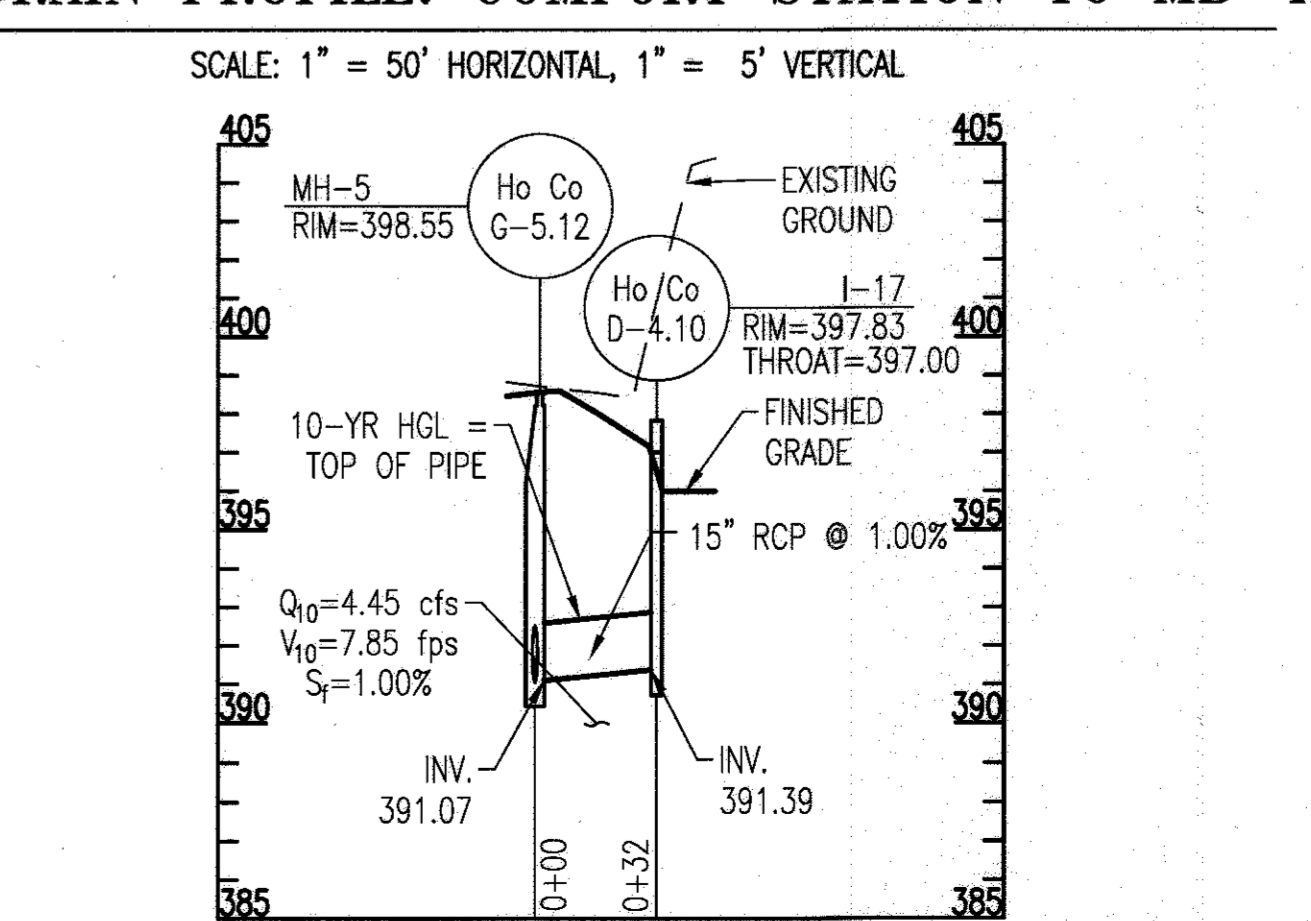
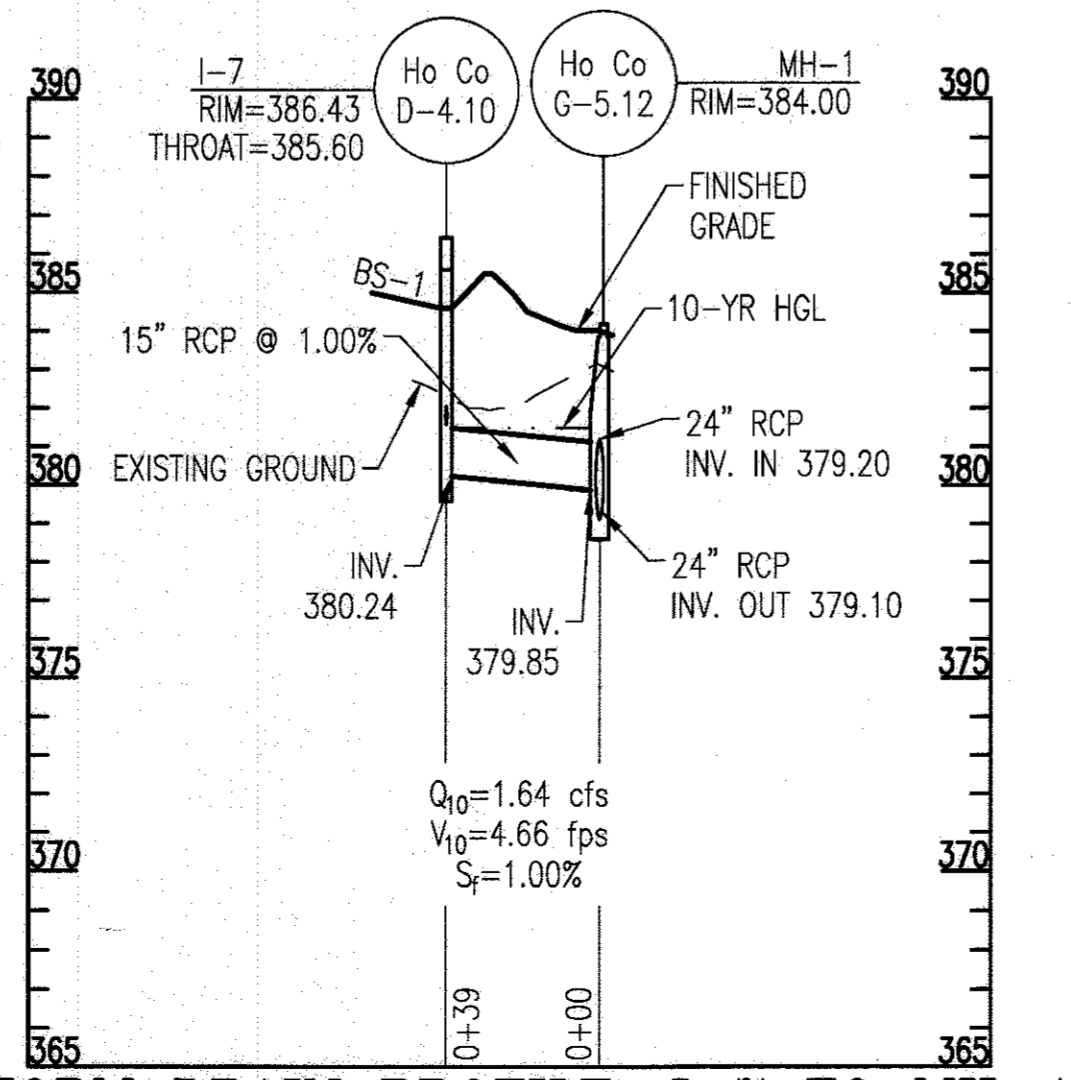
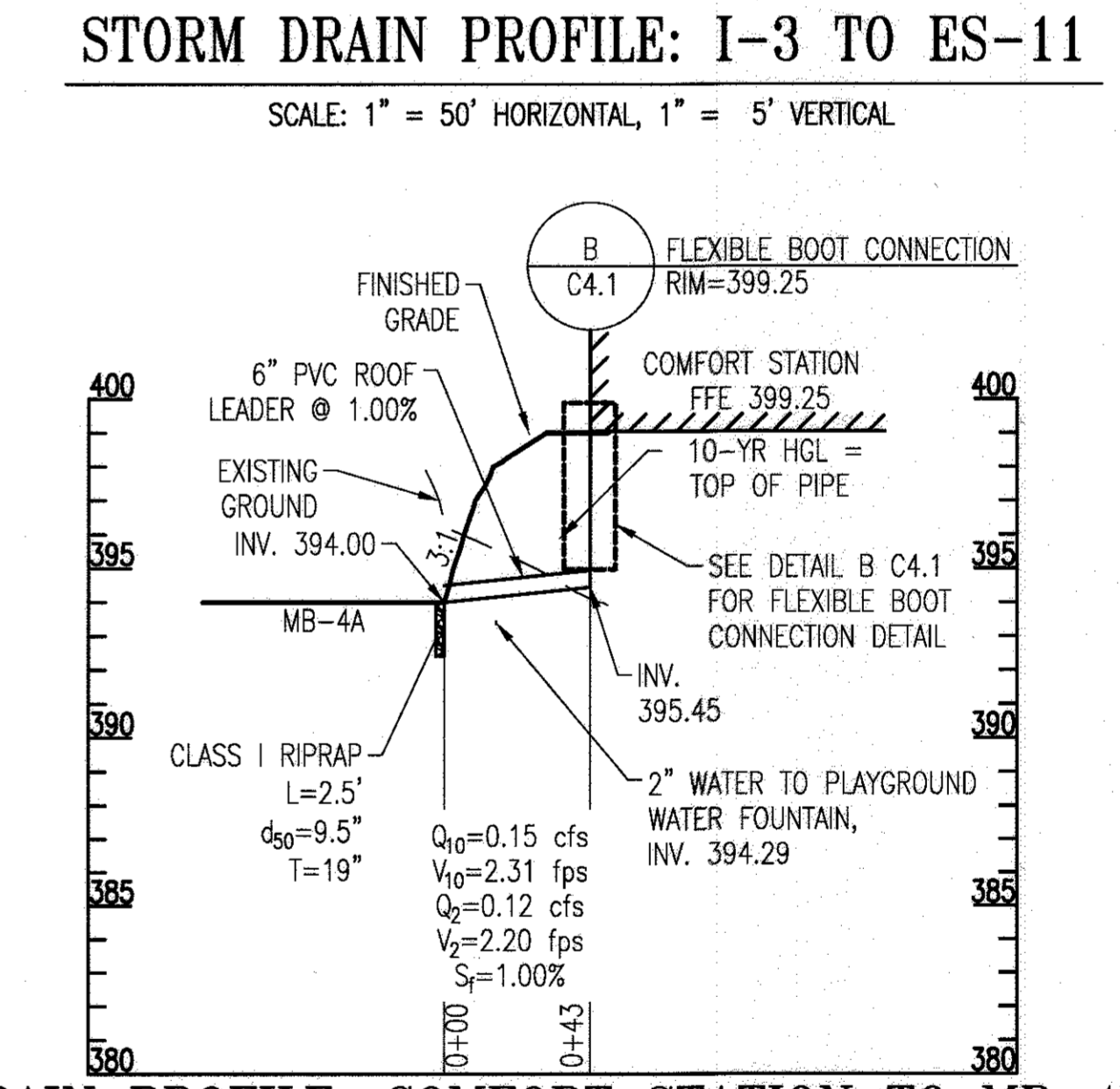
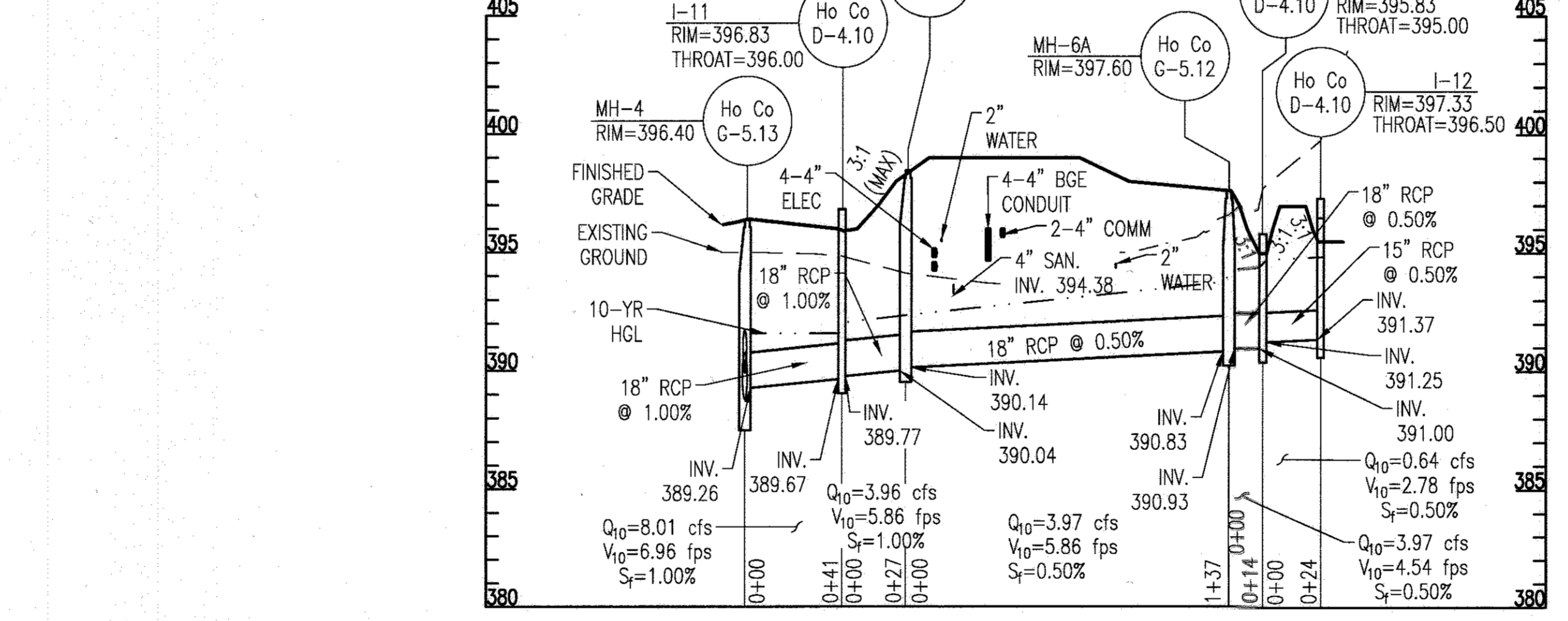
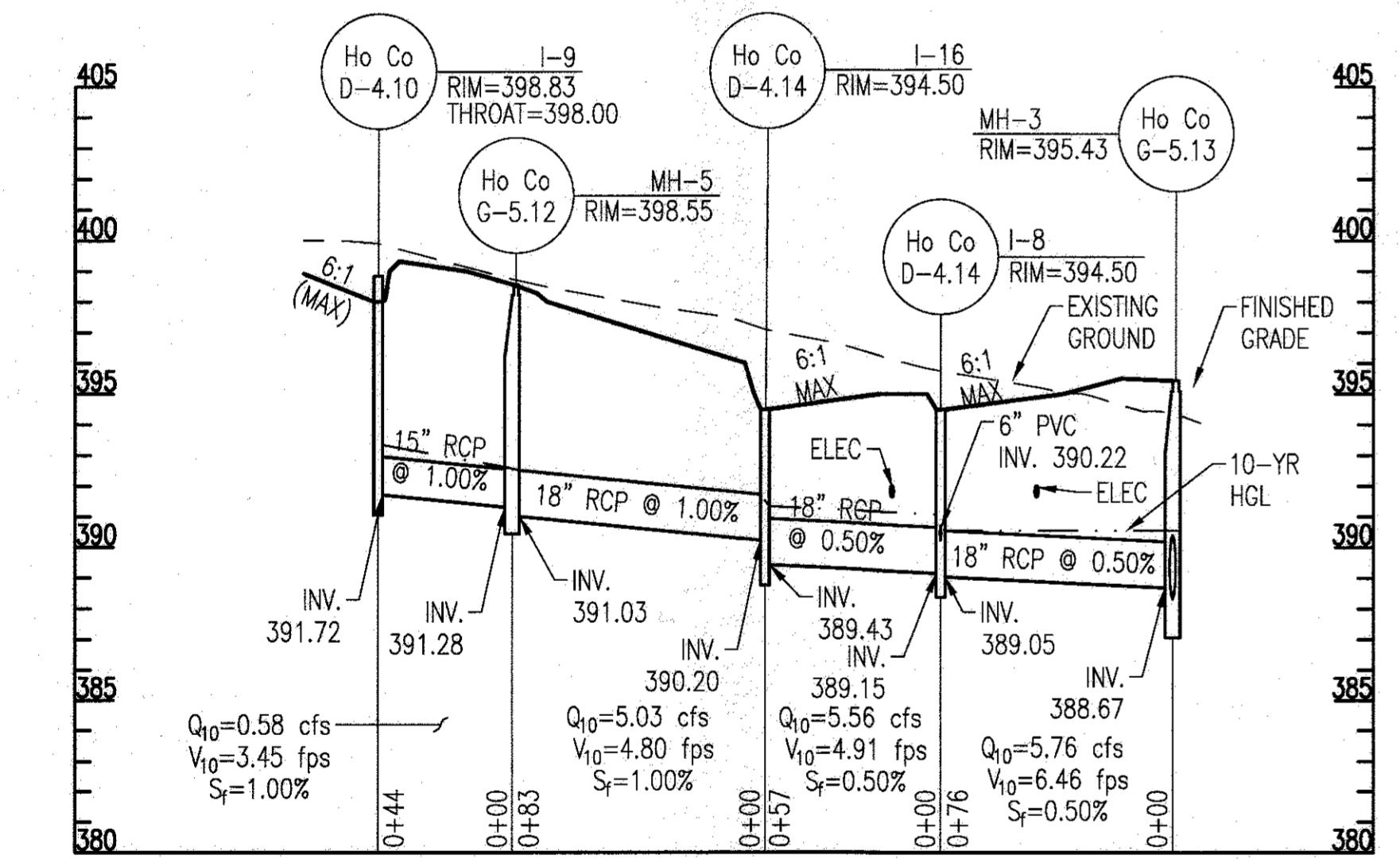
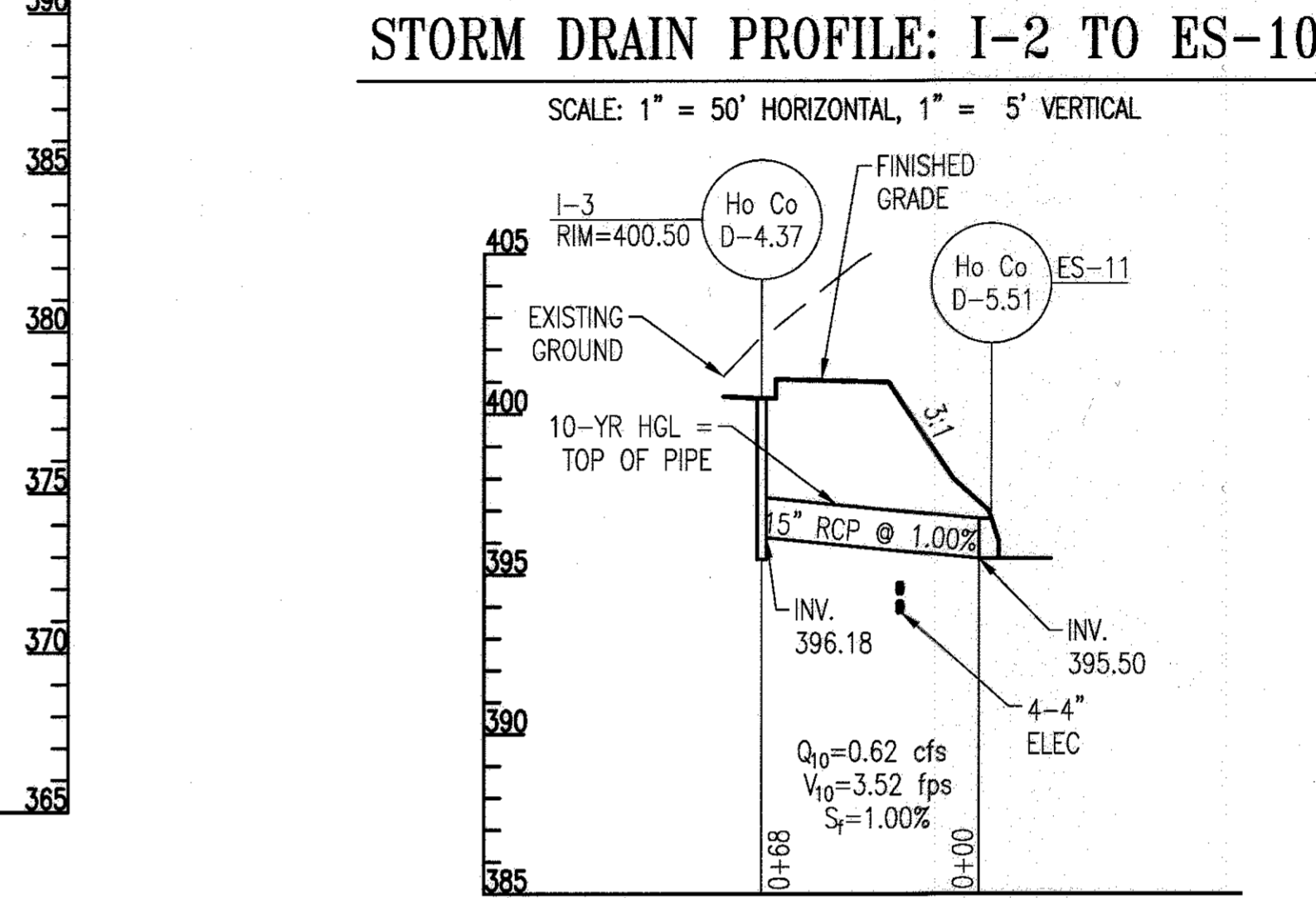
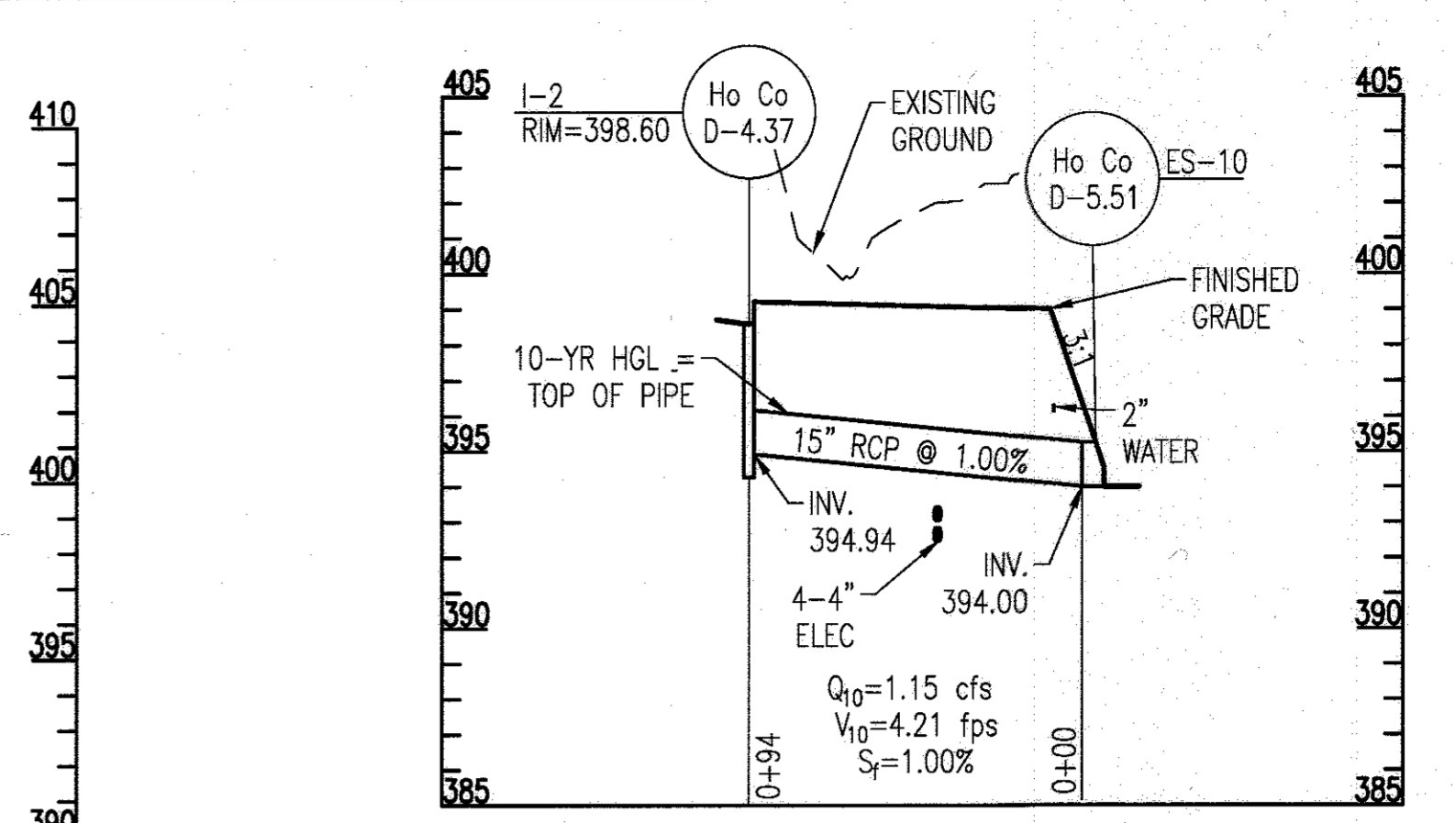
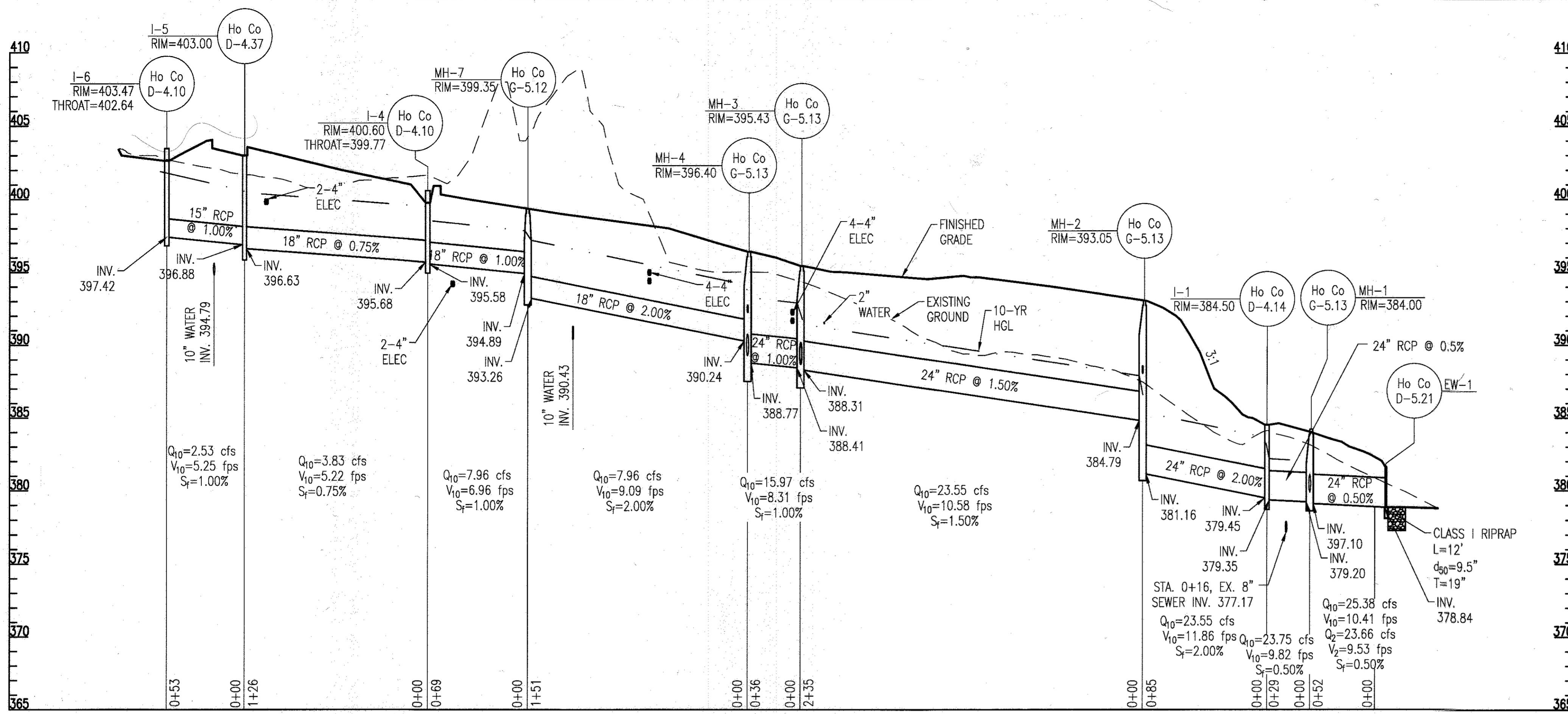
BLANDAIR REGIONAL PARK - PHASE 3

PHOTOMETRIC TEST DIAGRAM

Drawing No.
C1.6

Scale: 1" = 50'

Date: 1/17/2017	Sheet 20 of 76
Des: BWJ	Drawn: AKC
Check: AUO	



- NOTES:**
- PIPES WITH AN HGL 2 FEET OR MORE ABOVE THE CROWN SHALL BE CONNECTED TO STRUCTURES WITH RUBBER GASKETS. SEE SHEET C2.3 FOR PIPE SCHEDULE.
 - THE BOTTOM OF ALL DROP MANHOLE STRUCTURES SHALL BE LINED WITH GRANITE BLOCKS AT LEAST 4- INCHES THICK. SEE SHEET C2.3 FOR STRUCTURE SCHEDULE.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2.6.17

DATE: 3.00.17

DATE: 3-19-17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

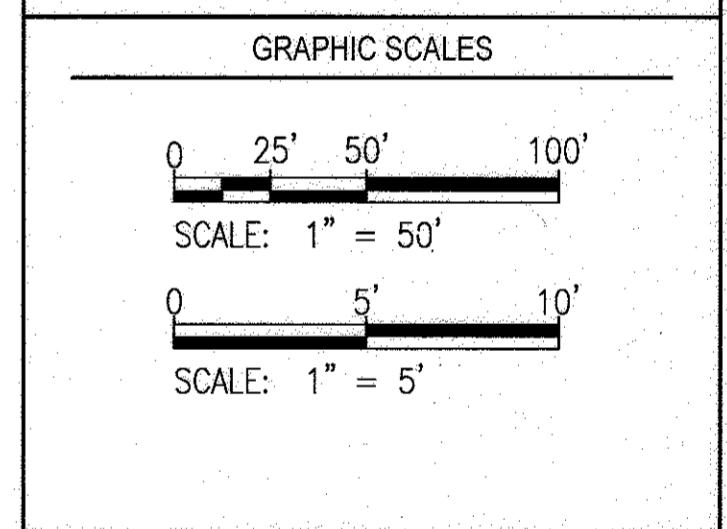


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3.72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

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. 18378
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

STORM DRAIN PROFILES

Drawing No. **C2.1**

Scale: AS SHOWN

Date: 1/17/2017 Sheet 21 of 76

Des: AKC Drawn: AKC Check: AUO

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

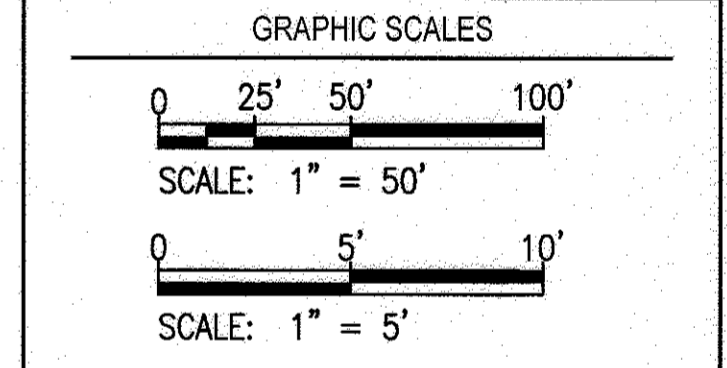


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

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. 183276, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

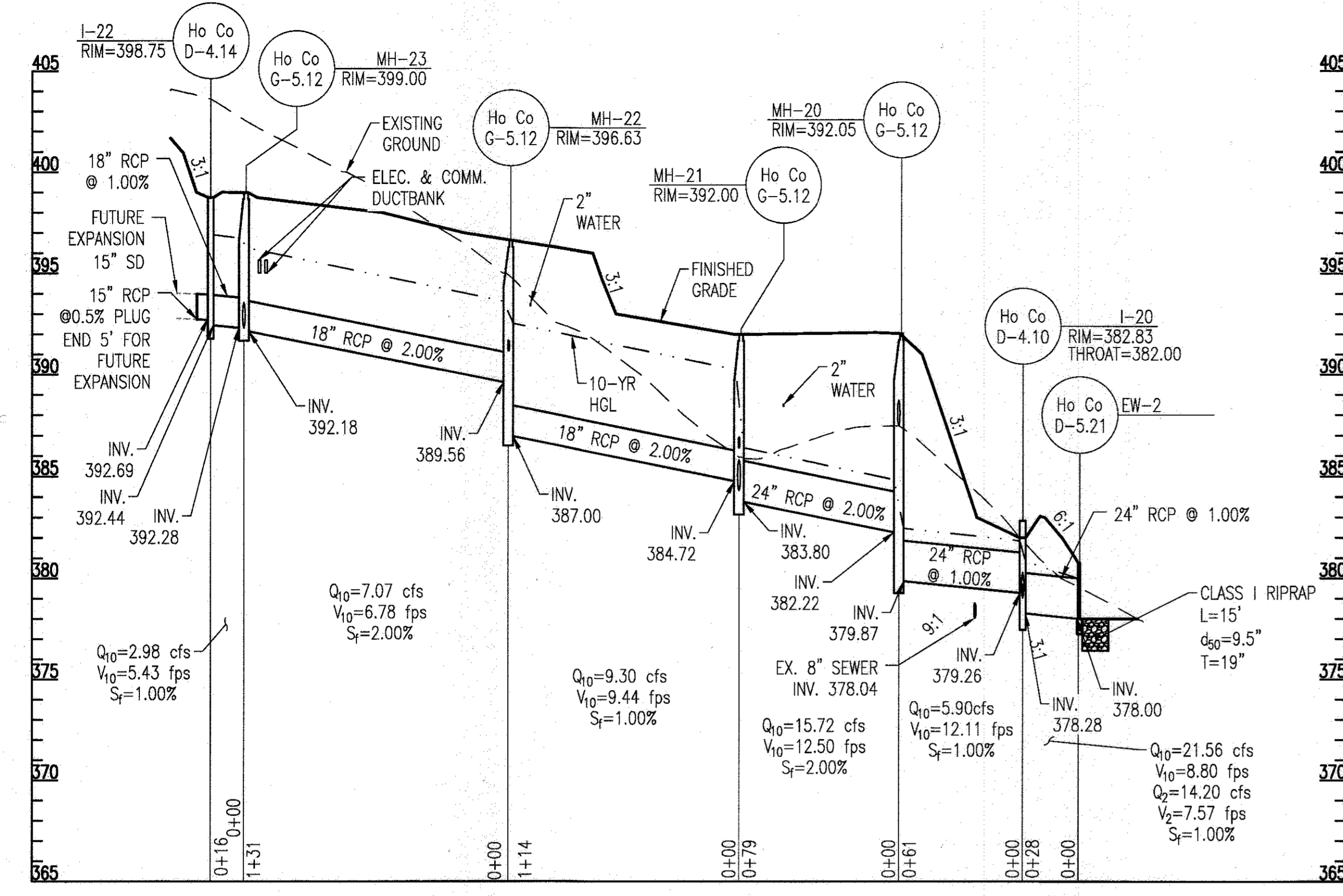
STORM DRAIN PROFILES

Drawing No. **C2.2**

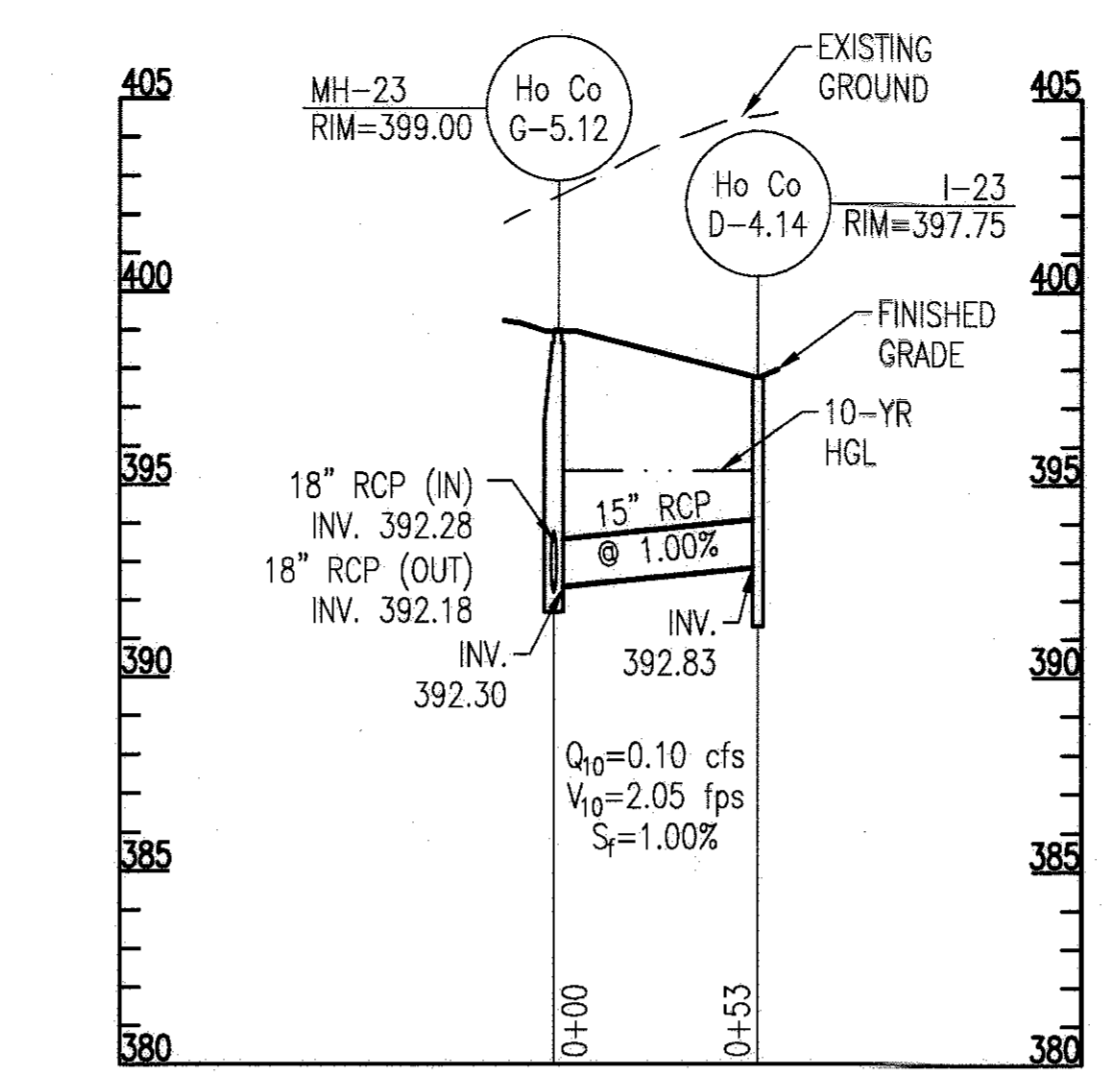
Scale: AS SHOWN

Date: 1/17/2017 Sheet 22 of 76

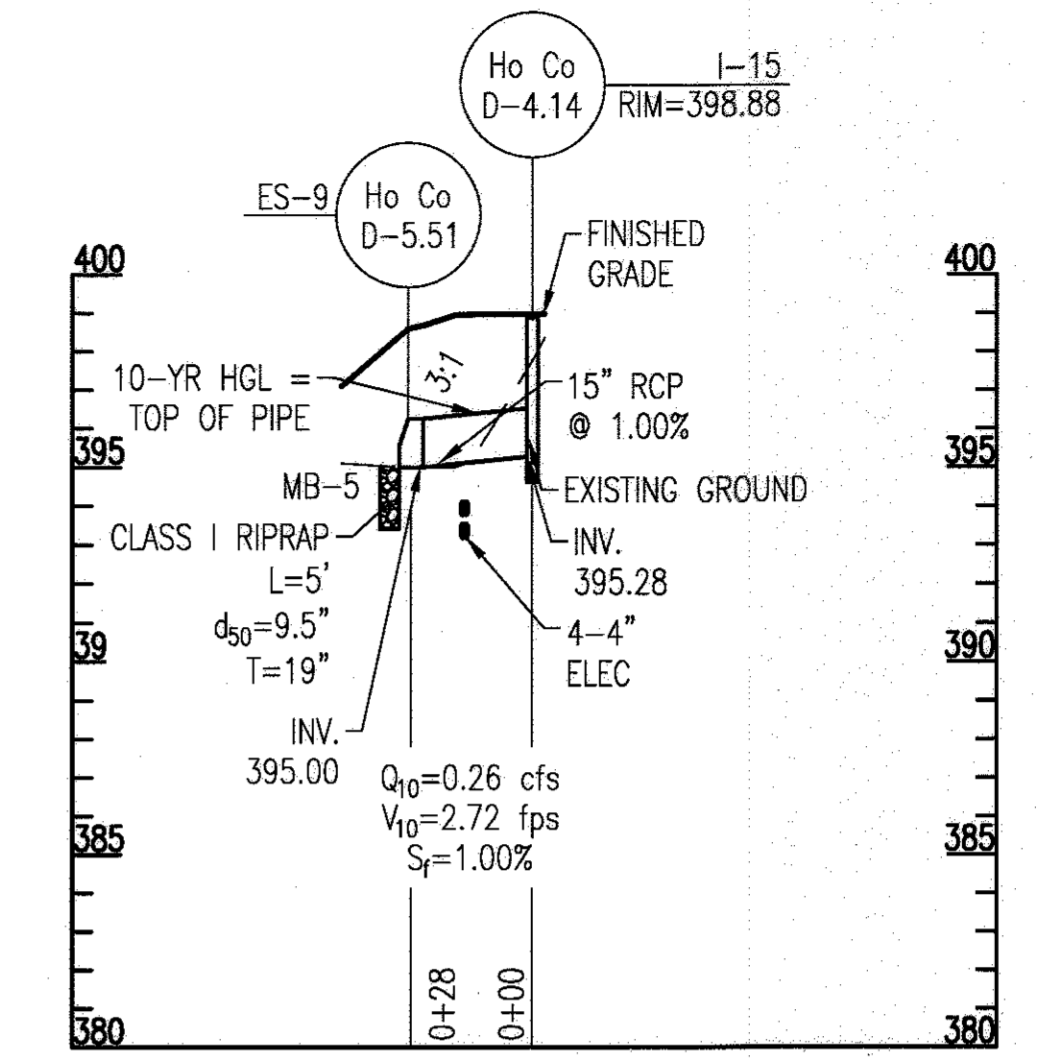
Des: AKC Drawn: AKC Check: AUO



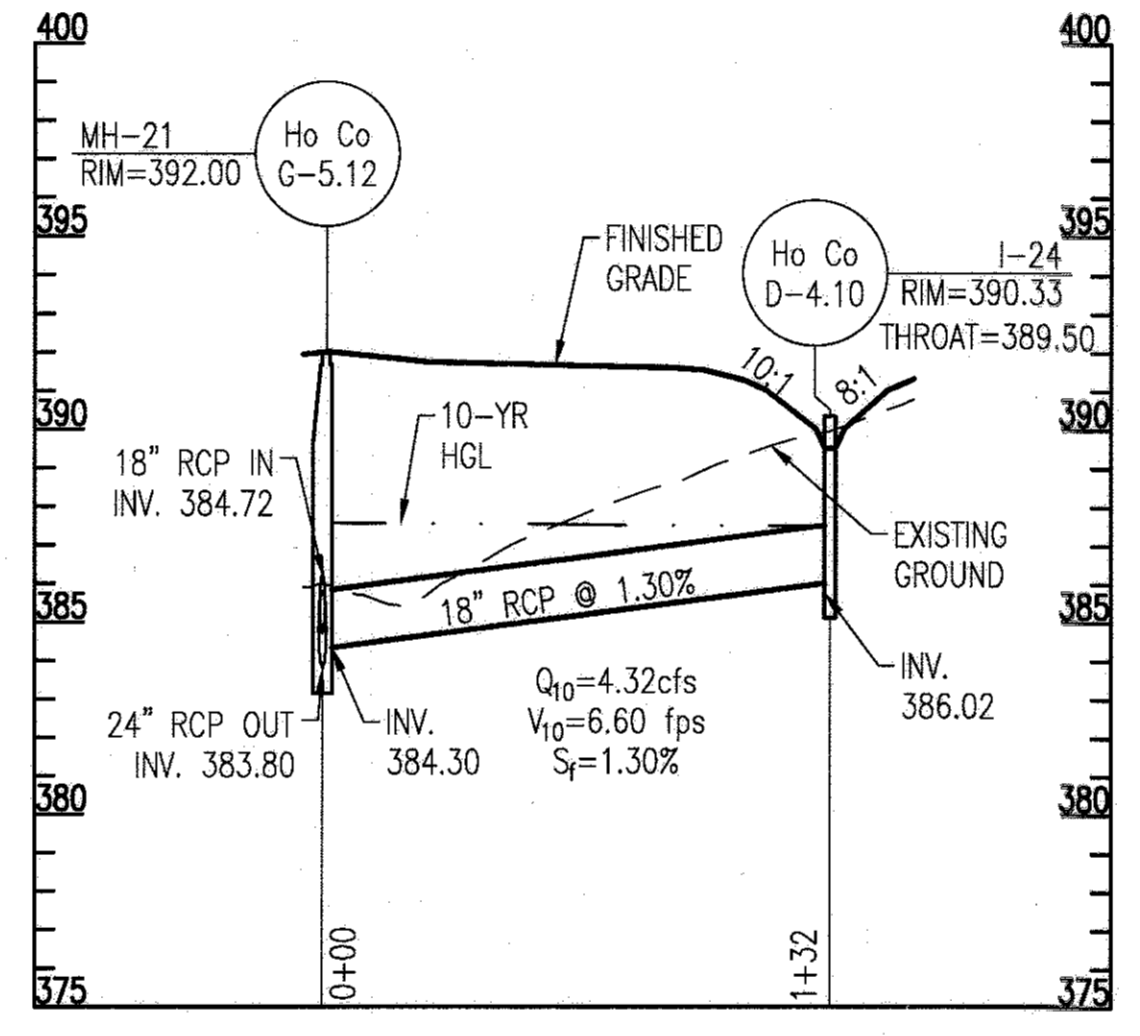
STORM DRAIN PROFILE: I-22 TO EW-2
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



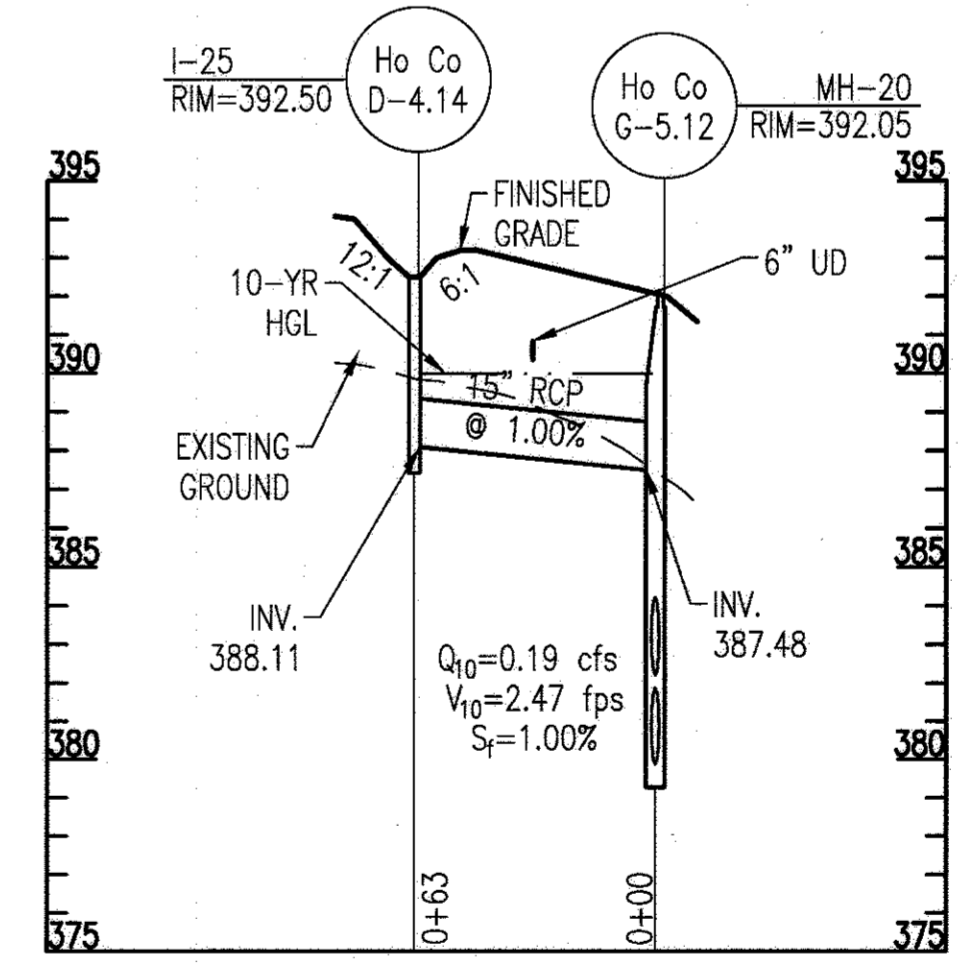
STORM DRAIN PROFILE: I-23 TO MH-23
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



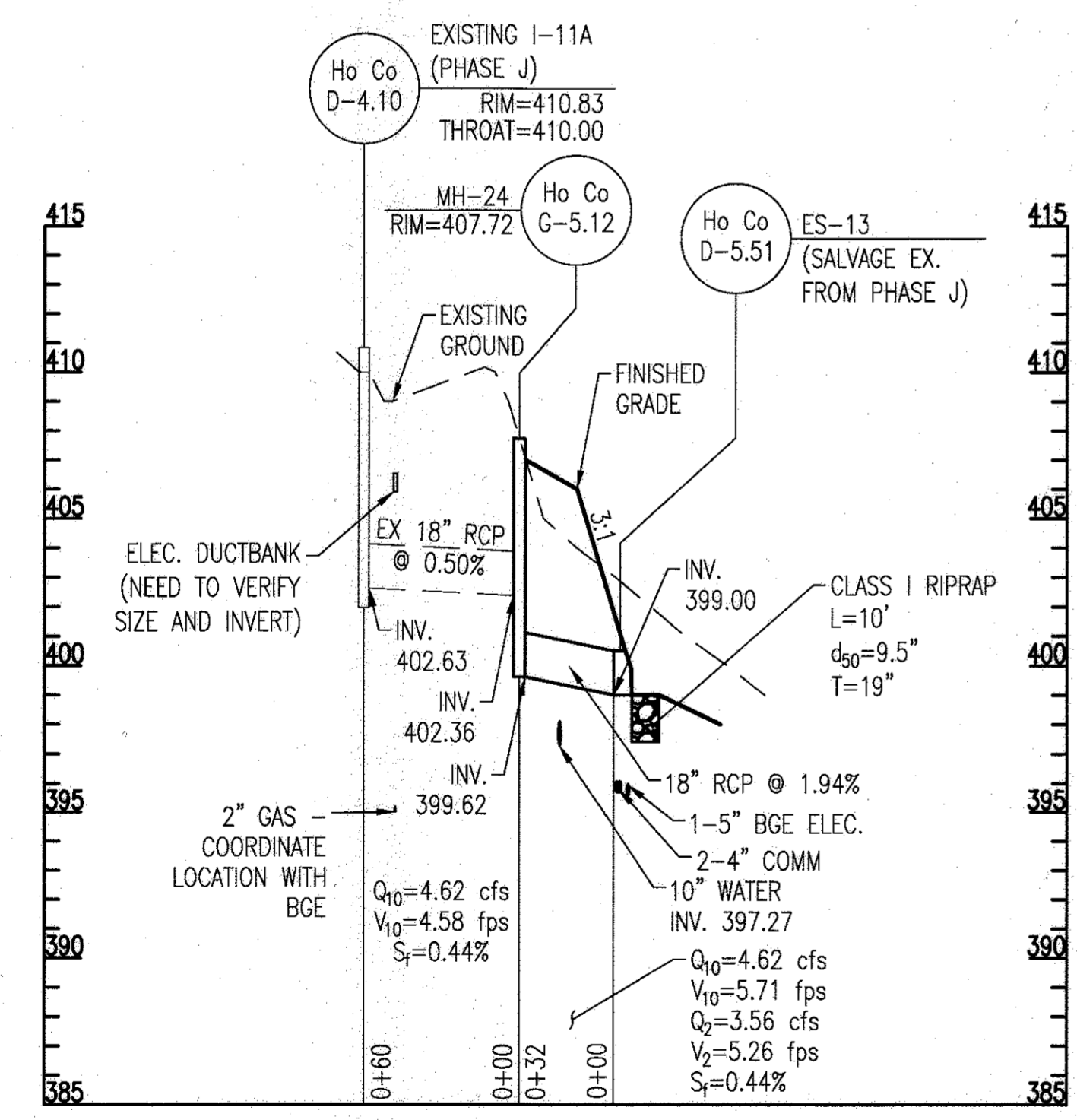
STORM DRAIN PROFILE: I-15 TO ES-9
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



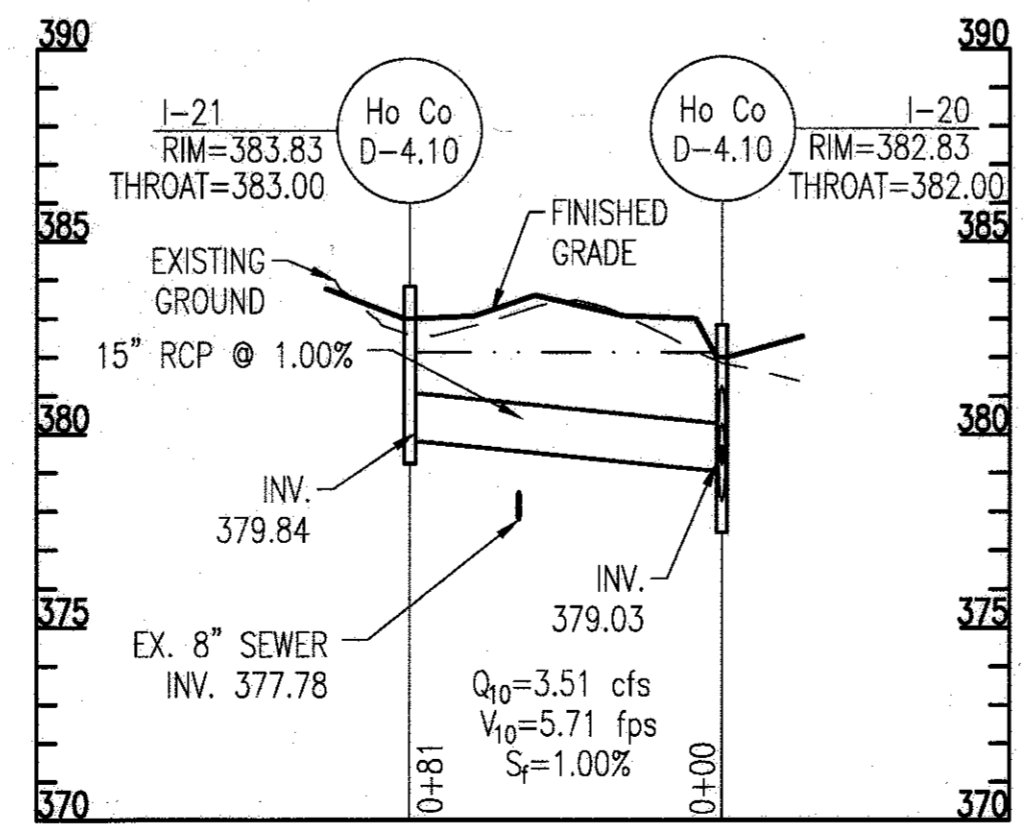
STORM DRAIN PROFILE: I-24 TO MH-21
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: I-25 TO MH-20
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: PHASE J EXTENSION
I-11A (PHASE J) TO ES-13 (PHASE J)
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: I-21 TO I-20
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

NOTES:

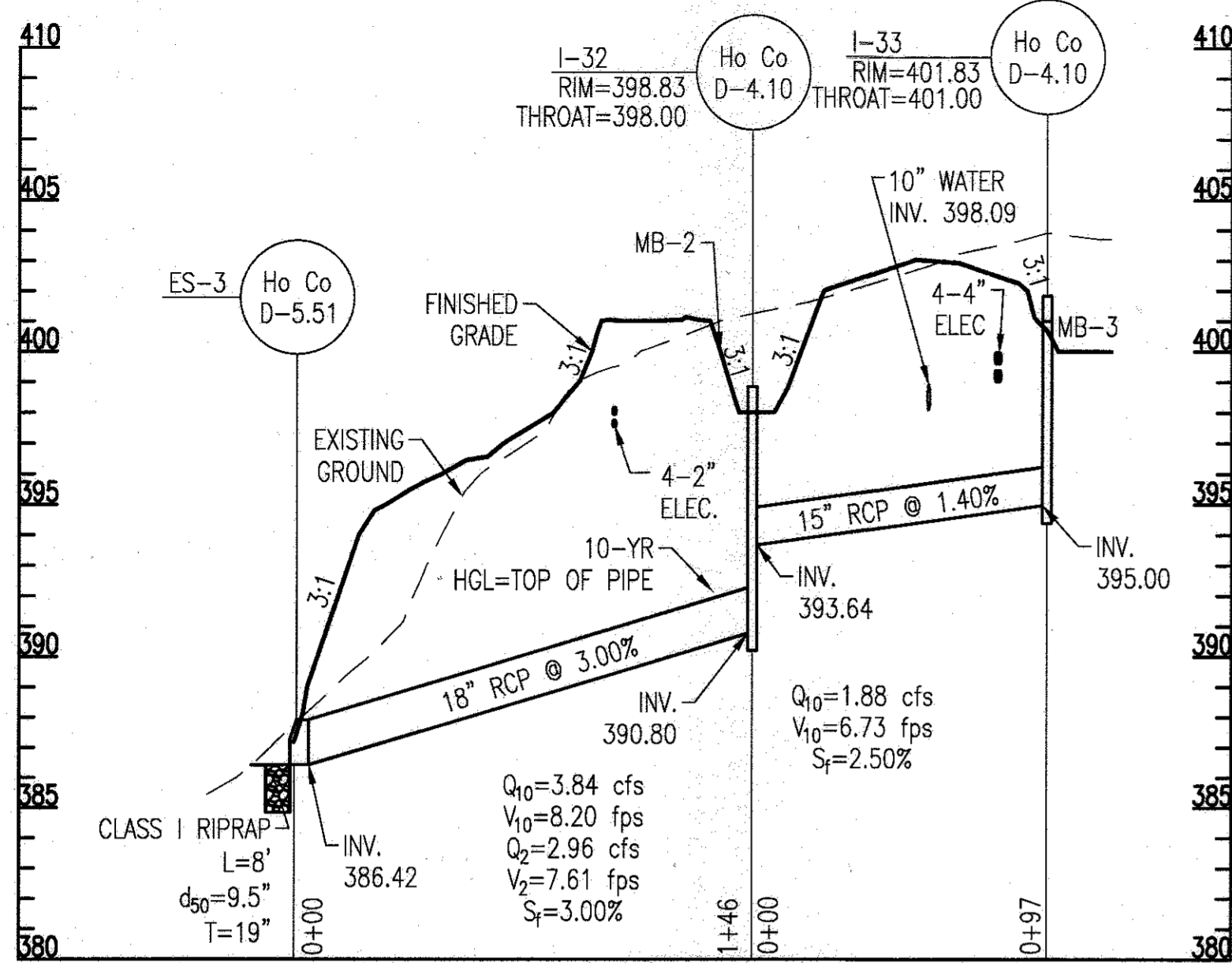
- PIPES WITH AN HGL 2 FEET OR MORE ABOVE THE CROWN SHALL BE CONNECTED TO STRUCTURES WITH RUBBER GASKETS. SEE SHEET C2.3 FOR PIPE SCHEDULE.
- THE BOTTOM OF ALL DROP MANHOLE STRUCTURES SHALL BE LINED WITH GRANITE BLOCKS AT LEAST 4- INCHES THICK. SEE SHEET C2.3 FOR STRUCTURE SCHEDULE.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17

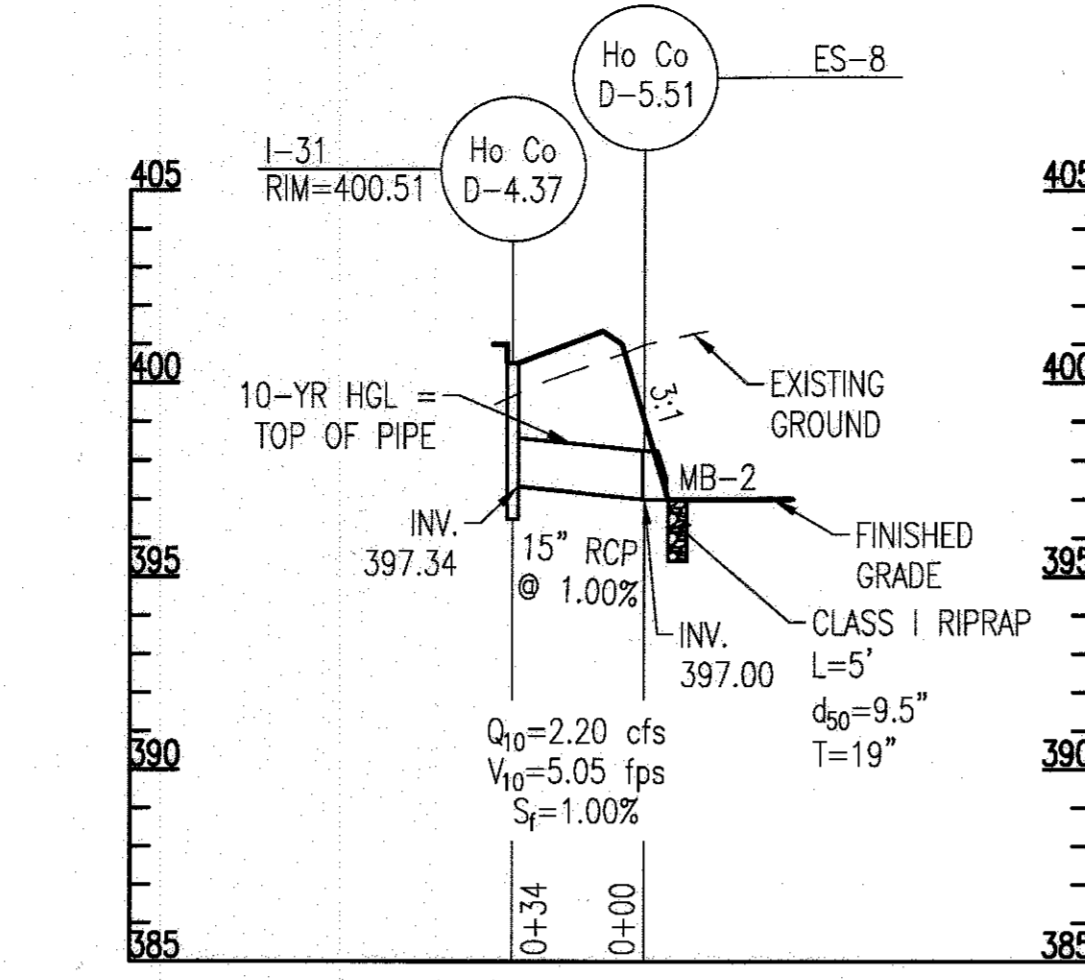
DATE: 3-01-17

DATE: 3-19-17



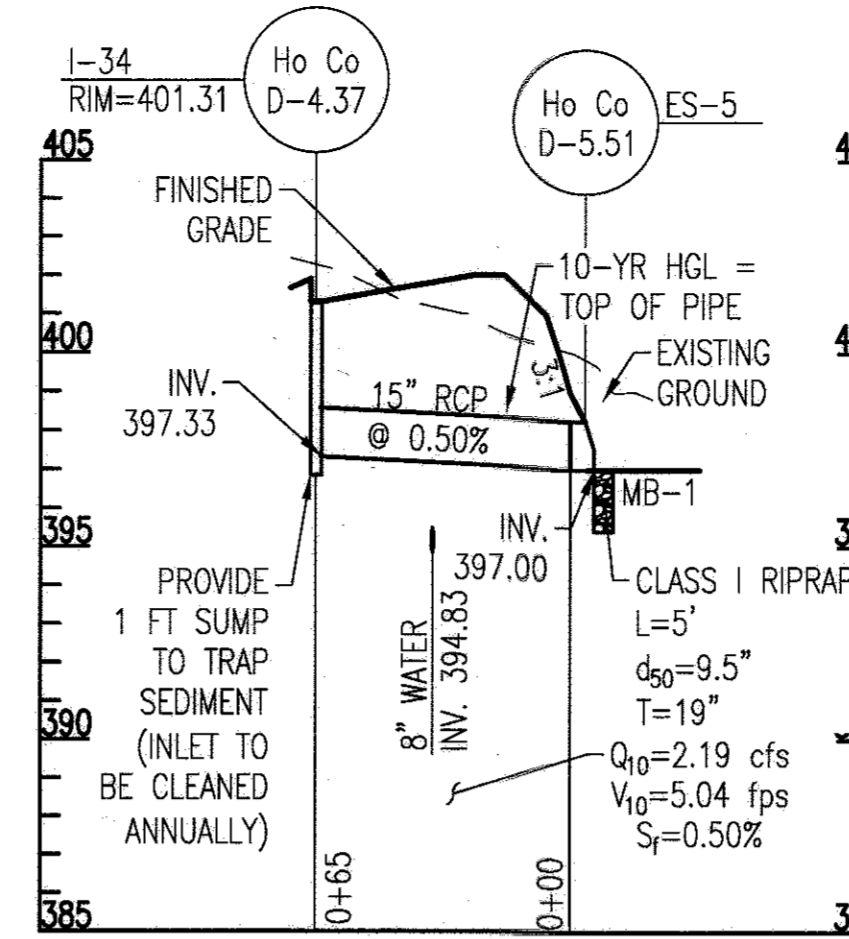
STORM DRAIN PROFILE: I-33 TO ES-3

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



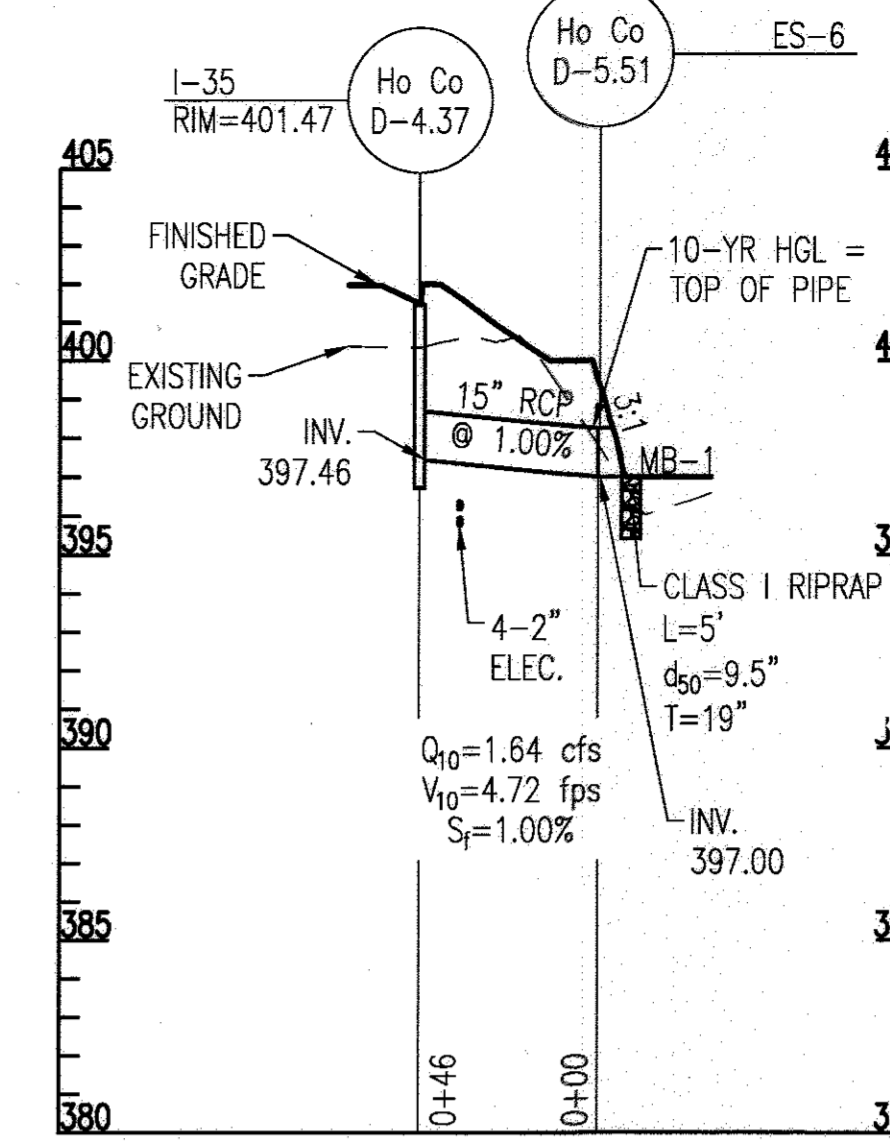
STORM DRAIN PROFILE: I-31 TO ES-8

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



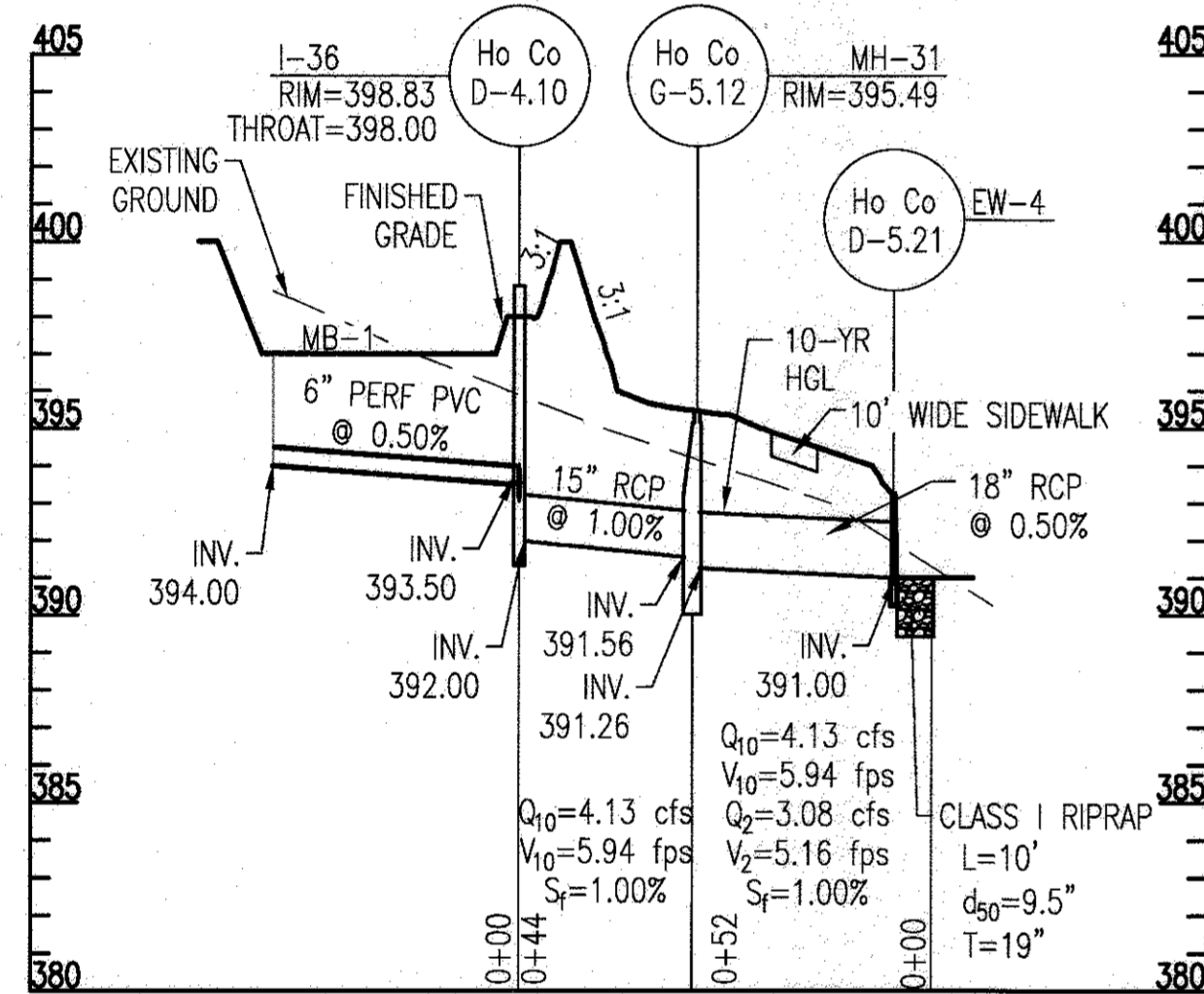
STORM DRAIN PROFILE: I-34 TO ES-5

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



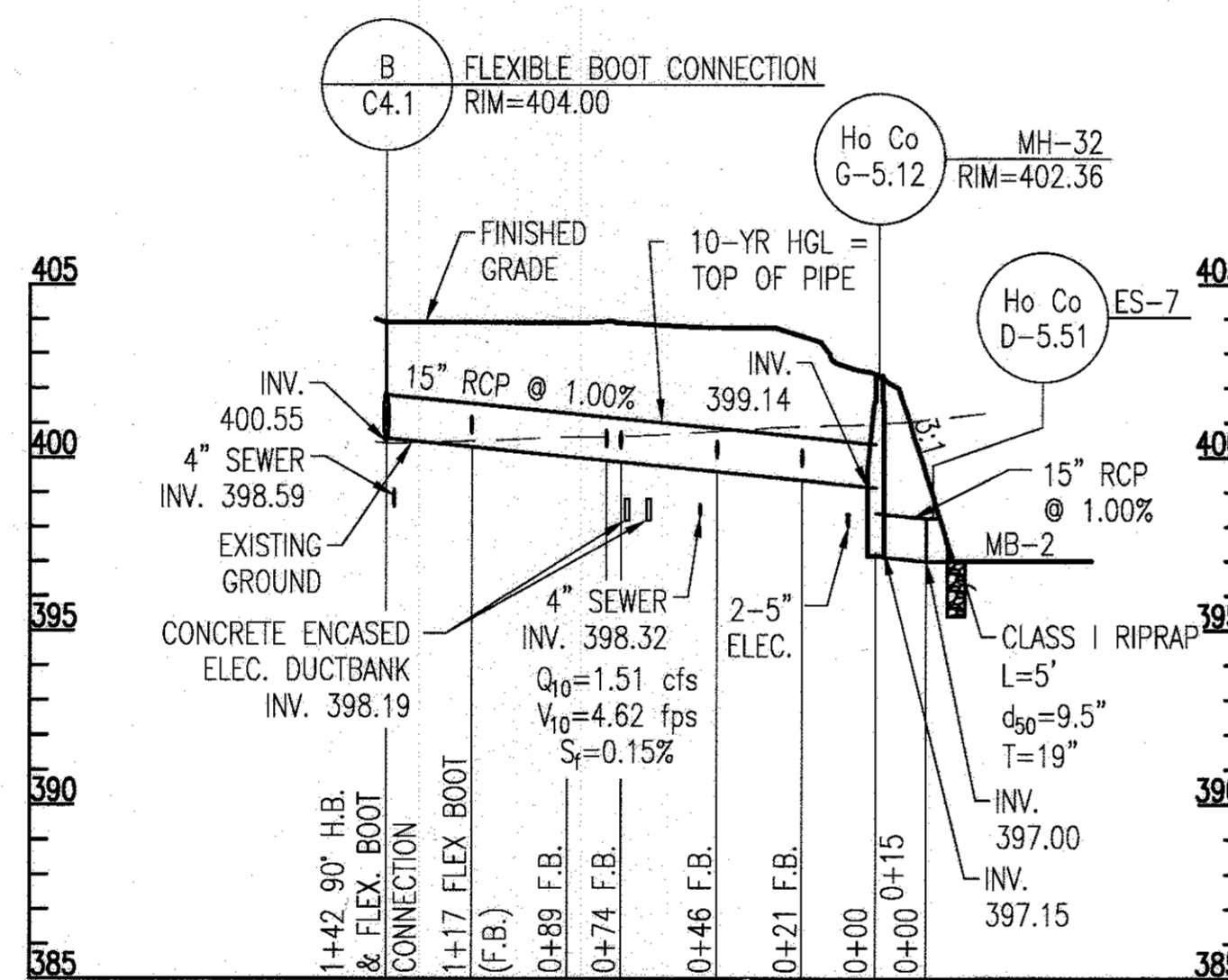
STORM DRAIN PROFILE: I-35 TO ES-6

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



STORM DRAIN PROFILE: I-36 TO EW-4

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



STORM DRAIN PROFILE: MAINTENANCE BUILDING TO ES-7

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

STORM DRAIN PIPE SCHEDULE				
FROM	TO	SIZE	TYPE	LENGTH
MH-1	EW-1	24	RCP CL III	52
I-1	MH-1	24	RCP CL III	29
*MH-2	*I-1	24	RCP CL III	85
MH-3	MH-2	24	RCP CL III	235
*MH-4	*MH-3	24	RCP CL III	36
*MH-7	*MH-4	18	RCP CL IV	151
I-4	MH-7	18	RCP CL IV	69
*I-5	*I-4	18	RCP CL III	126
*I-6	*I-5	15	RCP CL IV	53
I-7	MH-1	15	RCP CL III	39
I-9	MH-5	15	RCP CL III	44
MH-5	I-16	18	RCP CL III	83
I-16	I-8	18	RCP CL III	57
I-8	MH-3	18	RCP CL III	76
I-12	I-12A	15	RCP CL III	24
I-12A	MH-6A	18	RCP CL III	14
MH-6A	MH-6	18	RCP CL IV	137
MH-6	I-11	18	RCP CL III	27
I-11	MH-4	18	RCP CL IV	41
I-2	ES-10	15	RCP CL III	94
I-3	ES-11	15	RCP CL III	68
I-15	ES-9	15	RCP CL III	28
I-20	EW-2	24	RCP CL III	28
MH-20	I-20	24	RCP CL III	61
MH-21	MH-20	24	RCP CL III	79
*MH-22	*MH-21	18	RCP CL III	114
*MH-23	*MH-22	18	RCP CL III	131
I-23	MH-23	15	RCP CL III	53
*I-22	*MH-23	18	RCP CL III	16
I-21	I-20	15	RCP CL III	81
I-24	MH-21	18	RCP CL III	132
I-25	MH-20	15	RCP CL III	63
I-31	ES-8	15	RCP CL IV	34
I-32	ES-3	18	RCP CL IV	146
I-33	I-32	15	RCP CL IV	97
I-34	ES-5	15	RCP CL IV	65
I-35	ES-6	15	RCP CL III	46
I-36	MH-31	15	RCP CL III	44
MH-31	EW-4	18	RCP CL III	52
MAINT. FAC.	MH-32	15	RCP CL IV	142
MH-32	ES-7	15	RCP CL III	15

SCHEDULE NOTES:

- * PIPES WITH AN HGL 2 FEET OR MORE ABOVE THE CROWN SHALL BE CONNECTED TO STRUCTURES WITH RUBBER GASKETS.
- ** THE BOTTOM OF ALL DROP MANHOLE STRUCTURES SHALL BE LINED WITH GRANITE BLOCKS AT LEAST 4" INCHES THICK.
- ALL RIPRAP AREAS SHALL BE OVER FILTER FABRIC.

STORM DRAIN STRUCTURE SCHEDULE				
NO.	TYPE	STANDARD DETAIL	GRATE/RIM ELEV.	THROAT ELEV.
I-1	YARD INLET	HO.CO. D-4.14	384.50	-
I-2	SINGLE WR INLET	HO.CO. D-4.37	388.80	-
I-3	SINGLE WR INLET	HO.CO. D-4.37	400.50	-
I-4	TYPE 'D' INLET	HO.CO. D-4.10	400.60	399.77
I-5	SINGLE WR INLET	HO.CO. D-4.37	403.00	-
I-6	TYPE 'D' INLET	HO.CO. D-4.10	403.47	402.64
I-7	TYPE 'D' INLET	HO.CO. D-4.10	386.43	385.60
I-8	YARD INLET	HO.CO. D-4.14	394.50	-
I-9	TYPE 'D' INLET	HO.CO. D-4.10	388.83	398.00
I-10	COGICOS OPENING	MD 374.68	-	398.71
I-11	TYPE 'D' INLET	HO.CO. D-4.10	396.83	396.00
I-12	TYPE 'D' INLET	HO.CO. D-4.10	397.33	396.50
I-12a	TYPE 'D' INLET	HO.CO. D-4.10	395.83	395.00
I-13	COGICOS OPENING	MD 374.68	-	398.14
I-15	YARD INLET	HO.CO. D-4.14	398.88	-
I-16	YARD INLET	HO.CO. D-4.14	394.50	-
I-17	TYPE 'D' INLET	HO.CO. D-4.10	397.83	397.00
I-20	TYPE 'D' INLET	HO.CO. D-4.10	382.83	382.00
I-21	TYPE 'D' INLET	HO.CO. D-4.10	383.83	383.00
I-22	YARD INLET	HO.CO. D-4.14	398.75	-
I-23	YARD INLET	HO.CO. D-4.14	397.75	-
I-24	TYPE 'D' INLET	HO.CO. D-4.10	390.33	389.50
I-25	YARD INLET	HO.CO. D-4.14	392.50	-
I-31	SINGLE WR INLET	HO.CO. D-4.37	400.51	-
*I-32	TYPE 'D' INLET	HO.CO. D-4.10	398.83	398.00
I-33	TYPE 'D' INLET	HO.CO. D-4.10	401.83	401.00
I-34	SINGLE WR INLET	HO.CO. D-4.37	401.31	-
I-35	SINGLE WR INLET	HO.CO. D-4.37	401.47	-
I-36	TYPE 'D' INLET	HO.CO. D-4.10	398.83	398.00
I-37	COGICOS OPENING	MD 374.68	-	401.67
MH-1	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	384.00	-
**MH-2	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	393.05	-
MH-3	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	395.43	-
**MH-4	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	396.40	-
MH-5	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	388.55	-
MH-6	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	396.48	-
MH-6A	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	397.60	-
**MH-7	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	399.35	-
**MH-20	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	392.05	-
MH-21	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	392.00	-
**MH-22	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	396.63	-
MH-23	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	399.00	-
**MH-24	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	407.72	-
MH-31	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	395.49	-
MH-32	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	402.36	-
EW-1	CONCRETE END WALL	HO.CO. D-5.21	-	-
EW-2	CONCRETE END WALL	HO.CO. D-5.21	-	-
ES-3	CONCRETE END SECTION	HO.CO. D-5.51	-	-
EW-4	CONCRETE END WALL	HO.CO. D-5.21	-	-
ES-5	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-6	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-7	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-8	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-9	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-10	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-11	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-13	SALVAGE EX. ES-13 FROM PHASE J	-	-	-

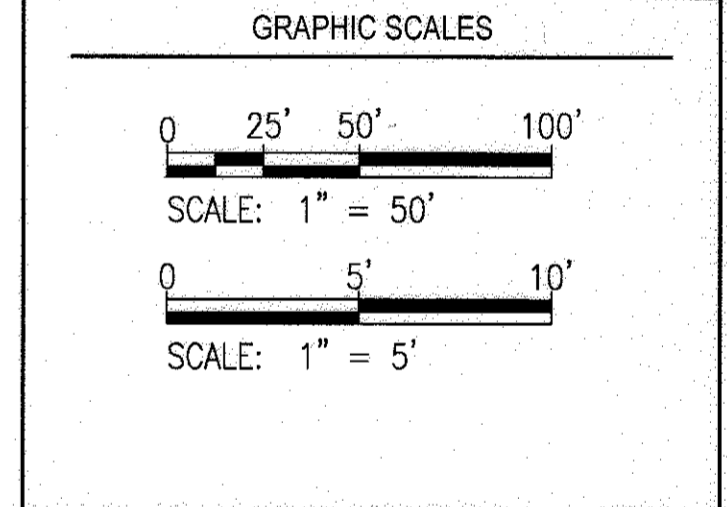
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 DATE: 2-6-17
 DATE: 3-01-17
 DATE: 3-14-17

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

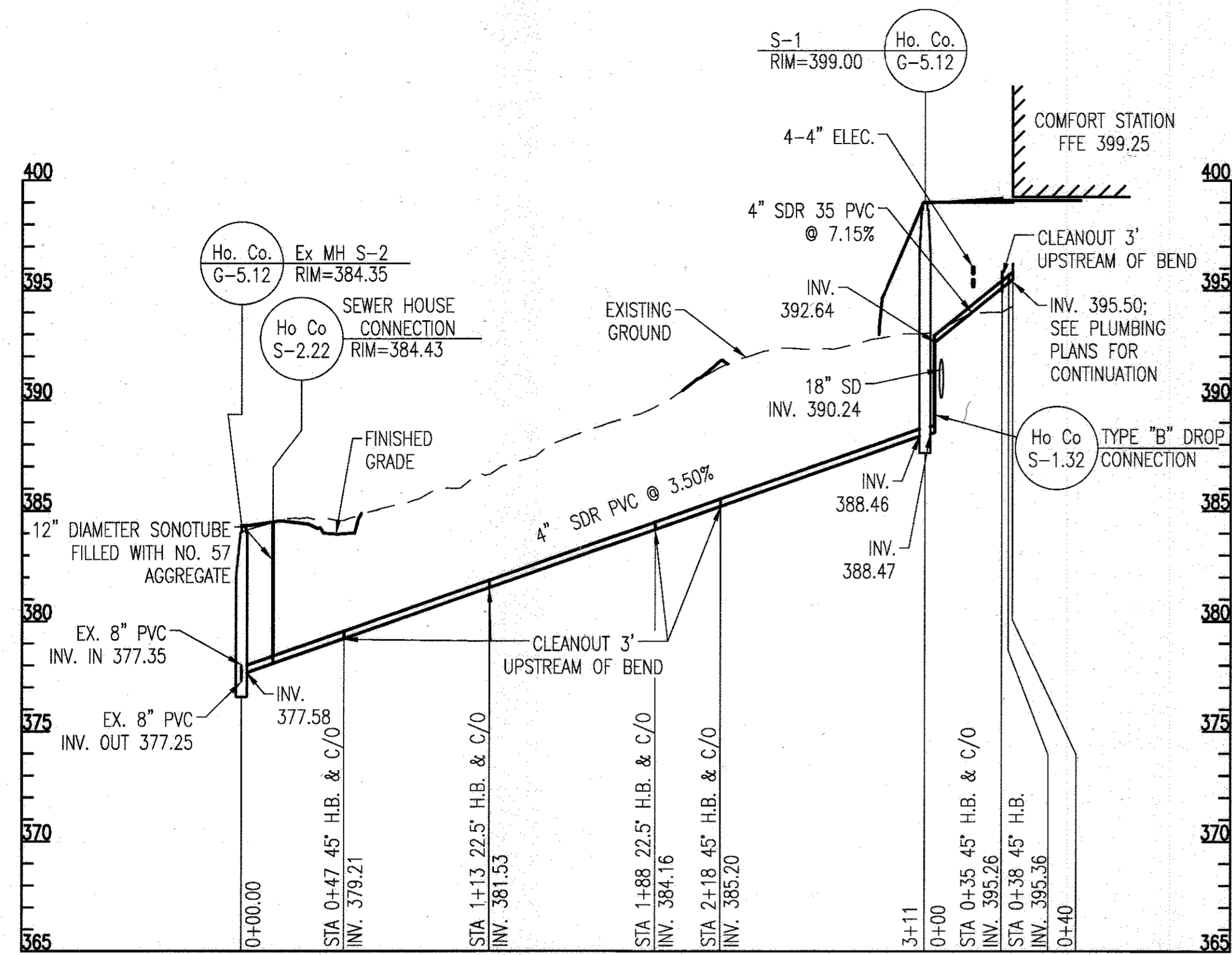


SIGNATURE
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 License No. 18975
 Signature: [Handwritten Signature]

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. 18975
 EXPIRATION DATE: 08/22/2017

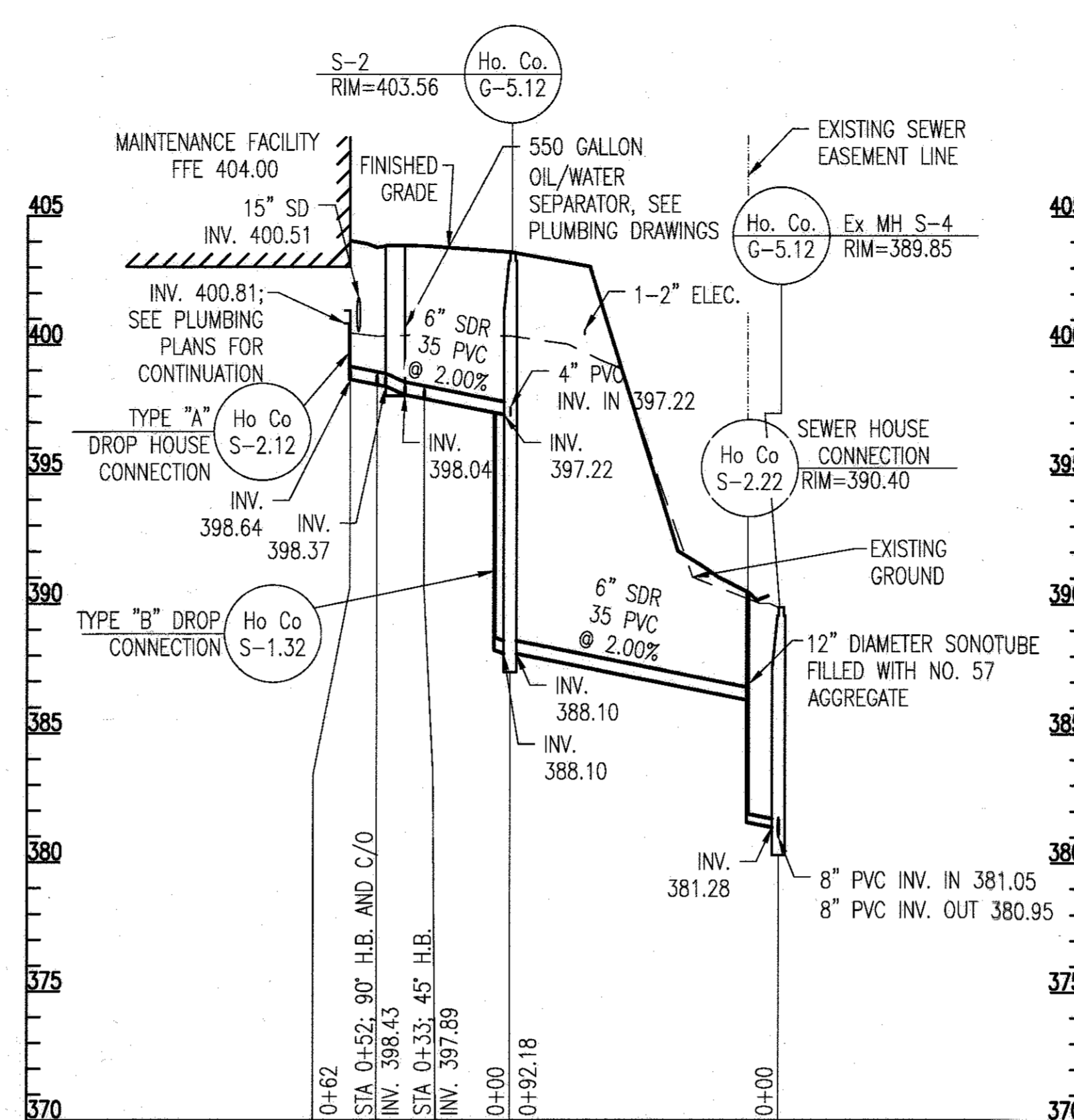
BLANDAIR REGIONAL PARK - PHASE 3

STORM DRAIN PROFILES
 Drawing No. C2.3
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 23 of 76
 Des: AKC Drawn: AKC Check: AUO



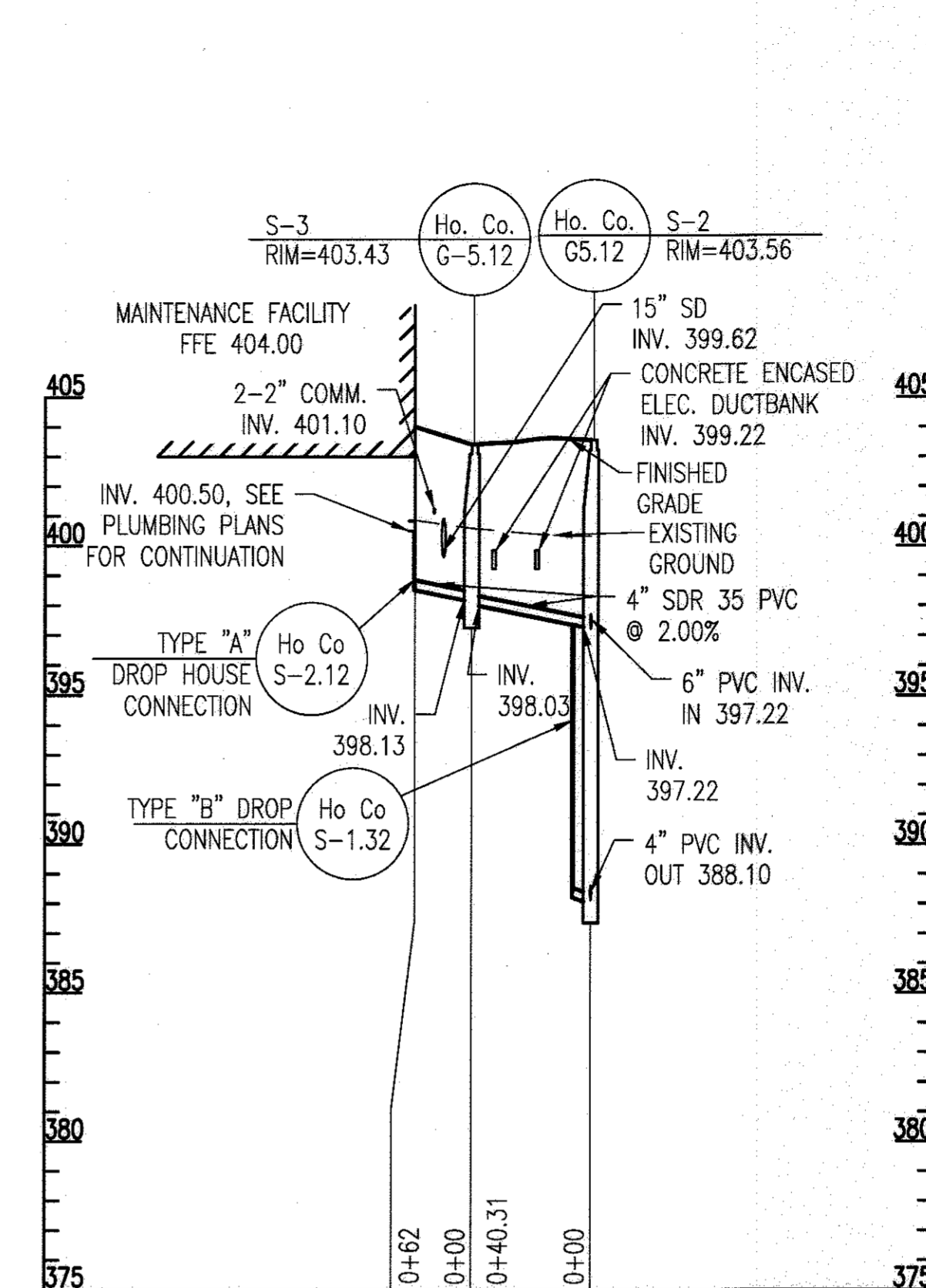
SEWER PROFILE: COMFORT STATION TO EX MH S-2

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



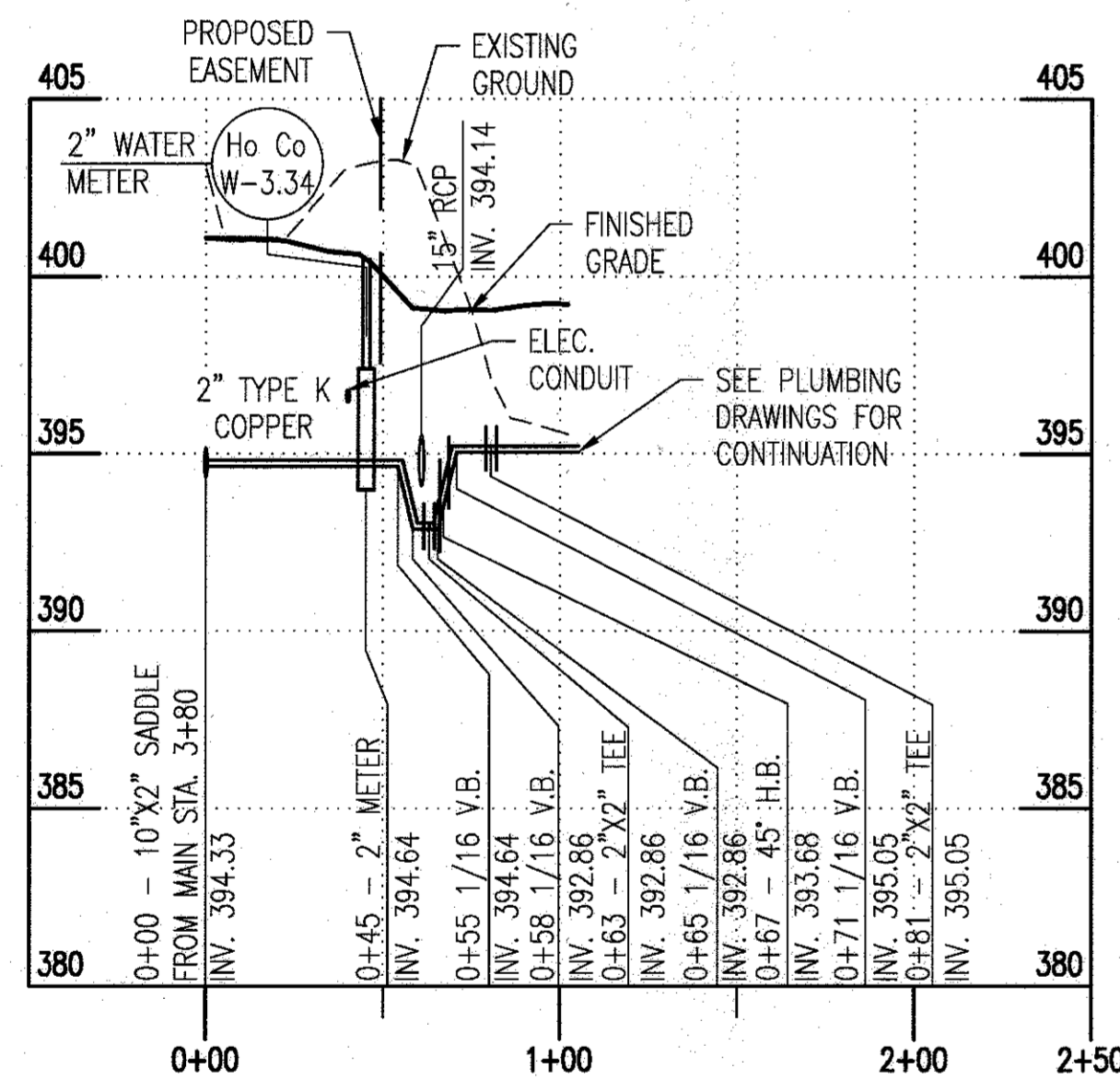
SEWER PROFILE: MAINTENANCE FACILITY TO EX MH S-4

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



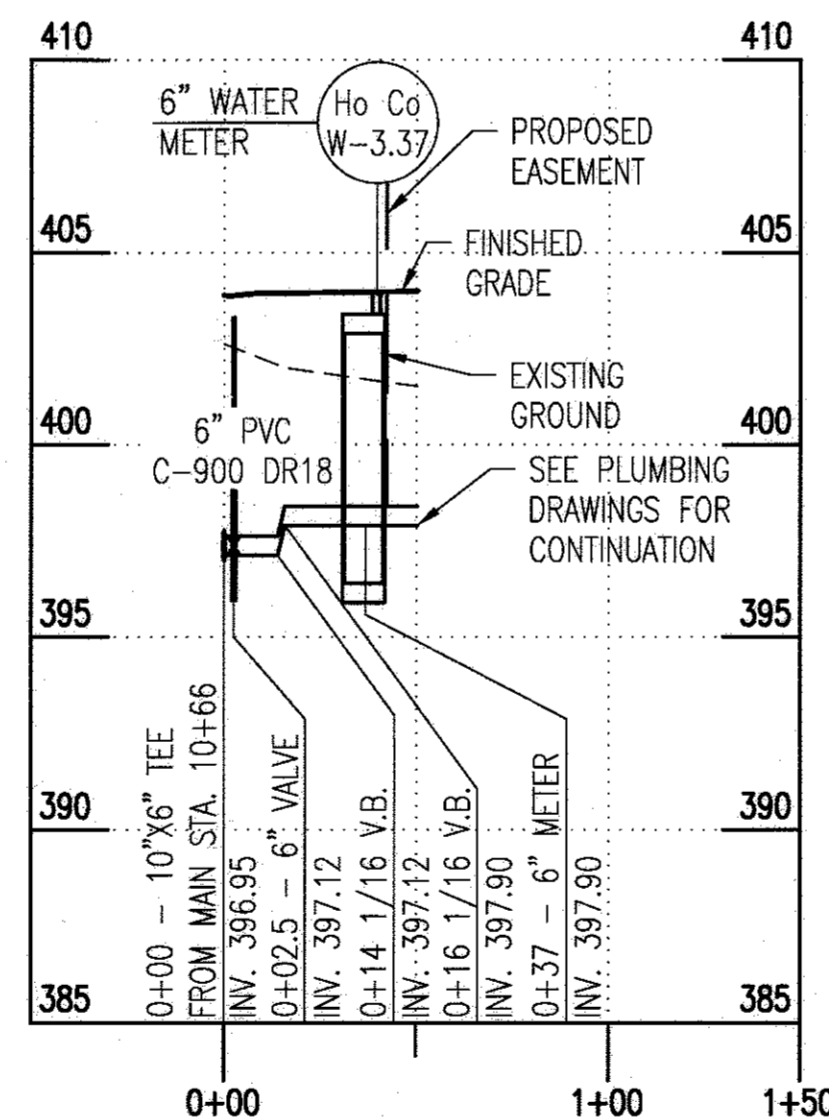
SEWER PROFILE: S-3 TO MH S-2

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



WATER PROFILE: COMFORT STATION 2.5" CONNECTION

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



WATER PROFILE: MAINTENANCE BUILDING 6" CONNECTION

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE: 3-19-17
 DIRECTOR

REVISIONS	

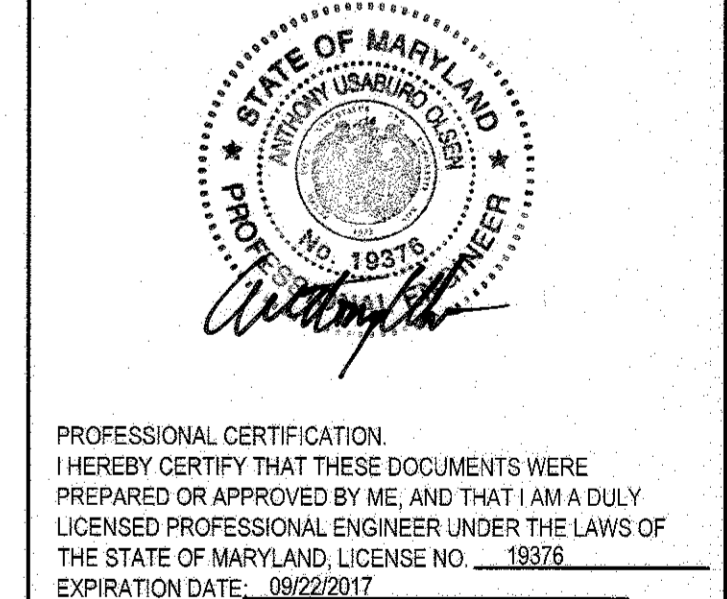
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

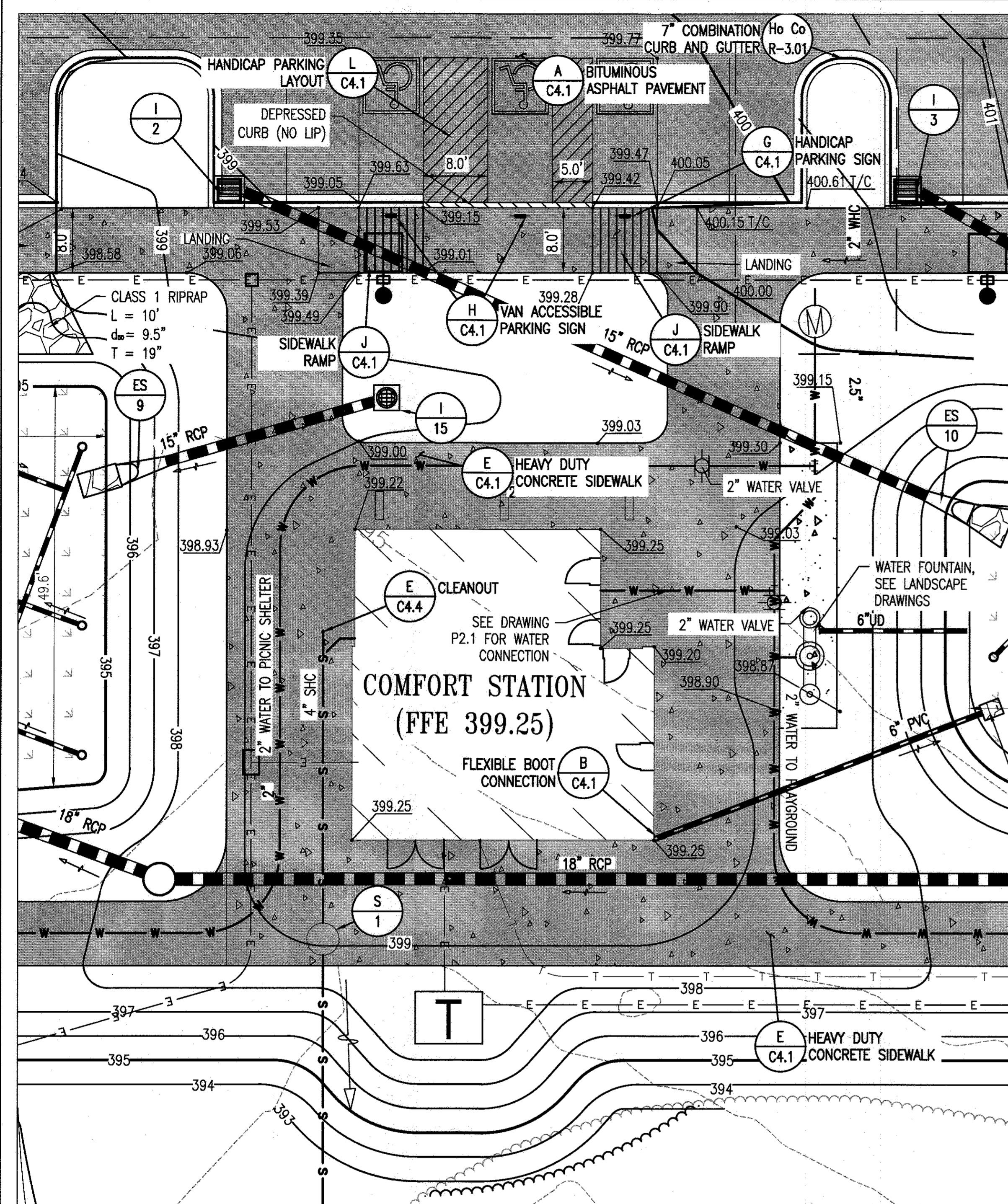
SIGNATURE
 [Signature]



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 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. 18376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

WATER AND SEWER PROFILES
 Drawing No.
C2.4
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 24 of 76
 Des: AKC Drawn: AKC Check: AUO



A ENLARGED COMFORT STATION PLAN
C3.1 SCALE: 1"=10'

DRAWING NOTES:

1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
3. ALL SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
4. ALL CURB FILETS ARE 5" UNLESS OTHERWISE NOTED.

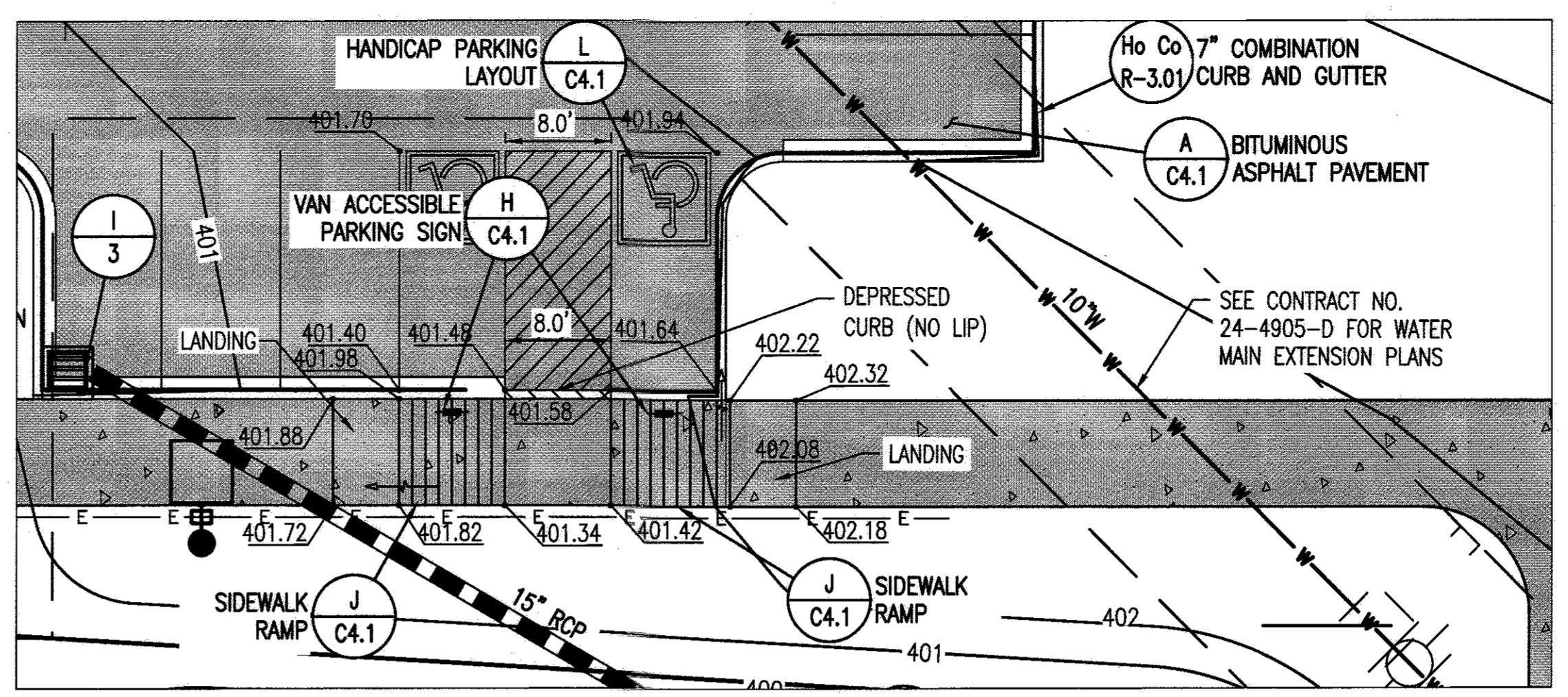
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

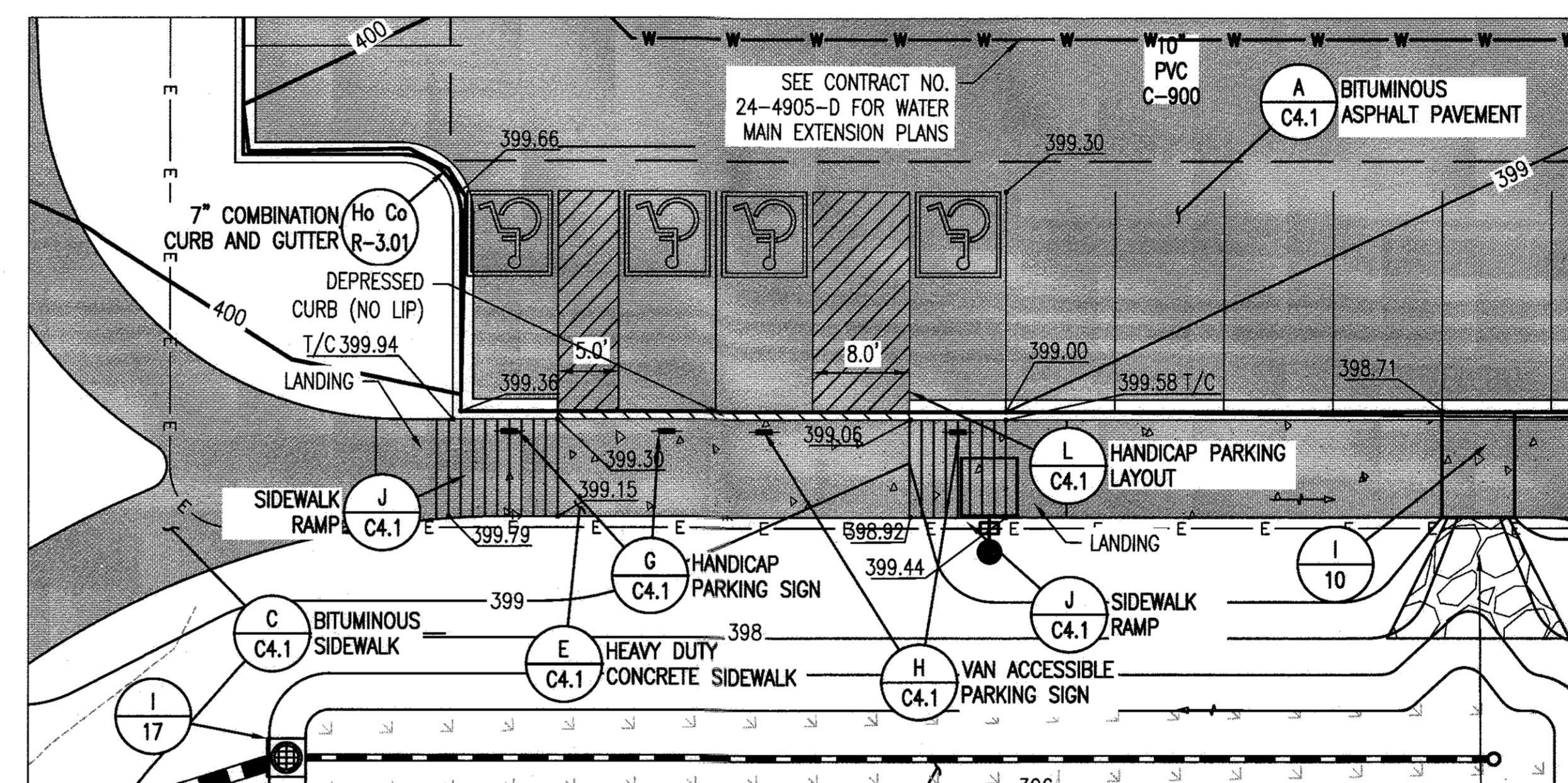
[Signature] 3.20.17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3.19.17
DIRECTOR DATE

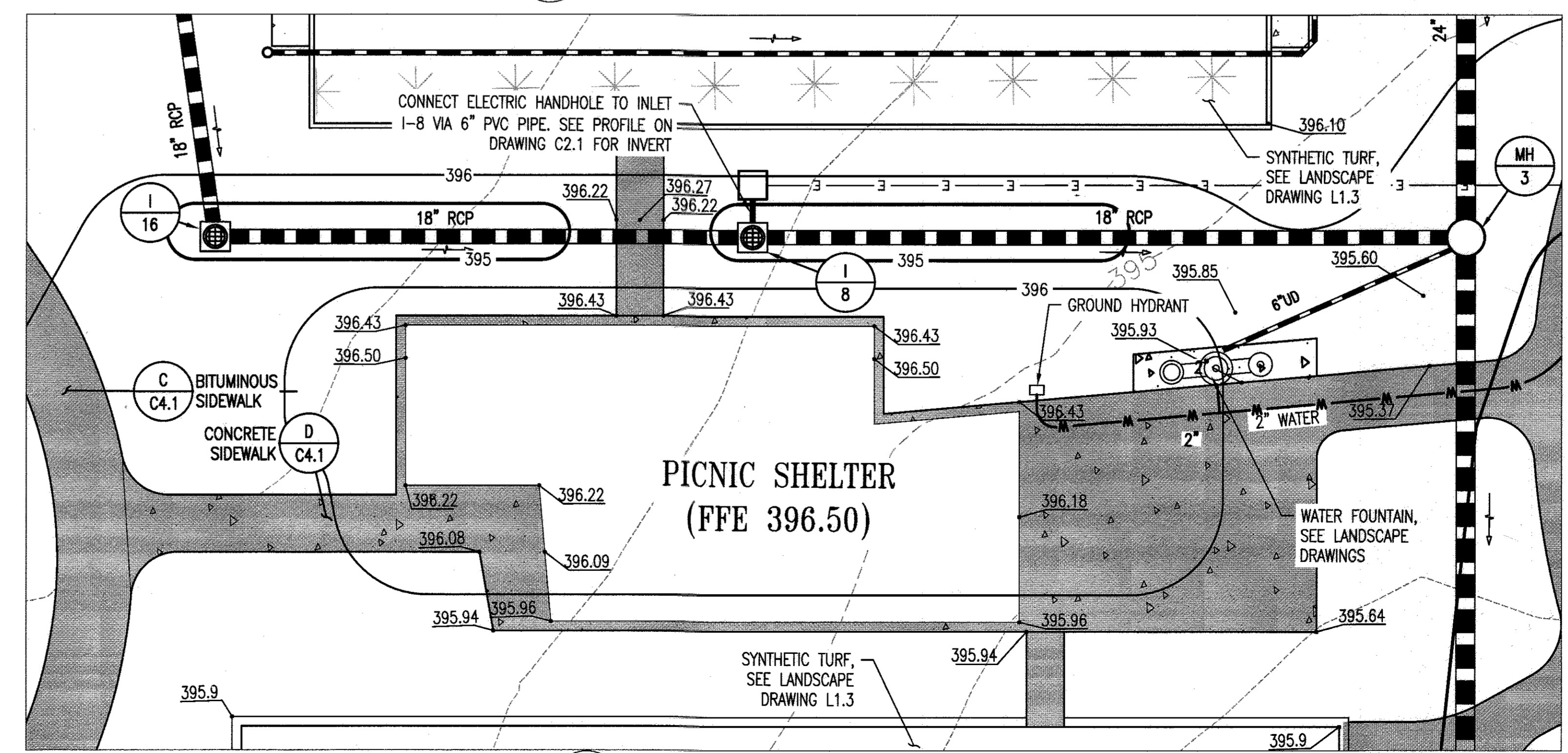
SEE CONTRACT NO. 24-4905-D FOR WATER MAIN EXTENSION PLANS



B ACCESSIBLE PARKING PLAN I
C3.1 SCALE: 1"=10'



C ACCESSIBLE PARKING PLAN II
C3.1 SCALE: 1"=10'



D ENLARGED PICNIC SHELTER PLAN
C3.1 SCALE: 1"=10'

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HOWARD COUNTY

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7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

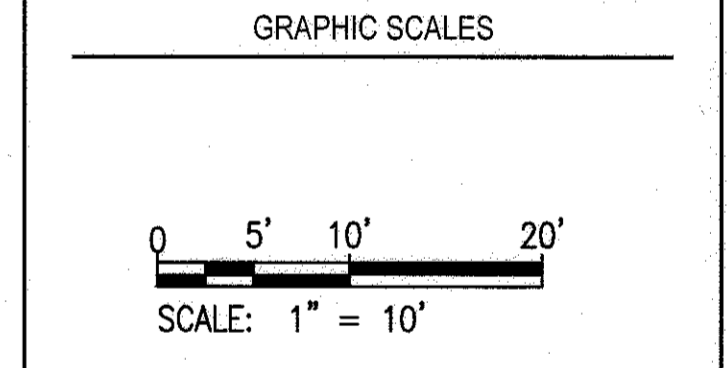


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

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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. 193276, EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

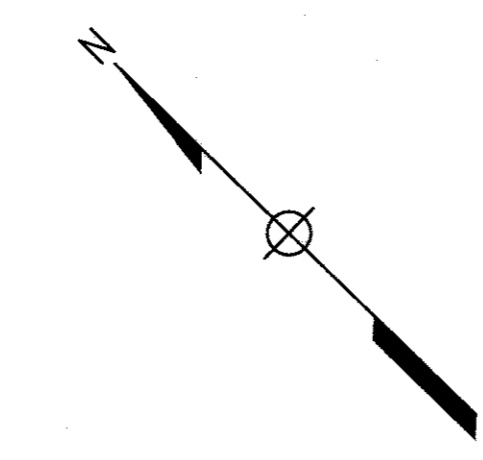
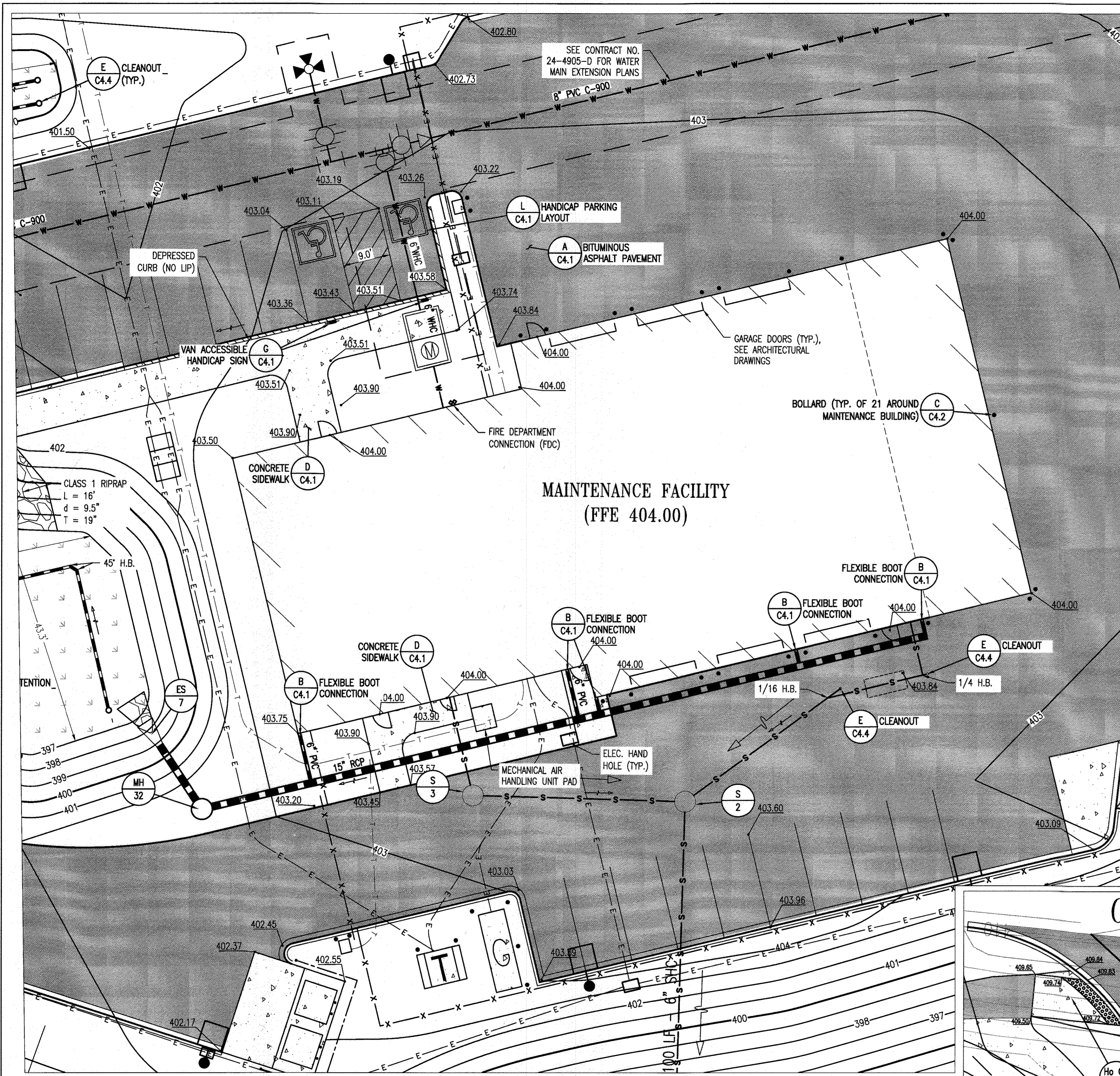
ENLARGED SITE PLANS

Drawing No. **C3.1**

Scale: 1" = 10'

Date: 1/17/2017 Sheet 25 of 76

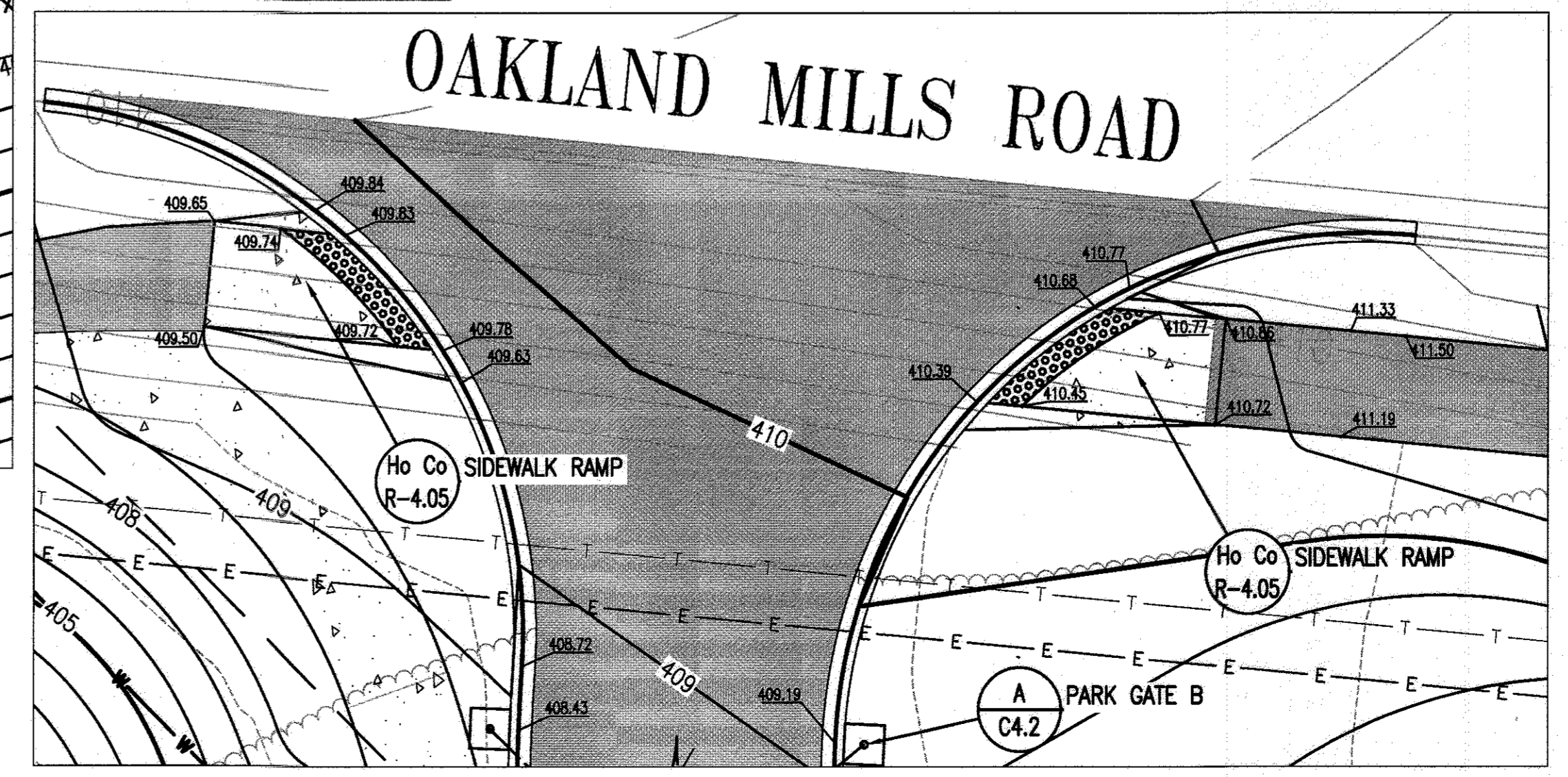
Des: BWJ Drawn: AKC Check: AUO



**MAINTENANCE FACILITY
(FFE 404.00)**

A ENLARGED MAINTENANCE FACILITY PLAN
C3.2 SCALE: 1" = 10'

B ENLARGED MAINTENANCE FACILITY ENTRANCE
C3.2 SCALE: 1" = 10'



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Ch Chhan 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kathleen 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

David 3-19-17
 DIRECTOR

- DRAWING NOTES:**
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
 2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
 3. ALL SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
 4. ALL CURB FILETS ARE 5' UNLESS OTHERWISE NOTED.

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

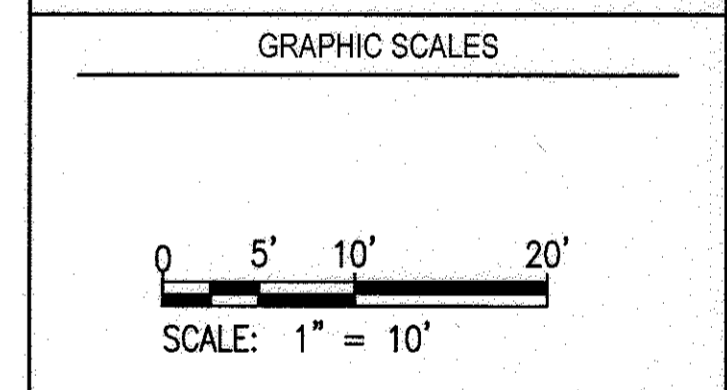


PROPERTY

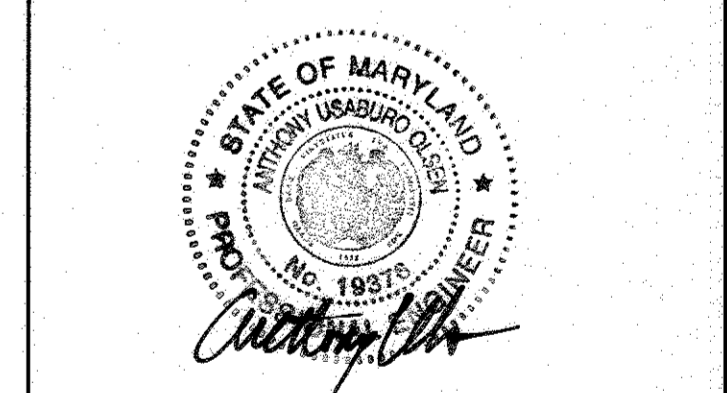
TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE



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 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. 18376, EXPIRATION DATE: 08/22/2017.

BLANDAIR REGIONAL PARK - PHASE 3

ENLARGED SITE PLANS

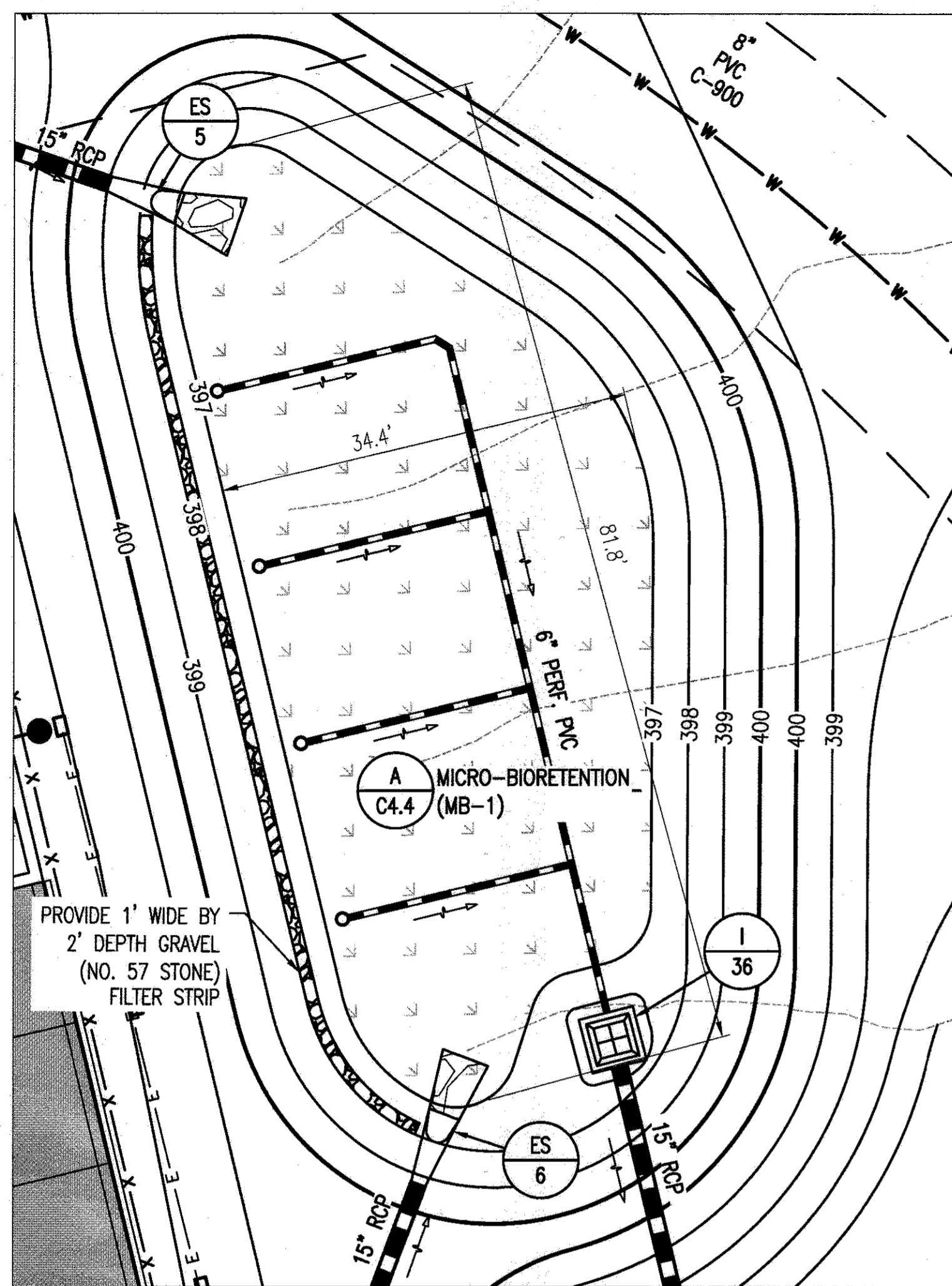
Drawing No.

C3.2

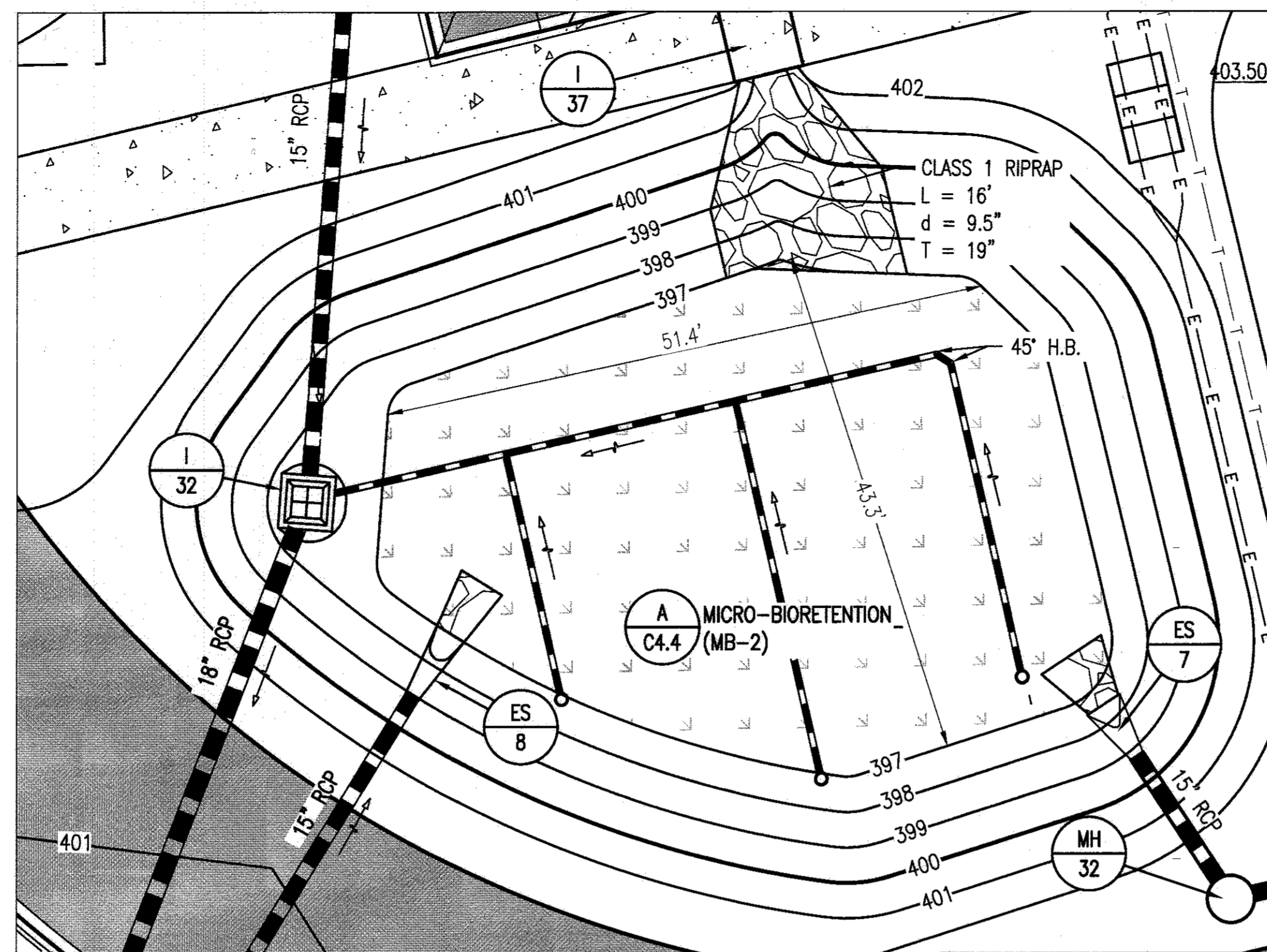
Scale: 1" = 10'

Date: 1/17/2017 Sheet 26 of 76

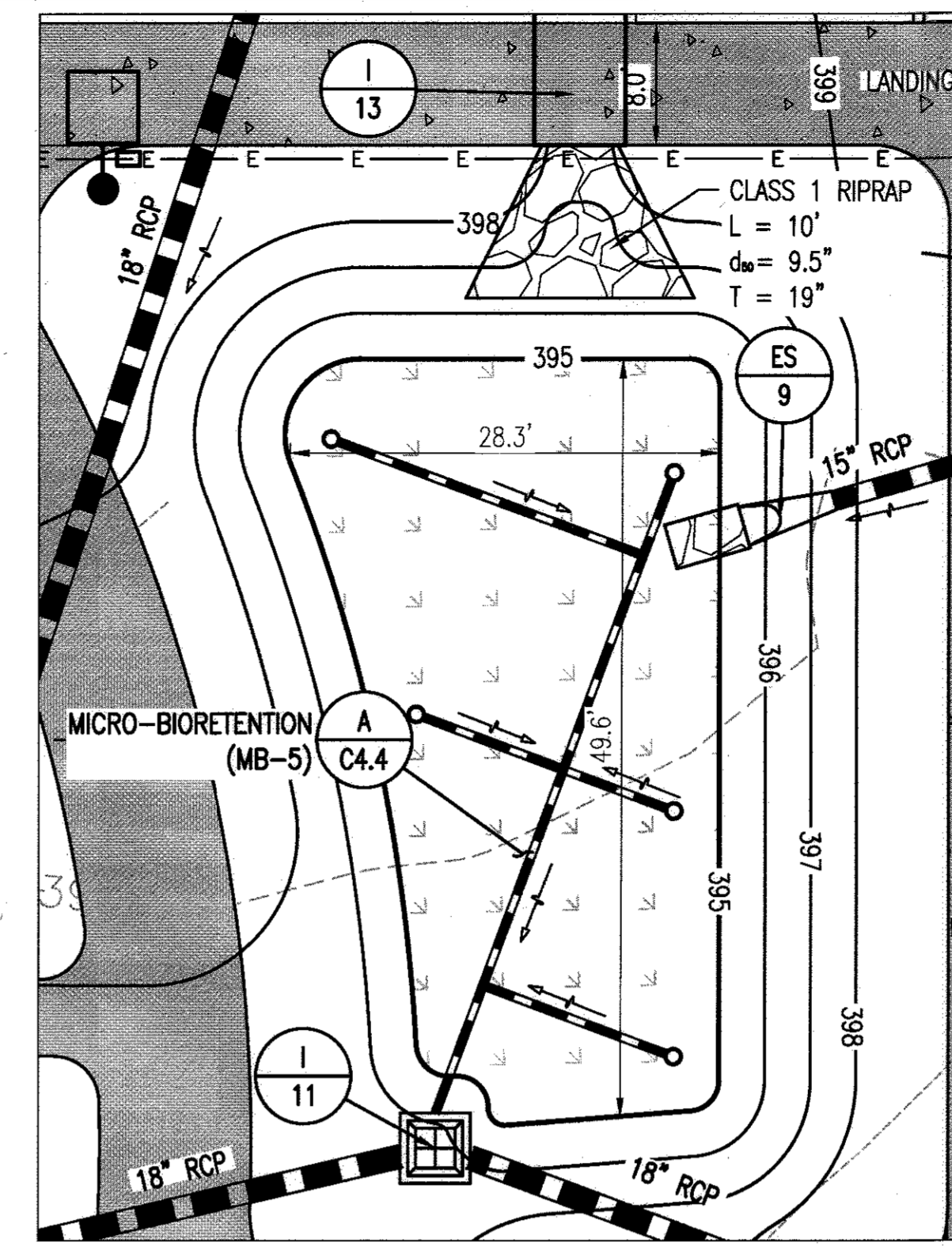
Des: BWJ Drawn: AKC Check: AUO



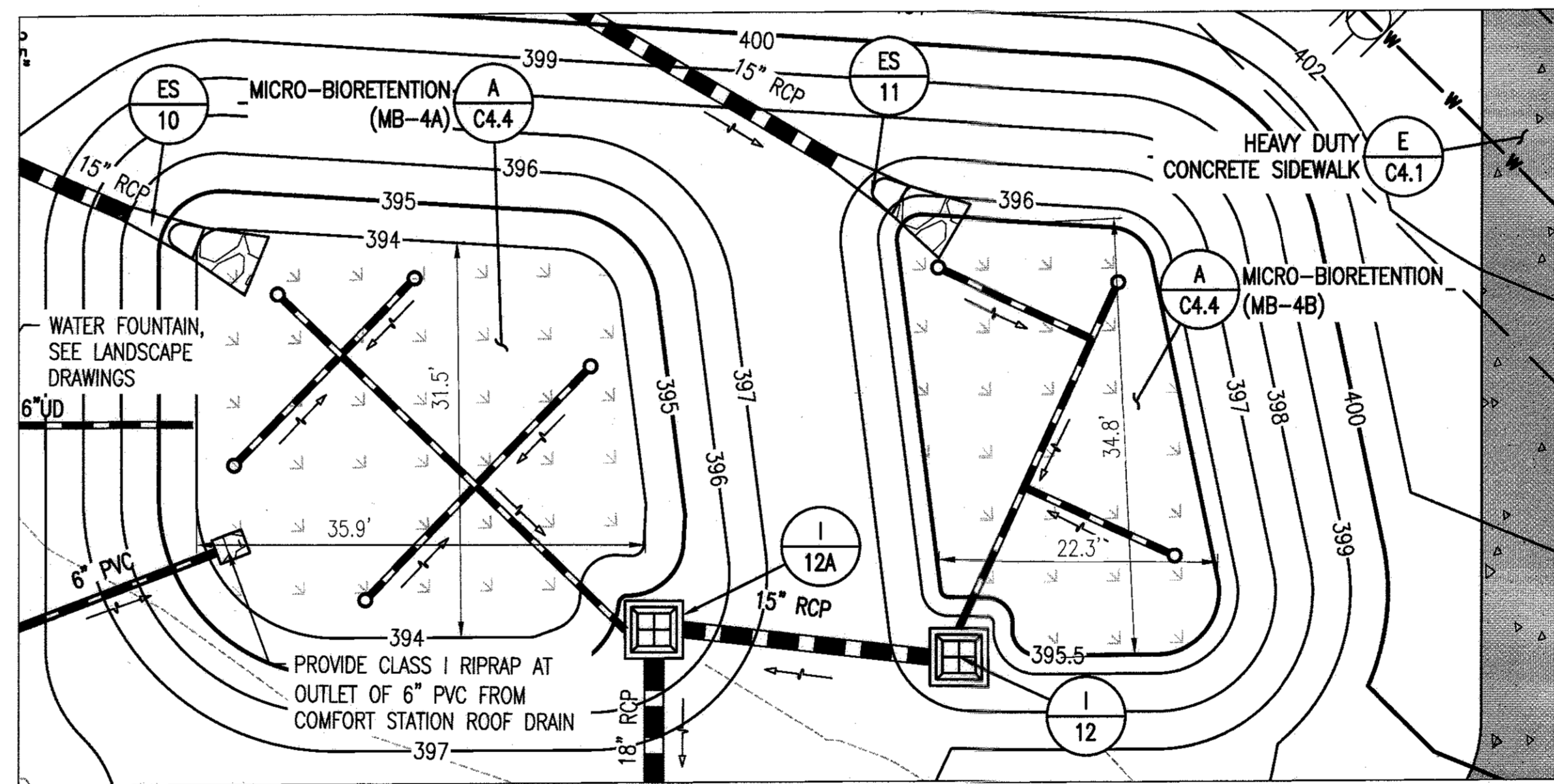
A MICRO-BIORETENTION 1 (MB-1) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



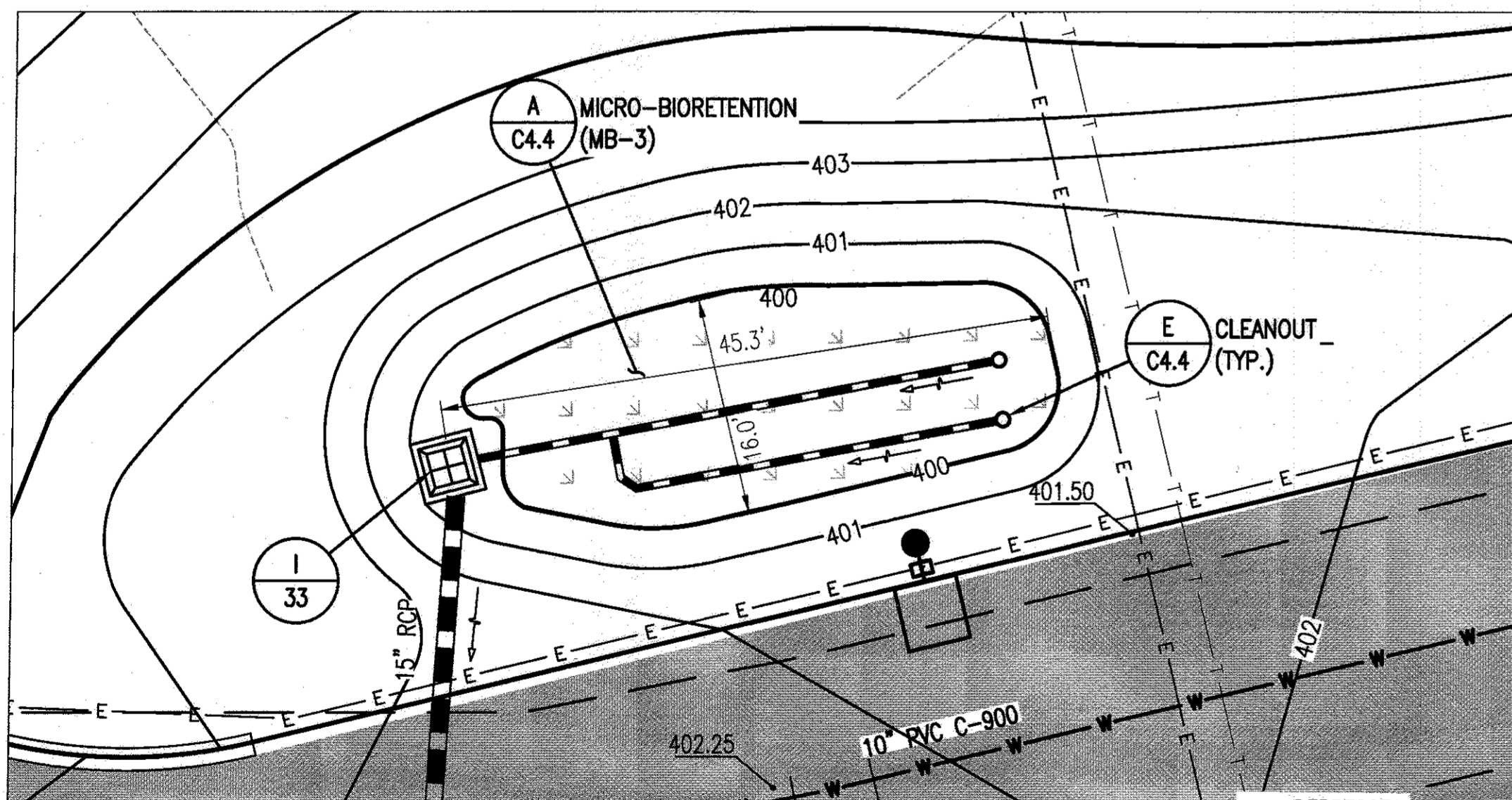
B MICRO-BIORETENTION 2 (MB-2) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



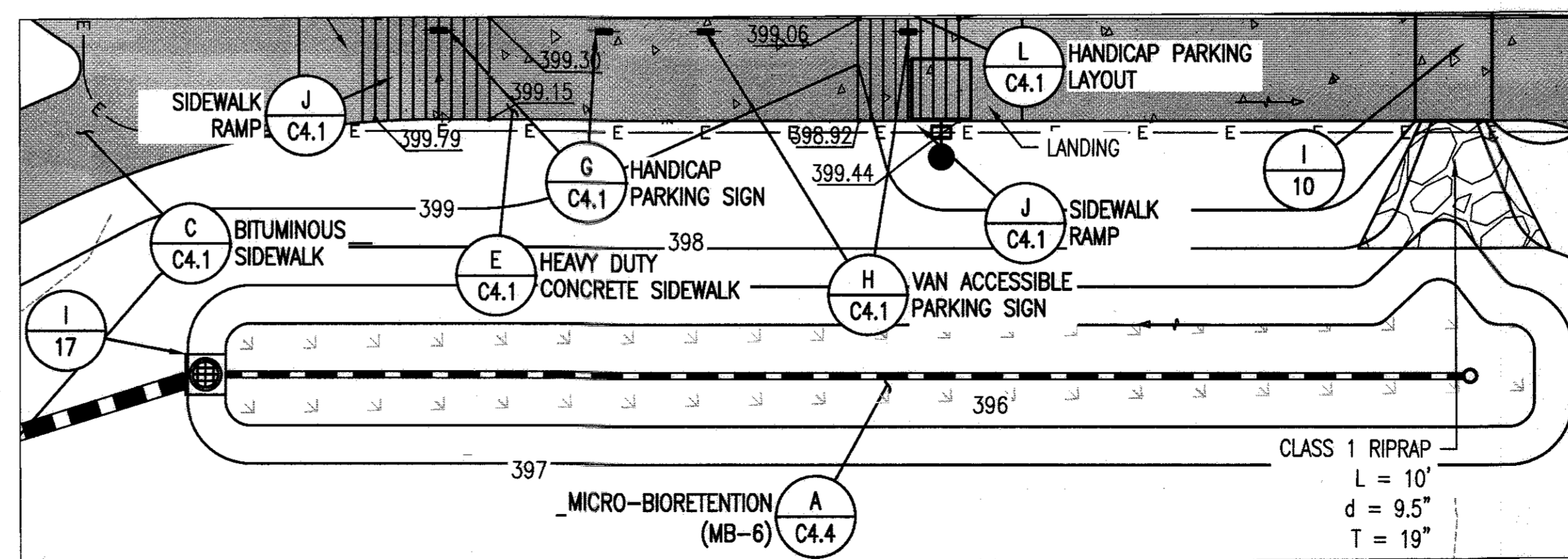
E MICRO-BIORETENTION 5 (MB-5) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



D MICRO-BIORETENTION 4A AND 4B (MB-4A AND 4B) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



C MICRO-BIORETENTION 3 (MB-3) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



D MICRO-BIORETENTION 6 (MB-6) ENLARGED PLAN
C3.3 SCALE: 1" = 10'

DRAWING NOTES:

1. THE MICROBIORETENTION SECTION IS LOCATED ON SHEET C4.4
2. THE MICRO-BIORETENTION MAINTENANCE SCHEDULE, AND OPERATIONS AND MAINTENANCE SCHEDULE IS LOCATED ON SHEET C4.4.
3. THE MICRO-BIORETENTION PLANTING SCHEDULE IS ON SHEET L1.6.
4. ALL UNDERDRAINS ARE 6".

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE	2.6.17
DATE	3.01.17
DATE	3-19-17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

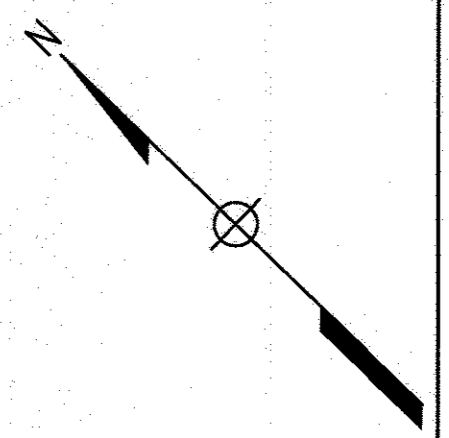
GRAPHIC SCALES
0 5' 10' 20'
SCALE: 1" = 10'

SIGNATURE

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. 18275, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

ENLARGED MICRO-BIORETENTION PLANS
Drawing No. **C3.3**
Scale: 1" = 20'
Date: 1/17/2017 Sheet 27 of 76
Des: BWJ Drawn: AKC Check: AUO
SDP-15-050



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
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 ELLICOTT CITY, MD 21043



PROPERTY

TAX MAP 36, GRID 5, PARCEL 3.72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SCALE: 1" = 10'

SIGNATURE

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 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. 19376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

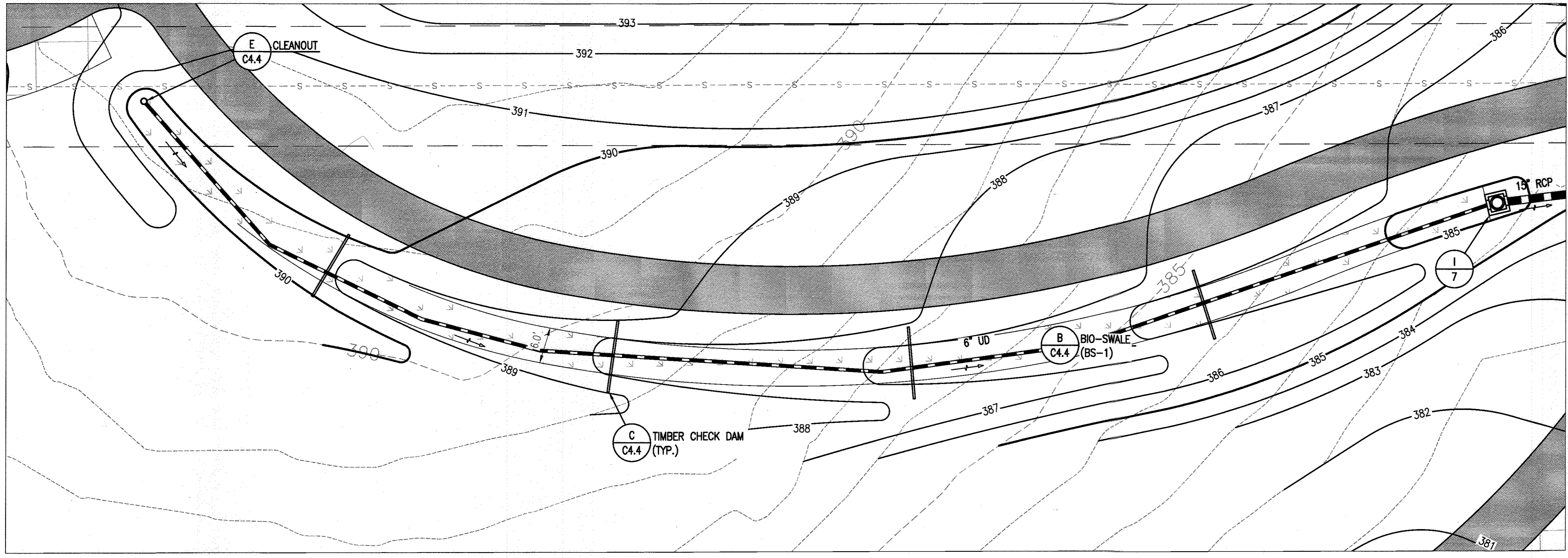
ENLARGED BIO-SWALE PLAN

Drawing No.
C3.4

Scale: 1" = 20'

Date: 1/17/2017 Sheet 28 of 76

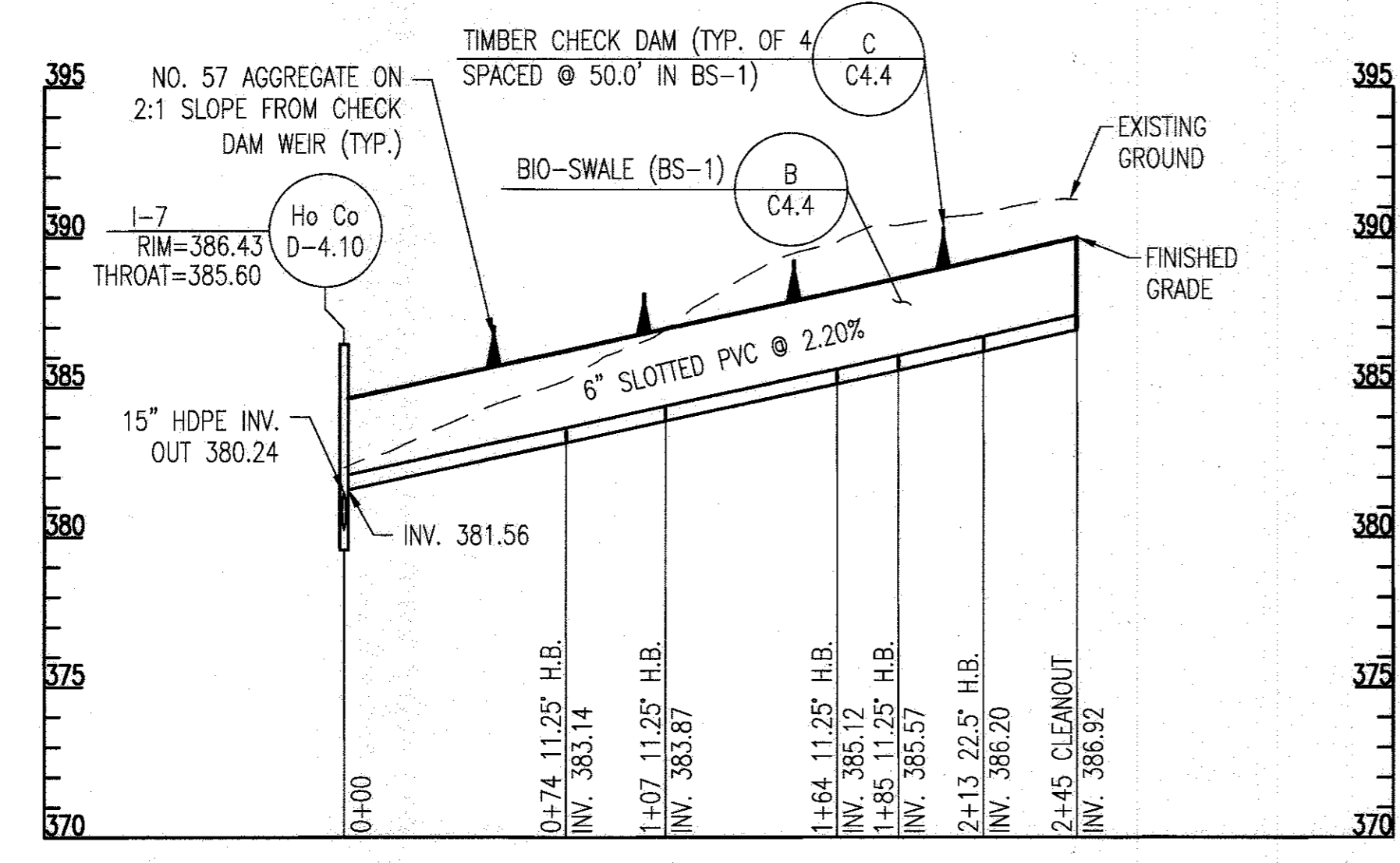
Des: BWJ Drawn: AKC Check: AUO



A
 C3.4 BIO SWALE 1 ENLARGED PLAN
 SCALE: 1" = 10'

ESD FACILITY ELEVATION CHART							
ESD FACILITY	FILTER BED ELEVATION	INLET	INLET TOP ELEV.	INLET THROAT	INLET INV. OUT	UNDERDRAIN INV. ELEV.	FACILITY BOTTOM
MB-1	397.00	I-36	398.83	398.00	392.00	393.50	393.33
MB-2	397.00	I-32	398.83	398.00	390.80	393.50	393.33
MB-3	400.00	I-33	401.83	401.00	395.00	396.50	396.33
MB-4A	394.00	I-12A	395.83	395.00	391.00	391.00	390.83
MB-4B	395.50	I-12	397.33	396.50	391.37	392.00	391.83
MB-5	395.00	I-11	396.83	396.00	389.67	391.50	391.33
MB-6	396.00	I-17	397.83	397.00	391.39	392.50	392.33
BS-1	**	I-7	386.43	386.00	380.24	381.50	381.33

** AT INLET I-7, FILTER BED TO FOLLOW SWALE SLOPE.



BIO SWALE 1 PROFILE
 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

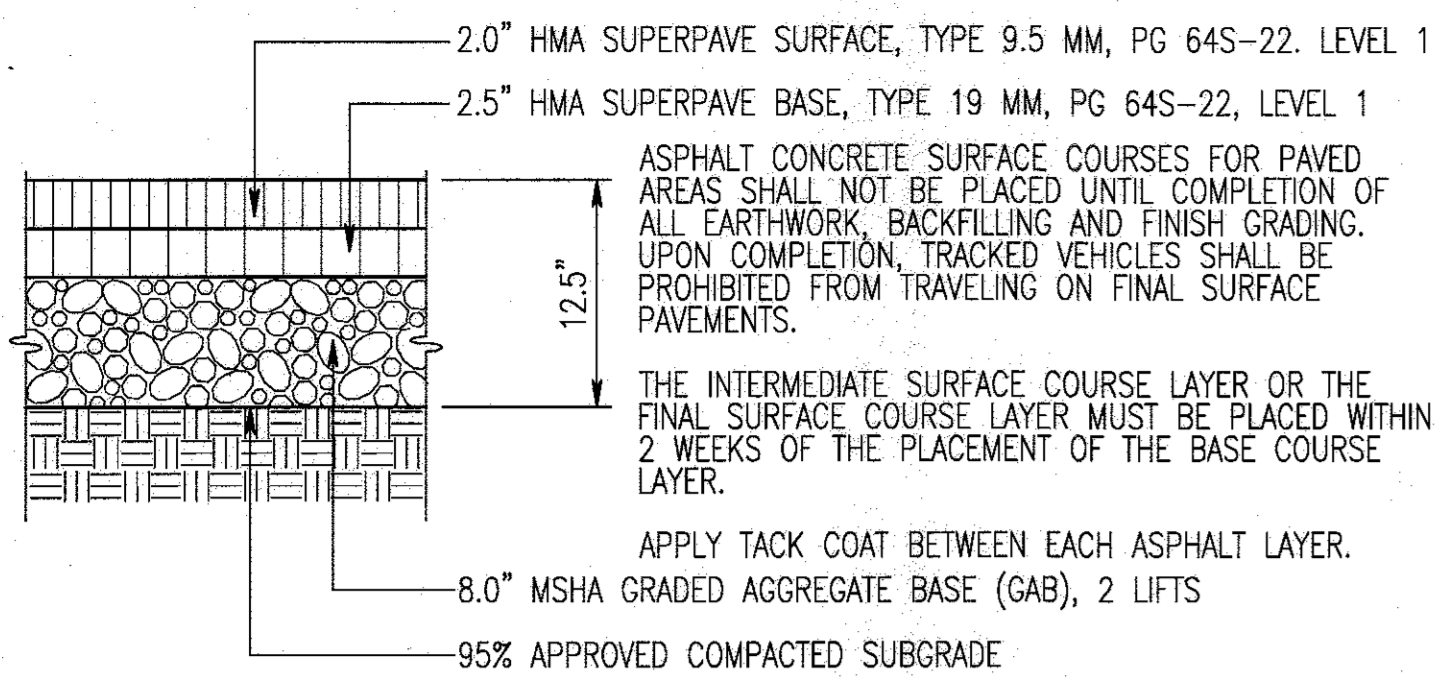
- DRAWING NOTES:**
- THE MICRO-BIORETENTION SECTION IS LOCATED ON SHEET C4.4
 - THE MICRO-BIORETENTION MAINTENANCE SCHEDULE, PLANTING SCHEDULE, AND OPERATIONS AND MAINTENANCE SCHEDULE IS LOCATED ON SHEET C4.4.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

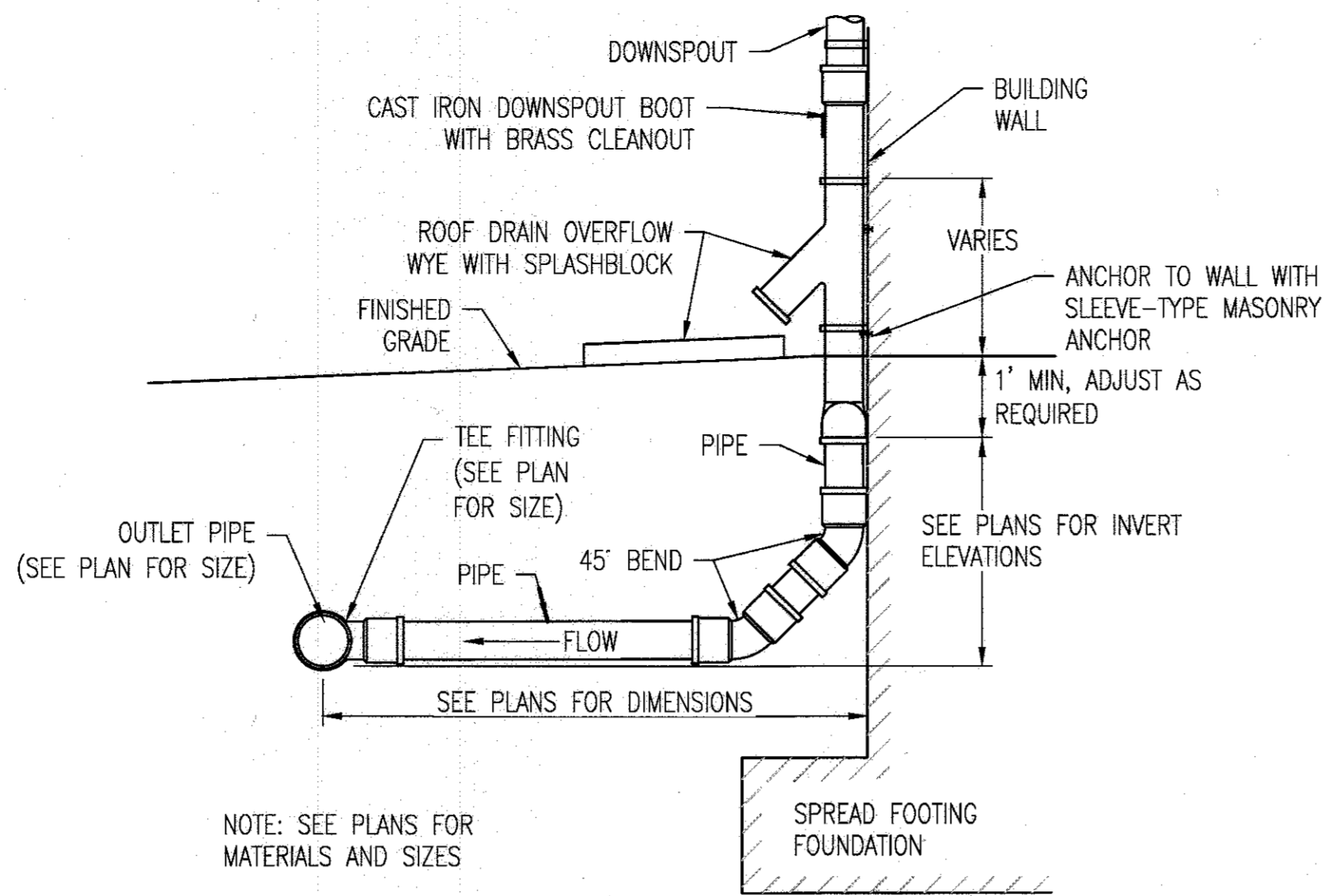
[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
 CHIEF, DEPARTMENT OF LAND DEVELOPMENT

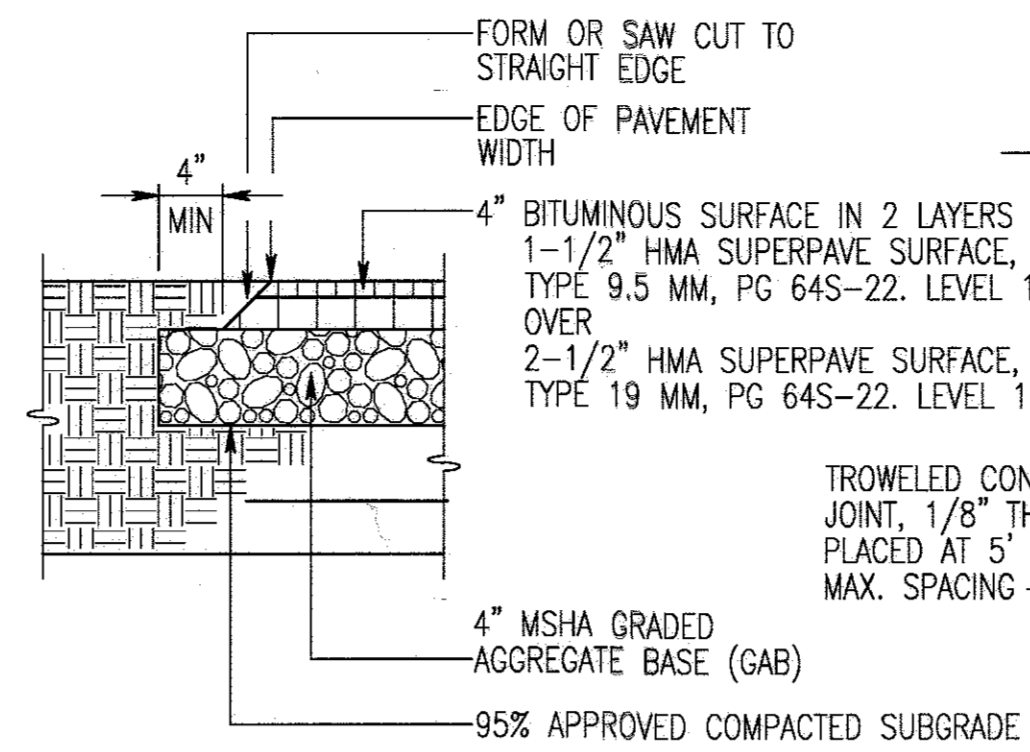
[Signature] DATE: 3-19-17
 DIRECTOR



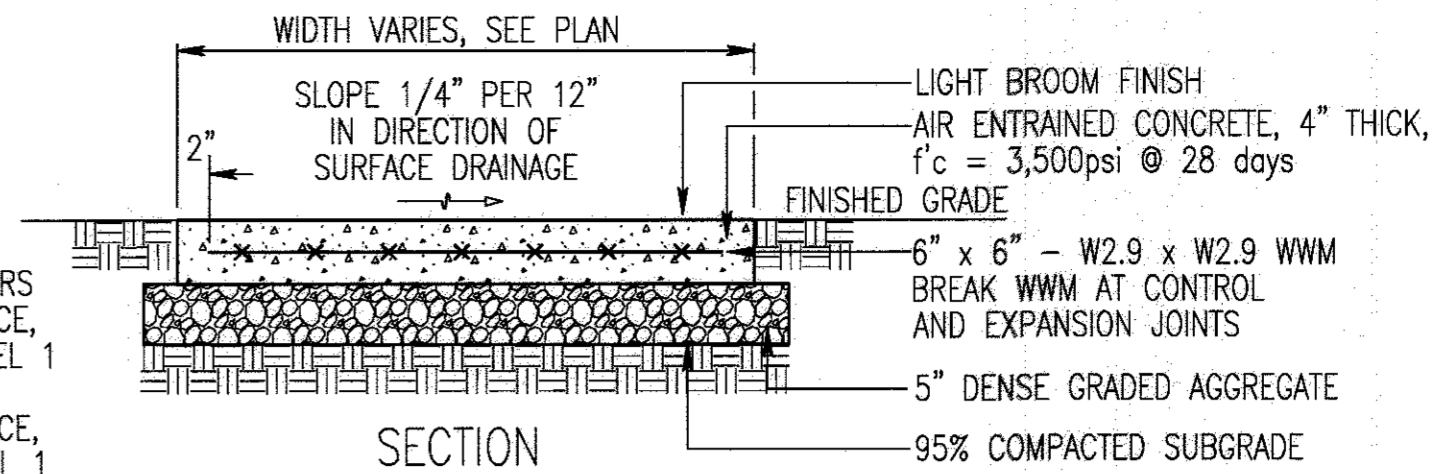
A BITUMINOUS ASPHALT PAVEMENT
C4.1 NOT TO SCALE



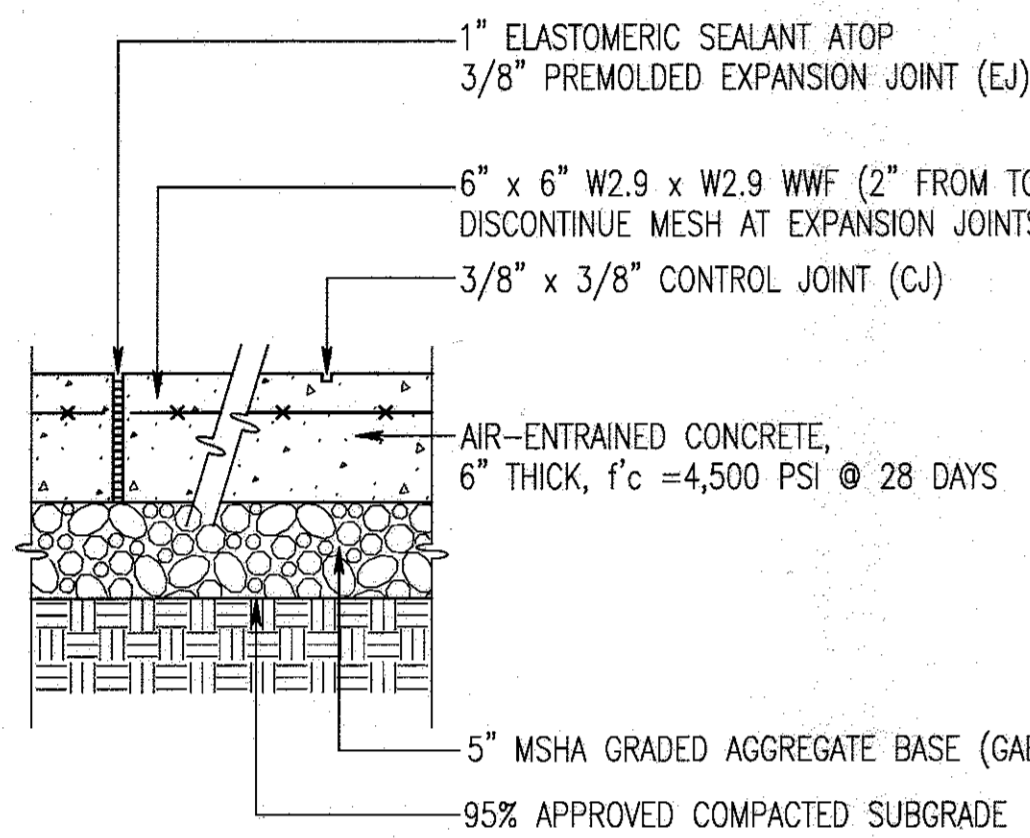
B FLEXIBLE BOOT CONNECTION
C4.1 NOT TO SCALE



C BITUMINOUS SIDEWALK
C4.1 NOT TO SCALE

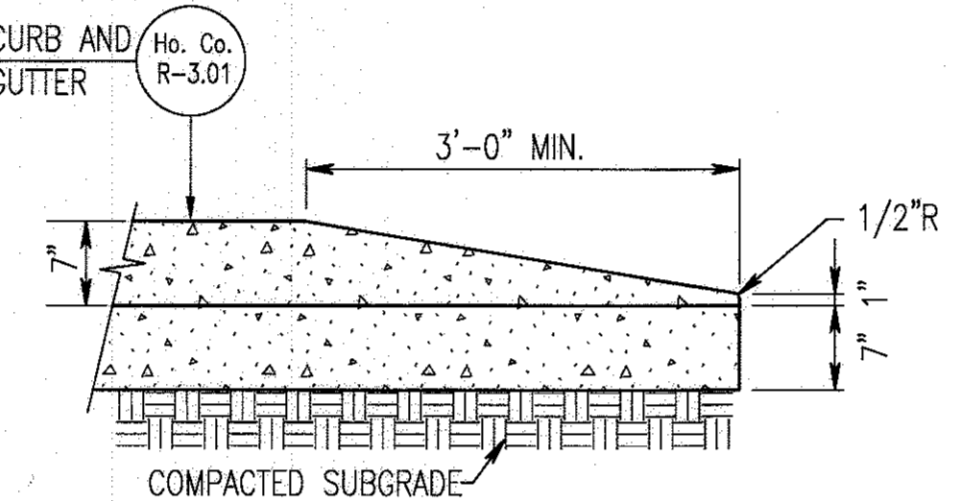


D CONCRETE SIDEWALK
C4.1 NOT TO SCALE

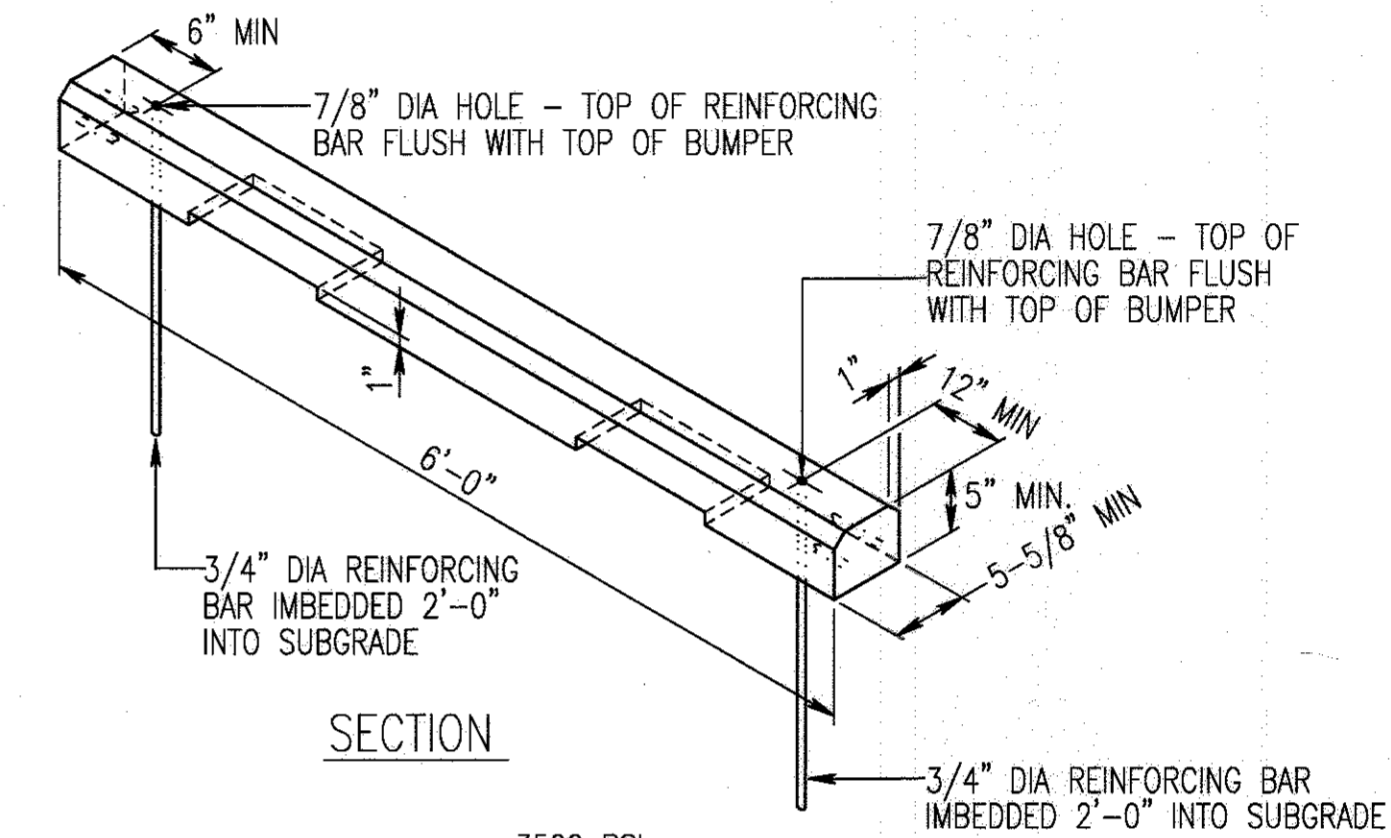


E HEAVY DUTY CONCRETE SIDEWALK
C4.1 NOT TO SCALE

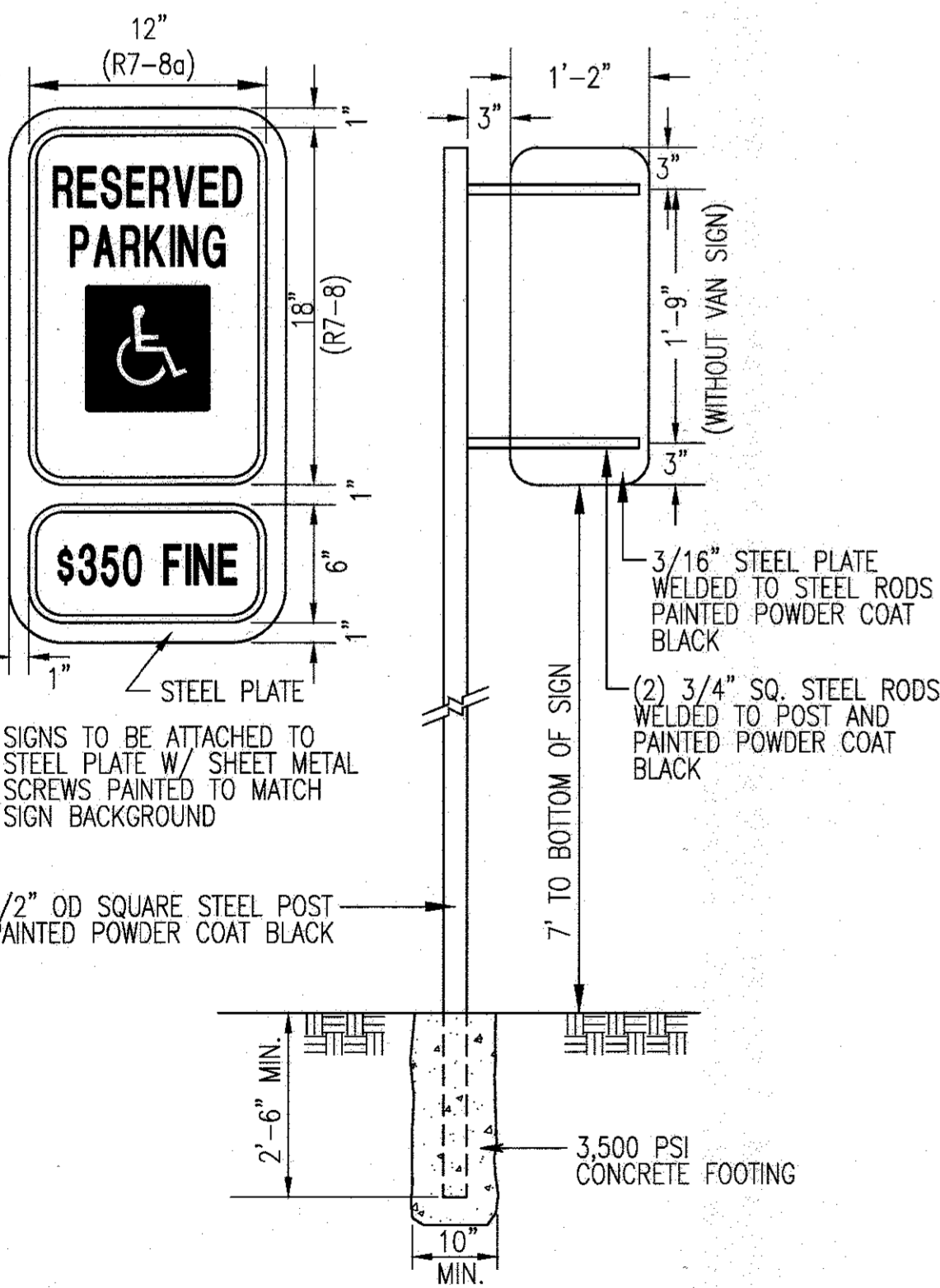
SEE SHEET C3.1 AND LANDSCAPE PLANS FOR SCORING PATTERNS. PROVIDE 1\"/>



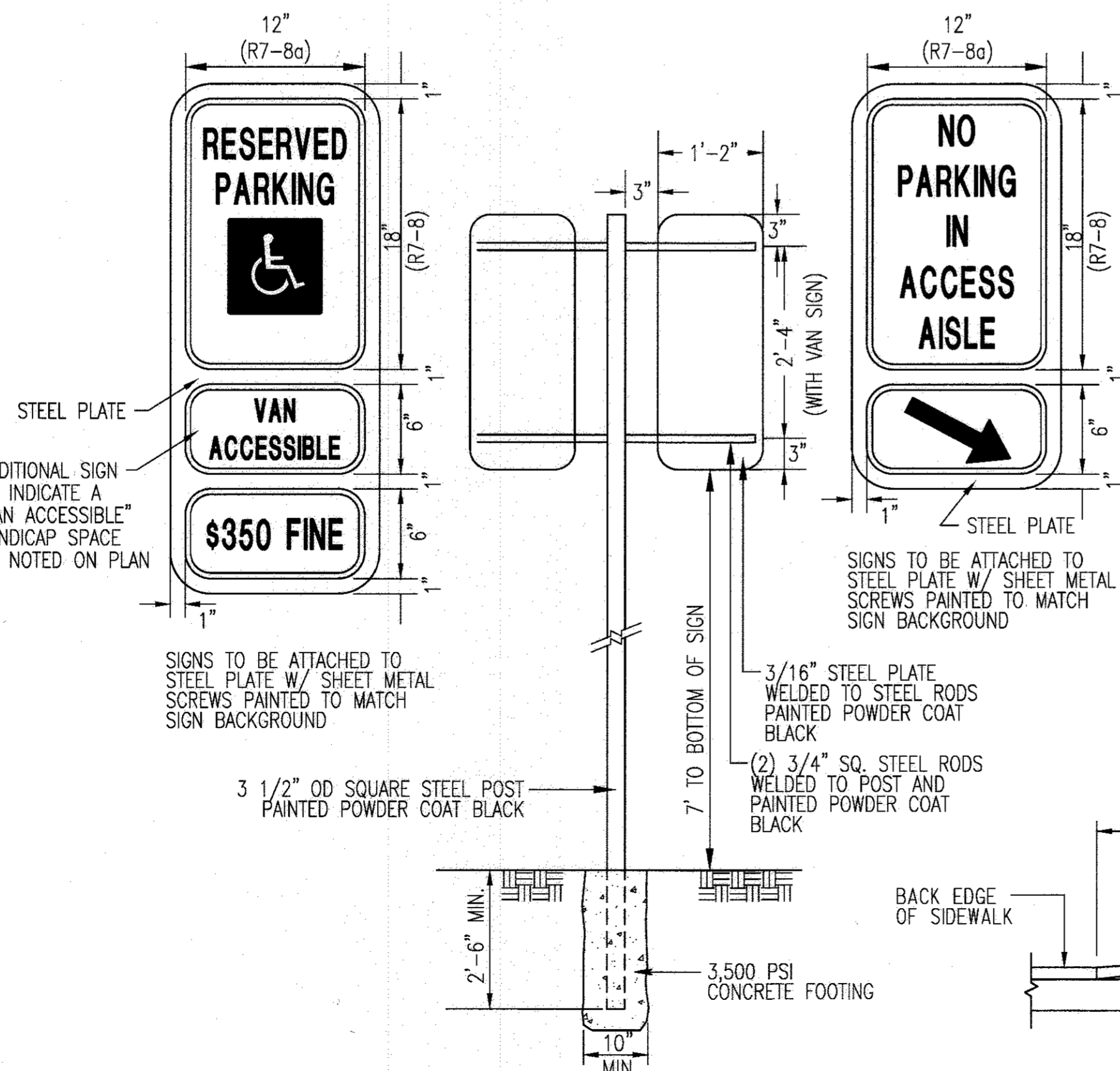
F NOSE DOWN CURB
C4.1 NOT TO SCALE



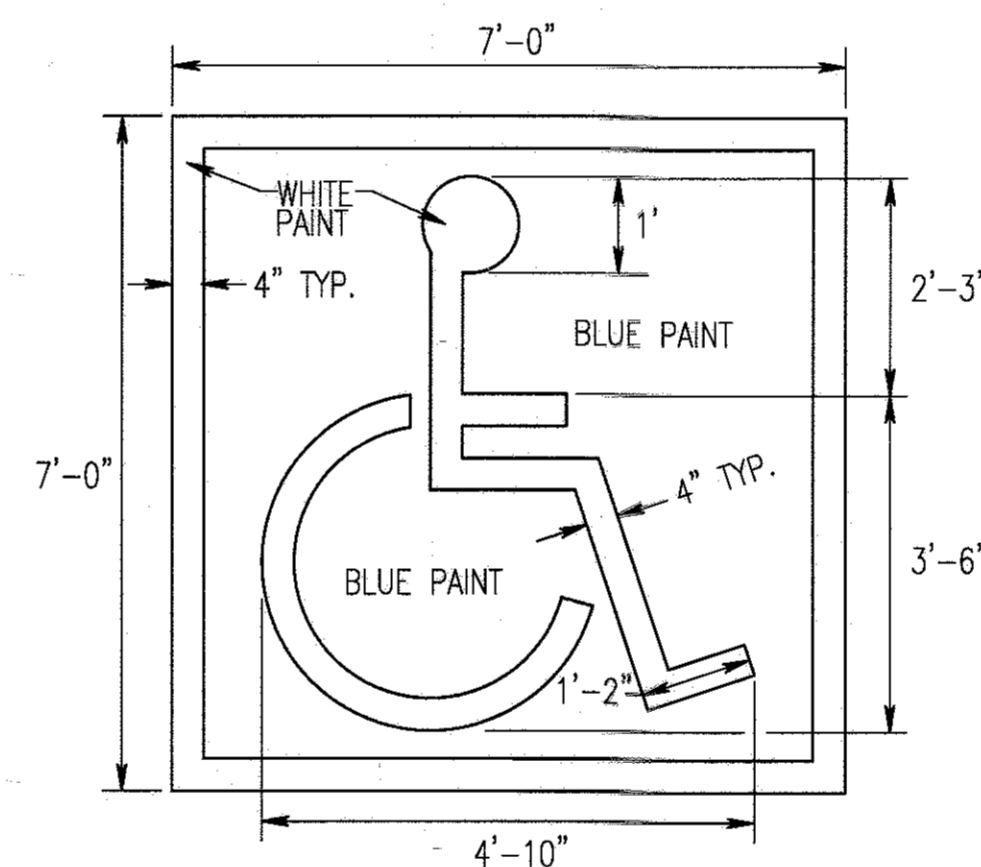
K PARKING BUMPER
C4.1 NOT TO SCALE



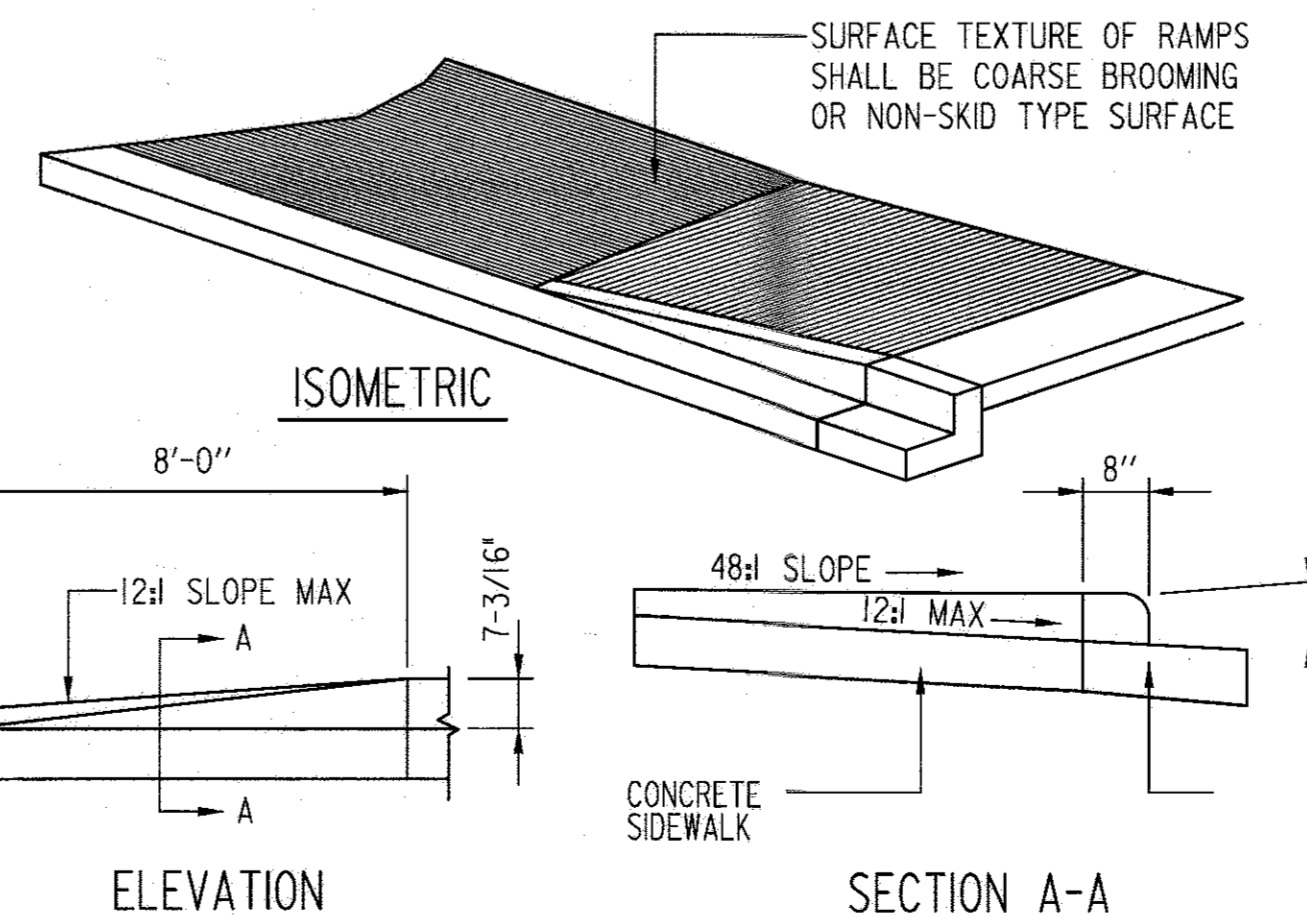
G HANDICAP PARKING SIGN
C4.1 NOT TO SCALE



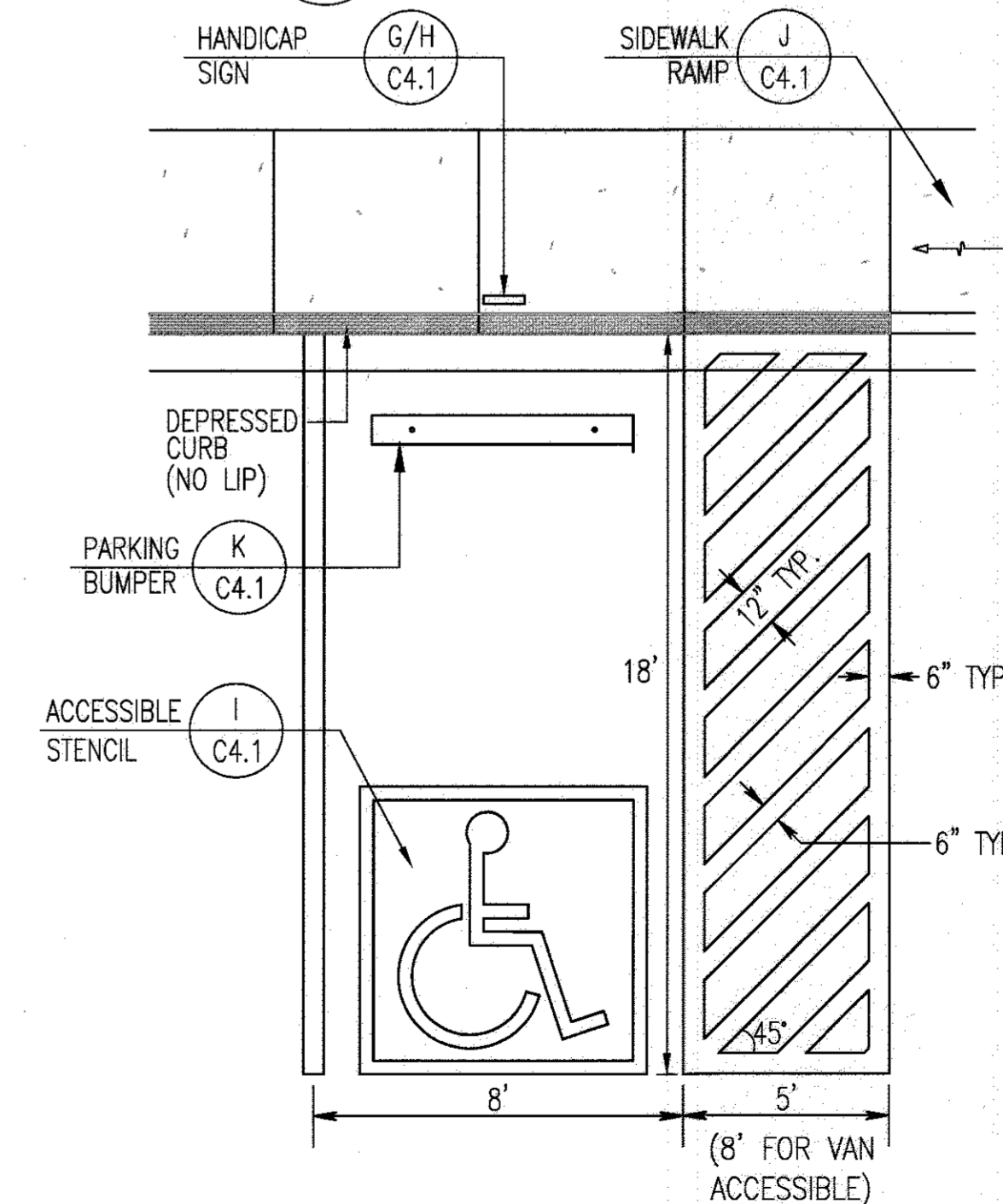
H VAN ACCESSIBLE HANDICAP SIGN
C4.1 NOT TO SCALE



I ACCESSIBLE STENCIL
C4.1 NOT TO SCALE



J SIDEWALK RAMP DETAIL
C4.1 NOT TO SCALE



L HANDICAP PARKING LAYOUT
C4.1 NOT TO SCALE

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
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PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

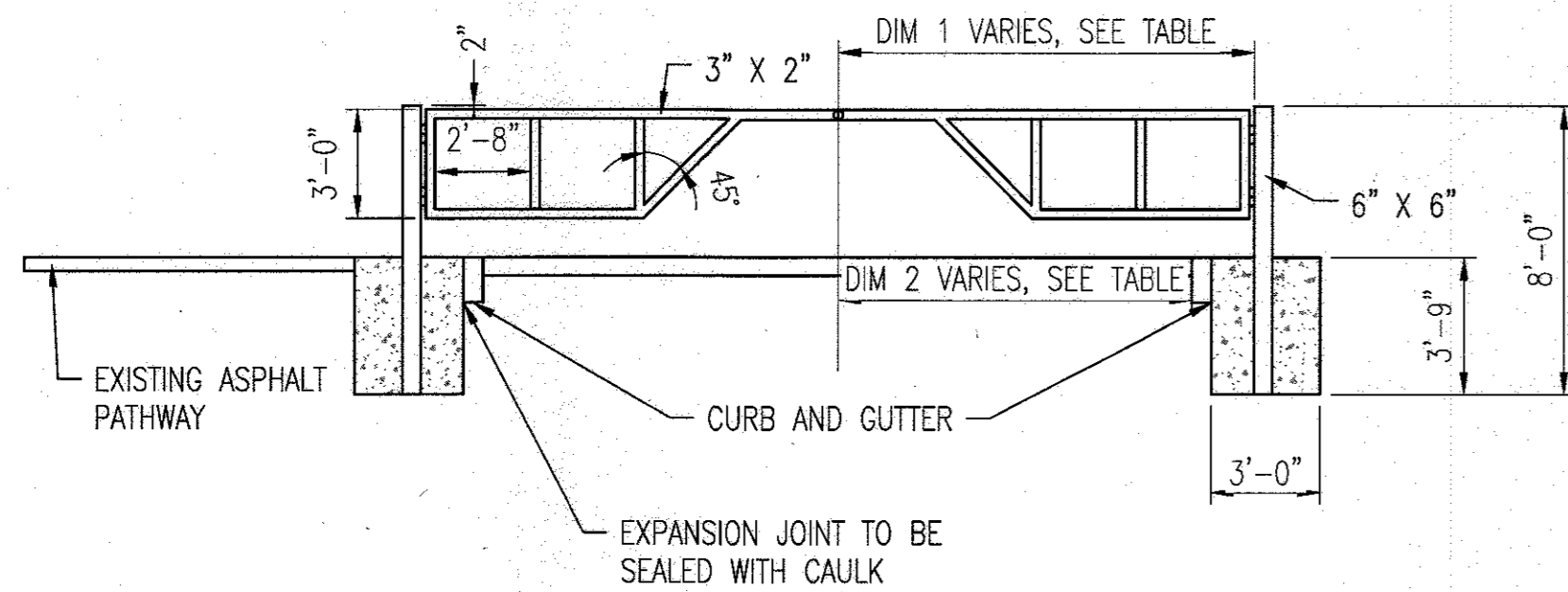
BLANDAIR REGIONAL PARK - PHASE 3

SITE DETAILS
Drawing No. **C4.1**
Scale: NOT TO SCALE
Date: 1/17/2017 Sheet 29 of 76
Des: SAD Drawn: SAD Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 2-6-17
DATE: 3-01-17
DATE: 3-19-17

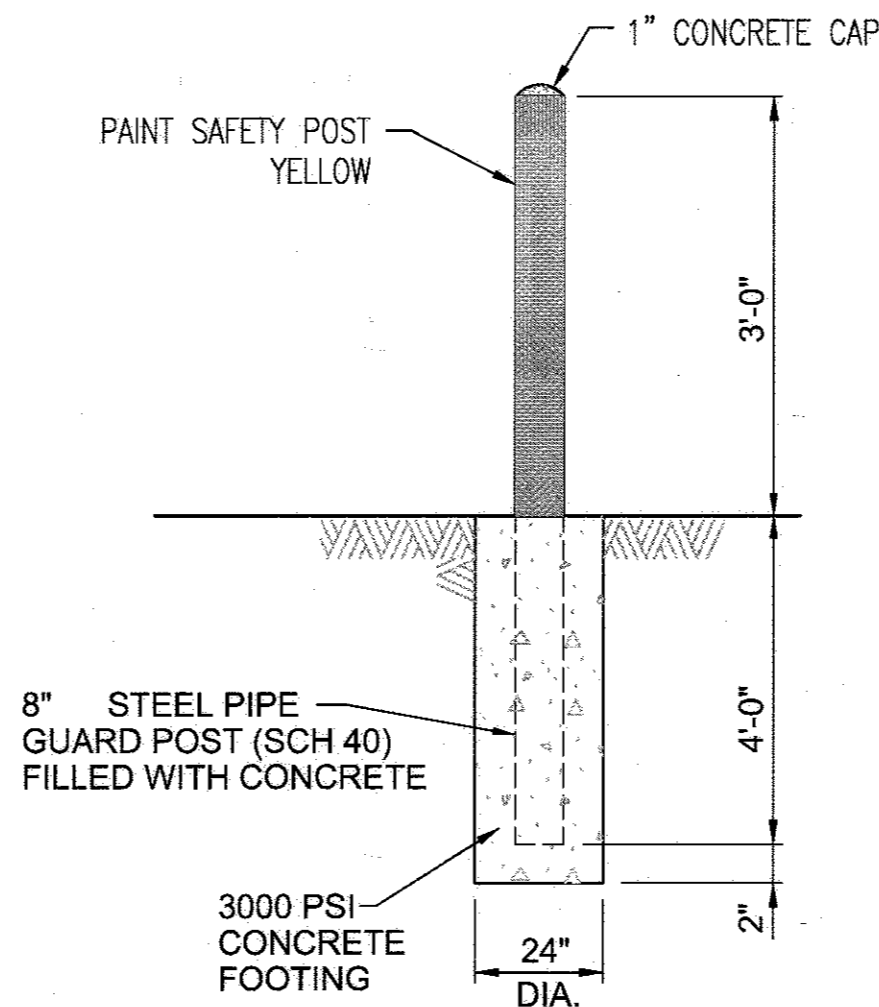
NOTES:

- GATE SHALL SWING IN TOWARDS PARK.
- ALL WELDING TO BE CLEANED AND GROUND SMOOTH.
- WELD FLANGES AT ENDS OF TOP RAILS, ONE SIDE TO HAVE SLOT OPENING TO FIT OVER WELDED U-BOLT ON OTHER SIDE FOR PADLOCK ATTACHMENT.
- INSTALL 4"x4" HOLD-OPEN POSTS ON EACH SIDE OF GATE, 2 FT. 7 IN FROM EDGE OF ROADWAY, AND APPROPRIATE DISTANCE FROM GATEPOSTS.
- GREASE ALL FITTINGS.
- ATTACH U-BOLT WITH STAINLESS STEEL CLIP TO HOLD OPEN POST AND WELD U-BOLT TO GATE FOR EASY ATTACHMENT AND RELEASE OF GATE.
- USE 7" BARREL HINGES WITH STAINLESS PIN, AND WELD PADS 3"x1-1/2"x3/8" THICK. GATE HINGES TO BE PLUMB AND SQUARE WITH GATE POST.
- PRIME ALL METAL SURFACES AND APPLY TWO COATS OF GLOSS BLACK POLYURETHANE PAINT. USE ROLLER ON LARGE AREAS AND USE BRUSH OR SPONGE FOR TIGHT AREAS.
- GREASE ALL FITTINGS.
- TOP OF FOOTINGS TO BE LEVEL WITH EXISTING GRADE.
- BACK-FILL AROUND FOOTINGS, AND FINISH WITH APPROPRIATE MATERIAL: TOPSOIL AND SEED, MULCH, OR PAVED SURFACE TO MATCH ADJACENT.
- INSTALL RED & WHITE STRIPED REFLECTIVE TAPE ALONG FRONT AND BACK OF TOP RAIL AND ON VERTICALS. ALSO INSTALL REFLECTIVE TAPE AROUND TOP OF GATEPOSTS AND HOLD-BACK POSTS.

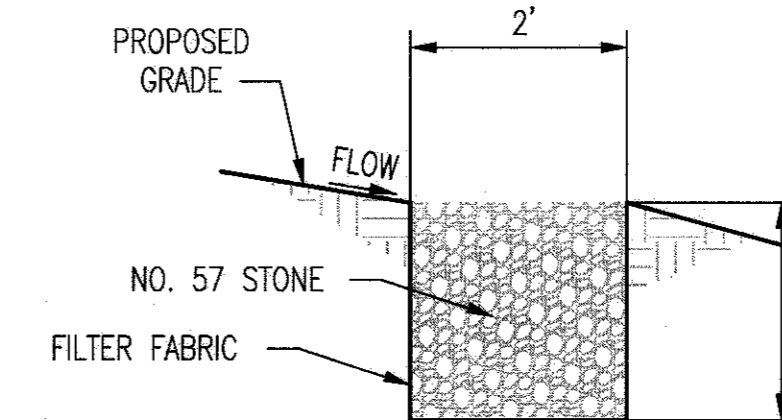


GATE	DIM 1	DIM 2
A	15.45'	12.89'
B	14.07'	11.97'

A PARK GATE DETAIL
C4.2 NOT TO SCALE



C BOLLARD DETAIL
C4.2 NOT TO SCALE



- SPECIFICATIONS:**
- THE TOP OF THE STONE ELEVATION FOR EACH DEVICE SHALL BE LEVEL FOR ITS ENTIRE LENGTH.
 - THE LOW SIDE OF THE DEVICE SHALL TYPICALLY BE INSTALLED AT THE LIMITS OF THE LOD.
 - IF THE DRAINAGE AREA ABOVE THE SPREADER IS NOT STABILIZED AND WITH THE PERMISSION OF THE INSPECTOR, FILTER FABRIC MAY BE EXTENDED FROM THE IN FLOW SIDE AND LAID OVER THE TOP OF THE DEVICE UNTIL THE DRAINAGE AREA IS STABILIZED.

F LEVEL SPREADER DETAIL
C4.2 NOT TO SCALE

Secure Trac Cantilever Slide Gate
PLAN 1/8"=1'-0"

Secure Trac Cantilever Slide Gate
ELEVATION - OUTSIDE LOOKING IN 1/8"=1'-0"

OPENING	OVERALL LENGTH	COUNTERBALANCE	NOMINAL HEIGHT (H)
11'-0"	18'-10"	7'-6"	8'-0"
12'-0"	19'-10"	7'-6"	8'-0"
13'-0"	20'-10"	7'-6"	8'-0"
14'-0"	21'-10"	7'-6"	8'-0"
15'-0"	22'-4"	7'-6"	8'-0"
16'-0"	22'-4"	7'-6"	8'-0"
17'-0"	22'-4"	7'-6"	8'-0"
18'-0"	22'-4"	7'-6"	8'-0"
19'-0"	22'-4"	7'-6"	8'-0"
20'-0"	22'-4"	7'-6"	8'-0"
21'-0"	22'-4"	7'-6"	8'-0"
22'-0"	22'-4"	7'-6"	8'-0"
23'-0"	22'-4"	7'-6"	8'-0"
24'-0"	22'-4"	7'-6"	8'-0"
25'-0"	22'-4"	7'-6"	8'-0"
26'-0"	22'-4"	7'-6"	8'-0"
27'-0"	22'-4"	7'-6"	8'-0"
28'-0"	22'-4"	7'-6"	8'-0"
29'-0"	22'-4"	7'-6"	8'-0"
30'-0"	22'-4"	7'-6"	8'-0"

NOTES:

- SPECIFICATIONS SHOWN CAN BE CHANGED BY THE MANUFACTURER ONLY.
- ALL COMPONENTS OF THE PANEL TO BE MILL FINISH (UNCOATED)
- OUTSIDE LOOKING IN, GATE LATCHES ON RIGHT
- GATE WILL BE HUNG ON THE INSIDE OF THE FENCE LINE
- HEIGHT IS FROM GRADE TO TOP OF GATE. ACTUAL HEIGHT IS 3" LESS.
- BARB WIRE ARMS ARE 1'-0" HIGHER THAN THE GATE HEIGHT
- FOR GATES 8' OR HIGHER, THE BARB WIRE ARMS WILL BE BOLTED TO THE GATE. ALL HARDWARE WILL BE SUPPLIED.
- FOOTING & POSTS AS REQUIRED BY SITE CONDITIONS & CODES

Merchants Metals
the first name in fence solutions

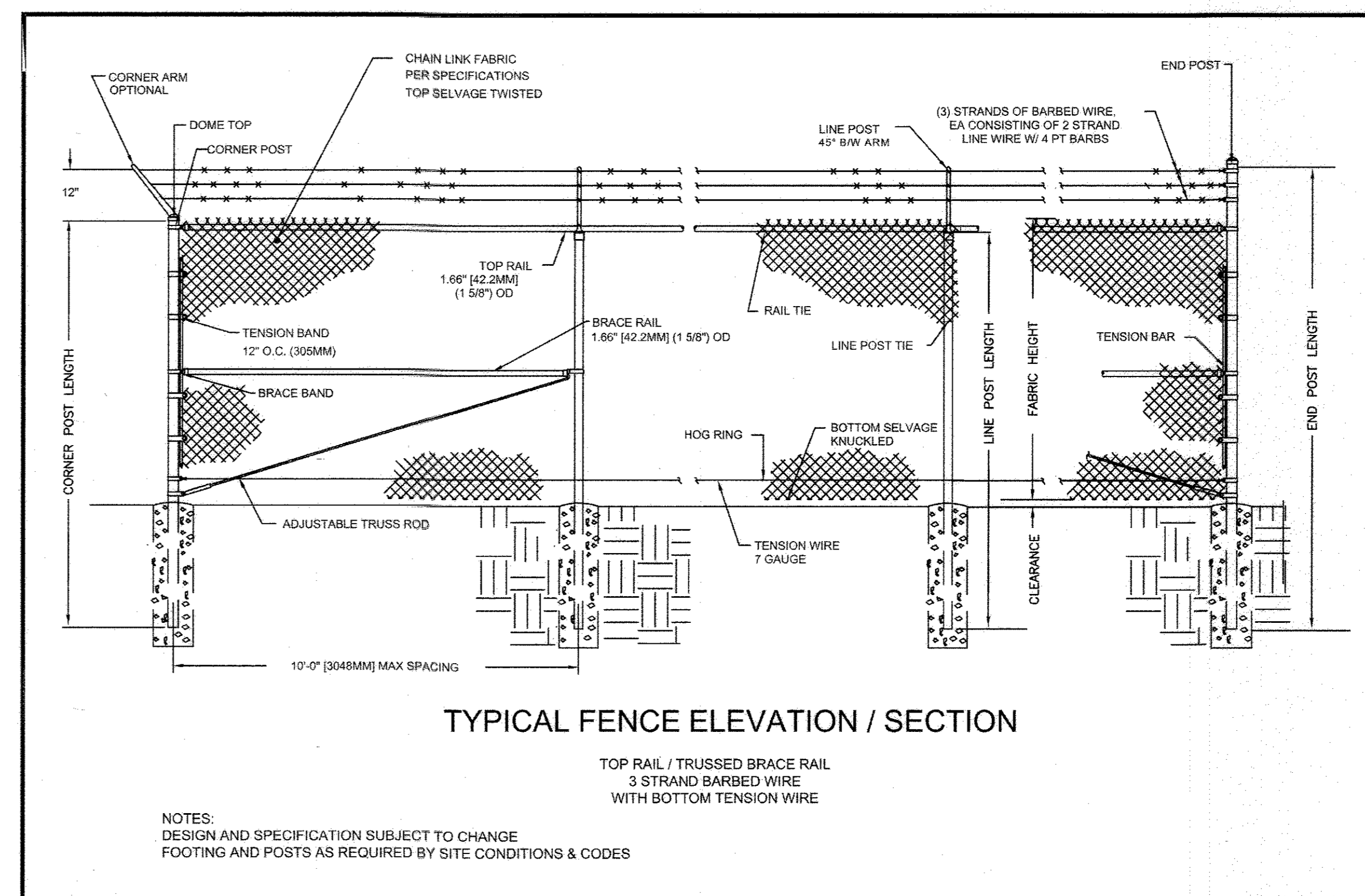
Secure Trac Cantilever Slide Gate
CHAINLINK w/ BARB WIRE

BY: JR
DATE: 4.4.14

DWG. NO.: CLST10-30wBW

SCALE: AS NOTED

D SLIDE GATE
C4.2 NOT TO SCALE
*NOTE: OR APPROVED EQUAL



TYPICAL FENCE ELEVATION / SECTION

- NOTES:**
- DESIGN AND SPECIFICATION SUBJECT TO CHANGE
 - FOOTING AND POSTS AS REQUIRED BY SITE CONDITIONS & CODES

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CHAIN LINK
TYPICAL FENCE ELEVATION / SECTION

BY: ART 2.11.10 SCALE: NTS DWG #: CL01

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E SECURITY FENCE
C4.2 NOT TO SCALE
*NOTE: OR APPROVED EQUAL

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]
DATE: 2-6-17

[Signature]
DATE: 3-01-17

[Signature]
DATE: 3-19-17

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DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Carolina Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-235-0116

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

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

[Signature]

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EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL
PARK - PHASE 3

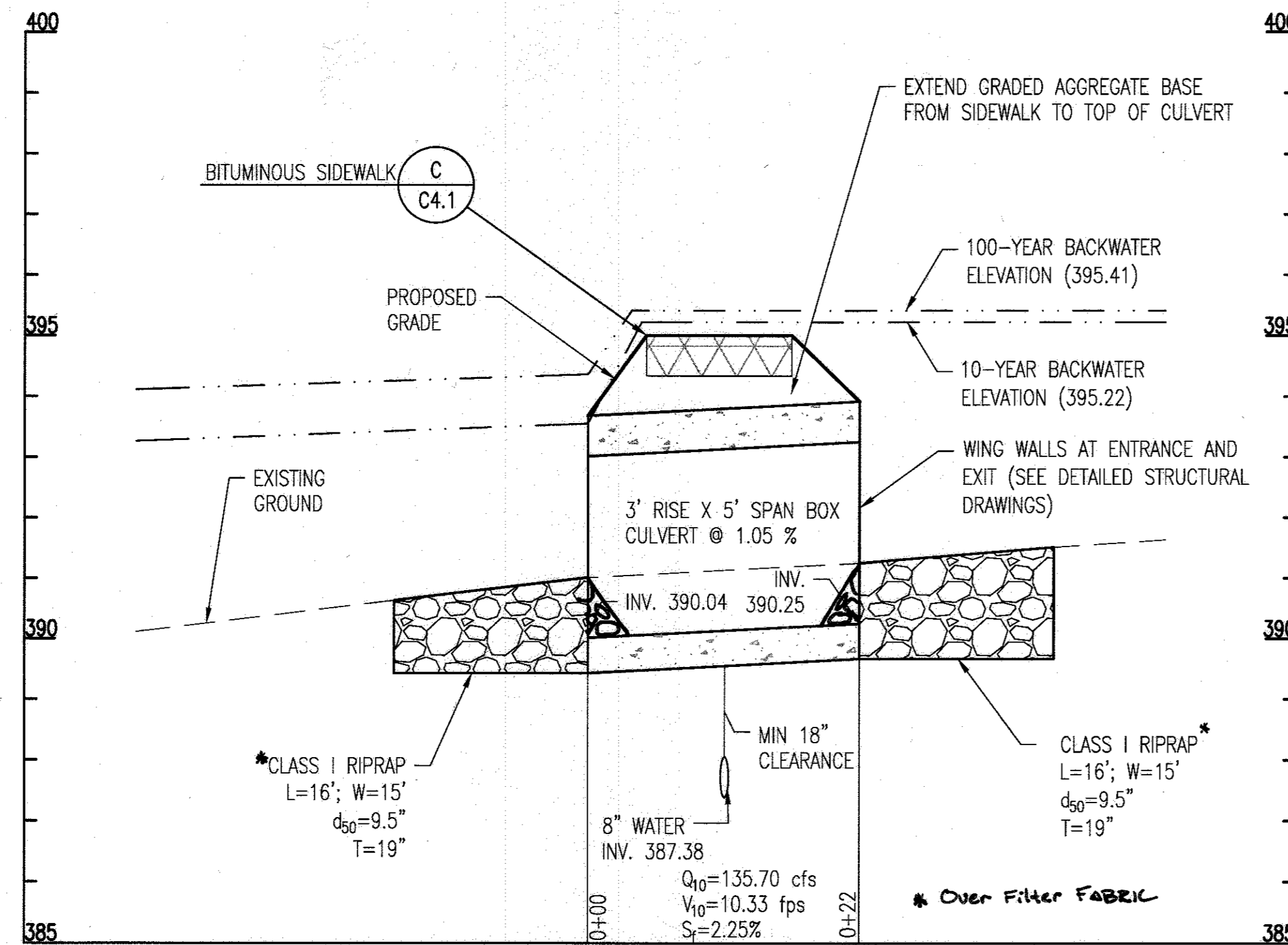
SITE DETAILS

Drawing No.
C4.2

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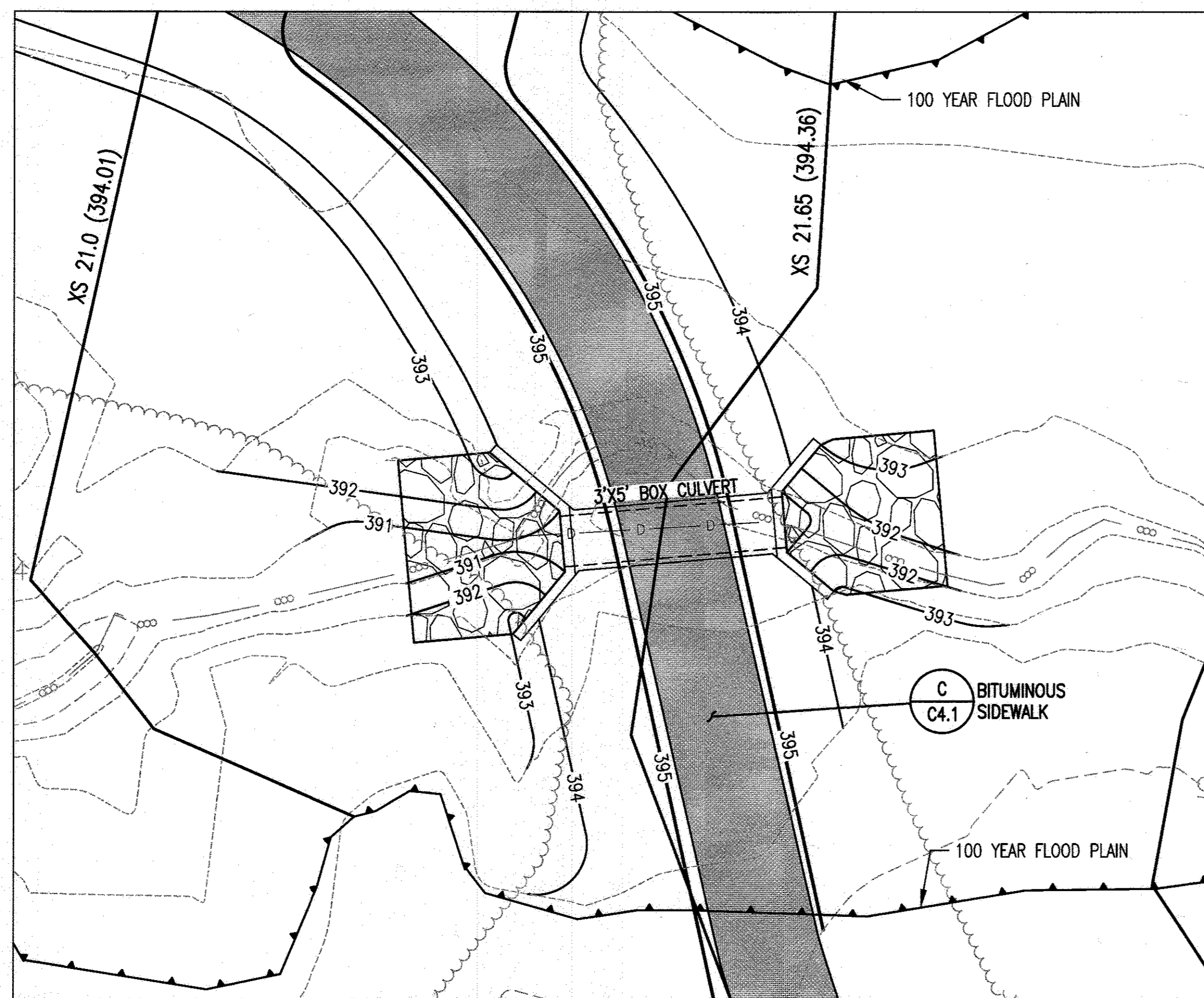
Date: 1/17/2017 Sheet 30 of 76

Des: SAD Drawn: SAD Check: AUO



STORM DRAIN PROFILE: BOX CULVERT

SCALE: 1" = 10' HORIZONTAL, 1" = 2' VERTICAL



BOX CULVERT PLAN VIEW

SCALE: 1" = 10'

SEQUENCE OF CONSTRUCTION

CULVERT CONSTRUCTION SHALL PROCEED DOWNSTREAM TO UPSTREAM. ALL IN STREAM WORK SHALL BE COMPLETED PRIOR TO ANY DISTURBANCE OF AREAS UPSTREAM. MAINTENANCE OF STREAM FLOW CONTROLS SHALL COORDINATE WITH STAGE 1 SEDIMENT CONTROLS PER SHEETS C1.4A-C1.4B AND STAGE 2 SEDIMENT CONTROLS PER SHEETS C1.5A-C1.5C. ANY AREAS DISTURBED BY PLACEMENT OF MAINTENANCE OF STREAM FLOW CONTROLS SHALL BE STABILIZED IMMEDIATELY. NO INSTREAM WORK MAY BE PERFORMED BETWEEN MARCH 1 AND MAY 31 DUE TO STREAM CLOSURE.

DURING DRY WEATHER FORECAST, INSTALL THE TEMPORARY PUMP-AROUND PRACTICE (PER MGWC 1.2 AS SHOWN ON SHEET C5.2).

ONCE PUMP-AROUND PRACTICE IS COMPLETE, REMOVE EXISTING CULVERT AND STONE. THEN COMPLETE PROPOSED RIPRAP OUTFALL PROTECTION DOWNSTREAM OF THE DIVERSION AND BEGIN CULVERT CONSTRUCTION BEGINNING WITH WEST HEADWALL AND PROCEEDING UPSTREAM TO THE EAST HEADWALL. DEWATER EXCAVATION AREAS AS REQUIRED USING A FILTER BAG USING RIPRAP OUTFALL PROTECTION AS A STABLE OUTFALL. UPON INSTALLATION OF THE EAST HEADWALL, INSTALL UPSTREAM RIPRAP INFLOW PROTECTION.

UPON CULVERT INSTALLATION, AND UPON THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE TEMPORARY PUMP AROUND PRACTICE AND DIVERT FLOW INTO THE NEWLY CONSTRUCTED CULVERT. IMMEDIATELY STABILIZE ANY DISTURBANCE RESULTING FROM THE REMOVAL PROCESS.

NOTES:

1. SEE SHEETS S1.01-S1.09 FOR DETAILED CULVERT AND WING WALL PLANS AND DETAILS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	DATE 2-9-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3-01-17
<i>[Signature]</i>	DATE 3-19-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	DATE
DIRECTOR	DATE

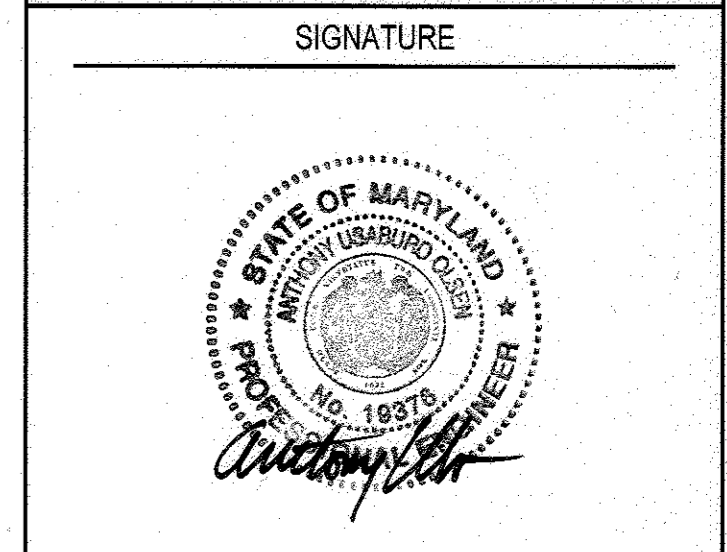
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 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
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PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

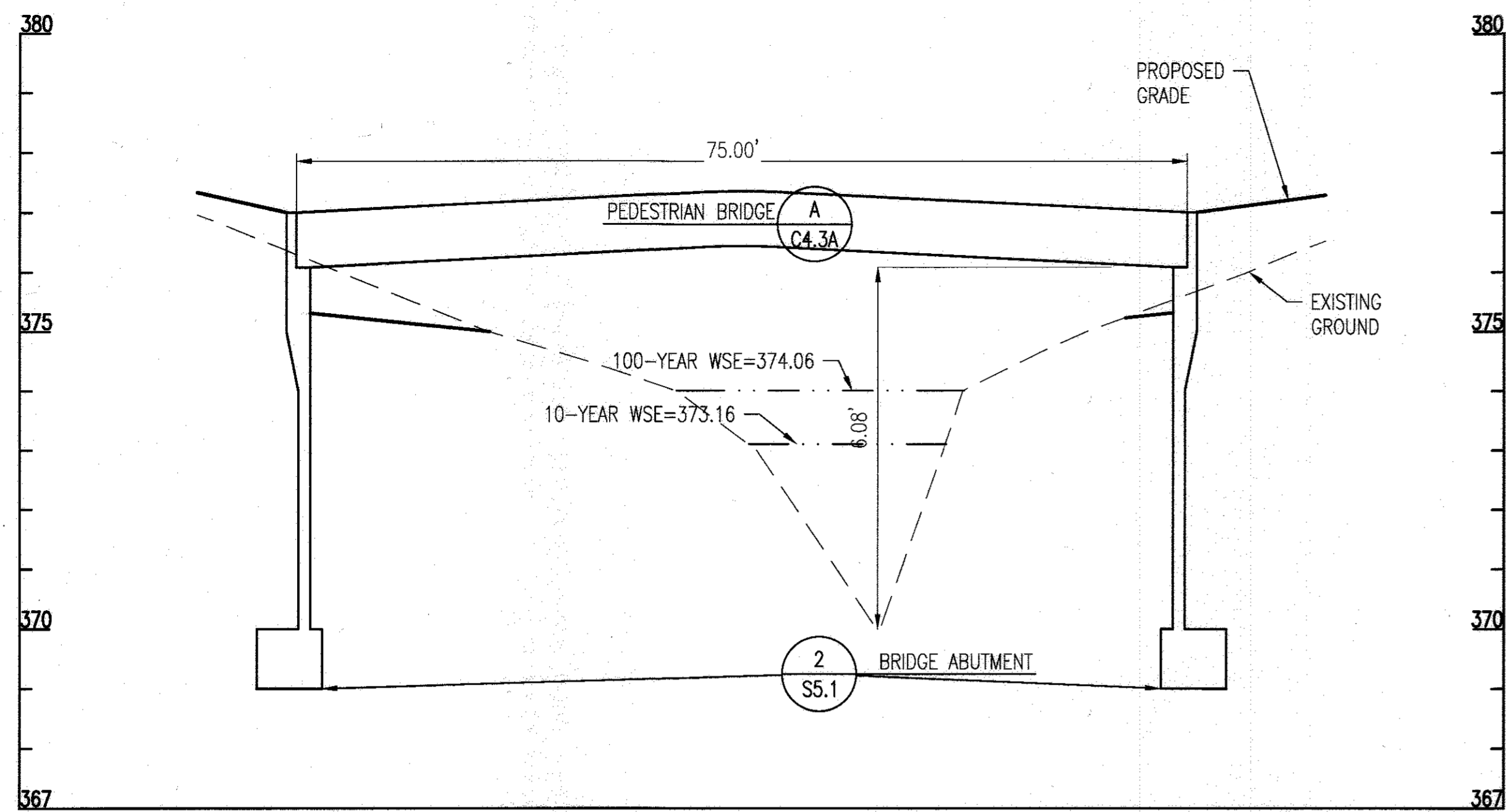


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 EXPIRATION DATE: 09/22/2017

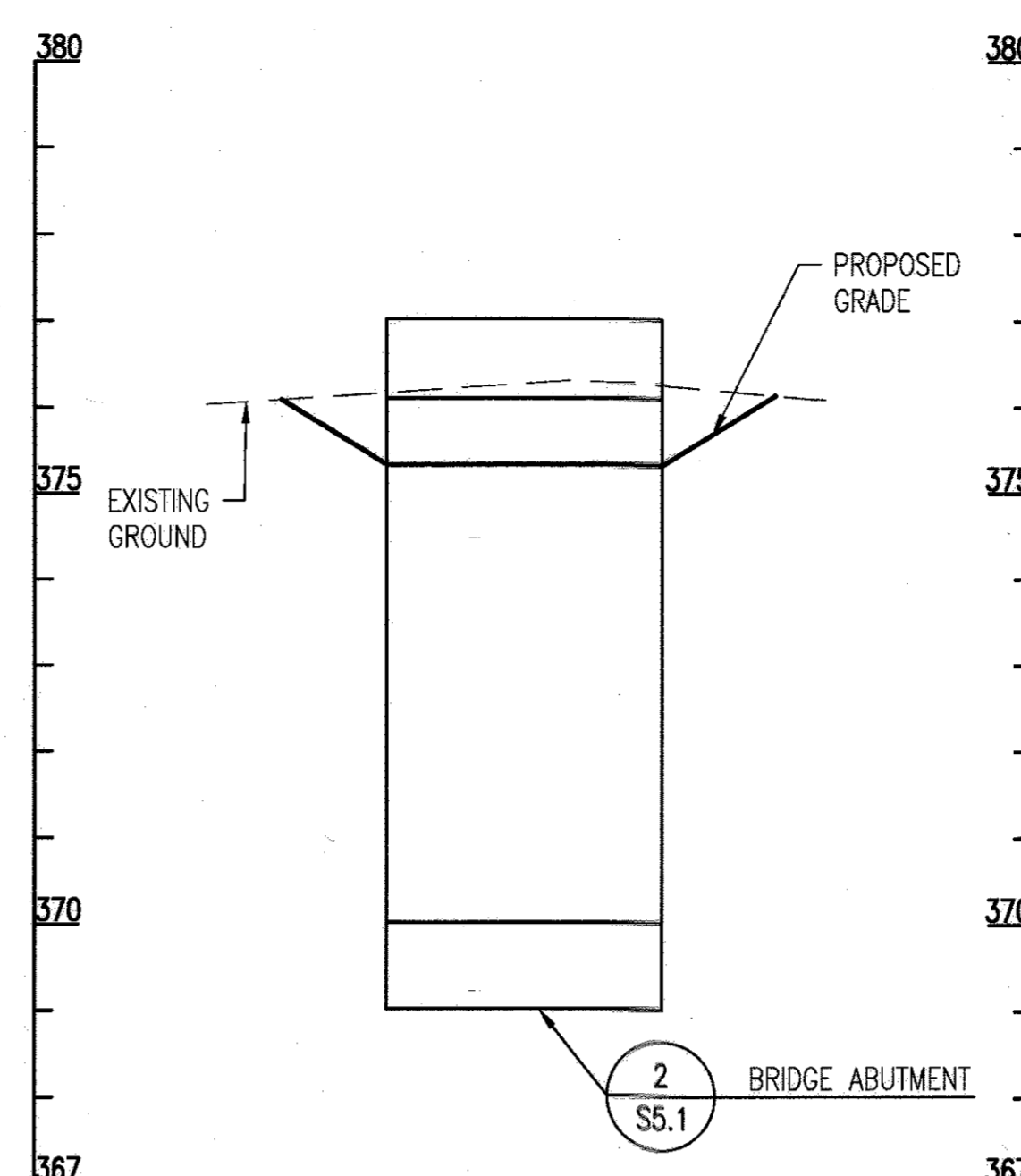
BLANDAIR REGIONAL PARK - PHASE 3

CULVERT PROFILE
 Drawing No.
C4.3

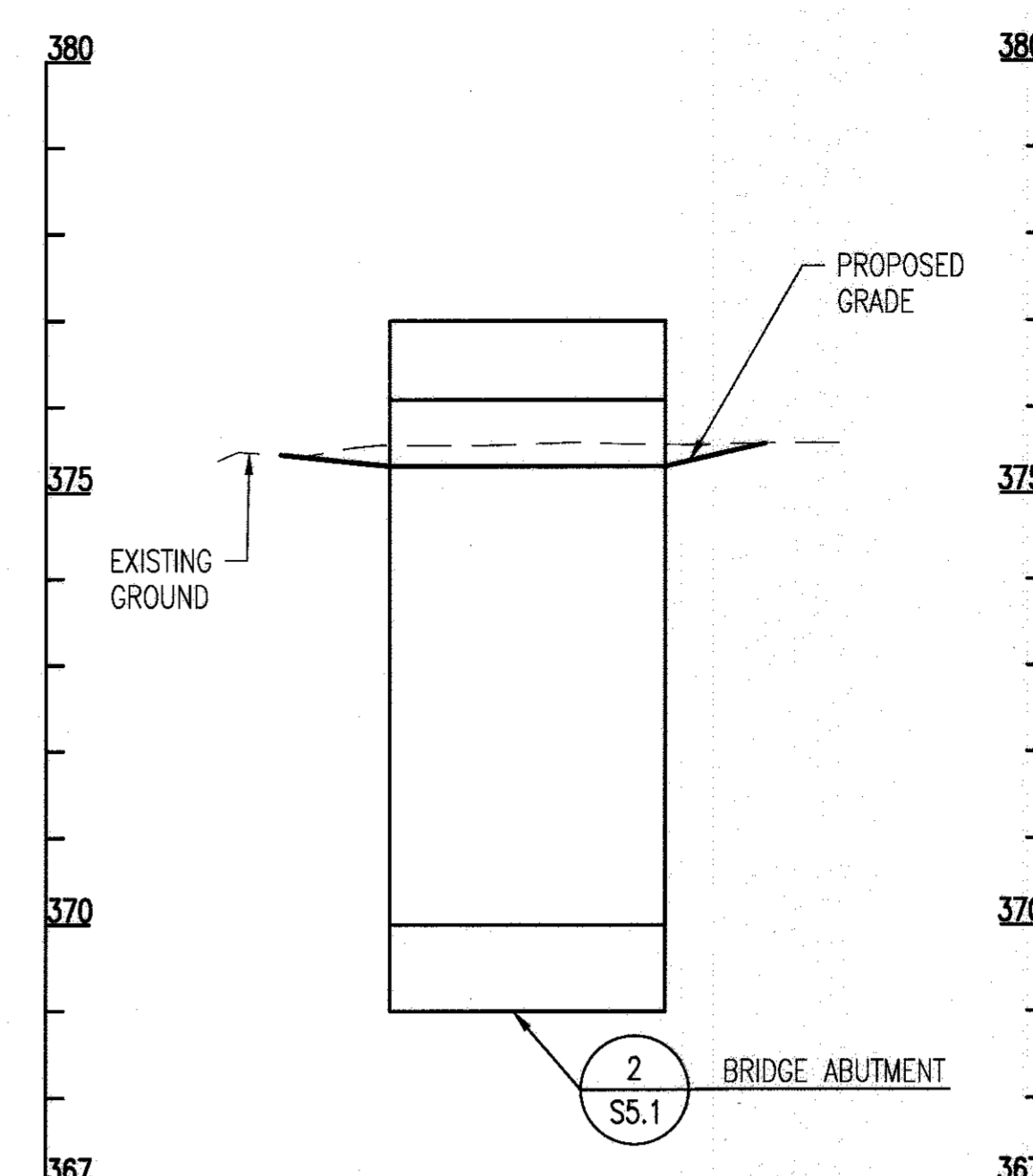
Scale: AS SHOWN		
Date: 1/17/2017	Sheet 31 of 76	
Des: BWJ	Drawn: AKC	Check: AUO



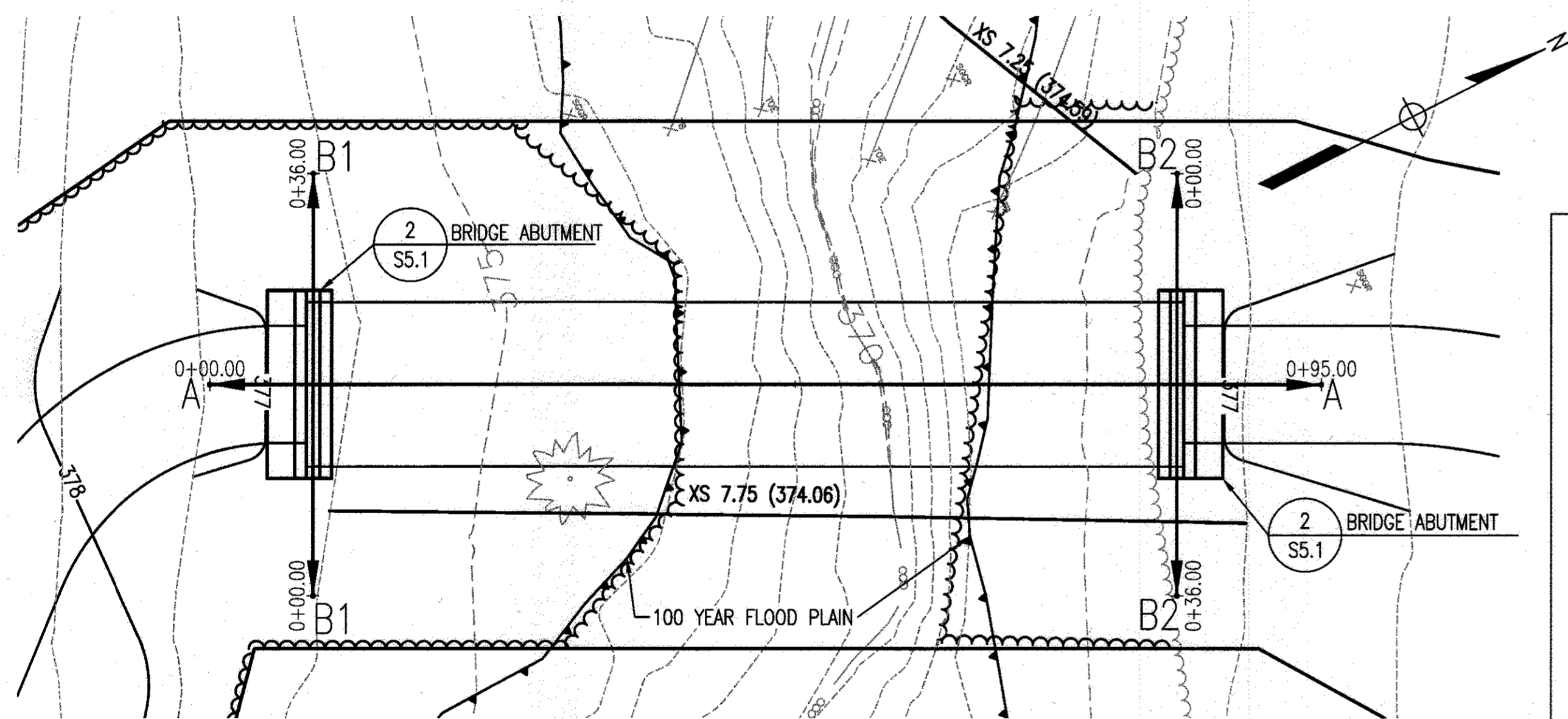
BRIDGE PROFILE: A-A
SCALE: 1" = 10' HORIZONTAL, 1" = 2' VERTICAL



BRIDGE PROFILE: B1-B1
SCALE: 1" = 10' HORIZONTAL, 1" = 2' VERTICAL



BRIDGE PROFILE: B2-B2
SCALE: 1" = 10' HORIZONTAL, 1" = 2' VERTICAL



BRIDGE PLAN
SCALE: 1" = 10'

SEQUENCE OF CONSTRUCTION

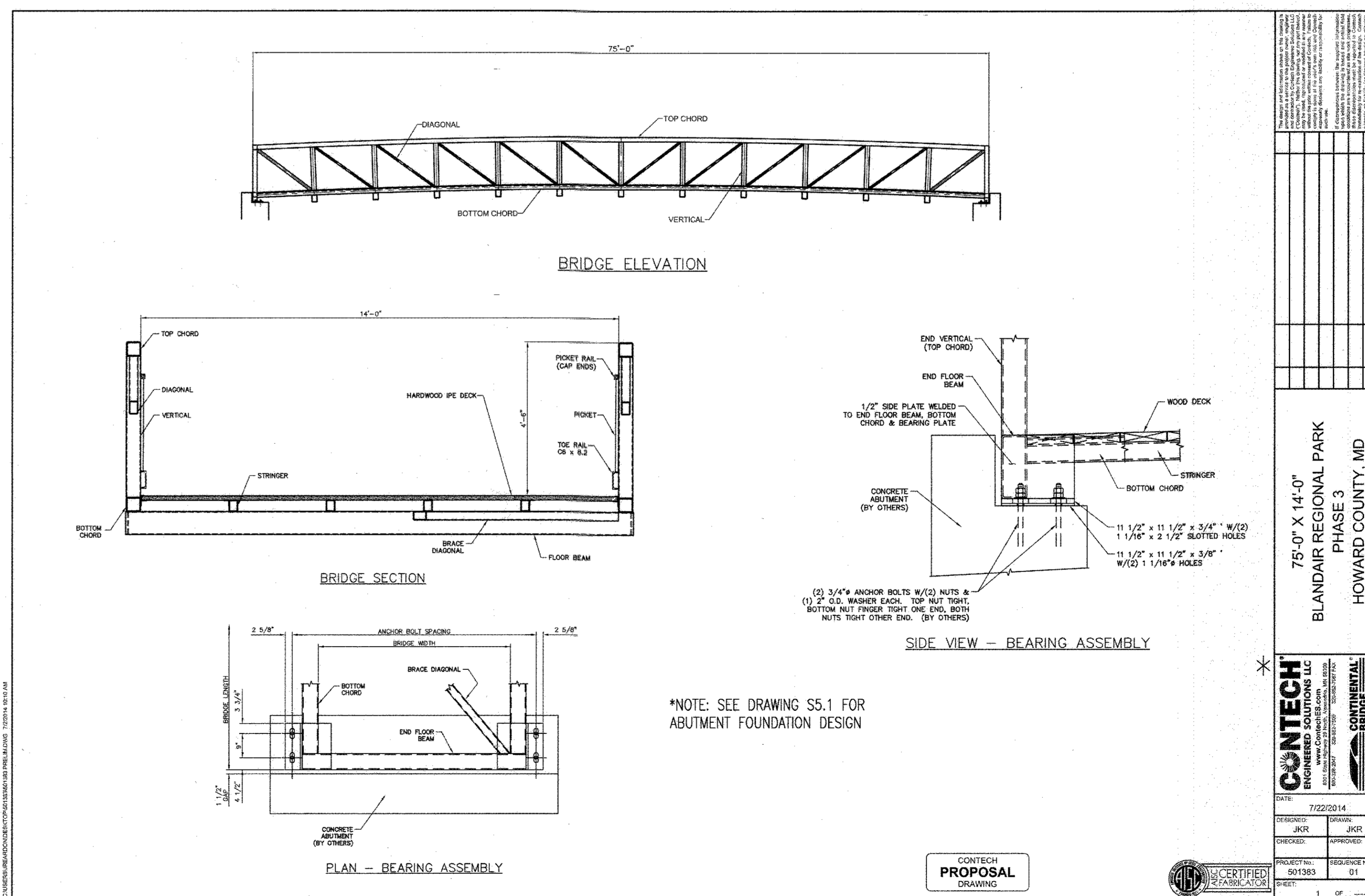
CLEAR AND INSTALL SEDIMENT CONTROL MEASURES AND TREE PROTECTION ASSOCIATED WITH THE ABUTMENT CONSTRUCTION AS SHOWN ON SHEETS 1.4A THROUGH 1.4C. NO LAND DISTURBING ACTIVITY IS ALLOWED WITHIN THE 100-YEAR FLOODPLAIN. PROVIDE ACCESS FOR THE NORTHERN ABUTMENT FROM THE NORTH (FROM THE MAIN PORTION OF PHASE 3) AND ACCESS FOR THE CONSTRUCTION OF THE SOUTHERN ABUTMENT FROM THE SOUTH (FROM THE CONSTRUCTION ENTRANCE WITHIN PHASE 1 OF BLANDAIR PARK, ADJACENT TO TIMESWEEP LANE). CONSTRUCT ABUTMENTS THEN INSTALL BRIDGE. SEE OVERALL SEQUENCE OF CONSTRUCTION SHEETS 1.4A AND 1.4C FOR STABILIZATION SEQUENCING.

NOTES:

1. SEE SHEETS S5.1 FOR ABUTMENT PLANS AND DETAILS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE 2.6.17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] DATE 3.01.17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE 3.19.17
 DIRECTOR



*NOTE: SEE DRAWING S5.1 FOR ABUTMENT FOUNDATION DESIGN

NO.	REVISION DESCRIPTION	DATE	BY

75'-0" X 14'-0"
BLANDAIR REGIONAL PARK
PHASE 3
HOWARD COUNTY, MD

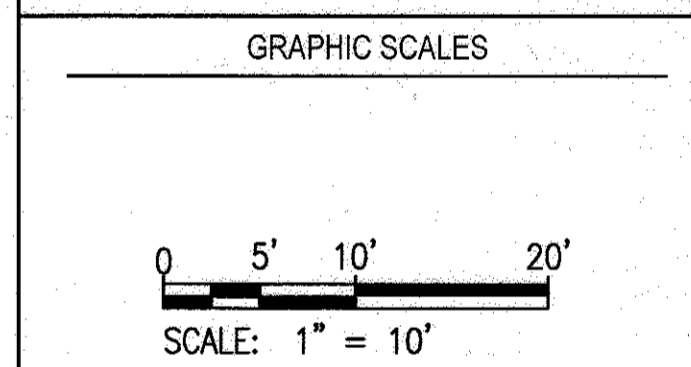
CONTECH
 ENGINEERED SOLUTIONS LLC
 77222014
 DESIGNED: AKC
 CHECKED: APPROVED
 PROJECT NO: 501383
 SHEET: 1 OF 1

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 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5710

PROPERTY
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 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



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BLANDAIR REGIONAL PARK - PHASE 3

BRIDGE PROFILE AND DETAILS
 Drawing No. **C4.3A**
 Scale: 1"=10'
 Date: 1/17/2017 Sheet 32 of 76
 Des: BWJ Drawn: AKC Check: AUO

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION AND BIO-SWALES

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

—SOIL COMPONENT — LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)

—ORGANIC CONTENT — MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).

—CLAY CONTENT — MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.

—PH RANGE — SHOULD BE BETWEEN 5.5 — 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE

EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TIRE TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

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

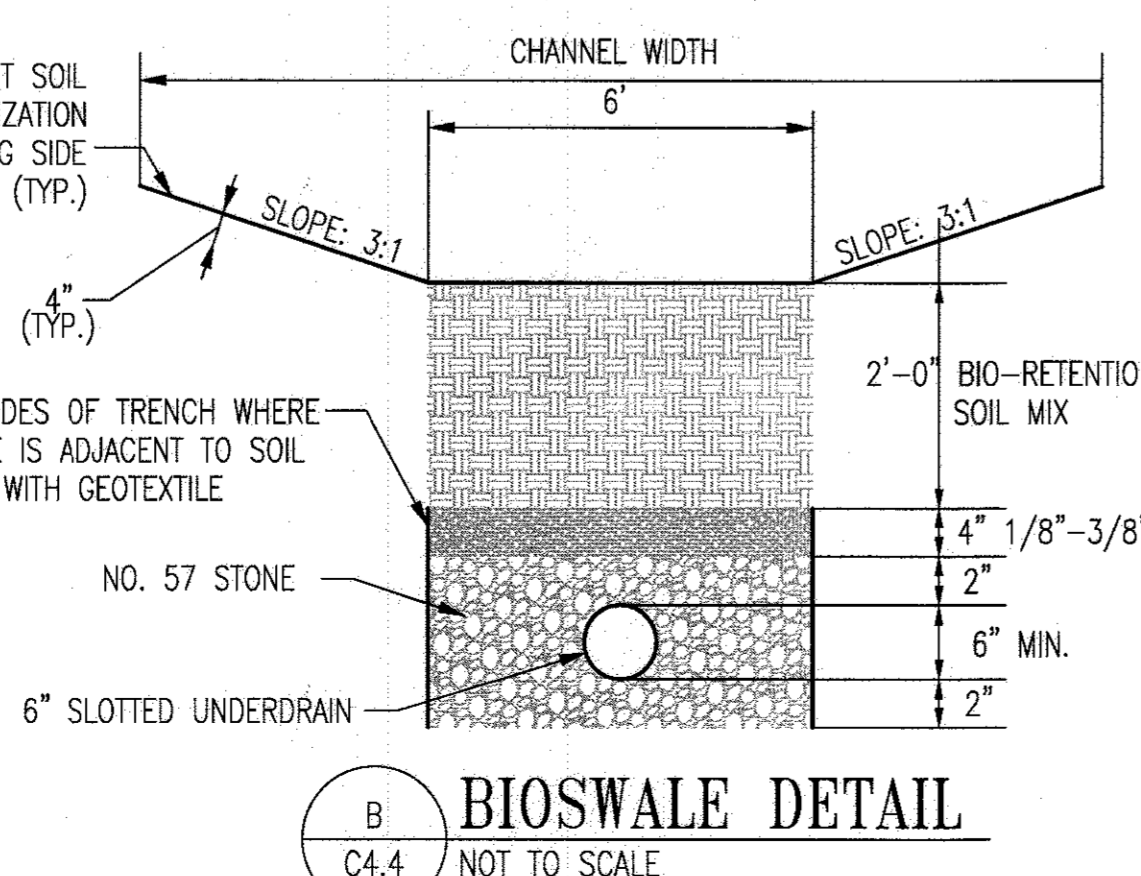
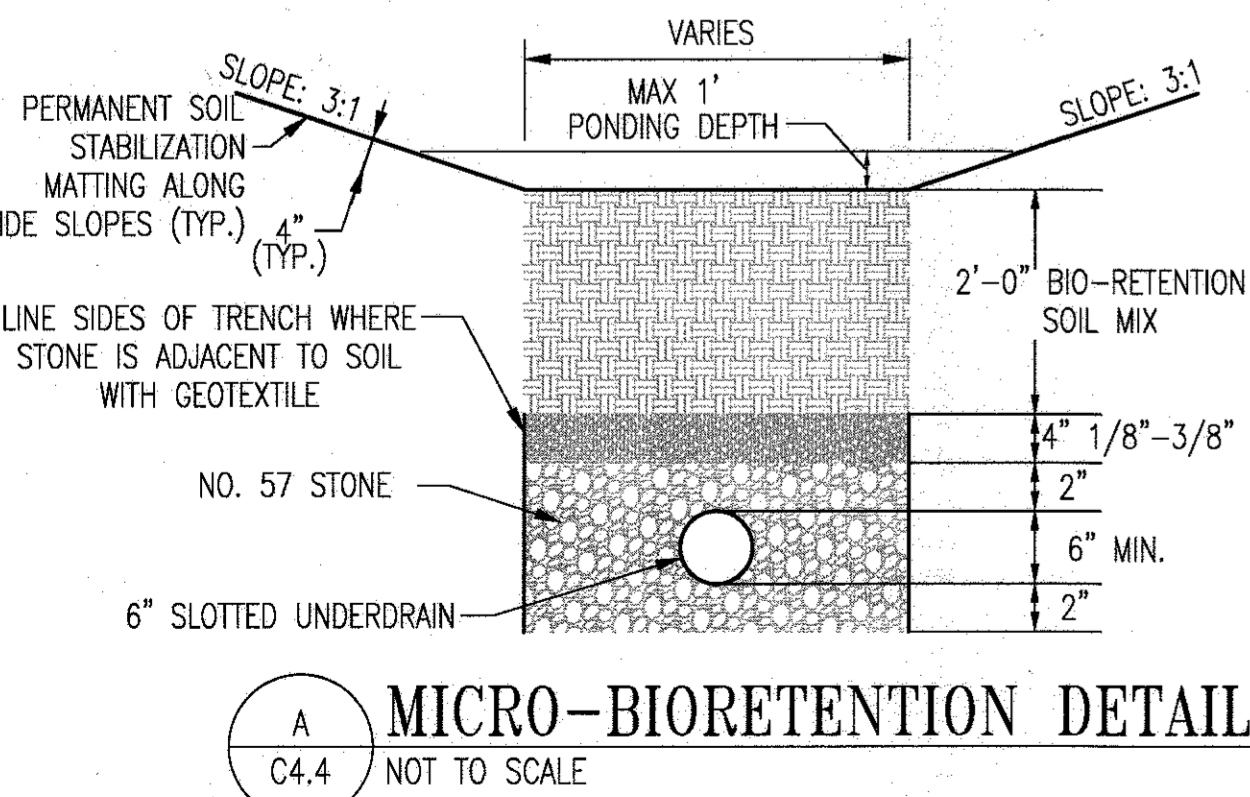
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDING WATER BEFORE PREPARING (ROTOTILLING) BASE.

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

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

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-SWALE

- a. THE OWNER SHALL IRRIGATE DURING PROLONGED DRY PERIODS.
b. THE OWNER SHALL REMOVE ANY DEAD AND DYING VEGETATION. IF SPECIFIC PLANTS ARE NOT SURVIVING, REPLACE WITH MORE APPROPRIATE SPECIES AND PRUNE VEGETATION OCCASIONALLY.
c. THE OWNER SHALL REMOVE ACCUMULATED SEDIMENT FROM SURFACE OF FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH.
d. IF WATER PONDS FOR MORE THAN 48 HOURS, THE OWNER SHALL REMOVE AND REPLACE THE MULCH AND TOP FEW INCHES OF FILTER MEDIA.
e. THE OWNER SHALL PLACE MULCH ANNUALLY WHERE PRACTICE TREATS AREAS WITH HIGH CONCENTRATIONS OF HEAVY METALS. OTHERWISE REPLACE AS NECESSARY.



APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE 2-6-17
CHIEF, DIVISION OF LAND DEVELOPMENT, DATE 3-01-17
DIRECTOR, DATE 3-19-17

SHA BIO-RETENTION SOIL MIX SPECIFICATION

920.01.05 Bioretention Soil Mix (BSM). A homogeneous mixture composed by loose volume of 5 parts Coarse Sand, 3 parts Base Soil, and 2 parts Fine Bark. BSM shall conform to the following:

(a) Components. Components of BSM shall be sampled, tested and approved before mixing as follows:

(1) Coarse Sand. MSMT 356. Coarse Sand shall be washed silica sand or crushed glass that conforms to ASTM Fine Aggregate C-33. Coarse Sand shall include less than 1% by weight of clay or silt size particles, and less than 5% by weight of any combination of diabase, greystone, calcareous or dolomitic sand.

(2) Base Soil. Base Soil shall be tested and certified by the producer to conform to the following requirements:

Table with 3 columns: TEST PROPERTY, TEST METHOD, TEST VALUE AND AMENDMENT. Rows include Prohibited Weeds, Debris, Grading Analysis, Textural Analysis, Soil pH, Organic Matter, Soluble Salts, and Harmful Materials.

(3) Fine Bark. Fine Bark shall be the bark of hardwood trees that is milled and screened to a uniform particle size of 2 in. or less. Fine Bark shall be composted and aged for 6 months or longer, and be free from sawdust and foreign materials.

A 1 to 2 lb sample of Fine Bark shall be submitted to the Landscape Operations Division for examination.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTIONS

- a) THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
b) THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
c) THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
d) THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

Table B.4.1 Materials Specifications for Micro-Bio-retention

Table with 4 columns: Material, Specification, Size, Notes. Rows include Planting soil, Organic content, Mulch, Pea Gravel, Geotextile, Gravel (underdrains), and Underdrain piping.

OPERATION AND MAINTENANCE SCHEDULE FOR GRASS-SWALE

- a. MOW AT LEAST 2 TIMES A YEAR.
b. REMOVE SEDIMENT, DEBRIS AND TRASH.
c. RE-SEED SPARSELY VEGETATED AREAS TO MAINTAIN DENSE COVERAGE.
d. REPAIR EROSION ON BOTTOM, SIDE SLOPES, AND INLETS.
e. STABILIZE.
f. IF WATER PONDS FOR MORE THAN 48 HOURS, TILL BOTTOM SOIL AND REVEGETATE.

GRASS SWALE TABLE with columns: GRASS SWALE NO., STORAGE DEPTH (FT), BOTTOM WIDTH (FT), Q1 (CFS), V1 (FPS), Q10 (CFS), V10 (FPS), COVER TYPE. Rows include GS-2, GS-3, GS-4, GS-5.

NOTE: GS-1 NOT USED.

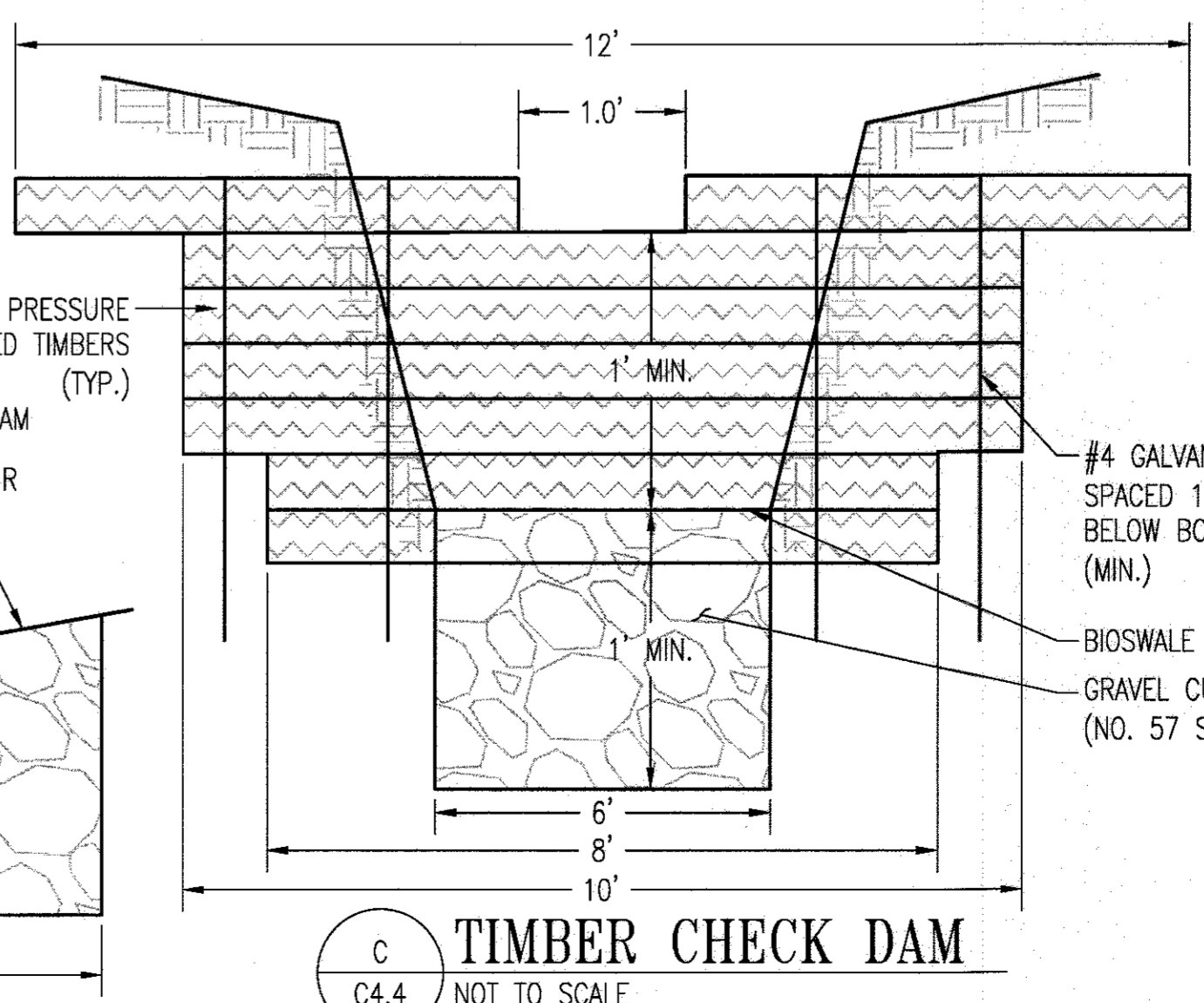
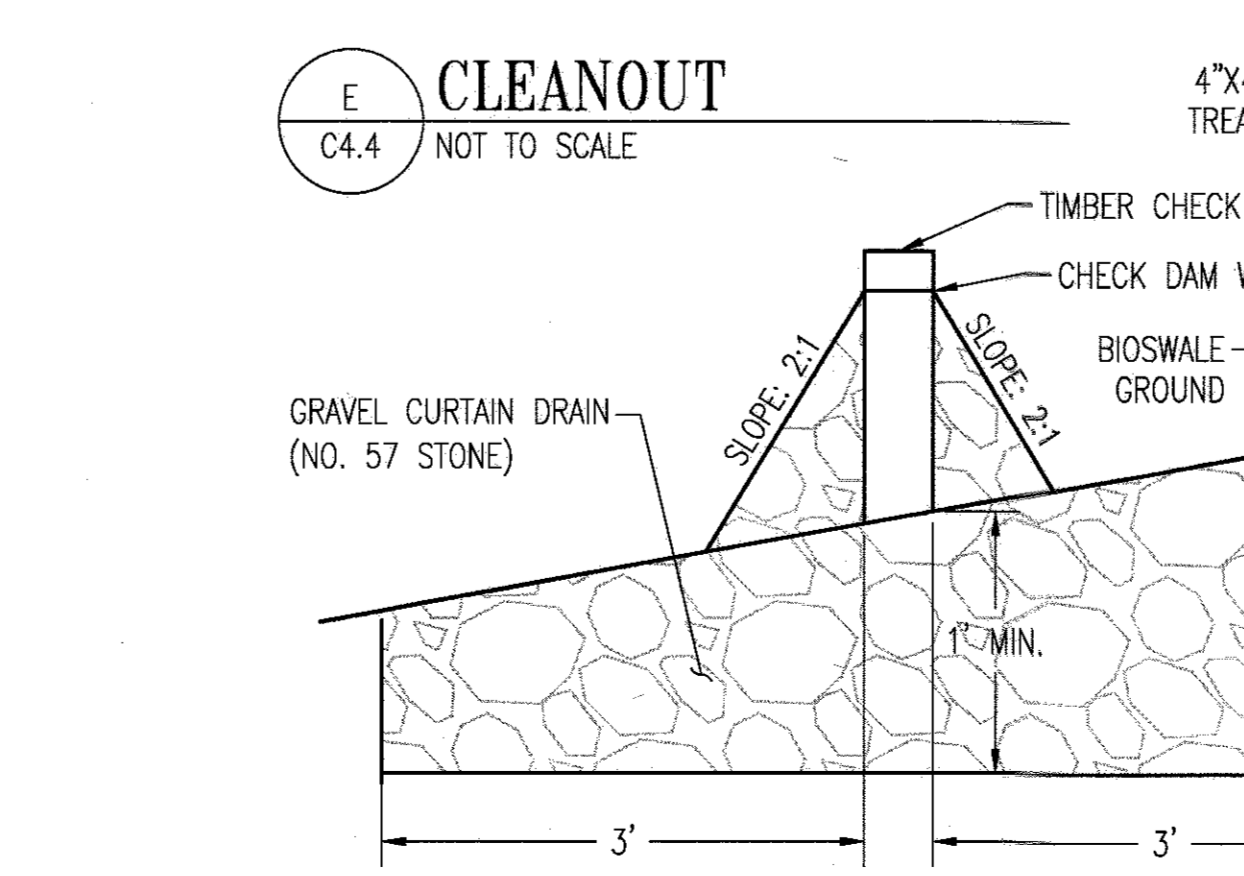
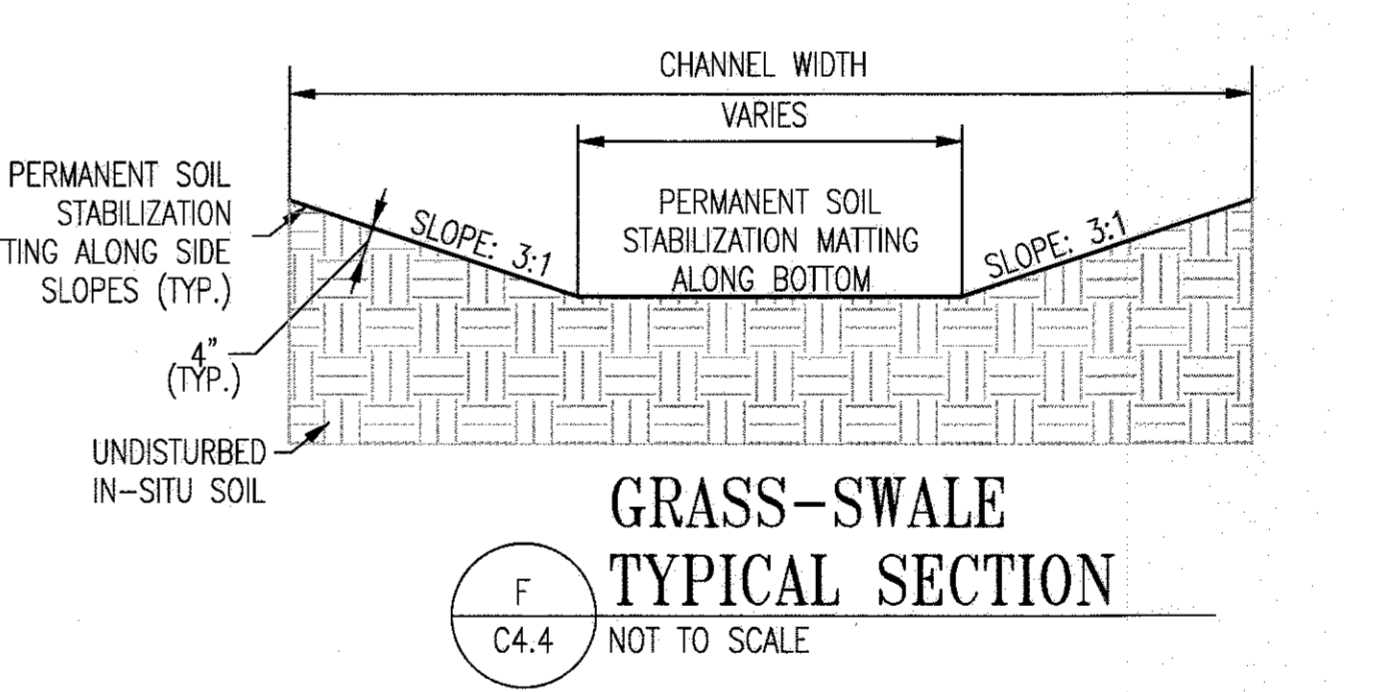
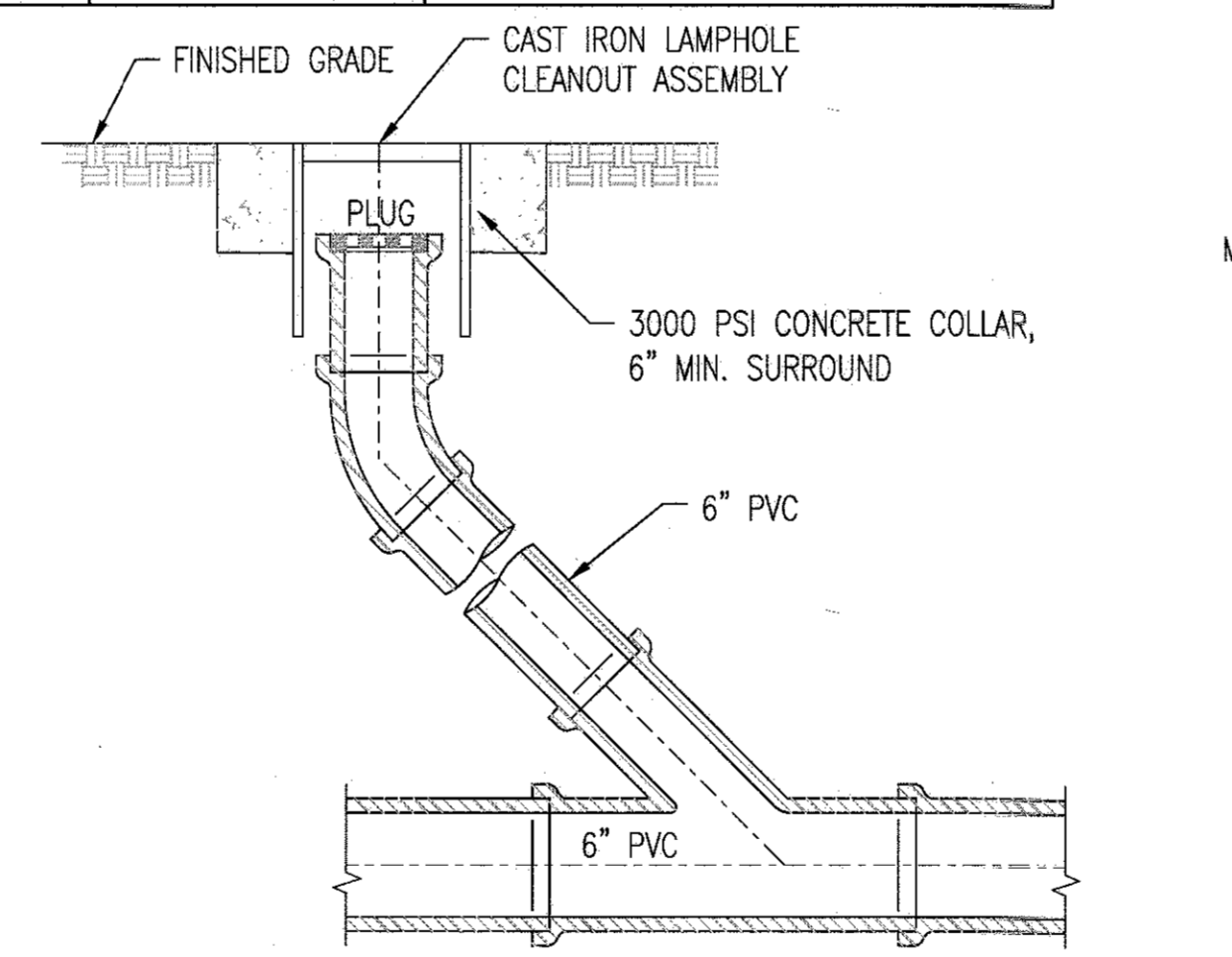


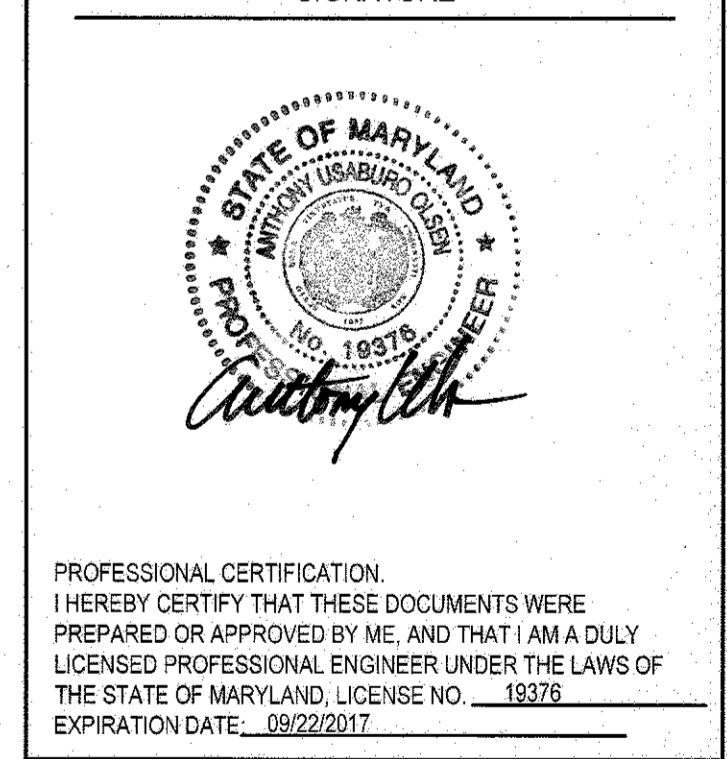
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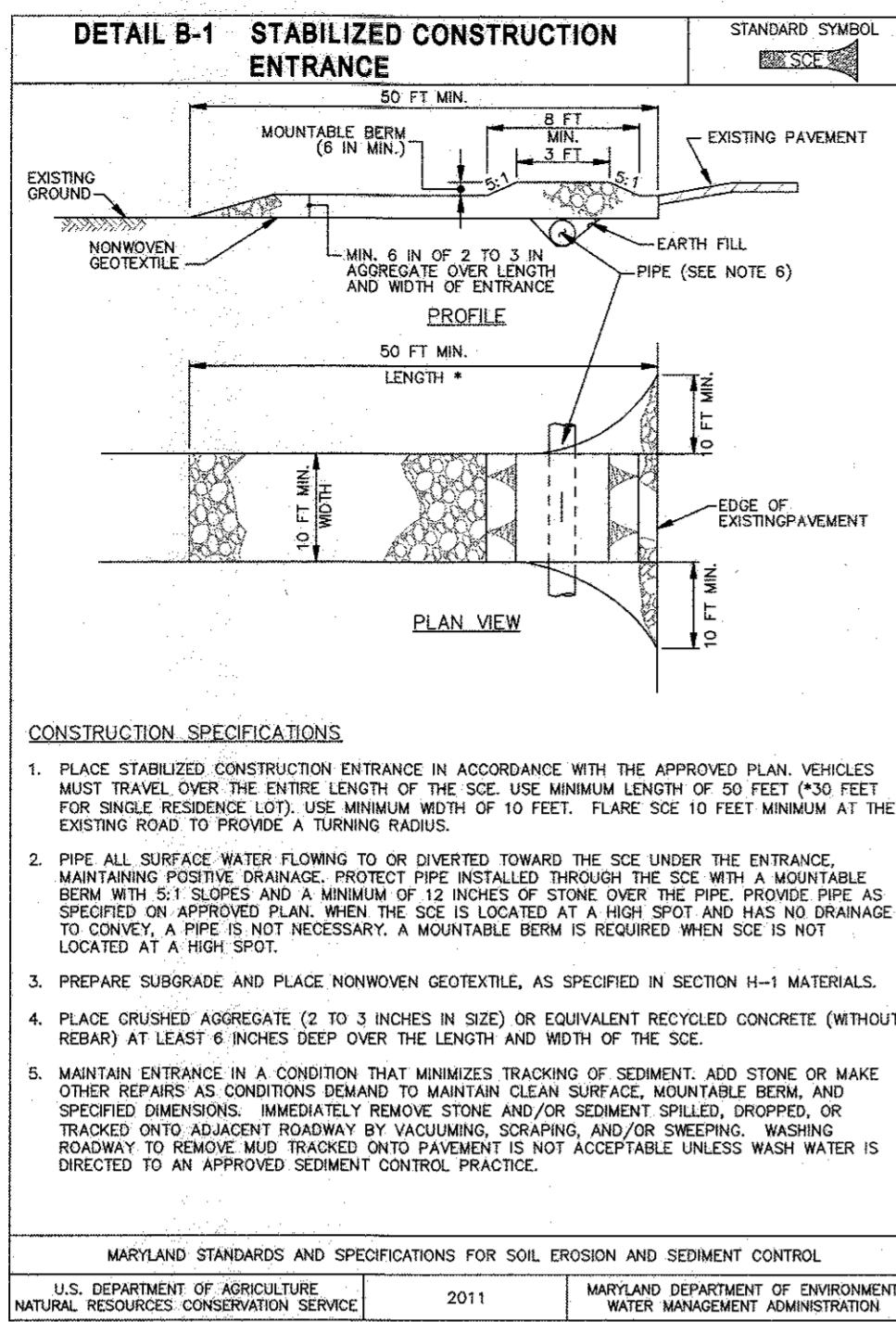
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ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES
SIGNATURE



BLANDAIR REGIONAL PARK - PHASE 3

STORMWATER MANAGEMENT NOTES AND DETAILS
Drawing No. C4.4
Scale: NOT TO SCALE
Date: 1/17/2017 Sheet 33 of 76
Des: AKC Drawn: AKC Check: AJO
SDP-15-090



B-4-8 STANDARDS AND SPECIFICATIONS

FOR STOCKPILE AREA

Purpose:
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

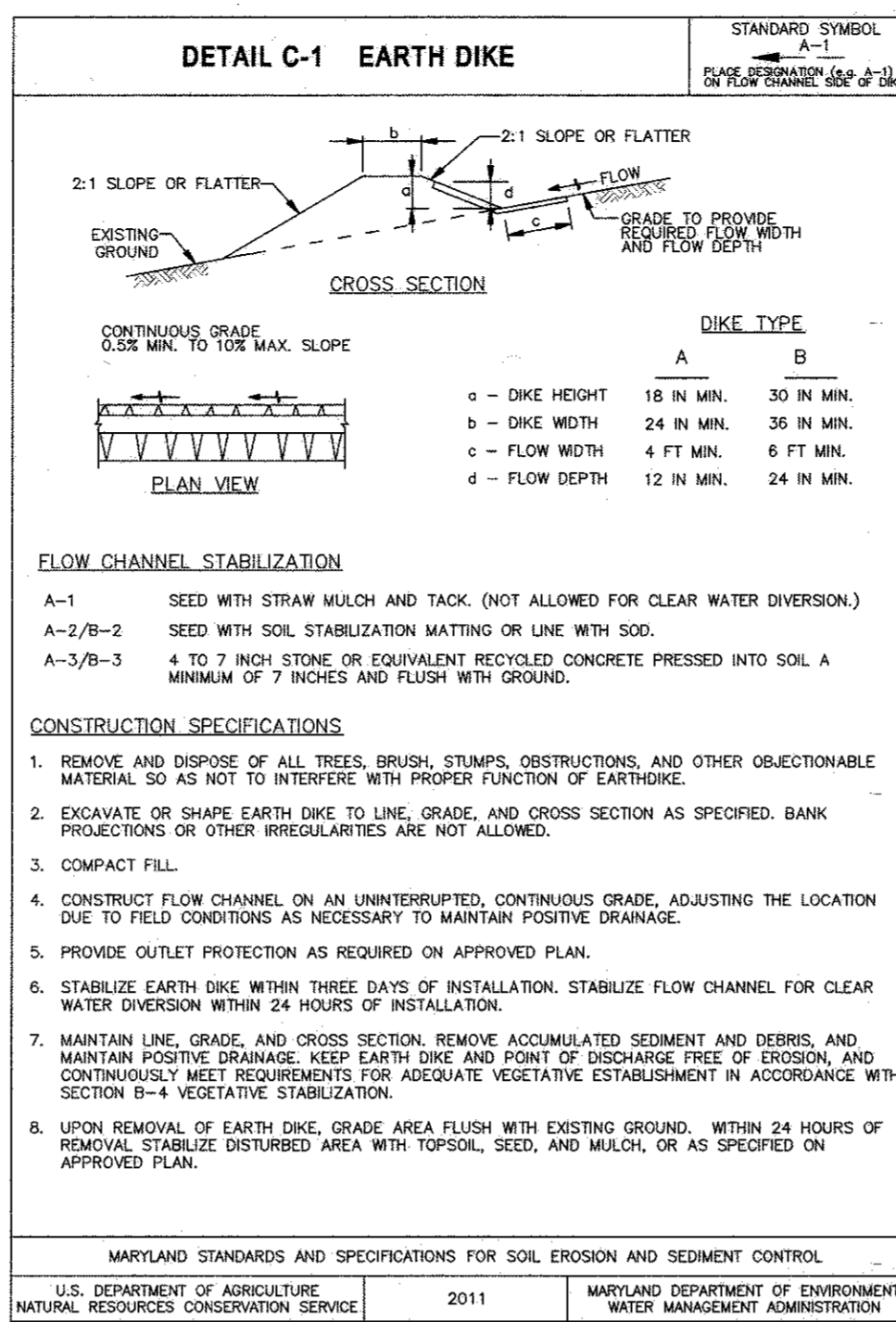
Conditions Where Practice Applies:
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Access to the stockpile area from the upgrade side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 37 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance:
The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

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

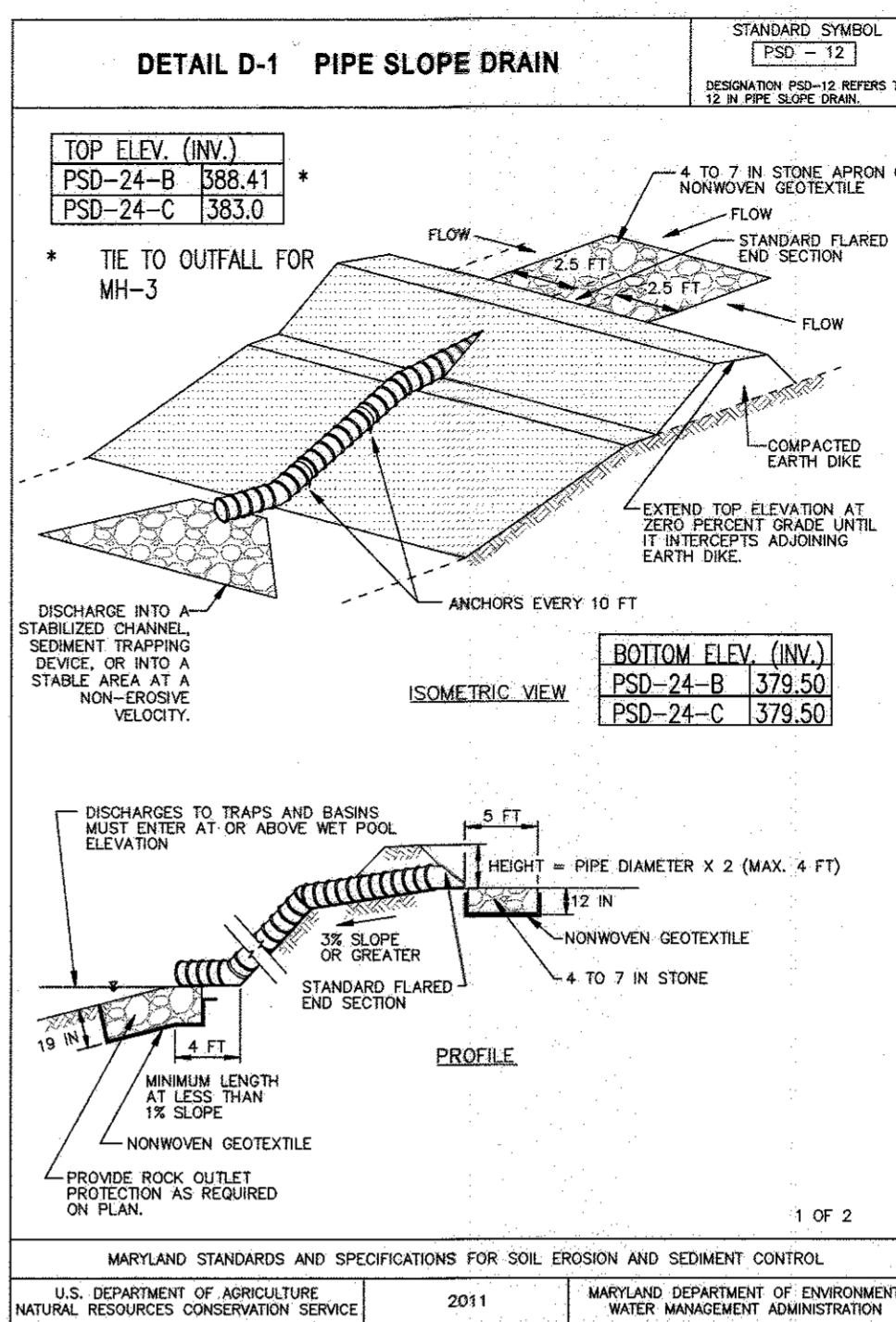


DETAIL C-9 DIVERSION FENCE

CONSTRUCTION SPECIFICATIONS:

- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF DIVERSION FENCE.
- EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
- COMPACT FILL.
- CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
- PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
- STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DIVERSION FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
- UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND, WITHIN 24 HOURS OF REMOVAL. STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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

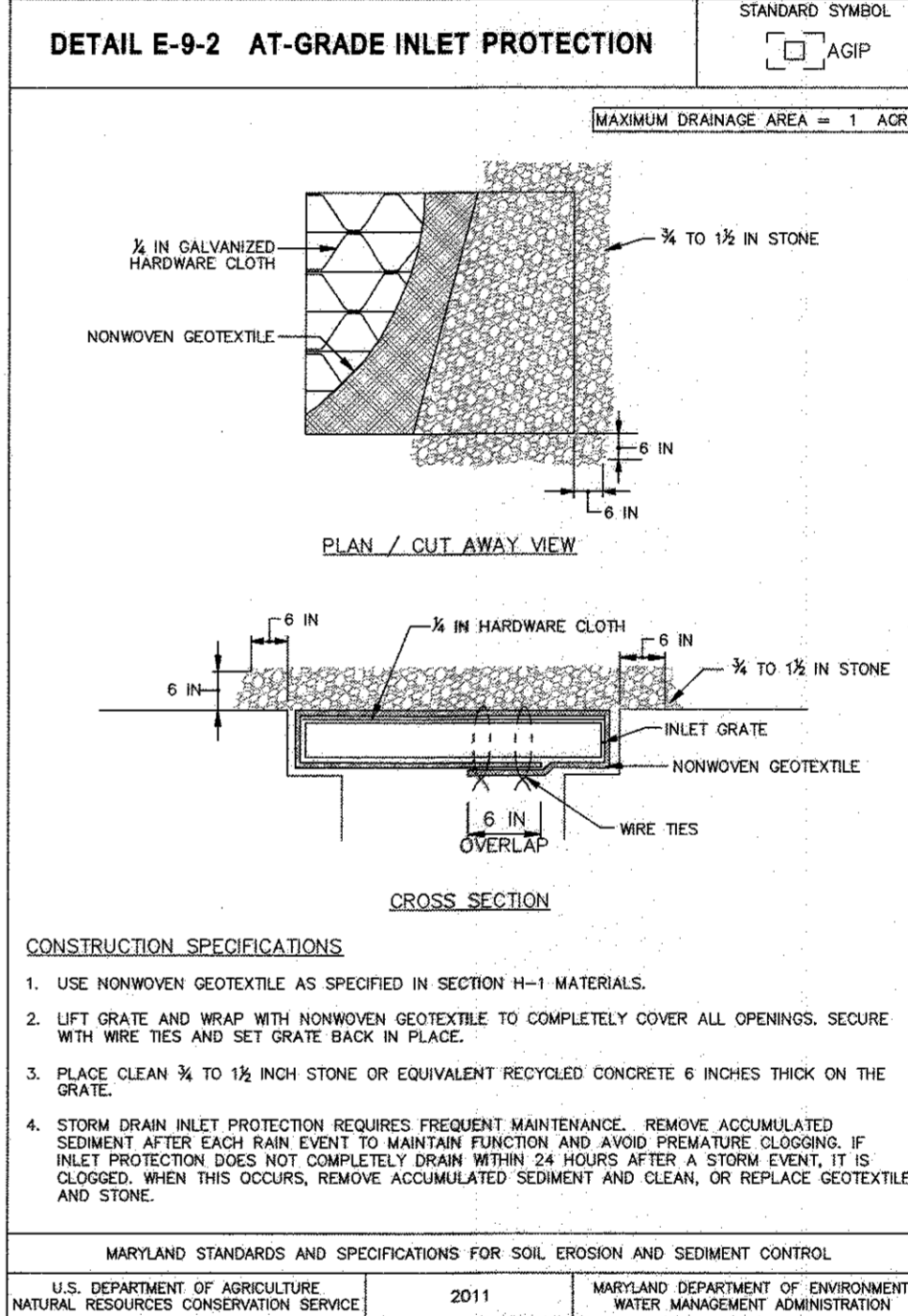
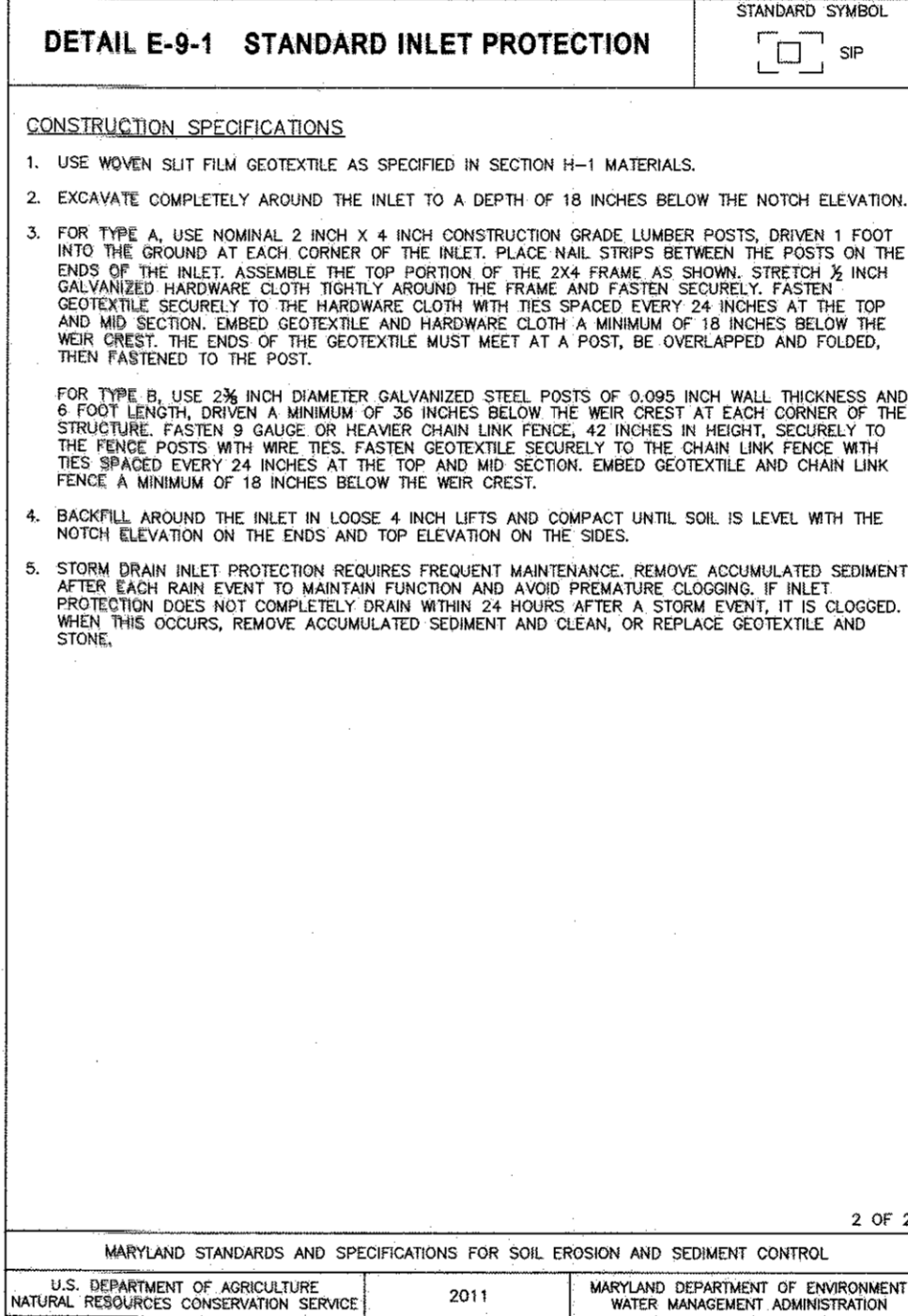
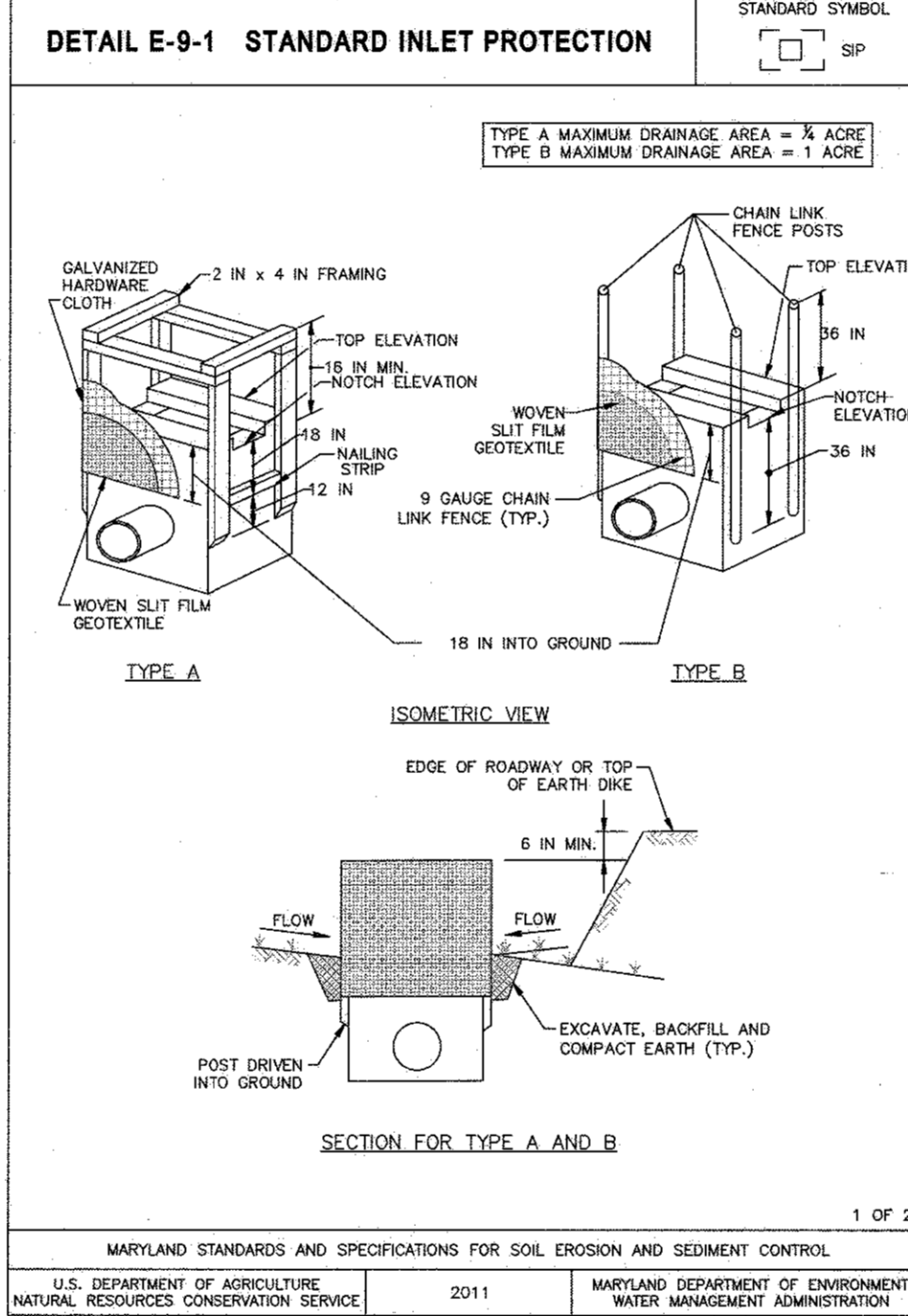
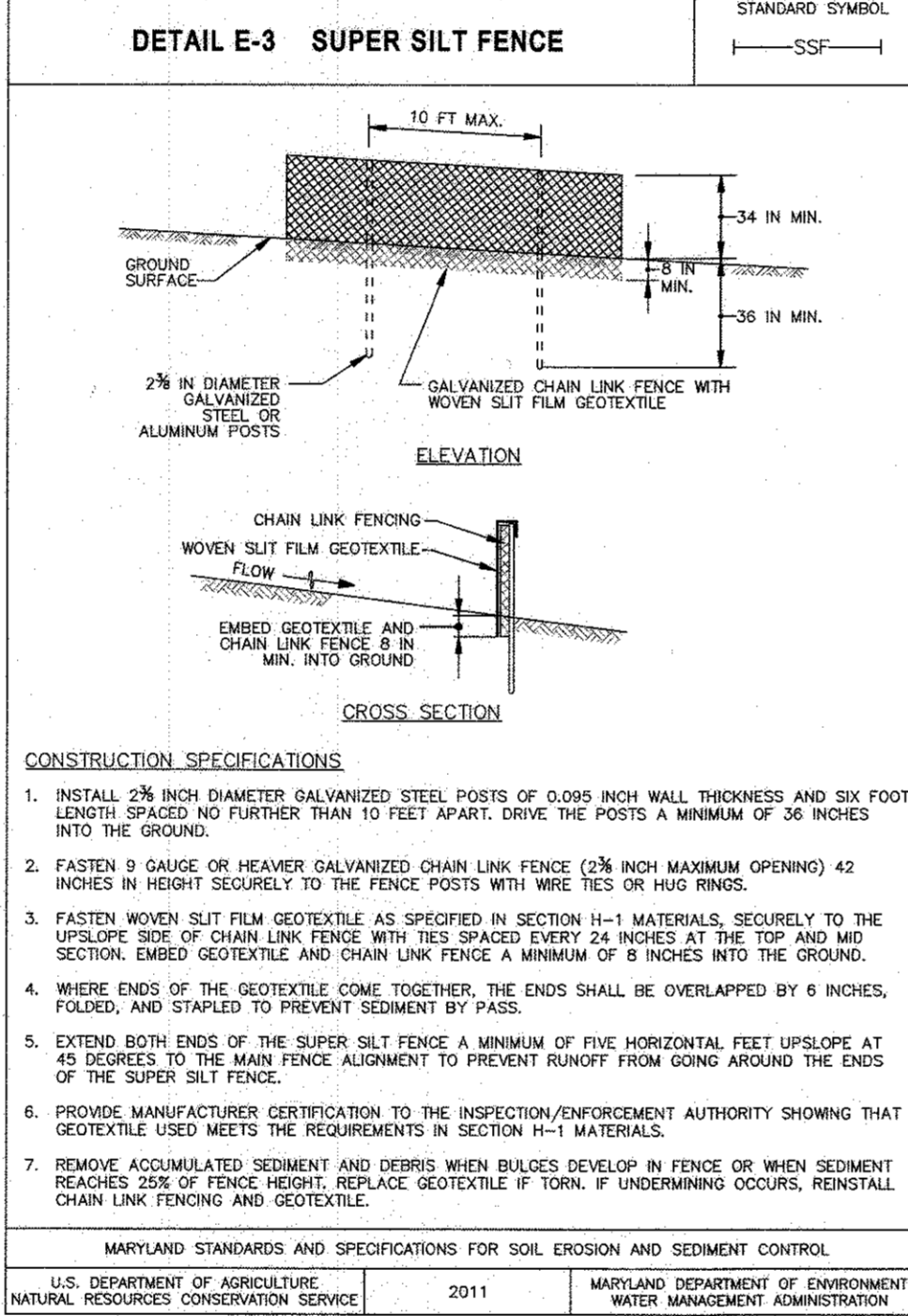
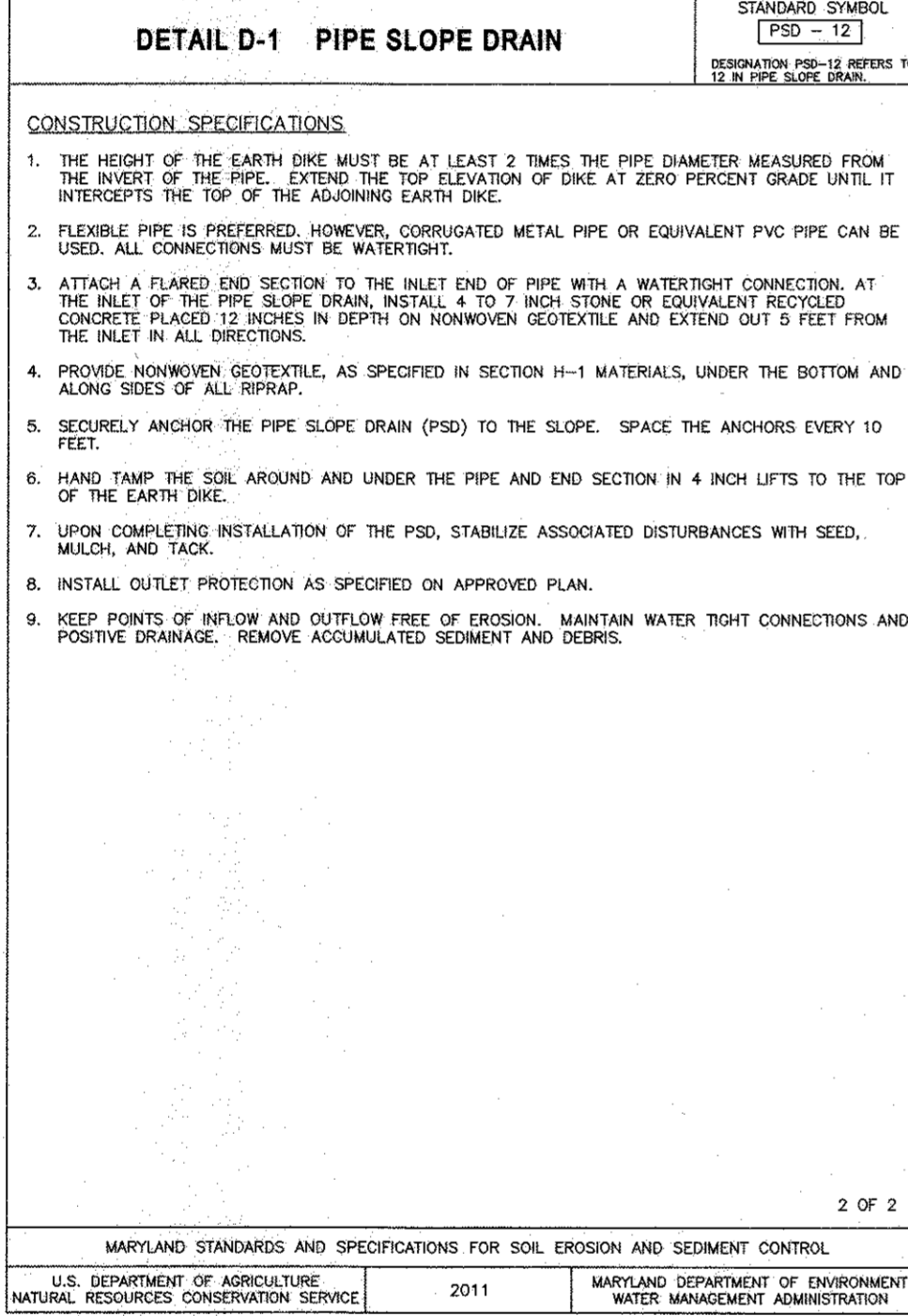


DETAIL D-1 PIPE SLOPE DRAIN

CONSTRUCTION SPECIFICATIONS:

- USE 42 INCH HIGH 9 GAUGE OR THICKER CHAIN LINK FENCING (2 1/2 INCH MAXIMUM OPENING).
- USE 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
- FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
- SECURE 1/4 INCH OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
- EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
- WHERE TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNWARD.
- KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN, IF UNDERMINING OCCURS, REINSTALL FENCE.

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



DETAIL E-9-2 AT-GRADE INLET PROTECTION

CONSTRUCTION SPECIFICATIONS:

- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
- PLACE CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
- STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN OR REPLACE GEOTEXTILE AND STONE.

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

ENGINEER'S CERTIFICATION

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.

Anthony H. Olson
SIGNATURE OF ENGINEER
(PRINT NAME BELOW SIGNATURE)

1/23/17
DATE

DEVELOPER'S CERTIFICATION

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

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

1-20-17
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

2-6-17
DATE

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

3-01-17
DATE

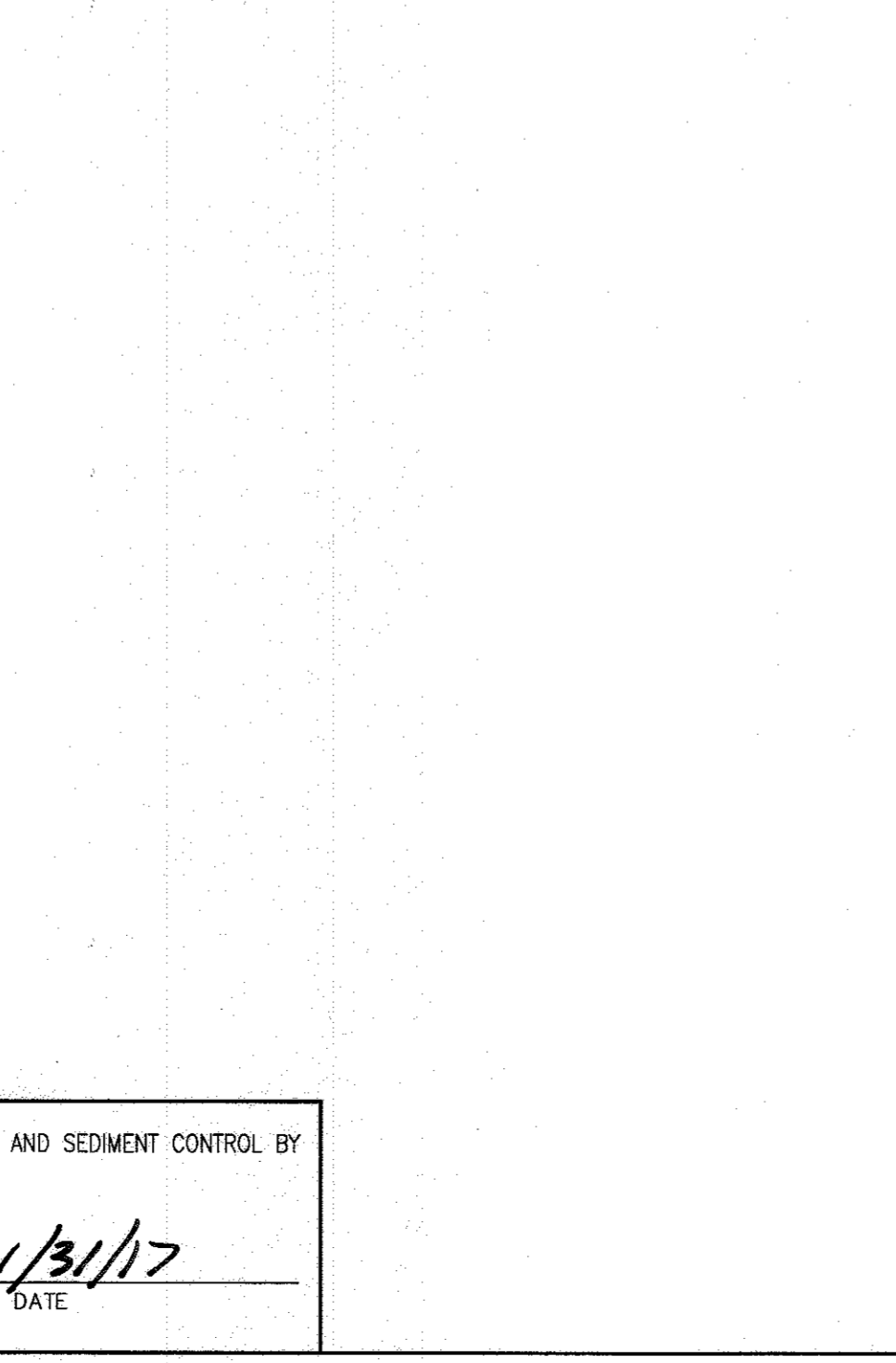
John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

3-19-17
DATE

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

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

1/31/17
DATE



MGWC 1.2: PUMP-AROUND PRACTICE

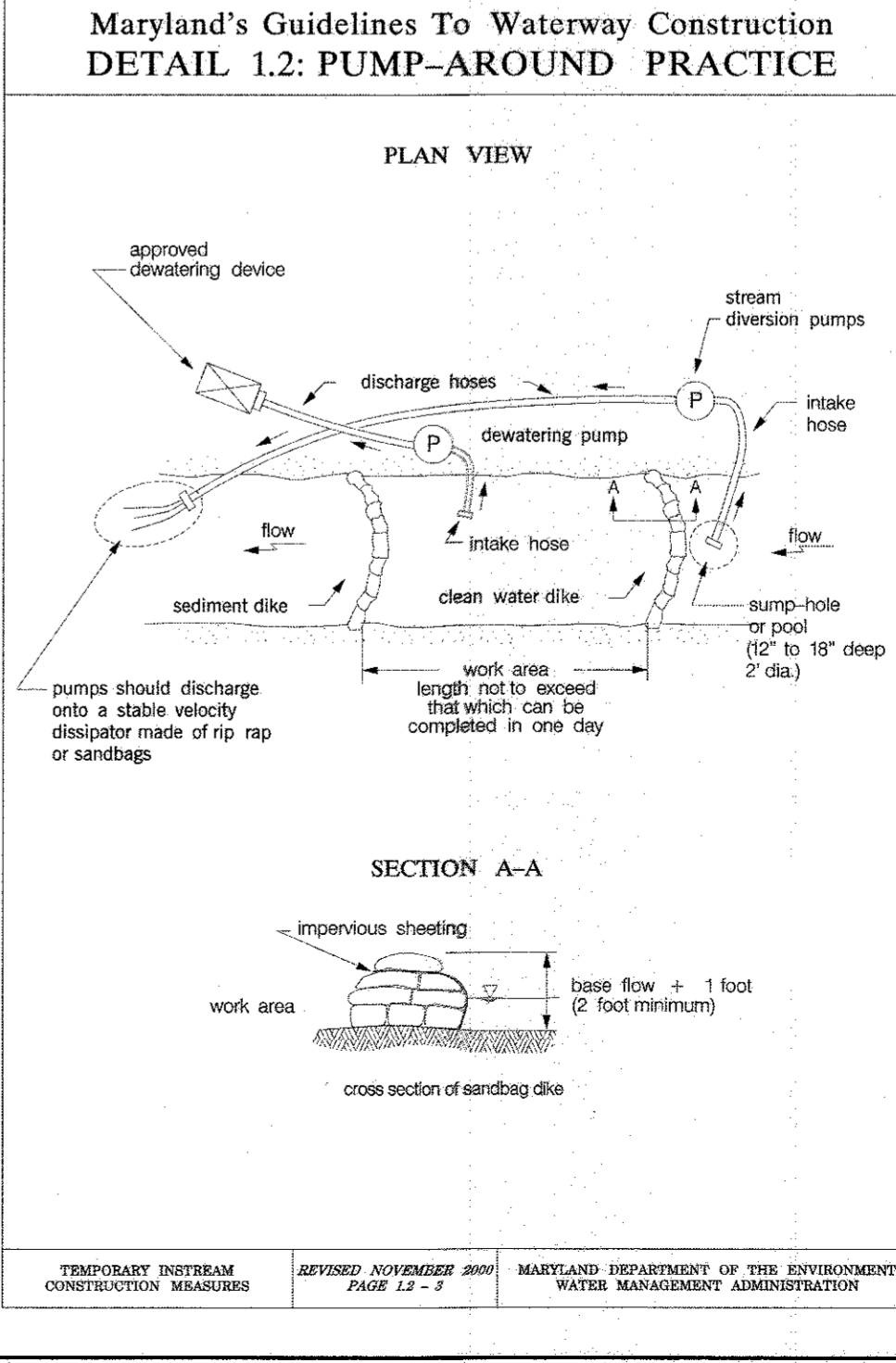
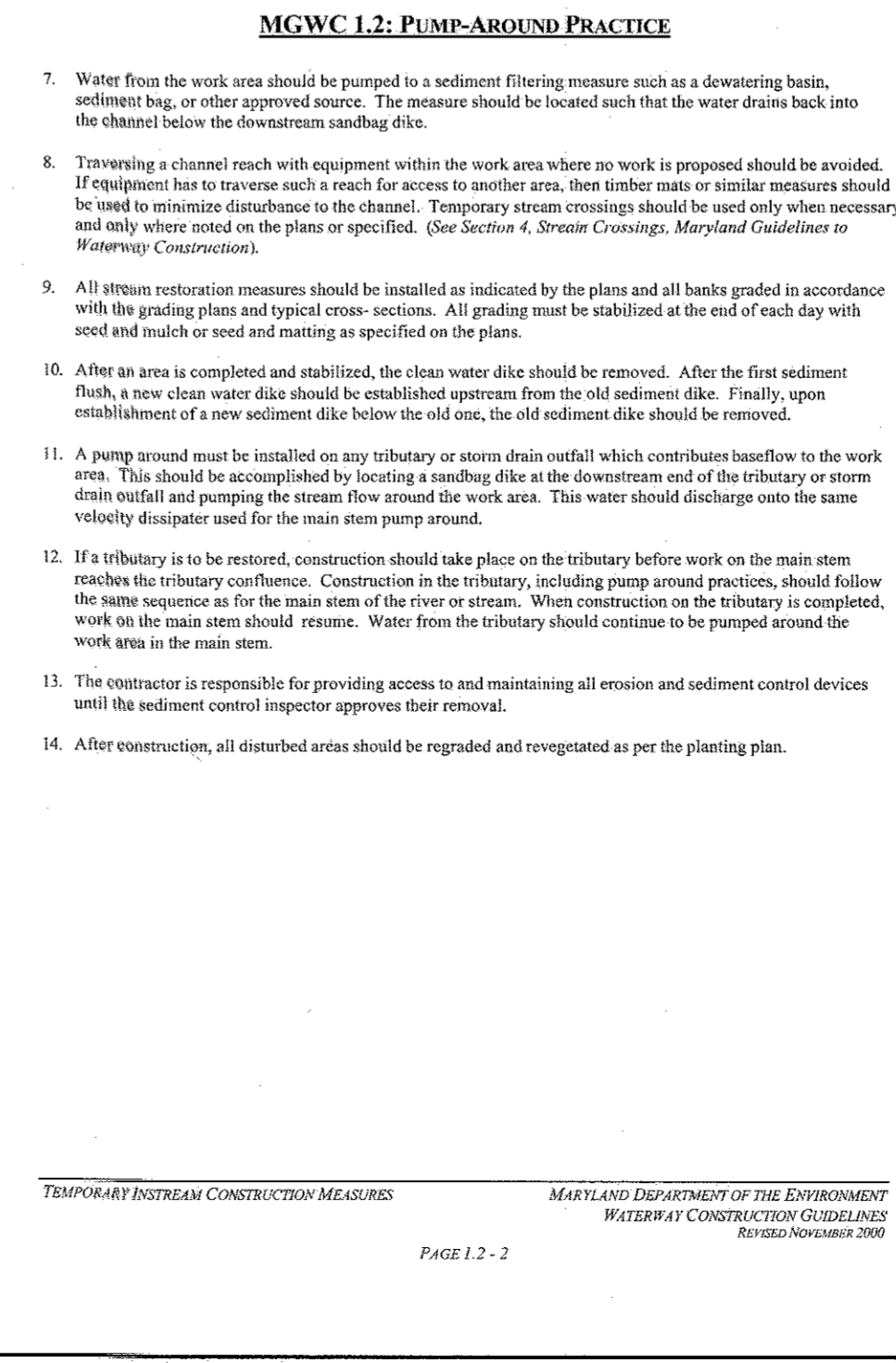
Temporary measure for dewatering in-channel construction sites

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

IMPLEMENTATION SEQUENCE:
Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging area and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plan and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction easements. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipator made of riprap or sandbags.

TEMPORARY INSTREAM CONSTRUCTION MEASURES
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES
REVISED NOVEMBER 2009



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

CONSTRUCTION SPECIFICATIONS:

- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
- PLACE CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
- STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN OR REPLACE GEOTEXTILE AND STONE.

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

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

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. 18376
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL
PARK - PHASE 3

EROSION AND SEDIMENT CONTROL DETAILS

Drawing No. **C5.2**

Scale: NOT TO SCALE

Date: 1/17/2017 Sheet 35 of 76

Des: BWJ Drawn: AKC Check: AUO

REVISIONS	

HOWARD COUNTY

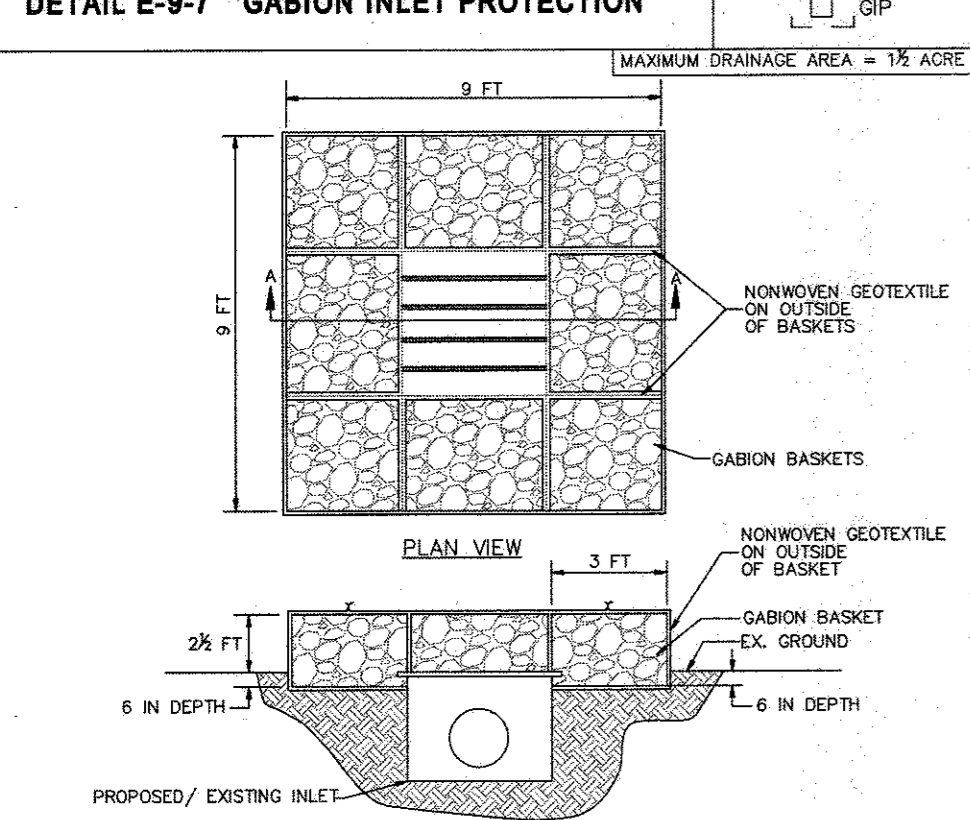
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



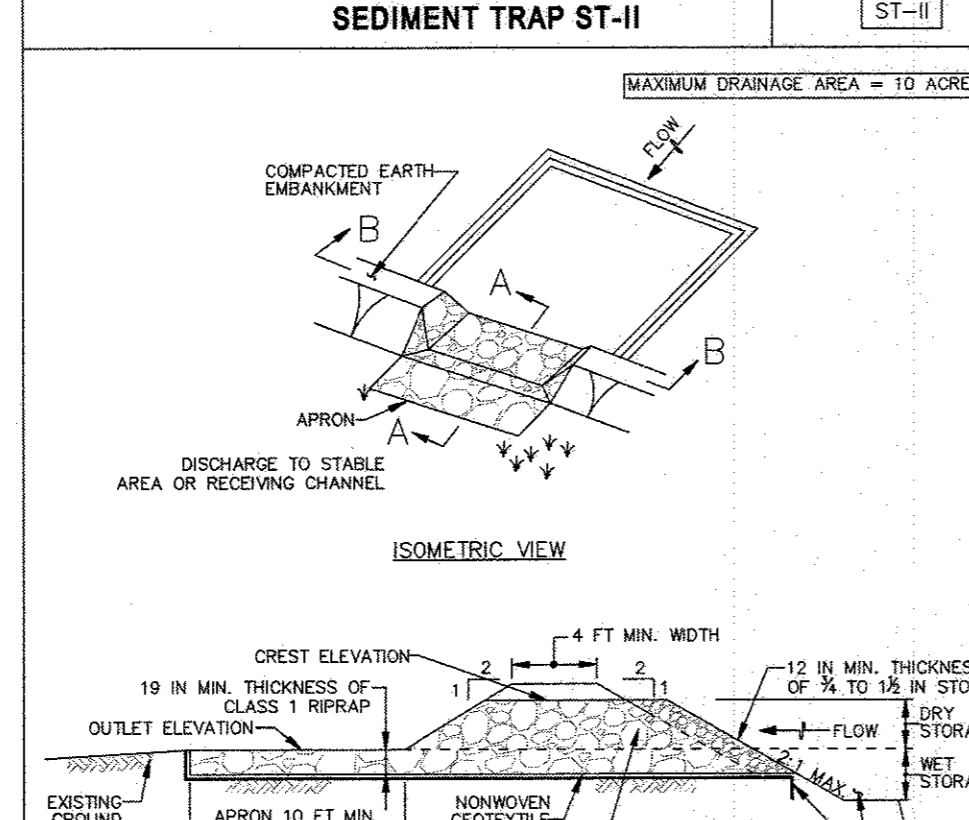
FILED IN 2020-02-03, CLARENCE, APPROVED BY P&Z

DETAIL E-9-7 GABION INLET PROTECTION



CONSTRUCTION SPECIFICATIONS
1. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
2. WRAP 3 FEET x 3 FEET GABION BASKETS (LENGTH VARIABLE) WITH NONWOVEN GEOTEXTILE...

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II



CONSTRUCTION SPECIFICATIONS
1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT...

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

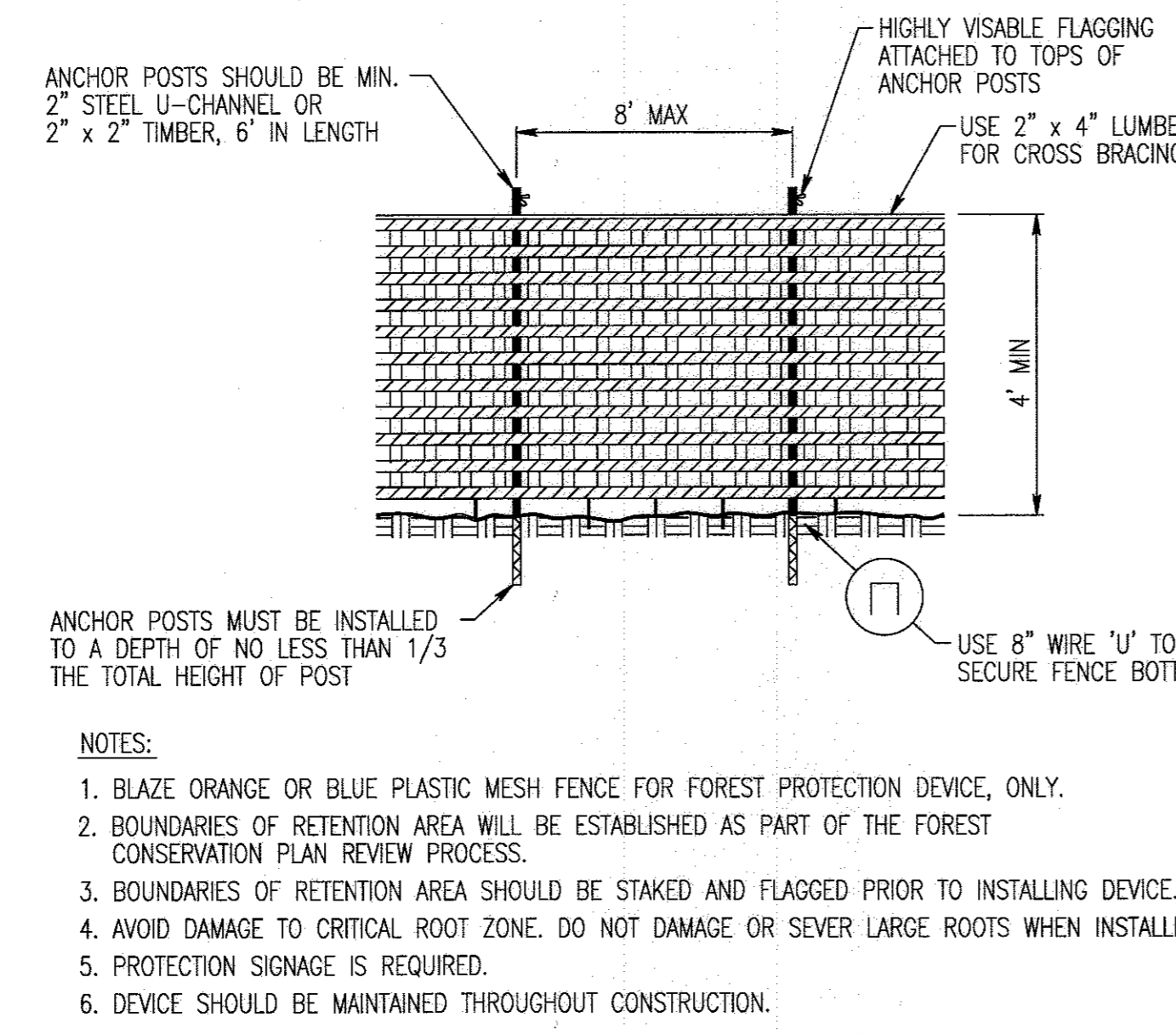
CONSTRUCTION SPECIFICATIONS
1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT...

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

Table with 3 columns: STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 1, and values for drainage area, storage required, and elevation.

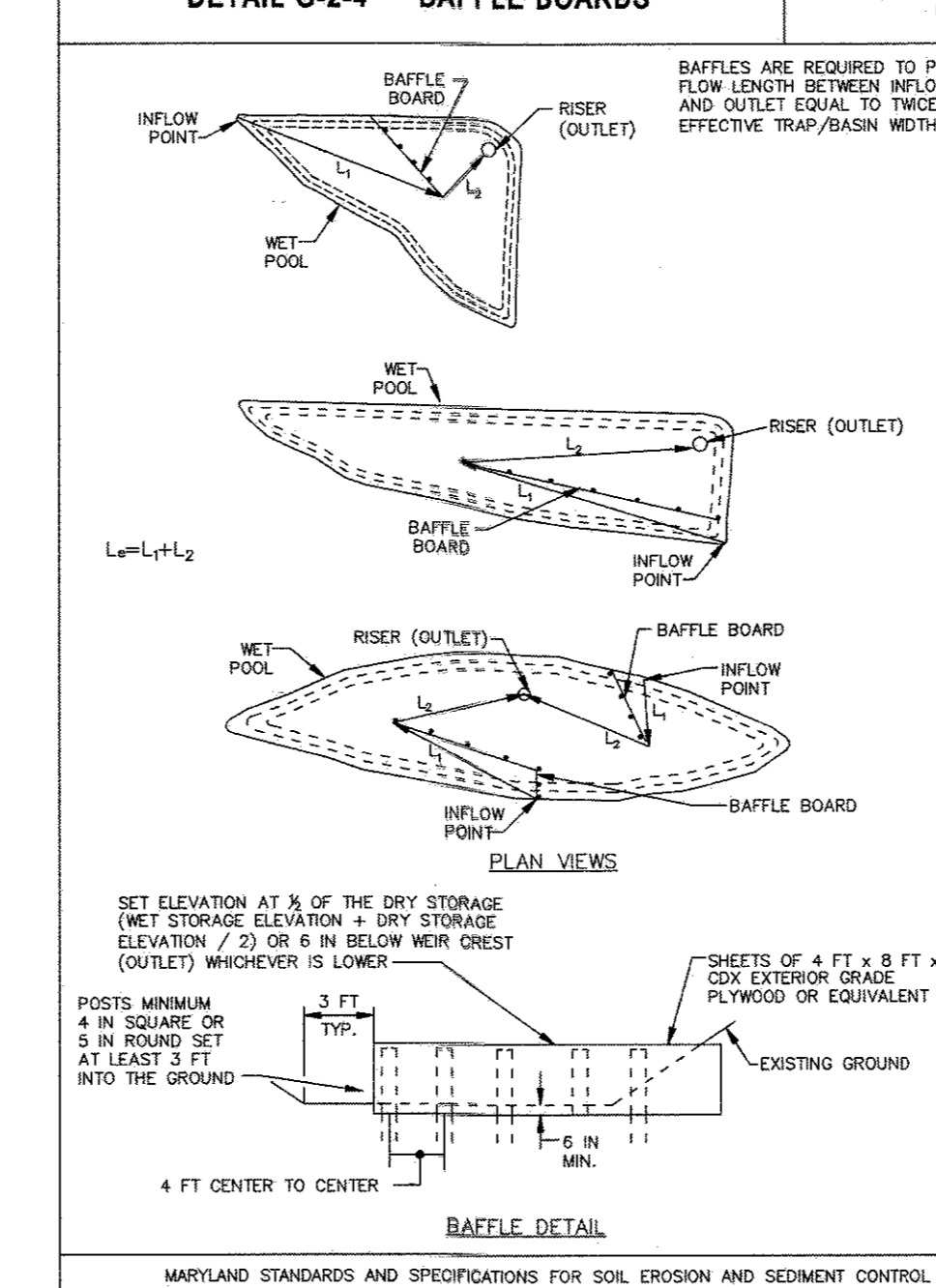
DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

Table with 3 columns: STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 2, and values for drainage area, storage required, and elevation.

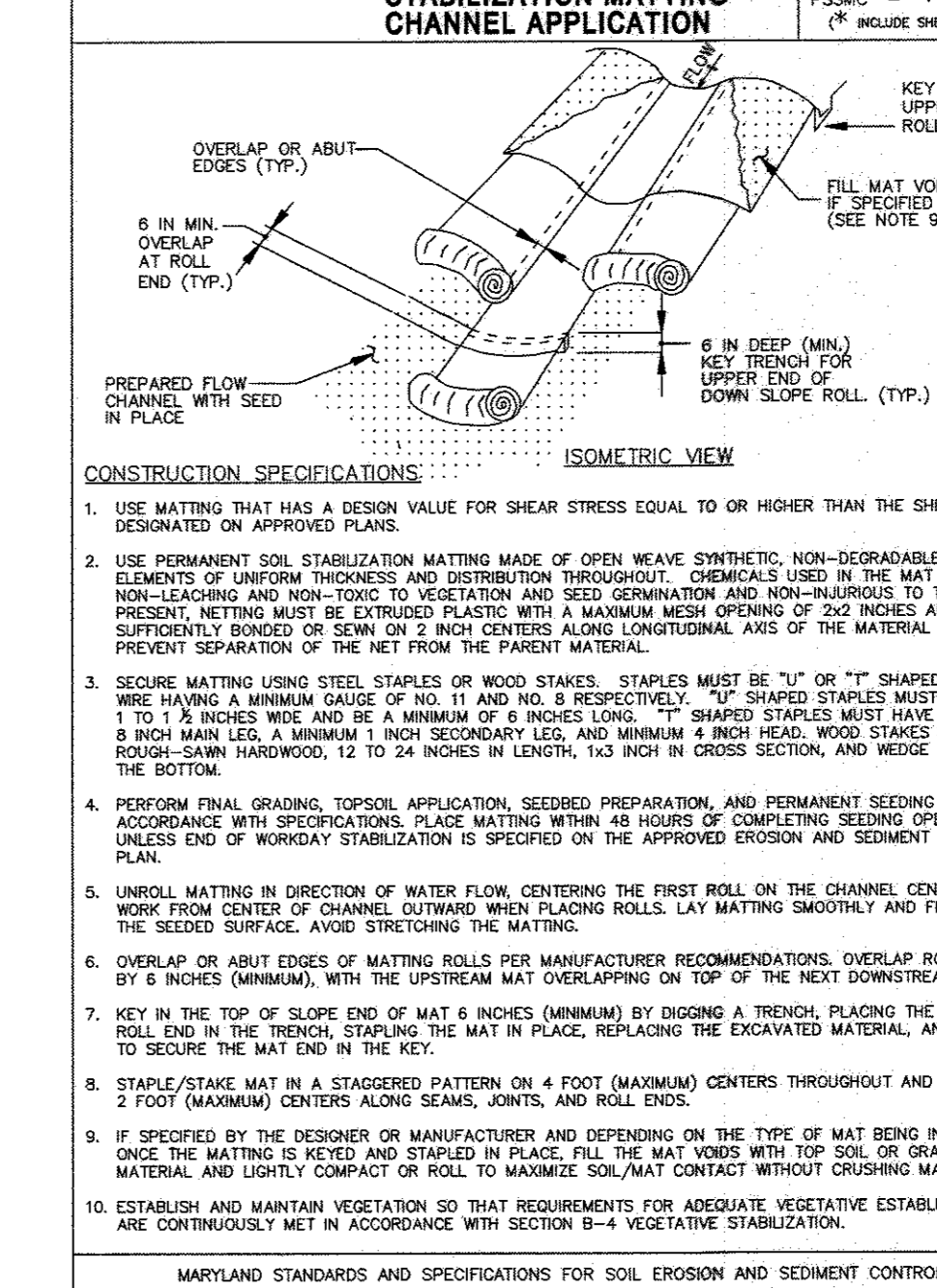


PLASTIC MESH TREE PROTECTION FENCE
NO SCALE

DETAIL G-2-4 BAFFLE BOARDS



DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION



ENGINEER'S CERTIFICATION
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...

DEVELOPER'S CERTIFICATION
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL...

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-6-17

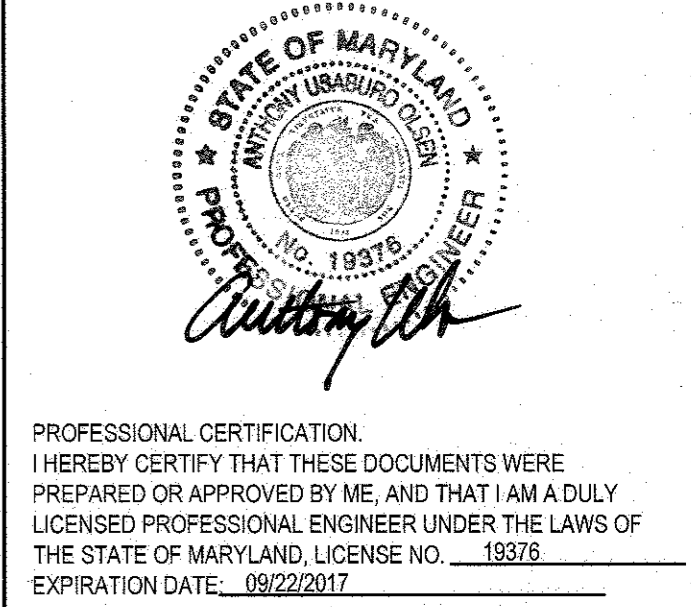
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
DATE: 1/31/17

REVISIONS table and contact information for HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS and DEPARTMENT OF PUBLIC WORKS.

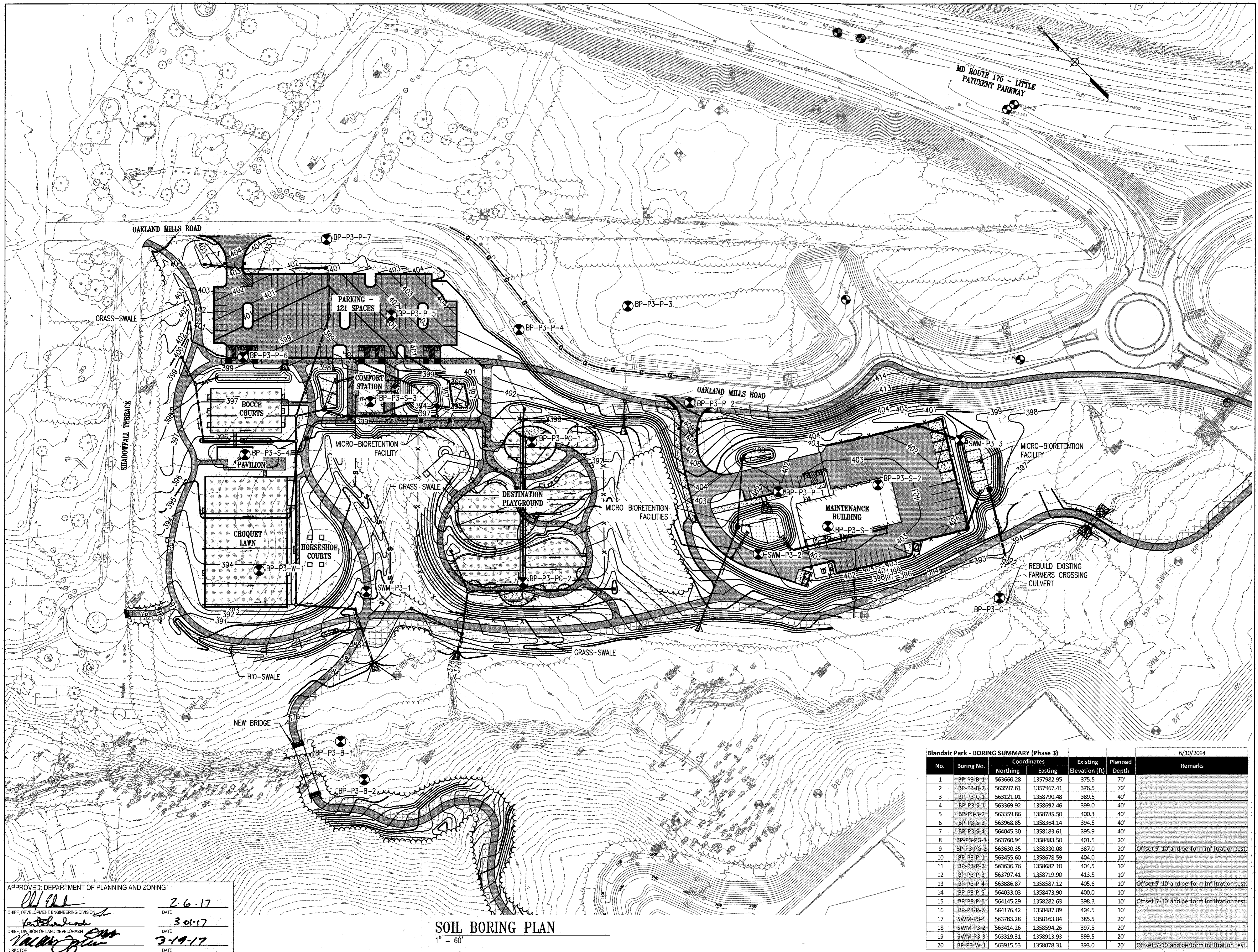


PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES
SIGNATURE



BLANDAIR REGIONAL PARK - PHASE 3
EROSION AND SEDIMENT CONTROL DETAILS
Drawing No. C5.3
Scale: NOT TO SCALE
Date: 1/17/2017 Sheet 36 of 76

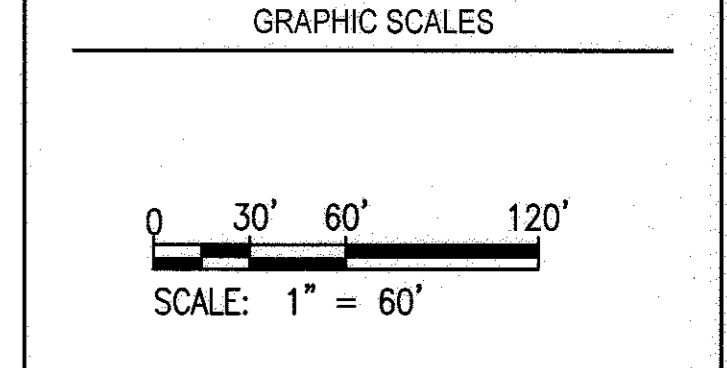


REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Carolina Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

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. 18378, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SOIL BORING PLAN
 Drawing No. **C6.1**
 Scale: 1" = 60'
 Date: 1/17/2017 Sheet 37 of 76
 Des: SAD Drawn: SAD Check: AJO

Blandair Park - BORING SUMMARY (Phase 3)							6/10/2014
No.	Boring No.	Coordinates		Existing Elevation (ft)	Planned Depth	Remarks	
		Northing	Easting				
1	BP-P3-B-1	563660.28	1357982.95	375.5	70'		
2	BP-P3-B-2	563597.61	1357967.41	376.5	70'		
3	BP-P3-C-1	563121.01	1358790.48	389.5	40'		
4	BP-P3-S-1	563369.92	1358692.46	399.0	40'		
5	BP-P3-S-2	563359.86	1358785.50	400.3	40'		
6	BP-P3-S-3	563968.85	1358364.14	394.5	40'		
7	BP-P3-S-4	564045.30	1358183.61	395.9	40'		
8	BP-P3-PG-1	563760.94	1358483.50	401.5	20'		
9	BP-P3-PG-2	563630.35	1358330.08	387.0	20'	Offset 5'-10' and perform infiltration test.	
10	BP-P3-P-1	563455.60	1358678.59	404.0	10'		
11	BP-P3-P-2	563636.76	1358682.10	404.5	10'		
12	BP-P3-P-3	563797.41	1358719.90	413.5	10'		
13	BP-P3-P-4	563886.87	1358587.12	405.6	10'	Offset 5'-10' and perform infiltration test.	
14	BP-P3-P-5	564033.03	1358473.90	400.0	10'		
15	BP-P3-P-6	564145.29	1358282.63	398.3	10'	Offset 5'-10' and perform infiltration test.	
16	BP-P3-P-7	564176.42	1358487.89	404.5	10'		
17	SWM-P3-1	563783.28	1358163.84	385.5	20'		
18	SWM-P3-2	563414.26	1358594.26	397.5	20'		
19	SWM-P3-3	563319.31	1358913.93	399.5	20'		
20	BP-P3-W-1	563915.53	1358078.31	393.0	20'	Offset 5'-10' and perform infiltration test.	

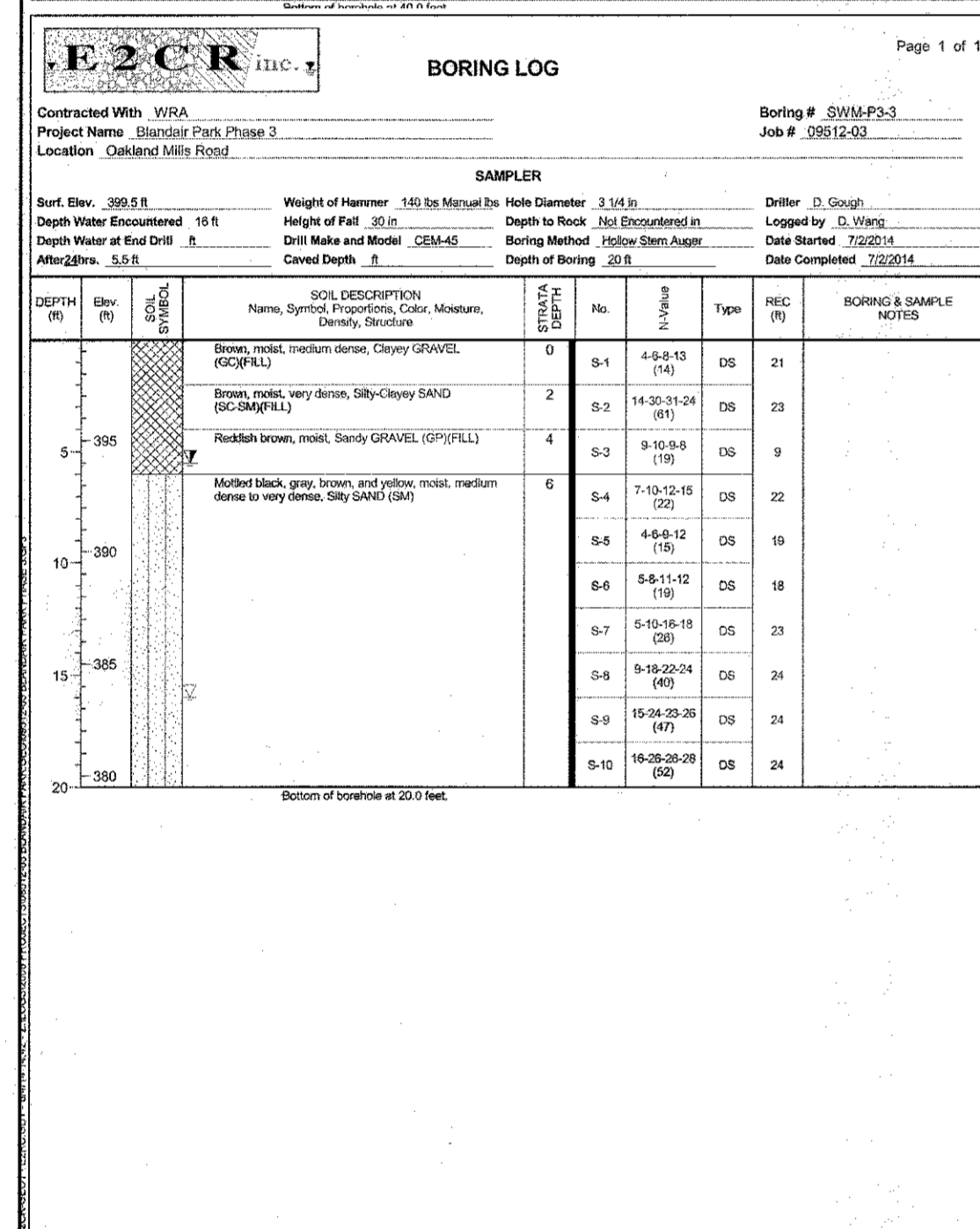
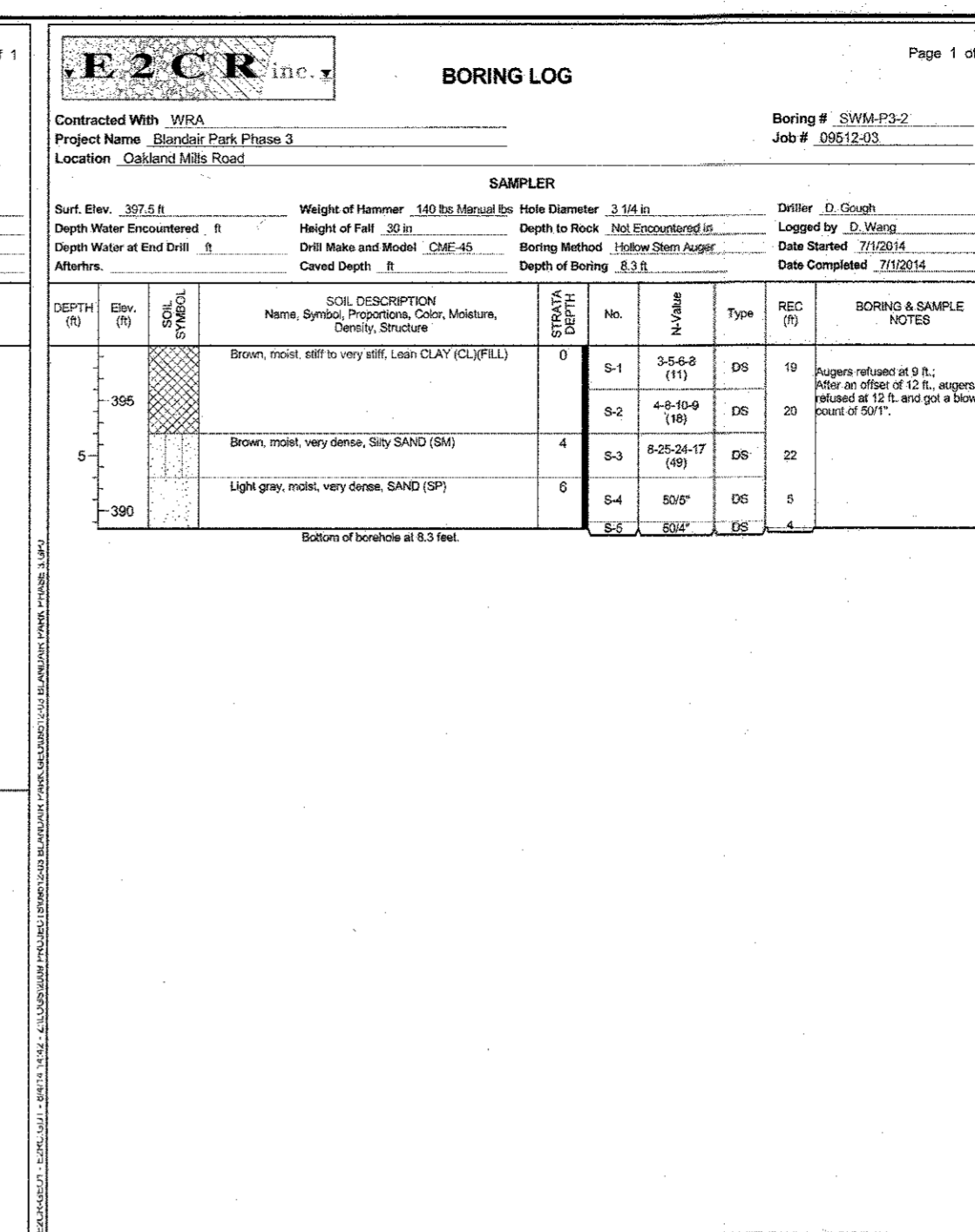
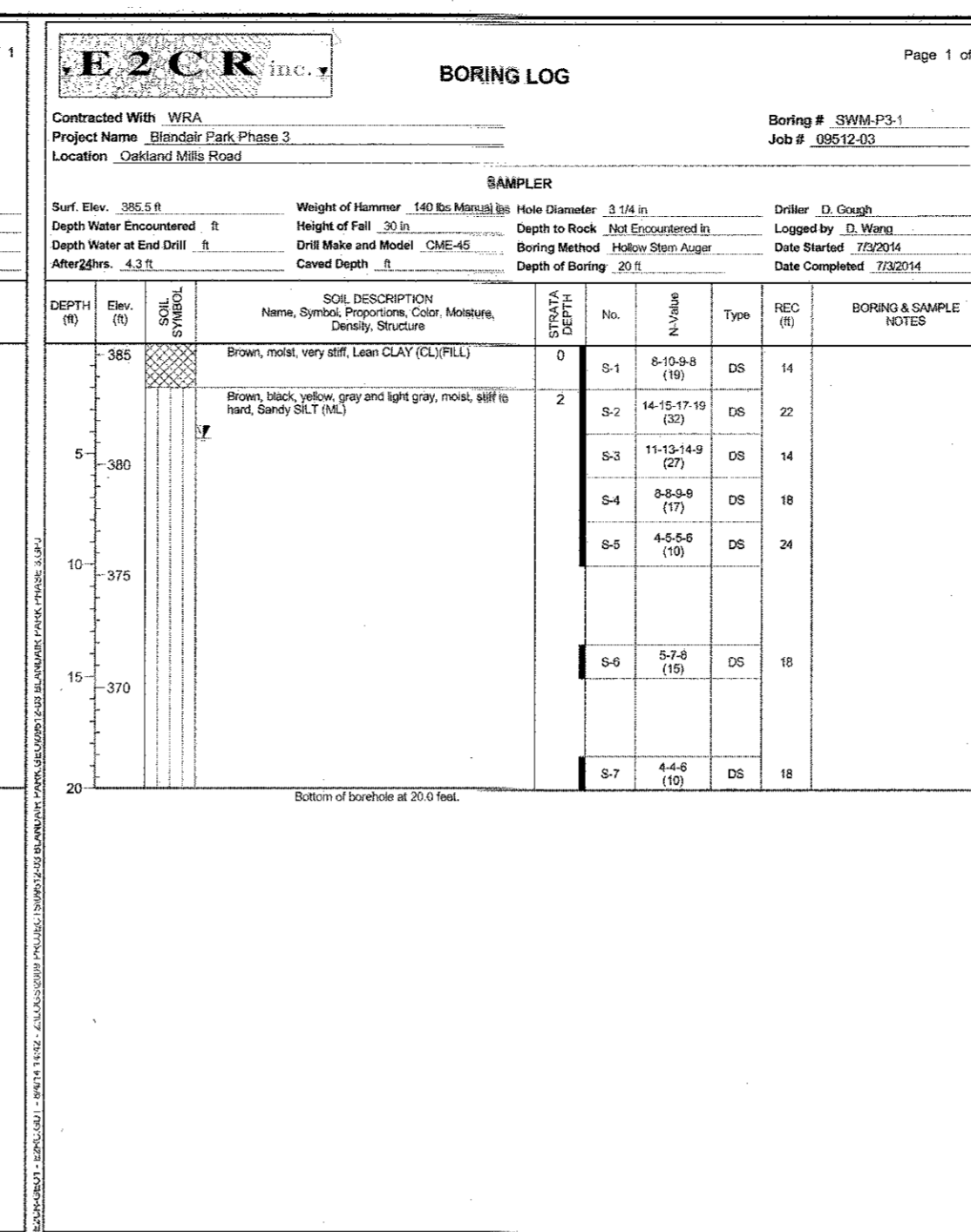
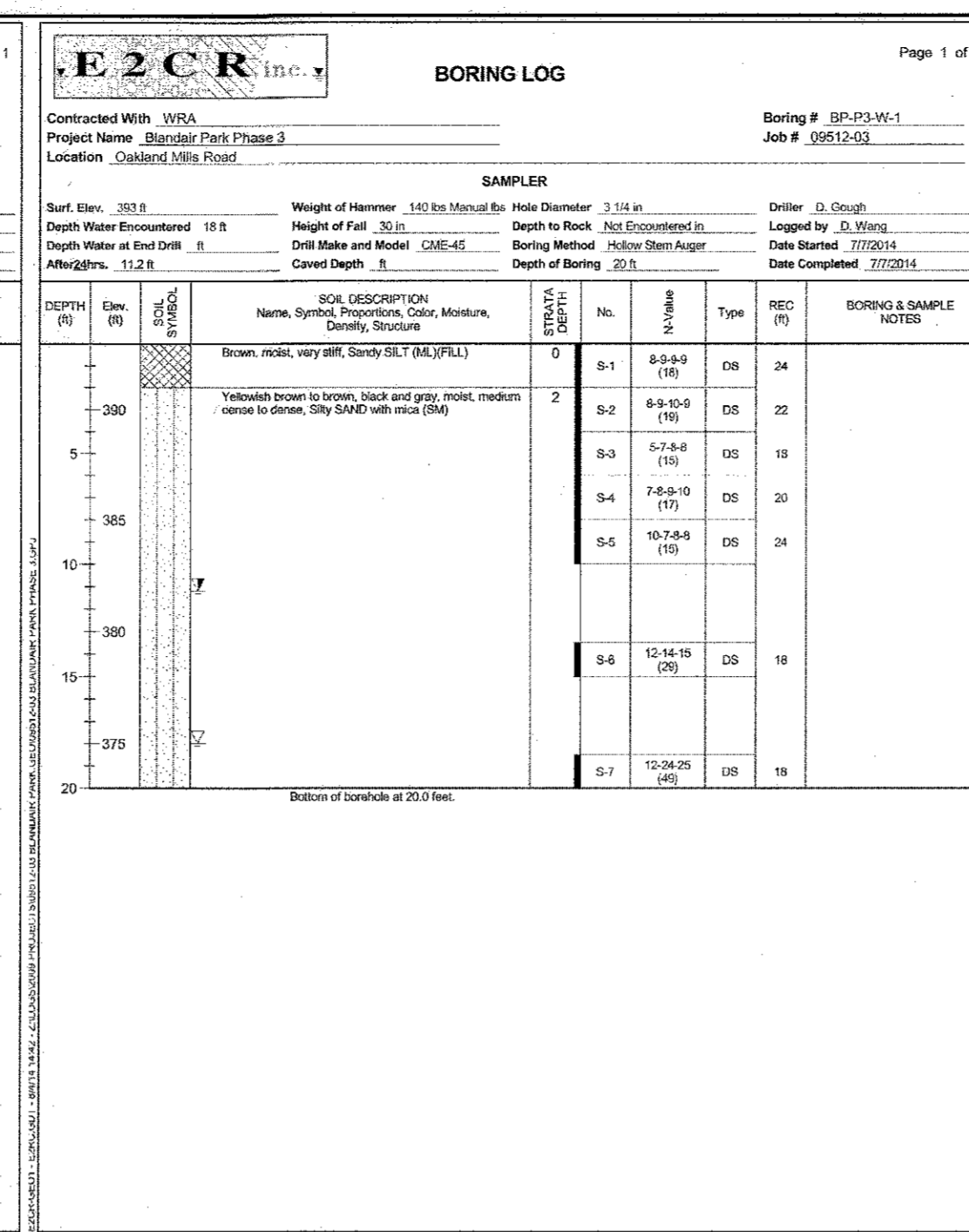
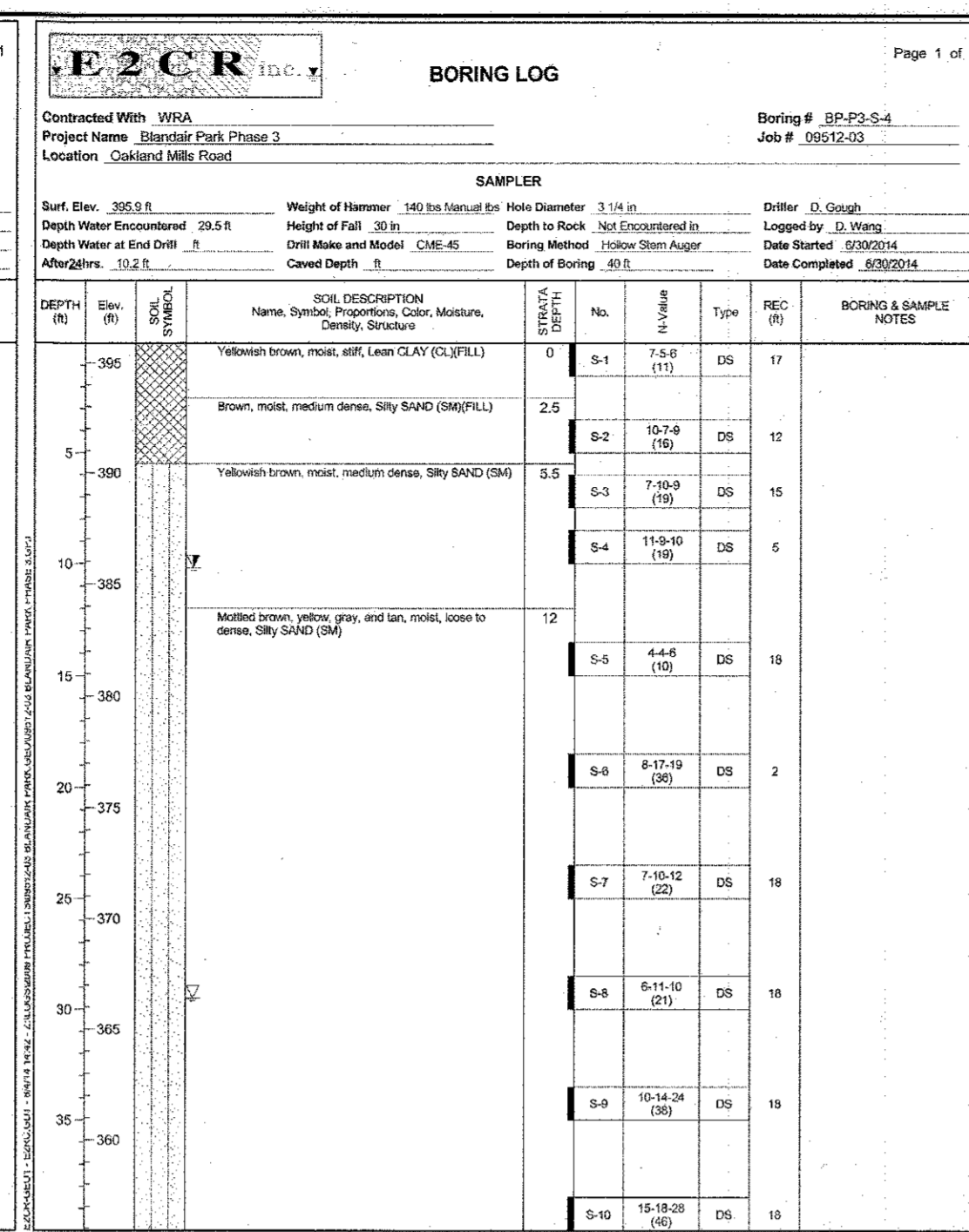
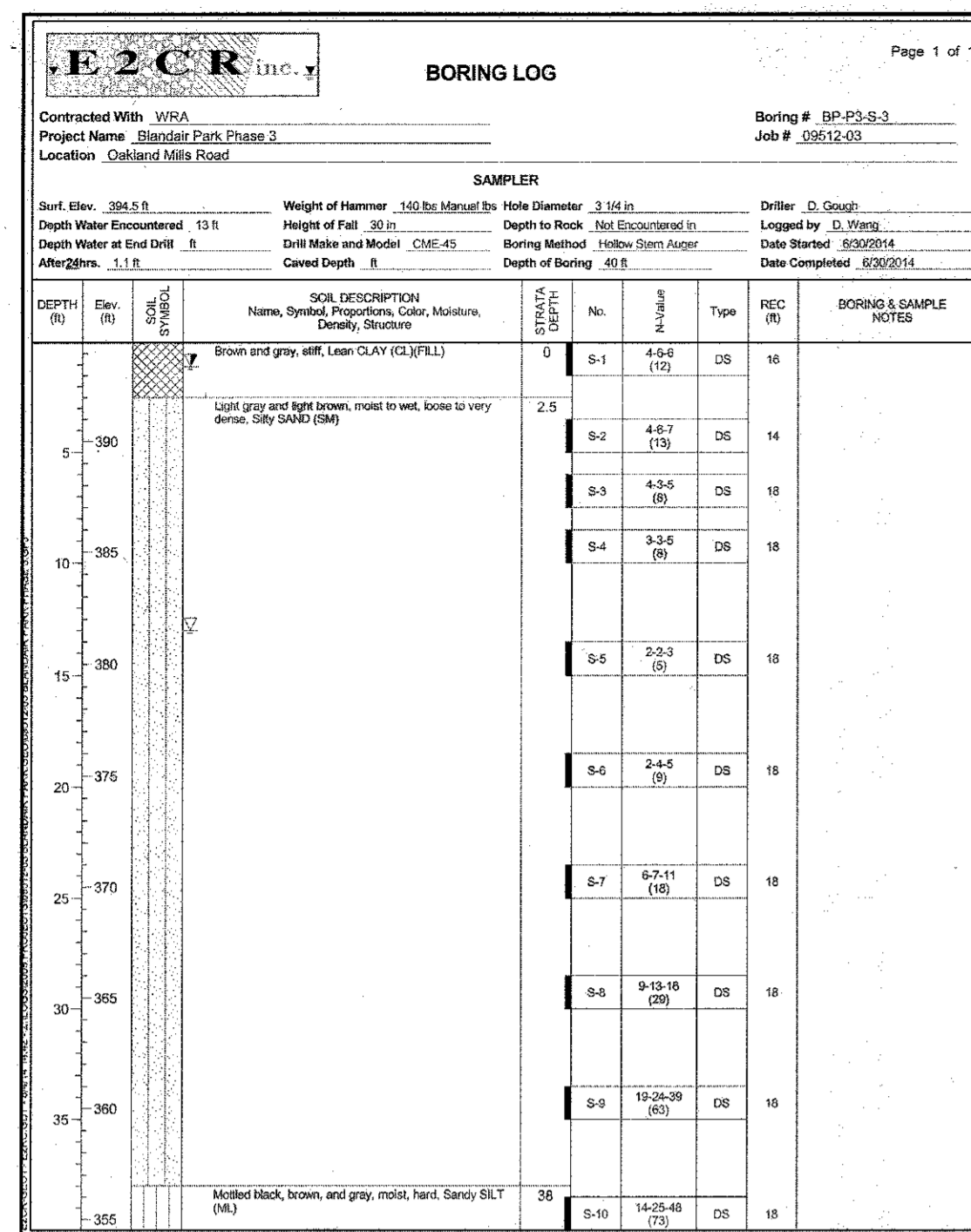
APPROVED: DEPARTMENT OF PLANNING AND ZONING

 DATE: 2-6-17

 DATE: 3-01-17

 DATE: 3-19-17

SOIL BORING PLAN
 1" = 60'



APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17

DATE: 3-01-17

DATE: 3-19-17

REVISIONS

NO.	DESCRIPTION

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

STATE OF MARYLAND PROFESSIONAL ENGINEER LICENSE NO. 19376

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. 19376. EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

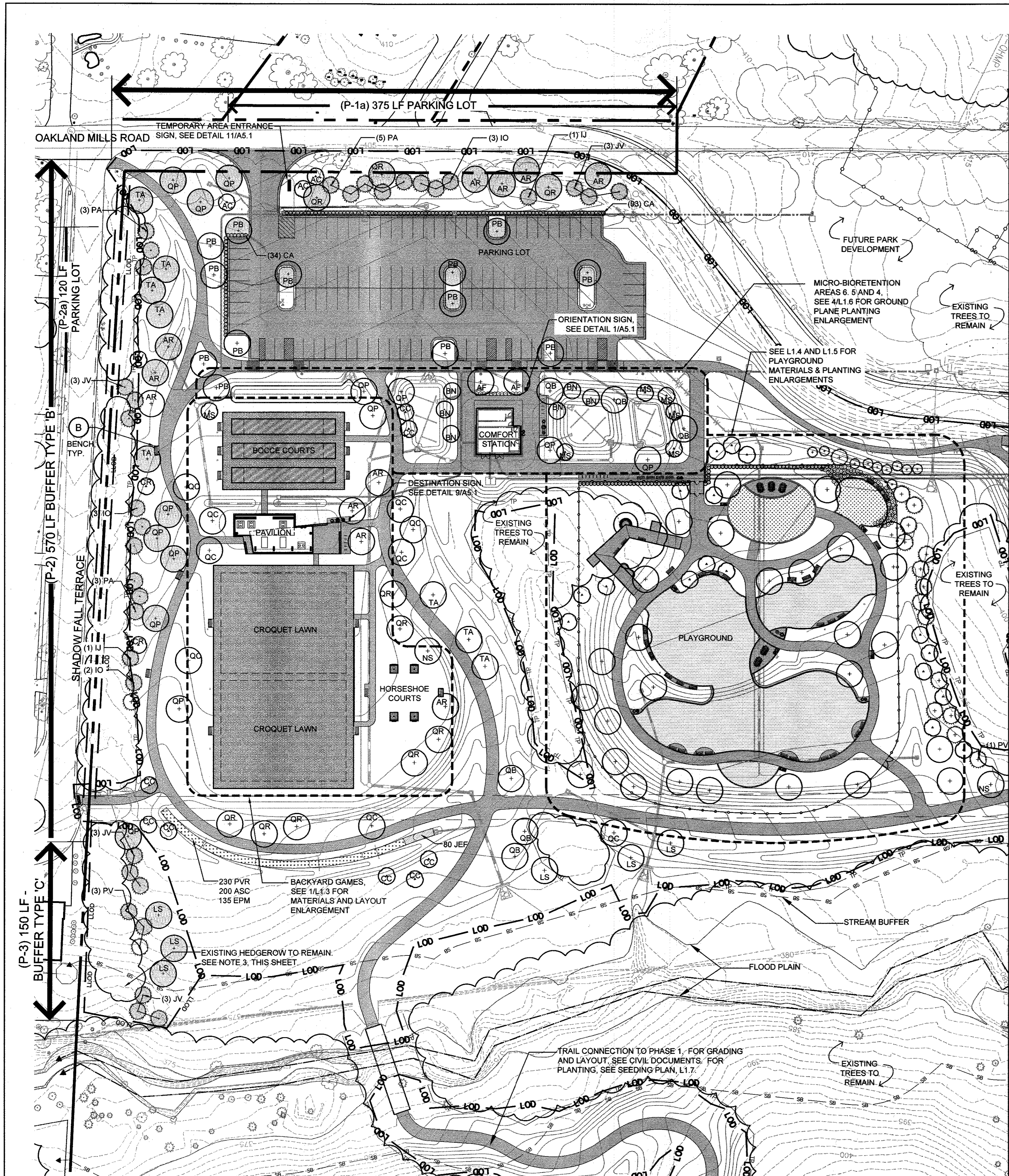
SOIL BORING LOGS

Drawing No. **C6.3**

Scale: N.T.S.

Date: 1/17/2017 Sheet 39 of 76

Des: RFJ Drawn: EG Check: AUO

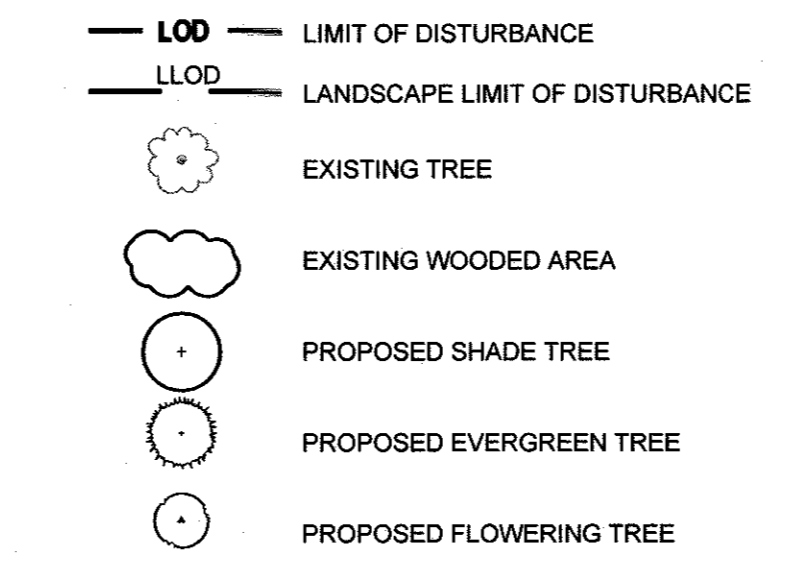


1 LANDSCAPE PLAN
1" = 50'

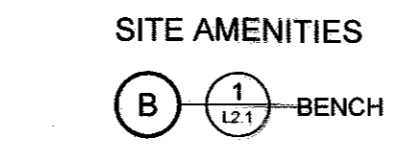
PLANT SCHEDULE: THIS SHEET ONLY

2	AF	Acer freemanii 'Jeffred' / Autumn Blaze Maple	2-1/2" Cal.	B&B	Full, Central leader
11	AR	Acer rubrum 'Franksred' / Red Sunset Maple	2-1/2" Cal.	B&B	Full, Central leader
6	BN	Betula nigra 'Dura Heat' / River Birch	8' Ht.	B&B	Multi-Stem
6	LS	Liquidambar styraciflua 'Ward' / Cherokee Sweetgum	2-1/2" Cal.	B&B	3-5 Canes, Matched
18	PB	Platanus x acerifolia 'Bloodgood' / Bloodgood London Plane Tree	2-1/2" Cal.	B&B	Full, Central leader
2	NS	Nyssa sylvatica / Black Tupelo	6' Ht.	Cont.	Full, Central Leader
6	QB	Quercus bicolor / Swamp White Oak	2-1/2" Cal.	B&B	Full, Central leader
8	QC	Quercus coccinea / Scarlet Oak	2-1/2" Cal.	B&B	Do Not Fall Dig
15	QP	Quercus phellos 'Hightower' / Hightower® Willow Oak	2-1/2" Cal.	B&B	Full, Central leader, Matched
10	QR	Quercus rubra / Red Oak	2-1/2" Cal.	B&B	Full, Central leader, Matched
8	TA	Tilia americana 'Redmond' / Redmond American Linden	2-1/2" Cal.	B&B	Do Not Fall Dig
3	AC	Amelanchier canadensis / Shadblow Serviceberry	8' Ht.	B&B	Multi-Stem
8	CC	Cercis canadensis 'Appalachian Red' / Appalachian Red Eastern Redbud	8' Ht.	B&B	3-5 Canes
2	CR	Cornus x 'Rutban' / Aurora® Dogwood	8' Ht.	B&B	Multi-Stem
1	HV	Hamamelis virginiana / Common Witchhazel	6' Ht.	B&B	Multi-Stem
6	MS	Magnolia x soulangiana / Saucer Magnolia	6' Ht.	B&B	3-5 Canes, Matched
8	IO	Ilex opaca 'Miss Helen' / Miss Helen American Holly	6' Ht.	B&B	Full to base, Single leader
2	U	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	6' Ht.	B&B	Full to base, Single leader
12	JV	Juniperus virginiana / Eastern Red Cedar	6' Ht.	B&B	Full to base, Single leader
6	PA	Picea abies / Norway Spruce	6' Ht.	B&B	Full to base, Single leader
4	PV	Pinus virginiana / Virginia Pine	6' Ht.	B&B	Full to base, Single leader
SHRUBS					
121	CA	Clethra alnifolia 'Hummingbird' / Hummingbird Summersweet Clethra	#3	Cont.	24" Spd.
GROUNDCOVERS/PERENNIALS/GRASSES					
200	ASC	Asclepias tuberosa / Butterfly Weed	SP#4	Cont.	15" O.C.
135	EPM	Echinacea purpurea 'Magnus' / Purple Coneflower	#1	Cont.	18" O.C.
80	JEF	Juncus effusus / Common Rush	#1	Cont.	18" O.C.
230	PVR	Panicum virgatum 'Rotstrahlbusch' / Rotstrahlbusch Switchgrass	#3	Cont.	24" O.C.

LANDSCAPE LEGEND



HARDSCAPE KEY



- NOTES:
- SEE L3.2 FOR HOWARD COUNTY MINIMUM LANDSCAPE REQUIREMENT CHART FOR PERIMETER AND PARKING LOT PLANTING.
 - ALL PLANT LOCATIONS TO BE MARKED IN THE FIELD AND APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS REPRESENTATIVE PRIOR TO PLANTING.
 - TREATMENT AT EXISTING HEDGEROWS ALONG OAKLAND MILLS ROAD AND SHADOWFALL TERRACE:
 - TREAT GROUND PLANE VEGETATION WITH GLYPHOSATE. ALLOW A MINIMUM OF TWO WEEKS FOR HERBICIDE TO WORK. REPEAT AS NECESSARY UNTIL VEGETATION IS DORMANT.
 - REMOVE GROUND PLANE VEGETATION, PLANTS, AND ROOTS, ENSURING NO DAMAGE TO TRUNKS OF EXISTING TREES.
 - REMOVE DEBRIS LARGER THAN 2" IN DIAMETER FROM SOIL AND LEGALLY DISPOSE OF MATERIAL OFF SITE.
 - INSPECT EXISTING TREES WITH COUNTY ARBORIST TO DETERMINE TREES TO REMAIN AND TREES TO BE REMOVED. IDENTIFY AND MARK THESE TREES ACCORDINGLY.
 - REMOVE TREES IDENTIFIED FOR REMOVAL. GRIND STUMPS BELOW GRADE SUCH THAT SEED CAN BE INSTALLED ABOVE.
 - ENSURE THAT VINES ARE REMOVED FROM THE BASE OF ALL TREES TO REMAIN.
 - INSTALL MEADOW SEED MIX AND TACK AS OUTLINED IN SPECIFICATIONS.
 - MONITOR GROWTH EVERY TWO WEEKS FOR SIX WEEKS AND REAPPLY HERBICIDE TO ANY OF THE ORIGINAL PLANT SPECIES THAT REGENERATE.
 - PLANT TREES SHOWN ON PLAN AROUND AND BETWEEN EXISTING TREES TO REMAIN. PLANT MATERIAL ALONG OAKLAND MILLS ROAD AND SHADOWFALL TERRACE TO BE STAKED IN THE FIELD AND APPROVED PRIOR TO INSTALLATION.
 - AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.
 - INSTALL PLANT MASSES IN STAGGERED ROWS UNLESS OTHERWISE INDICATED.
 - SHADED TREES ALONG PROPERTY LINES AND IN PARKING LOT REPRESENT PLANTS REQUIRED BY HOWARD COUNTY LANDSCAPE MANUAL.

REVISIONS

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 831
EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL PARK - PHASE 3

Landscape Plan

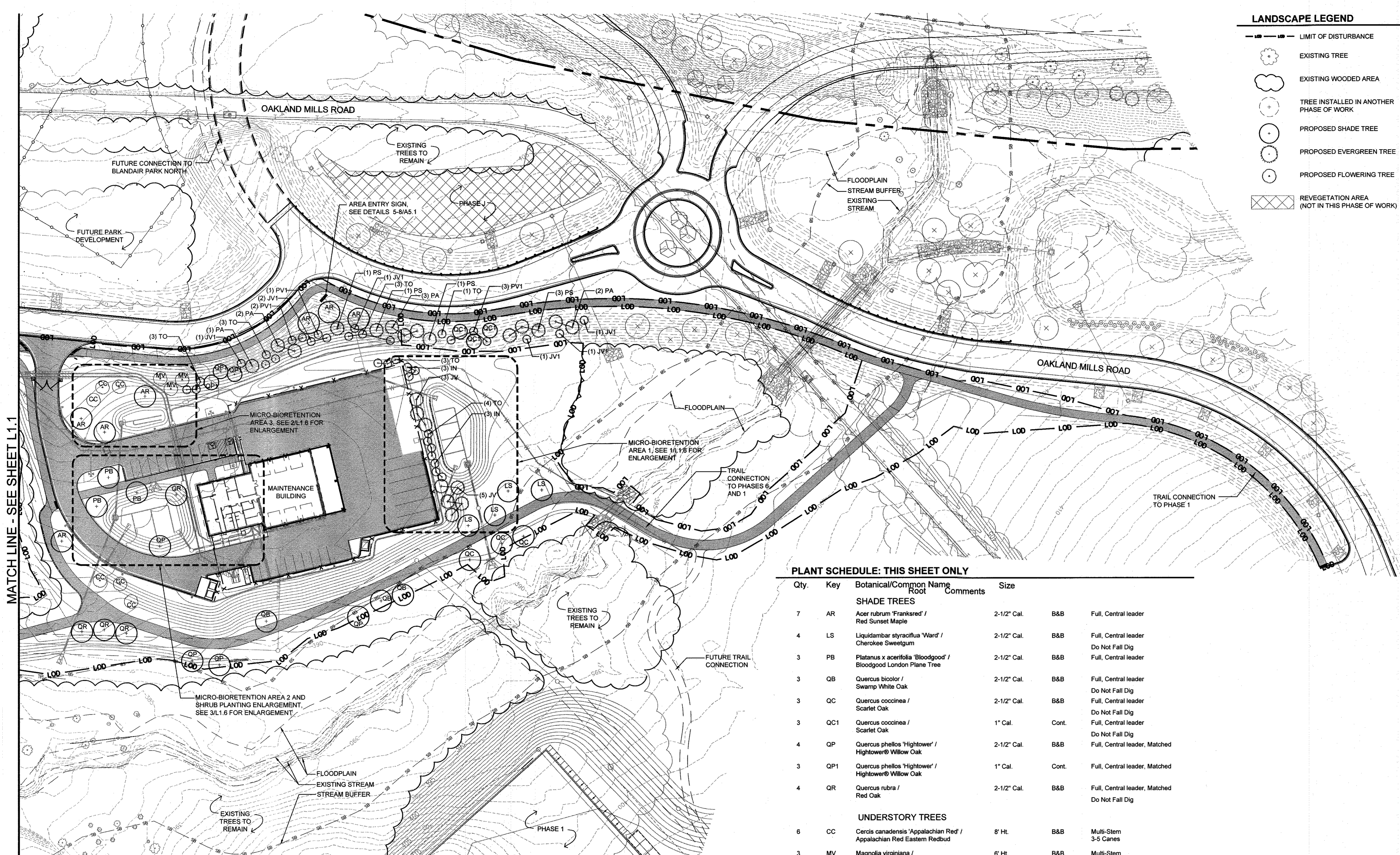
Drawing No. L1.1

APPROVED: DEPARTMENT OF PLANNING AND ZONING

John... 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION
Kent... 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT
Val... 3-19-17
DIRECTOR

MAHAN RYKIEL ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001

Scale: 1"=50'
Date: 1/17/2017 Sheet 40 of 76
Des: CB/CO Drawn: CO Check: CB/SK



LANDSCAPE LEGEND

- LIMIT OF DISTURBANCE
- EXISTING TREE
- EXISTING WOODED AREA
- TREE INSTALLED IN ANOTHER PHASE OF WORK
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE
- REVEGETATION AREA (NOT IN THIS PHASE OF WORK)

REVISIONS

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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 EXPIRATION DATE: 09/30/2017

BLANDAIR REGIONAL PARK - PHASE 3

Landscape Plan

Drawing No.
L1.2

Scale: 1"=50'
 Date: 1/17/2017 Sheet 41 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

PLANT SCHEDULE: THIS SHEET ONLY

Qty.	Key	Botanical/Common Name	Root	Comments	Size
SHADE TREES					
7	AR	Acer rubrum 'Franksred' / Red Sunset Maple			2-1/2" Cal. B&B Full, Central leader
4	LS	Liquidambar styraciflua 'Ward' / Cherokee Sweetgum			2-1/2" Cal. B&B Full, Central leader Do Not Fall Dig
3	PB	Platanus x acerifolia 'Bloodgood' / Bloodgood London Plane Tree			2-1/2" Cal. B&B Full, Central leader
3	QB	Quercus bicolor / Swamp White Oak			2-1/2" Cal. B&B Full, Central leader Do Not Fall Dig
3	QC	Quercus coccinea / Scarlet Oak			2-1/2" Cal. B&B Full, Central leader Do Not Fall Dig
3	QC1	Quercus coccinea / Scarlet Oak			1" Cal. Cont. Full, Central leader Do Not Fall Dig
4	QP	Quercus phellos 'Hightower' / Hightower® Willow Oak			2-1/2" Cal. B&B Full, Central leader, Matched Do Not Fall Dig
3	QP1	Quercus phellos 'Hightower' / Hightower® Willow Oak			1" Cal. Cont. Full, Central leader, Matched
4	QR	Quercus rubra / Red Oak			2-1/2" Cal. B&B Full, Central leader, Matched Do Not Fall Dig
UNDERSTORY TREES					
6	CC	Cercis canadensis 'Appalachian Red' / Appalachian Red Eastern Redbud			8' Ht. B&B Multi-Stem 3-5 Canes
3	MV	Magnolia virginiana / Sweetbay Magnolia			6' Ht. B&B Multi-Stem 3-5 Canes
EVERGREEN TREES					
6	IN	Ilex 'Nellie R. Stevens' / Nellie R. Stevens Holly			6' Ht. B&B Full to base, Single leader
8	JV	Juniperus virginiana / Eastern Red Cedar			6' Ht. B&B Full to base, Single leader
7	JV1	Juniperus virginiana / Eastern Red Cedar			1" Cal. Cont. Full to base, Single leader
8	PA	Picea abies / Norway Spruce			6' Ht. B&B Full to base, Single leader
6	PS	Pinus strobus / Eastern White Pine			6' Ht. B&B Full to base, Single leader
6	PV1	Pinus virginiana / Virginia Pine			1" Cal. Cont. Full to base, Single leader
17	TO	Thuja occidentalis 'Nigra' / Dark American Arborvitae			6' Ht. B&B Full to base, Central leader

1 LANDSCAPE PLAN
 1" = 50' - 0"

- NOTES:
- SEE L3.2 FOR HOWARD COUNTY MINIMUM LANDSCAPE REQUIREMENT CHART FOR PERIMETER AND PARKING LOT PLANTING.
 - ALL PLANT LOCATIONS TO BE MARKED IN THE FIELD AND APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS REPRESENTATIVE PRIOR TO PLANTING.
 - AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.

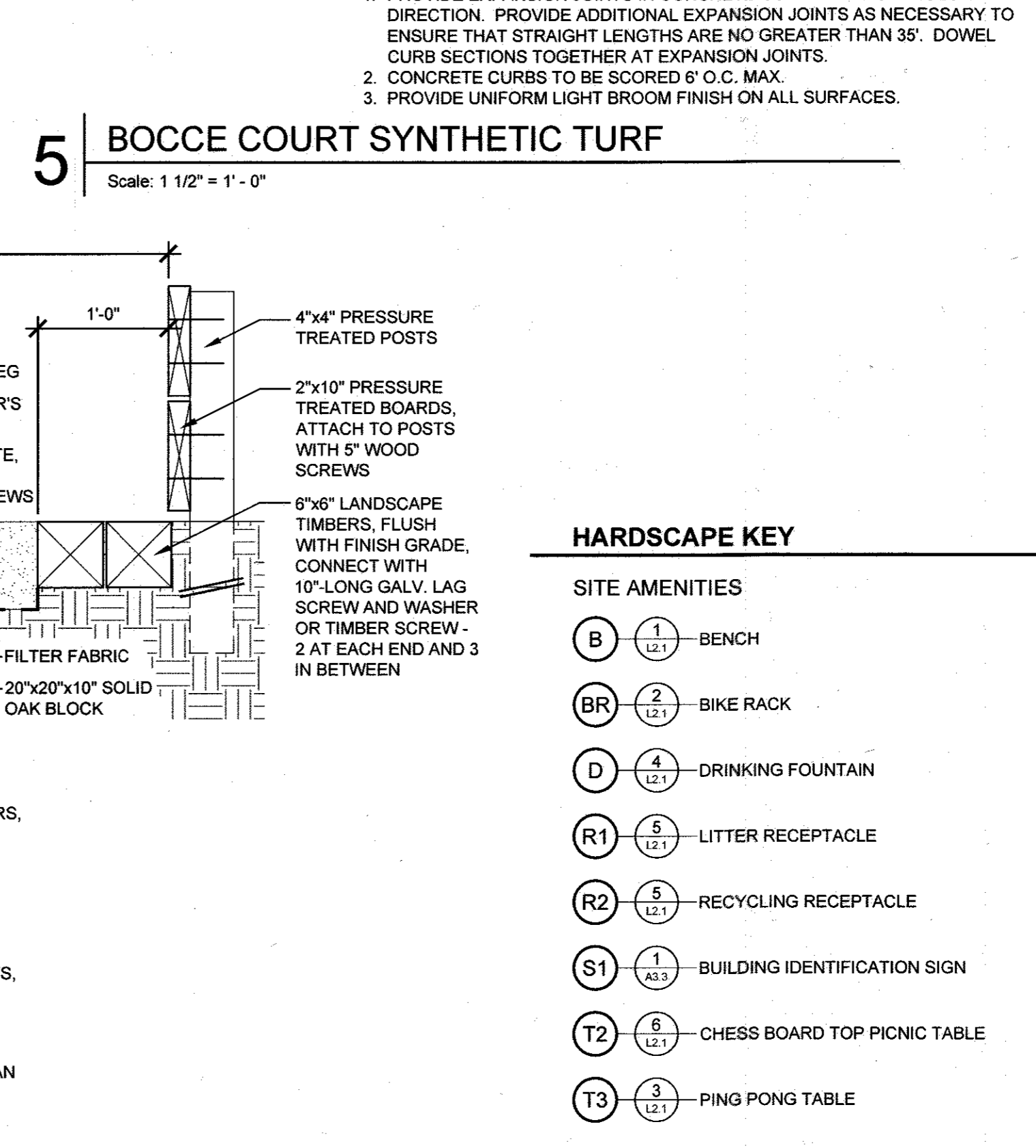
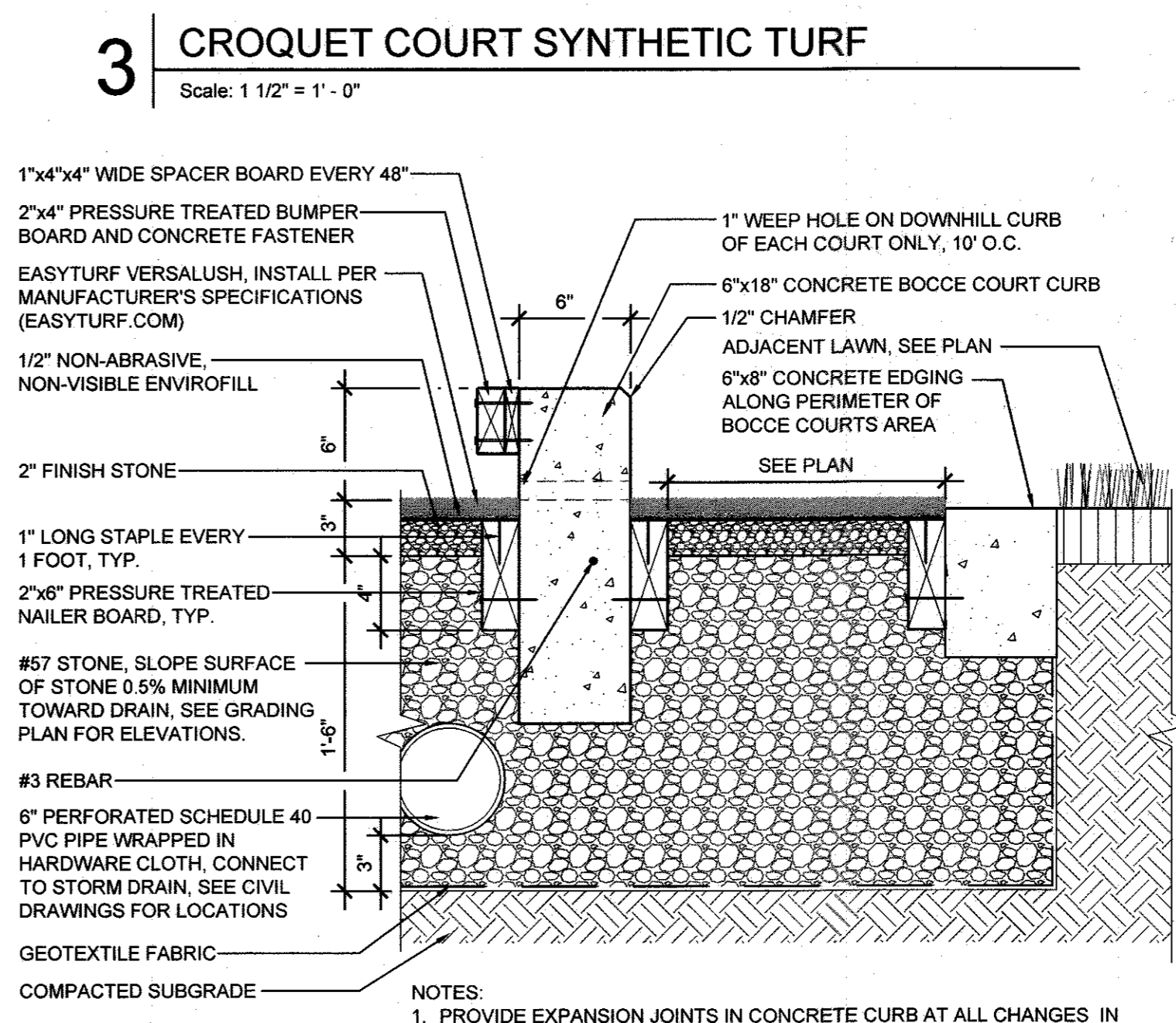
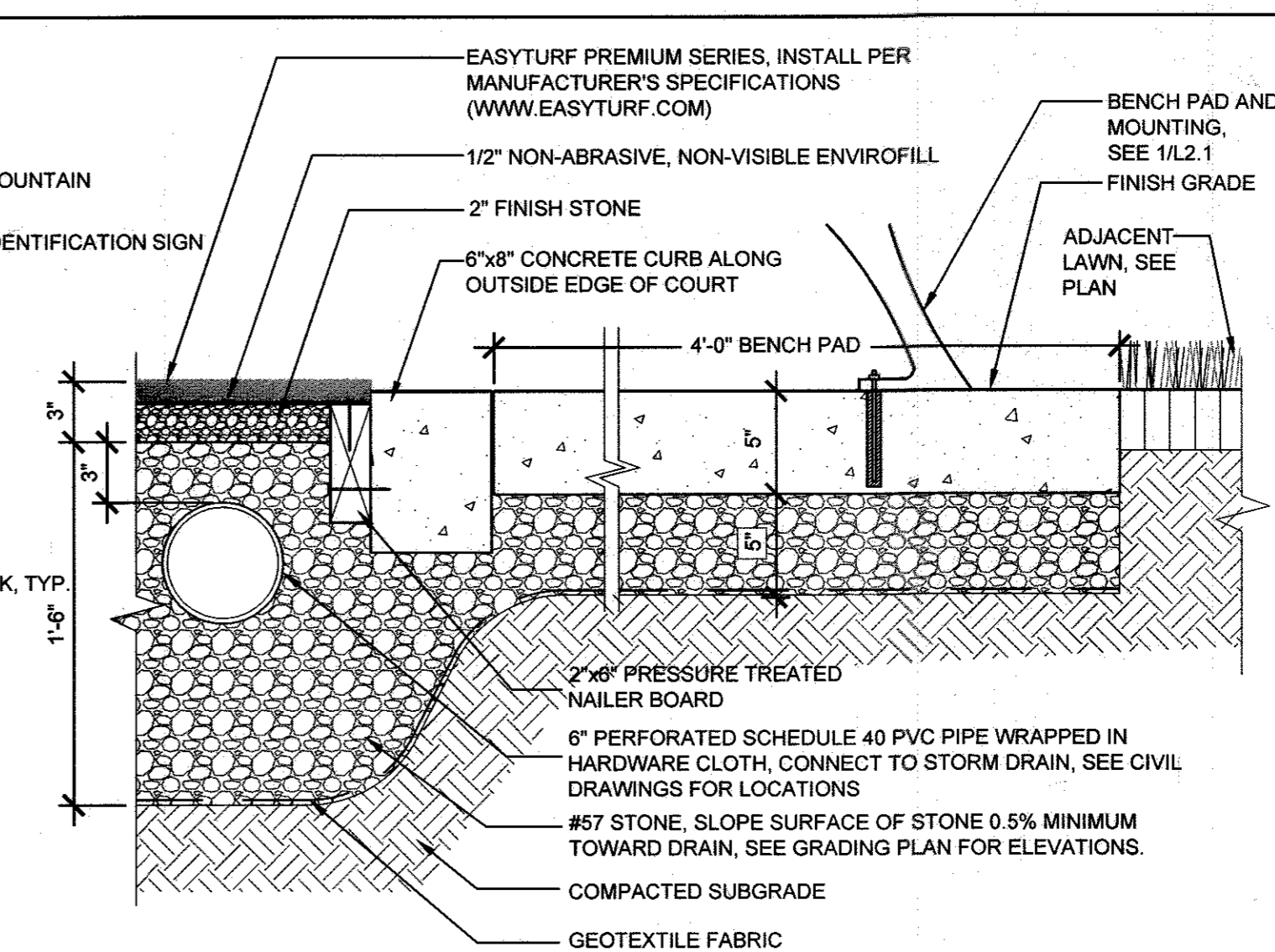
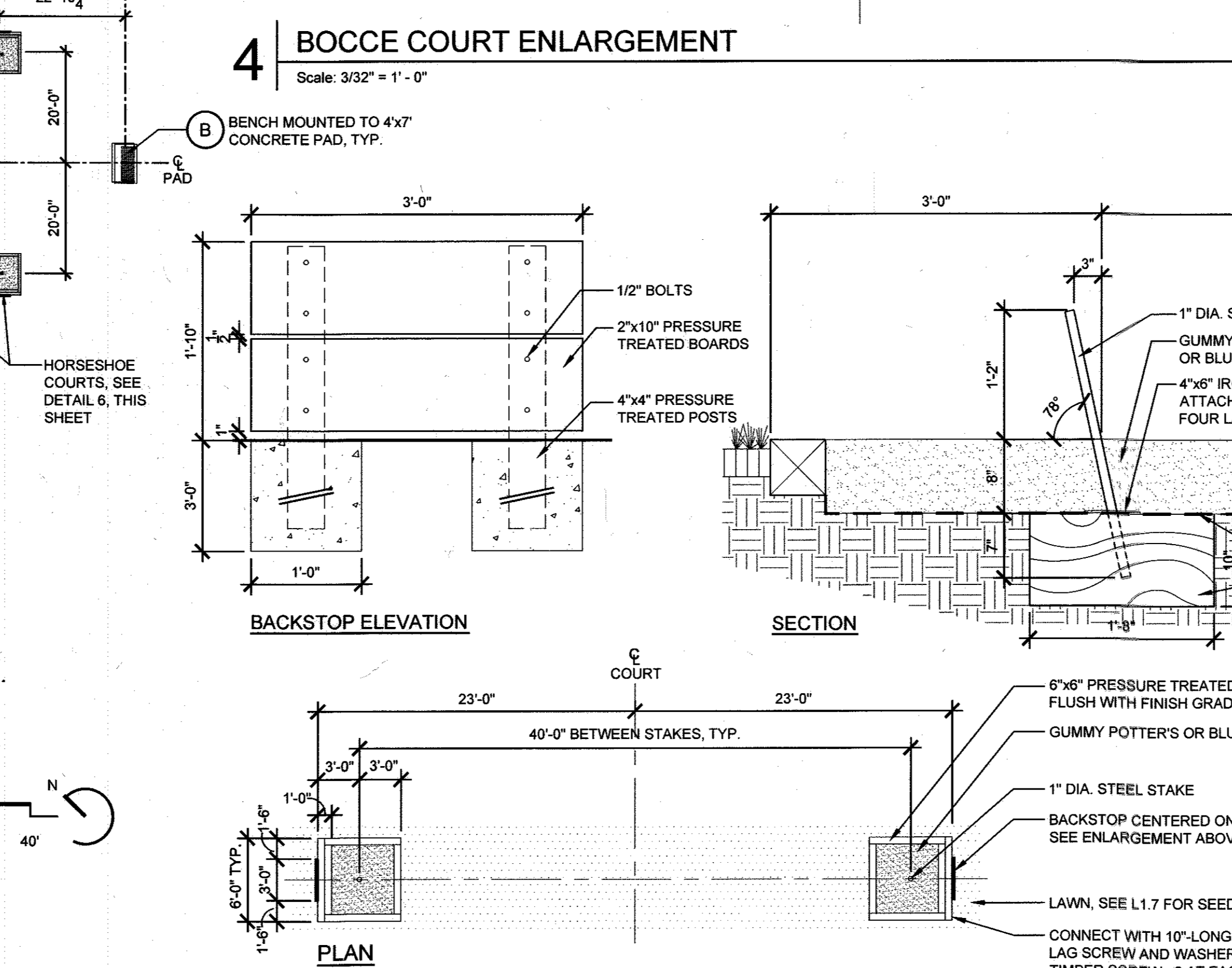
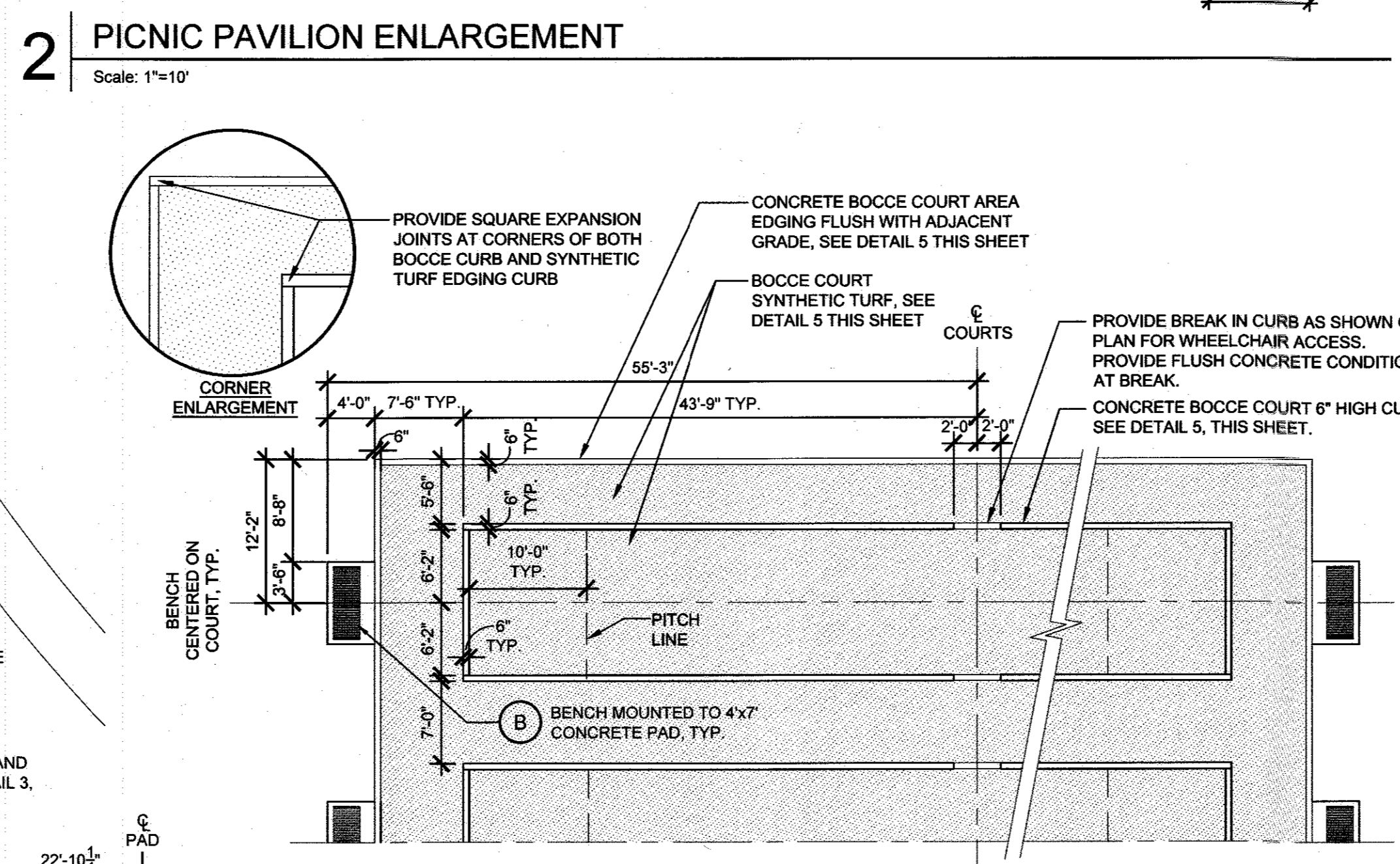
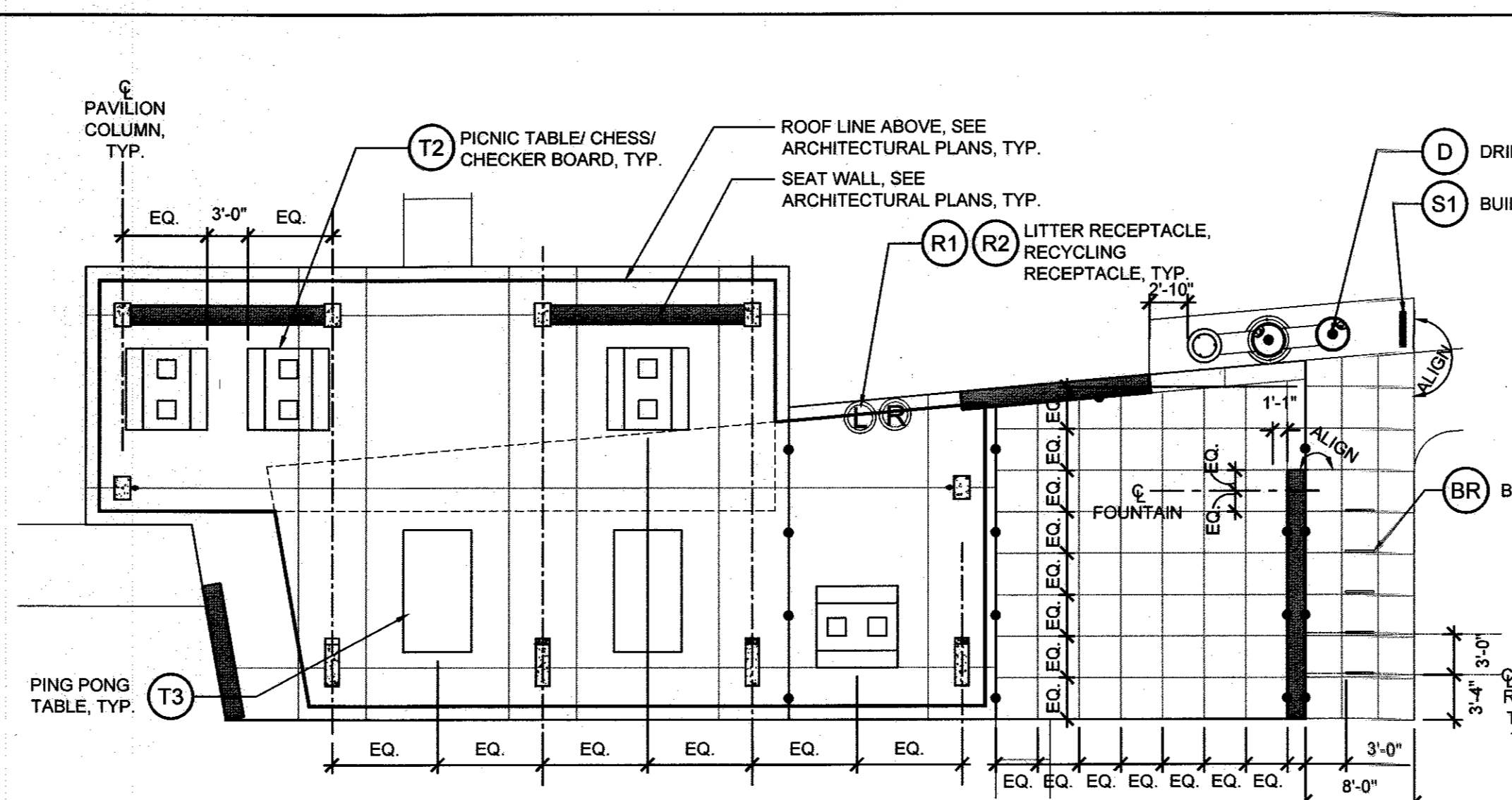
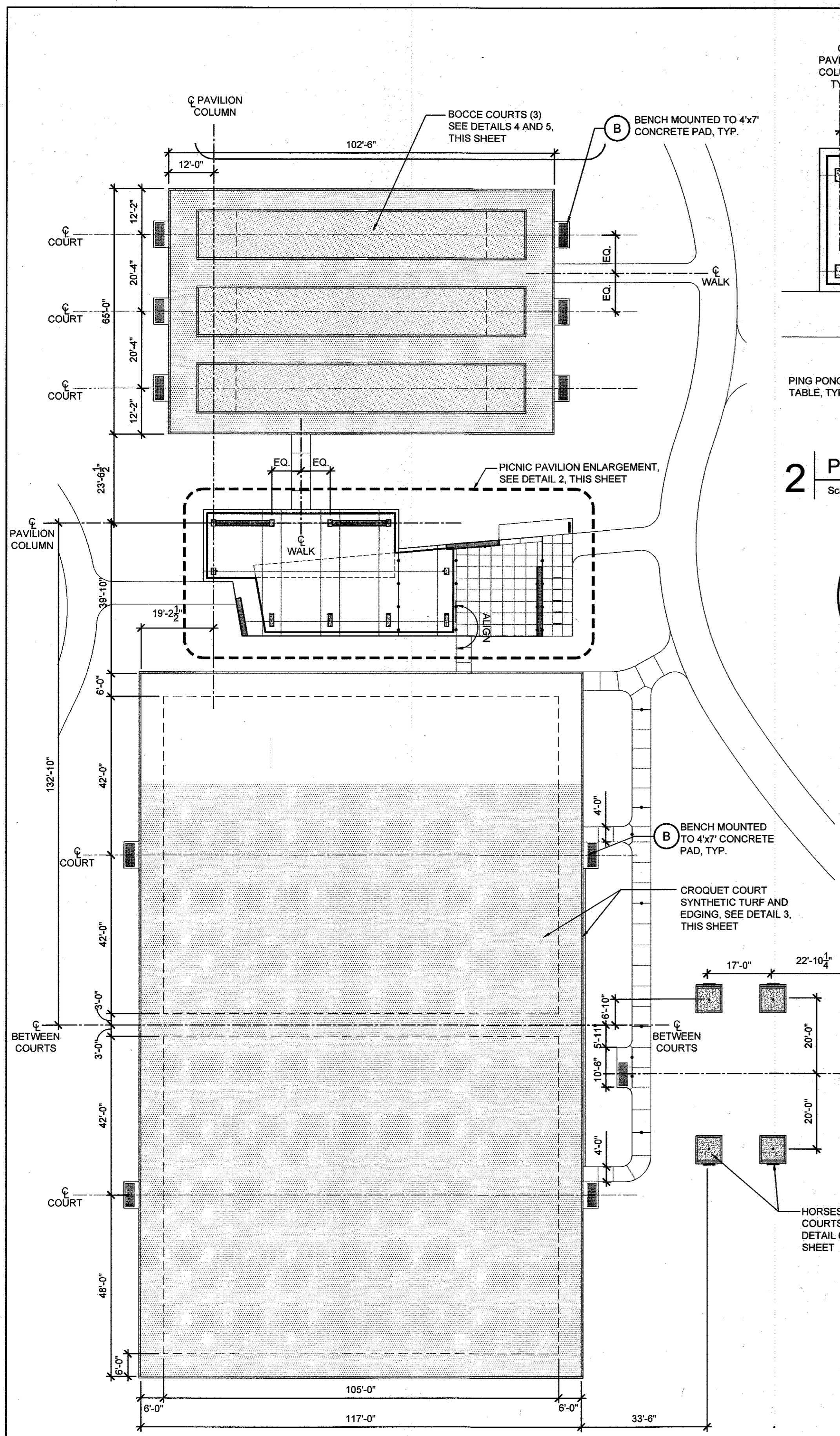
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE

MAHAN RYKIEL ASSOCIATES INC
 The Steiff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *Chad Clark* DATE: 2-6-17

Chief, Division of Land Development: *Kurt Johnson* DATE: 3-01-17

Director: *Val McQueen* DATE: 3-19-17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 881
EXPIRATION DATE: 09/21/2017

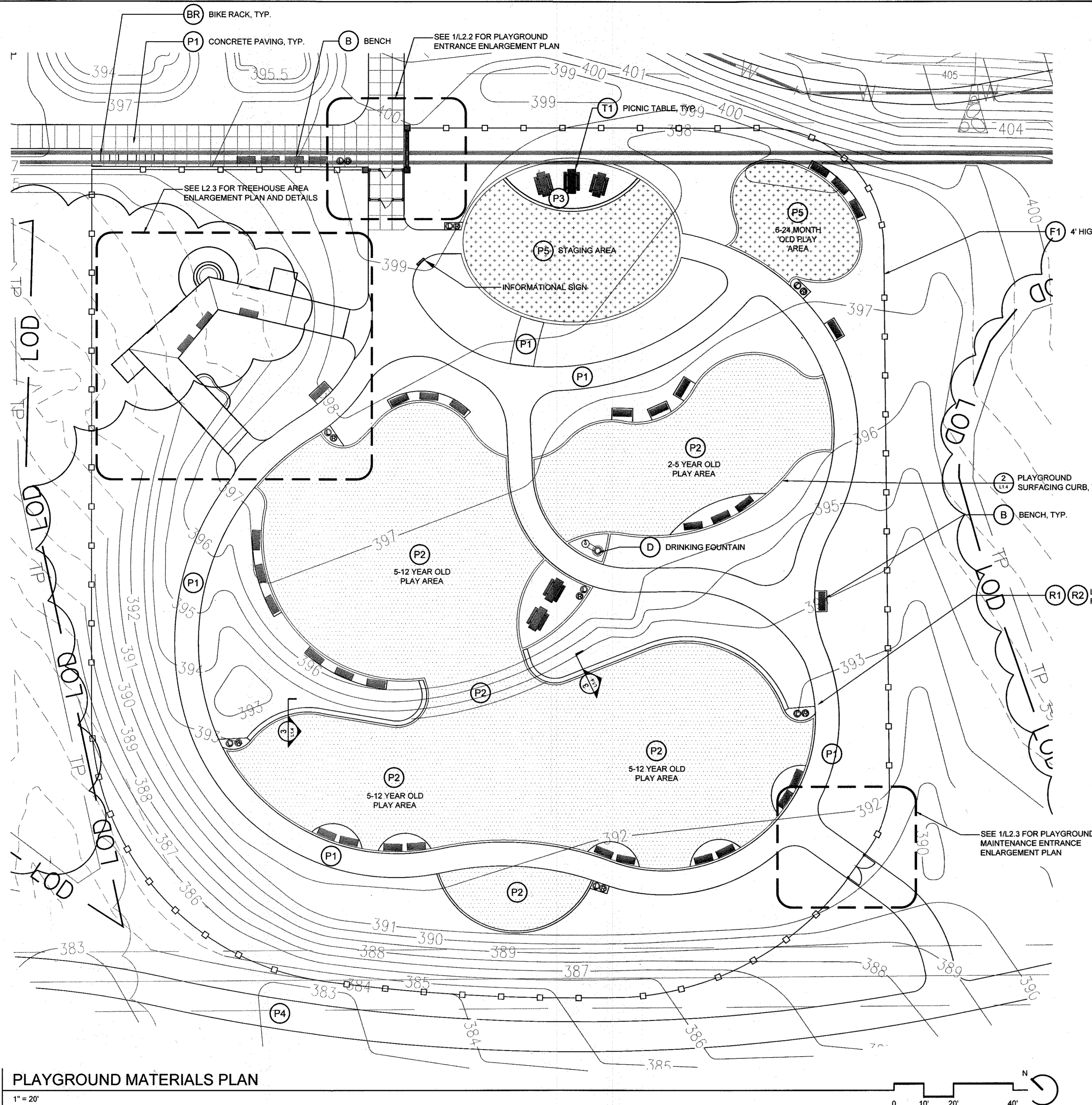
BLANDAIR REGIONAL PARK - PHASE 3

Backyard Games Enlargements & Details

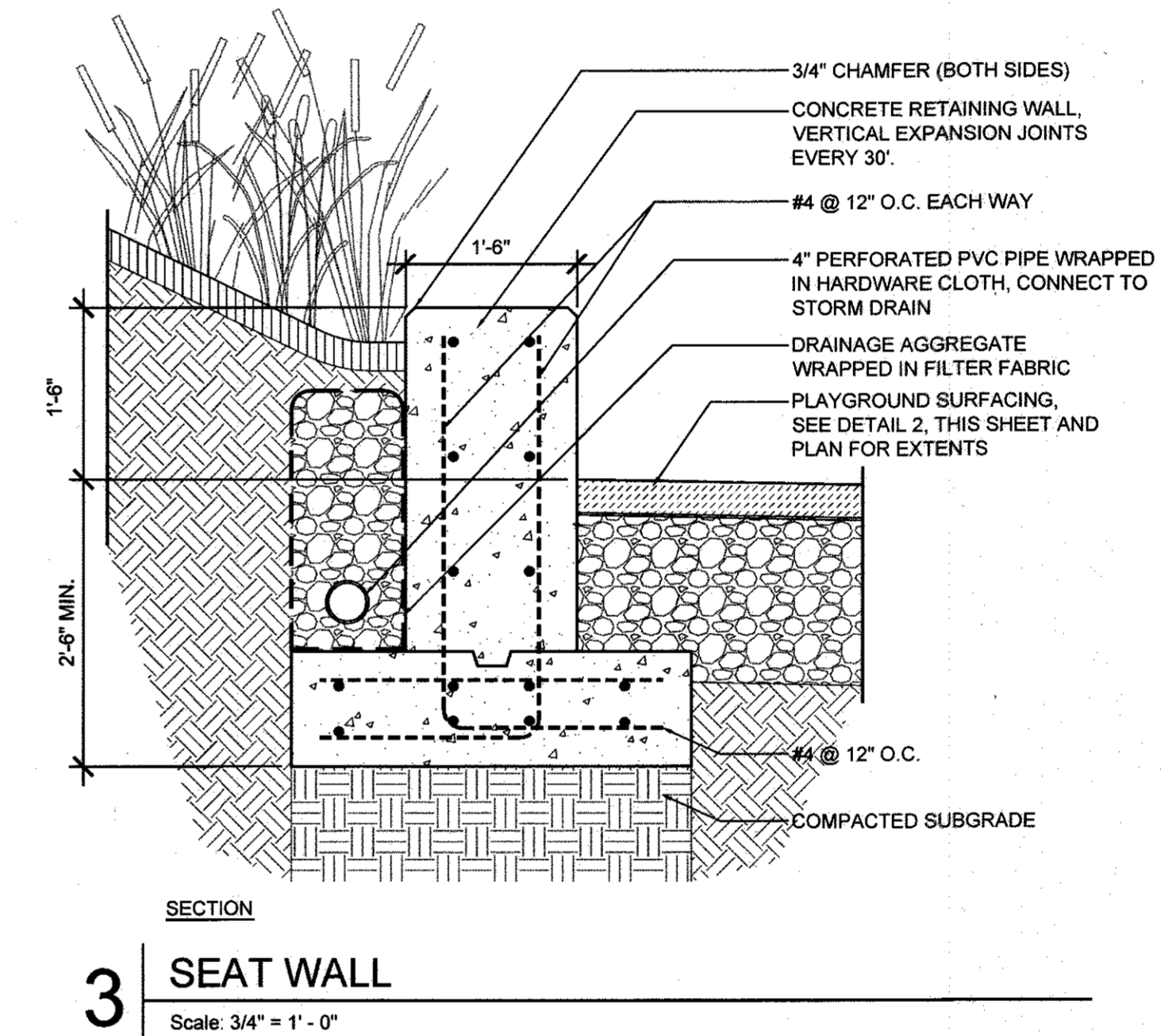
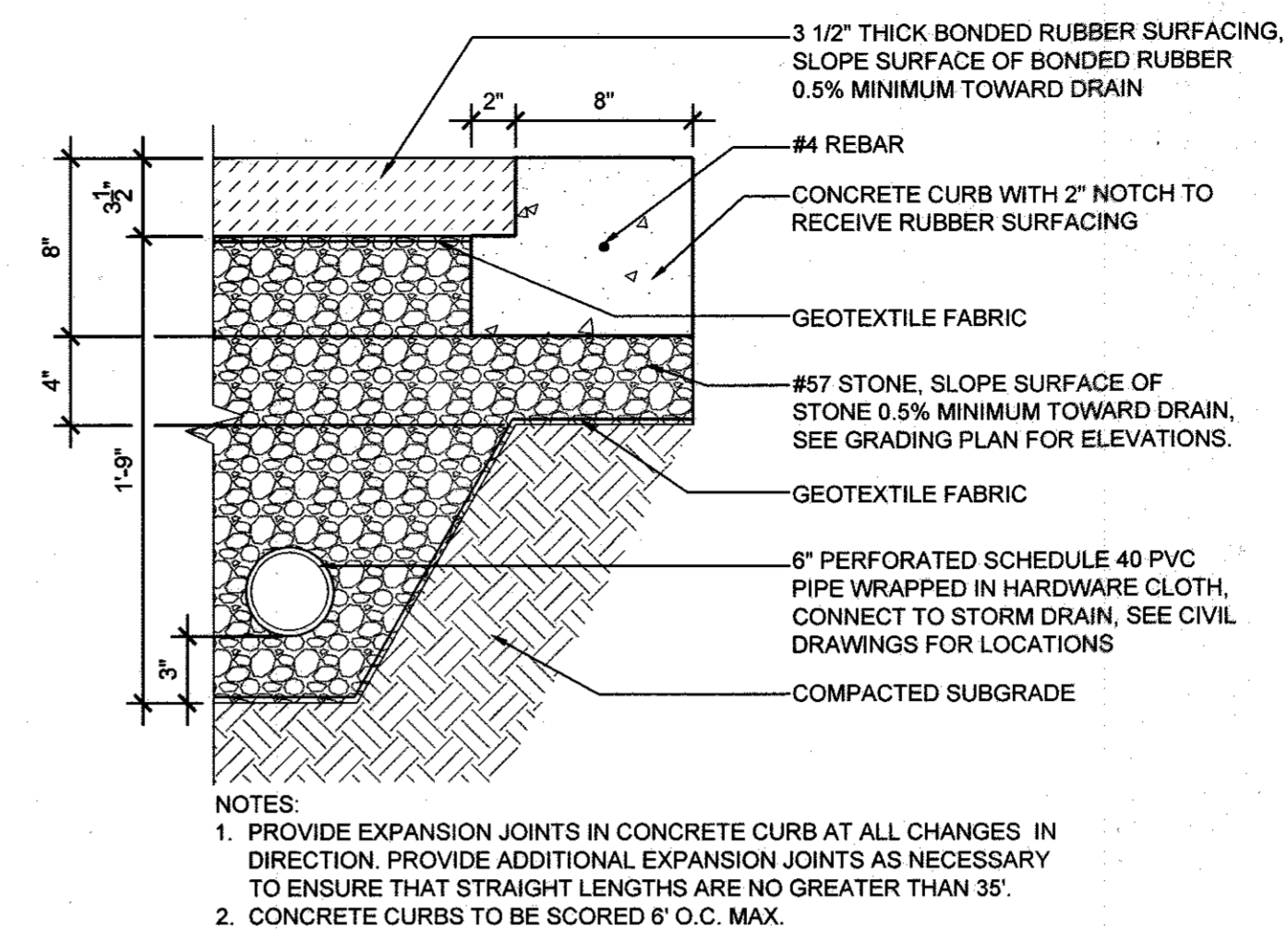
Drawing No. L1.3

Scale: As Shown
Date: 1/17/2017 Sheet 42 of 76
Des: CB/CO Drawn: CO Check: CB/SK

MAHAN RYKIEL ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001



1 PLAYGROUND MATERIALS PLAN
Scale: 1" = 20'



NOTE:
1. FINAL PLAY EQUIPMENT, LAYOUT, AND SHADE STRUCTURES TO BE PROVIDED BY PLAYGROUND VENDOR.

HARDSCAPE KEY

- | | |
|---|---|
| SURFACING | SITE AMENITIES |
| (P1) $\frac{E}{2.1.4}$ HEAVY DUTY CONCRETE PAVEMENT | (B) $\frac{1}{1.2.1}$ BENCH |
| (P2) $\frac{2}{1.1.4}$ PLAYGROUND SURFACING | (BR) $\frac{2}{1.2.1}$ BIKE RACK |
| (P3) $\frac{D}{1.1.4}$ CONCRETE SIDEWALK | (D) $\frac{4}{1.1.4}$ DRINKING FOUNTAIN |
| (P4) $\frac{A}{1.1.4}$ ASPHALT TRAIL | (R1) $\frac{5}{1.2.1}$ LITTER RECEPTACLE |
| (P5) $\frac{X}{1.1.4}$ ARTIFICIAL TURF | (R2) $\frac{5}{1.2.1}$ RECYCLING RECEPTACLE |
| FENCING AND WALLS | (T1) $\frac{6}{1.2.1}$ PICNIC TABLE |
| (F1) $\frac{2}{1.2.1}$ 4' HIGH WOODEN FENCE | (T2) $\frac{6}{1.2.1}$ CHESS BOARD TOP PICNIC TABLE |
| | (W1) $\frac{3}{1.1.4}$ SEAT WALL |

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	3-19-17
DIRECTOR	DATE

MAHAN RYKIEL
ASSOCIATES INC
The Steiff Silver Building, 800 Wyman Park Drive,
Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

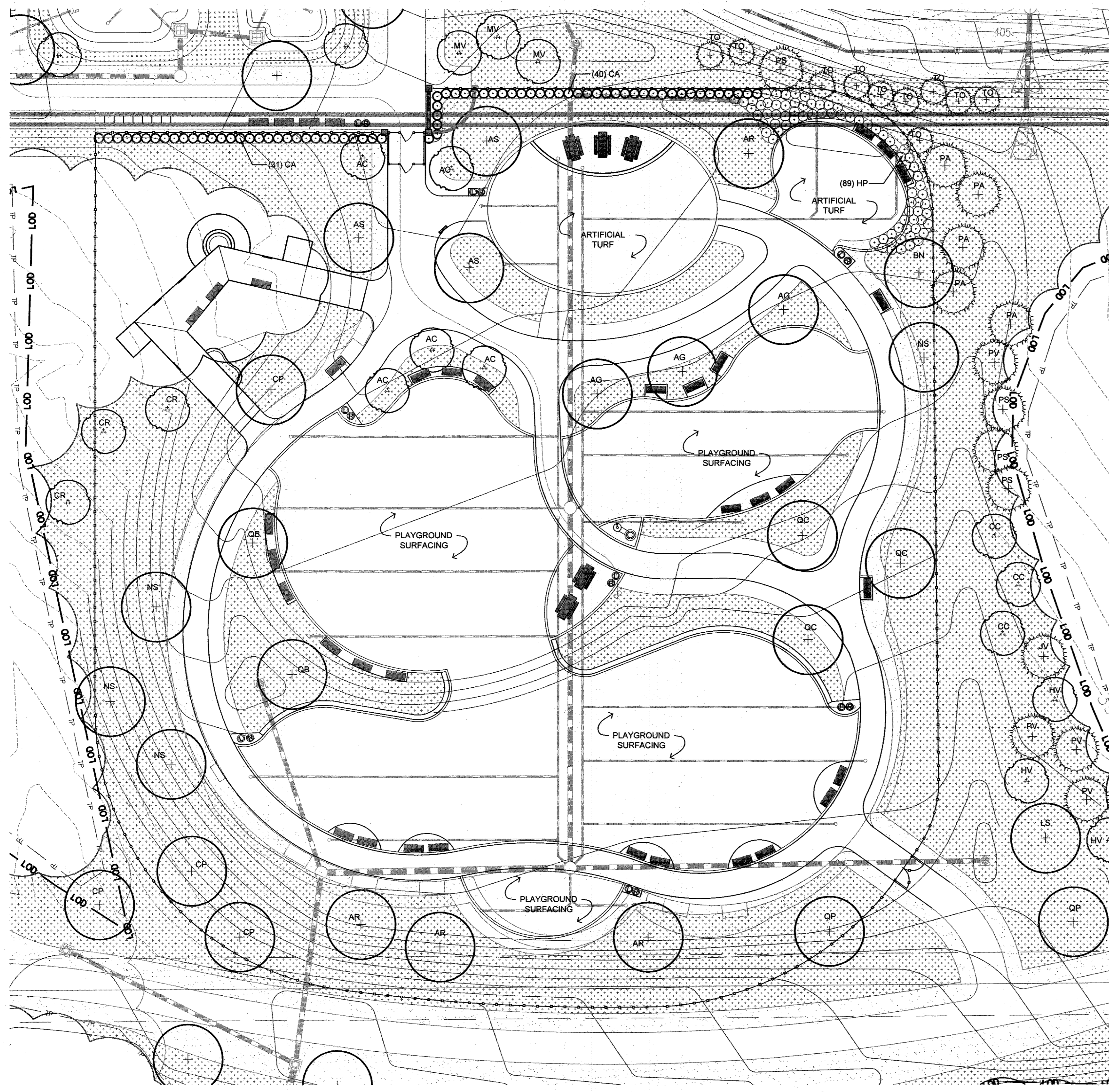
SIGNATURE



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL PARK - PHASE 3

Playground Materials Plan
Drawing No. **L1.4**
Scale: 1"=20'
Date: 1/17/2017 Sheet 43 of 76
Des: CB/CO Drawn: CO Check: CB/SK



1 PLAYGROUND PLANTING PLAN
1" = 20'

PLANT SCHEDULE: THIS SHEET ONLY

Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHADE TREES					
3	AG	Acer griseum / Paperbark Maple	10' Ht.	B&B	Multi-Stem 3-5 Canes, Matched
4	AR	Acer rubrum 'Franksred' / Red Sunset Maple	2-1/2" Cal.	B&B	Full, Central leader
3	AS	Acer saccharum 'Commemoration' / Sugar Maple	2-1/2" Cal.	B&B	Full, Central leader
1	BN	Betula nigra 'Dura Heat' / River Birch	8' Ht.	B&B	Multi-Stem 3-5 Canes, Matched
4	CP	Carpinus caroliniana / American Hornbeam	2-1/2" Cal.	B&B	Full, Central leader
1	LS	Liquidambar styraciflua 'Ward' / Cherokee Sweetgum	2-1/2" Cal.	B&B	Full, Central leader
4	NS	Nyssa sylvatica / Black Tupelo	6' Ht.	Cont.	Full, Central Leader
3	QB	Quercus bicolor / Swamp White Oak	2-1/2" Cal.	B&B	Full, Central leader Do Not Fall Dig
3	QC	Quercus coccinea / Scarlet Oak	2-1/2" Cal.	B&B	Full, Central leader Do Not Fall Dig
2	QP	Quercus phellos 'Hightower' / Hightower® Willow Oak	2-1/2" Cal.	B&B	Full, Central leader, Matched
UNDERSTORY TREES					
5	AC	Amelanchier canadensis / Shadblow Serviceberry	8' Ht.	B&B	Multi-Stem 3-5 Canes
3	CC	Cercis canadensis 'Appalachian Red' / Appalachian Red Eastern Redbud	8' Ht.	B&B	Multi-Stem 3-5 Canes
3	CR	Cornus x 'Rutban' / Aurora® Dogwood	8' Ht.	B&B	Multi-Stem 3-5 Canes
3	HV	Hamamelis virginiana / Common Witchhazel	6' Ht.	B&B	Multi-Stem 3-5 Canes
3	MV	Magnolia virginiana / Sweetbay Magnolia	6' Ht.	B&B	Multi-Stem 3-5 Canes
EVERGREEN TREES					
1	JV	Juniperus virginiana / Eastern Red Cedar	6' Ht.	B&B	Full to base, Central leader
5	PA	Picea abies / Norway Spruce	6' Ht.	B&B	Full to base, Central leader
3	PS	Pinus strobus / Eastern White Pine	6' Ht.	B&B	Full to base, Central leader
4	PV	Pinus virginiana / Virginia Pine	6' Ht.	B&B	Full to base, Central leader
10	TO	Thuja occidentalis 'Nigra' / Dark American Arborvitae	6' Ht.	B&B	Full to base, Central leader
SHRUBS					
71	CA	Clethra alnifolia 'Hummingbird' / Hummingbird Summersweet	#3	Cont.	24" Spd.
89	HP	Hydrangea paniculata / Oakleaf Hydrangea	#3	Cont.	24" Spd.

LANDSCAPE LEGEND

- LOD - LIMIT OF DISTURBANCE
- EXISTING TREE
- EXISTING WOODED AREA
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE
- PROPOSED SHRUBS
- PROPOSED GROUNDCOVER / PERENNIALS / GRASSES
- PROPOSED UPLAND MEADOW MIX, SEE L1.7 FOR MIX

- NOTES:**
- ALL DISTURBED AREAS NOT RECEIVING PLANTINGS, MEADOW SEED MIX, OR HARDSCAPE TO BE SEEDING WITH PERMANENT TURF SEED MIX UNLESS OTHERWISE NOTED.
 - ALL PLANT LOCATIONS TO BE MARKED IN THE FIELD AND APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS REPRESENTATIVE PRIOR TO PLANTING.
 - ALL DECIDUOUS TREES TO RECEIVE TREE SHELTERS, SEE SPEC.
 - AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.
 - INSTALL PLANT MASSES IN STAGGERED ROWS UNLESS OTHERWISE INDICATED.
 - FINAL PLANTING IN PLAYGROUND AREA TO BE DETERMINED BASED ON FINAL PLAYGROUND LAYOUT.

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



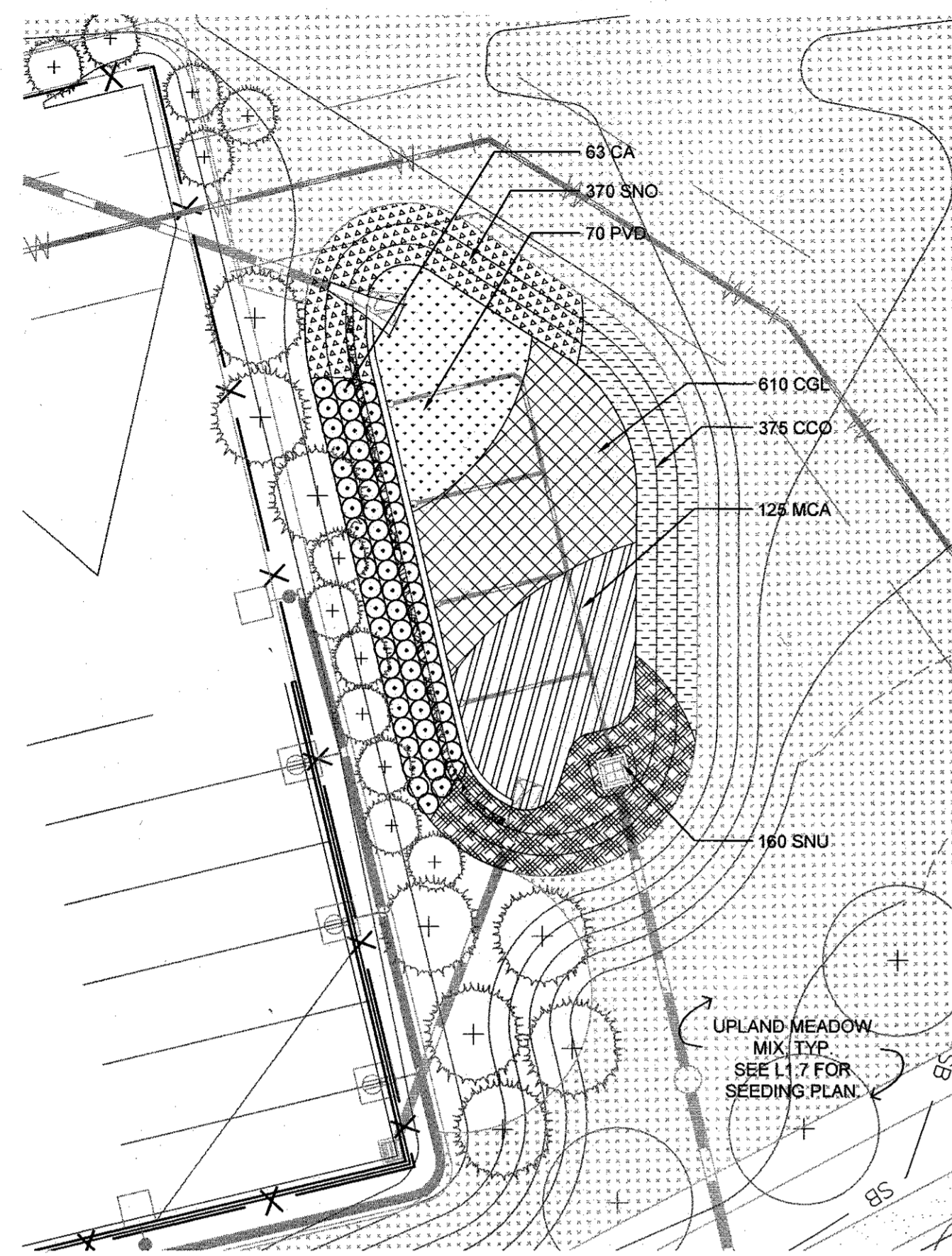
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 651
EXPIRATION DATE: 09/2/2017

BLANDAIR REGIONAL PARK - PHASE 3

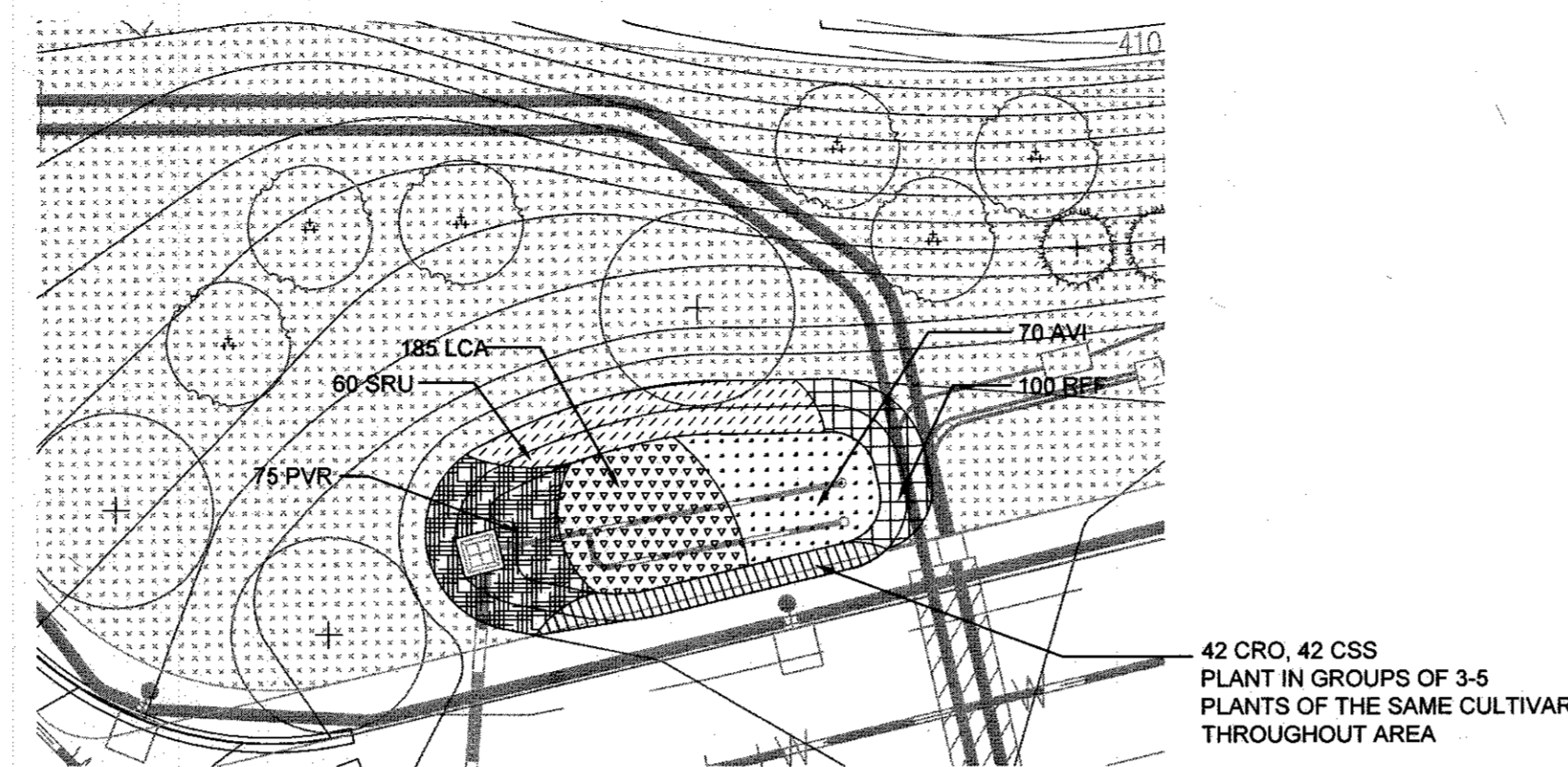
Playground Planting Plan
Drawing No. **L1.5**
Scale: 1"=20'
Date: 1/17/2017 Sheet 44 of 76
Des: CB/CO Drawn: CO Check: CB/SK

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 2-6-17
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 3-01-17
DIRECTOR: *[Signature]* DATE: 3-19-17

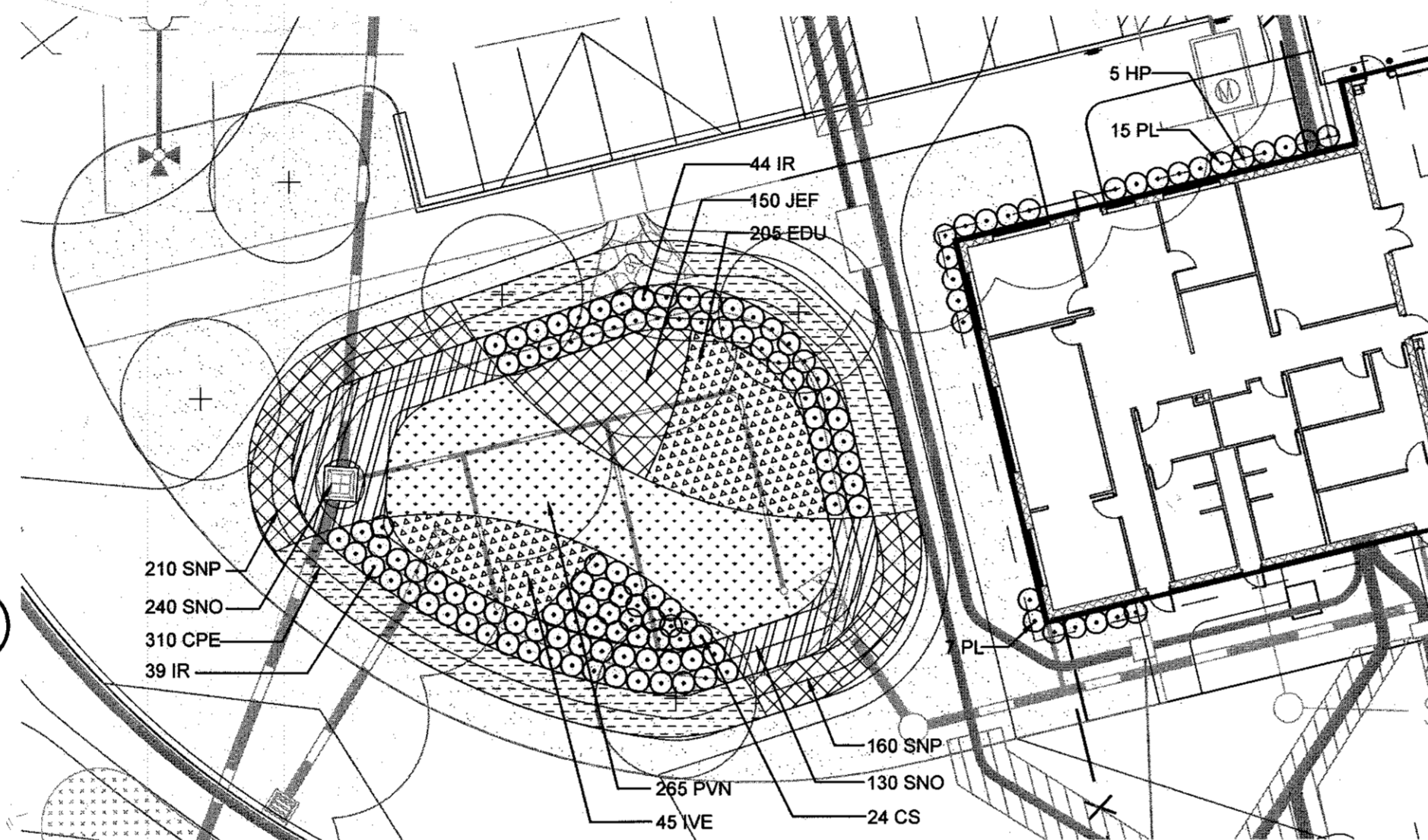
MAHAN RYKIEL ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001



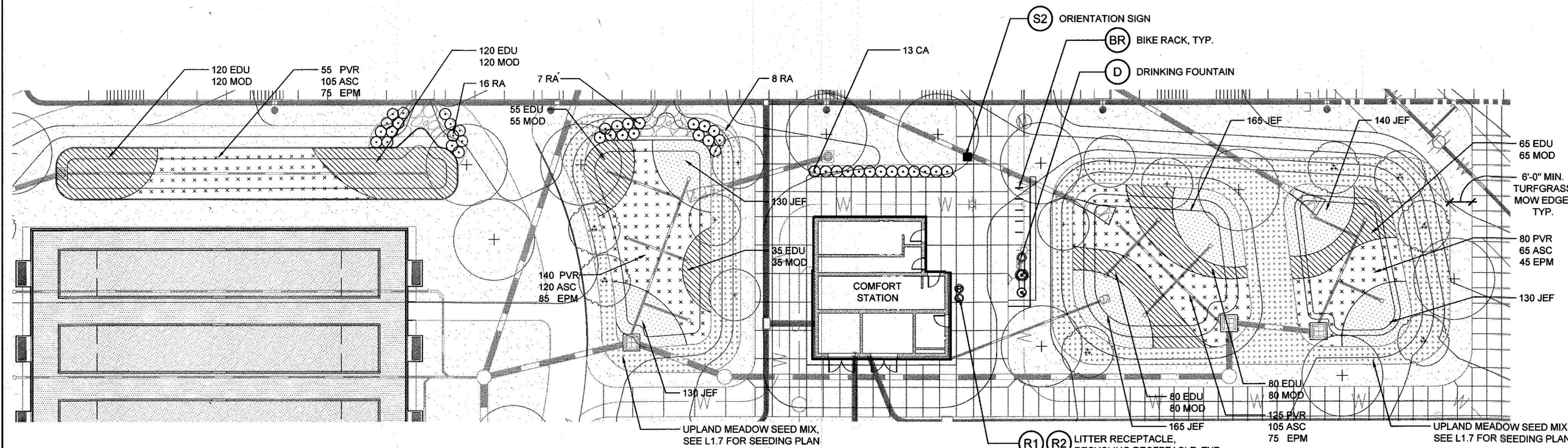
1 BIORETENTION AREA 1 ENLARGEMENT
1" = 20' - 0"



2 BIORETENTION AREA 3 ENLARGEMENT
1" = 20' - 0"



3 BIORETENTION AREA 2 ENLARGEMENT
1" = 20' - 0"



4 BIORETENTION AREA 5 & 4 ENLARGEMENT
1" = 20' - 0"

PLANT SCHEDULE - THIS SHEET ONLY

Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHRUBS					
76	CA	Clethra alnifolia 'Hummingbird'/ Hummingbird Summersweet	#3	Cont.	24" Ht.
24	CS	Cornus sericea 'Farrow' Artic Fire / Red Twig Dogwood	#3	Cont.	24" Ht.
5	HP	Hydrangea paniculata 'Wim's Red' P.P.A.F. / Fire and Ice Panicle Hydrangea	#3	Cont.	24" Ht.
83	IR	Ilex verticillata 'Red Sprite' / Red Sprite Winterberry	#3	Cont.	24" Spd. Provide 10% Male
22	PL	Prunus laurocerasus 'Otto Luyken' / Otto Luyken Cherry Laurel	#3	Cont.	24" Spd.
28	RA	Rhus aromatica 'Gro Low' / Gro Low Fragrant Sumac	#3	Cont.	24" Spd.
GROUNDCOVERS/PERENNIALS/GRASSES					
395	ASC	Asclepias tuberosa / Butterfly Weed	SP#4	Cont.	15" O.C.
70	AVI	Andropogon virginicus / Broomsedge	#1	Cont.	24" O.C.
310	CPE	Carex pensylvanica / Oak Sedge	#1	Cont.	15" O.C.
610	GCL	Chelone glabra / Turtlehead	#1	Cont.	15" O.C.
42	CRO	Coreopsis 'Route 66' / Tickseed	#1	Cont.	15" O.C.
42	CSS	Coreopsis 'Sienna Sunset' / Tickseed	#1	Cont.	15" O.C.
375	CCO	Conoclinium coelestinum Mistflower	#1	Cont.	15" O.C.
760	EDU	Eupatorium dubium 'Little Joe' / Joe Pye Weed	#1	Cont.	18" O.C.
280	EPM	Echinacea purpurea 'Magnus' / Purple Coneflower	#1	Cont.	18" O.C.
45	IVE	Iris versicolor / Blue Flag Iris	#1	Cont.	15" O.C.
880	JEF	Juncus effusus / Common Rush	#1	Cont.	18" O.C.
185	LCA	Lobelia cardinalis / Cardinal Flower	#1	Cont.	15" O.C.
125	MCA	Muhlenbergia capillaris Pink Muhly Grass	#3	Cont.	30" O.C.
555	MOD	Monarda didyma / Bee Balm	#1	Cont.	18" O.C.
70	PVD	Panicum virgatum 'Dallas Blues' / Dallas Blues Switchgrass	#3	Cont.	36" O.C.
265	PVN	Panicum virgatum 'Northwind' / Northwind Switchgrass	#3	Cont.	24" O.C.
480	PVR	Panicum virgatum 'Rotstrahlbusch' / Rotstrahlbusch Switchgrass	#3	Cont.	24" O.C.
100	RFF	Rudbeckia fulgida var fulgida / Black-Eyed Susan	#1	Cont.	15" O.C.
740	SNO	Symphotrichum novae-angliae / New York Aster	#1	Cont.	15" O.C.
160	SNU	Sorghastrum nutans / Indian Grass	#3	Cont.	24" O.C.
370	SNP	Symphotrichum novae-angliae 'Purple Dome' / Purple Dome New York Aster	#1	Cont.	15" O.C.

- NOTES:**
- SEE LANDSCAPE PLANS L1.1 AND L1.2 FOR TREE PLANTINGS
 - SEE L1.7 FOR SEEDING PLAN
 - AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.
 - INSTALL PLANT MASSES IN STAGGERED ROWS UNLESS OTHERWISE INDICATED.

LANDSCAPE LEGEND

- LOD LIMIT OF DISTURBANCE
- EXISTING TREE
- EXISTING WOODED AREA
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE

HARDSCAPE KEY

- SITE AMENITIES**
- BR BIKE RACK
 - D DRINKING FOUNTAIN
 - R1 LITTER RECEPTACLE
 - R2 RECYCLING RECEPTACLE
 - S1 DESTINATION/ BUILDING IDENTIFICATION SIGN
 - S2 ORIENTATION SIGN

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 3-19-17
 DIRECTOR

MAHAN RYKIEL ASSOCIATES INC
 The Steiff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 6537
 EXPIRATION DATE: 09/30/2017

BLANDAIR REGIONAL PARK - PHASE 3

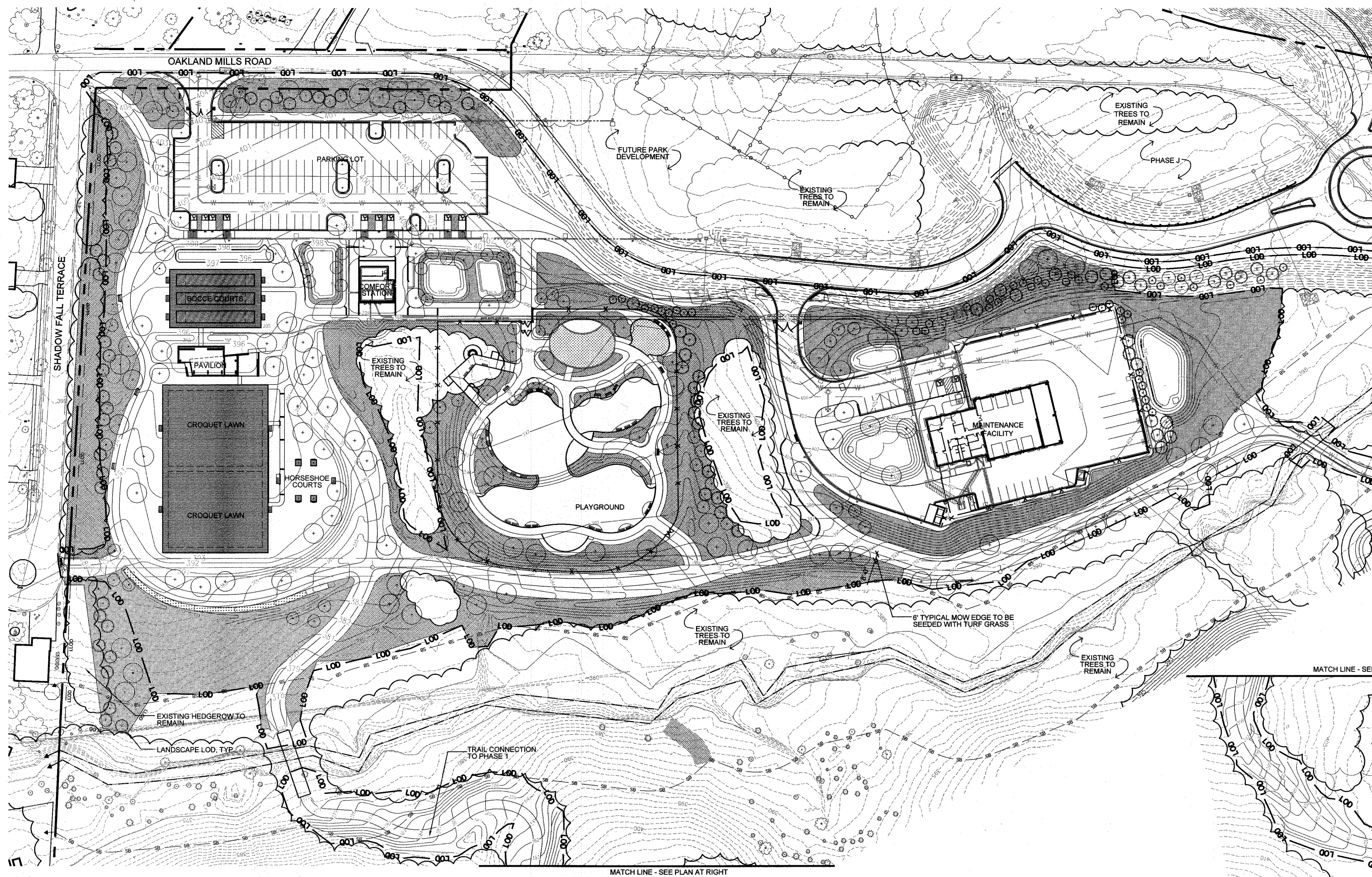
Planting Enlargements

Drawing No. **L1.6**

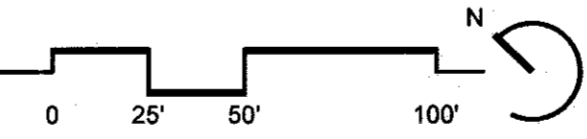
Scale: 1"=20'

Date: 1/17/2017 Sheet 45 of 76

Des: CB/CO Drawn: CO Check: CB/SK



1 SEEDING PLAN
1" = 60' - 0"



LEGEND

- LDD — LIMIT OF DISTURBANCE
- LLOD — LANDSCAPE LIMIT OF DISTURBANCE
- ▨ UPLAND MEADOW SEED MIX

NOTE: ALL DISTURBED AREAS NOT SEEDED WITH MEADOW MIX TO BE SEEDED WITH STANDARD TURF MIX

UPLAND MEADOW SEED MIX

MARYLAND UPLAND MIX: ERNM-172

BY ERNST SEED MIX
ADDRESS: 9006 MERCER PIKE
MEADVILLE, PA 16335
TEL: 814-336-2404

% of Total	Botanical Name	Common Name
54.3%	<i>Schizachyrium scoparium</i> 'Camper'	Little Bluestem 'Camper'
15%	<i>Elymus virginicus</i> , PA Ecotype	Virginia Wild Rye
9%	<i>Sorghastrum nutans</i> , PA Ecotype	Indiangrass
4%	<i>Chamaecrista fasciculata</i> , PA Ecotype	Partridge Pea
3%	<i>Tridens flavus</i> , Southeastern VA Ecotype	Purpletop
2%	<i>Rudbeckia hirta</i> - Coastal Plain NC Ecotype	Black-Eyed Susan
2%	<i>Andropogon gerardi</i> 'Niagara'	Big Bluestem 'Niagara'
2%	<i>Agrostis perennans</i> , PA Ecotype	Autumn Bentgrass
2%	<i>Lespedeza virginica</i> , VA Ecotype	Slender Bushclover
1%	<i>Asclepias tuberosa</i>	Butterfly Milkweed
1%	<i>Symphoricarpos laevis</i> , PA Ecotype	New England Aster
1%	<i>Symphoricarpos laevis</i> , NY Ecotype	Smooth Blue Aster
0.5%	<i>Senna hebecarpa</i> , VA & WV Ecotype	Wild Senna
0.5%	<i>Mondarda fistulosa</i> , Fort Indiantown Gap, PA Ecotype	Wild Bergamot
0.5%	<i>Senna marilandica</i>	Maryland Senna
0.5%	<i>Solidago nemoralis</i>	Gray Goldenrod
0.5%	<i>Vernonia noveboracensis</i> 'Suther', Piedmont NC Ecotype	New York Ironweed 'Suther'
0.5%	<i>Tradescantia virginiana</i> , Southeastern PA/Northern VA Blend	Virginia Spiderwort
0.5%	<i>Solidago juncea</i> , VA Ecotype	Early Goldenrod
0.2%	<i>Pycnanthemum incanum</i> , MD Ecotype	Hoary Mountainmint
100%	Total	

Seeding Rate: 15 lb per acre or 1/3-1/2 lb per 1,000 sq ft.
Total Acreage: 4.26 ac.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: [Signature] DATE: 2-6-17
 Chief, Division of Land Development: [Signature] DATE: 3-01-17
 Director: [Signature] DATE: 3-19-17

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
 EXPIRATION DATE: 08/21/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

Seeding Plan
 Drawing No. L1.7
 Scale: 1"=60'
 Date: 1/17/2017 Sheet 46 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

MAHAN RYKIEL
 ASSOCIATES INC
 The Stieff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
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 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-9716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



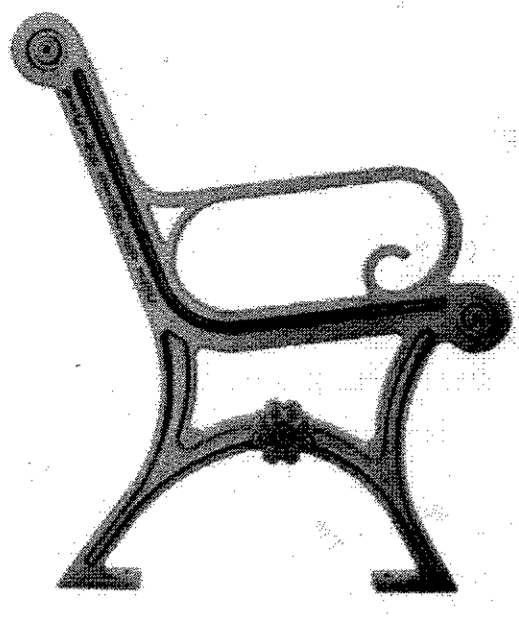
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 651
 EXPIRATION DATE: 08/20/17

BLANDAIR REGIONAL PARK - PHASE 3

Hardscape Details

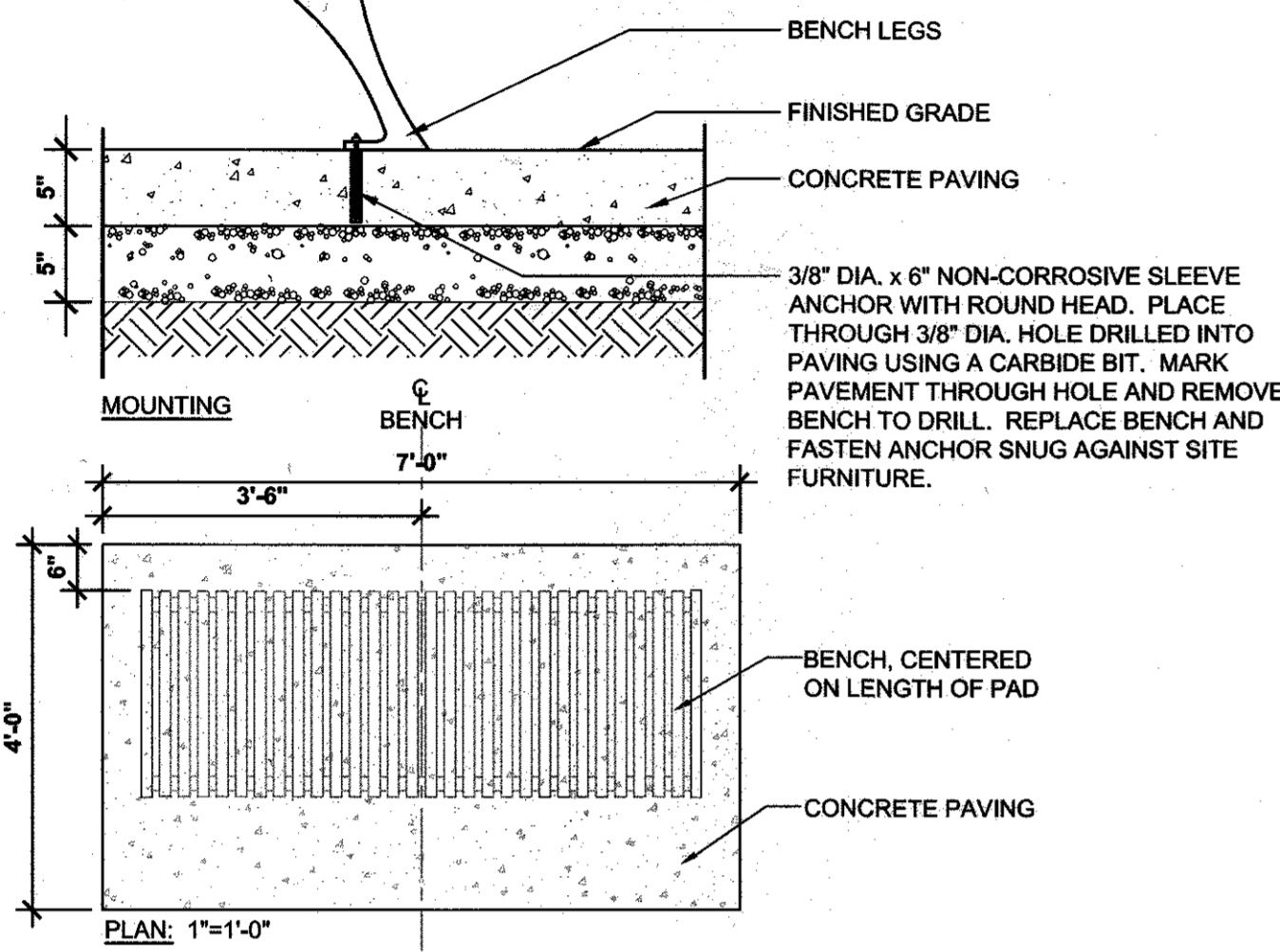
Drawing No.
L2.1

Scale: As Shown
 Date: 1/17/2017 Sheet 47 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

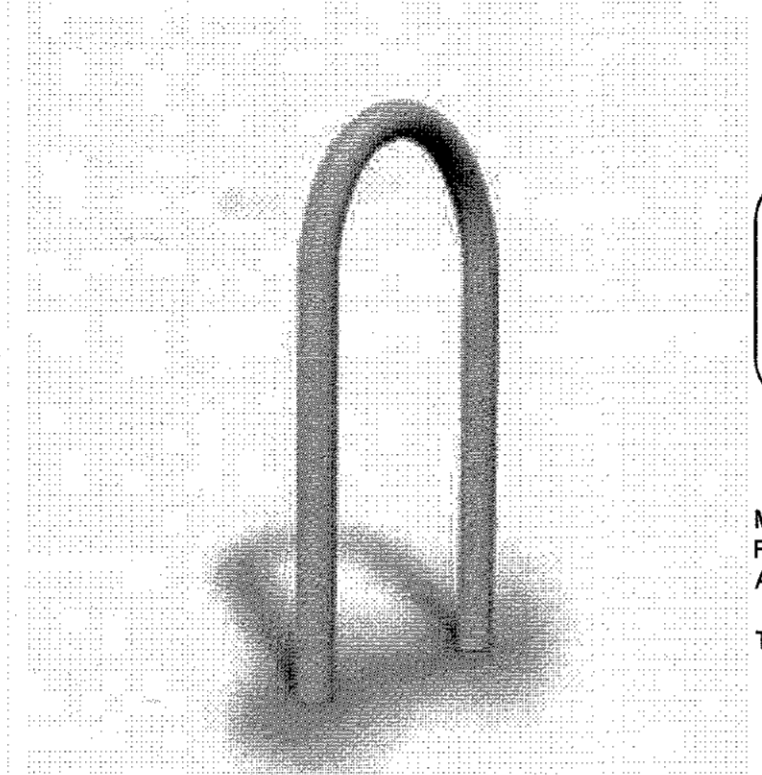


MANUFACTURER INFORMATION:
 Victor Stanley, Inc.
 P.O. Drawer 330
 Dunkirk, MD 20754
 1-800-368-2573
 www.victorstanley.com

Classic Series by Victor Stanley
 8' Bench
 Casings #196 with 2nd Site System
 Frame Color: Bronze
 Recycled Plastic Slats, Color: Maple
 Total Benches: Twenty-nine (29)



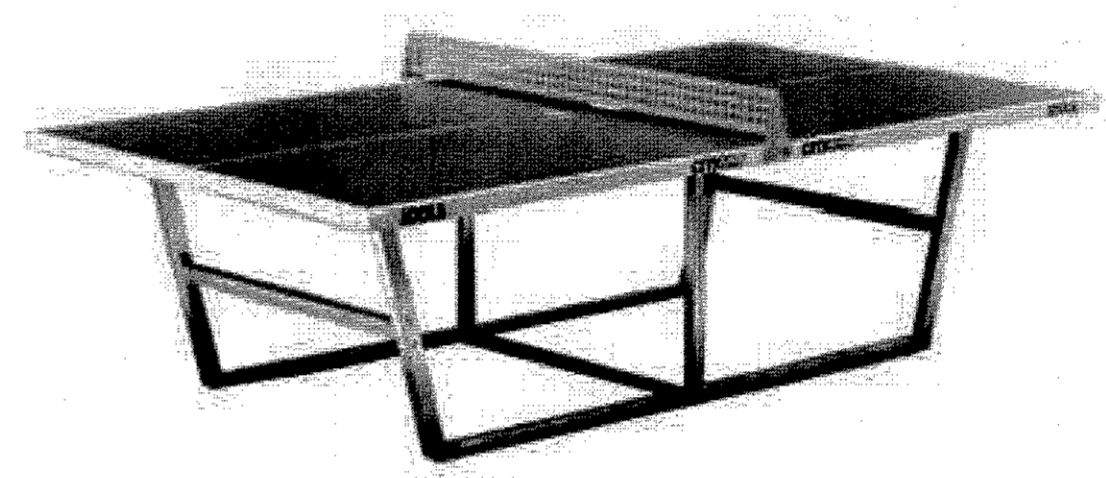
1 BENCH
 N.T.S.



MANUFACTURER INFORMATION:
 Victor Stanley, Inc.
 P.O. Drawer 330
 Dunkirk, MD 20754
 1-800-368-2573
 www.victorstanley.com

Model BRWS-101 (Holds 2 Bikes)
 Finish / Color: Grey Powdercoat
 Anchor per manufacturer recommendations.
 Total Bike Racks: Eighteen (18)

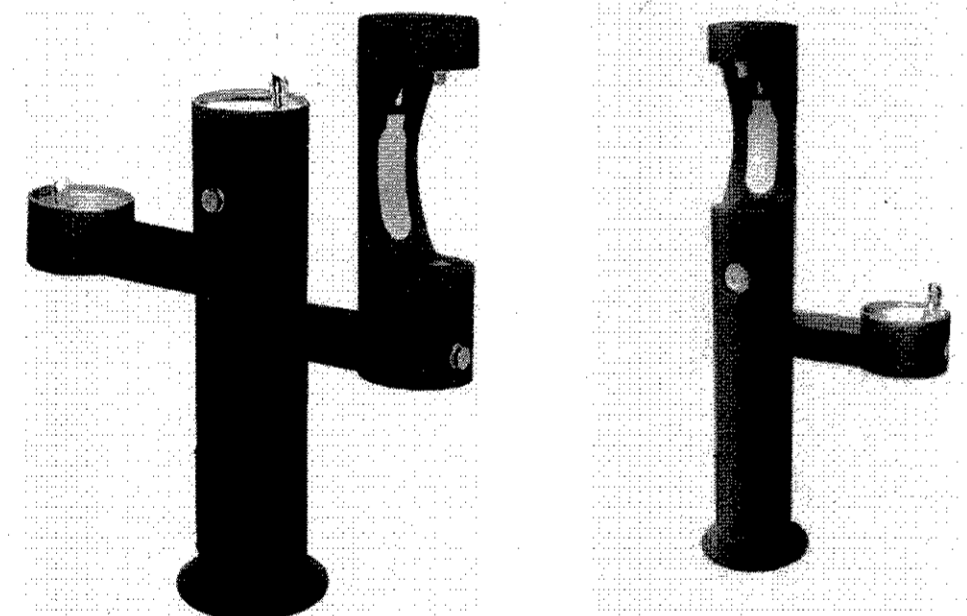
2 BIKE RACK
 N.T.S.



VENDOR INFORMATION:
 JOOLA USA
 15800 Crabbs Branch Way,
 Suite 250
 Rockville, MD 20855
 1-877-US-JOOLA
 www.joolausa.com

JOOLA City Table Tennis Table
 Item # 11700.
 Industrial outdoor table with
 acrylic resin/silica sand mixture.
 Total Quantity: Two (2)

3 PING PONG TABLE
 N.T.S.



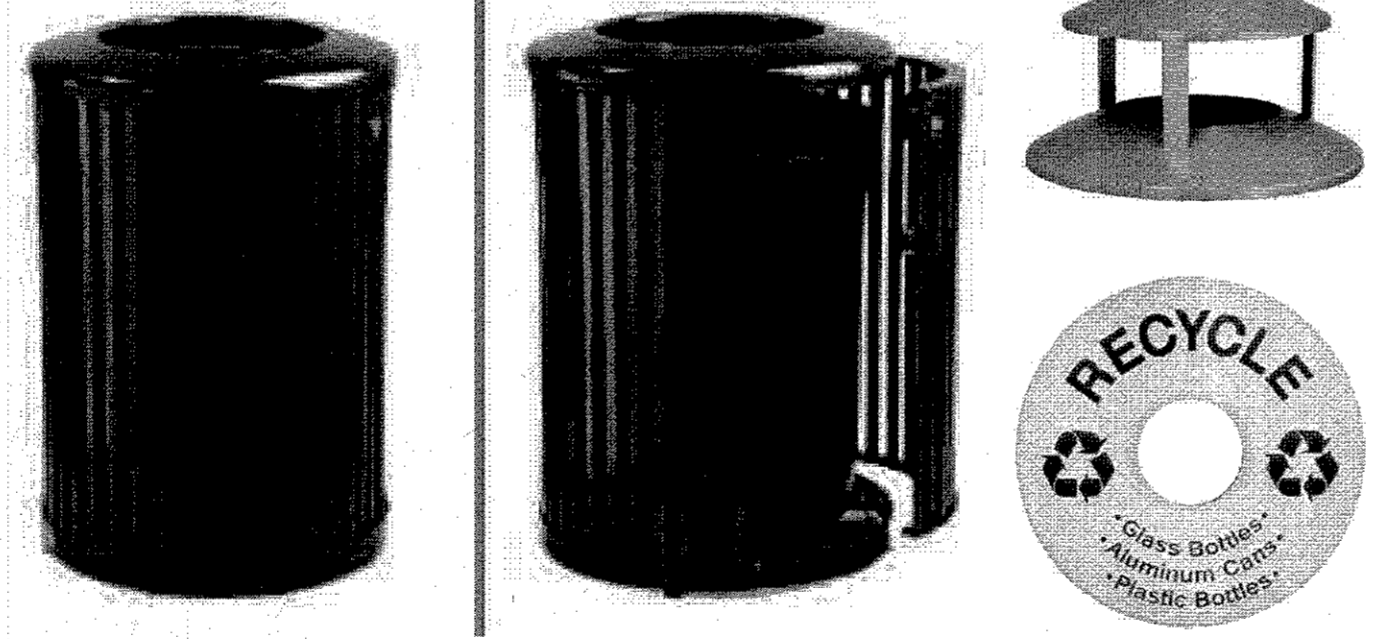
MANUFACTURER INFORMATION:
 Elkay Manufacturing Company
 2222 Camden Court
 Oak Brook, IL 60523
 630-574-8484
 www.elkay.com

Both fountains: Freestanding/surface mount
 Color: Brown, Powder coat
 Submit shop drawing for approval.

Outdoor EZH2O® TH-level Bottle Filling Station
 Model LK4430BF1M by Elkay Manufacturing Company
 Total drinking fountains: Two (2)

Outdoor EZH2O® Dual Level Bottle Filling Station
 Model LK4420BF1U by Elkay Manufacturing Company
 Total drinking fountains: One (1)

4 DRINKING FOUNTAIN
 N.T.S.



MANUFACTURER INFORMATION:
 Victor Stanley, Inc.
 P.O. Drawer 330
 Dunkirk, MD 20754
 1-800-368-2573
 www.victorstanley.com

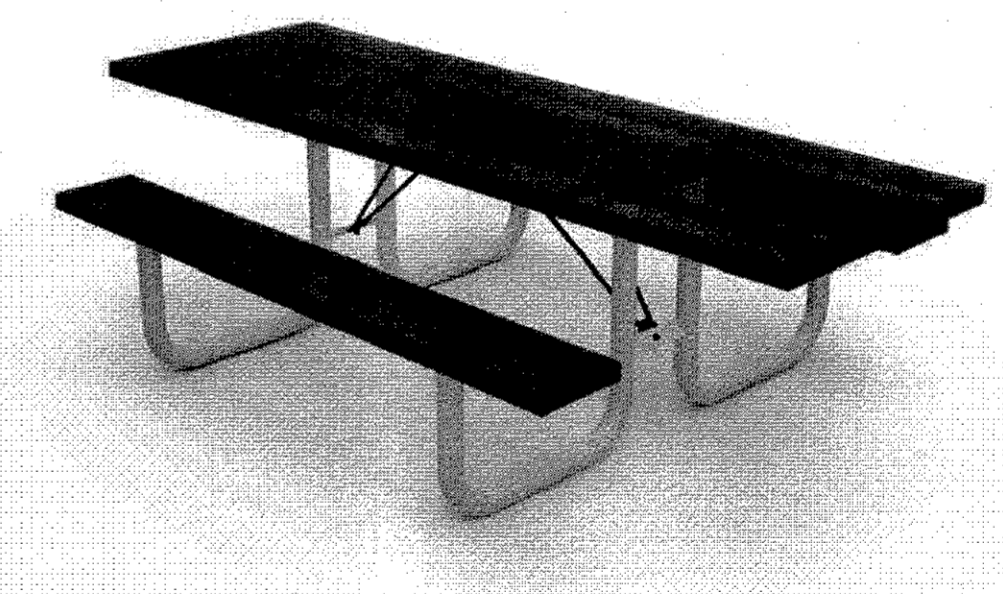
Steelsites Series Model NSDC-45 by Victor Stanley
 45-gallon capacity side-door litter/recycling receptacle
 Black plastic liner, four leveling feet, bottom recessed
 pedestal (Anchor per manufacturer's recommendations)

Litter receptacle color: bronze
 Recycling receptacle color: blue

Litter and recycling receptacles to receive rain bonnet lid.
 Rain bonnet lid to be riveted or welded in place. Adjust
 "RECYCLE" decals as necessary. Submit product data for
 review.

Total litter receptacles: Eight (8)
 Total recycling receptacles: Eight (8)

5 LITTER / RECYCLING RECEPTACLE
 N.T.S.



VENDOR INFORMATION:
 Playground Specialists, Inc.
 11700 Whates Lane
 Thurmont, MD 21788
 1-800-385-0075
 www.playspecva.com/

Model ZZXX1405 by Playworld Systems
 8' accessible park table
 Eco-Armor tops and frames
 Top color: green, Frame color: brown
 Provide custom chess/checkerboard
 inserts for two of the tables.

Total Quantity: Six (6)

6 PICNIC TABLE / CHESS BOARD
 N.T.S.

NOTES:
 1. SUBMIT ALL SITE FURNISHING PRODUCT DATA FOR APPROVAL.

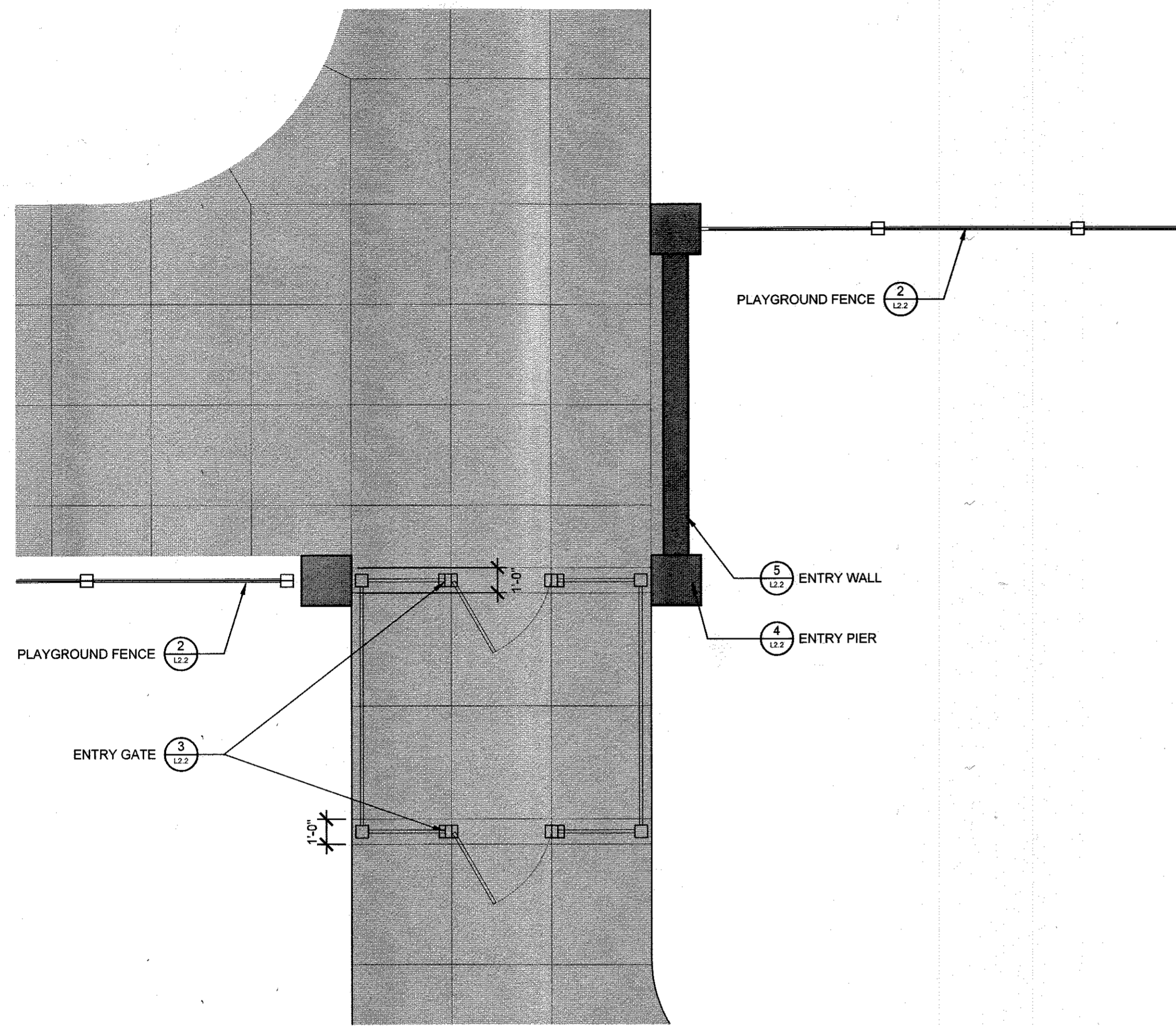
MAHAN RYKIEL
 ASSOCIATES IN C
 The Steff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

APPROVED: DEPARTMENT OF PLANNING AND ZONING

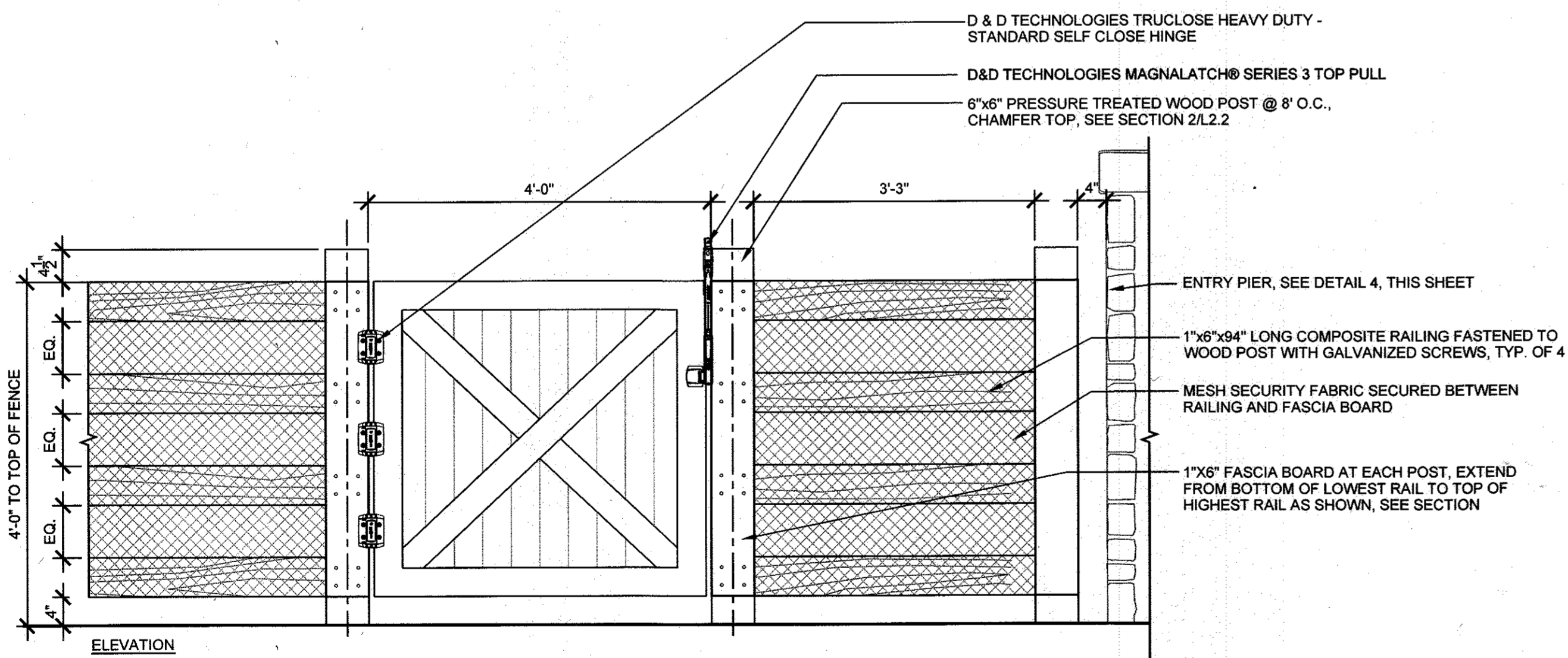
[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

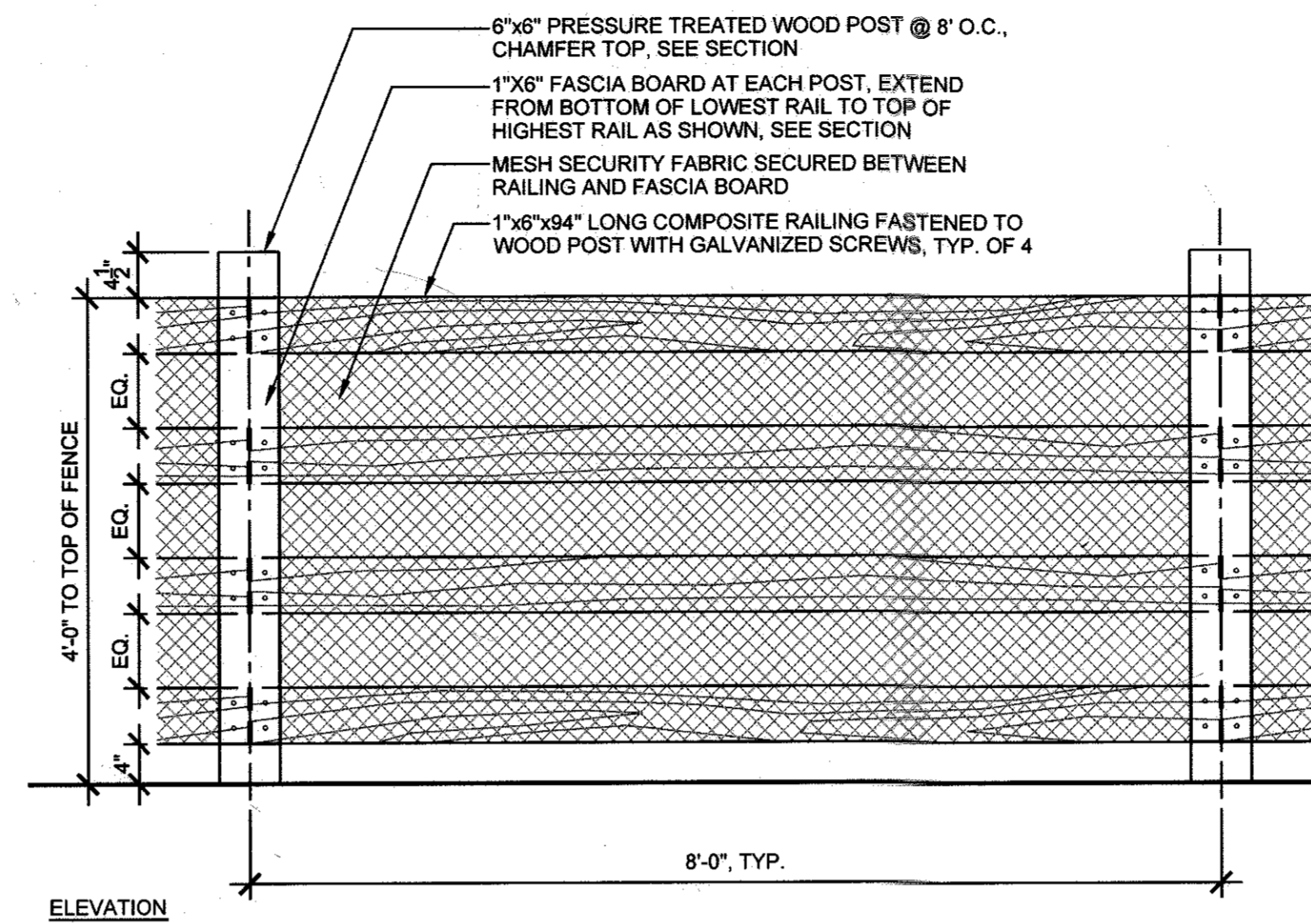
[Signature] 3-19-17
 DIRECTOR DATE



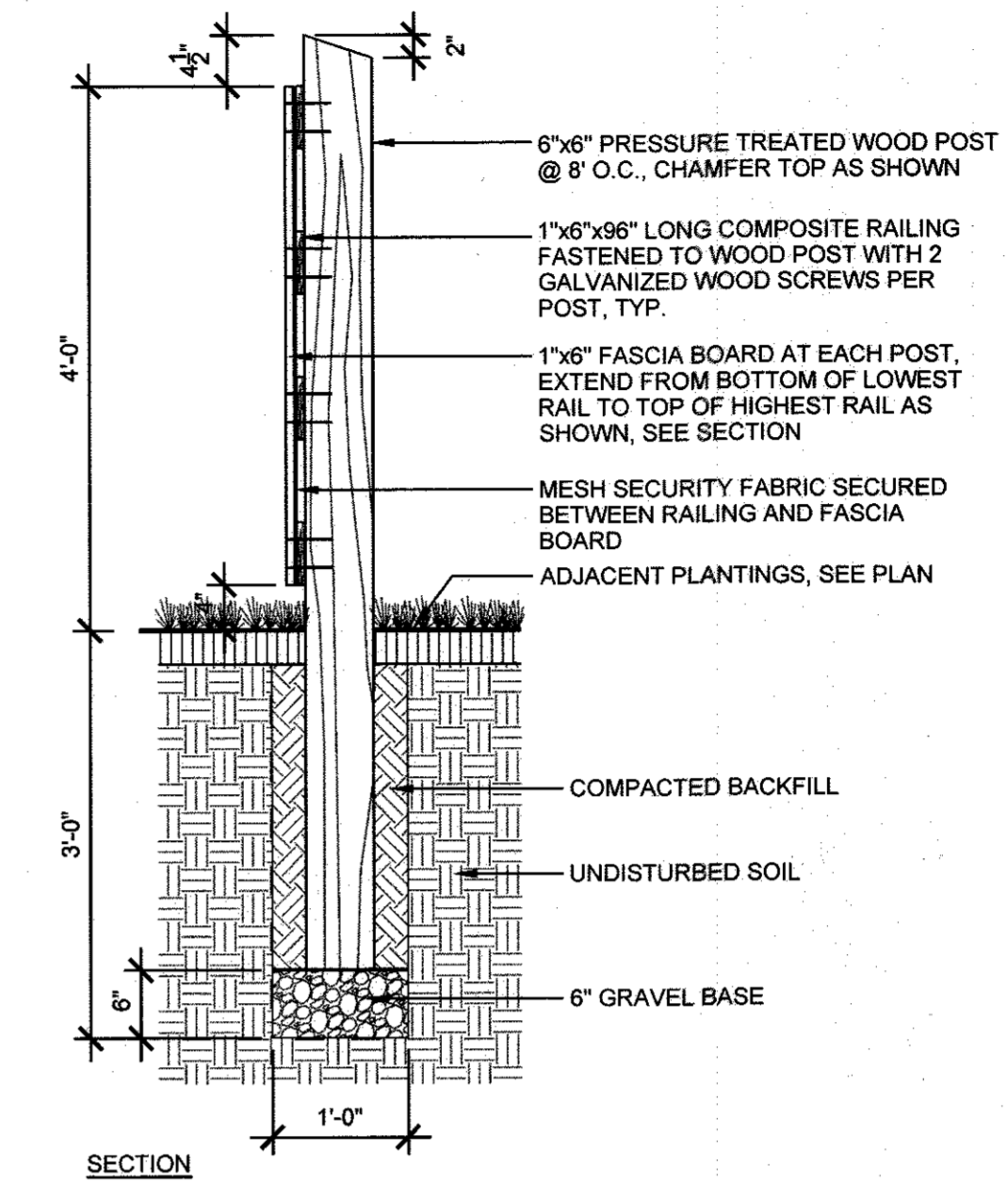
1 PLAYGROUND ENTRANCE ENLARGEMENT PLAN
1/4" = 1'-0"



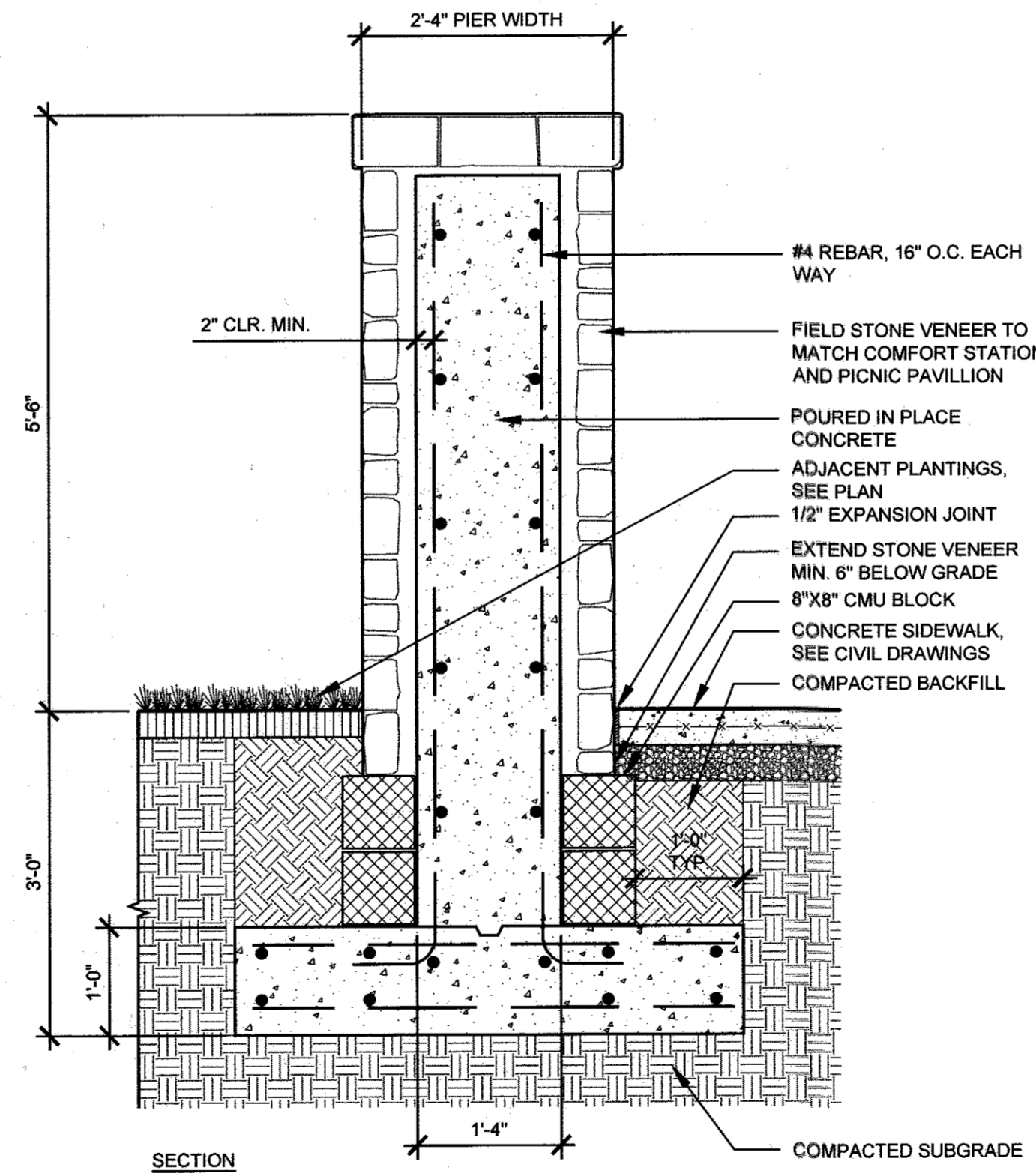
3 PLAYGROUND ENTRY GATE
3/4" = 1'-0"



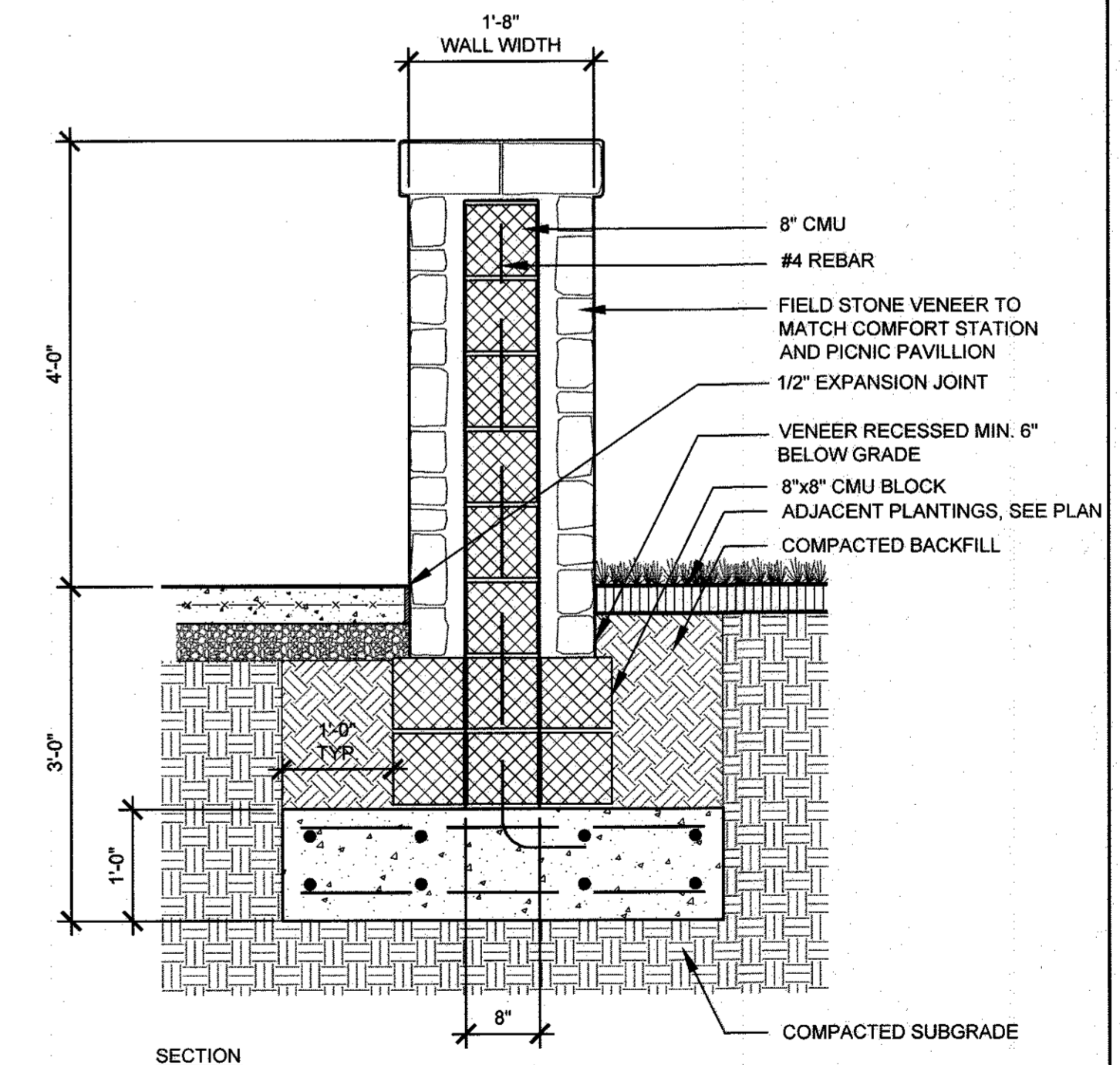
2 PLAYGROUND FENCE
3/4" = 1'-0"



5 ENTRY WALL
3/4" = 1'-0"



4 ENTRY PIER
3/4" = 1'-0"



REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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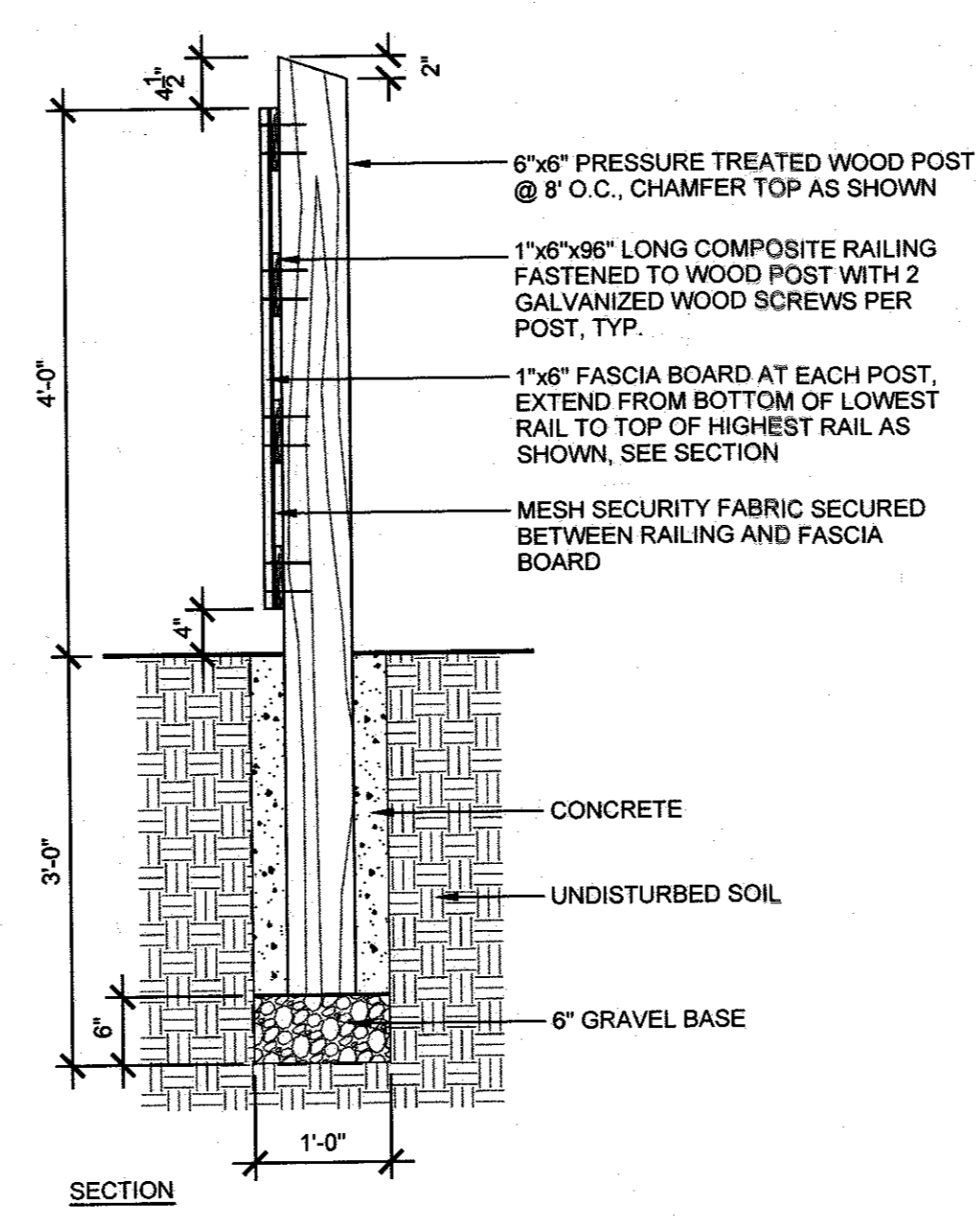
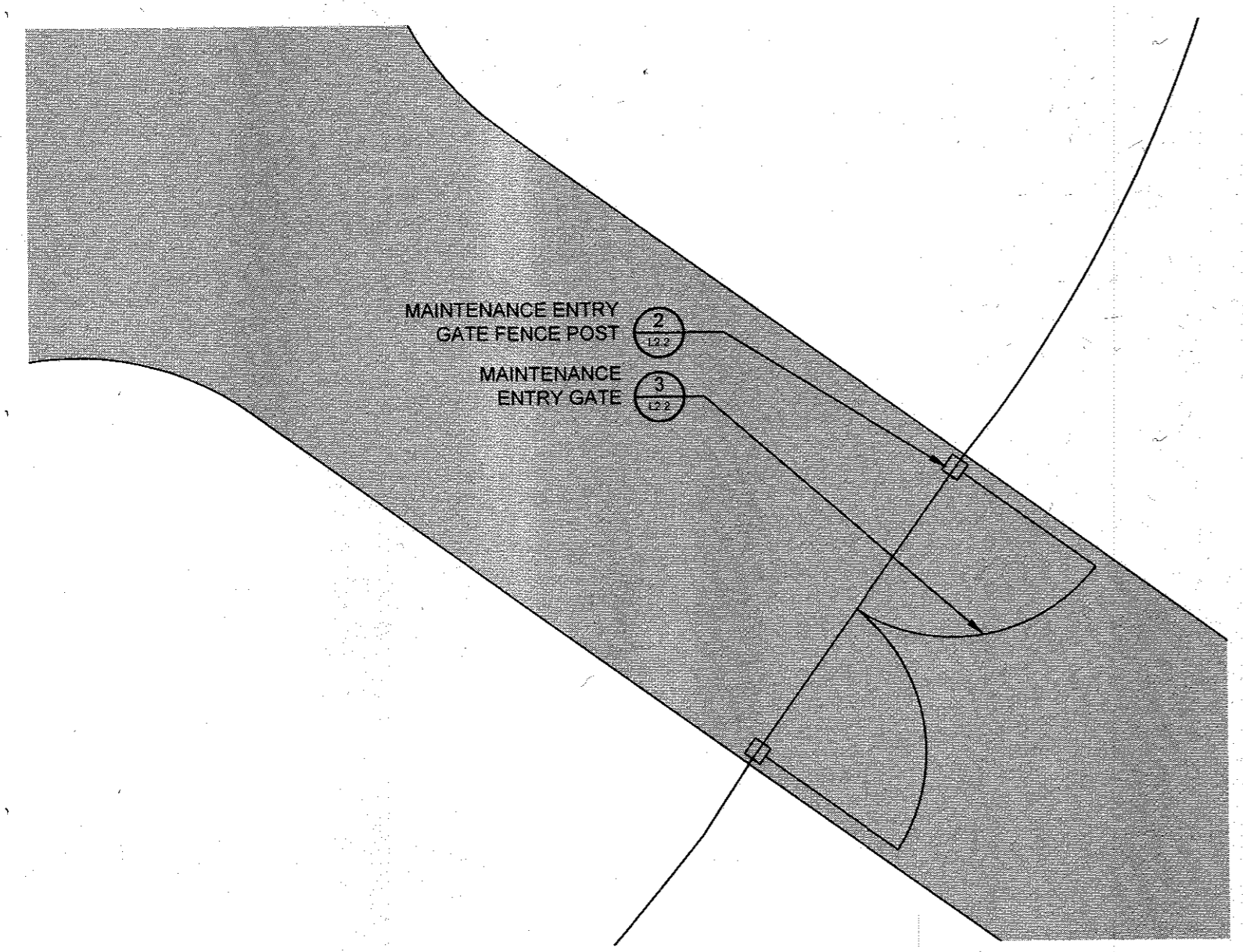
BLANDAIR REGIONAL PARK - PHASE 3

Hardscape Details
Drawing No. **L2.2**
Scale: As Shown
Date: 1/17/2017 Sheet 48 of 76
Des: CB/CO Drawn: CO Check: CB/SK

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 2-6-17
DATE: 3-01-17
DATE: 3-19-17

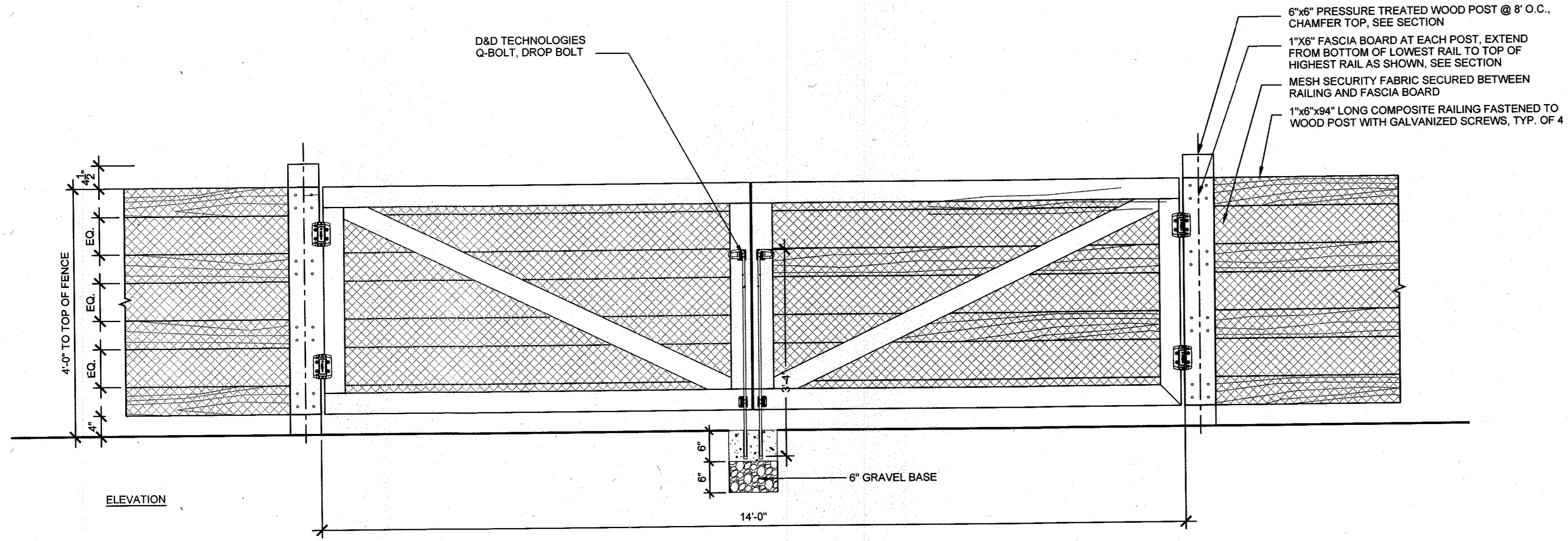
NOTES:
1. SUBMIT SHOP DRAWINGS FOR APPROVAL.

MAHAN RYKIEL ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001



1 PLAYGROUND MAINTENANCE ENTRANCE ENLARGEMENT PLAN
1/4" = 1'-0"

2 PLAYGROUND MAINTENANCE ENTRANCE FENCE POST
3/4" = 1'-0"



3 PLAYGROUND MAINTENANCE ENTRANCE
3/4" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kate DeLune 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Walter Rykiel 3-19-17
DIRECTOR DATE

NOTES:
1. SUBMIT SHOP DRAWINGS FOR APPROVAL.

MAHAN RYKIEL
ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive,
Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

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BLANDAIR REGIONAL PARK - PHASE 3

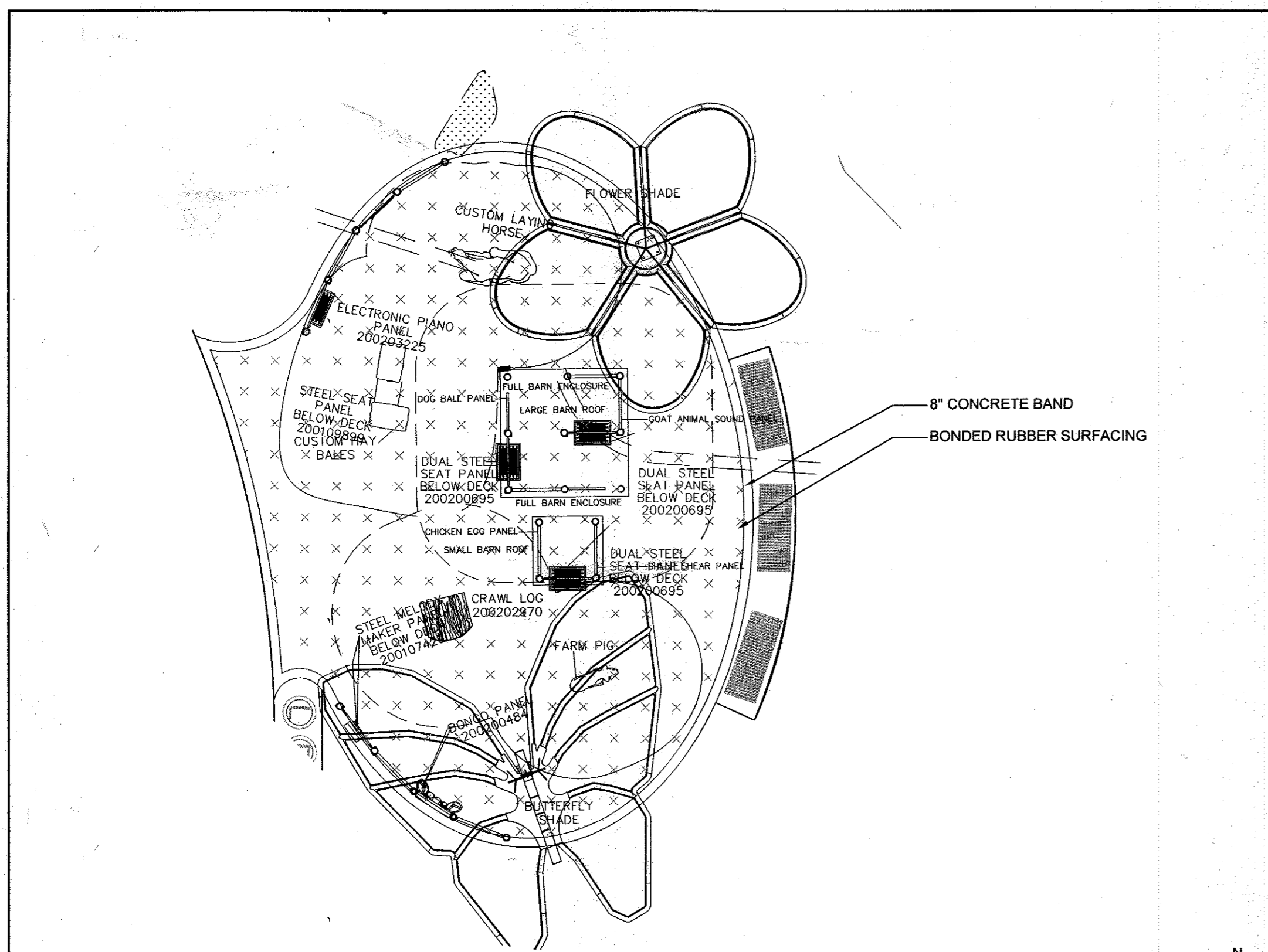
Hardscape Details

Drawing No. **L2.3**

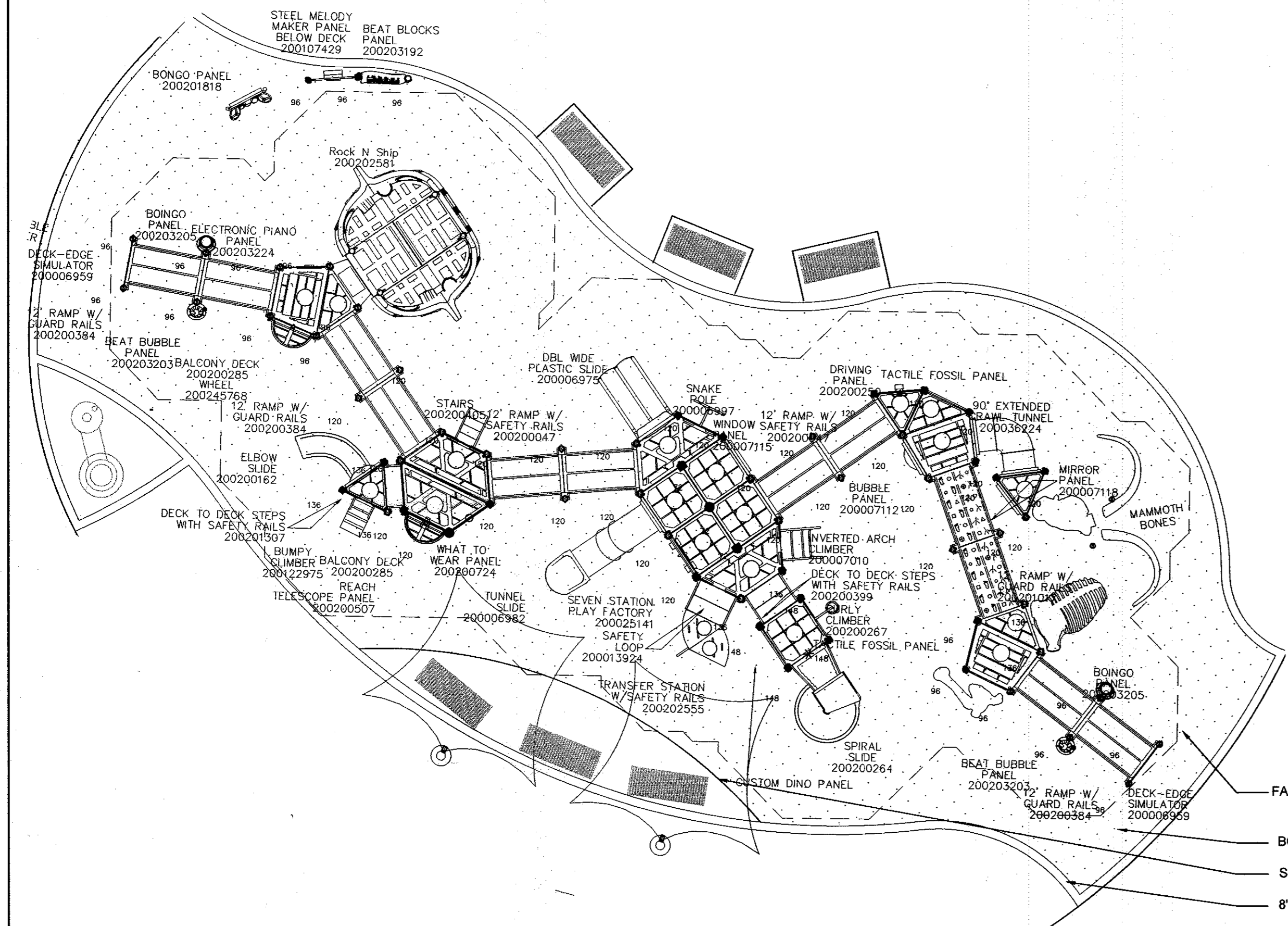
Scale: As Shown

Date: 1/17/2017 Sheet 49 of 76

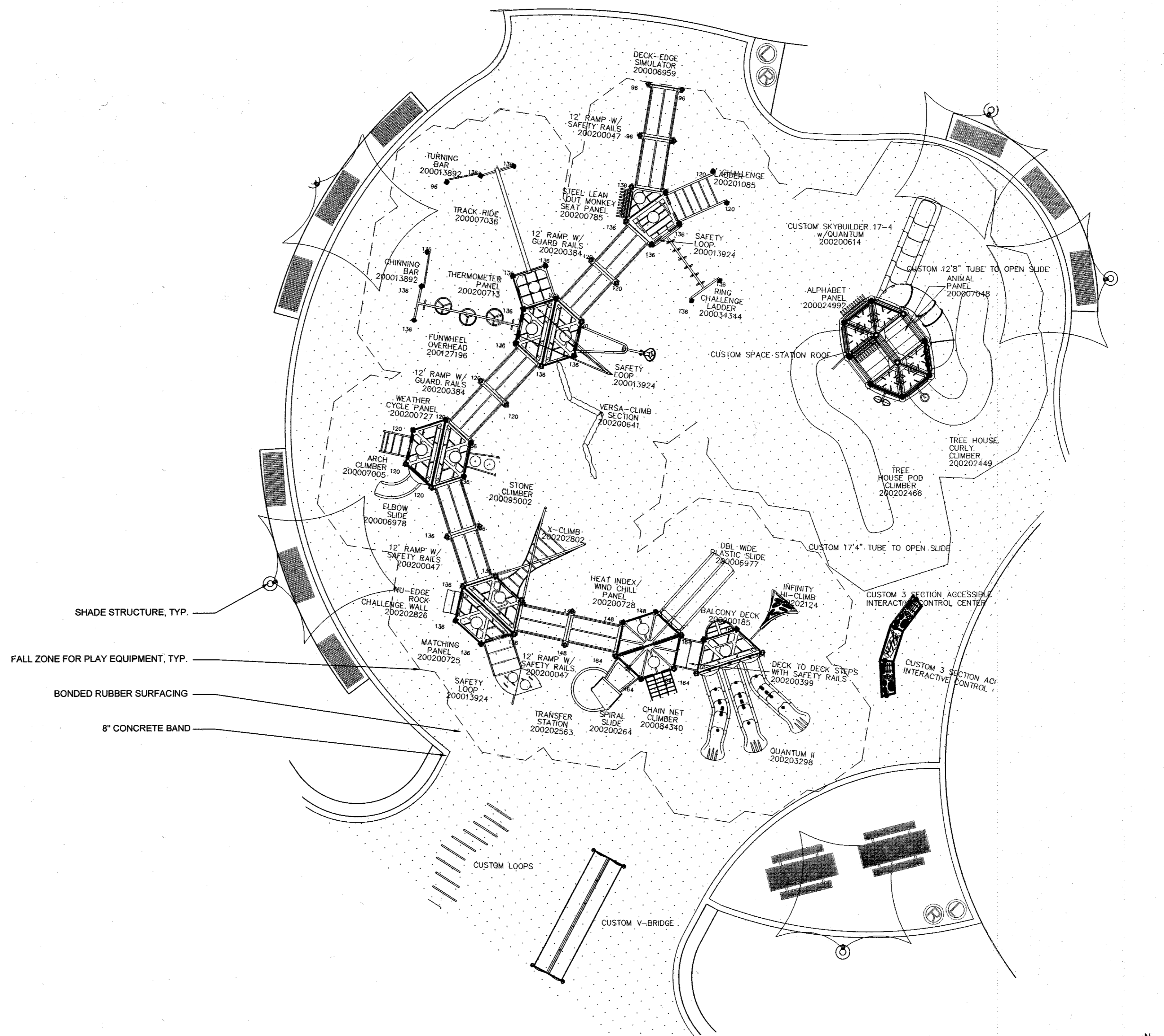
Des: CB/CO Drawn: CO Check: CB/SK



1 PLAYGROUND EQUIPMENT SCHEDULE - 6-24 MONTH OLD
1/8" = 1'-0"



2 PLAYGROUND EQUIPMENT SCHEDULE - 2-5 YEAR OLD
1/8" = 1'-0"

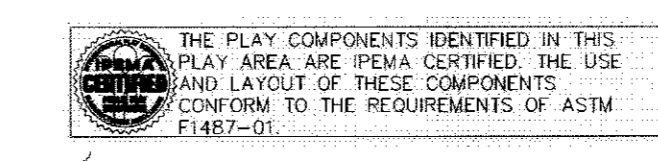


3 PLAYGROUND EQUIPMENT SCHEDULE - 5-12 YEAR OLD (UPPER)
1/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief Development Engineering Division: *[Signature]* DATE: 2-6-17
 Chief Division of Land Development: *[Signature]* DATE: 3-01-17
 Director: *[Signature]* DATE: 3-19-17

NOTES:
 1. PLAYGROUND EQUIPMENT TO BE STAKED OUT IN FIELD AND APPROVED BY COUNTY REPRESENTATIVE PRIOR TO INSTALLATION.
 2. SEE LANDSCAPE PLANS FOR LAYOUT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
 3. COLORS TO BE DETERMINED.

PLAYGROUND EQUIPMENT PROVIDED BY:
 COMMERCIAL RECREATION PRODUCT LLC
 P.O. BOX 998
 HARVE DE GRACE, MD 21078
 PHONE: 410-963-8417



MAHAN RYKIEL ASSOCIATES INC
 The Steiff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3490 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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 EXPIRATION DATE: 08/20/17

BLANDAIR REGIONAL PARK - PHASE 3

Playground Equipment Schedule
 Drawing No. **L2.4**
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 50 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046


DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



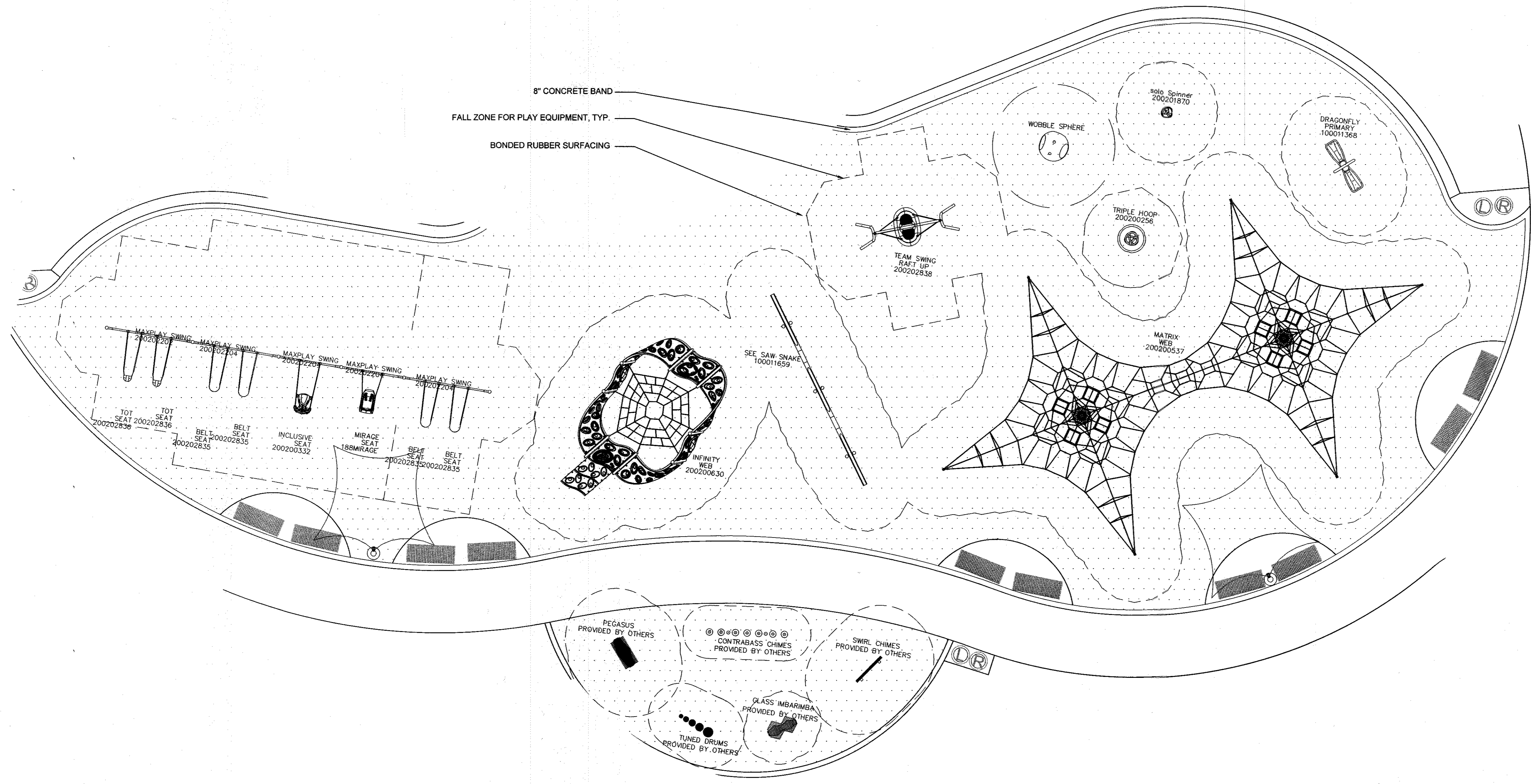
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL PARK - PHASE 3

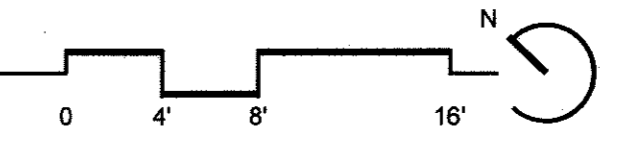
Playground Equipment Schedule

Drawing No.
L2.5

Scale: AS SHOWN
Date: 1/17/2017 Sheet 51 of 76
Des: CB/CO Drawn: CO Check: CB/SK



1 PLAYGROUND EQUIPMENT SCHEDULE - 5-12 YEAR OLD (LOWER)
1/8" = 1'-0"



- NOTES:
1. PLAYGROUND EQUIPMENT TO BE STAKED OUT IN FIELD AND APPROVED BY COUNTY REPRESENTATIVE PRIOR TO INSTALLATION.
 2. SEE LANDSCAPE PLANS FOR LAYOUT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
 3. COLORS TO BE DETERMINED.

PLAYGROUND EQUIPMENT PROVIDED BY:
COMMERCIAL RECREATION PRODUCT LLC
P.O. BOX 998
HARVE DE GRACE, MD 21078
PHONE: 410-963-8417

THE PLAY COMPONENTS IDENTIFIED IN THIS PLAY AREA ARE IPEDAA CERTIFIED. THE USE AND LAYOUT OF THESE COMPONENTS CONFORM TO THE REQUIREMENTS OF ASTM F1487-01.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

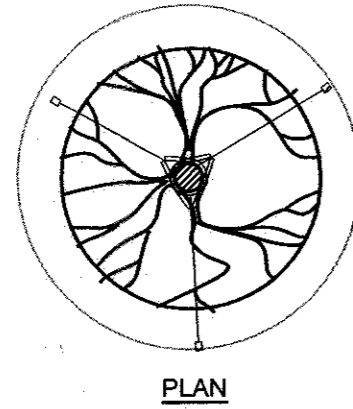
[Signature] 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT

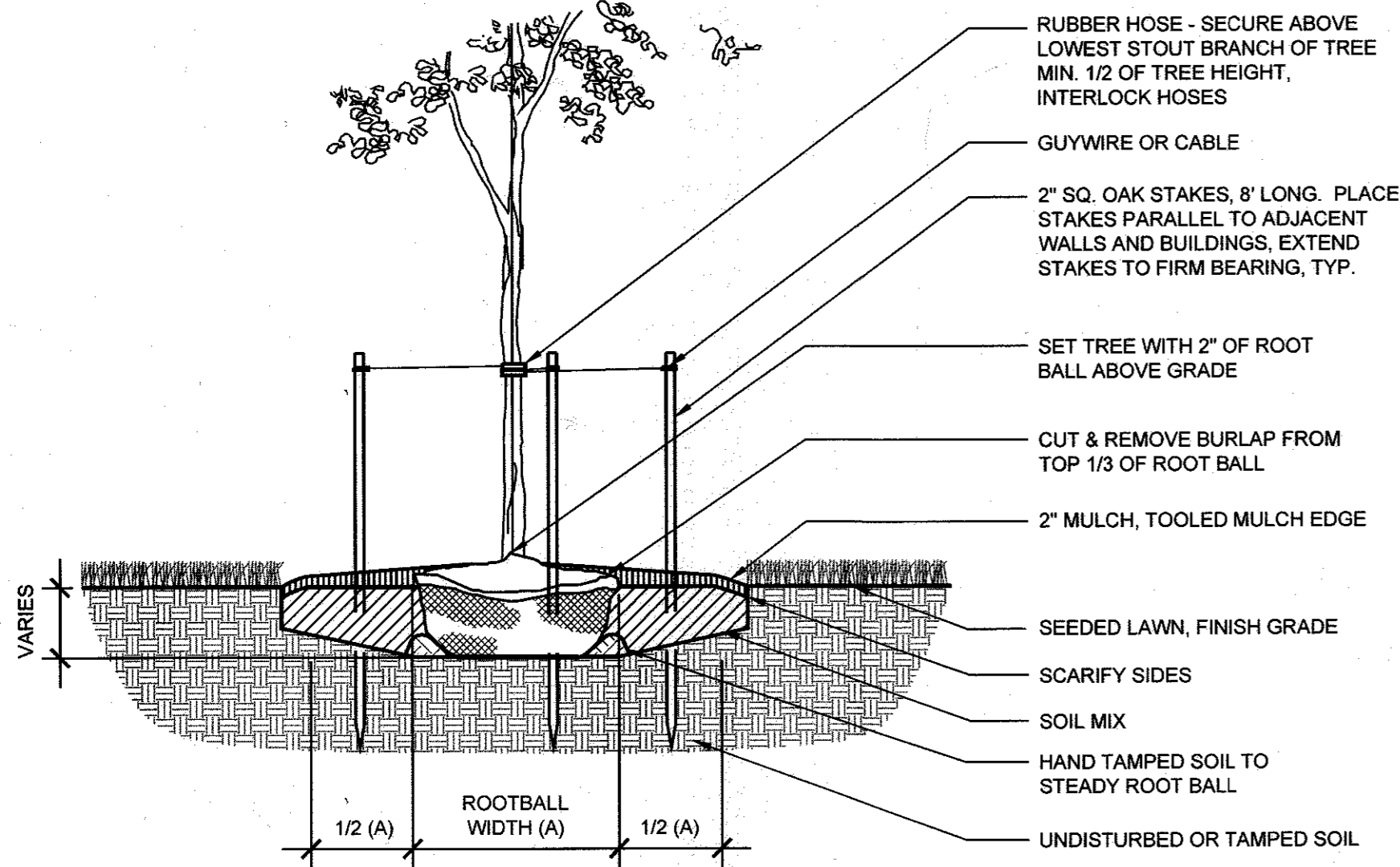
[Signature] 3-19-17
DIRECTOR

MAHAN RYKIEL ASSOCIATES INC
The Steiff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001

- NOTES:
 1. DO NOT CUT CENTRAL LEADER.
 2. FOR PLANTS IN WIRE BASKETS, REFER TO SPECIFICATIONS.
 3. DO NOT PLACE MULCH AGAINST TRUNK.
 4. TREES TO HAVE SINGLE LEADER.
 5. CUT AND REMOVE TOP HALF OF WIRE BASKETS.



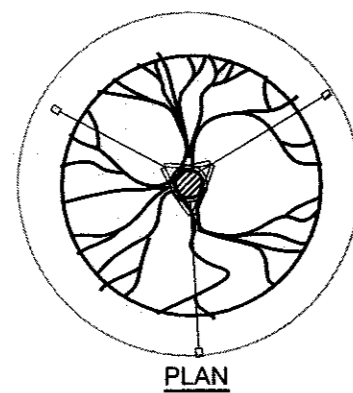
PLAN



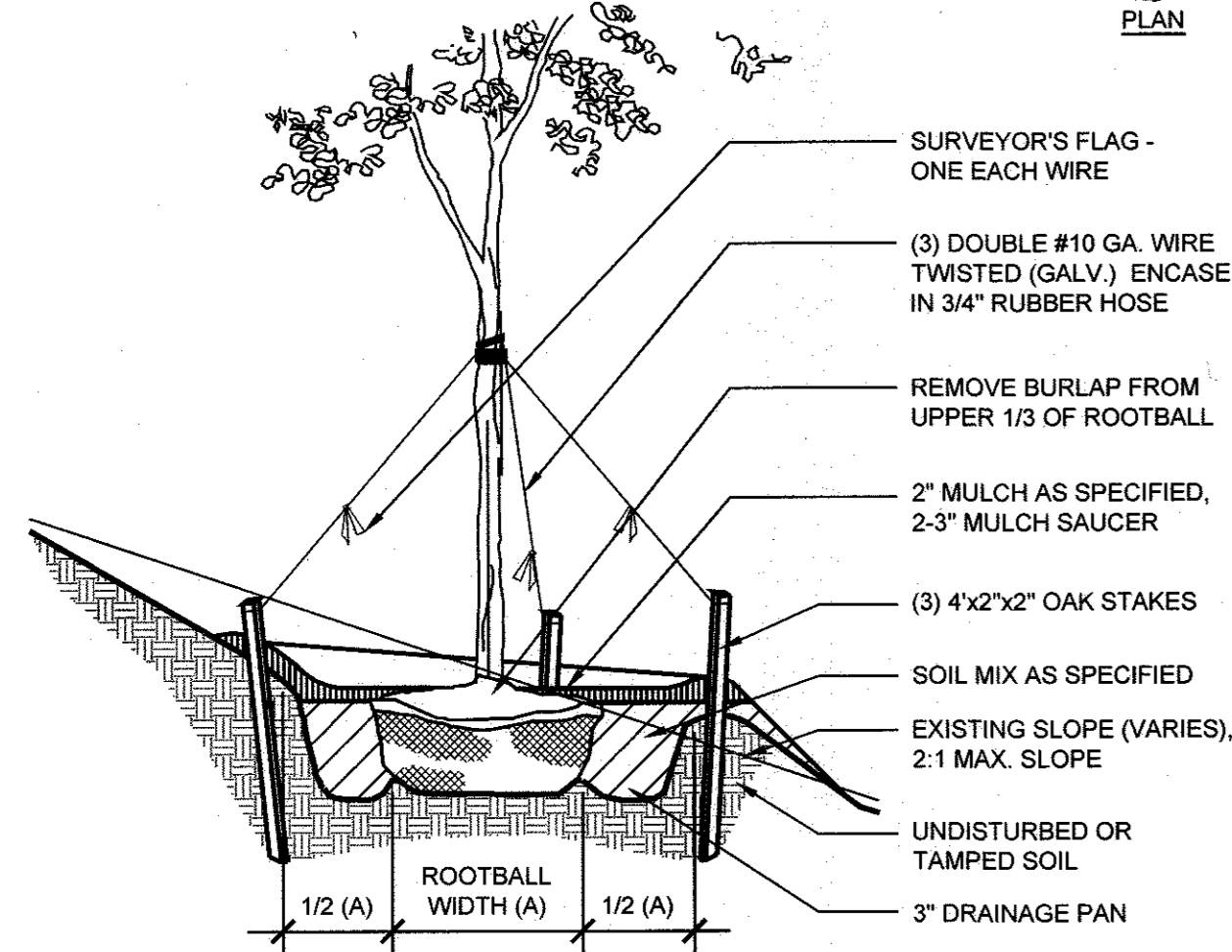
1 TYPICAL DECIDUOUS TREE PLANTING

Scale: 1/2" = 1' - 0"

- NOTES:
 1. DECIDUOUS AND EVERGREEN TREES TO HAVE CENTRAL LEADER. NEVER CUT CENTRAL LEADER.
 2. DO NOT PLACE MULCH AGAINST TRUNK.
 3. SET TREE WITH 1/8 OF ROOT BALL ABOVE GRADE.
 4. STAKES, WIRES, AND HOSES SHALL BE REMOVED AFTER ONE YEAR.
 5. SCARIFY SUBSOIL AND SIDES OF TREE PIT TO A MIN. OF 4" DEPTH.
 6. TREES UNDER 2-1/2" CAL. - 10' x 2' x 2' STAKES SET VERTICAL, MIN. TWO FEET INTO COMPACTED SUBGRADE.
 7. TREES TO HAVE SINGLE LEADER.
 8. CUT AND REMOVE TOP HALF OF WIRE BASKETS.



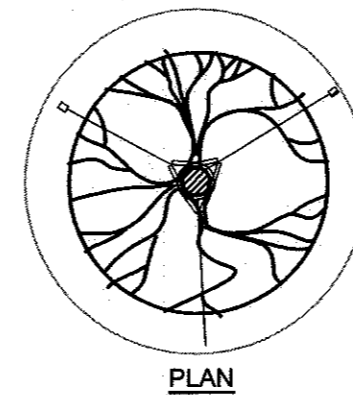
PLAN



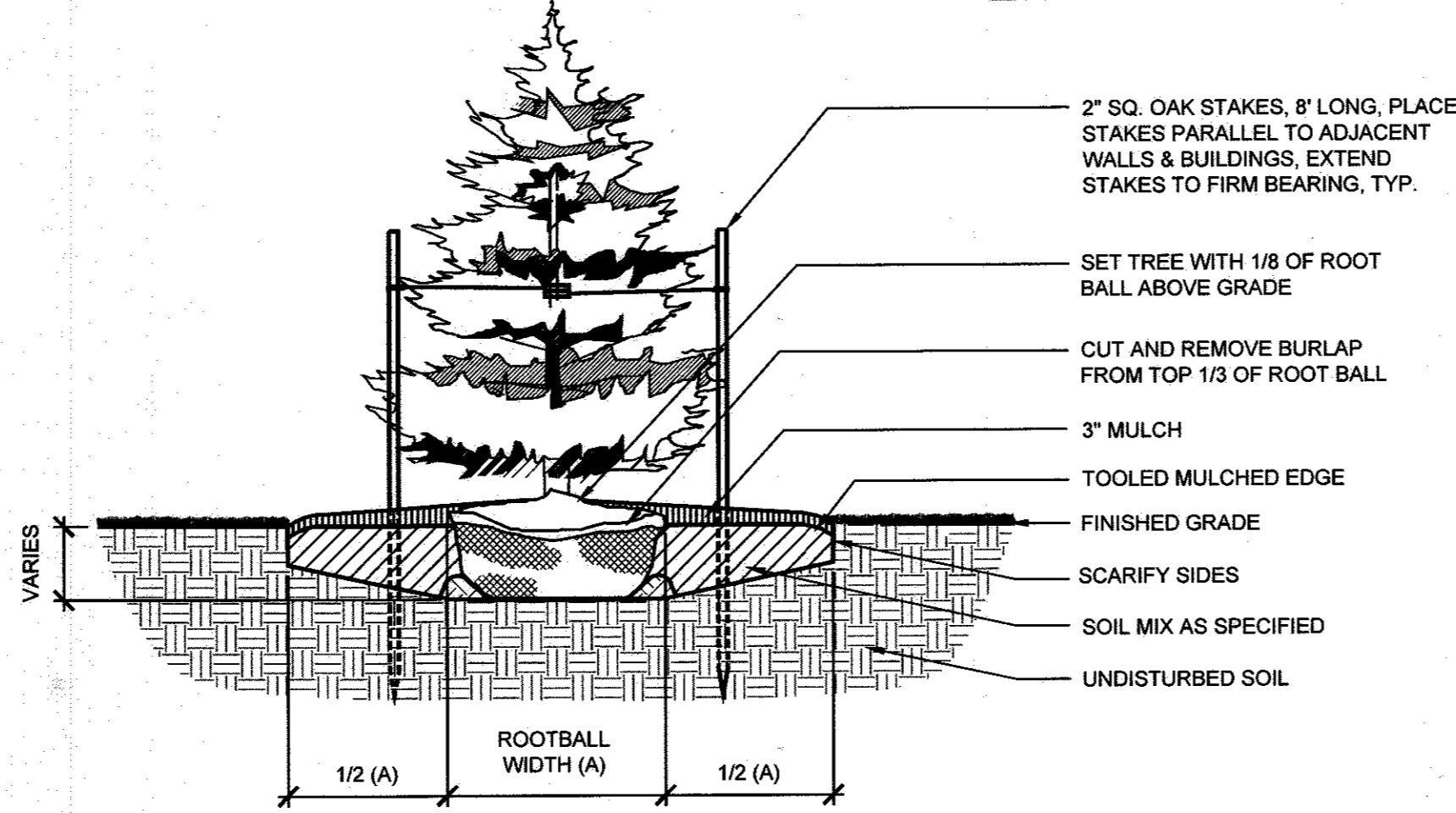
4 TYPICAL TREE PLANTING ON SLOPE

Scale: 1/2" = 1' - 0"

- NOTES:
 1. NEVER CUT CENTRAL LEADER.
 2. FOR PLANTS IN WIRE BASKETS, REFER TO SPECIFICATIONS.
 3. TREES TO HAVE SINGLE LEADER.
 4. CUT AND REMOVE TOP HALF OF WIRE BASKETS.
 5. DO NOT PLACE MULCH AGAINST TRUNK.



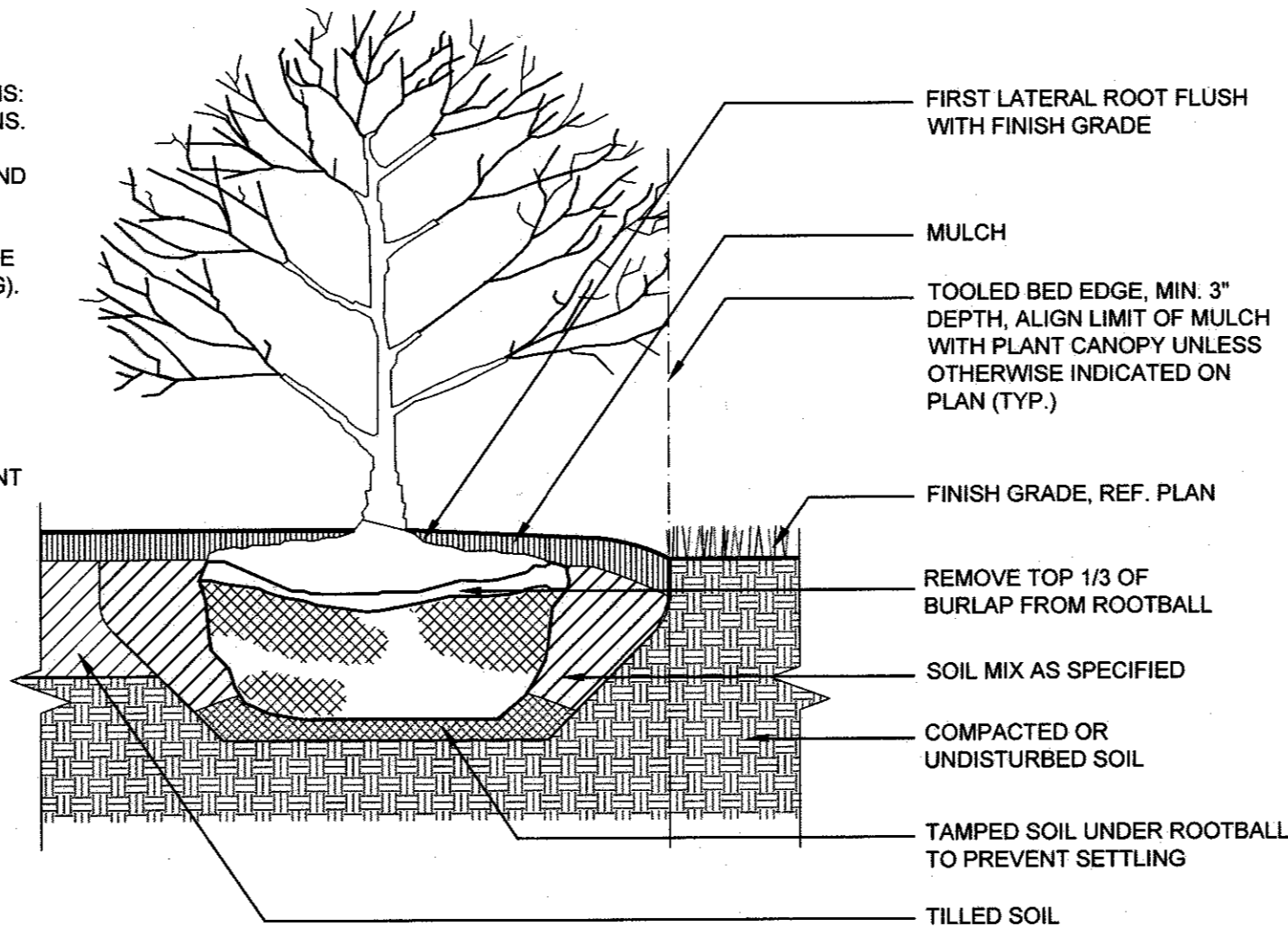
PLAN



2 TYPICAL EVERGREEN TREE PLANTING

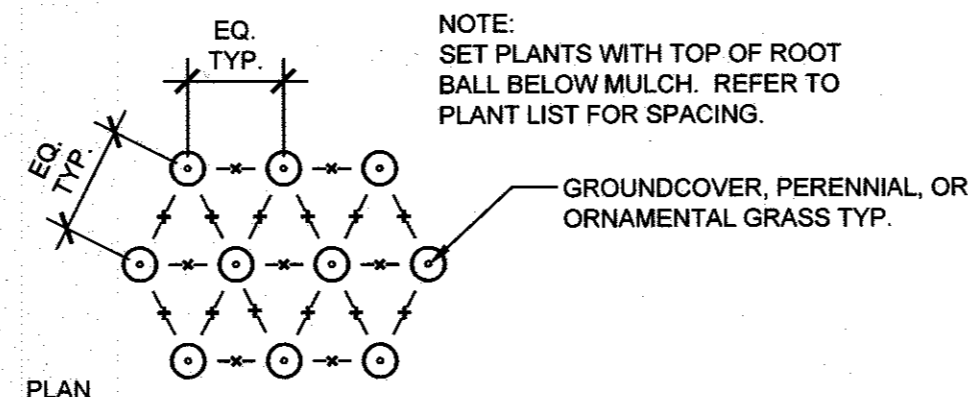
Scale: 1/2" = 1' - 0"

- SEQUENCE OF CONSTRUCTION (GENERAL), REFER TO SPECIFICATIONS:
 1. STAKE OUT PLANTBED LOCATIONS.
 2. CUT EDGE OF PLANT BED.
 3. TILL SOIL TO DEPTH SPECIFIED AND APPLY AMENDMENTS TO ENTIRE PLANTING AREA.
 4. APPLY PRE-EMERGENT HERBICIDE (TWO WEEKS PRIOR TO PLANTING).
 5. INSTALL PLANTS.
 6. INSTALL FERTILIZER TABLETS IN EACH PLANT PIT.
 7. PLACE BACKFILL.
 8. WATER EACH INDIVIDUAL PLANT THOROUGHLY.
 9. PLACE MULCH OVER ENTIRE PLANT BED.
 10. WATER ENTIRE PLANT BED THOROUGHLY.

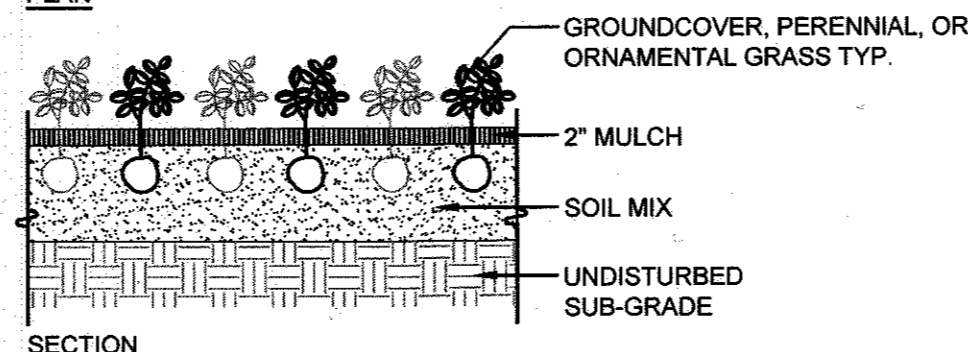


5 TYPICAL SHRUB PLANTING

Scale: 1" = 1' - 0"



PLAN

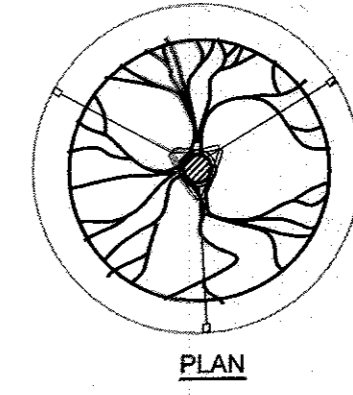


SECTION

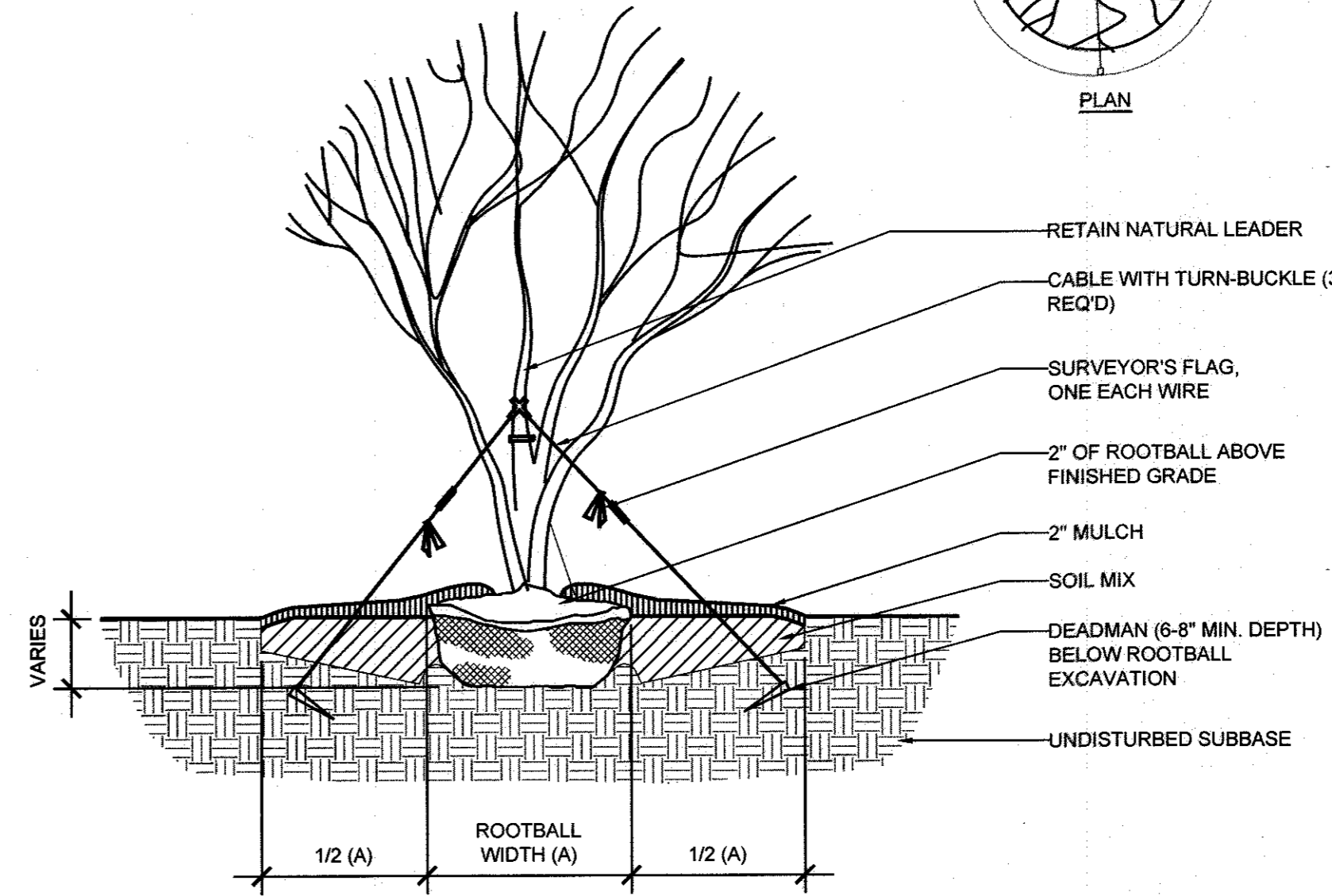
7 TYPICAL TRIANGULAR SPACING

Scale: 1/2" = 1' - 0"

- NOTES:
 1. FOR B&B TREES, REMOVE TOP 1/3 OF BALL WRAP.
 2. CUT WIRE BASKET IN AT LEAST FOUR LOCATIONS CIRCLING ROOTBALL.
 3. DO NOT PLACE MULCH AGAINST TRUNK.



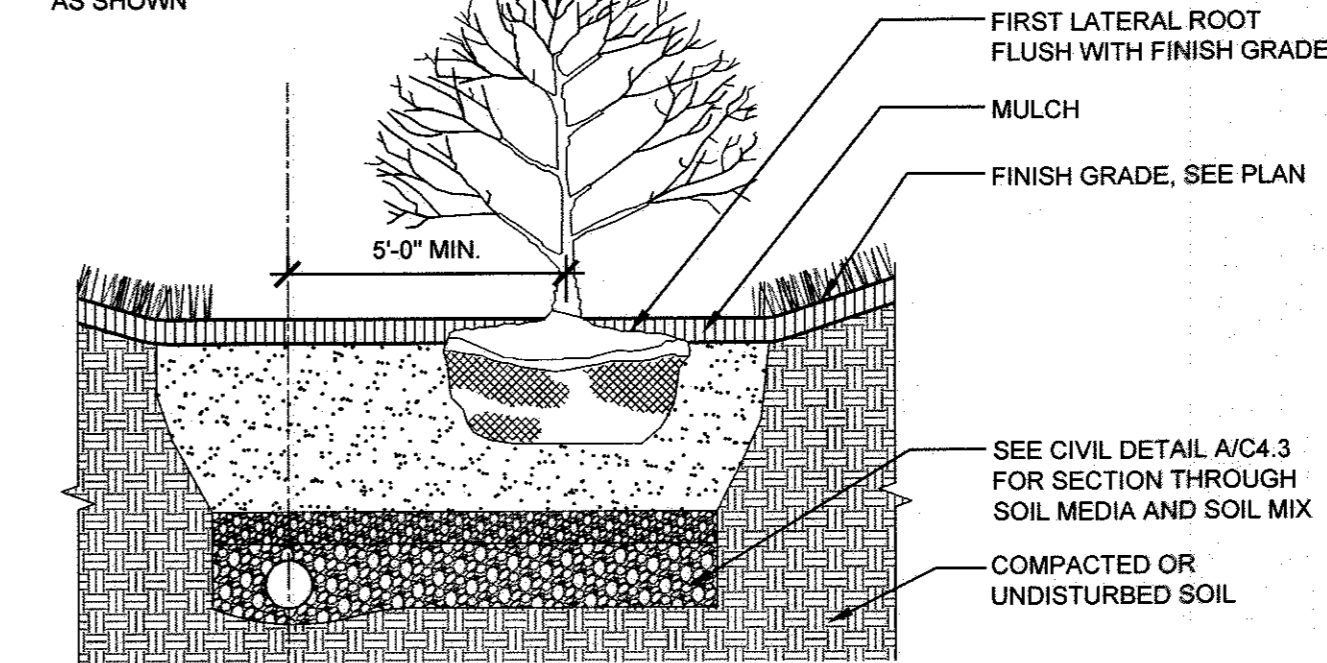
PLAN



3 TYPICAL MULTI-STEM TREE PLANTING

Scale: 1/2" = 1' - 0"

- NOTE:
 CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOT BALL AS SHOWN



6 BIORETENTION SHRUB PLANTING

Scale: 1/2" = 1' - 0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	3.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	3-19-17
DIRECTOR	DATE

MAHAN RYKIEL
 ASSOCIATES INC
 The Stieff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
 EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL PARK - PHASE 3

Landscape Details	
Drawing No. L3.1	
Scale: As Shown	
Date: 1/17/2017	Sheet 52 of 76
Des: CB/CO	Drawn: CO
Check: CB/SG	

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046


DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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 EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

Plant Schedules
 Drawing No.
L3.2

Scale: As Shown
 Date: 1/17/2017 Sheet 53 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

SCHEDULE A PERIMETER LANDSCAPE EDGE					
CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS				
	P-1 (Entire Perimeter)		P-2 (Entire Perimeter)		P-3
PERIMETER		P-1a (Parking Lot)		P-2a (Parking Lot)	
Perimeter/Frontage Designation Landscape Type	B	E	B	E	C
Linear Feet of Roadway Frontage/Perimeter	475 LF	375 LF	570 LF	120 LF	150 LF
Credit for Existing Vegetation (Yes, No, Linear Feet - Describe below if needed)	NO	NO	NO	NO	NO
Credit for Wall, Fence or Berm (Yes, No, Linear Feet - Describe below if needed)	NO	NO	NO	NO	NO
Subtotal (linear feet of perimeter - credits)	0	0	0	0	0
Number of Plants Required					
Shade Trees	1:50=10	1:40=9	1:50=11	1:40=3	1:40=4
Evergreen Trees	1:40=12	0	1:40=14	0	1:20=8
Shrubs	0	1:4=94	0	1:4=30	0
Number of Plants Provided					
Shade Trees	10	0 (included in P-1B)	11	0 (included in P-2B)	4
Evergreen Trees	12	0	14	0	8
Other Trees (2:1 Substitution)	0	0	0	0	0
Shrubs (10:1 Substitution)	0	94	0	30	0
Describe Plant Substitution Credits Below if needed					

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of parking spaces	128
Number of trees required (1 TREE: 20 SPACES)	7
Number of trees provided	7
Shade Trees	-
Other Trees (2:1 Substitution)	-

At the time of plant installation, all shrubs and trees listed and approved on the Landscape Plan, shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the approved Landscape Plan may result in denial or delay in the final release of the landscape plan until such time as all required materials are planted and/or revisions are made to the applicable plans

The owner, tenants, and/or their agents shall be responsible for maintenance of the required landscaping including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.

This plan has been prepared in accordance with Section 16.124 of the Howard County Code and Landscape Manual with a minimum of 32 shade trees, 34 evergreen trees and 124 shrubs.

Developer's/Owner's Landscape Certificate

I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Landscape Manual. I/we further certify that upon completion a Letter of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

A. Paul Delorme
 Developer's/Owner's Name

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmond 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

V. K. ... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N. ... 3-19-17
 DIRECTOR DATE

MAHAN RYKIEL
 ASSOCIATES INC
 The Steiff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

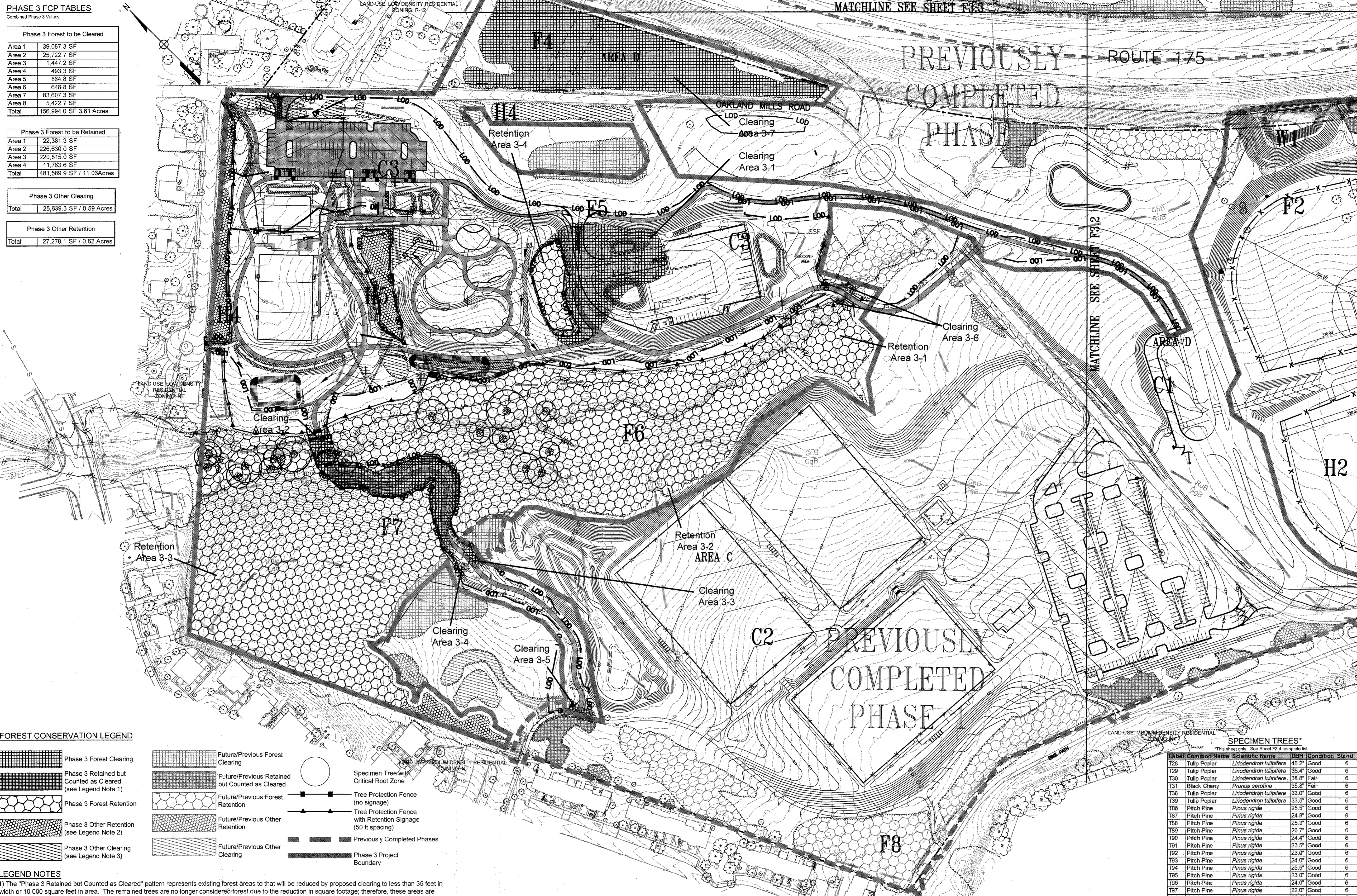
PHASE 3 FCP TABLES
Combined Phase 3 Values

Phase 3 Forest to be Cleared	
Area 1	39,067.3 SF
Area 2	25,722.7 SF
Area 3	1,447.2 SF
Area 4	453.3 SF
Area 5	564.8 SF
Area 6	648.8 SF
Area 7	83,607.3 SF
Area 8	5,422.7 SF
Total	156,994.0 SF / 3.61 Acres

Phase 3 Forest to be Retained	
Area 1	22,381.3 SF
Area 2	226,630.0 SF
Area 3	220,815.0 SF
Area 4	11,763.6 SF
Total	481,589.9 SF / 11.08 Acres

Phase 3 Other Clearing	
Total	25,639.3 SF / 0.59 Acres

Phase 3 Other Retention	
Total	27,278.1 SF / 0.62 Acres



FOREST CONSERVATION LEGEND

	Phase 3 Forest Clearing		Future/Previous Forest Clearing		Specimen Tree with Critical Root Zone
	Phase 3 Retained but Counted as Cleared (see Legend Note 1)		Future/Previous Retained but Counted as Cleared		Tree Protection Fence (no signage)
	Phase 3 Forest Retention		Future/Previous Forest Retention		Tree Protection Fence (50 ft spacing)
	Phase 3 Other Retention (see Legend Note 2)		Future/Previous Other Retention		Previously Completed Phases
	Phase 3 Other Clearing (see Legend Note 3)		Future/Previous Other Clearing		Phase 3 Project Boundary

- LEGEND NOTES**
- The "Phase 3 Retained but Counted as Cleared" pattern represents existing forest areas to that will be reduced by proposed clearing to less than 35 feet in width or 10,000 square feet in area. The remained trees are no longer considered forest due to the reduction in square footage; therefore, these areas are counted as cleared.
 - The "Phase 3 Other Retention" pattern represents existing tree areas (non-forest) less than 35 feet in width or 10,000 square feet in area that will be retained. These areas are not counted as cleared, nor are they counted as retained.
 - The "Phase 3 Other Clearing" pattern represents existing tree areas (non-forest) less than 35 feet in width or 10,000 square feet in area that will be cleared.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Clark 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Wendy... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Val... 3-19-17
 DIRECTOR DATE

SOILS TABLE

SOIL MAP UNIT	SOIL NAME	ERODIBLE*	HYDRIC
GgB	Glenelg loam, 3-8% slopes	No	No
GgC	Glenelg loam, 8-15% slopes	No	No
GhB	Glenelg-Urban land complex, 0-8% slopes	No	No
GnB	Glenville-Belle silt loams, 0-8% slopes	Yes	Partial ¹
GoB	Glenville-Codorus silt loams, 0-8% slopes	Yes	No
GhC	Glenville-Urban land-Udorthents complex, 0-8% slopes	Partial ¹	No
McC	Manor loam, 8-15% slopes	No	No
RuB	Russell and Beltsville soils, 2-5% slopes	Partial ¹	No

* Erodible soils have a K value greater than 0.35.
¹ Only the Belle component of the Glenville-Belle soil type is hydric.
 Only the Glenville and Beltsville components of soil types GgB and RuB are erodible.

- VEGETATIVE COMMUNITIES**
- F - Forest Stand
 - T - Tree Group
 - AF - Abandoned Field
 - OM - Open Meadow
 - C - Crop Field
 - W - Wetland
 - H - Hedgerow

LEGEND

	Tree Line		Wetland
	Shrubline		Stream
	Individual Trees/Shrubs		Wetland Buffer
	Existing Reforestation Plantings		Stream Buffer
	Gravel Path/Driveway		Floodplain Line
			Grass Trail
			Limit of Disturbance
			Property Line
			Soil Boundary
			Existing Structure

SPECIMEN TREES*
*This sheet only. See Sheet F3.4 complete list

Label	Common Name	Scientific Name	DBH	Condition	Stand
T28	Tulip Poplar	Liriodendron tulipifera	45.2"	Good	6
T29	Tulip Poplar	Liriodendron tulipifera	36.4"	Good	6
T30	Tulip Poplar	Liriodendron tulipifera	38.8"	Fair	6
T31	Black Cherry	Prunus serotina	35.8"	Fair	6
T38	Tulip Poplar	Liriodendron tulipifera	33.0"	Good	6
T39	Tulip Poplar	Liriodendron tulipifera	33.5"	Good	6
T86	Pitch Pine	Pinus rigida	25.5"	Good	6
T87	Pitch Pine	Pinus rigida	24.8"	Good	6
T88	Pitch Pine	Pinus rigida	25.3"	Good	6
T89	Pitch Pine	Pinus rigida	25.7"	Good	6
T90	Pitch Pine	Pinus rigida	24.4"	Good	6
T91	Pitch Pine	Pinus rigida	23.5"	Good	6
T92	Pitch Pine	Pinus rigida	23.0"	Good	6
T93	Pitch Pine	Pinus rigida	24.0"	Good	6
T94	Pitch Pine	Pinus rigida	25.5"	Good	6
T95	Pitch Pine	Pinus rigida	23.0"	Good	6
T96	Pitch Pine	Pinus rigida	24.0"	Good	6
T97	Pitch Pine	Pinus rigida	22.0"	Good	6
T98	Pitch Pine	Pinus rigida	22.2"	Good	6
T95	Red Maple	Acer rubrum	31.0"	Fair	H4

REVISIONS

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

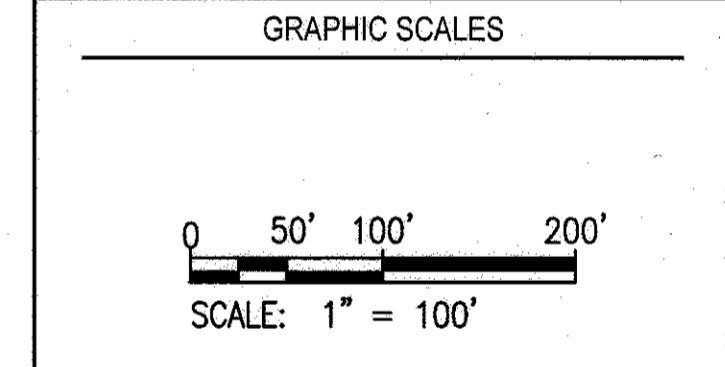


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

Timothy R. Hess
 TIMOTHY R. HESS DATE
 MD DNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

FOREST CONSERVATION PLAN

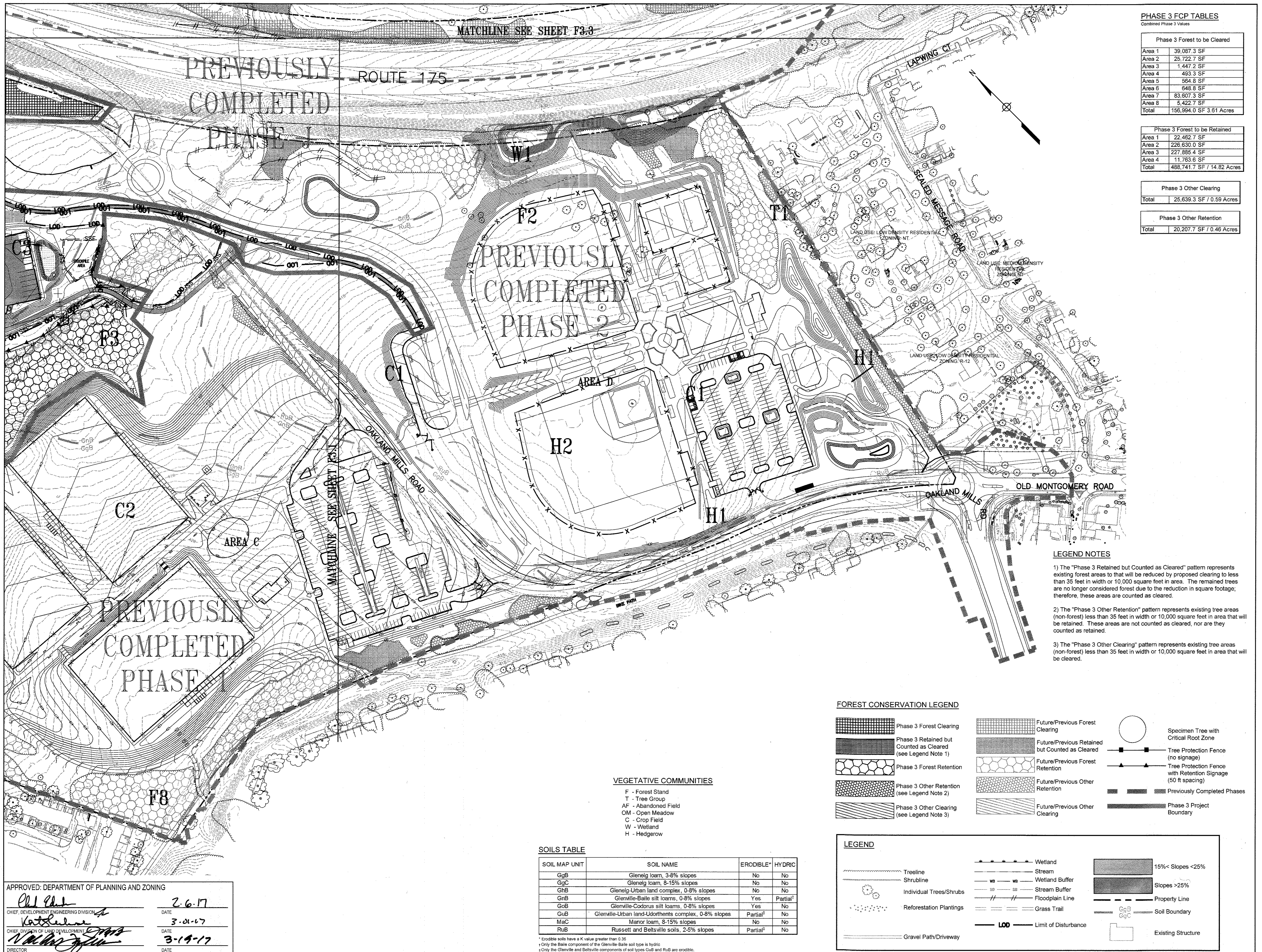
Drawing No. **F3.1**

Scale: 1" = 100'

Date: 1/17/2017 Sheet 54 of 76

Des: TRH Drawn: TRH Check: BWJ

SDP-15-050



PHASE 3 FCP TABLES
Combined Phase 3 Values

Phase 3 Forest to be Cleared	
Area 1	39,087.3 SF
Area 2	26,722.7 SF
Area 3	1,447.2 SF
Area 4	493.3 SF
Area 5	564.8 SF
Area 6	648.8 SF
Area 7	83,607.3 SF
Area 8	5,422.7 SF
Total	156,994.0 SF / 3.61 Acres

Phase 3 Forest to be Retained	
Area 1	22,462.7 SF
Area 2	226,630.0 SF
Area 3	227,885.4 SF
Area 4	11,763.6 SF
Total	488,741.7 SF / 14.82 Acres

Phase 3 Other Clearing	
Total	25,639.3 SF / 0.59 Acres

Phase 3 Other Retention	
Total	20,207.7 SF / 0.46 Acres

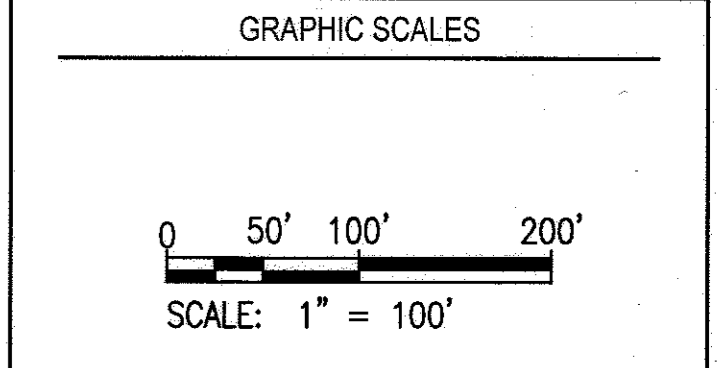
REVISIONS

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



SIGNATURE

Timothy R. Heber
TIMOTHY R. HEBER DATE
MD DNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

FOREST CONSERVATION PLAN
Drawing No. **F3.2**
Scale: 1" = 100'
Date: 1/17/2017 Sheet 55 of 76
Des: TRH Drawn: TRH Check: BWJ

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kathleen ... 3-20-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 3-19-17
DIRECTOR DATE

VEGETATIVE COMMUNITIES

F - Forest Stand
T - Tree Group
AF - Abandoned Field
OM - Open Meadow
C - Crop Field
W - Wetland
H - Hedgerow

SOILS TABLE

SOIL MAP UNIT	SOIL NAME	ERODIBLE*	HYDRIC
GgB	Glenelg loam, 3-8% slopes	No	No
GgC	Glenelg loam, 8-15% slopes	No	No
GhB	Glenelg-Urban land complex, 0-8% slopes	No	No
GnB	Glenelg-Baile silt loams, 0-8% slopes	Yes	Partial ¹
GoB	Glenelg-Codorus silt loams, 0-8% slopes	Yes	No
GuB	Glenelg-Urban land-Udorhents complex, 0-8% slopes	Partial ²	No
MaC	Maror loam, 8-15% slopes	No	No
RuB	Russett and Beltsville soils, 2-5% slopes	Partial ³	No

* Erodible soils have a K_s value greater than 0.35
¹ Only the Baile component of the Glenelg-Baile soil type is hydric.
² Only the Glenelg and Beltsville components of soil types GuB and RuB are erodible.

FOREST CONSERVATION LEGEND

	Phase 3 Forest Clearing		Future/Previous Forest Clearing		Specimen Tree with Critical Root Zone
	Phase 3 Retained but Counted as Cleared (see Legend Note 1)		Future/Previous Retained but Counted as Cleared		Tree Protection Fence (no signage)
	Phase 3 Forest Retention		Future/Previous Forest Retention		Tree Protection Fence with Retention Signage (50 ft spacing)
	Phase 3 Other Retention (see Legend Note 2)		Future/Previous Other Retention		Previously Completed Phases
	Phase 3 Other Clearing (see Legend Note 3)		Future/Previous Other Clearing		Phase 3 Project Boundary

LEGEND

	Treeline		Wetland		15% < Slopes < 25%
	Shrubline		Stream		Slopes > 25%
	Individual Trees/Shrubs		Wetland Buffer		Property Line
	Reforestation Plantings		Stream Buffer		Soil Boundary
	Gravel Path/Driveway		Floodplain Line		Existing Structure
			Grass Trail		
			Limit of Disturbance		

SOIL MAP UNIT	SOIL NAME	ERODIBLE	HYDRIC
GgB	Glenely loam, 3-8% slopes	No	No
GyC	Glenely loam, 3-15% slopes	No	No
GhB	Glenely-Urban land complex, 0-8% slopes	No	No
GhS	Glenely-Baile silt loams, 0-8% slopes	Yes	Partial
GeB	Glenely-Codonus silt loams, 0-8% slopes	Yes	No
GuB	Glenely-Urban land-Udorthens complex, 0-8% slopes	Partial	No
MuB	Major loam, 8-15% slopes	No	No
RuB	Russell and Belleville soils, 2-5% slopes	Partial	No

*Erodible soils have a K factor value greater than 0.35.
 *Only the Bt horizon of soil type Glenely-Baile silt loams is hydric.
 *Only the A horizon of soil type Glenely-Baile silt loams is hydric.



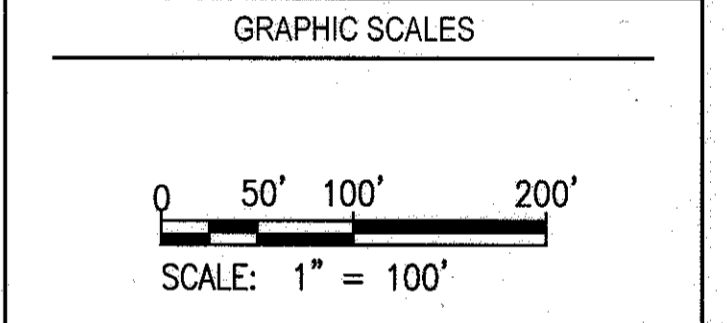
VEGETATIVE COMMUNITIES
 F - Forest Stand
 T - Tree Group
 AF - Abandoned Field
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 C - Crop Field
 W - Wetland
 H - Hedgerow

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

TIMOTHY R. HESS
 MD DNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

FOREST CONSERVATION PLAN
 Drawing No. **F3.3**
 Scale: 1" = 100'
 Date: 1/17/2017 Sheet 56 of 76
 Des: TRH Drawn: TRH Check: BWJ

PHASE 3 FCP TABLES
 Combined Phase 3 Values

Phase 3 Other Clearing	Phase 3 Forest to be Retained	Phase 3 Forest to be Cleared
Total 25,639.3 SF / 0.59 Acres	Area 1 22,462.7 SF Area 2 226,630.0 SF Area 3 227,885.4 SF Area 4 1,447.2 SF Area 5 493.3 SF Area 6 648.8 SF Area 7 83,607.3 SF Area 8 5,422.7 SF Total 488,741.7 SF / 14.82 Acres	Area 1 39,087.3 SF Area 2 25,722.7 SF Area 3 1,447.2 SF Area 4 493.3 SF Area 5 664.8 SF Area 6 648.8 SF Area 7 83,607.3 SF Area 8 5,422.7 SF Total 156,994.0 SF 3.61 Acres

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17
 DATE: 3-01-17
 DATE: 3-14-17

SPECIMEN TREES*
 *This sheet only. See Sheet F3.4 for complete list.

Label	Common Name	Scientific Name	DBH	Condition	Stand	Save or Remove
T106	Red Maple	Acer rubrum	44.7"	Poor	10	S
T107	White Oak	Quercus alba	34.0"	Fair	10	S
T108	Red Maple	Acer rubrum	30.0"	Poor	10	S
T109	White Oak	Quercus alba	32.5"	Fair	10	S
T110	White Oak	Quercus alba	30.5"	Fair	10	S
T111	Black Cherry	Prunus serotina	32.3"	Poor	10	S

Label	Common Name	Scientific Name	DBH	Condition	Stand	Save or Remove
T141	Red Maple	Acer rubrum	50.7"	Fair	12	S
T142	Red Maple	Acer rubrum	34.5"	Poor	12	S
T143	Pin Oak	Quercus palustris	34.5"	Fair	12	S
T144	Red Maple	Acer rubrum	30.0"	Fair	12	S
T145	Red Maple	Acer rubrum	36.0"	Fair	12	S
T146	Tulip Poplar	Liriodendron tulipifera	36.3"	Good	12	S
T147	Tulip Poplar	Liriodendron tulipifera	38.3"	Good	12	S
T148	Tulip Poplar	Liriodendron tulipifera	38.8"	Good	12	S
T149	Tulip Poplar	Liriodendron tulipifera	37.2"	Good	12	S
T172	Tulip Poplar	Liriodendron tulipifera	32.5"	Good	12	S
T1101	Tulip Poplar	Liriodendron tulipifera	35.5"	Good	12	S
T1102	Tulip Poplar	Liriodendron tulipifera	31.3"	Good	12	S
T1103	Tulip Poplar	Liriodendron tulipifera	34.8"	Good	12	S
T1104	Tulip Poplar	Liriodendron tulipifera	38.2"	Good	12	S

FOREST CONSERVATION LEGEND

[Pattern]	Phase 3 Forest Clearing	[Pattern]	Future/Previous Forest Clearing
[Pattern]	Phase 3 Retained but Counted as Cleared (see Legend Note 1)	[Pattern]	Future/Previous Retained but Counted as Cleared
[Pattern]	Phase 3 Forest Retention	[Pattern]	Future/Previous Forest Retention
[Pattern]	Phase 3 Other Retention (see Legend Note 2)	[Pattern]	Future/Previous Other Retention
[Pattern]	Phase 3 Other Clearing (see Legend Note 3)	[Pattern]	Future/Previous Other Clearing
[Symbol]	Tree Protection Fence (no signage)	[Symbol]	Tree Protection Fence With Retention Signage (50 ft spacing)

LEGEND

[Symbol]	Treeline	[Symbol]	Wetland
[Symbol]	Shrubline	[Symbol]	Stream
[Symbol]	Individual Trees/Shrubs	[Symbol]	Wetland Buffer
[Symbol]	Reforestation Plantings	[Symbol]	Stream Buffer
[Symbol]	Specimen Tree	[Symbol]	Floodplain Line
[Symbol]	Gravel Path/Driveway	[Symbol]	Grass Trail
[Symbol]	Previously Completed Phases	[Symbol]	15% < Slopes < 25%
[Symbol]	Limit of Disturbance	[Symbol]	Slopes > 25%
[Symbol]		[Symbol]	Property Line
[Symbol]		[Symbol]	Soil Boundary

FILED IN 1008-003-CAD/DEVELOPMENTAL/FOREST/1008003-F3.DWG

CONSTRUCTION PERIOD PROTECTION PROGRAM

01/19/17

- 1. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD...
2. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES, BLAZE ORANGE FENCING SHALL BE INSTALLED AS PER DETAIL THIS SHEET ALONG ALL LIMITS OF DISTURBANCE ADJACENT TO WOODLANDS AND AS INDICATED ON FOREST CONSERVATION PLAN SHEETS FCP02 THROUGH FCP06...
3. PROTECTIVE SIGNAGE SHALL BE INSTALLED AS PER DETAIL THIS SHEET AND AS INDICATION ON FOREST CONSERVATION PLAN SHEETS FCP02 THROUGH FCP06...
4. TREES TO BE REMOVED SHALL BE TAKEN OUT WITHOUT DAMAGING PROTECTED TREES...
5. ALL EQUIPMENT AND MACHINERY SHALL BE KEPT INSIDE THE BLAZE ORANGE FENCING AND WITHIN THE LOD...
6. ANY TYPE OF DISTURBANCE BEYOND THE LOD IS STRICTLY PROHIBITED...
7. PLACEMENT OF EXCAVATED/BACKFILL MATERIAL AND STORAGE OF EQUIPMENT/MACHINERY SHALL BE AVOIDED WITHIN THE CRITICAL ROOT ZONE AREAS OF SPECIMEN TREES IN ORDER TO MINIMIZE SOIL COMPACTION IN THESE SENSITIVE AREAS...
8. ROOT PRUNING AS PER DETAIL THIS SHEET SHALL BE UTILIZED FOR PROTECTION OF SPECIMEN TREES IN AREAS WHERE SPECIMEN TREE CRITICAL ROOT ZONES ARE LOCATED INSIDE THE LOD...
9. QUALIFIED PROFESSIONAL(S) RESPONSIBLE FOR MONITORING FOREST CONSERVATION REQUIREMENTS AND PERFORMING ANY NECESSARY CONSTRUCTION PERIOD MANAGEMENT SHALL VISIT THE PROJECT SITE ON TWO OCCASIONS...

FOREST CONSERVATION WORKSHEET VERSION 1.0 (Enter in Yellow Cells)

NET TRACT AREA: A. Total tract area... 309.21; B. Area within 100 year floodplain... 3.40; C. Area to remain in agricultural production... 0.00; D. Net tract area... 305.81

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Table with columns: ARA, MDR, IDA, HDR, MPD, CIA. Values: 0, 0, 1, 0, 0, 0

E. Afforestation Threshold... 15% x D = 45.87; F. Conservation Threshold... 20% x D = 61.16

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)... 108.48; H. Area of forest above afforestation threshold... 62.61; I. Area of forest above conservation threshold... 47.32

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation... 70.63; K. Clearing permitted without mitigation... 37.85

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared... 45.33; M. Total area of forest to be retained... 63.15

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold... 11.33; P. Reforestation for clearing below conservation threshold... 0.00; Q. Credit for retention above conservation threshold... 1.99; R. Total reforestation required... 9.34; S. Total afforestation required... 0.00; T. Total reforestation and afforestation required... 9.34

PHASE 3 FOREST CONSERVATION TABLE: Total Forest Cleared 156,993.9 SF / 3.60 Acres; Total Forest Retained 481,589.9 SF / 11.06 Acres; Total Other Clearing 25,639.3 SF / 0.59 Acres; Total Other Retention 27,278.1 SF / 0.62 Acres; Total Forest to be Protected by Conservation Easement 481,589.9 SF / 11.06 Acres

PHASE 5 FOREST CONSERVATION TABLE: Total Forest Cleared SF / Acres; Total Forest Retained SF / Acres; Total Other Clearing SF / Acres; Total Other Retention SF / Acres; Total Forest to be Protected by Conservation Easement SF / Acres

OVERALL FOREST CONSERVATION TABLE: Total Forest Cleared 597,867.0 SF / 13.73 Acres; Total Forest Retained 638,445.5 SF / 14.66 Acres; Total Other Clearing 164,888.8 SF / 3.78 Acres; Total Other Retention 46,720.7 SF / 1.07 Acres; Total Forest to be Protected by Conservation Easement 638,445.5 SF / 14.66 Acres

PHASE 4 FOREST CONSERVATION TABLE: Total Forest Cleared SF / Acres; Total Forest Retained SF / Acres; Total Other Clearing SF / Acres; Total Other Retention SF / Acres; Total Forest to be Protected by Conservation Easement SF / Acres

PHASE 6 FOREST CONSERVATION TABLE: Total Forest Cleared SF / Acres; Total Forest Retained SF / Acres; Total Other Clearing SF / Acres; Total Other Retention SF / Acres; Total Forest to be Protected by Conservation Easement SF / Acres

PHASE 7 FOREST CONSERVATION TABLE: Total Forest Cleared SF / Acres; Total Forest Retained SF / Acres; Total Other Clearing SF / Acres; Total Other Retention SF / Acres; Total Forest to be Protected by Conservation Easement SF / Acres

PREVIOUS PHASES

PHASE 1 FOREST CONSERVATION TABLE: Total Forest Cleared 125,176.3 SF / 2.87 Acres; Total Forest Retained 84,750.4 SF / 1.94 Acres; Total Other Clearing 50,244.6 SF / 1.15 Acres; Total Other Retention 4,561.8 SF / 0.10 Acres; Total Forest to be Protected by Conservation Easement 84,750.4 SF / 1.94 Acres

PHASE 2 FOREST CONSERVATION TABLE: Total Forest Cleared 130,407.3 SF / 3.00 Acres; Total Forest Retained 31,357.5 SF / 0.72 Acres; Total Other Clearing 19,804.5 SF / 0.45 Acres; Total Other Retention 12,760.7 SF / 0.29 Acres; Total Forest to be Protected by Conservation Easement 31,357.5 SF / 0.72 Acres

PHASE J FOREST CONSERVATION TABLE: Total Forest Cleared 185,289.6 SF / 4.26 Acres; Total Forest Retained 40,747.7 SF / 0.94 Acres; Total Other Clearing 73,223.1 SF / 1.68 Acres; Total Other Retention 2,120.1 SF / 0.23 Acres; Total Forest to be Protected by Conservation Easement 41,075.4 SF / 0.94 Acres

POST-CONSTRUCTION PERIOD PROTECTION PROGRAM

A POST CONSTRUCTION PROTECTION PROGRAM IS REQUIRED TO GIVE THE FOREST RESOURCES SAVED OR PLANTED AS PART OF THE DEVELOPMENT PROPOSAL A HIGH PROBABILITY OF ACHIEVING THE SURVIVAL RATES REQUIRED FOR RELEASE OF SURETY, AS WELL AS LONG-TERM SURVIVAL. THE POST-CONSTRUCTION PROTECTION PROGRAM SHALL BE FOR A MINIMUM OF TWO GROWING SEASONS, AS SPECIFIED IN THE HOWARD COUNTY FOREST CONSERVATION MANUAL.

PRESERVATION REQUIREMENTS

THE AREAS FOR FOREST RETENTION, REFORESTATION OR AFFORESTATION BY AN APPROVED FOREST CONSERVATION PLAN MUST BE PERMANENTLY PROTECTED AND RECORDED AS EITHER NON-DEVELOPABLE OPEN SPACE OR AS CONSERVATION EASEMENTS.

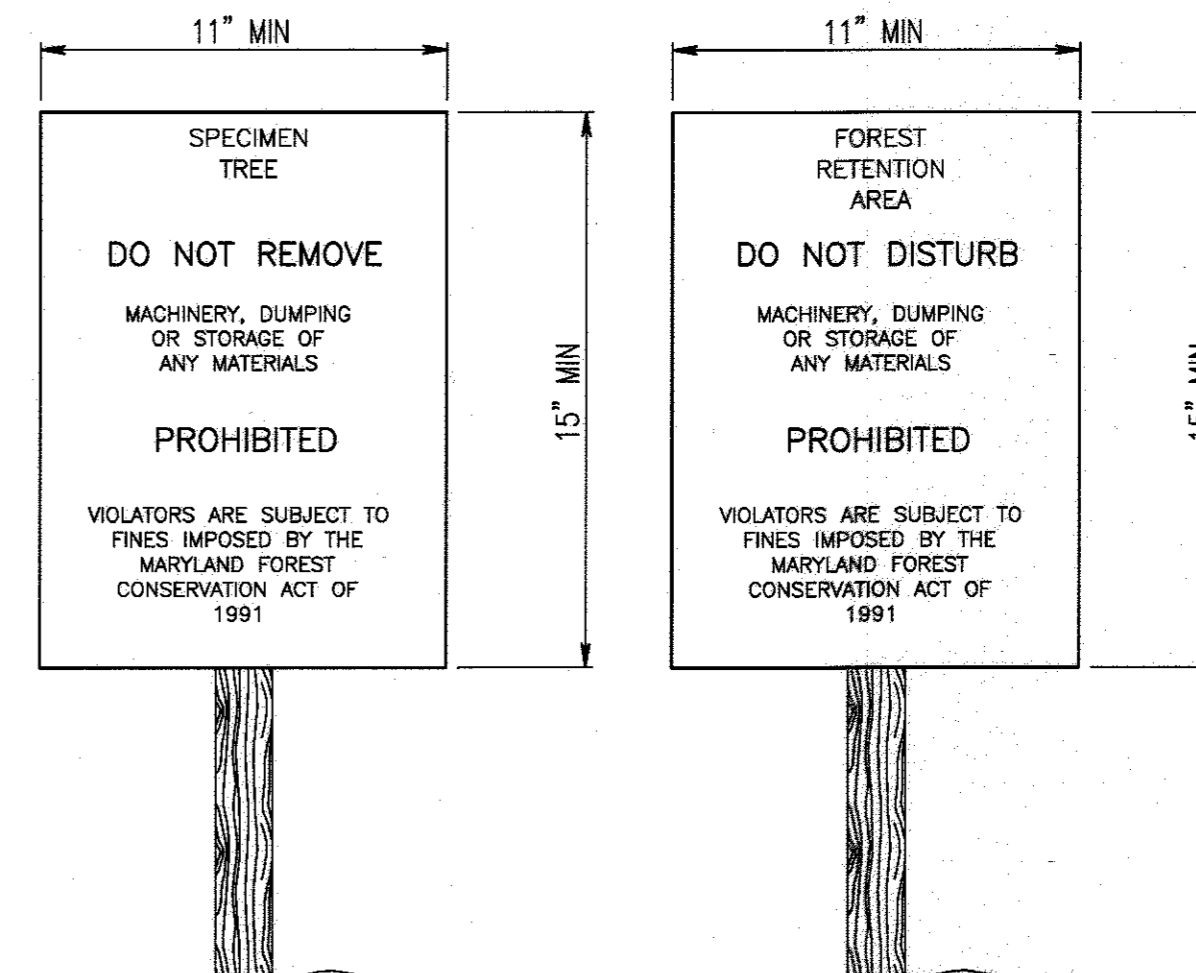
SPECIMEN TREE TABLE

Table with columns: Label, Common Name, Scientific Name, DBH, Condition, Stand, Save or Remove. Lists trees T1 through T252.

SPECIMEN TREE TABLE CONT'D

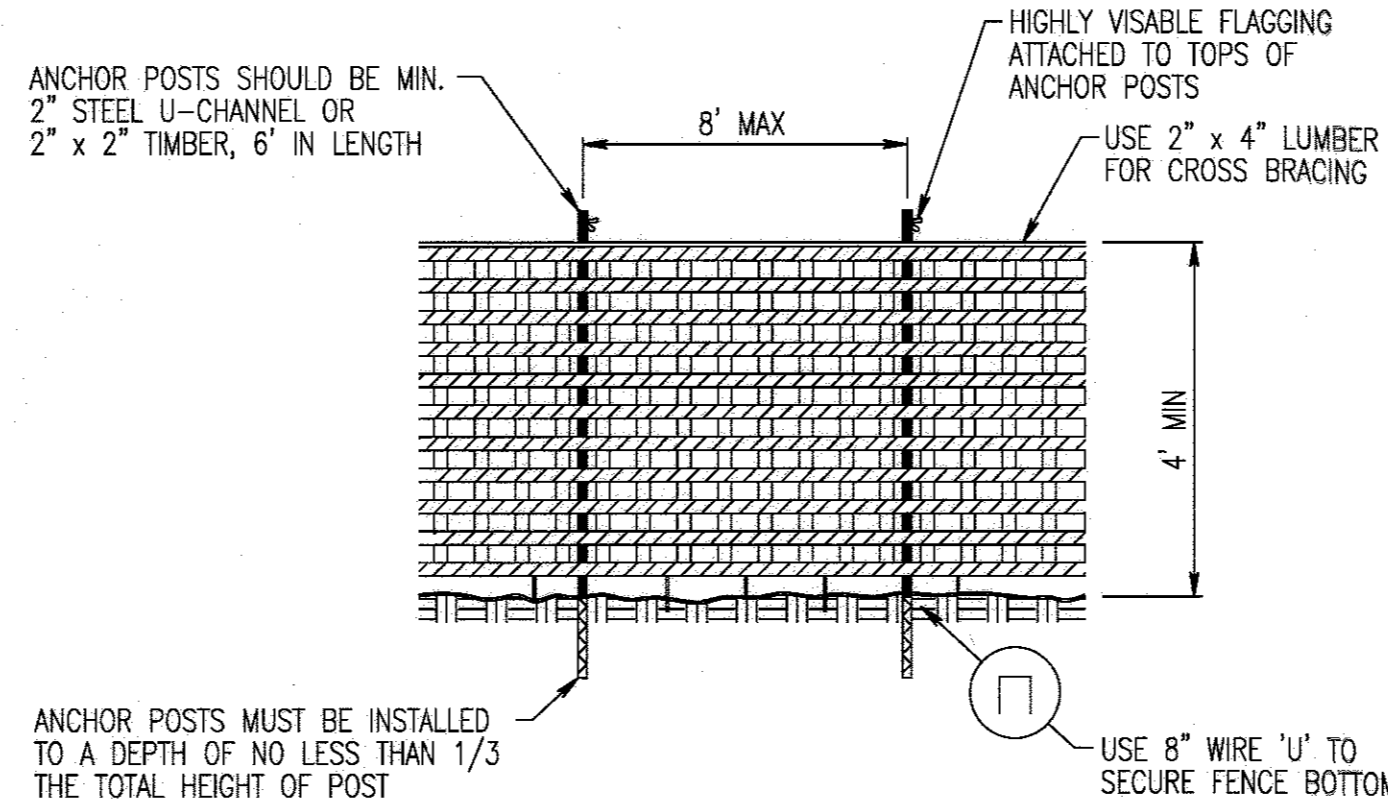
Table with columns: Label, Common Name, Scientific Name, DBH, Condition, Stand, Save or Remove. Lists trees T53 through T106.

*stand "offsite" means tree is located within the first 100 ft beyond the property line



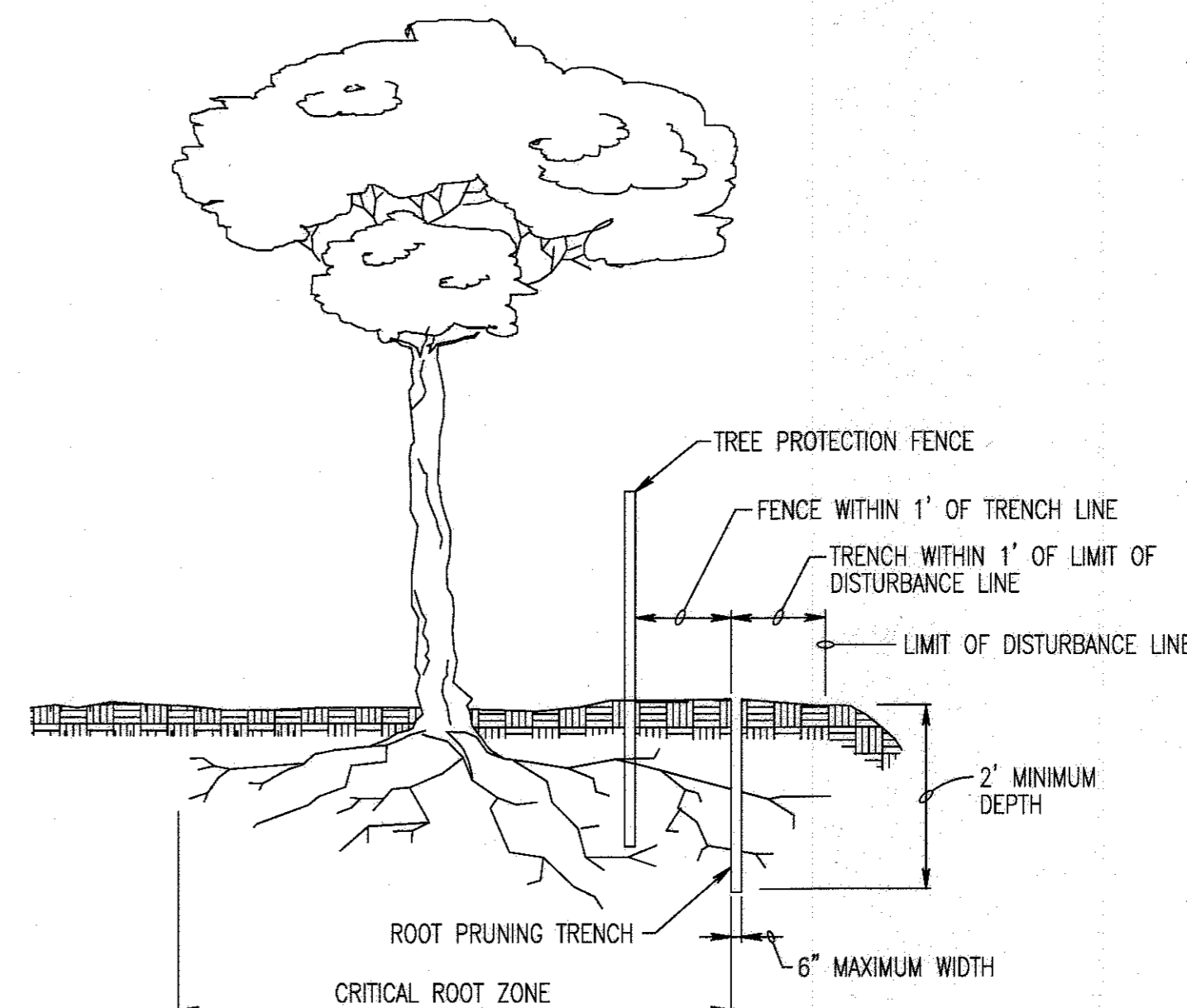
- NOTES: 1. BOTTOM OF SIGN TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE. 2. SIGNS TO BE PLACED APPROXIMATELY 50' APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART. 3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

CONSTRUCTION SIGNS NO SCALE



- ANCHOR POSTS SHOULD BE MIN. 2" STEEL U-CHANNEL OR 2" x 2" TIMBER, 6' IN LENGTH; HIGHLY VISIBLE FLAGGING ATTACHED TO TOPS OF ANCHOR POSTS; USE 2" x 4" LUMBER FOR CROSS BRACING; USE 8" WIRE 'U' TO SECURE FENCE BOTTOM; ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 THE TOTAL HEIGHT OF POST; NOTES: 1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE, ONLY. 2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS. 3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE. 4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS. 5. PROTECTION SIGNAGE IS REQUIRED. 6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

PLASTIC MESH TREE PROTECTION FENCE NO SCALE



- NOTES: 1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS. 2. BOUNDARIES OF RETENTION AREAS TO BE STAKED AND FLAGGED PRIOR TO TRENCHING. 3. EXACT LOCATION OF TRENCH SHALL BE IDENTIFIED. 4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL. 5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

ROOT PRUNING NO SCALE

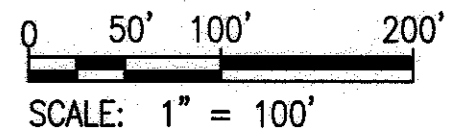
REVISIONS table with columns for revision number, description, and date.

HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043



PROPERTY TAX MAP 36, GRID 5, PARCEL 3,72 ZONING: RC-DEO ELECTION DISTRICT 3/7

GRAPHIC SCALES



SIGNATURE

TIMOTHY R. HESS MD CNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

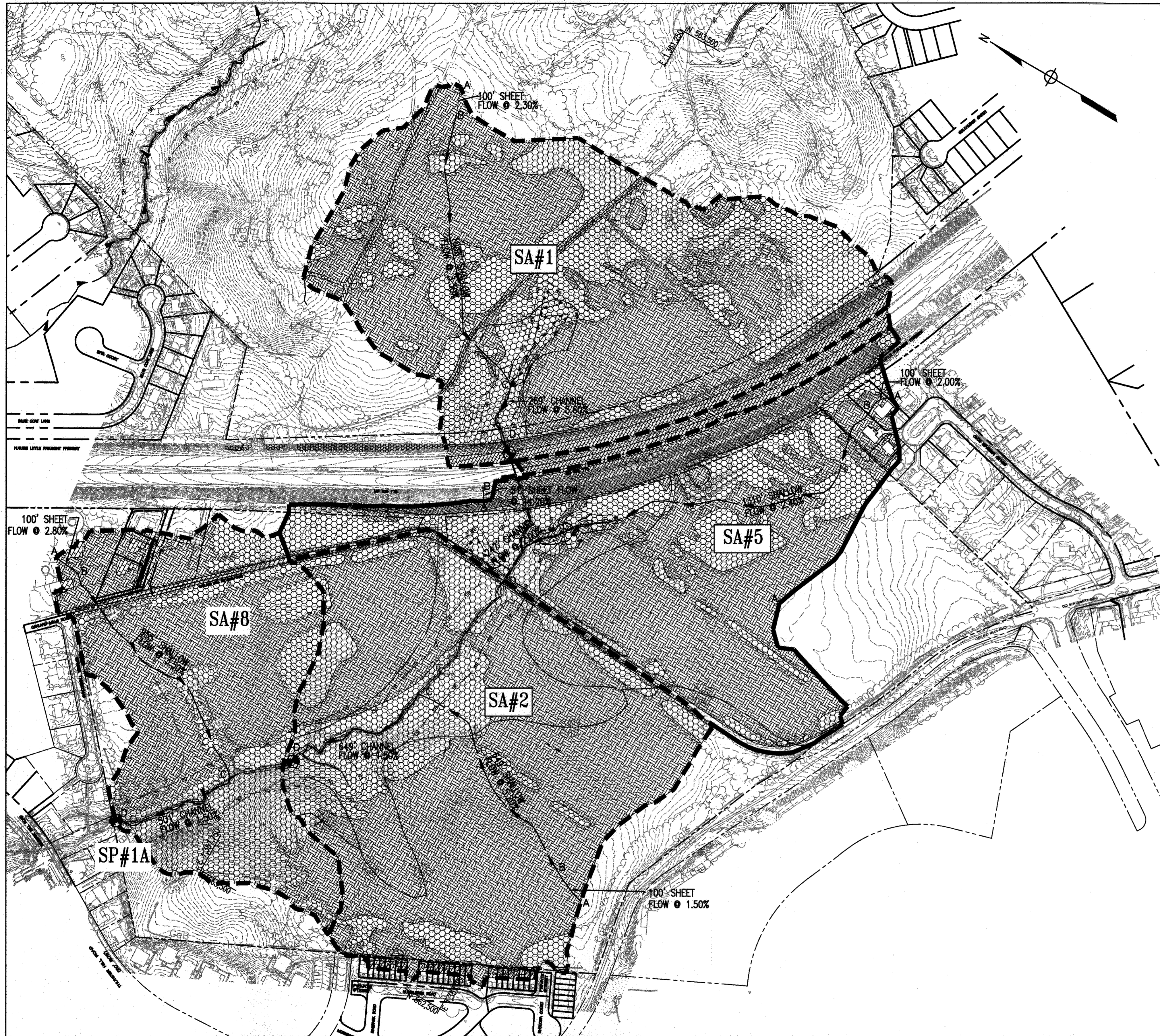
FOREST CONSERVATION NOTES AND DETAILS

Drawing No. F3.4

Scale: n/a Date: 1/17/2017 Sheet 57 of 76 Des: TRH Drawn: TRH Check: BWJ

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Approval signatures and dates: 2.6.17, 3.2.17, 3.19.17



EXISTING CONDITIONS DRAINAGE AREA MAP

1" = 200'

Soil Symbol	HSG	Soil Description
GnB	C	Glenville-Baile silt loams, 0-8% slopes
GgB	B	Glenelg loam, 3-8% slopes
GhB	B	Glenelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthents, Highway, 0-65% slopes

DRAINAGE LEGEND

- EXISTING DRAINAGE DIVIDE
- SOIL DIVIDE
- TIME OF CONCENTRATION PATH
- WOODS
- MEADOW
- IMPERVIOUS

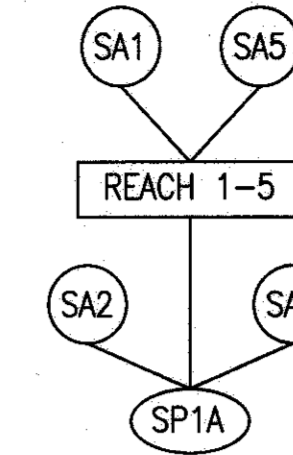
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Phil Clark 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kyle Schmitt 3-01-17
 CHIEF DIVISION OF LAND DEVELOPMENT DATE

N. Miller 3-19-17
 DIRECTOR DATE

DRAINAGE SCHEMATIC



REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

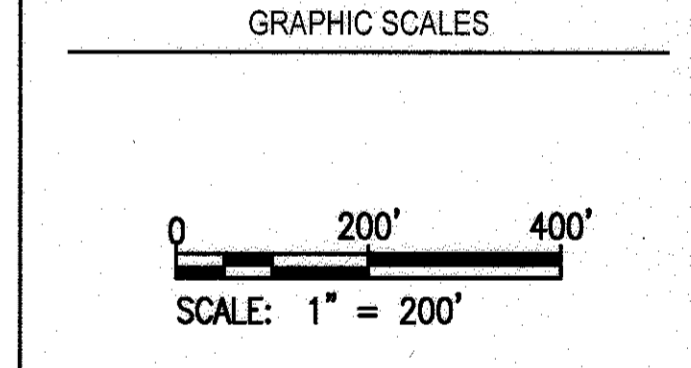


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

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. 19376, EXPIRATION DATE 09/22/2017.

BLANDAIR REGIONAL PARK - PHASE 3

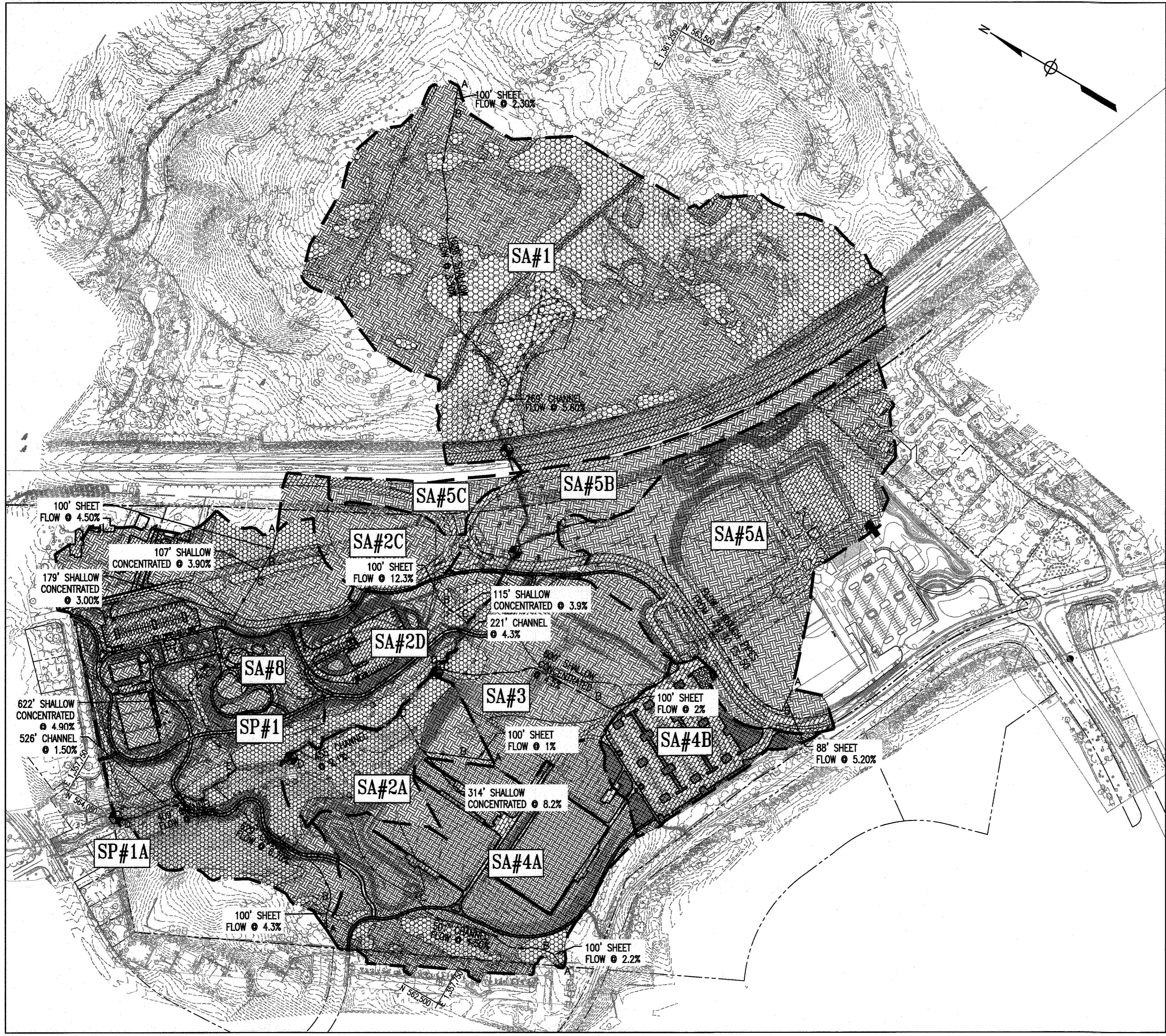
OVERALL DRAINAGE AREA MAP
 EXISTING CONDITIONS

Drawing No.
DA3.0

Scale: 1" = 200'

Date: 1/17/2017 Sheet 58 of 76

Des: SAD Drawn: SAD Check: AUO

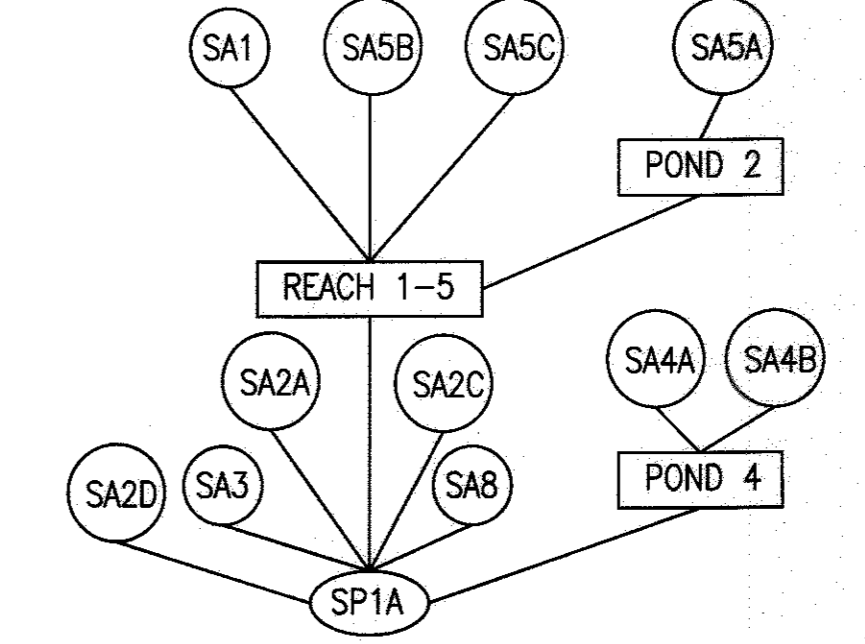


*NOTE:
 1. REDUCED RCN VALUES ARE CALCULATED FOR EACH ESD (MICRO-BIO, BIO-SWALE, PERVIOUS PAVEMENT) DRAINAGE AREA IN SUBAREAS 2D AND 8. THEREFORE, NO LAND USE HATCHING IS SHOWN FOR THOSE DRAINAGE AREAS.

DRAINAGE LEGEND

- PROPOSED DRAINAGE DIVIDE
- SOIL DIVIDE
- ESD DRAINAGE DIVIDE
- IMPERVIOUS
- OPEN SPACE
- WOODS
- TIME OF CONCENTRATION PATH STUDY POINT

DRAINAGE SCHEMATIC

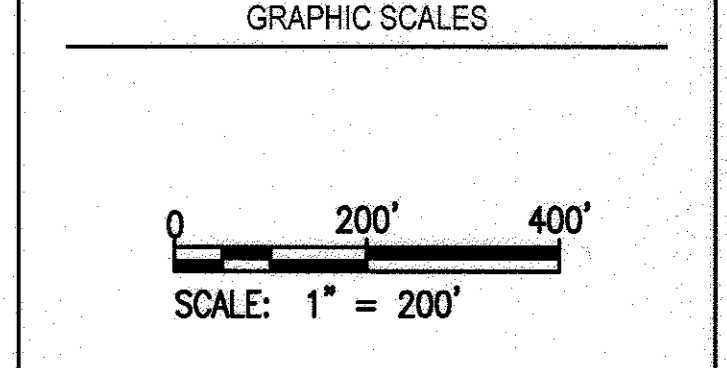


REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



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 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. 19976
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

OVERALL DRAINAGE AREA MAP
 PROPOSED CONDITIONS
 Drawing No.
DA3.1
 Scale: 1" = 200'
 Date: 1/17/2017 Sheet 59 of 76
 Des: SAD Drawn: SAD Check: AUO

Soil Symbol	HSG	Soil Description
GnB	C	Glennville-Baile silt loams, 0-8% slopes
GqB	B	Glennelg loam, 3-8% slopes
GhB	B	Glennelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthents, Highway, 0-65% slopes

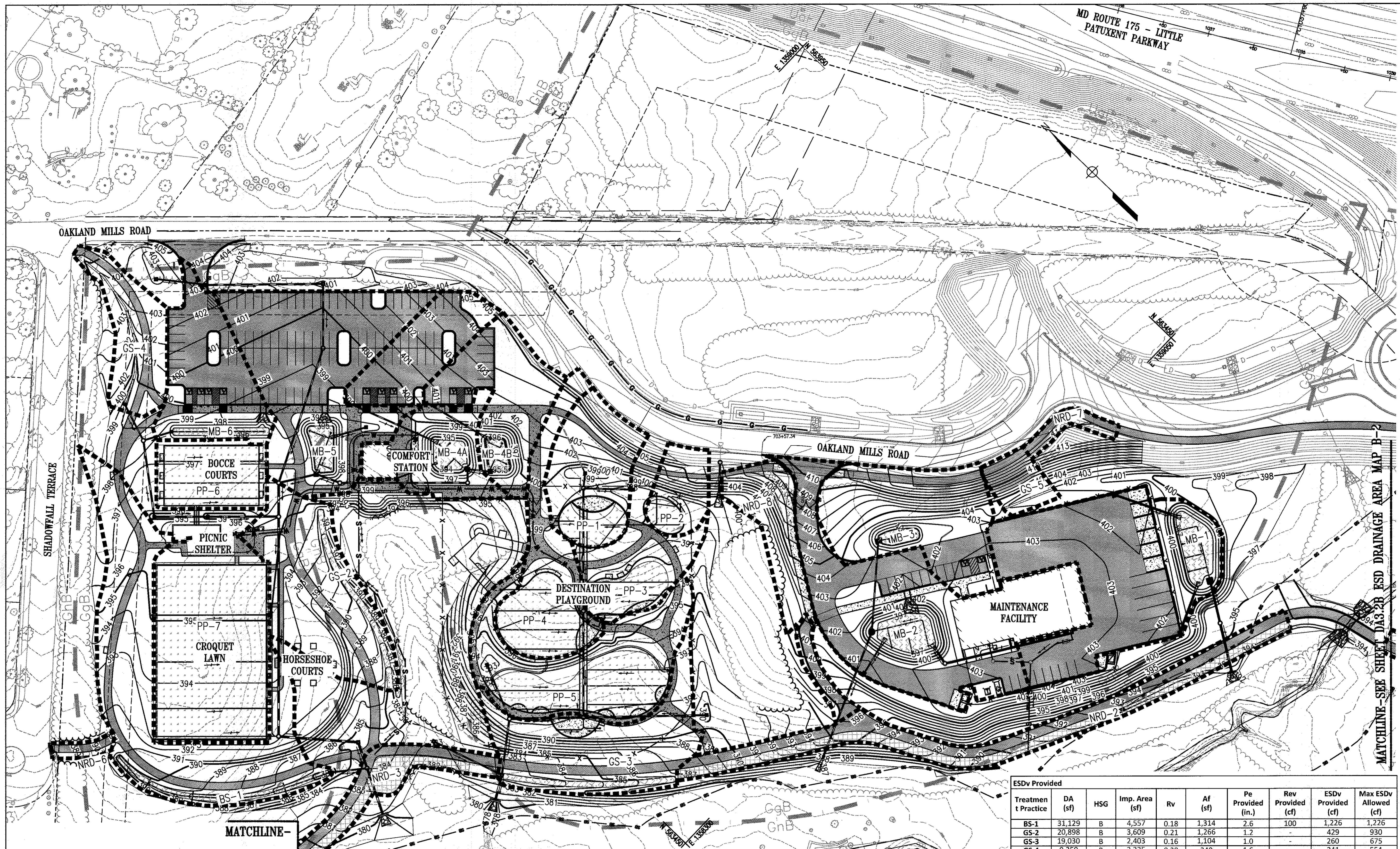
PROPOSED DRAINAGE AREA MAP
 1" = 200'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-19-17
 DIRECTOR



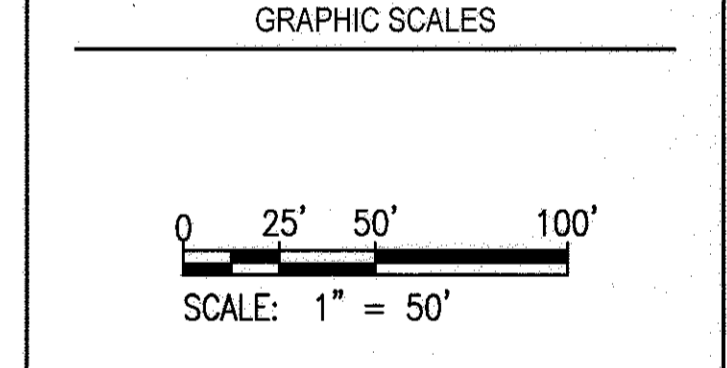
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DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



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 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. 19378 EXPIRATION DATE: 12/31/2017

BLANDAIR REGIONAL PARK - PHASE 3

ESD DRAINAGE AREA MAP

Drawing No. **DA3.2A**

Scale: 1" = 50'

Date: 1/17/2017 Sheet 60 of 76

Des: BWJ Drawn: AKC Check: ALO

MATCHLINE - SEE SHEET DA3.2B ESD DRAINAGE AREA MAP B-1

LEGEND

Symbol	HSG	Soil Description
	C	Glennville-Baile silt loams, 0-8% slopes
	B	Glennel loam, 3-8% slopes
	GhB	Glennel-Urban land complex, 0-8% slopes
	MaC	Manor loam, 8-15% slopes
	RuB	Russett and Beltsville soils, 2-5% slopes
	UaF	Udorthents, Highway, 0-65% slopes

ESD DRAINAGE AREA MAP
 1" = 50'

- DRAWING NOTES:**
- THE BOCCÉ COURTS AND CROQUET LAWN WILL BE ARTIFICIAL TURF.
 - EACH "POD" OF THE DESTINATION PLAYGROUND WILL BE ARTIFICIAL TURF.

ESDv Requirement

LOD	Imp. Area	Target Pe	Rv	ESDv Requirement (cf)
SF	AC	SF	AC	
611,200	14.03	231,479	5.31	1.8
				0.392
				35,939

ESDv Provided

Treatment Practice	DA (sf)	HSG	Imp. Area (sf)	Rv	Af (sf)	Pe Provided (in.)	Rev Provided (cf)	ESDv Provided (cf)	Max ESDv Allowed (cf)
MB-1	29,591	B	23,436	0.76	2,116	2.1	141	3,294	4,891
MB-2	34,611	C	24,511	0.69	2,037	1.9	136	3,125	5,155
MB-3	20,563	B	4,337	0.24	610	2.6	41	1,035	1,068
MB-4A	20,285	B	12,827	0.62	1,080	1.9	72	1,701	1,068
MB-4B	13,970	B	5,150	0.38	723	2.6	48	1,156	1,068
MB-5	27,366	B	21,622	0.76	1,160	1.3	77	1,846	4,513
MB-6	14,793	B	9,778	0.64	821	2.6	55	1,528	2,067
PP-1	4,604	B	3,403	0.72	2,227	2.6	167	713	713
PP-2	4,896	B	1,359	0.30	1,197	2.6	90	318	318
PP-3	11,837	B	5,282	0.45	3,555	2.6	267	1,158	1,158
PP-4	13,026	B	9,210	0.69	6,622	2.6	497	1,937	1,937
PP-5	20,717	B	12,570	0.60	9,552	2.6	716	2,676	2,676
PP-6	8,688	B	6,720	0.75	6,720	2.6	672	1,405	1,405
PP-7	26,489	B	23,348	0.84	21,762	2.6	2176	4,840	4,840
Total =	385,028		199,768		64,318				

ESDv Provided

Treatment Practice	DA (sf)	HSG	Imp. Area (sf)	Rv	Af (sf)	Pe Provided (in.)	Rev Provided (cf)	ESDv Provided (cf)	Max ESDv Allowed (cf)
BS-1	31,129	B	4,557	0.18	1,314	2.6	100	1,226	1,226
GS-2	20,898	B	3,609	0.21	1,266	1.2	-	429	930
GS-3	19,030	B	2,403	0.16	1,104	1.0	-	260	675
GS-4	9,259	B	2,325	0.28	340	1.6	-	341	554
GS-5	3,538	B	423	0.16	112	1.0	-	46	121
NRD-1	6,288	B	3,144	0.50	-	1.0	-	26	681
NRD-2	13,906	B	6,953	0.50	-	1.0	-	579	1,506
NRD-3	6,300	B	3,150	0.50	-	1.0	-	263	683
NRD-4	4,162	B	2,081	0.50	-	1.0	-	173	451
NRD-5	8,732	B	4,366	0.50	-	1.0	-	364	946
NRD-6	1,087	B	544	0.50	-	1.0	-	45	118
NRD-7	1,900	B	941	0.50	-	1.0	-	78	204
NRD-8	7,364	B	1,720	0.26	-	1.0	-	160	415
Total =	385,028		199,768		64,318				

ESDv Required = 35,939 Provided = 5,254 30,958 41,386

ESDv Required = (Pe Required) x Rv x DA Total ESDv Provided (Rev + ESDv) = 36,212

ESDv Provided = (Af x d x n + ponding depth) / 0.75

Max ESDv Allowed for SWM Practices = (2.6) x Rv x DA

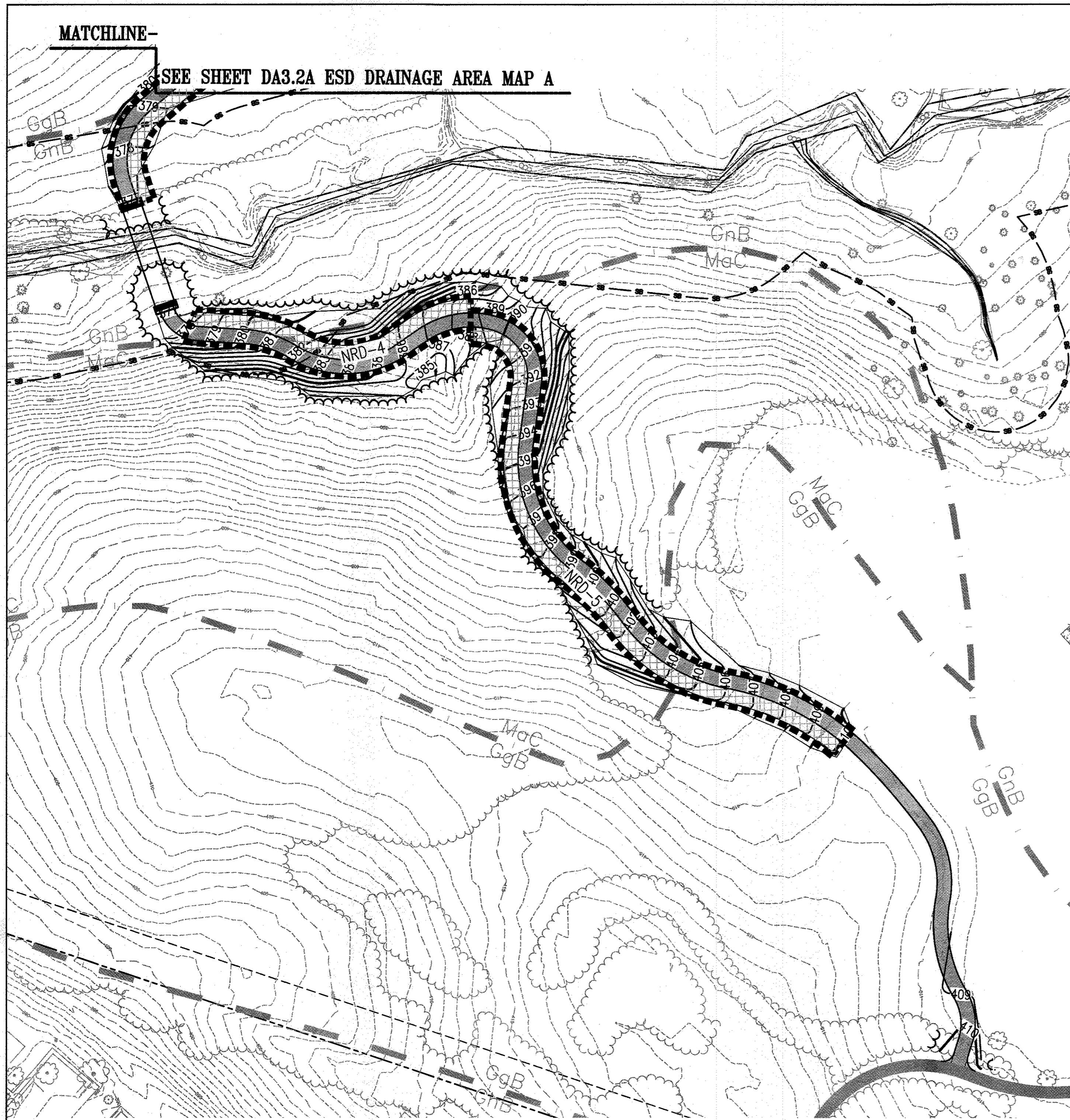
Imp. Area for Pervious Pavement facilities include the facility area

APPROVED: DEPARTMENT OF PLANNING AND ZONING

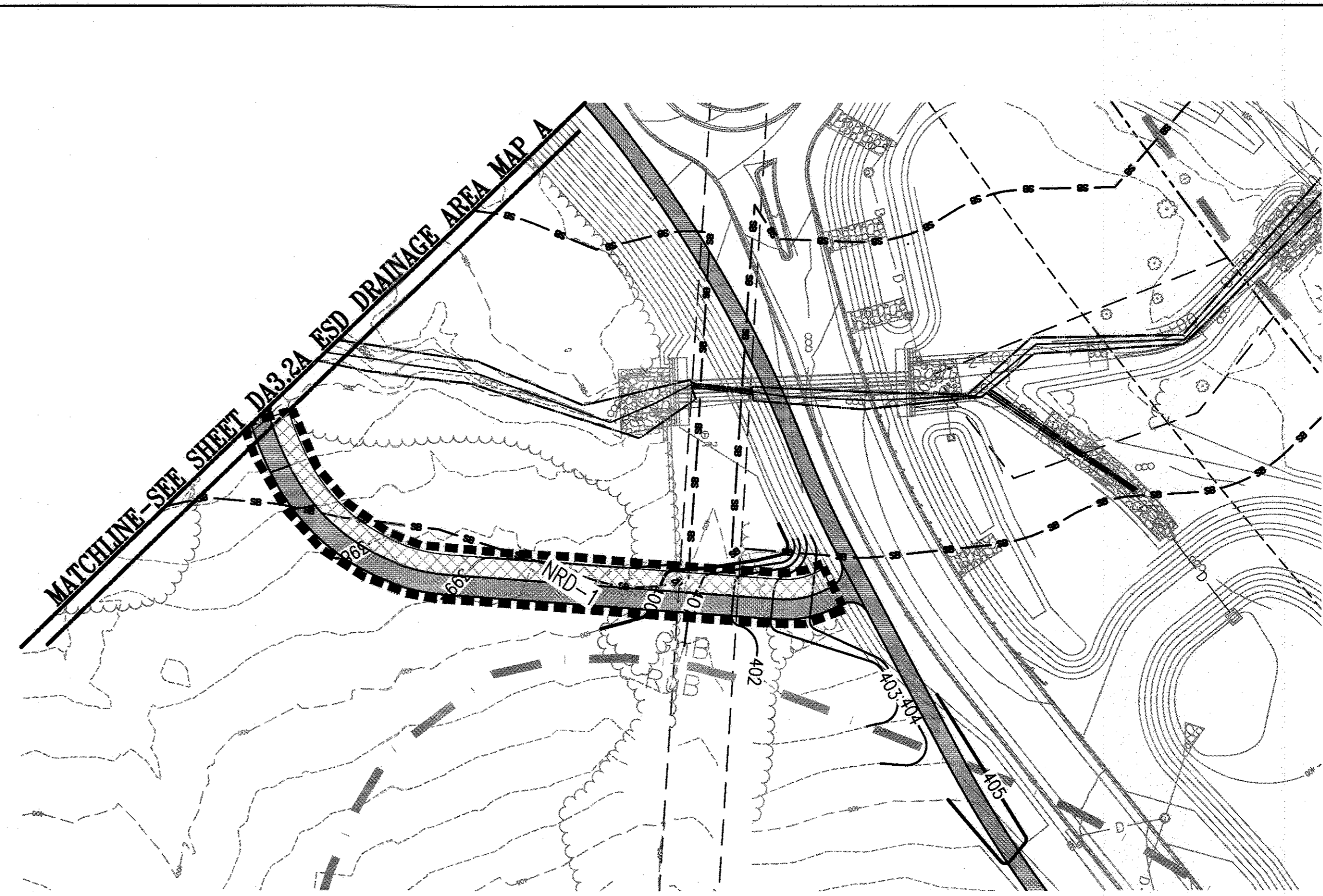
[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-6-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-15-17
 DIRECTOR



ESD DRAINAGE AREA MAP B-1
1" = 50'



ESD DRAINAGE AREA MAP B-2
1" = 50'

LEGEND

- ESD DRAINAGE AREA
- PERVIOUS PAVEMENT
- MICRO-BIORETENTION/BIOSWALE
- ARTIFICIAL TURF
- SOIL DIVIDE

Soil Symbol	HSG	Soil Description
GnB	C	Glennville-Baile silt loams, 0-8% slopes
GgB	B	Glennelg loam, 3-8% slopes
GhB	B	Glennelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthernts, Highway, 0-65% slopes

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-19-17
 DIRECTOR

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

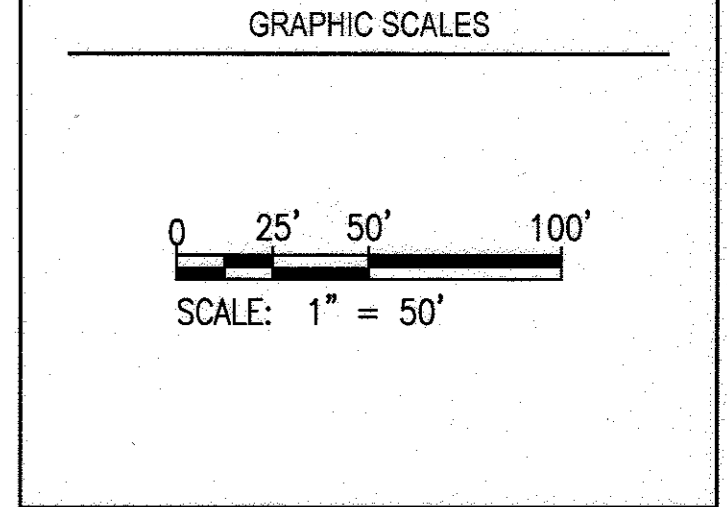


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



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PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 19378
EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

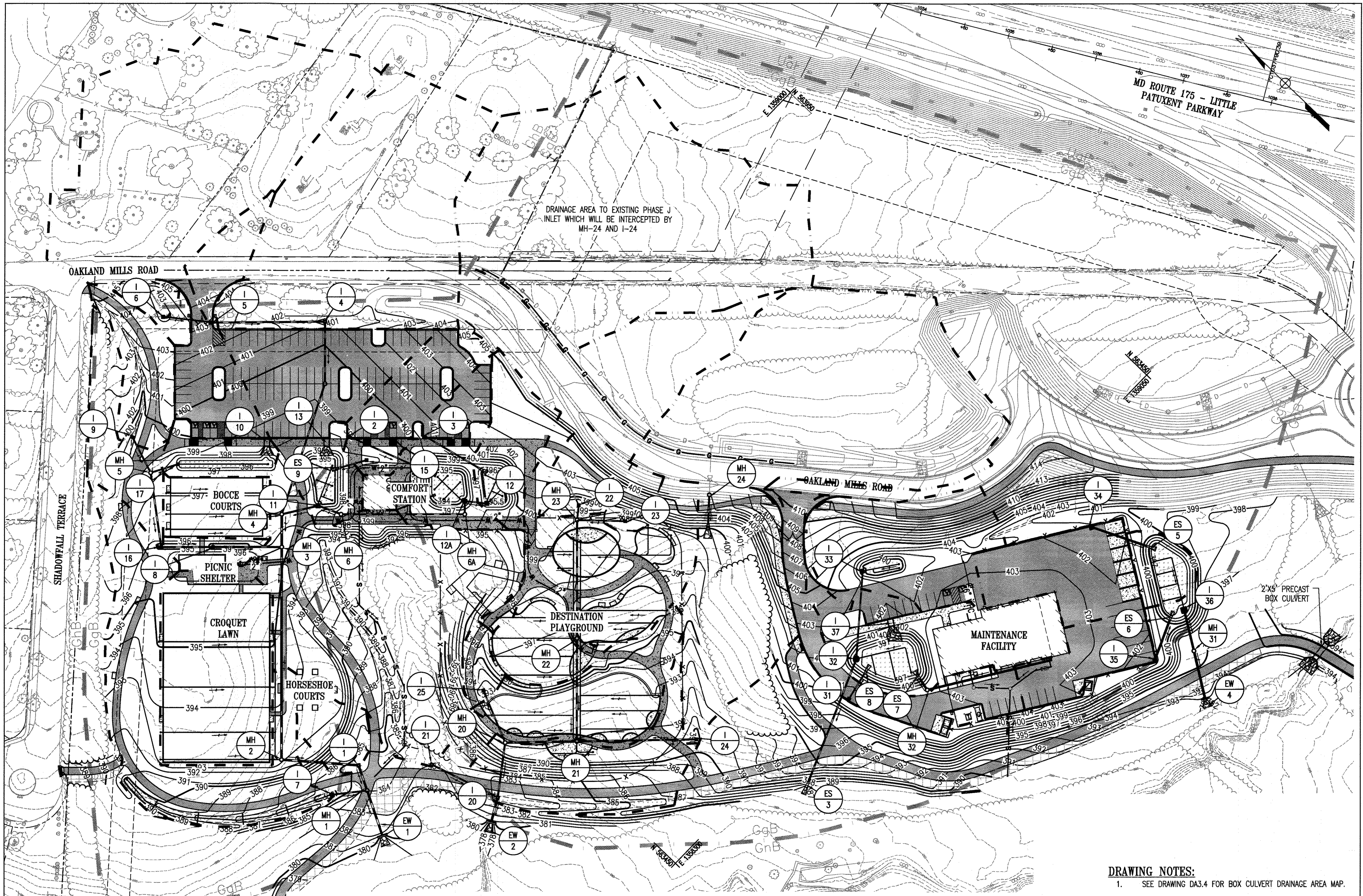
ESD DRAINAGE AREA MAP

Drawing No.
DA3.2B

Scale: 1" = 50'

Date: 1/17/2017 Sheet 61 of 76

Des: BWJ Drawn: AKC Check: AUO



INLET DRAINAGE AREA MAP
1" = 50'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
DATE

[Signature] 3-2-17
DATE

[Signature] 3-15-17
DATE

Soil Symbol	HSG	Soil Description
GnB	C	Glenville-Baile silt loams, 0-8% slopes
GgB	B	Glenelg loam, 3-8% slopes
GhB	B	Glenelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UoF	D	Udorthents, Highway, 0-65% slopes

LEGEND

	INLET DRAINAGE AREA
	PERVIOUS PAVEMENT
	MICRO-BIORETENTION/BIOSWALE
	ARTIFICIAL TURF
	SOIL DIVIDE

DRAWING NOTES:
1. SEE DRAWING DA3.4 FOR BOX CULVERT DRAINAGE AREA MAP.

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7120 OAKLAND MILLS ROAD
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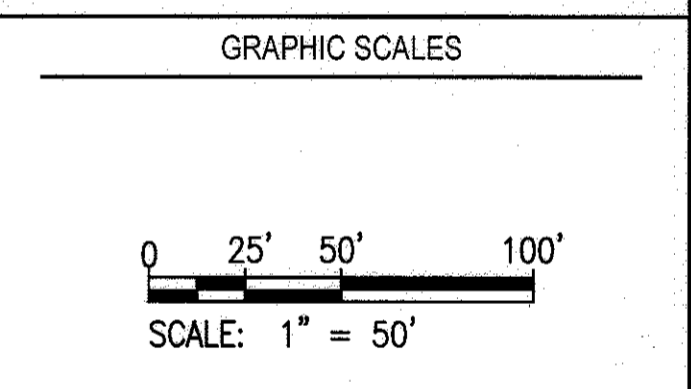


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ZONING: RC-DEO

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EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

INLET DRAINAGE AREA MAP

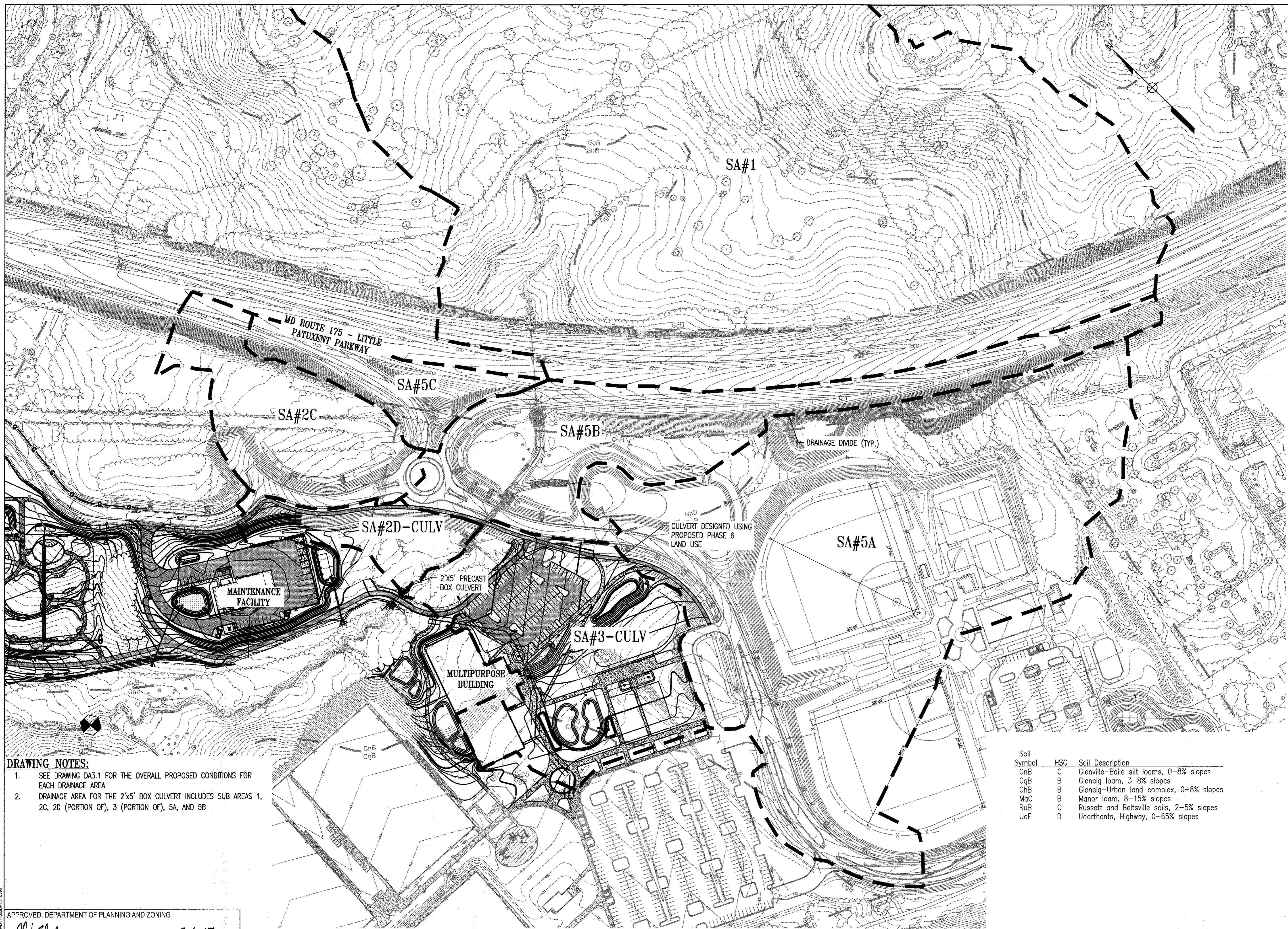
Drawing No.

DA3.3

Scale: 1" = 50'

Date: 1/17/2017 Sheet 62 of 76

Des: BWJ Drawn: AKC Check: AUO



- DRAWING NOTES:**
- SEE DRAWING DA3.1 FOR THE OVERALL PROPOSED CONDITIONS FOR EACH DRAINAGE AREA
 - DRAINAGE AREA FOR THE 2'x5' BOX CULVERT INCLUDES SUB AREAS 1, 2C, 2D (PORTION OF), 3 (PORTION OF), 5A, AND 5B

Soil Symbol	HSG	Soil Description
GnB	C	Glennville-Baile silt loams, 0-8% slopes
GgB	B	Glennlg loam, 3-8% slopes
GhB	B	Glennlg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthents, Highway, 0-65% slopes

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-21-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-15-17
 DIRECTOR

CULVERT DRAINAGE AREA MAP
 1" = 100'

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 ELLICOTT CITY, MD 21043

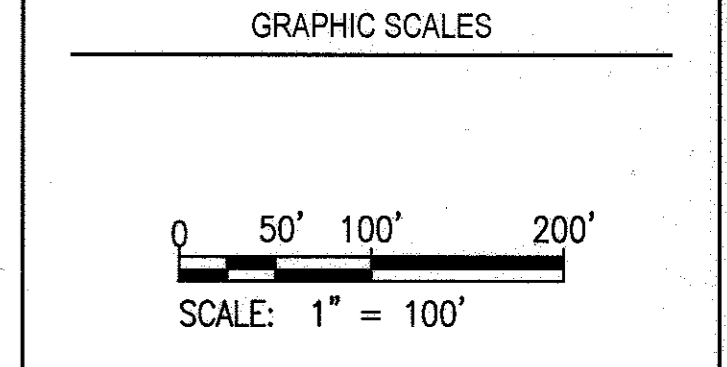


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TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

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 EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

CULVERT DRAINAGE AREA MAP

Drawing No.
DA3.4

Scale: 1" = 100'

Date: 1/17/2017 Sheet 63 of 76

Des: SAD Drawn: SAD Check: AUO

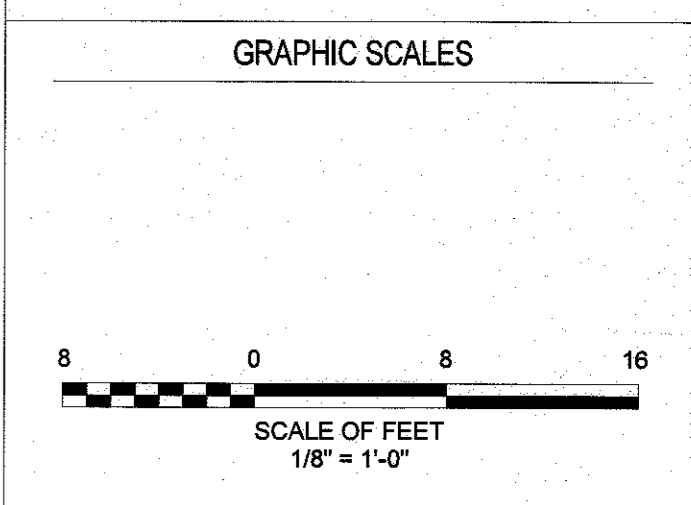
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Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

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LICENSE NO. 10892
EXPIRATION DATE: 10/18/2018

BLANDAIR REGIONAL PARK - PHASE 3

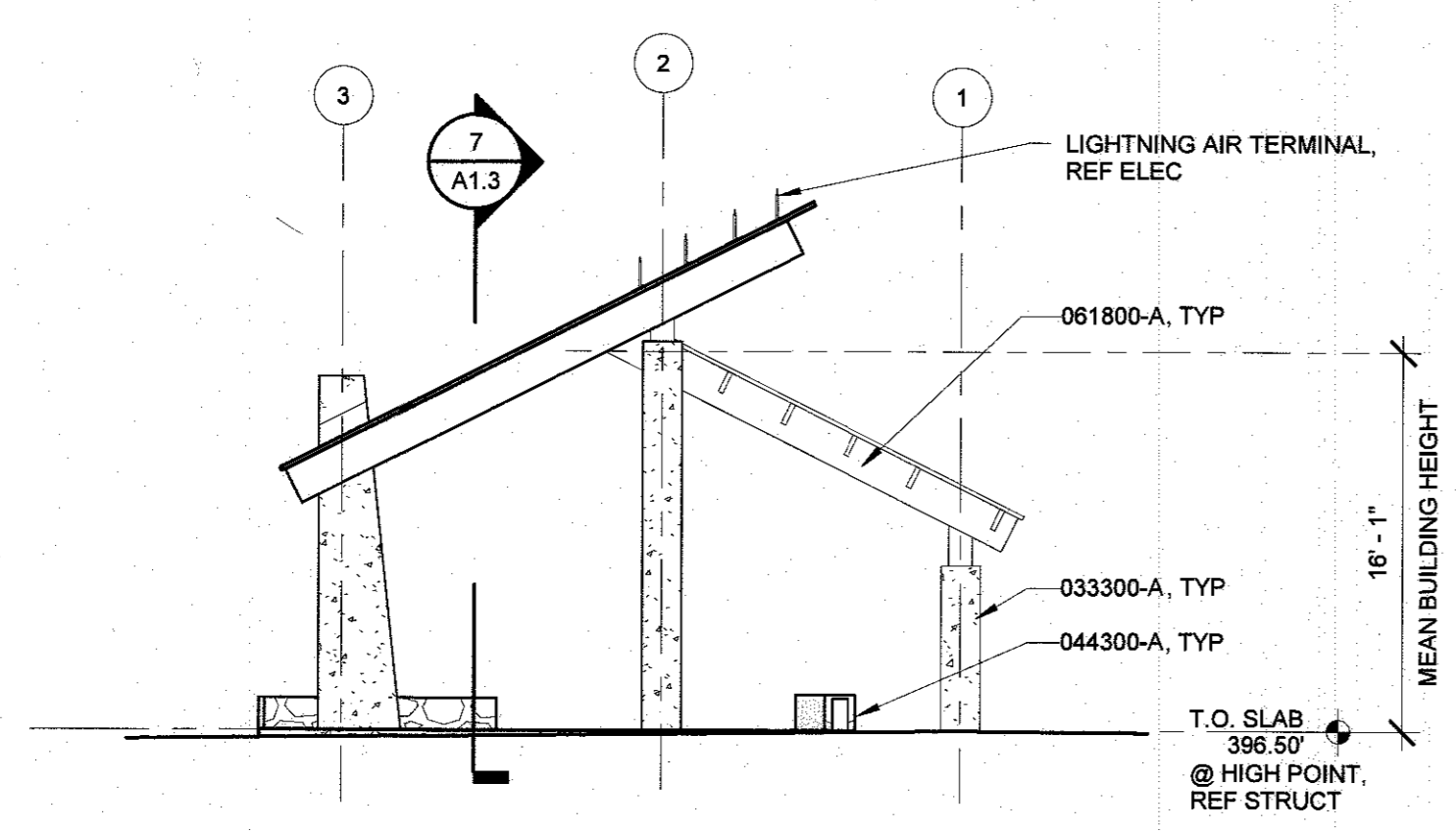
PICNIC SHELTER BUILDING ELEVATIONS

Drawing No.
A1.3A

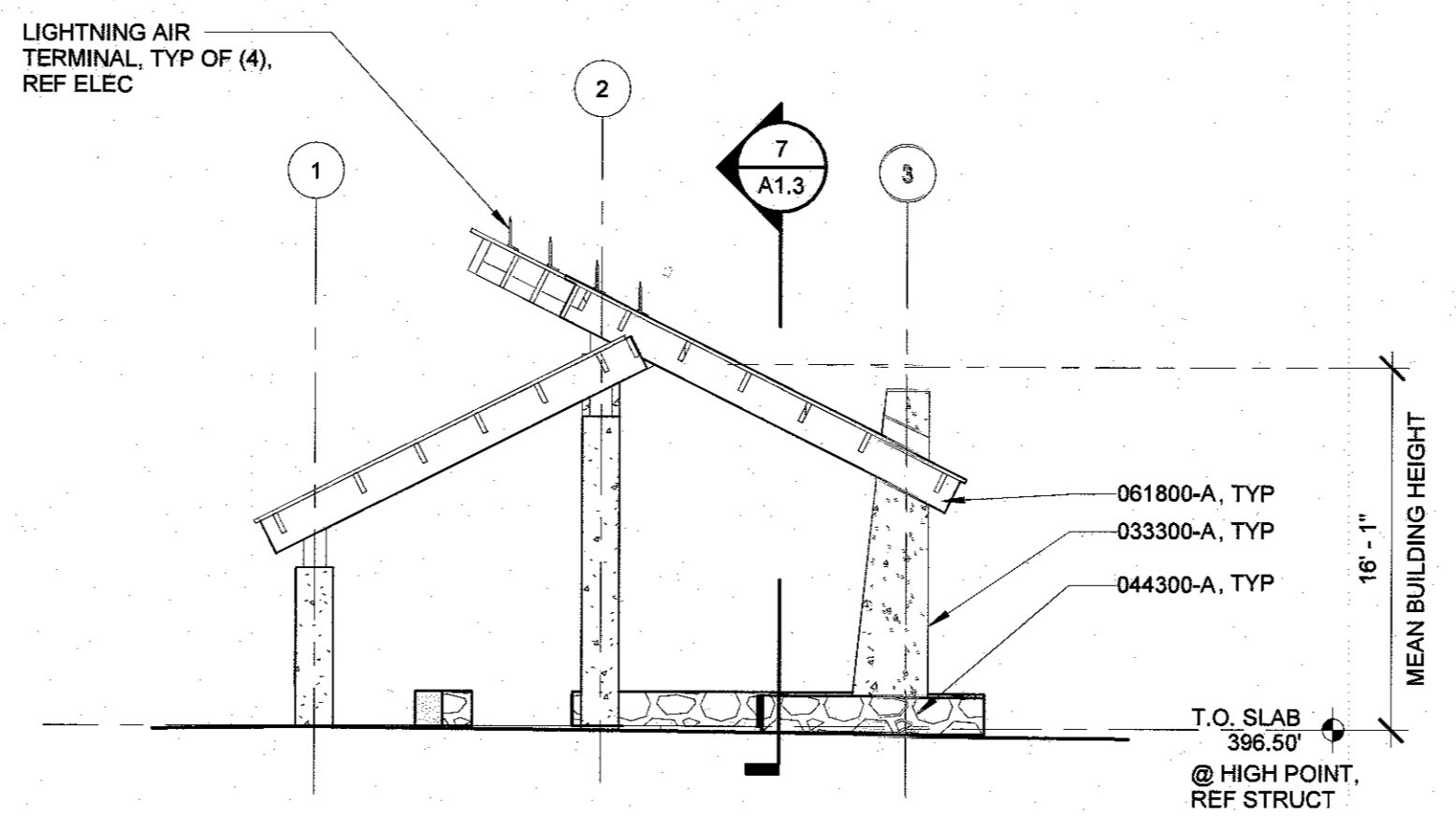
Scale: 1/8" = 1'-0"
Date: 1/17/2017 Sheet 64 of 76
Des: AER Drawn: KMW Check: LAJ

KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET A0.1 FOR COMPLETE LIST.

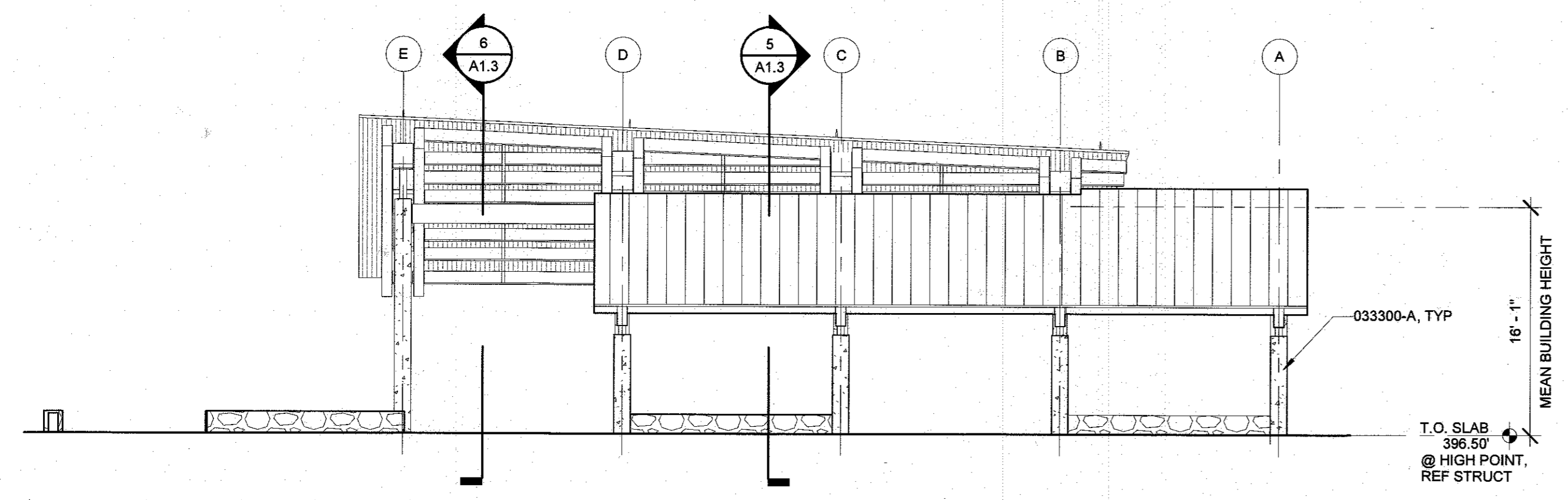
033300-A CONCRETE COLUMN; ARCHITECTURAL CONCRETE, REFER TO STRUCTURAL
044300-A STONE VENEER
061600-D EXTERIOR PLYWOOD ROOF SHEATHING, THICKNESS AS INDICATED
061800-A GLUE LAMINATED BEAM (REFER TO STRUCTURAL DOCUMENTS FOR FULL DESCRIPTION)



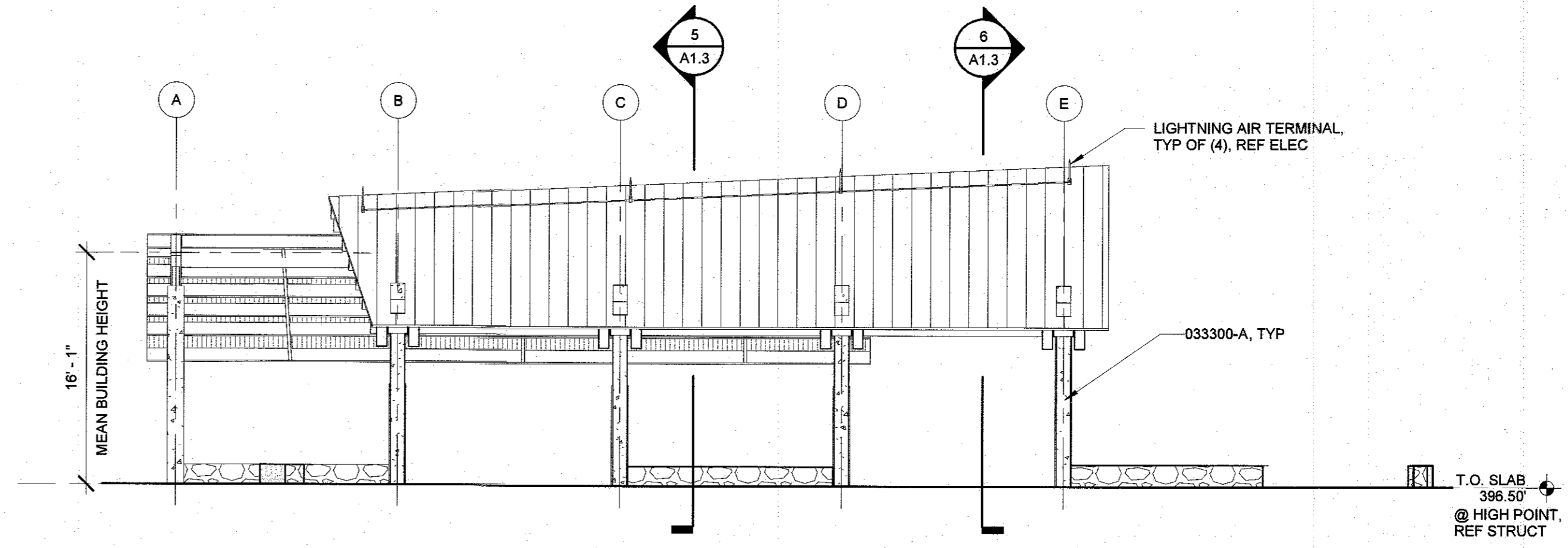
1 SDP - PICNIC SHELTER - EAST ELEVATION
A1.3A 1/8" = 1'-0"



2 SDP - PICNIC SHELTER - WEST ELEVATION
A1.3A 1/8" = 1'-0"



3 SDP - PICNIC SHELTER - NORTH ELEVATION
A1.3A 1/8" = 1'-0"



4 SDP - PICNIC SHELTER - SOUTH ELEVATION
A1.3A 1/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

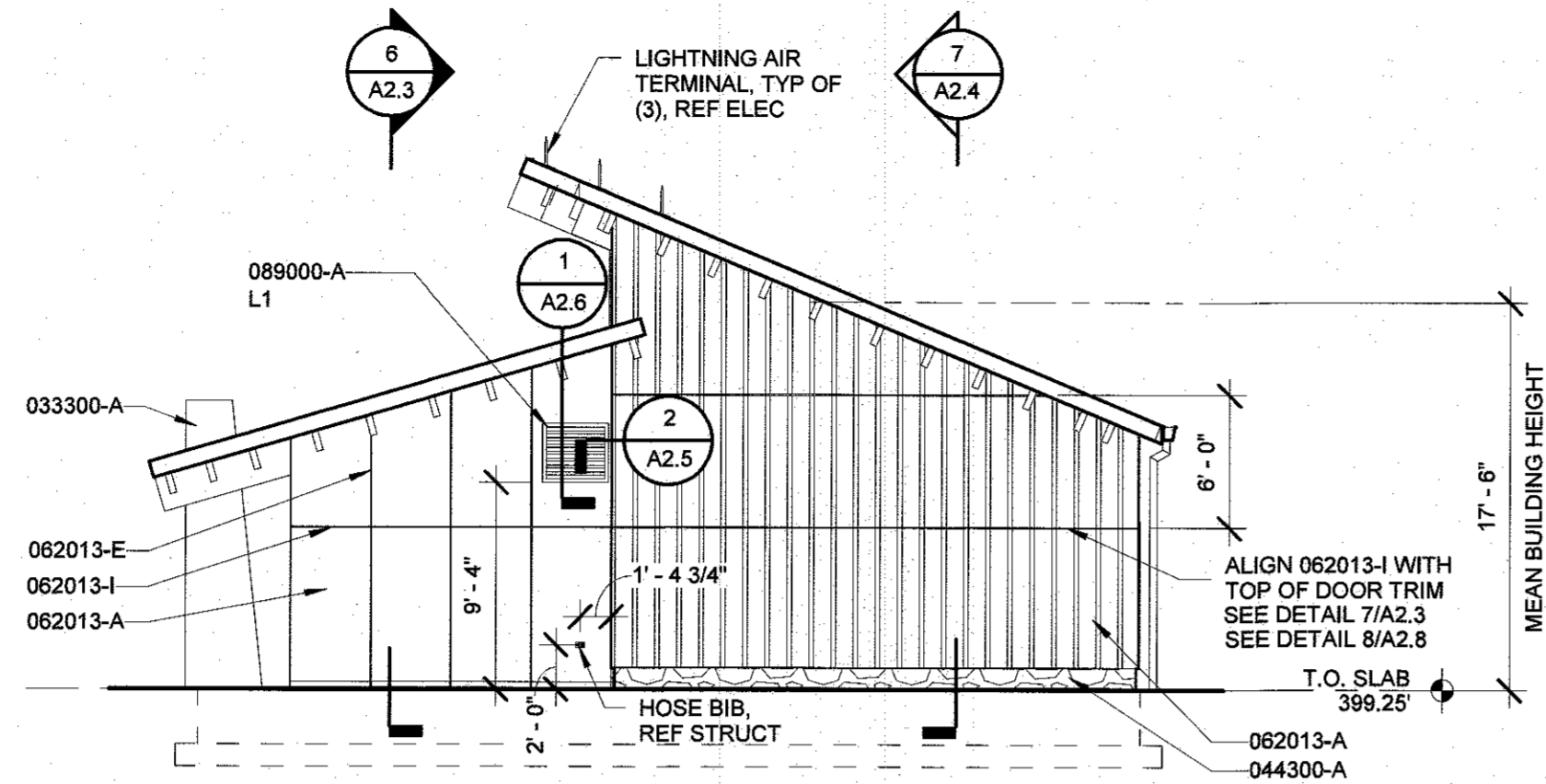
Chad Edwards 2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Walt Sheppard 3.01.17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

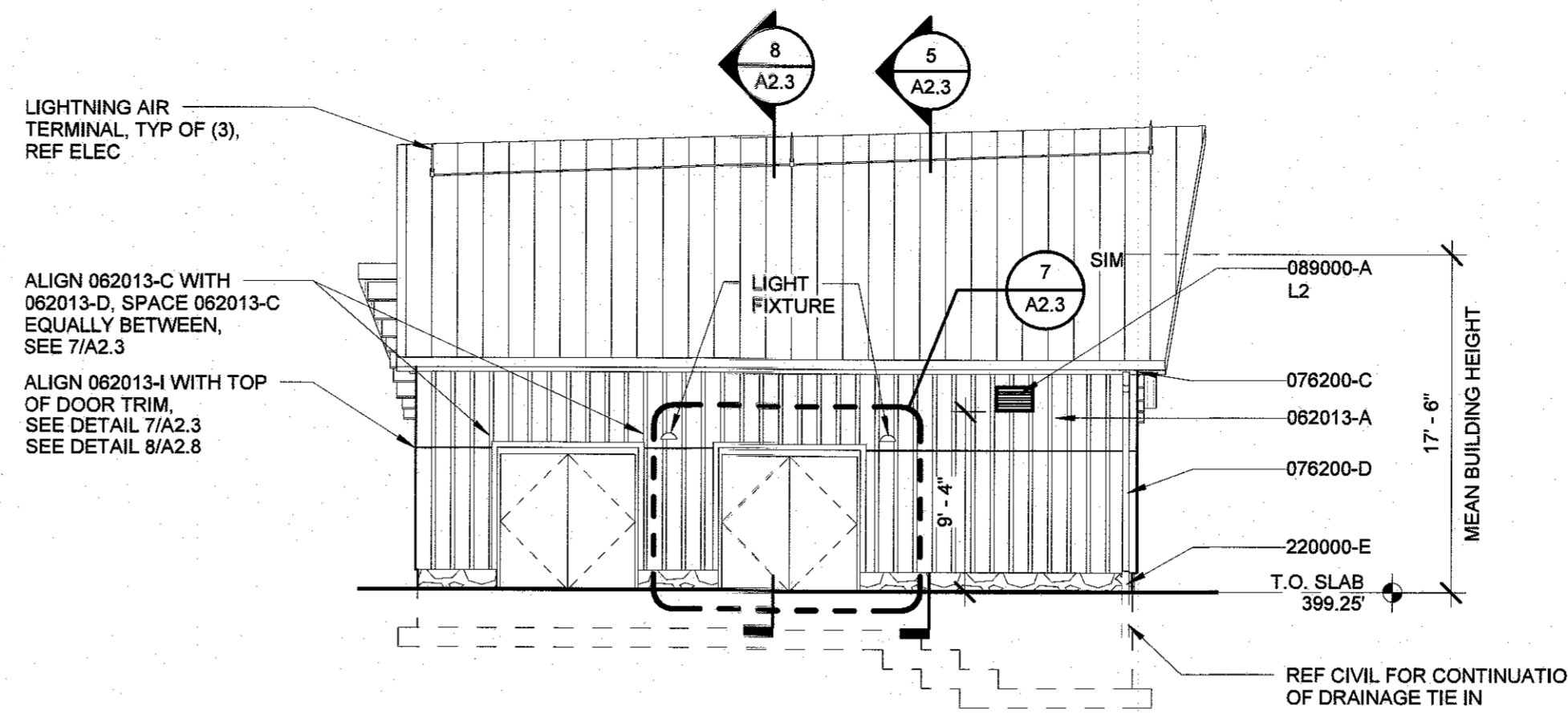
Walter J. J. J. 3-19-17
DIRECTOR DATE



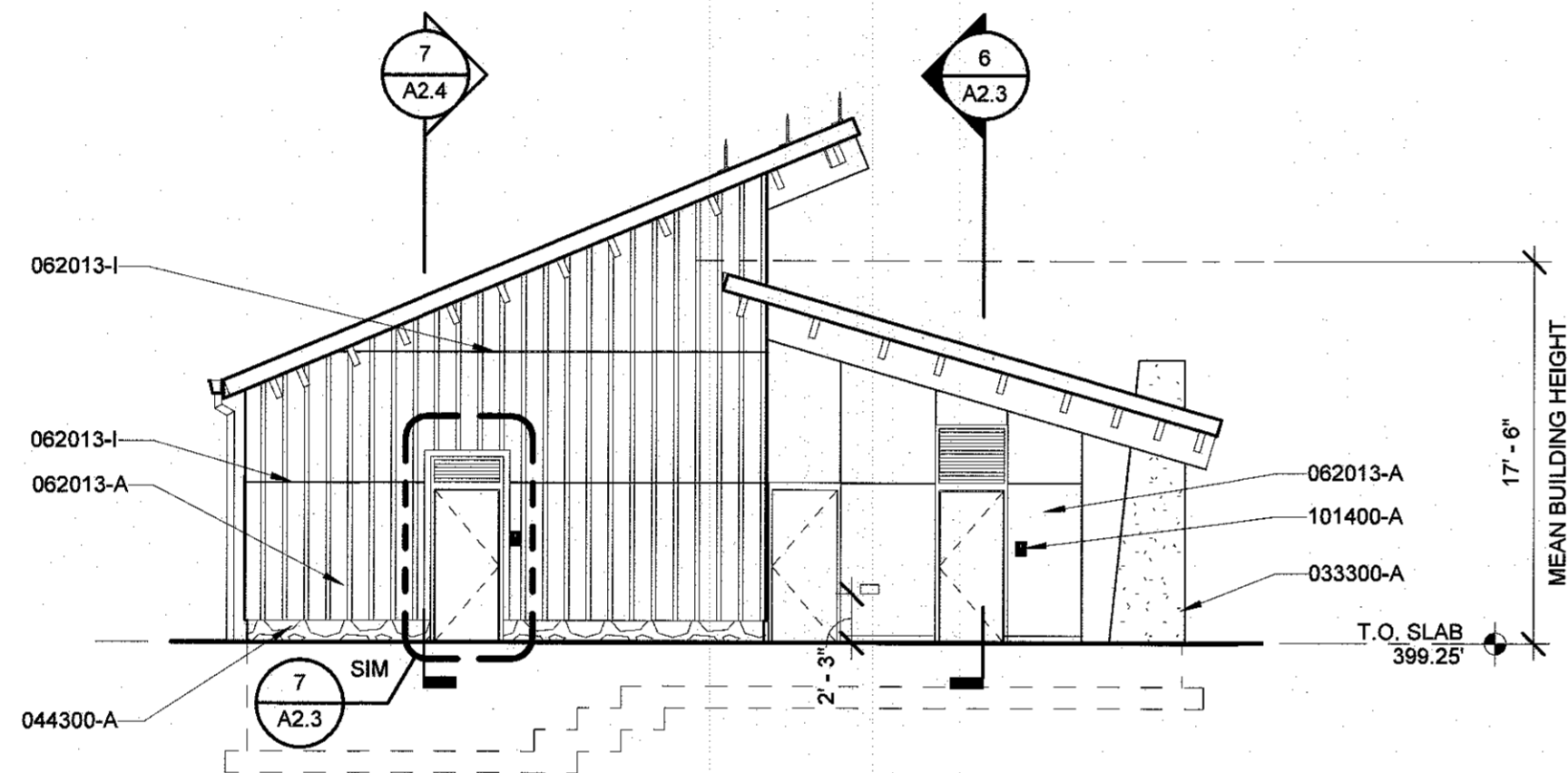
C:\Users\kmm\Documents\Revit_Files\1335-PS-Parish_2014-01_1mm.rvt 4/25/2016 1:09:38 PM



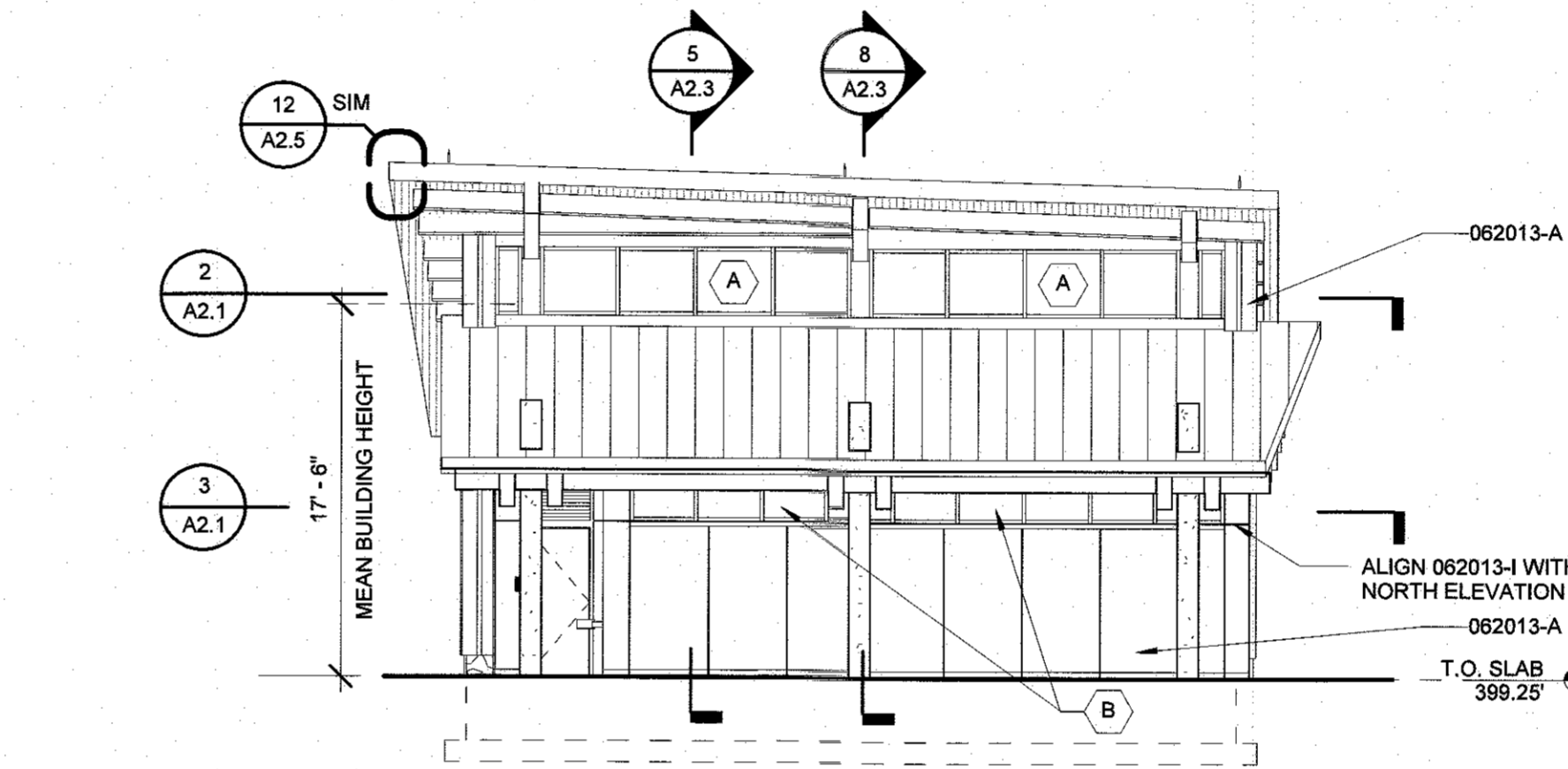
1 SDP - COMFORT STATION - WEST ELEVATION
A2.3A 1/8" = 1'-0"



2 SDP - COMFORT STATION - SOUTH ELEVATION
A2.3A 1/8" = 1'-0"



3 SDP - COMFORT STATION - EAST ELEVATION
A2.3A 1/8" = 1'-0"



4 SDP - COMFORT STATION - NORTH ELEVATION
A2.3A 1/8" = 1'-0"

KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET A0.1 FOR COMPLETE LIST.

- 033300-A CONCRETE COLUMN; ARCHITECTURAL CONCRETE. REFER TO STRUCTURAL
- 044300-A STONE VENEER
- 062013-A CEMENT BOARD SIDING (5/16")
- 062013-E EXTRUDED ALUMINUM VERTICAL REVEAL
- 062013-I EXTRUDED ALUMINUM 'Z' FLASHING
- 076200-C GUTTER
- 076200-D PTD MTL DOWNSPOUT (5" DIA)
- 089000-A FIXED METAL WALL LOUVER
- 101400-A ALUMINUM PANEL SIGN
- 220000-E CAST IRON DOWNSPOUT BOOT. REFER TO PLUMBING DOCUMENTS

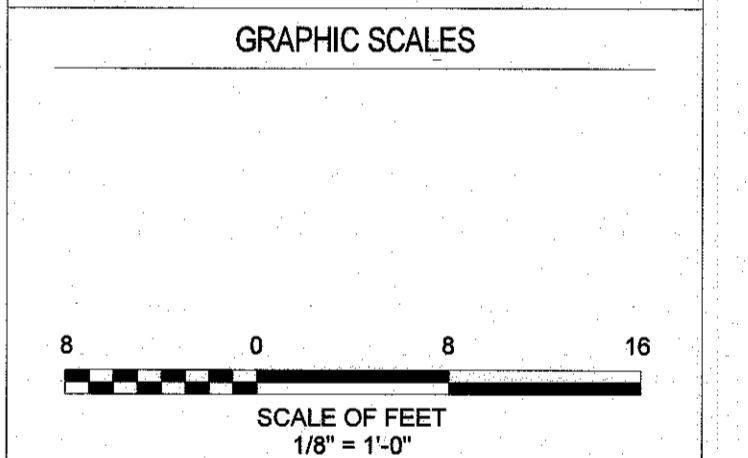
REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
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9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



SIGNATURE



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LICENSE NO. 10892
EXPIRATION DATE: 10/18/2018

BLANDAIR REGIONAL PARK - PHASE 3

COMFORT STATION BUILDING ELEVATIONS
Drawing No.
A2.3A
Scale: 1/8" = 1'-0"
Date: 1/17/2017 Sheet 65 of 76
Des: AER Drawn: KMW Check: LAA



C:\Users\kmm\Documents\Revit_Files\1336-CS-Permit_2014-01_kmm.rvt 4/25/2016 1:05:12 PM

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *Chad Edmund* 2.6.17
 Chief, Division of Land Development: *Walter Leach* 3.01.17
 Director: *Valdina Jofre* 3.19.17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

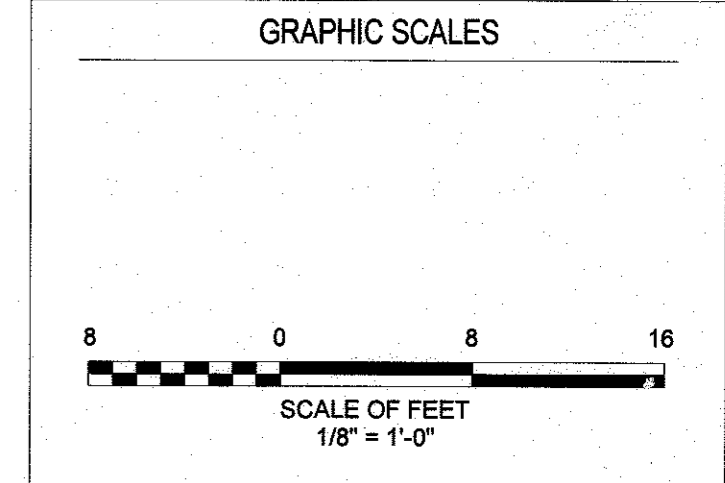


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

BLANDAIR REGIONAL PARK - PHASE 3

MAINTENANCE FACILITY EXTERIOR ELEVATIONS

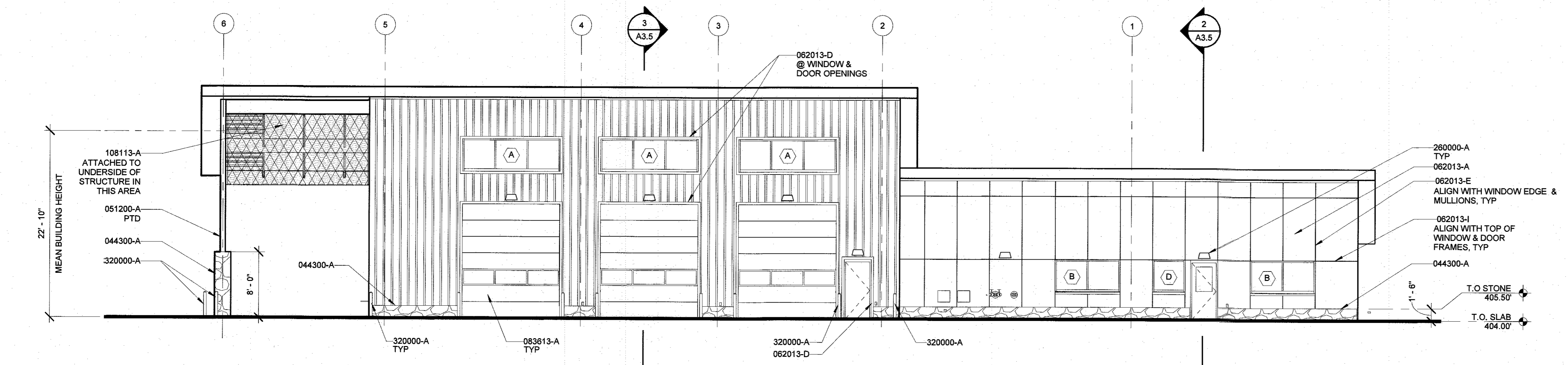
Drawing No.
A3.4A

Scale: 1/8" = 1'-0"

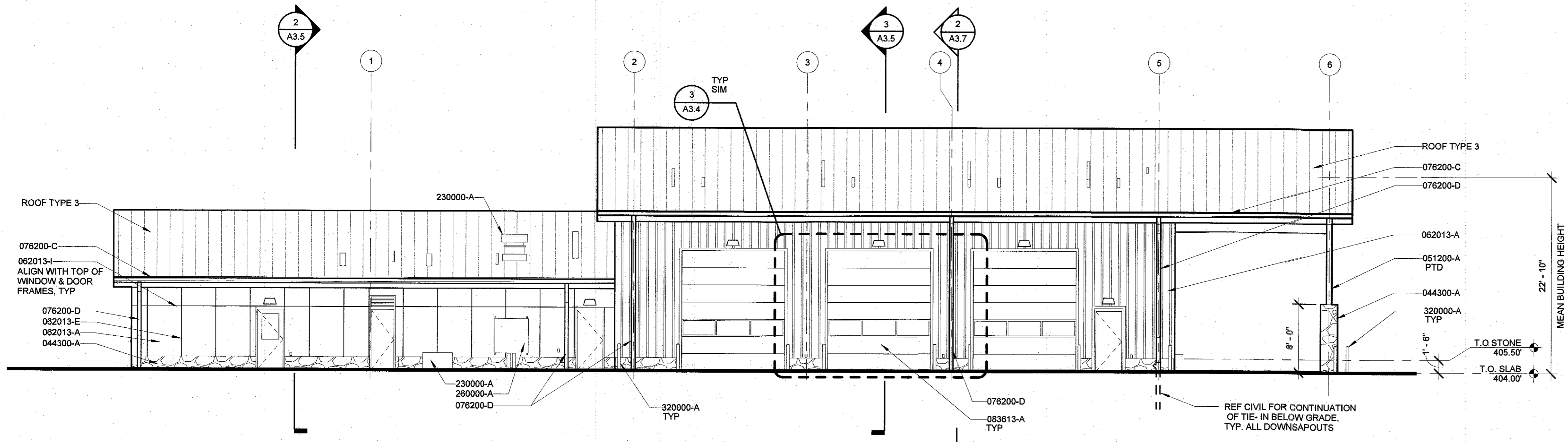
Date: 1/17/2017 Sheet 66 of 76

Des: AER Drawn: KMW Check: LAA

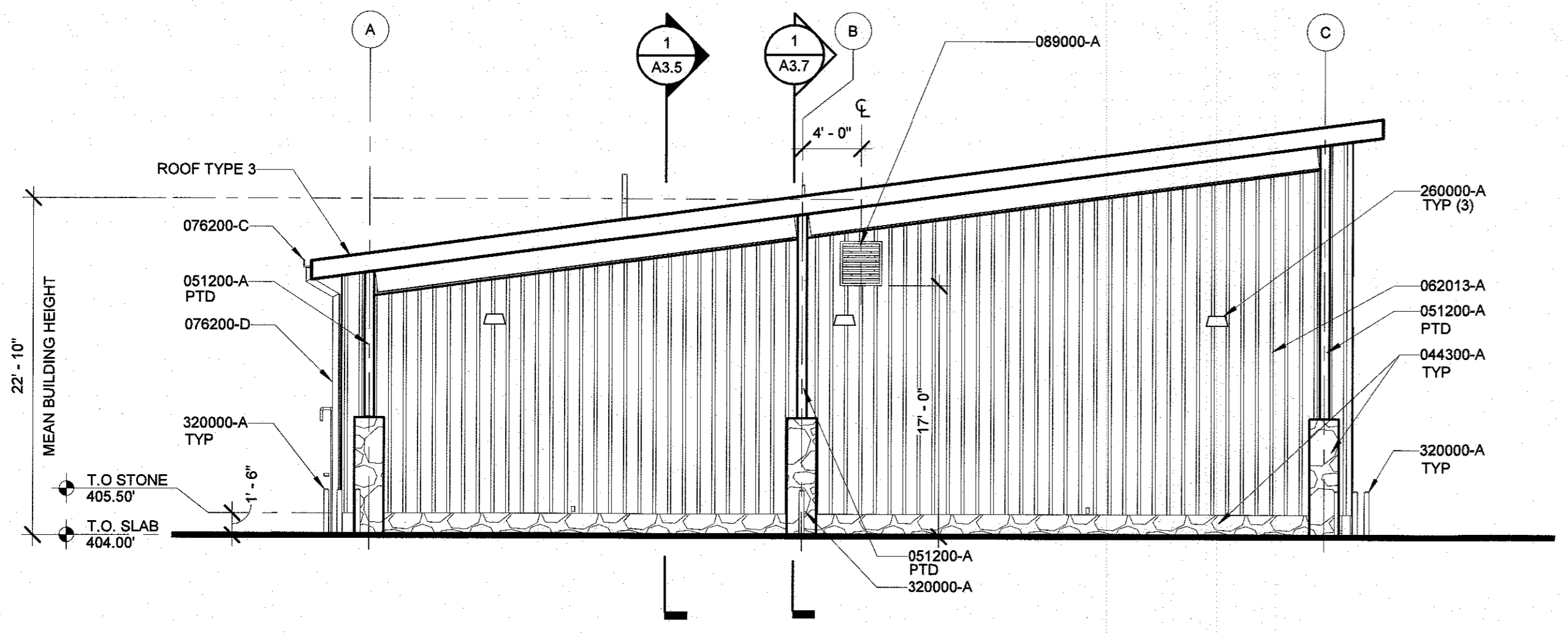
- KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET A0.1 FOR COMPLETE LIST.
- 044300-A STONE VENEER
 - 051200-A STRUCTURAL STEEL (REFER TO STRUCTURAL FOR MORE INFORMATION)
 - 062013-A CEMENT BOARD SIDING (5/16")
 - 062013-D 3/4" THICK CEMENT BOARD TRIM, SIZE AS INDICATED
 - 062013-E EXTRUDED ALUMINUM VERTICAL REVEAL
 - 062013-I EXTRUDED ALUMINUM 'Z' FLASHING GUTTER
 - 076200-C PTD MTL DOWNSPOUT (5" DIA)
 - 076200-D OVERHEAD SECTIONAL DOOR
 - 089000-A FIXED METAL WALL LOUVER
 - 108113-A BIRD NETTING
 - 230000-A MECHANICAL (REFER TO MECHANICAL FOR MORE INFORMATION)
 - 260000-A ELECTRICAL (REFER TO ELECTRICAL FOR MORE INFORMATION)
 - 320000-A 4 INCH DIA PIPE BOLLARD (REFER TO CIVIL FOR MORE INFORMATION)



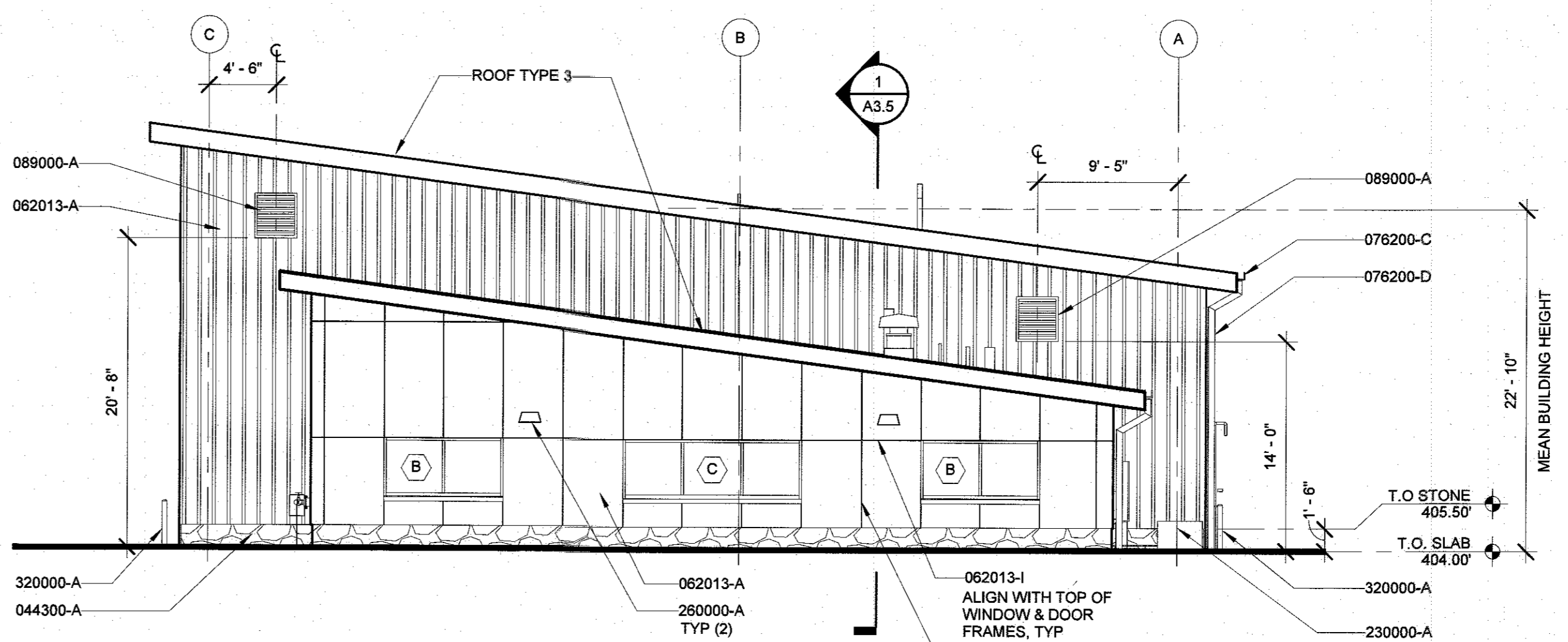
1 MAINTENANCE FACILITY - NORTH ELEVATION
A3.4A 1/8" = 1'-0"



2 MAINTENANCE FACILITY - SOUTH ELEVATION
A3.4A 1/8" = 1'-0"



3 MAINTENANCE FACILITY - EAST ELEVATION
A3.4A 1/8" = 1'-0"



4 MAINTENANCE FACILITY - WEST ELEVATION
A3.4A 1/8" = 1'-0"

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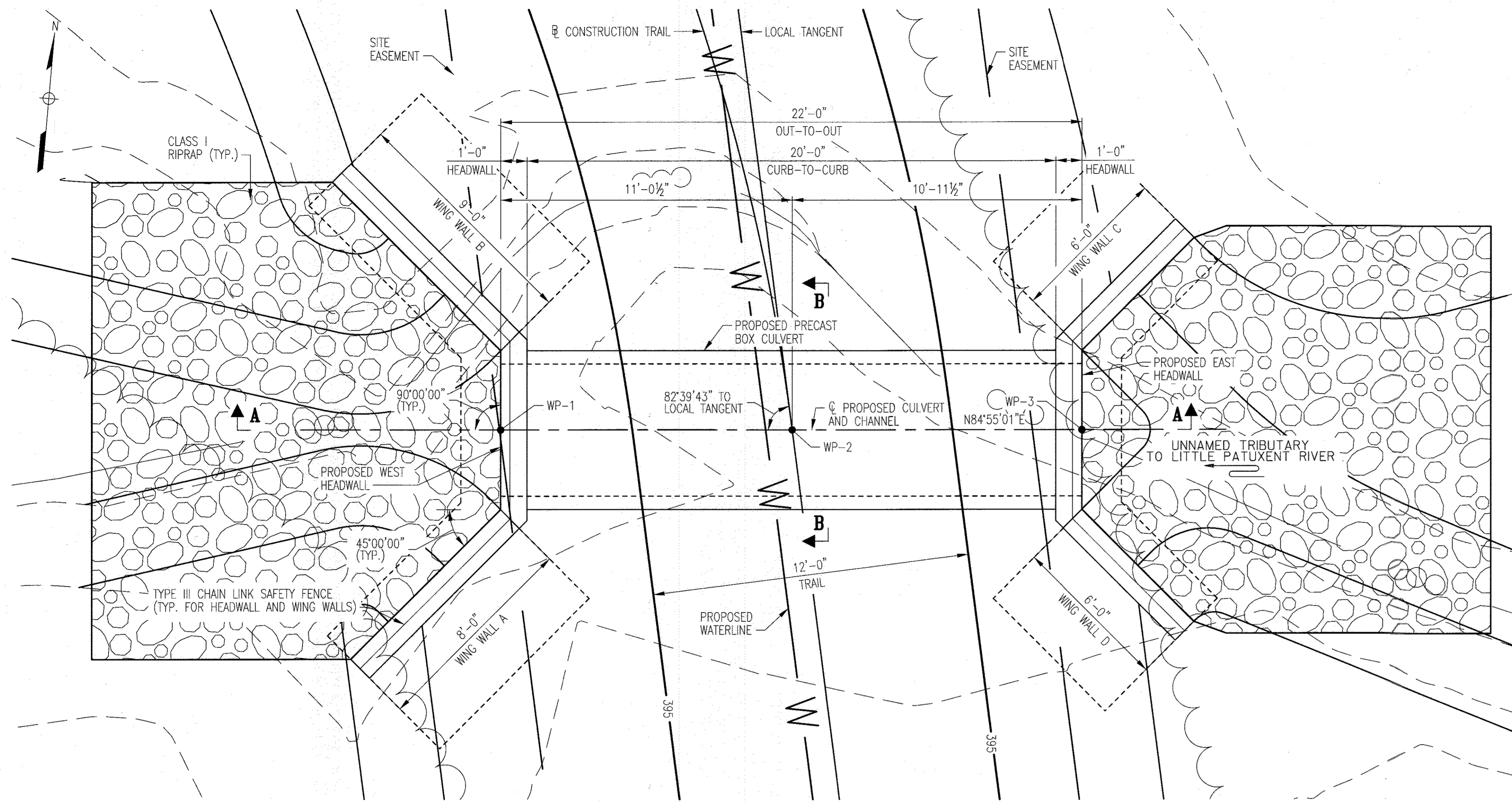
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Chubb 2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kurt Schenck 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Walter J. J. J. 3-19-17
DIRECTOR DATE





PLAN
SCALE: 3/8" = 1'-0"

GENERAL NOTES

SPECIFICATIONS: SHA SPECIFICATIONS DATED JULY, 2008.
 REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.
 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION, 2010.

CONCRETE: ALL CONCRETE FOR HEADWALLS SHALL BE MIX NO. 6 (4,500 PSI). ALL OTHER STRUCTURE CONCRETE SHALL BE MIX NO. 3 (3,500 PSI).

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

KEYS: ALL KEYS ARE NOMINAL SIZE.

PRECAST CULVERT: CULVERT SHALL BE DESIGNED IN ACCORDANCE WITH THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD.
 CULVERT SHALL BE DESIGN FOR A H10 LOAD.

WORK REQUIRED: CONSTRUCT CULVERT, HEADWALL AND WINGWALLS.

REFERENCES

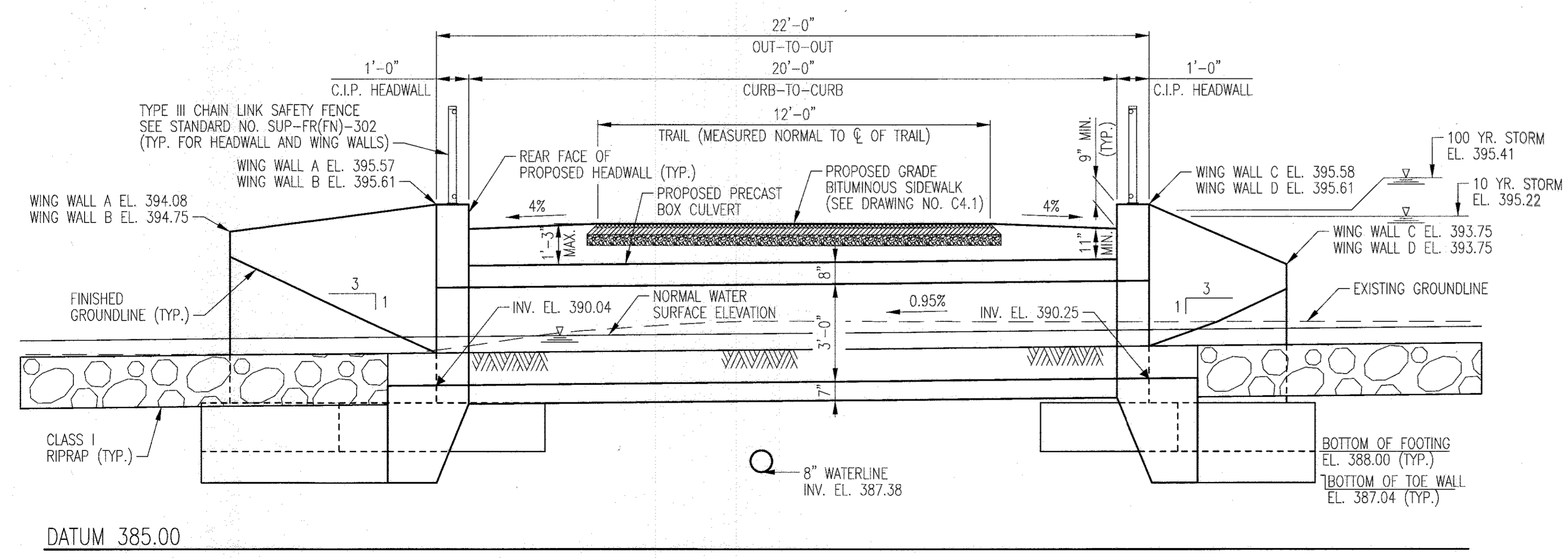
GEOMETRIC AND FOOTING LAYOUT
 HEADWALL AND WING WALL PLAN
 WING WALL ELEVATIONS AND TYPICAL SECTION
 MISCELLANEOUS DETAILS
 STANDARD DETAILS

DRAWING NO.

S1.02 OF 9
 S1.03 OF 9
 S1.04 OF 9
 S1.05 OF 9
 S1.06 TO S1.09 OF 9

NOTES:

1. FOR BOX CULVERT TYPICAL SECTION B-B, SEE DRAWING NO. S1.04.



SECTION A-A
SCALE: 3/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 3-19-17
 DIRECTOR DATE

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
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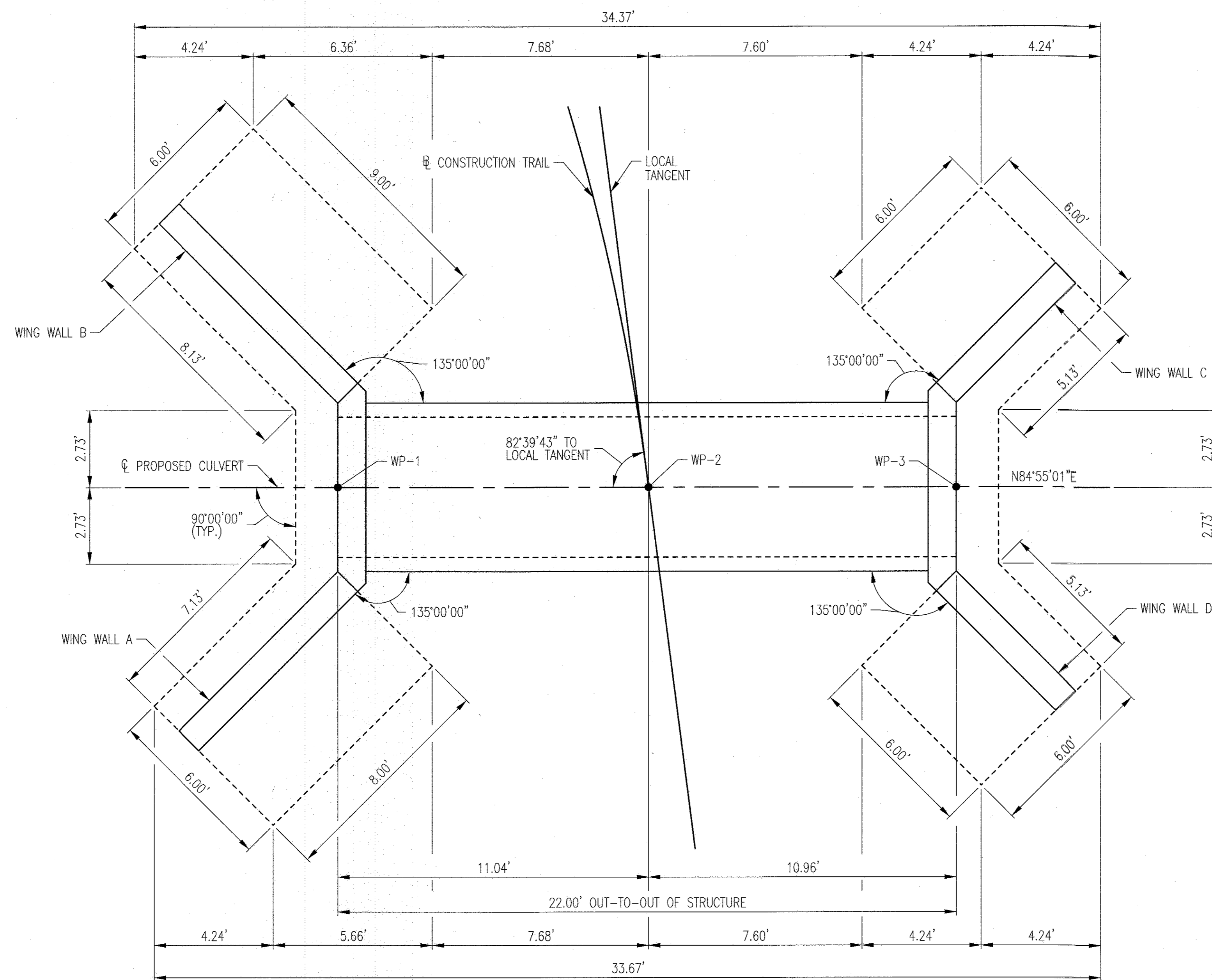
GRAPHIC SCALES

SIGNATURE
 [Professional Engineer Seal and Signature]
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 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. 28993, EXPIRATION DATE: 09/02/2017

BLANDAIR REGIONAL PARK - PHASE 3

GENERAL PLAN AND LONGITUDINAL SECTION
 Drawing No. **S1.01**

Scale: 3/8"=1'-0"
 Date: 1/17/2017 Sheet 67 of 76
 Des: KMS Drawn: KMS Check: CES



GEOMETRIC AND FOOTING LAYOUT PLAN

SCALE: 3/8"=1'-0"

WORKING POINT	COORDINATES	
	NORTH	EAST
WP-1	563096.1737	1358956.1559
WP-2	563099.6283	1358963.9730
WP-3	563100.5986	1358974.8871

REFERENCES

GENERAL PLAN AND LONGITUDINAL SECTION
 HEADWALL AND WING WALL PLAN
 WING WALL ELEVATIONS AND TYPICAL SECTION
 MISCELLANEOUS DETAILS
 STANDARD DETAILS

DRAWING NO.

S1.01 OF 9
 S1.03 OF 9
 S1.04 OF 9
 S1.05 OF 9
 S1.06 TO S1.09 OF 9

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Clark
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 2-6-17

Kurt Schell
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 3-01-17

Valerie J. J...
 DIRECTOR
 DATE: 3-19-17

REVISIONS	

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 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

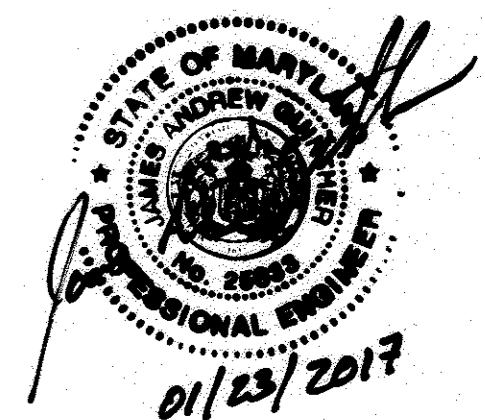


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GRAPHIC SCALES

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 EXPIRATION DATE: 02/22/2017

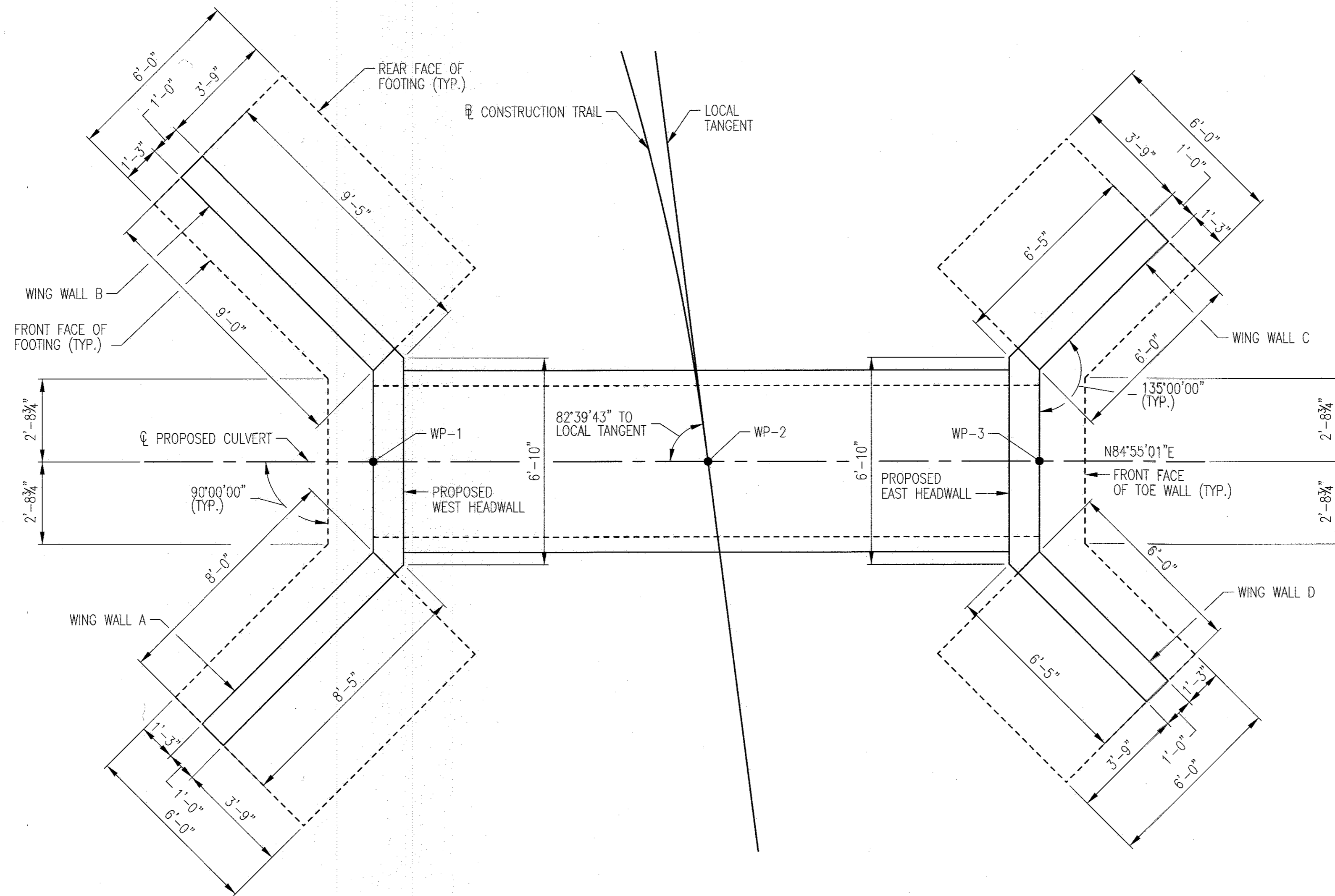
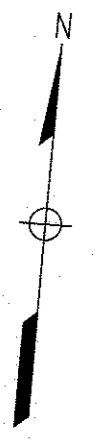
BLANDAIR REGIONAL PARK - PHASE 3

GEOMETRIC AND FOOTING LAYOUT

Drawing No.

S1.02

Scale: 3/8"=1'-0"
 Date: 1/17/2017 Sheet 68 of 76
 Des: KMS Drawn: KMS Check: CES



HEADWALL AND WING WALL PLAN
SCALE: 3/8"=1'-0"

REFERENCES	DRAWING NO.
GENERAL PLAN AND LONGITUDINAL SECTION	S1.01 OF 9
GEOMETRIC AND FOOTING LAYOUT	S1.02 OF 9
WING WALL ELEVATIONS AND TYPICAL SECTION	S1.04 OF 9
MISCELLANEOUS DETAILS	S1.05 OF 9
STANDARD DETAILS	S1.06 TO S1.09 OF 9

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-6-17

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 3-01-17

[Signature]
DIRECTOR
DATE: 2-19-17

REVISIONS	

HOWARD COUNTY
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7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
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WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
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ZONING: RC-DEO
ELECTION DISTRICT 3/7

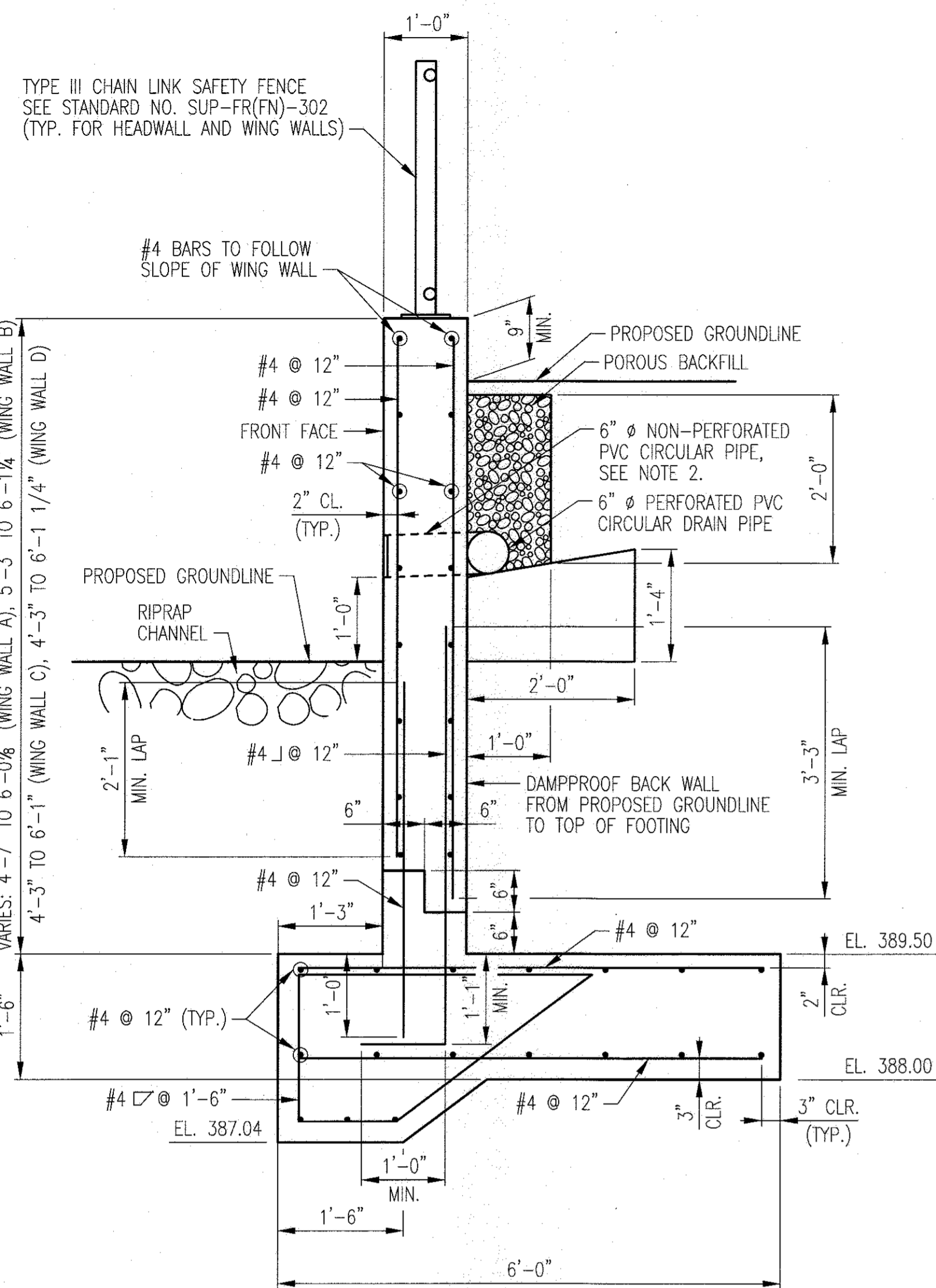
GRAPHIC SCALES

SIGNATURE
[Signature]
01/23/2017
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. 28533
EXPIRATION DATE: 09/02/2017

BLANDAIR REGIONAL PARK - PHASE 3

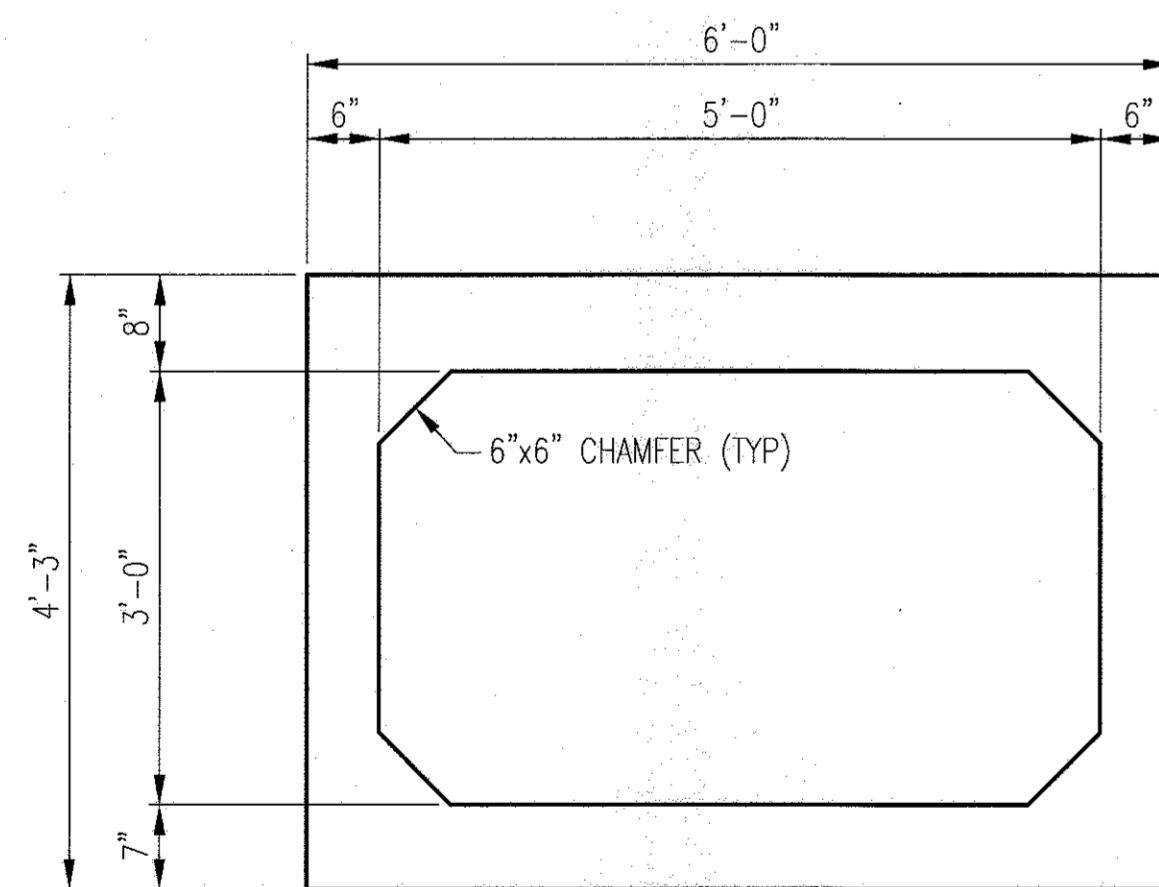
HEADWALL AND WING WALL PLAN
Drawing No.
S1.03

Scale: 3/8"=1'-0"
Date: 1/17/2017 Sheet 69 of 76
Des: KMS Drawn: KMS Check: CES



WING WALL TYPICAL SECTION

SCALE: 3/4" = 1'-0"

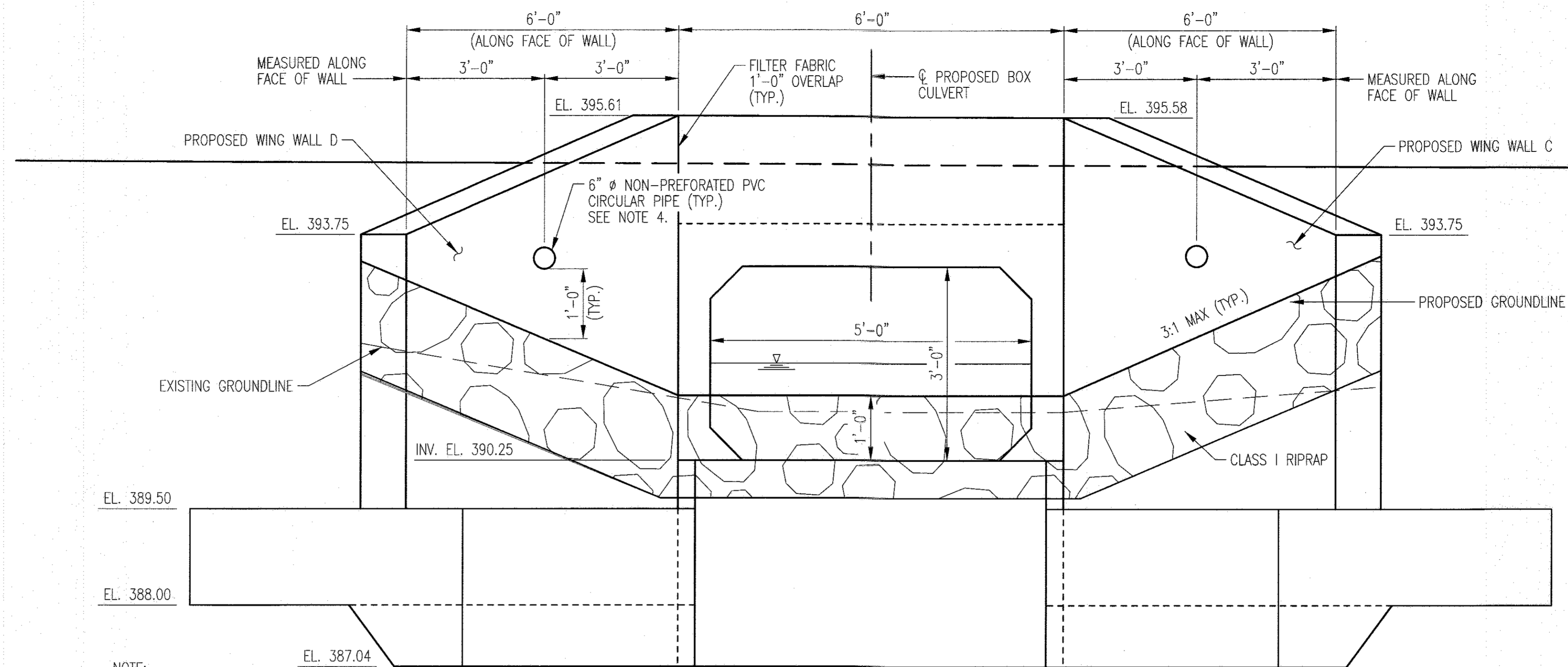


SECTION B-B

SCALE: 3/4" = 1'-0"

NOTE:

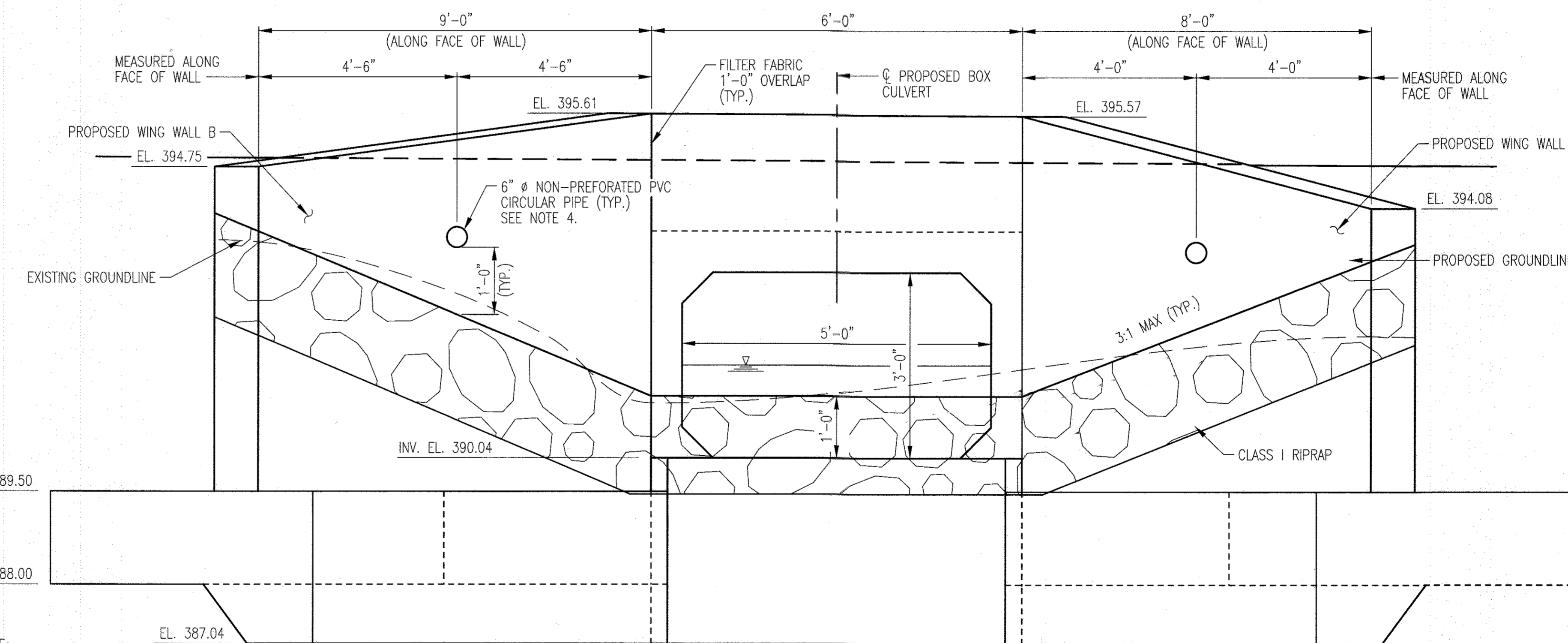
REFER TO ASTM C1577



EAST ELEVATION

SCALE: 3/4" = 1'-0"

NOTE:
CHAIN LINK SAFETY FENCE NOT SHOWN FOR CLARITY



WEST ELEVATION

SCALE: 3/4" = 1'-0"

NOTE:

CHAIN LINK SAFETY FENCE NOT SHOWN FOR CLARITY

NOTES:

1. THE CONTRACTOR HAS THE OPTION OF LAPPING STEM REINFORCEMENT AND DOWELS AS SHOWN OR EXTENDING DOWEL REINFORCEMENT WITH NO SPLICING. HOWEVER, NO ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR WHICHEVER ALTERNATIVE IS SELECTED.
2. EXACT ELEVATION OF DRAIN TO BE DETERMINED BY ENGINEER IN FIELD. PIPE SHALL HAVE 1" FALL.
3. MAXIMUM BEARING PRESSURE FOR WINGWALLS = 0.90 KSF (STR-)
4. FOR DRAINAGE SYSTEM DETAILS, SEE STANDARD NO. RW-301, SYSTEM I.
5. FOR LOCATION OF SECTION B-B CUT, SEE DRAWING NO. S1.01.

REFERENCES:

GENERAL PLAN AND LONGITUDINAL SECTION
GEOMETRIC AND FOOTING LAYOUT
HEADWALL AND WING WALL PLAN
MISCELLANEOUS DETAILS
STANDARD DETAILS

DRAWING NO.

S1.01 OF 9
S1.02 OF 9
S1.03 OF 9
S1.05 OF 9
S1.06 TO S1.09 OF 9

APPROVED: DEPARTMENT OF PLANNING AND ZONING

2-6-17
3-01-17

3-14-17

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

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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. 28833
EXPIRATION DATE: 12/31/2017

BLANDAIR REGIONAL PARK - PHASE 3

WING WALL ELEVATIONS AND TYPICAL SECTION

Drawing No.

S1.04

Scale: 3/4"=1'-0"
Date: 1/17/2017 Sheet 70 of 76
Des: KMS Drawn: KMS Check: CES

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

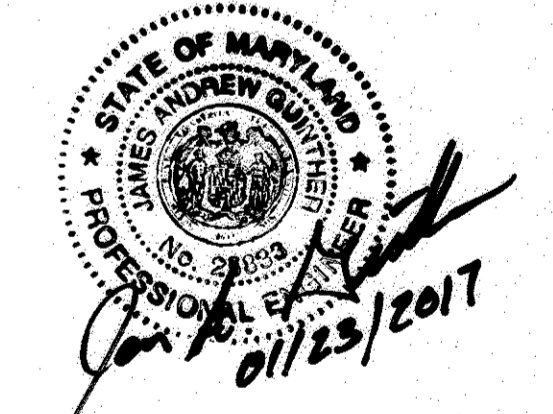
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Carolina Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5710

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

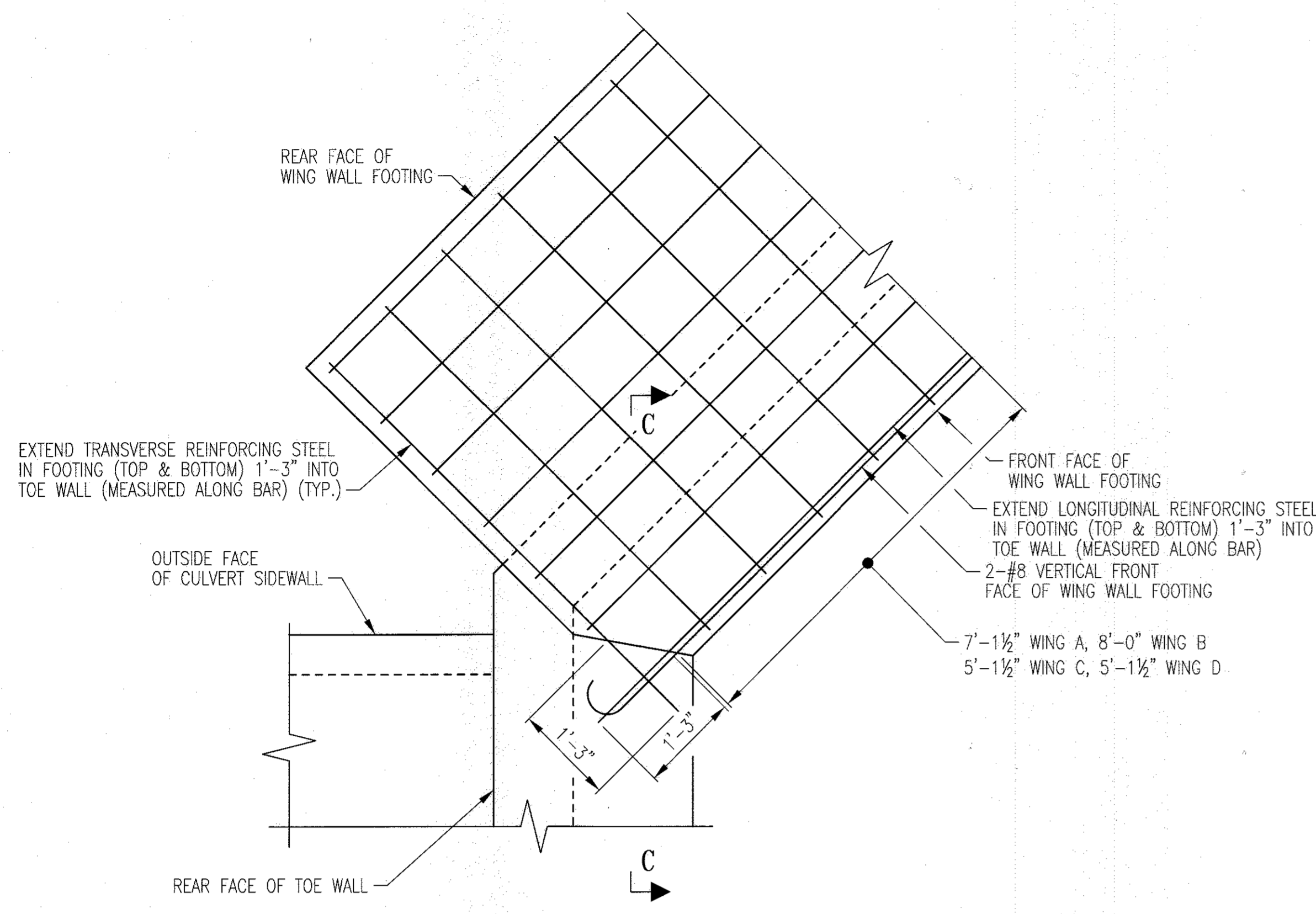
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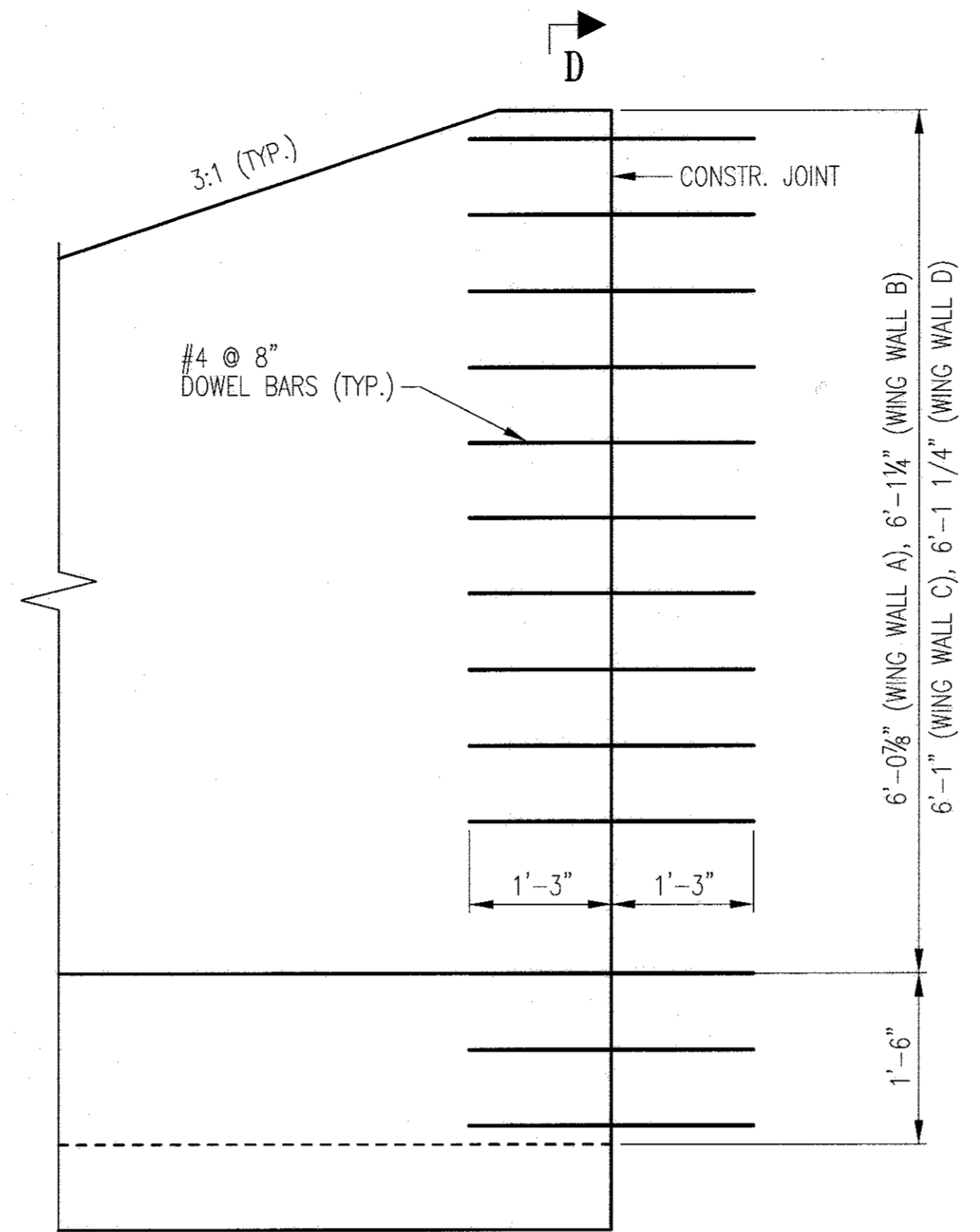
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 2883, EXPIRATION DATE 02/28/2017

BLANDAIR REGIONAL PARK - PHASE 3

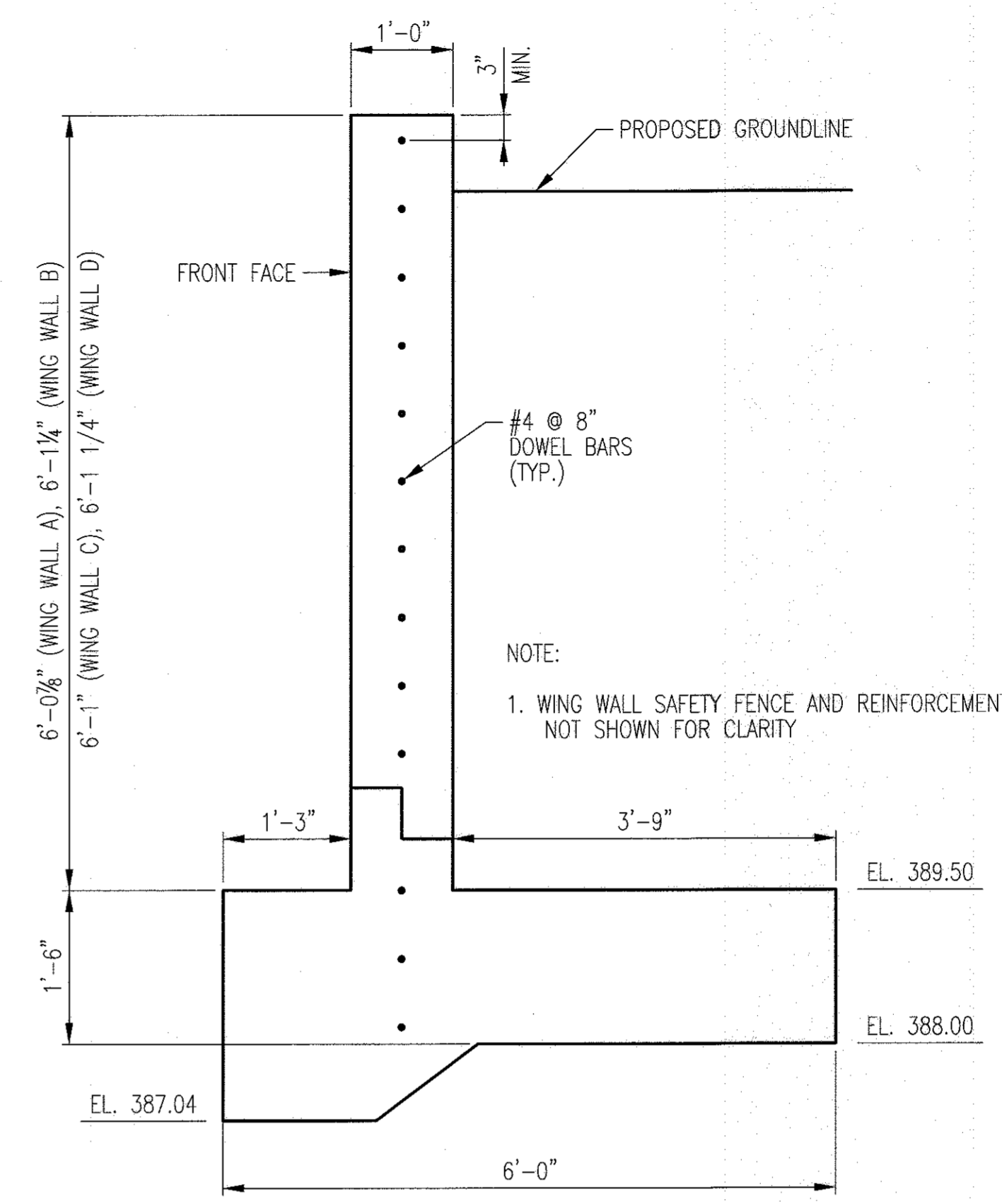
MISCELLANEOUS DETAILS
Drawing No. **S1.05**
Scale: AS SHOWN
Date: 1/17/2017 Sheet 71 of 76
Des: KMS Drawn: KMS Check: CES



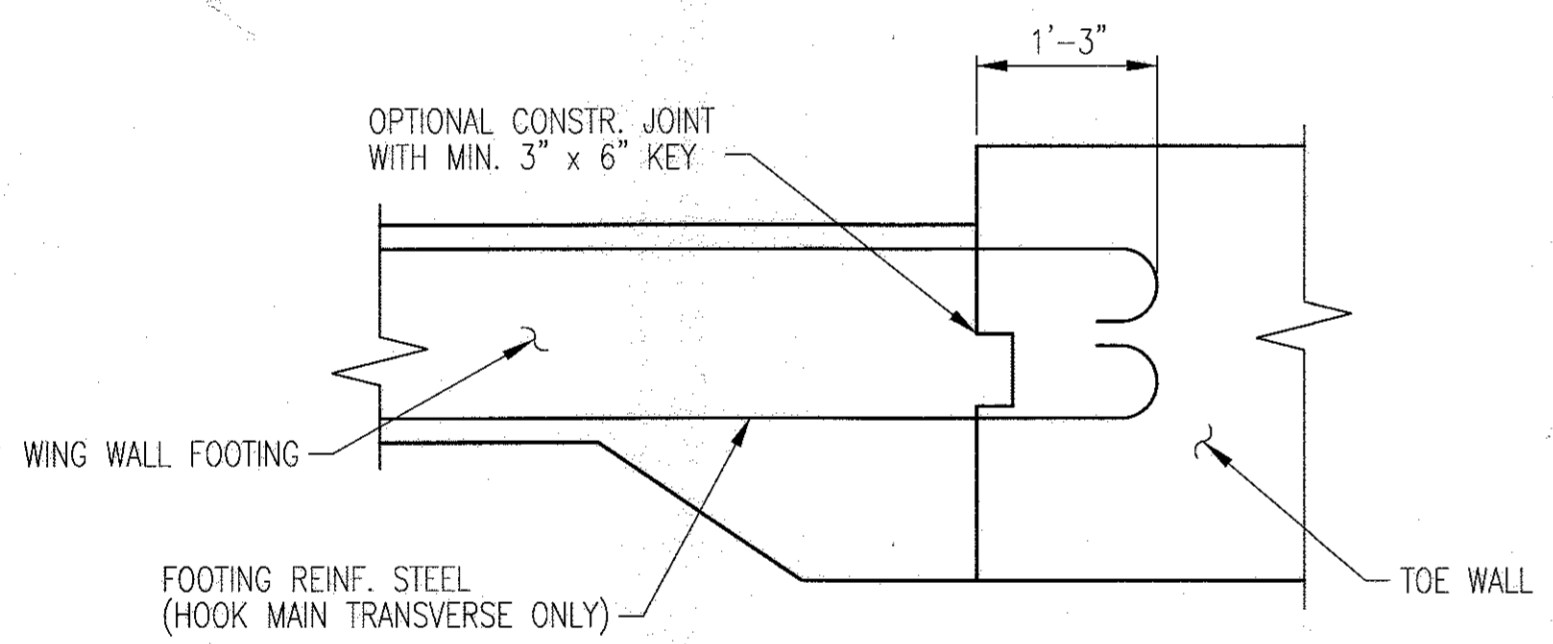
WING WALL FOOTING DETAIL
SCALE: 3/4" = 1'-0"



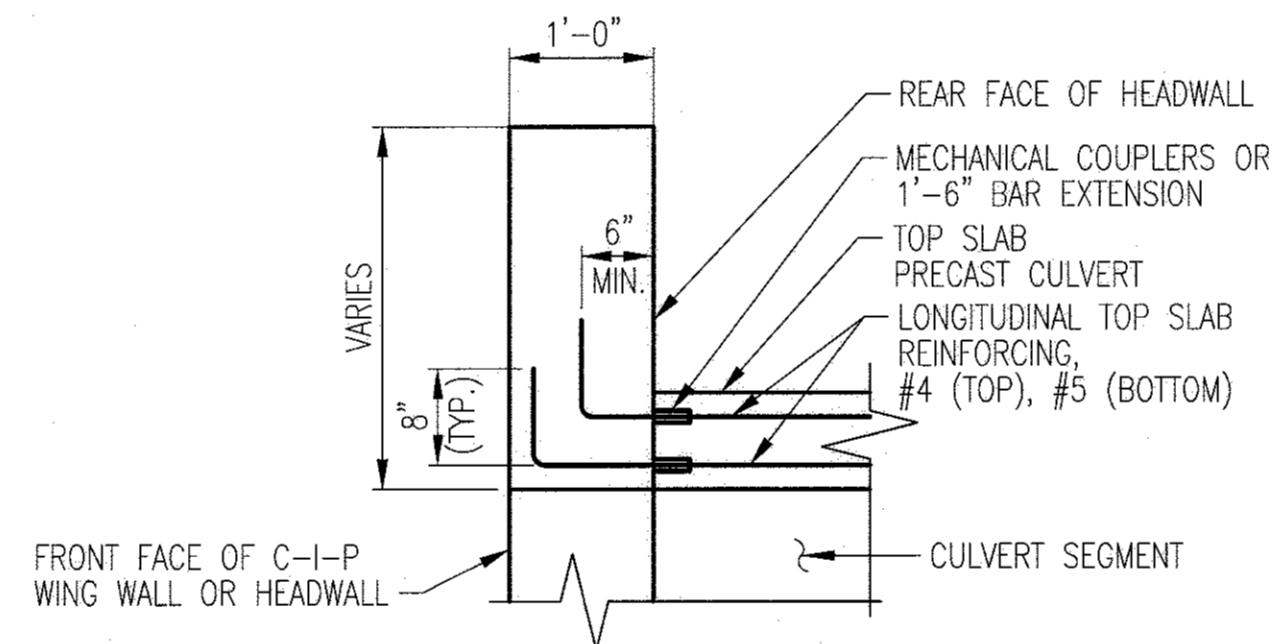
WING WALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



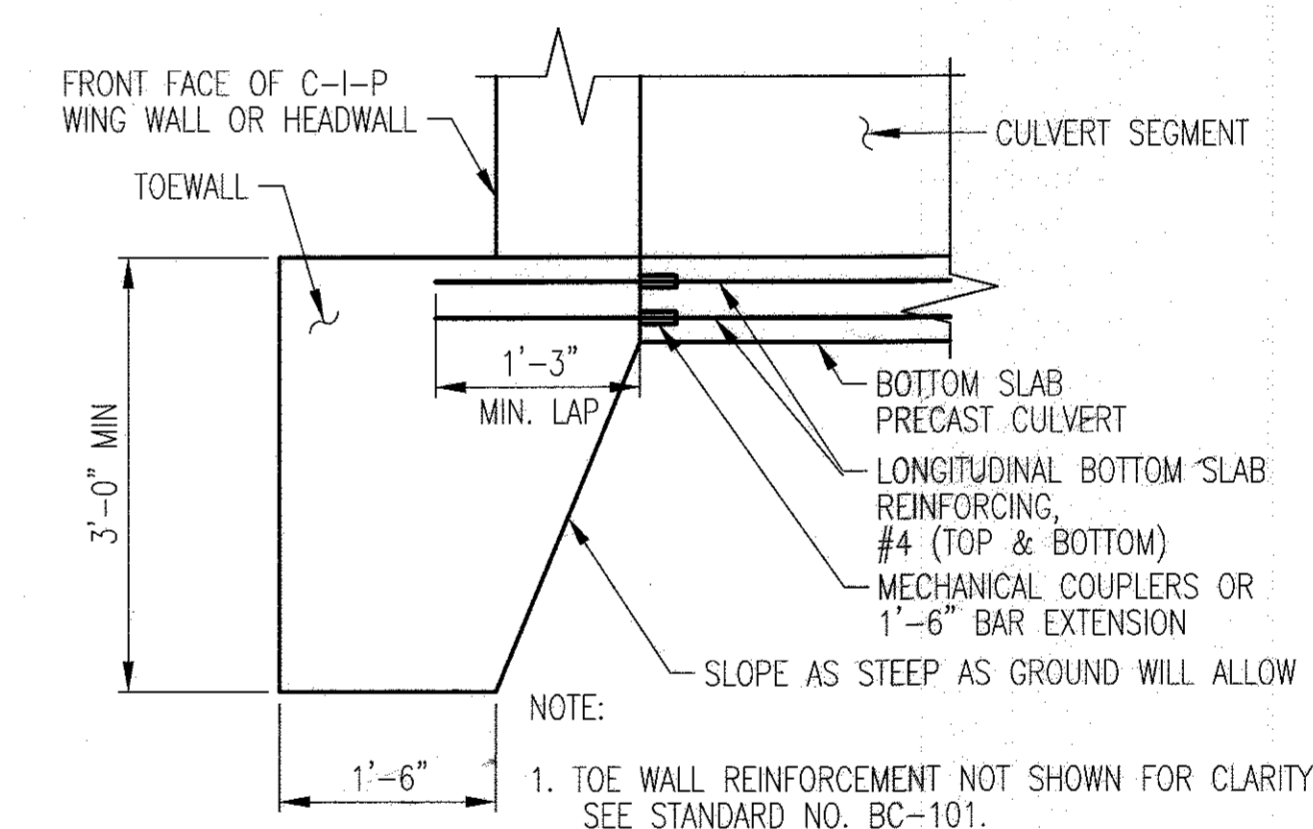
SECTION D-D
SCALE: 3/4" = 1'-0"



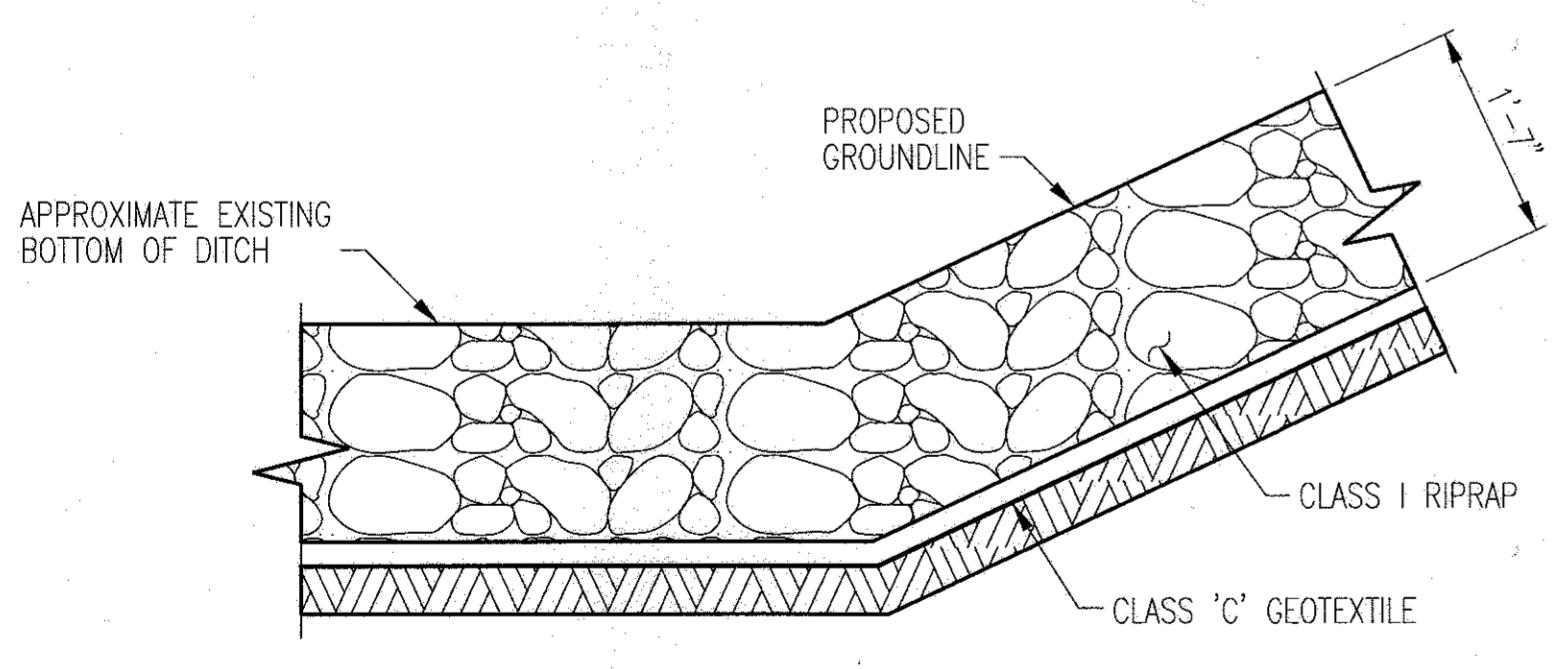
SECTION C-C
SCALE: NOT TO SCALE



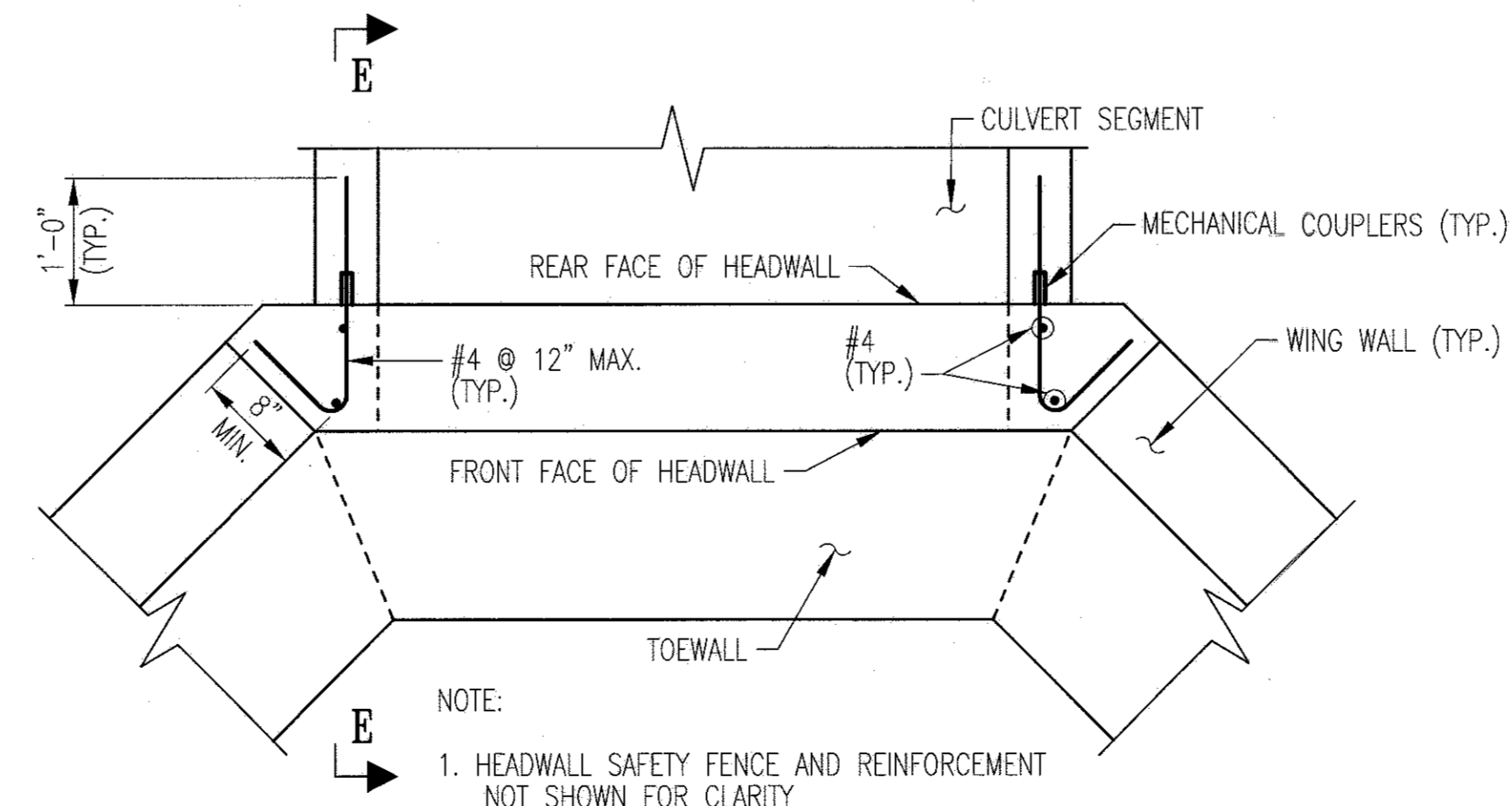
HEADWALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



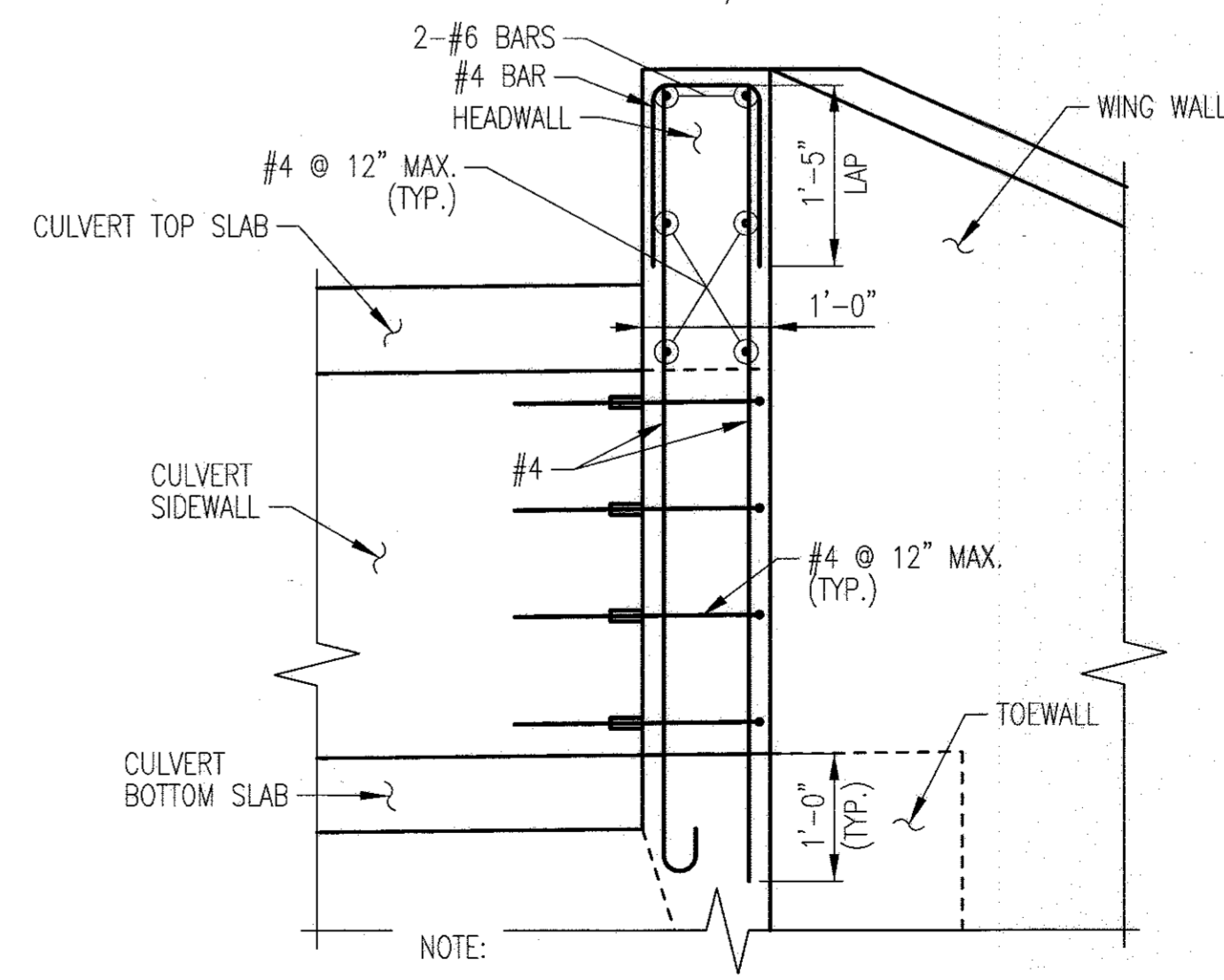
TOEWALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



RIPRAP PLACEMENT DETAIL
SCALE: NOT TO SCALE



CULVERT WALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



SECTION E-E
SCALE: 3/4" = 1'-0"

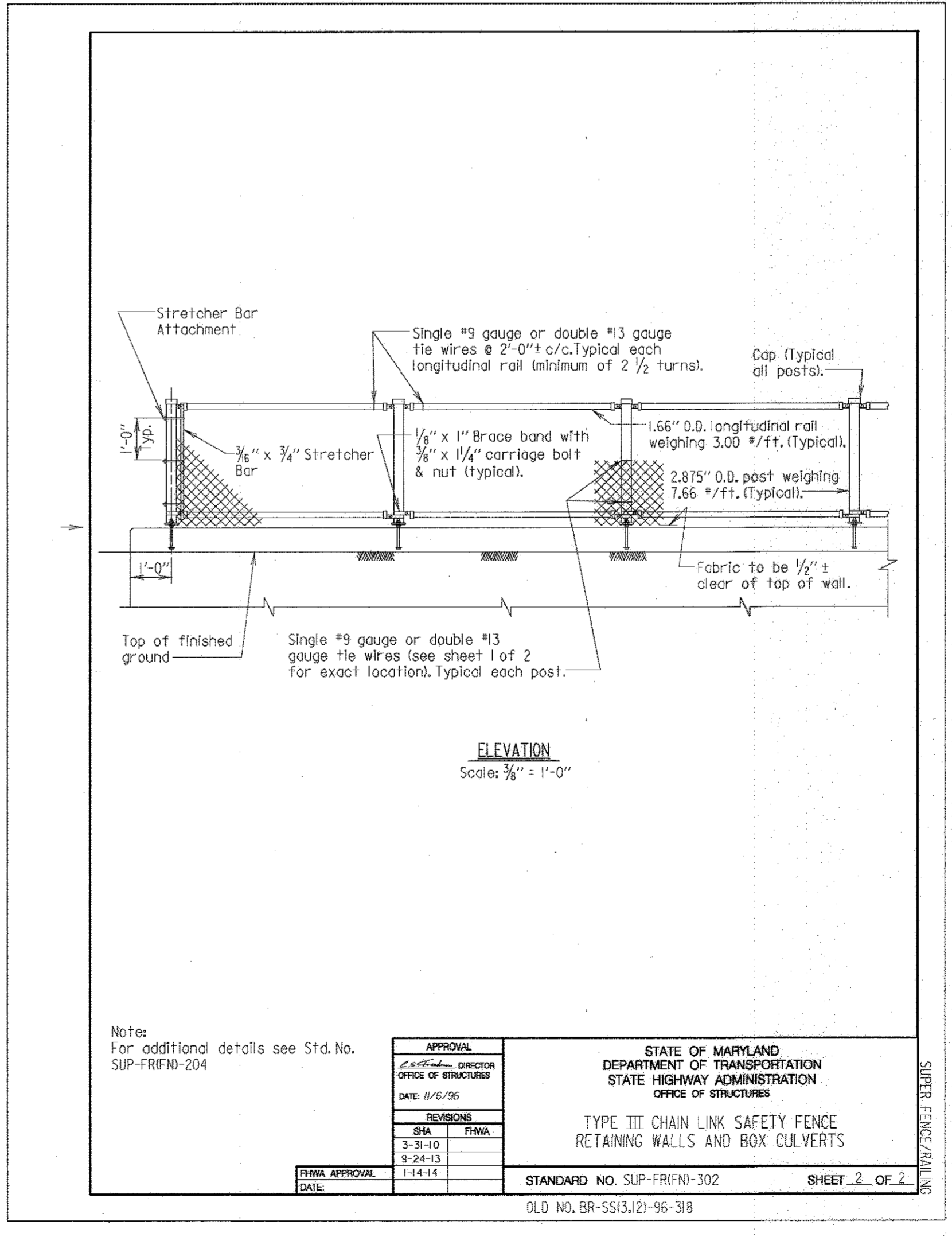
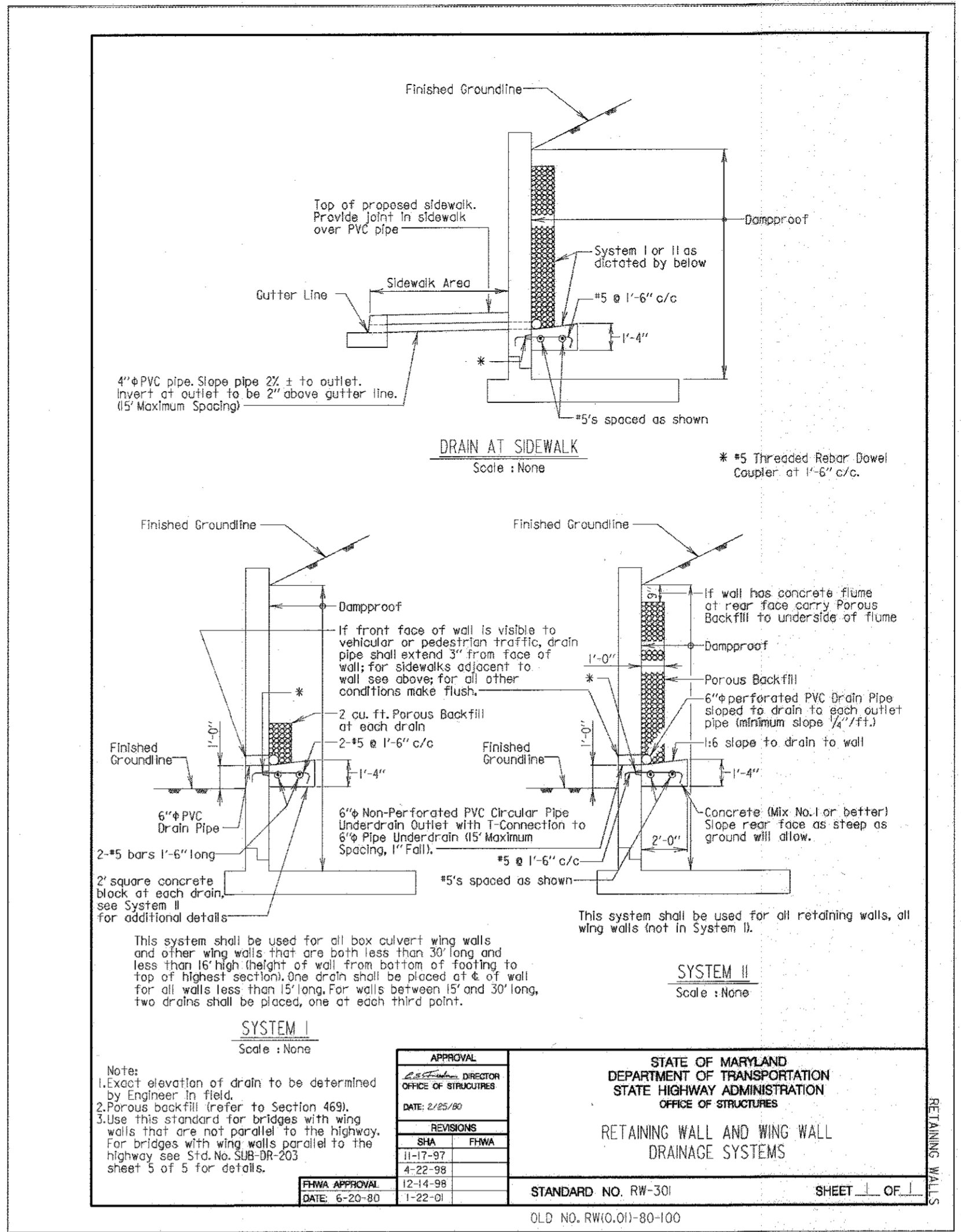
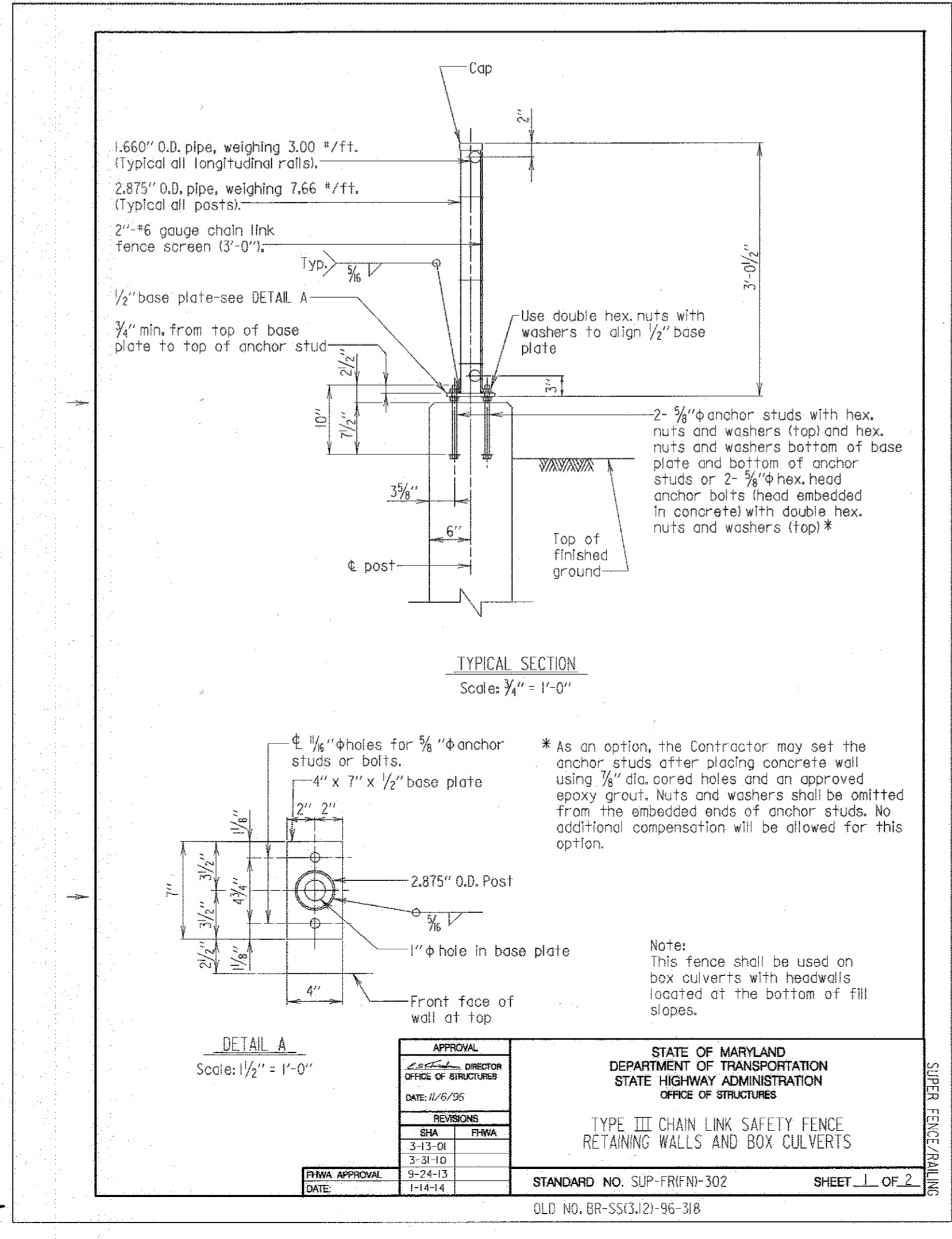
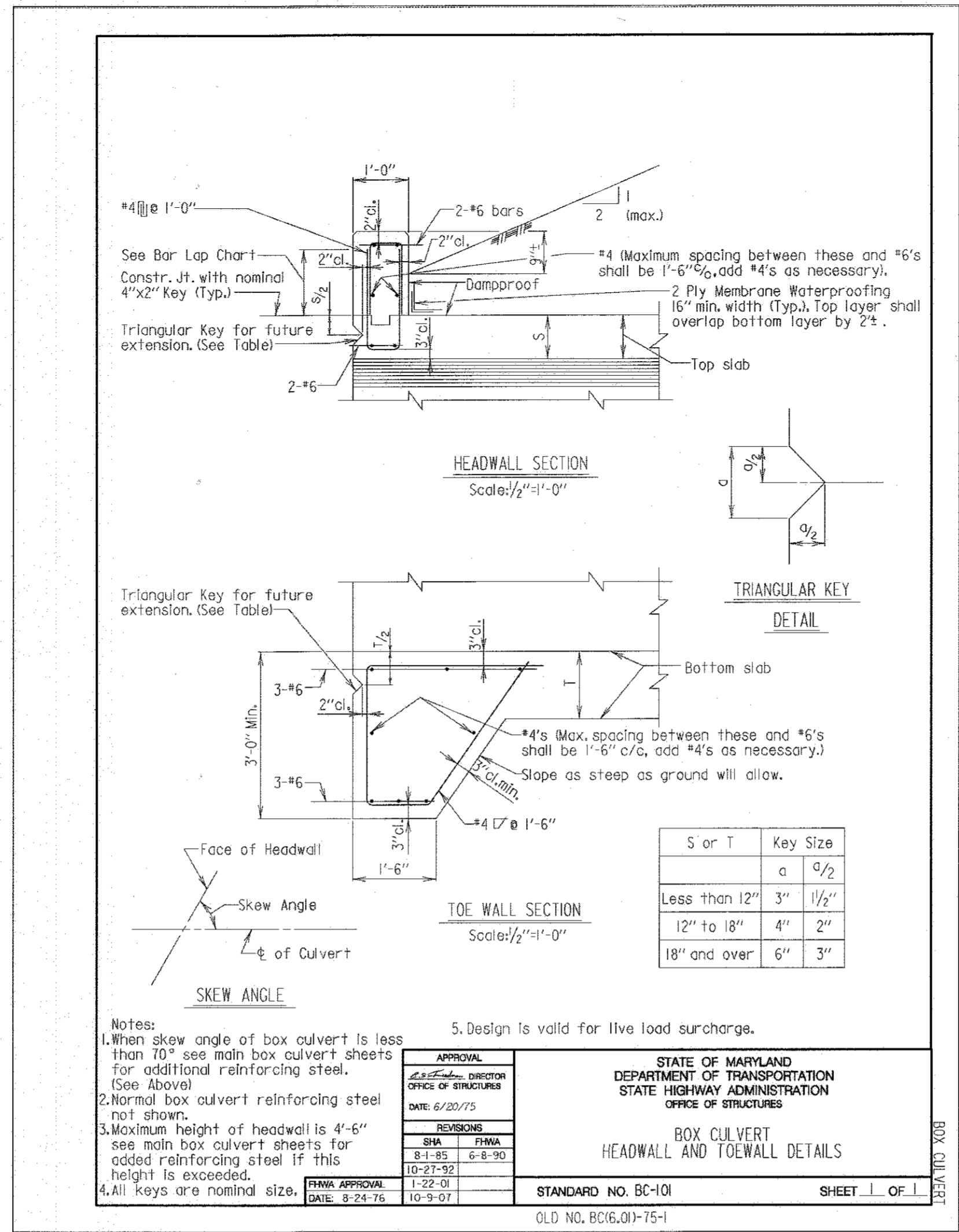
REFERENCES	DRAWING NO.
GENERAL PLAN AND LONGITUDINAL SECTION	S1.01 OF 9
GEOMETRIC AND FOOTING LAYOUT	S1.02 OF 9
HEADWALL AND WING WALL PLAN	S1.03 OF 9
WING WALL ELEVATION AND TYPICAL SECTION	S1.04 OF 9
STANDARD DETAILS	S1.06 TO S1.09 OF 9

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-6-17

[Signature]
DIRECTOR
DATE: 3-19-17

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 2-6-17
 DATE: 3-01-17
 DATE: 3-01-17

Valerio J. J. J.
 DIRECTOR DATE: 3-19-17



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
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 9250 BENDIX ROAD
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 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5710

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

 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. 29833
 EXPIRATION DATE: 01/23/2017

BLANDAIR REGIONAL PARK - PHASE 3

STANDARD DETAILS-I
 Drawing No. S1.06
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 72 of 76
 Des: KMS Drawn: KMS Check: CES
 SDP-15-050

BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-10"	2'-9"	2'-2"
#7	5'-2"	3'-9"	3'-0"
#8	6'-10"	4'-11"	3'-11"
#9	8'-8"	6'-2"	4'-11"
#10	10'-11"	7'-10"	6'-3"
#11	13'-5"	9'-7"	7'-8"

*** LOCATION CATEGORY**

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6" apart.
- C - All bars not in Category A spaced 6" or more apart.

- Note:
- When bar lap is not specified on the Plans, the above dimensions shall be used.
 - These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
 - These bar laps only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f'_c = 3000$ psi.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 5/10/17	
REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-BL-101 SHEET 1 OF 3 OLD NO. M6.071-81-127(L)

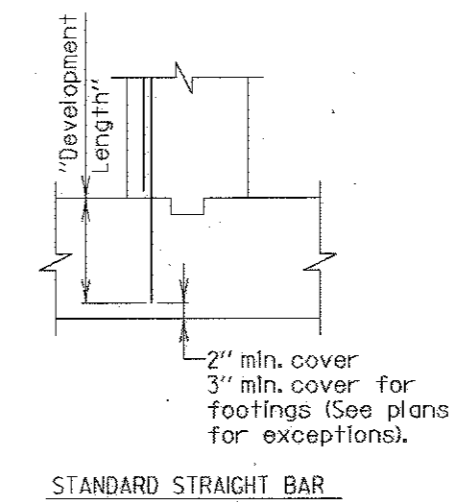
BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-7"	2'-7"	2'-1"
#7	4'-6"	3'-3"	2'-7"
#8	5'-11"	4'-3"	3'-5"
#9	7'-6"	5'-4"	4'-3"
#10	9'-6"	6'-9"	5'-5"
#11	11'-8"	8'-4"	6'-8"

*** LOCATION CATEGORY**

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6" apart.
- C - All bars not in Category A spaced 6" or more apart.

- Note:
- When bar lap is not specified on the Plans, the above dimensions shall be used.
 - These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
 - These bar laps only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f'_c = 4000$ psi.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 5/10/17	
REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-BL-103 SHEET 1 OF 3 OLD NO. M6.051-80-122(L)



BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	1'-5"	1'-0"	1'-0"
#5	1'-9"	1'-3"	1'-0"
#6	2'-3"	1'-6"	1'-4"
#7	3'-1"	2'-2"	1'-9"
#8	4'-0"	2'-11"	2'-4"
#9	5'-11"	3'-8"	2'-11"
#10	6'-5"	4'-7"	3'-9"
#11	7'-11"	5'-8"	4'-7"

*** LOCATION CATEGORY:**

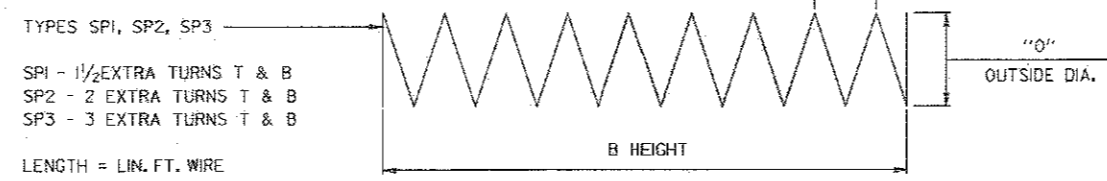
- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6" apart.
- C - All bars not in Category A spaced 6" or more apart.

- Note:
- When development length is not specified on the Plans, the above dimensions shall be used.
 - These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
 - These development lengths only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f'_c = 3000$ psi.
 - If depth of member does not allow bar development length indicated in Categories A, B, and C then hook shall be added to all bars not conforming, as per D, L, and F per Std. No. REBAR-DL-201.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 5/10/17	
REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-DL-101 SHEET 1 OF 3 OLD NO. M6.141-90-214(L)

**TYPICAL BAR BENDS
DETAILS AND NOTES**

SPIRAL



Unless otherwise noted diameter B is the same for all bends and hooks on a bar.

Where slope differs from 45° dimensions 'd' and 'x' must be shown.

ENLARGED VIEW SHOWING BAR BENDING DETAILS

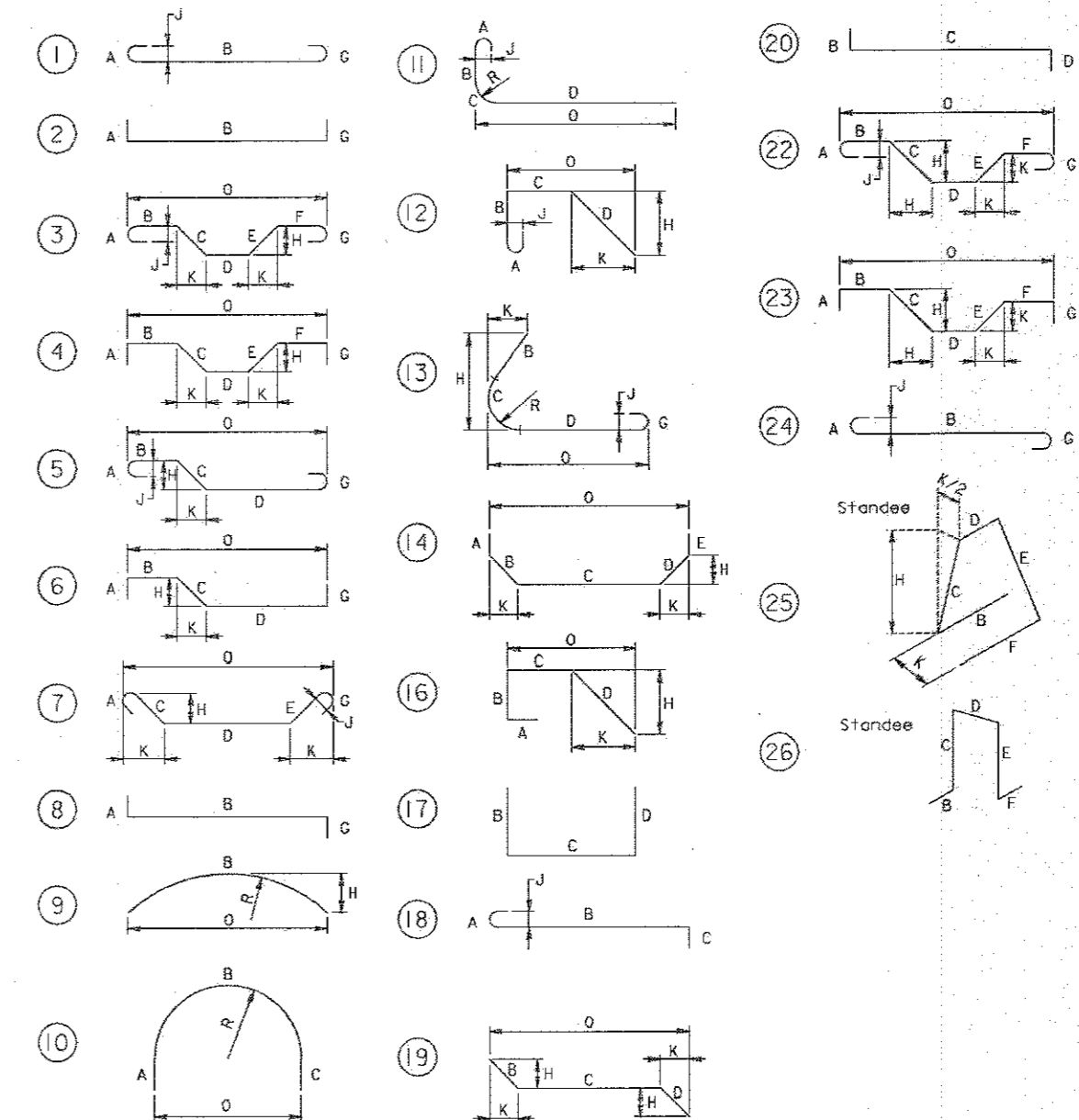
- Notes:
- All dimensions are out-to-out of bar or to tangent points for 135° and 180° hooks.
 - Dimensions on 180° hooks to be shown only where necessary to restrict hook size. Otherwise standard hooks are to be used.
 - Where 'd' is not shown, 'd' will be kept equal to or less than 't' on truss bars. Where 'd' can exceed 't' it should be shown.
 - 't' dimension on stirrups to be shown where necessary to fit within concrete.
 - Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have limits indicated.

NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0) MINUS (-) NORMAL AND BENDING TOLERANCES

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 2/10/14	
REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-BB-101 SHEET 1 OF 8 OLD NO. REBAR-BB100J1-94-296

**ACI TYPICAL BAR BENDS
STANDARD PIN BENDING**



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0) MINUS (-) NORMAL AND BENDING TOLERANCES

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 2/10/14	
REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-BB-101 SHEET 2 OF 8 OLD NO. REBAR-BB100J1-94-296

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17
DATE: 3-01-17
DATE: 3-19-17

DATE: 3-19-17
DATE: 3-19-17

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELICOTT CITY, MD 21043



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801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-5450 Fax: 410-243-5716

PROPERTY

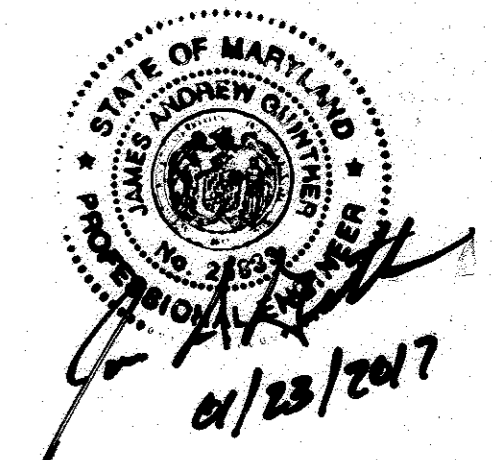
TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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EXPIRATION DATE: 09/30/2017

BLANDAIR REGIONAL PARK - PHASE 3

STANDARD DETAILS- II

Drawing No.:

S1.07

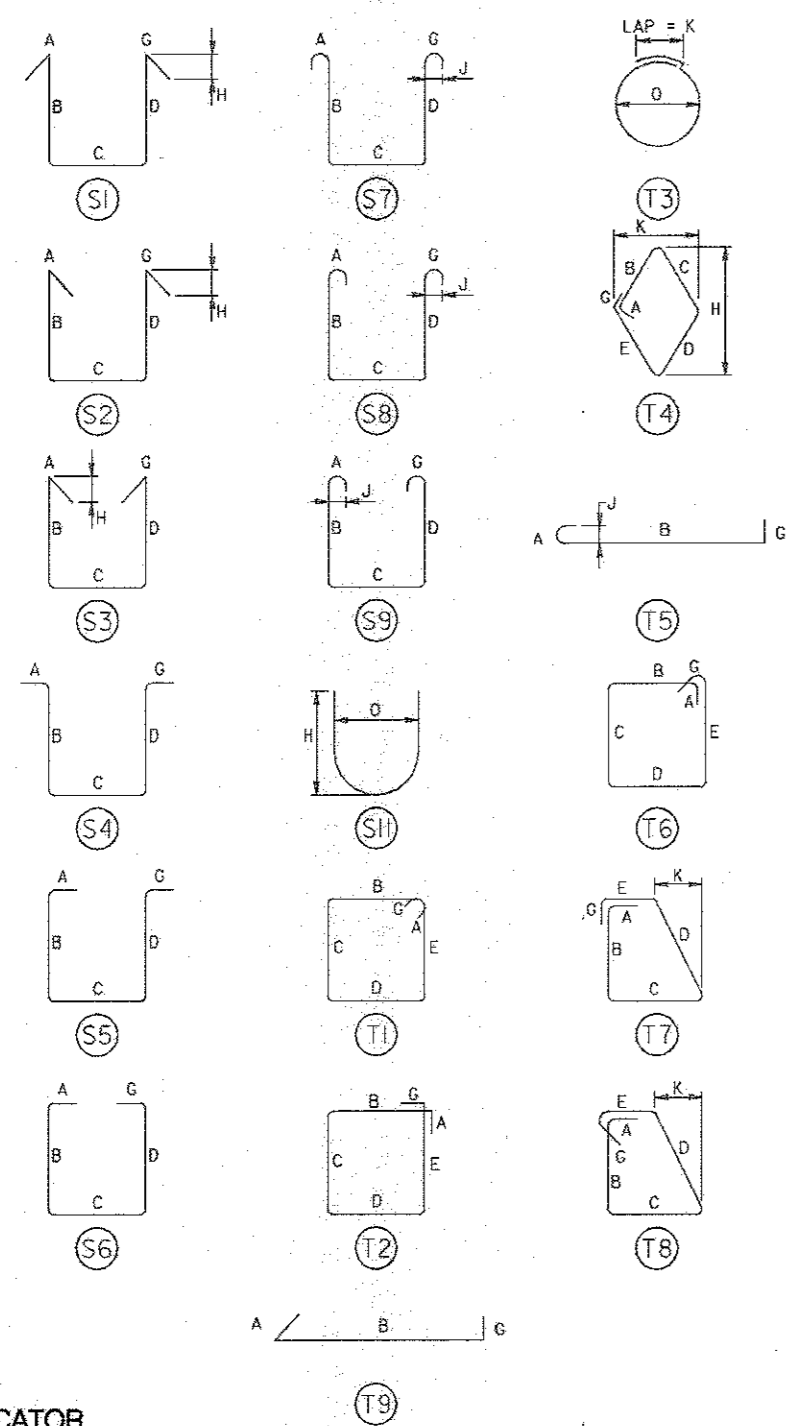
Scale: AS SHOWN

Date: 1/17/2017 Sheet 73 of 76

Des: KMS Drawn: KMS Check: CES

ACI TYPICAL BAR BENDS

TIES AND STIRRUPS

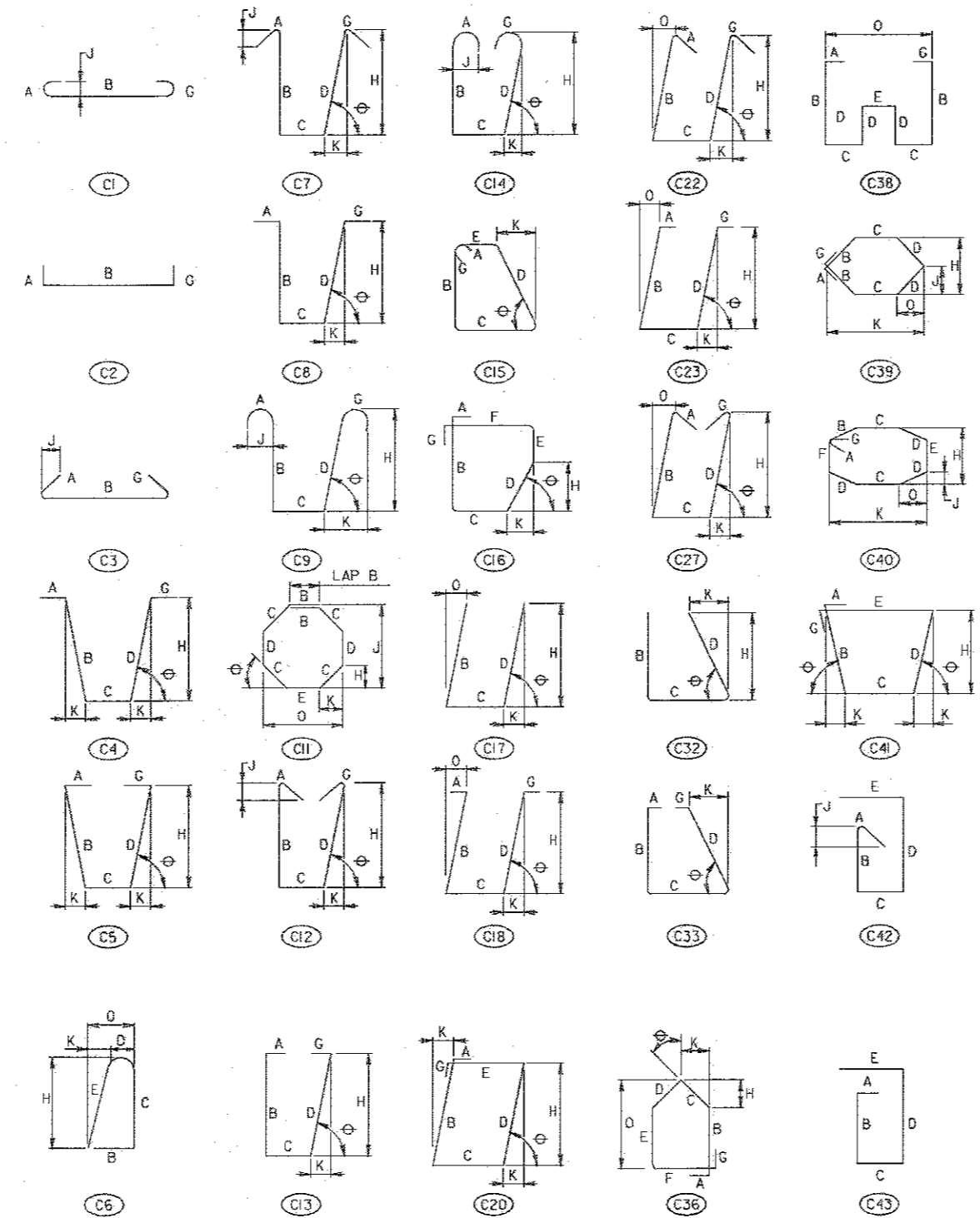


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES	
DATE: 2/10/14		BAR BEND TYPES ACI - TIES A	
REVISIONS		STANDARD NO. REBAR-BB-101	
SHA	FWMA	SHEET 3 OF 8	
		OLD NO. REBAR-BB(00)J-94-296	

SHA TYPICAL BAR BENDS

TIES AND STIRRUPS

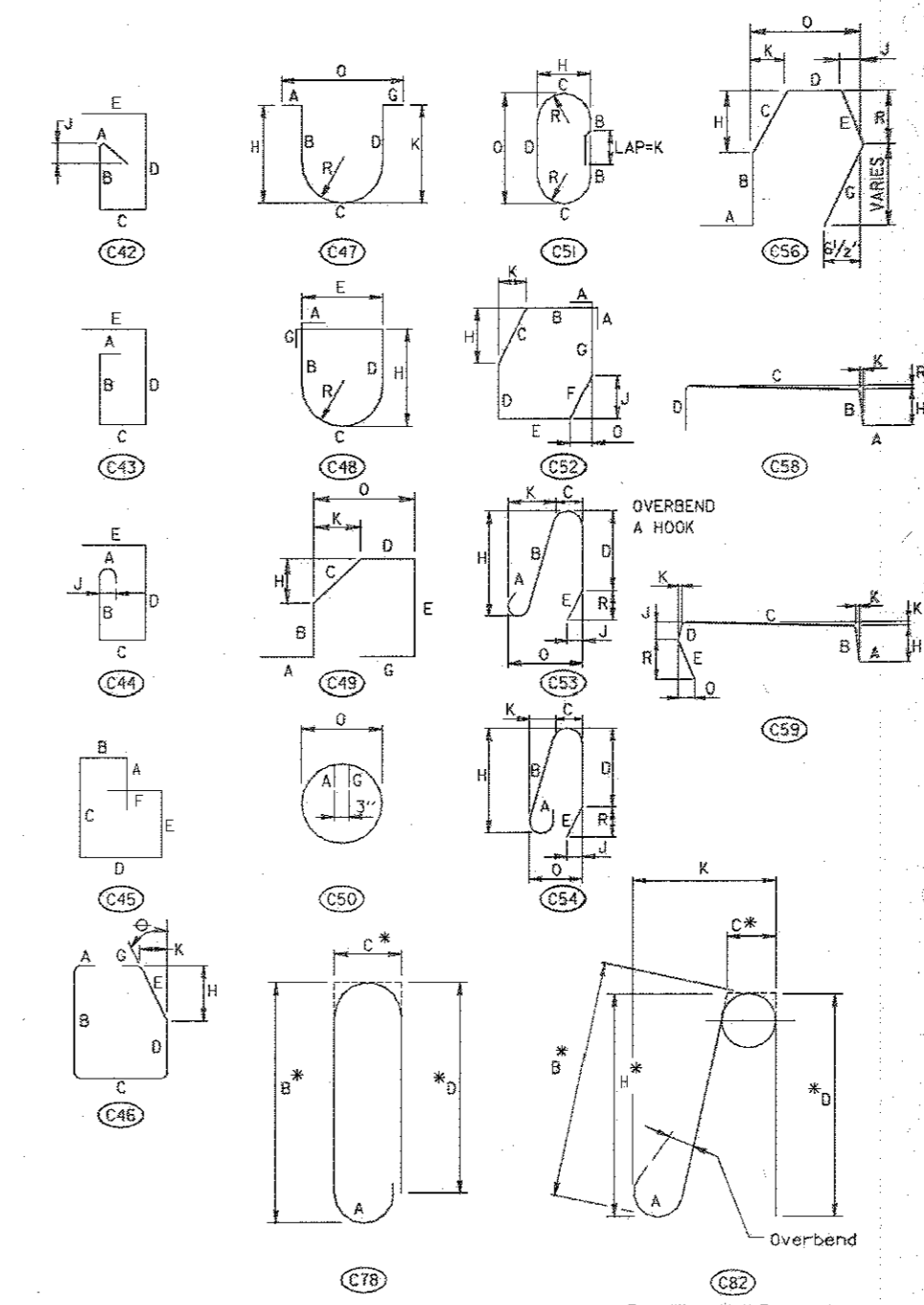


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES	
DATE: 2/10/14		BAR BEND TYPES SHA - TIES AND STIRRUPS	
REVISIONS		STANDARD NO. REBAR-BB-101	
SHA	FWMA	SHEET 4 OF 8	
		OLD NO. REBAR-BB(00)J-94-296	

SHA TYPICAL BAR BENDS

TIES AND STIRRUPS

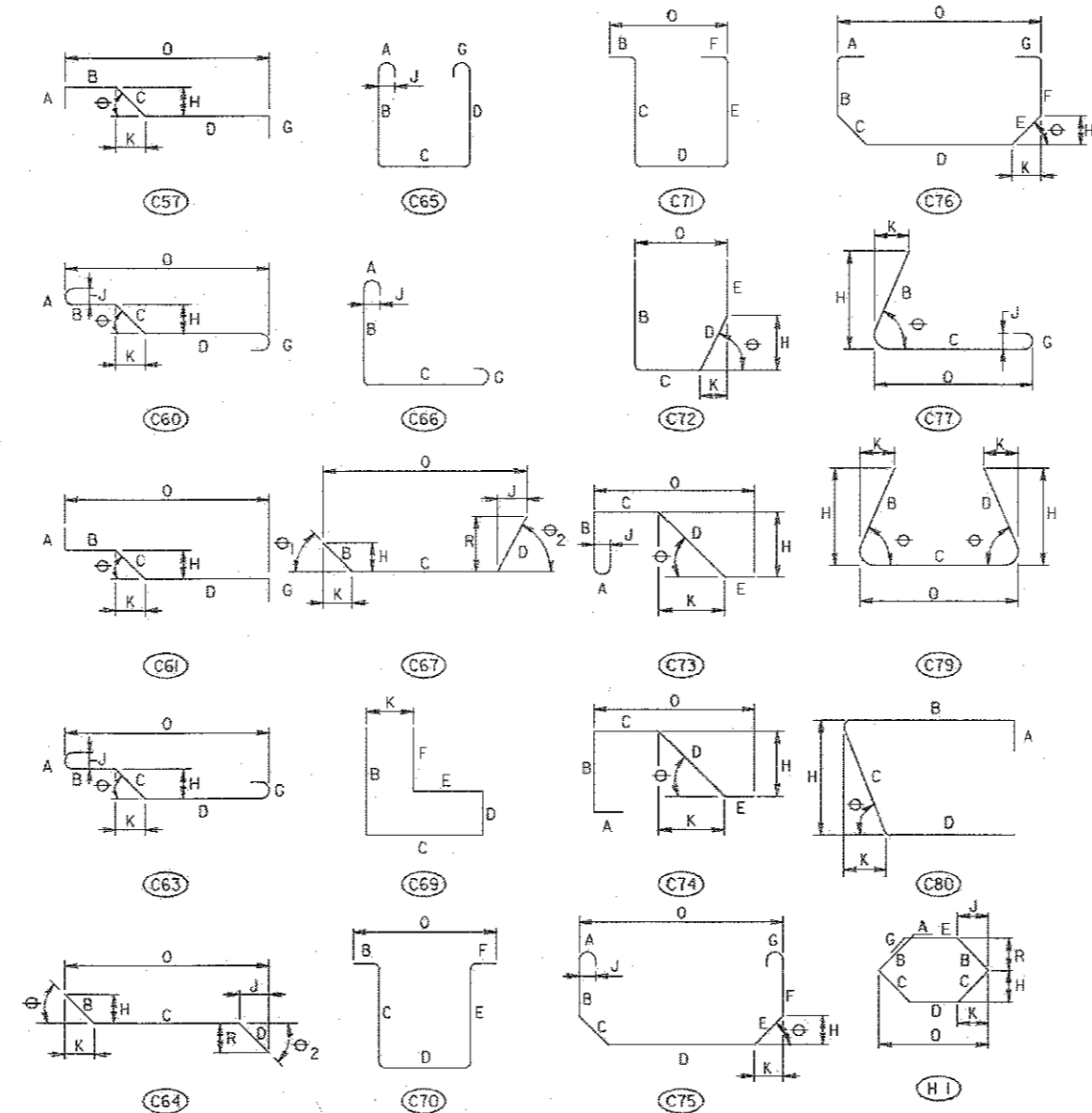


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES	
DATE: 2/10/14		BAR BEND TYPES SHA - TIES AND STIRRUPS	
REVISIONS		STANDARD NO. REBAR-BB-101	
SHA	FWMA	SHEET 5 OF 8	
		OLD NO. REBAR-BB(00)J-94-296	

SHA TYPICAL BAR BENDS

STANDARD PIN BENDING

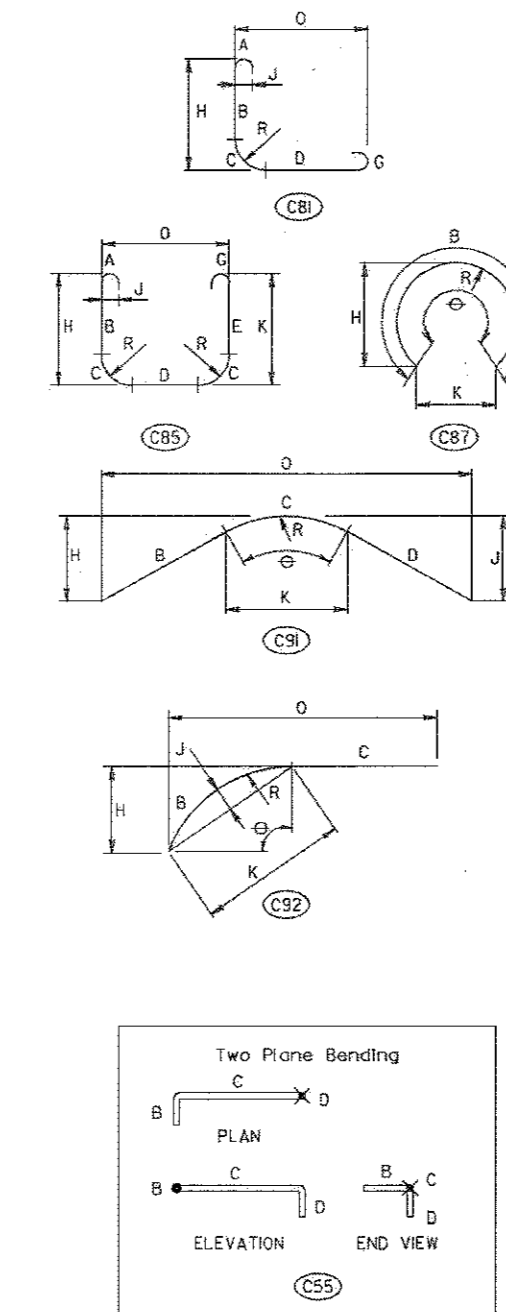


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES	
DATE: 2/10/14		BAR BEND TYPES SHA - STANDARD PIN BENDING	
REVISIONS		STANDARD NO. REBAR-BB-101	
SHA	FWMA	SHEET 6 OF 8	
		OLD NO. REBAR-BB(00)J-94-296	

SHA TYPICAL BAR BENDS

RADIUS BENDING



NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES	
DATE: 2/10/14		BAR BEND TYPES SHA - RADIUS BENDING	
REVISIONS		STANDARD NO. REBAR-BB-101	
SHA	FWMA	SHEET 7 OF 8	
		OLD NO. REBAR-BB(00)J-94-296	

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2.6.17
 DATE: 3.01.17

DATE: 3-19-17
 DATE

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3455 Fax: 410-243-5715

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

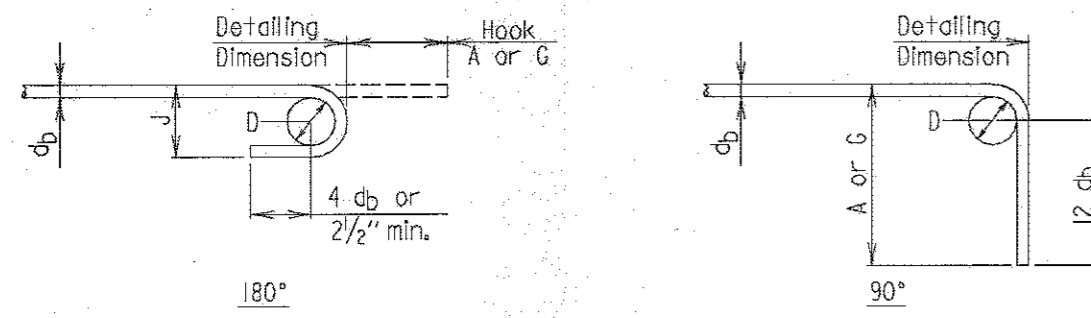
 PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 25833
 EXPIRATION DATE: 02/02/2017

BLANDAIR REGIONAL PARK - PHASE 3

STANDARD DETAILS- III
 Drawing No. **S1.08**
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 74 of 76
 Des: KMS Drawn: KMS Check: CES

**HOOKS
TABLE I
REFERENCES**

1. ACI Types I thru 26
2. SHA Standard Pin Bending
3. SHA Radius Bending



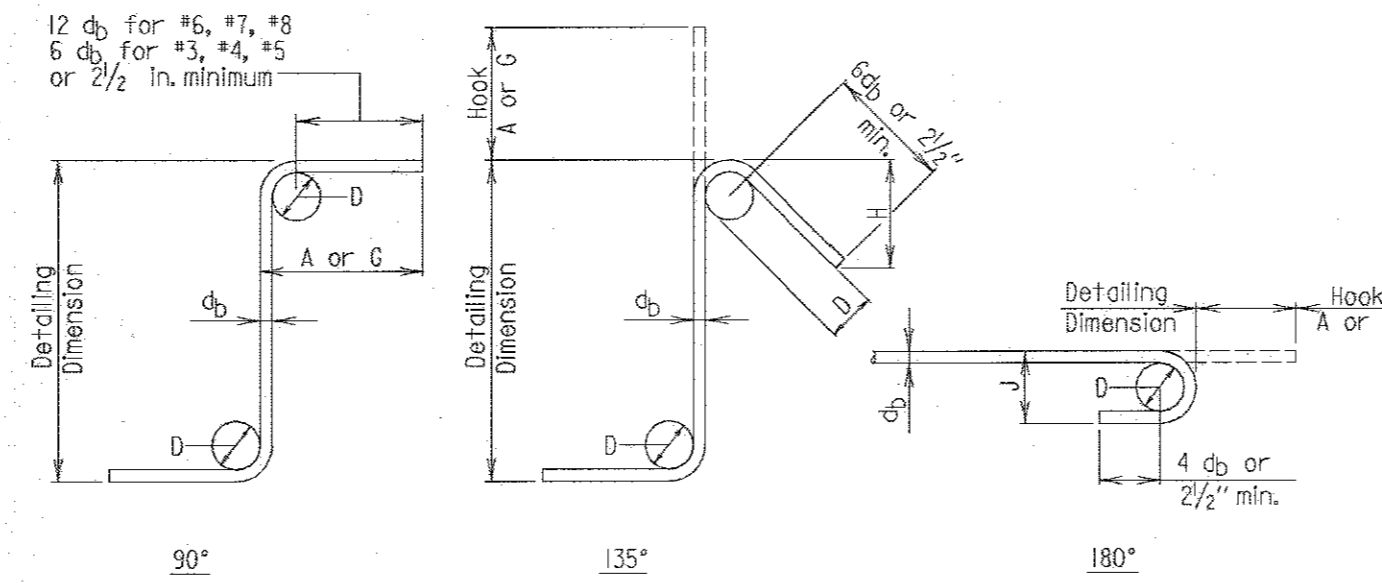
RECOMMENDED END HOOKS, ALL GRADES				
BAR SIZE	Finished bend diameter D, in.	180 - deg hook		90 - deg hook
		A or G in	J, in.	A or G in
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	1-0
#7	5 1/4	10	7	1-2
#8	6	11	8	1-4
#9	6 3/4	1-3	1 1/4	1-7
#10	10 1/4	1-5	1 1/4	1-10
#11	12	1-7	1-2 1/4	2-0
#14	18 1/4	2-3	1-3 1/4	2-7
#18	24	3-0	2-4 1/2	3-5

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 11/17/97	
REVISIONS	REINFORCING STEEL HOOK TABLES AND DIAGRAMS
SHA	FWHA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-102 SHEET 1 OF 2 OLD NO. REBAR-BD19,051-97-320

**HOOKS
TABLE II
REFERENCES**

1. ACI Types SI thru SII
 2. ACI Types TI thru T8
 3. SHA Ties and Stirrups
- (Note: Tie and stirrup types supplied in sizes #3-#8)

STIRRUP AND TIE HOOKS



STIRRUP AND TIE HOOK DIMENSIONS, in.				
BAR SIZE	D, in.	90 - deg hook		135 - deg hook
		A or G	A or G	H, approx
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 1/2
#6	3 1/2	1-0	1 1/4	4 1/2
#7	4 1/2	1-2	1 3/4	5 1/4
#8	6	1-4	10 1/4	6

RECOMMENDED END HOOKS, ALL GRADES			
BAR SIZE	Finished bend diameter D, in.	180 - deg hook	
		A or G in	J, in.
#3	2 1/4	5	3
#4	3	6	4
#5	3 3/4	7	5
#6	4 1/2	8	6
#7	5 1/4	10	7
#8	6	11	8

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 11/17/97	
REVISIONS	REINFORCING STEEL HOOK TABLES AND DIAGRAMS
SHA	FWHA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-102 SHEET 2 OF 2 OLD NO. REBAR-BD19,051-97-320

REVISIONS

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

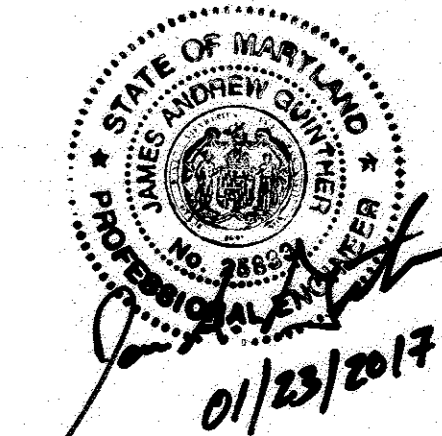
TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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. 25539
EXPIRATION DATE: 12/31/2017

BLANDAIR REGIONAL PARK - PHASE 3

STANDARD DETAILS- IV

Drawing No.

S1.09

Scale: AS SHOWN

Date: 1/17/2017 Sheet 75 of 76

Des: KMS Drawn: KMS Check: CES

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Clark
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-6-17

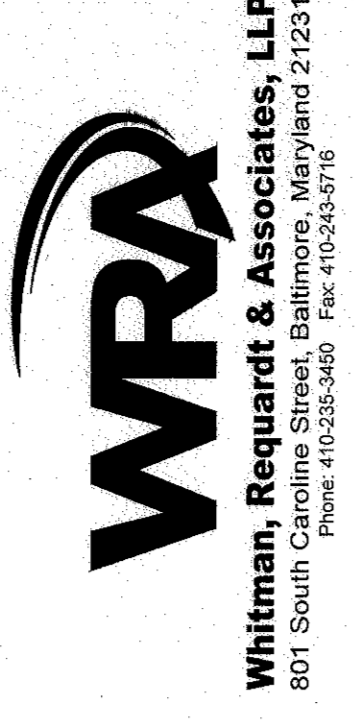
Kent Schubert
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 3-01-17

Nathan J. J. J.
DIRECTOR
DATE: 3-14-17

REVISIONS

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



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

ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES
 0 1 2 4
 SCALE: 1/2" = 1'-0"
 0 1 2 3
 SCALE: 3/4" = 1'-0"

SIGNATURE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS 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. 22888. EXPIRATION DATE: 02/28/18.

BLANDAIR REGIONAL PARK - PHASE 3

SITE STRUCTURES
 PLAN AND SECTION

Drawing No.
S5.1

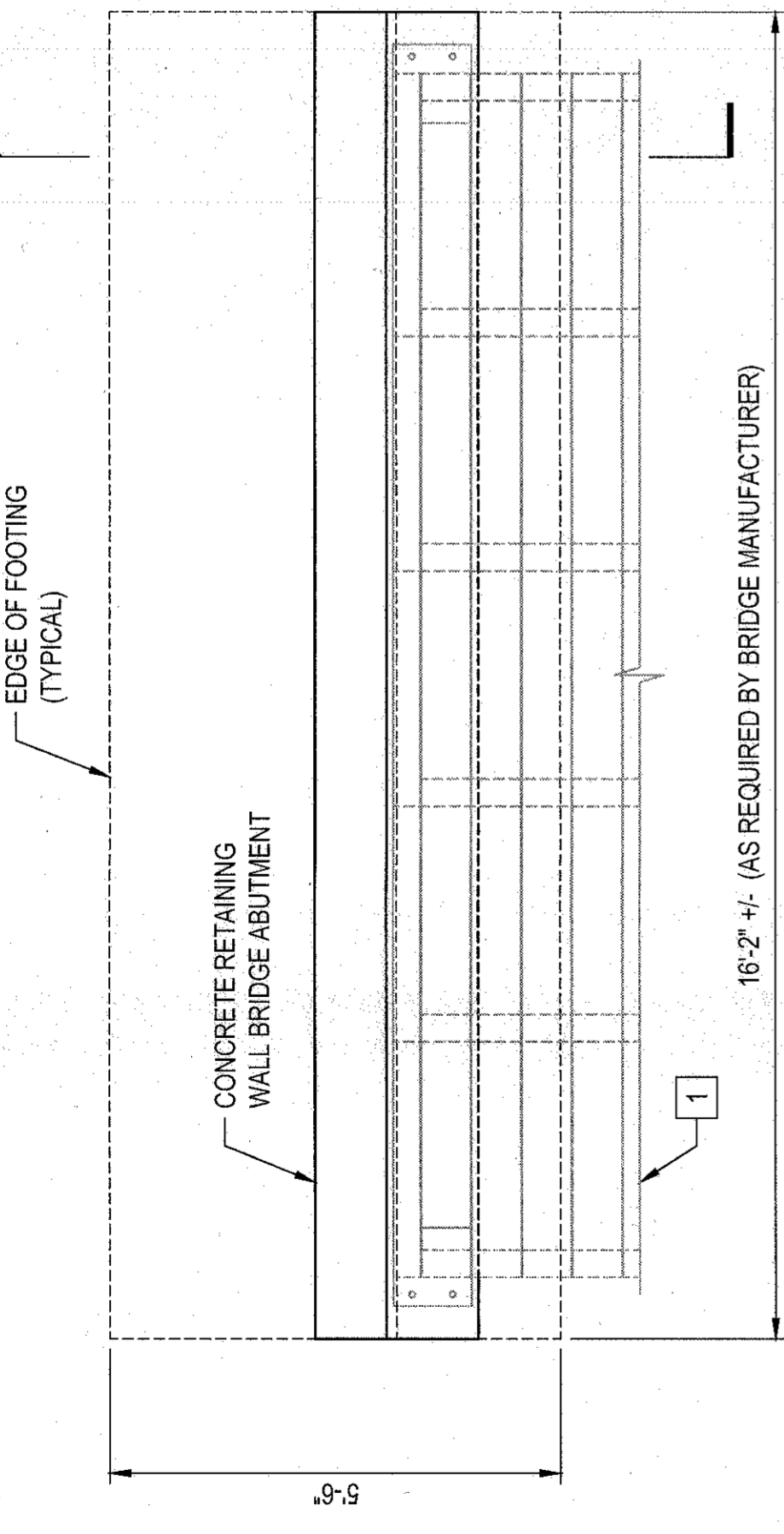
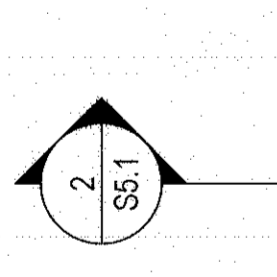
Scale: AS INDICATED
 Date: 1/17/2017
 Des: TDR
 Drawn: TDR
 Check: WC
 Sheet 76 of 76

SHEET NOTE:

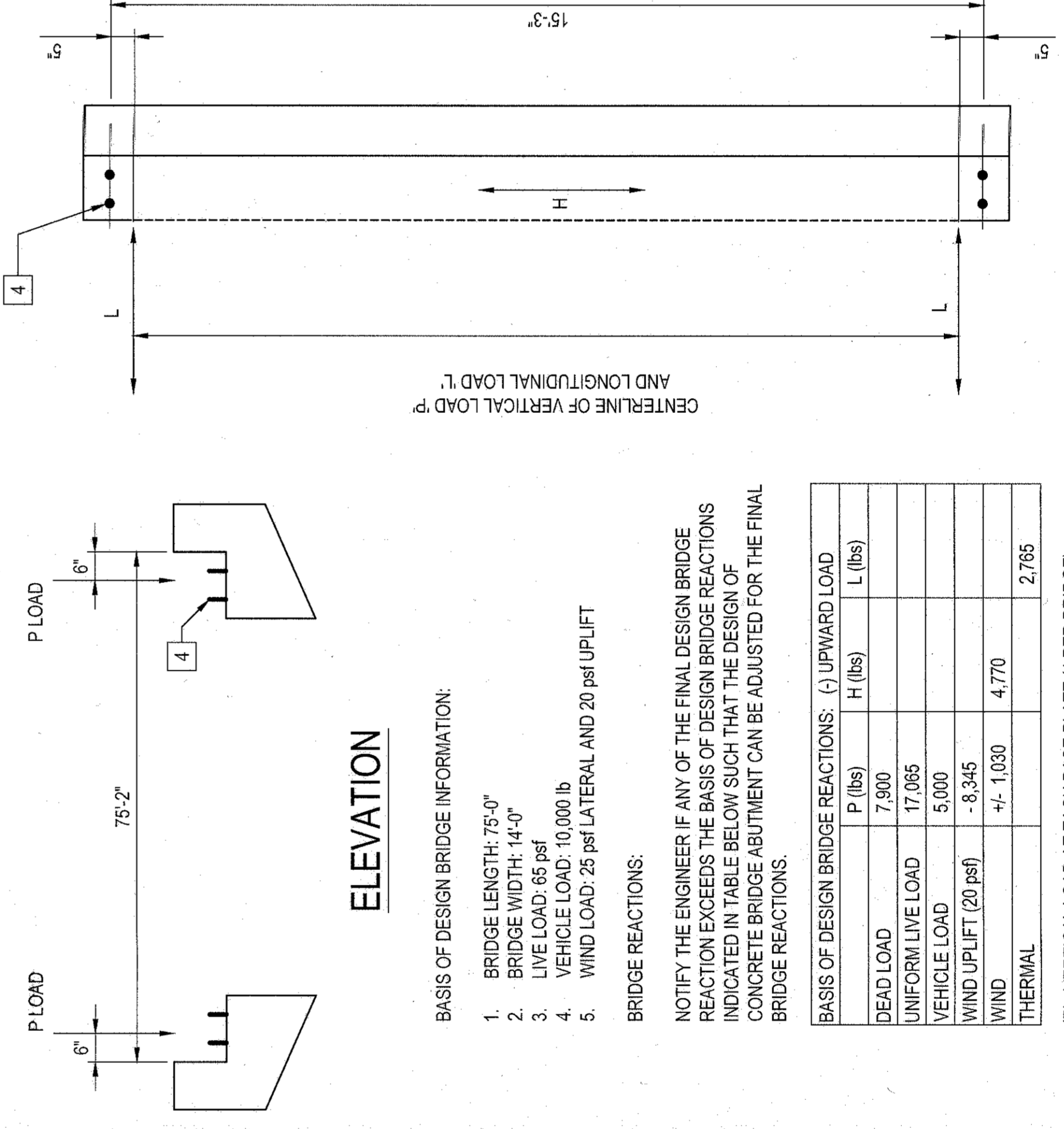
- REFER TO CIVIL DRAWINGS C1.28 FOR PRE-FABRICATED BRIDGE LOCATION AND C4.3A FOR PRE-FABRICATED BRIDGE PROFILES, ELEVATION, AND DETAILS.
- REFER TO DRAWING S0.1 - S0.5 FOR STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS
- THE PRE-FABRICATED PEDESTRIAN BRIDGE SHALL BE DESIGNED UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRACTICES AND APPLICABLE BUILDING CODES. THE SUBMITTAL DRAWINGS AND STRUCTURAL CALCULATIONS MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER WHO IS LICENSED IN THE STATE OF MARYLAND.

SHEET KEYNOTES:

- PROVIDE PRE-ENGINEER / PRE-FABRICATED PEDESTRIAN BRIDGE.
- COORDINATE DIMENSION WITH BRIDGE MANUFACTURER.
- APPROXIMATE FINISHED GRADE. SLOPES DOWN TO STREAM.
- PROVIDE ANCHOR BOLTS. COORDINATE THE DESIGN OF BRIDGE ANCHOR BOLTS WITH BRIDGE MANUFACTURER.



1 BRIDGE ABUTMENT PLAN (2 LOCATIONS)
 SCALE: 1/2"=1'-0"



ELEVATION

BASIS OF DESIGN BRIDGE INFORMATION:

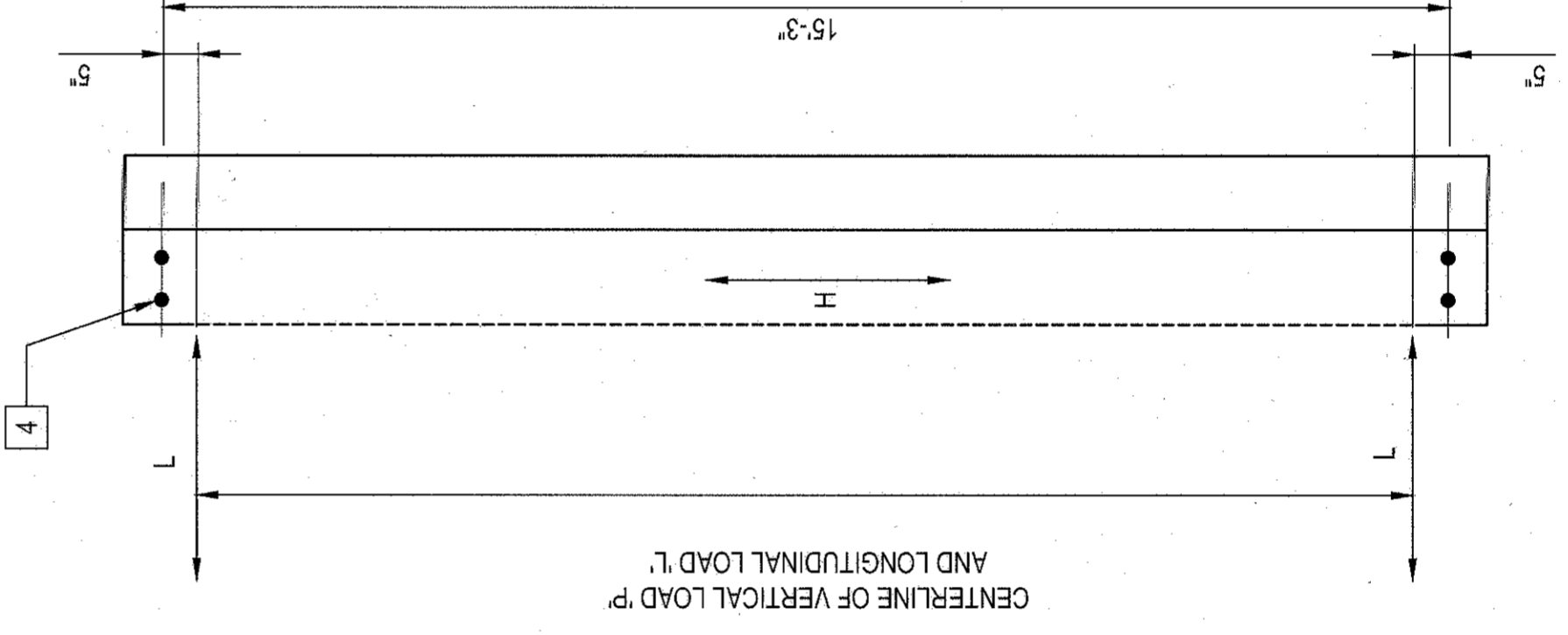
- BRIDGE LENGTH: 75'-0"
- BRIDGE WIDTH: 14'-0"
- LIVE LOAD: 65 psf
- VEHICLE LOAD: 10,000 lb
- WIND LOAD: 25 psf LATERAL AND 20 psf UPLIFT

BRIDGE REACTIONS:

NOTIFY THE ENGINEER IF ANY OF THE FINAL DESIGN BRIDGE REACTION EXCEEDS THE BASIS OF DESIGN BRIDGE REACTIONS INDICATED IN TABLE BELOW SUCH THAT THE DESIGN OF CONCRETE BRIDGE ABUTMENT CAN BE ADJUSTED FOR THE FINAL BRIDGE REACTIONS.

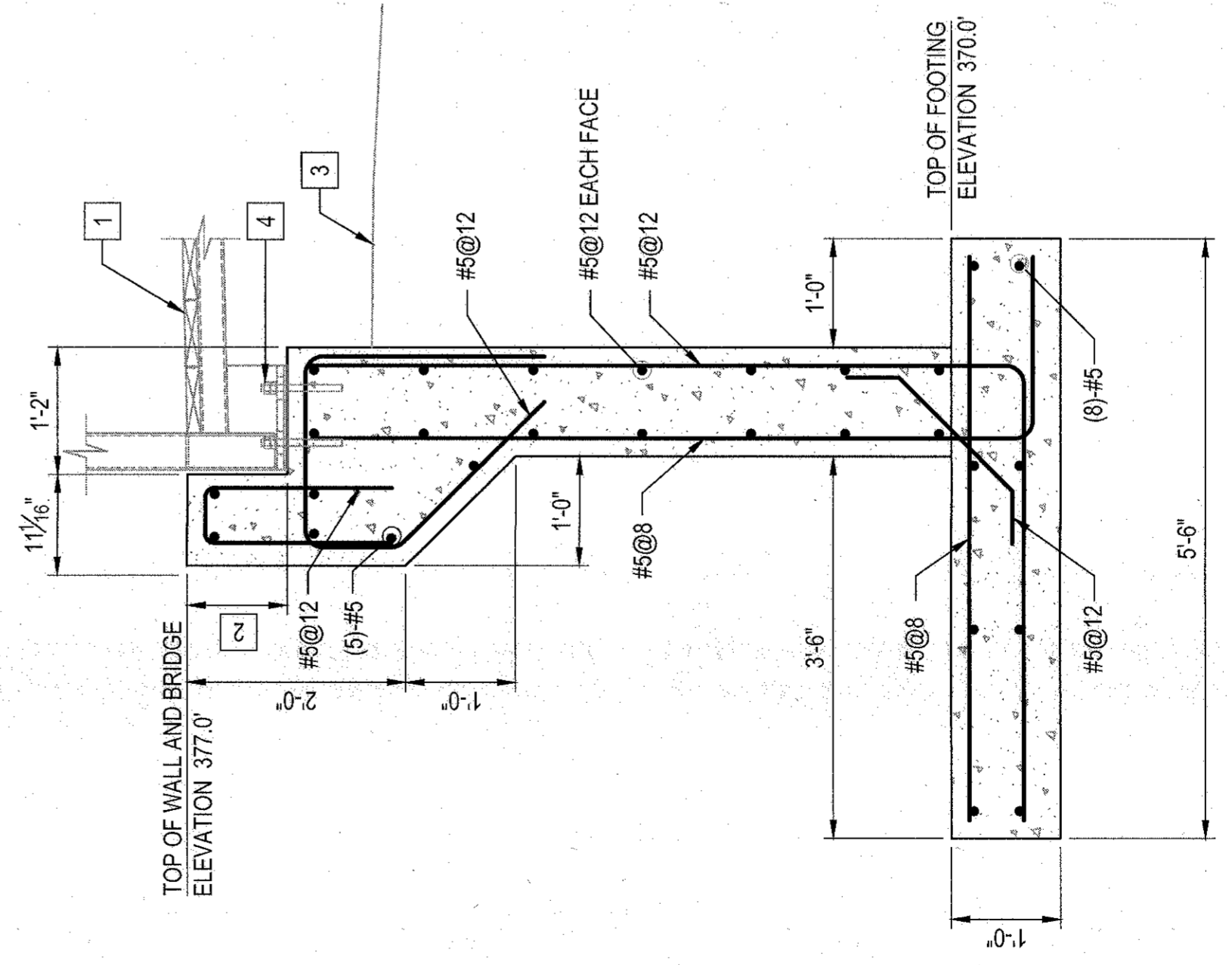
BASIS OF DESIGN BRIDGE REACTIONS: (-) UPWARD LOAD		
	P (lbs)	H (lbs)
DEAD LOAD	7,900	L (lbs)
UNIFORM LIVE LOAD	17,065	
VEHICLE LOAD	5,000	
WIND UPLIFT (20 psf)	- 8,345	
WIND THERMAL	+/- 1,030	4,770
		2,765

P - VERTICAL LOAD AT EACH BASE PLATE (4 PER BRIDGE)
 H - HORIZONTAL LOAD AT EACH FOOTING (2 PER BRIDGE)
 L - LONGITUDINAL LOAD AT EACH BEARING (4 PER BRIDGE)



PLAN

3 BRIDGE DESIGN LOADS
 SCALE: NONE



2 SECTION
 SCALE: 3/4"=1'-0"
 REF: S5.1

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2.6.17
 DATE: 3.01.17
 DATE: 3.01.17